**Instream Flow Council – Instream flow and stream ecology literature**

Aadland, Luther P. 1993. Stream habitat types: their fish assemblages and relationship to flow. North American Journal of Fisheries Management 13 (4): 790-805.

Aadland, L.P., C.M. Cook, M.T. Negus, H.G. Drewes, and C.S. Anderson. 1991. Microhabitat preferences of selected stream fishes and a community-oriented approach to instream flow assessments. Section of Fisheries, Minnesota Department of Natural Resources, St. Paul, MN.

Aadland, L., and A. Kuitunen. 2006. Habitat suitability criteria for stream fishes and mussels of Minnesota. Minnesota Department of Natural Resources, Special Publication 162, St. Paul.

Aadland, L., C. Waltner, M.T. Negus, H.G. Drewes, and C.S. Anderson. 1989. Microhabitat criteria for selected stream fishes and methodological considerations for instream flow studies in Minnesota. Minnesota Department of Natural Resources, Section of Fisheries Technical Report 1987-1989: report to the Legislative Commission on Minnesota Resources, St. Paul.

Aarestrup, K., C. Nielsen, and A. Koed. 2002. Net ground speed of downstream migrating radio-tagged Atlantic salmon (*Salmo salar* L.) smolts in relation to environmental factors. Hydrobiologia 483: 95-102.

Aarts, B.G.W., F.W.B. Van den Brink, and P.H. Nienhuis. 2004. Habitat loss as the main cause of the slow recovery of fish faunas of regulated large rivers in Europe: the transversal floodplain gradient. River Research and Applications 20 (1): 3-23. Doi:10.1002/rra.720.

Aarts, G., J. Fieberg, S. Brasseur, and J. Matthiopoulos. 2013. Qualntifying the effect of habitat availability on species distributions. Journal of Animal Ecology 82: 1135-1145.

Aarts, G., M. MacKenzie, B. McConnell, M. Fedak, and J. Matthiopoulos. 2008. Estimating space-use and habitat preferences from wildlife telemetry data. Ecography 31: 140-160.

Aass, P., P.S. Nielsen, and A. Braband. 1989. Effect of river regulation on the structure of a fast-growing brown trout (*Salmo trutta*) population. Regulated Rivers: Research and Management 3: 256-266.

Abatzoglou, J.T., R. Barbero, J.W. Wolf, and Z. Holden. 2014. Tracking interannual streamflow variability with drought indices in the U.S. Pacific Northwest. J. Hydrometeor. 15: 1900-1912. Doi: 10.1175/JHM-D-13-0167.1.

Abbaspour, M., and A. Nazaridoust. 2007. Determination of environmental water requirements of Lake Urmia, Iran: an ecological approach. Int. J. Environ. Stud. 64: 161-169.

Abbe, T.B., and D.R. Montgomery. 1996. Large woody debris jams, channel hydraulics and habitat formation in large rivers. Regulated Rivers 12: 201-221.

Abe, T., and F. Nakamura. 1999. Effects of experimental removal of woody debris on channel morphology and fish habitats. Ecol. Civil. Eng. 2: 179-190. [in Japanese with English abstract]

Achord, S., P.S. Levin, and R.W. Zabel. 2003. Density dependent mortality in Pacific salmon: the ghost of impacts past? Ecology Letters 6: 335-342.

Ackerman, J.D. 1999. Effect if velocity on the filter feeding of dreissenid mussels (*Dreissena* *polymorpha* and *Dreissena bugensis*): implications for trophic dynamics. Can. J. Fish. Aquat. Sci. 56: 1551-151.

Acosta, C.A., and S.A. Perry. 2001. Impact of hydropattern disturbance on crayfish population dynamics in the seasonal wetlands of Everglades National Park, USA. Aquatic Conservation – Marine and Freshwater Ecosystems 11: 45-57.

Acreman, M.C. 1998. Principles of water management for people and the environment. Pages 25-48 in: A. deShirbinin and V. Dompka, editors, Water and Population Dynamics. American Association for the Advancement of Science, New York.

Acreman, M.C. 2005. Linking science and decision-making: features and experience from environmental river flow-setting. Environmental Modelling and Software 20: 99-109. Doi: 10.1016/j.envsoft.2003.08.019

Acreman, M. 2016. Environmental flows – basics for novices. WIREs Water 3: 622-628. Doi: 10.1002/wat2.1160.

Acreman, M.C., B. Adams, B. Birchall, and B. Connorton. 2000. Does groundwater abstraction cause degradation of rivers and wetlands? Journal of the Chartered Institution of Water and Environmental Management 14 (3): 200-206.

Acreman, M., J. Aldrick, C. Binnie, A.R. Black, I. Cowx, F.H. Dawson, M.J. Dunbar, C. Extence, J. Hannaford, A. Harby, N.T. Holmes, N. Jarrett, G. Old, G. Pierson, J. Webb, and P.J. Wood. 2009. Environmental flows from dams: the Water Framework Directive. Proc. ICE Eng. Sustain. 2: 13-22.

Acreman, M., A.H. Arthington, M.J. Colloff, C, Couch, N.D. Crossman, F. Dyer, I. Overton, C.A. Pollino, M.J. Stewardson, and W. Young. 2014. Environmental flows for natural, hybrid, and novel riverine ecosystems in a changing world. Frontiers in Ecology and the Environment 12 (8): 466-473. Doi: 10.1890/130134

Acreman, M., and M.J. Dunbar. 2004. Defining environmental river flow requirements: a review. Hydrology and Earth System Sciences 8 (5): 861-876.

Acreman, M., M. Dunbar, J. Hannaford, O. Mountford, P. Wood, N. Holmes, I. Cowx, R. Noble, C. Extence, J. Aldrick, J. King, A. Black, and D. Crookal. 2008. Developing environmental standards for abstractions from UK rivers to implement the EU Water Framework Directive. Hydrological Sciences Journal 53: 1105-1120.

Acreman, M.C., F. Farquharson, M.P. McCartney, C.A. Sullivan, K. Campbell, N. Hodgson, J. Morton, D. Smith, M. Birley, D. Knott, J. Lazenby, R. Wingfield, and E. Barber. 2000. Managed flood releases from reservoirs: issues and guidance. Centre for Ecology and Hydrology, Department of International Development, and World Commission on Dams. Wallingford, UK.

Acreman, M.C., and A.J. D. Ferguson. 2010. Environmental flows and the European Water Framework Directive. Freshwater Biology 55 (1): 32-48. Doi: 10.1111/j.1365-2427.2009.02181.x.

Acreman, M., I. Overton, J. King, P. Wood, M. Dunbar, E. Kendy, and W. Young. 2014. The changing role of eco-hydrological science in guiding environmental flows. Hydrological Sciences Journal 59: 433-450. Doi: 10.1080/02626667.2014.886019

Acreman, M.C., R. Riddington, and D.J. Booker. 2003. Hydrological impacts of floodplain restoration: a case study of the River Cherwell, UK. Hydrology and Earth Systems Science 7 (1): 75-85. Doi: 10.5194/hess-7-75-2003.

Acuna, V., T. Datry, J. Marshall, D. Barcelo, C.N. Dahm, A. Ginebreda, G. McGregor, S. Sabater, K. Tockner, and M.A. Palmer. 2014. Why should we care about temporary waterways? Science 343 (6175): 1080-1081. Doi: 10.1126/science.1246666.

Acuna, V., A. Giorgi, I. Munoz, F, Sabater, and S, Sabater. 2007. Meteorological and riparian influences on organic matter dynamics in a forested Mediterranean stream. Journal of the North American Benthological Society 26: 54-69.

Acuna, V., A. Giorgi, I. Munoz, U, Uehlinger, and S, Sabater. 2004. Flow extremes and benthic organic matter shape the metabolism of a headwater Mediterranean stream. Freshwater Biology 49: 960-971. Doi: 10.1111/j.1365-2427.2004.01239.x

Acuna, V., I. Munoz, A. Giorgi, M. Omella, F. Sabater, and S. Sabater. 2005. Drought and postdrought recovery cycles in an intermittent Mediterranean stream: structural and functional aspects. Journal of the North American Benthological Society 24: 919-939.

Adam, J.C., A.F. Hamlet, and D.P. Lettenmaier. 2009. Implications of global climate change for snowmelt hydrology in the 21st century. Hydrol. Processes 23: 962-972. Doi: 10.1002/hyp.7201

Adams, I.E., J.R. Lund, P.B. Moyle, R.M. Quinones, J.D. Herman, and T.A. O’Rear. Environmental hedging: theor and method for reconciling reservoir operations for downstream ecology and water supply. Water Resour. Res. 53: 7816-7831.

Adams, J.B., G.C. Bate, T.D. Harrison, P. Huizinga, S. Taljaard, L. van Niekerk, E.E. Plumstead, A.K. Whitfield, and T.H. Wooldridge. 2002. A method to assess the freshwater inflow requirements of estuaries and application to the Mtata Estuary, South Africa. Estuaries 25 (6B): 1382-1393.

Adams, J.B., W.T. Knoop, and G.C. Bate. 1992. The distribution of estuarine macrophytes in relation to freshwater. Botanica Marina 35: 69-75.

Adams, J.B. and M.M.B. Talbot. 1992. The influence of river impoundment on the estuarine seagrass *Zostera capensis* Setchall. Botanica Marina 35: 69-75.

Adams, K.N., and A.M. Fowler. 2006. Improving empirical relationships for predicting the effect of vegetation change on annual water yield. Journal of Hydrology 32: 90-115.

Adams, N.J., D.R. Barton, D.R. Cunjak, R.A. Power, and S.C. Riley. 1988. Diel patterns of activity and substrate preference in young arctic char from the Koroc River, northern Quebec. Canadian Journal of Zoology 66: 2500-2502.

Adams, S.B., and M.L. Warren, Jr. 2005. Recolonization by warmwater fishes and crayfishes after severe drought in upper coastal plain hill streams. Transactions of the American Fisheries Society 134: 1173-1192.

Adams, S.B., M.L. Warren, Jr., and W.R. Haag. 2004. Spatial and temporal patterns of fish assemblages of upper coastal plain streams, Mississippi, USA. Hydrobiologia 528: 45-61.

Adams, S.R., J.J. Hoover, and K.J. Killgore. 1999. Swimming endurance of juvenile pallid sturgeon, *Scaphirhynchus albus*. Copeia 1999: 802-807.

Adams, S.R., J.J. Hoover, and K.J. Killgore. 2000. Swimming performance of the Topeka shiner (*Notropis topeka*) an endangered midwestern minnow. American Midland Naturalist 144: 178-186.

Adams, W.M. 1992. Wasting the Rain: Rivers, People, and Planning in Africa. Earthscan Publications, London.

Addley, C., G.K. Clipperton, T. Hardy, and A.G.H. Locke. 2003. South Saskatchewan River Basin, Alberta, Canada – Fish habitat suitability criteria (HSC) curves. Alberta Fish and Wildlife Division, Alberta Sustainable Resource Development, Edmonton, AB.

Addley, R.C. 1993. A mechanistic approach to modeling habitat needs of drift-feeding salmonids. Master’s thesis, Department of Civil and Environmental Engineering, Utah State University, Logan, Utah.

Aebischer, N.J., P.A. Robertson, and R.E. Kenward. 1993. Compositional analysis of habitat use from animal radio-tracking data. Ecology 74: 1313-1325.

Agostinho, A.A., L.C. Gomes, S. Verissimo, and E.K. Okada. 2004. Flood regime, dam regulation and fish in the Upper Parana River: effects on assemblage attributes, reproduction and recruitment. Reviews in Fish Biology and Fisheries 14: 11-19.

Agostinho, A.A., L.C. Gomes, and M. Zalewski. 2001. The importance of floodplains for the dynamics of fish communities of the upper river Parana. Ecohydrology & Hydrobiology 1: 209-217.

Aguilar, J.P. 2009. Historic changes of ecologically relevant hydrologic indices in unregulated Kansas streams. Doctoral dissertation. Kansas State University, Manhattan.

Ahearn, D.S., R.W. Sheibley, and R.A. Dahlgren. 2005. Effects of river regulation on water quality in the lower Mokelumne River, California. River Research and Applications 21: 651-670.

Ahearn, D.S., J.H.. Viers, J.F. Mount, and R.A. Dahlgren. 2006. Priming the productivity pump: flood pulse driven trends in suspended algal biomass distribution across a restored floodplain. Freshwater Biol. 51: 1417-1433.

Ahiablame, L., I. Chaubey, B. Engel, K. Cherkauer, and V. Merwade. 2013. Estimation of annual baseflow at ungauged sites in Indiana USA. Journal of Hydrology 476:13-27.

Ahmad, R., F.N. Scatena, and A. Gupta. 1993. Morphology and sedimentation in Caribbean montane streams: examples from Jamaica and Puerto Rico. Sedimentary Geology 85: 157-169.

Ahmadi-Nedushan, B., A. St. Hilaire, M. Berube, E. Robichaud, N. Thiemonge, and B. Bobee. 2006. A review of statistical methods for the evaluation of aquatic habitat suitability for instream flow assessment. River Research and Applications 22: 503-523. Doi: 10.1111/j.1365-2427.2009.02181.x.

Ahmadi-Nedushan, B., A. St. Hilaire, M. Berube, T.B.M.J. Ouarda, and E. Robichaud. 2008. Instream flow determination using a multiple input fuzzy-based rule system: A case study. River Research and Applications 24: 279-292.

Aho, J.M., Anderson, C.S., and Terrell, J.W. 1986. Habitat suitability index models and instream flow suitability curves: redbreast sunfish. Washington, D.C.: U.S. Fish and Wildlife Service (Biological Report 82 [10.119]).

Ainsworth, L.M., R. Routledge, and J. Cao. 2011. Functional data analysis in ecosystem research: the decline of Oweekeno Lake sockeye salmon and Wannock River flow. Journal of Agricultural, Biological and Environmental Statistics 16: 282-300. Doi10.1007/s13253-010-0049-z.

Alabaster, John S. 1970. River flow and upstream movement and catch of migratory salmonids. Journal of Fish Biology 2: 1-13.

Aladin, N.V., and W.D. Williams. 1993. Recent changes in the biota of the Aral Sea, Central Asia. Verhandlungen der Internationalen Vereinigun fur theoretische und angewundie Limnologie 25: 790-792.

Albanese, B., P.L. Angermeier, and S. Dorai-Raj. 2004. Ecological correlates of fish movement in a network of Virginia streams. Canadian Journal of Fisheries and Aquatic Sciences 61: 857-869.

Alborzi, A., A. Mirchi, H. Moftakhari, I. Mallakpour, S. Alian, A. Nazemi, E. Hassanzadeh, O. Masdiyasni, S. Ashraf, K. Madani, H. Norouzi, M. Azarderakhsh, A. Mehran, M. Sadegh, A. Castelletti, and A. AghaKouchak. 2018. Climate-informed environmental inflows to revive a drying lake facing meteorological and anthropogenic droughts. Environmental Research Letters 13 (8): 084010. Doi: 10.1088/1748-9326/aad246

Alber, M. 2002. A conceptual model of estuarine freshwater inflow management. Estuaries 25 (6B): 1246-1261.

Alber, M., and J.E. Sheldon. 1999. Use of a date-specific method to examine variability in the flushing times of Georgia estuaries. Estuaries, Coastal and Shelf Science 49: 469-482.

Albertson, L.K., and D.C. Allen. 2015. Meta-analysis: abundance, behavior, and hydraulic energy shape biotic effects on sidement transport in streams. Ecology 96 (5): 1329-1339.

Albertson, P.N., and L.J. Torak. 2002. Simulated effects of ground-water pumpage on stream-aquifer flow in the vicinity of federally protected species of freshwater mussels in the lower Apalachicola-Chattahoochee-Flint River Basin (Subarea 4), southeastern Alabama, northwestern Florida, and southwestern Georgia. U.S. Geological Survey Water Investigations Report 02-4016.

Alcamo, J., P. Doell, T. Henrichs, F. Kaspar, B. Lehner, T. Roesch, and S. Siebert. 2003. Global estimates of water withdrawals and availability under current and future “business-as-usual” conditions. Hydrological Sciences Journal 48: 339-348.

Alcamo, J., M. Florke, and M. Marker. 2007. Future long-term changes in global water resources driven by socio-economic and climatic changes. Hydrological Sciences Journal 52: 247-275.

Alcamo, J., C. Vorosmarty, R.J. Naiman, D. Lettenmaier, and C. Pahl-Wostl. 2008. A grand challenge for freshwater research: understanding the global water system. Environmental Research Letters 3: 1-6.

Alcazar, J., and A. Palau. 2010. Establishing environmental flow regimes in a Mediterranean watershed based on a regional classification. Journal of Hydrology 388: 41-51.

Al-Chokhachy, R., and P. Budy. 2007. Summer microhabitat use of fluvial bull trout in eastern Oregon streams. North American Journal of Fisheries Management 27 (4): 1068-1081.

Al-Chokhachy, R., and B.B. Roper. 2010. Different approaches to habitat surveys can impact fisheries management and conservation decisions. Fisheries 35 (10): 476-488.

Al-Chokhachy, R., B.B. Roper, and E.K. Archer. 2010. Evaluating the status and trends of physical stream habitat in headwater streams within the interior Columbia River and upper Missouri River basins using an index approach. Transactions of the American Fisheries Society 139 (4): 1041-1059. Doi: 10:1577/T08-221.1.

Al-Chokhachy, R., B.B. Roper, T. Bowerman, and P. Budy. 2010. A review of bull trout habitat associations and exploratory analyses of patterns across the interior Columbia River basin. North American Journal of Fisheries Management 30 (2): 464-480. Doi:10.1577/M09-034.1.

Al-Chokhachy, R., A.J. Sepulveda, A.M. R Al-Chokhachy, R.,ay, D.P. Thoma, and M.T. Tercek. 2017. Evaluating species-specific changes in hydrologic regimes: an iterative approach for salmonids in the Greater Yellowstone Area (USA). Reviews in Fish Biology and Fisheries 27: 425-441.

Aleem, A.A. 1972. Effect of river outflow management on marine life. Marine Biology 15: 200-208.

Alexander, C.A.D., C.N. Peters, D.R. Marmorek, and P. Higgins. 2006. A decision analysis of flow management experiments for Columbia River mountain whitefish (*Prosopium williamsoni*) management. Canadian Journal of Fisheries and Aquatic Sciences 63 (5): 1142-1156.

Alexander, H.D., and K.H. Dunton. 2002. Freshwater inundation effects on emergent vegetation of a hypersaline salt marsh. Estuaries 25 (6B): 1426-1435.

Alexander, J.S., R.B. Zelt, and N.J. Schaepe. 2010. Hydrogeomorphic and hydraulic habitats of the Niobrara River, Nebraska – with special emphasis on the Niobrara National Scenic River. U.S. Geological Survey Scientific Investigations Report 2010-5141. 62 pp.

Alexander, R.B., E.W. Boyer, R.A. Smith, and G.E. Schwarz. 2007. The role of headwater streams in downstream water quality. Journal of the American Water Resources Association 43: 41-59.

Alexander, R.B., R.A. Smith, and G.E. Schwarz. 2000. Effects of stream channel size on the delivery of nitrogen to the Gulf of Mexico. Nature 403:758-761.

Alexiades, A.V., M.M. Peacock, and R. Al-Chokhachy. 2012. Movement patterns, habitat use, and survival of Lahontan cutthroat trout in the Truckee River. North American Journal of Fisheries Management 32 (5): 974-983. Doi: 10.1080/02755947.2012.711272.

Alford, J.B., and M.R. Walker. 2013. Managing the flood pulse for optimal fisheries production in the Atchafalaya River basin, Louisiana (USA). River Research and Applications 29: 279-296.

Alfredsen, K. 1997. A modelling system for estimation of impacts on fish habitat. Page 6 in: 27th International Association for Hydraulic Research Congress: Water for a changing society. IAHR, San Francisco. Pp. 883-889.

Alfredsen, K., P. Borsanyi, A. Harby, H.-P. Fjeldstad, and S.-E. Wersland. 2004. Application of habitat modelling in river rehabilitation and artificial habitat design. Hydroecologie Appliquee 14 (1): 105-117.

Alfredsen, K., A. Harby, T. Linnansaari, and O. Ugedal. 2012. Development of an inflow-controlled environmental flow regime for a Norwegian river. River Res. Appl. 28: 731-739.

Alfredsen, K., W. Marchand, T.H. Bakken, and A. Harby. 1997. Application and comparison of computer models quantifying impacts of river regulation on fish habitat. *In*: Brodh, E., D.K. Lysne, N. Flatabo, and E. Helland-Hansen, eds. Proceedings of the 3rd international conference hydropower ‘97 - Trondheim/Norway 30 June-2 July 1997. A.A. Balkema Publishers, Rotterdam/Brookfield.

Alfredsen, K., and Tesaker. 2002. Winter habitat assessment strategies and incorporation of winter habitat in the Norwegian habitat assessment tools. Hydrological Processes 16 (4): 927-936. Doi:10.1002/hyp.364

Ali, A.B., and B.A. Kadir. 1996. The reproductive biology of the cyprinid, *Thymnichthys thymnoides* (Bleeker), in the Chenderoh Reservoir, a small tropical reservoir in Malaysia. Hydrobiologia 318: 139-151.

Alila, Y., P.K. Kuras, M. Schnorbus, and R. Hudson. 2009. Forests and floods: a new paradigm sheds light on age-old controversies. Water Resources Research 45. Doi: 10.1029/2008wr007207

Alkins-Koo, M. 2000. Reproductive timing of fishes in a tropical intermittent stream. Environmental Biology of Fishes 57: 49-66.

Allan, C.A., and R.J. Watts. 2017. Revealing adaptive management of environmental flows. Environ. Manage. Doi: 10.1007/s00267-017-0931-3.

Allan, D.C., and C.C. Vaughn. 2010. Complex hydraulic and substrate variables limit freshwater mussel species richness and abundance. Journal of the North American Benthological Society 29: 383-394.

Allan, J.D. 1981. Determinants of diet of brook trout (*Salvelinus fontinalis*) in a mountain stream. Canadian Journal of Fisheries and Aquatic Sciences 38 (2): 184-192. Doi:10.1139/f81-024.

Allan, J.D. 1995. Stream ecology: structure and function of running waters. Kluwer Academic Publishers, Dordrecht, The Netherlands.

Allan, J.D. 2004. Landscapes and riverscapes: the influence of land use on stream ecosystems. Annual Review of Ecology, Evolution, and Systematics 35: 257-284. Doi: 10.1146/annure.ecolosys.35.120202.110122

Allan, J.D., and M.M. Castillo. 2007. Stream Ecology. Springer, Dordrecht, Netherlands.

Allan, J.D., D.L. Erickson, and J. Fay. 1997. The influence of catchment land use on stream integrity across multiple spatial scales. Freshwater Biology 37: 149-162.

Allan, J.D., and B.P. Feifarek. 1989. Distances traveled by drifting mayfly nymphs: factors influencing return to the substrate. Journal of the North American Benthological Society 8: 322-330.

Allanson, B.R., and G.H.L. Read. 1995. Further comment on the response of Eastern Cape Province estuaries to variable freshwater inflows. Southern African Journal of Aquatic Science 21: 56-70.

Alldredge, B., and G. Moore. 2012. Assessment of riparian vegetation sensitivity to river hydrology downstream of a major Texas reservoir. River Research and Applications doi: 10.1002/rra.2625

Allee, B.A. 1974. Spatial requirements and behavioral interactions of juvenile coho salmon (*Oncorhynchus kisutch*) and steelhead trout (*Salmo gairdneri*). Doctoral dissertation, University of Washington, Seattle.

Allen, C.D., and D.D. Breshears. 1998. Drought-induced shift of a forest-woodland ecotone: rapid landscape response to climate variation. Proceedings of the National Academy of Sciences 95: 14839-14842.

Allen, D.C., H.S. Galbraith, C.C. Vaughn, and D.F. Spooner. 2013. A tale of two rivers: implications of water management practices for mussel biodiversity outcomes during drought. Ambio 42: 881-891.

Allen, D.C., and C.C. Vaughn. 2010. Complex hydraulic and substrate variables limit freshwater mussel species richness and abundance. Journal of the North American Benthological Society 29: 383-394. Doi: 10.1899/09-024.1

Allen, D.C., and C.C. Vaughn. 2011. Density-dependent biodiversity effects on physical habitat modification by freshwater bivalves. Ecology 92 (3): 1043-1019.

Allen, M.A. 1986. Population dynamics of juvenile steelhead trout in relation to density and habitat characteristics. Master’s thesis. Humboldt State University, Arcata, California.

Allen, M.A. 2000. Seasonal microhabitat use by juvenile spring Chinook salmon in the Yakima River basin, Washington. Rivers 7 (4): 314-332.

Allen, T.C., Q.E. Phelps, R.D. Davinroy, and M.D. Lamm. 2007. A laboratory examination of substrate, water depth, and light use at two water velocity levels by individual juvenile pallid (*Scaphyrhinchus albus*) and shovelnose (*Scaphyrhinchus platorynchus*) sturgeon. Journal of Applied Ichthyology 23: 375-381.

Allen, Y.C. 2016. Landscape scale assessment of floodplain inundation frequency using LandSat imagery. River Research and Applications 32: 1609-1620.

Allibone, R.M. 2000. Assessment techniques for water abstraction impacts on non-migratory galaxiids of Otago streams. Science for Conservation 147: 5-23.

Allibone, R.M. 2000. Water abstraction impacts on the non-migratory galaxiids of Totara Creek. Science for Conservation 147: 25-45.

Allibone, R.M., and C.R. Townsend. 1997. Distribution of four recently discovered galaxiid species in the Taieri River, New Zealand: the role of microhabitat. Journal of Fish Biology 51: 1235-1246

Allison, S.K. 1996. Recruitment and establishment of salt marsh plants following disturbance by flooding. American Midland Naturalist 136: 232-247.

Allman, R.J., and C.B. Grimes. 1998. Growth and mortality of little tunny, *Euthynnus alletteratus*, from the Mississippi River discharge plume and Panama City, Florida. Bulletin of Marine Science 62 (1): 189-197.

Allouche, S. 2002. Nature and functions of cover for riverine fish. Bulletin Francais de la Peche et de la Pisciculture 365/366: 297-324. Doi: 10.1051/kmae:2002037.

Allouche, S., and P. Gaudin. 2001. Effects of avian predation threat, water flow, and cover on growth and habitat use by chub, *Leuciscus cephalus*, in an experimental stream. Oikos 94: 481-492.

Almodovar, A., D. Ayllon, B. Elvira, G.G. Nicola, and B. Jonsson. 2018. Climate-driven bio-physical changes in feeding and breeding environments explain the decline of southernmost Atlantic salmon populations. Canadian Journal of Fisheries and Aquatic Sciences. Doi: 10.1139/cjfas-2018-0297

Almodovar, A., and G.G. Nicola. 1999. Effects of a small hydropower station upon brown trout *Salmo trutta* L. in the River Hoz Seca (Tagus basin, Spain) one year after regulation. Regulated Rivers: Research and Management 15: 477-484.

Almodovar, A., G.G. Nicola, D. Ayllon, and B. Elvira. 2011. Global warming threatens the persistence of Mediterranean brown trout. Global Change Biology doi: 10.1111/j.1365-2486.2011.02608.x

Alo, C.A., and G.L. Wang. Hydrological impact of the potential future vegetation response to climate changes projected by 8 GCMs. Journal of Geophysical Research – Biogeosciences 113 (G3): G03011.

Alpert, P., F.T. Griggs, and D.R. Peterson. 1999. Riparian forest restoration along large rivers: initial results from the Sacramento River Project. Restoration Ecology 7: 360-368.

Alstad, K.P., S.C. Hart, J.L. Horton, and T.E. Kolb. 2008. Application of tree-ring isotopic analyses to reconstructing historical water use of riparian trees. Ecological Applications 18: 421-437.

Amadio, C.J., W.A. Hubert, K. Johnson, D. Oberlie, and D. Dufek. 2005. Factors affecting the occurrence of saugers in small, high-elevation rivers near the western edge of the species’ natural distribution. Transactions of the American Fisheries Society 134 (1): 160-171.

Amalfitano, S., S. Fazi, A. Zoppini, et al. 2008. Responses of benthic bacteria to experimental drying in sediments from Mediterranean temporary rivers. Microbial Ecology 55: 270-279.

Amanini, D.G., N. Horrigan, W.A. Monk, D.L. Peters, and D.J. Baird. 2011. Development of a benthic macroinvertebrate flow sensitivity index for Canadian rivers. River Research and Applications 27 (6): 723-737. Doi: 10.1002/rra.1389

Ambuhl, Von Heins. 1959. The significance of flow as an ecological factor. (Transl. By John DeWitt, Humboldt State College, Arcata, California.)

American Rivers, Friends of the Earth, and Trout Unlimited. 1999. Dam Removal Success Stories: Restoring Rivers Through Selective Removal of Dams That Don’t Make Sense. Washington, D.C.

Amerman, K.S., and J.F. Orsborn. 1987. An analysis of stream flows on the Olympic Peninsula in Washington State. Volume 2. Department of Civil and Environmental Engineering, Washington State University, Pullman.

Ames, J. 1983. Salmon stock interactions in Puget Sound: a preliminary look. Pages 84‑95 in: M.A. Miller (ed.). Southeast Alaska coho salmon research and management review and planning workshop, May 18‑19, 1982. Alaska Dept. Fish and Game, Juneau.

Ames, J., and H. Beecher. 1995. Recommended spawning flows for Cedar River sockeye salmon: with a review of spawning distribution and flood risk studies. A report to the Cedar River Instream Flow Committee. Washington Department of Fish and Wildlife, Olympia. 108 pp.

Ames, J., and H. Beecher. 2001. Incorporating flood risk into controlled flow regimes for Pacific salmon: An example using Cedar River sockeye salmon. Report #FPT 01-13. Washington Department of Fish and Wildlife, Olympia. 123 pp.

Amlin, N.M., and S.B. Rood. 2002. Comparative tolerances of riparian willows and cottonwoods to water table decline. Wetlands 22: 338-346.

Amlin, N.M., and S.B. Rood. 2003. Drought stress and recovery of riparian cottonwoods due to water table alteration along Willow Creek, Alberta. Trees 17: 351-358.

Amoros, C. 1991. Changes in side-arm connectivity and implications for river system management. Rivers 2: 105-112.

Amoros, C., and G. Bornette. 2002. Connectivity and biocomplexity in water bodies of riverine floodplains. Freshwater Biology 47: 761-776.

Amoros, C., J.C. Rostan, G. Pautou, and J.P. Bravard. 1987. The reversible process concept applied to the environmental management of large river systems. Environ. Manag. 11: 607-617.

Amoros, C., A.L. Roux, J.L. Reygrobellet, J.P. Bravard, and G. Pautou. 1987. A method for applied ecological studies of fluvial hydrosystems. Regulated Rivers Research & Management 1: 17-38.

Amos, C.L. 2006. The influence of vegetation on turbulence and flow velocities in European salt marshes. Sedimentology 53 (2): 259-277.

Andersen, D.C., and P.B. Shaffroth. 2010. Beaver dams, hydrological thresholds, and controlled floods as management tools in a desert riverine ecosystem, Bill Williams River, Arizona. Ecohydrology 3: 325-338.

Andersen, D.C., P.B. Shaffroth, C.M. Pritekel, and M.W. O’Neill. 2011. Managed flood effects on beaver pond habitat in a desert riverine ecosystem, Bill Williams River, Arizona, USA. Wetlands 31: 195-206. Doi: 10.1007/s13157-011-0154-y.

Anderson, A.A., C. Hubbs, K.O. Winemiller, and R.J. Edwards. 1995. Texas freshwater fish assemblages following three decades of environmental change. Southwestern Naturalist 40: 314-321.

Anderson, B.G. 2006. Quantifying the interaction between riparian vegetation and flooding from cross-section to catchment scale. Ph.D. dissertation, University of Melbourne, Melbourne, Australia.

Anderson, B.G., I.D. Rutherford, and A.W. Western. 2006. An analysis of the influence of riparian vegetation on the propagation of floodwaves. Environmental Modelling & Software 21 (9): 1290-1296.

Anderson, D.C., and P.B. Shafroth. 2010. Beaver dams, hydrological thresholds, and controlled floods as a management tool in a desert riverine ecosystem, Bill Williams River, Arizona. Ecohydrology 3 (3): 325-338.

Anderson, D.C., P.B. Shafroth, C.M. Pritekel, et al. 2011. Managed flood effects on beaver pond habitat in a desert riverine ecosystem, Bill Williams River, Arizona, USA. Wetlands 31 (2): 195-206.

Anderson, D.H. 1995. Microcrustacean growth and production in a forested floodplain swamp. Dissertation, University of Alabama, Tuscaloosa, Alabama, USA.

Anderson, D., H. Moggridge, P. Warren, et al. 2015. The impacts of “run-of-river” hydropower on the physical and ecological condition of rivers. Water Environ. J. 29: 268-276.

Anderson, E.P., M.C. Freeman, and C.M. Pringle. 2006. Ecological consequences of hydropower development in Central America: impacts of small dams and water diversion on Neotropical stream fish assemblages. River Research and Applications 22: 397-411. Doi: 10.1002/rra.899.

Anderson, H.V. 2008. Transferability of models to predict selection of cover by coastal cutthroat trout in small streams in western Oregon, USA. Master’s thesis. Oregon State University, Corvallis.

Anderson, H.W. 1954. Suspended sediment discharge as related to streamflow, topography, soil, and land use. Trans. Amer. Geophys. Union 35: 268-281.

Anderson, H.W. 1976. Fire effects on water supply, floods, and sedimentation. Proceedings, Tall Timbers Fire Ecology Conference 15: 249-260.

Anderson, J.H., and T.P. Quinn. 2007. Movement of adult coho salmon (*Oncorhynchus kisutch*) during colonization of newly accessible habitat. Canadian Journal of Fisheries and Aquatic Sciences 64 (8): 1143-1154.

Anderson, J.H., and P.C. Topping. 2018. Juvenile life history diversity and freshwater productivity of Chinook salmon in the Green River, Washington. North American Journal of Fisheries Management 18 (1): 180-193. Doi: 10.1002/nafm.10013

Anderson, J.H., P.M. Kiffney, G.R. Pess, and T.P. Quinn. 2008. Summer distribution and growth of juvenile coho salmon during colonization of newly accessible habitat. Transactions of the American Fisheries Society 137: 772-781. Doi: 10.1577/T07-013.1.

Anderson, J.T. 1988. A review of size dependent survival during pre-recruit stages of fishes in relation to recruitment. Journal of Northwest Atlantic Fisheries Science 8: 55-66.

Anderson, K.E., L.R. Harrison, R.M. Nisbet, and A. Kolpas. 2013. Modeling the influence of flow on invertebrate drift across spatial scales using a 2 D hydraulic model and a 1 D population model. Ecol. Model 265: 207-220. Doi: 10.1016/j.ecolmodel.2013.06.011.

Anderson, K.E., A.J. Paul, E. McCauley, L.J. Jackson, J.R. Post, and R.M. Nisbet. 2006. Instream flow needs in streams and rivers: the importance of understanding ecological dynamics. Frontiers in Ecology and the Environment 4 (6): 309-318. Doi: 10.1890/1540-9295(2006)4[309:IFNISA]2.0.CO;2.

Anderson, L.S., and G.A. Ruffner. 1987. Effects of post Glen Canyon Dam flow regime on the old high water line plant community along the Colorado River in Grand Canyon. Glen Canyon Environmental Studies, Report number GCES/22/87. Gradn Canyon, AZ: U.S. Department of the Interior, National Park Service, Grand Canyon National Park.

Anderson, M.G., and P.D. Bates. 1994. Evaluating data constraints on two-dimensional finite element models of floodplain flow. Catena 22: 1-15.

Anderson, P.C., T.B. Hardy, and C.M.U. Neale. 1993. Application of multispectral videography for the delineation of riverine depths and mesoscale hydraulic features. *In*: Neale, C.M.U. (Ed.), Proceedings of the 14th Biennial Workshop on Color Photography and Videography for Resource Monitoring. Utah State University, Logan, Utah, May 25-28, 1993.

Anderson, R.J., B.P. Bledsoe, and W.C. Hession. 2004. Width of streams and rivers in response to vegetation, bank material, and other factors. Journal of the American Water Resources Association 40: 1159-1172.

Anderson, R.M., and R.B. Nehring. 1985. Impacts of stream discharge on trout rearing and recruitment in the South Platte River, Colorado. Pp. 59-64 in: Olson, F.W., White, R.G., and Hamre, R.H. (Eds.), Proceedings of the Symposium on Small Hydropower and Fisheries. American Fisheries Society, Bethesda.

Anderson, S.P., W.E. Dietrich, D.R. Montgomery, R. Torres, M.E. Conrad, and K. Loague. 1997. Subsurface flow paths in a steep, unchanneled catchment. Water Resources Research 33: 2637-2653.

Andersson, E., C. Nilsson, and M.E. Johansson. 2000. Effects of river fragmentation on plant dispersal and riparian flora. Regulated Rivers: Research and Management 16 (1): 83-89.

Andrade, N.O., B.R. Quintella, J. Ferreira, S. Pinela, I. Povoa, S. Pedro, and P.R. Almeida. 2007. Sea lamprey (*Petromyzon marinus* L.) spawning migration in the Vouga River basin (Portugal): poaching impact, preferential resting sites and spawning grounds. Hydrobiologia 582: 121-132.

Andress, R.O. 2002. Nest survival of Lepomis species in regulated and unregulated rivers. Master’s thesis, Auburn University, Auburn, Alabama.

Andrew, F.J., and G.H. Green. 1960. Sockeye and pink salmon production in relation to proposed dams in the Fraser River system. Internat. Pac. Salmon Fish. Comm., Bull. 11. 257 p.

Andrews, E.D. 1980. Effective and bankfull discharges of streams in the Yampa River basin, Colorado and Wyoming. Journal of Hydrology 46: 311-330.

Andrews, E.D. 1982. Bank stability and channel width adjustment, East Fork River, Wyoming. Water Resources Research 18: 1184-1192.

Andrews, E.D. 1983. Entrainment of gravel from naturally sorted riverbed material. Geological Society of America Bulletin 94: 1225-1231.

Andrews, E.D. 1984. Bed-material entrainment and hydraulic geometry of gravel-bed rivers in Colorado. Geological Society of America Bulletin 95: 371-378.

Andrews, E.D. 1986. Downstream effects of Flaming Gorge Reservoir on the Green River, Colorado and Utah. Geological Society of America Bulletin 97: 1012-1023.

Andrews, E.D., and J.M. Nankervis. 1995. Effective discharge and design of channel maintenance flows for gravel-bed rivers. Pp. 151-164 in: J.E. Costa, A.J. Miller, K.W. Potter, and P.R. Wilcock (eds.), Natural and Anthropogenic Influences in Fluvial Geomorphology, Geophysical Monograph 89, American Geophysical Union.

Andrews, E.D., and J.M. Nelson. 1989. Topographic response of a bar in the Green River, Utah to variation in discharge. Pages 463-485 in: S. Ikeda and G. Parker (editors), River Meandering. Water Resources Monograph Series vol. 12. American Geophysical Union, Washington, D.C.

Andrishak, R., and F. Hicks. 2011. Ice effects on flow distribution within the Athabasca Delta, Canada. River Research and Applications 27: 1149-1158. Doi: 10.1002/rra.1414.

Angermeier, P.L. 1987. Spatiotemporal variation in habitat selection by fishes in small Illinois streams. Pp 52-60 in: W.J. Matthews and D.C. Heins (eds.) Community and evolutionary ecology of North American stream fish. University of Oklahoma Press, Norman.

Angermeier, P.L. 1992. Predation by rock bass on other stream fishes: experimental effects of depth and cover. Environmental Biology of Fishes 34: 171-180. Doi: 10.1007/BF00002392.

Angermeier, P.L., and J.R. Karr. 1983. Fish communities along environmental gradients in a system of tropical streams. Environ. Biol. Fishes 9: 117-135.

Angermeier, P.L., and J.R. Karr. 1984. Relationships between woody debris and fish habitat in a small warmwater stream. Transactions of the American Fisheries Society 113: 716-726.

Angermeier, P.L., and I.J. Schlosser. 1989. Species-area relationships for stream fishes. Ecology 70 (5): 1450-1462.

Angradi, T.R.,, E.W. Schweiger, and D.W. Bolgrien. 2006. Inter-habitat variation in the benthos of the upper Missouri River (North Dakota, USA): implications for the Great River bioassessment. River Research and Applications 22: 755-773.

Angradi, T.R., D.L. Taylor, T.M. Jicha, D.W. Bolgrien, M.S. Pearson, and B.H. Hill. 2010. Littoral and shoreline wood in mid-continent great rivers (USA). River Research and Applications 26: 261-278.

Anlauf, K.J., D.W. Jensen, K.M. Burnett, E.A. steel, K. Christiansen, J.C. Firman, B.E. Feist, and D.P. Larsen. 2011. Explaining spatial variability in stream habitats using both natural and management-influenced landscape predictors. Aquatic Conservation: Marine and Freshwater Ecosystems 21: 704-714.

Anlauf-Dunn, K.J., E.J. Ward, M. Strickland, and K. Jones. 2014. Habitat connectivity, complexity, and quality: predicting adult coho salmon occupancy and abundance. Canadian Journal of Fisheries and Aquatic Sciences 71 (12): 1864-1876. Doi: 10.1139/cjfas-2014-0162.

Annable, W.K., V.G. Lownder, and C.C. Watson. 2011. Estimating channel-forming discharge in urban watercourses. River Research and Applications 27 (6): 738-753. Doi: 10.1002/rra.1391

Annear, T., I. Chisholm, H. Beecher, A. Locke, P. Aarrestad, N. Burkhart, C. Coomer, C. Estes, J. Hunt, R. Jacobson, G. Jobsis, J. Kauffman, J. Marshall, K. Mayes, C. Stalnaker, and R. Wentworth. 2002. Instream Flows for Riverine Resource Stewardship. Instream Flow Council, Cheyenne, WY.

Annear, T., I. Chisholm, H. Beecher, A. Locke, P. Aarrestad, C. Coomer, C. Estes, J. Hunt, R. Jacobson, G. Jobsis, J. Kauffman, J. Marshall, K. Mayes, G. Smith, R. Wentworth, and C. Stalnaker. 2004. Instream Flows for Riverine Resource Stewardship - Revised Edition. Instream Flow Council, Cheyenne, WY.

Annear, T.C., and A.L. Conder. 1984. Relative bias of several fisheries instream flow methods. North American Journal of Fisheries Management 4 (4B): 531-539.

Annear, T.C., W. Hubert, D. Simpkins, and L. Hebdon. 2002. Behavioural and physiological response of trout to winter habitat in tailwaters in Wyoming, USA. Hydrological Processes 16: 915-922.

Antolos, M., D.D. Roby, D.E. Lyons, K. Collis, A.F. Evans, M. Hawbecker, and B.A. Ryan. 2005. Caspian tern predation on juvenile salmonids in the mid-Columbia River. Transactions of the American Fisheries Society 134 (2): 466-480.

Antonnson, T., and S. Gudjonsson. 2002. Variability in timing and characteristics of Atlantic salmon smolt in Icelandic rivers. Transactions of the American Fisheries Society 131 (4): 643-655.

Antonnson, T., T. Heidarsson, and S.S. Snorrason. 2010. Smolt emigration and survival to adulthood in two Icelandic stocks of Atlantic salmon. Transactions of the American Fisheries Society 139 (6): 1688-1698. Doi: 10.1577/T08-200.1

Aparicio, E., G. Carmona-Catot, P.B. Moyle, and E. Garcia-Berthou. 2011. Development and evaluation of a fish-based index to assess biological integrity of Mediterranean streams. Aquat. Conserv. Mar. Freshwat. Ecosyst. 21: 234.

Aprahamian, M.W., and M. Ball. 1995. Influence of river flow on rod catch of Atlantic salmon, Salmo salar L., from the lower River Derwent, north-west England. Fish Manag. Ecol. 2: 75-86.

Apse, C., M. DePhilip, J. Zimmerman, and M.P. Smith. 2008. Developing instream flow criteria to support ecologically sustainable water resource planning and management. Final report to the Pennsylvania Instream Flow Technical Advisory Committee. The Nature Conservancy, Harrisburg.

Araujo-Lima, C.A.R.M., and E.C. Oliveira. 1998. Transport of larval fish in the Amazon. Journal of Fish Biology 53: 297-306.

Archdeacon, T.P. 2016. Reduction in spring flow threatens Rio Grande silvery minnow: trends in abundance during river intermittency. Transactions of the American Fisheries Society 145 (4); 754-765. Doi: 10.1080/00028487.2016.1159611.

Archfield, S.A., R.M. Hirsch, A. Viglione, and G. Bloschl. 2016. Fragmented patterns of flood change across the United States. Geophysical Research Letters doi: 10.1002/2016GL070590.

Archfield, S.A., J.G. Kennen, D.M. Carlisle, and D.M. Wolock. 2004. An objective and parsimonious approach for classifying natural flow regimes at a continental scale. River Research and Applications 30: 1166-1183. Doi: 10.1002/rra.2710.

Ardisson, P.-L., and E. Bouget. 1997. A study of the relationship between freshwater runoff and benthic abundance: A scale-oriented approach. Estuarine, Coastal and Shelf Science 45: 535-545.

Arismendi, I., M. Safeeq, S.L. Johnson, J.B. Dunham, and R. Haggerty. 2013. Increasing synchrony of high temperature and low flow in western North American streams: double trouble for coldwater biota? Hydrobiologia 712: 61-70. doi: 10.1007/s10750-012-1327-2.

Aristi, I., M. Arroita, A. Larranaga, L. Ponsati, S. Sabater, D. von Schiller, A. Elosegi, and V. Acuna. 2014. Flow regulation by dams affects ecosystem metabolism in Mediterranean rivers. Freshwater Biology 59: 1816-1829.

Armanini, D.G., N. Horrigan, W.A. Monk, D.L. Peters, and D.J. Baird. 2011. Development of a benthic macroinvertebrate flow sensitivity index for Canadian rivers. River Research and Applications 27: 723-737.

Armanini, D.G., W.A. Monk, D.E. Tenenbaum, D.L. Peters, and D.J. Baird. 2011. Influence of runoff regime type on a macroinvertebrate-based flow index in rivers of British Columbia (Canada). Ecohydrology 5: 414-423. Doi: 10.1002/eco.234.

Armitage, P.D. 1978. Downstream changes in the composition, numbers and biomass of bottom fauna in the Tees below Cow Green Reservoir and in an unregulated tributary Maize Beck, in the first five years after impoundment. Hydrobiologia 58 (2): 145-156.

Armitage, P.D. 1995. Faunal community change in response to flow manipulation. Pages 59-78 in: D.M. Harper and A.J.D. Ferguson, editors. The Ecological Basis for River Management. Wiley, Chichester.

Armitage, P.D., and M. Ladle. 1991. Habitat preferences of target species for application in PHABSIM testing. Pages 87-122 in: A. Bullock, A. Gustard, and E.S. Granger, editors, Instream Flow Requirements of Aquatic Ecology in Two British Rivers. Report 115. Institute of Hydrology, Wallingford.

Armitage, P.D., and G.E. Petts. 1992. Biotic score and prediction to assess the effects of water abstraction on river macroinvertebrates for conservation purposes. Aquatic Conservation 2: 1-17.

Armour, C.L, D.A. Duff, and W. Elmore. 1994. The effects of livestock grazing on western riparian and stream ecosystems. Fisheries 19: 9-12.

Armour, C.L. and J.G. Taylor. 1991. Evaluation of the Instream Flow Incremental Methodology by the U.S. Fish and Wildlife Service field users. Fisheries 16 (5): 36-43.

Armstrong, D.S., T.A. Richards, and S.L. Brandt. 2010. Preliminary assessment of factors influencing riverine fish communities in Massachusetts. U.S. Geological Survey Open-File Report 2010-1139. 43 pp.

Armstrong, D.S., T.A. Richards, and S.B. Levin. 2011. Factors influencing riverine fish assemblages in Massachusetts. U.S. Geological Survey Scientific-Investigations Report 2011-5193. 58 p. <http://pubs.usgs.gov/sir/2011/5193/>

Armstrong, D.S., T.A. Richards, and G.W. Parker. 2001. Assessment of habitat, fish communities, and streamflow requirements for habitat protection, Ipswich River, Massachusetts, 1998-99. U.S. Geological Survey Open-File Report 2010-1139. 43 pp.

Armstrong, J.D. 2010. Variation in habitat quality for drift-feeding Atlantic salmon and brown trout in relation to local water velocity and river discharge. Pages 1-27 in: P. Kemp and D. Roberts, editors. Salmonid fisheries: freshwater habitat management. Wiley-Blackwell Scientific Publications, Oxford, U.K.

Armstrong, J.D., V.A. Braithwaite, and M. Fox. 1998. The response of wild Atlantic salmon parr to acute reductions in water flow. Journal of Animal Ecology 67: 292-297.

Armstrong, J.D., and S.W. Griffiths. 2001. Density-dependent refuge use among over-wintering wild Atlantic salmon juveniles. Journal of Fish Biology 58: 1524-1530.

Armstrong, J.D., P.S. Kemp, G.J.A. Kennedy, M. Ladle, and N.J. Milner. 2003. Habitat requirements of Atlantic salmon and brown trout in rivers and streams. Fisheries Research 62: 143-170. Doi: 10.1016/S0165-7836(02)0160-1.

Armstrong, J.D., and K.H. Nislow. 2006. Critical habitat during the transition from maternal provisioning to independence in freshwater fish. Journal of Zoology 269: 403-413. Doi: 10.1111/j.1469-7998.2006.00157.x.

Armstrong, J.D., and K.H. Nislow. 2012. Modelling approaches for relating effects of change in river flow to populations of Atlantic salmon and brown trout. Fisheries Management and Ecology 19 (6): 527-536. Doi: 10.1111/j.1365-2400.2011.00835.x.

Armstrong N.E. 1982. Responses of Texas estuaries to freshwater inflows, p. 103-120 in: V. Kennedy (ed.), Estuarine Comparisons. Academic Press, New York.

Arndt, S.K.A., R.A. Cunjak, and T.J. Benfey. 2002. Effect of summer floods and spatial-temporal scale on growth and feeding of juvenile Atlantic salmon in two New Brunswick streams. Transactions of the American Fisheries Society 131 (4): 607-622. Doi: 10.1577/1548-8659(2002)131<0607:EOSFAS>2.0.CO;2.

Arnell, N.W. 1999. Climate change and global water resources. Global Environmental Change 9: S31-S49.

Arnold, G.P. 1974. Rheotropism in fish. Biol. Rev. 49: 515-576.

Arnold, J.G., and P.M. Allen. 1999. Validation of automated methods for estimating base flow and ground water recharge from streamflow records. Journal of the American Water Resources Association 35 (2): 411-424.

Arnold, J.G., R. Srinivasan, R.S. Muttiah, and J.R. Williams. 1998. Large area hydrologic modeling and assessment: model development, part I. Journal of the American Water Resources Association 34: 73-89.

Arnon, S., L.P. Marx, K.E. Searcy, and A.I. Packman. 2009. Effects of overlying velocity, particle size, and biofilm growth on stream-subsurface exchange of particles. Hydrological Processes 24: 108-114.

Arntzen, E.V., D.R. Geist, and P.E. Dresel. 2006. Effects of fluctuating river flow on groundwater-surface water mixing in the hyporheic zone of a regulated, large cobble-bed river. River Research and Applications 22: 937-946. Doi: 10.1002/rra.947.

Arntzen, E.V., and R.P. Mueller. 2017. Video-based electroshocking platform to identify lamprey ammocoete habitats: field validation and new discoveries in the Columbia River basin. North American Journal of Fisheries Management 37 (3): 676-681. Doi: 10.1080/02755947.2017.1310152.

Arora, V., and G.J. Boer. 2001. Effects of simulated climate change on the hydrology of major river basins. J. Geophys. Res. 106: 3335-3348. Doi: 10.1029/2000JD9006620.

Arp, C.D., M.N. Gooseff, M.A. Baker, and W. Wurtsbaugh. 2006. Surface-water hydrodynamics and regimes of a small mountain stream-lake ecosystem. J. Hydrol. (Amst.). 329 (3-4): 500-513. Doi: 10.1016/j.jhydrol.2006.03.006.

Arp, C.D., J.C. Schmidt, M.A. Baker, and A.K. Myers. 2007. Stream geomorphology in a mountain lake district: geometry, sediment sources and sinks, and downstream lake effects. Earth Surf. Process. Landf. 32 (4): 525-543. Doi: 10.1002/esp.1421

Arrigoni, A.S., G.C. Poole, L.A.K. Mertes, S.J. O’Daniel, W.W. Woesssner, and S.A. Thomas. 2008. Buffered, lagged, or cooled? Disentangling hyporheic influences on temperature cycles in stream channels. Water Resources Research 44: W09418. Doi: 10.1029/2007WR006480.

Arrington, D.A., B.K. Davidson, K.O. Winemiller, and C.A. Layman. 2006. Influence of life history and seasonal hydrology on lipid storage in three Neotropical fish species. Journal of Fish Biology 68: 1347-1361. Doi: 10.1111/j.1095-8649.2006.00996.x

Arrington, D.A., and K.O. Winemiller. 2006. Habitat affinity, the seasonal flood pulse, and community assembly in the littoral zone of a Neotropical floodplain river. Journal of the North American Benthological Society 25: 126-141.

Arrington, D.A., K.O. Winemiller, and C.A. Layman. 2005. Community assembly at the patch scale in a species rich tropical river. Oecologia 144: 157-167.

Arroita, M., I. Aristi, J. Diez, et al. 2015. Impact of water abstraction on storage and breakdown of coarse organic matter in mountain streams. Sci. Total Environ. 503/504: 233-240.

Arscott, D.B., S. Larned, M.R. Scarsbrook, and P. Lambert. 2010. Aquatic invertebrate community structure along an intermittence gradient: Selwyn River, New Zealand. Journal of the North American Benthological Society 29: 530-545.

Arscott, D.B., K. Tockner, and J.V. Ward. 2001. Thermal heterogeneity along a braided floodplain river (Tagliamento River, northeastern Italy). Canadian Journal of Fisheries and Aquatic Sciences 58 (12): 2359-2373.

Arscott, D.B., K. Tockner, D. van der Nat, and J.V. Ward. 2002. Aquatic habitat dynamics along a braided alpine river ecosystem (Tagliamento River, Northeast Italy). Ecosystem 5: 802-814.

Arthaud, D., C. Greene, K. Guilbault, and J. Morrow. 2010. Contrasting life-cycle impacts of stream flow on two Chinook salmon populations. Hydrobiologia 655: 171-188.

Arthington, A.H. 1998. Brisbane River trial of a flow restoration methodology (FLOWRESM). Pp. 35-50 in: A.H. Arthington and J.M. Zalucki, eds., Water for the Environment: Recent Approaches to Assessing and Providing Environmental Flows. AWWA, Brisbane.

Arthington, A.H. 1998. Comparative evaluation of environmental flow assessment techniques: review of holistic methodologies. Occasional Paper no 36/98. Land and Water Resources Development Corporation, Canberra, Australia.

Arthington, A.H. 2009. Australian lungfish, Neoceratoducs forsteri, threatened by a new dam. Environ. Biol. Fish. 84: 211-221. Doi: 10.1007/s10641-008-9414-y

Arthington, A.H. 2012. Environmental Flows: Saving Rivers in the Third Millennium. University of California Press. 424 pp.

Arthington, A.H. 2015. Environmental flows: a scientific resource and policy tool for river conservation and restoration. Aquat. Conserv. Mar. Freshw. Ecosyst. 25: 155-161.

Arthington, A.H., and S.R. Balcombe. 2011. Extreme hydrologic variability and the boom and bust ecology of fish in arid-zone floodplain rivers: a case study with implications for environmental flows, conservation and management. Ecohydrology 4: 708-720.

Arthington, A.H., S.R. Balcombe, G.A. Wilson, M.C. Thoms, and J.C. Marshall. 2005. Spatial and temporal variation in fish assemblage structure in isolated waterholes during the 2001 dry season of an arid-zone river, Cooper Creek, Australia. Marine and Freshwater Research 56: 25-35.

Arthington, A.H., E. Baran, C.A. Brown, P. Dugan, A.S. Halls, J.M. King, C.V. Minte-Vera, R.E. Tharme, and R.L. Welcomme. 2007. Water requirements of floodplain rivers and fisheries: existing decision support tools and pathways for development. Comprehensive Assessment of Water Management in Agriculture. Research Report 17, International Water Management Institute, Colombo, Sri Lanka. <http://www.iwmi.cgiar.org/assessment/files_new/publications/CA%20Research%20Reports/CARR17.pdf>.

Arthington, A.H., A. Bhaduri, S.E. Bunn, S.E. Jackson. R.E. Tharme, D. Tickner, B. Young, M. Acreman, N. Baker, S. Capon, A.C. Horne, E. Kendy, M.E. McClain, N.L. Poff, B.D. Richter, and S. Ward. 2018. The Brisbane Declaration and Global Action Agenda on Environmental Flows. Frontiers in Environmental Science 6: 45. Doi: 10.3389/fenvs.2018.00045.

Arthington, A.H., S.O. Brizga, and M.J. Kennard. 1998. Comparative Evaluation of Environmental Flow Assessment Techniques: Best Practice Framework. Occasional Paper 25/98. Land and Water Resources Research and Development Corporation, Canberra, Australia.

Arthington, A.H., S.O. Brizga, M.J. Kennard, S. Mackay, R. McCosker, S. Choy, and J. Rufini. 1999. Development of a Flow Restoration Methodology (FLOW RESM) for determining environmental flow requirements in regulated rivers using the Brisbane Rivers case study. Pages 449-454 in: W. Boughton (editor), Handbook and Proceedings of Water 99: Joint Congress, 5th Hydrology and Water Resources Symposium, 2nd International Conference on Water Resources and Environmental Research. Australian Institute of Engineers, Brisbane, Australia.

Arthington, A.H., S.E. Bunn, N.L. Poff, and R.J. Naiman. 2006. The challenge of providing environmental flow rules to sustain river ecosystems. Ecological Applications 16 (4): 1311-1318.

Arthington, A.H., N.K. Dulvy, W. Gladstone, and I.J. Winfield. 2016. Fish conservation in freshwater and marine realms: status, threats, and management. Aquatic Conservation: Marine and Freshwater Ecosystems 26: 838-857.

Arthington, A.H., C.H. James, S.J. Mackay, R. Rolls, D. Sternberg, and A. Barnes. 2012. Hydro-ecological relationships and thresholds to inform environmental flow management. International Water Centre, Brisbane.

Arthington, A.H., J.G. Kennen, E.D. Stein, and J.A. Webb. 2018. Recent advances in environmental flows science and water management – Innovation in the Anthropocene. Freshwater Biology 63 (8): 1022-1034. doi: 10.1111/fwb.13108

Arthington, A.H., J.M. King, J.H. O’Keefe, S.E. Bunn, J.A. Day, B.J. Pusey, B.R. Bluhdorn, and R. Tharme. 1992. Development of an holistic approach for assessing environmental flow requirements of riverine ecosystems. Pp. 69-76 in: J.J. Pigram and B.A. Hooper (eds.), Water Allocation for the Environment. The Centre for Water Policy Research, University of New England, Armidale (Australia).

Arthington, A.H., and R. Lloyd. 1998. Logan River trial of the building block methodology for assessing environmental flow requirements. Griffith University, Queensland, Australia.

Arthington, A.H., S.J. Mackay, C.S James, R.J. Rolls, D. Sternberg, A Barnes, and S.J. Capon. 2012. Ecological limits of hydrological alteration: a test of the ELOHA framework in south-east Queensland. National Water Commission (Australia): Waterlines Report Series No. 75.

Arthington, A.H., R.J. Naiman, M.E. McClain, and C. Nilsson. 2010. Preserving the biodiversity and ecological services of rivers: new challenges and research opportunities. Freshwater Biology 55 (1): 1-16. Doi:10.1111/j.1365-2427.2009.02340.x

Arthington, A.H., J.D. Olden, S.R. Balcombe, and M.C. Thoms. 2010. Multi-scale environmental factors explain fish losses and refuge quality in drying waterholes of Cooper Creek, an Australian arid-zone river. Marine and Freshwater Research 61 (8): 842-856.

Arthington, A.H., and B.J. Pusey. 1993. In-stream flow management in Australia: methods, deficiencies and future directions. Australian Biology 6: 52-60.

Arthington, A.H., and B.J. Pusey. 2003. Flow restoration and protection in Australian rivers. River Research and Applications 19: 377-395.

Arthington, A.H., B.J. Pusey, S.O. Brizga, R.O. McCosker, S.E. Bunn, and I.O. Growns. 1998. Comparative evaluation of environmental flow assessment techniques: R&D requirements. Land and Water Resources Research and Development Corporation, Occasional Papers 24/98.

Arthington, A.H., J.L. Rall, M.J. Kennard, and B.J. Pusey. 2003. Environmental flow requirements of fish in Lesotho Rivers using the DRIFT methodology. River Research and Applications 19: 641-666. Doi: 10.1002/rra.728.

Arthington, A.H., R.S. Tharme, S.O. Brizga, B.J. Pusey, and M.J. Kennard. 2004. Environmental flow assessment with emphasis on holistic methodologies. Pp. 37-65 *in*: R. Welcomme and T. Petr’, editors. Proceedings of the Second International Symposium on the Management of Large Rivers for Fisheries Volume II. RAP Publication 2004/17. FAO Regional Office for Asia and the Pacific, Bangkok, Thailand.

Arthington, A.H., and J.M. Zalucki. 1998. Comparative evaluation of environmental flow assessment techniques: Review of methods. Occasional Paper 27/98. Land and Water Resources Research and Development Corporation, Canberra.

Arthur, S.M., B.F. Manly, L.L. McDonald, and G.W. Garner. 1996. Assessing habitat selection when availability changes. Ecology 77: 215-227.

Asaeda, T., T.K. Vu, and J. Manatunge. 2005. Effects of flow velocity on feeding behavior and microhabitat selection of the stone moroko *Pseudorasbora parva*: a trade-off between feeding and swimming costs. Transactions of the American Fisheries Society 134 (2): 537-547.

Ashmore, P.E., and T.J. Day. 1988. Effective discharge for suspended sediment transport in streams of the Saskatchewan River basin. Water Resources Research 24 (6): 864-870.

Ashton, D.T., J.B. Bettaso, and H.H. Welsh, Jr. 2015. Changes across a decade in size, growth, and body condition of western pond turtle (*Actinemys [Emys] marmorata*) populations on free-flowing and regulated forks of the Trinity River in northwest California. Copeia 103: 621-633. Doi: 10.1643/CP-15-253.

Ashton, M.J. 2012. Ecological responses to flow alteration: A literature review within

the context of the Maryland Hydroecological Integrity Assessment. Maryland

Department of Natural Resources, Monitoring and Non-Tidal Assessment Division.

RAS-MANTA-AIM-13-01, 45 p.

Ashton, M.J., and J.B. Layzer. 2010. Summer microhabitat use by adult and young-of-year snail darters (*Percina tanasi*) in two rivers. Ecology of Freshwater Fish 19: 609-617.

Ashwort, P.J., and R.I. Ferguson. 1989. Size-selective entrainment of bed load in gravel bed streams. Water Resources research 25 (4): 627-634.

Asplund, K.T., and M.T. Gooch. 1988. Geomorphology and the distributional ecology of Fremont cottonwood (*Populus fremontii*) in a desert riparian canyon. Desert Plants 9 (1): 17-27.

Astrade, L., and Y. Begin. 1997. Tree-ring response *Populus tremula* L. and *Quercus robur* L. to recent spring floods of the Saone River, France. Ecoscience 4: 232-239.

Atkinson, C.L., S.W. Golladay, S.P. Opsahl, and A.P. Covich. 2009. Stream discharge and floodplain connections affect seston quality and stable isotope signatures in a coastal plain stream. Journal of the North American Benthological Society 28: 360-370.

Atkinson, C.L., J.P. Julian, and C.C. Vaughn. 2014. Species and functions lost: role of drought in structuring stream communities. Biological Conservation 176: 30-38.

Auble, G.T. 2005. Great Basin riparian ecosystems: Ecology, management, and restoration (book review). Restoration Ecology 13 (1): 237-238.

Auble, G.T., J.M. Friedman, and M.L. Scott. 1991. Riparian vegetation of the Black Canyon of the Gunnison River, Colorado: composition and response to selected hydrologic regimes based on a direct gradient assessment model. U.S. Geological Survey, Ft. Collins, CO. 79 pp.

Auble, G.T., J.M. Friedman, and M.L. Scott. 1994. Relating riparian vegetation to present and future streamflows. Ecological Applications 4 (3): 544-554.

Auble, G.T., J.M. Friedman, and M.L. Scott. 1995. Regeneration processes and conservation of riparian forests in the Great Plains. Pp. 36-37 *in*: Proceedings of the biodiversity conservation strategies for the Great Plains symposium. Austin, TX: The Nature Conservancy.

Auble, G.T., J.M. Friedman, and M.L. Scott. 1996. Test of a hydroperiod relation to predict changes in riparian vegetation. Pp 25-26 *in*: From Big Rivers to Small Streams. Kansas City, Missouri: Society of Wetland Scientists.

Auble, G.T., J.M. Friedman, M.L. Scott, and L.S. Ischinger. 1994. Geomorphic processes determine instream flow effects on cottonwood regeneration. Washington, D.C.: U.S. Geological Survey. NBS Info. Bull. 83. 3 pp.

Auble, G.T., J.M. Friedman, M.L. Scott, and L.S. Ischinger. 1994. Modeling effects of flow alteration on riparian vegetation. Washington, D.C.: National Biological Survey. Research Info. Bull. 65. 3 pp.

Auble, G.T., and M.L. Scott. 1998. Fluvial disturbance patches and cottonwood recruitment along the upper Missouri River, Montana. Wetlands 18: 546-556.

Auble, G.T., M. Scott, J. Frazier, J.M. Friedman, J. Back, and V.J. Lee. 1997. Constraints on establishment of plains cottonwood in an urban riparian preserve. Wetlands 17 (1): 138-148.

Auble, G.T., M.L. Scott, and J.M. Friedman. 2005. Use of individualistic streamflow-vegetation relations along the Fremont River, Utah, USA, to assess impacts of flow alteration on wetland and riparian area. Wetlands 25 (1): 143-154.

Auble, G.T., M. Scott, J.L. Martin, L.S. Ischinger, and C.A. Segelquist. 1991. Predictive models of riparian vegetation response to altered streamflow. *In*: South Platte River Resource Management: Finding a Balance: Conference Proceedings of the Colorado Water Resources Research Institute, Information Series 66. Fort Collins, CO: Colorado State University.

Auble, G.T., M. Scott, P.A. Shafroth, and G.C. Lines. 1998. Responses of riparian cottonwoods to alluvial water-table declines. *In*: 1998 Fall Meeting American Geophysical Union, Eos, Transactions, AGU 79 (45). San Francisco, CA: American Geophysical Union.

Auer, N.A. 1996. Response of spawning lake sturgeons to change in hydroelectric facility operation. Transactions of the American Fisheries Society 125: 66-77. Doi:10.1577/1548-8659(1996)125<0066:ROSLST>2.3.CO;2.

Auer, N.A. 1996. Importance of habitat and migration to sturgeons with emphasis on lake sturgeon. Canadian Journal of Fisheries and Aquatic Sciences 53 (Supplement 1): 152-160. Doi:10.1139/cjfas-53-S1-152.

Auerbach, D.A. 2013. Models of *Tamarix* and riparian vegetation response to hydrogeomorphic bariation, dam management aind climate change. Ph.D. dissertation, Colorado State University, Fort Collins, CO.

Auerbach, D.A., D.M. Merritt, and P.B. Shafroth. 2013. *Tamarix*, hydrology, and fluvial geomorphology. Pages 99-121 in: A.A. Sher, and M.F. Quigley, eds. *Tamarix*: A case study of ecological change in the American West. Oxford, United Kingdom: Oxford University Press.

Auerbach, D.A., N.L. Poff, R.R. McShane, D.M. Merritt, M.I. Pyne, and T.K. Wilding. 2012. Streams past and future: fluvial responses to rapid environmental change in the context of historical variation. Pages 232-245 in: J.A. Wiens, GD. Hayward, H.D. Safford, and C. Giffen, editors, Historical Environmental Variation in Conservation and Natural Resource Management. Wiley-Blackwell, Oxford, UK.

Aufdenkampe, A.K., E. Mayorga, P.A. Raymond, J.M. Melack, S.C. Doney, S.R. Alin, R.E. Aalto, and K. Yoo. 2011. Riverine coupling of biogeochemical cycles between land, oceans, and atmosphere. Frontiers in Ecology and the Environment 9 (1): 53-60.

Ault, T.R., and R.W.G. White. 1994. Effects of habitat structure and the presence of brown trout on the population density of *Galaxias truttaceus* in Tasmania, Australia. Transactions of the American Fisheries Society 123: 939-949.

Aussenac, G., and G. Levy. 1992. Les exigences en eau du frene *Fraxinus exelsior*. Revue Forestiere Francaise 44: 32-38.

Austin, A.T., L. Yahdjian, J.M. Stark, J. Belnap, A. Porporato, U. Norton, D.A. Ravetta, and S.M. Schaeffer. 2004. Water pulses and biogeochemical cycles in arid and semiarid ecosystems. Oecologia 141: 221-235.

Austin, B.J., and E.A. Strauss. 2011. Nitrification and denitrification response to varying periods of desiccation and inundation in a western Kansas stream. Hydrobiologia 658: 183-195.

Austin, M.P. 2002. Spatial prediction of species distribution: an interface between ecological theory and statistical modelling. Ecological Modelling 157: 101-118.

Australia, Commonwealth of. 1996. National principles for the provision of water for ecosystems. Occasional paper SWR No. 3, Agriculture and Resource Management Council of Australia, and Australia and New Zealand Environmental and Conservation Council. Canberra, iv+14 pp.

Avery, L.A., J. Korman, W.R. Persons. 2015. Effects of increased discharge on spawning and age-0 recruitment of rainbow trout in the Colorado River at Lees Ferry, Arizona. North American Journal of Fisheries Management 35 (4): 671-680. Doi: 10.1080/02755947.2015.1040560.

Avery-Gomm, S., J.S. Rosenfeld, J.S. Richardson, and M. Pearson. 2014. Hydrological drought and the role of refugia in an endangered riffle-dwelling fish, Nooksack dace (*Rhinichthys cataractae* ssp.). Canadian Journal of Fisheries and Aquatic Sciences 71 (11): 1625-1634. Doi: 10.1139/cjfas-2013-0585.

Ayllon, D., A. Almodovar, G.G. Nicola, and B. Elvira. 2009. Interactive effects of cover and hydraulics on brown trout habitat selections patterns. River Research and Applications 25: 1051-1065. Doi: 10.1002/rra.1215

Ayllon, D., A. Almodovar, G.G. Nicola, and B. Elvira. 2010a. Ontogenetic and spatial variations in brown trout habitat selection. Ecology of Freshwater Fish 19: 420-432. Doi: 10.1111/j.1600-0633.2010.00426.x

Ayllon, D., A. Almodovar, G.G. Nicola, and B. Elvira. 2010. Modelling brown trout spatial requirements through physical habitat simulations. River Research and Applications 26: 1090-1102. Doi: 10.1002/rra.1315.

Ayllon, D., A. Almodovar, G.G. Nicola, and B. Elvira. 2012. The influence of variable habitat suitability criteria on PHABSIM habitat index results. River Research and Applications 28(8): 1179-1188. Doi: 10.1002/rra.1496.

Ayllon, D., G.G. Nicola, I. Parra, B. Elvira, and A. Almodovar. 2013. Intercohort density dependence drives brown trout habitat selection. Acta Oecol. 46: 1-9. Doi: 10.1016/j.actao.2012.10.007.

Ayllon, D., G.G. Nicola, I. Parra, B. Elvira, and A. Almodovar. 2014. Spatiotemporal habitat selection shifts in brown trout populations under contrasting natural flow regimes. Ecohydrology 7: 569-579.

Ayllon, D., S. Railsback, S. Vincenzi, J. Groeneveld, A. Almodovar, and V. Grimm. 2016. InSTREAM-Gen: modelling eco-evolutionary dynamics of trout populations under anthropogenic change. Ecological Modelling 126: 36-53.

Baber, M.J., D.L. Childers, K.J. Babbitt, and D.H. Anderson. 2002. Controls on fish distribution and abundance in temporary wetlands. Canadian Journal of Fisheries and Aquatic Sciences 59 (9): 1441-1450.

Bachman, R.A. 1984. Foraging behavior of free‑ranging wild and hatchery brown trout in a stream. Transactions of the American Fisheries Society 113 (1): 1‑32. Doi:10.1577/1548-8659(1984)113<1:FBOFWA>2.0.CO;2.

Bacon, P.J., W.S.C. Gurney, W. Jones, I.S. McLaren, and A.F. Youngson. 2005. Seasonal growth patterns of juvenile fish: partitioning variation among explanatory variables based on individual growth trajectories of Atlantic salmon (*Salmo salar*) parr. Journal of Animal Ecology 74: 1-11. Doi: 10.1111/j.1365-2656/2004.00875.x.

Bagliniere, J.L., and D. Arribe-Moutounet. 1985. Microdistribution of populations of brown trout (*Salmo trutta* L.) and juvenile Atlantic salmon (*Salmo salar* L.) and other species present in the upstream part of the Scorff River (Brittany). Hydrobiologia 120: 229-239.

Bagstad, K.J., D.J. Semmens, and R. Winthrop. 2013. Comparing approaches to spatially explicit ecosystem service modeling: a case study from the San Pedro River, Arizona. Ecosyst. Serv. 5: 40-50.

Baigun, C.R.M. 2003. Characteristics of deep pools used by adult summer steelhead in Steamboat Creek, Oregon. North American Journal of Fisheries Management 23: 1167-1174.

Baigun, C.R., J. Sedell, and G. Reeves. 2000. Influence of water temperature in use of deep pools by summer steelhead in Steamboat Creek, Oregon (USA). Journal of Freshwater Ecology 15: 269-279.

Bailey, M.M., G.E. Horton, B.H. Letcher, and M.T. Kinnison. 2010. Seasonal density dependence in Atlantic salmon over varying spatial scales. Transactions of the American Fisheries Society 139 (6): 1642-1656. Doi: 10.1577/T09-121.1

Bain, M.B. 1995. Habitat at the local scale: multivariate patterns for stream fishes. Bulletin Francais De la Peche et de la Pisciculture 337/338/339: 165-177.

Bain, M.B., and J.L. Bain. 1982. Habitat suitability index models: Coastal stocks of striped bass. U.S. Fish and Wildlife Service. FWS/OBS-82/10.1. 29 pp.

Bain, M.B., and J.M. Boltz. 1989. Regulated streamflow and warmwater stream fish: A general hypothesis and research agenda. Washington, D.C.: USFWS (Biological Report 89 [18]).

Bain, M.B., and J.T. Finn. 1982. An alternative approach to assessing habitat suitability for stream fish. Pp. 77-98 in: M.B. Bain, et al. (Eds.), An evaluation of methodologies for assessing

the effects of flow fluctuation on stream fish. U.S. Fish and Wildlife Service Biological Report 82 (63): 1-199. FWS/OBB3 82/63

Bain, M.B., and J.T. Finn. 1991. Analysis of microhabitat use by fish: investigator effect and investigator bias. Rivers 2 (1): 57-65.

Bain, M.B., J.T. Finn, and H.E. Booke. 1985. Quantifying stream substrate for habitat analysis studies. North American Journal of Fisheries Management 5: 499-506. Doi: 10.1577/1548-8659(1985)5<499:QSSFHA>2.).CO;2.

Bain, M.B., J.T. Finn, and H.E. Booke. 1988. Streamflow regulation and fish community structure. Ecology 69 (2): 382-392. Doi:10.2307/1940436.

Bain, M.B., J.T. Finn, L.J. Gerardi, Jr., M.R. Ross, and W.P. Saunders, Jr. 1982. An evaluation of methodologies for assessing the effects of flow fluctuations on stream fish. U.S. Fish and Wildlife Service Biological Report 82 (63): 1-199.

Bain, M.B., and N.J. Stevenson, editors. 1999. Aquatic habitat assessment: common methods. American Fisheries Society, Bethesda, Maryland.

Bain, M.B., and V.T. Travnichek. 2000. Assessing impacts and predicting restoration benefits of flow alterations in rivers developed for hydroelectric power production. Pages B543-B552 in: M. Leclerc, H. Capra, S. Valentin, A. Boudreault, and Y. Cote, eds. Proceedings of the second IAHR symposium on habitat hydraulics, Ecohydraulics 2000. Institute National de la Recherche Scientifique-Eau, Ste-Foy, Quebec, Canada.

Bainbridge, R. 1958. The speed of swimming of fish as related to size and to the frequency and amplitude of the tail beat. Journal of Experimental Biology 35: 109-133.

Bainbridge, R. 1960. Speed and stamina in three fish. Journal of Experimental Biology 37: 129-153.

Baird, D., and J.J. Heymans. 1996. Assessment of ecosystem changes in response to freshwater inflow to the Kromme River estuary, St. Francis Bay, South Africa: a network analysis approach. Water SA 22: 307-318.

Baird, L.J., J.C. Stromberg, and T. Maddock. 2005. Linking riparian dynamics and groundwater: an ecohydrologic approach to modeling groundwater and riparian vegetation. Environmental Management 36: 551-564.

Baisre, J.A,, and Z. Arboleya. 2006. Going against the flow: effects on river damming in Cuban fisheries. Fish Res 81: 283-292.

Bajjaliya, F.S., R.G. Tituw, J.R. Ferreira, and R.M. Coleman. 2014. Morphometric variation among four distinct population segments of California steelhead trout. California Fish and Game 100 (4): 703-726.

Baker, D., D. McAdam, M. Boucher, K. Huynh, and C. Brauner. 2014. Swimming performance and larval quality are altered by rearing substrate at early life phases in white sturgeon, *Acipenser transmontanus* (Richardson, 1836). J. Appl. Ichthyol. 30 (6): 1461-1472. Doi: 10.1111/jai.12642.

Baker, D.B., R.P. Richards, T.T. Loftus, and J.W. Krame. 24. A new flashiness index: characteristics and applications to Midwestern rivers and streams. Journal of the American Water Resources Association 40: 503-522.

Baker, D.W., B.P. Bledsoe, C.M. Albano, and N.L. Poff. 2011. Downstream effects of diversion dams on sediment and hydraulic conditions of Rocky Mountain streams. River Res. Appl. 27: 388-401.

Baker, E.A. 2006. A landscape-based ecological classification for river valley segments in Michigan’s Upper Peninsula. Michigan Department of Natural Resources, Fisheries Research Paper 2085, Ann Arbor.

Baker, E.A., and T.G. Coon. 1997. Development and evaluation of alternative habitat suitability criteria for brook trout. Transactions of the American Fisheries Society 126 (1): 65-75.

Baker, J.A., K.J. Killgore, and R.L. Kasul. Aquatic habitats and fish communities in the lower Mississippi River. Reviews in Aquatic Sciences 3: 313-356.

Baker, J.A., and S.T. Ross. 1981. Spatial and temporal resource utilization by southeastern cyprinids. Copeia 1981: 178-189.

Baker, V.R. 1977. Stream channel response to floods with examples from central Texas. Geological Society of America Bulletin 88: 1057-1071.

Baker, V.R., R.C. Kochel, and P.C. Patton. 1988. Flood geomorphology. John Wiley and Sons, New York, New York, USA.

Baker, V.R., and D.F. Ritter. 1975. Competence of rivers to transport coarse bedload material. Geol. Soc. Am. Bull. 86: 975-978.

Baker, W.L. 1990. Climatic and hydrologic effects on the regeneration of *Populus angustifolia* James along the Animas River, Colorado. Journal of Biogeography 17 (1): 59-73.

Bakevich, B.D., C.L. Pierce, and M.C. Quist. 2013. Habitat, fish species, and fish assemblage associations of the Topeka shiner in west-central Iowa. North American Journal of Fisheries Management 33 (6)): 1258-1268. Doi: 10.1080/02755947.2013.839969.

Bakkala, R.G. 1970. Synopsis of biological data on the chum salmon *Oncorhynchus keta* (Walbaum) 1792. U.S. Fish Wildl. Serv., Cir. 315. 89 p.

Balasubramaniam, A.M., R.I. Hall, B.B. Wolfe, J.N. Sweetman, and X. Wang. 2015. Source water inputs and catchment characteristics regulate Limnological conditions of shallow subarctic lakes (Old Crow Flats, Yukon, Canada). Canadian Journal of Fisheries and Aquatic Sciences 72 (7): 1058-1072. Doi: 10/1139/cjfas-2014-0340.

Balcombe, S.R., and A.H. Arthington. 2009. Temporal changes in fish abundance in response to hydrological variability in a dryland floodplain river. Marine and Freshwater Research 60: 146-159.

Balcombe, S.R., A.H. Arthington, N.D. Foster, M.C. Thomas, G.G. Wilson, and S.E. Bunn. 2006. Fish assemblages of an Australian dryland river: abundance, assemblage structure and recruitment patterns in the Warrengo River, Murray-Darling Basin. Marine and Freshwater Research 57: 618-633.

Balcombe, S.R., A.H. Arthington, and D. Sternberg. 2014. Fish body condition and recruitment responses to antecedent flows in dryland rivers and species and river specific. River Research and Applications 30: 1257-1268. Doi: 10.1002/rra.2797

Balcombe, S.R., A.H. Arthington, M.C. Thoms, and G.G. Wilson. 2011. Fish assemblage patterns across a gradient of flow regulation in an Australian dryland river system. River Research and Applications 27 (2): 168183. Doi: 10.1002/rra.1345

Balcombe, S.R., S.E. Bunn, A.H. Arthington, J.H. Fawcett, F.J. McKenzie-Smith, and A. Wright. 2007. Fish larvae, growth, and biomass relationships in an Australian arid zone river: links between floodplains and waterholes. Freshwater Biology 52: 2385-2398.

Balcombe, S.R., S.E. Bunn, F.J. McKenzie-Smith, and P.M. Davies. 2005. Variability of fish diets between dry and flood periods in an arid floodplain river. Journal of Fish Biology 67: 1552-1567.

Balcombe, S.R., J.S. Lobegeiger, S.M. Marshall, J.C. Marshall, D. Ly, and D.N. Jones. 2012. Fish body condition and recruitment success reflect antecedent flows in an Australian dryland river. Fisheries Science 78: 841-847.

Baldes, R.J. 1969. Microhabitat velocity occupied by trout. M.S. thesis, Colorado State University, Fort Collins. 33 pp.

Baldes, R.J., and R.E. Vincent. 1969. Physical parameters of microhabitats occupied by brown trout in an experimental flume. Transactions of the American Fisheries Society 98 (2): 230-238.

Baldigo, B., K. Riva-Murray, and G.E. Schuler. 2003-2004. Effects of environmental and spatial features on mussel populations and communities in a North American river. Walkerana 14 (31): 1-32.

Baldrige, J.E., and D. Amos. 1981. A technique for determining fish habitat suitability criteria: a comparison between habitat utilization and availability. Pages 251‑258 in N.B. Armantrout, editor. Acquisition and utilization of aquatic habitat inventory information. Proceedings of a symposium, Portland, Oregon. American Fisheries Society, Western Division, Bethesda.

Baldwin, D.S., and A.M. Mitchell. 2000. The effects of drying and re-flooding on the sediment and soil nutrient dynamics of lowland river-floodplain systems: a synthesis. Regulated Rivers: Research and Management 16: 457-467.

Ballinger, A., and P.S. Lake. 2006. Energy and nutrient flux from rivers and streams into terrestrial food webs. Marine and Freshwater Research 57: 15-28.

Ballinger, A., and R. MacNally. 2006. The landscape context of flooding in the Murray-Darling basin. Advances in Ecological Research 39: 85-105.

Baltz, D.M., and P.B. Moyle. 1984. Segregation by species and size class of rainbow trout (*Salmo gairdneri*) and Sacramento sucker (*Catostomus occidentalis*) in three California streams. Environmental Biology of Fishes 10: 101-110.

Baltz, D.M., B. Vondracek, L.R. Brown, and P.B. Moyle. 1987. Influence of temperature on microhabitat choice by fishes in a California stream. Transactions of the American Fisheries Society 116 (1): 12‑20.

Baltz, D.M., B. Vondracek, L.R. Brown, and P.B. Moyle. 1991. Seasonal changes in microhabitat selection by rainbow trout in a small stream. Transactions of the American Fisheries Society 120 (2): 166‑176.

Ban, X., Y. Du, H.Z. Liu, and F. Ling. 2011. Applying Instream Flow Incremental Method for the spawning habitat protection of Chinese sturgeon (*Acipenser sinensis*). River Research and Applications 27 (1): 87-98. Doi: 10.1002/rra.1341

Bancroft, J.S., and P. Turchin. 2003. An experimental test of fragmentation and loss of habitat with *Oryzaephilus surinamensis*. Ecology 84 (7): 1756-1767.

Band, L.E., C.L. Tague, P. Groffman, et al. 2001. Forest ecosystem processes at the watershed scale: hydrological and ecological controls of nitrogen export. Hydrol. Process 15: 2013-2028.

Banerjee, O., R. Bark, J. Connor, and N.D. Crossman. 2013. An ecosystem services approach to estimating economic losses associated with drought. Ecol. Econ. 91: 19-27. Doi: 10.1016/j.ecolecon.2013.03.022.

Bangen, S.G., J.M. Wheaton, N. Bouwes, B. Bouwes, and C. Jordan. 2014. A methodological intercomparison of topographic survey techniques for characterizing wadeable streams and rivers. Geomorphology 206: 343-361. Doi: 10.1016/j.geomorph.2013.10.010

Banish, N.P. 2003. Diel summer habitat use by bull trout, *Salvelinus confluentus*, in eastern Cascades streams. Master’s thesis, University of Georgia, Athens.

Banish, N.P., J.T. Peterson, and R.F. Thurow. 2008. Physical, biotic, and sampling influences on diel habitat use by stream-dwelling bull trout. North American Journal of Fisheries Management 28 (1): 176-187.

Banks, J.L., J. Li, and A.T. Herlihy. 2007. Influence of clearcut logging, flow duration, and season on emergent aquatic insects in headwater streams of the central Oregon Coast Range. J. N. Am. Benthol. Soc. 26: 620-632.

Banks, J.W. 1969. A review of the literature on the upstream migration of adult salmonids. Journal of Fish Biology 1: 85-136.

Baran, P. 2012. Hydropeaking and minimum flow: the French approach. In: ECOSTAT workshop on Hydromorpphology of the WFD Common Inplementation Stratey, 12-13 June, 2012. Brussels.

Baran, P., M. Delacoste, R. Dauba, J.-M. Lascaux, and A. Belaud. 1995. Effects of reduced flow on brown trout populations downstream of dams in the French Pyrenees. Regulated Rivers: Research and Management 10: 347-361. Doi: 10.1002/rra.2450100226

Baran, P., M. Delacoste, J.-M. Lascaux. 1997. Variability of mesohabitat used by brown trout populations in the French Central Pyrenees. Transactions of the American Fisheries Society 126: 747-757.

Baras, E. 1996. Selection of residence area and non-reproductive homing in a shoaling freshwater teleost, the barbel *Barbus barbus* (L). Pages 47-58 in: E. Baras and J.C. Philippart, editors, Proceedings of the 1st Conference and Workshop on Fish Telemetry in Europe. University of Liege, Belgium.

Barber, M.E., J. Adam, K. Rajagopalan, G. Yorgey, and R. Mahler. 2013. Impacts of climate and municipal water demand changes on ecological flows in the Columbia river basin, USA. WIT Transactions on Ecosystems and Sustainable Development 179: 87-97

Barber, M.E., A. Hossain, J. Covert, and G.J. Gregory. 2009. Augmentation of seasonal low stream flows by artificial recharge in the Spokane Valley – Rathdrum Prairie Aquifer of Idaho and Washington. Hydrogeology Journal 17: 1459-1470.

Barbier, E.B., and J.H. Thompson. 1998. The value of water: Floodplain versus large-scale irrigation benefits in northern Nigeria. Ambio 27: 434-440.

Barcena, J.F., A. Garcia, J. Garcia, C. Alvarez, and J.A. Revilla. 2012. Surface analysis of free surface and velocity to changes in river flow and tidal amplitude on a shallow mesotidal estuary: an application in Suances Estuary (Northern Spain). Journal of Hydrology 420-421: 301-318.

Barcena, J.F., A. Garcia, A.G. Gomez, C. Alvarez, J.A. Juanes, and J.A. Revilla. 2012. Spatial and temporal flushing time approach in estuaries influenced by river and tide. An application in Suances Estuary (Northern Spain). Estuarine, Coastal and Shelf Science 112: 40-51.

Bardonnet, A. 2001. Spawning in swift water currents: implications for eggs and larvae. Archiv fur Hydrobiologie 135 (Supplement): 271-291.

Bardonnet, A., and J.-L. Bagliniere. 2000. Freshwater habitat of Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 57 (2): 497-506. Doi: 10.1139/f99-226.

Bardonnet, A., P. Gaudin, and H. Persat. 1991. Microhabitats and downstream migration of young grayling (*Thymallus thymallus* L.). Freshwater Biology 26: 365-376.

Bardonnet, A., P. Poncin, and J.-M. Roussel. 2006. Brown trout fry move inshore at night: a choice of water depth or velocity? Ecology of Freshwater Fish 15: 309-314.

Baril, A.-M., P.M. Biron, and J.W.A. Grant. 2019. An assessment of an unsuccessful restoration project for lake sturgeon using three-dimensional numerical modelling. North American Journal of Fisheries Management 39☹1): 69-81. Doi: 10.1002/nafm.10250

Baril, A.-M., J.T. Buszkiewicz, P.M. Biron, Q.E. Phelps, and J.W.A. Grant. 2018. Lake sturgeon (*Acipenser fulvescens*) spawning habitat: a quantitative review. Canadian Journal of Fisheries and Aquatic Sciences 75: 925-933.

Barinaga, M. 1996. A recipe for river recovery? Science 273: 1648-1650.

Barko, V.A., and D.P. Herzog. 2003. Relationships among side channels, fish assemblages, and environmental gradients in the unimpounded upper Mississippi River. Journal of Freshwater Ecology 18: 377-382.

Barko, V.A., D.P. Herzog, R.A. Hrabik, and J.S. Scheibe. 2004. Relationships among fish assemblages and main-channel-border physical habitats in the unimpounded upper Mississippi River. Transactions of the American Fisheries Society 133: 371-384.

Barko, V.A., D.P. Herzog, and M.T. O’Connor. 2006. Response of fishes to floodplain connectivity during and following a 500-year flood event in the unimpounded Upper Mississippi River. Wetlands 26: 244-257.

Barnard, S., R.J. Wyatt, and N.J. Milner. 1995. The development of habitat models for stream salmonids, and their application to fisheries management. Bull. Fr. Peche Piscic.337/338/339: 375-385.

Barnes, H.H. 1967. Roughness characteristics of natural channels. U.S. Geological Survey Water Supply Paper 1849.

Barnes, T.K., A.K. Volety, K. Chartier, F.J. Mazzotti, and L. Pearlstine. 2007. A habitat suitability index model for the eastern oyster (Crassostrea virginica), a tool for restoration of the Caloosahatchee Estuary, Florida. Journal of Shellfish Research. 26: 949–959 (<http://crocdoc.ifas.ufl.edu/research/reports/HSI%20Oyster%20Final.pdf>).

Barnes, W.J. 1997. Vegetation dynamics of the floodplain of the lower Chippewa River in Wisconsin. Journal of the Torrey Botanical Society 124 (2): 189-197.

Barnett, L.A.K., and B.C. Spence. 2011. Freshwater survival of stranded steelhead kelts in coastal central California streams. North American Journal of Fisheries Management 31 (4): 757-764. Doi:10.1080/02755947.2011.608618.

Barnett, T.P., J.C. Adam, and D.P. Lettenmaier. 2005. Potential impacts of a warming climate on water availability in snow-dominated regions. Nature 438: 303-309. Doi: 10.1038/nature04141.

Barnett, T.P., D.W. Pierce, H.G. Hidalgo, C. Bonfils, B.D. Santer, T. Das, G. Bala, A.W. Wood, T. Nozawa, A.A. Mirin, D.R. Cayan, and M/D. Dettinger. 2008. Human-induced changes in the hydrology of the western United States. Science 319 (5866): 1080-1083. Doi:10.1126/science.1152538.

Baron, J.S., N.L. Poff, P.L. Angermeier, C.N. Dahm, P.H. Gleick, N.G. Hairston, R.B. Jackson, C.A. Johnston, B.D. Richter, and A.D. Steinman. 2002. Meeting ecological and societal needs for freshwater. Ecological Applications 12: 1247-1260. Doi: 10.1890/10551-0761(2002)012[1247:MEASNF]2.0.CO;2.

Barrett, P.J., and O.E. Maughan. 1994. Habitat preferences of introduced smallmouth bass in a central Arizona stream. North American Journal of Fisheries Management 14 (1): 112-118.

Barrineau, C.E., W.A. Hubert, P.D. Dey, and T.C. Annear. 2005. Winter ice processes and pool habitat associated with two types of constructed instream structures. North American Journal of Fisheries Management 25: 1022-1033.

Barry, P.M., R.F. Carline, D.G. Argent, and W.G. Kimmel. 2007. Movement and habitat use of stocked juvenile paddlefish in the Ohio River system, Pennsylvania. North American Journal of Fisheries Management 27 (4): 1316-1325.

Barry, T., and B. Kynard. 1986. Attraction of adult American shad to fish lifts at Holyoke Dam, Connecticut River. North American Journal of Fisheries Management 6: 233-241.

Bart, H.L., Jr. 1989. Fish-habitat association in an Ozark stream. Environmental Biology of Fishes 24: 173-186.

Barth, C.C., S.J. Peake, P.J. Allen, and W.G. Anderson. 2009. Habitat utilization of juvenile lake sturgeon *Acipenser fulvescens* in a large Canadian river. Journal of Applied Ichthyology 25: 18-26.

Bartholow, J.M. 1996. Sensitivity of a salmon population model to alternative formulations and initial conditions. Ecological Modeling 88 (1): 215-226.

Bartholow, J.M. 2004. Modeling Chinook salmon with SALMOD on the Sacramento River, California. Hydroecologie Appliquee 14 (1): 193-219.

Bartholow, J.M. 2010. Constructing an interdisciplinary environmental flow recommendation. Journal of the American Water Resources Association 46: 892-906.

Bartholow, J.M., and J.A. Henriksen. 2006. Assessment of factors limiting Klamath River fall Chinook salmon production potential using historical flows and temperatures. Fort Collins Science Center, U.S. Geological Survey, Open-File Report 2006-1249, Fort Collins, CO.

Bartholow, J.M., J.L. Laake, C.B. Stalnaker, and S.C. Williamson. 1993. A salmonid population model for evaluating alternative flow regimes. Rivers 4 (2): 265-279.

Bartholow, J., W. Slauson, B. Parsons, and W. Hubert. 1990. Questions on habitat preference. North American Journal of Fisheries Management 10 (3): 362‑363.

Bartholow, J.M., and T.J. Waddle. 1986. Introduction to stream network habitat analysis. U.S. Fish and Wildlife Service, Instream Flow Information Paper Number 22 (Biological Report 86[8]), Washington, D.C.

Bartholow, J.M., and T.J. Waddle. 1995. The search for an optimum flow regime using a salmon population model. Pp. 331-339 in: J.J. Cassidy, ed. Waterpower ‘95: proceedings of the international conference on hydropower. American Society of Civil Engineers, New York.

Barton, B.A. 1980. Spawning migration, age and growth, and summer feeding of white and longnose suckers in an irrigation reservoir. Canadian Field-Naturalist 94: 300-304.

Barton, G.J, R.R. McDonald, J.M. Nelson, and R.L. Dinehart. 2005. Simulation of flow and sediment mobility using a multidimensional flow model for the white sturgeon critical habitat reach, Kootenai River near Bonner’s Ferry, Idaho. U.S. Geological Survey, Scientific Investigations Report 2005-5230, Reston, Virginia.

Bartsch, M.R., D.L. Waller, W.G. Cope, and S. Gutreuter. 2000. Emersion and thermal tolerances of three species of unionid mussels: survival and behavioral effects. Journal of Shellfish Research 19: 233-240.

Bartsch, N., C.P. Gubala, and T.B. Hardy. 1996. Determining habitat criteria for the endangered fountain darter through aquatic habitat mapping and hydrologic modeling. *In*: Proceedings of the 2nd International Symposium on Habitat Hydraulics. June 1996, Quebec, Canada. B251-B262

Bartschi, D.K. 1976. A habitat-discharge method of determining instream flows for aquatic habitat. Pages 285-294 in J.F. Orsborn, and C.H. Allman (editors). Proceedings of the Symposium and Specialty Conference on Instream Flow Needs II. American Fisheries Society, Bethesda, Maryland.

Bartz, B. 1990. Sources of uncertainty and effect on interpretation of results in the development of instream flows for fisheries habitat. Master’s thesis, Utah State University, Logan.

Bartz, K.K., K.M. Lagueux, M.D. Scheuerell, T. Beechie, A.D. Haas, and M. Ruckelshaus. 2006. Translating restoration scenarios into habitat conditions: an initial step in evaluating recovery strategies for Chinook salmon (*Oncorhynchus tshawytscha*). Canadian Journal of Fisheries and Aquatic Sciences 63 (7): 1578-1595.

Bassar, R.D., B.H. Letcher, K.H. Nislow, and A.R. Whitely. 2016. Changes in seasonal climate outpace compensatory density-dependence in eastern brook trout. Global Change Biology 22: 577-593.

Batalla, R.J., and M. Sala. 1995. Effective discharge for bedload transport in streams. Pages 93-103 *in*: E.J. Hickin (editor), River Geomorphology, John Wiley & Sons, Chichester.

Batalla, R.J., and D. Vericat. 2009. Hydrological and sediment transport dynamics of flushing flows: implications for management in large Mediterranean rivers. River Research and Applications 25: 297-314.

Bate, G.C., and J.B. Adams. 2000. The effects of a single freshwater release into the Kromme estuary: Overview and interpretation for the future. Water SA 26: 329-332.

Bateman, D.S., and H.W. Li. 2001. Nest site selection by reticulate sculpin in two streams of different geologies in the central Coast Range of Oregon. Transactions of the American Fisheries Society 130 (5): 823-832.

Bateman, H.L., M.J. Harner, and A. Chung-MacCoubrey. 2008. Abundance and reproduction of toads (*Bufo*) along a regulated river in the southwestern United States: importance of flooding in riparian ecosystems. Journal of Arid Environments 72: 1613-1619.

Bates, B., Z.W. Kundzewicz, S. Wu, and J.P. Palutikof, editors. 2008. Climate Change and Water: Technical Paper of the Intergovernmental Panel on Climate Change. IPPC, Geneva.

Bates, P.B., M.G. Anderson, J.M. Hervouet, and J.C. Hwkes. 1997. Investigating the behaviour of two-dimensional finite element models of compound channel flow. Earth Surface Processes and Landforms 22 (1): 3-17.

Bathurst, J. 1985. Flow resistance estimation in mountain rivers. J. Hydraul. Engineer. 111 (4): 625-643. Doi: 10.1061/(ASCE)0733-9429(1985)111:4(625).

Battin, T.J. 2000. Hydrodynamics is a major determinant of streambed biofilm activity: from the sediment to the reach scale. Limnology and Oceanography 45: 1308-1319.

Battin, J., M.W. Wiley, M.H. Ruckelshaus, R.N. Palmer, E. Korth, K.K. Bartz, and H. Imaki. 2007. Projected impacts of climate change on salmon habitat restoration. Proc. Natl. Acad. Sci. USA 104 (16): 6720-6725. Doi:10.1073/pnas.0701685104.PMID:17412830.

Bauer, S., J. Olson, A. Cockrill, N. van Hattem, L. Miller, M. Tauzer, and G. Leppig. 2015. Impacts of surface water diversions for marijuana cultivation on aquatic habitat in four northwestern California watersheds. PLoS ONE 10: e0120016. Doi: 10.1371/journal.pone.0120016.

Bauersfeld, K. 1978. Stranding of juvenile salmon by flow reductions at Mayfield Dam on the Cowltz River. Washington Department of Fisheries, Technical Report 36. Olympia.

Bauersfeld, K. 1978. The effect of daily flow fluctuation on spawning fall Chinook in the Columbia River. Washington Department of Fisheries, Technical Report 38. Olympia.

Baumgartner, L.J., J. Conallin, I. Wooden, B. Campbell, R. Gee, W.A. Robinson, and M. Mallen-Cooper. 2014. Using flow guilds of freshwater fish in an adaptive management framework to simplify environmental flow delivery for semi-arid riverine systems. Fish and Fisheries 15: 410-427. Doi: 10.1111/faf.12023.

Baxter, C.V., K.D. Fausch, and W.D. Saunders. 2005. Tangled webs: reciprocal flows of invertebrate prey link stream and riparian zones. Freshwater Biology 50: 201-220.

Baxter, C.V., C.A. Frissell, and F.R. Hauer. 1999. Geomorphology, logging roads, and the distribution of bull trout spawning in a forested river basin: implications for management and conservation. Transactions of the American Fisheries Society 128: 854-867.

Baxter, C.V., and F.R. Hauer. 2000. Geomorphology, hyporheic exchange, and selection of spawning habitat by bull trout (*Salvelinus confluentus*). Canadian Journal of Fisheries and Aquatic Sciences 57 (7): 1470-1481. Doi:10.1139/cjfas-57-7-1470.

Baxter, J.S., and J.D. McPhail. 1996. Bull trout spawning and rearing habitat requirements: summary of the literature. Province of British Columbia, Fisheries Technical Circular 98, Victoria.

Baxter, J.S., and J.D. McPhail. 1997. Diel microhabitat preferences of juvenile bull trout in an artificial stream channel. North American Journal of Fisheries Management 17 (4): 975-980. Doi: 10.1577/1548-8675(1997)017<0975:DMPOJB>2.3.CO;2.

Baxter, J.S., and J.D. McPhail. 1999. The influence of redd site selection, groundwater upwelling, and over-winter incubation temperature on survival of bull trout (*Salvelinus confluentus*) from egg to alevin. Canadian Journal of Fisheries and Aquatic Sciences 77 (8): 1233-1239. Doi: 10.1139/z99-090.

Baxter, R.M. 1977. Environmental effects of dams and impoundments. Annual Review of Ecology and Systematics 8: 255-283. Doi: 10.1146/annurev.es.08.110177.001351.

Baxter, R.M., and P. Glaude. 1980. Environmental effects of dams and impoundments in Canada: experience and prospects. Can. Bull. Fish. Aquat. Sci. 125: 66-77.

Bayha, K. 1978. Instream flow methodologies for regional and national assessments. Instream Flow Information Paper No. 7, FWS/OBS 78/61, U.S. Fish and Wildlife Service, Washington, DC. 98 pp.

Bayley, P.B. 1988. Factors affecting growth rates of young tropical floodplain fishes: seasonality and density-dependence. Environmental Biology of Fishes 21: 127-142.

Bayley, P.B. 1991. The flood pulse advantage and the restoration of river-floodplain systems. Regulated Rivers: Research and Management 6: 75-86.

Bayley, P.B. 1995. Understanding large river-floodplain ecosystems. BioScience 45: 153-158.

Bayley, P.B., and M. Petrere, Jr. 1989. Amazon fisheries: assessment method, current status and management options. Pp. 385-398 in: Dodge, D.P. (Ed.) Proceedings of the International Large Rivers Symposium. Can. Special Publ. Fish. Aquatic Sciences 106.

Beacham. T.D. 1988. A genetic analysis of early development in pink (*Oncorhynchus gorbuscha*) and chum salmon (*O. keta*) at three different temperatures. Genome 30:89‑96.

Beacham, T.D. 1993. Competition between juvenile pink (*Oncorhynchus gorbuscha*) and chum salmon (*Oncorhynchus keta*) and its effect on growth and survival. Canadian Journal of Zoology 71: 1270-1274.

Beacham, T.D., and C.B. Murray. 1987b. Adaptive variation in body size, age, morphology, egg size and development biology of chum salmon (*Oncorhynchus keta*) in British Columbia. Canadian Journal of Fisheries and Aquatic Sciences 44: 244‑261.

Beacham, Terry D., and Clyde B. Murray. 1990. Temperature, egg size, and development of embryos and alevins of five species of Pacific salmon: a comparative analysis. Transactions of the American Fisheries Society 119 (6): 927‑945.

Beacham, T.D., and P. Starr. 1982. Population biology of chum salmon, Oncorhynchus keta, from the Fraser River, British Columbia. Fishery Bulletin 80 (4): 813-825.

Beakes, M., J. Moore, N. Retford, R. Brown, J. Merz, and S. Sogard. 2013. Evaluating statistical approaches to quantifying juvenile Chinook salmon habitats in a regulated California river. River Research and Applications. Doi: 10.1002/rra.2632.

Beamer, E.M., and G.R. Pess. 1999. Effects of peak flows on Chinook (*Oncorhynchus tshawytscha*) spawning success in two Puget Sound river basins. Pages 67-70 in R. Sakrison and P. Sturtevant (eds.), Proceedings, American Water Resources Association Annual Water Resources Conference.

Beamish, F.W.H. 1970. Oxygen consumption of largemouth bass, *Micropterus salmoides*, in relation to swimming speed and temperature. Canadian Journal of Zoology 48: 1221-1228.

Beamish, F.W.H. 1978. Swimming capacity. Pages 101-187 in: W.S. Hoar and D.J. Randall, editors. Fish Physiology: volume 7 – locomotion. Academic Press, London.

Beamish, F.W.H. 1980. Swimming performance and oxygen consumption of the charrs. Pp. 739-748 in: Balon, E.K. (Ed.), Charrs, salmonid fishes of the genus *Salvelinus*. Dr. W. Junk, The Hague, The Netherlands.

Beamish, F.W.H., and S. Lowarrtz. 1996. Larval habitat of American brook lamprey. Canadian Journal of Fisheries and Aquatic Sciences 53: 693-700.

Beamish, R.J. 1993. Climate and exceptional fish production off the west coast of North America. Canadian Journal of Fisheries and Aquatic Sciences 50: 2280-2291.

Beamish, R.J., and D.R. Bouillon. 1993. Pacific salmon production trends in relation to climate. Canadian Journal of Fisheries and Aquatic Sciences 57: 13-16.

Beamish, R.J., C.-E.M. Neville, B.L. Thompson, P.J. Harrison, and M. St. John. 1994. A relationship between Fraser River discharge and interannual production of Pacific salmon (*Oncorhynchus* sp.) and Pacific herring (*Clupea pallasi*) in the Strait of Georgia. Canadian Journal of Fisheries and Aquatic Sciences 51 (12): 2843-2855. Doi: 10.1139/f94-283.

Bean, J.R., A.C. Wilcox, W.W. Woessner, and C.C. Muhlfeld. 2015. Multiscale hydrogeomorphic influences on bull trout (Salvelinus confluentus) spawning habitat. Canadian Journal of Fisheries and Aquatic Sciences 72 (4): 514-526. Doi: 10.1139.cjfas-2013-0534.

Beard, T.D., Jr., and R.F. Carline. 1991. Influence of spawning and other stream habitat features on spatial variability of wild brown trout. Transactions of the American Fisheries Society 120 (6): 711-722.

Beard, Z.S. 2016. Survival, movement dynamics, distribution, and habitat and species associations of juvenile Burbot in a tributary of the Kootenai River. Master’s thesis, University of Idaho, Moscow.

Beard, Z.S., M.C. Quist, R.S. Hardy, and T.J. Ross. 2017. Habitat association of juvenile Burbot in a tributary of the Kootenai River. Transactions of the American Fisheries Society 146 (5): 1005-1015. Doi: 10.1080/00028487.2017.1334702.

Beasley, C.A., and J.E. Hightower. 2000. Effects of a low-head dam on the distribution and characteristics of spawning habitat used by striped bass and American shad. Transactions of the American Fisheries Society 129 (6): 1316-1330. Doi: 10.1577/1548-8659(2000)129<1316:EOALHD>2.0.CO:2.

Beatty, R.J., F.J. Rahel, and W.A. Hubert. 2009. Complex influences of low-head dams and artificial wetlands on fishes in a Colorado River tributary system. Fisheries Management and Ecology 16: 457-467.

Beatty, S.J., D.L. Morgan, and A.J. Lymbery. 2014. Implications of climate change for potadromous fishes. Global Change Biology 20: 1794-1807.

Beatty, S.J., D.L. Morgan, F.J. McAleer, and A.R. Ramsay. 2010. Groundwater contribution to baseflow maintains habitat connectivity for *Tandanus bostocki* (Teleostei: Plotosidae) in a south-western Australian river. Ecology of Freshwater Fish 19: 595-608.

Beauchamp, V.B., and J.C. Stromberg. 2007. Flow regulation of the Verde River, Arizona encourages *Tamarix* recruitment but has minimal effect on *Populus* and *Salix* stand density. Wetlands 27 (2): 381-389.

Beaugrand, G., and P.C. Reid. 2012. Relationships between North Atlantic salmon, plankton, and hydroclimateic change in the Northeast Atlantic. ICES J. Mar. Sci. 69 (9): 1549-1562. Doi: 10.1093/icesjms/fss153.

Bebars, M.I., and G. Lasserre. 1983. Analysis of the Egyptian marine and lagoon fisheries from 1962-1976, in relation to the construction of the Aswan Dam (completed in 1969). Oceanologica Acta 6: 417-426.

Beche, L.A., P.G. Connors, V.H. Resh, and A.M. Merenlender. 2009. Resilience of fishes and invertebrates to prolonged drought in two California streams. Ecography 32: 778-788.

Beche, L.A., and V.H. Resh. 2007. Short-term climatic trends affect the temporal variability of macroinvertebrates in California Mediterranean streams. Freshwater Biology 52: 2317-2339.

Bechera, J.A., M. Leclerc, L. Belzile, and P. Boudreau. 1994. A numerical method for modeling the dynamics of the spawning habitat of landlocked salmon. Proceedings of the 1st International Symposium on Habitat Hydraulics. August 18-20, 1994. Trondheim, Norway.

Bechtold, J.S., R.T. Edwards, and R.J. Naiman. 2003. Biotic versus hydrologic control over seasonal nitrate leaching in a floodplain forest. Biogeochemistry 63: 53-7.

Beck, H.J., and G.F. Birch. 2012. Metals, nutrients and total suspended solids discharged during different flow conditions in highly urbanized catchments. Environ. Monit. Assess. 184 (2): 637-653. doi: 10.1007/s10661-011-1992-z.

Becker, C.D., and D.A. Neitzel. 1985. Assessment of intragravel conditions influencing egg and alevin survival during salmonid egg dewatering. Environmental Biology of Fishes 12 (1): 33-46.

Becker, C.D., D.A. Neitzel, and C.S. Abernethy. 1983. Effects of dewatering on chinook salmon redds: tolerance of four developmental phases to one-time dewatering. North American Journal of Fisheries Management 3: 373-382.

Becker, C.D., D.A. Neitzel, and D.W. Carlile. 1985. Survival data for dewatered rainbow trout (*Salmo gairdneri* Rich.) eggs and alevins. Journal of Applied Ichthyology 2: 102-110.

Becker, C.D., D.A. Neitzel, and D.H. Fickieson. 1982. Effects of dewatering on chinook salmon redds: tolerance of four developmental phases to daily dewaterings. Transactions of the American Fisheries Society 111 (5): 624-637.

Becker, J.A., D.J. Speare, and I.R. Dohoo. 2003. Effect of water temperature and flow rate on the transmission of microsporidial gill disease caused by *Lome salmonae* in rainbow trout *Oncorhynchus mykiss*. Fish Pathology 38: 105-112.

Bednarek, A.T., and D.D. Hart. 2005. Modifying dam operations to restore rivers: ecological responses to Tennessee River dam mitigation. Ecological Applications 15: 997-1008.

Bednaski, J., S.E. Miller and D.L. Scarnechia. 2008. Larval fish catches in the lower Milk River, Montana in relation to timing and magnitude of spring discharge. River Research and Applications 24: 844-851.

Beebe, J.T. 1996. Fluid speed variability and the importance to manage fish habitat in rivers. Regulated Rivers: Research and Management 12: 63-79.

Beecher, H.A. 1981. Instream flows and steelhead production in western Washington. Proceedings of the Western Association of Fish and Wildlife Agencies: 395-410. Kalispell, Montana.

Beecher, H.A. 1987. Simulating trout feeding stations in instream flow models. Pages 71‑82 in J.F. Craig and J.B. Kemper, editors. Regulated Streams: Advances in Ecology. Plenum Press, New York and London.

Beecher, H.A. 1990. Standards for instream flow. Rivers 1 (2): 97-109.

Beecher, H.A. 1991. PHABSIM in Hawaii. Rivers 2 (1): 79-82.

Beecher, H.A. 1992. Assessing instream flow needs in plunge pools. Unpublished paper presented March 25, Pacific Fishery Biologists, annual meeting, Blaine, Washington.

Beecher, H.A. 1995. Comparison of preference curves and habitat utilization curves based on simulated habitat use. Rivers 5 (2): 109‑120.

Beecher, H.A. 2017. Comment 1: Why it is time to put PHABSIM out to pasture. Fisheries 42 (10): 508-510. Doi: 10.1080/03632415.2017.1380985.

Beecher, H.A., B.A. Caldwell, and S.B. DeMond. 2002. Evaluation of depth and velocity preferences of juvenile coho salmon in Washington streams. North American Journal of Fisheries Management 22 (3): 785-795.

Beecher, H.A., B.A. Caldwell, S.B. DeMond, D. Seiler, and S.N. Boessow. 2010. An empirical assessment of PHABSIM using long-term monitoring of coho salmon smolt production in Bingham Creek, Washington. North American Journal of Fisheries Management 30 (6): 1529-1543. Doi: 10.1577/M10-020.1

Beecher, H.A., J.P. Carleton, and T.H. Johnson. 1995. Utility of depth and velocity preferences for predicting steelhead parr distribution at different flows. Transactions of the American Fisheries Society 124: 935‑938.

Beecher, H.A., J.P. Carleton, and T.H. Johnson. 1997. Testing the independence of microhabitat preferences and flow: response to comments. Transactions of the American Fisheries Society 126 (3): 541-542.

Beecher, H.A., T.H. Johnson, and J.P. Carleton. 1993. Predicting microdistributions of steelhead parr from depth and velocity criteria: Test of an assumption of the Instream Flow Incremental Methodology. Canadian Journal of Fisheries and Aquatic Sciences 50 (11): 2380-2387.

Beechie, T.J., E. Beamer, and L. Wasserman. 1994. Estimating coho salmon rearing habitat and smolt production losses in a large river basin, and implications for restoration. North American Journal of Fisheries Management 14: 797-811.

Beechie, T.J., and S. Bolton. 1999. An approach to restoring salmonid habitat-forming processes in Pacific Northwest watersheds. Fisheries 24 (4): 6-15.

Beechie, T., E. Buhle, M. Ruckelshaus, A. Fullerton, and L. Holsinger. 2006. Hydrologic regime and the conservation of salmon life history diversity. Biological Conservation 130 (4): 560-572. Doi: 10.1016/j.biocon.2006.01.019

Beechie, T.J., B.D. Collins, and G.R. Pess. 2001. Holocene and recent geomorphic processes, land use, and salmonid habitat in two north Puget Sound river basins. Water science and Application 4: 37-54.

Beechie, T.J., C.M. Greene, L. Holsinger, and E.M. Beamer. 2006. Incorporating parameter uncertainty into evaluation of spawning habitat imitations on Chinook salmon (*Oncorhynchus tshawytscha*) populations. Canadian Journal of Fisheries and Aquatic Sciences 63 (6): 1242-1250.

Beechie, T., H. Imaki, J. Greene, A. Wade, H. Wu, G. Pess, P. Roni, J. Kimball, J. Stanford, P. Kiffney, and N. Mantua. 2012. Restoring salmon habitat for a changing climate. River Research and Applications 29 (8): 939-960. Doi: 10.1002/rra.2590.

Beechie, T.J., M. Liermann, E.M. Beamer, and R. Henderson. 2005. A classification of habitat types in a large river and their use by juvenile salmonids. Transactions of the American Fisheries Society 134 (3): 717-729. Doi:10.1577/T04-062.1.

Beechie, T.J., H. Moir, and G. Pess. 2008. Hierarchical physical controls on salmonid spawning location and timing. Pages 83-102 in: D. Sear and P. DeVries (eds.), Salmonid spawning habitat in rivers: physical controls, biological responses, and approaches to remediation. American Fisheries Society Symposium 65, Bethesda, Maryland.

Beechie, T.J., M.M. Pollock, and S. Baker. 2008. Channel incision, evolution and potential recovery in the Walla Walla and Tucannon River basins, northwestern USA. Earth Surface Processes and Landforms 33: 784-800.

Beechie, T.J., M. Ruckelshaus, E. Buhle, A. Fullerton, and L. Hiksubger, 2006. Hydrologic regime and the conservation of salmon life history diversity. Biological Conservation 130: 560-572.

Beechie, T.J., D.A. Sear, J.D. Olden, G.R. Pess, J.M. Buffington, H. Moir, P. Roni, and M.M. Pollock. 2010. Process-based principles for restoring river ecosystems. BioScience 60 (3): 209-222. Doi: 10.1525/bio.2010.60.3.7.

Beechie, T.J., and T.H. Sibley. 1997. Relationships between channel characteristics, woody debris, and fish habitat in northwest Washington streams. Transactions of the American Fisheries Society 126: 217-229.

Beedle, D.L. 1991. Physical dimensions and hydrologic effects of beaver ponds on Kuiu Island in southeast Alaska. Thesis. Corvallis, OR: Oregon State University.

Beeman, J.W., D.W. Rondorf, J.C. Faler, and 3 others. 1991. Assessment of smolt condition for travel time analysis. U.S. Dept. of Energy, BPA, Annual Report 1990, Division of Fish & Wildlife.

Beer, W.N., and J.J. Anderson. 2001. Effect of spawning day and temperature on salmon emergence: interpretations of a growth model for Methow River chinook. Canadian Journal of Fisheries and Aquatic Sciences 58 (5): 943‑949.

Beer, W.N., and J.J. Anderson. 2011. Sensitivity of juvenile salmonid growth to future climate trends. River Research and Applications 27: 663-669. Doi: 10.1002/rra.1390.

Beer, W.N., and J.J. Anderson. 2013. Sensitivity of salmonid freshwater life history in western US streams to future climate conditions. Global Change Biol. 19: 2547-3556. Doi: 10.1111/gcb.1224.

Beesley, L., D.C. Gwinn, A. Price, A.J. King, B. Gawne, J.D. Koehn, and D.L. Nielsen. 2014. Juvenile fish response to wetland inundation: how antecedent conditions can inform environmental flow policies for native fish. Journal of Applied Ecology. Doi: 10.1111/1365-2664.12342.

Beesley, L., A.J. King, F. Amtstaetter, J.D. Koehn, B. Gawne, A. Price, D.L. Nielsen, L. Vilizzi, and S.N. Meredith. 2012. Does flooding affect spatiotemporal variation of fish assemblages in temperate floodplain wetlands? Freshw. Biol. 57 (11): 2230-2246. Doi: 10.1111/j.1365-2427.2012.02865.x.

Behnke, A.C. 1990. A perspective on America’s vanishing streams. Journal of the North American Benthological Society 9: 77-88.

Behnke, R.J. 1977. Fish faunal changes associated with land-use and water development. Great Plains-Rocky Mountain Geologic Journal 6 (2): 133-136.

Beighley, R.E., J.M. Melack, and T. Dunne. 2003. Impacts of California’s climatic regimes and coastal land use change on streamflow characteristics. J. Am. Water Res. Assoc. 39 (6): 1419-1433.

Beilfuss, R., and C. Brown. 2006. Assessing environmental flow requirements for the Marromeu Complex of the Zambezi Delta: Application of the DRIFT Model (Downstream Response to Imposed Flow Transformations). Museum of Natural History – University of Edouardo Mondlane, Maputo. 159 pp.

Beilfuss, R., and C. Brown. (in press 2010). Assessing environmental flow requirements and trade-offs for the Lower Zambezi River and Delta, Mozambique. Journal of River Basin Management.

Beisel, J.N., P. Usseglio-Polatera, S. Thomas, and J.C. Morceteau. 1998. Stream community structure in relation to spatial variation: the influence of mesohabitat characteristics. Hydrobiologia 389: 73-88. Doi: 10.1023/A:1003519429979.

Bejarano, M.D., M. Marchamalo, D. Garcia de Jalon, and M. Gonzalez del Tanago. 2010. Flow regime patterns and their controlling factors in the Ebro basin (Spain). Journal of Hydrology 385: 323-335.

Beland, A.P., P. Chaveroche, P. Lim, and C. Sabaton. 1989. Probability-of-use curves applied to brown trout (Salmo trutta fario L.) in rivers of southern France. Regulated Rivers: Research and Management 3: 321-336.

Beland, F.K. 1996. The relationship between redd counts and Atlantic salmon (*Salmo salar*) parr populations in the Dennys River, Maine. Canadian Journal of Fisheries and Aquatic Sciences 53: 513-519.

Beland, K.F., R.M. Jordan, and A.L. Meister. 1982. Water depth and velocity preference of spawning Atlantic salmon in Maine rivers. North American Journal of Fisheries Management 2 (1): 11-13.

Beland, K.F., J.G. Trial, and J.F. Kocik. 2004. Use of riffle and run habitats with aquatic vegetation by juvenile Atlantic salmon. North American Journal of Fisheries Management 24 (2): 525-533. Doi: 10.1577/M02-196.1.

Belanger, G., and M.A. Rodriguez. 2002. Local movement as a measure of habitat quality in stream salmonids. Environmental Biology of Fishes 64: 155-164.

Bell, E. 2001. Survival, growth and movement of juvenile coho salmon (*Oncorhynchus kistuch*) overwintering in alcoves, backwaters, and main channel pools in Prairie Creek, California. Master’s thesis, Humboldt State University, Arcata, California.

Bell, E., S.M. Albers, J.M. Krug, and R. Dagit. 2011. Juvenile growth in a population of southern California steelhead (*Oncorhynchus mykiss*). Calif. Fish Game 97 (1): 25-35.

Bell, E., W.G. Duffy, and T.D. Roelofs. 2001. Fidelity and survival of juvenile coho salmon in response to a flood. Transactions of the American Fisheries Society 130 (3): 450-458.

Bell, E., S. Kramer, D. Zajanc, and J. Aspittle. 2008. Salmonid fry stranding mortality associated with daily water level fluctuations in Trail Bridge Reservoir, Oregon, North American Journal of Fisheries Management 28 (5): 1515-1528. Doi:10.1577/M07-026.1.

Bell, J.L., L.C. Sloan, and M.A. Snyder. 2004. Regional changes in extreme climatic events: a future climate scenario. Journal of Climate 17: 81-87.

Bell, V.A., J.M. Elliot, and R.J. Moore, 2000. Modeling the effects of drought on the population of brown trout in Black Brows Beck. Ecological Modeling 127: 141-159.

Belmar, O., D. Bruno, F. Martez-Capel, J. Barquin, and J. Velasco. 2013. Effects of flow regime alteration on fluvial habitats and riparian quality in a semiarid Mediterranean basin. Ecological Indicators 30: 52-64.

Belmar, O., J. Velasco, C. Gutierrez-Canovas, A. Mellado-Diaz, A. Millan, and P.J. Wood. 2013. The influence of natural flow regimes on macroinvertebrate assemblages in a semiarid Mediterranean basin. Ecohydrology 6: 363-379.

Belmar, O., J. Velasco, and F. Martez-Capel. 2011. Hydrological classification of natural flow regimes to support environmental flow assessments in intensively regulated Mediterranean rivers, Segura River Basin (Spain). Evironmental Management 47: 992-1004. Doi: 10.1007/s00267-011-9661-0

Beltaos, S. 1995. River ice jams. Water Resources Publications, LLC. 372 pp.

Benbow, M.E., M.D. McIntosh, A.J. Burky, and C.M. Way. 2005. The influence of stream flow reduction on the energetics of endemic Hawaiian torrenticolous aquatic insects, *Telmatogeton* Schiner and *Procanace* Hendel. Journal of Aquatic Insect Conservation 9: 175-185.

Bencala, K.E. 2000. Hyporheic zone hydrological processes. Hydrol. Process. 14: 2797-2798.

Benda, L., T.J. Beechie, R.C. Wissmar, and A. Johnson. 1992. Morphology and evolution of salmonid habitats in a recently deglaciated river basin, Washington state, USA. Canadian Journal of Fisheries and Aquatic Sciences 49: 1246-1256.

Benda, L., M.A. Hassan, M. Church, and C.L. May. 2005. Geomorphology of steepland headwaters: the transition from hillslopes to channels. J. Am. Water Resour. Assoc. 41: 835-851.

Benda, L., N.L. Poff, D. Miller, T. Dunne, G. Reeves, G. Pess, and M. Pollock. 2004. The network dynamics hypothesis: how channel networks structure riverine habitats. Bioscience 54 (5): 413-427. Doi: 10.1641/0006-3568(2004)054[0413:TNDHHC]2.0.CO;2

Bendall, B., A. Moore, D. Maxwell, P. Davison, N. Edmonds, D. Archer, D. Solomon, V. Greest, R. Wyatt, and K. Broad. 2012. Modelling the migratory behaviour of salmonids in relation to environmental and physiological parameters using telemetry data. Fisheries Management and Ecology 19 (6): 475-483. Doi: 10.1111/j.1365-2400.2011.00811.x.

Ben-David, M., T.A. Hanley, and D.M. Schell. 1998. Fertilization of terrestrial vegetation by spawning Pacific salmon: the role of flooding and predator activity. Oikos 83: 47-55.

Bender, L.C., G.J. Roloff, and J.B. Haufler. 1996. Evaluating confidence intervals for habitat suitability models. Wildlife Society Bulletin 24: 347-352.

Bendix, J., and C.R. Hupp. 2000. Hydrological and geomorphological impacts on riparian plant communities. Hydrological Processes 14: 2977-2990.

Benech, V., and M. Penaz. 1995. An outline of lateral fish migrations in the central delta of the Niger River, Mali. Hydrobiologia 303: 149-157.

Benejam, L., P.L. Angermeier, A. Munne, and E. Garcia-Berthou. 2010. Assessing effects of water abstraction on fish assemblages in Mediterranean streams. Freshwater Biology 55: 628-642. Doi: 10.1111/j.365-2427.2009.02299.x

Benejam, L., S. Saura-Mas, M. Bardina, et al. 2014. Ecological impacts of small hydropower plants on headwater stream fish: from individual to community effects. Ecol. Freshw. Fish 25{295-306.

Benenati, P.L., J.P. Shannon, and D.W. Blinn. 1998. Desiccation and recolonization of phytobenthos in a regulated desert river: Colorado River at Lee’s Ferry, Arizona, USA. Regulated Rivers 14: 519-532.

Benito, J., L. Benjamin, L. Zamora, and E. Garcia-Berthou. 2015. Diel cycle and effects of water flow on activity and use of depth by common carp. Transactions of the American Fisheries Society 144 (3): 491-501. Doi: 10.10880/00028487.2015.1017656.

Benke, A.C. 1990. A perspective on America’s vanishing streams. Journal of the North American Benthological Society 9: 77-88.

Benke, A.C. 2000. Importance of flood regime to invertebrate habitat in an unregulated river floodplain ecosystem. Journal of the North American Benthological Society 20 (2): 225-240. Doi: 10.2307/1468318.

Benke, A.C., I. Chaubey, G.M. Ward, and E.L. Dunn. 2000. Flood pulse dynamics of an unregulated river floodplain in the southeastern U.S. coastal plain. Ecology 81 (10): 2730-2741.

Benke, A.C., and C.E. Cushing. 2005. Rivers of North America. Elsevier Academic Press, Burlington, MA.

Bennett, D.H., W.P. Connor, and C.A. Eaton. 2003. Substrate composition and emergence success of fall Chinook salmon in the Snake River. Northwest Sci. 77 (2): 93-99.

Bennett, S.J., and A. Simon (Editors). Riparian vegetation and fluvial geomorphology. AGU Water Sci. Appl. 8. American Geophysical Union, Washington, D.C.

Bennett, W.A., D.J. Ostrach, and D.E. Hinton. 1995. Condition of larval striped bass in a drought-stricken estuary: evaluating pelagic food web limitation. Ecological Applications 5: 680-692

Bennett, W.R., G. Edmondson, E.D. Lane, and J. Morgan. 2005. Juvenile white sturgeon (*Acipenser transmontanus*) habitat and distribution in the Lower Fraser River, downstream of Hope, BC, Canada. J. Appl. Ichthyology 21 (5): 375-380. Doi: 10.1111/j.1439-0426.2005.00659.x

Bennett, W.R., G. Edmondson, K. Williamson, and J. Gelley. 2007. An investigation of the substrate preference of white sturgeon (*Acipenser transmontanus*) eleutheroembryos. J. Appl. Ichthyology 23 (5): 539-542. Doi:10.1111/j.1439-0426.2007.01003.x.

Benson, A.C., T.M. Sutton, R.F. Elliott, and T.G. Meronek. 2005. Seasonal movement patterns and habitat preferences of age-0 lake sturgeon in the lower Peshtigo River, Wisconsin. Transactions of the American Fisheries Society 134 (5): 1400-1409.

Benson, E.R., M.S. Wipfli, J.E. Clapcott, and N.F. Hughes. 2013. Relationships between ecosystem metabolism, benthic macroinvertebrate densities, and environmental variables in a sub-arctic Alaskan river. Hydrobiologia 701 (1): 189-207. Doi: 10.1007/s10750-012-1272-0.

Benson, N.G. 1953. The importance of ground water to trout populations in the Pigeon River, Michigan. Transactions of the North American Wildlife Conference 18: 269-281.

Benson, N.G. 1955. Observations on anchor ice in a Michigan trout stream. Ecology 36: 529-530.

Benson, N.G. 1981. The freshwater inflow to estuaries issue. Fisheries 6 (5): 8-10.

Benstead, J.P., J.G. March, C.M. Pringle, and F.S. Scatena. 1999. Effects of a low-head dam and water abstractions on migratory tropical stream biota. Ecological Applications 9: 656-668.

Bentley, K.T., D.E. Schindler, J.B. Armstrong, R. Zhang, C.P. Ruff, and P.J. Lisi. 2012. Foraging and growth responses of stream-dwelling fishes to interannual variation in a pulsed resource subsidy. Ecosphere 3 (12): Article 113.

Berejikian, B.A., L.A. Campbell, and M.E. Moore. 2013. Large-scale freshwater habitat features influence the degree of anadromy in eight Hood Canal *Oncorhynchus mykiss* populations. Canadian Journal of Fisheries and Aquatic Sciences 70 (5): 756-765. Doi: dx.doi.org/10.1139/cjfas-2012-0491.

Berejikian, B.A., W.T. Fairgrieve, P. Swanson, and E.P. Tezak. 2003. Current velocity and injection of GnRHa affect reproductive behavior and body composition of captively reared offspring of wild chinook salmon (*Oncorhynchus tshawytscha*). Canadian Journal of Fisheries and Aquatic Sciences 60 (6): 690-699.

Berg, N.H. 1994. Ice in stream pools in California’s central Sierra Nevada: spatial and temporal variability and reduction in trout habitat availability. North American Journal of Fisheries Management 14: 372-384.

Berger, A.M., and R.E. Gresswell. 2009. Factors influencing coastal cutthroat trout (*Oncorhynchus clarkii clarkii*) seasonal survival rates: a spatially continuous approach within stream networks. Canadian Journal of Fisheries and Aquatic Sciences 66 (4): 613-632. Doi:10.1139/F09-029.

Berggren, T.J, and M.J. Filardo. 1993. An analysis of variables influencing the migration of juvenile salmonids in the Columbia River Basin. North American Journal of Fisheries Management 13 (1): 48-63.

Bergkamp, G. 1998. A hierarchical view of the interactions of runoff and infiltration with vegetation and microtopography in semiarid shrublands. Catena 33: 201-220.

Bergkamp, G., B. Orlando, and I. Burton. 2003. Climate change and water. Technical paper of the Intergovernmental Panel on Climate Change. IOCC Secretariat, Geneva.

Bergman, D.A., C.N. Redman, K.C. Fero, J.L. Simon, and P.A. Moore. 2006. The impacts of flow on chemical communication strategies and fight dynamics of crayfish. Mar. Freshw. Behav. Physiol. 39: 245-258. Doi: 10.1080/10236240600980608.

Berhe, F.T., A.M. Melesse, D. Hailu, and Y. Sileshi. 2013. MODSIM-based water allocation modeling of Awash River Basin Ethiopia. CATENA 109: 118-128

Berland, G., T. Nickelsen, J. Heggenes, F. Okland, E.B. Tjorstad, and J. Halleraker. 2004. Movements of wild Atlantic salmon parr in relation to peaking flows below a hydropower station. River Research and Application 20: 957-966. Doi: 10.1002/rra.802.

Bernier-Bourgault, I., and P. Magnan. 2002. Factors affecting redd site selection, hatching, and emergence of Brook Charr, *Salvelinus fontinalis*, in an artificially enhanced site. Environmental Biology of Fishes 64: 333-341.

Bernardo, J.M., M. Ilheu, P. Matono, and A.M. Costa. 2003. Interannual variation of fish assemblage structure in a Mediterranean river: implications of streamflow on the dominance of native or exotic species. River Research and Applications 19: 521-532.

Bernez, I., H. Daniel, C. Hauryb, and M.T. Ferreira. 2004. Combined effect of environmental factors and regulation on macrophyte vegetation along three rivers in western France. River Research and Applications 20: 43-59.

Bernhardt, E.S., S.E. Bunn, D.D. Hart, B. Malmqvist, T. Muotka, R.J. Naiman, C. Pringle, M. Reuss, and B.W. van Wilgen. 2006. The challenge of ecologically sustainable water management. Water Policy 8: 475-479.

Bernhardt, E.S., M.A. Palmer, J.D. Allan, G. Alexander, K. Barnas, S. Brooks, J. Carr, S. Clayton, C. Dahm, J. Follstad-Shah, D. Galat, S. Gloss, P. Goodwin, D. Hart, B. Hassett, R. Jenkinson, S. Katz, G.M. Kondolf, P.S. Lake, R. Lave, J.L. Meyer, T.K. O’Donnell, L. Pagano, B. Powell, and E. Sudduth. 2005. Ecology: synthesizing U.S. river restoration efforts. Science 308: 636-637.

Bernier-Bourgault, I., and P. Magnan. 2002. Factors affecting redd site selection, hatching, and emergence of brook charr, *Salvelinus fontinalis*, in an artificially enhanced site. Environmental Biology of Fishes 63 (1/3): 333-341.

Bertrand, K.N., K.B. Gido, W.K. Dodds, J.N. Murdoch, and M.R. Whiles. 2009. Disturbance frequency and functional identity mediate ecosystem processes in prairie streams. Oikos 118: 917-933.

Berube, P., M. Leclerc, and L. Belzile. 2002. Presentation of an ecohydrological method for determining the conservation flow for fish habitats in Quebec’s rivers (Canada). Proceedings of the 4th IAHR Int. Symposium on Ecohydraulics, Capetown, South Africa.

Beschta, R.L. 1987. Conceptual models of sediment transport in streams. Pages 287-408 *in*: C.R. Thorne, J.C. Bathurst, and R.D. Hey (editors), Sediment Transport in Gravel-bed Rivers, John Wiley & Sons, Chichester.

Beschta, R.L. 1990. Effects of fire on water quantity and quality. Pp. 219-232 in: J.D. Walstad, S.R. Radosevich, and D.V. Sandberg (eds.), Natural and prescribed fire in Pacific Northwest forests. Oregon State University Press, Corvallis.

Beschta, R.L., and W.J. Jackson. 1979. The intrusion of fine sediments into a stable gravel bed.

J. Fish. Research Board of Canada 36: 204‑210.

Beschta, R.L., and W.S. Platts. 1986. Morphological features of small streams: significance and function. American Water Resources Association Bulletin 22: 369-379.

Beschta, R.L., M.R. Pyles, A.E. Skauset, and C.G. Surfleet. 2000. Peakflow responses to forest practices in the western Cascades of Oregon, USA. J. Hydrol. 233: 102-120.

Bestgen, K.R. 1997. Interacting effects of physical and biological processes on recruitment of Colorado squawfish. Ph.D. dissertation, Colorado State University, Fort Collins.

Bestgen, K.R., B. Mefford, J.M. Bundy, C.D. Walford, and R.I. Compton. 2010. Swimming performance and fishway model passage success of Rio Grande silvery minnow. Transactions of the American Fisheries Society 139 (2): 433-448. Doi:10.1577/T09-085.1.

Bestgen, K.R., S.P. Platania, J.E. Brooks, and D.L. Propst. 1989. Dispersal and life history traits of *Notropis girardi* (Cypriniformes: Cyprinidae) introduced into the Pecos River, New Mexico. American Midland Naturalist 122: 228-235.

Bestgen, K.R., C.T. Wilson, A.A. Hill, and K.D. Fausch. 2017. A dynamic flow regime supports an intact Great Plains stream fish assemblage. Transactions of the American Fisheries Society 146 (5): 903-916. Doi: 10.1080/00028487.2017.1310137.

Bestgen, K.R., K.A. Zelasko, R.I. Compton, and T. Chart. 2006. Response of the Green River fish community to changes in f and temperature rimesrm Flaming Goge Dam sine 1996 based on sampling conducted from 2002 to 200. Colorado River Recovery Implementaton Program ProjectNumber 115. Colorado Stae Universiy, Fort Collins.

Betsill, R.K., R.L. Noble, and W.H. Neill. 1988. Distribution and habitat selection of telemetered northern and Florida largemouth bass in two small Texas impoundments. Proceedings of the Annual Conference of the Southeastern Association of Fish and Wildlife Agencies 40 (1986): 275-286.

Bevelhimer, M.S. 1996. Relative importance of temperature, food, and physical structure to habitat choice by smallmouth bass in laboratory experiments. Transactions of the American Fisheries Society 125 (2): 274-283.

Bevelhimer, M.S., R.A. McManamay, and B. O’Connor. 2015. Characterizing sub-daily flow regimes: implications of hydrologic resolution on ecohydrology studies. River Research and Applications. doi: 10.1002/rra.2781.

Bevin, K.J., and P.A. Carling. 1989. Floods: hydrological, sedimentological and geomorphological implications. John Wiley and Sons, New York, New York, USA.

Beyene, T., D.P. Lettenmaier, and P. Kaha. 2010. Hydrologic impacts of climate change on the Nile River basin: implications of the 2007 IPCC scenarios. Climate Change 100: 433-461.

Beyer, H.L., D.T. Haydon, J.M. Morales, J.L. Frair, M. Hebblewhite, M. Mitchell, and J. Matthiopoulos. 2010. The interpretation of habitat preference metrics under use-availability designs. Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences 365: 2245-2254.

Bhaduri, A., J. Bogardi, S. Afreen, H. Voigt, C. Vorosmarty, C. Pahl-Wostl, et al. 2016. Achieving sustainable goals from a water perspective. Front. Environ. Sci. 4: 64. Doi: 10.3389/fenvs.2016.00064

Bhattacharjee, J., J.P. Taylor, and L.M. Smith. 2006. Controlled flooding and staged drawdown for restoration of native cottonwoods in the Rio Grande Valley, New Mexico. Wetlands 26: 691-702.

Bhattacharjee, N.V., J.R. Willis, E.W. Tollner, and S.K. Mc Bhattacharjee,Kay. 2019. Habitat provision associated with environmental flows. EMRRP technical Notes Collection. ERDC/TN EMRRP-SR-85. Vicksburg, Mississippi: U.S. Army Engineers Research and Development Center. Doi: 10.21079/11681/32406

Bible, J.M., B.S. Cheng, A.L. Chang, M.C. Ferner, K. Wasson, C.J. Zarin, M. Latta, E. Sanford. A. Dick, and E.D. Gronholz. 2017. Timing of stressors alters interactive effects on a coastal foundation species. Ecology 98 (9): 2468-2478. Doi: 10.1002/ecy.1943.

Bickerton, M., G. Petts, P.D. Armitage, and E. Castella. 1995. Assessing the ecological effects of groundwater abstraction on chalk streams. Regulated Rivers: Research and Management 8: 121-134.

Bidlack, A.L., L.E. Benda, T. Miewald, G.R. Reeves, and G. McMahan. 2014. Identifying suitable habitat for Chinook salmon across a large, glaciated watershed. Transactions of the American Fisheries Society 143 (3): 689-699. Doi: 10.1080/00028487.2014.880739.

Biemans, H., I. Haddeland, P. Kabat, F. Ludwig, R.W.Q. Hutjes, J. Heinke, W. von Bloh, and D. Gerten. 2011. Impact of reservoirs on river discharge and irrigation water supply during the 20th century. Water Resources Research 47 (3): W03509. doi: 10.1029/2009WR008929

Bigelow, P.E. 2003. Scour, fill, and salmon spawning in a northern California coastal stream. Master’s thesis, Humboldt State University, Arcata, California.

Biggs, B.J.F. 1995. The contribution of flood disturbance, catchment geology and land use to the habitat template of periphyton in stream ecosystems. Freshwater Biology 33: 419-438.

Biggs, B.J.F. 1996. Hydraulic habitat of plants in streams. Regulated Rivers: Research and Management 12: 131-144.

Biggs, B.J.F., M.J. Duncan, I.G. Jowett, J.M. Quinn, C.W. Hickey, R.J. Davies-Colley, and M.E. Close. 1990. Ecological characterization, classification, and modeling of New Zealand rivers: an introduction and synthesis. N.Z. J. Mar. Freshw. Res. 24: 277-304.

Biggs, B.J.F., M.J. Duncan, A.M. Suren, and J.R. Holomuzki. 2001. The importance of bed sediment stability to benthic ecosystems of streams. Pp. 423-449 in: M.P. Mosely, editor. Gravel-bed rivers V. New Zealand Hydrological Society, Christchurch, New Zealand.

Biggs, B.J.F., and P. Gerbeaux. 1993. Periphyton development in relation to macroscale (geology) and microscale (velocity) limiters in two gravel-bed rivers, New Zealand. New Zealand Journal of Marine and Freshwater Research 27: 39-53.

Biggs, B.J.F., D.G. Goring, and V.I Nikora. 1998. Subsidy and stress responses of stream periphyton to gradients of water velocity as a function of community growth form. Journal of Phycology 34: 598-607.

Biggs, B.J.F., V.I. Nikora, and T.H. Snelder. 2005. Linking scales of flow variability to lotic ecosystem structure and function. River Research and Application 21: 283-298. Doi: 10.1002/rra.847.

Biggs, B.J.F., R.A. Smith, and M.J. Duncan. 1999. Velocity and sediment disturbance of periphyton in headwater streams: biomass metabolism. Journal of the North American Benthological Society 18: 222-241.

Bilby, R.E. 1984. Removal of organic debris may affect stream channel stability. Journal of Forestry 82: 609-613.

Bilby, R.E., and L.A. Mollot. 2008. Effect of changing land use patterns on the distribution of coho salmon (*Oncorhynchus kisutch*) in the Puget Sound region. Canadian Journal of Fisheries and Aquatic Sciences 65 (10): 2138-2148.

Bilby, R.E., and J.W. Ward. 1989. Changes in characteristics and function of woody debris with increasing size of streams in western Washington. Transactions of the American Fisheries Society 118 (4): 368-378.

Bilkovic, D.M., C.H. Gershner, and J.E. Olney. 2002. Macroscale assessment of American shad spawning and nursery habitat in the Mattaponi and Pamunkey rivers, Virginia. North American Journal of Fisheries Management 22: 1176-1792.

Binder, T.R., R.L. McLaughlin, and D.G. McDonald. 2010. Relative importance of water temperature, water level, and lunar cycle to migratory activity in spawning-phase sea lampreys in Lake Ontario. Transactions of the American Fisheries Society 139 (3): 700-712.

Binns, N.A. 2004. Effectiveness of habitat manipulation for wild salmonids in Wyoming streams. North American Journal of Fisheries Management 24 (3): 911-923.

Binns, N.A., and F.M. Eiserman. 1977. A predictive model for quantification of fluvial trout habitat. Journal of the Colorado-Wyoming Academy of Science 9(1): 8-9.

Binns, N.A., and F.M. Eiserman. 1979. Quantification of fluvial trout habitat in Wyoming. Transactions of the American Fisheries Society 108 (3): 215-228.

Bino, G., S.A. Sisson, R.T. Kingsford, R.F. Thomas, and S. Bowen. 2015. Developing state and transition models of floodplain vegetation dynamics as a tool for conservation decision-making: A case study of the Macquarie Marshes Ramsar wetland. Journal of Applied Ecology 52: 654-664. Doi: 10.1111/1365-2664.12410

Bird, D.J., G.W. Lightfoot, and A.P. Stevens. 1995. Microhabitat use by young salmon and trout in a southern U.K. chalk stream. Pages 99-113 in: I. Winfield, editor. Proceedings of the Institute of Fisheries Management 25th Annual Study Course.

Birkel, C., C. Soulby, G. Ali, and D. Tetzlaff. 2014. Assessing the cumulative impacts of hydropower regulation on the flow characteristics of a large Atlantic salmon river system. River Res. Appl. 30: 456-475. Doi: 10.1002/rra.2656.

Birken, A.S., and D.J. Cooper. 2006. Processes of *Tamarix* invasion and floodplain development along the lower Green River, Utah. Ecological Applications 16: 1103-1120.

Biron, P.M., R.B. Carver, and D.M. Carre. 2012. Sediment transport and flow dynamics around a restored pool in a fish habitat rehabilitation project: field and 3D numerical modeling experiments. River Research and Applications 28: 745-772.

Bischel, H.N., J.E. Lawrence, B.J. Halaburka, M.H. Plumlee, A.S. Bawazir, J.P. King, J.E. McCray, V.H. Resh, and R.G. Luthy. 2013. Renewing urban streams with recycled water for streamflow augmentation: hydrologic, water quality, and ecosystem services management. Environmental Engineering Science 30 (8): 455-479. Doi: 10.1089/ees.2012.0201.

Bischoff, A., and C. Wolter. 2001. The flood of the century on the River Oder: effects on the 0+ fish community and implications for floodplain restoration. Regulated Rivers: Research and Management 17: 171-190.

Bishai, H.M. 1960. The effect of water currents on the survival and distribution of fish larvae. J. Cons. Cons. Int. Explor. Mer 25: 134-146.

Bishop, A.B., T.B. Hardy, and B.D. Glabou. 1990. Analyzing instream flow trade-offs for small hydropower development. Rivers 1: 173-182.

Bisson, P.A., J.B. Dunham, and G.H. Reeves. 2009. Freshwater ecosystems and resilience of Pacific salmon: Habitat management based on natural variability. Ecology and Society 14(1): 45. <http://www.ecologyandsociety.org/vol14/issl/art45>/

Bisson, P.A., D.R. Montgomery, and J.M. Buffington. 2006. Valley segments, stream reaches, and channel units. Pages 23-49 in: F.R. Hauer and G.A. Lamberti (editors), Methods in Stream Ecology, 2nd edition. Academic Press, San Diego, California.

Bisson, P.A., J.L. Nielsen, R.A. Palmason, and L.E. Grove. 1982. A system of naming habitat types in small streams, with examples of habitat utilization by salmonids during low streamflow. Pp. 62-73 in: N.B. Armantrout (ed.), Acquisition and utilization of aquatic habitat inventory information. American Fisheries Society, Western Division, Bethesda, Maryland.

Bisson, P.A., K. Sullivan, and J.L. Nielsen. 1988. Channel hydraulics, habitat use, and body form of juvenile coho salmon, steelhead, and cutthroat trout in streams. Transactions of the American Fisheries Society 117 (3): 262-273. Doi:10.1577/1548-8659(1988)117<0262:CHHUAB>2.3.CO;2.

Biswell, H.N., and A.M. Schultz. 1958. Effects of vegetation removal on spring flow. California Fish and Game 44 (3): 211-230.

Bjork, S.J., and J.L. Bartholomew. 2009. The effects of water velocity on the *Ceratomyxa shasta* infectious cycle. Journal of Fish Diseases 32: 131-142.

Bjornn, T.C. 1968. Survival and emergence of trout and salmon in various gravel-sand mixtures. Pages 80-88 in: Proceedings of the Forum on the Relation between Logging and Salmon. Amer. Inst. Fish. Res. Bd. and Alaska Dept. Fish Game, Juneau.

Bjornn, T.C. 1971. Trout and salmon movements in two Idaho streams related to temperature, food, stream flow, cover and population density. Transactions of the American Fisheries Society 100: 423-438. Doi:10.1577/1548-8659(1971)100<423:TASMIT>2.0.CO;2.

Bjornn, T.C., and D.W. Reiser. 1991. Habitat requirements of salmonids in streams. Pp. 83-138 in: W.R. Meehan (ed.) Influences of forest and rangeland management on salmonid fishes and their habitats. American Fisheries Society Special Publication 19, Bethesda, Maryland.

Black, A.R., J.W. Rowan, R.W. Duck, O.M. Bragg, and B.E. Clelland. 2005. DHRAM: a method for classifying river flow regime alterations for the EC Water Framework Directive. Aquatic Conservation: Marine and Freshwater Ecosystems 15: 427-446.

Black, T.R., R.K. Jones, and H.T. Mattingly. 2013. Development and validation of habitat models for the threatened blackside dace, *Chrosomus cumberlandensis*, at two spatial scales. Southeast. Nat. 12 (Special issue 4): 27-48.

Blake, D.J.H,, U. Sunthornratana, B. Promphakping, S. Buaphuan, J. Sarkkula, M. Kummu, et al. 2011. E-flows in the Nam Songkhram River Basin. Final Report. M-POWER Mekong Program on Water, Environment and Resilience. IUCN, IWMI, CGIAR Challenge Program on Water and Food, and Aalto University, Finland.

Blake, T.J., J. Sperry, T. Tschaplinski, and S. Want. 1996. Water relations. Pages 401-422 in: R. Stettler, H. Bradshaw, P. Hellman, and T. Hinkley, editors. Biology of *Populus* and its implications for management and conservation. NRC Research Press, National Research Council of Canada, Ottawa, Ontario.

Blanch, S.J., G.G. Ganf, and K.F. Walker. 1999. Tolerance of riverine plants to flooding and exposure indicated by water regime. Regulated Rivers: Research and Management 15: 43-62.

Blanchet, S., G. Loot, and J.J. Dodson. 2009. Competition, predation and flow rate as mediators of direct and indirect effects on a stream food chain. Oecologia (on line) doi: 10.1007/s00442-008-1044-8.

Blanck, A., P.A. Tedesco, and N. Lamouroux. 2007. Relationships between life-history strategies of European freshwater fish species and their habitat preferences. Freshwater Biology 52: 843-859.

Blasch, K.W., T.P.A, Ferre, A.H. Christensen, and J.P. Hoffman. 2002. New field method to determine streamflow timing using electrical resistance sensors. Vadose Zone Journal 1: 289-299.

Blasch, K.W., T.P.A, Ferre, and J.P. Hoffman. 2004. A statistical technique for interpreting streamflow timing using streambed sediment thermographs. Vadose Zone Journal 3: 936-946.

Bleed, A.S. 1987. Limitations of concepts used to determine instream flow requirements for habitat maintenance. Water Res. Bull. 23: 1173-1178.

Bleesey, L., A.J. King, F. Amstaetter, J.D. Koehn, B. Gawne, A. Price, D.L. Nielsen, L. Vilizzi, and S.N. Meredith. 2012. Does flooding affect spatiotemporal variation of fish assemblages in temperate floodplain wetlands? Freshwater Biology 57: 2230-2246. Doi: 10.1111/j.1365=2427.2012.02865.x

Bless, R. 1996. Reproduction and habitat preference of the threatened spirlin (*Alburnoides bipunctatus* Bloch) and soufie (*Leuciscus souffia* Risso) under laboratory conditions (Teleosei: Cyprinidae). Pages 249-258 in: A. Kirchhofer and D. Hefti (editors), Conservation of Endangered Freshwater Fish in Europe. Birkhauser, Basel, Switzerland.

Blinn, D.W., J.P. Shannon, L.E. Stevens, and J.P. Carder. 1995. Consequences of fluctuating discharge for lotic communities. Journal of the American Benthological Society 14: 233-248. Doi: 10.2307/1467776.

Bliesner, R., et al. 1999. Chapter 4: Physical and biological response to test flow. In: PB. Holden, ed., Flow recommetions fo theSan Juan River, San Juan River Basin Recovery Implementation Program. Albuquerque, NM: USFWS, 4-1-4-88.

Bloschl, G. 2005. Rainfall-runoff modeling of ungauged catchments. In: M, Anderson (editor), Encyclopedia of Hydrological Sciences, John Wiley and Sons. Doi: 10.1002/0470848944.hsa 140.

Blom, C.W.P.M., and L.A.C.J. Voesenek. 1996. Flooding: the survival strategies of plants. Trends in Ecology and Evolution 11: 290-295.

Blom, C., L. Voesenek, M. Banga, W. Engelaar, J. Rijnders, H. Vandesteeg, and E. Visser. 1994. Physiological ecology of riverside species – adaptive responses of plants to submergence. Annals of Botany 74: 253-263.

Blumberg, A.F., and G.L. Mellor. 1980. A coastal ocean numerical model. Pp. 203-214 in: J. Sundermann and K.P. Holz (editors), Mathematical Modeling of Estuarine Physics, Proceedings of the International Symposium, Hamburg, 24-26 August 1978. Springer-Verlag, Berlin.

Blumberg, A.F., and G.L. Mellor. 1987. A description of a three-dimensional coastal circulation model. Pp. 1-16 in: N.S. Heaps (editor), Three-dimensional coastal ocean models. American Geophysical Union, Washington, D.C.

Bocchiola, D. 2011. Hydraulic characteristics and habitat suitability in presence of woody debris: a flume experiment. Adv. Water resour. 34: 1304-1319.

Bodie, J.R. 2001. Stream and riparian management for freshwater turtles. Journal of Environmental Management 62: 443-455.

Boedeltjejan, G., J.P. Bakker, A. Ten Brinke, J.M. Van Groenendael, and M. Soesbergen. 2004. Dispersal phenology of hydrochorous plants in relation to discharge, seed release time and buoyancy of seeds: the flood pulse concept supported. Journal of Ecology 92 (5): 786-796.

Bogan, M.T., K.S. Boersma, and D.A. Lytle. 2013. Flow intermittency alters longitudinal patterns of invertebrate diversity and assemblage composition in an arid-land stream network. Freshwater Biology 58: 1016-1028.

Bogan, M.T., K.S. Boersma, and D.A. Lytle. 2014. Resistance and resilience of invertebrate communities to seasonal and supraseasonal drought in arid-land headwater streams. Freshwater Biology 60: 2547-2558.

Bogan, M.T., and D.A. Lytle. 2011. Severe drought drives novel community trajectories in desert stream pools. Freshwater Biol. 56: 2070-2081.

Bohlin, T. 1977. Habitat selection and intercohort competition of juvenile sea-trout (*Salmo trutta*). Oikos 29: 112-117.

Bohlin, T., C. Dellefors, and U. Faremo. 1993. Timing of sea-run brown trout (*Salmo trutta*) smolt migration: effects of climatic variation. Canadian Journal of Fisheries and Aquatic Sciences 50 (2): 224-232. Doi: 10.1139/193-025.

Bohlin, T., C. Dellefors, U. Faremo, and A. Johlander. 1994. The energetic equivalence hypothesis and the relation between population density and body size in stream-living salmonids. American Naturalist 143: 478-493.

Bohlke, J.K., R.C. Antweiler, J.W. Harvey, et al. 2009. Multi-scale measurements and modeling of denitrification in streams with varying flow and nitrate concentration in the upper Mississippi River basin, USA. Biogeochemistry 93: 117-141.

Boisclair, D. 2001. Fish habitat modeling: from conceptual framework to functional tools. Canadian Journal of Fisheries and Aquatic Sciences 58 (1): 1-9. Doi: 10.1139/f00-251.

Boisclair, D., and M. Tang. 1993. Empirical analysis of the influence of swimming pattern on the net energetic cost of swimming in fishes. J. Fish Biol. 42: 19-83.

Boix, D., E. Garcia-Berthou, S. Gascon, I. Benejam, E. Tornes, J/ Sala, J. Benito, A. Munne, C. Sola, and S. Sabater. 2010. Response of community structure to sustained drought in Mediterranean rivers. Journal of Hydrology 383: 135-146.

Bolliet, V., A. Bardonnet, M. Jarry, J.C Vignes, and P. Gaudin. 2005. Does embeddedness affect growth performance in juvenile salmonids? An experimental study in brown trout, Salmo trutta L. Ecology of Freshwater Fish 14: 289-295.

Bonada, N., M. Rieradevall, and N. Prat. 2007. Macroinvertebrate community structure and biological traits related to flow permanence in a Mediterranean river network. Hydrobiologia 589 (1): 91-106. Doi: 10.1007/s10750-007-0723-5.

Bonar, S.A., G.B. Pauley, and G.L. Thomas. 1989. Species profiles: Life histories and environmental requirements of coastal fishes and invertebrates (Pacific Northwest) – pink salmon. U.S. Fish and Wildlife Service Biological report 82 (11.88): 18 pp.

Bond, C.E., E. Rexstad, and R.M. Hughes. 1988. Habitat use of twenty-five common species of Oregon freshwater fishes. Northwest Science 62: 223-232.

Bond, M.H., S.A. Hayes, C.V. Hanson, and R.B. MacFarlane. 2008. Marine survival of steelhead (*Oncorhynchus mykiss*) enhanced by a seasonally closed estuary. Canadian Journal of Fisheries and Aquatic Sciences 65 (10): 2242-2252.

Bond, N., J. Costelloe, A. King, D. Warfe, P. Reich, and S. Balcombe. 2014. Ecological risks and opportunities from engineered artificial flooding as a means of achieving environmental flow objectives. Frontiers in Ecology and the Environment 12 (7): 386-394. Doi: 10.1890/130259.

Bond, N., D. McMaster, P. Reich, J.R. Thomson, and P.S. Lake. 2010. Modelling the impacts of flow regulation on fish distributions in naturally intermittent lowland streams: an approach for predicting restoration responses. Freshwater Biology 55” 1997-2010.

Bond, N.R. 2016. Environmental flows: Environmental watering. Pages 1-4 in: C.M. Finlayson, M. Everard, K. Irvine, R. McInnes, B. Middleton, A. Van Dam, and N.C. Davidson (eds.) The wetland book I: Structure and function, management, and methods. Dordrecht, The Netherlands: Springer.

Bond, N.R., S.R. Balcombe, D.A. Crook, J.C. Maeshall, N. Menke, and J.S. Lobegeiger. 2015. Fish population persistence in hydrologically variable landscapes. Ecol. Appl. 25 (4): 901-913. Doi: 10.1890/14-1618.1.

Bond, N.R., and B.J. Downes. 2003. The independent and interactive effects of fine sediment and flow on benthic invertebrate communities characteristic of small upland streams. Freshwater Biology 48 (3): 455-465.

Bond, N.R., N. Grigg, J. Roberts, H. McGinness, D. Nielsen, M. O’Brien, I. Overton, C. Pollino, J.RW. Reed, and D. Stratford. 2018. Assessment of environmental flow scenarios using state-and-transition models. Freshwater Biology 63 (8): 804-816. Doi: 10.1111/fwb.13060

Bond, N.R., and P.S. Lake. 2003. Characterizing fish-habitat associations in streams as the first step in ecological restoration. Austral Ecology 28: 611-621.

Bond, N.R., and P.S. Lake. 2005. Ecological restoration and large-scale ecological disturbance: the effects of drought on the response by fish to a habitat restoration experiment. Restoration Ecology 13: 39-48.

Bond, N.R., P.S. Lake, and A.H. Arthington. 2008. The impacts of drought on freshwater ecosystems: an Australian perspective. Hydrobiologia 600: 3-16. Doi: 10.1007/s10750-008-9326-z.

Bondi, C.A., S.M. Yarnell, and A.J, Lind. 2013. Transferability of habitat suitability criteria for a stream-breeding frog (*Rana boylii*) in the Sierra Nevada, California. Herp. Conserv. Biol. 8: 88-103.

Bonneau, J.L., and D.L. Scarnecchia. 1998. Seasonal and diel changes in habitat use by juvenile bull trout (*Salvelinus confluentus*) and cutthroat trout (*Oncorhynchus clarki*) in a mountain stream. Canadian Journal of Zoology 76 (5): 783-790. Doi:10.1139/cjz-76-5-783.

Bonner, T.H., and G.R. Wilde. 2000. Changes in the Canadian River fish assemblage associated with reservoir construction. Journal of Freshwater Ecology 15: 189-198.

Bonnett, M.L., and J.R.E. Sykes. 2002. Habitat preferences of giant kokopu, *Galaxias argenteus*. New Zealand Journal of Freshwater Research 36: 13-24.

Bonnot, T.W., M.L. Wildhaber, J.J. Millspaugh, A.J. DeLonay, R.B. Jacobson, and J.L. Bryan. 2011. Discrete choice modeling of shovelnose sturgeon habitat selection in the lower Missouri River. Journal of Applied Ichtyology 27: 291-300.

Bonvechio, T.F., and M.S. Allen. 2005. Relations between hydrological variables and year-class strength of sport fish in eight Florida water bodies. Hydrobiologica 532: 193-207.

Booker, D.J. 2003. Hydraulic modelling of fish habitat in urban rivers during high flows. Hydrological Processes 17: 577-599.

Booker, D.J. 2010. Predicting wetted width in a river at any discharge. Earth Surface Processes and Landforms 35: 828-841

Booker, D.J. 2016. Generalized models of riverine fish hydraulic habitat. J. Ecohydraulics 1-19. Doi: 10.1080/24705357.2016.1229141.

Booker, D.J., and M.C. Acreman. 2007. Generalisation of physical habitat-discharge relationships. Hydrology and Earth System Sciences 11: 141-157. Doi: 10.5194/hess-11-141-2007.

Booker, D.J., and M.J. Dunbar. 2004. Application of physical habitat simulation (PHABSIM) modelling to modified urban river channels. River Research and Applications 20 (2): 167-183.

.

Booker, D.J., M.J. Dunbar, M.C. Acreman, K. Akande, and C. Declerck. 2004. Habitat assessment at the catchment scale; application to the River Itchen, UK. Pages 10-18 in: B. Webb, M.C. Acreman, C. Maksimoovic, H. Smithers, and C. Kirby, editors. Hydrology, Science and Practice for the 21st Century. Vol. II. Proceedings of the British Hydrological Society International Conference July 2004. British Hydrological Society, London.

Booker, D.J., M.J. Dunbar, and A. Ibbotson. 2004. Predicting juvenile salmonid drift-feeding habitat quality using a three-dimensional hydraulic-bioenergetic model. Ecol. Model. 177: 157-177. Doi: 10.1016/j.ecolmodel.2004.02.006.

Booker, D.J., D.A. Sear, and A.J. Payne. 2001. Modelling three-dimensional flow structures and patterns of boundary shear stress in a natural pool-riffle sequence. Earth Surface Processes and Landforms 26 (5): 553-576.

Boon, P.J. 1988. The impact of river regulation on invertebrate communities in the U.K. Regulated Rivers: Research and Management 2: 389-409.

Boon, P.J. 1993. Distribution, abundance and development of trichoptera larvae in the River North Tyne following the commencement of hydroelectric power generation. Regulated Rivers: Research and Management 8: 211-224.

Boon, P.J., P. Calow, and G.E. Petts (editors). 1992. River Conservation and Management. John Wiley and Sons, Chichester, UK.

Boon, P.J., B.R. Davies, and G.E. Petts (editors). 2000. Global perspectives on river conservation: science, policy and practice. Wiley, Chichester.

Booth, D.B., D. Hartley, and C.R. Jackson. 2002. Forest cover, impervious-surface area, and the mitigation of stormwater impacts. Journal of the American Water Resources Association 38 (3): 835-845.

Booth, D.B., and C.R. Jackson. 1997. Urbanization of aquatic systems: degradation thresholds, stormwater detection and the limits of mitigation. Journal of the American Water Resources Association 33: 1077-1090.

Booth, D.B., J.R. Karr, S. Schauman, C.P. Konrad, S.A. Morley, M.G. Larson, and S.J. Burges. 2004. Reviving urban streams: Land use, hydrology, biology, and human behavior. Journal of the American Water Resources Association 40 (5): 1351-1364. Doi: 10,1111/j.1752-1688.2004.tb01591.x.

Booth, M.T., A.S. Flecker, and N.G. Hairston, Jr.. 2014. Is mobility a fixed trait? Summer movement patterns of catostomids using PIT telemetry. Transactions of the American Fisheries Society 143 (4): 1098-1111. Doi: 10.1080/00028487.2014.892534.

Borchardt, D. 1993. Effects of flow and refugia on drift loss of benthic macroinvertebrates: implications for habitat restoration in lowland streams. Freshwater Biology 29: 221-227.

Borgstrom, R., and J. Heggenes. 1988. Smoltification of sea trout (*Salmo trutta*) at short length as an adaptation to extremely low summer stream flow. Polskie Archiwum Hydroiologii 35: 375-384.

Bork, K.S., J.F. Krovoza, J.V. Katz, and P.B. Moyle. 2012. The rebirth of Cal. Fish & Game Code 5937: Water for fish. UC Davis Law Review 45: 809-913.

Bornette, G., and C. Amoros. 1996. Disturbance regimes and vegetation dynamics: role of floods in riverine wetlands. Journal of Vegetation Science 7: 615-622.

Bornette, G., C. Amoros, and N. Lamouroux. 1998. Aquatic plant diversity in riverine wetlands: the role of connectivity. Freshwater Biology 39: 267-283.

Bornette, G., E. Tabacchi, C. Hupp, S. Puijalon, and J.C. Rostan. 2008. A model of plant strategies in fluvial hydrosystems. Freshwater Biology 53: 1692-1705.

Bornman, T.G., J.B. Adams, and G.C. Bate. 2002. Freshwater requirements of a semi-arid supratidal and floodplain saltmarsh. Estuaries 25 (6B): 1394-1405.

Borsanyi, P., K. Alfredsen, A. Harby, O. Ugedal, and C. Kraxner. 2004. A meso-scale habitat classification method for production modelling of Atlantic salmon in Norway. Hydroecologie Appliquee 14 (1): 119-138. Doi: 10.1051/hydro:2004008.

Borwick, J., J. Buttle, and M.S. Ridgway. 2006. A topographic index approach for identifying groundwater habitat of young-of-year brook trout (*Salvelinus fontinalis*) in the land-lake ecotone. Canadian Journal of Fisheries and Aquatic Sciences 63 (2): 239-253.

Bosch, J.M., and J.D. Hewlett. 1982. A review of catchment experiments to determine the effect of vegetation changes on water, yield and evaporation. Journal of Hydrology (Amst.) 55 (1-4): 3-23. Doi:10.1016/022-1694(82)90117-2.

Boschung, H. 1987. Physical factors and the distribution of fishes in the upper Tombigbee River system of Alabama and Mississippi, with emphasis on the Tennessee-Tombigbee Waterway. Pp. 184-192 in: W.J. Matthews and D.C. Heins (eds.), Community and evolutionary ecology of North American stream fishes. University of Oklahoma Press, Norman. 31 pp.

Boss, S.M., and J.S. Richardson. 2002. Effects of food and cover on the growth, survival, and movement of cutthroat trout (*Oncorhynchus clarki*) in coastal streams. Canadian Journal of Fisheries and Aquatic Sciences 59 (6): 1044-1053. Doi:10.1139/f02-079.

Botter, G., S. Basso, I. Rodriguez-Iturbe, and A. Rinaldo. 2013. Resilience of river flow regimes. Proceedings of the National Academy of Sciences USA 110: 12925-12930. Doi: 10.1073/pnas.1311920110.

Boucek, R.E., and J.S. Rehage.  2015. Effects of an episodic drought on a floodplain subsidy consumed by mangrove river fishes. Transactions of the American Fisheries Society Symposium 83

Boucek, R.E., M. Soula, F. Tamayo, and J.S. Rehage.  2016.  A once in 10 year drought alters the magnitude and  quality of a floodplain prey subsidy to coastal river fishes.   Canadian Journal of Fisheries and Aquatic Sciences 73 (11): 1672-1678.  doi: 10.1139/cjfas-2015-0507.

Bouchard, J., and D. Boisclair. 2008. The relative importance of local, lateral, and longitudinal variables on the development of habitat quality models for a river. Canadian Journal of Fisheries and Aquatic Sciences 65 (1): 61-73. Doi: 10.1139/f07-140.

Boudreau, P., G. Bourgeois, M. Leclerc, A. Boudreault, and L. Belzile. 1996. Two-dimensional habitat model validation based on spatial fish distribution: application to juvenile Atlantic salmon of Moisie River (Quebec, Canada). *In*: Ecohydraulics 2000: Proceedings of the 2nd International Symposium on Habitat Hydraulics, Quebec, Que., June 1996. Edited by M. Leclerc, H. Capra, S. Valentin, A. Boudreault, and Y*. Cote.* INRS-Eau, Quebec, Que. Pp. B365-380.

Boudreau, P., M. Leclerc, and G. Fortin. 1994. Modelisation hydrodynamique du lac Saint-Pierre, fleuve Saint-Laurent: l’influence de la vegetation aquatique. Revue Canadienne de genie civil 21: 471-489.

Boughton, D.A., H. Fish, J. Pope, and G. Holt. 2009. Spatial patterning of habitat for *Oncorhynchus mykiss* in a system of intermittent and permanent streams. Ecology of Freshwater Fish 18: 92-105. Doi: 10.1111/j.1600-0633.2008.00328.x.

Boulton, A.J. 1989. Over-summering refuges of aquatic macroinvertebrates in two intermittent streams in central Victoria. Transactions of the Royal Society of South Australia 113: 23-34.

Boulton, A.J. 2000. River ecosystem health down under: assessing ecological condition in riverine groundwater zones in Australia. Ecosystem Health 6; 108-118.

Boulton, A.J. 2003. Parallels and contrasts in the effects of drought on stream macroinvertebrate assemblages. Freshwater Biology 48: 1173-1185.

Boulton, A.J., T. Datry, T. Kashara, M. Mutz, and J.A. Stanford. 2010. Ecology and management of the hyporheic zone: stream-groundwater interactions of running waters and their floodplains. Journal of the North American Benthological Society 29 (1): 26-40. Doi: 10.1899/08-017.1.

Boulton, A.J., S. Findlay, P. Marmonier, E.H. Stanley, and H.M. Valett. 1998. The functional significance of the hyporheic zone in streams and rivers. Annual Review of Ecology and Systematics 29: 59-81. Doi: 10.1146/annurev.ecolsys.29.1.59.

Boulton, A.J., and P.J. Hancock. 2006. Rivers as groundwater-dependent ecosystems: a review of degrees of dependency, riverine processes and management implications. Australian Journal of Botany 54: 133-144. Available at: www/publish.cxiro.au/nid/65/paper/BT05074.htm.

Boulton, A.J., and P.S. Lake. 1990. The ecology of two intermittent streams in Victoria, Australia. I. Multivariate analyses of physicochemical features. Freshwater Biology 24: 123-141.

Boulton, A.J., and P.S. Lake. 1992. The ecology of two intermittent streams in Victoria, Australia. II. Comparisons of faunal composition between habitats, rivers and years. Freshwater Biology 27 (1): 99-121. Doi: 10.1111/j.1365-2427.1992.tb00527.x.

Boulton, A.J., and P.S. Lake. 1992. The ecology of two intermittent streams in Victoria, Australia. III. Temporal changes in faunal composition. Freshwater Biology 27: 123-138.

Boulton, A.J., and L.N. Lloyd. 1992. Flooding frequency and invertebrate emergence from dry floodplain sediments of the River Murray, Australia. Regulated Rivers: Research and Management 7: 137-151.

Boulton, A.J., C.G. Peterson, N.B. Grimm, and S.G. Fisher. 1992. Stability of an aquatic macroinvertebrate community in a multiyear hydrologic disturbance regime. Ecology 73: 2192-2207.

Boulton, A.J., F. Sheldon, F.C. Thoms, and E.H. Stanley. 2000. Problems and constraints in managing rivers with variable flow regimes. Pages 415-430 in: P.J. Boon, B.R. Davies, and G.E. Petts, editors. Global perspectives on river conservation: science, policy, and practice. John Wiley and Sons, U.K.

Boulton, A.J., and E.H. Stanley. 1995. Hyporheic processes during flooding and drying in a Sonoran Desert stream. II. Faunal dynamics. Arch. Hydrobiol. 134: 27-52.

Boulton, A.J., and P.J. Suter. 1986. Ecology of temporary streams – an Australian perspective. In: P. DeDeckker and W.D. Williams (editors). Limnology in Australia. Melbourne, Australia and Dordrecht, Netherlands. CSIRO/Dr. W. Junk.

Bourassa, N., and A. Morin. 1995. Relationships between size structure of invertebrate assemblages and trophy and substrate composition in streams. J. N. Am. Benthol. Soc. 14: 393-403.

Bourgeois, G. 1992. Modelisation de l’habitat physique du saumon de l’atlantique avec PHABSIM: cas du ruiisseau Catamaran. Master’s thesis, University of Moncton, New Brunswick, Canada. 124 pp.

Bourgeois, G., D. Caissie, and N. El-Jabi. 1996. Sensitivity analysis of PHABSIM in a small Atlantic salmon stream. Pages B381-B394 in: M. Leclerc, H. Capra, S. Valentin, A. Boudreault, and Y. Cote (eds.). Proceedings of the Second International Symposium on Habitat Hydraulics, Quebec.

Bourgeois, G., R.A. Cunjak, D. Caissie, and N. El-Jabi. 1996. A spatial and temporal evaluation of PHABSIM in relation to measured density of juvenile Atlantic salmon in a small stream. North American Journal of Fisheries Management 16 (1): 154-166.

Bourke, P., P. Magnan, and M.A. Rodriguez. 1997. Individual variations in habitat use and morphology in brook charr. J. Fish. Biol. 51: 783-794. Doi: 10.1111/j.1095-8649.1997.tb01999.x.

Bourman, R.P., and E.J. Barnett. 1995. Impacts of river regulation on the terminal lakes and mouth of the River Murray, South Australia. Australian Geographical Studies 33 (1): 101-115.

Boussu, M.F. 1954. Relationship between trout populations and cover on a small stream. Journal of Wildlife Management 18: 229-239.

Bouwes, N., N. Weber, C.E. Jordan, W.C. Saunders, I.A. Tatum, C. Volk, J.M. Wheaton, andM.M. Pollock. 2016. Ecosystem experiment reveals benefits of natural and simulated beaver dams to a threatened population of steelhead (*Oncorhynchus mykiss*). Scientific Reports 6: 28581.

Bovee, K.D. 1978. Probability‑of‑use criteria for the family Salmonidae. Instream Flow Information Paper No. 4. Washington, D.C.: U.S. Fish and Wildlife Service (FWS/OBS‑78/07).

Bovee, K.D. 1978. The incremental method of assessing habitat potential for coolwater species, with management implications. American Fisheries Society Special Publication 11: 340-346.

Bovee, K.D. 1982. A guide to stream habitat analysis using the instream flow incremental methodology. Instream Flow Information Paper No. 12. U.S. Fish and Wildlife Service, FWS/OBS‑82/26, Washington, D.C.

Bovee, K.D. 1985. Evaluation of the effects of hydropeaking on aquatic macroinvertebrates using PHABSIM. Pp. 236-241 in: F.W. Olson, R.G. White, and R.H. Hamre (eds.), Proceedings of the Symposium on Small Hydropower and Fisheries. American Fisheries Society, Bethesda, Maryland.

Bovee, K.D. 1986. Development and evaluation of habitat suitability criteria for use in the Instream Flow Incremental Methodology. Instream Flow Information Paper No. 21. U.S. Fish and Wildlife Service, Biological Report 86 (7), Washington, D.C.

Bovee, K.D. 1988. Use of the Instream Flow Incremental Methodology to evaluate influences of microhabitat variability on trout populations. Presented at annual meeting, Western Division, American Fisheries Society, Albuquerque, New Mexico, July 10-13.

Bovee, K.D. 1995. A comprehensive overview of the Instream Flow Incremental Methodology. National Biological Service, Fort Collins, Colorado. 322 pp.

Bovee, K.D. 1996. Perspectives on two-dimensional river habitat models: the PHABSIM experience. Pp. B149-B162 in: M. Leclerc, H. Capra, S. Valentin, A. Boudreault, and Y. Cote. Editors. Ecohydraulics 2000, 2nd International Symposium on Habitat Hydraulics, Quebec. INRS-Eau, co-published with FQSA, IAHR/AIRH.

Bovee, K.D. 1997. Data collection procedures for the Physical Habitat Simulation System. U.S. Geological Survey, Mid-Continent Ecological Science Center, Fort Collins, Colorado. <http://www.mesc.usgs.gov/products/publications/20002/20002.pdf>.

Bovee, K.D., and T. Cochnauer. 1977. Development and evaluation of weighted criteria, probability‑of‑use curves for instream flow assessments; fisheries. Instream Flow Information Paper No. 3. U.S. Fish and Wildlife Service, FWS/OBS‑77/63, Washington, D.C.

Bovee, K.D., J.A. Gore, and A.J. Silverman. 1978. Field testing and adaptation of a methodology to measure “in-stream” values in the Tongue River, Northern Great Plains (NGP) region. U.S. Environ. Prot. Agency, EPA-908/4-78-004A: 465 pp.

Bovee, K.D., B.L. Lamb, J.M. Bartholow, C.D. Stalnaker, J. Taylor, and J. Henriksen. 1998. Stream habitat analysis using the Instream Flow Incremental Methodology. U.S. Geological Survey, Biological Resources Division, Information and Technical Report USGS/BRD-1998-0004. viii+131 pp.

Bovee, K.D., and R.T. Milhous. 1978. Hydraulic simulation in instream flow studies: theory and technique. Instream Flow Information Paper 5, U.S. Fish and Wildlife Service FWS/OBS-78/33.

Bovee, K.D., T.J. Newcomb, and T.G. Coon. 1994. Relations between habitat variability and population dynamics of bass in the Huron River, Michigan. National Biological Survey Biological Report 21. 63 pp.

Bovee, K.D., and M.L. Scott. 2002. Implications of flood pulse restoration for *Populus* regeneration on the upper Missouri River. River Research and Applications 18 (3): 287-298.

Bovee, K., and J.R. Zuboy, editors. 1988. Proceedings of a workshop on the development and evaluation of habitat suitability criteria. U.S. Fish and Wildlife Service, Biological Report 88 (11), Washington, D.C.

Bowen, M.D. 1996. Habitat selection and movement of a stream-resident salmonid in a regulated river and tests of four bioenergetic optimization models. Dissertation. Utah State University, Logan, Utah, USA.

Bowen, Z.H. 1996. Relations between fishes and habitat in the Tallapoosa River system, Alabama. Ph.D. dissertation, Auburn University, Auburn, Alabama. 109 pp.

Bowen, Z.H., K.D. Bovee, and T.J. Waddle. 2003. Effects of flow regulation on shallow-water habitat dynamics and floodplain connectivity. Transactions of the American Fisheries Society 132 (4): 809-823. Doi: 10.1577/T02-079.

Bowen, Z.H., M.C. Freeman, and K.D. Bovee. 1998. Evaluation of generalized habitat criteria for assessing impacts of altered flow regimes on warmwater fishes. Transactions of the American Fisheries Society 127 (3): 455-468. Doi:10.1577/1548-8659(1998)127<0455:EOGHCF>2.0.CO;2.

Bower, L.M., F.W. Keppeler, E.R. Cunha, Y. Morales, D.E. Saenz, E. Lopez, T. Bokhutlo, C. Arantes, M.C. Andrade, C.R. Robertson, K.B. Mayes, and K.O. Winemiller. 2018. Effects of hydrology on fish diversity and assemblage structure in a Texan coastal plains river. Transactions of the American Fisheries Society doi: 10.1002/tafs.10129

Bower, M.R., W.A. Hubert, and F.J. Rahel. 2008. Habitat features affect bluehead sucker, flannelmouth sucker, and roundtail chub across a headwater tributary system in the Colorado River basin. Journal of Freshwater Ecology 20: 695-705.

Bowerman, T., B.T. Neilson, and P. Budy. 2014. Effects of fine sediment, hyporheic flow, and spawning site characteristics on survival and development of bull trout embryos. Canadian Journal of Fisheries and Aquatic Sciences 71 (7): 1059-1071. Doi: 10.1139/cjfas-2013-0372.

Bowlby, J.N., and J.C. Roff. 1986. Trout biomass and habitat relationships in southern Ontario streams. Transactions of the American Fisheries Society 115 (4): 503-514.

Bowling, L.C., P. Storck, and D.P. Lettenmaier. 2000. Hydrologic effects of logging in western Washington, United States. Water Resources Research 36 (11): 3223-3240.

Boxrucker, J.C., G.L. Summers, and E.R. Gilliland. 2005. Effects of the extent and duration of seasonal flood pool inundation on recruitment of threadfin shad, white crappies, and largemouth bass in Hugo Reservoir, Oklahoma. North American Journal of Fisheries Management 25: 709-716.

Boyce, M.S. 2006. Scale for resource selection functions. Diversity and Distributions 12: 269-276.

Boyce, M.S., and L.L. McDonald. 1999. Relating population trends to habitats using resource selection functions. Trends in Ecology and Evolution 14: 268-272. Doi:10.1016/S0169-5347(99)01593-1.

Boyce, M.S., P.R. Vernier, S.E. Nielsen, and F.K.A. Schmiegelow. 2002. Evaluating resource selection functions. Ecological Modelling 157: 281-300. Doi: 10.1016/S0304-3800(02)00200-4

Boyero, L. 2003. The quantification of local substrate heterogeneity in streams and its significance for macroinvertebrate assemblages. Hydrobiologia 499: 161-168.

Bozek, Michael A. 1990. Generality of habitat models for the Colorado River cutthroat trout fry and the influence of adults on habitat choice and behavior. Ph.D. dissertation, University of Wyoming, Laramie, Wyoming. 200 pp.

Bozek, M.A., T.J. Haxton, and J.K. Raabe. 2011. Walleye and sauger habitat. Pages 133-197 in: B.A. Barton, editor. Biology, management, and culture of walleye and sauger. American Fisheries Society, Bethesda, Maryland.

Bozek, M.A., and W.A. Hubert. 1992. Segregation of resident trout in streams as predicted by three habitat dimensions. Canadian Journal of Zoology 70: 886-890.

Bozek, M.A., and F.J. Rahel. 1991. Assessing habitat requirements of young Colorado River cutthroat trout using macrohabitat and microhabitat approaches. Transactions of the American Fisheries Society 120 (5): 571‑581.

Bozek, M.A., and F.J. Rahel. 1992. Generality of microhabitat suitability models for young Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*) across sites and among years in Wyoming streams. Canadian Journal of Fisheries and Aquatic Sciences 49 (3): 552‑564.

Bozelli, R.L., S.M. Thomaz, A.A. Padial, P.M. Lopes, and L.M. Bini. 2015. Floods decrease zooplankton beta diversity and environmental heterogeneity in an Amazonian floodplain system. Hydrobiologia 753: 233-241. Doi: 10.1007/s10750-01502209-1

Braaten, P.J., P.D. Dey, and T.C. Annear. 1997. Development and evaluation of bioenergetic-based suitability criteria for trout. Regulated Rivers: Research and Management 13 (4): 345-356.

Braaten, P.J., and C.S. Guy. 1999. Relations between physicochemical factors and abundance of fishes in tributary confluences of the lower channelized Missouri River. Transactions of the American Fisheries Society 128 (6): 1213-1221.

Braatne, J.H., R. Jaimieson, K.M. Gill, and S.B. Rood. 2007. Instream flows and the decline of riparian cottonwoods along the Yakima River, Washington, USA. River Research and Applications 23: 247-267.

Braatne, J.H., S.B. Rood, and P.E. Heilman. 1996. Life history, ecology and conservation of riparian cottonwoods in North America. In: R.F. Stettler, H.D. Bradshaw, P.E. Heilman, and T.M. Hinckley (editors). Biology of *Populus* and its implication for management and conservation. NRC Press, Ottawa, ON.

Braddock, J.C. 1945. Some aspects of the dominance-subordination relationship in fish. Physiological Zoology 18: 176-195.

Bradford, M.J. 1994. Trends in the abundance of chinook salmon (*Oncorhynchus tshawytscha*) of the Nechako River, British Columbia. Canadian Journal of Fisheries and Aquatic Sciences 51 (4): 965-973.

Bradford, M.J. 1997. An experimental study of stranding of juvenile salmonids on gravel bars and in side channels during rapid flow decreases. Regulated Rivers: Research and Management 13 (5): 395-401. Doi:10.1002/(SICI)1099-1646(199709/10)13:5<395::AID-RRR464>3.0.CO;2-L.

Bradford, M.J., A. von Finster, and P.A. Milligan. 2009. Freshwater life history, habitat, and the production of Chinook salmon from the upper Yukon basin. Pages 19-38 in: C.C. Krueger and C.E. Zimmerman, editors. Pacific salmon: ecology and management of western Alaska’s populations. American Fisheries Society, Bethesda, Maryland.

Bradford, M.J., and J.S. Heinonen. 2008. Low flows, instream flow needs and fish ecology. Canadian Water Resources Journal 32: 165-180. Doi: 10.4296/cwrj3302165.

Bradford, M.J., and P.S. Higgins. 2001. Habitat-, season-, and size-specific variation in diel activity patterns of juvenile Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*Oncorhynchus mykiss*). Canadian Journal of Fisheries and Aquatic Sciences 58 (2): 365-374. Doi:10.1139/cjfas-58-2-365

Bradford, M.J., P.S. Higgins, J. Korman, and J. Sneep. 2011. Test of an environmental flow release in a British Columbia river: does more water mean more fish? Freshwater Biology 56 (10): 2119-2134. doi:10.1111/j.1365-2427.2011.02633.x

Bradford, M.J., J. Korman, and P.S. Higgins. 2005. Using confidence intervals to estimate the response of salmon populations (*Oncorhynchus* spp.) to experimental habitat alterations. Canadian Journal of Fisheries and Aquatic Sciences 62: 2716-2726.

Bradford, M.J., G.C. Taylor, and J.A. Allen. 1997. Empirical review of coho salmon smolt abundance and the prediction of smolt condition at the regional level. Transactions of the American Fisheries Society 126 (1): 49-64.

Bradford, M.J., G.C. Taylor, J.A. Allen, and P.S. Higgins. 1995. An experimental study of the stranding of juvenile coho salmon and rainbow trout during rapid flow decreases under winter condition. North American Journal of Fisheries Management 15 (2): 473-479.

Bradley, C.E., and D.G. Smith. 1984. Meandering channel response to altered flow regime: Milk River, Alberta, and Montana. Water Resources Research 20: 1913-1920.

Bradley, C.E., and D.G. Smith. 1986. Plains cottonwood recruitment and survival on a prairie meandering river floodplain, Milk River, southern Alberta and northern Montana. Canadian Journal of Botany 64: 1433-1442.

Bradley, P.M., B. Kjerfve, and J.T. Morris. 1990. Rediversion salinity change in the Cooper River, South Carolina: ecological implications. Estuaries 13: 373-379.

Bradt, P., M. Urban, N. Goodman, et al. 1999. Stability and resilience in benthic macroinvertebrate assemblages - impact of physical disturbances over twenty-five years. Hydrobiologia 403: 123-33.

Bragg, D.M., A.R. Black, R.W. Duck, and J.S. Rowan. 2005. Approaching the physical-biological interface in rivers: a review of methods for ecological evaluation of flow regimes. Progress in Physical Geography 29: 506-531.

Bramblett, R.G., and R.G. White. 2001. Habitat use and movements of pallid and shovelnose sturgeon in the Yellowstone and Missouri Rivers in Montana and North Dakota. Transactions of the American Fisheries Society 130 (6): 1006-1025.

Brandt, S.A. 2000. Classification of geomorphological effects downstream of dams. Catena 40: 375-401. Doi: 10.1016/S0341-8162(00)00093-X.

Braudrick, C.A., G.E. Grant, Y. Ishikawa, and H. Ikeda. 1997. Dynamics of wood transport in streams: A flume experiment. Earth Surface Processes and Landforms 22 (7): 669-683.

Brauman, K.A., G.C. Daily, T.K. Duarte, and H.A. Mooney. 2007. The nature and value of ecosystem services: an overview highlighting hydrologic services. Annu. Rev. Env. Resour. 32: 67-98.

Braun, D.C., and J.D. Reynolds. 2011. Relationships between habitat characteristics and breeding population densities in sockeye salmon (Oncorhynchus nerka). Canadian Journal of Fisheries and Aquatic Sciences 68 (5): 758-767. Doi:10.1139/F2011-015.

Braun, D.C., and J.D. Reynolds. 2014. Life history and environmental influences on population dynamics in sockeye salmon. Canadian Journal of Fisheries and Aquatic Sciences 71 (8): 1198-1208. Doi: 10.1139/cjfas-2013-0326.

Bravard, J.P., C. Amoros, and G. Pautou. 1986. Impact of civil engineering works on the successions of communities in a fluvial system. Oikos 47: 92-111.

Bravard, J.P., C. Amoros, G. Pautou, G. Bornette, M. Bournaud, M.C. des Chatelliers, J. Gilbert, J.L. Peiry, J.F. Perrin, and H. Tachet. 1997. River incision in southeast France: morphological phenomena and ecological effects. Regulate Rivers: Research and Management 13: 75-90.

Bravender, B.A., and C.S. Shirvell. 1989. Depth, velocity, and substrate measurements of Pacific salmon habitat at three streamflows in Kloiya Creek, B.C., 1984-1 Can. Data Rep. Fish. Aquat. Sci. No. 758. 67 pp.

Bravender, B.A., and C.S. Shirvell. 1990. Microhabitat requirements and movements of juvenile coho and Chinook salmon at three streamflows. In: Kloiya Creek, B.C., Canadian Journal of Fisheries and Aquatic Sciences Data Report, 802.

Bray, K.E. 1966. Habitat models as tools for evaluating historic change in the St. Marys River. Canadian Journal of Fisheries and Aquatic Sciences 53 (Suppl. 1): 88-98.

Bray, D.I., and R. Kellerhalls. 1979. Some Canadian examples of the response of rivers to man-made changes. In: D.D. Rhodes and G. Williams (editors), Adjustments of the Fluvial System, Kendall-Hunt, Dubuque, Iowa, 351 pp.

Brayshaw, J.D. 1966. The effect of river discharge on inland fisheries. Pp. 102-118 in: P.C.G. Isaac (editor), Symposium on River Management. McLaren, London.

Breck, S.W., K.R. Wilson, and D.C. Anderson. 2003. Beaver herbivory and its effect on cottonwood trees: Influence of flooding along matched regulated and unregulated rivers. Rivers Research and Applications 19 (1): 43-58.

Breeser, S.W., F.D. Stearns, M.W. Smith, R.L. West, and J.B. Reynolds. 1988. Observations of movements and habitat preferences of Burbot in an Alaskan glacial river system. Transactions of the American Fisheries Society 117: 506-509.

Bremm, D.J. 1988. Comparison of stream velocity simulations for the IFG-4 model three-flow, one-flow, and no-velocity options. M.S. thesis, Humboldt State University, Arcata, California. 54 pp.

Bremset, G. 2000. Seasonal and diel changes in behaviour, microhabitat use and preferences by young pool-dwelling Atlantic salmon, *Salmo salar*, and brown trout, *Salmo trutta*. Environmental Biology of Fishes 59: 163-179. Doi: 10.1023/A:1007691316864.

Bremset, G., and O.K. Berg. 1999. Three-dimensional microhabitat use by young pool-dwelling Atlantic salmon and brown trout. Animal Behavior 58: 1047-1059.

Bren, L.J. 1988. Effects of river regulation on flooding of a riparian red gum forest on the River Murray, Australia. Regulated Rivers: Research and Management 2 (2): 65-77.

Bren, L.J. 1992. Tree invasion of an intermittent wetland in relation to changes in the flooding frequency of the River Murray, Australia. Australian Journal of Ecology 17: 395-408.

Bren, L.J., and N.L. Gibbs. 1986. Relationships between flood frequency, vegetation and topography in a river red gum forest. Australian Forest Research 16: 357-370.

Brenden, T.O., B.R. Murphy, and E.M. Hallerman. 2006. Effect of discharge on daytime habitat use and selection by muskellunge in the New River, Virginia. Transactions of the American Fisheries Society 135 (6): 1546-1558.

Brenden, T.O., L. Wang, and P.W. Seelbach. 2008. A river valley segment classification of Michigan streams based on fish and physical attributes. Transactions of the American Fisheries Society 137 (6): 1621-1636. Doi: 10.1577/T07-166.1

Brenden, T.O., L. Wang, P.W. Seelbach, R.D. Clark, Jr., and J. Lyons. 2007. Comparison between model-predicted and field-measured stream habitat features for evaluating fish assemblage-habitat relationships. Transactions of the American Fisheries Society 136: 580-592.

Brenden, T.O., L. Wang, P.W. Seelbach, R.D. Clark, Jr., M.J. Wiley, and B. Sparks-Jackson. 2008. A spatially constrained clustering program for river valley segment delineation from GIS digital river networks. Environmental Modeling & Software 22: 638-649.

Brenkman, S.J. 1998. Factors influencing spawning migration of bull trout (*Salvelinus confluentus*) in the North Fork Skokomish River, Olympic National Park, Washington. M.S. thesis, Oregon State University, Corvallis. 92 pp.

Brenkman, S.J., J.J. Duda, C.E. Torgerson, E. Welty, G.R. Pess, R. Peters, and M.L. McHenry. 2012. A riverscape perspective of Pacific salmonids and aquatic habitats prior to large-scale dam removal in the Elwha River, Washington, USA. Fisheries Management and Ecology 19: 36-53.

Brenkman, S.J., G.L. Larson, and R.E. Gresswell. 2001. Spawning migration of lacustrine-adfluvial bull trout in a natural area. Transactions of the American Fisheries Society 130 (5): 981-987.

Bret, V., B. Bergerot, H. Capra, V. Gouraud, and N. Lamouroux. 2016. Influence of discharge, hydraulics, water temperature, and dispersal in brown trout populations (Salmo trutta). Canadian Journal of Fisheries and Aquatic Sciences 73 (3): 319-329. Doi: 10.1139/cjfas-2015-0209

Brett, J.R. 1964. The respiratory metabolism and swimming performance of young sockeye salmon. Journal of the Fisheries Research Board of Canada 21: 1183-1226. Doi: 10.1139/f65-128.

Brett, J.R. 1965. The swimming energetics of salmon. Scientific American 213: 80-85.

Brett, J.R. 1967. Swimming performance of sockeye salmon in relation to fatigue time and temperature. Journal of the Fisheries Research Board of Canada 24: 1731-1741.

Brett, J.R., and N.R. Glass. 1973. Metabolic rates and critical swimming speeds of sockeye salmon (*Oncorhynchus nerka*) in relation to size and temperature. Journal of the Fisheries Research Board of Canada 30: 379-387.

Brewer, S.K. 2011. Patterns in young-of-year Smallmouth Bass microhabitat use in multiple stream segments with contrasting land uses. Fisheries Management and Ecology 18: 506-512.

Brewer, S.K. 2013. Groundwater influences on the distribution and abundance of riverine smallmouth bass, *Micropterus dolomieui*, in pasture landscapes of the midwestern USA. River Research and Applications 29: 269-278.

Brewer, S.K., R.J. DiStefano, and C.F. Rabeni. 2011. The influence of age-specific habitat selection by a stream crayfish community (*Oronectes* spp.) on secondary production. Hydrobiologia 619: 1-10.

Brewer, S.K., and J.M. Long. 2015. Biology and ecology of Neosho smallmouth bass and the genetically distinct Ouachita lineage. Pages 281-295 in M.D. Tringall, J.M. Long, T.W. Birdsong, and M.S. Allen, editors. Black bass diversity: multidisciplinary science for conservation. American Fisheries Society, Symposium 82, Bethesda, Maryland.

Brewer, S.K., R.A. McManamay, A.D. Miller, R. Mollenhauer, T.A. Worthington, and T. Arsuffi. 2016. Advancing environmental flow science: developing frameworks for altered landscapes and integrating efforts across disciplines. Environmental Management. Doi: 10.1007/s00267-016-0703-5.

Brewer, S.K., D.M. Papoulias, and C.F. Rabeni. 2006. Spawning habitat associations and selection by fishes in a flow-regulated prairie river. Transactions of the American Fisheries Society 135 (3): 763-778.

Bridge, J.S., and J. Jarvis. 1976. Flow and sedimentary processes in the meandering River South Esk, Glen Clova, Scotland. Earth Surface Processes 1: 303-336. Doi: 10.1002/esp.3290010402

Bridge, J.S., and J. Jarvis. 1982. The dynamics of a river bend: a study of flow and sedimentary processes. Sedimentology 29: 499-541. Doi: 10.1111/j.1365-3091.1982.tb0132.x

Briggs, J.C. 1953. The behavior and reproduction of salmonid fishes in a small coastal stream. California Department of Fish and Game Marine Fisheries Branch Fish Bulletin 94.

Briggs, M.K. 1997. Riparian ecosystem recovery in arid lands: strategies and references. University of Arizona Press, Tucson.

Briggs, M.K., B.A. Roundy, and W.W. Shaw. 1994. Trial and error: assessing the effectiveness of riparian revegetation in Arizona. Restoration and Management Notes 12: 160-167.

Briggs, S.V., P.F. Hodgson, and P. Ewin. 1994. Changes in populations of waterbirds on a wetland following water storage. Wetlands (Australia) 13: 36-48.

Briggs, S.V., and S.A, Thornton. 1999. Management of water regimes in River Red Gum *Eucalyptus camaldulensis* wetlands for waterbird breeding. Australian Zoologist 31: 187-197.

Brignon, W.R., M.B. Davis., D.E. Olson, H.A. Schaller, and C.B. Schreck. 2011. Snorkelers’ in-water observations can alter salmonid behavior. Journal of Fish and Wildlife Management 2 (1): 90-98. Doi: 10.3996/052010-JFWM-012

Brinson, M.M. 1993. A Hydrogeomorphic classification for wetlands. Technical Report WRP-DE-4. U.S. Army Engineers Waterways Experiment Station, Vicksburg, Mississippi, U.S.A.

Brinson, M.M., and A.I. Malvarez. 2002. Temperate freshwater wetlands: types, status, and threats. Environmental Conservation 29: 115-133.

Brinson, M.M., L.J. MacDonnell, D.J. Austen, R.L. Beschta, T.A. Dillaha, D.L. Donahue, S.V. Gregory, J.W. Harvey, M.C. Molles, Jr., E.I. Rogers, J.A. Stanford, L.J. Ehlers, A.A. Hall, R.G. Luthy, J.B. Rose, R.M. Allen-King, G.B. Baecher, K.R. Bradbury, J. Crook, E. Foufoula-Georgiou, P. Gleick, S.P. Gloss, J. Letey, Jr., D.M. McKnight, C.L. Moe, R.H. Platt, J.L. Schnoor, L. Shabman, R.R. Trussell, S.D. Parker, J.W. Jacobs, W.S. Logan, M/C/ Gibson, M.J. Aquilino, E.A. De Guzman, P.J. Kershaw, A.L. Johnson, J.Q. Sanders, G. Orians, J. Doull, D. Allen, I.C. Burke, T. Burke, W.L. Chameides, C.B. Field, J.P. Gilman, D.S. Greenbaum, B.D. Hammock, R. Henderson, C. Henry, R Hugt, J.H. Johnson, J.F. Kitchell, D. Krewski, J.A. Macmahon, W.F. Passchier, A. Powers, L.M. Ryan, K. Smith, L. Speer, J.J. Reisa, D.J. Policansky, R.A. Wassel, K. Bakshi, R.M. Wedge, K.J. Holmes, and R.E. Crossgrove. 2002. Riparian Areas Functions and Strategies for Management. National Academy Press, Washington, D.C. nap.edu/read/10327

Brisbane Declaration. 2007. Environmental flows are essential for freshwater ecosystem health and human well-being. 10th International River Symposium and International Environmental Flows Conference, 3-6 September, 2007, Brisbane, Australia. http://www.eflownet.org

Briscoe, R.J., M.D. Adkison, A. Wertheimer, and S.G. Taylor. Biophysical factors associated with the marine survival of Auke Creek, Alaska, coho salmon. Transactions of the American Fisheries Society 134: 817-828.

Brittain, J.E., and T.J. Eikeland. 1988. Invertebrate drift: a review. Hydrobiologia 166: 77-93.

Brizga, S.O., A.H. Arthington, B.J. Pusey, M.J. Kennard, S.J. Mackay, G.L. Werren, N.M. Craigie, and S.J. Choy. 2002. Benchmarking, a “top-down” methodology for assessing environmental flows in Australian rivers. *In*: Proceedings of International Conference on Assessing Environmental Flows for Rivers. Southern Waters Consulting, Cape Town, South Africa.

Broad, T.L., C.R. Townsend, G.P. Closs, and D.J. Jellyman. 2001. Microhabitat use by longfin eels in New Zealand streams with contrasting riparian vegetation. Journal of Fish Biology 59: 1385-1400.

Brock, D.A. 2001. Nitrogen budget for low and high freshwater inflows, Nueces estuary, Texas. Estuaries 24: 509-521.

Brock, M.A., and M.T. Casanova. 1997. Plant life at the edge of wetlands: ecological responses to wetting and drying patterns. Pages 181-192 in: N. Klomp and I. Lunt (editors), Frontiers in Ecology: Building the Links. Elsevier, Oxford, UK.

Brock, M.A., D.L. Nielsen, R.J. Shiel, et al. 2003. Drought and aquatic community resilience: the role of eggs and seeds in sediments of temporary wetlands. ‘Freshwater Biol. 48: 207-1218.

Bronmark, C., J. Herrman, B. Malmqvist, C. Otto, and P. Sjostrom. 1984. Animal community structure as a function of stream size. Hydrobiologia 112: 73-79.

Brooker, M.P. 1981. The impact of impoundments on the downstream fisheries and general ecology of rivers. Adv. Appl. Ecol. 6: 91-152.

Brooker, M.P., and R.J. Hemsworth. 1978. The effect of the release of an artificial discharge of water on invertebrate drift in the R. Wye, Wales. Hydrobiologia 59: 155-163. Doi: 10.1007/BF00036494

Brookes, C.J., J.M. Hooke, and J. Mant. 2000. Modeling vegetation interactions with channel flow in river valleys of the Mediterranean region. Catena 40 (1): 93-118.

Brooks, A.J., B.C. Chessman, and T. Haeusler. 2011. Macroinvertebrate traits distinguish unregulated rivers subject to water extraction. Journal of the North American Benthological Society 30: 419-435.

Brooks, A.J., and T. Haeusler. 2016. Invertebrate responses to flow: Trait-velocity relationships during low and moderate flows. Hydrobiologia 773: 23-24.

Brooks, A.J., T. Haeusler, I. Reinfelds, and S. Williams. 2005. Hydraulic microhabitats and the distribution of macroinvertebrate assemblages in riffles. Freshwater Biology 50: 331-344. Doi: 10.1111/j.1365-2427.2004.01322.x

Brooks, A.J., M. Russell, R. Bevitt, and M. Dasey. 2011. Constrains on the recovery of invertebrate assemblages in a regulated snowmelt river during a tributary-sourced environmental flow regime. Marine and Freshwater Research 62: 1407-1420. Doi: 10.1071/MF11128

Brooks, J.R., J.J. Gibson, S.J. Birks, M.H. Weber, K.D. Rodecap, and J.L. Stoddard. 2014. Stable isotope estimates of evaporation: inflow and water residence time for lakes across the United States as a tool for national lake water quality assessments. Limnol. Oceanogr. 59: 2150-2165. Doi: 10.4319/Io.2014.59.6.2150.

Brooks, R.P. 1997. Improving habitat suitability index models. Wildlife Society Bulletin 125: 163-167.

Brooks, R.T. 2009. Potential impact of global climate change on the hydrology and ecology of ephemeral freshwater systems of the forests of the northeastern United States. Clim. Change 95 (3-4): 469-48. Doi: .1007/s10584-008-9531-9.

Brotherton, J.D., and V. Winkel. 1986. Habitat relationships of saltcedar (*Tamarix ramosissima*). The Great Basin Naturalist 46 (3): 535-541.

Brouder, M.J. 2001. Effects of flooding on recruitment of roundtail chub, *Gila robusta*, in a southwestern river. Southwestern Naturalist 46: 302-310.

Brousseau, C.S., and G.A. Goodchild. 1989. Fisheries and yields in the Moose River basin, Ontario. Pp. 145-158 in: D.P. Dodge (editor), Proceedings of the International Large River Symposium. Can. Spec. Publ. Fish. Aquatic Sci. 106.

Browder, J.A. 1985. Relationship between pink shrimp production on the Tortugas grounds and water flow patterns in the Florida Everglades. Bulletin of Marine Science 37: 839-856.

Browder, J.A. 1991. Watershed management and the importance of freshwater flow to estuaries. Pages 7-22 in: S.F. Treat and P.A. Clark, editors. Proceedings, Tampa Bay Area Scientific Information, Symposium 2. U.S. Geological Survey and Tampa Bay Estuary Program, Tampa Bay Regional Planning Council, Tampa, Florida.

Browder, J.A., and D. Moore. 1981. A new approach to determining the quantitative relationship between fishery production and the flow of fresh water to estuaries, p. 403-430 in: R. Cross and D. Williams (eds.), Proceedings of the National Symposium on Freshwater Inflow to Estuaries, FWS/OBS-81/04. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

Browder, J.A., Z. Zein-Eldin, M.M. Criales, M.B. Robblee, S. Wong, T.L. Jackson, and D. Johnson. 2002. Dynamics of pink shrimp (*Farfantepenaeus duorarum*) recruitment potential in relation to salinity and temperature in Florida Bay. Estuaries 25 (6B): 1355-1371.

Brown, A.E., A.W. Western, T.A. McMahon, and L. Zhang. 2013. Impact of forest cover changes on annual streamflow and flow duration curves. Journal of Hydrology 483: 39-50. Doi: 10.1016/j.hydrol.2012.12.031

Brown, A.E., L. Zhang, T.A. McMahon, et al. 2005. A review of paired catchment studies for determining changes in water yield resulting from alterations in vegetation. Journal of Hydrology 310 (1-4): 28-61.

Brown, C.A. 2007. Integrated Basin Flow Management 4. Review of Flow-Assessment tools. Report to the Mekong River Commission, Vientiane, Lao PDR. 42 pp.

Brown, C.A. 2007. Let it flow: reducing the environmental legacy of dams. World Rivers Review 23: 6-11.

Brown, C.A., J. Ewart-Smith, J. Conrad, and N. Roussouw. 2006. The development of the Water Resource Classification System (WRCS). Volume 2. Ecological, Hydrological and Water Quality Guidelines for the Seven-Step Classification Procedure. Department of Water Affairs and Forestry, Pretoria. 136 pp.

Brown, C.A., and A. Joubert. 2003. Using multicriteria analysis to develop environmental flow scenarios for rivers targeted for water resource development. Water SA 29: 365-374.

Brown, C., and J. King. 2000. Environmental flow assessment for rivers: a summary of the DRIFT process. Southern Waters Information Report 01/00, Mowbray, South Africa.

Brown, C., and J. King. 2003. Environmental flows: concepts and methods. The World Bank. Water Resources and Environment Technical Note C1

Brown, C.A., and J.M. King. 2012. Modifying dam operating rules to deliver environmental flows: experiences from southern Africa. Journal of River Basin Management 10: 13-28.

Brown, C., C. Pemberton, A. Greyling, and J. King. 2005. DRIFT User Manual: Volume 1: Biophysical Module for Predicting Overall River Condition in Small to Medium Sized Rivers with Predictable Flow Regimes. Water Research Commission Report No. 1404/1/05, Pretoria. 105 pp.

Brown, C.A., and P. Watson. 2007. Decision support systems for environmental flows: lessons from Southern Africa. International Journal of River Basin Management 5: 169-178.

Brown, D.E., C.J. Lowe, and F. Hausler. 1977. Southwestern riparian communities: their biotic importance and management in Arizona. In: Johnson, R. Roy; Jones, Dale A., tech. coords. Importance, preservation and management of riparian habitat: a symposium: Proceedings; 1977 July 9; Tucson, AZ. Gen. Tech. Rep. RM-43. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment 201-211.

Brown, J., L. Bach, A. Aldous, A. Wyers, and J. DeGagne. 2011. Groundwater-dependent ecosystems in Oregon: an assessment of their distribution and associated threats. Frontiers in Ecology and the Environment 9 (2): 97-102. Doi: 10.1890/090108

Brown, J.K. 1990. Effects of fire on streams. Pp. 106-110 in: F. Richardson and R.H. Hamre (eds.), Wild Trout IV: proceedings of the symposium. Trout Unlimited, Arlington, Virginia.

Brown, L.E., D.M. Hannah, and A.M. Milner. 2003. Alpine stream habitat classification: an alternative approach incorporating the role of dynamic water source contributions. Arctic, Antarctic, and Alpine Research 35: 313-322.

Brown, L.R. 2000. Fish communities and their associations with environmental variables, lower San Joaquin River drainage, California. Environmental Biology of Fishes 57: 251-269.

Brown, L.R., and M.I. Bauer. 2010. Effects of hydrologic infrastructure on flow regimes of California’s Central Valley rivers: implications for fish populations. River Res. Appl. 26 (6): 751-765. Doi: 10.1002/rra.1293.

Brown, L.R., W.A. Bennett, R.W. Wagner, T. Morgan-King, N. Knowles, K. Feyrer, D.H. Schoellhamer, M/T. Stacey, and M. Dettinger. 2013. Implications for future survival of delta smelt from climate change scenarios for the Sacramento-San Joaquin Delta, California. Estuaries and Coasts 36: 754-774.

Brown, L.R., and A.M. Brasher. 1995. Effect of predation by Sacramento squawfish (*Ptychocheilus grandis*) on habitat choice of California roach (*Lavinia symmetricus*) and rainbow trout (*Oncorhynchus mykiss*) in artificial streams. Canadian Journal of Fisheries and Aquatic Sciences 52 (8): 1639-1646.

Brown, L.R., and T. Ford. 2002. Effects of flow on the fish communities of a regulated California river: implications for managing native fishes. River Research and Applications 18 (4): 331-342. Doi:10.1002/rra.673.

Brown, L.R., W. Kimmerer, and R. Brown. 2009. Managing water to protect fish: a review of California’s environmental water account, 2001-2005. Environmental Management 4: 357-368.

Brown, L.R., and P.B. Moyle. 1991. Changes in habitat and microhabitat partitioning within an assemblage of stream fishes in response to predation by Sacramento squawfish (*Ptychocheilus grandis*). Canadian Journal of Fisheries and Aquatic Sciences 48 (5): 849‑856.

Brown, R. J., M.B. Courtney, and A.C. Seitz. 2019. New insights into the biology of anadromous Dolly Varden in the Canning River, Arctic National Wildlife Refuge, Alaska. Transactions of the American Fisheries Society 148 (1): 73-87. Doi: 10.1002/tafs.10122

Brown, R.S., C.R. Duguay, R.P. Mueller, L.L. Moulton, P.J. Doucette, and J.D. Tagestad. 2010. Use of synthetic aperture radar to identify and characterize overwintering areas of fish in ice-covered Arctic rivers: A demonstration with broad whitefish and their habitats in the Sagavanirktok River, Alaska. Transactions of the American Fisheries Society 139: 1711-1722. Doi: 10.1577/T09-176.1

Brown, R.S., W.A. Hubert, and S.F. Daly. 2011. A primer on winter, ice, and fish: what fisheries biologists should know about winter ice processes and stream-dwelling fish. Fisheries 36 (1): 8-26.

Brown, R.S., and W.C. Mackay. 1995. Fall and winter movements of and habitat use by cutthroat trout in the Ram River, Alberta. Transactions of the American Fisheries Society 124 (6): 873-885.

Brown, R.S., and W.C. Mackay. 1995. Spawning ecology of cutthroat trout (*Oncorhynchus clarki*) in the Ram River, Alberta. Canadian Journal of Fisheries and Aquatic Sciences 52: 983-992. Doi: 10.1139/f95-097.

Brown, R.S., G. Power, and S. Beltaos. 2001. Winter movements and habitat use of riverine brown trout, white sucker, and common carp in relation to flooding and ice break-up. Journal of Fish Biology 59: 1126-1141. Doi:10.1111/j.1095-8649.2001.tb00180.x.

Brown, S.K., K.R. Buja, S.H. Jury, M.E. Monaco, and A. Banner. 2000. Habitat suitability index models for eight fish and invertebrate species in Casco and Sheepscot bays, Maine. North American Journal of Fisheries Management 20: 408-435.

Brown, T.C. 2004. The marginal economic value of streamflow from National Forests. Discussion Paper DP-04-1, USDA Forest Service Proceedings RMRS-4851. Rocky Mountain Research Station, Fort Collins, Colorado, USA.

Brown, T.G., and G.F. Hartman. 1988. Contribution of seasonally flooded lands and minor tributaries to the production of coho salmon in Carnation Creek, British Columbia. Transactions of the American Fisheries Society 117: 5546-551.

Bruckerhoff, L.A., D.R. Leasure, and D.D. Magoulick. 2019. Flow-ecology relationships are spatially structured and differ among flow regimes. Journal of Applied Ecology 56: 398-412. Doi: 10.1111/3365-2664.13297.

Brumbaugh, S.M., and R. Coleman. 2017. Evaluation of Bayesian networks for predicting spawning habitat quality of Chinook salmon in data-poor watersheds. North American Journal of Fisheries Management 37: 176-188. Doi: 10.1080/02766947.2016.1254125

Bruner, K.L. 1989. Effects of beaver on streams, streamside habitat, and coho salmon in two coastal Oregon streams. Master’s thesis, Oregon State University, Corvalis.

Brunger Lipsey, T.S., W.A. Hubert, and F.J. Rahel. 2005. Relationships of elevation, channel slope, and stream width to occurrences of native fishes at the Great Plains-Rocky Mountains interface. Journal of Freshwater Ecology 20: 695-705.

Brunke, M., and T. Gonser. 1997. The ecological significance of exchange processes between rivers and groundwater. Freshwater Biology 37 (1): 1-33.

Brunke, M., E. Hoehn, and T. Gonser. 2003. Patchiness of river-groundwater interactions within two floodplain landscapes and diversity of aquatic invertebrate communities. Ecosystems 6: 707-722.

Brunke, M., A. Hoffmann, and M. Pusch. 2001. Use of mesohabitat-specific relationships between flow velocity and river discharge to assess invertebrate minimum flow requirements. Regulated Rivers: Research & Management 17 (6): 667-676.

Brunner, G.W. 2001. HEC-RAS River Analysis System: User’s Manual. Vicksburg, MS: U.S. Army Corps of Engineers (USACE). Institute for Water Resources (IWR), Hydrologic Engineering Center (HEC).

Bruno, M.C., and A. Siviglia. 2012. Assessing impacts of dam operations – Interdisciplinary approaches for sustainable river management. River Research and Applications 28: 675-677.

Bruno, M.C., A. Siviglia, M. Carolli, and B. Maiolini. 2013. Multiple drift responses of benthic invertebrates to interacting hydropeaking and thermopeaking waves. Ecohydrology 6: 511-522.

Bruns, D.A. 2005. Macroinvertebrate response to land cover, habitat, and water chemistry in a mining-impacted river ecosystem::a GIS watershed analysis. Aquatic Sciences 6: 403-423.

Bruns, D.A., G.W. Minshall, C.E. Cushing, K.W. Cummins, J.T. Brock, and R.L. Vannote. 1984. Tributaries as modifiers of the river continuum concept - analysis by polar ordination and regression models. Archiv fur Hydrobiologie 99: 208-220.

Brussock, P.P., A.V. Brown, and J.C. Dixon. 1985. Channel form and stream ecosystem models. Water Res. Bull. 21: 859-866.

Brusven, M.A., C. MacPhee, and r. Biggam. 1974. Effects of water fluctuation on benthic insects. Anatomy of a River. Pacific Northwest River Basins Commission Report, Vancouver, Washington.

Brusven, M.A., W.R. Meehan, and J.F. Ward. 1986. Summer use of simulated undercut banks by juvenile chinook salmon in an artificial Idaho channel. North American Journal of Fisheries Management 6 (1): 32-37.

Brusven, M.A., and K.V. Prather. 1974. Influence of stream sediments on distribution of macroinvertebrates. J. Entomol. Soc. B.C. 71: 25-32.

Bryant, M.D., M.D. Lukey, J.P. McDonell, R.A. Gubernick, and R.S. Aho. 2009. Seasonal movement of Dolly Varden and cutthroat trout with respect to stream discharge in a second-order stream in southeast Alaska. North American Journal of Fisheries Management 29 (6): 1728-1742.

Buchanan, B.P., D.A. Auerbach, R.A. McManamay, J.M. Taylor, A.S. Flecker, J.A. Archibald, …, M.T. Walter. Environmental flows in the context of unconventional natural gas development in the Marcellus Shale. Ecological Applications 27: 37-55. Doi: 10.1002/eap.1425

Buchanan, C., H.L.N. Moltz, H.C. Haywood, J.B. Palmer, and A.N. Griggs. 2013. A test of the Ecological Limits of Hydrological Alteration (ELOHA) method for determining environmental flows in the Potomac River basin, U.S.A. Freshwater Biology 58 (12): 2632-2647. Doi: 10.1111/fwb.12240

Buchanan, R.A., P.L. Brandes, and J.R. Skalski. 2018. Survival of juvenile fall-run Chinook salmon through the San Joaquin River delta, California, 2010-2015. North American Journal of Fisheries Management 38 (3): 663-679. Doi: 10.1002/nafm.10063

Buckley, J., and B. Kynard. 1985. Habitat use and behavior of pre-spawning and spawning shortnose sturgeon, *Acipenser brevirostrum*, in the Connecticut River. Pages 111-117 in: F.P. Binkowski and S.I. Doroshov, editors. North American sturgeons: biology and aquaculture potential. Dr. W. Junk Publishers, Dordrecht, The Netherlands.

Buckmeier, D.L., N.G. Smith, and D.J. Daugherty. 2013. Alligator gar movement and macrohabitat use in the lower Trinity River, Texas. Transactions of the American Fisheries Society 142 (4): 1025-1035. Doi: 10.1080/00028487.2013.797494.

Budy, P., G.P. Thiede, N. Bouwes, C.E. Petrosky, and H. Schaller. 2002. Evidence linking delayed mortality of Snake River salmon to their earlier hydrosystem experience. North American Journal of Fisheries Management 22: 35-51.

Budy, P., G.P. Thiede, P. McHugh, E.S. Hansen, and J. Wood. 2008. Exploring the relative influence of biotic interactions and environmental conditions on the abundance and distribution of exotic brown trout (*Salmo trutta*) in a high mountain stream. Ecology of Freshwater Fish 17: 554-566.

Budy, P., S. Wood, and B. Roper. 2012. A study of the spawning ecology and early life history survival of Bonneville cutthroat trout. North American Journal of Fisheries Management 32 (3): 436-449. Doi: 10.1080/02755947.2012.67945.

Buehrens, T.W. 2011. Growth, movement, survival, and spawning habitat of Coastal Cutthroat Trout. Master’s thesis, University of Washington, Seattle. Available: fish.washington.edu/research/publications/ms.phd/buehrens\_T\_MS.SP11.pdf.

Buehrens, T.W., J. Glasgow, C.O. Ostberg, and T.P. Quinn. 2013. Spatial segregation of spawning habitat limits hybridization between sympatric native steelhead and coastal cutthroat trout. Transactions of the American Fisheries Society 142 (1): 221-233. Doi: 10.1080/00028487.2012.728165.

Buehrens, T.W., P. Kiffney, G.R. Pess, T.R. Bennett, S.M. Naman, G. Brooks, and T.P. Quinn. 2014. Increasing juvenile coho salmon densities during early recolonization have not affected resident coastal cutthroat trout growth, movement, or survival. North American Journal of Fisheries Management 34 (5): 892-907. Doi: 10.1080/02766947.2014.923071.

Buffagni, A. 2001. The use of benthic invertebrate production for the definition of ecologically acceptable flows in mountain rivers. Pages 43-49 in: M.C. Acreman (editor), Hydro-ecology: linking hydrology and aquatic ecology. Proceedings of the Birmingham, United Kingdom, Workshop, July 1999. IAHS Publication No. 266.

Buffam, I., J.N. Galloway, L.K. Blumn and K.J. McGlathery. 2001. A stormflow/baseflow comparison of dissolved organic matter concentrations and bioavailability in an Appalachian stream. Biogeochemistry 53: 269-306. Doi: 10.1023/A:1010643432253.

Buffin-Belanger, T., S. Rice, I. Reid, and J. Lancaster. 2006. Spatial heterogeneity of near-bed hydraulics above a patch of river gravel. Water Resour. Res. 42: W04413. Doi: 10.1029/2005WR004070.

Buffington, J.M., and D.R. Montgomery. 1997. A systematic analysis of eight decades of incipient motion studies, with special reference to gravel-bedded rivers. Water Resour. Res. 33: 1993-2029.

Buffington, J.M., and D.R. Montgomery. 1999a. Effects of hydraulic roughness on surface textures of gravel-bed rivers. Water Resources Research 35 (11): 3507-3521. Doi:10.1029/1999WR00138.

Buffington, J.M., and D.R. Montgomery. 1999b. Effects of sediment supply on surface textures of gravel-bed rivers. Water Resour. Res. 35 (11): 3523-3530. Doi:10.1029/1999WR00232.

Buffington, J.M., D.R. Montgomery, and H.M. Greenberg. 2004. Basin-scale availability of salmonid spawning gravel as influenced by channel type and hydraulic roughness in mountain catchments. Canadian Journal of Fisheries and Aquatic Sciences 61 (11): 2085-2096. Doi:10.1139/f04-141.

Buffington, J.M., R.D. Woodsmith, D.B. Booth, and D.R. Montgomery. 2003. Fluvial processes in Puget Sound rivers and the Pacific Northwest. Pages 46-78 in: D.R. Montgomery, S. Bolton, D.B. Booth, and L. Wall (editors), Restoration of Puget Sound rivers. University of Washington Press, Seattle, WA.

Bugert, R.M. 1985. Microhabitat selection of juvenile salmonids in response to stream cover alteration and predation. M.S. thesis, University of Idaho, Moscow, Idaho. 95 pp.

Bugert, R.M., and T.C. Bjornn. 1991. Habitat use by steelhead and coho salmon and their responses to predators and cover in laboratory streams. Transactions of the American Fisheries Society 120 (4): 486-493.

Bugert, R.M., T.C. Bjornn, and W.R. Meehan. 1991. Summer habitat use by young salmonids and their responses to cover and predators in a small southeast Alaska stream. Transactions of the American Fisheries Society 120 (4): 474‑485.

Buijse, A.D., H. Coops, M. Staras, L.H. Jans, G.J. Van Geest, R.E. Grifts, B.W. Ibelings, W. Oosterber, and F.C.J.M. Roozen. 2002. Restoration strategies for river floodplains along large lowland rivers in Europe. Freshwater Biology 47: 889-907.

Buisson, L., L. Blane, and G. Grenouillet. 2008. Modelling stream fish species distribution in a river network: the relative effects of temperature versus physical factors. Ecology of Freshwater Fish 17: 244-257.

Bukaveckas, P.A. 2007. Effects of channel restoration on water velocity, transient storage, and nutrient uptake in a channelized stream. Environmental Science and Technology 41 (5): 1570-1576. Doi: 10.1020/er061618x.

Bulger, A.G., and D.R. Edds. 2001. Population structure and habitat use in Neosho madtom (*Noturus placidus*). Southwestern Naturalist 46: 8-15.

Bulger, A.J., B.P. Hayden, M.E. Monaco, D.M. Nelson, and M.G. McCormick-Ray. 1993. Biologically-based estuarine salinity zones derived from multivariate analysis. Estuaries 16: 311-322.

Bullock, A., and A. Gustard. 1992. Applications of the instream flow incremental methodology to assess ecological flow requirements in a British lowland river. Pages 251-277 in: P.
A. Carling and G.E. Petts (editors), Lowland floodplain rivers: geomorphological perspectives. John Wiley & Sons, Chichester.

Bullock, A., A. Gustard, and E.S. Granger. 1991. Instream flow requirements of aquatic ecology in two British rivers. Report No. 115. Institute of Hydrology: Wallingford.

Bult, T.P., R.L. Haedrich, and D.C. Schneider. 1998. New technique describing spatial scaling and habitat selection in riverine habitats. Regulated Rivers: Research and Management 14: 107-118.

Bult, T.P., S.C. Riley, R.L. Haedrich, R.J. Gibson, and J. Heggenes. 1999. Density-dependent habitat selection by juvenile Atlantic salmon (*Salmo salar*) in experimental riverine habitats. Canadian Journal of Fisheries and Aquatic Sciences 56:1298-1306.

Bunn, S.E. 1993. Riparian-stream linkages: research needs for the protection of in-stream values. Australian Biologist 6: 46-51.

Bunn, S.E. 2016. Grand challenges for the future of freshwater ecosystems. Front. Env. Sci. 4: 21. Doi: 10.3389/fenvs.2016.00021

Bunn, S.E. 1998. Recent approaches to assessing and providing environmental flows: concluding remarks. Pages 123-129 in: A.H. Arthington and J.M. Zalucki (editors), Water for the environment: recent approaches to assessing and providing environmental flows. Proceedings of AWWA forum, Brisbane, Australia.

Bunn, S.E. 1999. The challenges of sustainable water use and wetland management. Pages 14-22 in: water: Wet or Dry? Proceedings of the Water and Wetlands Conference. Nature Conservation Council of NSW, Sydney, Australia.

Bunn, S.E., E.G. Abal, M.J. Smith, S.C. Choy, C.S. Fellows, B.D. Harch, M.J. Kennard, and F. Sheldon. 2010. Integration of science and monitoring of river ecosystem health to guide investments in catchment protection and rehabilitation. Freshwater Biology 55 (Suppl. 1): 223-240. Doi: 10.1111/j.1365-2427.2009.02375.x.

Bunn, S.E., and A.H. Arthington. 2002. Basic principles and ecological consequences of altered flow regimes for aquatic biodiversity. Environmental Management 30: 492-507. Doi:10.1007/s00267-002-2737-0. PMID:12481916.

Bunn, S.E., P.M. Davs, and T.D. Mosisch. 1999. Ecosystem measures of river health and their response to riparian and catchment degradation. Freshwater Biology 41:33-345.

Bunn, S.E., M.C. Thoms, S.K. Hamilton, and S.J. Capon. 2006. Flow variability in dryland rivers: boom, bust, and the bits in between. River Research and Applications 22: 179-186.

Bunt, C.M., and S.J. Cooke. 2001. Post-spawn movements and habitat use by greater redhorse, *Moxostoma valenciennesi*. Ecology of Freshwater Fish 10: 57-60.

Bunt, C.M., S.J. Cooke, C. Katapodis, and R.S. McKinley. 1999. Movement and summer habitat of brown trout (*Salmo trutta*) below a pulsed discharge hydroelectric generating station. Regulated Rivers: Research and Management 15 (5): 395-403. Doi: 10.1002/(SICI)1099-1646(199909/10)15:5<395::AID-RRR556>3.0.CO:2-1.

Bunt, C.M., B.T. van Poorten, and W. Wong. 2001, Denil fishway utilization patterns and passage of several warmwater species relative to seasonal, thermal and hydraulic dynamics. Ecology of Freshwater Fish 10: 212-219.

Bunte, K. 2004. State of the science review. Gravel migration and augmentation below hydroelectric dams: a geomorphic perspective. Report of Colorado State University, Engineering Research Center to U.S. Forest Service Stream Systems Technology Center. Fort Collins, Colorado.

Burcher, C.L., H.M. Vallett, and E.F. Benfield. 2007. The landcover cascade: coupling land and water. Ecology 88: 228-242.

Burdick, S.M., D.A. Hewitt, J.E. Rasmussen, B.S. Hayes, E.C. Janney, and A.C. Harris. 2015. Effects of lake surface elevation on shoreline-spawning Lost River Suckers. North American Journal of Fisheries Mangement 15 (3): 478-490. Doi: 10.1080/02755947.2015.1017124.

Burford, D.D., T.E. McMahon, J.E. Cahoon, and M. Blank. 2009. Assessment of trout passage through culverts in a large Montana drainage during summer low flow. North American Journal of Fisheries Management 29: 739-752.

Burgers, H.E., A.M. Schipper, and A.J. Hendriks. 2014. Size relationships of water discharge in rivers: scaling of discharge with catchment area, mains-stem length and precipitation. Hydrol. Process. 28: 5769-5775. Doi: 10.1002/hyp.10087.

Burges, S.J., M.S. Wigmosta, and J.M. Meena. 1998. Hydrological effects of land-use change in a zero-order catchment. ASCE J. Hydrologic Engineering 3 (2): 86-97.

Burgherr, P., J.V. Ward, and C.T. Robinson. 2002. Seasonal variation in zoobenthos across habitat gradients in an alpine glacial floodplain Val Roseg, Swiss Alps. Journal of the North American Benthological Society 21: 561-575.

Burgman, M.A., D.R. Breininger, B.W. Duncan, and S. Ferson. 2001. Setting reliability bounds on habitat suitability indices. Ecological Applications 11: 70-78. Doi: 10.1890?1051-0761(2001)011[0070:SRBOHS]2.0.CO;2

Burke, M., K. Jorde, and J.M. Buffington. 2009. Application of a hierarchical framework for assessing environmental impacts of dam operation: changes in streamflow, bed mobility and recruitment of riparian trees in a western North American river. J. Environ. Manage. 90 S224-S236. Doi: 10.1016/j.jenvman.2008.07.022.

Burla, M., A.M. Baptista, E. Casillas, J.G. Williams, and D.M. Marsh. 2010. The influence of the Columbia River plume on the survival of steelhead (*Oncorhynchus mykiss*) and Chinook salmon (*Oncorhynchus tshawytscha*): a numerical exploration. Canadian Journal of Fisheries and Aquatic Sciences 67 (10): 1671-1684.

Burn, D.H. 1994. Hydrologic effects of climate change in west-central Canada. Journal of Hydrology 160: 53-70.

Burn, D.H., O.I. Abdul Aziz, and A. Pietroniro. 2004. A comparison of trends in hydrological variables for two watersheds in the Mackenzie River Basin. Canadian Water Resources Journal 29: 283-298.

Burn, D.H., J.M. Buttle, D. Caissie, G. MacCulloch, C. Spence, and K. Stahl. 2008. The processes, patterns and impacts of low flows across Canada. Canadian Water Resources Journal 33: 107-124.

Burner, C.J. 1951. Characteristics of spawning nests of Columbia River salmon. Fishery Bulletin 52: 95-110.

Burnett, K.M., G.H. Reeves, S.E. Clarke, and K.R. Christiansen. 2006. Comparing riparian and catchment influences on stream habitat in a forested, montane, landscape. Pages 175-197 in R.M. Hughes, L. Wang, and P.W. Seelbach, editors. Landscape influences on stream habitats and biological assemblages. American Fisheries Society, Symposium 48, Bethesda, Maryland.

Burnett, K.M., G.H. Reeves, D.J. Miller, S. Clarke, K. Vance-Borland, and K. Christiansen. 2007. Distribution of salmon-habitat potential relative to landscape characteristics and implications for conservation. Ecological Applications 17: 66-80.

Burns, A., and K. Walker. 2000. Effects of water level regulation on algal biofilms in the River Murray, South Australia. Regulated Rivers: Research and Management 16: 434-444.

Burns, D.A., and J.J. McDonnell. 1998. Effects of a beaver pond on runoff processes: Comparison of two headwater catchments. Journal of Hydrology 205: 248-264.

Burns, J.W. 1971. The carrying capacity for juvenile salmonids in some northern California streams. California Fish and Game 57 (1): 44-57.

Burroughs, B.A. 2007. The effects of dam removal on fluvial geomorphology and fish. Doctoral dissertation. Michigan State University, East Lansing.

Burroughs, B.A., D.B. Hayes, K.D. Klomp, J.F. Hansen, and J. Mistak. 2009. Effects of Stronach Dam removal on fluvial geomorphology in the Pine River, Michigan, United States. Geomorphology 110: 96-107.

Burroughs, B.A., D.B. Hayes, K.D. Klomp, J.F. Hansen, and J. Mistak. 2010. The effects of the Stronach Dam removal on fish in the Pine River, Manistee County, Michigan. Transactions of the American Fisheries Society 139 (5): 1595-1613.

Burt, D.W., and J.H. Mundie. 1986. Case histories of regulated stream flow and its effects on salmonid populations. Canadian Technical Report of Fisheries and Aquatic Sciences 1477: 98 pp.

Burton, R.A., and T.A. Wesche. 1974. Relationship of duration flows and selected watershed parameters to the standing stock estimates of trout populations. University of Wyoming, Water Resources Series Number 52, Laramie, Wyoming.

Busch, D.E., and S.D. Smith. 1995. Mechanisms associated with the decline of woody species in riparian ecosystems of the southwest U.S. Ecological Monographs 65: 1433-1442.

Busch, S.E., N.L. Ingraham, and S.S. Smith. 1992. Water uptake in woody phreatophytes of the southwestern U.S.: A stable isotope study. Ecological Applications 2: 450-459.

Busch, W.-D.N., R.L. Scholl, and W.L. Hartman. 1975. Environmental factors affecting the strength of walleye (*Stizostedion vitreum vitreum*) year-classes in western Lake Erie, 1960-1970. Journal of the Fisheries Research Board of Canada 32: 1733-1743. Doi: 10.1139/f75-207.

Bushaw-Newton, K.L., D.D. Hart, K.E. Pizzuto, J.R. Thomson, J, Egan, J.T. Ashley, T.E. Johnson, R.J Horwitz, M. Keeley, J. Lawrence, D. Charles, C. Getenby, D.A. Kreeger, T. Nithengale, R.L. Thomas, and D.J. Velinsky. 2002. An integrative approach towards understanding ecological responses to dam removal – The Manatawny Creek study. Journal of the American Water Resources Association 38 (6): 1581-1599.

Busse, L.B., J.C. Simpson, and S.D. Cooper. 2006. Relationships among nutrients, algae, and land use in urbanized southern California streams. Canadian Journal of Fisheries and Aquatic Sciences 63 (12): 2621-2638.

Bustard, D.R., and D.W. Narver. 1975. Preferences of juvenile coho salmon (*Oncorhynchus kisutch*) and cutthroat trout (*Salmo clarki*) relative to simulated alteration of winter habitat. Journal of the Fisheries Research Board of Canada 32: 681‑687.

Bustard, D.R., and D.W. Narver. 1975. Aspects of the winter ecology of juvenile coho salmon (*Oncorhynchus kisutch*) and steelhead trout (*Salmo gairdneri*). Journal of the Fisheries Research Board of Canada 32: 667-680.

Butler, D.R. 1989. The failure of beaver dams and resulting outburst flooding: A geomorphic hazard of the Southeastern piedmont. Geographical Bulletin – Gamma Theta Upsilon 31 (1): 29-38.

Butler, R. 1979. Anchor ice, its formation and effects on aquatic life. Science in Agriculture 26 (2).

Butler, S.E., and D.H. Wahl. 2010. Common carp distribution, movements, and habitat use in a river impounded by multiple low-head dams. Transactions of the American Fisheries Society 139 (4): 1121-1135. Doi: 10.1577/T09-134.1

Buttle, J.M. 1994. Hydrological response to reforestation in the Ganaraska River basin, southern Ontario. Can. Geogr. 38: 240-253.

Buttle, J.M. 1996. Identifying hydrological responses to basin restoration: an example from southern Ontario. Pp. 5-13 in: J.J. McDonnell, J.B. Stribling, L.R. Neville, and D.J. Leopold, eds., Watershed restoration management: physical, chemical, and biological considerations. American Water Resources Association, Herndon, Virginia.

Buttle, J.M. 2006. Mapping first order controls on streamflow from drainage basins: the T3 template. Hydrological Processes 20: 3415-3422.

Buttle, J.M., and R.A. Metcalfe. 2000. Boreal forest disturbance and streamflow response, northeastern Ontario. Canadian Journal of Fisheries and Aquatic Sciences 57 (Suppl 2): 5-18.

Buyukates, Y., and D.L. Roelke. 2005. Influence of pulsed inflows and nutrient loading on zooplankton and phytoplankton community structure and biomass in microcosm experiments using estuarine assemblages. Hydrobiologia 548 (1): 233-249. Doi: 10.1007/s10750-005-5195-x.

Buzan, D., W. Lee, J. Culberton, N. Kuhn, and L. Robinson. 2009. Positive relationship between freshwater inflow and oyster abundance in Galveston Bay, Texas. Estuaries and Coasts 32: 206-212.

Byers, C.R., R.K. Steinhorst, and P.R. Krausman. 1984. Clarification of a technique for analysis of utilization-availability data. Journal of Wildlife Management 48: 1050-1053.

Byrd, T.C., D.J. Furbish, and J. Warburton. 2000. Estimating depth-averaged velocities in rough channels. Earth Surface Processes and Landforms 25: 267-273.

Byrne, C.J., R. Poole, G. Rogan, M. Dillane, and K.F. Whelan. 2003. Temporal and environmental influences on the variation in Atlantic salmon smolt migration in the Burrishoole system 1970-2000. J. Fish Biol. 63 (6): 1552-1564. Doi: 10.1111/j.1095-8649.2003.00266.x

Byrne, C.J., R. Poole, M. Dillane, G. Rogan, and K.F. Whelan. 2004. Temporal and environmental influences on the variation in sea trout (*Salmo trutta* L.) smolt migration in the Burrishoole system in the west of Ireland from 1971-2000. Fish. Res. 66 (1): 85-94. Doi: 10.1016/S0165-7836(03)00146-2.

Cada, G.F., M.D. Deacon, S.V. Mitz, and M.S. Bevelheimer. 1993. Review of information pertaining to the effect of water velocity on the survival of juvenile salmon and steelhead in the Columbia River basin. Northwest Power Planning Council, Portland, Oregon.

Cada, G.F., M.D. Deacon, S.V. Mitz, and M.S. Bevelheimer. 1995. Effects of water velocity on the survival of downstream-migrating juvenile salmon and steelhead: a review with emphasis on the Columbia River. Reviews in Fisheries Science 5: 131-183.

Cadwallader, P.L. 1978. Some causes of the decline in range and abundance of native fish in the Murray-Darling river system. Proceedings of the Royal Society of Victoria 90: 211-224.

Cai, L., M. Fang, D. Johnson, S. Lin, Z. Tu, G. Liu, and Y. Huang. 2014. Interrelationships between feeding, food deprivation and swimming performance in juvenile grass carp. Aquatic Biology 20: 69-76.

Cai, L., D. Johnson, P. Mandal, M. Gan, X. Yuan, Z. Tu, and Y. Huang. 2015. Effect of exhaustive exercise on the swimming capability and metabolism of juvenile Siberian sturgeon. Transactions of the American Fisheries Society 144 (3): 532-538. Doi: 10.1080/00028487.2015.1007163.

Cai, L., G. Liu, R. Taupier, M. Fang, D. Johnson, Z. Tu, and Y. Huang. 2014. Effect of temperature on swimming performance of juvenile *Schizothorax prenanti*. Fish Physiology and Biochemistry 40: 491-498.

Cai, L., R. Taupier, D. Johnson, Z. Tu, G. Liu, and Y. Huang. 2013. Swimming capability and swimming behavior of juvenile *Acipenser schrenckii*. Journal of Experimental Zoology Part A Ecological Genetics and Physiology 319: 149-155.

Cain, M.L., T.E. Lauer, and J.K. Lau. 2008. Habitat use of grass pickerel *Esox americanus vermiculatus* in Indiana streams. American Midland Naturalist 160: 96-109.

Caissie, D., and N. El-Jabi. 1995. Comparison and regionalization of hydrologically-based instream flow techniques in Atlantic Canada. Canadian Journal of Civil Engineering 22: 235-246.

Caissie, D., and N. El-Jabi. 2003. Instream flow assessment: from holistic approaches to habitat modelling. Canadian Water Resources Journal 28: 173-183.

Caissie, D., N. El-Jabi, and C. Hebert. 2007. Comparison of hydrologically based instream flow methods using a resampling technique. Canadian Journal of Civil Engineering 34: 66-74.

Caissie, J., D. Caissie, and N. El-Jabi. 2014. Hydrologically based environmental flow methods applied to river in the maritime provinces(Canada). River Research and Applications doi: 10.1002/rra.2772.

Cake, E.W., Jr. 1983. Habitat suitability index models: Gulf of Mexico American oyster. U.S. Fish and Wildlife Service. FWS/OBS-82/10.57. 37 pp.

Caldwell, J.E., and C. Gowan. 1988. The role of professional judgment in the development of category I criteria curves. Pages 91‑101 in: Bovee, K., and J.R. Zuboy, editors. Proceedings of a workshop on the development and evaluation of habitat suitability criteria. U.S. Fish and Wildlife Service, Biological Report 88 (11), Washington, D.C.

Caldwell, P.V., J.G. Kennen, G. Sun, J.E. Kiang, J.B. Butcher, M.C. Eddy, …S.G. McNulty. 2015. A comparison of hydrologic models for ecological flows and water availability. Ecohydrology 8: 1525-1546. Doi: 10.1002/eco.1602

Caldwell, P., G. Sun, S. McNulty, E. Cohen, and J.M. Myers. 2012. Impacts of impervious cover, water withdrawals, and climate change on river flows in the conterminous US. Hydrology and Earth System Sciences 16: 2839-2857. Doi: 10.5194/hess-16-2839-2012

Calkins, D.J. 1989. Winter habitats of Atlantic salmon, brook trout, brown trout and rainbow trout - a literature review. U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory, Special Report 89-34 (October 1989): 9 p.

Calkins, D.J. 1990. Winter habitats of Atlantic salmon and brook trout in small ice covered streams. In: Proceedings from IAHR Ice Symposium, Espoo, Finland: 113-126.

Calkins, D.J. 1993. Physical effects of river ice. Pp. 4-6 in: T.D. Prowse and N.C. Gridley, editors. Environmental aspects of river ice. National Hydrology Research Institute, Science Report 5, Saskatoon, Saskatchewan.

Calles, O., and L. Greenberg. 2009. Connectivity is a two-way street – the need for a holistic approach to fish passage problems in regulated rivers. River Research and Applications 25: 1268-1286.

Calow, P. and G.E. Petts. 1992. The Rivers Handbook. Vol. 1: Hydrological and Ecological Principles. Blackwell Scientific, Oxford.

Camargo, J.A. 1993. Dynamic stability of hydropsychid guilds along a regulated stream: the role of competitive interactions versus environmental perturbations. Regulated Rivers: Research and Management 8 (1-2): 29-40.

Camargo, J.A., and D. Garcia de Jalon. 1990. The downstream impacts of the Burgomillodo Reservoir, Spain. Regulated Rivers: Research and Management 5: 305-317.

Cambray, J.A. 1991. The effects on fish spawning and management implications of impoundment water releases in an intermittent South African river. Regul. River 6: 39-52.

Cambray, J.A., J. King, and C. Bruwer. 1997. Spawning behaviour and early development of the Clanwilliam yellowfish (Barbus capensis; Cyprinidae), linked to experimental dam releases in Olifants River, South Africa. Regulated Rivers: Research and Management 13: 579-602.

Campbell, E.A. 1998. Influence of streamflow and predators on habitat choice by trout. Dissertation. University of California, Davis, California, USA.

Campbell, C.E. 2002. Rainfall events and downstream drift of microcrustaceans zooplankton in a Newfoundland boreal stream. Can. J. Zool. 80 (6): 997-1003. Doi: 10.1139/zo2-077.

Campbell, K.L., S. Kumar, and H.P. Johnson. 1972. Stream straightening effects on flood-runoff characteristics. Transactions of the ASAE (American Society of Agricultural Engineers) 15: 94-98.

Campbell, R.F., and B.R. Eddy. 1988. Verification of habitat utilization criteria for juvenile fall chinook in the North Fork of the Lewis River, Washington. Pages 364‑389 in: K. Bovee and J.R. Zuboy, editors. Proceedings of a workshop on the development and evaluation of habitat suitability criteria. U.S. Fish and Wildlife Service Biological Report 88 (11). 407 pp.

Campbell, R.F., and J.H. Neuner. 1985. Seasonal and diurnal shifts in habitat utilized by resident rainbow trout in western Washington Cascade Mountain streams. Pages 39‑48 in F.W. Olson, R.G. White, and R.H. Hamre, editors. Proceedings of the Symposium on Small Hydropower and Fisheries. American Fisheries Society, Bethesda .

Camporeale, C., and L. Ridolfi. 2006. Riparian vegetation distribution induced by river flow variability: a stochastic approach. Water Resources Research 42: W10415. Doi: 10.1029/2006WT004933.

Canton, S.P., L.D. Cline, R.A. Short, and J.V. Ward. 1984. The macroinvertebrates and fish of a Colorado stream during a period of fluctuating discharge. Freshwater Biology 14: 311-316. Doi: 10.1111/j.1365-2427.1984.tb00043.x.

Cantrell, C.J., A.T. Robinson, and L.D. Avenetti. 2005. Habitat selection by Apache trout in six east-central Arizona streams. Transactions of the American Fisheries Society 134 (5): 1382-1388.

Cantu, N.E.V., and K.O. Winemiller. 1997. Structure and habitat associations of Devils River fish assemblages. Southwestern Naturalist 42: 265-278.

Capell, R., D. Tetslaff, and C. Soulsby. 2013. Will catchment characteristics moderate the projected effects of climate change on flow regimes in the Scottish highlands? Hydrol. Process. 27: 687-699. Doi: 10.1002/hyp.9626.

Capon, S.J., and T.R. Capon. 2017. An impossible prescription: Why science cannot determine environmental water requirements for a healthy Murray-Darling basin. Water Economics and Policy 3: 1650037

Capone, T.A., and J.A. Kushlan. 1991. Fish community structure in dry-season stream pools. Ecology 72 (3): 983-992.

Capra, H. 1995. Amelioration des modeles predictifs d’habitat de la truite fario: Echelles d’echantillonnage - Integration des chroniques hydrologiques. Diplome de Doctorat, Universite Claude Bernard, Lyon I. 281 pp.

Capra, H., P. Breil, and Y. Souchon. 1995. A new tool to interpret magnitude and duration of fish habitat variations. Regulated Rivers: Research and Management 10: 281-289.

Capra, H., C. Sabaton, V. Gouraud, Y. Souchon, and P. Lim. 2003. A population dynamics model and habitat simulation as a tool to predict brown trout demography in natural and bypassed stream reaches. Rivers Research and Applications 19: 551-568. Doi: 10.1002/rra.729

Cardinale, B.J., E.R. Gelman, and M.A. Palmer. 2004. Net spinning caddisflies as stream ecosystem engineers: the influence of *Hydropsyche* on benthic substrate stability. Functional Ecology 18: 381-387,

Cardinale, B.J., M.A. Palmer, A.R. Ives, and S.S. Brooks. 2005. Diversity-productivity relationships in streams vary as a function of the natural disturbance regime. Ecology 86: 716-726.

Cardinale, B.J., M.A. Palmer, C.M. Swan, S. Brooks, and N.L. Poff. 2002. The influence of substrate heterogeneity on biofilm metabolism in a stream ecosystem. Ecology 83 (2): 412-422.

Cardwell. H., H.I. Jager, and M.J. Sale. 1996. Designing instream flows to satisfy fish and human water needs. Journal of Water Resources Planning and Management 122: 356-363.

Carey, M.P., B.L. Sanderson, K.A. Barnas, and J.D. Olden. 2012. Native invaders – challenges for science, management, policy, and society. Frontiers in Ecology and the Environment 10 (7): 373-381. Doi: 10.1890/110060.

Carford, J.A., B.J. Downes, C.J. Geppel, and P.A. Vesk. 2011. Flow regulation reduces native plant cover and facilitates exotic invasion in riparian wetlands. J. Appl. Ecol. 48: 432-442.

Carriquiry, J.D., and A. Sanchez. 1999. Sedimentation in the Colorado River Delta and upper Gulf of California after nearly a century of discharge loss. Marine Geology 158: 125-145.

Carline, R.F. 1980. Features of successful spawning site development for brook trout in Wisconsin ponds. Transactions of the American Fisheries Society 109: 453-457.

Carline, R.F. 2006. Regulation of an unexploited brown trout population in Spruce Creek, Pennsylvania. Transactions of the American Fisheries Society 135 (4): 943-954.

Carline, R.F., and B.J. McCullough. 2003. Effects of floods on brook trout populations in the Monongahela National Forest, West Virginia. Transactions of the American Fisheries Society 132 (5): 1014-1020.

Carling, P.A. 1987. Bed stability in gravel streams, with reference to stream regulation and ecology. Pp. 321-347 in: K.S. Richards (ed), River channels: environment and process. Basil Blackwell, Oxford, U.K.

Carling, P. 1988. The concept of dominant discharge applied to two gravel-bed streams in relation to channel stability thresholds. Earth Surface Processes and Landforms 13: 355-367.

Carling, P. 1995. Implications of sediment transport for instream flow modeling of aquatic habitat. Pp. 17-31 *in*: D.M. Harper and A.J.D. Ferguson, editors, The Ecological Basis for River Management. Wiley. Chichester, New York. 614 pp.

Carling, P.A., and C.P. McMahon. 1987. Natural siltation of brown trout (*Salmo trutta*) spawning gravels during low-flow conditions. Pp. 229-244 in: J.F. Craig and B.J. Kemper, editors. Regulated streams: advances in ecology. Plenum Press, New York.

Carlisle, D.M., J. Falcone, D.M. Wolock, M.R. Meador, and R.H. Norris. 2010. Predicting the natural flow regime: models for assessing hydrological alteration in streams. River Research and Applications 26: 118-136. Doi: 10.1002/rra.1247.

Carlisle, D.M., S.M. Nelson, and J. May. 2016. Associations of stream health with altered flow and water temperature in the Sierra Nevada, California. Ecohydrology 9: 930-941. Doi: 10.1002/eco.1703

Carlisle, D.M., D.M. Wolock, and M.R. Meador. 2011. Alteration of streamflow magnitudes and potential ecological consequences: a multiregional assessment. Frontiers in Ecology and the Environment 9 (5): 264-270. Doi:10.1890/100053

Carlsen, K.T., O.K. Berg. B. Finstad, and T.G. Heggberget. 2004. Diel periodicity and environmental influence on the smolt migration of Arctic charr, *Salvelinus alpinus*, Atlantic salmon, *Salmo salar*, and brown trout, *Salmo trutta*, in northern Norway. Environ. Biol. Fishes 70 (4): 405-413. Doi: 10.1023/B:EBFI.0000035438.8585321.fa

Carlson, A.J., and F.J. Rahel. 2010. Annual intrabasin movement and mortality of adult Bonneville cutthroat trout among complementary riverine habitats. Transactions of the American Fisheries Society 139 (5): 1360-1371.

Carlson, S.M., and B.H. Letcher. 2003. Variation in brook and brown trout survival within and among seasons, species, and age classes. J. Fish Biol. 63: 780-794. Doi:10.1046/j.1095-8649.2003.00191.x.

Carlson, S.M., and T.P. Quinn. 2007. Ten years of varying lake level and selection on size-at-maturity in sockeye salmon. Ecology 88 (10): 2620-2629.

Carlston, C.W. 1965. The relation of free meander geometry to stream discharge and its geomorphic implications. American Journal of Science 263: 864-885.

Carmack, E.C., C.B.J. Gray, C.H. Pharo, and R.J. Daley. 1979. Importance of lake-river interaction on seasonal patterns in the general circulation of Kamloops Lake, British Columbia. Limnol. Oceanography 24 (4): 634-644. Doi: 10.4319/lo.1979.24.4.0634.

Carnie, R., D. Tonina, J.A. McKean, and D. Isaak. 2015. Habitat connectivity as a metric for aquatic microhabitat quality: application to Chinook salmon spawning habitat. Ecohydrology 9: 982-994.

Carothers, S.W.. and R.R. Johnson. 1975. Water management practices and their effect on nongame birds in range habitats. Pages 210-222 in: D.R. Smith, tech. coord. Proceedings: Symposium on management of forest and range habitats for nongame birds. Gen. Tech. Rep. W0-1. Washington, D.C., U.S. Department of Agriculture, Forest Service.

Carpenter, S.R., S,G, Fisher, N.B. Grimm, and J.F. Kitchell. 1992. Global change and freshwater ecosystems. Annual Review of Ecology and Systematics 23: 119-139.

Carstens, T. 1966. Experiments with supercooling and ice formation in flowing water. Geofysiske Publikasjoner 26: 3-18.

Carter, J.G., R.A. Valdez, R.J. Ryel, and V.A. Lamarra. 1985. Fisheries habitat dynamics in the upper Colorado River. J. of Freshwater Ecol. 3: 249-264.

Carter, R.W., and I.E. Anderson. 1963. Accuracy of current meter measurements. Journal of the Hydraulics Division, American Society of Civil Engineers 89 (HY4): 105-115.

Cartwright, J., C. Caldwell, S. Nebiker, and R. Knight. 2017. Putting flow-ecology relationships into practice: A decision-support system to assess fish community response to water-management scenarios. Water 9: 1-18. Doi: 10.3390/w9030196

Caruso, B.S. 2001. Regional river flow, water quality, aquatic ecological impacts and recovery from drought. Hydrological Sciences Journal 46: 677-699.

Caruso, B.S. 2002. Temporal and spatial patterns of extreme low flows and effects on stream ecosystems in Otago, New Zealand. Journal of Hydrology 257: 115-133.

Carvajal-Escobar, Y. 2008. Environmental flow regime in the framework of integrated water resource management strategy. Ecohydrology 8: 307-315.

Casado, C., D. Garcia de Jalon, C.M. Delolmo, E. Barcelo, and F. Menes. 1989. The effect of an irrigation and hydroelectric reservoir on its downstream communities. Regulated Rivers: Research and Management 4: 275-284.

Casanova, M.T., and M.A. Brock. 2000. How do depth, duration and frequency of flooding influence the establishment of wetland plant communities? Plant Ecology 147: 237-250. Doi: 10.1023/A:1009875226637

Case, R.A., and G.M. MacDonald. 2003. Tree ring reconstructions of streamflow for three Canadian prairie rivers. Journal of the American Water Resources Association 39: 703-716.

Casillas, E. 1999. Role of the Columbia River estuary and plume in salmon productivity. Pages 55-64 in: G.A. Bisbal, editor. Ocean Conditions and the Management of Columbia River Salmon: Proceedings of a Symposium, Portland, Oregon, 1 July 1999. Northwest Power Planning Council, Portland, Ore.

Casper, A.F., B. Dixon, J. Earls, and J.A. Gore. 2011. Linking a spatially explicit watershed model (SWAT) with an in-stream fish habitat model (PHABSIM): a case study of setting minimum flows and levels in a low gradient, sub-tropical river. River Research and Applications 27 (3): 269-282. Doi:10.1002/rra.1355

Cassinelli, J.D., and C.M. Moffitt. 2009. Comparison of growth and stress in resident redband trout held in laboratory simulations of montane and desert summer temperature cycles. Transactions of the American Fisheries Society 139 (2): 339-352. Doi:10.1577/T08-247.1

Castella, F., M. Bickerton, P. Armitage, and G. Petts. 1995. The effects of water abstractions on invertebrate communities in UK streams. Hydrobiologia 308: 167-182.

Castelli, R.M., J.C. Chambers, and R.J. Tausch. 2000. Soil-plant relations along a soil-water gradient in Great Basin riparian meadows. Wetlands 20: 251-266.

Casterlin, M.E., and W.W. Reynolds. 1978. Habitat selection by bluegill sunfish, *Lepomis macrochirus*. Hydrobiologia 59: 75-79.

Castillo, M.M., J.D. Allan, and S. Brunzell. 2000. Nutrient concentrations and discharges in a midwestern agricultural catchment. J. Environ. Qual. 29 (4): 1142-1151.

Castleberry, D.T., J.J. Cech, Jr., D.C. Erman, D.H. Hankin, M. Healy, G.M. Kondolf, M. Mangel, M. Mohr, P.B. Moyle, J. Nielsen, T.P. Speed, and J.G. Williams. 1996. Uncertainty and instream flow standards. Fisheries 21 (8): 20-21.

Castro, J.M., and P.L. Jackson. 2001. Bankfull discharge recurrence intervals and regional hydraulic geometry relationships: patterns in the Pacific Northwest, USA. Journal of the American Water Resources Association 37: 1249-1262.

Castro-Santos, T. 2004. Quantifying the combined effects of attempt rate and swimming capacity on passage through velocity barriers. Canadian Journal of Fisheries and Aquatic Sciences 61: 1602-1615.

Castro-Santos, T. 2005. Optimal swim speeds for traversing velocity barriers: an analysis of volitional high-speed swimming behavior of migratory fishes. Journal of Experimental Biology 208: 421-432. Doi: 10.1242/jeb.01380.

Castro-Santos, T. 2006. Modeling the effect of varying swim speeds on fish passage through velocity barriers. Transactions of the American Fisheries Society 135: 1230-1237.

Castro-Santos, T., F.J. Sanz-Ronda, and J. Ruiz-Legazpi. 2013. Breaking the speed limit – comparative sprinting performance of brook trout (*Salvelinus fontinalis*) and brown trout (*Salmo trutta*). Canadian Journal of Fisheries and Aquatic Sciences 70 (2): 280-293. Doi: 10.1139/cjfas-2012-0186.

Catalano, M.J., M.S. Allen, and D.J. Murie. 2006. Effects of variable flows on water chemistry gradients and fish communities at the Hillsborough River, Florida. North American Journal of Fisheries Management 26 (1): 108-118.

Catford, J.A., B.J. Downes, C.J. Gippel, and P.A. Vesk. 2011. Flow regulation reduces native plant cover and facilitates exotic invasion in riparian wetlands. Journal of Applied Ecology 48: 432-442.

Catlin, A., K. Collier, and I.C. Duggan. 2017. Zooplankton generation following inundation of floodplain soils: Effects of vegetation type and riverine connectivity. Marine and Freshwater Research

Cattaneo, F., G. Carrel, N. Lamouroux, and P. Breil. 2001. Relationship between hydrology and cyprinid reproductive success in the lower Rhone at Montelimar, France. Arch. Hydrobiol. 151: 427-450.

Cattaneo, F., N. Lamouroux, P. Breil, and H. Capra. 2002. The influence of hydrological and biotic processes on brown trout (*Salmo trutta*) population dynamics. Canadian Journal of Fisheries and Aquatic Sciences 59 (1): 12-22. Doi: 10.1139/101-186

Cavallo, B., J. Merz, and J. Setka. 2013. Effects of predator and flow manipulation on Chinook salmon (*Oncorhynchus tshawytscha*) survival in an imperiled estuary. Environmental Biology of Fishes 96: 393-403.

Cavendish, M.G., and M.I. Duncan. 1986. Use of the Instream Flow Incremental Methodology: a tool for negotiation. Environmental Impact Assessment Review 6: 347-363.

Cayan, D.R., T. Das, D.W. Pierce, T.P. Barnett, M. Tyree, and A. Gershunov. 2009. Future dryness in the southwest US and the hydrology of the early 21st century drought. Proceedings of the National Academy of Sciences of the USA 107: 21271-21276.

Cayan, D.R., and D.H. Peterson. 1989. The influence of North Pacific atmospheric circulation on streamflow in the West. Geophysical Monograph 55: 375-397.

Cayan, D.R., K.T. Redmond, and L.G. Riddle. 1999. ENSO and hydrological extremes in the western United States. J. Clim. 12: 2881-2893.

Cayan, D.R., L.G. Riddle, and E. Aquado. 1993. The influence of precipitation and temperature on seasonal streamflow in California. Water Resources Research 29: 1127-1140.

Cayan, D.R., and R.H. Webb. 1992. El Nino/Southern Oscillation and streamflow in the western United States. Pp. 29-68 *in*: H.F. Diaz and V. Markgraf. El Nino: Historical and Paleoclimatic Aspects of the Southern Oscillation. Cambridge University Press, New York.

Cazaubon, A., and J. Giudicelli. 1999. Impact of the residual flow on the physical characteristics and benthic community (algae, invertebrates) of a regulated Mediterranean river: the Durance, France. Regulated Rivers: Research & Management 15: 441—461. Doi: 10.1002/(SICI)1099-1646(199909/10)15:5<441::AID-RRR558>3.3.CO;2-9.

Cedergren, H.R. 1989. Seepage, drainage, and flow nets. John Wiley & Sons, New York.

Cederholm, C.J., R.E. Bilby, P.A. Bisson, T.W. Bumstead, B.R. Fransen, W.J. Scarlett, and J.W. Ward. 1997. Response of juvenile coho salmon and steelhead to placement of large woody debris in a coastal Washington stream. North American Journal of Fisheries Management 17 (4): 947-963.

Ceola, S., E. Bertuzzo, G. Singer, T.J. Battin, A. Montanari, and A. Rinaldo. 2014. Hydrologic controls on basin-scale distribution of benthic invertebrates, Water Resour. Res. 50: 2903-3920. Doi: 10.1002/2013WR015112.

Cereghino, R., and P. Lavandier. 1998. Influence of hypolimnetic hydropeaking on the distribution and population dynamics of Ephemeroptera in a mountain stream. Freshw. Biol. 40: 385-399. Doi: 10.1046/j.1365-2427.1998.00353.x.

Cerny, J., G.H. Copp, V. Kovac. et al. 2003. Initial impact of the Gabcikovo hydroelectric scheme on the species richness and composition of fish assemblages in the Slovak flood plain, River Danube. River Res. Appl. 19: 749-766.

Chadd, R.P., J.A. England, D. Constable, M.J. Dunbar, C.A. Extence, D.J. Leeming, …and P.J. Wood. 2017. An index to track the ecological effects of drought development and recovery on riverine invertebrate communities. Ecological Indicators 82: 344-356.

Chadderton, W.L., and R.M. Allibone. 2000. Habitat use and longitudinal patterns of native fish from a near pristine Stewart Island, New Zealand, stream. New Zealand Journal of Marine and Freshwater Research 34: 487-499.

Chadwick, M.A., and A.D. Huryn. 2005. Response of stream macroinvertebrate production to atmospheric nitrogen deposition and channel drying. Limnology and Oceanography 50 (1): 228-236.

Chadwick, M.A. , and A.D. Huryn. 2007. Role of habitat in determining macroinvertebrate production in an intermittent-stream system. Freshw. Biol. 52 (2): 240-251.

Chagnaud, B.P., H. Bleckmann, and M.H. Hoffmann. 2008. Lateral line nerve fibers do not code bulk water flow direction in turbulent flow. Zoology 111: 204-217.

Chagnaud, B.P., C. Brucker, M.H. Hofmann, and H. Bleckmann. 2008. Measuring flow velocity and flow direction by spatial and temporal analysis of flow fluctuations. Journal of Neuroscience 28: 4479-4487.

Chalupnicki, M.A., J.H. Johnson, J.E. McKenna, Jr., and D.A. Dittman. 2010. Habitat selection and spawning success of walleyes in a tributary to Owasco Lake, New York. North American Journal of Fisheries Management 30 (1): 170-178. Doi:10.1577/M09-033.1

Chambers, P.A., E.E. Prepas, H.R. Hamilton, and M.L. Bothwell. 1991. Current velocity and its effect on aquatic macrophytes in flowing waters. Ecological Applications 1 (3): 249-257.

Champion, J.M., J. Rosenfeld, and R.E. Shadwick. 20`7. Effects of water velocity and substrate composition on foraging efficiency of an endangered benthic cyprinid, Nooksack dace (Rhinichthys cataractae subsp. cataractae). Hydrobiologia doi: 10.1007/s10750-017-3304-2.

Champion, P.D., and C.C. Tanner. 2001. Seasonality of macrophytes and interaction with flow in a New Zealand lowland stream. Hydrobiologia 441: 1-12.

Chan, M.D., E.D. Dibble, and K.J. Kilgore. 1997. A laboratory examination of water velocity and substrate preference by age-0 Gulf sturgeons. Transactions of the American Fisheries Society 126: 330-333.

Chan, T.U., and D.P. Hamilton. 2001. The effect of freshwater flow on the succession and biomass of phytoplankton in a seasonal estuary. Marine and Freshwater Research 52: 869-884.

Chan, T.U., D.P. Hamilton, B.J. Robson, B.R. Hodges, and C. Dallimore. 2002. Impacts of hydrological changes on phytoplankton succession in the Swan River, Western Australia. Estuaries 25 (6B): 1406-1415.

Chan, T.U., B.T. Hart, M.J. Kennard, B.J. Pusey, W. Shenton, M.M. Douglas, E. Valentinec, and S. Patel. 2010. Bayesian network models for environmental flow decision making in the Daly River, Northern Territory, Australia. River Research and Applications 28: 283-301. doi: 10.1002/rra.1456.

Chang, A.L., A.K. Dick, L.J. Sullivan, S.G. Morgan, and M.C. Ferner. 2016. Upstream – downstream shifts in a recruitment hotspot of the native Olympia oyster in San Francisco Bay during wet and dry years. Estuaries and Coasts. Doi: 10.1007/s12237-016-0182-1.

Chang, M., and C.M. Crowloey. 1997. Downstream effects of a dammed reservoir on streamflow and vegetation in east Texas. Sustainability of Water Resources under Increasing Uncertainty 240: 267-275.

Chanton, J., and F.G. Lewis. 1999. Plankton and dissolved inorganic carbon isotopic composition in a river-dominated estuary: Apalachicola Bay, Florida. Estuaries 22: 575-583.

Chanton, J., and F.G. Lewis. 2002. Examination of coupling between primary and secondary production in a river-dominated estuary: Apalachicola Bay, Florida, U.S.A. Limnology and Oceanography 47(3): 683-697.

Chapin, D.M., R.L. Beschta, and H.W. Shen. 2000. Flood frequencies required to sustain riparian plant communities in the Upper Klamath Basin, Oregon. Pp. 17-22 in: P.J. Wiggington and R.L. Beschta, editors, International conference on riparian ecology and management in multi-land use watersheds. American Water Resources Association, Middleburg, VA.

Chapin, D.M., R.L. Beschta, and H.W. Shen. 2002. Relationship between flood frequencies and riparian plant communities in the upper Klamath Basin, Oregon. Journal of the American Water Resources Association 38: 603-617.

Chapman, D.W. 1966. Food and space as regulators of salmonid populations in streams. American Naturalist 100 (913): 345-357. Doi: 10.1086/282427.

Chapman, D.W. 1988. Critical review of variables used to define effects of fines in redds of large salmonids. Transactions of the American Fisheries Society 117 (1): 1-21. Doi:10.1577/1548-8659(1988)117<0001:CROVUT>2.3.CO;2.

Chapman, D.W., and T.C. Bjornn. 1969. Distribution of salmonids in streams, with special reference to food and feeding. Pages 153‑176 in T.G. Northcote, editor. Symposium on salmon and trout in streams. H.R. MacMillan Lectures in Fisheries, University of British Columbia Press, Vancouver.

Chapman, D.W., and E. Knudsen. 1980. Channelization and livestock impacts on salmonid habitat and biomass in western Washington. Transactions of the American Fisheries Society 109 (4): 357-363.

Chapman, D.W., and K.P. McLeod. Development of criteria for fine sediment in the Northern Rockies Ecoregion. Don Chapman Consultants, Work Assignment 2-73, Final Report, Boise, Idaho.

Chapman, D.W., D.E. Weitkamp, T.L. Welsh, M.B. Bell, and T.H. Schadt. 1986. Effects of river flow on the distribution of Chinook salmon (*Oncorhynchus tshawytscha*) redds. Transactions of the American Fisheries Society 115: 537‑547.

Chapman, L.J., and D.L. Kramer. 1991. The consequences of flooding for the dispersal and fate of a poeciliid fish in an intermittent tropical stream. Oecologia 87: 299-306.

Chapman, R.J., T.M. Hinckley, L.C. Lee, and R.O. Teskey. 1982. Impact of water level changes on woody riparian and wetland communities. Vol. 10. U.S. Fish and Wildlife Service. OBS-82/83. Kearneysville, WV.

Chapman, W.M. 1943. The spawning of Chinook salmon in the main Columbia River. Copeia 1943 (3): 1968-1970.

Charlton, R. 2008. Fundamentals of fluvial geomorphology. Routledge, London & New York.

Charpentier, B., and A. Morin. 1994. Effect of current velocity on ingestion rates of black fly larvae. Canadian Journal of Fisheries and Aquatic Sciences 51: 1615-1619.

Chase, J.M. 2007. Drought mediates the importance of stochastic community assembly. Proceedings of the National Academy of Sciences USA 104: 17430-17434.

Chauvet, E., and H. Decamps. 1989. Lateral interactions in a fluvial landscape: the River Garonne, France. J. of the N. Am. Benth. Soc. 8: 9-17.

Chebanov, N.A. 1986. Factors controlling spawning success in pink salmon, *Oncorhynchus gorbuscha*. J. Ichthyology. 26: 69-78.

Chen, W., and J.D. Olden. 2018. Evaluating transferability of flow-ecology relationships across space, time, and taxonomy. Freshwater Biology 63 (8): 817-830 doi: 10.1111/fwb.13041.

Chen, W., and J.D. Olden. 2017. Designing flows to resolve human and environmental water needs in a dam-regulated river. Nat. Commun. 8: 2158. Doi: 10.1038/s41467-017-02226-4

Chen, X., M.S. Flannery, and D.L. Moore. 2000. Response times of salinity in relation to changes in freshwater inflows in the Hillsborough River, Florida. Estuaries 23: 735-742.

Cheng, J.D. 1989. Streamflow changes after clear-cut logging of a pine beetle infested watershed in southern British Columbia, Canada. Water. Resour. Res. 25: 449-456.

Cheng, L., M. Hoerling, A. Agha Kouchak, B. Livneh, X.-W. Quan, and J. Eischeid. 2016. How has human-induced climate change Cheng, Jaffected California drought risk? Journal of Climate 29: 111-120.

Cheong, A.L., J.C. Scrivener, J.S. Macdonald, B.C. Andersen, and E.M. Choromanski. 1995. A discussion of suspended sediment in the Takla Lake region: the influence of water discharge and spawning salmon. Canadian Technical Report of Fisheries and Aquatic Sciences 2074.

Cheong, S.T., L.M. Kavvas, and K.E. Anderson. 2006. Evaluation of adult white sturgeon swimming capabilities and applications to fishway design. Environmental Biology of Fishes 77: 197-208.

Chese, E.T, and B.J. Robson. 2011. Drought refuges, spatial scale, and recolonization by invertebrates in non-perennial streams. Freshwater Biol. 56: 2094-2104.

Cheshire, K.J.M., Q. Ye, B.M. Gillanders, and A. King. 2016. Annual variation in larval fish assemblages in a heavily regulated river during differing hydrological conditions. River Research and Applications 32: 1207-1219.

Cheslak, E.F., and J.C. Garcia. 1988. An evaluation of the effects of various smoothing and curve-fitting techniques on the accuracy of suitability functions. U.S. Fish and Wildlife Service Biological Report 88 (11): 259-286.

Cheslak, E.F., and A.S. Jacobson. 1990. Integrating the Instream Flow Incremental Methodology with a population response model. Rivers 1 (4): 264-288.

Chessman, B.C. 2013. Identifying species at risk from climate change: traits predict the drought vulnerability of freshwater fishes. Biological Conservation 160: 40-49.

Chessman, B.C., H.A. Jones, N.K. Searle, I.O. Growns, and M.R. Pearson. 2010. Assessing effects of flow alteration on macroinvertebrate assemblages in Australian dryland rivers. Freshwater Biology 55: 1780-1800. Doi: 10.1111/j.1365-2427.2010.02403.x

Chessman, B.C., M.J. Royal, and M. Muschal. 2011. The challenge of monitoring impacts of water abstraction on macroinvertebrate assemblages in unregulated streams. River Research and Applications 27 (1): 76-86. Doi: 10.1002/rra.1340

Chester, E.T., T.G. Matthews, T.J. Howson, K. Johnston, J.K. Mackie, S.R. Strachan, and B.J. Robson. 2014. Constraints upon the response of fish and crayfish to environmental flow releases in a regulated headwater stream network. PLoS One 9 (3): e91925. Doi: 10.1371/journal.pone.0091925.

Chester, H., and R. Norris. 2006. Dams and flow in the Cotter River, Australia: effects on instream trophic structure and benthic metabolism. Hydrobiologia 572 (1): 275-286. doi: 10.1007/s10750-006-0219-8.

Chetelat, J., and F.R. Pick. 2001. Temporal variability of water chemistry in flowing waters of the northeastern United States: does river size matter? Journal of the North American Benthological Society 20: 331-346.

Chiang, S.M., T.K. Tsay, and S.J. Nix. 2002. Hydrologic regionalization of watersheds. II: Applications. Journal of Water Resources Planning and Management 128 (1): 12-20.

Chiasson, W.B., D.L.G. Noakes, and F.W.H. Beamish. 1997. Habitat, benthic prey, and distribution of juvenile lake sturgeon (*Acipenser fulvescens*) in northern Ontario rivers. Canadian Journal of Fisheries and Aquatic Sciences 54: 2866-2871.

Chicharo, L., M.A, Chicharo, and P. Morais. 2006. Inter-annual differences of ichthyofaunal structure of the Guadiana estuary (SE Portugal and SW Spain): before and after Alqueva dam construction. Estuarine, Coastal and Shelf Science 70: 39-51.

Chien, N. 1985. Changes in river regime after the construction of upstream reservoirs. Earth Surface Processes and Landforms 10: 143-159.

Chiew, F.H.S., T.C. Piechota, J.A. Dracup, and T.A. McMahon. 1998. El Nino/Southern Oscillation and Australian rainfall, streamflow and drought: links and potential for forecasting. Journal of Hydrology 204: 138-149.

Chigbu, P. 2000. Population Biology of Longfin Smelt and Aspects of the Ecology of Other Major Planktivorous Fishes in Lake Washington. Journal of Freshwater Ecology; 15(4): 543-557.

Childs, M.R., R.W. Clarkson, and A.T. Robinson. 1998. Resource use by larval and early juvenile fishes in the Little Colorado River, Grand Canyon, Arizona. Transactions of the American Fisheries Society 127: 620-629.

Chin, A., L.R. Laurencio, and A.E. Martinez. 2008. The hydrologic importance of small and medium-sized dams: examples from Texas. Prof. Geogr. 60: 238-251.

Chinnayakanahalli, K.J., C.P. Hawkins, D.G. Tarbot, and R.A. Hill. 2011. Natural flow regime, temperature and the composition and richness of invertebrate assemblages in streams of the western United States. Freshwater Biology 56: 1248-1265. Doi: 10.1111/j.1365-2427.2010.02560.x.

Chiotti, J.A., J.M. Holtgren, N.A. Auer, and S.A. Ogren. 2008. Lake sturgeon spawning habitat in the Big Manistee River, Michigan. North American Journal of Fisheries Management 28 (4): 1009-1019.

Chipps, S.R., W.B. Perry, and S.A. Perry. 1994. Patterns of microhabitat use among four species of darters in three Appalachian streams. American Midland Naturalist 131: 175-180.

Chisholm, I.M., W.A. Hubert, and T.A. Wesche. 1987. Winter stream conditions and use of habitat by brook trout in high‑elevation Wyoming streams. Transactions of the American Fisheries Society 116 (2): 176‑184.

Chitale, S.V. 1973. Theories and relationships of river channel pattern. J. Hydrol. 19: 285-308.

Chou, W.C., and M.D. Chuang. 2011. Habitat evaluation using suitability index and habitat type diversity: a case study involving a shallow forest stream in central Taiwan. Environmental Monitoring and Assessment 172: 689-704.

Chow, D.W. 2010. Changes in the timing of snowmelt and streamflow in Colorado: a response to recent warming. Journal of Climate 23 (9): 2293-2306.

Chow, V.T. 1959. Open channel hydraulics. McGraw-Hill, New York.

Christensen, J.D., M.E. Monaco, R.J. Livingston, G. Woodsum, T.A. Battista, C.J. Klein, B. Galperin, and W. Huang. 1998. Potential impacts of freshwater inflow on Apalachicola Bay, Florida oyster (*Crassostrea virginica*) populations: coupling hydrologic and biological models. NOAA/NOS Strategic Environmental Assessments Division Report, Silver Spring, Maryland. 58 pp.

Christensen, N.S., A.W. Wood, N. Voisin, D.P. Lettenmaier, and R.N. Palmer. 2004. Effects of climate change on the hydrology and water resources of the Colorado River basin. Clim. Change 62: 337-363.

Chu, C., N.C. Collins, N.P. Lester, and B.J. Shuter. 2006. Population dynamics of smallmouth bass in response to habitat supply. Ecological Modeling 195: 349-362.

Chu, C., N.E. Jones, N.E. Mandrak, A.R. Piggott, and C.K. Minns. 2008. The influence of air temperature, groundwater discharge, and climate change on the thermal diversity of stream fishes in southern Ontario watersheds. Canadian Journal of Fisheries and Aquatic Sciences 65 (2): 297-308.

Chu, C., C.K. Minns, J.E. Moore, and E.S. Millard. 2004. Impact of oligotrophication, temperature, and water levels on walleye habitat in the Bay of Quinte, Lake Ontario. Transactions of the American Fisheries Society 133: 868-879.

Chuang, L.C., S.H. Liang, and Y.S. Lin. 2004. Habitat use of two benthic fishes, *Crossostomus lacustre* and *Rhinogobius candidianus*, in the Hapen Creek of northern Taiwan. Taiwania 49: 166-174.

Chun, S.N., S.A. Cocherell, D.E. Cocherell, J.B. Miranda, G.J. Jones, J. Graham, A.P. Klimley, L.C. Thompson, and J.J. Cech, Jr. 2011. Displacement, velocity preference, and substrate use of three native California stream fishes in simulated pulsed flows. Environ. Biol. Fishes 90 (1): 43-52. Doi: 10.1007/s10641-010-9716-8.

Church, M. 1992. Channel morphology and typology. Pp. 126-143 in: P. Calow and G.E. Petts, eds. The rivers handbook: hydrological and ecological principles. Blackwell, Oxford.

Church, M. 1995. Geomorphic response to river flow regulation: case studies and time-scales. Regulated Rivers 11: 3-22.

Church, M. 2002. Geomorphic thresholds in riverine landscapes. Freshwater Biology 47 (4): 541-557. Doi:10.1046/j.1365-2427.2002.00919.x.

Church, M. 2006. Bed material transport and the morphology of alluvial river channels. Annual Review of Earth and Planetary Sciences 34: 325-354. Doi: 10.1146/annurev.earth.33.092203.122721.

Church, M. and R.I. Ferguson. 2015. Morphodynamics: Rivers beyond steady state. Water Resources Research 51 (4): 1883-1897. doi: 10.1002/2014WR016862.

Churchel, M.A., and D.P. Batzer. 2006. Recovery of aquatic macroinvertebrate communities from drought in Georgia Piedmont headwater streams. American Midland Naturalist 156: 259-272.

Ciborowski, J.J.H. 1983. Influence of current velocity, density, and detritus on drift of 2 mayfly species (Ephemeroptera). Can. J. Zool. 61: 119-125.

Ciborowski, J.J.H. 1983. Downstream and lateral transport of nymphs of 2 mayfly species (Ephemeroptera). Can. J. Fish. Aquat. Sci. 40: 2025-2029.

Ciborowski, J.J.H. 1987. Dynamics of drift and microdistribution of 2 mayfly populations – a predictive model. Can. J. Fish. Aquat. Sci. 44: 832-845.

Ciborowski, J.J.H., and D.A. Craig. 1989. Factors influencing dispersion of larval black flies (Diptera: Simuliidae): effects of current velocity and food concentration. Canadian Journal of Fisheries and Aquatic Sciences 46: 1329-1341.

Ciborowski, J.J.H., P.J. Pointing, and L.D. Corkum. The effect of current velocity and sediment on the drift of the mayfly *Ephemerella subvaria* (Mcdunnough). Freshw. Biol. 7 (6): 567-572. Doi: 10.1111/j.1365-2427.1977.tb01708.x.

Clair, T.A., and J.M. Ehrman. 1998. Using neural networks to assess the influences of changing seasonal climates in modifying discharge, dissolved organic carbon, and nitrogen export in eastrn Canadian rivers. Water Resours Research 34 (3): 447-455.

Clancy, C.G. 1988. Effects of dewatering on spawning Yellowstone cutthroat trout in tributaries to the Yellowstone River, Montana. P. 37 in: R.E. Gresswell (editor), Status and management of interior stocks of cutthroat trout. American Fisheries Society Symposium 4, Bethesda, Maryland.

Clapp, D.F., R.D. Clark, Jr., and J.S. Diana. 1990. Range, activity, and habitat of large, free-ranging brown trout in a Michigan stream. Transactions of the American Fisheries Society 119 (6): 1022-1034.

Claret, C., and A.J. Boulton. 2003. Diel variation in surface microbial activity along a gradient of drying in an Australian sand-bed stream. Freshw. Biol. 48: 1739-1755.

Clark, E. 1985. Methods for assessing the impact of land use changes on the natural low flow characteristics of streams. M.S. thesis, Washington State University, Pullman.

Clark, G.M. 2010. Changes in patterns of streamflow from unregulated watersheds in Idaho, western Wyoming, and northern Nevada. Journal of the American water Resources Association 46: 486-497.

Clark, M.E., and K.A. Rose. 1997. Individual-based model of stream-resident rainbow trout and brook char: model description, corroboration, and effects of sympatry and spawning season duration. Ecological Modelling 94: 157-175.

Clark, M.E., K.A. Rose, D.A. Levine, and W.W. Hargrove. 2001. Predicting climate change effects on Appalachian trout: combining GIS and individual-based modeling. Ecological Applications 11: 161-178.

Clark, R.A. 1992. Influence of stream flows and stock size on recruitment of the Arctic grayling (*Thymallus arcticus*) in the Chena River, Alaska. Canadian Journal of Fisheries and Aquatic Sciences 49 (5): 1027-1034. Doi: 10.1139/f92-115.

Clark, S.J. 2006. Relation of floodplain lake fish communities and river connectivity in the lower White River, Arkansas. Master’s thesis. Arkansas Tech University. Russellville.

Clark, S.M., J.B. Dunham, J.R. McEnroe, and S.W. Lightcap. 2014. Breeding site selection by coho salmon (*Oncorhynchus kisutch*) in relation to large wood additions and factors that influence reproductive success. Canadian Journal of Fisheries and Aquatic Sciences 71 (10): 1498-1507. Doi: 10.1139/cjfas-2014-0020

Clarke, A., R. Mac Nally, N. Bond, and P.S. Lake. 2010. Flow permanence affects aquatic macroinvertebrate diversity and community structure in three headwater streams in a forested catchment. Canadian Journal of Fisheries and Aquatic Sciences 67 (10): 1649-1657.

Clarke, K.D., T.C. Pratt, R.G. Randall, D.A. Scruton, and K.E. Smokorowski. 2008. Validation of the flow management pathway: effects of flow alteration on fish habitat and fishes downstream from a hydropower dam. Canadian Technical Report for Fisheries and Aquatic Sciences 2784: vi+111 p.

Clarkson, R.W., and M.R. Childs. 2000. Temperature effects of hypolimnial-release dams on early life stages of Colorado River Basin big-river fishes. Copeia 2000: 402-412.

Clarkson, R.W., and J.R. Wilson. 1995. Trout biomass and stream habitat relationships in the White Mountains area, east-central Arizona. Transactions of the American Fisheries Society 124 (4): 599‑612.

Clary, W.P. 1999. Stream channel and vegetation responses to late spring cattle grazing. Journal of Range Management 52: 218-227.

Clausen, B., and B.J.F. Biggs. 1997. Relationship between benthic biota and hydrological indices in New Zealand streams. Freshwater Biology 38: 327-342.

Clausen, B., and B.J.F. Biggs. 2000. Flow variables for ecological studies in temperate streams: groupings based on covariance. Journal of Hydrology 237: 184-197.

Clausen, B., I.G. Jowett, B.J.F. Biggs, and B. Moeslund. 2004. Stream ecology and flow management. Pp. 411-453 *in*: L.M. Tallaksen and H.A.J. Van Lanen, editors. Developments in water science, 48. Elsevier, Amsterdam.

Clausen, B., and D. Plew. 2004. How high are bed-moving flows in New Zealand rivers? J. Hydrol. 43 (1): 19-37.

Clemens, B.J., S.P. Clements, M.D. Karnowski, and D.B. Jepsen. 2009. Effects of transportation and other factors on survival estimates of juvenile salmonids in the unimpounded lower Columbia River. Transactions of the American Fisheries Society 138 (1): 169-188.

Clews, E., I. Durance, I.P. Vaughan, and S.J. Ormerod. 2010. Juvenile salmonid populations in a temperate river system track synoptic trends in climate. Global Change Biology 16: 3271-3283. Doi: 10.1111/j.1365-2486.2010.02211.x

Clifford, N.J., O.P. Harmar, G. Harvey, and G.E. Petts. 2006. Physical habitat, eco-hydraulics and river design: a review and re-evaluation of some popular concepts and methods. Aquatic Conservation Marine and Freshwater Ecosystems 16: 389-408.

Clifford, N.J., P.J. Soar, O.P. Harmar, A.M. Gurnell, G.E. Petts, and J.C. Emery. 2005. Assessment of hydrodynamic simulation results for eco-hydrological and eco-hydraulic applications: a spatial semivariance approach. Hydrological Processes 19: 3631-3648.

Clifton, C. 1989. Effects of vegetation and land use on channel morphology. Pages 121-129 in: R.E. Gresswell, B.A. Barton, and J.L. Kershner, editors. Practical approaches in riparian resource management. US Department of the Interior, Bureau of Land Management, Billings, Montana.

Clifton, C., and R. Evans. 2001. A framework to assess the environmental water requirements of groundwater dependent ecosystems. Pages 149-156 in: I. Rutherford, F. Sheldon, G. Brierley, and C. Kenyon (editors), Proceedings of the Australian Stream Management Conference. CSIRO Sustainable Ecosystems, Brisbane, Australia.

Clipperton, G.K., C.W. Koning, A.G. Locke, J.M. Mahoney, and B. Quazi. 2003. Instream flow needs determination for the South Saskatchewan River Basin, Alberta, Canada. Alberta Environment and Sustainable Resource Development (Pub. No. T/719), Calgary. 2271 pp. <http://www3.gov.ab.ca/env/water/regions/ssrb/IFN_reports.asp>. ISBN No. 0-7785-3044-2.

Cloern, J.E. 1984. Temporal dynamics and ecological significance of salinity stratification in an estuary (South San Francisco Bay, USA). Oceanologica Acta 7: 137-141.

Cloern, J.E., A.E. Alpine, B.E. Cole, R.L.J. Wong, J.F. Arthur, and D.M. Ball. 1983. River discharge controls phytoplankton dynamics in the northern San Francisco Bay estuary. Estuarine, Coastal and Shelf Science 16: 415-429. Doi: 10.1016/0272-7714(83)90103-8.

Cloern, J.E., and A.D. Jassby. 2012. Drivers of change in estuarine-coastal ecosystems: discoveries from four decades of study in San Francisco Bay. Reviews of Geophysics 50: RG4001. Doi: 10.1029/2012RG000397.

Closs, G.P., M. Krkosek, and J.D. Olden, editors. 2017. Conservation of freshwater fishes. Cambridge University Press, Cambridge, U.K.

Closs, G.P., and P.S. Lake. 1994. Spatial and temporal variation in the structure of an intermittent-stream food web. Ecol. Monogr. 64: 1-21.

Closs, G.P., and P.S. Lake. 1996. Drought, differential mortality, and the coexistence of native and introduced fish species in a southeast Australian intermittent stream. Environmental Biology of Fishes 47: 17-26. Doi:10.1007/BF00002376.

Clothier, W.D. 1953, Fish loss and movements in irrigation diversions from the west Gallatin River, Montana. Journal of Wildlife Management 17: 144-158.

Clothier, W.D. 1954. Effect of water reductions on fish movement in irrigation diversions. Journal of Wildlife Management 118: 150-160.

Clow, D.W. 2010. Changes in the timing of snowmelt and streamflow in Colorado: a response to recent warming. Journal of Climate 23: 2293-2306.

Coats, R., L. Collins, J. Florsheim, and D. Kaufman. 1985. Channel change, sediment transport, and fish habitat in a coastal stream: effects of an extreme event. Environmental Management 9 (1): 35-48.

Coats, R.N., and T.O. Miller. 1981. Cumulative silvicultural impacts on watersheds: a hydrological and regulatory dilemma. Environmental Management 5: 147-160.

Cobb, D.G., T.D. Galloway, and J.F. Flannagan. 1992. Effects of discharge and substrate stability on density and species composition of stream insects. Canadian Journal of Fisheries and Aquatic Sciences 49: 1788-1795.

Cobb, S.P., and J.R. Clark. 1981. Aquatic habitat studies on the lower Mississippi River, river mile 480-530. Report 2, aquatic habitat mapping. Misc. Paper E-80-1. United States Army Corps of Engineers, Waterways Experimental Station, Vicksburg, Mississippi.

Coble, A.P., and T.E. Kolb. 2012. Riparian tree growth response to drought and altered streamflow along the Dolores River, Colorado. Western Journal of Applied Forestry 27: 205-211.

Coble, D.W. 1961. Influence of water exchange and dissolved oxygen in redds on survival of steelhead trout embryos. Transactions of the American Fisheries Society 90 (4): 469-474. Doi:10.1577/1548-8659(1961)90[469:IOWEADJ2.0.CO;2.

Coccoli, H.A. 1996. Effects of springtime flow alteration on side channel habitat in the Green River. M.S. thesis, Department of Civil Engineering, University of Washington, Seattle. 78 pp.

Cochnauer, T. 1976. Instream flow techniques for large river. Pages 387-392 in: J.F. Orsborn and C.H. Allman (editors). Proceedings of the Symposium and Specialty Conference on Instream Flow Needs II. American Fisheries Society, Bethesda, Maryland.

Cochrane, T.A., M.E. Arias, and T. Piman. 2014. Historical impact of water infrastructure on water levels of the Mekong River and the Tonle Sap sysem. Hydrol. Earth Syst. Sci. 18: 4529-4541. Doi: 10.5194/hess-18-4529-2014Coe, T.A. 2001. Contrasting discharge patterns, juvenile salmonid use, and fish community structure in off-channel floodplain habitats, Queets River, Washington. Master’s thesis, University of Washington, Seattle.

Coggins, T. 2005. Habitat use and seasonal abundance patterns of juvenile alosines in the lower Roanoke River, North Carolina. Master’s thesis. East Carolina University, Greenville, North Carolina.

Cohen, P., H. Andriamahefa, and J.-G. Wasson. 1998. Towards a regionalization of aquatic habitat: distribution of mesohabitats at the scale of a large basin. Regulated Rivers: Research and Management 14: 391-404.

Colavecchia, M., C. Katapodis, R. Goosney, D. Scruton, and R. McKinley. 1998. Measurement of burst swimming performance in wild Atlantic salmon (*Salmo salar* L.) using digital telemetry. Regulated Rivers 14: 41-51.

Colby, A. 2005. A comparison of the Wisconsin coldwater fish index and the fish habitat suitability index. Master’s thesis. University of Wisconsin, Madison.

Cole, D., D.G. Kehler, C. Bourne, and Y.F. Wiersma. 2009. A new measure of longitudinal connectivity for stream networks. Landscape Ecology 24: 101-113.

Collas, F.P.L., R.K. Koopman, A.J. Hendriks, G. Van der Velde. L.N.H. Verbrugge, and R.S.E.W. Leuven. 2014. Effects of desiccation on native and non-native molluscs in rivers, Freshw, Biol. 59: 41-55

Collen, P., and R.J. Gibson. 2000. The general ecology of beavers (*Castor* spp.), as related to their influence on stream ecosystems and riparian habitats, and the subsequent effects on fish - a review. Reviews in Fish Biology and Fisheries 10: 439-461. Doi: 10.1023/A:1012262217012.

Collier, K.J. 1993. Flow preferences of aquatic invertebrates in the Tongariro River. Department of Conservation Science and Research Series 60. Wellington, New Zealand.

Collier, K.J. 1993. Flow preferences of larval Chironomidae (Diptera) in Tongariro River, New Zealand. New Zealand Journal of Marine and Freshwater Research 27: 219-226. Doi: 10.1080/00288330.1993.9516561.

Collier, K.J. 2002. Effects of flow regulation and sediment flushing on instream habitat and benthic invertebrates in a New Zealand river influenced by a volcanic eruption. River Research and Applications 18 (3): 213-226.

Collier, K.J., and J.M. Quinn. 2003. Land-use influences macroinvertebrate community response following a pulse disturbance. Freshwater Biology 48: 1462-1481.

Collier, K.J., and M.D. Wakelin. 1996. Instream habitat use by blue duck (*Hymenolaimus malacorhynchos*) in a New Zealand river. Freshwater Biology 35: 277-287.

Collier, M., R.H. Webb, and J.C. Schmidt. 1996. Dams and rivers: Primer on the downstream effects of dams. U.S. Geological Survey Circular 1126, Denver.

Collier, M.P., R.H. Webb, and E.D. Andrews. 1997. Experimental flooding in the Grand Canyon. Scientific American 276: 82-89.

Collings, M.R. 1972. A methodology for determining instream flow requirement for fish. Pages 72-86 in: Proceedings of instream flow methodology workshop. Washington Department of Ecology, Olympia.

Collings, M.R. 1974. Generalization of spawning and rearing discharges for several Pacific salmon species in western Washington. U.S. Geological Survey Open File Report, Tacoma.

Collings, R.M., R.W. Smith, and G.T. Higgins. 1972. The hydrology of four streams in western Washington as related to several Pacific salmon species. 109 pp.

Collins, B.D., D.B. Montgomery, K.L. Fetherston, and T.R. Abbe. The floodplain large-wood cycle hypothesis: a. mechanism for the physical and biotic structuring of temperate forested alluvial valleys in the North Pacific coastal ecoregion. Geomorphology 139-140: 460-470.

Collins, J.P., C. Young, J. Howell, and W.L. Minckley. 1981. Impact of flooding in a Sonoran Desert stream, including elimination of an endangered fish population (*Poeciliopsis occidentalis*, Poeciliidae). Southwestern Naturalist 26: 415-423.

Collins, M.R., W.C. Post, D.C. Russ, and T. Smith. 2002. Habitat use and movements of juvenile shortnose sturgeon in the Savannah River, Georgia-South Carolina. Transactions of the American Fisheries Society 131: 975-979

Colonnello, G., and E. Medina. 1998. Vegetation changes induced by dam construction in a tropical estuary: the case of the Manamo River, Orinoco Delta (Venezuela). Plant Ecology 139: 145-154.

Colon-Rivera, R.J., R.A. Feagin, J.B. West, and K.M. Yeager. 2012. Salt marsh connectivity and freshwater versus saltwater inflow: multiple methods including tidal gauges, water, isotopes, and LIDAR elevation models. Canadian Journal of Fisheries and Aquatic Sciences 69 (8): 1420-1432. Doi: 10.1139/f2012-046.

Colvin, R., G.R. Giannico, J. Li, K.R. Boyer, and W.J. Gerth. 2009. Fish use of intermittent watercourses draining agricultural lands in the upper Willamette River valley, Oregon. Transactions of the American Fisheries Society 138 (6): 1302-1313. Doi:10.1577/T08-150.1

Colvin, S.A.R., S.M.P. Sullivan, P.D. Shirey, R.S. Colvin, K.O. Winemiller, R.M. Hughes, K.D. Fausch, D.M. Infante, J.D. Olden, K.R. Bestgen, R.J. Danehy, and L. Eby. 2019. Headwater streams and wetlands are critical for sustaining fish, fisheries, and ecosystems services. Fisheries 44 (2): 73-91. Doi: 10.1002/fsh.10229

Colwell, R.K. 1974. Predictability, constancy, and contingency of periodic phenomena. Ecology 55: 1148-1153.

Compton, M., and C. Taylor. 2013. Spatial scale effects on habitat associations of the ashy darter, *Etheostoma cinereum*, an imperiled fish in the southeast United States. Ecology of Freshwater Fish 22: 178-191.

Conallin, A.J., K.A. Hillyard, H.F. Walker, B.M. Gillanders, and B.B. Smith. 2011. Offstream movements of fish during drought in a regulated lowland river. River Research and Applications 27 (10): 1253-1263.

Conallin, J., M. Olsen, E. Boegh, J.K. Jensen, and S. Pedersen. 2010. Habitat suitability indices development in Denmark: are international indices applicable under small lowland stream conditions? International Journal of River Basin Management 8: 151-160. Doi: 10.1080/15715121003714936

Conder, A.L., and T.C. Annear. 1987. Test of weighted usable area estimates derived from a PHABSIM model for instream flow studies on trout streams. North American Journal of Fisheries Management 7 (3): 339-350.

Conley, D.J., P. Stalnacke, H. Pitkanen, and A. Wilander. 2000. The transport and retention of dissolved silicate by rivers in Sweden and Finland. Limnology and Oceanography 45: 11850-1853.

Conlin, D.J., Jr., S.P. Canton, J.W. Chadwick, and W.J., Miller. 1995. Habitat suitability curves for selected fish species in the central Platte River, Nebraska. Rivers 5 (4): 250-266.

Connell, D., and R.Q. Grafton. 2011. Water reform in the Murray-Darling Basin. Water resources Research 47 (12).

Conner, W.H., and J.W. Day, Jr. 1988. The impact of rising water levels on tree growth in Louisiana. Pages 219-224 *in*: D.D. Hook, editor. The ecology and management of wetlands. Volume 2: management, use, and value of wetlands. Croom Helm Publishers, London, U.K.

Connolly, P.J. 1996. Resident cutthroat trout in the central Coast Range of Oregon: logging effects, habitat associations, and sampling protocols. Doctoral dissertation. Oregon State University, Corvallis.

Connolly, P.J., and S.J. Brenkman. 2008. Fish assemblage, density, and growth in lateral habitats within natural and regulated sections of Washington’s Elwha River prior to dam removal. Northwest Science 82: 107-118.

Connor, E.J., and D.E. Pflug. 2004. Changes in the distribution and density of pink, chum, and Chinook salmon spawning in the upper Skagit River in response to flow management measures. North American Journal of Fisheries Management 24 (3): 835-852.

Connor, W.H., J.G. Gosselink, and R.T. Parrondo. 1981. Comparison of the vegetation of three Louisiana swamp sites with different flooding regimes. American Journal of Botany 68: 320-331.

Connor, W.P., H.L. Burge, and D.H. Bennett. 1998. Detection of subyearling chinook salmon at a Snake River dam: implications for summer flow augmentation. North American Journal of Fisheries Management 18: 530-536.

Connor, W.P., H.L. Burge, J.R. Yearsley, and T.C. Bjornn. 2003. The influence of flow and temperature on survival of wild subyearling fall chinook salmon in the Snake River. North American Journal of Fisheries Management 23: 362-375. Doi: 10.1577/1548-8675(2003)023<0362:IOFATO>2.0.CO;2.

Connor, W.P., A.P. Garcia, H.L. Burge, and R.H. Taylor. 1993. Fall chinook salmon spawning in free-flowing reaches of the Snake River. Pages 1-29 *in*: D.W. Rondorf and W.H. Miller (eds.), Identification of the spawning, rearing, and migration requirements of fall chinook salmon in the Columbia River basin. U.S. Department of Energy, Bonneville Power Administration, Portland, Oregon.

Connor, W.P., A.P. Garcia, A.H. Connor, R.H. Taylor, C. Eaton, D. Steele, R. Bowen, and R.D. Nelle. 1994. Fall chinook salmon spawning habitat availability in the free-flowing Snake River. Pages 22-40 *in*: D.W. Rondorf and K. Tiffan (eds.), Identification of the spawning, rearing, and migration requirements of fall chinook salmon in the Columbia River basin. U.S. Department of Energy, Bonneville Power Administration, Portland, Oregon.

Connor, W.P., A.H. Connor, and R.H. Taylor. 1994. Snake River flows and temperature during the 1992 Snake River fall chinook salmon brood year. Pages 20-38 *in*: D.W. Rondorf and W.H. Miller (eds.), Identification of the spawning, rearing, and migration requirements of fall chinook salmon in the Columbia River basin. U.S. Department of Energy, Bonneville Power Administration, Portland, Oregon.

Connor, W.P., S.G. Smith, T. Andersen, S.M. Bradbury, D.C. Burum, E.E. Hockersmith, M.L. Schuck, G.W. Mendel, and R.M. Bugert. 2004. Postrelease performance of hatchery yearling and subyearling fall Chinook salmon released into the Snake River. North American Journal of Fisheries Management 24 (2): 545-560.

Connor, W.P., R.K. Steinhorst, and H.L. Burge. 2003. Migrational behavior and rate of seaward movement of wild subyearling fall chinook salmon in the Snake River. North American Journal of Fisheries Management 23: 414-430.

Constantz, J. 1998. Interaction between stream temperature, streamflow, and groundwater exchanges in alpine streams. Water Resources Research 34: 1609-1615. Doi: 10.1029/98WR00998.

Constantz, J., D. Stonestrom, A.E. Stewart, R. Niswonger, and T.R. Smith. 2011. Analysis of streambed temperatures in ephemeral channels to determine streamflow frequency and duration. Water resources Research 37: 317-328.

Contor, C.R. 1989. Winter day and night habitat utilization and behavior of juvenile rainbow trout in the Henrys Fork of the Snake River, Idaho. M.S. thesis, Idaho State University, Pocatello.

Converse, Y.K., C.P. Hawkins, and R.A. Valdez. 1998. Habitat relationships of subadult humpback chub in the Colorado River through the Grand Canyon: Spatial variability and implications of flow regulation. Regulated Rivers: Research and Management 14: 267-284.

Cook, E.R., and G.C. Jacoby. 1983. Potomac River since 1730 as reconstructed by tree rings. Journal of Climate and Applied Meteorology 22 (10): 1659-1672.

Cook, D.B. 1940. Beaver-trout relations. Journal of Mammology 21: 397-401.

Cook, M.F., and R.C. Solomon. 1987. Habitat suitability index models: muskellunge. U.S. Fish and Wildlife Service Biological Report 82-10.148.

Cook, R.A., B. Gawne, R. Petrie, D.S. Baldwin, G.N. Rees, D.L. Nielsen, and N.S.P. Ning. 2015. River metabolism and carbon dynamics in response to flooding in a lowland river. Marine and Freshwater Research 66: 919-927. Doi: 10.1071/MF14199

Cooke, D.W., and S.D. Leach. 2003. Beneficial effects of increased river flow and upstream fish passage on anadromous alosine stocks. Pages 331-338 in: K.E. Limburg and J.R. Waldman, editors. Biodiversity, status, and conservation of the world’s shads. American Fisheries Society, Symposium 35, Bethesda, Maryland.

Cooke, D.W., and S.D. Leach. 2004. Implications of a migration impediment on shortnose sturgeon spawning. North American Journal of Fisheries Management 24: 1460-1468.

Coon, T. 1987. Responses of benthic riffle fishes to variations in stream discharge and temperature. Pp. 77-85 in: W.J Matthews and D.C. Heins (eds.) Community and evolutionary ecology of North American stream fishes. Oklahoma Press, Norman.

Coon, T.G., and H.R. Dames. 1991. Catfish movement and habitat use in a Missouri River tributary. Proceedings of the Annual Conference Southeastern Association of Fish and Wildlife Agencies 43 (1989): 119-132.

Cooney, P.B., and T.J. Kwak. 2013. Spatial extent and dynamics of dam impacts on tropical island freshwater fish assemblages. BioScience 63: 176-190.

Coop, G.H. 1992. An empirical model for predicting microhabitat of 0+ juvenile fishes in a lowland river catchment. Oecologia 91: 338-345.

Cooper, A.C. 1965. The effect of transported stream sediments on the survival of sockeye and pink salmon eggs and alevins. International Pacific Salmon Committee Bulletin 18.

Cooper, C.O., and T.A. Wesche. 1976. Stream channel modification to enhance trout habitat under low flow conditions. Water Res. Inst., Office of Water Res. Tech., Washington, D.C. Rept. No. SER-58 117 pp.

Cooper, D.C., D.M. Merritt, D.C. Andersen, and R.A. Chimner. 1999. Factors controlling the establishment of Fremont cottonwood seedlings on the upper Green River, U.S.A. Regulated Rivers: Research and Management 15: 419-440.

Cooper, D.J., D.R. D’Amico, and M.L. Scott. 2003. Physiological and morphological response patterns of *Populus deltoides* to alluvial groundwater pumping. Environmental Management 31: 215-226.

Cooper, D.J., D.C. Andersen, and R.A. Chimner. 2003. Multiple pathways for woody plant establishment on floodplains at local to regional scales. Journal of Ecology 91 (2): 182-196.

Cooper, D.J., J. Dickens, N.T. Hobbs, L. Christensen, and L. Landrum. 2006. Hydrologic, geomorphic and climatic processes controlling willow establishment in a montane ecosystem. Hydrological Processes 20: 1845-1864.

Cooper, D.J., and D.M. Merritt. 2012. Assessing the water needs of riparian and wetland vegetation in the western United States. Gen. Tech. Rep. RMRS-GTR-282. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 125 pp.

Cooper, D.J., D.M. Merritt, D.C. Andersen, and R.A. Chimner. 1999. Factors controlling the establishment of Fremont cottonwood seedlings on the upper Green River, U.S.A. Regulated Rivers: Research and Management 15: 419-440.

Cooper, S.D., S. Diehl, K. Kratz, and O. Sarnelle. 1998. Implications of scale for patterns and processes in stream ecology. Australian Journal of Ecology 23: 27-40.

Coops, H., N. Geilen, and G. van der Velde. 1999. Helophyte zonation in two regulated estuarine areas of the Netherlands: Vegetation analysis and relationships with hydrological factors. Estuaries 22: 657-668.

Cope, O.B. 1957. The choices of spawning sites by cutthroat trout. Proceedings of the Utah Academy of Sciences, Arts and Letters 34: 73-79.

Copeland, B.J. 1966. Effects of decreased river flow on estuarine ecology. Journal of the Water Pollution Control Federation 38 (11): 1831-1839. (University of Texas, Institute of Marine Science, Port Aransas , Texas)

Copeland, T., and K.A. Meyer. 2011. Interspecies synchrony in salmonid densities associated with large-scale bioclimatic conditions in central Idaho. Transactions of the American Fisheries Society 140 (4): 928-942. Doi: 10.1080/00028487.2011.599261

Copeman, V.A. 1997. The impact of micro-hydropower on the aquatic environment. J. Chart. Inst. Water Environ. Manag. 11: 431-436.

Copp, G.H. 1989. The habitat diversity and fish reproductive function of floodplain ecosystems. Environmental Biology of Fishes 26: 1-27. Doi: 10.1007/BF00002472

Copp, G.H. 1990. Shifts in the microhabitat of larval and juvenile roach *Rutilus rutilus* (L.) in a floodplain channel. Journal of Fish Biology 36: 683-692.

Copp, G.H. 1990. Effect of regulation on 0+ fish recruitment in the Great Ouse, a lowland river. Regulated Rivers: Research and Management 5: 251-263. Doi: 10.1002/(ISSN)1099-1646

Copp, G.H. 1992. Comparative microhabitat use of cyprinid larvae and juveniles in a lotic floodplain channel. Environmental Biology of Fishes 33: 181-193. Doi:10.1007/BF00002563.

Copp, G.H. 1997. Microhabitat use of fish larvae and 0(+) juveniles in a highly regulated section of the River Great Ouse. Regulated Rivers: Research and Management 13: 267-276.

Copp, G.H., G. Guti, B. Rovny, and J. Cerny. 1994. Hierarchical analysis of habitat use by 0+ juvenile fish in Hungarian-Slovak floodplain of the Danube River. Environmental Biology of Fishes 40: 329-348.

Copp, G.H., and L. Vilizzi. 2004. Spatial and ontogenetic variability in the microhabitat use of stream-dwelling spined loach (*Cobitis taenia*) and stone loach (*Barbatula barbatula*). Journal of Applied Ichthyology 20: 440-451.

Cordoleani, F., J. Notch, A.S. McHuron, A.J. Ammann, and C.J. Michel. 2018. Movement and survival of wild Chinook salmon smolts during their out-migration to the ocean: Comparison of a dry year versus a wet year. Transactions of the American Fisheries Society 147 (1): 171-184. Doi: 10.1002/tafs.10008

Corning, R.V. 1970. Water fluctuation, a detrimental influence on trout streams. Annual Conference of the Southeastern Association of Game and Fish Commissioners (23): 431-454.

Coronado, C., and R. Hillborn. 1998. Spatial and temporal factors affecting survival in coho and fall Chinook salmon in the Pacific Northwest. Canadian Journal of Fisheries and Aquatic Sciences 55 (9): 2067-2077. Doi: 10.1139/f98-090.

Corrarino, C.A., and M.A. Brusven. 1983. The effects of reduced stream discharge on insect drift and stranding on near shore insects. Freshw. Invertebr. Biol. 2 (2): 88-98. Doi: 10.2307/1467113.

Correa, S.B., and K.O. Winemiller. 2014. Niche parttioning among frugivorous fishes in response to fluctuating resours in the Amazonian floodplain forest. Ecology 95 210-224. (elsewhere title cited as: Flooding, fruiting phenology and resource partitioning among fishes in the Amazon)

Cortes, R.M.V, M.T. Ferreira, S.V. Oliveira, and D. Oliveira. 2002. Macroinvertebrate community structure in a regulated river segment with different flow conditions. River Research and Applications 18 (2): 367-382.

Costa, J.E., and J.E. O’Connor. 1995. Geomorphically effective floods. Pp. 45-56 in: J.E. Costa, A.J. Miller, K.W. Potter, and P.R. Wilcock, eds. Natural and anthropogenic influences in fluvial geomorphology. Geophysical Monograph 89, Washington, D.C.

Costa, M.J., R. Vasconcelos, J.L. Costa, and H.N. Cabral. 2007. River flow influence on the fish community of the Tagus estuary (Portugal). Hydrobiologia 587: 113-123.

Costa-Pierce, B.A. 1992. Review of the spawning requirements and feeding ecology of silver carp (*Hypophthalmichthys molitrix*) and reevaluation of its use in fisheries and aquaculture. Reviews in Aquatic Science 6: 257-273.

Cote, D. 2007. Measurements of salmonid population performance in relation to habitat in eastern Newfoundland streams. Journal of Fish Biology 70: 1134-1147.

Cote, D., D.G. Kehler, C. Bourne, and Y.F. Wiersma. 2009. A measure of longitudinal connectivity for stream networks. Landscape Ecology 24: 01-113.

Cotel, A.J., P.W. Webb, and H. Tritico. 2006. Do brown trout choose locations with reduced turbulence? Transactions of the American Fisheries Society 135 (3): 610-619.

Cottingham, P., M.C. Thomas, and G.P. Quinn. 2002. Scientific panels and their use in environmental flow assessment in Australia. Australian Journal of Water Resources 5: 103-111.

Coulibaly, P., and D.H. Burn. 2005. Spatial and temporal variability of Canadian seasonal streamflows. Journal of Climate 18: 1991-2010.

Coulombe-Pontbriand, M., and M. Lapointe. 2004. Geomorphic controls, riffle substrate quality and spawning site selection in two semi-alluvial salmon rivers in the Gaspe Peninsula, Canada. Rivers Research and Applications 20 (5): 577-590. Doi: 10.1002/rra.768.

Coulthard, T.J., J. Lewin, and M.G. Macklin. 2005. Modelling differential and complex catchment response to environmental change. Geomorphology 69: 224-241.

Courter, I.I., G.J. Wyatt, R.W. Perry, J.M. Plumb, F.M. Carpenter, N.K. Ackerman, R.B. Lessard, and P.F. Galbreath. 2019. A natural-origin steelhead population’s response to exclusion of hatchery fish. Transactions of the American Fisheries Society 148 (2): 339-353. Doi: 10.1002/tafs.10140

Coutant, C.C. 2001. Turbulent attraction flows for guiding juvenile salmonids at dams. Pages 57-77 in: C.C. Coutant, editor. Behavioral technologies for fish guidance. American Fisheries Society, Symposium 26, Bethesda, Maryland.

Coutant, C.C. 2004. A riparian habitat hypothesis for successful reproduction of white sturgeon. Reviews in Fisheries Science 12: 23-73.

Couto, T.B.A., and J.D. Olden. 2018. Global proliferation of small hydropower plants – science and policy. Frontiers in Ecology and the Environment 16 (2): 91-100. Doi: 10.1002/fee.1746

Cover, M.R., J.A. de la Fuente, and V.H. Resh. 2010. Catastrophic disturbances in headwater streams: the long-term ecological effects of debris flows and debris floods in the Klamath Mountains, northern California. Canadian Journal of Fisheries and Aquatic Sciences 67 (10): 1596-1610.

Covich, A.P., T.A. Crowl, and F.N. Scatena. 2003. Effects of extreme low flows on freshwater shrimps in a perennial tropical stream. Freshwater Biology 48: 1199-1206.

Covich, A.P., S.C. Fritz, P.J. Lamb, R.D. Marzolf, W.J. Matthews, K.A. Poiani, E.E. Prepas, M.B. Richman, and T.C. Winter. 1997. Potential effects of climate change on aquatic ecosystems of the Great Plains of North America. Hydrological Processes 11: 993-1021.

Covington, J.S., and W.A. Hubert. 2003. Trout population responses to restoration of stream flows. Environmental Management 31: 135-146.

Cowardin, L,M., V. Carter, and E.T. La Roe. 1979. Classification of wetlands and deepwater habitats of the United States. FWS/OBS-79/31. USDI Fish and Wildlife Service, Washington, D.C., U.S.A.

Cowx, I.G. 2001. Factors influencing coarse fish populations in rivers. R&D Publication 18, Environment Agency, Bristol.

Cowx, I.G., and R.A. Gould. 1989. Effects of stream regulation on Atlantic salmon and brown trout in the Upper Severn catchment, U.K. Regulated Rivers: Research and Management 3: 235-245.

Cowx, I.G., R.A. Noble, A.D. Nunn, and J.P. Harvey. 2004. Flow and level criteria for coarse fish and conservation species. Environment Agency R&D Report, W6-096, Bristol.

Cowx, I.G., R.A. Noble, A.D. Nunn, J. Bolland, S. Walton, G. Pierson, and J.P. Harvey. 2012. Flow requirements of non-salmonids. Fisheries Management and Ecology 19 (6): 548-556. Doi: 10.1111/j.fme.12011.

Cowx, I.G., W.O. Young, and J.M. Helawell. 1984. The influence of drought on the fish and invertebrate populations of an upland stream in Wales. Freshwater Biology 14: 165-177. Doi: 10.1111/j.1365-2427.1984.tb00030.x.

Craig, D.A., and M.M. Galloway. 1987. Hydrodynamics of larval black flies. Pages 171-185 in: K.C. Kim and R.W. Merritt, editors. Black flies. Pennsylvania State University, State College, Pennsylvania, USA.

Craig, J.F., and J.B. Kemper. 1987. Regulated streams: Advances in Ecology. Plenum Press, New York, NY.

Cram, J.M., C.E. Torgerson, R.S. Klett, G.R. Pess, D. May, T.N. Pearsons, and A.H. Dittman. 2015. Tradeoffs between homing and habitat quality for spawning site selection by hatchery-origin Chinook salmon. Environmental Biology of Fish. Doi: 10.1007/s10641-012-0026-1

Cram, J.M., C.E. Torgerson, R.S. Klett, G.R. Pess, D. May, T.N. Pearsons, and A.H. Dittman. 2017. Spatial variability of Chinook salmon spawning distribution and habitat preferences. Transactions of the American Fisheries Society 146 (2): 206-221. Doi: 10.1080/00028487.2016.1254112.

Cramer, S.P. 1997. Use of managed pulses in flow to stimulate outmigration of juvenile salmon. Pp. 563-568 in: S.Y. Wang and T. Carstens, eds. Environmental and coastal hydraulics: protecting the aquatic habitat. Proceedings of theme B, water for a changing global community, 27th Congress of the International Association for Hydraulic Research. American Society of Civil Engineers, New York.

Cramer, S.P., and N.K. Ackerman. 2009. Linking stream carrying capacity for salmonids to habitat features. Pages 225-254 in: E.E. Knudsen and J.H. Michael, Jr., editors. Pacific salmon environmental and life history models: advancing science for sustainable salmon in the future. American Fisheries Society, Symposium 71, Bethesda, Maryland.

Cramer, V.A., and R.J. Hobbs. 2002. Ecological consequences of altered hydrological regimes in fragmented ecosystems in southern Australia: Impacts and possible management responses. Austral Ecology 27 (5): 546-564.

Crance, J.H. 1984. Habitat suitability index models and instream flow suitability curves: inland stocks of striped bass. U.S. Fish and Wildlife Service FWS/OBS-82/10.85. 61 pp.

Crance, J.H. 1986. Habitat suitability index models and instream flow suitability curves: Shortnose sturgeon. U.S. Fish and Wildlife Service Biological Report 82 (10.134). 21 pp.

Crance, J.H. 1987. Guidelines for using the Delphi technique to develop habitat suitability index curves. U.S. Fish and Wildlife Service Biological Report 82 (10.134): 1-21.

Crance, J.H. 1987. Habitat suitability index curves for paddlefish, developed by the Delphi technique. North American Journal of Fisheries Management 7 (1): 123-130.

Crance, J.H. 1988. Preliminary habitat suitability index curves for sauger. Proceedings of the Annual Conference Southeast Association of Fish and Wildlife Agencies 41 (1987): 159-167.

Crane, D.P., and J.M. Farrell. 2013. Spawning substrate size, shape, and siltation influence walleye egg retention. North American Journal of Fisheries Management 33 (2): 329-337. Doi: 10.1080/02755947.2012.760504.

Crausbay, S.D., A. Ramirez, S. Carter, M. Cross, K. Hall, D. Bathke, J. Belancourt, S. Colt, A. Cravens, M. Dalton, J. Dunham, L. Hay, M. Hayes, J. McEvoy, C/ McNutt, M. Moritz, K. Nislow, N. Raheem, and T. Sanford. 2017. Defining ecological drought for the 21st century. Bulletin of the American Meteorological Society. Doi: 10.1175/BAMS-D-16-0292.1.

Craven, S.W., J.T. Peterson, M.C. Freeman, T.J. Kwak, and E. Irwin. 2010. Modeling the relations between flow regime components, species traits, and spawning success of fishes in warmwater streams. Environmental Management 46: 181-194. Doi: 10.1007/s00267-010-9511.

Crecco, V.A., and T. Savoy. 1984. Effects of hydrographic fluctuations on the year-class strength of American shad (*Alosa sapidissima*) in the Connecticut River. Canadian Journal of Fisheries and Aquatic Sciences 41: 1216-1223.

Creed, I.F., D.M. McKnight, B.A. Pellerin, M.B. Green, B.A. Bergamaxchi, G.R. Aiken, D.A. Burns, S.E.G. Findlay, J.B. Shanley, R.G. Striegel, B.T. Aulenbach, D.W, Clow, H. Laudon, B.L. McGlynn, K.J. McGuire, R.A. Smith, and S.M. Stackpoole. 2015. The river as a chemostat: fresh perspectives on dissolved organic matter flowing down the river continuum. Canadian Journal of Fisheries and Aquatic Sciences 72 (8): 1272-1285. Doi: 10.1139/cjfas-2014-0400.

Creque, S.M., E.S. Rutherford, and T.G. Zorn. 2005. Use of GIS-derived landscape-scale habitat features to explain spacial patterns of fish density in Michigan rivers. North American Journal of Fisheries Management 25 (4): 1411-1425.

Cresswell, R., and R. Williams. 1983. Post-stocking movements and recapture of hatchery-reared trout released into flowing water – effect of prior acclimation to flow. Journal of Fish Biology 23; 265-276.

Crisp, D.T. 1989. Use of artificial eggs in studies of washout depth and drifting for salmonid eggs. Hydrobiologia 178: 1555-163.

Crisp, D.T. 1993. Population densities of juvenile trout (*Salmo trutta*) in five upland streams and their effects upon growth, survival and dispersal. Journal of Applied Ecology 30: 759-771.

Crisp, D.T. 1993. The environmental requirements of salmon and trout in fresh water. Freshwater Forum 3: 176-202.

Crisp, D.T. 1996. Environmental requirements of common riverine European salmonid fish species in fresh water with particular reference to physical and chemical aspects. Hydrobiologia 323: 201-221.

Crisp, D.T., and P.A. Carling. 1989. Observations on siting, dimensions, and structure of salmonid redds. Journal of Fish Biology 34: 119-134. Doi: 10.1111/j.1095-8649.1989.tb2962.x.

Crisp, D.T., and M.A. Hurley. 1991a. Stream channel experiments on downstream movement of recently emerged trout, *Salmo trutta* L., and salmon, *S. salar* L. - I. Effect of four different water velocity treatments upon dispersal rate. Journal of Fish Biology 39: 347-361.

Crisp, D.T., and M.A. Hurley. 1991b. Stream channel experiments on downstream movement of recently emerged trout, *Salmo trutta* L., and salmon, *S. salar* L. - II. Effects of constant and changing velocities and of day and night upon dispersal rate. Journal of Fish Biology 39: 363-370.

Crisp, D.T., R.H.K. Mann, and P.R. Cubby. 1983. Effects of regulation of the River Tees upon fish populations below Cow Green Reservoir. Journal of Applied Ecology 20: 371-386.

Crisp, D.T., R.H.K. Mann, and P.R. Cubby. 1984. Effects of impoundment upon fish populations in afferent streams at Cow Green Reservoir. Journal of Applied Ecology 21: 739-756.

Crispell, J.K., and T.A. Endreny. 2009. Hyporheic exchange flow around constructed in-channel structures and implications for restoration design. Hydrological Processes 23: 1158-1168.

Crome, F.H.J., and S.M. Carpenter. 1988. Plankton community cycling and recovery after drought - dynamics in a basin on a flood plain. Hydrobiologia 164: 193-211.

Cronan, C.S., J.T. Piampiano, and H.H. Patterson. 1999. Influence of land use and hydrology on exports of carbon and nitrogen in a Maine river system. J. Environ. Qual. 28 (3): 953-961.

Crook, D.A., A.I. Robertson, A.J. King, and P. Humphries. 2001. The influence of spatial scale and habitat arrangement on diel patterns of habitat use by two lowland river fishes. Oecologia 129: 525-533.

Cross, F.B., and R.E. Moss. 1987. Historic changes in fish communities and aquatic habitats in plains streams of Kansas. (Chapter 20), pp. 155-165 in: W.J. Matthews and D.C. Heins (eds.) Community and evolutionary ecology of North American stream fishes. University of Oklahoma Press, Norman.

Cross, F.B., R.E. Moss, and J.C. Collins. 1985. Assessment of dewatering impacts on stream fisheries in the Arkansas and Cimmaron rivers. Museum of Natural History, University of Kansas, Lawrence.

Cross, R.D., and D.L. Williams. 1981. Proceedings of the National Symposium on Freshwater Inflow to Estuaries. U.S. Fish and Wildlife Service, Office of Biological Services. FWS/OBS-81-04. 2 Vol.

Cross, W.F., C.V. Baxter, K.C. Donner, E.J. Rosi-Marshall, T.A. Kennedy, R.O. Hall, H.A.W. Kelly, and R.S. Rogers. 2011. Ecosystem ecology meets adaptive management: food web response to a controlled flood on the Colorado River, Glen Canyon. Ecological Applications 21 (6): 2016-2033. Doi: 10.1890/10-1719.1.PMID.21939041.

Crossman, J., and I. Hildebrand. 2014. Evaluation of spawning substrate enhancement ofr white sturgeon in a regulated river: effect on larval retention and dispersal. Riv. Res. Appl. 30 (1): 1-10. Doi: 10.1002/rra.2620.

Crouch, G.L. 1979. Changes in the vegetation complex of a cottonwood ecosystem on the South Platte River. Great Plains Agricultural Council 91: 19-22.

Crowder, D.W. 2002. Reproducing and quantifying spatial flow patterns of ecological importance with two-dimensional hydraulic models. Ph.D. dissertation, Virginia Polytechnic Institute and State University. Blacksburg, VA. 158 pp. (http://

scholar.lib.vt.edu/theses/available/etd-11152002-161130).

Crowder, D.W., and P. Diplas. 2000. Using two-dimensional hydrodynamic models at scales of ecological importance. Journal of Hydrology 230 (3-4): 172-191. Doi: 10.1016/S0022-1694(00)00177-3.

Crowder, D.W., and P. Diplas. 2000. Evaluating spatially explicit metrics of stream energy gradients using hydrodynamic model simulations. Canadian Journal of Fisheries and Aquatic Sciences 57: 1497-1507.

Crowder, D.W., and P. Diplas. 2002. Assessing changes in watershed flow regimes with spatially explicit hydraulic models. Journal of the American Water Resources Association 38 (2): 397-408.

Crowder, D.W., and P. Diplas. 2002. Vorticity and circulation: spatial metrics for evaluating flow complexity in stream habitats. Canadian Journal of Fisheries and Aquatic Sciences 59 (4): 633-645. Doi:10.1139/f02-037.

Crowder, D.W., and P. Diplas. 2006. Applying spatial hydraulic principles to quantifying stream habitat. River Research and Applications 22: 79-89.

Crowder, L.B., J.A. Rice, T.J. Miller, and E.A. Marschall. 1992. Empirical and theoretical approaches to size-based interactions and recruitment variability in fishes. Pp. 237-255 *in*: D.L. DeAngelis and L.G. Gross, editors, Individual-based models and approaches in ecology: populations, communities and ecosystems. Chapman and Hall, New York.

Crowl, T.A. 1990. Life-history strategies of a fresh-water snail in response to stream permanence and predation: balancing conflicting demands. Oecologia 84: 238-243.

Crozier, L.G., A.P. Hendry, P.W. Lawson, T.P. Quinn, N.J. Mantua, J. Battin, R.G. Shaw, and R.B. Huey. 2008. Potential responses to climate changes in organisms with complex life histories: evolution and plasticity in Pacific salmon. Evolutionary Applications 1: 252-270.

Crozier, L., and R.W. Zabel. 2006. Climate impacts at multiple scales: evidence for differential population responses in juvenile Chinook salmon. Journal of Animal Ecology 75: 1100-1109.

Crozier, L., R.W. Zabel, and A. Hamlet. 2008. Predicting differential effects of climate change at the population level with life-cycle models of spring Chinook salmon. Glob. Chang. Biol. 14: 236-249.

Cruise, J.F., C.A. Laymon, and O.Z. Al-Hamdan. 2010. Impact of 20 years of land-cover change on the hydrology of streams in the southeastern United States. Journal of the American Water Resources Association 46 (6): 1159-1170. Doi: 10.1111/j.1752-1688.2010.00483.x

Csiki, S., and B.L. Rhoads. 2010. Hydraulic and geomorphological effects of run-of-river dams. Prog. Phys. Geogr. 34: 755-780.

Csoboth, L.A., and J.E. Garvey. 2008. Lateral exchange of larval fish between a restored backwater and a large river in the east-central USA. Transactions of the American Fisheries Society 137 (1): 33-44.

Cucherousset, J., J.M. Paillisson, A. Carpentier, and L.J. Chapman. 2007. Fish emigration from temporary wetlands during drought: the role of physiological tolerance. Fund, Appl, Limnol, 168 (2): 169-178. Doi: 10.1227/1863-9135/2007/0168-0169.

Cuffney, T.F., R.A. Brightbill, J.T. May, and I.A. Waite. 2011. Responses of benthic macroinvertebrates to environmental changes associated with urbanization in nine metropolitan areas. Ecological Applications 20 (5): 1384-1401.

Cullen, P. 1992. Australian aquatic ecosystems – biophysical requirements and relationships. Pages 41-44 in: J.J. Pilgram and B.P. Hooper (editors). Water Allocation for the Environment. The Centre for Water Policy Research, University of New England, Armidale.

Cullen, P. 1994. A rationale for environmental flows. Pages 76-83 in: Proceedings of an Environmental Flows Seminar, Canberra 25-26 August 1994. Australian Water and Wastewater Association, Artartmon, NSW.

Cullis, J.D. S., J.P. Crimaldi, and D.M. McKnight. 2013. Hydrodynamic shear removal of the nuisance stalk-forming diatom *Didymosphenia geminata*. Limnol. Oceanogr. Fluids Environ. 3: 256-268. Doi: 10.1215/21573689-2414386.

Cullis, J.D. S., D.M. McKnight, and S.A. Spaulding. 2015. Hydrodynamic control of benthic mats of *Didymosphenia geminata* at the reach scale. Canadian Journal of Fisheries and Aquatic Sciences 72 (6): 902-914. Doi: 10.1139/cjfas-2014-0314.

Cullis, J.D. S., L.F. Stanish, and D.M. McKnight. 2014. Diel flow pulses drive particulate organic matter transport from microbial mats in a glacial meltwater stream in the McMurdo Dry Valleys. Water Resour. Res. 50 (1): 86-97. Doi: 10.1002/2013WR014061.

Culp, J.M., G.J. Scrimgeour, and G.D. Townsend. 1996. Simulated fine woody debris accumulations in a stream increase rainbow trout fry abundance. Transactions of the American Fisheries Society 125: 472-479.

Culp, J.M., F.J. Wrona, and R.W. Davies. 1986. Response of stream benthos and drift to fine sediment deposition versus transport. Canadian Journal of Zoology 64: 1345-1351.

Cummins, K.W. 1974. Structure and function of stream ecosystems. BioScience 24: 631-640.

Cummins, K.W. 1993. Riparian-stream linkages: in-stream issues. Pages 5-20 in: S.E. Bunn, B.J. Pusey, and P. Price (editors), Ecology and Management of Riparian Zones, Proceedings of a National Workshop. Land and Water Resources Research and Development Corporation, Canberra, Australia.

Cunjak, R.A. 1986. Winter habitat of northern leopard frogs, *Rana pipiens*, in a southern Ontario stream. Canadian Journal of Zoology 64: 255-257.

Cunjak, R.A. 1988. Behaviour and microhabitat of young Atlantic salmon (*Salmo salar*) during winter. Canadian Journal of Fisheries and Aquatic Sciences 45: 2156-2160. Doi:10.1139/f88-250.

Cunjak, R.A. 1996. Winter habitat of selected stream fishes and potential impacts from land-use activity. Canadian Journal of Fisheries and Aquatic Sciences 53 (Suppl. 1): 267-282. Doi:10.1139/cjfas-53-S1-267.

Cunjak, R.A., and J.M. Green. 1983. Habitat utilization by brook char (*Salvelinus fontinalis*) and rainbow trout (*Salmo gairdneri*) in Newfoundland streams. Canadian Journal of Zoology 61: 1214-1219.

Cunjak, R.A., T. Linnansaari, and D. Caissie. 2013. The complex interaction of ecology and hydrology in a small catchment: a salmon’s perspective. Hydrological Processes 27: 741-749. Doi: 10.1002/hyp.9640.

Cunjak, R.A. , and G. Power. 1986. Winter habitat utilization by stream resident brook trout (*Salvelinus fontinalis*) and brown trout (*Salmo trutta*). Canadian Journal of Fisheries and Aquatic Sciences 43: 1970-1981.

Cunjak, R.A. , and G. Power. 1987. The feeding and energetics of stream resident trout in winter. Journal of Fish Biology 31: 493-511.

Cunjak, R.A. , and G. Power. 1987. Cover use by stream-resident trout in winter: a field experiment. North American Journal of Fisheries Management 7: 539-544.

Cunjak, R.A., T.D. Prowse, and D.L. Parrish. 1998. Atlantic salmon (*Salmo salar*) in winter: “the season of parr discontent”? Canadian Journal of Fisheries and Aquatic Sciences 55 (Suppl. 1): 161-180. Doi:10.1139/cjfas-55-S1-161.

Cuo, L., D.P. Lettenmaier, M. Alberti, and J.E. Richey. 2009. Effects of a century of land cover and climate change on the hydrology of the Puget Sound basin. Hydrological Processes 23 (6): 907-933. Doi: 10.1002/hyp.7228

Curet, T. 1993. Habitat use, food habits, and the influence of predation on subyearling chinook salmon in Lower Granite Reservoir, Washington. Master’s thesis. University of Idaho, Moscow.

Curran, J.C. 2010. Mobility of large woody debris (LWD) jams in a low gradient channel. Geomorphology 116 (3-4): 320-329.

Curry, K.D., and A. Spacie. 1984. Differential use of stream habitat by spawning catostomids. American Midland Naturalist 111: 267-279.

Curry, R.A., and K.J. Devito. 1996. Hydrogeology of brook trout (*Salvelinus fontinalis*) spawning and incubation habitats: implications for forestry and land use development. Canadian Journal of Forest Research 26: 767-772.

Curry, R.A., J. Gehrels, D.L.G. Noakes, and R. Swainson. 1994. Effects of river flow fluctuations on groundwater discharge through brook trout, *Salvelinus fontinalis*, spawning and incubation habitat. Hydrobiologia 277: 121-134.

Curry, R.A., and W.S. MacNeill. 2004. Population-level responses to sediment during early life in brook trout. J. N. Am. Benthol. Soc. 23 (1): 140-150. Doi: 10.1899/0887-3593(2004)023<0140:PRTSDE>2.0.CO;2.

Curry, R.A., and D.L.G. Noakes. 1995. Groundwater and the selection of spawning sites by brook trout (*Salvelinus fontinalis*). Canadian Journal of Fisheries and Aquatic Sciences 52 (8): 1733-1740. Doi: 10.1139/f95-765.

Curry, R.A., D.L.G. Noakes, and G.E. Morgan. 1995. Groundwater and the incubation and emergence of brook trout (*Salvelinus fontinalis*). Canadian Journal of Fisheries and Aquatic Sciences 52 (8): 174`-1749. Doi:10.1139/f95-766.

Curtis, B. 1959. Changes in a river’s physical characteristics under substantial reductions in flow due to hydroelectric diversion. California Fish and Game 45: 181-188.

Curtis, G.L., J.S. Ramsey, and D.L. Scarnecchia. 1997. Habitat use and movements of shovelnose sturgeon in pool 13 of the upper Mississippi River during extreme low flow conditions. Environmental Biology of Fishes 50: 175-182.

Curtis, S.G. 2012. Effects of a declining hydrograph on instream habitats and fish communities in a semi-arid karstic stream. Master’s thesis. Texas State University, San Marcos.

Cushman, R.M. 1985. Review of ecological effects of rapidly varying flows downstream from hydroelectric facilities. North American Journal of Fisheries Management 5: 330-339. Doi: 10.1577/1548-8659(1985)5<330:ROEEOR>2.0.CO:2

Cushman, S.A., and K. McGarigal. 2004. Patterns in the species-environment relationship depend on both scale and choice of response variables. Oikos 105; 117-124.

Cutts, C.J., B. Brembs, N.B. Metcalfe, and A.C. Taylor. 1999. Prior residence, territory quality and life history strategies in juvenile Atlantic salmon (*Salmo salar* L.). J. Fish Biol. 55 (4): 784-794. Doi: 10.1111/j.1095-8649.1999.tb00717.x

Dadswell, M.J. 1979. Biology and population characteristics of the shortnose sturgeon, *Acipenser brevirostris* LeSueur 1818 (Osteichtyes: Acipenseridae), in the Saint Johns River estuary, New Brunswick, Canada. Canadian Journal of Zoology 57:2186-2210.

Dahl, J., and L.A. Greenberg. 1998. Effects of fish predation and habitat type on stream benthic communities. Hydrobiologia 361: 67-76.

Dai, A. 20012. Increasing drought under global warming in observations and models. Nature Clim. Change. 3: 52-58. Doi: 10.1038/nclimate1633.

Dai, A., T. Qian, K.E. Trenberth, and J.D. Milliman. 2009. Changes in continental freshwater discharge from 1948 to 2004. J. Clim. 22: 2773-2792. Doi: 10.1175/2008JCL12592.1.

Dambacher, J.M., M.W. Buktenica, and G.L. Larson. 1992. Distribution, abundance, and habitat utilization of bull trout and brook trout in Sun Creek, Crater Lake National Park, Oregon. Pages 30-36 in: P.J. Howell and D.V. Buchanan, editors. Proceedings of the Gearhart Mountain bull trout workshop. American Fisheries Society, Oregon Chapter, Corvallis.

Dambacher, J.M., and K.K. Jones. 1997. Stream habitat of juvenile bull trout populations in Oregon and benchmarks for habitat quality. Pages 353-360 in: Dambacher, J.M.,W.C. Mackay, M.K. Brewin, and M. Monita, editors. Friends of the Bull Trout Conference Proceedings. Bull Trout Task Force, Trout Unlimited Canada, Calgary, Alberta.

D’Ambrosio, J.:L., L.R. Williams, J.D. Witter, and A. Ward. 2008. Effects of geomorphology, habitat, and spatial location on fish assemblages in a watershed in Ohio, USA. Environmental Monitoring and Assessment 148: 325-341.

Damistra, R.A. 2007. Stock assessment, spawning movements, and habitat use of lake sturgeon (*Acipenser fulvescens* Rafinesque) in the Manistee River system. Master’s thesis. Central Michigan University, Mount Pleasant.

Danehy, R.J. 1994. Geomorphic, hydrologic, and hydraulic determinants of fish and macroinvertebrates in a small watershed. Ph.D. thesis, SUNY College of Environmental Science and Forestry, Syracuse, NY. 158 pp.

Danehy, R.J., R.E. Bilby, S, Owen, A. Farrand. 2017. Interactions of baseflow habitat constraints: Macroinvertebrate drift, stream temperature, and physical habitat for anadromous salmon in the Calapooia River, Oregon. Aquatic Conservation Marine and Freshwater Ecosystems 1-10 doi: 10.1002/aqc.2756

Danehy, R.J., R.B. Langshaw, S.D. Duke, and R.E. Bilby. 2011. Drift distance of macroinvertebrates throughout summer in headwater tributaries of the Calapooia River. Fundamental and Applied Limnology 178: 111-120.

Danhoff, B.M., C.J. Huckins, N.A. Auer, C.W. Goble, S.A. Ogren, and J/M/ Holtgren. 2017. Abiotic habitat assessment for Arctic grayling in a portion of the Big Manistee River, Michigan. Transactions of the American Fisheries Society 146 (4): 645-662. Doi: 10.1080/00028487.2017.1301995.

Daniels, M.D. 2006. Distribution and dynamics of LWD and organic matter in a low-energy meandering stream. Geomorphology 77: 286-298.

Danley, M.L., S.D. Mayr, P.S. Young, and J.J. Cech Jr. 2002. Swimming performance and physiological stress responses of splittail exposed to a fish screen. North American Journal of Fisheries Management 22: 1241-1239.

D’Angelo, D.J., J.R. Webster, S.V. Gregory, and J.L. Meyer. 1993. Transient storage in Appalachian and Cascade mountain streams as related to hydraulic characteristics. Journal of the North American Benthological Society 21: 223-235.

Da Paz, A.R., W. Collischonn, C.E.M. Tucci, and C.R. Padovani. 2010. Large-scale modelling of channel flow and floodplain inundation dynamics and its application to the Pantanal (Brazil). Hydrological Processes 25: 1498-1516.

Daraio, J.A., L.J. Weber, T.J. Newton, and J.M. Nestler. 2010. Hydrodynamic modeling of juvenile mussel dispersal in a large river: the potential effects of bed shear stress and other parameters. Journal of the North American Benthological Society 29: 838-851. Doi: 10.1899/09-118.1

Daraio, J.A., L.J. Weber, T.J. Newton, and J.M. Nestler. 2010. A methodological framework for integrating computational fluid dynamics and ecological models applied to juvenile freshwater mussel dispersal in the Upper Mississippi River. Ecological Modeling 221: 201-214.

Dare, M.R. 2001. Habitat use and movement by two trout species during winter under experimental flow regimes in a regulated river. Doctoral dissertation. University of Wyoming, Laramie.

Dare, M.R., and W.A. Hubert. 2000. Precision and interpretation of data collected using a new measurement technique for microhabitat features at fish locations determined by radio telemetry. Freshwater Ecology 15: 29-38.

Dare, M.R., W.A. Hubert, and K.G. Gerow. 2002. Changes in habitat availability and habitat use and movements by two trout species in response to declining discharge in a regulated river during winter. North American Journal of Fisheries Management 22 (3): 917-928.

Dare, M.R., W.A. Hubert, and J.S. Meyer. 2001. Influence of stream flow on hydrogen sulfide concentrations and distributions of two trout species in a Rocky Mountains tailwater. North American Journal of Fisheries Management 21 (4): 971-975.

Darnaude, A.M., C. Salen-Picard, N.V.C Polunin, and M.L. Harmelin-Vivien. 2004. Trophodynamic linkage between river runoff and coastal fishery yield elucidated by stable isotope data in the Gulf of Lions (NW Mediterranean). Oecologia 138: 325-332.

Das, T., E.P. Maurer, D.W. Pierce, M.D. Dettinger, and D.R. Cayan. 2013. Increases in flood magnitudes in California under warming climates. Journal of Hydrology 501: 101-110.

Daszak, P., D.E. Scott, A.M. Kilpatrick, C. Faggioni, J.W. Gibbons, and D. Porter. 2005. Amphibian population declines at Savannah River Site are linked to climate, not chytridiomycosis. Ecology 86 (12): 3232-3237.

Datry, T. 2012. Benthic and hyporheic invertebrate assemblages along a flow intermittence gradient: effects of duration of dry events. Freshwater Biology 57: 563-574.

Datry, T., D. Arscott, and S. Sabater. 2011. Recent perspectives on temporary river ecology. Aquat. Sci. 73: 453-457.

Datry, T., N. Bonada, and A. Boulton (eds.). 2017. Intermittent Rivers and Ephemeral Streams, Ecology and Management. London: Elsevier.

Datry, T., and S.T. Larned. 2008. River flow controls ecological processes and invertebrate assemblages in subsurface flowpaths of an ephemeral river reach. Canadian Journal of Fisheries and Aquatic Sciences 65 (8): 1532-1544.

Datry, T., S.T. Larned, K.M. Fritz, M.T. Bogan, P.J. Wood, E.I. Meyer, and A.N. Santos. 2014. Broad-scale patterns of invertebrate richness and community composition in temporary rivers: effects of flow intermittence. Ecography 37: 94-104.

Datry, T., S.T. Larned, and K. Tockner. 2014. Intermittent rivers: a challenge for freshwater ecology. BioScience 64: 229-235.

Datry, T., F. Malard, and J. Gilbert. 2005. Response of invertebrate assemblages to increased groundwater recharge rates in a phreatic aquifer. J. North Am. Benthol. Soc. 24: 461-477.

Dauble, D.D., and D.R. Geist. 2000. Comparison of mainstem spawning habitats for two populations of fall chinook salmon in the Columbia River Basin. Regulated Rivers: Research and Management 16: 345-361.

Dauble, D.D., T.P. Hanrahan, D.R. Geist, and M.J. Parsley. 2003. Impacts of the Columbia River hydroelectric system on main-stem habitats of fall Chinook salmon. North American Journal of Fisheries Management 23 (3): 641-659. Doi: 10.1577/M02-013

Dauble, D.D., R.L. Johnson, and A.P. Garcia. 1999. Fall chinook salmon spawning in the tailraces of lower Snake River hydroelectric projects. Transactions of the American Fisheries Society 128 (4): 672-679.

Daufresne, M., P. Bady, and J.F. Fruget. 2007. Impacts of global changes and extreme hydroclimatic events on macroinvertebrate community structures in the French Rhone River. Oecologia 151: 544-559.

Daufresne, M., H. Capra, and P. Gaudin. 2005. Downstream displacement of post-emergent brown trout: effects of development stage and water velocity. J. Fish Biol. 67 (3): 599-614. Doi: 10.1111/j.0022-1112.2005.00759.x

Daufresne, M., and O. Renault. 2006. Population fluctuations, regulations and limitation in stream-living brown trout. Oikos 113: 459-468.

Daufresne, M., M.C Roger, H. Capra, and N. Lamouroux. 2004. Long-term changes within the invertebrate and fish communities of the upper Rhone River: effects of climate factors. Global Change Biology 10: 120-140.

Daugherty, D.J., and T.M. Sutton. 2005. Seasonal movement patterns, habitat use, and home range of flathead catfish in the lower St. Joseph River, Michigan. North American Journal of Fisheries Management 25 (1): 256-269.

Dauwalter, D.C. 2006. Relationships among geomorphology, habitat, and fishes in eastern Oklahoma streams: implications for stream restoration. Ph.D. thesis, Oklahoma State University, Stillwater, Oklahoma.

Dauwalter, D.C., K.A. Fesenmyer, and R. Bjork. 2015. Using aerial imagery to characterize redband trout habitat in a remote desert landscape. Transactions of the American Fisheries Society 144 (6): 1322-1339. Doi: 10.1080/00028487.2015.1088471.

Dauwalter, D.C., and W.L. Fisher. 2007. Spawning chronology, nest site selection, and nest success of smallmouth bass during benign streamflow conditions. American Midland Naturalist 158: 60-78.

Dauwalter, D.C., D.K. Splinter, W.L. Fisher, and R.A. Marston. 2007. Geomorphology and stream habitat relationships with smallmouth bass (*Micropterus dolomieu*) abundance at multiple spatial scales in eastern Oklahoma. Canadian Journal of Fisheries and Aquatic Sciences 64 (8): 1116-1129.

Dauwalter, D.C., S.J. Wenger, and P. Gardner. 2014. The role of complexity in habitat use and selection by stream fishes in a Snake River basin tributary. /transactions of the American Fisheries Society 143 (5): 1177-1187. Doi: 10.1080/00028487.2014.920723.

Dauwalter, D.C., S.J. Wenger, K.R. Gelwicks, and K.A. Fesenmeyer. 2011. Land use associations with distributions of declining native fishes in the upper Colorado River basin. Transactions of the American Fisheries Society 140 (3): 646-658. Doi:10.1080/00028487.2011.587753.

Davey, J.H., and D.J. Kelly. 2007. Fish community response to drying disturbances in an intermittent stream: a landscape perspective. Freshwater Biology 52{ 1719-1733.

Davey, A.J.H., S.J. Hawkins, G.F. Turner, and C.P. Doncaster. 2005. Size-dependent microhabitat use and intraspecific competition in *Cottus gobio*. Journal of Fish Biology 67: 428-443.

Davey, A.J.H., D.J. Kelly, and B.J.F. Biggs. 2006. Refuge-use strategies of stream fishes in response to extreme low flows. J. Fish. Biol. 69: 1047-1059. Doi: 10.1111/j.1095=8649.2006.01180.x.

David, B.O., and G.P. Closs. 2002. Behavior of a stream-dwelling fish before, during, and after high-discharge events. Transactions of the American Fisheries Society 131 (4): 762-771.

David, B.O., and G.P. Closs. 2003. Seasonal variation in diel activity and microhabitat use of an endemic New Zealand stream-dwelling galaxiid fish. Freshwater Biology 48: 1765-1781.

Davidsen, J., M.-A. Svenning, P. Orell, N. Yoccoz, J.B. Dempson, E. Niemela, A. Klemetsen, A. Lamberg, and J. Erkinaro. 2005. Spatial and temporal migration of wild Atlantic salmon smolts determined from a video camera array in the sub-Arctic River Tana. Fish. Res. 74 (1-3): 210-222. Doi: 10.1016/j.fishres.2005.02.005

Davidson, F.A., E. Vaughan, and S.J. Hutchinson. 1943. Factors influencing the upstream migration of the pink salmon (*Oncorhynchus gorbuscha*). Ecology 24: 149-168.

Davidson, R.S., B.H. Letcher, and K.H. Nislow. 2010. Drivers of growth variation in juvenile Atlantic salmon (*Salmo salar*): An elasticity analysis approach. Journal of Animal Ecology 79: 1113-1121.

Davies, N.M., R.H. Norris, and M.C. Thoms. 2000. Prediction and assessment of local stream habitat features using large-scale catchment characteristics. Freshwater Biology 45: 343-369.

Davies, P.E. 1991. Temporal and spatial variability in stream brown trout recruitment in Tasmania - the effects of hydrology. Page 101 in: D.A. Hancock, editor. Proceedings No. 16 of the Australian Society of Fish Biology workshop: recruitment processes. Department of Primary Industries and Energy, Bureau of Rural Resources, Australian Government Publishing Service, Canberra.

Davies, P.E., J.H. Harris, T.J. Hillman, and K.F. Walker. 2010. The sustainable rivers audit: Assessing river ecosystem health in the Murray-Darling Basin, Australia. Marine and Freshwater Researrch 61: 764-777.

Davies, P.E., M.J. Stewardson, T.J. Hillman, et al. 2012. Sustainable rivers audit 2: the ecological health of rivers in the Murray-Darling Basin at the end of the Millenium Drought (2008-2010). Vol. 1. Canberra, Australia, Murray-Darling Basin Authority.

Davies, P.E., R.J. Naiman, D.M. Warfe, N.E. Petit, A,H, Arthington, and S.E. Bunn. 2014. Flow-ecology relationships: closing the loop on effective environmental flows. Mar. Freshwater Res. 65: 133-141.

Davies, P.M. 2010. Climate change implications for river restoration in global biodiversity hotspots. Restor. Ecol. 18: 261-268.

Davies, P.M., R.J. Naiman, D.M. Warfe, N.E. Pettit, A.H. Arthington, and S.E. Bunn. 2014. Flow-ecology relationships: closing the loop on effective environmental flows. Marine and Freshwater Research 65: 133-141. Doi: 10.1071/MF13110

Davies-Colley, R.J. 1997. Stream channels are narrower in pasture than in forest. New Zealand Journal of Marine and Freshwater Research 31: 599-608

Davis, G.E., J. Foster, C.E. Warren, and P. Doudoroff. 1963. The influence of oxygen concentration on the swimming performance of juvenile Pacific salmon at various temperatures. Transactions of the American Fisheries Society 92: 111-124.

Davis, J.A., and L.A. Barmuta. 1989. An ecologically useful classification of mean and near-bed flows in streams and rivers. Freshwater Biology 21: 271-282. Doi: 10.1111/j.1365-2427.1989.tb01365.x.

Davis, J., and M. Brock. 2008. Detecting unacceptable change in the ecological character of Ramsar wetland Ecological Management and Restoration 9: 26-31.

Davis, J., A.P. O’Grady, A Dale, A.H. Arthington, P.A. Gell, P.D. Driver, N. Bond, M. Canov, M. Finlayson, RJ. Watt, S.J. Capon, I. Nagelkerken, R. Tingley, B. Fry, T.J. Page, and A. Specht. 2015. When trends intersect: The challenge of protecting freshwater ecosystems under multiple land use and hydrological intensification scenarios. Science of the Total Environment doi: 10.1016/j.scitotenv.2015.03.127

Davis, J.G., and S.G. Cook. 2010. Habitat use of the tuxedo darter (*Etheostoma lemniscatum*) at macrohabitat and microhabitat spatial scales. Journal of Freshwater Ecology 25: 321-330.

Davis, J.M., C.V. Baxter, E.J. Rosi-Marshall, J.L. Pierce, and B.T. Crosby. 2013. Anticipating stream ecosystem responses to climate change: toward predictions that incorporate effects via land-water linkages. Ecosystems 16: 909-922. Doi: 10.1007/s100-013-9653-4.

Davis, L., and T. Wagner. 2016. Scale-dependent seasonal pool habitat use by sympatric wild brook trout and brown trout populations. Transactions of the American Fisheries Society 145 (4): 888-902. Doi: 10.1080/00028487.2016.1167777

Davis, M., and S.K. Brewer. 2014. Gulf Coast Prairie Landscape Conservation Cooperative regional hypotheses of ecological responses to flow alteration. U.S. Department of Interior, Fish and Wildlife Service, Cooperative Science Series FWS/CSS-108-2014, Washington, D.C.

Davison, W. 1997. The effects of exercise training on teleost fish, a review of recent literature. Comp. Biochem. Physiol. A Comp. Physiol. 117: 67-75.

Davy-Bowker, J., and M.T. Furse. 2006. Hydromorphology – major results and conclusions from the STAR project. Hydrobiologia 566: 263-265.

Dawson, F.H. 1988. Water flow and the vegetation of running waters. Pp. 283-309 in: Vegetation of Inland Waters. Handbook of Vegetation Science Series, Kluwer Academic Publishers, Boston, MA.

Day, Jr., J.W., C.W. Madden, R.R. Twilley, R.F. Shaw, B.A. McKef, M.J. Dagg, D.L. Childers, R.C. Raynie, and L.J. Rouse. 1994. The influence of Atchafalaya River discharge on Fourleague Bay, Louisiana (USA), p. 151-160. In: K.R. Dyer and R.J. Orth (eds.). Changes in fluxes in estuaries: Implications from science to management. Olsen and Olsen, Fredensborg, Denmark.

Day, R.T., P.A. Keddy, J. McNeill, and T. Carleton. 1988. Fertility and disturbance gradients: a summary model for riverine marsh vegetation. Ecology 69: 1044-1054.

Deacon, J.E. 1961. Fish populations, following a drought, in the Neosho and Marais des Cygnes rivers in Kansas. University of Kansas Publications of the Museum of Natural History 13: 359-427.

Deacon, J.E., A.E. Williams, C.D. Williams, and J.E. Williams. 2007. Fueling population growth in Las Vegas: how large-scale groundwater withdrawal could burn regional biodiversity. BioScience 57: 688-698.

Death, R.G. 1995. Spatial patterns in benthic invertebrate community structure: products of habitat stability or are they habitat specific? Freshw. Biol. 33: 455-467. Doi: 10.1111/j.1365-3427.1995.tb00406.x.

Death, R.G. 1996. The effect of patch disturbance on stream invertebrate community structure: the influence of disturbance history. Oecologia 108: 567-576. Doi: 10.1007/BF00333735.

Death, R.G., I.C. Fuller, and M.G. Macklin. 2015. Resetting the river template: The potential for climate-related extreme floods to transform river geomorphology and ecology. Freshwater Biology 60: 2477-2496. Doi: 10.1111/fwb.12639

DeBoer, J.A., K.L. Pope, and K.D. Koupal. 2013. Environmental factors regulating the recruitment of walleye *Sander vitreus* and white bass *Morone chrysops* in irrigation reservoirs. Ecology of Freshwater Fish 22: 43-54.

Decker, A.S., M.J. Bradford, and P.S. Higgins. 2008. Rate of biotic colonization following flow restoration below a diversion dam in the Bridge River, British Columbia. River Research and Applications 24: 876-883.

deCrespin de Billy, V., B. Dumont, T. Lagarrigue, P. Baran, and B. Statzner. 2002. Invertebrate accessibility and vulnerability in the analysis of brown trout (*Salmo trutta* L.) summer habitat suitability. River Research and Applications 18: 533-553. Doi: 10.1002/rra.687

deCrespin de Billy, V., and P. Useglio-Polatera. 2002. Traits of brown trout prey in relation to habitat characteristics and benthic invertebrate communities. J. Fish Biol. 60 (3): 687-714. Doi: 10.1111/j.1095-8649.2002.tb01694.x.

Dedual, M., and I.G. Jowett. 1999. Movement of rainbow trout (*Oncorhynchus mykiss*) during the spawning migration in the Tongariro River, New Zealand. New Zealand Journal of Marine and Freshwater Research 33: 107-117.

Deegan, L.A., H.E. Golder, J. Harrison, and K. Kracko. 2005. Swimming performance and metabolism of 0+ year *Thymallus arcticus*. Journal of Fish Biology 67: 910-918.

Deegan, L.A., H.E. Golden, C.J. Harvey, and B.J. Peterson. 1999. Influence of environmental variability on the growth of age-0 and adult arctic grayling. Transactions of the American Fisheries Society 128 (6): 1163‑1175.

De Eyto, E., C. Dalton, M. Dillane, E. Jennings, P. McGinnity, B. O’Dwyer, R. Poole, G. Rogan, and D. Taylor. 2016. The response of North Atlantic diadromous fish to multiple stressors, including land use change: a multidecadal study. Canadian Journal of Fisheries and Aquatic Sciences 73 (12): 1759-1769. Doi: 10.1139/cjfas-2015-0450.

DeGasperi, C., H. Berge, K. Whiting, J. Burkey, J. Cassin, and R. Fuerstenberg. 2008. Relationships among hydrologic metrics, B-IBI, and land cover: Implications for protecting stream ecosystems. Journal of the American Water Resources Association 45: 512-533.

DeGasperi, C.L., H.B. Berge, K.R. Whiting, J.J. Burkey, J.L. Cassin, and R.R. Fuerstenberg. 2009. Linking hydrological alteration to biological impairment in urbanizing streams of the Puget Lowlands, Washington, USA. Journal of the American Water Resources Association 45 (2): 512-533. Doi: 10.1111/j.1752-1688.2009.00306.x

De Gaudemar, B., S.L. Schroder, and E.P. Beall. 2000. Nest placement and egg distribution in Atlantic salmon redds. Environmental Biology of Fishes 57: 37-47.

DeGrandchamp, K.L., J.E. Garvey, and R.E. Colombo. 2008. Movement and habitat selection by invasive Asian carps in a large river. Transactions of the American Fisheries Society 137: 45-56.

Dege, M., and L.R. Brown. 2004. Effect of outflow on spring and summertime distribution of larval and juvenile fishes in the upper San Francisco Estuary. Pages 49-65 in: F. Feyer, L.R. Brown, R.L. Brown, and J.J. Orsi, editors. Early life history of fishes in the San Francisco estuary and watershed. American Fisheries Symposium 39, Bethesda, Maryland.

DeGraaf, D.A., and L.H. Bain. 1986. Habitat use by and preferences of juvenile Atlantic salmon in two Newfoundland rivers. Transactions of the American Fisheries Society 115 (5): 671‑681. Doi: 10.1577/1548-8659(1986)115<671:HUBAPO>2.0.CO;2

DeGraaf, G. 2003. The flood pulse and growth of floodplain fish in Bangladesh. Fish. Manage. Ecology 10: 241-247.

DeGrandchamp, K.L., J.E. Garvey, and R.E. Colombo. 2008. Movement and habitat selection by invasive Asian carps in a large river. Transactions of the American Fisheries Society 137 (1): 45‑56.

DeGroot, J.D., S.G. Hinch, and J.S. Richardson. 2007. Effects of logging second-growth forests on headwater populations of coastal cutthroat trout: a 6-year, multistream, before-and-after field experiment. Transactions of the American Fisheries Society 136 (1): 211-236.

Deitch, M., and B. Dolman. 2017. Restoring summer base flow under a decentralized water management regime: constraints, opportunities, and outcomes in Mediterranean-climate California. Water 9 (1): 1-21.

Deitch, M.J., G.M. Kondolf, and A.M. Merenlender. 2008. Surface water balance to evaluate the hydrological impacts of small instream diversions and applicant to the Russian River basin, California, USA. Aquatic Conservation: Marine and Freshwater Ecosystems 19: 274-284.

Deitch, M.J., G.M. Kondolf, and A.M. Merenlender. 2009. Hydrologic impacts of small-scale instream diversions for frost and heat protection in the California wine country. River Research and Applications 25: 118-134.

Dekar, M.P., and D.D. Magoulick. 2007. Factors affecting fish assemblage structure during seasonal stream drying. Ecology of Freshwater Fish 16: 335-342. Doi: 10.1111/j.1600-0633.2006.00226.x

Dekar, M.P., and D.D. Magoulick. 2013. Effects of predators on fish and crayfish survival in intermittent streams. Southeast. Nat. 12: 197-208. Doi: 10.1656/058.012.0115.

De la Hoz Franco, E.A., and P. Budy. 2005. Effects of biotic and abiotic factors on the distribution of trout and salmon along a longitudinal stream gradient. Environmental Biology of Fishes 72: 379-391.

Delisle, G.E. 1962. Water velocities tolerated by spawning kokanee salmon. California Fish and Game 48: 77-78.

DeLittle, S.C., R. Casas-Mulet, L. Patulny, J. Wand, K.A. Miller, F. Fiddler, … J.A. Webb. 2018. Minimising biases in expert elicitations to inform environmental management: Case studies from environmental flows in Australia. Environmental Modelling & Software 100: 146-158. Doi: 10.1016/j.envsoft.2017.11.020

Del Rosario, R.B., and V.H. Resh. 2000. Invertebrates in intermittent and perennial streams: is the hyporheic zone a refuge from drying? J. North Am. Benthol. Soc. 19: 680-696.

DeLonay, A.J., R.B. Jacobson, D.M. Papoulias, D.G. Simpkins, M.L. Wildhaber, J.M. Reuter, T.W. Bonnot, K.A. Chojnacki, G.E. Mestl, and M.J. Mac. 2009. Ecological requirements for pallid sturgeon reproduction and recruitment in the lower Missouri River: a research synthesis 2005-08. U.S. Geological Survey Scientific Investigations Report 2009-5201.

Delong, M.D., J.H. Thorp, K.S. Greenwood, and M.C. Miller. 2001. Responses of consumers and food resources to a high magnitude, unpredicted flood in the Upper Mississippi River basin. Regulated Rivers: Research and Management 17: 217-234.

Delong, M.D., and M.C. Thoms. 2016. Changes in the trophic status of fish feeding guilds in response to flow modification. Journal of Geophysical Research: Biogeosciences. Doi: 10.1002/2015JG003249

Deltares. 2014. User manual Delft3D. Deltares, Delft, The Netherlands.

Delucchi, C.M. 1988. Comparison of community structure among streams with different temporal flow regimes. Canadian Journal of Zoology 66: 578-586.

Dembkowski, D.J., and L.E. Miranda. 2011. Comparison of fish assemblages in two disjoined segments of an oxbow lake in relation to connectivity. Transactions of the American Fisheries Society 140 (4): 1060-1069. Doi: 10.1080/00028487

DeMerona, B., and D. Gascuel. 1993. The effect of flood regime and fishing effort on the overall abundance of an exploited fish community in the Amazon floodplain. Aquatic Living Resources 6: 97-108.

DeMerona, B., R. Vigouroux, and F.L. Tejerian-Garro. 2005. Alteration of fish diversity downstream from Petit-Saut Dam in French Guiana: Implication of ecological strategies of fish species. Hydrobiologia 551: 33-47.

Demissie, M., N.G. Bhowmik, and J.R. Adams. 1983. Hydrology, hydraulics, and sediment transport, Kankakee and Iriquois rivers. Ilinois State Water Survey Report of Investigation 103.

Deng, Z., G.R. Guensch, C.A. McKinstry, R.P. Mueller, D.D. Dauble, and M.C. Richmond. 2005. Evaluation of fish injury mechanisms during exposure to turbulent shear flow. Canadian Journal of Fisheries and Aquatic Sciences 62: 1513-1522.

Dent, C.L., G.S. Cummings, and S.R. Carpenter. 2002. Multiple states in river and lake ecosystems. Philos. T. Royal Soc. B 357: 635-645.

Department of Fisheries and Oceans Canada (DFO). 2013. Framework for assessing the ecological flow requirements to support fisheries in Canada. Canadian Science Advisory Secretariat Science Advisory Report 2013/017.

DePhilip, M., and T. Moberg. 2010. Ecosystem flow recommendations for the Susquehanna River basin. The Nature Conservancy, Harrisburg, PA. Available at: <http://www.nature.org/media/pa/tnc-final-susquehanna-river-ecosystem-flows-study-report.pdf>.

DePhilip, M., and T. Moberg. 2013. Ecosystem flow recommendations for the Upper Ohio River basin in western Pennsylvania. The Nature Conservancy, Harrisburg, PA. Available at: [http://www.nature.org/media/pa/ ecosystem-flow-recommendations-upper-ohio-river-pa-2013.pdf](http://www.nature.org/media/pa/%20ecosystem-flow-recommendations-upper-ohio-river-pa-2013.pdf).

DeRobertis, A., C.A. Morgan, R.A. Schabetsberger, R.W. Zabel, R.D. Brodeur, R.L. Emmett, C.M. Knight, G.K. Krutzikowsky, and E. Casillas. 2005. Columbia River plume fronts. II. Distribution, abundance, and feeding ecology of juvenile salmon. Mar. Ecol. Prog. Ser. 299: 33-44. Doi: 10.3354/meps299033.

Dery, S.J., and E.F. Wood. 2005. Decreasing river discharge in northern Canada. Geophysical Research Letters 32: 1-4.

Deschenes, J., and M.A. Rodriguez. 2007. Hierarchical analysis of relationships between brook trout (*Salvelinus fontinalis*) density and stream habitat features. Canadian Journal of Fisheries and Aquatic Sciences 64 (5): 777-785. Doi: 10.1139f07-053.

Deslauriers, D., and J.D. Kieffer. 2012. The effects of temperature on swimming performance of juvenile shortnose sturgeon (Acipenser brevirostrum). Journal of Applied Ichthyology 28: 176-181.

Destouni, G., F. Jaramillo, and C. Prieto. 2013. Hydroclimatic shifts driven by human water use for food and energy production. Nat. Clim. Change 3: 213-217. Doi: 10.1038/nclimate1719.

Detenbeck, N.E., V.J. Brady, D.L. Taylor, V.M. Snarski, and S.L. Batterman. 2005. Relationship of stream flow regime in the western Lake Superior basin to watershed type characteristics. J. Hydrol. (Amst.) 309 (1-4): 258-276. Doi: 10.1016/j.jhydrol.2004.11.024

Detenbeck, N.E., P.W. DeVore, G.J. Niemi, and A. Lima. 1992. Recovery of temperate-stream fish communities from disturbance: A review of case studies and synthesis of theory. Environmental Management 16 (1): 33-53.

Dettinger, M.D., and D.R. Cayan. 2003. Interseasonal covariability of Sierra Nevada streamflow and San Francisco Bay salinity. Journal of Hydrology 277: 164-181.

Dettinger, M.D., D. Cayan, M. Meyer, and A. Jeton. 2004. Simulated hydrologic responses to climate variations and change in the Merced, Carson, and American River basins, Sierra Nevada, California, 1900-2099. Climatic Change 62: 283-317.

Dettinger, M., B. Udall, Dettinger, M.and A. Georgakakos. 2015. Western water and climate change. Ecological Applications 25: 2068-2093.

Dettman, D.H. 1977. Habitat selection, daytime behavior and factors influencing distribution and abundance of rainbow trout (*Salmo gairdneri*). M.S. thesis, University of California, Davis. 47 pp.

Dettmers, J.M., D.H. Wahl, D.A. Soluk, and S. Gutreuter. 2001. Life in the fast lane: fish and food web structure in the main channel of large rivers. Journal of the North American Benthological Society 20: 255-265.

Deverall, K.R., J.R.M. Kelso, and G.D. James. 1993. Redd characteristics and implications for survival of Chinook salmon (*Oncorhynchus tshawytscha*) embryos in the Waitaki River, New Zealand. New Zealand Journal of Marine and Freshwater Resources 27: 437-444.

Devito, K., I. Creed, T. Gan, C. Mendoza, R. Petrone, U. Silins, and B. Smerdon. 2005. A framework for broad-scale classification of hydrological response units on the Boreal Plain: Is topography the last thing to consider? Hydrol. Process. 19: 1705-1714.

DeVries, P. 1997. Riverine salmonid egg burial depths: review of published data and implication for scour studies. Canadian Journal of Fisheries and Aquatic Sciences 54 (8): 1685‑1698. Doi:10.1139/cjfas-54-8-1685.

DeVries, P. 2000. Scour in low gradient gravel bed streams: patterns, processes, and implications for the survival of salmonid embryos. Ph.D. dissertation, University of Washington, College of Engineering, Seattle, Washington.

DeVries, P. 2002. Bedload layer thickness and disturbance depth in gravel bed streams. J. Hydraul. Eng. 128 (11): 983-991. Doi:10.1061/(ASCE)0733-9429(2002)128:11(983).

DeVries, P. 2008. Bed disturbance processes and the physical mechanisms of scour and fill in salmonid spawning habitat. Pages 121-147 in: D. Sear and P. DeVries, editors. Salmon spawning habitat in rivers: physical controls, biological responses and approaches to remediation. AFS Symp. No. 65.

DeVries, P., K.L. Fetherston, A. Vitale, and S. Madsen. 2012. Emulating riverine landscape controls of beaver in stream restoration. Fisheries 37 (6): 246-255.

DeWald, L. and M.A. Wilzbach. 1992. Interactions between native brook trout and hatchery brown trout: effects on habitat use, feeding, and growth. Transactions of the American Fisheries Society 121: 287-296.

DeWald, J.T., Y.-P. Tsang, D.M. Krueger, J.B. Whittier, T. Wagner, D.M. Infante, and G. Whelan. 2014. Importance of understanding landscape biases in USGS gage locations: implications and solutions for managers. Fisheries 39 (4): 155-163.

Dewine, J.M., and D.J. Cooper. 2007. Effects of river regulation on riparian box elder (*Acer negundo*) forests in canyons of the upper Colorado River basin, USA. Wetlands 27: 278-289.

Dewson, Z.S., A.B.W. James, and R.G. Death. 2007. Invertebrate responses to short-term water abstraction in small New Zealand streams. Freshwater Biology 52: 357-369.

Dewson, Z.S., A.B.W. James, and R.G. Death. 2007. Invertebrate community responses to experimentally reduced discharge in small streams of different water quality. Journal of the North American Benthological Society 26: 754-766. Doi: 10.1899/07-003R.1.

Dewson, Z.S., A.B.W. James, and R.G. Death. 2007. A review of the consequences of decreased flow for instream habitat and macroinvertebrates. Journal of the North American Benthological Society 26: 401-415. Doi: 10.1899/06-110.1

Diana, J.S., J.P. Hudson, and R.D. Clark, Jr. 2004. Movement pattern of large brown trout in the mainstream Au Sable River, Michigan. Transactions of the American Fisheries Society 133 (1): 34-44.

Diana, M., J.D. Allan, and D. Infante. 2006. The influence of physical habitat and land use on stream fish assemblages in southeastern Michigan. Pages 359-374 in: R.M. Hughes, L. Wang, and P.W. Seelbach, editors. Influences of landscape on stream habitats and biological assemblages. American Fisheries Society, Symposium 48, Bethesda, Maryland.

DiCenzo, V.J., and M.C. Duval. 2002. Importance of reservoir inflow in determining white bass year-class strength in three Virginia reservoirs. North American Journal of Fisheries Management 22 (2): 620-626.

Didier, J., and P. Kestermont. 1996. Relationships between mesohabitats, ichthyologic communities, and IBI metrics adapted to a European river basin (The Meuse, Belgium). Hydrobiologia 341: 133-144.

Dieter, D., D. von Schiller, E.M. Garcia-Roger, et al. 2011. Preconditioning effects of intermittent stream flow on leaf litter decomposition. Aquat. Sci. 73: 599-609.

Dieterman, D.J., and D.L. Galat. 2004. Large-scale factors associated with sicklefin chub distribution in the Missouri and lower Yellowstone Rivers. Transactions of the American Fisheries Society 133 (3): 577-587.

Dieterman, D.J., W.C. Thorn, and C.S. Anderson. 2018. Winter habitat selection by large brown trout in streams with and without habitat rehabilitation. North American Journal of Fisheries Management 38 (1): 253-266. Doi: 10.1002/nafm.10025

Dieterman, D.J., W.C. Thorn, C.S. Anderson, and J.L. Weiss. 2006. Summer habitat associations of large brown trout in southeast Minnesota. Minnesota Department of Natural Resources Section of Fisheries Investigational Report 539.

Dieterich, M., and N.H. Anderson. 2000. The invertebrate fauna of summer-dry streams in western Oregon. Arch. Hydrobiol. 147 (3): 273-295.

Dietrich, W.E., P.A. Nelson, E. Yager, J.G. Vendetti, M.P. Lamb, and L. Collins. 2006. Sediment patches, sediment supply and channel morphology. Pages 79-90 in: Proceedings of the 4th Conference on River, Coastal and Estuarine: Morphodynamics, 4-7 October 2005, Urbana, Illinois, A.A. Balkema, Rotterdam, The Netherlands.

Diez, J.M., C.M. D’Antonio, J.S. Dukes, E.D. Grosholz, J.D. Olden,, C.J.B. Sorte, D.M. Blumenthal, B.A. Bradley, R. Early, I. Ibanez, S.J. Jones, J.J. Lawler, and L.P. Miller. 2012. Will extreme climatic events facilitate biological invasions? Frontiers in Ecology and the Environment 10 (5): 249-257. Doi: 10.1890/110137

Diffenbaugh, N.S., D.L. Swain, and D. Touma. 2015. Anthropogenic warming has increased drought risk in California. Proceedings of the National Academy of Sciences USA 112: 3931-3936.

Dill, L.M. 1983. Adaptive flexibility in the foraging behavior of fishes. Canadian Journal of Fisheries and Aquatic Sciences 40 (4): 398-408.

Dill, L.M., and T.G. Northcote. 1970. Effects of gravel size, egg depth, and egg density on intragravel movement and emergence of coho salmon (Oncorhynchus kisutch) alevins. J. Fish. Res. Board Can. 27 (7): 1191-1199. Doi: 10.1139/f70-141.

Dill, L.M., and T.G. Northcote. 1970. Effects of some environmental factors on survival, condition and timing of emergence of chum salmon fry (Oncorhynchus keta). J. Fish. Res. Board Can. 27: 196-291.

Dill, L.M., R.C. Ydenberg, and A.H.G. Fraser. 1981. Food abundance and territory size in juvenile coho salmon (*Oncorhynchus kisutch*). Canadian Journal of Zoology 59 (9): 1801-1809. Doi: 10.1139/z81-247

Dill, W.A., W.D. Kelley, and J.C. Fraser. 1975. Water and land use development and the aquatic environment, problems, and solutions. FAO Fish. Tech. Pap. 141.

Dilts, E.W. 1999. Effects of fine sediment and gravel quality on survival to emergence of larval robust redhorse *Moxostoma robustum*. Master’s thesis, University of Georgia, Athens.

DiMaio, J., and L.D. Corkum. 1995. Relationship between the spatial distribution of freshwater mussels (Bivalvia: Unionidae) and the hydrological variability of rivers. Canadian Journal of Zoology 73: 663-671.

Disalvo, A.C., and S.C. Hart. 2002. Climatic and stream-flow controls on tree growth in a Western Montane riparian forest. Environmental Management 30: 678-691.

DiStafano, R.J., D.D. Magoulick, E.M. Imhoff, and E.R. Larson. 2009. Imperiled crayfishes use hyporheic zone during seasonal drying of an intermittent stream. Journal of the North American Benthological Society 142-152. Doi: 10.1899/08-072.1

Dixon, C.J., and J.C. Vokoun. 2009. Burbot resource selection in small streams near the southern extent of the species range. Ecology of Freshwater Fish 18: 234-246. Doi: 10.1111/j.1600-0633.2008.00341.x.

Dixon, M.D. 2003. Effects of flow pattern on riparian seedling recruitment on sandbars in the Wisconsin River, Wisconsin, USA. Wetlands 23: 125-139.

Docker, B.B., and H.L. Johnson. 2017. Environmental water delivery: Maximising ecological outcomes in a constrained operating environment. Pages 563-598 in: A.C. Horne, J.A. Webb, M.J. Stewardson, B. Richter, and M. Acreman (editors), Water for the environment: From policy and science to implementation and management. Cambridge, MA: Elsevier.

Docompo, L., and B.G. de Bikuna. 1993. The Basque method for determining instream flows in Northern Spain. Rivers 4: 293-311.

Dodds, W.K., K. Gido, M.R. Whiles, K.M. Fritz, and W.J. Matthews. 2004. Life on the edge: the ecology of Great Plains prairie streams. BioScience 54: 205-216. Doi: 10.1641/0006-3568(2004)054[0205:LOTETE]2.0.CO;2.

Dodds, W.K., R.E. Hutson, A.C. Eichem, M.A. Evans, D.A. Gudder, K.M. Fritz, and L. Gray. 1996. The relationship of floods, drying, flow and light to primary production and producer biomass in a prairie stream. Hydrobiologia 333: 151-159.

Dodds, W.K., J.S. Perkin, and J.E. Gerken. 2013. Human impact on freshwater ecosystem services: a global perspective. Environmental Science and Technology 47: 9061-9068.

Dodge, D.P., and H.R. MacCrimmon. 1971. Environmental influences on extended spawning of rainbow trout (*Salmo gairdneri*). Transactions of the American Fisheries Society 100 (2): 312-318.

Doering, P.H., R.H. Chamberlain, K.M. Donohue, and A.S. Steinman. 1999. Effect of salinity on the growth of *Vallisneria americana* Michx. from the Caloosahatchee estuary, Florida. Florida Scientist 62: 89-105.

Doering, P.H., R.H. Chamberlain, and D.E. Haunert. 2002. Using submerged aquatic vegetation to establish minimum and maximum freshwater inflows to the Caloosahatchie estuary, Florida. Estuaries 25 (6B): 1343-1354.

Doledec, S., E. Castella, M. Forcellini, J.M. Olivier, A. Paillex, and P. Sagnes. 2015. The generality of changes in the trait composition of fish and invertebrate communities after flow restoration in a large river (French Rhone). Freshwater Biology 60 (6): 1147-1161.

Doledec, S., and D. Chessel. 1989. Rhythmes saisonniers et composonantes stationnelles en milieu aquatique. II. Prise en compte et elimination d’effets dans un tableau faunistique. Acta Oecol. Oecol. Gen. 10: 207-232.

Doledec, S., N. Lamouroux, U. Fuchs, and S. Merigoux. 2007. Modelling the hydraulic preferences of benthic macroinvertebrates in small European streams. Freshwater Biology 52: 145-164.

Doledec, S., J. Tilbian, and N. Bonada. 2017. Temporal variability in taxonomic and trait compositions of invertebrate assemblages in two climatic regions with contrasting flow regimes. Science of the Total Environment 599-600: 1912-1921.

Dole-Oliver, M.J., P. Marmonier, and J.L. Beffy. 1997. Response of invertebrates to lotic disturbance: is the hyporheic zone a patchy refugium? Freshw. Biol. 37: 257-276.

Doll, P., K. Fiedler, and J. Zhang. 2009. Global-scale analysis of river flow alterations due to water withdrawals and reservoirs. Hydrol. Earth Syst. Sci. 13: 2413-2432.

Doll, P., and H.M. Schmied. 2012. How is the impact of climate change on river flow regimes related to the impact on mean annual runoff? Environmental Research Letters 7; 1-11.

Doll, P., and J. Zhang. 2010. Impact of climate change on freshwater ecosystems: a global-scale analysis of ecologically relevant river flow alterations. Hydrology and Earth System Science 14: 783-799.

Dollar, E.S.J., C.S. James, K.H. Rogers, and M.C. Thomas. 2007. A framework for interdisciplinary understanding of rivers as ecosystems. Geomorphology 89: 147-162.

Dollar, E.S.J., C.R. Nicolson, C.A. Brown, J.K. Turpie, A.R. Joubert, A.R. Turton, D.F. Grobler, H.H. Pienaar, J. Ewar-Smith, and S.M. Manyaka 2010. Development of the South Africa Water Resource Clasification System (WRCS): a tool towards the sustainble, equitable and efficient use of water resources in a developing country. Water Resource Policy 12: 479-499.

Dolling, R. 1968. Occurrence of pools and riffles: an element in the quasi-equilibrium state of river channels. Ontario Geography 2: 3-11.

Dolloff, C.A. 1986. Seasonal population characteristics and habitat use by juvenile coho salmon in a small southeast Alaska stream. Transactions of the American Fisheries Society 116: 829-838.

Dolloff, C.A., P.A. Flebbe, and M.D. Owen. 1994. Fish habitat and fish populations in a southern Appalachian watershed before and after Hurricane Hugo. Transactions of the American Fisheries Society 123: 668-678.

Dolloff, C.A., D.G. Hankin, and G.H. Reeves. 1993. Basinwide estimation of habitat and fish populations in streams. U.S. Forest Service General Technical Report SE-83.

Dolloff, C.A., and G.H. Reeves. 1990. Microhabitat partitioning among stream‑dwelling juvenile coho salmon (*Oncorhynchus kisutch*) and Dolly Varden (*Salvelinus malma*). Canadian Journal of Fisheries and Aquatic Sciences 47 (12): 2297‑2306.

Dolloff, C.A., and M.L. Warren, Jr. 2003. Fish relationships with large wood in small streams. In: The ecology and management of wood in world rivers. Edited by S.V. Gregory, K.L. Boyer, and A.M. Gurnell. American Fisheries Society Symposium No. 37, Bethesda, Maryland, pp. 179-193.

Dombeck, M.P., B.W. Menzel, and P.N. Hinz. 1984. Muskellunge spawning habitat and reproductive success. Transactions of the American Fisheries Society 113: 205-216.

Domenici, P. 2003. Habitat, body design and the swimming performance of fish. Pages 137-160 in: V.L. Bels, J.-P. Gasc, and A. Casinos, editors. Vertebrate biomechanics and evolution. BIOS Scientific Publishers, Oxford, UK.

Dompier, D., and J.R. Woodworth. 1980. Rehabilitation of salmonid fish streams through storage. Pp. 86-93 in: W. King, et al. (Eds.), Proceedings of Wild Trout II. Trout Unlimited, Vienna, Virginia, and Federation of Fly Fishermen, El S...

Donald, D.B. 1997. Relationship between year-class strength for goldeyes and selected environmental variables during the first year of life. Transactions of the American Fisheries Society 126: 361-368. Doi: 10.1577/1548-8659(1997)126<0361:RBYCSP>2.3.CO:2.

Donald, D.B., and W. Aitken. 2005. Stock-yield model for a fish with variable annual recruitment. North American Journal of Fisheries Management 25: 1226-1238.

Donley, E.E., R.J. Naiman, and M.D. Marineau. 2012. Strategic planning for instream flow restoration: a case study of potential climate change impacts in the central Columbia River basin. Global Change Biology 18: 30371-3086.

Donofrio, E., T. Simon, J.R. Neuswanger, and G.D. Grossman. 2018. Velocity and dominance affect prey capture and microhabitat selection in juvenile Chinook (*Oncorhynchus tshawytscha*). Environ Biol Fish 101: 609-622. Doi: 10.1007/s10641-018-0723-5

Doody, T.M., M.J. Colloff, M. Davies, V. Koul, R.G. Benyon, and P.L. Nagler. 2015. Quantifying water requirements of riparian river red gum (*Eucalyptus camaldulensis*) in the Murray-Darling Basin, Australia – implications for the management of environmental flows. Ecohydrology 8: 1471-1487.

Doolan, J., B. Ashworth, and J. Swirepik. 2017. Planning the use of environmental water. Pages 539-562 in: A. Horne, A. Webb, M. Stewardson, B. Richter, and M. Acreman, editors, Water for the Environment: Policy, science, and integrated management. Elsevier Press, London. Doi: 10.1017/S14647931050006950.

Doren, R.F., J.C. Trexler, A.D. Gottlieb, and M.C. Harwell. 2009. Ecological indicators for system-wide assessment of the greater Everglades ecosystem restoration program. Ecological Indicators 9: S2-S16 doi:10.1016/j.ecolind.2008.08.009

Doring, M., U. Uehlinger, A. Rotach, et al. 2007. Ecosystem expansion and contraction dynamics along a large alpine alluvial corridor (Tagliamento River, northeast Italy). Earth Surf. Proc. Land 32: 1693-1704.

Dorn, N.J., and M.I. Cook. 2015. Hydrological disturbance diminishes predator control in wetlands. Ecology 96 (11): 2984-2993. Doi: 10.1890/14-1505.1.

Dorn, N.J., and J.C. Trexler. 2007. Crayfish assemblage shifts in a large drought-prone wetland: the roles of hydrology and competition. Freshw. Biol. 52 (12): 2399-2411. Doi: 10.1111/j.1365-2427.2007.01860.x.

Dornn, N.J., and J.C. Volin. 2009. Resistance of crayfish (*Procambarus* spp.) populations to wetland drying depends on species and substrate. Journal of the North American Benthological Society 28: 766-777.

Dorova, J., and A. Milner. 2000. Role of lake regulation on glacier-fed rivers in enhancing salmon productivity: the Cook Inlet watershed, southcentral Alaska, USA. Hydrological Processes 14 (16-17): 3149-3159. Doi: 10.1002/1099-1085(200011/12)14:16/17<3149::AID-HYP139>3.0CO;2-Y

Dose, J.J., and B.D. Roper. 1994. Long-term changes in low-flow channel widths within the South Umpqua watershed, Oregon. Water Resources Bulletin 30 (6): 993-1000.

DosSantos, J.M. 1985. Comparative food habits and habitat selection of mountain whitefish and rainbow trout in the Kootenai River, Montana. Master’s thesis, Montana State University, Bozeman.

Douglas, E.M., R. Vogel, and C.N. Kroll. 2000. Trends in floods and low flows in the United States: Impacts of spatial correlation. Journal of Hydrology 240: 90-105.

Douglas, M.M., S.E. Bunn, and P.M. Davies. 2005. River and wetland food webs in Australia’s wet-dry tropics: general principles and implications for management. Marine and Freshwater Research 56: 329-342.

Dowling, D.C., and M.J. Wiley. 1986. The effects of dissolved oxygen, temperature, and low stream flow on fishes: a literature review. Illinois Natural History Survey Aquatic Biology Technical Report 1986 (2). Available at: <https://www.ideals.illinois.edu/bitstream/handle/2142/10530/inhsaqbv01986i00002_opt.pdf>.

Downes, B.J., L.A. Barmuta, P.G. Fairweather, D.P. Faith, M.J. Keough, P.S. Lake, B.D. Mapstone, and G.P. Quinn. 2002. Monitoring ecological impacts: concepts and practice in flowing waters. Cambridge University Press, Cambridge.

Downes, B.J., T.J. Entwisle, and P. Reich. 2003. Effects of flow regulation on disturbance frequencies and in-channel bryophytes and macroalgae in some upland streams. River Research and Applications 19 (1): 27-42.

Downes, B.J., and M.J. Keough. 1998. Scaling of colonization processes in streams: parallels and lessons from marine hard substrata. Australian Journal of Ecology 23: 8-26.

Downs, P.W., and G.M. Kondolf. 2002. Post-project appraisals in adaptive management of river channel restoration. Environmental Management (New York) 29: 477-496.

Downton, M.W., and K.A. Miller. 1998. Relationships between Alaskan salmon catch and North Pacific climate on interannual and interdecadal time scales. Canadian Journal of Fisheries and Aquatic Sciences 55: 2255-2265.

Doyle, M.W., and F.D. Shields. 2008. An alternative measure of discharge effectiveness. Earth Surface Processes and Landforms 33: 308-316.

Doyle, M.W., and F.D. Shields. 2012. Compensatory mitigation for streams under the Clean Water Act: Reassessing science and redirecting policy. Journal of the American Water Resources Association 48 (3): 494-509.

Doyle, M.W., F.D. Shields, K.F. Boyd, P.B. Skidmore, and D. Dominick. 2007. Channel-forming discharge selection in river restoration design. Journal of Hydraulic Engineering 133: 831-837.

Doyle, M.W., E.H. Stanley, C.H. Orr, A.R. Selle, S.A. Sethi, and J.M. Harbor. 2005. Stream ecosystem response to small dam removal: lessons from the heartland. Geomorphology 71: 227-244.

Doyle, M.W., E.H. Stanley, D.L. Strayer, R.B. Jacobson, and J.C. Schmidt. 2005. Effective discharge analysis of ecological processes in streams. Water Resources Research 41: 1-16. doi: 10.1029/2005WR004222

Drew, C.A., M. Eddy, T.J. Kwak, W.G. Cope, and T. Augspurger. 2018. Hydrologic characteristics of freshwater mussel habitat: novel insights from modeled flows. Freshwater Science. Doi: 10.1086/697947.

Drinkwater, K.F., and K.T. Frank. 1994. Effects of river regulation and diversion on marine fish and invertebrates. Aquatic Conservation: Freshwater and Marine Ecosystems 4: 135-151.

Driver, P., E. Barbour, and K. Michener. 2011. An integrated surface water, groundwater and wetland plant model of drought response and recovery for environmental water management. Pages 2444-2450 in: F. Chan, D. Marinova, and R.S. Anderssen (editors), 19th International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand, December 2011.

Driver, P., S. Chowdhury, P. Wettin, and H. Jones. 2005. Models to predict the effects of environmental flow releases on wetland inundation and the success of colonial bird breeding in the Lachlan River, NSW. Pages 192-198 in: I.D. Rutherford, I. Wiszniewski, M.J. Askey-Doran, and R. Glazik (editors), Proceedings of the 4th Annual Stream Management Conference: Linking Rivers to Landscapes, 19-22 October 2004, Country Club Casino, Launceston, Tasmania.

Driver, P., J. Harris, G. Closs, and T. Koen. 2005. Effects of flow regulation on carp (*Cyprinus carpio* L.) recruitment in the Murray-Darling Basin, Australia. River Research and Applications 21: 327-335.

Drucker, E., and G. Lauder. 2002. Experimental hydrodynamics of fish locomotion: functional insights from wake visualization. Integrative and Comparative Biology 42: 243-257.

Drucker, E., and G. Lauder. 2003. Function of pectoral fins in rainbow trout behavioral repertoire and hydrodynamic forces. J. Exp. Biol. 206: 813-826. Doi: 10.1224/jeb.00139.

Du, H., Q.W. Wei, H. Zhang, Z. Liu, C. Wang, and Y. Li. 2011. Bottom substrate attributes relative to bedform morphology of spawning site of Chinese sturgeon, *Acipenser sinensis* below the Gezhouba dam. J. Appl. Ichthyol. 27 (2): 257-262. Doi: 10.1111/j.1439-0426.2010.01660.x.

Duan, J.G., B. Barkdoll, and R. French. 2006. Lodging velocity for an emergent aquatic plant in open channels. Journal of Hydraulic Engineering 132: 1015-1020.

Dube, S., A.P. Plamondon, and R.L. Rothwell. 1995. Watering-up after clear-cutting on forested wetlands of the St. Lawrence Lowlands. Water Resour. Res. 31: 1741-1750.

Dudley, P.N. 2019. S4: a spatially continuous, individual-based model of salmonid redd superimposition. Transactions of the American Fisheries Society 148 (2): 352-372. Doi: 10.1002/tafs.10139

Dudley, R.K., and S.P. Platania. 2007. Flow regulation and fragmentation imperil pelagic-spawning riverine fishes. Ecol. Appl. 17 (7): 2074-2086. Doi: 10.1890/06-1252.1

Dudgeon, D. 1991. An experimental study of abiotic disturbance effects on community structure and function in a tropical stream. Archiv fur Hydrobiologie 122: 403-420.

Dudgeon, D. 1993. The effects of spate-induced disturbance, predation and environmental complexity on macroinvertebrates in a tropical stream. Freshwater Biology 30: 189-197.

Dudgeon, D. 1999. Patterns of variation in secondary production in a tropical stream. Archiv fur Hydrobiologie 144: 271-281.

Dudgeon, D. 2000. Large-scale hydrological changes in tropical Asia: Prospects for riverine biodiverstiy. BioScience 50: 793-806.

Dudgeon, D. 2000. The ecology of tropical Asian rivers and streams in relation to biodiversity conservation. Annual Review of Ecological Systems 31: 239-263.

Dudgeon, D., A.H. Arthington, M.O. Gessner, Z.-I. Kawabata, D.J. Knowler, C. Leveque, R.J. Naiman, A.H. Prieur-Richard, D. Soto, M.L.J. Stiassny, and C.A. Sullivan. 2006. Freshwater biodiversity: importance, threats, status and conservation challenges. Biological Reviews 81: 163-182. Doi: 10.1017/S1464793105006950

Dudley, R.G. 1979. Changes in growth and size distribution of *Saratherodon* *macrochir* and *Saratherodon* *andersoni* from the Kafue Gorge Dam. J. Fish Biology 36: 14: 205-223.

Dudley, R.K., and W.J. Matter. 1999. Effects of a record flood on fishes in Sabino Creek, Arizona. Southwestern Naturalist 44: 218-212.

Dudley, R.K., and S.P. Platania. 2007. Flow regulation and fragmentation imperiled pelagic-spawning riverine fishes. Ecological Applications 17: 2074-2086. Doi:10.1890/06-1252.1. PMID:17974342.

Duel, H., G.E.M. Van Der Lee, W.E.Penning, and M.J. Baptist. 2003. Habitat Modelling of Rivers and Lakes in the Netherlands: an Ecosystem Approach. Canadian Water Resources Journal 28 (2).

Dufour, S., and H. Piegay. 2008. Geomorphological controls of *Fraxinus exelsior* growth and regeneration in floodplain forests. Ecology 89 (1): 205-215.

Dugger, K.M., M.R. Ryan, D.L. Galat, R.B. Renken, and J.W. Smith. 2002. Reproductive success of the interior least tern (*Sterna antillarum*) in relation to hydrology on the lower Mississippi River. River Research and Applications 18 (2): 97-106.

Duke, N.C., M.C. Ball, and J.C. Ellison. 1998. Factors influencing in mangroves biodiversity and distributional gradients. Global Ecology and Biogeography Letters 7: 27-47.

Dumke, J.D., T.R. Hrabik, V.J. Brady, K.B. Gran, R.R. Regal, and M.J. Seider. 2010. Channel morphology response to selective wood removals in a sand-laden Wisconsin trout stream. North American Journal of Fisheries Management 30 (3): 776-790.

Dumont, H.J. 1986. Zooplankton of the Niger River system. Pp. 49-51 *in*: B.R. Davies and K.F. Walker, eds., The ecology of river systems. Dr. W. Junk Publishers, Dordrecht, The Netherlands.

Dunbar, M.J., and M.C. Acreman. 2001. Applied hydroecological science for the twenty-first century. Pages 1-18 in: M.C. Acreman, editor, Hydro-Ecology: Linking Hydrology and Aquatic Ecology. Proc. Birmingham, UK, Workshop, July 1999. IAHS, Wallingford.

Dunbar, M.J., M. Acreman, and S. Kirk. 2004. Environmental flow setting in England and Wales: strategies for managing abstraction in catchments. Water and Environmental Journal 18: 5-10.

Dunbar, M.J., K. Alfredson, and A. Harby. 2012. Hydraulic-habitat modelling for setting environmental river flow needs for salmonid. Fisheries Management and Ecology 19: 500-517. Doi: 10.1111/j.1365-2400.2011.00825.x.

Dunbar, M.J., J.A. Gustard, M.C. Acreman, and C.R.N. Elliott. 1998. Review of overseas approaches to setting river flow objectives. Environmental Agency Research and Development Technical Report W145. Institute of Hydrology: Wallingford, United Kingdom.

Dunbar, M.J., M.L. Pedersen, D. Cadman, C. Extence, J. Waddingham, R. Chadd, and S.E. Larsen. 2010. River discharge and local-scale physical habitat influence macroinvertebrate LIFE scores. Freshwater Biology 55: 226-242. Doi:10.1111/j.365-2427.2009.02306.x

Dunbar, M.J., M. Warren, C. Extence, L. Baker, D. Cadman, D.J. Mould, et al. 2010. Interaction between macroinvertebrates, discharge and physical habitat in upland rivers. Aquatic Conservation: Marine and Freshwater Ecosystems 20: S31-S44.

Dunbrack, R.L., and L.M. Dill. 1983. A model of size dependent surface feeding in a stream dwelling salmonid. Environmental Biology of Fishes 8: 203-216.

Duncan, M.J., and B.J.F. Biggs. 1998. Substrate stability vs flood frequency and its ecological implications for headwater streams. Pages 347-355 in H. Wheater and C. Kirby, editors, Hydrology in a Changing Environment: Volume I. John Wiley and Sons: Chichester.

Duncan, R.P. 1993. Flood disturbance and the coexistence of species in a lowland podocarp forest, south Westland, New Zealand. Journal of Ecology 81: 403-416.

Dunham, J.B., B.S. Cade, and J.W. Terrell. 2002. Influences of spatial and temporal variation on fish-habitat relationships defined by regression quantiles. Transactions of the American Fisheries Society 131 (1): 86-98.

Dunham, J.B., B.E. Rieman, and G. Chandler. 2003. Influences of temperature and environmental variables on the distribution of bull trout within streams at the southern margin of its range. North American Journal of Fisheries Management 13: 894-904.

Dunham, J.B., and G.L. Vinyard. 1997. Incorporating stream level variability into analyses of site level fish habitat relationships: some cautionary examples. Transactions of the American Fisheries Society 126: 323-329.

Dunn, C.G., and P.L. Angermeier. 2016. Development of habitat suitability indices for the candy darter, with cross-scale validation across representative populations. Transactions of the American Fisheries Society 145 (6): 1266-1281. Doi: 10.1080/00028487.2016.1217929.

Dunn, N.R. 2003. The effects of extremes of flow on alpine (*G. paucispondylus*) and Canterbury (*G. vulgaris*) *Galaxias*. MSc thesis. University of Canterbury, Christchurch, New Zealand.

Dunne, T., and L.B. Leopold. 1978. Water in environmental planning. W.H. Freeman and Co., San Francisco.

Dunson, W.A., and J. Travis. 1991. The role of abiotic factors in community organization. American Naturalist 138: 1067-1091.

Durance, I., C. Lepichon, and S.J. Ormerod. 2006. Recognizing the importance of scale in the ecology and management of riverine fish. River Research and Applications 23: 1143-1152.

Durance, I., and S.J. Ormerod. 2009. Trends in water quality and discharge offset long-term warming effects on river. Freshwater Biology 54: 388-405.

Durham, B.W. 2007. Reproductive ecology, habitat associations, and population dynamics of two imperiled cyprinids in a Great Plains river. Doctoral dissertation. Texas Tech University, Lubbock.

Durham, B.W., and G.R. Wilde. 2006. Influence of stream discharge on reproductive success of a prairie stream fish assemblage. Transactions of the American Fisheries Society 135 (6): 1644-1653.

Durham, B.W., and G.R. Wilde. 2008. Asynchronous and synchronous spawning by smalleye shiner *Notropis buccula* from the Brazos River, Texas. Ecology of Freshwater Fish 17: 528-541.

Durham, B.W., and G.R. Wilde. 2009. Effects of streamflow and intermittency on the reproductive success of two broadcast-spawning cyprinid fishes. Copeia 2009: 21-28.

Durham, B.W., and G.R. Wilde. 2009. Population dynamics of the smalleye shiner, an imperiled cyprinid fish endemic to the Brazos River, Texas. Transactions of the American Fisheries Society 138 (3): 666-674.

Dussault, C. 1995. Utilisation de l’habitat, croissance, condition, survie apparente et deplacements de l’omble de fontaine (*Salvelinus fontinalis*) et du saumon atlantique (*Salmo salar*) en sympatrie. Thesis. University of Quebec, Trois-Rivieres, Quebec, Canada.

Dutry, T., and S.T. Larned. 2008. River flow controls ecological processes and invertebrate assemblages in subsurface flowpaths of an ephemeral river reach. Canadian Journal of Fisheries and Aquatic Sciences 65 (8): 1532-1544.

Dutta, V., U. Sharma, and R. Kumar. 2017. Assessment of river ecosystems and environmental flows: Role of flow regimes and physical habitat variables. Climate Change and Environmental Sustainability 25: 568-581.

Dutterer, A.C., and M.S. Allen. 2008. Spotted sunfish habitat selection at three Florida rivers and implications for minimum flows. Transactions of the American Fisheries Society 137 (2): 454-466.

Duvail, S., and O. Hammerlynck. 2003. Mitigation of negative ecological and socio-economic impacts of the Diama Dam on the Senegal River Delta wetland (Mauritania), using a model based decision support system. Hydrol. Earth Syst. Sc. 7: 133-146.

Dycus, J.C., J.M. Wisniewski, and J.T. Peterson. 2015. The effects of flow and stream characteristics on the variation in freshwater mussel growth in a southeast US river basin. Freshwater Biology 60: 395-409.

Dyer, F.J., and M.C. Thoms. 2006. Managing river flows for hydraulic diversity: an example of an upland regulated gravel-bed river. Riv. Res. Appl. 22 (2): 257-267. Doi: 10.1002/rra.909.

Dykaar, B.B., and P.J. Wiggington, Jr. 2000. Floodplain formation and cottonwood colonization patterns on the Willamette River, Oregon, USA. Environmental Management 25: 87-104.

Dynesius, M., R. Jansson, M.E. Johansson, and C. Nilsson. 2004. Intercontinental similarities in riparian-plant diversity and sensitivity to river regulation. Ecological Applications 14: 173-191.

Dynesius, M., and C. Nilsson. 1994. Fragmentation and flow regulation of river systems in the northern third of the world. Science 266: 753-762.

Dyson, M., G. Berkamp, and J. Scanlon, editors. 2003. Flow: the essentials of environmental flows. IUCN, Gland, Switzerland and Cambridge, UK.

Dziock, F.,F. Foeckler, M. Scholz, S. Stab, and K. Henle, editors. 2006. Bioindication and functional response in flood plain systems - based on results of the project RIVA. International Review of Hydrology 91: 269-387.

EA Engineering, Science, and Technology, Inc. 1986. Instream flow methodologies. Research project 2194-2, completion report, Electric Power Research Institute, Palo Alto, California.

Eadie, B.J., D.J. Schwab, R.A. Assel, A. Hawley, M.B. Lansing, G.S. Miller, N.R. Morehead, J.A. Robbins, P.L. Van Hoof, G.A. Leshkevich, T.H. Johengen, P.J. Lavrentyev, and R.E. Holland. Development of recurrent coastal plume in Lake Michigan observed for first time. EOS Trans. AGU 77 (35): 337-338. Doi: 10.1029/96EO00234.

Eadie, J.M., T.A. Hurly, R.D. Montgomerie, and K.L. Teather. 1986. Lakes and rivers as islands: species area relationship in the fish faunas of Ontario. Environmental Biology of Fishes 15: 81-89.

Eamus, D., and R. Froend. 2006. Groundwater-dependent ecosystems: the where, what and why of GDEs. Australian Journal of Botany 54: 91-96. Doi: 10.1071/BT06029

East, A.E., G.R. Pess, J.A. Bountry, C.S. Magirl, A.C. Ritchie, J.B. Logan, T.J. Randle, M.C. Mastin, J.T. Minear, J.J. Duda, M.C. Liermann, M.L. McHenry, T.J. Beechie, and P.B. Shafroth. 2015. Large-scale dam removal on the Elwha River, Washington, USA: river channel and floodplain geomorphic change. Geomorphology 228: 765-786. Doi: 10.1016/j.geomorph.2014.028.

Easterbrooks, J.A. 1981. Response of rainbow and cutthroat to depth reductions in simulated stream channels. M.S. thesis, University of Idaho.

Eaton, B.C., M. Church, and R.G. Millar. 2004. Rational regime model of alluvial channel morphology and response. Earth Surface Processes and Landforms 29: 511-529.

Eaton, B.C., and M.F. Lapointe. 2001. Effects of large floods on sediment transport and reach morphology in the cobble-bed Sainte-Marguerit River. Geomorphology 40: 291-309.

Ebersole, J.L., M.E. Colvin, P.J. Wigington, Jr., S.G. Leibowitz, J.P. Baker, M.R. Church, J.E. Compton, B.A. Miller, M.A. Cairns, B.P. Hansen, and H.R. LaVigne. 2009. Modeling stream network-scale variation in coho salmon overwinter survival and smolt size. Transactions of the American Fisheries Society 138 (3): 564-580.

Ebersole, J.L., P.J. Wigington, Jr., J.P. Baker, M.A. Cairns, M.R. Church, B.P. Hansen, B.A. Miller, H.R. LaVigne, J.E. Compton, and S.G. Leibowitz. 2006. Juvenile coho salmon growth and survival across stream network seasonal habitats. Transactions of the American Fisheries Society 135 (6): 1681-1697.

Eby, L.A., W.F. Fagan, and W.L. Minckley. 2003. Variability and dynamics of a desert stream community. Ecological Applications 13: 1566-1579. Doi: 10.1890/02-5211.

Echelle, A.A., A.F. Echelle, and L.G. Hill. 1972. Interspecific interactions and limiting factors of abundance and distribution in the Red River pupfish, *Cyprinodon rubrifluviatilis*. American Midland Naturalist 88: 109-130.

Edmundson, E.H., F.H. Everest, and D.W. Chapman. 1968. Permanence of station in juvenile chinook salmon and steelhead trout in two Idaho streams. Journal of the Fisheries Research Board of Canada. 25: 1453-1469.

Edo, K., and K. Suzuki. 2003. Preferable summering habitat of returning adult masu salmon in the natal stream. Ecol. Res. 18 (6): 783-791. Doi:10.1111/j.1440-1703.2003.00597.x.

Edwards, E.A. 1983. Habitat suitability index models: Bigmouth buffalo. U.S. Fish and Wildlife Service, FWS/OBS-82/10.34. 23 pp.

Edwards, E.A. 1983. Habitat suitability index models: Longnose sucker. U.S. Fish and Wildlife Service, FWS/OBS-82/10.35. 21 pp.

Edwards, E.A., M. Bacteller, and O.E. Maughan. 1982. Habitat suitability index models: Slough darter. U.S. Fish and Wildlife Service, FWS/OBS-82/10.9. 13 pp.

Edwards, E.A., G. Gebhart, and O.E. Maughan. 1983. Habitat suitability information: Smallmouth bass. U.S. Fish and Wildlife Service, FWS/OBS-82/10.36, Washington, D.C.

Edwards, E.A., H. Li, and C.B. Schreck. 1983. Habitat suitability index models: longnose dace. U.S. Fish and Wildlife Service Report FWS/OBS-82/10.33. Washington, D.C.

Edwards, E.A., and K.W. Twomey. 1982. Habitat suitability index models: Common carp. U.S. Fish and Wildlife Service, FWS/OBS-82/10.13. 28 pp.

Edwards, P.A., and R.A. Cunjak. 2007. Influence of water temperature and streambed stability on the abundance and distribution of slimy sculpin (*Cottus cognatus*). Environmental Biology of Fishes 80: 9-22.

Edwards, R.J. 1978. The effect of hypolimnion reservoir releases on fish distribution and species diversity. Transactions of the American Fisheries Society 107: 71-77.

Effenberger, M., G. Sailer, C.R. Townsend, and C.D. Matthaei. 2006. Local disturbance history and habitat parameters influence the microdistribution of stream invertebrates. Freshw. Biol. 51: 313-332. Doi: 10.1111/j.1365-2427.2005.01502.x.

Egglishaw, H.J., and P.E. Shackley. 1985. Factors governing the production of juvenile salmon in Scottish streams. Journal of Fish Biology 27: 27-33.

Eick, D. 2013. Habitat preferences of the Burbot (*Lota lota*) from the River Elbe: an experimental approach. Journal of Applied Ichthyology 29: 541-548.

Einum, S., and K.H. Nislow. 2005. Local-scale density-dependent survival of mobile organisms in continuous habitats: an experimental test using Atlantic salmon (*Salmo salar*). Oecologia 143: 203-210. Doi: 10.1007/s00442-004-1793-y.

Einum, S., K.H. Nislow, S. Mckelvey, and J.D. Armstrong. 2008. Nest distribution shaping within-stream variation in Atlantic salmon juvenile abundance and competition over small spatial scales. J. Anim. Ecol. 77 (1): 167-172. Doi: 10.1111/j.1365-2656.2007.01326.x.

Einum, S., L. Sundt-Hansen, and K.H. Nislow. 2006. The partitioning of density-dependent dispersal, growth, and survival throughout ontogeny in a highly fecund organism. Oikos 113: 489-496.

Ekblom, A., L. Gillson, and M. Notelid. 2017. Water flow, ecological dynamics, and management in the lower Limpopo Valley: A long-term view. Wiley Interdisciplinary Reviews: Water 4.

Eklov, A.G., and L.A. Greenberg. 1998. Effects of artificial cover on the density of 0+ brown trout. Fish Manage, Ecol. 5: 45-53. Doi: 10.1046/j.1365-2400;1998.00071.x.

Eklov, A.G., L.A. Greenberg, and H. Kristiansen. 1994. The effect of depth on the interaction between perch (*Perca fluviatilis*) and minnow (*Phoxinus phoxinus*). Ecol. Freshwater Fish. 3: 1-8.

Elith, J., and J.R. Leathwick. 2009. Species distribution models: ecological explanation and prediction across space and time. Annual Review of Ecology, Evolution, and Systematics 40: 677-697.

El-Jabi, N., and D. Caissie. 2018. Characterization of natural and environmental flows in New Brunswick, Canada. River Research and Applications 35 (2). Doi: 10.1002/rra.3387.

Elkin, K., S. Lanier, and M. Rebecca. 2012. The interrelationship of hydrology and biology in a Tennessee stream, USA. Ecohydrology 6: 355-362. doi: 10.1002/eco.1282

Elliott, C.R.N., I.W. Johnson, A.E. Sekulin, M.J. Dunbar, and M.C. Acreman. 1996. Guide to the use of the Physical Habitat Simulation system. R&D Technical Report W20. Environmental Agency, Bristol, U.K.

Elliott, J.G., and J.P. Capesius. 2009. Geomorphic changes resulting from floods in reconfigured gravel-bed river channels in Colorado, USA. Pages 173-198 in: L.A. James, S.I. Rathburn, and G.R. Whitecare, editors. Management and restoration of fluvial systems with broad historical changes and human impacts. Geological Society of America, Special Paper 451.

Elliott, J.M. 1973. The food of brown trout and rainbow trout (*Salmo trutta* and *Salmo gairdneri)* in relation to the abundance of drifting invertebrates in a mountain stream. Oecologia 12: 329-347.

Elliott, J.M. 1984. Growth, size, biomass and production of young migratory trout *Salmo trutta* in a Lake District stream, 1966-1983. Journal of Animal Ecology 53 (3): 979-994.

Elliott, J.M. 1985. Population regulation for different life-stages of migratory trout *Salmo trutta* in a Lake District stream, 1966-1983. J. Anim. Ecol. 54: 617-638.

Elliott, J.M. 1986. Spatial distribution and behavioural movements of migratory trout *Salmo* *trutta* in a Lake District stream. Journal of Animal Ecology 55: 907-922.

Elliott, J.M. 1987. Population regulation in contrasting populations of trout Salmo trutta in two Lake District streams. Journal of Animal Ecology 56: 83-98.

Elliott, J.M. 1989. Mechanisms responsible for population regulation in young migratory trout, *Salmo trutta*. I: The critical time for survival. Journal of Animal Ecology 58: 987-1001.

Elliott, J.M. 1989. The critical period concept for juvenile survival and its relevance for population regulation in young sea trout, *Salmo trutta*. Journal of Fish Biology 35 (Suppl. A): 91-98.

Elliott, J.M. 1990. Mechanisms responsible for population regulation in young migratory trout, *Salmo trutta*. III. The role of territorial behaviour. Journal of Animal Ecology 59: 803-818. Doi: 10.2307/5015.

Elliott, J.M. 1993. A 25-year study of production of juvenile sea trout, *Salmo trutta*, in an English Lake District stream. Can. Spec. Publ. Fish. Aquat. Sci. No. 118. Pp. 109-122.

Elliott, J.M. 1994. Quantitative ecology and the brown trout. Oxford University Press, Oxford, UK.

Elliott, J.M. 1996. The relationship between smolt density and fry density in salmonids. J. Fish Biol. 48: 1030-1032.

Elliott, J.M. 2000. Pools as refugia for brown trout during two summer droughts: trout responses to thermal and oxygen stress. Journal of Fish Biology 56: 938-948. Doi: 10.1111/j.1095-8649.2000.tb00883.x.

Elliott, J.M., and M.A. Hurley. 1998. Population regulation in adult, but not juvenile, resident trout (*Salmo trutta*) in a Lake District stream. Journal of Animal Ecology 67 (2): 280-286. Doi:10.1046/j.1365-2656.1998.00185.x.

Elliott, J.M., M.A. Hurley, and J.A. Elliott. 1997. Variable effects of droughts on the density of a sea-trout *Salmo trutta* population over 30 years. Journal of Applied Ecology 34: 1229-1238. Doi: 10.2307/2405234

Elliott, S.R., T.A. Coe, J.M. Helfield, and R.J. Naiman. 1998. Spatial variation in environmental characteristics of Atlantic salmon (*Salmo salar*) rivers. Canadian Journal of Fisheries and Aquatic Sciences 55 (Suppl. 1): 267-280.

Ellis, L.M., C.S. Crawford, and M.C. Molles. 2001. Influence of annual flooding on terrestrial arthropod assemblages of a Rio Grande riparian forest. Regul. River 17 (1): 1-20.

Ellis, L.M., C.S. Crawford, and M.C. Molles, Jr. 2002. The role of the flood pulse in ecosystem-level processes in southwestern riparian forests: a case study from the Middle Rio Grande. Pp. 51-107 in: B.A. Middleton, editor, Flood pulsing in wetlands: restoring the natural hydrologic balance. John Wiley and Sons, Hoboken, New Jersey, USA.

Ellis, L.M., M.C. Molles, and C.S. Crawford. 1999. Influence of experimental flooding on litter dynamics in a Rio Grande riparian forest, New Mexico. Restoration Ecology 7: 193-204.

Ellis, T.R., T. Linnansaari, and R.A. Cunjak. 2013. Passive integrated transponder (PIT) tracking versus snorkeling quantification of fright bias and comparison of techniques in habitat use studies. Transactions of the American Fisheries Society 142: 660-670. Doi: 10.10880/00028487.2012.754789.

Elmore, A.J., and S.S. Kaushal. 2008. Disappearing headwaters: patterns of stream burial due to urbanization. Frontiers in Ecology and the Environment 6 (6): 308-312.

Elser, A.A. 1968. Fish populations in a trout stream in relation to major habitat zones and channel alterations. Transactions of the American Fisheries Society 97: 389-397.

Elsner, M.M., L. Cuo, N. Voisin, J.S. Deems, A.F. Hamlet, J.A. Vano, K.E.B. Mickelson, S. Lee, and D.P. Lettenmaier. 2010. Implications of 21st century climate change for the hydrology of Washington state. Climatic Change 102 (1-2): 225-260. Doi:10.1007/s10584-010-9855-0.

Elso, J.I., and L.A. Greenberg. 2001. Habitat use, movements and survival of individual 0+ brown trout (*Salmo trutta*) during winter. Arch. Hydrobiol. 152: 279-295.

Elster, C., L. Perdomo, and M. Schnetter. 1999. Impact of ecological factors on the regeneration of mangroves in the Cienaga de Santa Marta, Colombia. Hydrobiologia 413: 35-46.

Elwood, J.W., and T.F. Waters. 1969. Effects of floods on food consumption and production rates of a stream brook trout population. Transactions of the American Fisheries Society 98: 253-262.

Ely, L.L., Y. Enzel, V.R. Baker, and D.R. Cayan. 1993. A 5000-year record of extreme floods and climate change in the southwestern United States. Science 262: 410-412.

Emery, A.R., A.H. Berst, and K. Kodaira. 1972. Under-ice observations of wintering sites of leopard frogs. Copeia 1972 (1): 123-126.

Emery, J.C., A.M. Gurnell, N.J. Clifford, G.E. Petts, I.P. Morrissey, and P.J. Soar. 2003. Classifying the hydraulic performance of riffle-pool bedforms for habitat assessment and river rehabilitation design. River Research and Applications 19: 533-549.

Emmett, W.W., and M.G. Wolman. 2001. Effective discharge and gravel-bed rivers. Earth Surf. Processes Landforms 26: 1369-1380.

Enders, E.C., D. Boisclair, and A.G. Roy. 2003. The effect of turbulence on the cost of swimming for juvenile Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 60 (9): 1149-1160. Doi: 10.1139/f03-101.

Enders, E.C., D. Boisclair, and A.G. Roy. 2005. A model of total swimming costs in turbulent flow for juvenile Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 62 (5): 1079-1089. Doi: 10.1139/f05-007.

Enders, E.C., T. Buffin-Belanger, D. Boisclair, and A.G. Roy. 2005. The feeding behaviour of juvenile Atlantic salmon in relation to turbulent flow. Journal of Fish Biology 66: 242-253. Doi: 10.1111/j.0022-1112.2005.00599.x.

Enders, E.C., K.D. Clarke, C.J. Pennell, L.M.N. Ollerhead, and D.A. Scruton. 2007. Comparison between PIT and radiotelemetry to evaluate winter habitat use and activity patterns of juvenile Atlantic salmon and brown trout. Hydrobiologia 582: 231-242. Doi: 10.1007/s10750-006-0562-9

Enders, E.C., Enders, E.C., M.H. Gessel, J.J. Anderson, and J.G. Williams. 2012. Effects of decelerating and accelerating flows on juvenile salmonid behavior. Transactions of the American Fisheries Society 141 (2): 357-364. Doi: 10.1080/00028487.2012.664604

Enders, E.C., M.L. Roy, M. Ovidio, E.J. Hallot, C. Boyer, F. Petit, and A.G. Roy. 2009. Habitat choice by Atlantic salmon parr in relation to turbulence at a reach scale. North American Journal of Fisheries Management 30 (6): 1819-1830.

Enders, E.C., D.A. Scruton, and K.D. Clarke. 2009. The ‘natural flow paradigm’ and Atlantic salmon: moving from concept to practice. River Research and Applications 25: 2-15. Doi: 10.1002/rra.1214

Enfield, D.B., A.M. Mestas-Nunez, and P.J. Trimble. 2001. The Atlantic multidecadal oscillation and its relation to rainfall and river flows in the continental U.S. Geophysical Research Letter 28 (10): 2077-2080. Doi: 10.1029/2000GL012745.

Eng, K., D.M. Carlisle, D.M. Wolock, and J.A. Falcone. 2012. Predicting the likelihood of altered streamflows at ungaged rivers across the conterminous United States. River Res. Appl. Doi: 10.1002/rra.2565.

Eng, K., T.E. Grantham, D.M. Carlisle, and D.M. Wolock. 2011. Predictability and selection of hydrologic metrics in riverine ecohydrology. Freshwater Science 36: 9-15-926.

Englert, J., and B.H. Seghers. 1983. Habitat segregation by stream darters (Pisces: Percidae) in the Thames River watershed of southwestern Ontario. Canadian Field-Naturalist 97: 177-180.

English, K.K., D. Robichaud, C. Sliwinski, R.F. Alexander, W.R. Koski, T.C. Nelson, B.L. Nass, S.A. Bickford, S. Hammond, and T.R. Mosey. 2006. Comparison of adult steelhead migrations in the mid-Columbia hydrosystem and in large naturally flowing British Columbia rivers. Transactions of the American Fisheries Society 135 (3): 739-754.

Englund, G., and J.J. Krupa. 2000. Habitat use by crayfish in stream pools: influence of predators, depth and body size. Freshwater Biology 43: 75-83.

Englund, G., and B. Malmqvist. 1996. Effects of flow regulation, habitat area and isolation on the macroinvertebrate fauna of rapids in the north Swedish rivers. River Research and Applications 12: 433-445. Doi: 10.1002/(SICI)1099-1646(199607)12:4/5<433::AID-RRR415>3.0.CO;2-6.

Englund, R.A., and R.B. Filbert. 1999. Flow restoration and persistence of introduced species in Waikele Stream, O’ahu. Micronesica 32: 143-154.

Englund, R.E. 1991. Winter habitat selection of cutthroat trout (*Oncorhynchus clarki*) in a large regulated river. Master’s thesis. Logan: Utah State University.

Ensign, W.E., R.J. Strange, and S.E. Moore. 1990. Summer food limitation reduces brook and rainbow trout biomass in a southern Appalachian stream. Transactions of the American Fisheries Society 119 (5): 894-901. Doi:10.1577/1548-8659(1990)119<0894:SFLRBA>2.3.CO;2.

Entrekin, S., M. Evans-White, B. Johnson, and E. Hagenbuch. 2011. Rapid expansion of natural gas development poses a threat to surface waters. Frontiers in Ecology and the Environment 9 (9): 503-511.

EPRI. 1986. Instream flow methodologies. Final Report, EA-4819 Research Project 2194-2, Electrical Power Research Institute, Palo Alto, CA.

EPRI (Electric Power Research Institute). 2000. Instream flow assessment methods: guidance for evaluating instream flow needs in hydropower licensing. Technical Report 1000553, EPRI, Palo Alto, CA.

EPRI. 2004. Demonstration flow assessment: procedures for judgement-based instream flow studies. Technical Report 1005389, EPRI, Palo Alto, CA.

Erickson, D.L., J.A. North, J.E. Hightower, J.Weber, and L. Lauck. 2002. Movement and habitat use of green sturgeon *Acipenser medirostris* in the Rogue River, Oregon, USA. Journal of Applied Ichthyology 18: 565-569.

Erkinaro, J., F. Okland, K. Moen, E. Niemela, and M. Rahiala. 1999. Return migration of Atlantic salmon in the River Tana: the role of environmental factors. J. Fish Biol. 55: 506-516. Doi: 10.1111/j.1095-8649.1999.tb00695.

Erman, D.C., E.D. Andrews, and M. Yoder-Williams. 1988. Effects of winter floods on fishes of the Sierra Nevada. Canadian Journal of Fisheries and Aquatic Sciences 45: 2195‑2200.

Erman, D.C., and N.A. Erman. 1984. The response of stream macroinvertebrates to substrate size and heterogeneity. Hydrobiologia 108: 75-82.

Erman, D.C., and N.A. Erman. 1995. Spring permanence, Trichoptera species richness, and the role of drought. Journal of the Kansas Entomological Society 68: 50-64.

Erman, D., J.E. Fichtel, R.E. King, and P. Neal. 1973. Effects of artificially reduced streamflow on a small steelhead stream. Cal-Neva Wildlife 1973: 80-89.

Erman, D.C., and V.R. Hawthorne. 1976. The quantitative importance of an intermittent stream in spawning of rainbow trout. Transactions of the American Fisheries Society 105: 675-681.

Erman, D.C., and G.R. Leidy. (Or 1975)1969. Downstream movement of rainbow trout fry in a tributary of Sagehen Creek, under permanent and intermittent flow. Transactions of the American Fisheries Society 104 (3): 467-473.

Erzini, K. 2005. Trends in NE Atlantic landings (southern Portugal): identifying the relative importance of fisheries and environmental variables. Fisheries Oceanography 14: 195-209.

Escalera-Vasquez, L.H., and L. Zambrano. 2010. The effect of seasonal variation in abiotic factors on fish community structure in temporary and permanent pools in a tropical wetland. Freshw. Biol. 55 (12): 2557-2569. Doi: 10.1111/j.1365-2427.2010.02486.x.

Escher, T.R., R.F. Hadley, and K.D. Crowley. 1983. Hydrologic and morphologic changes in the channels of the Platte River basin in Colorado, Wyoming, and Nebraska: a historical perspective. U.S. Geological Survey Professional Paper 1277-A.

Escobar-Arias, M.I., and G.B. Pasternack. 2010. A Hydrogeomorphic dynamics approach to assess in-stream ecological functionality using the functional flows model, part 1 – model characteristics. River Research and Applications 26 (9): 1103-1128. Doi: 10.1002/rra.1316

Escobar-Arias, M.I., and G.B. Pasternack. 2011. Differences in river ecological functions due to rapid channel alteration processes in two California rivers using the functional flows model, part 2 – model applications. River Research and Applications 27 (1): 1-22. Doi: 10.1002/rra.1335

Eskew, E.A., S.J. Price, and M.E. Dorcas. 2012. Effects of river-flow regulation on anuran occupancy and abundance in riparian zones. Conservation Biology doi: 10.1111/j.1523-1739.2012.01842.x

Esselman, P.C., and J.J. Opperman. 2010. Overcoming information limitations for the prescription of an environmental flow regime for a Central American river. Ecology and Society 15: 6. <http://www.ecologyandsociety.org/vol15/iss1/art6/>

Essington, T.E., T.P. Quinn, and V.E. Ewert. 2000. Intra- and inter-specific competition and the reproductive success of sympatric Pacific salmon. Canadian Journal of Fisheries and Aquatic Sciences 57: 205-213.

Essington, T.E., P.W. Sorensen, and D.G. Paron. 1998. High rate of redd superimposition by brook trout (*Salvelinus fontinalis*) and brown trout (*Salmo trutta*) in a Minnesota stream cannot be explained by habitat availability alone. Canadian Journal of Fisheries and Aquatic Sciences 55 (10): 2310-2316.

Estes, C.C. 1984. Evaluation of methods for recommending instream flows to support spawning salmon. M.S. thesis, Washington State University, Pullman.

Estes, C.C., and J.F. Orsborn. 1986. Review and analysis of methods for quantifying instream flow requirements. Water Resources Bulletin 22 (3): 389-398. Doi: 10.1111/j.1752-1688.1986.tb01893.x.

Estevez, E.D. 2000. Matching salinity metrics to estuarine seagrasses for freshwater inflow management, chapter 22. In: S.A. Bortone (ed.). Seagrasses: Monitoring, ecology, physiology and management. CRC Press, Boca Raton, Florida.

Estevez, E.D. 2002. Review and assessment of biotic variables and analytical methods used in estuarine inflow studies. Estuaries 25 (6B): 1291-1303.

European Commission. 2015. Ecological flows in the implementation of the Water Framework Direcive. CIS Guidance Document no. 31, Technical Report 2015-086, Brussels, Belgium.

Evans, D. 1997. Assessing the flow needs of rivers. Journal of the Chartered Institution of Water and Environmental Management 11: 323-328.

Evans, E.C., and G.E. Petts. 1997. Hyporheic temperature patterns within riffles. Hydrol. Sci. J. 42: 199-213.

Everard, M. 1996. The importance of periodic droughts for maintaining diversity in the freshwater environment. Freshwater Forum 7: 33-50.

Everest, F.H. 1969. Habitat selection of juvenile chinook salmon and steelhead trout in two streams in Idaho. Doctoral dissertation. University of Idaho, Moscow.

Everest, F.H., R.L. Beschta, J.C. Scrivener, K.V. Koski, J.R. Sedell, and C.J. Cederholm. 1987. Fine sediment and salmonid production: a paradox. Pp. 98-142 in: E.O. Salo and T.W. Cundy, editors, Streamside management: forestry and fishery interactions. University of Washington Institute of Forest Resources, Seattle, Washington.

Everest, F.H., and D.W. Chapman. 1972. Habitat selection and spatial interaction by juvenile chinook salmon and steelhead trout in two Idaho streams. Journal of the Fisheries Research Board of Canada 29 (1): 91‑100. Doi: 10.1139/f72-012.

Everitt, B.L. 1968. Use of the cottonwood in an investigation of the recent history of a floodplain. American Journal of Science 266 (6): 417-439.

Ewing, K. 1996. Tolerance of four wetland plant species to flooding and sediment deposition. Environmental and Experimental Botany 36: 131-146.

Extence, C.A. 1981. The effect of drought on the benthic communities in a lowland river. Hydrobiologia 83: 217-224.

Extence, C.A., D.M. Balbi, and R.P. Chadd. 1999. River flow indexing using British benthic macroinvertebrates: a framework for setting hydroecological objectives. Regulated Rivers: Research and Management 15: 543-574.

Eyler, S.M., S.A. Welsh, D.R. Smith, and M.M. Rockey. 2016. Downstream passage and impact of turbine shutdowns on survival of silver American eels at five hydroelectric dams on the Sheandoah River. Transactions of the American Fisheries Society 145 (5): 964-976. Doi: 10.1080/00028487.2016.1176954.

Fabris, L, I.A. Malcolm, W.B. Buddendorff, C.J. Millidine, D. Tetzlaff, and C. Soulsby. 2017. Hydraulic modelling of the spatial and temporal variability in Atlantic salmon parr habitat availability in an upland stream. Science of the Total Environment 601-602: 1046-1059. Doi: 10.1016/j.scitotenv.2017.05.112.

Facey, D.E., and G.D. Grossman. 1990. The metabolic cost of maintaining position of four North American stream fishes: effects of season and velocity. Physiological Zoology 63: 757-776.

Facey, D.E., and G.D. Grossman. 1992. The relationship between water velocity, energetic costs, and microhabitat use in four North American stream fishes. Hydrobiologica 239: 1-6. Doi: 10.1007/BF00027524.

Facon, B., E. Machline, J.P. Pointier, and P. David. 2004. Variation in dessication tolerance in freshwater snails and its consequences for invasion ability. Biological Invasions 6: 283-293.

Fagan, W.F. 2002. Connectivity, fragmentation, and extinction risk in dendritic metapopulations. Ecology 83: 3243-3249.

Fahey, B., and R. Jackson. 1997. Hydrological impacts of converting native forests and grasslands to pine plantations, South Island, New Zealand. Agric. Forest. Meteorol. 84: 69-82.

Faith, D.P., and R.H. Norris. 1989. Correlation of environmental variables with patterns of distribution and abundance of common and rare fresh-water macroinvertebrates. Biological Conservation 50: 77-98.

Falcone, J.A., D.M. Carlisle, D.M. Wolock, and M.R. Meador. 2010. GAGES: a stream gage database for evaluating natural and altered flow conditions in the conterminous United States. Ecology 91 (2): 610. <http://esapubs.org/archive> EO91-045

Faler, M.P., L.M. Miller, and K.I. Welke. 1988. Effects of variation in flow on distributions of northern squawfish in the Columbia River below McNary Dam. North American Journal of Fisheries Management 8 (1): 30-35.

Falke, J.A. 2009. Effects of groundwater withdrawal and drought on native fishes and their habitats in the Arikaree River, Colorado. Ph.D. dissertation, Department of Fish, Wildlife and Conservation Biology, Colorado State University, Fort Collins, CO.

Falke, J.A., L.L. Bailey, K.D. Fausch, and K.R. Bestgen. 2012. Colonization and extinction in dynamic habitats: an occupancy approach for a Great Plains stream fish assemblage. Ecology 93 (4): 858-867. Doi: 10.1890/11-1315.1.

Falke, J.A., K.R. Bestgen, and K.D. Fausch. 2010. Streamflow reductions and habitat drying affect growth, survival, and recruitment of brassy minnow across a Great Plains riverscape. Transactions of the American Fisheries Society 139 (5): 1566-1583. Doi: 10.1577/T09-143.1.

Falke, J.A., J.B. Dunham, C.E. Jordan, K.M. McNyser, and G.H. Reeves. 2013. Spatial ecological processes and local factors predict the distribution and abundance of spawning steelhead (Oncorhynchus mykiss) across a complex riverscape. PLOS ONE 8 (11): e79232.

Falke, J.A., K.D. Fausch, K.R. Bestgen, and L.L. Bailey. 2010. Spawning phenology and habitat use in a Great Plains, USA, stream fish assemblage: an occupancy estimation approach. Canadian Journal of Fisheries and Aquatic Sciences 67 (12): 1942-1956. Doi: 10.1139/F10-109

Falke, J.A., K.D. Fausch, R. Magelky, A. Squires, D.S. Durnford, L.K. Riley, and R. Oad. 2011. The role of groundwater pumping and drought in shaping ecological futures for stream fishes in a dryland river basin of the western Great Plains, U.S.A. Ecohydrology 4: 682-697. Doi:10.1002/eco.158.

Falkenmark, M., and J. Rockstrom. 2004. Balancing Water for Humans and Nature: the New Approach to Ecohydrology. Earthscan, London. 247 p.

Fallau, S.S. 1995. Seasonal streamflow effects on salmonid habitat, and observations of movement in Beaver Creek, Idaho-Utah. Master’s thesis, Utah State University, Logan.

Fan, H., and H. Huang. 2008. Response of coastal marine eco-environment to river fluxes into the sea: A case study of the Huanghe (Yellow) River mouth and adjacent waters. Mar. Environ. Res. 65 (5): 378-387. Doi: 10.1016/j.marenvres.2008.01.003.

Farjad, B., A. Gupta, and D.J. Marceau. 2015. Hydrological regime response to climate change for the 2020s and 2050s periods in the Elbow River watershed in southern Alberta, Canada. Pages 65-89 in: M. Ramkumar, K. Kumaraswamy, and R. Mohanraj, editors. Environmental Management in River Basn Ecosystems. Canada Springer.

Farley, K.A., E.G. Jobbagy, and R.B. Jackson. 2005. Effects of afforestation on water yield: a global synthesis with implications for policy. Glob. Change Biol. 11: 1565-76.

Farrae, D.J., S.E. Albeke, K. Pacifici, N.P. Nibbelink, and D.L. Peterson. 2014. Assessing the influence of habitat quality on movements of the endangered shortnose sturgeon. Environmental Biology of Fishes 97: 691-699.

Farrell, A.P. 2008. Comparisons of swimming performance in rainbow trout using constant acceleration and critical swimming speed tests. Journal of Fish Biology 72: 693-710.

Farrell, A.P., C.G. Lee, K. Tierney, A. Hodaly, S. Clutterham, M. Healey, S. Hinch, and A. Lotto. 2003. Field-based measurements of oxygen uptake and swimming performance with adult Pacific salmon using a mobile respirometer swim tunnel. Journal of Fish Biology 63: 64-84.

Fatemi, S.E., and F. Vafaie. 2015. A new habitat methodology for environmental flow requirements. Water Management 168: 105-115. doi: 10.1680/wama.13.00057

Fatemi, S.E., F. Vafaie, and H. Bressers. 2013. Assessment of environmental flow requirement effects at an estuary. Proceedings of the Institute of Civil Engineers – Water Management 166 (8): 411-421.

Fausch, K.D. 1984. Profitable stream positions for salmonids: relating specific growth rate to net energy gain. Canadian Journal of Zoology 62: 441-451. Doi:10.1139/z84-067.

Fausch, K.D. 1993. Experimental analysis of microhabitat selection by juvenile steelhead (*Oncorhynchus mykiss*) and coho salmon (*O. kisutch*) in a British Columbia stream. Canadian Journal of Fisheries and Aquatic Sciences 50 (6): 1198‑1207. Doi:10.1139/f93-136.

Fausch, K.D., and R.G. Bramlett. 1991. Disturbance and fish communities in intermittent tributaries of a western Great Plains river. Copeia 1991: 659-674.

Fausch, K.D., C.L. Hawkes, and M.G. Parsons. 1988. Models that predict standing crop of stream fish from habitat variables: 1950-85. USDA Forest Service Gen. Tech. Rep. PNW-GTR-213. Portland, Pacific Northwest Research Station. 52 pp.

Fausch, K.D., J. Lyons, J.R. Karr, and P.L. Angermeier. 1990. Fish communities as indicators of environmental degradation. Pages 123-144 in: S.M. Adams, editor. Biological indicators of stress in fish. American Fisheries Society, Symposium 8, Bethesda, Maryland.

Fausch, K.D., S. Nakano, and S. Kitano. 1997. Experimentally induced foraging mode shift by sympatric charrs in a Japanese mountain stream. Behav. Ecol. 8: 414-420.

Fausch, K.D., Y. Taniguchi, S. Nakano, G.D. Grossman, and C.R. Townsend. 2001. Flood disturbance regimes influence rainbow trout invasion success among five Holarctic regions. Ecological Applications 11: 1438-1455. Doi:10.1890/1051-0761(2001)011[1438[FDRIRT]2.0.CO;2.

Fausch, K.D., C.E. Torgerson, C.V. Baxter, and H.W. Li. 2002. Landscape to riverscapes: bridging the gap between research and conservation of stream fishes. BioScience 52: 483-489. Doi:10.1641/0006-3568(2002)052[0483:LTRBTG]2.0.CO;2.

Fausch, K.D., and R.J. White. 1981. Competition between brook trout (*Salvelinus fontinalis*) and brown trout (*Salmo trutta*) for position in a Michigan stream. Canadian Journal of Fisheries and Aquatic Sciences 38: 1220‑1227.

Fausch, K.D., and R.J. White. 1986. Competition among juveniles of coho salmon, brook trout, and brown trout in a laboratory stream, and implications for Great Lakes tributaries. Transactions of the American Fisheries Society 115: 363-381.

Favrot, S.D., and T.J. Kwak. 2016. Efficiency of two-way weirs and prepositioned electrofishing for samokung potamodromous fish migrations. North American Journal of Fisheries Management 36: 167-182.

Favrot, S.D., B.C. Jonasson, and J.T. Peterson. 2018. Fall and winter microhabitat use and suitability for spring Chinook salmon parr in a U.S. Pacific Northwest river. Transactions of the American Fisheries Society 147 (1): 151-170. Doi: 10.1002/tafs.10011

Favrot, S.D., and T.J. Kwak. 2018. Behavior and reproductive ecology of the sicklefin redhorse: An imperiled southern Appalachian mountain fish. Transactions of the American Fisheries Society 147 (1): 204-222. Doi: 10.1002/tafs.10010

Fayram, A.H., and M.G. Mitro. 2008. Relationship between reach-scale habitat variables and biotic integrity score, brook trout density, and brown trout density in Wisconsin streams. North American Journal of Fisheries Management 28 (5): 1601-1608. Doi:10.1577/M07-137.1.

Federer, C.A., and D. Lash. 1978. Simulated streamflow response to possible differences in transpiration among species of hardwood trees. Water Resources Research 14: 1089-1097.

Feist, B.E., E.A. Steel, D.W. Jensen, and D.N.D. Sather. 2010. Does the scale of our observational window affect our conclusions about correlations between endangered salmon populations and their habitat? Landscape Ecology 25: 727-743.

Fekete, B.M., C.J. Vorosmarty, and W. Grabs. 2002. High resolution fields of global runoff combining observed river discharge and simulated water balances. Global Biogeochemical Cycles 16 (3): Article no. 1042.

Felley, J.D., and L.G. Hill. 1983. Multivariate assessment of environmental preference of cyprinid fishes of the Illinois River, Oklahoma. American Midland Naturalist 109: 209-221.

Fellman, J.B., S. Dogramaci, G. Skrzypek, W. Dodson, and P.F. Grierson. 2011. Hydrologic control of dissolved organic matter biogeochemistry in pools of a subtropical dryland river. Water Resources Research 47: 6501-6514.

Fellman, J.B.,E. Hood, W. Dryer, and S. Pyare. 2015. Stream physical characteristics impact habitat quality for Pacific salmon in two temperate coastal watersheds. PLoS ONE 10: 1-17.

Feminella, J.W. 1996. Comparison of benthic macroinvertebrate assemblages in small streams along a gradient of flow permanence. Journal of the North American Benthological Society 15 (4): 651-669. Doi: 10.2307/1467814.

Feminella, J.W., and V.H. Resh. 1990. Hydrologic influences, disturbance, and intraspecific competition in a stream caddisfly population. Ecology 71: 2083-2094.

Fenn, C.R., and A.M Gurnell. 1987. Proglacial processes. Pp. 423-472 in: A.M. Gurnell and M.J. Clark, editors. Glacio-fluvial sediment transfer. Wiley, Chichester, U.K.

Fenner, P., W.W. Brady, and D.R. Patton. 1985. Effects of regulated water flows on regeneration of Fremont cottonwood. Journal of Range Management 38 (2): 135-138.

Ferguson, G.J., T.M. Ward, Q.F. Ye, M.C. Geddes, and R.M. Gillanders. 2013. Impacts of drought, flow regime, and fishing on the fish assemblage in southern Australia’s largest temperate estuary. Estuaries and Coasts 36: 737-753.

Ferguson, R.I. 1986. Hydraulics and hydraulic geometry. Progress in Physical Geography 10: 1-31.

Ferguson, R.I., A.D. Kirkbride, and A.G. Roy. 1996. Markov analysis of velocity fluctuations in gravel-bed rivers. Pp. 165-181 *in*: P.J. Ashworth, S.J. Best, and S.J. Mclelland (eds.), Coherent flow structures in open channels. John Wiley and Sons Ltd., Chichester.

Fernandes, C.C. 1997. Lateral migration of fishes in Amazon floodplains. Ecology of Freshwater Fish 6: 36-44.

Fernandez, I.M., F.A. Machado, and J. Penha, 2010. Spatial patterns of a fish assemblage in a seasonal tropical wetland: effects of habitat, herbaceous plant biomass, water depth, and distance from species sources. Neotrop. Ichthyol. 8(2): 289-298. Doi: 10.1590/S1679-62252010000200007.

Fernandez-Delgado, C., F. Baldo, C. Vilas, D. Garcia-Gonzalez, J.A. Cuesta, E. Gonzalez-Ortegon, and P. Drake. 2007. Effects of the river discharge management on the nursery function of the Guadalquivir River estuary (SW Spain). Hydrobiologia 587: 125-136.

Ferrar, A.A. (editor). 1989. Ecological Flow Requirements of South African Rivers. South African National Scientific Programmes Report 162. Council for Scientific and Industrial Research, Pretoria. 118 pp.

Fetherson, K.L., R.J. Naiman, and R.E. Bilby. 1995. Large woody debris, physical process, and riparian forest development in montane river network of the Pacific Northwest. Geomorphology 13: 133-144.

Feyrer, F., T. Sommer, and W. Harrell. 2006. Importance of flood dynamics versus intrinsic physical habitat in structuring fish communities: evidence from two adjacent engineered floodplains on the Sacramento River, California. North American Journal of Fisheries Management 26 (2): 408-417.

Feyrer, F., T. Sommer, S.C. Zeug, G. O’Leary, and W. Harrell. 2004. Fish assemblages of perennial floodplain ponds of the Sacramento River, California (USA) with implications for the conservation of native fishes. Fisheries Management and Ecology 11: 335-344.

Ficke, A.D., and C.A. Myrick. 2011. The swimming and jumping ability of three small Great Plains fishes: implications for fishway design. Transactions of the American Fisheries Society 140: 1521-1531.

Ficke, A.D., C.A. Myrick, and L.J. Hansen. 2007. Potential effects of global climate change on freshwater fisheries. Reviews in Fish Biology and Fisheries 17: 581-613.

Ficklin, D.L., I.T. Stewart, and E.P. Maurer. 2013. Climate change impacts on streamflow and subbasin-scale hydrology in the upper Colorado River basin. PLoS ONE 8 (8): e71297.

Findlay, S. 1995. Importance of surface-subsurface exchange in stream ecosystems: the hyporheic zone. Limnology and Oceanography 40: 159-164.

Finelli, C.M, D.D. Hart, and R.A. Merz. 2002. Stream insects as passive suspension feeders: effects of velocity and food concentration on feeding performance. Oecologia 131: 145-153.

Finger, T.R., and E.M. Stewart. 1987. Response of fishes to flooding regime in lowland hardwood wetlands. Pp. 86-92 in: W.J. Matthews and D.C. Heins (eds.) Community and evolutionary ecology of North American stream fishes. University of Oklahoma Press, Norman.

Finlay, J.C., M.E. Power, and G. Cabana. 1999. Effects of water velocity on algal carbon isotope ratios: implications for river food web studies. Limnology and Oceanography 44:1198-1203.

Finlayson, C.M., A.H. Arthington, and J. Pittock (eds.). 2017. Freshwater Ecosystems in Protected Areas: Conservation and Management. Oxford, UK: Taylor and Francis.

Finn, D.S., and N.L. Poff. 2008. Emergence and flight activity of alpine stream insects in two years with contrasting winter snowpack. Arctic, Antarctic, and Alpine Research 40: 638-646.

Finn, M.A., A.J. Boulton, and B.C. Chessman. 2009. Ecological responses to artificial drought in two Australian rivers with differing water extraction. Fundamental and Applied Limnology, Archiv fur Hydrobiologie 175: 231-248. Doi: 10.1127/1863-9135/2009/0175-0231.

Finn, M., and S. Jackson. 2011. Protecting indigenous values in water management: a challenge to conventional environmental flow assessments. Ecosystems 14: 1232-1248. Doi: 10.1007/s10021-011-9476-0.

Finnegan, R.J., and D.E. Marshall. 1997. Managing beaver habitat for salmonids: working with beavers. Pages 15.1-15.11 in: P.A. Slaney and D. Zaldokas, editors. Fish habitat rehabilitation procedures. British Columbia Ministry of Environment, Lands, and Parks, Watershed Restoration Program, Vancouver.

Finstad, A.G., S. Einum, T. Forseth, and O. Ugedal. 2007. Shelter availability affects behaviour, size-dependent and mean growth of juvenile Atlantic salmon. Freshw. Biol. 52 (9): 1710-1718. Doi: 10.1111/j.1365-2427.2007.01799.x.

Firehammer, J.A., and D.L. Scarnecchia. 2006. Spring migratory movements by paddlefish in natural and regulated river segments of the Missouri and Yellowstone rivers, North Dakota and Montana. Transactions of the American Fisheries Society 135 (1): 200-217.

Firehammer, J.A., and D.L. Scarnecchia. 2007. The influence of discharge on duration, ascent distance, and fidelity of the spawning migration for paddlefish of the Yellowstone-Sakakawea stock, Montana and North Dakota, USA. Environmental Biology of Fishes 78: 23-36.

Fischer, J.R., and C.P. Paukert. 2008. Habitat relationships with fish assemblages in minimally disturbed Great Plains regions. Ecology of Freshwater Fish 17: 597-609.

Fischer, J., C.P. Paukert, and M. Daniels. 2012. Fish community response to habitat alteration: impacts of sand dredging in the Kansas River. Transactions of the American Fisheries Society 141 (6): 1532-1544.

Fischer, P. 2000. An experimental test of metabolic and behavioural responses of benthic fish species to different types of substrate. Canadian Journal of Fisheries and Aquatic Sciences 57: 2336-2344.

Fisher, S.G. 1997. Creativity, idea generation, and the functional morphology of streams. Journal of the North American Benthological Society 16: 305-318.

Fisher, S.G., L.J. Gray, N.B. Grimm, and D.E. Busch. 1982. Temporal succession in a desert stream ecosystem following flash flooding. Ecological Monographs 52: 93-110. Doi: 10.2307/2937346

Fisher, S.G., and A. LaVoy. 1972. Differences in littoral fauna due to fluctuating water levels below a hydroelectric dam. J. Fish. Res. Board Can. 29: 1472-1476.

Fisher, S.G., R.A. Sponseller, and J.B. Heffernan. 2004. Horizons in stream biogeochemistry: flowpaths to progress. Ecology 85 (9): 2369-2379.

Fisher, S.G., J. Welter, J. Schade, and J. Henry. 2001. Landscape challenges to ecosystem thinking: creative flood and drought in the American Southwest. Scientia Marina 65: 181-192.

Fisher, S.J., and D.W. Willis. 2000. Seasonal dynamics of aquatic fauna and habitat parameters in a perched upper Missouri River wetland. Wetlands 20: 470-478.

Fisk, J.M. II. 2010. Reproductive ecology and habitat use of the robust redhorse in the Pee Dee River, North Carolina and South Carolina. Master’s thesis. North Carolina State University, Raleigh.

Fisk, J.M. II, T.J. Kwak, and R.J. Heise. 2014. Modeling riverine habitat for robust redhorse: assessment for reintroduction of an imperiled species. Fisheries Management and Ecology 21; 57-67.

Fisk, J.M. II, T.J. Kwak, and R.J. Heise. 2015. Effects of regulated river flows on habitat suitability for the robust redhorse. Transactions of the American Fisheries Society 144 (4): 792-806. Doi: 10.1080/00028487.2015.1042557.

Fisk, J.M. II, T.J. Kwak, R.J. Heise, and F.W. Sessions. 2013. Redd dewatering effects on hatching and larval survival of the robust redhorse. River Research and Applications 29: 571-581.

Fissel, D.B., and J. Jiang. 2008. 3D numerical modeling of flows at the confluence of the Columbia and Pend d’Oreille rivers. Pages 928-941 in: 10th International Conference on Estuarine and Coastal Modeling, Newport, R.I., 5-7 November 2007, American Society of Civil Engineers, Reston, Va. Doi: 10.1061/40990(324)50.

Fitzgerald, D.B., K.O. Winemiller, M.H. Sabaj Perez, and L.M. Sousa. 2017. Seasonal changes in the assembly mechanisms structuring tropical fish communities. Ecology 98 (1): 21-31. Doi: 10.1002/ecy.1616.

Fitzhugh, T.W.,C. Apse, Fitzhugh, T.W.,R. Schuyler, and J. Sanderson. 2012. Balancing human and ecosystem needs for water in urban water supply planning. Pages 127-150 in: Integrating Ecology and Poverty Reduction. Doi: 10.1007/978-1-4419-0633-5\_8.

Fitzhugh, T.W., and B.D. Richter. 2004. Quenching urban thirst: growing cities and their impacts on freshwater ecosystems. BioScience 54: 741-754.

Fitzhugh, T.W., and R.M. Vogel. 2011. The impact of dams on flood flows in the United States. River Research and Applications 27: 1192-1215.

Fitzpatrick, F.A., M.W. Deibel, M.A. Harris, T.L. Arnold, M.A. Lutz, and K.D. Richards. 2005. Effects of urbanization on the geomorphology, habitat, hydrology, and fish index of biotic integrity of streams in the Chicago area, Illinois and Wisconsin. Pages 87-115 in: L.R. Brown, R.H. Gray, R.M. Hughes, and M.R. Meador, editors. Effects of urbanization on stream ecosystems. American Fisheries Society, Symposium 47, Bethesda, Maryland.

Fjellheim, A., J. Havardstun, G.G. Raddum, and O.A. Schnell. 1993. Effects of increased discharge on benthic invertebrates in a regulated river. Regulated Rivers: Research and Management 8: 179-187.

Fladung, E., M. Scholten, and R. Thiel. 2003. Modelling the habitat preferences of preadult and adult fishes on the shoreline of the large, lowland Elbe River. Journal of Applied Ichthyology 19: 303-314.

Flannagan, J.F., D.G. Cobb, and M.K. Friesen. 1990. The relationship between some physical factors and mayflies emerging from the South Duck River and Cowan Creek, Manitoba. Pp. 233-242 in: I.C. Campbell (editor). Mayflies and stoneflies: life histories and biology. Kluwer Academic Publishers, Boston, Massachusetts.

Flanagan, J.J. 2003. The impact of fine sediments and variable flow regimes on the habitat and survival of Atlantic salmon (*Salmo salar*) eggs. M.Sc. Thesis, Department of Biology, University of New Brunswick, Fredericton, N.B.

Flannery, M.S., E.B. Peebles, and R.T. Montgomery. 2002. A percent-of-flow approach for managing reductions of freshwater inflows from unimpounded rivers to southwest Florida estuaries. Estuaries 25 (6B): 1318-1332.

Flebbe, P.A., and C.A. Dolloff. 1995. Trout use of woody debris and habitat in Appalachian wilderness streams of North Carolina. North American Journal of Fisheries Management 15: 579-590.

Flecker, A.S., and B. Feifarek. 1994. Disturbance and the temporal variability of invertebrate assemblages in two Andean streams. Freshwater Biology 31: 131-142.

Fleckenstein, J., M. Anderson, G. Fogg, and J. Mount. 2004. Managing surface water-groundwater to restore fall flows in the Cosumnes River. Journal of water Resource Planning and Management 130: 3301-310.

Fleming, I.A., and M.R. Gross. 1994. Breeding competition in a Pacific salmon (coho: *Oncorhynchus kisutch*): measures of natural and sexual selection. Evolution 48: 637-657.

Fleming, S.W. 2005. Comparative analysis of glacial and nival streamflow regimes with implications for lotic habitat quantity and fish species richness, River Research and Applications 21: 363-379. Doi: 10.1002/rra.810.

Flinders, C., and D. Hart. 2009. Effects of pulsed flows on nuisance periphyton growth in rivers: a mesocosms study. River Res. Appl. 25: 1320-1330. Doi: 10.1002/rra.1244.

Flinders, C.A., and D.D. Magoulick. 2003. Effects of stream permanence on crayfish community structure. American Midland Naturalist 149: 134-147.

Flitcroft, R.L., K.M. Burnett, G.H. Reeves, and L.M. Ganio. 2012. Do network relationships matter? Comparing network and instream habitat variables to explain densities of juvenile coho salmon (*Oncorhynchus kisutch*) in mid-coastal Oregon, U.S.A. Aquat. Conserv. Mar. Freshw. Ecosyst. 22 (3): 288-302. Doi: 10.1002/aqc.2228.

Flodmark, L.E.W., T. Forseth, J.H. L’Abee-Lund, and L.A. Vollestad. 2006. Behaviour and growth of juvenile brown trout exposed to fluctuating flow. Ecol. Freshw. Fish. 15: 57-65. Doi: 10.1111/j.1600.0633.2006.00127.x.

Flodmark, L., H.A. Urke, J.H. Halleraker, J.V. Arnekleiv, L.A. Vollestad, and A.B.S. Poleo. 2002. Cortisol and glucose responses in juvenile brown trout subjected to a fluctuating flow regime in an artificial stream. Journal of Fish Biology 60: 238-248.

Flodmark, L.E.W., L.A. Vollestad, and T. Forseth. 2004. Performance of juvenile brown trout exposed to fluctuating water level and temperature. Journal of Fish Biology 65: 460-470. Doi: 10.1111/j.0022-1112.2004.00463.x

Flore, L., and H. Keckeis. 1998. The effect of water current on foraging behaviour of rheophilic cyprinid, *Chondrostoma nasus,* during ontogeny: Trade-off energetic benefit-swimming costs. Regulated Rivers: Research and Management 14: 141-154.

Flore, L., W. Reckendorfer, and H. Keckeis. 2000. Reaction field, capture field, and search volume of 0+ nase (*Chondrostoma nasus*): effects of body size and water velocity. Can. J. Fish. Aquatic Sci. 57 (2): 342-350. Doi: 10.1139/f99-236.

Flotemersch, J.E., and D.C. Jackson. 2003. Seasonal foraging by channel catfish on terrestrially burrowing crayfish in a floodplain-river ecosystem. Ecohydrology and Hydrobiology 3: 61-70.

Flotemersch, J.E.,S.G. Leibowtz, R.A. Hill, J.L. Stoddard, M.C. Thoms, and R.E. Tharme. 2015. A watershed integrity definition and assessment approach to support strategic management of watersheds. River Research and Applications. Arena paper. Doi: 10.1002/rra.2978.

Flowers, H.J., W.E. Pine, III, A.C. Dutterer, K.G. Johnson, J.W. Ziewitz, M.S. Allen, and F.M. Parauka. 2009. Spawning site selection and potential implications of modified flow regimes on viability of Gulf sturgeon populations. Transactions of the American Fisheries Society 138 (6): 1266-1284. Doi:10.1577/T08-144.1

Foeckler, F., O. Deicher, H. Schmidt, and E. Castella. 2006. Suitability of mollusks as bioindicators for meadow- and flood-channels of the Elbe-floodplains. International Review of Hydrology 91: 314-325.

Follner, K., and K. Henle. 2006. The performance of plants, mollusks, and carabid beetles as indicators of hydrological conditions in floodplain grasslands. International Review of Hydrology 91: 364-379.

Folmar, L.C., and W.W. Dickoff. 1980. The parr-smolt transformation (smoltification)and seawater adaptation in salmonids. A review of selected literature. Aquaculture 21: 1-37.

Foltz, J.W. 1982. Fish species diversity and abundance in relation to stream habitat characteristics. Proceedings of the 36th Annual Conference of the Southeastern Association of Fish and Wildlife Agencies. Pages 305-311. Available at: <http://www.seafw.org/resource/dynamic/private/PDF/FOLTZ-3050311.pdf>.

Fonseca, D.M. 1999. Fluid-mediated dispersal in streams: models of settlement from the drift. Oecologia 121: 212-223.

Fonseca, D.M., and D.D. Hart. 1996. Density-dependent dispersal of black fly neonates is mediated by flow. Oikos 75: 49-58.

Fonseca, D.M., and D.D. Hart. 2001. Colonization history masks habitat preferences in local distributions of stream insects. Ecology 82 (10): 2897-2910. Doi: 10.1890/0012-9658(2001)082[2897:CHMHPI]2.0.CO;2.

Fonstad, M.A., and W.A. Marcus. 2010. High-resolution, basin-extent observations of fluvial forms and implications for process understanding. Earth Surface Processes and Landforms 35: 680-698.

Fontenot, Q.C., D.A. Rutherford, and W.E. Kelso. 2001. Effects of environmental hypoxia associated with the annual flood pulse on the distribution of larval sunfish and shad in the Atchafalaya River Basin, Louisiana. Transactions of the American Fisheries Society 130: 107-116.

Foreman, M.G.G., B. James, M.C. Quick, P. Hollemans, and E. Wiebe. 1997. Flow and temperature models for the Fraser and Thompson rivers. Atmosphere-Ocean 35: 109-134.

Ford, B.S., P.S. Higgins, A.F. Lewis, K.L. Cooper, T.A. Watson, G.L. Ennis, and R.L. Sweeting. 1992. Literature reviews of the life history, habitat requirements, and mitigation/compensation strategies for 13 species of sport fish in the Peace and Columbia River drainages of British Columbia. Can. Tech. Report Fish. Aquat. Sci. 2563.

Ford, J.E. 1997. Over-winter survival and habitat use of juvenile coho salmon (*Oncorhynch*us *kisutch*) in Lake Superior tributaries. Master’s thesis. University of Wisconsin, Eau Claire.

Ford, J.E., and D.G. Lonzarich. 2000. Overwinter survival and habitat use by juvenile coho salmon (*Oncorhynchus kisutch*) in two Lake Superior tributaries. Journal of Great Lakes Research 26: 94-101.

Fore, J.D., Dauwalter, D.C., and W.L. Fisher. 2007. Microhabitat use by smallmouth bass in an Ozark stream. Journal of Freshwater Ecology 22 (2): 189-199.

Forlong, R.G. 1994. Determining minimum flows for rivers in the Kapiti Coast district. Proceedings of 1994 Limnological Society Conference, New Zealand Limnological Society, Hamilton.

Forrester, G.E., J.G. Chace, and W. McCarthy. 1994. Diel and density-related changes in food consumption and prey selection by brook charr in a New Hampshire stream. Environmental Biology of Fishes 39 (3): 301-311. Doi:10.1007/BF00005131.

Fossati, J., G. Pautou, and J.-P. Peltier. 1999. Water as resource and disturbance for wadi vegetation in a hyperarid area (Wadi Sannur, Eastern Desert, Egypt). J. Arid Environ. 43: 63-77.

Foster, D.R., D.H. Knight, and J.F. Franklin. 1998. Landscape patterns and legacies resulting from large, infrequent disturbances. Ecosystems 1: 497-510.

Fowler, C.W. 1977. A stream habitat model based on physical variability. Encyclia (54): Part 1: 46-56.

Fowler, R.T. 2004. The recovery of benthic invertebrate communities following dewatering in two braided rivers. Hydrobiologia 523 (1-3): 17-28. Doi: 10.1023/B:HYDR.0000033077.13139.7f

Fox, D.A., J.E. Hightower, and F.M. Parauka. 2000. Gulf sturgeon spawning migration and habitat in the Choctawhatchee River system, Alabama-Florida. Transactions of the American Fisheries Society 129: 811-826.

Fraley, J., and J. Decker-Hess. 1987. Effects of stream and lake regulation on reproductive success of kokanee in the Flathead River system, Montana, U.S.A. Regulated Rivers: Research and Management 1: 257-265. Doi: 10.1002/rrr.3450030103

Fraley, J.J., and P.J. Graham. 1981. Physical habitat, geological bedrock types and trout densities in tributaries of the Flathead River drainage, Montana. In: N.B. Armantrout, editor. Acquisition and utilization of aquatic habitat inventory information. Proceedings of a symposium, Portland, Oregon. American Fisheries Society, Western Division, Bethesda.

Fraley, J.J., B.L. Marotz, J. Decker-Hess, W. Beattie, and R. Zubick. 1989. Mitigation, compensation, and future protection for fish populations affected by hydropower development in the upper Columbia system, Montana, USA. Regulated Rivers: Research and Management 3: 3-18. Doi: 10.1002/444.3450030103.

Fraley, J.J., S.L. McMullin, and P.J. Graham. 1986. Effects of hydroelectric operations on the kokanee population in the Flathead River system, Montana. North American Journal of Fisheries Management 6: 560-568.

Franssen, J., C. Blais, M. Lapointe, F. Berube, N. Bergeron, and P. Magnan. 2012. Asphyxiation and entombment mechanisms in fines rich spawning substrates: experimental evidence with brook trout (*Salvelinus fontinalis*) embryos. Canadian Journal of Fisheries and Aquatic Sciences 69 (3): 587-599. Doi: 10.1139/F2011-168.

Franssen, J., M. Pepino, M. Lapointe, and P. Magnan. 2013. Alternative tactics in spawning site selection by brook trout (Salvelinus fontinalis) related to incubation microhabitats in a harsh winter environment. Freshw. Biol. 58: 142-158. Doi: 10.1111/fwb.12046.

Franssen, N.R., K.B. Gido, and D.L. Propst. 2007. Flow regime affects availability of native and nonnative prey of an endangered predator. Biological Conservation 138: 330-340.

Franssen, N.R., K.B. Gido, C.S. Guy, J.A. Tripe, S.J. Shrank, T.R. Strakosh, K.N. Bertrand, C.M. Franssen, K.L. Pitts, and C.P. Paukert. 2006. Effects of floods on fish assemblages in an intermittent prairie stream. Freshwater Biology 51: 2072-2086.

Franssen, N.R., K.B. Gido, T.R. Strakosh, K.N. Bertrand, C.M. Franssen, C.P. Paukert, K.L. Pitts, C.S. Guy, J.A. Tripe, and S.J. Shrank. 2006. Effects of floods on fish assemblages in an intermittent prairie stream. Freshwater Biology 51: 2072-2086. Doi: 10.1111/j.1365-2427.2006.01640.x.

Franz, E.H., and F.A. Bazzaz. 1977. Simulation of vegetation response to modified hydrologic regimes: A probabilistic model based on niche differentiation in a floodplain forest. Ecology 58: 176-183.

Frappier, B., and R.T. Eckert. 2007. A new index of habitat alteration and a comparison of approaches to predict stream habitat conditions. Freshwater Biology 52: 2009-2020.

Fraser, D.F. and T.E. Sise. 1980. Observations on stream minnows in a patchy environment: a test of a theory of habitat distribution. Ecology 61: 790-797.

Fraser, F.J. 1969. Population density effects on survival and growth of juvenile coho salmon and steelhead trout in experimental stream-channels. Pp. 253-266 *in*: T.G. Northcote, editor. Salmon and trout in streams. University of British Columbia, Vancouver, Canada.

Fraser, J.C. 1970. An annotated bibliography on the establishment of acceptable flows for fish life in controlled streams. European Inland Fisheries Advisory Commission. Symposium on the Nature and Extent of Water Pollution Problems Affecting Inland Fisheries in Europe, Jablonna (Poland), 15-16 May 1970. 174 p. FI-EIFAC/70/SC/3.4.

Fraser, J.C. 1972. Regulated stream discharge for fish and other aquatic resources - an annotated bibliography. FAO Fish. Tech. Paper No. 112. 103 pp.

Fraser, J.C. 1972. Regulated discharge and the stream environment. Pp. 263-286 in: R. Oglesby, C.A. Carlson, and J. McCann (eds.), River ecology and man. Academic Press, New York.

Fraser, J.C. 1972. Water levels, fluctuations and minimum pools in reservoirs for fish and other aquatic resources: an annotated bibliography. FAO Fish. Tech. Pap. No. 113. 42 pp.

Fraser, J.C. 1975. Determining discharges for fluvial resources. FAO Fish. Tech. Pap. No. 143 (FIRS/T143). 102 pp.

Fraser, J.C. 1978. Suggestions for developing flow recommendations for in-stream uses of New Zealand streams. Water and Soil Miscellaneous Publication 6. Ministry of Works and Development, Wellington.

Frazier, P.S., K.J. Page, J. Louis, S. Briggs, and A. Robertson. 2003. Relating wetland inundation to river flow using Landsat TM data. International Journal of Remote Sensing 24: 3755-3770.

Freeman, B., and M. Freeman. 1994. Habiat use by an endangered riverine fish and implications for species protection. Ecology of Freshwater Fish 3: 49-58.

Freeman, M.C. 2005. Effects of surface water withdrawals and reservoirs on stream fishes in the Georgia Piedmont. Proceedings of the 2005 Georgia Water Resources Conference, held April 25-27, 2005. University of Georgia, Athens, Georgia.

Freeman, M.C., Z.H. Bowen, and K.D. Bovee. 1999. Transferability of habitat suitability criteria: Response to comment. North American Journal of Fisheries Management 19 (2): 626-628.

Freeman, M.C., Z.H. Bowen, K.D. Bovee, and E.R. Irwin. 2001. Flow and habitat effects on juvenile fish abundance in natural and altered flow regimes. Ecological Applications 11 (1): 179-190. Doi: 10.1890/1051-0761(2001)011(0179:FAHEOJ]2.0.CO;2

Freeman, M.C., Z.H. Bowen, and J.H. Crance. 1997. Transferability of habitat suitability criteria for fishes in warmwater streams. North American Journal of Fisheries Management 17 (1): 20-31.

Freeman, M.C., G.R. Buell, L.E. Hay, W.B. Hughes, R.B. Jacobson, J.W. Jones, S.A. Jones, J.H. Lafontaine, K.R. Odom, J.T. Peterson, J.W. Riley, J.S. Schindler, C. Shea, and J.D. Weaver. 2013. Linking river management to species conservation using dynamic landscape models. River Research and Applications 29: 906-918. doi: 10.1002/rra.2275.

Freeman, M.C., and J.H. Crance. 1993. Evaluating impacts to stream flow alteration on warmwater fishes. Pp. 303-305 *in*: Proceedings of the 1993 Georgia Water Resources Conference. University of Georgia, Athens.

Freeman, M.C., and G.D. Grossman. 1993. Effects of habitat availability on dispersion of a stream cyprinid. Environmental Biology of Fishes 37: 121-130. Doi: 10.1007/BF00000587.

Freeman, M.C., and P.A. Marcinek. 2006. Fish assemblage responses to water withdrawals and water supply reservoirs in piedmont streams. Environmental Management 38: 435-450. Doi:10.1007/s00267-005-0169-3.

Freeman, M.C., J.M. Nestler, and P.N. Johnson. 1997. Riverine resources: water needs and environmental effects analyses in the Alabama-Coosa-Tallapoosa and Apalachicola-Chattahoochee-Flint River basins. U.S. Geological Survey, Biological Resources Division, Patuxtent Research Center, Athens, Georgia.

Freeman, M.C., C.M. Pringle, and C.R. Jackson. 2007. Hydrologic connectivity and the contribution of stream headwaters to ecological integrity at regional scales. Journal of the American Water Resources Association 43 (1): 5-14. Doi: 10.1111/j.1752-1688.2007.00002.

Freeman, M.C., and D.J. Stouder. 1989. Intraspecific interactions influence size specific depth distribution in Cottus bairdi. Environmental Biology of Fishes 24: 231-236.

Freeman, R.E., E.H. Stanley, and M.G. Turner. 2003. Analysis and conservation implications of landscape change in the Wisconsin River floodplain. Ecological Applications 13: 416-431.

Freitas, C.E., F.K. Siqueira-Souza, A.R. Guimaraes, F.A. Santos, and I.L. Santos. 2010. Interconnectedness during high water maintains similarity in fish assemblages of island floodplain lakes in the Amazonian Basin. Zoologia 27: 931-938. Doi: 10.1590/S1984-46702010000600014

Freitas, C.E., F.K. Siqueira-Souza, R. Humston, and L.E. Hurd. 2013. An initial assessment of drought sensitivity in Amazonian fish communities. Hydrobiologia 705: 159-171.

Fremling, C.R., J.L. Rasmussen, R.E. Sparks, et al. 1989. Mississippi River fisheries: a case history. Pp. 309-351 in: Dodge, D.P. (Ed.) Proceedings of the International Large Rivers Symposium. Can. Special Publ. Fish. Aquatic Sciences 106.

French, J.R., and N.J. Clifford. 2000. Hydrodynamic modeling as a basis for explaining estuarine environmental dynamics: some computational and methodological issues. Hydrological Processes 14: 2089-2108.

French, T.D., and P.A. Chambers. 1997. Reducing flows in the Nechako River (British Columbia, Canada): potential response of the macrophyte community. Canadian Journal of Fisheries and Aquatic Sciences 54: 2247-2254.

Frenette, M., M. Caron, and P. Julien. 1984. Interaction entre le debit et les populations de tacons (*Salmo salar*) de la riviere Matamec. Canadian Journal of Fisheries and Aquatic Sciences 41: 954‑963.

Freund, J.G., and K.J. Hartman. 2005. Largemouth bass habitat interactions among off-channel and main river habitats in an Ohio River navigation pool. Journal of Freshwater Ecology 20: 735-742.

Friedel, M.H., B.D. Foran, and D.M. Stafford Smith. 1990. Where the creeks run dry or ten feet high: pastoral management in arid Australia. P. Ecol. Soc. Aust. 16: 185-194.

Friedman, J.M., and G.T. Auble. 1999. Mortality of riparian box elder from sediment mobilization and extended inundation. Regulated Rivers: Research & Management 15 (5): 463-476.

Friedman, J.M., and G.T. Auble. 2000. Floods, flood control, and bottomland vegetation. Pp. 219-237 in: E. Wohl, editor, Inland flood hazards: human, riparian, and aquatic communities. Cambridge University Press, Cambridge, England.

Friedman, J.M., G.T. Auble, and M.L. Scott. 1995. Geomorphic requirements for establishment and maintenance of cottonwood forest. Pp. 80-88 *in*: Proceedings of the 46th annual meeting of the Great Plains Agricultural council Forestry Committee: Great Plains Agri. Council Pub. No. 149. Manhattan, KS.

Friedman, J.M., and V.J. Lee. 2002. Extreme floods, channel change, and riparian forests along ephemeral streams. Ecological Monographs 72: 409-425.

Friedman, J.M., W.R. Osterkamp, and W.R. Lewis, Jr. 1996. Channel narrowing and vegetation development following a Great Plains flood. Ecology 77: 2161-2181.

Friedman, J.M., W.R. Osterkamp, and W.R. Lewis, Jr. 1996. The role of vegetation and bed-level fluctuations in the process of channel narrowing. Geomorphology 14: 341-351.

Friedman, J.M., W.R. Osterkamp, M.L. Scott, and G.T. Auble. 1998. Downstream effects of dams on channel geometry and bottomland vegetation: Regional patterns in the Great Plains. Wetlands 18: 619-633.

Friedman, J.M., M.L. Scott, and G.T. Auble. 1997. Water management and cottonwood forest dynamics along prairie streams. Pp. 49-71 in: Ecology and Conservation of the Great Plains Vertebrates. Springer-Verlag, New York, NY.

Friesen, T.A., J.S. Vile, and A.L. Pribyl. 2007. Outmigration of juvenile Chinook salmon in the lower Willamette River, Oregon. Northwest Science 81 (3): 173-190.

Frimpong, E.A., and P.L. Angermeier. 2009. Fish traits: A database of ecological and life-history traits of freshwater fishes of the United States. Fisheries 34: 487-495.

Frissell, C. 1992. Cumulative effects of land use on salmon habitat in southwest Oregon coastal streams. Dissertation, Oregon State University, Corvallis.

Frissell, C.A., W.J. Liss, C.E. Warren, and M.D. Hurley. 1986. A hierarchical framework for stream habitat classification: viewing streams in a watershed context. Environmental Management 10: 199-214. Doi:10.1007/BFO1867358.

Frissel, C.A., and D.G. Lonzarich. 1996. Habitat use and competition among stream fishes. Pages 493-510 in: F.R. Hauer and G.A. Lamberti, editors. Methods in stream ecology. Academic Press, San Diego, California.

Fritz, K.B., and W.K. Dodds. 2004. Resistance and resilience of macroinvertebrate assemblages to drying and flood in a tallgrass prairie stream system. Hydrobiologia 527 (1): 99-112.

Fritz, K.B., and W.K. Dodds. 2005. Harshness: characterization of intermittent stream habitat over space and time. Mar. Freshw. Res. 56: 13-23.

Fritz, K.M., and J.W. Feminella. 2003. Substratum stability associated with the riverine macrophyte *Justicia americana*. Freshwater Biology 48: 1630-1639.

Fritz, K.M., B.R. Johnson, and D.M. Walters. 2008. Physical indicators of hydrologic permanence in forested headwater streams. J. N. Am. Benthol. Soc. 27: 690-704. Doi: 10.1899/07=117.1.

Fritz, K.M., W.R. Wenerick, and M.S. Kostich. 2013. A validation study of a rapid field-based rating system for discriminating among flow permanence classes of headwater streams in South Carolina. Environmental Management 52 (5): . doi: 10.1007/s00267-013-0158-x.

Fritze, H., I.T. Stewart, and E. Pebesma. 2011. Shifts in western North American snowmelt runoff regimes for the recent warm decades. Journal of Hydrometeorology 12: 989-1006.

Froend, R.H., and A.J. McComb. 1994. Distribution, productivity and reproductive phenology of emergent macrophytes in relation to water regimes at wetlands of Southwestern Australia. Australian Journal of Marine and Freshwater Research 45: 1491-1508.

Frost, P.C., L.E. Kinsman, C.A. Johnston, and J.H. Larson. 2009. Watershed discharge modulates relationships between landscape components and nutrient rations in stream seston. Ecology 90 (6): 1631-1640.

Fry, B. 2002. Conservative mixing of stable isotopes across estuarine salinity gradients: a conceptual framework for monitoring watershed influences on downstream fisheries production. Estuaries 25: 264-271.

Fryirs, K., A. Arthington, and J. Grove. 2008. Principles of river system condition assessment. Pages 100-118 in: G.J. Brierley and K.A, Fryirs (editors), River Futures: An Integrative Scientific Approach to River Repair, Island Press, Washington, D.C.

Fudge, T.S, K.G. Wautuer, R.E. Evans, and V.P. Palace. 2008. Effect of different levels of fine-sediment loading on the escapement success of rainbow trout fry from artificial redds. N. Am. J. Fish. Manage. 28 (3): 758-765. Doi: 10.1577/M07-084.1.

Fujimoto, M., J. Crossman, K.T. Scribner, and T.L. Marsh. 2013. Microbial community assembly and succession on lake sturgeon egg surfaces as a function of simulated spawning stream flow rate. Microbial Ecology 66: 500-511.

Fujiwara, M., M.S. Mohr, A. Freenberg, J.S. Foott, and J.L. Bartholomew. 2011. Effects of ceratomyxosis on population dynamics of Klamath fall-run Chinook salmon. Transactions of the American Fisheries Society 140 (5): 1380-1391. Doi: 10.1080/00028487.2011.621811

Fukushima, M. 2001. Salmonid habitat-geomorphology relationships in low-gradient streams. Ecology 82 (5): 1238-1246. Doi: 10.1890/0012-9658(2001)082[1238:SHGRIL]2.0.CO;2.

Fukushima, M., T.J. Quinn, and W.W. Smoker. 1998. Estimation of eggs lost from superimposed pink salmon (*Oncorhynchus gorbuscha*). Canadian Journal of Fisheries and Aquatic Sciences 55 (3): 618-625.

Fukushima, M., and W.W. Smoker. 1997. Determinants of stream life, spawning efficiency, and spawning habitat in pink salmon in the Auke Lake system, Alaska. Canadian Journal of Fisheries and Aquatic Sciences 54: 96-104. Doi: 10.1139/cjfas-54-1-96

Fukushima, M., and W.W. Smoker. 1998. Spawning habitat segregation of sympatric sockeye and pink salmon. Transactions of the American Fisheries Society 127 (2): 253-260. Doi:10.1577/1548-8659(1998)127<0253:SHSOSS>2.0.CO;2.

Fuller, R.K. 1981. Habitat utilization, invertebrate consumption, and movement by salmonid fishes under fluctuating flow conditions in the Big Lost River, Idaho. Master’s thesis, Idaho State University, Pocatello.

Fuller, R.L., S. Doyle, L. Levy, J. Owens, E. Shope, L. Vo, E. Wolyniak, M.J. Small, and M.W. Doyle. 2011. Impact of regulated releases on periphyton and macroinvertebrate communities: The dynamic relationship between hydrology and geomorphology in frequently flooded rivers. River Research and Applications 27 (5): 630-645. Doi: 10.1002/rra.1385

Fuller, R.L., C. Griego, J.D. Muehlbauer, J. Dennison, and M.W. Doyle. 2010. Response of stream macroinvertebrates in flow refugia and high-scour areas to a series of floods: a reciprocal replacement study. J. N. Am. Benthol. Soc. 29: 750.

Fullerton, A.H., K.M. Burnett, E.A. Steel, R.L. Flitcroft, G.R. Pess, B.E. Feist, C.E. Torgerson, D.J. Miller, and B.L. Sanderson. 2010. Hydrological connectivity for riverine fish: measurement challenges and research opportunities. Freshwater Biology 55: 2215-2237. Doi: 10.1111/j.1365-2747.2010.02448.x.

Fulton, J.W., C.R. Wagner, M.E. Rogers, and G.F. Zimmerman. 2010. Hydraulic modeling of mussel habitat at a bridge replacement site, Allegheny River, Pennsylvania, USA. Ecological Modelling 221: 540-554.

Furukawa-Tanaka, T. 1992. Optimal feeding position for stream fishes in relation to invertebrate drift. Humans and Nature 1: 63-81.

Fuselier, L., and D. Edds. 1994. Seasonal variation in habitat use by the Neosho madtom (Teleostei: Ictaluridae: *Noturus placidus*). Southwestern Naturalist 39: 217-223.

Fuselier, L., and D. Edds. 1995. An artificial riffle as restored habitat for the threatened Neosho madtom. North American Journal of Fisheries Management 15: 499-503.

Fuss, H.J. 1983. Age, growth, and instream movement of Olympic Peninsula coastal cutthroat trout, *Salmo clarki clarki*. Pp. 125-133 in: J.M. Walton and D.B. Houston (eds.), Proceedings of the Olympic Wild Fish Conference, March 23-25, 1983. Peninsula College, Port Angeles.

Gaboury, M., and J. Patalas. 1984. Influence of water level drawdown on the fish populations of Cross Lake, Manitoba. Canadian Journal of Fisheries and Aquatic Sciences 41: 118-125.

Gaeuman, D., J.C. Schmidt, and P.R. Wilcock. 2005. Complex channel responses to changes in stream flow and sediment supply on the lower Duchesne River, Utah. Geomorphology 64: 185-206.

Gaeta, J.W., G.G. Sass, and S.R. Carpenter. 2014. Drought-driven lake level decline: effects on coarse woody habitat and fishes. Canadian Journal of Fisheries and Aquatic Sciences 71 (2): 315-325. Doi: 10.1139/cjfas-2013-0451.

Gagen, C.J., R.W. Standage, and J.N. Stoeckel. 1998. Ouachita madtom (*Noturus lachneri*) metapopulation dynamics in intermittent Ouachita Mountain streams. Copeia 1998: 874-882.

Gagnon, P., S.W. Golladay, W.K. Michener, and M.C. Freeman. 2004. Drought response of freshwater mussels (Unionidae) in coastal plain tributaries of the Flint River basin, Georgia. Journal of Freshwater Ecology 19: 667-679.

Galat, D.L. 2008. Design of a naturalized flow regime – An example from the lower Missouri River, USA. Ecohydrology 1: 81-104.

Galat, D.L., L.H. Frederickson, D.D. Humburg, K.J. Bataille, J.R. Bodie, J. Dohrenwend, G.T. Gelwicks, J.E. Havel, D.L. Helmers, J.B. Hooker, J.R. Jones, M.F. Knowlton, J. Kubisiak, J. Mazourek, A.C. McColpin, R.B. Renken, and R.D. Semlitsch. 1998. Flooding to restore connectivity of regulated, large-river wetlands. BioScience 48: 721-733. Doi:10.2307/1313335.

Galat, D.L., and R. Lipkin. 2000. Restoring ecological integrity of great rivers: Historical hydrographs aid in defining reference conditions for the Missouri River. Hydrobiologia 422/423: 29-48.

Galbraith, H.S., D.E. Spooner, and C.C. Vaughn. 2010. Synergistic effects of regional climate patterns and local water management on freshwater mussel communities. Biological Conservation 143: 1175-1183.

Galbraith, H.S., and C.C. Vaughn. 2011. Effects of reservoir management on abundance, condition, parasitism and reproductive traits of downstream mussels. River Research and Applications 27 (2): 193-201. Doi: 10.1002/rra.1350

Galindo-Bect, M.S., E.P. Glenn, H.M. Page, L.A. Galindo-Bect, J.M., Hernandez-Ayon, R.L. Petty, and J. Garcia-Hernandez. 2000. Analysis of the Penaeid shrimp catch in the northern Gulf of California in relation to Colorado River discharge. Fishery Bulletin 98: 222-225.

Gallagher, A.F., Jr. 1979. An analysis of factors affecting brood year returns of wild stocks of Puget Sound chum (*Oncorhynchus keta*) and pink salmon (*Oncorhynchus gorbuscha*). Master’s thesis. University of Washington, Seattle.

Gallagher, S.P., and M.F. Gard. 1999. Relationship between chinook salmon (*Oncorhynchus* *tshawytscha*) redd densities and PHABSIM-predicted habitat in the Merced and Lower American rivers, California. Canadian Journal of Fisheries and Aquatic Sciences 56 (4): 570-577.

Gallagher, S.P., S. Thompson, and D.W. Wright. 2012. Identifying factors limiting coho salmon to inform stream restoration in coastal northern California. California Fish and Game 98: 185-201.

Galland, J. 1991. TELEMAC: a new numerical model for solving shallow water equations. Adv. Water Resour. 14: 138-148.

Gallart, F., N. Prat, E.M. Garcia-Roger, J. Lataron, M. Rieradevall, P. Llorens, G.G. Barbera, D. Brito, A.M. DeGirolamo, A. LoPorto, A. Buffagni, S. Erba, R. Neves, N.P. Nikolaidis, J.L. Perrin, E.P. Querner, J.M. Quinonero, M.G. Tournaud, O. Tzoraki, N. Skoulikidis, R. Gomez, M.M. Sanchez-Montoya, and J. Froebrich. 2012. A novel approach to analyzing the regimes of temporary streams in relation to their controls on the composition and structure of aquatic biota. Hydrol. Earth Sys. Sci. 16: 3165-3182.

Galuszka, D.M., and T.E. Kolb. 2002. Tree growth and regeneration response to climate and stream flow in a species-rich southwestern riparian forest. Western North American Naturalist 62: 266-279.

Gammelsrod, T. 1992. Variation in shrimp abundance on the Sofala Bank, Mozambique, and its relation to the Zambezi River runoff. Estuarine, Coastal and Shelf Science 35: 91-103.

Gamperl, A.K., K.J. Rodnick, H.A. Faust, E.C. Venn, M.T. Bennett, L.I. Crawshaw, E.R. Keeley, M.S. Powell, and H.W. Li. 2002. Metabolism, swimming performance, and tissue biochemistry of high desert redband trout (*Oncorhynchus mykiss* ssp.): evidence for phenotypic differences in physiologic function. Physiological and Biochemical Zoology 75: 413-431.

Gan, K., and T. McMahon. 1990. Variability of results from the use of PHABSIM in estimating habitat area. Regulated Rivers: Research and Management 5 (3): 233-239.

Gan, K., T. McMahon, and B.L. Finlayson. 1991. Analysis of periodicity in streamflow and rainfall data by Cldwell’s indices. Journal of Hydrology 123: 105-118.

Gangloff, M.M., and J.W. Feminella. 2007. Stream channel geomorphology influences mussel abundance in southern Appalachian streams, U.S.A. Freshwater Biology 52: 64-74.

Gangmark, H.A., and R.D. Brand. 1956. Further observations on stream survival of king salmon spawn. California Fish and Game 42: 37-49.

Gangopadhyay, S., and T. Pruitt. 2011. West-wide climate risk assessments: bias-corrected and spatially downscaled surface water projections. Bureau of Reclamation Technical Memorandum No. 86-68210-2011-01/ U.S. Department of Interior, Bureau of Reclamation, Denver, Colorado.

Gao, Y., R.M. Vogel, C.H. Kroll, N.L. Poff, and J.D. Olden. 2009. Development of representative indicators of hydrological alteration. Journal of Hydrology 274: 134-147.

Garcia, A., J.A. Juanes, C. Alvarez, J.A. Revilla, and R. Medina. 2010. Assessment of the response of a shallow macrotidal estuary to changes in hydrological and wastewater impacts through numerical modelling. Ecological Modelling 221: 1194-1208.

Garcia-Berthou, E. 2001. Size- and depth-dependent variation in habitat and diet of the common carp (*Cyprinus carpio*). Aquatic Sciences 63: 466-476.

Garcia de Emiliani, M.O. 1997. Effects of water level fluctuations on phytoplankton in a river-floodplain lake system (Parana River, Argentina). Hydrobiologia 357: 1-15.

Garcia de Jalon, D. 2003. The Spanish Experience On Determining Minimum Flow Regimes In Regulated Streams. Canadian Water Resources Journal 28 (2).

Garcia de Jalon, D., P. Sanchez, and J.A. Camargo. 1994. Downstream effects of a new hydropower impoundment on macrophytes, macroinvertebrate and fish communities. Regulated Rivers: Research and Management 9: 253-261.

Gard, M. 1997. Techniques for adjusting spawning depth habitat utilization curves for availability. Rivers 6 (2): 94-102.

Gard, M. 2005. Variability in flow-habitat relationships as a function of transect number for PHABSIM modeling. River Research and Applications 21: 1013-1019. Doi: 10.1002/rra.862

Gard, M.F. 2005. Ontogenetic microhabitat shifts in Sacramento Pikeminnow, *Ptychocheilus grandis*, reducing interspecific competition. Aquatic Ecology 39: 299-235.

Gard, M. 2006. Modeling changes in salmon spawning and rearing habitat associated with river channel restoration. International Journal of River Basin Management 4 (3): 201-211.

Gard, M. 2009. Demonstration flow assessment and 2-D modeling: perspectives based on instream flow studies and evaluation of restoration projects. Fisheries 34 (7): 320-329.

Gard, M. 2009. Comparison of spawning habitat predictions of PHABSIM and River2D models. International Journal of River Basin Management 7: 55-71. Doi: 10.1080/15715124.2009.9635370.

Gard, M.F. 2010. Response to Williams (2009) on Gard (2009): comparison of spawning habitat predictions of PHABSIM and River2D models. International Journal of River Basin Management 8: 121-125,

Gard, M.F. 2010. Flow-habitat relationships for spring and fall-run Chinook Salmon and steelhead/rainbow trout spawning in the Yuba River. U.S. Fish and Wildlife Service. Sacramento, CA. 92 pp.

Gard, M. 2013. Modeling changes in salmon habitat associated with river channel restoration and flow-induced channel alterations. River Research and Applications doi: 10.1002/rra.2642.

Gard, M., and E. Ballard. 2003. Application of new technologies to instream flow studies in large rivers. North American Journal of Fisheries Management 23 (4): 1114-1125.

Garland, R.D., K.F. Tiffan, D.W. Rondorf, and L.O. Clark. 2002. Comparison of subyearling fall chinook salmon’s use of riprap revetments and unaltered habitats in Lake Wallula of the Columbia River. North American Journal of Fisheries Management 22 (4): 1283-1289.

Garner, P. 1995. Suitability indices for juvenile 0+ roach (*Rutilus rutilus* L.) using point abundance sampling data. Regulated Rivers: Research and Management 10: 99-104.

Garner, P. 1997. Seasonal variation in the habitat available for 0+ *Rutilus rutilus* (L.) in a regulated river. Aquatic Conservation: Marine and Freshwater Ecosystems 7: 199-210.

Garner, P. 1999. Swimming ability and differential use of velocity patches by 0+ cyprinids. Ecology of Freshwater Fish 8: 55-58.

Garner, P., S. Clough, S.W. Griffiths, D. Deans, and A. Ibbotson. 1998. Use of shallow marginal habitat by Phoxinus Phoxinus: a trade-off between temperature and food? J. Fish Biol. 52 (3): 600-609. Doi: 10.1111/j.1095-8649.1998.tb02020.x.

Garnett, J.A., and D.P. Batzer. 2014, Longitudinal variation in community structure of floodplain fishes along two rivers of the southeastern USA. Canadian Journal of Fisheries and Aquatic sciences 71 (9): 1291-1302. Doi: 10.1139/cjfas-2013-0422.

Garric, C.M. 1990. An analysis of stream channel hydraulic geometry. M.S. thesis, Washington State University, Pullman.

Garshelis, D.L. 2000. Delusions in habitat evaluation: measuring use, selection, and importance. Pages 111-164 *in*: L. Boitani and T.K. Fuller, editors, Research Techniques in Animal Ecology: controversies and Consequences. Columbia University Press, New York.

Gasith, A., and V.H. Resh. 1999. Streams in Mediterranean climate regions: abiotic influences and biotic responses to predictable seasonal events. Annual Review of Ecology and Systematics 20: 51-81.

Gates, K.K., C.C. Vaughn, and J.P. Julian. 2015. Developing environmental flow recommendations for freshwater mussels using the biological traits of species guilds. Freshwater Biology 60 (4): 620-635. doi: 10.1111/fwb.12528.

Gates, K.K, and B.L. Kerans. 2013. Habitat use of an endemic mollusc assemblage in a hydrologically altered reach of the Snake River, USA. River Research and Applications 30: 976-986.

Gatz, A.J., Jr., M.J. Sale, and J.M. Loar. 1987. Habitat shifts in rainbow trout: competitive influences of brown trout. Oecologia 74: 7-19.

Gaudin, P. 2001. Habitat shifts in juvenile riverine fish. Large Rivers 12 (2-4): 393-408. (Suppl.)

Gaudin, P., and M. Heland. 1995. Strategies d’utilisation de l’habitat par les alevins post-emergents de truite commune (*Salmo trutta*) et de saumon atlantique (*Salmo salar*). Bull. Fr. Peche Piscic. 337/338/339: 199-206.

Gaudin, P., and P. Sempeski. 2001. The role of river bank habitat in the early life history of fish: the example of grayling, *Thymallus thymallus*. Ecohydrol. Hydrobiol. 1: 203-208.

Gauld, N.R., R.N.B. Campbell, and M.C. Lucas. 2013. Reduced flow impacts salmonid smolt emigration in a river with low-head weirs. Science of the Total Environment 458/460: 435-443.

Gebert, W.A., D.J. Graczyk, and W.R. Krug. 1987. Average annual runoff in the United States, 1951-1980. U.S. Geological Survey Hydrological Investigations Atlas HA-710.

Gebhardt, G.A. 1970. The influence of stream disturbance activity on aquatic organisms - a review. U.S. Department of the Interior, Bureau of Land Management, Salem, Oregon. 58 pp.

Gebhardt. K.A., C. Bohn, S. Jensen, and W.S. Platts. 1989. Use of hydrology in riparian classification. Pp. 53-60 in: R.E. Gresswell, B. Barton, and J.L. Kershner (eds.), Practical Approaches to Riparian Resource Management. U.S. Bureau of Land Management, Billings, MT.

Geddes, M.C., and J.T. Puckridge. 1989. Survival and growth of larval and juvenile native fish: the importance of the floodplain. Pp. 101-114 in: Proceedings of the workshop on native fish management. Murray-Darling Basin Commission, Canberra, Australia.

Geer, W.H. 1987. A method for treatment of data from the Instream Flow Incremental Methodology for instream flow determination. Pp. 1-26 in: J.F. Craig and J.B. Kemper, editors. Regulated Streams: Advances in Ecology. Plenum Press, New York and London.

Gehrke, P.C. 1991. Avoidance of inundated floodplain habitat by larvae of golden perch (*Macquaria ambigua* Richardson): Influence of water quality or food distribution? Marine and Freshwater Research 42: 707-719.

Gehrke, P.C. 1992. Diel abundance, migration and feeding of fish larvae (Eleotridae) in a floodplain billabong. Journal of Fish Biology 40: 695-707.

Gehrke, P.C., K.L. Astles, and J.H. Harris. 1999. Within-catchment effects of flow alteration on fish assemblages in the Hawkesbury-Nepean River system, Australia. Regulated Rivers: Research and Management 15: 181-198.

Gehrke, P.C., P. Brown, and C.B. Schiller. 1999. Australian native fish, river regulation and carp: The Paroo perspective. Pp. 101-116 *in*: R.T. Kingsford, editor. A free-flowing river: The ecology of the Paroo River. NSW National Parks and Wildlife Service, Hurstville, Australia.

Gehrke, P.C., P. Brown, C.B. Schiller, D.B. Moffatt, and A.M. Bruce. 1995. River regulation and fish communities in the Murray-Darling River system, Australia. Regulated Rivers: Research and Management 11: 363-375.

Gehrke, P.C., and J.H. Harris. 2001. Regional-scale effects of flow regulation on lowland riverine fish communities in New South Wales, Australia. Regulated Rivers: Research and Management 17: 369-391.

Geist, D.R. 2000. Hyporheic discharge of river water into fall chinook salmon (*Oncorhynchus tshawytscha*) spawning areas in the Hanford Reach, Columbia River. Canadian Journal of Fisheries and Aquatic Sciences 57 (8): 1647-1656.

Geist, D.R. 2005. Conceptual spawning habitat model to aid in ESA recovery plans for Snake river fall Chinook salmon. 2002-2003 Annual Report. Project No. 1199406900 Report DOE/BP-00000652-21. Bonneville Power Administration, Portland, OR.

Geist, D.R., E.V. Arntzen, C.J. Murray, K.E. McGrath, Y.-J. Bott, and T.P. Hanrahan. 2008. Influence of river level on temperature and hydraulic gradients in chum and fall Chinook salmon spawning areas downstream of Bonneville Dam, Columbia River. North American Journal of Fisheries Management 28 (1): 30-41.

Geist, D.R., R.S. Brown, V. Cullinan, S.R. Brink, K. Lepla, P. Bates, and J.A. Chandler. 2005. Movement, swimming speed, and oxygen consumption of juvenile white sturgeon in response to changing flow, water temperature, and light level in the Snake River, Idaho. Transactions of the American Fisheries Society 134 (4): 803-816.

Geist, D.R., and D.D. Dauble. 1998. Redd site selection and spawning habitat use by fall chinook salmon: the importance of geomorphic features in large rivers. Environmental Management 22: 655-669. Doi: 10.1007/s002679900137.

Geist, D.R., T.P. Hanrahan, E.V. Arntzen, G.A. McMichael, C.J. Murray, and Y.-J. Chien. 2002. Physicochemical characteristics of the hyporheic zone affect redd site selection by chum salmon and fall chinook salmon in the Columbia River. North American Journal of Fisheries Management 22 (4): 1077-1085. Doi: 10.1577/1548-8675(2002)022<1077:PCOTHZ>2.0.CO;2.

Geist, D.R., J. Jones, C.J. Murray, and D.D. Dauble. 2000. Suitability criteria analyzed at the spatial scale of redd clusters improved estimates of fall chinook salmon *(Oncorhynchus tshawytscha*) spawning habitat use in the Hanford Reach, Columbia River. Canadian Journal of Fisheries and Aquatic Sciences 57 (8): 1636-1646. Doi: 10.1139/cjfas-57-8-1636.

Geist, D.R., C.J. Murray, T. P. Hanrahan, and Y. Xie. 2008. A model of the effects of flow fluctuations on fall Chinook salmon spawning habitat availability in the Columbia River. North American Journal of Fisheries Management 28 (6): 1894-1910.

Gell, P., J. Tibby, F. Little, D. Baldwin, and G. Hancock. 2007. The impact of regulation and salinisation on floodplain lakes: the lower River Murray, Australia. Hydrobiologia 591: 135-146.

Gellis, A., R. Hereford, S.A. Schumm, and B.R. Hayes. 1991. Channel evolution and hydrologic variations in the Colorado River basin: Factors influencing sediment and salt loads. Journal of Hydrology 124: 317-344.

Gelwick, F.P., S. Akin, D.A. Arrington, and K.O. Winemiller. 2001. Fish assemblage structure in relation to environmental variation in a Texas Gulf coastal wetland. Estuaries 24 (2): 285-296. Doi: 10.2307/1352952.

Gelwick, F.P., M.S. Stock, and W.J. Matthews. 1997. Effects of fish, water depth, and predation risk on patch dynamics in a north-temperate river ecosystem. Oikos 80: 382-398.

Gendaszek, A.S., K. Burton, C.S. Magirl, and C.P. Konrad. 2018. Streambed scour of salmon spawning habitat in a regulated river influenced by management of peak discharge. Freshwater Biology 63 (8): 917-927. Doi: 10.1111/fwb.12987

Gendaszek, A.S., C.S. Magirl, and C.R. Czuba. 2012. Geomorphic response to flow regulation and channel and floodplain alteration in the gravel-bedded Cedar River, Washington, USA. Geomorphology 179: 258-268. doi: 10.1016/j.geomorph.2012.08.017.

Gende, S., T. Quinn, R. Hillborn, A. Hendry, and B. Dickerson. 2004. Brown bears selectively kill salmon with higher energy content but only in habitats that facilitate choice. Oikos 104: 518-528. Doi: 10.1111/j.0030-1299.2004.12762.x.

Genereux, D., and H. Hemond. 1990. Naturally occurring radon 222 as a tracer for streamflow generation: steady state methodology and field sample. Water Resour. Res. 26: 3065-3075.

George, S.D., B.P. Baldigo, A.J. Smith, and G.R. Robertson. 2015. Effects of extreme floods on trout populations and fish communities in a Catskill Mountain river. Freshwater Biology 60: 2511-2522. Doi: 10.1111/fwb.12577

Georgian, T., and J.H. Thorp. 1992. Effects of microhabitat selection on feeding rates of net-spinning caddisfly larvae. Ecology 73 (1): 229-240.

Gergel, S.E., M.D. Dixon, and M.G. Turner. 2002. Consequences of human-altered floods: levees, floods, and floodplain forests along the Wisconsin River. Ecological Applications 12 (6): 1744-1770.

Gerhardt, D.R., and W.A. Hubert. 1990. Spawning habitat of channel catfish in the Powder River system, Wyoming-Montana. Prairie Naturalist 22: 155-164.

Gerig, B., M.J. Dodrill, W.E. Pine III. 2014. Habitat selection and movement of adult humpback chub in the Colorado River in Grand Canyon, Arizona, during an experimental steady flow release. North American Journal of Fisheries Management 14 (1): 39-48. Doi: 10.1080/02755947.2013.847880.

Gerisch, M., A. Schanowski, W. Figura, B. Gerken, F. Dziock, and K. Henle. 2006. Carabid beetles (Coleoptera, Carabidae) as indicators of hydrological site conditions in floodplain grasslands. International Review of Hydrology 91: 326-340.

Gerken, J.D. 2009. Identification and characterization of inconnu spawning habitat un the Sulukna River, Alaska. Master’s thesis, University of Alaska, Fairbanks.

Gerrity, P.C., C.S. Guy, and W.M. Gardner. 2008. Habitat use of juvenile pallid sturgeon and shovelnose sturgeon with implications for water-level management in a downstream reservoir. North American Journal of Fisheries Management 28 (3): 832-843.

Gerten, D., H. Hoff, J. Rockstrom, J. Jagermeyr, M. Kummu, and A.V. Pastor. 2013. Towards a revised planetary boundary for consumptive freshwater use: Role of environmental flow requirements. Current Opinion in Environmental Sustainability 5: 551-558.

Ghanem, A., P. Steffler, F. Hicks, and C. Katapodis. 1994. Two-dimensional finite element modeling of physical fish habitat. Proceedings of the 1st International Symposium on Habitat Hydraulics. August 18-20, 1994. Trondheim, Norway.

Ghanem, A., P. Steffler, F. Hicks, and C. Katapodis. 1995. Dry area treatment for two-dimensional finite element shallow flow modeling. Proceedings of the 12th Canadian Hydrotechnical Conference, Ottawa.

Ghanem, A., P. Steffler, F. Hicks, and C. Katapodis. 1996. Two dimensional hydraulic simulation of physical conditions in flowing streams. Regulated Rivers: Research and Management 12: 185-200. Doi: 10.1002/(SICI)1099-1646(199603)12:2/3<185::AID.-RRR389>3.0.CO;2-4.

Ghassemi, F., and I. White. 2007. Inter=Basin Water Transfer: Case Studies from Australia, United States, Canada, China and India. Cambridge University Press, Cambridge, UK.

Giannico, G.R. 1996. Juvenile coho salmon habitat utilization and distribution in a suburban watershed: the Salmon River (Langley, B.C.). Doctoral dissertation. University of British Columbia, Vancouver.

Giannico, G.R. 2000. Habitat selection by juvenile coho salmon in response to food and woody debris manipulations in suburban and rural stream sections. Canadian Journal of Fisheries and Aquatic Sciences 57 (9): 1804‑1813.

Giannico, G.R., and M.C. Healey. 1998. Effects of flow and food on winter movements of juvenile coho salmon. Transactions of the American Fisheries Society 127 (4): 645-651.

Giannico, G.R., and M.C. Healey. 1999. Ideal free distribution theory as a tool to examine juvenile coho salmon (*Oncorhynchus kisutch*) habitat choice under different conditions of food abundance and cover. Canadian Journal of Fisheries and Aquatic Sciences 56 (12): 2362‑2373.

Gibbins, C.N., and R.M. Acornley. 2000. Salmonid habitat modeling studies and their contribution to the development of an ecologically acceptable release policy for Kielder reservoir, north-east England. Regulated Rivers: Research and Management 16 (3): 203-224.

Gibbins, C.N., and J. Heslop. 1998. An evaluation of water transfers as a mechanism for augmenting salmonid and grayling habitat in the River Wear, north-east England. Regulated Rivers: Research and Management 14> 357-382.

Gibbins, C.N., M.J. Jeffries, C. Soulsby, and R.M. Acornley. 2001. Developing ecologically acceptable flow regimes for regulated rivers: a case study of Kielder reservoir and the Kielder water transfer system. Fisheries Management and Ecology 8: 463-485.

Gibbins, C.N., M.J. Jeffries, C. Soulsby, and C.R.N. Elliott. 1996. Modelling instream flow needs: the effects of a water transfer scheme on macroinvertebrate communities in the receiving River Wear. Pages 432-443 in: M. Leclerc et al. (editor) Ecohydraulics 2000: Proceedings of the 2nd International Symposium on Habitat Hydraulics, Quebec, Canada, June 1996, Volume B. INRS-Eau

Gibbins, C.N., H.J. Moir, J.H. Webb, and C. Soulsby. 2002. Assessing discharge use by spawning Atlantic salmon: a comparison of discharge electivity indices and PHABSIM simulations. River Research and Applications 18: 383-395. Doi: 10.1002/rra.685.

Gibbins, C., J. Shellberg, H. Moir, and C. Soulsby. 2008. Hydrological influences on adult salmonid migration, spawning and embryo survival. Pages 195-223 in: D. Sear and P. DeVries, editors. Salmon spawning habitat in rivers: physical controls, biological responses and approaches to remediation. American Fisheries Society Symp. No. 65.

Gibbins, C., D. Vericat, and R.J. Batalla, 2007. When is stream invertebrate drift catastrophic? The role of hydraulics and sediment transport in initiating drift during flood events. Freshw. Biol. 52: 2369-2384. Doi: 10.1111/j.1365-2427.2007.01858.x.

Gibbins, C., D. Vericat, R.J. Batalla, and C.M. Gomez. 2007. Shaking and moving: low rates of sediment transport trigger mass drift of stream invertebrates. Canadian Journal of Fisheries and Aquatic Sciences 64 (1): 1-5. Doi: 10.1139/f06-181.

Giberson, D.J., and D. Caissie. 1998. Stream habitat hydraulics: interannual variability in three reaches of Catamaran Brook, New Brunswick. Canadian Journal of Fisheries and Aquatic Sciences 55 (2): 485-494.

Giberson, D.J., and R.J. Hall. 1988. Seasonal variation in faunal distribution within the sediments of a Canadian Shield stream, with emphasis on responses to spring floods. Canadian Journal of Fisheries and Aquatic Sciences 45: 1994-2002.

Gibson, C.A., J.L. Meyer, N.L. Poff, L.E. Hay, and A. Georgakakos. 2005. Flow regime alterations under changing climate in two river basins: implications for freshwater ecosystems. River Research and Applications 21 (8): 849-864.

Gibson, J.F., H.D. Bowlby, and P.G. Amiro. 2008. Are wild populations ideally distributed? Variations in density-dependent habitat use by age class in juvenile Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 65: 1667-1680.

Gibson, P.P., and J.D. Olden. 2014. Ecology, management, and conservation implications of North American beaver (*Castor canadensis*) in dryland streams. Aquatic Conservation: Marine and Freshwater Ecosystems 24: 391-409.

Gibson, R.J. 1966. Some factors influencing the distribution of brook trout and young Atlantic salmon. Journal of the Fisheries Research Board of Canada 23: 1977-1980.

Gibson, R.J. 1978. The behaviour of juvenile Atlantic salmon (*Salmo salar*) and brook trout (*Salvelinus fontinalis*) with regard to temperature and to water velocity. Transactions of the American Fisheries Society 107: 703-712.

Gibson, R.J. 1983. Water velocity as a factor in the change from aggressive to schooling behavior and subsequent migration of Atlantic salmon smolts (*Salmo salar*). Naturaliste can. (Rev. Ecol. Syst.) 110:143-148.

Gibson, R.J. 1988. Mechanisms regulating species composition, population structure, and production of stream salmonids: a review. Polskie Archiwum Hydrobiologii 35: 469-495.

Gibson, R.J. 1993. The Atlantic salmon in fresh water: spawning, rearing and production. Reviews in Fish Biology and Fisheries 3: 39-73.

Gibson, R.J. 2002. The effect of fluvial processes and habitat heterogeneity on distribution, growth and densities of juvenile Atlantic salmon (*Salmo salar* L.) with consequences on abundance of the adult fish. Ecology of Freshwater Fish 11: 207-222. Doi: 10.1034/j.1600-0633.2002.00022.x

Gibson, R.J., and R.A. Myers. 1988. Influence of seasonal river discharge on survival of juvenile Atlantic salmon, *Salmo salar*. Canadian Journal of Fisheries and Aquatic Sciences 45 (2): 344‑348. Doi: 10.1139/f88-040

Gibson, R.J., and G. Power. 1975. Selection by brook trout (*Salvelinus fontinalis*) and juvenile Atlantic salmon (*Salmo salar*) of shade related to water depth. Journal of the Fisheries Research Board of Canada 32: 1652‑1656.

Gibson, R.J, D.E. Stansbury, R.R. Whalen, and K.G. Hillier. 1993. Relative habitat use, and interspecific and intra-specific competition of brook trout (*Salvelinus fontinalis*) and juvenile Atlantic salmon (*Salmo salar*) in Newfoundland rivers. In: R.J. Gibson and R.E. Cutting (eds.), Production of juvenile Atlantic salmon, *Salmo salar*, in natural waters. Canadian Special Publication in Fisheries and Aquatic Sciences 118: 53-69.

Gibson-Reinemer, D.K., D.R. Stewart, M.W. Fritts, J.A. DeBoer, and A.F. Casper. 2016. Estimating the effects of environmental variables and gear type on the detection and occupancy of large-river fishes in a standardized sampling program using multiseason Bayesian mixture models. North American Journal of Fisheries Management 36 (6): 1445-1456. Doi: 10.1080/02755947.2016.1206642.

Gido, K.B., W.K. Dodds, and M.E. Eberle. 2010. Retrospective analysis of fish community change during a half-century of landuse and streamflow changes. Journal of the North American Benthological Society 29 (3): 970-987. Doi:10.1899/09-116.1.

Gido, K.B., J.A. Falke, R.M. Oakes, and K.J. Hase. 2006. Fish-habitat relations across spatial scales in prairie streams. In: R.M. Hughes, L. Wang, and P.W. Seelbach (editors), Landscape influences on stream habitats and biological assemblages. American Fisheries Society Symposium 48: 265-285.

Gido, K.B., and D.L. Propst. 1999. Habitat use and association of native and nonnative fishes in the San Juan River, New Mexico and Utah. Copeia 1999: 321-332. Doi:10.2307/1447478.

Gido, K.B., and D.L. Propst. 2012. Long-term dynamics of native and nonnative fishes in the San Juan River, New Mexico and Utah, under a partially managed flow regime. Transactions of the American Fisheries Society 141 (3): 645-659. Doi: 10.1080/00028487.2012.683471.

Gido, K.B., D.L. Propst, and M.C. Molles. 1997. Spatial and temporal variation of fish communities in secondary channels of the San Juan River, New Mexico and Utah. Environmental Biology of Fishes 49: 417-434.

Gido, K.B., D.L. Propst, J.B. Olden, and K.R. Bestgen. 2013. Multidecadal responses of native and introduced fishes to natural and altered flow regimes in the American Southwest. Canadian Journal of Fisheries and Aquatic Sciences 70 (4): 554-564. Doi: 10.1139/cjfas-2012-2012-0441.

Giger, R.D. 1973. Streamflow requirements of salmonids. Oregon Wildlife Commission, Job Final Report, Project Number AFS62-1, Portland, Oregon.

Giles, N., V. Phillips, and S. Barnard. 1991. Ecological Effects of Low Flows in Chalk Streams. Wiltshire Trust for Nature Conservation, Devizes.

Gillanders, G.M., and M.J. Kingsford. 2002. Impact of changes in flow of freshwater on estuarine and open coastal habitats and the associated organisms. Oceanography and Marine Biology: an Annual Review 40: 233-309.

Gillenwater, D., T. Granata, and U. Zika. 2006. GIS-based modeling of spawning habitat suitability for walleye in the Sandusky River, Ohio, and implications for dam removal and river restoration.

References and further reading may be available for this article. To view references and further reading you must [purchase](http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6VFB-4M6455R-2&_user=10&_coverDate=12%2F01%2F2006&_rdoc=1&_fmt=full&_orig=search&_cdi=6006&_sort=d&_docanchor=&view=c&_searchStrId=1122522508&_rerunOrigin=google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=b122b04c9e23c9c08034349c6c5703d9) this article.

Ecological Engineering 28: 311-323. (<http://alpha.es.umb.edu/~david.tenenbaum/eeos465/gillenwater.pdf>

Gillespie, B.M., and J.R. Giardino. 1996. Determining migratory activity index for a river: an example from the Brazos River, Texas. Zeitschrift fur Geomorphology 40: 417-428.

Gillespie, B.M., and J.R. Giardino. 1997. The nature of channel platform change: Brazos River, Texas. Texas Journal of Science 49: 109-142.

Gillespie, B.R., S. Desmet, P. Kay, M.R. Tillotson, and L.E. Brown. 2015. A critical analysis of regulated river ecosystem responses to managed environmental flows from reservoirs. Freshwater Biology 60: 410-425. Doi: 10.1111/fwb.12506

Gillette, D.P, J.S. Tiemann, D.R. Edds, and M.L. Wildhaber. 2006. Habitat use by a midwestern USA riverine fish assemblage: effects of season, water temperature, and river discharge. Journal of Fish Biology 68: 1494-1512.

Gilliam, J.F., and D.F. Fraser. 1987. Habitat selection under predation hazard: test of a model with foraging minnows. Ecology 68: 1856-1862. Doi: 10.2307/1939877.

Gillilan, D.M., and T.C. Brown. 1997. Instream flow protection: seeking a balance in western water use. Island Press, Covelo, CA, and Washington, DC.

Gillson, J. 2011. Freshwater flow and fisheries production in estuarine and coastal systems: where a drop of rain is not lost. Reviews in Fisheries Science 19: 168-186.

Gilvear, D.J. 1994. River flow regulation. Pages 463-487 in: P.J. Maitlan, P.J. Boon, and D.S. McLuskey, editors. The Freshwaters of Scotland: A Natural Resource of International Significance. Wiley, Chichester.

Gilyear, D,J., K.V. Heal, and A. Stephen. 2002. Hydrology and the ecological quality of Scottish river ecosystems. Sci. Total Environ. 294 (1-3): 131-159. Doi: 10.1016/S0048-9697(02)000060-8.

Gilvear, D.J, T.M. Waters, and A.M. Milner. 1995. Image analysis of aerial photography to quantify changes on channel morphology and instream habitat following placer mining in interior Alaska. Freshwater Biology 34 (2): 389-398.

Ginot, V. 1995. EVHA, un logiciel d’evaluation de l’habitat du poisson sous Windows. Bulletin Francais de la Peche et de la Pisciculture 337/338/339: 303-308.

Ginot, V. 1998. Logiciel EVHA: Evaluation de l’habitat physique des poissons en riviere (version 2.0). Cemagref Lyon BEA/LHQ et Ministere de l’amenagement du Territoire et de l’Environment, Direction de l’Eau, Paris.

Giorgi, A.E., T.W. Hillman, J.R. Stevenson, S.G. Hays, and Peven. 1997. Factors that influence the downstream migration rates of juvenile salmon and steelhead through the hydroelectric system. North American Journal of Fisheries Management 17 (2): 268-282.

Giorgi, F. and P. Lionello. 2008. Climate change projections for the Mediterranean region. Global and Planetary Change 63: 90-104.

Gippel, C.J. 1995. Environmental hydraulics of large woody debris in streams and rivers, Journal of Environmental Engineering 121 (5): 388-395.

Gippel, C.J. 2001. Australia’s environmental flow initiative: filling some knowledge gaps and exposing others. Water Science and Technology 43: 73-88.

Gippel, C.J. 2005. Environmental flows: managing hydrological environments. Pp. 1-19 in: M.G. Anderson (editor), Encyclopedia of Hydrological Sciences. John Wiley and Sons, New York.

Gippel, C.J., N.R. Bond, C. James, and W. Xiqin. 2009. An asset–based, holistc, environmental flows assessment approach. International Journal of Water Resources Development 25: 301-330.

Gippel, C.J., M. Cosier, S. Markar, and C. Liu. 2009. Balancing environmental flows needs and water supply reliability. International Journal of Water Resources Development 25: 331-353.

Gippel, C.J., and R. Speed. 2010. Environmental flow assessment framework and methods, including environmental asset identification and water re-allocation. ACEDP Australia-China Environment Development Partnership, River Health and Environmental Flow in China. International water Center, Brisbane.

Gippel, C.J., and M.J. Stewardson. 1995. Development of an environmental flow management strategy for the Thomson River, Victoria, Australia. Regulated Rivers 10: 121-135.

Gippel, C.J., and M.J. Stewardson. 1998. Use of wetted perimeter in defining minimum environmental flows. Regulated Rivers: Research and Management 14: 53-67.

Girard, I.L., J.W.A. Grant, and S.O. Steingimsson. 2004. Foraging, growth, and loss rate of young-of-the-year Atlantic salmon (*Salmo salar*) in relation to habitat use in Catamaran Brook, New Brunswick. Canadian Journal of Fisheries and Aquatic Sciences 61 (12): 2339-2349. Doi: 10.1139/f04-216.

Girard, P., D. Boisclair, and M. Leclerc. 2003. The effect of cloud cover on the development of habitat quality indices for juvenile Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 60 (11): 1386-1397.

Gislason, J.C. 1980. Effects of flow fluctuations due to hydroelectric peaking on benthic insects and periphyton of the Skagit River, Washington. Doctoral dissertation, University of Washington, Seattle.

Gislason, J.C. 1985. Aquatic insect abundance in a regulated stream under fluctuating and stable diel flows. North American Journal of Fisheries Management 5 (1): 39-46.

Gladden, J.E., and L.A. Smock. 1990. Macroinvertebrate distribution and production on the floodplains of two lowland headwater streams. Freshwater Biology 24: 533-545.

Glantz, M.H. (Editor). 1992. Climate variability, climate change and fisheries. Cambridge University Press, Cambridge, U.K.

Glasgow, K.J. 1999. Effects of river regulation by a water storage dam on the growth and condition of *Oncorhynchus mykiss*. Master's thesis, University of Washington. Seattle, WA. 105 pp. (cf. <http://water.washington.edu/Theses/glasgow.html>).

Gleason, C.J. 2015. Hydraulic geometry of natural rivers: a review and future directions. Prog. Phys. Geogr. 39: 337-360. Doi: 10.1177/0309133314567584.

Gleeson, T., and B. Richter. 2017. How much groundwater can we pump and protect environmental flows through time? Presumptive standards for conjunctive management of aquifers and rivers. River Research and Applications 2017: 1-10. Doi: 10.1002/rra.3185

Gleick, P.H., and E.L. Chalecki. 1999. The impacts of climatic changes for water resources of the Colorado and Sacramento-San Joaquin River Basins. Journal of the American Water Resources Association 35: 1049-1061.

Gleick, P.H., and M. Palaniappan. 2010. Peak water limits to freshwater withdrawal and use. Proc. Natl. Acad. Sci. U.S.A. 107 (25): 11155-11162. Doi: 10.1073/pnas.1004812107.

Glenn, E.P., C. Lee, R. Felger, and S. Zengel. 1996. Effects of water management on the wetlands of the Colorado River delta, Mexico. Conservation Biology 10: 1175-1186.

Glenn, E.P., P.L. Nagler, P.B. Shafroth, and C.J. Jarchow. 2017. Effectiveness of environmental flows for riparian restoration in arid regions: A tale of four rivers. Ecological Engineering 105: 695-703.

Glova, G.L. 1986. Interactions for food and space between experimental populations of juvenile coho salmon (*Oncorhynchus kisutch*) and coastal cutthroat trout (*Salmo clarki*) in a laboratory stream. Hydrobiologia 131: 155-168. Doi: 10.1007/BF00006779.

Glova, G.J., and M.J. Duncan. 1985. Potential effects of reduced flows on fish habitats in a large braided river, New Zealand. Transactions of the American Fisheries Society 114 (2): 165-181.

Glova, G.J., and J.C. Mason. 1974. Interactive ecology of juvenile salmon and trout in streams. I. Progress during 1973. Fisheries Research Board of Canada, Manuscript Report.

Glova, G.J., and J.C. Mason. 1977. Interactions for food and space between sympatric populations of juvenile coho salmon and coastal cutthroat trout in a stream simulator during spring. Fisheries and Marine Resources of Canada, Manuscript Report 1429, Nanaimo, Canada. 36 pp.

Glova, G.J., and J.E. McInerney. 1977. Critical swimming speeds of coho salmon (*Oncorhynchus kisutch*) fry to smolt stages in relation to salinity and temperature. Journal of Fisheries Research Board of Canada 34: 151-154.

Glover, D.C., D.R. DeVries, and R.A. Wright. 2013. Growth of largemouth bass in a dynamic estuarine environment: an evaluation of the relative effects of salinity, diet, and temperature. Canadian Journal of Fisheries and Aquatic Sciences 70 (3): 485-501. Doi: dx.doi.org/10.1139/cjfas-2012-0295

Glozier, N.E., J.M. Culp, and G.J. Scrimgeour. 1997. Transferability of habitat suitability curves for a benthic minnow, *Rhinichthys cataractae*. Journal of Freshwater Ecology 12 (3): 379-393.

Goble, C.W., N.A. Auer, C.J. Huckins, B.M. Danhoff, J.M. Holtgren, and S.A. Ogren. 2018. Fish distributions and habitat associations in Manistee River, Michigan, tributaries: implications for Arctic grayling restoration. North American Journal of Fosjeroes Management 38 (2): 469-486. Doi: 10.1002/nafm.10049

Goclowski, M.R., A.J. Kaeser, and S.M. Sammons. 2013. Movement and habitat differentiation among adult shoal bass, largemouth bass, and spotted bass in the upper Flint River, Georgia. North American Journal of Fisheries Management 33 (1): 56-70. Doi: 10.1080/02755947.2012.741555.

Godin, J.‑G.J. 1980. Temporal aspects of juvenile pink salmon (*Oncorhynchus keta* Walbaum) emergence from a simulated gravel redd. Canadian Journal of Zoology 58: 735‑744.

Godin, J.J., and R.W. Rangeley. 1989. Living in the fast lane: effects of cost of locomotion on foraging behaviour in juvenile Atlantic salmon. Animal Behaviour 37: 943-954.

Godsey, S.E., J.W. Kirchner, and C.L. Tague. 2014. Effects of changes in winter snowpacks on summer low flows: case studies in the Sierra Nevada, California, USA. Hydrological Processes 28: 5048-5064. Doi: 10.1002/hyp.9943

Goertler, P., K. Jones, J. Cordell, B. Schreier, and T. Sommers. 2018. Effects of extreme hydrologic regimes on juvenile Chinook salmon prey resources and diet composition in a large river floodplain. Transactions of the American Fisheries Society 147 (2): 287-299. Doi: 10.1002/tafs.10028.

Goertler, P.A.L., J. Frantzichl, B.M. Schreier, and T.R. Sommers. 2016. Juvenile Chinook salmon (*Oncorhynchus tshawytscha*) occupy the Yolo Bypass in relatively high numbers during an extreme drought. IEP Newsletter 28: 19-29.

Goetz, F.A. 1997. Habitat use of juvenile bull trout in Cascade Mountain streams of Oregon and Washington. Pp. 339-351 *in*: W.C. MacKay, M.K. Brewin, and M. Monita, editors. Friends of the Bull Trout conference proceedings. American Fisheries Society, Oregon Chapter, Corvallis.

Goldstein, R.M. 2009. Interpreting stream physical characteristics in index of biotic integrity classifications: general similarities and specific differences. North American Journal of Fisheries Management 29 (1): 151-162. Doi:10.1577/M07-138.1.

Goldstein, R.M., and M.R. Meador. 2004. Comparison of fish species traits from small streams to large rivers. Transactions of the American Fisheries Society 133: 971-983.

Goldstein, R.M., M.R. Meador, and K.E. Ruhl. 2007. Relative influence of streamflows in assessing temporal variability in stream habitat. Journal of the American Water Resources Association 43: 1-9.

Goldstein, R.M., L. Wang, T.P. Simon, and P.M. Stewart. 2002. Development of a stream habitat index for the Northern Lakes and Forests Ecoregion. North American Journal of Fisheries Management 22: 452-464.

Golet, F.C., and D.J. Lowry. 1987. Water regimes and tree growth in Rhode Island Atlantic white cedar swamps. Pages 91-110 in A.D. Laderman, editor. Atlantic white cedar wetlands. Westview Press, Boulder, CO, USA.

Golladay, S.W., J.M. Battle, and B.J. Palik. 2007. Large wood debris recruitment on differing riparian landforms along a Gulf Coastal Plain (USA) stream: a comparison of large floods and average flows. River Research and Applications 23 (4): 391-405.

Golladay, S.W., P. Gagnon, M. Kearns, J.M. Battle, and D.W. Hicks. 2004. Response of freshwater mussel assemblages (Bivalvia: Unionidae) to a record drought in the Gulf coastal plain of southwestern Georgia. Journal of the North American Benthological Society 23: 494-509.

Golladay, S.W., K. Watt, S. Entrekin, and J. Battle. 2000. Hydrologic and geomorphic controls on suspended particulate organic matter concentration and transport in Ichawaynochaway Creek, Georgia, USA. Archiv fur Hydrobiologie 149: 655-678.

Gomes, L., and A. Agostinho. 1997. Influence of the flooding regime on the nutritional state and juvenile recruitment of the curimba, Prochilodus scrofa, Steindachner, in upper Parana River, Brazil. Fisheries Management and Ecology 4: 263-274.

Gomez, B., R.L. Naff, and D.W. Hubbell. 1989. Temporal variations in bedload transport rates associated with the migration of bedforms. Earth Surface Processes and Landforms 14: 135-156.

Good, S.P., J.J. Dodson, M.G. Meekan, and D.A.J. Ryan. 2001. Annual variation in size-selective mortality of Atlantic salmon (Salmo salar) fry. Canadian Journal of Fisheries and Aquatic Sciences 58: 1187-1195.

Goode, J.R., J.M. Buffington, D. Tonina, D.J. Isaak, R.F. Thurow, S. Wenger, D. Nagel, C. Luce, D. Tetzlaff, and C. Soulsby. 2013. Potential effects of climate change on streambed scour and risks to salmonid survival in snow-dominated mountain basins. Hydrol. Process. 27 (5): 750-765. Doi: 10.1002/hyp.9728.

Goodson, J.M., A.M. Gurnell, P.G. Angold, and I.P. Morrissey. 2003. Evidence for hydrochory and the deposition of viable seeds within winter flow-deposited sediments: the River Dove. River Research and Applications 19 (4): 317-334.

Goodwin, C.E., J.T.A. Dick, D.L. Rogowski, and R.W. Elwood. 2008. Lamprey (Lampetra fluviatilis and Lampetra Planeri) ammocoete habitat associations at regional, catchment, and microhabitat scales in Northern Ireland. Ecol. Freshw. Fish. 17: 542-553. Doi: 10.1111/j.1600-0633.2008.00305.x.

Gopal, B., editor 2013. Environmental flows: An introduction for water resources managers. National Institute of Ecology, New Delhi.

Gopal, B. 2013. Methodologies for the assessment of environmental flows. Pages 129-182 in: Gopal, B. editor. Environmental flows: An introduction for water resources managers. National Institute of Ecology, New Delhi.

Gordon, E., and R.K. Meentemeyer. 2004. Effects of dam operation and land use on stream channel morphology and riparian vegetation. Geomorphology 82: 412-429.

Gordon, L.J., G.D. Peterson, and E.M. Bennett. 2008. Agricultural modifications of hydrological flows create ecological surprises. Trends in Ecololgy & Evolution 23: 211-219.

Gordon, N.D., T.A. McMahon, and B.L. Finlayson. 1992. Stream hydrology: An introduction for ecologists. John Wiley and Sons, New York and Toronto. 526 pp.

Gore, J.A. 1977. Reservoir manipulation and benthic macroinvertebrates in a prairie river. Hydrobiologia 55: 113-123. Doi: 10.1007/BF00021052.

Gore, J.A. 1978. A technique for predicting in-stream flow requirements of benthic macroinvertebrates. Freshwater Biol. 8: 141-151.

Gore, J.A. 1987. Development and applications of macroinvertebrate instream flow models for regulated flow management. Pp. 99-116 in: Craig, J.F., and J.B. Kemper (eds.), Regulated streams, Advances in Ecology. Plenum Press, New York & London.

Gore, J.A. 1989. Models for predicting benthic macroinvertebrate habitat suitability under regulated flows. Pp. 254-265 *in*: Gore, J.A. and G.E. Petts (Eds.) Alternatives in Regulated River Management. CRC Press, Boca Raton, Florida.

Gore, J.A. 1996. Response of aquatic biota to hydrological change. Pages 209-230 in: G.E. Petts and P. Calow (editors), River Biota: Diversity and Dynamics. Blackwell Science, Oxford.

Gore, J.A., D.J. Crawford, and D.S. Addison. 1998. An analysis of artificial riffles and enhancement of benthic community diversity by physical habitat simulation (PHABSIM) and direct observation. Regulated Rivers Research and Management 14: 69-77.doi: 10.1002/(SICI)1099-1646(199801/02)14:1<69::AID-RRR477>3.0.CO;2-D.

Gore, J.A., and S.W. Hamilton. 1996. Comparison of flow-related habitat evaluations downstream of low-head weirs on small and large fluvial ecosystems. Regulated Rivers Research and Management 12: 459-469.

Gore, J.A., and R.D. Judy, Jr. 1981. Predictive models of benthic macroinvertebrate density for use in instream flow studies and regulated flow management. Canadian Journal of Fisheries and Aquatic Sciences 38: 1363-1370.

Gore, J.A., J.M. King, and K.C.D. Hamman. 1991. Application of the Instream Flow Incremental Methodology to South African river: protecting endemic fishes of the Olifants River. Water SA 17 (3): 225-236.

Gore, J.A., J.B. Layzer, and J. Mead. 2001. Macroinvertebrate instream flow studies after 20 years: a role in stream management and restoration. Regulated Rivers: Research and Management 17: 527-542. Doi: 10.1002/rrr.650.

Gore, J.A., J.B. Layzer, and I.A. Russell. 1992. Non-traditional applications of instream flow techniques for conserving habitat of biota in the Sabie River of southern Africa. Pages 161-177 in: P.J. Boon, P. Calow, and G.E. Petts, editors. River conservation and management. Wiley, New York.

Gore, J.A., and J.M. Nestler. 1988. Instream flow studies in perspective. Regulated Rivers: Research & Management 2: 93-101.

Gore, J.A., J.M. Nestler, and J.B. Layzer. 1989. Instream flow predictions and management options for biota affected by peaking-power hydroelectric operations. Regul. Rivers Res. Manage. 3: 35-48. Doi: 10.1002/rrr.3450030106.

Gore, J.A., S. Niemela, B. Statzner, and V.H. Resh. 1994. Near substrate hydraulic conditions under artificial floods from peaking hydropower operation: disturbance intensity and duration. Regulated Rivers: Research and Management 9: 15-34. Doi: 10.1002/rrr.345090103.

Gore, J.A., and G.E. Petts, editors. 1989. Alternatives in Regulated River Management. CRC Press, Boca Raton, L.

Gore, J.A., and F.D. Shields, Jr. 1995. Can large rivers be restored? BioScience 45: 142-152.

Gorman, O.T. 1978. Habitat structure and stream fish communities. Ecology 59: 507-515.

Gorman, O.T. 1987. Habitat segregation in an assemblage of minnows in an Ozark stream. Pages 33-41 in: W.J. Matthews and D. Heins, editors, Community and evolutionary ecology of North American stream fishes. University of Oklahoma Press, Norman, Oklahoma, USA.

Gorman, O.T. 1988. The dynamics of habitat use in a guild of Ozark minnows. Ecological Monographs 58: 1-18.

Gorman, O.T. 1988. An experimental study of habitat use in an assemblage of Ozark minnows. Ecology 69: 1239-1250.

Gorman, O.T., and J.R. Karr. 1978. Habitat structure and stream fish communities. Ecology 59: 507-515.

Gorski, K., J.J. De Leeuw, H.V. Winter, D.A. Vekhov, A.E. Minin, A.D. Buijse, and L.A.J. Nagelkerke. 2011. Fish recruitment in a large temperate floodplain: the importance of annual flooding, temperature, and habitat complexity. Freshwater Biology 56: 2210-2225.

Gosling, S.N., and N.W. Arnell. 2016. A global assessment of the impact of climate change on water scarcity. Climatic Change 134: 371-385.

Gosse, J.C., and W.T. Helm. 1982. A method for measuring microhabitat components for lotic fishes and its application with regard to brown trout. Pages 138-149 in: N.B. Armantrout, editor, Acquisition and utilization of aquatic habitat inventory information. Portland, OR: American Fisheries Society, Western Division.

Goto, D., M.J. Hamel, J.J. Hammen, M.L. Rugg, M.A. Pegg, and V.E. Forbes. 2015. Spatiotemporal variation in flow-dependent recruitment of long-lived riverine fish: model development and evaluation. Ecological Modelling 296: 79-92.

Gottesfeld, A.S., M.A. Hassan, J.F. Tunnicliffe, and R.W. Poirier. 2004. Sediment dispersion in salmon spawning streams: the influence of floods and salmon redd construction. Journal of the American Water Resources Association 40 (4): 1071-1086. Doi:10.1111/j.1752-1688.2004.tb01068.x.

Gough, H.M., A.M.G. Landis, and J.A. Stoeckel. 2012. Behaviour and physiology are linked in the responses of freshwater mussels to drought. Freshwater Biology 57: 2356-2366.

Goulding, M., N.J.H. Smith, and D.J. Mahar. 1996. Floods of Fortune: Ecology and Economy along the Amazon. Columbia University Press, New York.

Gouldsbra, C.S., J.B. Lindsay, and M.G. Evans. 2009. A new approach to the application of electrical resistance sensors to measuring the onset of ephemeral streamflow in wetland environments. Water Resources Research 45: W09501.

Gouraud, V., J.L. Bagliniere, P. Baran, C. Sabaton, P. Lim, and D. Ombredane. 2001. Factors regulating brown trout populations in two French rivers: application of a dynamic population model. Regulated Rivers: Research and Management 17: 557-569.

Gouraud, V., H. Capra, C. Sabaton, L. Tissot, P. Lim, F. Vandewalle, G. Fahrner, and Y. Souchon. 2008. Long-term simulations of the dynamics of trout populations on river reaches bypassed by hydroelectric installations – analysis of the impact of different hydrological scenarios. River Research and Applications 24: 1185-1205. Doi: 10.1002/rra.1129

Gouraud, V., C. Sabaton, and H. Capra. 2004. Role of habitat variability in trout population dynamics: Application of a dynamic population model to three French rivers. Hydroecologie Appliquee 14 (1): 221-244.

Govoni, J.J. 1997. The association of the population recruitment of Gulf menhaden, *Brevoortia patronus*, with Mississippi River discharge. Journal of Marine Systems 12: 101-108.

Gowan, C. 1984. The impacts of irrigation water withdrawals on brown trout (*Salmo trutta*) and two species of benthic macroinvertebrates in a typical southern Michigan stream. Master's thesis. Michigan State University, East Lansing.

Gowan, C. 2007. Short-term cues used by foraging trout in a California stream. Environmental Biology of Fishes 78 (4): 317-331. Doi:10.1007/s10641-006-9099-z.

Gowan, C.G., and K.D. Fausch. 1996. Long-term demographic responses of trout populations to habitat manipulation in six Colorado streams. Ecological Applications 6 (3): 931-946. Doi:10.2307/2269496.

Gowan, C., and K.D. Fausch. 2002. Why do foraging stream salmonids move during summer? Environmental Biology of Fishes 64 (1/3): 139-153. Doi:10.1023/A:1016010723609.

Grabowski, T.B., and J.J. Isely. 2006. Seasonal and diel movements and habitat use of robust redhorses in the lower Savannah River, Georgia and South Carolina. Transactions of the American Fisheries Society 135:1145-1155.

Grabowski, T.B., and J.J. Isely. 2007. Spatial and temporal segregation of spawning habitat by catostomids in the Savannah River, Georgia and South Carolina, U.S.A. Journal of Fish Biology 70: 782-798.

Grabowski, T.B., and J.J. Isely. 2007. Effects of flow fluctuations on the spawning habitat of a riverine fish. Southwestern Naturalist 6: 471-478.

Grabowski, T.B., and C.A. Jennings. 2009. Post-release movements and habitat use of robust redhorse transplanted to the Ocmulgee River, Georgia. Aquatic Conservation 19: 170-177.

Grabowski, T.B., S.P. Young, J.J. Isely, and P.C. Ely. 2012. Age, growth, and reproductive biology of three catostomids from the Apalachicola River, Florida. Journal of Fish and Wildlife Management doi: http://dx,doi.org/10.3996/012012-JFWM-008.

Graeber, D., M.T. Pusch, S. Lorenz, and M. Brauns. 2013. Cascading effects of flow reduction on the benthic invertebrate community in a lowland river. Hydrobiologica 717: 147-159.

Graf, W.L. 1978. Fluvial adjustments to the spread of tamarisk on the Colorado Plateau region. Bulletin of the Geographical Society of America 89: 1491-1501.

Graf, W.L. 1988. Fluvial processes in dryland rivers. Springer-Verlag, Berlin, Germany.

Graf, W.L. 1999. Dam nation: a geographic census of American dams and their large-scale hydrologic impacts. Water Resour. Res. 35: 1305-1311.

Graf, W.L. 2006. Downstream hydrologic and geomorphic effects of large dams on American rivers. Geomorphology 79: 336-360.

Grafton, R.Q., J. Pittock, R. Davis, J. Williams, G. Fu, M. Warburton, et al. 2012. Global insights into water resources, climate change and governance. Nat. Clim. Change 3: 315-321. Doi: 10.1038/nclimate1746

Graham, R.J., and D.J. Orth. 1986. Effects of temperature and streamflow on time and duration of spawning by smallmouth bass. Transactions of the American Fisheries Society 115 (5): 693-702.

Graham, W.D., J.E. Thorpe, and N.B. Metcalfe. 1996. Seasonal current holding performance of juvenile Atlantic salmon in relation to temperature and smolting. Canadian Journal of Fisheries and Aquatic Sciences 53 (1): 80-86. Doi: 10.1139/f95-167.

Grams, P.E., and J.C. Schmidt. 2002. Streamflow regulation and multi-level flood plain formation: channel narrowing on the aggrading Green River in the eastern Uinta Mountains, Colorado and Utah. Geomorphology 44: 337-360. Doi: 10.1016/S0169-555X(01)00182-9.

Grams, P.E., J.C. Schmidt, and M.E. Anderson. 2010. 2008 high-flow experiment at Glen Canyon Dam: morphologic response of eddy-deposited sandbars and associated backwater habitats along the Colorado River in Grand Canyon National Park. U.S. Geological Survey Open-File Report 2010-1032.

Gran, K., and C. Paola. 2001. Riparian vegetation controls on braided stream dynamics. Water Resources Research 37 (12): 3275-3284.

Grand, T.C. 1997. Foraging site selection by juvenile coho salmon: ideal free distributions of unequal competitors. Animal Behaviour 53 (1): 185-196.

Grand, T.C., and L.M. Dill. 1997. The energetic equivalence of cover to juvenile coho salmon (*Oncorhynchus kisutch*): ideal free distribution theory applied. Behav. Ecol. 47: 469-471. Doi: 10.1093/beheco/8.4.437.

Grange, N., and P.R. Allanson. 1995. The influence of freshwater inflow on the nature, amount and distribution of seston in estuaries of the Eastern Cape, South Africa. Estuarine, Coastal and Shelf Science 40: 403-420.

Grange, N., A.K. Whitfield, C.J. De Villiers, and P.R. Allanson. 2000. The response of two South African east coast estuaries to altered river flow regimes. Aquatic Conservation: Freshwater and Marine Ecosystems 10: 155-177.

Grant, D.E., F.J. Swanson, and M.G. Wolman. 1990. Pattern and origin of stepped-bed morphology in high-gradient streams, western Cascades, Oregon. Geological Society of America Bulletin 102: 340-352.

Grant, E.H., H.J. Lynch, R. Muneepeerakul, et al. 2012. Interbasin water transfer, riverine connectivity, and spatial controls on fish biodiversity. PLoS ONE 7: e34170.

Grant, G.E., J.C. Schmidt, and S.L. Lewis. 2003. A geological framework for interpreting downstream effects of dams on rivers. In: J.E. O’Connor and G.E. Grant (editors). A peculiar river: geology, geomorphology, and hydrology of the Deschutes River. American Geophysical Union, Water Science and Application 7. Washington, D.C.

Grant, G.E., F.J., Swanson, and M.G. Wolman. 1990. Pattern and origin of stepped-bed morphology in high-gradient streams, western Cascades, Oregon. Geological Society of America Bulletin 102: 340-352.

Grant, J.W.A., and I. Imre. 2005. Patterns of density-dependent growth in juvenile stream-dwelling salmonids. J. Fish Biol. 67 (Supplement B): 100-110. Doi:10.1111/j.0022-1112.2005.00916.x.

Grant, J.W.A., and D.L. Kramer. 1990. Territory size as a predictor of the upper limit to population density of juvenile salmonids in streams. Canadian Journal of Fisheries and Aquatic Sciences 47 (9): 1724-1737. Doi:10.1139/f90-197.

Grant, J.W.A., and D.L.G. Noakes. 1987. Movers and stayers: foraging tactics of young-of-the-year brook charr, *Salvelinus fontinalis*. Journal of Animal Ecology 56: 1001-1013.

Grant, J.W.A., and D.L.G. Noakes. 1987. Escape behaviour and use of cover by young-of-the-year brook trout, *Salvelinus fontinalis*. Canadian Journal of Fisheries and Aquatic Sciences 44: 1390-1396.

Grant, J.W.A., and D.L.G. Noakes. 1987. A simple model of optimal territory size for drift-feeding fish. Canadian Journal of Zoology 65: 270-276.

Grant, J.W.A., and D.L.G. Noakes. 1988. Aggressiveness and foraging mode of young-of-the-year brook charr, *Salvelinus fontinalis* (Pisces, Salmonidae). Behav. Ecol. Sociobiol. 22: 435-445.

Grant, J.W.A., D.L.G. Noakes, and K.M. Jonas. 1989. Spatial distribution of defense and foraging in young-of-the-year brook charr, *Salvelinus fontinalis*. Journal of Animal Ecology 58: 773-784.

Grant, J.W.A., S.O Steingrimsson, E.R. Keeley, and R.A. Cunjak. 1998. Implications of territory size for the measurement and prediction of salmonid abundance in streams. Canadian Journal of Fisheries and Aquatic Sciences 55 (Suppl. 1): 181-190. Doi:10.1139/cjfas-55-S1-181.

Grantham, T.E. 2013. Use of hydraulic modeling to assess passage flow connectivity for salmon in streams. River Research and Applications 29 (2): 250-267.

Grantham, T.E., A.M. Merenlender, and V.H. Resh. 2010. Climatic influences and anthropogenic stressors: an integrated framework for streamflow management in Mediterranean climate California, USA. Freshwater Biology 55 (Supplement 1): 188-204.

Grantham, T.E., M. Mezzatesta, D.A. Newburn, and A.M. Merenlender. 2013. Evaluating tradeoffs between environmental flow protections and agricultural water security. River Res. Appl. Dx.doi.org/10.1890/120367.

Grantham, T.E., D.A. Newburn, M.A. McCarthy, and A.M. Merenlender. 2012. The role of streamflow and land use in limiting oversummer survival of juvenile steelhead in California streams. Transactions of the American Fisheries Society 141 (3): 585-598. Doi: 10/1080/00028487.2012.683472.

Grantham, T.E.,J.H. Viers, and P.B. Moyle. 2014. Systematic screening of dams for environmental flow assessment and implementation. BioScience 64: 1006-1018. doi: 10.1093/biosci/bui159.

Gray, B.R., R.J. Haro, J.T. Rogala, and J.S. Sauer. 2005. Modelling habitat associations with fingernail clam (Family: Sphaeriidae) counts at multiple spatial scales using hierarchical count models. Freshwater Biology 50: 715-729.

Gray, L.J., and S.G. Fisher. 1981. Postflood recolonization pathways of macroinvertebrates in a lowland Sonoran Desert stream. American Midland Naturalist 106: 249-257.

Gray, L.J., and S.G. Fisher. 1989. Stability of periphyton and macroinvertebrates to disturbance by flash floods in a desert stream. Journal of the North American Benthological Society 8: 293-307.

Graybill, J.P. 1974. Effects of discharge in the Cedar River on sockeye salmon spawning area. Master’s thesis, University of Washington, Seattle.

Green, G.P., and J.P. O’Connor. 2001. Water banking and restoration of endangered species habitat: n application to the Snake River. Contemporary Economic Policy 19: 225-237.

Green, K.C., and C.J. Westbrook. 2009. Changes in riparian area structure, channel hydraulics, and sediment yield following loss of beaver dams. BC Journal of Ecosystems and Management 2009 (March): 68-79.

Greenberg, L.A. 1991. The effect of discharge and predation on habitat use by wild and hatchery brown trout (*Salmo trutta*). Regulated Rivers: Research and Management 117: 205-212.

Greenberg, L.A. 1992. Habitat use and feeding behavior of thirteen species of benthic stream fishes. Environmental Biology of Fishes 31: 389-401.

Greenberg, L.A. 1994. Effects of predation, trout density, and discharge on habitat use by brown trout, *Salmo trutta*, in artificial streams. Freshwater Biology 21: 1-11.

Greenberg, L. 1999. Effects of predation and discharge on habitat use by brown trout, *Salmo trutta*, and grayling, *Thymallus thymallus*, in artificial streams. Arch. Hydrobiol. 145:433-446.

Greenberg, L.A., E. Bergman, and A.G. Eklov. 1997. Effects of predation and intraspecific interactions on habitat use and foraging by brown trout in artificial streams. Ecology of Freshwater Fish 6 (1): 16-26. Doi: 10.1111/j.1600-0633.1997.tb00138.x.

Greenberg, L.A., and J. Dahl. 1998. Effect of habitat type on growth and diet of brown trout, *Salmo trutta*, in stream enclosures. Fisheries Management and Ecology 5: 331-348.

Greenberg, L., and P.S. Giller. 2001. Individual variation in habitat use and growth of male and female brown trout. Ecography 24: 212-224.

Greenberg, L.A., T. Steinwall, and H. Persson. 2001. Effect of depth and substrate on use of stream pools by brown trout. Transactions of the American Fisheries Society 130 (4): 699-705.

Greenberg, L., P. Svendsen, and A. Harby. 1996. Availability of microhabitats and their use by brown trout (*Salmo trutta*) and grayling (*Thymallus thymallus*) in the River Vojman, Sweden. Regulated Rivers: Research and Management 12: 287-303.

Greene, C.M., D.W. Jensen, G.R. Pess, E.A. Steel, and E. Beamer. 2005. Effects of environmental conditions during stream, estuary, and ocean residency on Chinook salmon return rates in the Skagit River, Washington. Transactions of the American Fisheries Society 134 (6): 1562-1581. Doi: 10.1577/05-037.1

Greene, C.M., and J.A. Stamps. 2001. Habitat selection at low population densities. Ecology 82 (8): 2091-2100.

Greenwood, M.F.D. 2007. Nekton community change along estuarine salinity gradients: can salinity zones be defined? Estuaries and Coasts 30: 537-542.

Greenwood, M.F.D., R.E. Matheson, Jr., R.H. McMichael, Jr., and T.C. MacDonald. 2007. Community structure of shoreline nekton in the estuarine portion of the Alafia River, Florida: differences along a salinity gradient and inflow-related changes. Estuarine, Coastal and Shelf Science 74: 223-238.

Greenwood, M.J., D.J. Booker, B.J. Smith, and M.J. Winterbourn. 2016. A hydrologically sensitive invertebrate community indes for New Zealand rivers. Ecological Indicators 61: 1000-1010.

Greenwood, M.J., and A.R. McIntosh. 2010. Low river flow alters the biomass and population structure of a riparian predatory invertebrate. Freshw. Biol. 55: 2062-2076. Doi: 10.1111j.1365-2427.2010.02462.x.

Greenwood, M.T., P.J. Wood, and W.A. Monk. 2006. The use of fossil caddisfly assemblages in the reconstruction of flow environments from floodplain paleochannels of the River Trent, England. Journal of Paleolimnology 35: 747-761.

Greet, J., R.D. Cousens, and J.A. Webb. 2013. More exotic and fewer native plant species: Riverine vegetation patterns associated with altered seasonal flow patterns. River Research and Applications 29: 686-706. Doi: 10.1002/rra.2571

Gregory, J.S., and J.S. Griffith. 1996. Aggressive behaviour of underyearling rainbow trout in simulated winter concealment habitat. J. Fish Biol. 49: 237-245.

Gregory, J.S., and J.S. Griffith. 1996. Winter concealment by subyearling rainbow trout: space size selection and reduced concealment under surface ice and in turbid water conditions. Canadian Journal of Zoology 74: 451-455.

Gregory, J.S., and R.W. Smith. 1996. Use of winter concealment cover by juvenile cutthroat and brown trout in the South Fork of the Snake River, Idaho. North American Journal of Fisheries Management 13: 823-830.

Gregory, K.B., R.D. Vidic, and D.A. Dzombak. 2011. Water management challenges associated with the production of shale gas by hydraulic fracturing. Elements 7: 181-186.

Gregory, M.B. 2007. Microhabitat preferences by aquatic invertebrates influence bioassessment metrics in piedmontsteams of Georgia and Alabama. In: K.J. Hatcher (editor), Proceedings of the Georgia Water Resources conference, University of Georgia. Institu of Ecology, University of Georgia, Athens, Georgia.

Gregory, R.S., and C.D. Levings. 1998. Turbidity reduces predation on migrating juvenile Pacific salmon. Transactions of the American Fisheries Society 127: 275-285.

Gregory, S.V., and P.A. Bisson. 1997. Degradation and loss of anadromous salmonid habitat in the Pacific Northwest. Pp. 288-314 *in*: D.J. Stouder, P.A. Bisson, and R.J. Naiman (eds.), Pacific salmon and their ecosystems. Chapman and Hall, New York.

Gregory, S.V., F.J. Swanson, W.A. McKee, and K.W. Cummins. 1991. An ecosystem perspective of riparian zones. BioScience 41 (8): 540-551.

Greig, S.M., D.A. Sear, and P.A. Carling. 2005. The impact of fine sediment accumulation on the survival of incubating salmon progeny: implications and management. Sci. Total Environ. 344 (1-3): 241-258. Doi:10.1016/jscitotenv.2005.02.010.PMID:15893806.

Greig, S.M., D.A. Sear, and P.A. Carling. 2007. A review of factors influencing the availability of dissolved oxygen to incubating salmonid embryos. Hydrol. Process. 21 (3): 323-334. Doi:10.1002/hyp.6188.

Grenouillet, G., B. Hugueny, G.A. Carrel, J.M. Olivier, and D. Pont. 2001. Large-scale synchrony and interannual variability in roach recruitment in the Rhone River: the relative role of climatic factors and density-dependent processes. Freshwater Biology 46: 11-26. Doi: 100.1046/j.1365-2427.2001.00637.x.

Grenouillet, G., D. Pont, and J.M. Olivier. 2000. Habitat occupancy patterns of juvenile fishes in a large lowland river: interaction with macrophytes. Archiv fur Hydrobiologie 149: 307-326.

Grenouillet, G., D. Pont, and J.M. Olivier. 2001. Linking zooplankton and juvenile fish assemblages in a large lowland river: influence of submerged macrophytes. Archiv fur Hydrobiologie 151: 383-404.

Gresswell, R.E. 1999. Fire and aquatic ecosystems in forested biomes of North America. Transactions of the American Fisheries Society 128 (2): 193-221.

Gresswell, R.E., and S.R. Hendricks. 2007. Population-scale movement of coastal cutthroat trout in a naturally isolated stream network. Transactions of the American Fisheries Society 136 (1): 238-253. Doi:10.1577/T05-196.1.

Gresswell, R.E., C.E. Torgerson, D.S. Bateman, T.J. Guy, S.R. Hendricks, and J.E.B. Wofford. 2006. A spatially explicit approach for evaluating relationships among coastal cutthroat trout, habitat, and disturbance in headwater streams. In: Influences of landscapes on stream habitats and biological communities. Edited by: R. Hughes, L. Wang, and P. Seelbach. American Fisheries Society, Bethesda, Md. Pp.457-471.

Gries, G., and F. Juanes. 1998. Microhabitat use by juvenile Atlantic salmon (*Salmo salar*) sheltering during the day in summer. Canadian Journal of Zoology 76: 1441-1449. Doi: 10.1139/z98-074.

Griffin, J.D.T., and A.H. Fayram. 2007. Relationships between a fish index of biotic integrity and mean length and density of brook trout and brown trout in Wisconsin streams. Transactions of the American Fisheries Society 136: 1728-1735.

Griffith, J.S., Jr. 1972. Comparative behavior and habitat utilization of brook trout (*Salvelinus fontinalis*) and cutthroat trout (*Salmo clarki*) in small streams in northern Idaho. Journal of the Fisheries Research Board of Canada 29 (3): 265‑273.

Griffith, J.S., Jr., and R.W. Smith. 1993. Use of winter concealment cover by juvenile cutthroat and brown trout in the South Fork of the Snake River, Idaho. North American Journal of Fisheries Management 13: 823-830.

Griffith, J.S., Jr., and R.W. Smith. 1995. Failure of submersed macrophytes to provide cover for rainbow trout throughout their first winter in Henry’s Fork of the Snake River, Idaho. North American Journal of Fisheries Management 15: 42-48.

Grift, R.E., A.D. Buijse, W.L.T. van Densen, and J.G.P. Klein Breteler. 2001. Restoration of the river-floodplain interaction: benefits for the community in the Rhine River. Archiv fur Hydrobiologie 135: 173-185.

Grift, R.E., A.D. Buijse, W.L.T. van Densen, M.A.M. Machiels, J. Kranenbarg J.G.P. Klein Breteler, and J.J.G.M. Backx. 2003. Suitable habitats for 0-group fish in rehabilitated floodplains along the lower river Rhine. River Research and Applications 19: 353-374.

Grill, G., B. Lehner, A.E. Lumsdon, G.K. MacDonald, C. Zarfl, and C. Reidy Liermann. 2015. An index-based framework for assessing patterns and trends in river fragmentation and flow regulation by global dams at multiple scales. Env. Res. Lett. 10 (2015) 015001. Doi: 10.1088/1748=9326/10/10/1/015001

Grill, G., C. Ouellet Dallaire, E. Chouinard, N. Sindorf, and B. Lehner. 2014. Development of new indicators to evaluate river fragmentation and flow regulation at large scales: a case study for the Mekong River Basin. Ecol. Indicators 45: 148-159.

Grimaldo, L.F., T. Sommer, N. Van Ark, G. Jones, E. Holland, P.B. Moyle, B. Herbold, and P. Smith. 2009. Factors affecting fish entrainment into massive water diversions in a tidal freshwater estuary: can fish losses be managed? North American Journal of Fisheries Management 29 (5): 1253-1270. Doi:10.1577/M08-062.1.

Grimes, C.B. 2001. Fishery production and the Mississippi River discharge. Fisheries 26 (8): 17-26.

Grimes, C.B., and J.H. Finucane. 1991. Spatial distribution and abundance of larval and juvenile fish, chlorophyll and macroplankton around the Mississippi River discharge plume, and the role of the plume in fish recruitment. Mar. Ecol. Prog. Ser. 75: 109-119. Doi: 10.1071/MF9960191.

Grimes, C.B., and M.J. Kingsford. 1996. How do riverine plumes of different sizes influence fish larvae: do they enhance recruitment? Marine and Freshwater Research 47: 191-208.

Grimm, N.B., and S.G. Fisher. 1989. Stability of periphyton and macroinvertebrates to disturbance by flash floods in a desert stream. Journal of the North American Benthological Society 8: 293-307. Doi: 10.2307/1467493.

Grimm, V., and S.F. Railsback. 2005. Individual –based modeling and ecology. Princeton University Press, Princeton, New Jersey.

Griswold, B.L., C.J. Edwards, and L.C. Woods, III. 1982. Recolonization of macroinvertebrates and fish in a channelized stream after a drought. Ohio Journal of Science 82: 96-102.

Grizzell, R.A. 1976. Flood effects on stream ecosystems. Journal of Soil and Water Conservation 31 (6): 283-285.

Groeneveld, D. and T.E. Griepentrog. 1985. Interdependence of groundwater, riparian vegetation, and streambank stability: A case study. Pp. 44-48 in: Symposium on Riparian Ecosystems and their Management: Reconciling Conflicting Uses. U.S. Forest Service General Technical Report RM-120.

Groffman, P.M., and J.M. Tiedje. 1988. Denitrification hysteresis during wetting and drying cycles in soil. Soil Science Society of America Journal 52: 1626-1629.

Groot, C., and L. Margolis, eds. 1991. Pacific salmon life histories. U.B.C. Press, Vancouver, B.C. 564 p.

Groshens, T.P., and D.J. Orth. 1993. Transferability of habitat suitability criteria for smallmouth bass, *Micropterus dolomieui*. Rivers 4 (3): 194‑212.

Grossman, G.D. 2014. Not all drift feeders are trout: a short review of fitness-based habitat selection models for fishes. Environmental Biology of Fishes 97: 465-473. Doi: 10.1007/s10641-013-0198-3.

Grossman, G.D., and A. De Sostoa. 1994. Microhabitat use by fishes in the lower Rio Matarrana, Spain: 1984-1987. Ecology of Freshwater Fishes 3: 123-136.

Grossman, G.D., A. De Sostoa, M.C. Freeman, and J. Lobon-Cervia. 1987. Microhabitat use in a Mediterranean riverine fish assemblage: I. Fishes of the lower Matarrana. Oecologia 73: 490-500.

Grossman, G.D., A. De Sostoa, M.C. Freeman, and J. Lobon-Cervia. 1987. Microhabitat use in a Mediterranean riverine fish assemblage: II. Fishes of the upper Matarrana. Oecologia 73: 501-512.

Grossman, G.D., and M.A. Freeman. 1987. Microhabitat use in a stream fish assemblage. Journal of Zoology (London) 212: 151-176.

Grossman, G.D., J. Hill, and J.T. Petty. 1995. Observations on habitat structure, population regulation, and habitat use with respect to evolutionary significant units: a landscape perspective for lotic systems. *In*: J. Nielsen (ed.), Evolution and the aquatic ecosystem: defining unique units in population conservation. American Fisheries Society Symposium 17: 381-391.

Grossman, G.D., and R.E. Ratajczak, Jr. 1998. Long-term patterns of microhabitat use by fish in a southern Appalachian stream from 1983 to 1992: effects of hydrologic period, season, and fish length. Ecology of Freshwater Fish 7: 108-131. Doi: 10.1111/j.1600-06333.1998.tb00178.x.

Grossman, G.D., R.E. Ratajczak, Jr., M. Crawford, and M.C. Freeman. 1998. Assemblage organization in stream fishes: effects of environmental variation and interspecific interactions. Ecological Monographs 68: 395-420. Doi: 10.1890/0012-9615(1998)068[0395:AOISFE]2.0.CO.2.

Grossman, G.D., P.A. Rincon, M.D. Farr, and R.E. Ratajczak, Jr. 2002. A new optimal foraging model predicts habitat use by drift-feeding stream minnows. Ecology of Freshwater Fish 11: 2-10. Doi: 10.1034/j.1600-0633.2002.110102.x

Grossman, G.D.,, and J.L. Sabo. 2010. Incorporating environmental variation into models of community stability: Examples from stream fish. Pages 407-426 in: K.B. Gido and D.A. Jackson (editors), Community ecology of stream fishes: Concepts, approaches Grossman, G.D.,, and J., and techniques. Bethesda, MD: American Fisheries Society, Symposium 73.

Grossman, G.D.,, and J.P. Skyfield. 2009. Quantifying microhabitat availability: stratified random versus constrained focal-fish methods. Hydrobiologia 624: 235-240.

Grossman, G.D., A.D. Sostoa, M.C. Freeman, and J. Lobon-Cervia. 1987. Microhabitat use in a Mediterranean riverine fish assemblage. Oecologia 73: 490-500.

Grost, R.T., W.A. Hubert, and T.A. Wesche. 1990. Redd site selection by brown trout in Douglas Creek, Wyoming. Journal of Freshwater Ecology 5: 365-371.

Grost, R.T., W.A. Hubert, and T.A. Wesche. 1991. Description of brown trout redds in a mountain stream. Transactions of the American Fisheries Society 120: 582-588.

Groves, P.A., and J.A. Chandler. 1999. Spawning habitat used by fall Chinook salmon in the Snake River. North American Journal of Fisheries Management 19 (4): 912-922.

Groves, P.A., and J.A. Chandler. 2005. Habitat quality of historic Snake River fall Chinook salmon spawning locations and implications for incubation survival, part 2. Intragravel water quality. River Research and Applications 21: 469-483.

Groves, P.A., J.A. Chandler, B. Alcorn, T.J. Richter, W.P. Connor, A.P. Garcia, and S.M. Bradbury. 2013. Evaluating salmon spawning habitat capacity using redd survey data. North American Journal of Fisheries Management 33 (4): 707-716. Doi: 10.1080/02755947.2013.79328

Growns, I.O. 2004. A numerical classification of reproductive guilds of freshwater fishes of south-eastern Australia and their application to river management. Fisheries Management and Ecology 11: 369-377.

Growns, I. 2016. The implementation of an environmental flow regime results in ecological recovery of regulated rivers. Restoration Ecology 24 (3): 406-414/ doi: 10.1111/rec.12330/full.

Growns, I.O., and J.A. Davis. 1994. Longitudinal changes in near-bed flows and macroinvertebrate communities in a Western Australia stream. Journal of the North American Benthological Society 13: 417-438.

Grubb Journal, H. 1981. Freshwater inflow planning in Texas, p. 88-95. In: R. Cross and D. Williams (eds.). Proceedings of the national Symposium on Freshwater Inflow to Estuaries. FWS/OBS-81/04. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C.

Grussing, M.D., D.R. DeVries, and R.A. Wright. 2001. Stock characteristics and habitat use of catfishes in regulated section of four Alabama rivers. Proceeding of the Annual Conference Southeastern Association of Game and Fish Commissioners 27 (1999): 15-34.

Gu, C., G.M. Hornberger, J.S. Herman, and A.L. Mills. 2008. Effects of freshets on the flux of groundwater nitrate through streambed sediments. Water Resour. Res, 44. Doi: 10.1029/2007WR006488.

Gu, C., G.M. Hornberger, A.L. Mills, J.S. Herman, and S.A. Flewelling. 2007. Nitrate reduction in streambed sediments: Effects of flow and biogeochemical kinetics. Water Resour. Res. 43. Doi: 10.1029/2007WR006027.

Gu, R., S. McCutcheon, and C.-J. Chen. 1999. Development of weather-dependent flow requirements for river temperature control. Environmental Management 24: 529-540.

Gu, R., S. Montgomery, and T. Austin. 1998. Quantifying the effect of stream discharge on summer river temperature. Journal of Hydrology Science 43: 885-904.

Guay, J.C., D. Boisclair, M. Leclerc, and M. Lapointe. 2003. Assessment of the transferability of biological habitat models for juveniles of Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 60 (11): 1398-1408.

Guay, J.C., D. Boisclair, D. Rioux, M. Leclerc, M. Lapointe, and P. Legendre. 1999. Validation of numerical habitat model for juveniles of Atlantic salmon (*Salmo salar*). In T.B. Hardy, ed. Proceedings of 3rd international symposium on ecohydraulics. Utah State University, Logan.

Guay, J.C., D. Boisclair, D. Rioux, M. Leclerc, M. Lapointe, and P. Legendre. 2000. Development and validation of numerical habitat models for juveniles of Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 57(10): 2065-2075. Doi: 10.1139/f00-162.

Guay, J.C., D. Boisclair. D. Rioux, M. Leclerc, M. Lapointe, and P. Legendre. 2001. Science on the edge of spatial scales: a reply to the comments of Williams (2001). Canadian Journal of Fisheries and Aquatic Sciences 58 (10): 2108-2111.

Gucker, B., and I. G. Boechat. 2004. Stream morphology controls ammonium retention in tropical headwaters. Ecology 85 (10): 2818-2827.

Guegan, J.F., S. Lek, and T. Oberdorff. 1998. Energy availability and habitat heterogeneity predict global riverine fish diversity. Nature 391: 382-384.

Guensch, G.R., T.B. Hardy, and R.C. Addley. 2001. Examining feeding strategies and position choice of drift-feeding salmonids using an individual-based, mechanistic foraging model. Canadian Journal of Fisheries and Aquatic Sciences 58(3): 446-457. Doi:10.1139/cjfas-58-3-446.

Guenther, C.B., and A. Spacie. 2006. Changes in fish assemblage structure upstream of impoundments within the upper Wabash River basin, Indiana. Transactions of the American Fisheries Society 135 (3): 570-583.

Guillemette, F., C. Vallee, A. Bertolo, and P. Magnan. 2011. The evolution of redd site selection in brook charr in different environments: same cue, same benefit for fitness. Freshw. Biol. 56 (6): 1017-1029. Doi: 10.1111/j.1365-2427.2010.02542.x

Guillermo, R.G., and M.C. Healey. 1999. Ideal free distribution theory as a tool to examine juvenile coho salmon (Oncorhynchus kisutch) habitat choice under different conditions of food abundance and cover. Canadian Journal of Fisheries and Aquatic Sciences 56: 2362-2373.

Guillory, V. 1979. Utilization of an inundated floodplain by Mississippi River fishes. Florida Scientist 42: 222-228.

Guiny, E., J.D. Armstrong, and D.A. Ervine. 2003. Preferences of mature male brown trout and Atlantic salmon parr for orifice and weir fish pass entrances matched for peak velocities and turbulence. Ecology of Freshwater Fish 12: 190-195.

Guisan, A., and N.E. Zimmermann. 2000. Predictive habitat distribution models in ecology. Ecological Modelling 135: 147-186.

Gunckel, S.L., A.R. Hemmingsen, and J.L. Li. 2002. Effect of bull trout and brook trout interactions on foraging habitat, feeding behavior, and growth. Transactions of the American Fisheries Society 131 (6): 1119-1130.

Gunderson, D.R. 1968. Floodplain use related to stream morphology and fish populations. Journal of Wildlife Management 32: 507-517.

Guneralp, I., and B.L. Rhoads. 2009. Planform change and stream power in the Kishwaukee River watershed, Illinois: geomorphic assessment for environmental management. Pages 109-118 in: L.A. James, S.L. Rathburn, and GR. Whittecar (editors). Management and Restoration of Fluvial Systems with Broad Historical Changes and Human Impacts. Geological Society of America Special Paper 451.

Gunnarsson, G.S., and S.O. Steingrimsson. 2011. Contrasting patterns of territoriality and foraging mode in two stream-dwelling salmonids, Arctic char (*Salvelinus alpinus*) and brown trout (*Salmo trutta*). Canadian Journal of Fisheries and Aquatic Sciences 68 (12): 2090-2100. Doi: 10.1139/F2011-127

Gunter, G., J.Y. Christmas, and R. Killebrew. 1964. Some relations of salinity to population distributions of motile estuarine organisms, with special reference to penaeid shrimp. Ecology 45: 181-185.

Gunter, G., and J.C. Edwards. 1969. The relation of rainfall and fresh-water drainage to the production of the penaeid shrimps *(Penaeus fluviatilis* Say and *Penaeus aztecus* Ives) in Texas and Louisiana waters. FAO Fishery Report 57: 875-892.

Gupta, A. 1988. Large floods as geomorphic events in the humid tropics. Pages 301-315 in: V.R. Baker, R.C. Kochel, and P.C. Patton (editors), Flood Geomorphology. John Wiley & Sons, New York.

Gupta, A.D. 2008. Implication of environmental flows in river basin management. Phys. Chem. Earth 33: 298-303.

Gupta, A., and H. Fox. 1974. Effects of high magnitude floods on channel form: a case study in Maryland Piedmont. Water Resources Research 10: 499-509.

Gupta, V.K., and E. Waymire. 1990. Multiscaling properties of spatial rainfall and river flow distributions. Journal of Geophysical Research 95: 1999-2009.

Gurnell, A., K. Thompson, J. Goodson, and H. Moggridge. 2008. Propagule deposition along river margins: linking hydrology and ecology. Journal of Ecology 96: 553-565.

Gurnell, A., K. Tockner, P. Edwards, and G. Petts. 2005. Effects of deposited wood on biocomplexity of river corridors. Frontiers in Ecology and the Environment 3: 377-382.

Gurnell, A.M. 1998. The hydrogeomorphological effects of beaver dam-building activity. Progress in Physical Geography 22: 167-189.

Gurnell, A.M., and K.J. Gregory. 1995. Interactions between semi-natural vegetation and hydrogeomorphological processes. Geomorphology 13: 49-69.

Gurnell, A.M., H. Piegay, F.J. Swanson, and S.V. Gregory. 2002. Large wood and fluvial processes. Freshwater Biology 47: 601-619. Doi: 10.1046/j.1365-2427.2002.00916.x.

Gurnell, A., K. Thompson, J. Goodson, and H. Moggridge. 2008. Propagule deposition along river margins: linking hydrology and ecology. Journal of Ecology 96: 553-565.

Gurney, W.S.C., P.J. Bacon, G. Tyldesley, and A.F. Youngson. 2008. Process-based modelling of decadal trends in growth, survival, and smolting of wild salmon (*Salmo salar*) parr in a Scottish upland stream. Can. J. Fish. Aquat. Sci. 65: 2606-2622. Doi: 10.1139/F08-149.

Gurtz, M.E., and J.B. Wallace. 1984. Substrate-mediated response of stream invertebrates to disturbance. Ecology 65: 1556-1569. Doi: 10.2307/1939135.

Gustard, A. 1979. The characterization of flow regimes for assessing the impact of water resource management on river ecology. Pages 53-60 in: J.W, Ward and J.A. Stanford (editors). The ecology of regulated streams. Plenum Press, New York and London.

Gustard, A. 1984. The characterization of flow regimes for assessing the impact of water resource management on river ecology. Pp. 53-60 in: A. Lillehammer and S.J. Saltveit (eds.). Regulated Rivers. New York: Columbia University Press.

Gustard, A. 1996. Analysis of river regimes. Pages 32-50 in: G. Petts and P. Callow (editors), River Flows and Channel Forms. Blackwood Scientific, Oxford, UK.

Gutreuter, S., A.D. Bartels, K. Irons, and M.B. Sandheimrich. 1999. Evaluation of the flood-pulse concept based on statistical models of growth of selected fishes of the Upper Mississippi River system. Canadian Journal of Fisheries and Aquatic Sciences 56 (12): 2282-2291. Doi: 10.1139/f99-161.

Haag, W.R., and M.L. Warren, Jr. 1998. Role of ecological factors and reproductive strategies in structuring freshwater mussel communities. Canadian Journal of Fisheries and Aquatic Sciences 55: 297-306.

Haag, W.R., and M.L. Warren, Jr. 2008. Effects of severe drought on freshwater mussel assemblages. Transactions of the American Fisheries Society 137: 1165-1178.

Haberxack, H.M. 2000. The river-scaling concept (RSC): a basis for ecological assessments. Hydrobiologia 422: 49-60.

Hackney, C.T. 1978. Summary of information: Relationship of freshwater inflow to estuarine productivity along the Texas coast. FWS/OBS-78/73. U.S. Fish and Wildlife Service, Biological Service Program, Washington, D.C.

Hadwen, W.L., C.S. Fellows, D.P. Westhorpe, G.N. Rees, S.M. Mitrovic, B. Taylor, D.S. Baldwin, E. Sylvester, and R. Croome. 2010. Longitudinal trends in river functioning: patterns of nutrient and carbon processing in three Australian rivers. River Research and Applications 26: 1129-1152.

Haeuber, R.A., and W.K. Mitchener. 1998. Natural flood control. Issues in Science and Technology (Fall 1998): 74-80.

Haeseker, S.L., J.A. McCann, J. Tuomikoski, and B. Chockley. 2012. Assessing freshwater and marine environmental influences on life-stage-specific survival rates of Snake River spring-summer Chinook salmon and steelhead. Transactions of the American Fisheries Society 141 (1): 121-138. Doi: 10.1080/00028487.2011.652009

Hafs, A.W., C.J. Gagen, and J.K. Whalen. 2010. Smallmouth bass summer habitat use, movement, and survival in response to low flow in the Illinois Bayou, Arkansas. North American Journal of Fisheries Management 30 (2): 604-612.

Hafs, A.W., L.R. Harrison, R.M. Utz, and T. Dunne. 2014. Quantifying the role of woody debris in providing bioenergetically favorable habitat for juvenile salmon. Ecological Modelling 285: 30-38. Doi: 10.1016/j.ecolmodel.2014.04.015

Hagen, J. and E.B. Taylor. 2001. Resource partitioning as a factor limiting gene flow in hybridizing populations of Dolly Varden char (*Salvelinus malma*) and bull trout (*Salvelinus* *confluentus*). Canadian Journal of Fisheries and Aquatic Sciences 58 (10): 2037-2047.

Hagglund, A., and G. Sjoberg. 1999. Effects of beaver dams on the fish fauna of forest streams. Forest Ecology and Management 115: 259-266.

Hagman, N. 1938. The variations in the catch of salmon and the water levels of the rivers. Suomalaisen Elain – Ja Kasuitieteelisen seuran vanenon Elaintieteelisen. Julkaisuja Osa 5 N:o 6, Helsinki.

Hague, M.J., D.A. Patterson, and J.S. Macdonald. 2008. Exploratory correlation analysis of multi-site summer temperature and flow data in the Fraser River basin. Can. Tech. Rep. Fish. Aquat. Sci. 2797: 1-60.

Haig, S.M., D.W. Mehlman, and L.W. Oring. 1998. Avian movements and wetland connectivity in landscape conservation (review). Conservation Biology 12: 749-758.

Hain, E.F., J.G. Kennen, P.V. Caldwell, S.A.C. Nelson, G. Sun, and S.G. McNulty. 2018. Using regional scale flow-ecology modeling to identify catchments where fish assemblages are most vulnerable to changes in water availability. Freshwater Biology 63 (8): 928-945. Doi: 10.1111/fwb.13048

Haines, A.T., B.L. Finlayson, and T.A. McMahon. 1988. A global classification of river regimes. Applied Geography 8: 255-272. Doi: 10.1016/0143-6228(88)90035-5.

Haines, G.B., and H.M. Tyus. 1990. Fish associations and environmental variables in age-0 Colorado squawfish habitats, Green River, Utah. Journal of Freshwater Ecology 5 (4): 427-436.

Hakala, J.P., and K.J. Hartman. 2004. Drought effects on stream morphology and brook trout (*Salvelinus fontinalis*) populations in forested headwater streams. Hydrobiologia 515: 203-213. Doi:10.1023/B:HYDR.0000027330.12182.24.

Hale, J.G., and D.A. Hilden. 1970. The influence of flow on the spawning of brook trout in the laboratory. Transactions of the American Fisheries Society 99 (3): 595-597.

Hale, S.S., T.E. McMahon, and P.C. Nelson. 1985. Habitat suitability index models and instream flow suitability curves: chum salmon. U.S. Fish and Wildlife Service Biological Report 82 (10.108). 48 pp.

Haley, N.J. 1999. Habitat characteristics and resource use patterns of sympatric sturgeons in the Hudson River estuary. Master’s thesis, University of Massachusetts, Amherst.

Hall, A.A., S.B. Rood, and P.S. Higgins. 2010. Resizing a river: a downscaled, seasonal flow regime promotes riparian restoration. Restoration Ecology doi: 10.1111/j.1526-100X.2009.005881.x

Hall, F.R. 1968. Base-flow recessions – a review. Water Resources Research 4: 973-983.

Hall, J., P. Roni, T. Bennett, J. McMillan, K. Hanson, R. Moses, M. McHenry, G. Pess, and W. Ehinger. 2016. Life history diversity of steelhead in two coastal Washington watersheds. Transactions of the American Fisheries Society 145 (5): 990-1005. Doi: 10.1080/00028487.2016.1194893.

Hall, J.W., T.I.J. Smith, and S.D. Lamprecht. 1991. Movements and habitats of shortnose sturgeon, *Acipenser brevirostrum*, in the Savannah River. Copeia 1991: 695-702.

Hall, R.O., M.A. Baker, C.D. Arp, and B.J. Koch. 2009. Hydrological control of nitrogen removal, storage, and export in a mountain stream. Limnol. Oceanogr. 54: 2128-2142.

Halleraker, J.H., J.J. Saltveit, A. Harby, J.V. Arnekleiv, H. P. Fjesdstad, and B. Kohler. 2003. Factors influencing stranding of wild juvenile brown trout (*Salmo trutta*) during rapid and frequent flow decreases in artificial stream. River Research and Applications 19 (5-6): 589-603. Doi:10.1002/rra.752.

Halleraker, J.H., H, Sundt, K.T, Alfredsen, and D. Dangelmaier. 2007. Application of Multiscale environmental flow methodologies as tools for optimized management of a Norwegian regulated national salmon watercourse. River Research and Applications 23: 467-558.

Hallisey, J.E., and G.H. Belt. 1996. Relationships between particle movement and channel morphology in some northern Idaho streams. Water Resources Bulletin 32 (2): 383-391.

Halls, A.S., and R.L. Welcomme. 2004. Dynamics of river fish populations in response to hydrological conditions: a simulation study. River Research and Applications 20: 985-1000.

Halwas, K., and M. Church. 2002. Channel units in small, high gradient streams on Vancouver Island, British Columbia. Geomorphology 43: 243-256. Doi:10.1016/S0169-555X(01)00136-2.

Hamann, E.J., B.P. Kennedy, D.C. Whited, and J.A. Stanford. 2014. Spatial variability in spawning habitat selection by Chinook salmon (*Oncorhynchus tshawytscha*) in a wilderness river. River Research and Applications 30: 1099-1109.

Hamel, M.J., J.J. Spurgeon, M.A. Pegg, J.J. Hammen, and M.L. Rugg. 2014. Hydrologic variability influences local probability of pallid sturgeon occurrence in a Missouri River tributary. River Research and Applications 32: 320-329.

Hamilton, D.A., and P.W. Seelbach. 2010. Determining environmental limits to streamflow depletion across Michigan, volume 42. Pages 534-537 in: A.S. Wall, editor. The book of the states, 2010 edition. The Council of State Governments, Lexington, Kentucky.

Hamilton, D.A., R.C. Sorell, and D.J. Holtschlag. 2008. A regression model for computing index flows describing the median flow for the summer month of lowest flow in Michigan. U.S. Geological Survey Scientific Investigations Report 2008-5096, 43 pp’

Hamilton, D.P. 2000. Record summer rainfall induced first recorded major cyanobacterial bloom in the Swan River. Environmental Engineer 1: 25.

Hamilton, K., and C.P. Nelson. 1984. Habitat suitability index models and instream flow suitability curves: White bass. U.S. Fish and Wildlife Service Biological Report 82 (10.89). 35 pp.

Hamilton, R.E. 1978. Fisheries resource maintenance flows for Pacific salmon. M.A.S. thesis, Department of Civil Engineering, University of British Columbia, Vancouver. 143 pp.

Hamilton, R., and J.W. Buell. 1976. Effects of modified hydrology on Campbell River salmonids. Environment Canada, Fisheries and Marine Service, Technical Report Series No. PAC/T-76-20, Habitat Protection Dir., Vancouver.

Hamilton, S.K., S.E. Bunn, M.C. Thoms, and C.J. Marshall. 2005. Persistence of aquatic refugia between flow pulses in a dryland river system (Cooper Creek, Australia). Limnology and Oceanography 50: 743-754.

Hamilton, S.K., W.M. Lewis, Jr., and S.J. Sippel. 1992. Energy sources for aquatic animals in the Orinoco River floodplain: evidence for stable isotopes. Oecologia (Berlin) 89: 324-330.

Hamlet, A.F. 2011. Assessing water resources adaptive capacity to climate change impacts in the Pacific Northwest Region of North America. Hydrol. Earth Syst. Sci. 15: 1427-1443. Doi: 10.5194/hess-15-1427-2011.

Hamlet, A.F., and D.P. Lettenmaier. 1999. Effects of climate change on hydrology and water resources in the Columbia River basin. Journal of the American Water Resources Association 35: 1597-1623.

Hamlet, A.F., and D.P. Lettenmaier. 1999. Columbia River streamflow forecasting based on ENSO and PDO climate signals. Journal of Water Resources Planning and Management 25: 333-341.

Hamlet, A.F., and D.P. Lettenmaier. 2007. Effects of 20th century warming and climate variability on flood risk in the western U.S. Water Resour. Res. 43 (6): W06427. Doi:10.1029/2006WR005099.

Hammen, J.J., M.J. Hamel, M.L. Rugg, E.J. Peters, and M.A. Pegg. 2018. Population characteristics of shovelnose sturgeon during low- and high-water conditions in the lower Platte River, Nebraska. North American Journal of Fisheries Management 38 (2): 308-315. Doi: 10.1002/nafm.10023

Hamor, T.J., and E.T. Garside. 1976. Developmental rates of embryos of Atlantic salmon, Salmo salar L., in response to various levels of temperature, dissolved oxygen, and water exchange. Can. J. Zool. 54: 1912-1917.

Hampton, H. 1988. Development of habitat preference criteria for anadromous salmonids of the Trinity River. U.S. Fish and Wildlife Service, Division of Ecological Services, Sacramento, CA.

Hamrick, J.M. 1992. A three-dimensional environmental fluid dynamics computer code: theoretical and computational aspects, Special Report 317. The College of William and Mary, Virginia Institute of Marine Science. 63 pp.

Hancock, M.A., and S.E. Bunn. 1999. Swimming response to water current in *Paratya australiensis* Kemp, 1917 (Decapoda, Atyidae) under laboratory conditions. Crustaceana 72 (3): 313-323. Doi:10.1163/156854099503393.

Hand, B.K., C. Muhlfeld, A.A. Wade, R.P. Kovach, D.C. Whited, S.R. Narum, A.P. Matala, M.W. Ackerman, B.A. Garner, H.S. Kimball, J.A. Stanford, and G. Luikart. 2015. Climate variables explain neutral and adaptive variation within salmonid metapopulations: the importance of replication in landscape genetics. Molecular Ecology 35 (3). Doi: 10.1111/mec.13517

Haney, J., A. Gonzalez, and R.E. Tharme. 2015. Estudio de caudales ecologicos en las cuencas costeras de Chiapas, Mexico. Technical Report, The Nature Conservancy, Mexico and North Central America.

Hankin, D.G., and G.H. Reeves. 1988. Estimating total fish abundance and total habitat area in small streams based on visual estimation methods. Canadian Journal of Fisheries and Aquatic Sciences 45: 834-844.

Hannah, D.M., J.P. Sadler, and P.J. Wood. 2007. Hydroecology and ecohydrology: a potential route forward? Hydrol. Process. 21: 3385-3390.

Hannart, P., and D.A. Hughes. 2003. A desktop model used to provide an initial estimate of the ecological flow requirements of rivers in South Africa. Journal of Hydrology 270: 167-181.

Hanrahan, T.P. 2007. Bedform morphology of salmon spawning areas in a large gravel-bed river. Geomorphology 86 (3-4): 529-536. Doi:10.1016/j.geomorph.2006.09.017.

Hanrahan, T.P. 2008. Effects of river discharge on hyporheic exchange flows in salmon spawning areas of a large gravel-bed river. Hydrological Processes 22: 127-141. Doi: 10.1002/hyp.6605.

Hanrahan, T.P., D.D. Dauble, and D.R. Geist. 2004. An estimate of Chinook salmon (*Oncorhynchus tshawytscha*) spawning habitat and redd capacity upstream of a migration barrier in the upper Columbia River. Canadian Journal of Fisheries and Aquatic Sciences 61 (1): 23-33.

Hanrahan, T.P., D.R. Geist, and E.V. Arntzen. 2005. Habitat quality of historic Snake River fall Chinook salmon spawning locations and implications for incubation on survival: Part 1, substrate quality. River Research and Applications 25: 455-467.

Hansbarger, J.L., J.T. Petty, and P.M. Mazik. 2010. Microhabitat use by brook trout inhabiting small tributaries and a large river main stem: implications for stream habitat restoration in the upper Shavers Fork, West Virginia. Proceedings of the Annual Conference Southeastern Association of Fish and Wildlife Agencies 62 (2008): 142-148.

Hansen, D.A, and T.L. Morgenau. 1992.Movement, habitat selection, behavior, and survival of stocked muskellunge. North American Journal of Fisheries Managrment 12: 474-483.

Hansen, E.A. 1971. Sediment in a Michigan trout stream, its source, movement, and some effects on fish habitat. U.S. Forest Service Research Paper NC-59.

Hansen, E.A. 1975. Some effects of groundwater on brown trout redds. Transactions of the American Fisheries Society 104: 100-110.

Hansen, E.A., and G.P. Closs. 2009. Long-term growth and movement in relation to food supply and social status in a stream fish. Behav. Ecol. 20 (3): 616-623. Doi: 10.1093/beheco/arp039

Hansen, M., M. Bozek, J. Newby, S. Newman, and M. Staggs. 1998. Factors affecting recruitment of walleyes in Escanaba Lake, Wisconsin, 1958-1996. North American Journal of Fisheries Management 18: 764-774.

Hansen, R., D.D. Hart, and R.A. Merz. 1991. Flow mediates predator-prey interactions between triclad flatworms and larval black flies. Oikos 60: 187-196.

Hanson, C.H. 2001. Are juvenile Chinook salmon entrained at unscreened diversions in direct proportion to the volume of water diverted? California Department of Fish and Game Fish Bulletin 179: 331-341.

Hanson, D.L., and T.F. Waters. 1974. Recovery of standing crop and production rate of a brook trout population in a flood-damaged stream. Transactions of the American Fisheries Society 103 (3): 431-439.

Hanson, W.D., and R.S. Campbell. 1963. The effects of pool size and beaver activity on distribution and abundance of warm-water fishes in a north Mississippi stream. American Midland Naturalist 69 (1): 137-149.

Haraldstad, O., B. Jonsson, O/T. Sandlund, and T.A. Schei. 1987. Lake effect on stream living brown trout (*Salmo trutta*). Arch. Hydrobiol. 109: 39-48.

Harby, A., K.T. Alfredsen, H.P. Fjeldstad, J.H. Halleraker, J.V. Arnekleiv, P. Borsanyi, L.E.W. Flodmark, S.J. Saltveit, S.W. Johansen, T. Vehanen, A. Huusko, K. Clarke, and D.A. Scruton. 2001. Ecological impacts of hydro peaking in rivers. Hydropower and Dams 4: 132-134.

Harby, A., J,M, Olivier, S. Merigoux, and E. Malet. 2007. A mesohabitat method used to assess minimum flow changes and impacts on the invertebrate and fish fauna in the Rhone River, France. River Research and Applications 23: 525-543.

Hardie, S.A. 2013. Hydrological manipulation to assist spawning of a threatened galaxiid fish in a highland lake system. Marine and Freshwater research 64: 887-899.

Hardin, T.S., R.T. Grost, M.B. Ward, and G.E. Smith. 2005. Habitat suitability criteria for anadromous salmonids in the Klamath River, Iron Gate Dam to Scott River, California. California Department of Fish and Game, Stream Evaluation Report Number 05-1.

Harding, B.L., T.B. Sangoyomi, and E.A. Payton. 1995. Impacts of severe sustained drought in Colorado River water resources. Water Resour. Bull. 316: 815-824.

Harding, J.M., A.J. Burky, and C.M. Way. 1998. Habitat preferences of the rainbow darter, *Etheostoma caeruleum*, with regard to microhabitat velocity shelters. Copeia 1998: 988-997.

Harding, L.W., Jr. 1994. Long-term trends in the distribution of phytoplankton in Chesapeake Bay: roles of light, nutrients and streamflow. Marine Ecology Progress Series 104: 267-291.

Hardison, B.S., and J.B. Layzer. 2001. Relations between complex hydraulics and the localized distribution of freshwater mussels in three regulated rivers. Regulated Rivers: Research and Management 17: 77-84.

Hardy, R.J., P.D. Bates, and M.G. Anderson. 1999. The importance of spatial resolution in hydraulic models for floodplain environments. Journal of Hydrology 329 (1-2): 124-136.

Hardy, T.B. 1998. The future of habitat modeling and instream flow assessment techniques. Regulated Rivers: Research and Management 14 (5): 405-420.

Hardy, T.B., and R.C. Addley. 2001. Vertical integration of spatial and hydraulic data for improved habitat modelling using geographic information systems. Pages 65-75 in: M.C. Acreman (editor), Hydro-ecology: linking hydrology and aquatic ecology. Proceedings of the Birmingham, United Kingdom, Workshop, July 1999. IAHS Publication No. 266.

Hardy, T.B., and R.C. Addley. 2003. Instream Flow Assessment Modeling: Combining Physical and Behavioral Based Approaches. Canadian Water Resources Journal 28 (2): 273-282.

Hardy, T.B., C.G. Prewitt, and K.A. Voos. 1982. Application of a physical habitat usability model to the fish community in a small spring-fed desert stream. Pp. 391-397 in: W.K. Lauenroth, G.V. Skogerboe, and M. Flug (eds.), Analysis of ecological systems: state of the art in ecological modeling. Elsevier.

Hardy, T.B., T. Shaw, R.C. Addley, G.E. Smith, M. Rode, and M. Belchik. 2006. Validation of Chinook fry behavior-based escape cover modeling in the lower Klamath River. International Journal of River Basin Management 4 (2): 2-10.

Harig, A.L., and K.D. Fausch. 2002. Minimum habitat requirements for establishing translocated cutthroat trout populations. Ecological Applications 12 (2): 535-551. Doi: 10.1890/1051-0761(2002)012(0535:MHRFET)2.0.CO;2.

Harms, T.K., and N.B. Grimm. 2010. Influence of the hydrologic regime on resource availability in a semi-arid stream-riparian corridor. Ecohydrology 3: 349-393. Doi: 10.1002/eco.119.

Harner, M.J., and J.A. Stanford. 2003. Differences in cottonwood growth between a losing and a gaining reach of an alluvial floodplain. Ecology 84 (6): 1453-1458.

Harnish, R.A., G.E. Johnson, G.A. McMichael, M.S. Hughes, and B.D. Ebberts. 2012. Effect of migration pathway on travel time and survival of acoustic-tagged juvenile salmonids in the Columbia River estuary. Transactions of the American Fisheries Society 141 (2): 507-519. Doi: 10.1080/00028487.2012.670576.

Harms, W.R., H.T. Schreuder, D.D. Hook., C.L. Brown, and F.W. Shropshire. 1980. The effects of flooding on the swamp forest in Lake Oklawaha, Florida. Ecology 61: 1412-1421.

Haro, A., T. Castro-Santos, J. Noreika, and M. Odeh. 2004. Swimming performance of upstream migrant fishes in open-channel flow: a new approach to predicting passage through velocity barriers. Canadian Journal of Fisheries and Aquatic Sciences 61 (9): 1590-1601. Doi: 10.1139/f04-093.

Haro, A., T. Castro-Santos, J. Noreika, and M. Odeh. 2004. Swimming performance of upstream-migrant fishes in open-channel flow: a new approach to predicting passage through velocity barters. Canadian Journal of Fisheries and Aquatic Sciences 61: 1590-1601.

Haro, A., M. Odeh, J. Noreika, and T. Castro-Santos. 1997. Effect of water acceleration on downstream migratory behavior and passage of Atlantic salmon smolts and juvenile American shad at surface bypasses. Transactions of the American Fisheries Society 127: 118-127. Doi: 10.1577/1548-8659(1998)127<0118:EOWAOD>2.0.CO;2.

Haro, R.J., and M.A. Brusven. 1994. Effects of cobble embeddedness on the microdistribution of the sculpin *Cottus beldingi* and its stonefly prey. Great Basin Naturalist 54: 64-70.

Harper, D.D., and A.M. Farag. 2004. Winter habitat use by cutthroat trout in the Snake River near Jackson, Wyoming. Transactions of the American Fisheries Society 133 (1): 15-25.

Harpman, D.A., E.W. Sparling, and T.J. Waddle. 1993. A methodology for quantifying and valuing the impacts of flow changes on a fishery. Water Resources Research 29: 575-582.

Harr, R.D., and F.M. McCorisin. 1979. Initial effects of clearcut logging on size and timing of peak flows in a small watershed in western Oregon. Water Resour. Res. 15: 90-94.

Harrel, S.L. 1994. Utilization of water velocity and structure by two darters from Cypress Bayou, Texas. Thesis, Northeast Louisiana University, Monroe. 39 pp.

Harrell, H.L. 1978. Responses of the Devil’s River (Texas) fish community to flooding. Copeia 1978: 60-68.

Harris, D.D., W.A. Hubert, and T.A. Wesche. 1991. Brown trout population and habitat response to enhanced minimum flow in Douglas Creek, Wyoming. Rivers 2 (4): 285-294.

Harris, D.D., W.A. Hubert, and T.A. Wesche. 1992. Habitat use by young-of-the-year brown trout and effects on weighted usable area. Rivers 3 (2): 99-105.

Harris, J.E., and J.E. Hightower. 2010. Evaluation of methods for identifying spawning sites and habitat selection for alosines. North American Journal of Fisheries Management 30 (2): 386-399. Doi:10.1577/M09-096.1.

Harris, J.E., and J.E. Hightower. 2011. Spawning habitat selection of hickory shad. North American Journal of Fisheries Management 31 (3): 495-505. Doi:10.1080/02755947.2011.591263.

Harris, J.E., and J.E. Hightower. 2011. Identification of American shad spawning sites and habitat use in the Pee Dee River, North Carolina and South Carolina. North American Journal of Fisheries Management 31 (6): 1019-1033. Doi: 10.1080/02755947.2011.633686.

Harris, J.H., and P.C. Gehrke. 1994. Modelling the relationship between streamflow and population recruitment to manage freshwater fisheries. Agricultural Systems and Information Technology 6: 28-30.

Harris, L.D., and J.G. Gosselink. 1990. Cumulative impacts of bottomland hardwood forest conversion on hydrology, water quality, and terrestrial wildlife. In: J.G. Gosselink, L.C. Lee, and T.A. Muir (editors). Ecological processes and cumulative impacts: illustrated by bottomland hardwood wetland ecosystems. Lewis Publisher, Chelsea, MI. 708 pp.

Harris, N.M., A.M. Gurnell, D.M. Hannah, and G.E. Petts. 2000. Classification of river regimes: a context for hydroecology. Hydrological Processes 14: 2831-2848. Doi: 10.1002/1099-1085(200011/12)14:16/17<2831::AID-HYP122>3.3.CO;2-F.

Harris, R.D., R.J. Risser, and C.J. Fox. 1985. A method for evaluating streamflow discharge - plant species occurrence patterns on headwater streams. Pp. 87-90 in: Johnson, R.R., et al. (eds.), Riparian ecosystems and their management: reconciling conflicting uses. USDA Forest Service, Gen. Tech. Report RM-120.

Harris, R.R., C.A. Fox, and R. Risser. 1987. Impacts of hydroelectric development on riparian vegetation in the Sierra Nevada, California, USA. Environmental Management 12 (2): 219-228.

Harrison, A.B., W.T. Slack, and K.J. Killgore. 2014. Feeding habitats of young-of-year river sturgeon *Scaphirhynchus* spp. in the lower Mississippi River. American Midland Naturalist 171: 54-67.

Hart, D.D. 1992. Community organization in streams: the importance of species interactions, physical factors, and chance. Oecologia 91: 220-228.

Hart, D.D., B.D. Clark, and A. Jasentuliyana. 1996. Fine-scale field measurement of benthic flow environments inhabited by stream invertebrates. Limnology and Oceanography 41: 297-308. Doi:10.4319/lo.1996.41.2.0297.

Hart, D.D., and C.M. Finelli. 1999. Physical-biological coupling in streams: the pervasive effects of flow on benthic organisms. Annual Review of Ecology and Systematics 30: 363-395. Doi: 10.1146/annurev.ecolsys.30.1.363.

Hart, D.D., and D.M. Fonseca. 1995. Relationships between benthic distributions and heterogeneous flow environments: processes and patterns at three spatial scales. J. N. Am. Benthol. Soc. 12: 274.

Hart, D.D., and R.A. Merz. 1998. Predator-prey interactions in a benthic stream community: a field test of flow-mediated interactions. Oecologia 114: 263-273.

Hart, D.R., P.J. Mulholland, E.R. Marzolf, D.L. DeAngelis, and S.P. Hendricks. 1999. Relationships between hydraulic parameters in a small stream under varying flow and seasonal conditions. Hydrological Processes 13: 1497-1510.

Hartman, G.F. 1965. The role of behavior in the ecology and interaction of underyearling coho salmon (*Oncorhynchus kisutch*) and steelhead trout (*Salmo gairdneri*). Journal of the Fisheries Research Board of Canada 22 (4): 1035-1081.

Hartman, G.F., and T.G. Brown. 1987. Use of small, temporary, floodplain tributaries by juvenile salmonids in a west coast rain-forest drainage basin, Carnation Creek, British Columbia. Journal of the Fisheries Research Board of Canada 25: 33-48.

Hartman, G.F., and C.A. Gill. 1968. Distributions of juvenile steelhead and cutthroat trout (*Salmo gairdneri* and *S. clarki clarki*) within streams in southwestern British Columbia. Journal of the Fisheries Research Board of Canada 25: 33-48.

Hartman, G.F., and J.C. Scrivener. 1990. Impacts of forestry practices on a coastal stream ecosystem, Carnation Creek, British Columbia. Canadian Bulletin of Fisheries and Aquatic Sciences 223: viii+148 pp. Department of Fisheries and Oceans, Ottawa.

Hartman, K.J., and M.N. Logan. 2010. Movement and habitat use by transplanted adult brook trout in an Appalachian headwater stream. Northeastern Naturalist 17: 357-372.

Hartson, R.B., and B.P. Kennedy. 2015. Competitive release modifies the impacts of hydrological alteration for a partially migratory stream predator. Ecol. Freshw. Fish. 23:581-593. Doi: 10.1111/eff.12145.

Harvey, A.M. 1969. Channel capacity and the adjustment of streams to hydrologic regimes. Journal of Hydrology 8: 82-98.

Harvey, A.M., D.H. Hitchcock, and D.J. Hughes. 1979. Event frequency and morphological adjustment of fluvial systems in upland Britain. Pages 139-167 in: D.D. Rhodes, G.P. and Williams, editors. Adjustments of the Fluvial System. Kendall/Hunt Publ. Co., Dubuque, Iowa.

Harvey, B. 1987. Susceptibility of young-of-the year fishes to downstream displacement by flooding. Transactions of the American Fisheries Society 116: 851-855. Doi:10.1577/1548-8659(1987)116<851:SOYFTD>2.0.CO;2.

Harvey, B.C. 1991. Interactions among stream fishes: predator-induced shifts and larval survival. Oecologia 87 (1): 29-36. Doi: 10.1007/BF00323776.

Harvey, B.C. 1991. Interaction of abiotic and biotic factors influences larval fish survival in an Oklahoma stream. Canadian Journal of Fisheries and Aquatic Sciences 48: 1476-1480.

Harvey, B.C., and R.J. Nakamoto. 1996. Effects of steelhead density on growth of coho salmon in a small coastal California stream. Transactions of the American Fisheries Society 125: 237-243.

Harvey, B.C., and R.J. Nakamoto. 1997. Habitat-dependent interactions between two size-classes of juvenile steelhead in a small stream. Canadian Journal of Fisheries and Aquatic Sciences 54 (1): 27-31.

Harvey, B.C., R.J. Nakamoto, and J.L. White. 1999. Influence of large woody debris and a bankfull flood on movement of adult resident coastal cutthroat trout (*Oncorhynchus clarki*) during fall and winter. Canadian Journal of Fisheries and Aquatic Sciences 56 (11): 2161-2166. Doi:10.1139/cjfas-56-11-2161.

Harvey, B.C., R.J. Nakamoto, and J.L. White. 2006. Reduced streamflow lowers dry-season growth of rainbow trout in a small stream. Transactions of the American Fisheries Society 135 (4): 998-1005. Doi:10.1577/T05-233.1.

Harvey, B.C., and S.F. Railsback. 2007. Estimating multi-factor cumulative watershed effects on fish populations with an individual-based model. Fisheries 32 (6): 292-299.

Harvey, B.C., and S.F. Railsback. 2014. Feeding modes in stream salmonid population models: is drift feeding the whole story? Environmental Biology of Fishes 97: 615-625.

Harvey, B.C., and A.J. Stewart. 1991. Fish size and habitat depth relationships in headwater streams. Oecologia 87: 336-342. Doi:10.1007/BF00634588.

Harvey, B.C., and J.L. White. 2016. Use of cover for concealment behavior by rainbow trout: influences of cover structure and area. North American Journal of Fisheries Management 36 (6): 1308- 1314. Doi: 10.1080/02755947.2016.1207728.

Harvey, B.C., J.L. White, and R.J. Nakamoto. 2002. Habitat relationships and larval drift of native and nonindigenous fishes in neighboring tributaries of a coastal California river. Transactions of the American Fisheries Society 131 (1): 159-170.

Harvey, B.C., J.L. White R.J., and Nakamoto. 2005. Habitat-specific biomass, survival, and growth of rainbow trout (*Oncorhynchus mykiss*) during summer in a small coastal stream. Canadian Journal of Fisheries Management 62: 650-658. Doi:10.1139/f04-225.

Harvey, B.C., J.L. White, and R.J. Nakamoto. 2009. The effect of deposited fine sediment on summer survival and growth of rainbow trout in riffles of a small stream. North American Journal of Fisheries Management 29 (2): 434-440.

Harvey, B.C., J.L. White, R.J. Nakamoto, and S.F. Railsback. 2014. Effects of streamflow diversion on a fish population: combining empirical data and individual-based models in a site-specific evaluation. North American Journal of Fisheries Management 34 (2): 247-257. Doi: 10.1080/02755947.2013.8600062.

Harvey, G.L., and N.J. Clifford. 2009. Microscale hydrodynamics and coherent flow structures in rivers: implication for the characterization of physical habitat. River Research and Applications 25: 160-180.

Harvey, J.W., and K.E. Bencala. 1993. The effect of streambed topography on surface-subsurface water exchange in mountain catchments. Water Resources Res. 29: 89-98.

Harvey, J.W., and B.J. Wagner. 2004. Quantifying hydrologic interactions between streams and their subsurface hyporheic zones. Pp. 3-44 in: J.B. Jones and P.J. Mulholland, eds. Streams and ground waters. Academic Press, San Diego, California, USA.

Harvey, M., and C. Watson. 1986. Fluvial processes and morphological thresholds in incised channel restoration. Water Resources Bulletin 22: 359-368.

Harvey, M.D., R.A. Mussetter, and E.J. Wick. 1993. A physical process-biological response model for spawning habitat formation for endangered Colorado squawfish. Rivers 4: 114-131.

Harwood, A., S. Johnson, B. Richter, A. Locke, X. Yu, and D. Tickner. 2017. Listen to the River: Lessons from a Global Review of Environmental Flow Success Stories. Woking: WWF-UK.

Harwood, A.J., N.B. Metcalfe, S.W. Griffiths, and J.D. Armstrong. 2002. Intra- and inter-specific competition for winter concealment in juvenile salmonids. Canadian Journal of Fisheries and Aquatic Sciences 59 (9): 1515-1523.

Harwood, A.J., D. Tickner, B. Richter, A. Locke, S. Johnson, and X. Yu. 2018. Critical factors for water policy to enable effective environmental flow implementation. Frontiers in Environmental Science. Doi: 10.3389/fenvs.2018.00037

Haschenburger, J.K. 1999. A probability model of scour and fill depths in gravel-bed channels. Water Resources Research 35: 2857-2869. Doi:10.1029/1999WR900153.

Hasegawa, K., K. Ohkuma, and T. Ohnuki. 2011. [Focal point selection of Chum and Masu salmon fry in streams.] Nippon Suisan Gakkaishi 77: 1095-1097. (In Japanese.)

Hasegawa, K., and S. Takahashi. 2013. Microscale environments along the seaward migration route of stocked chum salmon fry. Transactions of the American Fisheries Society 142 (5): 1232-1237. Doi: 10.1080/00028487.2013.804006

Hasegawa, K., and S. Yamamoto. 2009. Effects of competitor density and physical habitat structure on the competitive intensity of territorial white spotted char *Salvelinus leucomaenis*. J. Fish. Biol. 74 (1): 213-219. Doi:10.1111/j.1095-8649.2008.02133.x.

Hasegawa, K., and S. Yamamoto. 2010. The effect of flow regime on the occurrence of interference and exploitative competition in a salmonid species, white-spotted char (*Salvelinus leucomaenis*). Canadian Journal of Fisheries and Aquatic Sciences 67 (11): 1776-1781. Doi:10.1139/F10-100.

Hasler, C.T., E. Guimond, B. Mossop, S.G. Hinch, and S.J. Cooke. 2014. Effectiveness of pulse flows in a regulated river for inducing upstream movement of an imperiled stock of Chinook salmon. Aquatic Sciences 76: 231-241.

Hassan, M.A., and R. Egozi. 2001. Impact of wastewater discharge on the channel morphology of ephemeral streams. Earth Surf. Proc. Land 26: 1285-1302.

Hassan, M.A., R. Egozi, and G. Parker. 2006. Effect of hydrograph characteristics on vertical sorting in gravel-bed rivers: Humid versus arid environments. Water Resources Research 42, W09408. Doi:10.1029/2005WR004707.

Hassan, M.A., A.S. Gottesfeld, D.R. Montgomery, J.F. Tunnicliffe, G.K.C. Clarke, G. Wynn, H. Jones-Cox, R. Poirier, E. McIsaac, H. Herunter, and S.J. Macdonald. 2008. Salmon-driven bedload transport and bed morphology in mountain streams. Geophysical Research Letters 35 (LO 4405): 2008. doi:10.1029/2007GL032997.

Hastie, L.C., P.J. Boon, M.R. Young, and S. Way. 2001. The effect of a major flood on an endangered freshwater mussel population. Biological Conservation 98: 107-115.

Hastie, L.C., M.R. Young, and P.J. Boon. 2000. Physical microhabitat requirements of freshwater pearl mussels, *Margaritifera margaritifera* (L.). Hydrobiologia 429: 59-71.

Hatfield, T. and J. Bruce. 2000. Predicting salmon habitat-flow relationship for streams from western North America. North American Journal of Fisheries Management 20 (4): 1005-1015.

Hatfield, T., A. Lewis, D. Ohlson, nad M. Bradford. 2003. Development of instream flow thresholds as guidelines for reviewing proposed water uses. Report to British Columbia Ministries of Sustainable Resource Management and of Water, Land, and Air Protection, Victoria.

Hatfield, T. and A.J. Paul. 2015. A comparison of desktop hydrologic methods for determining environmental flows. Canadian Water Resources Journal 40 (3): 202-318. Doi: 10.1080/07011784.2015.1050459.

Hatten, J.R., K.F. Tiffan, D.R. Anglin, S.L. Haeseker, J.J. Skalicky, and H. Schaller. 2009. A spatial model to assess the effects of hydropower operations on Columbia River fall Chinook salmon spawning habitat. North American Journal of Fisheries Management 29 (5): 1379-1405. Doi:10.1577/M08-053.1.

Hatin, D., J. Munro, F. Caron, and R.D. Simons. 2007. Movements, home range size, and habitat use and selection of juvenile Atlantic sturgeon in the St. Lawrence estuarine transition zone. Pages 129-155 in: J. Munn, D. Hatin, J.E. Hightower, K. McKown, K.J. Sulak, A.W. Kahnle, and F. Caron, editors. Anadromous sturgeons: habitats, threats, and management. American Fisheries Society, Symposium 56, Bethesda, Maryland.

Hatten, J.R., D.R. Anglin, S.L. Haeseker, J.J. Skalicky, H. Schaller, and K.F. Tiffan. 2009. A spatial model to assess the effects of hydropower operations on Columbia River fall Chinook salmon spawning habitat. North American Journal of Fisheries Management 29: 1379-1409.

Hattin, J.R., T.R. Batt, P.J. Connolly, and A.G. Maule. 2014. Modeling effects of climate change on /Yakima River salmonid habitats. Climate Change 124: 427-439.

Hatten, J.R., T.R. Batt, J.J. Skalicky, R. Engle, G.J. Barton, R.L. Fosness, and J. Warren. 2016. Effects of dam removal on tule fall Chinook salmon spawning habitat in the White Salmon River, Washington. River Research and Applications 32: 1481-1492.

Hauer, F.R. 1989. Organic matter transport and retention in a blackwater stream recovering from flow augmentation and thermal discharge. Regulated Rivers: Research and Management 4: 371-380.

Hauer, F.R., and A.C. Benke. 1987. Influence of temperature and river hydrograph on black fly growth rates in a subtropical blackwater river. J. N. Am. Benthol. Soc. 6: 251-261. Doi: 10.2307/1467312.

Hauer, F.R., and M.S. Lorang. 2004. River regulation, decline of ecological resources, and potential for restoration in a semi-arid lands river in the western USA. Aquatic Sciences 66: 388-401.

Hauer, R.F., and J.A. Stanford. 1982. Ecological responses of hydropsychid caddisflies to stream regulation. Canadian Journal of Fisheries and Aquatic Sciences 39: 1235-1242. Doi: 10.1139/f82-164

Hausle, D.A., and D.W. Coble. 1976. Influence of sand in redds on survival and emergence of brook trout (*Salvelinus fontinalis*). Transactions of the American Fisheries Society 105 (1): 57-63. Doi: 10.1577/1548-8659(1976)105<57:IOSIRO>2.0.FCO;2.

Hausner, M.B., K.P. Wilson, D.B. Gaines, F. Suarez, G.G. Scoppettone, and S.W. Tyler. 2014. Life in a fishbowl: prospects for the endangered Devils Hole pupfish (*Cyprinodon diabolis*) in a changing climate. Water Resources Research 50: 7020-7034.

Hautzinger, A. 2007. Bill Williams River, Arizona: restoring natural variability in an arid lands river. Water Resour. IMPACT 9: 18-20.

Havey, K.A. 1974. Effects of regulated flows on standing crops of juvenile salmon and other fishes at Barrow Stream, Maine. Transactions of the American Fisheries Society 103 (1): 1-9.

Havey, K.A., and R.M. Davis. 1970. Factors influencing standing crops and survival of juvenile salmon at Barrows Stream, Maine. Transactions of the American Fisheries Society 99 (2): 297-311.

Hawes, S.R., and H.M. Perry. 1978. Effects of 1973 floodwaters on plankton populations in Louisiana and Mississippi. Gulf Research Reports 6: 109-124.

Hawke, S.P. 1978. Stranded redds of quinnat salmon in the Mathias River, South Island, New Zealand. New Zealand Journal of Marine and Freshwater Research 12: 167-171.

Hawkes, C.L., D.L. Miller, and W.G. Layher. 1986. Fish ecoregions of Kansas: stream fish assemblage patterns and associated environmental correlates. Environmental Biology of Fishes 17: 267-279.

Hawkes, H.A. 1975. River zonation and classification. Pages 312-374 in: B.A. Whitton, editor. River ecology. University of California Press, Berkeley.

Hawkins, C.P., J.N. Hogue, L.M. Drecker, and J.W. Feminella. 1997. Channel morphology, water temperature, and assemblage structure of stream insects. Journal of the North American Benthological Society 16: 220-228.

Hawkins, C.P., J.L. Kershner, P.A. Bisson, M.D. Bryant, L.M. Decker, S.V. Gregory, D.A. McCullough, C.K. Overton, G.H. Reeves, R.J. Steedham, and M.K. Young. 1993. A hierarchical approach to classifying habitat features. Fisheries 18 (6): 3-12.

Hawkins, C.P., M.L. Murphy, N.H. Anderson, and M.A. Wilzbach. 1983. Density of fish and salamanders in relation to riparian canopy and physical habitat in streams of the northwestern United States. Canadian Journal of Fisheries and Aquatic Sciences 40: 1173-1185.

Hawkins, D.K., and T.P. Quinn. 1996. Critical swimming velocity and associated morphology of juvenile coastal cutthroat trout (*Oncorhynchus clarki clarki*), steelhead trout (*Oncorhynchus* *mykiss*), and their hybrids. Canadian Journal of Fisheries and Aquatic Sciences 53: 1487-1496.

Haworth, M.R. 2015.Reproduction and recruitment dynamics of flathead chub *Platygobio gracilis* relative to flow and temperature regimes in Fountain Creek, Colorado. Master’s thesis, Colorado State University, Fort Collins.

Haworth, M.R., and K.R. Bestgen. 2016. Daily increment validation and effects of streamflow variability and water temperature on growth of age-0 flathead chub. North American Journal of Fisheries Management 36 (4): 744-751. Doi: 10.1080/0275594.2016.1165772.

Haworth, M.R., and K.R. Bestgen. 2017. Flow and water temperature affect reproduction and recruitment of a Great Plains cyprinid. Canadian Journal of Fisheries and Aquatic Sciences 74: 853-863.

Hawkins, C.P., J.N. Hogue, L.M. Decker, and J.W. Feminella. 1997. Channel morphology, water temperature, and assemblage structure of stream insects. Journal of the North American Benthological Society 16: 728-749.

Haxton, T.J. 2011. Depth selectivity and spatial distribution of juvenile lake sturgeon in a large, fragmented river. Journal of Applied Ichthyology 27: 45-52.

Haxton, T.J., and C.S. Findlay. 2008. Meta-analysis of the impacts of water management on aquatic communities. Canadian Journal of Fisheries and Aquatic Sciences 65 (3): 437-447.

Haxton, T.J., and C.S. Findlay. 2008. Variation in lake sturgeon (*Acipenser fulvescens*) abundance and growth among river reaches in a large regulated river. Canadian Journal of Fisheries and Aquatic Sciences 65 (4): 645-657.

Haxton, T.J., and C.S. Findlay. 2009. Variation in large-bodied fish community structure and abundance in relation to water-management regime in a large regulated river. Journal of Fish Biology 74: 2216-2238.

Haxton, T.J., C.S. Findlay, and R.W. Threader. 2008. Predictive value of a lake sturgeon habitat suitability model. North American Journal of Fisheries Management 28 (5): 1373-1383. Doi:10.1577/M07-146.1.

Haxton, T.J., M. Friday, T. Cano, and C. Hendry. 2015. Assessing the magnitude and effect of hydroelectric production on lake sturgeon abundance in Ontario. North American Journal of Fisheries Management 35 (5): 930-941. Doi: 10.1080/02755947.2015.1074962

Hay, C.H., T.G. Franti, D.B. Marx, E.J. Peters, and L.W. Hesse. 2008. Macroinvertebrate drift density in relation to abiotic factors in the Missouri River. Hydrobiologia 598 (1): 175-189. Doi:10.1007/s10750-007-9149-3.

Hayes, D.B., C.P. Ferreri, and W.W. Taylor. 1996. Linking fish habitat to their population dynamics. Canadian Journal of Fisheries and Aquatic Sciences 53 (Suppl. 1): 383-390.

Hayes, D.B., and B.E. Thompson. 2014. Movement rules for juvenile steelhead: dynamic linking og movement behaviour to habitat and density. Ecol. Freshw. Fish. 23: 581-593. doi:10.1111/eff.12111.

Hayes, F.R. 1953. Artificial freshets and other factors controlling the ascent and populations of Atlantic salmon in the LaHave River, Nova Scotia. Bulletin of the Fisheries Research Board of Canada 99: 1-47.

Hayes, J.W. 1995. Unusual feeding behaviour and habitat use by koaro. Conservation Advisory Science Notes 127. Department of Conservation. Wellington. 5 pp.

Hayes, J.W. 1996. Bioenergetic model for drift-feeding brown trout. In: The 2nd International Symposium on Ecohydraulics, June 1996, Quebec, Canada. Pp. 465-476.

Hayes, J.W., E. Goodwin, J. Hay, K.A. Shearer, and L. Kelly. 2012. Minimum flow requirements of trout in the Mataura River: comparison of traditional habitat and net rate of energy intake modelling. Prepared for Environment Southland. Cawthron Report No. 1957.

Hayes, J.W., E. Goodwin, K.A. Shearer, J. Hay, and L. Kelly. 2016. Can weighted usable area predict flow requirements of drift-feeding salmonids? Comparison with a net rate of energy intake model incorporating drift-flow processes. Transactions of the American Fisheries Society 145 (3): 589-609. Doi: 10.1080/00028487.2015.1121923.

Hayes, J.W., N.F. Hughes, and L.H. Kelly. 2007. Process-based modelling of invertebrate drift transport, net energy intake and reach carrying capacity for drift-feeding salmonids. Ecological Modelling 207 (2-4): 171-178. Doi: 10.1016/j.ecolmodel.2007.04.032.:

Hayes, J.W., and I.G. Jowett. 1994. Microhabitat models of large drift-feeding brown trout in three New Zealand rivers. North American Journal of Fisheries Management 14 (4): 710-725. Doi: 10.1577/1548-8675(1994)014<0710:MMOLDF>2.3.CO;2.

Hayes, J.W., D.A. Olsen, and J. Hay. 2010. The influence of natural variation in discharge on juvenile brown trout population dynamics in a nursery tributary of the Motueka River, New Zealand. New Zealand Journal of Marine and Freshwater Research 44: 247-269. Doi: 10.1080/00288330.2010.509905.

Hayes, J.W., K.A. Shearer, E.O. Goodwin, J. Hay, C. Allen, D.A. Olsen, and I.G. Jowett. 2015. Test of a benthic macroinvertebrate habitat-flow time series model incorporating disturbance and recovery processes. River Research and Applications 31: 785-797.

Hayes, S.A., M.H. Bond, C.V. Hanson, E.V. Freund, J.J. Smith, E.C. Anderson, A.J. Ammann, and R.B. MacFarlane. 2008. Steelhead growth in a small central California watershed: upstream and estuarine rearing patterns. Transactions of the American Fisheries Society 137 (1): 114-128.

Hazel, J.E., Jr., M. Kaplinski, R. Parnell, M. Manone, and A. Dale. 1999. Topographic and bathymetric changes a thirty-three long-term study sites. Pages 161-183 in: R/H. Webb, J.C. Schmidt, G.R. Marzolf, and R.A. Valdez, editors. The controlled flood in Grand Canyon. American Geophysical Union Geophysical Monograph 110, Washington, D.C., USA.

Hazelton, P.D., and G.D. Grossman. 2009. Turbidity, velocity and interspecific interactions affect foraging behaviour of rosyside dace (*Clinostomus funduloides*) and yellowfin shiners (*Notropis lutippinis*). Ecol. Freshw. Fish 18: 427-436.

He, L.M., and C. Marcinkevage. 2017. Incorporating thermal requirements into flow regime development for multiple Pacific salmonid species in regulated rivers. Ecological Engineering 99: 141-158. Doi: 10.1016/j.ecoleng.2016.11.009

He, X., S. Lu, M. Liao, X. Zhu, M. Zhang, S. Li, and S. You. 2013. Effects of age and size on critical swimming speed of juvenile Chinese sturgeon *Acipenser sinensis* at seasonal temperatures. Journal of Fish Biology 82: 1047-1056.

He, X., Y. Wada, N. Wanders, and J. Sheffield. 2017. Intensification of hydrological drought in California by human water management. Geophysical Research Letters 44: 1777-1785.

Healy, B.D., and D.G. Lonzarich. 2000. Microhabitat use and behavior of overwintering juvenile coho salmon in a Lake Superior tributary. Transactions of the American Fisheries Society 129 (3): 866-872.

Hearn, W.E. 1987. Interspecific competition and habitat segregation among stream-dwelling trout and salmon: a review. Fisheries 12 (5): 24-31. Doi: 10.1377/1548-8446(1987)012<0024:ICAHSA>2.0.CO;2.

Hearn, W.E., and B.E. Kynard. 1986. Habitat use and behavioral interaction of juvenile Atlantic salmon (*Salmo salar*) and rainbow trout (*S. gairdneri*) in tributaries of the White River in Vermont. Canadian Journal of Fisheries and Aquatic Sciences 43 (10): 1988‑1998.

Hearne, J., I. Johnshom, and P. Armitage. 1994. Determination of ecologically acceptable flows in rivers with seasonal changes in the density of macrophyte. Regulated Rivers: Research and Management 9: 177-184.

Heathwaite, A.L. 2010. Multiple stressors on water availability at global to catchment scales: understanding human impact on nutrient cycles to protect water quality and water availability in the long term. Freshwater Biology 55: 241-257.

Hedger, R.D., J.J. Dodson, N.E. Bergeron, and F. Caron. 2005. Habitat selection by juvenile Atlantic salmon: the interaction between physical habitat and abundance. Journal of Fish Biology 67: 1054-1071. Doi: 10.1111/j.0022-1122.2005.0808.x.

Hedger, R.D., J.J. Dodson, J-F. Bouque, N.E. Bergeron, and P.E. Carbonneau. 2006. Improving models of juvenile Atlantic salmon habitat use through high resolution remote sensing. Ecological Modelling 197: 505-511.

Hedman, E.R., and W.R. Osterkamp. 1982. Streamflow characteristics related to channel geometry in streams in western United States. U.S. Geological Survey, Water-Supply Paper 2193, 17 pp.

Heede, B.H., and J.N. Rinne. 1990. Hydrodynamic and fluvial geomorphological processes: implications for fisheries management and research. North American Journal of Fisheries Management 10: 249-268.

Heffernan, J.B. 2008. Wetlands as an alternative stable state in desert streams. Ecology 89 (5): 1261-1271.

Heggenes. J. 1988. Effect of experimentally increased intraspecific competition on sedentary adult brown trout (*Salmo trutta*) movement and stream habitat choice. Canadian Journal of Fisheries and Aquatic Sciences 45 (7): 1163‑1172.

Heggenes. J. 1988. Substrate preferences of brown trout fry (*Salmo trutta*) in artificial stream channels. Canadian Journal of Fisheries and Aquatic Sciences 45 (10): 1801‑1806. Doi:10.1139/f88-211.

Heggenes. J. 1988. Effects of short-term flow fluctuations on displacement of, and habitat use by, brown trout in a small stream. Transactions of the American Fisheries Society 117 (4): 336-344.

Heggenes, J. 1988. Physical habitat selection by brown trout (*Salmo trutta*) in riverine systems. Nordic Journal of Freshwater Research 64: 74-90.

Heggenes, J. 1990. Habitat utilization and preferences in juvenile Atlantic salmon (*Salmo salar*) in streams. Regulated Rivers: Research and Management 5 (4): 341-354. Doi:10.1002/rrr.3450050406.

Heggenes, J. 1991. Comparisons of habitat availability and habitat use by an allopatric cohort of juvenile Atlantic salmon *Salmo salar* under conditions of low competition in a Norwegian stream. Holarctic Ecology 14: 51-62.

Heggenes, J. 1991. Effect of habitat availability on habitat use by an allopatric cohort of juvenile Atlantic salmon (*Salmo salar*) under conditions of low competition in a stream. Holarctic Ecology 14: 51-62.

Heggenes, J. 1994. Physical habitat selection by brown trout (*Salmo trutta*) and young Atlantic salmon (*S. salar*) in spatially and temporally heterogeneous streams: implications for hydraulic modeling. Pp. 12-30 in: Proceedings of the 1st International Conference on Habitat Hydraulics. International Association of Hydraulic Research, Trondheim, Norway.

Heggenes, J. 1996. Habitat selection by brown trout (*Salmo trutta*) and young Atlantic salmon (*S. salar*) in streams: static and dynamic hydraulic modeling. Regulated Rivers: Research and Management 12: 155-169. Doi: 10.1002/(SICI)1099-1646(199603)12:2/3<155:AID-RRR387>3.0.CO;2-D.

Heggenes, J. 2002. Flexible summer habitat selection by wild, allopatric brown trout in lotic environments. Transactions of the American Fisheries Society 131 (2): 287-298.

Heggenes, J., J.L. Bagliniere, and R.A. Cunjak. 1995. Note de synthese sur la selection de niche spatiale et la competition chez le jeune saumon atlantique (*Salmo salar*) et la truite commune (*Salmo trutta*). Bull. Fr. Peche Piscic. 337/338/339: 231-240.

Heggenes, J., J.L. Bagliniere, and R.A. Cunjak. 1999. Spatial niche variability for young Atlantic salmon, *Salmo salar* L., and brown trout, *S. trutta* L., in heterogeneous streams. Ecology of Freshwater Fish 8: 1-21. Doi: 10.1111/j.1600-0633.1999.tb00048.x.

Heggenes, J., and R. Borgstrom. 1988. Effect of mink, *Mustela vison* Schreber, predation on cohorts of juvenile Atlantic salmon, *Salmo salar* L., and brown trout, *S. trutta* L., in three small streams. Journal of Fish Biology 33: 885-594.

Heggenes, J., and R. Borgstrom. 1991. Effects of habitat types on survival, spatial distribution and production of an allopatric cohort of Atlantic salmon, *Salmo salar* L., under conditions of low competition. Journal of Fish Biology 38: 267-280.

Heggenes, J., A. Braband, and S.K. Saltveit. 1990. Comparison of three methods for studies of stream habitat use by young brown trout and Atlantic salmon. Transactions of the American Fisheries Society 119: 101-111.

Heggenes, J., A. Braband, and S.K. Saltveit. 1991. Microhabitat use by brown trout *(Salmo* *trutta)*, and Atlantic salmon *(Salmo salar)* in a stream: a comparative study of underwater and riverbank observation. Journal of Fish Biology 38: 259-266.

Heggenes, J., and J.G. Dokk. 1995. Habitatvalg till oaks og orretunger i Suldalslagen. Modellerte konsekvenser av ulike vannforinger (Habitat selection by young Atlantic salmon and brown trout in Saldalslagen. Simulated effects of different discharges). Lakseforsterkningsposjektet I Suldalslagen Rapport Nr. 9 (in Norwegian).

Heggenes, J., and J.G. Dokk. 2001. Contrasting temperatures, water-flows, and light: seasonal habitat selection by young Atlantic salmon and brown trout in a boreonemoral river. Regulated Rivers Research and Management 17: 623-635. Doi:10.1002/rrr.620.

Heggenes, J., T.G. Northcote, and A. Peter. 1991. Spatial stability of cutthroat trout (*Oncorhynchus clarki*) in a small coastal stream. Canadian Journal of Fisheries and Aquatic Sciences 48 (5): 757‑762. Doi:10.1139/f91-163.

Heggenes, J., T.G. Northcote, and A. Peter. 1991. Seasonal habitat selection and preferences by cutthroat trout (*Oncorhynchus clarki*) in a small, coastal stream. Canadian Journal of Fisheries and Aquatic Sciences 48: 1364‑1370. Doi:10.1139/f91-163.

Heggenes, J., O.K. Omholt, J.R. Kristiansen, J. Sageie, F. Okland, J.G. Dokk, and M.C. Beere. 2007. Movement by wild brown trout in a boreal river: response to habitat and flow contrasts. Fisheries Management and Ecology 14: 333-342. Doi: 10.1111/j.1365-2400.2007.00559.x.

Heggenes. J., and S.J Saltveit. 1990. Seasonal and spatial microhabitat selection and segregation in young Atlantic salmon, *Salmo salar* L., and brown trout, *S. trutta* L. in a Norwegian river. Journal of Fish Biology 36: 707-720.

Heggenes. J., and S.J Saltveit. 2007. Summer stream habitat partitioning by sympatric Arctic charr, Atlantic salmon and brown trout in two sub-arctic rivers. J. Fish Biol. 71 (4): 1069-1081. Doi: 10.1111/j.1095-5649-2007.01573.x

Heggenes, J., S.J. Saltveit, K.A. Vaskinn, and O. Lingas. 1996. Predicting fish habitat use to changes in water flow: modeling critical minimum flows for Atlantic salmon, *Salmo salar*, and brown trout, *S. trutta*. Regulated Rivers: Research and Management 12: 331-344.

Heggenes. J., and T. Traaen. 1988. Downstream migration and critical water velocities in stream channels for fry of four salmonid species. Journal of Fish Biology 32: 717-727. Doi:10.1111/j.1095-8649.1988.tb05412.x.

Heiler, G., T. Hein, F. Scheimer, and G. Bornette. 1995. Hydrological connectivity and flood pulses as the central aspects for the integrity of a river-floodplain system. Regulated Rivers: Research and Management 11: 351-361.

Hein, T., C. Baranyi, G.J. Hemdl, W. Wanek, and F. Schiemer. 2003. Allochthonous and autochthonous particulate organic matter in floodplains of the River Danube: the importance of hydrological connectivity. Freshwater Biology 48: 220-232.

Hein, T., W. Reckendorfer, J. Thorp, and F. Schiemer. 2005. The role of slackwater areas and the hydrologic exchange for biogeochemical processes in river corridors: examples from the Austrian Danube. Archiv fur Hydrobiologie Suppl. 155 (Large Rivers Vol. 15): 425-442.

Heinz Center, The. 2008. The state of the nation’s ecosystems 2008: measuring the lands, waters, and living resources of the United States. Washington, DC: Island Press.

Heise, R.J., W.T. Slack, S.T. Ross, and M.A. Dugo. 2005. Gulf sturgeon summer habitat use and fall migration in the Pascagoula River, Mississippi, USA. Journal of Applied Ichthyology 21: 461-468.

Heitke, J.D., C.L. Pierce, G.T. Gelwicks, G.A. Simmons, and G.L. Siegwarth. 2006. Habitat, land use, and fish assemblage relationships in Iowa streams: preliminary assessment in an agricultural landscape. Pages 287-304 in R.M. Hughes, L. Wang, and P.W. Seelbach, editors. American Fisheries Society, Symposium 48, Bethesda, Maryland.

Heitmuller, F.T. 2009. Downstream trends of alluvial sediment composition and channel adjustment in the Llano River watershed, Central Texas, USA: the roles of a highly variable flow regime and a complex lithology. Ph.D. dissertation, University of Texas, Austin. http:// repositories.lib.utexas.edu/handle/2152/6900

Helfield, J.M., and R.J. Naiman. 2001. Effects of salmon-derived nitrogen on riparian forest growth and implications for stream productivity. Ecology 82: 2403-2409.

Helfrich, L.A., K.W. Nutt, and D.L. Weigmann. 1991. Habitat selection by spawning redbreast sunfish in Virginia streams. Rivers 2 (2): 138-147.

Hellmair, M., M. Peterson. B. Mulvey, K. Young, J. Montgomery, and A. Fuller. 2018. Physical characteristics influencing nearshore habitat use by juvenile Chinook salmon in the Sacramento River, California. North American Journal of Fisheries Management 38 (4): 959-970. Doi: 10.1002/nafm.10201

Helvey, J.D. 1972. First-year effects of wildfire on water yield and stream temperature in north-central Washington. Pp. 308-312 in: S.C. Callany, T.G. McLaughlin, and W.D. Striffler (eds.), Watersheds in transitions. American Water Resources Association, Proceeding Series 14, Urbana, Illinois.

Helvey, J.D. 1980. Effects of a north-central Washington wildfire on runoff and sediment production. Water Resources Bulletin 16: 627-634.

Hembre. B., J.V. Arnekliev, and J.H. L’Abee-Lund. 2001. Effects of water discharge and temperature on the seaward migration of anadromous brown trout, Salmo trutta, smolts. Ecol. Freshwat. Fish 10 (1): 61-64. Doi: 10.1111/j.1600-0633.2001.tb00195.x

Henderson, A.R., and C.E. Johnston. 2010. Ontogenetic habitat shifts and habitat use in an endangered minnow, *Notropis mekistocholas*. Ecology of Freshwater Fish 19: 87-95.

Henderson, M.A., D.A. Levy, and J.S. Stockner. 1992. Probable consequences of climate change on freshwater production of Adams River sockeye salmon (*Oncorhynchus nerka*). GeoJournal 28: 51-59.

Hendry, A.P., O.K. Berg, and T.P. Quinn. 2001. Breeding location choice in salmon: causes (habitat, competition, body size, energy stores). Oikos 93: 407-418. Doi: 10.1034/j.1600-0706.2001.930306.x.

Henning, J.A., R.E. Gresswell, and I.A. Fleming. 2006. Juvenile salmonid use of freshwater emergent wetlands in the floodplain and its implications for conservation management. North American Journal of Fisheries Management 26 (2): 367-376.

Henning, J.A., R.E. Gresswell, and I.A. Fleming. 2007. Use of seasonal freshwater wetlands by fishes in a temperate river floodplain. Journal of Fish Biology 71: 476-492.

Henriksen, J.A., J. Heasley, J. Kennen, and S. Nieswand. 2006. User’s manual for the Hydroecological Integrity Assessment Process software (including the New Jersey Assessment Tools). US Geological Survey Report 2006-1093.

Henry, B.E., and G.D. Grossman. 2008. Microhabitat use by Blackbanded (*Percina nigrofasciata*), turquoise (*Etheostoma inscriptum*), and tessellated (*E. olmstedi*) darters during drought in a Georgia piedmont stream. Environmental Biology of Fishes 83: 171-182. Doi: 10.1007/s10641-007-9312-8.

Henry, C.P., C. Amoros, and G. Bornette. 1996. Species traits and recolonization processes after flood disturbances in riverine macrophytes. Vegetatio 122: 13-27.

Henszey, R.J., Q.D. Skinner, and T.A. Wesche. 1991. Response of montane meadow vegetation after two years of streamflow augmentation. Regul. Rivers: Res. Mange. 6: 29.

Herbert, D.A., W.B. Perry, B.J. Cosby, and J.W. Fourqurean. 2011. Projected reorganization of Florida Bay seagrass communities in response to the increased freshwater inflow of Everglades restoration. Estuaries Coasts 34 (5): 973-992. Doi: 10.1007/s12237-011-9388-4.

Herbert, M.E., and F.P. Gelwick. 2003. Spatial variation of headwater fish assemblages explained by hydrologic variability and upstream effects of impoundments. Copeia 2003: 273-284. Doi: 10.1643/0045-8511(2003)003[0273:SVOHFA]2.0.CO;2

Herger, L.G., W.A. Hubert, and M.K. Young. 1996. Comparison of habitat composition and cutthroat trout abundance at two flows in small mountain streams. North American Journal of Fisheries Management 16 (2): 294-301.

Hering, D., M. Gerhard, R. Mandrebach, and M. Reich. 2004. Impacts of a 100-year flood on vegetation, benthic invertebrates, riparian fauna and large woody debris standing stock in an alpine floodplain. River Research and Application 20: 445-457.

Heritage, G.L., L.J. Broadhurst, and A.L. Birkhead. 2001. The influence of contemporary flow regime on the geomorphology of the Sabie River, South Africa. Geomorphology 38: 197-211.

Heritage, G.L., A.W. van Niekerk, B.P. Moon, L.J. Broadhurst, K.H. Rogers, and C.S. James. 1997. The geomorphological response to changing flow regimes of the Sabie and Letaba river systems. Water Research Commission, Pretoria, South Africa.

Herrmann, P.B. 2009. Disturbance, predation and competition in a flood-prone stream. Ph.D. thesis, University of Otago, Dunedin, New Zealand.

Herrala, J.R., P.T. Kroboth, N.M. Kuntz, and H.L. Schramm, Jr. 2014. Habitat use and selection by adult pallid sturgeon in the lower Mississippi River. Transactions of the American Fisheries Society 143 (1): 153-163. Doi: 10.1080/00028487.2013.83097

Hesse, L.W., and G.E. Mestl. 1993. An alternative hydrograph for the Missouri River based on the precontrol condition. North American Journal of Fisheries Management 13: 360-366.

Hesse, L.W., and B.A. Newcomb. 1982. Effects of flushing Spencer Hydro on water quality, fish, and insect fauna in the Niobara River, Nebraska. North American Journal of Fisheries Management 2: 45-52.

Hewitt, A.H., T.J. Kwak, W.G. Cope, and K.H. Pollock. 2009. Population density and instream habitat suitability of the endangered Cape Fear shiner. Transactions of the American Fisheries Society 138 (6): 1439-1457. Doi:10.1577/T08-038.1

Hewlett, J.D., and J.D. Helvey. 1970. Effects of forest clear-felling on storm hydrograph. Water Resources Research 6: 768-782.

Hey, R.D. 1975. Design discharge for natural channels. Pp. 71-81 in: R.D. Hey and J.D. Davies (editors), Science Technology and Environmental Management, Saxon House, Farnborough.

Hey, R.D. 1997. Channel response and channel forming discharge: literature review and interpretation. Final report for U.S. Army contract no R&D 6871-EN-01.

Hey, D.L., and N.S. Philippi. 1995. Flood reduction through wetland restoration: The upper Mississippi River basin as a case history. Restoration Ecology 3 (1): 4-17.

Hibbert, A.R. 1967. Forest treatment effects on water yield. Proceedings of International Symposium on Forest Hydrology, Penn State University 1965. Pergammon Press, New York. Pages 527-543.

Hickerson, B.T., and A.W. Walters. 2019. Evaluation of potential translocation sites for an imperiled cyprinid, the hornyhead chub. North American Journal of Fisheries Management 39 (1): 205-218. Doi: 10.1002/nafm.10261

Hickey, J.W., and W. Fields. 2009. HEC-EFM Ecosystem Functions Model, Quick Start Guide. Vicksburg, MS: U.S. Army Corps of Engineers (USACE), Institute for Water Resources (IWR), Hydrologic Engineering Center.

Hickman, T., and R. Raleigh. 1982. Habitat suitability index models: Cutthroat trout. U.S. Fish and Wildlife Service, FWS-OBS/82/10.5. 38 pp.

Hicks, B.J. 1989. The influence of geology and timber harvest on channel morphology and salmonid populations in Oregon Coast Range streams. Doctoral dissertation. Oregon State University, Corvallis.

Hicks, B.J., R.L. Beschta, and R.D. Harr. 1991. Long-term changes in streamflow following logging in western Oregon and associated fisheries implications. Water Resources Bulletin 27: 217-226.

Hicks, B.J, and J.D. Hall. 2003. Rock type and channel gradient structure salmonid populations in the Oregon Coast Range. Transactions of the American Fisheries Society 132 (3): 468-482.

Hicks, B.J., J.D. Hall, P.A. Bisson, and J.R. Sedell. 1991. Responses of salmonids to habitat changes. Pp. 483-518 in: W.R. Meehan (ed.) Influences of forest and rangeland management on salmonid fishes and their habitats. American Fisheries Society Special Publication 19, Bethesda, Maryland.

Hieber, M., C.T. Robinson, U. Uehlinger, and J.V. Ward. 2002. Are alpine lake outlets less harsh than other alpine streams? Arch. Hydrobiol. 154: 199-223.

Higano, J. 2004. Influence of environmental changes in the tidal flats on the filtration and respiration of bivalve mollusks. Bulletin of the Fisheries Resource Agency, Supplement No. 1: 33-40.

Higgins, J.V., M.T. Bryer, M.L. Khoury, and T.W. Fitzhugh. 2005 A freshwater classification approach for biodiversity conservation planning. Conservation Biology 19: 1-14.

Higgins, P.S., and M.J. Bradford. 1996. Evaluation of a large-scale fish salvage to reduce the impacts of controlled flow reduction in a regulated river. North American Journal of Fisheries Management 16: 666-673.

High, B., C.A. Peery, and D.H. Bennett. 2006. Temporary staging of Columbia River summer steelhead in coolwater areas and its effect on migration rates. Transactions of the American Fisheries Society 135 (2): 519-528.

Hightower, J.E., and K.L. Sparks. 2003. Migration and spawning habitat of American shad in the Roanoke River, North Carolina. Pages 193-199 in: K.E. Limburg and J.R. Waldman, editors. Biodiversity, status, and conservation of the world’s shads. American Fisheries Society, Symposium 35, Bethesda, Maryland.

Hildebrand, R.H., A.D. Lemly, and C.A. Dolloff. 1999. Habitat sequencing and the importance of discharge in inferences. North American Journal of Fisheries Management 19(1): 198-202.

Hill, J. 1989. The energetic significance of microhabitat use in two stream fishes. Ph.D. dissertation, University of Georgia, Athens.

Hill, J., and G.D. Grossman. 1993. An energetic model of microhabitat use for rainbow trout and rosyside dace. Ecology 74 (3): 685‑698. Doi:10.2307/1940796.

Hill, M.S., G.B. Zydlewski, and W.L. Gale. 2006. Comparisons between hatchery and wild steelhead trout (*Oncorhynchus mykiss*) smolts: physiology and habitat use. Canadian Journal of Fisheries and Aquatic Sciences 63 (7): 1627-1638.

Hill, M.T., and W.S. Platts. 1998. Ecosystem restoration: a case study in the Owens River Gorge, California. Fisheries 23 (11): 18-27.

Hill, M.T., W.S. Platts, and R.L. Beschta. 1991. Ecological and geomorphological concepts for instream and out-of-channel flow requirements. Rivers 2: 198-210.

Hill, M.T., W.S. Platts, and G. Brodt. 1998. Restoration of the Owens River Gorge ecosystem. Pages 308-313 in: Engineering Approaches to Ecosystem Restoration: Conference Proceedings, American Society of Civil Engineers, New York.

Hill, M., B. Tillemans, D.W. Martin, and W. Platts. 2002. Recovery of riparian ecosystems in the upper Owens River watershed. Ground Water/Surface Water Interactions: AWRA Summer Specialty Conference July 1-3, 2002: 161-166.

Hillman, G.R. 1998. Flood wave attenuation by a wetland following a beaver dam failure on a second order boreal stream. Wetlands 18 (1): 21-34.

Hillman, T.J., and G.P. Quinn. 2002. Temporal changes in macroinvertebrate assemblages following experimental flooding in permanent and temporary wetlands in an Australian floodplain forest. River Research and Applications 18 (2): 137-154.

Hillman, T.W., J.S. Griffith, and W.S. Platts. 1987. Summer and winter habitat selection by juvenile chinook salmon in a highly sedimented Idaho stream. Transactions of the American Fisheries Society 116 (2): 185-195. Doi:10.1577/1548-8659(1987)116<185:SAWHSB>2.0.CO;2.

Hinch, S.G, and J.M. Bratty. 2000. Effects of swim speed and activity pattern on success of adult sockeye salmon migration through an area of difficult passage. Transactions of the American Fisheries Society 129: 604-612.

Hinch, S.G., and P.S. Rand. 1998. Swim speeds and energy use of up-river migrating sockeye salmon (*Oncorhynchus nerka*): role of local environment and fish characteristics. Canadian Journal of Fisheries and Aquatic Sciences 55: 1821-1831.

Hinch, S.G., and P.S. Rand. 2000. Optimal swimming speeds and forward-assisted propulsion: energy-conserving behavior of upriver-migrating adult salmon. Canadian Journal of Fisheries and Aquatic Sciences 57: 2470-2478. Doi: 10.1139/f00-238.

Hinch, S.G., E.M. Standen, M.C. Healy, and A.P. Farrell. 2002. Swimming patterns and behavior of upriver-migrating pink salmon (*Oncorhynchus gorbuscha*) and sockeye (*O. nerka*) salmon as assessed by EMG telemetry in the Fraser River, British Columbia. Hydrobiologia 483: 147-160.

Hines, D., M. Liermann, T. Seder, B. Cluer, G. Pess, and C. Schoenebeck. 2017. Diel shifts in microhabitat selection of steelhead and coho salmon fry. North American Journal of Fisheries Management 37 (5): 989-998. Doi: 10.1080/02755947.2017.1339648.

Hinrichsen, R.A., D.J. Hasselman, C.C. Ebbesmeyer, and B.A. Shields. 2013. The role of impoundments, temperature, and discharge on colonization of the Columbia River basin, USA, by nonindigenous American shad. Transactions of the American Fisheries Society 142 (4): 887-900. Doi: 10.1080/00028487.2013.788553.

Hinton, S.A., and R.L. Emmett. 1994. Juvenile salmonid stranding in the lower Columbia River, 1992 and 1993. U.S. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northwest Fisheries Center Technical Memorandum 20: 48 pp.

Hintz, W.D., D.C. Glover, J.E. Garvey, K.J. Kilgore, D.P. Herzog, T.W. Spier, R.E. Colombo, and R.A. Hrabik. 2016. Status and habitat use of *Scaphirhynchus* sturgeons in an important fluvial corridor: Implications for river habitat enhancement. Transactions of the American Fisheries Society 145 (2): 386-399. Doi: 10.1080/00028487.2015.1131740.

Hintz, W.D., D.C. Glover, B.C. Szynkowski, and J.E. Garvey. 2017. Spatiotemporal reproduction and larval habitat associations of nonnative silver carp and bighead carp. Transactions of the American Fisheries Society 146 (3): 422-431. Doi: 10.1080/00028487.2017.1281167.

Hintz, W.D., G.T. Grimes, and J.E. Garvey. In press (2016). Scaling down habitat selection by large river fishes to understand patterns relevant to individuals. River Research and Applications. Doi: 10.1002/rra.2883.

Hintz, W.D., A.P. Porreca, J.E. Garvey, Q.E. Phelps, S.J. Tripp, R.A. Hrabik, and D.P. Herzog. 2015. Abiotic attributes surrounding alluvial islands generate critical fish habitat. River Research and Applications 31: 1218-1226.

Hirji, R., and R. Davis. 2009. Environmental flows in water resources policies, plans, and projects: Findings and recommendations. The World Bank, Washington, D.C.

Hirsch, C.L. 1995. Seasonal shifts in redband trout use of pools and their microhabitats in three central Oregon streams. Master’s thesis, Oregon State University, Corvallis.

Hirzel, A.H., J. Hausser, D. Chessel, and N. Perrin. 2002. Ecological-niche factor analysis: how to compute habitat-suitability maps without absence data. Ecology 83 (7): 2027-2036. Doi: 10.1890/0012-9658(2002)083[2027:ENFAHT]2.0.CO;2.

Hirzel, A.H., and G. LeLay. 2008. Habitat suitability modelling and niche theory. Journal of Applied Ecology 45: 1372-1381.

Hirzel, A.H., G. LeLay, V. Helfer, C. Randin, and A. Guisan. 2006. Evaluating the ability of habitat suitability models to predict species presences. Ecol. Model. 199 (2): 142-152. Doi: 10.1016/j.ecolmodel.2006.05.017.

Hiscock, M.J., D.A. Scruton, J.A. Brown, and K.D. Clarke. 2002. Winter movement of radio-tagged juvenile Atlantic salmon in Northeast Brook, Newfoundland. Transactions of the American Fisheries Society 131 (3): 577-581. Doi:10.1577/1548-8659(2002)131<0577:WMORTJ>2.0.CO;2.

Hladyz, S., S.C. Watkins, K.L. Whitworth, and D.S. Baldwin. 2011. Flows and hypoxic blackwater events in managed ephemeral river channels. J. Hydrol. 401 (1-2): 117-125. Doi: 10.1016/j.hydrol.2011.02.014.

Hoagstrom, C.W., J.E. Brooks, and S.R. Davenport. 2008. Recent habitat association and the historical decline of *Notropis simus pecosensis*. River Research and Applications 24: 789-803.

Hoagstrom, C.W., J.E. Brooks, and S.R. Davenport. 2008. Spatiotemporal population trends of Notropis simus pecoensis in relation to habitat conditions and the annual flow regime of the Pecos River, 1992-2005. Copeia 2008: 5-15.

.

Hobowskyj, L., and T.E. Wissing. 1986. Substrate selection by fantail (*Etheostoma flabellare*), greenside (*E. blennioides)*, and rainbow (*E. caeruleum*) darters. Ohio Journal of Science 86: 124-129.

Hobs, N.T., and T.A. Hanley. 1990. Habitat evaluation: do use/availability data reflect carrying capacity? Journal of Wildlife Management 54: 515-522.

Hockey, J.B., I.F. Owens, and N.J. Tapper. 1982. Empirical and theoretical models to isolate the effect of discharge on summer water temperatures in the Hurunui River. Journal of Hydrology (New Zealand) 21: 1-12.

Hodges, S.W., and D.D. Magoulick. 2011. Refuge habitats for fishes during seasonal drying in an intermittent stream: movement, survival, and abundance of three minnow species. Aquat. Sci. 73: 513-522. Doi: 10.1007/s00027-011-0206-7.

Hodgkins, G.A., and R.W. Dudley. 2005. Changes in the magnitude of annual and monthly streamflows in New England, 1902-2002. U.S. Geological Survey, Scientific Investigations Report 2005-5135, Reston, Virginia.

Hodgkins, G.A., R.W. Dudley, and T.G. Huntington. 2003. Changes in the timing of high river flows in New England over the 20th century. J. Hydrol. 278: 244-252. Doi: 10.1016/S0022-1694(03)00155-0.

Hodgson, S., T.P. Quinn, R. Hillborn, R.C. Francis, and D.E. Rogers. 2006. Marine and freshwater climatic factors affecting interannual variation in the timing of return migration to fresh water of sockeye salmon (*Oncorhynchus nerka*). Fish. Oceanogr. 15: 1-24. Doi: 10.1111/j.1365-2419.2005.00354.x.

Hoeinghaus, D.J., K.O. Winemiller, and A.A. Agostinho. 2007. Landscape-scale hydrologic characteristics differentiate patterns of carbon flow in large-river food webs. Ecosystems 10: 1019-1033.

Hoeinghaus, D.J., K.O. Winemiller, and J.S. Birnbaum. 2007. Local and regional determinants of stream fish assemblage structure – Inferences based on taxonomic vs functional group. Journal of Biogeography 34: 324-338.

Hoejesjoe, J., J. Johnson, and T. Bohlin. 2004. Habitat complexity reduces the growth of aggressive and dominant brown trout (Salmo trutta) relative to subordinates. Behavioral Ecology and Sociobiology 56: 286-289.

Hoel, S.M. 1998. Evaluation of the relations of fish and invertebrate communities to habitat conditions affected by low and variable flows in two Missouri prairie streams. M.S. thesis, University of Missouri, Columbia. 246 pp.

Hoerling, M., and J. Eischeid. 2007. Past peak water in the Southwest. Southwest Hydrology 6: 18-19,35.

Hoese, H.D. 1960. Biotic changes in a bay associated with the end of a drought. Limnology and Oceanography 5: 326-336.

Hoese, H.D. 1967. Effects of higher than normal salinities on salt marshes. Contributions in Marine Science 12: 249-261.

Hoffman, G., C. Muhlfield, and B. Marotz. 2000. Biological impacts associated with riverine flow fluctuation. Montana Fish, Wildlife and Parks, Kalispell.

Hoffman, J.P. 1980. Determining optimum releases from Lewiston Dam to improve salmon and steelhead habitat in the Trinity River, California. Proc. Ann. Conf. Western Assoc. Fish Wildlife Agencies 80: 366-388.

Hoffnagle, T.L., R.W. Carmichael, and P.J. Kenirey. 2006. The effect of moderately increased and variable raceway flow rates on juvenile physiology, survival, and adult return of hatchery-reared Chinook salmon. Transactions of the American Fisheries Society 135 (6): 1567-1577. Doi:10.1577/T05-246.1.

Hoffnagle, T.L., R.A. Valdez, and D.W. Speas. 1999. Fish abundance, distribution, and habitat use. Pages 273-287 in: RH.Web, J.C. Schmidt, G.R. rzolf, and R.A. Valdez, editors. The controlled flood in Grand Canyon. American Geophysical Union Geophysical Monograph 110, Washington, D.C., USA.

Hogan, D.L., and M. Church. 1989. Hydraulic geometry in small, coastal streams: progress toward quantification of salmonid habitat. Canadian Journal of Fisheries and Aquatic Sciences 46 (5): 844-852.

Hogg, R., S.M. Coghlan, Jr., and J. Zydlewski. 2013. Anadromous sea lampreys recolonize a Maine coastal river tributary after dam removal. Transactions of the American Fisheries Society 142 (5): 1381-1394. Doi: 10.1080/00028487.2013.811103

Hohensinner, S., H. Habersack, M. Jungwirth, and G. Zauner. 2004. Reconstruction of the characteristics of a natural alluvial river-floodplain system and hydromorphological changes following human modifications: the Danube River (1812-1991). River Research and Applications 20: 25-41.

Hojesjo, J., J. Johnsson, and T. Bohlin. 2004. Habitat complexity reduces growth of aggressive and dominant brown trout (*Salmo trutta*) relative to subordinates. Behav. Ecol. Sociobiol. 56: 286-289. Doi: 10.1007/s00265-004-0784-7.

Hojesjo, J., R. Kaspersson, and J.D. Armstrong. 2016. Size-related habitat use in juvenile Atlantic salmon: the importance of intercohort competition. Canadian Journal of Fisheries and Aquatic Sciences 73 (8): 1182-1189. Doi: 10.1139/cjfas-2015-0446.

Holbrook, C.M., R. Bergstedt, N.S. Adams, T.W. Hatton, and R.L. McLaughlin. 2015. Fine-scale pathways used by adult sea lampreys during riverine spawning migrations. Transactions of the American Fisheries Society 144 (3): 549-562. Doi: 10.1080/00028487.2015.1017657.

Holbrook, C.M., J. Zydlewski, D. Gorsky, S.L. Shepard, and M.T. Kinnison. 2009. Movements of prespawn adult Atlantic salmon near hydroelectric dams in the lower Penobscot River, Maine. North American Journal of Fisheries Management 29 (2): 495-505.

Holden, J., P.J. Chapman, and J.C. Labadz. 2004. Artificial drainage of peatlands: hydrological and hydrochemical process and wetland restoration. Progress in Physical Geography 28: 95-123.

Holdsworth, D.K., and A.F. Mark. 1990. Water and nutrient input-output budgets: effects of plant cover at seven sites in upland snow tussock grasslands of Eastern and Central Otago, New Zealand. J. Roy. Soc. N.Z. 20: 1-24.

Holland, D.F. 1991. Prolonged emersion tolerance in freshwater mussels (Bivalvia: Unionidae): Interspecific comparison of behavioral strategies and water loss rates. Master’s thesis, University of Texas, Arlington.

Holland-Bartels, L.E. 1990. Physical factors and their influence on the mussel fauna of a main channel border habitat of the upper Mississippi River. Journal of the North American Benthological Society 9: 327-335.

Hollis, G.E. 1975. The effect of urbanization on floods of different recurrence interval. Water Resources Research 11 (3): 431-435.

Holm, D.J., J. Armstrong, and D.J. Gilvear. 2001. Investigating a major assumption of predictive in-stream habitats models: is water velocity preference of juvenile Atlantic salmon independent of stream discharge? Journal of Fish Biology 59: 1653-1666.

Holmes, N.T.H. 1999. Recovery of headwater stream flora following the 1989-1992 groundwater drought. Hydrol. Process 13: 341-354.

Holmes, N.T.H. 2006. The importance of long-term data sets in science and river management. Aquatic Conservation: Marine and Freshwater Ecosystems 16: 329-333.

Holmes, R.M., S.G. Fisher, N.B. Grimm, and B.J. Harper. 1998. The impact of flash floods on microbial distribution and biogeochemistry in the parafluvial zone of a desert stream. Freshw. Biol. 40: 641-654.

Holmes, R.W., M.A. Allen, and S. Bros-Seeman. 2014. Seasonal microhabitat selectivity by juvenile steelhead in a central California coastal river. California Fish and Game: Special Fisheries Issue 100: 590-615. Available from: <http://www.dfg.ca.gov/publications/journal/>

Holmes, R.W., D.E. Rankin, E. Ballard, and M. Gard. 2015. Evaluation of steelhead passage flows using hydraulic modeling on an unregulated coastal California river. River Research and Applications doi: 10.1002/rra.2884.

Holmquist, J.G., J.M. Schmidt-Gengenback, and B.B. Yoshioka. 1998. High dams and marine-freshwater linkages: effects on native and introduced fauna in the Caribbean. Conservation Biology 12: 621-630.

Holocek, D.E., K.J. Cromwell, and B.P. Kennedy. 2009. Juvenile Chinook salmon summer microhabitat availability, use, and selection in a central Idaho wilderness stream. Transactions of the American Fisheries Society 138 (3): 633-644.

Holomuzki, J.R., and B.J.F. Biggs. 1999. Distributional responses to flow disturbance by a stream-dwelling snail. Oikos 87: 36-47. Doi: 10.2307/3546994.

Holomuzki, J.R., and B.J.F. Biggs. 2000. Taxon-specific responses to high-flow disturbance in streams: implications for population persistence. J. North Amer. Benthol. Soc. 19: 670-679. Doi: 10.2307/1468125.

Holomuzki, J.R., and B.J.F. Biggs. 2003. Sediment texture mediates high-flow effects on lotic macroinvertebrates. Journal of the North American Benthological Society 22: 542-553.

Holtby, L.B., and G.F. Hartman. 1982. The population dynamics of coho salmon (*Oncorhynchus kisutch*) in a west coast rainforest stream subject to logging. Pp. 308- in: G.F. Hartman (ed), Proceedings of the Carnation Creek Workshop, a 10 year review. Pacific Biological Station, Nanaimo, British Columbia. 404 pp.

Holtby, L.B., and Healy, M.C. 1986. Selection for adult size in female coho salmon (*Oncorhynchus kisutch*). Canadian Journal of Fisheries and Aquatic Sciences 43: 1946‑1959.

Holtby, L.B., and J.C. Scrivener. 1989. Observed and simulated effects of climatic variability, clear-cut logging and fishing on the number of chum salmon (*Oncorhynchus keta*) and coho salmon (*O. kisutch*) returning to Carnation Creek, British Columbia. Canadian Special Publication on Fisheries and Aquatic Sciences 105: 62-81.

Holtgren, J.M., and N.A. Auer. 2004. Movement and habitat of juvenile lake sturgeon (*Acipenser fulvescens*) in the Sturgeon River/Portage Lake system, Michigan. Journal of Freshwater Ecology 19: 419-432.

Honea, J.M., J.C. Jorgensen, M.M. McClure, T.D. Cooney, K. Engie, D.M. Holzer, and R. Hilborn. 2009. Evaluating habitat effects on population status: influence of habitat restoration on spring-run Chinook salmon. Freshwater Biology 54: 1576-1592. Doi: 10.1111/j.1365-2427.2009.02208.x.

Hooke, J.M. 1986. The significance of mid-channel bars in an active meandering river. Sedimentology 33 (6): 839-850.

Hooke, J.M., and C.E. Redmond. 1992. Causes and nature of river planform charge. Pages 557-571 in: P. Billi, R.D. Hey, and C.R. Tacconi, editors. Dynamics of Gravel-bed Rivers, Wiley, Chichester.

Hooley-Underwood, Z., E.G. Mandeville, P. Gerrity, J. Deromedi, K. Johnson, and A.W. Walters. 2018. Combining genetic, isotopic, and field data to better describe the influence of dams and diversions on Burbot movement in the Wind River drainage, Wyoming. Transactions of the American Fisheries Society 147 (3): 606-620. Doi: 10.1002/tafs.10062

Hooley-Underwood, Z.E., S.B. Stevens, N.R. Salinas, and K.G. Thompson. 2019. An intermittent stream supports extensive spawning of large-river native fishes. Transactions of the American Fisheries Society 148 (2): 426-441. Doi: 10.1002/tafs.10141

Hoopes, D.T. 1972. Selection of spawning sites by sockeye salmon in small streams. U.S. Fish and Wildlife Service, Fishery Bulletin 70: 447-458.

Hoopes, R.L. 1975. Flooding as a result of Hurricane Agnes, and its effect on a native brook trout population in an infertile headwater. Transactions of the American Fisheries Society 104 (1): 96-99.

Hoover, J.P. 2009. The effects of hydrologic restoration on birds breeding in forested wetlands. Wetlands 29: 563-573.

Hoover, T.M., and J.S. Richardson. 2010. Does water velocity influence optimal escape behaviors in stream insects? Behav. Ecol. 21: 243-249. Doi: 10.1093/beheco/arp182.

Hoover, T.M., J.S. Richardson, and N. Yonemitsu. 2006. Flow-substrate interactions create and mediate leaf litter resource patches in streams. Freshwater Biology 51: 435-447.

Hopkinson, Jr., C.S., and J.J. Vallino. 1995. The relationships among man’s activities in watersheds and estuaries: A model of runoff effects on patterns of estuarine community metabolism. Estuaries 18: 598-621.

Horan, D.L., J.L. Kershner, C.P. Hawkins, and T.A. Crowl. 2000. Effects of habitat area and complexity on Colorado River cutthroat trout density in Uinta Mountain streams. Transactions of the American Fisheries Society 129: 1250-1263.

Hornbeck, J.W. 1973. Storm flow from hardwood-forested and cleared watersheds in New Hampshire. Water Resources Research 9: 346-354.

Hornbeck, J.W., M.B. Adams, E.S. Corbett, E.S. Verry, and J.A. Lynch. 1993. Long-term impacts of forest treatments on forest yield: a summary for northeastern USA. Journal of Hydrology 150: 323-340.

Hornbeck, J.W, C.W. Martin, and C. Eager. 1997. Summary of water yield experiments at Hubbard Brook Experimental Station, New Hampshire. Can. J. For. Res. 27: 2043-2052.

Hornbeck, J.W, C.W. Martin, R.S. Pierce, F.H. Bormann, G.E. Likens, and J.S. Eaton. 1986. Clearcutting northern hardwoods: effects on hydrologic and nutrient ion budgets. For. Sci. 32: 667-686.

Horne, A., et al. 2016. Optimization tools for environmental water decisions: A review of strengths, weaknsses, and opportunities toimpre adoption. Environ. Model. Softw. 84: e338. Doi: 10.1016/j.envsoft.2016.06.028

Horne, A., S. Kaur, J. Szemis, A. Costa, J.A. Webb, R. Nathan, …N. Boland. 2017. Using optimization to develop a “designer” environmental flow regime. Environmental Modelling & Software 88: 188-199. Doi: 10.1016/j.envsoft.2016.11.020

Horne, A., E. O’Donnell, J. Webb, M. Stewardson, M. Acreman, and B.D. Richter. 2017. The environmental water management cycle. Pages 3-16 in: A. Horne, A. Webb, M. Stewardson, B. Richter, and M. Acreman, editors, Water for the environment: Policy, science, and integrated management. Elsevier Press, London.

Horne, A., J.M. Szemis, J.A. Webb, S. Kaur, M.J. Stewardson, N.R. Bond, and R. Nathan (in press 2018). The challenge of translating ecology to inform environmental water management decisions. Environmental Management.

Horne, A.C., J.A. Webb, E. O’Donnell, A.H. Arthington, M. McClain, N. Bond, M. Acreman B. Hart, M.J. Stewardson, B. Richter, and N.L. Poff. 2017. Research priorities to improve future environmental water outcomes. Frontiers in Environmental Science 5: 89. doi: 10.3389/fenvs.2017.00089.

Horne, A.C., J.A. Webb, M.J. Stewardson, B. Richter, and M. Acreman (editors). 2017. Water for the Environment from Policy and Science to Implementation and Management. Academic Press.

Horner, R.R., E.B. Welch, and R.B. Veenstra. 1983. Development of nuisance periphytic algae in laboratory streams in relation to enrichment and velocity. Pp. 121-134 *in*: R.G. Wetzel, editor. Periphyton of freshwater ecosystems. Dr. W. Junk Publishers, The Hague.

Horner, R.R., E.B. Welch, M.R. Seeley, and J.M. Jacoby. 1990. Responses of periphyton to changes in current velocity, suspended sediment, and phosphorus concentration. Freshw. Biol. 24: 215-232.

Horrigan, N., and D.J. Baird. 2008. Trait patterns of aquatic insects across gradients of flow-related factors: a multivariate analysis of Canadian national data. Canadian Journal of Fisheries and Aquatic Sciences 65 (4): 670-680.

Horton, J.L., and J.L. Clark. 2001. Water table decline alters growth and survival of *Salix* *gooddingii* and *Tamarix chinensis* seedlings. Forest Ecology and Management 140: 239-247.

Horton, J.L., T.E. Kolb, and S.C. Hart. 2001. Physiological response to groundwater depth varies among species and with river flow regulation. Ecological Applications 11: 1046-1059.

Horton, R.E. 1945. Erosional development of streams and their drainage basins: hydrophysical approach to quantitative morphology. Geological Society of America Bulletin 56: 275-370.

Horton, T.B., and C.S. Guy. 2002. Habitat and movement of spotted bass in Otter Creek, Kansas. Pages 161-171 in: D.P. Philip and M.S. Ridgway, editors. Black bass: ecology, conservation, and management. American Fisheries Society Symposium 31, Bethesda, Maryland.

Horton, T.B., C.S. Guy, and J.S. Pontius. 2004. Influence of time interval on estimates of movement and habitat use. North American Journal of Fisheries Management 24: 690-696.

Hosner, J.F. 1958. The effects of complete inundation upon seedlings of six bottomland tree species. Ecology 39: 371-373.

Hostetter, N.J., A.F. Evans, D.D. Roby, and K. Collis. 2012. Susceptibility of juvenile steelhead to avian predation: the influence of individual fish characteristics and river conditions. Transactions of the American Fisheries Society 141 (6): 1586-1599. Doi: 10.1080/00028487.2012.716011.

Hough-Snee, N., A. Kasprak, B.B. Roper, and C.S. Meredith. 2014. Direct and indirect drivers of instream wood in the interion Pacific Northwest, USA: decoupling climate, vegetation, disturbance, and geomorphic setting. Riparian Ecol. Conserv. 2

Howard, A.D. 1959. Numerical systems of terrace nomenclature: a critique. Journal of Geology 67: 239-243.

Howard, A.K. 2006. Influence of instream physical habitat and water quality on the survival and occurrence of the endangered Cape Fear shiner. Master’s thesis. North Carolina State University, Raleigh.

Howard, K., L. Beesley, K. Ward, and D. Stokeld. 2017. Preliminary evidence suggests freshwater turtles respond positively to an environmental water delivery during drought. Australian Journal of Zoology 64: 370-373.

Howell, J., and D. Benson. 2000. Predicting potential impacts of environmental flows on weedy riparian vegetation of the Hawkesbury-Nepean River, southeastern Australia. Austral Ecology 25 (5): 463-475.

Howitt, J., D. Baldwin, G. Rees, and J. Williams. 2007. Modelling blackwater: predicting water quality during flooding of lowland river forests. Ecological Modelling 203 (3-4): 229-242.

Hoxmeier, R.J., and D.R. DeVries. 1997. Habitat use, diet, and population structure of adult and juvenile paddlefish in the lower Alabama River. Transactions of the American Fisheries Society 126: 288-301.

Hu, M., Q. Li, and L. Li. 2010. Effect of salinity and temperature on salinity tolerance of the sea cucumber *Apostichopus japonicas*. Fisheries Science 76: 262-273.

Huang, W., and E.K. Jones. 1997. Three-dimensional modeling of circulation and salinity for the low river flow season in Apalachicola Bay, Florida. Northwest Florida Water Management District Water Resources Special Report 97-10, Havana, Florida.

Hubbs, C.L. 1941. The relation of hydrological conditions of speciation in fishes. Pages 182-195 in: A symposium on hydrobiology. University of Wisconsin Press, Madison.

Hubbs, C.L., and B.W. Walker. 1942. Habitat and breeding behavior of the American cyprinid fish *Notropis longirostris*. Copeia 1942: 101-104.

Hubert, W.A., S.H. Anderson, P.D. Southall, and J.H. Crance. 1984. Habitat suitability index models and instream flow suitability curve: Paddlefish. U.S. Fish and Wildlife Service FWS/OBS-82/10.80. 32 pp.

Hubert, W.A., D.D. Harris, and T.A. Wesche. 1994. Diurnal shifts in use of summer habitat by age-0 brown trout in a regulated mountain stream. Hydrobiologia 284: 147-156.

Hubert, W.A., R.S. Helzner, L.A. Lee, and P.C. Nelson. 1985. Habitat suitability index models and instream flow suitability curve: Arctic grayling riverine populations. U.S. Fish and Wildlife Service FWS/OBS-82/10.110. 34 pp.

Hubert, W.A., and S.J. Kozel. 1993. Quantitative relations of physical habitat features to channel slope and discharge in unaltered mountain streams. Journal of Freshwater Ecology 8: 177-183.

Hubert, W.A., W.J. LaVoie, and L.D. DeBray. 1996. Densities and substrate associations of macroinvertebrates in riffles of a small, High Plains stream. Journal of Freshwater Ecology 11: 21-25.

Hubert, W.A., and F.J. Rahel. 1989. Relations of physical habitat to abundance of four nongame fishes in high-plains streams: a test of habitat suitability. North American Journal of Fisheries Management 9 (3): 332-340.

Hubert, W.A., C. Raley, and S.H. Anderson. 1990. Compliance with instream flow agreements in Colorado, Montana, and Wyoming. Fisheries 15 (2): 8-10.

Huckstorf, V., W.C. Lewin, and C. Wolter. 2008. Environmental flow methodologies to protect fisheries resources in human-modified large lowland rivers. River Research and Applications 24: 519-527.

Hudon, C. 1997. Impact of water-level fluctuations on St. Lawrence River aquatic vegetation. Canadian Journal of Fisheries and Aquatic Sciences 54: 2853-2865.

Hudon, C., and R. Carignan. 2008. Cumulative impacts of hydrology and human activities on water quality in the St. Lawrence River (Lake Saint-Pierre, Quebec, Canada). Canadian Journal of Fisheries and Aquatic Sciences 65 (6): 1165-1180.

Hudon, C., P. Gagnon, J.-P. Amyot, G. Letourneau, M. Jean, C. Plante, D. Rioux, and M. Deschenes. 2005. Historical changes in herbaceous wetland distribution induced by hydrological conditions in Lake Saint-Pierre (St. Lawrence River, Quebec, Canada). Hydrobiologia 539: 205-224.

Hudson, H.R., A.E. Byron, and W.L. Chadderton. 2003. A critique of IFIM: instream habitat simulation in the New Zealand context. Science for conservation, 231. Dept. of Conservation, Wellington, N.Z.

Hudson, P.F., and R.H. Kesel. 2000. Channel migration and meander-bend curvature in the lower Mississippi River prior to major human modification. Geology 28: 531-534.

Huet, M. 1959. Profiles and biology of Western European streams as related to fish management. Transactions of the American Fisheries Society 88: 155-163.

Huey, R.B. 1991. Physiological consequences of habitat selection. American Naturalist 130 (supplement): 90-115.

Hughes, D.A., A.Y. Desai, A.L. Birkhead, and D. Louw. 2014. A new approach to rapid, desktop-level environmental flow assessments for rivers in South Africa. Hydrol. Sci. J. 59 (3): 1-15.

Hughes, D.A., and P. Hannart. 2003. A desktop model used to provide an initial estimate of the ecological instream flow requirements of rivers in South Africa. Journal of Hydrology 270: 167-181.

Hughes, D.A., and D. Louw. 2010. Integrating hydrology, hydraulics, and ecological response into a flexible approach to the determination of environmental water requirements for rivers. Environmental Modelling & Software 25 (8): 910-918.

Hughes, F.M.R. 1994. Environmental change, disturbance and regeneration in semi-arid floodplain forests. Pp. 321-345 in: A.C. Millington and K. Pye, eds. Environmental change in drylands: biogeographical and geomorphological perspectives. Wiley, London.

Hughes, F.M.R., T. Harris, K. Richards, G. Pautau, A.F.L. Hames, N. Barsoum, J. Girel, J.L. Peiry, and R. Foussadier. 1997. Woody riparian species response to different soil moisture conditions: laboratory experiments on *Alnus incana* (L.) *Moench*. Global Ecology and Biogeography Letters 6: 247-256.

Hughes, F.M.R., and S.B. Rood. 2003. Allocation of river flows for restoration of floodplain forest ecosystems: A review of approaches and their applicability to Europe. Environmental Management 32: 12-33.

Hughes, J.M.R., and B. James. 1989. A hydrological regionalization of streams in Victoria, Australia, with implications for stream ecology. Aust. J. Mar. Freshw. Res. 40: 303-346.

Hughes, M.S., and A.R. Murdoch. 2017. Spawning habitat of hatchery spring Chinook salmon and possible mechanisms contributing to lower reproductive success. Transactions of the American Fisheries Society 146 (5): 1016-1027. Doi: 10.1080/00028487.2017.1336114.

Hughes, N.F. 1992. Ranking of feeding positions by drift‑feeding Arctic grayling (*Thymallus arcticus*). Canadian Journal of Fisheries and Aquatic Sciences 49 (10): 1994‑1998.

Hughes, N.F. 1992. Selection of positions by drift‑feeding salmonids in dominance hierarchies: model and test for Arctic grayling (*Thymallus arcticus*). Canadian Journal of Fisheries and Aquatic Sciences 49 (10): 1999‑2008. Doi:10.1139/f92-223.

Hughes, N.F. 1998. A model of habitat selection by drift-feeding salmonids at different scales. Ecology 79: 1097-1129. Doi: 10.1890/0012-9658(1998)079[0281:AMOHSB]2.0.CO;2.

Hughes, N.F. 2000. Testing the ability of habitat selection theory to predict interannual movement patterns of a drift-feeding salmonid. Ecol. Freshw. Fish. 9: 4-8.

Hughes, N.F. 2009. A model of habitat selection by drift-feeding stream salmonids at different scales. Ecology 79: 281-294.

Hughes, N.F., and L.M. Dill. 1990. Position choice by drift-feeding salmonids: model and test for Arctic grayling (*Thymallus arcticus*) in subarctic mountain streams, interior Alaska. Canadian Journal of Fisheries and Aquatic Sciences 47 (10): 2039‑2048. Doi:10.1139/f90-228.

Hughes, N.F., and T.C. Grand. 2000. Physiological ecology meets the ideal-free distribution: predicting the distribution of size structured fish populations across temperature gradients. Environmental Biology of Fishes 59 (3): 285-298.

Hughes, N.F., J.W. Hayes, K.A. Shearer, and R.G. Young. 2003. Testing a model of drift-feeding using three-dimensional videography of wild brown trout, *Salmo trutta*, in a New Zealand river. Canadian Journal of Fisheries and Aquatic Sciences 60 (12): 1462-1476. Doi: 10.1139/f90-228.

Hughes, N.F., and L.H. Kelly. 1996. A hydrodynamic model for estimating the energetic cost of swimming maneuvers from a description of their geometry and dynamics. Canadian Journal of Fisheries and Aquatic Sciences 53: 2484-2493.

Hughes, R.M., S. Howlin, and P.R. Kaufmann. 2004. A biointegrity index (IBI) for coldwater streams of western Oregon and Washington. Transactions of the American Fisheries Society 133: 1497-1515.

Hughes, R.M., P.R. Kaufmann, and M.H. Weber. 2011. National and regional comparisons between Strahler order and stream size. J. N. Am. Benthol. Soc. 30: 103-121. Doi: 10.1899/09-174.1.

Hughes, R.M., L. Wang, and P.W. Seelbach, editors. 2006. Landscape influences on stream habitats and biological assemblages. American Fisheries Society Symposium 48, Bethesda, Maryland.

Hughes, T.C. 2002. Population characteristics, habitats, and movements of lake sturgeon (*Acipenser fulvescens*) in the lower Niagara River. Master’s thesis, State University of New York at Brockport, Brockport.

Hugueny, B. 1989. West African rivers as biogeographic islands: species richness of fish communities. Oecologia 79: 236-243.

Hugueny, B., T. Oberdorff, and P.A. Tedescco. 2010. Community ecology of river fishes: a large-scale perspective. In: D. Jackson and K. Gido (editors), Community ecology of stream fishes: concepts, approaches, and techniques. American Fisheries Society, Bethesda, MD.

Humborg, C., V. Ittekkot, A. Cocasiu, and B.V. Bodungen. 1997. Effects of Danube River dam on Black Sea biogeochemistry and ecosystem structure. Nature 386: 385-388.

Humphrey, S., Y. Zhao, and D. Higgs. 2012. The effects of water currents on walleye (*Sander vitreus*) eggs and larvae and implications for the early survival of walleye in Lake Erie. Canadian Journal of Fisheries and Aquatic Sciences 69 (12): 1959-1967. Doi: 10.1139/f2012-116.

Humphries, P. 1996. Aquatic macrophytes, macroinvertebrate associations and water levels in a lowland Tasmanian river. Hydrobiologia 321: 219-233.

Humphries, P., and D.S. Baldwin. 2003. Drought and aquatic ecosystems: an introduction. Freshwater Biology 48: 1141-1146. Doi: 10.1046/j.1365-2427.2003.01092.x.

Humphries, P., P. Brown, J. Douglas, A. Pickworth, R. Strongman, K. Hall, and L. Serafini. 2008. Flow related patterns in abundance and composition of the fish fauna of a degraded Australian lowland river. Freshwater Biology 53: 789-813.

Humphries, P., R.A. Cook, A.J. Richardson, and L.G. Serafini. 2006. Creating a disturbance: manipulating slackwaters in a lowland river. River Research and Applications 22: 525-542.

Humphries, P., H. Keckeis, and B. Finlayson. 2014. The river wave concept: integrating river ecosystem models. BioScience 64: 870-882. Doi: 10.1093/biosci/biu130.

Humphries, P., A.J. King, and J.D. Koehn. 1999. Fish, flows and flood plains: links between freshwater fishes and their environment in the Murray-Darling River system, Australia. Environmental Biology of Fishes 56: 129-151. Doi:10.1023/A:1007536009916.

Humphries, P., and P. Lake. 2000. Fish larvae and the management of regulated rivers. Regulated Rivers: Research & Management 16: 421-432.

Humphries, P., G.S. Luciano, and A.J. King. 2002. River regulation and fish larvae: variation through space and time. Freshwater Biology 47: 1307-1331.

Humphries, P., L. Serafini, and A.J. King. 2002. River regulation and fish larvae: variations through space and time. Freshwater Biology 47: 1307-1331. Doi:10.1046/j.1365-2427.2002.00871.x.

Humphries, P., and K.O. Winemiller. 2009. Historical impacts on river fauna, shifting baselines, and challenges for restoration. BioScience 59: 673-684. Doi: 10.1525/bio.2009.59.8.9

Humphries, R., J.G. Venditti, L.S. Sklar, and J.K. Wooster. 2012. Experimental evidence for the effect of hydrographs on sediment pulse dynamics in gravel-bedded rivers. Water Resources Research 48. Doi: 10.1029/2011WR010419.

Hunt, B. 1999. Unsteady stream depletion from ground water pumping. Ground Water 37 (1): 98-102.

Hunt, R.L. 1969. Overwinter survival of wild fingerling brook trout in Lawrence Creek, Wisconsin. Journal of the Fisheries Research Board of Canada 26: 1473-1483.

Hunter, J.G. 1959. Survival and production of pink and chum salmon in a coastal stream. J. Fish. Res. Bd. Can. 16 (6): 835‑886.

Hunter, J.W. 1973. A discussion of game fish in the state of Washington as related to water requirements. Washington State Department of Game, Olympia.

Hunter, M.A. 1992. Hydropower flow fluctuations and salmonids: a review of the biological effects, mechanical causes, and options for mitigation. State of Washington Department of Fisheries Technical Report No. 119. Olympia. 46 pp.

Hunter, M.A., and T. Quinn. 2009. Summer water temperatures in alluvial and bedrock channels of the Olympic Peninsula. West. J. Appl. For. 24 (2): 103-108.

Hunter, M.A., T. Quinn, and M.P. Hayes. 2005. Low flow spatial characteristics in forested headwater channels of Southwest Washington. Journal of American Water Resources Association 41: 503-516.

Huntingford, F.A., D. Aird, P. Joiner, K.E. Thorpe, V.A. Braithwaite, and J.D. Armstrong. 1999. How juvenile Atlantic salmon, *Salmo salar* L., respond to falling water levels: experiments in an artificial stream. Fisheries Management and Ecology 6: 357-364.

Huntingford, F.A., and C. Garcia de Leaniz. 1997. Social dominance, prior residence and the acquisition of profitable feeding sites in juvenile Atlantic salmon. Journal of Fish Biology 51: 1009-1014.

Huntingford, F.A., N.B. Metcalfe, and J.E. Thorpe. 1988. Choice of feeding station in Atlantic salmon, *Salmo salar*, parr: effects of predation risk, season, and life history strategy. Journal of Fish Biology 33: 917-924.

Huntington, J.L., and R.G. Niswonger. 2012. Role of surface-water and ground-water interactions on summertime streamflow in snow dominated regions: an integrated modeling approach. Water Resour. Res. 48: W11524. Doi: 10.1029/2012WR012319.2012.

Huntsman, A.G. 1945. Freshets and fish. Transactions of the American Fisheries Society 75: 257-266.

Hupp. C.R. 1992. Riparian vegetation recovery patterns following stream channelization: a geomorphic perspective. Ecology 25 (5): 463-475.

Hupp, C.R. 2000. Hydrology, geomorphology, and vegetation of coastal plain rivers in the southeastern U.S.A. Hydrological Processes 14 (16-17): 2991-3010.

Hupp, C.R., and G. Bornette. 2003. Vegetation as a tool in the interpretation of fluvial geomorphic processes and landforms in humid temperate areas. Pp. 269-288 *in*: G.M. Kondolf and H. Piegay, editors. Tools in fluvial geomorphology. Wiley, Chichester, UK.

Hupp, C.R., and W.R. Osterkamp. 1985. Bottomland vegetation distribution along Passage Creek, Virginia, in relation to fluvial landforms. Ecology 66: 670-681.

Hupp, C.R., and W.R. Osterkamp. 1996. Riparian vegetation and fluvial geomorphic processes. Geomorphology 14: 277-295.

Hur, J., M.A. Schlautman, T. Karanfil, J. Smink, H. Song, S.J. Klaine, and J.C. Hayes. 2007. Influence of drought and municipal sewage effluents on the baseflow water chemistry of an upper Piedmont river. Environmental Monitoring and Assessment 132: 171-187,

Hurley, K.L., R.J. Sheehan, R.C. Heidinger, P.S. Willis, and B. Clevenstine. 2004. Habitat use by middle Mississippi River pallid sturgeon. Transactions of the American Fisheries Society 133: 1033-1041.

Hurley, S.T., W.A. Hubert, and J.G. Nickum. 1987. Habitats and movements of shovelnose sturgeon in the upper Mississippi River. Transactions of the American Fisheries Society 116: 655-662.

Hurst, .P. 2007. Causes and consequences of winter mortality in fishes. Journal of Fish Biology 71: 315-3435.

Hutson, A.M., L.A. Toya, and D. Tave. 2018. Determining preferred spawning habitat of the endangered Rio Grande silvery minnow by hydrological manipulation of a conservation aquaculture facility and the implications for management. Ecohydrology 11:e1964.

Huusko, A., L. Greenberg, M. Stickler, T. Linnansaari, M. Nyykanen, T. Vehanen, S. Koljonen, P. Louhi, and K. Alfrredsen. 2007. Life in the ice lane: the winter ecology of stream salmonids. River Res. Appl. 23: 469-491. Doi:10.1002/rra.999.

Huusko, A., and T. Yrjana. 1998. Effects of instream enhancement structures on brown trout, *Salmo trutta* L., habitat availability in a channelized boreal river: a PHABSIM approach. Fish. Manag. Ecol. 4: 453-466.

Hvidsten, N.A. 1985. Mortality of pre-smolt Atlantic salmon, *Salmo salar* L., and brown trout, *Salmo trutta* L., caused by fluctuating water levels in the regulated River Nidelva, central Norway. Journal of Fish Biology 1985: 711-718.

Hvidsten, N.A. 1993. High winter discharge after regulation increases production of Atlantic salmon, *Salmo salar*, smolts in the River Orkla, Norway. Pp. 175-177 *in*: R.J. Gibson and R.E. Cutting (eds.), Production of juvenile Atlantic salmon, *Salmo salar*, in natural waters. Canadian Special Publication of Fisheries and Aquatic Sciences. 118: 175-177.

Hvidsten, N.A., O.H. Disrud, A.J. Jensen, J.G. Jensas, Hvidsten, N.A., A.J. Jensen, B.O. Johnsen, and O. Ugedal. 2015. Water discharge affects Atlantic salmon *Salmo salar* smolt production: a 27 year study in the River Orkla, Norway. Journal of Fish Biology 86: 92-104. Doi: 10.1111/jfb.12542.

Hvidsten, N.A., A.J. Jensen, H. Vivas, O. Bakke, and T.G. Heggeberget. 1995. Downstream migration of Atlantic salmon smolts in relation to water flow, water temperature, moon phase and social interaction. Nordic Journal of Freshwater Research 70: 38-48.

Hvidsten, N.A., and O. Ugedal. 1991. Increased densities of Atlantic salmon smolts in the River Orkla, Norway, after regulation for hydropower production. Pages 219-225 In: J. Colt and R.J. White (eds.), Fisheries Bioengineering Symposium. American Fisheries Society Symposium 10. Bethesda, Maryland.

Hwan, J.L. 2015. Fragmentation of an intermittent stream during seasonal drought: intra- and interannual patterns and ecological consequences. Doctoral dissertation, UC Berkeley. Environmental Science, Policy, and Management, Berkeley, California, USA.

Hwan, J.L.. and S.M. Carlson. 2016. Fragmentation of an intermittent stream during seasonal drought: intra-annual and interannual patterns and biological consequences. River Research and Applications 32: 856-870.

Hyatt, K.D., M.M. Stockwell, and D.P. Rankin. 2003. Impact and adaptation responses of Okanagan River sockeye salmon (*Oncorhynchus nerka*) to climate variation and change effects during freshwater migration: stock restoration and fisheries management implications. Canadian Water Resources Journal 28: 689-713.

Hynes, H.B.N. 1970. The ecology of running waters. University of Toronto Press, Toronto, Canada. 555 pp.

Hynes, H.B.N. 1983. Groundwater and stream ecology. Hydrobiologia 100:93-99.

Ikeda, S., and N. Izumi. 1990. Width and depth of self-formed straight gravel rivers with bank vegetation. Water Resources Research 26 (10): 2353-2364.

Ilg, C., F. Dziock, F. Foeckler, K. Follner, M. Gerisch, J. Glaeser, A. Rink, A. Schaowski, M. Scholz, O. Deichner, and K. Henle. 2008. Long-term reactions of plant sand macroinvertebrates to extreme floods in floodplain grasslands. Ecology 89 (9): 2392-2398.

Illaszewicz, J., R. Tharme, V. Smakhtin, and J. Dove (Editors). 2005. Environmental Flows: Rapid Environmental Flow Assessment for the Huong River Basin, Central Vietnam. IUCN Vietnam, Hanoi, Vietnam.

Illies, J., and L. Botosaneau. 1963. Problemes et methodes de la classification et de la zonation ecologique des eaux courantes considerees surtout du point de vue faunistique. Mitt. Int. Ver. Limnol. 12: 1-57.

Imbert, J.B., and J.A. Perry. 2000. Drift and benthic responses to stepwise and abrupt increases in non-scouring flow. Hydrobiologia 436: 191-208. Doi: 10.1023/A:1026582218786.

Imhof, J.B., J. Fitzgibbon, and W.K. Annable. 1996. A hierarchical evaluation system for characterizing watershed ecosystems for fish habitat. Canadian Journal of Fisheries and Aquatic Sciences 53 (Suppl. 1): 312-326.

Imre, I., J.W.A. Grant, and R.A. Cunjak. 2005. Density-dependent growth of young-of-the-year Atlantic salmon *Salmo salar* in Catamaran Brook, New Brunswick. Journal of Animal Ecology 74: 508-516. Doi: 10.1111/j.1365-2656.2005.00949

Imre, I., J.W.A. Grant, and R.A. Cunjak. 2010. Density-dependent growth of young-of-the-year Atlantic salmon (*Salmo salar*) revisited. Ecology of Freshwater Fish 19: 1-6. Doi: 10.1111/j.1365-2656.2005.00949.x.

Imre, I., J.W.A. Grant, and E.R. Keeley. 2004. The effect of food abundance on territory size and population density of juvenile steelhead trout (*Oncorhynchus mykiss*). Oecologia 138: 371-378. Doi: 10.1007/s00442-003-1432-z.

Imre, I., R.L. McLaughlin, and D.L.G. Noakes. 2002. Phenotypic plasticity in brook charr: changes in caudal fin induced by water flow. J. Fish Biol. 61: 1171-1181. Doi: 10.1111/j.1095-8649.2002.tb02463.x.

Infante, D.M., and J.D. Allan. 2010. Response of stream fish assemblages to local-scale habitat as influenced by landscape – A mechanistic investigation of stream fish assemblages. Pages 371-397 in: K.B. Gido and D.A. Jackson (editors). American Fisheries Society Symposium 73. Ottawa, Ontario, 19-20 August 2008.

Infante, D.M., M.J. Wiley, and P.W. Seelbach. 2006. Relationship among channel shape, catchment characteristics, and fish in lower Michigan streams. Pp. 339-356 in: R.M. Hughes, L.Z. Wang, and P.W. Seelbach (editors). Landscape influences on stream habitats and biological assemblages. American Fisheries Society, Bethesda, Maryland.

Ingram, H., and C.R. Oggins. 1992. The Public Trust Doctrine and community values in water. Natural Resources Journal 32: 515-537.

Ingram, R.G., L. Legendre, Y. Simard, and S. Leparge. 1985. Phytoplankton response to freshwater runoff: The diversion of the Eastmain River, James Bay. Canadian Journal of Fisheries and Aquatic Sciences 42: 1216-1221.

Inoue, M., H. Miyata, Y. Tange, and Y. Taniguchi. 2009. Rainbow trout (*Oncorhynchus mykiss*) invasion in Hokkaido streams, northern Japan, in relation to flow variability and biotic interactions. Canadian Journal of Fisheries and Aquatic Sciences 66 (9): 1423-1434. Doi:10.1139/F09-088.

Inoue, M., and S. Nakano. 1998. Effects of woody debris on the habitat of juvenile masu salmon (*Oncorhynchus masou*) in northern Japanese streams. Freshw. Biol. 40 (1): 1-16. Doi:10.1046/j.1365-2427.1998.00346.x.

Inoue, M., and S. Nakano. 1999. Habitat structure along channel-unit sequences for juvenile salmon: a subunit-scale habitat classification. Freshw. Biol. 42 (4): 597-608. Doi:10.1046/j.1365-2427.1999.00481.x.

Inoue, M., S. Nakano, and F. Nakamura. 1997. Juvenile masu salmon (*Oncorhynchus masou*) abundance and stream habitat relationships in northern Japan. Canadian Journal of Fisheries and Aquatic Sciences 54 (6): 1331‑1341. Doi:10.1139/cjfas-54-6-1331.

Inoue, M., and M. Nunokawa. 2002. Effects of longitudinal variations in stream habitat structure on fish abundance: an analysis based on subunit-scale habitat classification. Freshwater Biology 47: 1594-1607. Doi: 10.1046/j.1365-2427.2002.00898.x.

Irlandi, E., S. Macia, and J. Serafy. 1997. Salinity reduction from freshwater canal discharge: Effects on mortality and feeding of an urchin (*Lytechinus variegatus*) and a gastropod (*Lithopoma tectum*). Bulletin of Marine Science 61: 869-897.

Irvine, J.R. 1984. Effects of varying discharge on stream invertebrates and underyearling salmon and trout. Ph.D. thesis, University of Otago, Dunedin, New Zealand. 254 pp.

Irvine, J.R. 1985. Effects of successive flow perturbations on stream invertebrates. Canadian Journal of Fisheries and Aquatic Sciences 42 : 1922‑1927. Doi: 10.1139/f85-238.

Irvine, J.R. 1986. Effects of varying discharge on the downstream movement of salmon fry, *Oncorhynchus tshawytscha* Walbaum. Journal of Fish Biology 28 (1): 17-28.

Irvine, J.R. 1987. Effects of varying flows in man-made streams on rainbow trout (*Salmo gairdneri* Richardson) fry. Pp. 83-98 in: J.F. Craig and J.B. Kemper, editors. Regulated Streams: Advances in Ecology. Plenum Press, New York and London.

Irvine, J.R., and P.R. Henriques. 1984. A preliminary investigation on effects of fluctuating flows on invertebrates of the Hawea River, a large regulated river. New Zealand Journal of Marine and Freshwater Research 18: 283-290. Doi: 10.1080/00288330.1984.9516050.

Irvine, J.R., and N.T. Johnston. 1992. Coho salmon (*Oncorhynchus kisutch*) use of lakes and streams in the Keough River drainage, British Columbia. Northwest Science 66: 15-25.

Irvine, J.R., I.G. Jowett, and D. Scott. 1987. A test of the instream flow incremental methodology for underyearling rainbow trout (*Salmo gairdnerii* Richardson) in experimental New Zealand streams. New Zealand Journal of Marine and Freshwater Research 21: 35-40.

Irvine, J.R., and T.G. Northcote. 1982. Significance of sequential feeding patterns of juvenile rainbow trout *Salmo gairdneri* in a large lake-fed river. Transactions of the American Fisheries Society 111 (4): 446-452. Doi: 10.1577/1548-8659(1982)111<446:SOSFPO>2.0.CO;2

Irvine, J.R., and B.R. Ward. 1989. Patterns of timing and size of wild coho salmon (*Oncorhynchus kisutch*) smolts migrating from the Keough River watershed on northern Vancouver Island. Canadian Journal of Fisheries and Aquatic Sciences 46 (7): 1086-1094.

Irvine, J.R., and N.E. West. 1979. Riparian tree species distribution and succession along the lower Escalante River, Utah. Southwestern Naturalist 24 (2): 331-346.

Irvine, K.N., and J.J. Drake. 1987. Spatial analysis of snow- and rain-generated highflows in southern Ontario. Can. Geogr. 31: 140-149.

Irvine, R.L., T. Oussoren, J.S. Baxter, and D.C. Schmidt. 2009. The effects of flow reduction rates on fish stranding in British Columbia, Canada. River Research and Applications 25: 405-415.

Irving, D.B., and T. Modde. 2000. Home-range fidelity and use of historical habitat by adult Colorado squawfish (*Ptychocheilus lucius*) in the White River, Colorado, and Utah. Western North American Naturalist 60: 16-25.

Irwin, E.R. 2014. Defining ecological and economical hydropower operations: a framework for managing dam releases to meet multiple conflicting objectives. Journal of Energy Challenges and Mechanics 1 (3): 139-146.

Irwin, E.R., and M.C. Freeman. 2002. Proposal for adaptive management to conserve biotic integrity in a regulated segment of the Tallapoosa River, Alabama, U.S.A. Conservation Biology 16: 1212-1222.

Irwin, E.R., M.C. Freeman, and K.M. Costley. 1999. Habitat use by juvenile channel catfish and flathead catfish in lotic systems in Alabama. Pages 223-230 in: E.R. Irwin, W.A. Hubert, C.F. Rabeni, H.L. Schramm, Jr., and T. Coon, editors. Catfish 2000: proceedings of the international ictalurid symposium. American Fisheries Society Symposium 24, Bethesda, Maryland.

ISAB (Independent Scientific Advisory Board). 2003. Review of flow augmentation: update and clarification. Report to the Northwest Power Planning Council, the National Marine Fisheries Services, the Columbia River Basin Tribes, ISAB 2003-1, Portland, Oregon.

Isaak, D.J., and W.A. Hubert. 2001. A hypothesis about factors that affect maximum summer temperatures across montane landscapes. Journal of the American Water Resources Association 37: 351-366.

Isaak, D.J., C.C. Muhlfield, A.S. Todd, R. Al-Chokhachy, J. Roberts, J.L. Kershner, K.D. Fausch, and S.W. Hostetler. 2012. The past as prelude to the future for understanding 21st-century climate effects on Rocky Mountain trout. Fisheries 37 (12): 542-556.

Isaak, D.J., R.F. Thurow, B.E. Rieman, and J.B. Dunham. 2007. Chinook salmon use of spawning patches: relative roles of habitat quality, size, and connectivity. Ecological Applications 17: 352-364. Doi: 10.1890/05-1949.

Ittekkot, V., C. Humborg, and P. Schaefer. 2000. Hydrological alterations and marine biogeochemistry: A silicate issue? Bioscience 50 (9): 776-782.

Iverson, M., P. Wiberg-Larsen, S.B. Hansen, and F.S. Hansen. 1978. The effect of partial and total drought on the macroinvertebrate community of three small Danish streams. Hydrobiologia 60: 235-242.

Jackson, D.A., P.R. Peres-Neto, and J.D. Olden. 2001. What controls who is where in freshwater fish communities: the roles of biotic, abiotic and spatial factors? Canadian Journal of Fisheries and Aquatic Sciences 58: 157-170. Doi:10.1139/cjfas-58-1-157.

Jackson, D.C., A.V. Brown, and W.D. Davies. 1991. Zooplankton transport and diel drift in the Jordan Dam tailwater during a minimum flow regime. Rivers 2 (3): 190-197.

Jackson, D.C., and W.D. Davies. 1988. Environmental factors influencing summer angler effort on the Jordan Dam tailwater. North American Journal of Fisheries Management 8: 305-309.

Jackson, H.M., C.N. Gibbins, and C. Soulsby. 2007. Role of discharge and temperature variation in determining invertebrate community structure in a regulated river. River Research and Applications 23: 651-669.

Jackson, R.B., S.R. Carpenter, C.N. Dahm, D.M. McKnight, R.J. Naiman, S.L. Postel, and S.W. Running. 2001. Water in a changing world. Ecological Applications 11: 1027-1045.

Jackson, R.B., E.G. Jobbagy, R. Avissar, S.B. Roy, D.J. Barrett, C.W. Cook, K.A. Farley, D/C/ le Maitre, B.A. McCarl, and B.C. Murray. 2005. Trading water for carbon with biological carbon sequestration. Science 310: 1944-1947.

Jackson, R.I. 1950. Variations in flow patterns at Hell’s Gate and their relationships to the migration of sockeye salmon. International Pacific Salmon Fisheries Commission, Bulletin 3: 85-129.

Jackson, S. 2017. How much water does a culture need? Environmental water management’s cultural challenge and indigenous responses. Pages 173-188 in: A. Horne, A. Webb, M. Stewardson, B. Richter and M. Acreman (editors), Water for the environment: From policy and science to implementation and management. Amsterdam: Elsevier Press. Doi: 10.1016/B978-0-12-803907-6.00009-7

Jackson, S.E., M.M. Douglas, M.J. Kennard, B.J. Pusey, J. Huddleston, B. Harney, et al. 2014. “We like to listen to stories about fish”: integrating indigenous ecological and scientific knowledge to inform environmental flow assessments. Ecol. Soc. 19 (1): 43.

Jackson, W.L., and R.L. Beschta. 1992. Instream flows for rivers: maintaining stream form and function as a basis for protecting dependent uses. Pp. 524-535 in: M.E. Jones and A. Laeanen, editors, Interdisciplinary Approaches in Hydrology and Hydrogeology. American Institute of Hydrology, St. Paul, MN.

Jackson, W., T. Martinez, P. Cuplin, and W. Minkley. 1987. Assessment of water conditions and management opportunities in support of riparian values: BLM San Pedro River Properties... Denver, CO: U.S. Bureau of Land Management (BLM-YA-PT-88).

Jacobson, R.A. 2008. Preface: Applications of MesoHABSIM using fish target communities. River Research and Applications 24: 434-438.

Jacobson, R.A., G.S. Warner, P. Parasiewicz, A.C. Batzoglou, and F.L. Ogden. 2008. An interdisciplinary study of the effects of groundwater extraction on freshwater fishes. International Journal of Ecological Economics and Statistics 12 (F08): 7-25.

Jacobson, R.B., and D.L. Galat. 2005. Flow and form in rehabilitation of large-river ecosystems - an example from the lower Missouri River. Geomorphology 77: 249-269. Doi: 10.1016/j.geomorph.2006.01.014.

Jaeger, K.L., and J.D. Olden. 2012. Electrical resistance sensor arrays as a means to quantify longitudinal connectivity of rivers. River Research and Applications 28: 1843-1852. Doi: 10.1002/rra.1554.

Jaeger, K.L., J.D. Olden, and N.A. Pelland. 2014. Climate change poised to threaten hydrologic connectivity and endemic fishes in dryland streams. Proceedings of the National Academy of Sciences United States of America 111: 13894-13899.

Jaeger, M.E., A.V. Zale, T.E. McMahon, and B.J. Schmitz. 2005. Seasonal movements, habitat use, aggregation, exploitation, and entrainment of saugers in the lower Yellowstone River: an empirical assessment of factors affecting population recovery. North American Journal of Fisheries Management 25 (4): 1550-1568.

Jager, H.I. 2014. Thinking outside the channel: timing pulse flows to benefit salmon via indirect pathways. Ecol. Model. 273: 117-127.

Jager, H.I., H.E. Cardwell, M.J. Sale, M.S. Bevelhimer, C.C. Coutant, and W. van Winkle. 1997. Modelling the linkages between flow management and salmon recruitment in streams. Ecological Modelling 103: 171-191.

Jager, H.I., D.L. DeAngelis, M.J. Sale, W. Van Winkle, D.D. Schmoyer, M.J. Sabo, D.J. Orth, and J.A. Lukas. 1993. An individual-based model for smallmouth bass reproduction and young-of-year dynamics in streams. Rivers 4 (2): 91-113.

Jager, H.I., R.A. Elfroymson, J.J. Opperman, and M.R. Kelly. 2015. Spatial design principles for sustainable hydropower development in river basins. Renew. Sustain. Energy Rev. 45: 803-816.

Jager, H.I., and E. Pert. 1997. Comment: testing the independence of microhabitat preferences and flow (part 2). Transactions of the American Fisheries Society 126 (3): 537‑540.

Jager, H.I., and K.A. Rose. 2003. Designing optimal flow patterns for fall chinook salmon in a Central Valley, California, river. North American Journal of Fisheries Management 23 (1): 1-21.

Jager, H.I., W. Van Winkle, and B.D. Holcomb. 1999. Would hydrologic climate change in Sierra Nevada streams influence trout persistence? Transactions of the American Fisheries Society 128 (2): 222-240. Doi:10.1577/1548-8659(1999)128<0222:WHCCIS>2.0.CO;2.

Jagermeyr, J., A. Pastor, H. Biemans, and D. Gerten. 2017. Reconciling irrigated food production with environmental flows for Sustainable Development Goals implementation. Nature Communications 8: 15900. Doi: 10.1038/ncomms15900

Jahnig, S.C., and 6 coauthors. 2012. Modelling of riverine ecosystems by integrating models: conceptual approach, a case study and research agenda. Journal of Biogeography 39: 2253-2263. Doi: 10.1111/jbi.12009

Jain, K.E., I.K. Birdwell, and A.P. Farrell. 1998. Repeat performance of mature sockeye salmon following a brief recovery period: a proposed measure of fish health and water quality. Canadian Journal of Zoology 76: 1488-1496.

Jain, K.E., and A.P. Farrell. 2003. Influence of seasonal temperature on the repeat swimming performance of rainbow trout *Oncorhynchus mykiss*. Journal of Experimental Biology 206: 3569-3579.

Jain, K.E., J.C. Hamilton, and A.P. Farrell. 1997. Use of a ramp velocity test to measure critical swimming speed in rainbow trout, *Oncorhynchus mykiss*. Comparative Biochemistry and Physiology 117A: 441-444.

Jakober, M.J. 1995. Autumn and winter movement and habitat use of resident bull trout and westslope cutthroat trout in Montana. M.Sc. thesis, Montana State University, Bozeman, Montana. (elsewhere listed as Influence of stream size and morphology on the seasonal distribution and habitat use of resident bull trout and westslope cutthroat trout in Montana.

Jakober, M.I., T.E. McMahon, and R.F. Thurow. 2000. Diel habitat partitioning by bull charr and cutthroat trout during fall and winter in Rocky Mountain streams. Environmental Biology of Fishes 59: 79-89.

Jakober, M.I., T.E. McMahon, R.F. Thurow, and C.G. Clancy. 1998. Role of stream ice on fall and winter movements and habitat use by bull trout and cutthroat trout in Montana headwater streams. Transactions of the American Fisheries Society 127 (2): 223-235. Doi:10.1577/1548-8659(1998)127<ROSIOF>2.0.CO:2.

James, A.B.W., Z.S. Dewson, and R.G. Death. 2008. Do stream macroinvertebrates use instream refugia in response to severe short-term flow reduction in New Zealand streams? Freshwater Biology 53: 1316-1334. Doi: 10.1111/j.1365-2427.2008.01969.x

James, A.B.W., Z.S. Dewson, and R.G. Death. 2008. The effect of experimental flow reductions on macroinvertebrate drift in natural and streamside channels. River Research and Applications 24: 22-35. Doi: 10.1002/rra.1052.

James, A.B.W., Z.S. Dewson, and R.G. Death. 2009. The influence of flow reduction on macroinvertebrate drift density and distance in three New Zealand streams. J. N. Am. Benthol. Soc. 28: 220-232. Doi: 10.1899/07-146.1.

James, C., S.J. Mackay, A.H. Arthington, and S. Capon. 2016. Does flow structure riparian vegetation in subtropical south-east Queensland? Ecol. Evol. Doi: 10.1002/ece3.2249.

James, C.A., J. Kershner, J. Samhouri, S. O’Neill, and P.S. Levin. 2012. A methodology for evaluating and ranking water quantity indicators in support of ecosystem-based management. Environmental Management 49: 703-719. Doi: 10.1007/s00267-012-9808-7

James, D.A., J.W. Erickson, and B.A. Barton. 2007. Brown trout seasonal movement patterns and habitat use in an urbanized South Dakota stream. North American Journal of Fisheries Management 27: 978-985.

James, D.A., J.W. Wilhite, and S.R. Chipps. 2010. Influence of drought conditions on brown trout biomass and size structure in the Black Hills, South Dakota. North American Journal of Fisheries Management 30 (3): 791-798. Doi: 10.1557/M09-199.1

James, L.A. 1997. Channel incision on the lower American River, California, from streamflow gage records. Water Resources Research 33: 485-490.

Janac, M., M. Ondrackova, P. Jurajda, Z. Valova, and M. Reichard. 2010. Flood duration determines the reproduction success of fish in artificial oxbows in a floodplain of a potamal river. Ecol. Freshw. Fish 19 (4): 644-655. Doi: 10.1111/j.1600-0633.2010.00449.x.

Jang, I.K., and C.H. Kim. 1992. A study on the changes of the molluscan and crustacean fauna after the construction of the Naktong estuary barrage. Bulletin of the Korean Fisheries Society 25: 265-281.

Jansen, H.A., H.V. Winter, M.C.M. Bruijs, and H.J.G. Polman. 2007. Just go with the flow? Route selection and mortality during downstream migration of silver eels in relation to river discharge. ICES Journal of Marine Science 64: 1437-1443.

Jansson, R., C. Nilsson, M. Dynesius, and E. Andersson. 2000. Effects of river regulation on river-margin vegetation: a comparison of eight boreal rivers. Ecological Applications 10: 203-224.

Jansson, R., C. Nilsson, and B. Malmqvist. 2007. Restoring freshwater ecosystems in riverine landscapes: the roles of connectivity and recovery processes. Freshwater Biology 32: 589-596.

Jansson, R., C. Nilsson, and B. Renofalt. 2000. Fragmentation of riparian floras in rivers with multiple dams. Ecology 81: 899-903.

Jansson, R., U. Zinko, D.M. Merritt, and C. Nilsson. 2005. Hydrochory increases plant species richness: a comparison between a free-flowing and a regulated river. Journal of Ecology 93: 1094-1103.

Jardine, T.D., N.R. Bond, M.A. Burford, M.J. Kennard, D.P. Ward, P. Bayliss, P.M. Davies, M.M. Douglas, S.K. Hamilton, J.M. Melack, R.J. Naiman, N.E. Pettit, B.J. Pusey, D.M. warfe, and S.E. Bunn. 2015. Does flood rhythm drive ecosystem responses in tropical riverscapes? Ecology 96 (3): 684-692. Doi: 10.1890/14-0991.1.

Jarrett, R.D. 1990. Hydrologic and hydraulic research in mountain rivers. Water Resources Bulletin 26: 419-429.

Jarvela, J. 1992. Flow resistance of flexible and stiff vegetation: a flume study with natural plants. Journal of Hydrology 269: 44-54.

Jassby, A.S., W.J. Kimmerer, S.G. Monismith, C. Arbor, J.E. Cloern, T.M. Powell, J.R. Schubel, and T.J. Vendlinski. 1995. Isohaline position as a habitat indicator for estuarine populations. Ecological Applications 5: 272-289.

Jay, D.A., and C.A. Simenstad. 1996. Downstream effects of water withdrawn in a small high-gradient basin: erosion and deposition on the Skokomish delta. Estuaries 19: 501-517.

Jeffers, J.N.R. 1998. Characterization of river habitat features using ordination techniques. Aquatic Conservation Marine and Freshwater Ecosystems 8: 529-540.

Jefferson, A., A. Nolin, S. Lewis, and C. Tague. Hydrogeologic controls on streamflow sensitivity to climatic variation. Hydrologic Processes doi: 10.1002/hyp.7041.

Jeffres, C.A. 2006. Ephemeral floodplain habitats provide best growth conditions for juvenile Chinook salmon in a California river. M.S. thesis. University of California, Davis.

Jeffres, C.A., A.P. Klimley, J.E. Merz, and J.J. Cech. 2006. Movement of Sacramento sucker, *Catostomus occidentalis*, and hitch, *Lavinia exilicauda*, during a spring release of water from Camanche Dam in the Mokelumne River, California. Environmental Biology of Fishes 75: 365-373.

Jeffres, C., and P.B. Moyle. 2012. When good fish make bad decisions: coho salmon in an ecological trap. North American Journal of Fisheries Management 32 (1): 87-92. Doi: 10.1080/02755947,2012.661389

Jeffres, C., J.J. Opperman, and P.B. Moyle. 2008. Ephemeral floodplain habitats provide best growth conditions for juvenile Chinook salmon in a California river. Environmental Biology of Fishes 83 (4): 449-458. Doi: 10.1007/s10641-008-9367-1.

Jelks, H.L., S.J. Walsh, N.M. Burkhead, S. Contreras-Balderas, E. Diaz-Pardo, D.A. Hendrickson, J. Lyons, N.E. Mandrak, F. McCormick, J.S. Nelson, S.P. Platania, B.A. Porter, C.B. Renaud, J.J. Schmitter-Soto, E.B. Taylor, and M.L.W., Jr. 2008. Conservation status of imperiled North American freshwater and diadromous fishes. Fisheries 33: 372-407.

Jenkins, A.R., and E.R. Keeley. 2010. Bioenergetic assessment of habitat quality for stream-dwelling cutthroat trout (*Oncorhynchus clarkii bouvieri*) with implications for climate change and nutrient supplementation. Canadian Journal of Fisheries and Aquatic Sciences 67 (2): 371-385. Doi:10.1139/F09-193

Jenkins, K.M., and A.J. Boulton. 1998. Community dynamics of invertebrates emerging from reflooded lake sediments: flood pulse and aeolian influences. International Journal of Ecology and Environmental Sciences 24: 179-192.

Jenkins, K.M., and A.J. Boulton. 2003. Connectivity in a dryland river: short-term aquatic microinvertebrate recruitment following floodplain inundation. Ecology 84 (10): 2708-2723.

Jenkins, K.M., and A.J. Boulton. 2007. Detecting impacts and setting restoration targets in arid-zone rivers: aquatic micro-invertebrate responses to reduced floodplain inundation. Journal of Applied Ecology 44: 823-832.

Jenkins, R.A., K.R. Wade, and E. Pugh. 1984. Macroinvertebrate-habitat relationships in the River Teifi catchment and the significance to conservation. Freshw. Biol. 14: 23-42. Doi: 10.1111/j.1365-2427.1984.tb00019.x.

Jenkins, T.M., Jr. 1969. Social structure, position choice and microdistribution of two trout species (*Salmo trutta* and *S. gairdneri*) resident in mountain streams. Animal Behaviour Monographs 2: 56-123.

Jenkins, T.M., Jr., S. Diehl, K.W. Kratz, and S.D. Cooper. Effects of population density on individual growth of brown trout in streams. Ecology 80 (3): 941-956. Doi: 10.1890/0012-9658(1999)080[0941:EOPDOI]2.0.CO;2.

Jennings, C.A., E.W. Dilts, J.L. Shelton Jr., and R.C. Peterson. 2010. Fine sediment affects on survival to emergence of robust redhorse. Environmental Biology of Fishes 87: 43-53. Doi:10.1007/s10641-009-9561-9.

Jennings, M.J., J.E. Claussen, and D.P. Philipp. 1996. Evidence for heritable preference for spawning habitat between two walleye populations. Transactions of the American Fisheries Society 125: 978-982.

Jennings, M.J., and D.P. Philipp. 1994. Biotic and abiotic factors affecting survival of early life history intervals of a stream-dwelling sunfish. Environmental Biology of Fishes 39: 153-159/

Jensen, A.J., B. Finstad, P. Fiske, N.A. Hvidsten, A.H. Rikardsen, and L. Saksgard. 2012. Timing of smolt migration in sympatric populations of Atlantic salmon (*Salmo salar*), brown trout (*Salmo trutta*), and Arctic char (*Salvelinus alpinus*). Canadian Journal of Fisheries and Aquatic Sciences 69 (4): 711-723. Doi: 10.1139/F2012-005.

Jensen, A.J., and B.O. Johnsen. 1999. The functional relationship between peak spring floods and survival and growth of juvenile Atlantic salmon (*Salmo salar*) and brown trout (*Salmo trutta*). Functional Ecology 13: 778-785. Doi: 10.1046/j.1365-2435.1999.00358.x.

Jensen, A.J., B.O. Johnsen, and L.P. Hansen. 1989. Effects of river flow and water temperature on the upstream migration of adult Atlantic salmon *Salmo salar* L. in the River Vefsna, northern Norway. Pages 140-146 *in*: E. Brannon and B. Jonsson, editors. Salmonid migration and distribution. School of Fisheries, University of Washington, Seattle.

Jensen, D.W., E.A. Steel, A.H. Fullerton, and G.R. Pess. 2009. Impact of fine sediment on egg-to-fry survival of Pacific salmon: a meta-analysis of published studies. Rev. Fish. Sci. 17 (3): 348-359. Doi: 10.1080/10641260902716954.

Jensen, T., and J.C. Vokoun. 2013. Using multistate occupancy estimation to model habitat use in difficult-to-sample watersheds: bridle shiner in a low-gradient swampy stream. Canadian Journal of Fisheries and Aquatic Sciences 70 (10): 1429-1437. Dx.doi.org/10.1139/cjfas-2013-0011.

Jessop, B.M. 2003. Annual variability in the effects of water temperature, discharge, and tidal stage on the migration of American eel elvers from estuary to river. Pages 3-16 in: D.A. Dixon, editor. Biology, management, and protection of catadromous eels. American Fisheries Society, Symposium 33, Bethesda, MD.

Jewitt, GP.W., D.C. Weeks, G.L. Heritage, and A.H.M. Gorgens. 2001. Modelling abiotic-biotic links in the rivers of the Kruger National Park, Moumulanga, South Africa. Pages 77-90 in: Hydro-Ecology: Linking Hydrology and Aquatic Ecology (Proc. Birmingham, UK, Workshop, July 1999). IAHS, Wallingford.

Jiang, X., A. Arthington, and L. Changming. 2010. Environmental flow requirements of fish in the lower reach of the Yellow River. Water International 35: 3 Jansson, R., C. Nilsson, and B. 81-396.

Jirka, K.J., and J. Homa, Jr. 1990. Development and preliminary evaluation of suitability index curves for juvenile brook trout. Rivers 1 (3): 207‑217.

Johengen, T.H., B.A. Biddanda, and J.B. Cotner. 2008. Stimulation of Lake Michigan plankton metabolism by sediment resuspension and river runoff. J. Great Lakes Res. 34 (2): 213-227. Doi: 10.3394/0380-1330(2008)34[213:SOLMPM]2.0.CO;2.

John, K.R. 1963. The effect of torrential rain on the reproductive cycle of *Rhinichthys osculus* (Girard) in the Chiricahua Mountains, Arizona. Copeia 1963: 286-291.

Johnson, B.L., and C.A. Jennings. 1998. Habitat associations of small fishes around islands in the upper Mississippi River. North American Journal of Fisheries Management 18: 327-336. Doi:10.1577/1548-8675(1998)018<0327:HAOSFA>2.0.CO;2.

Johnson, B.L., W.B. Richardson, and T.J. Naimo. 1995. Past, present, and future concepts in large river ecology. BioScience 45 134-141.

Johnson, B.R., K.M. Fritz, K.A. Blocksom, and D.M. Walters. 2009. Larval salamanders and channel geomorphology are indicators of hydrologic permanence in forested headwater streams. Ecol. Ind. 9 (1): 150-159.

Johnson, C.A., and R.J. Naiman. 1987. Boundary dynamics at the aquatic-terrestrial interface: the influence of beaver and geomorphology. Landsc. Ecol. 1 (1): 45-57. Doi:10.1007/BF02275265.

Johnson, C.E., and R.A. Kennon. 2007. Habitat use of the shoal bass *Micropterus cataractae*, in an Alabama stream. Journal of Freshwater Ecology 22: 493-498.

Johnson, C.J., S.E. Nielsen, E.H. Merrill, T. McDonald, and M. Boyce. 2006. Resource selections functions based on use-availability data: theoretical motivation and evaluation methods. Journal of Wildlife Management 70: 347-357. Doi: 10.2193/0022-541X(2006)70[347-RSFBOU]2.0.CO;2.

Johnson, D.H. 1980. The comparison of usage and availability measurements for evaluating resource preference. Ecology 69: 125-134.

Johnson, E.L., C.C. Caudill, M.L. Keefer, T.S. Clabough, C.A. Peery, and M.A. Jepson. 2012. Movement of radio-tagged adult Pacific lampreys during a large-scale fishway velocity experiment. Transactions of the American Fisheries Society 141 (3): 571-579. Doi: 10.1080/00028487.2012.683468.

Johnson, F.H. 1961. Walleye egg survival during incubation on several types of bottom in Lake Winnibigoshish, Minnesota, and connecting waters. Transactions of the American Fisheries Society 90: 312-322.

Johnson, G.E., W.H. Pearson, S.L. Southard, and R.P. Mueller. 2012. Upstream movement of juvenile coho salmon in relation to environmental conditions in a culvert test bed. Transactions of the American Fisheries Society 141 (6): 1520-1531. Doi: 10.1080/00028487.2012.699013.

Johnson, I.W., C.R.N. Elliott, and A. Gustard. 1994. Data requirements and collection procedures for application of the Instream Flow Incremental Methodology in the UK. Institute of Hydrology: Wallingford.

Johnson, I.W., C.R.N. Elliott, A. Gustard, and A.T. Newton. 1993. River Allen instream flow requirements, pp. 5.15-5.21 in: Proceedings of British Hydrological Society Fourth National Hydrological Symposium, British Hydrological Society, Cardiff.

Johnson, I.W., C.R.N. Elliott, and A. Gustard. 1995. Modeling the effect of groundwater abstraction on salmonid habitat availability in the River Allen, Dorset, England. Regulated Rivers: Research & Management 10: 229-238.

Johnson, I.W., and F.M. Law. 1995. Computer models for quantifying the hydro-ecology of British rivers. J. CIWEM 9: 290-297.

Johnson, J.H. 2008. Seasonal habitat use of brook trout and juvenile Atlantic salmon in a tributary of Lake Ontario. Northeastern Naturalist 15: 363-374.

Johnson, J.H. 2014. Habitat use by subyearling Chinook and coho salmon in Lake Ontario tributaries. J. Great Lakes Res. 40: 149-154. Doi: 10.1016/j.jglr.2013.12.006

Johnson, J.H., and K.A. Douglas. 2009. Diurnal stream habitat use of juvenile Atlantic salmon, brown trout and rainbow trout in winter. Fisheries Management and Ecology 16: 352-359.

Johnson, J.H., and D.S. Dropkin. 1996. Seasonal habitat use by brook trout, *Salvelinus fontinalis* (Mitchill), in a second-order stream. Fisheries Management and Ecology 3: 1-11.

Johnson, J.H., D.S. Dropkin, and P.G. Schaffer. 1992. Habitat use by a headwater stream fish community in north-central Pennsylvania. Rivers 3 (2): 69-79.

Johnson, J.H., and P.A. Kucera. 1985. Summer-autumn habitat utilization of subyearling steelhead trout in tributaries of the Clearwater River, Idaho. Canadian Journal of Zoology 63: 2283-2290.

Johnson, J.H., C.C. Nack, and J.E. McKenna, Jr. 2010. Migratory salmonid redd habitat characteristics in the Salmon River, New York. Journal of Great Lakes Research 36: 387-392.

Johnson, M.F., and S.P. Rice. 2014. Animal perception in gravel-bed rivers: scales of sensing and environmental controls on sensory information. Canadian Journal of Fisheries and Aquatic Sciences 71 (6): 945-957. Doi: 10.1139/cjfas-2013-0474.

Johnson, N.S., and R.M. Adams. 1988. Benefits of increased streamflow: the case of the John Day River steelhead fishery. Water Resources Research 24: 1839-1846.

Johnson, P.D., and K.M. Brown. 2000. The importance of microhabitat factors and habitat stability to the threatened Louisiana pearl shell, *Margaritifera hembeli* (Conrad). Canadian Journal of Zoology 78:271-277.

Johnson, P.M. 2001. Habitat associations and drought responses of freshwater mussels in the lower Flint River basin. Master’s thesis, University of Georgia, Athens. 114 pp.

Johnson, R.L., S.C. Blumenshine, and S.M. Coghlan. 2006. A bioenergetic analysis of factors limiting brown trout growth in an Ozark tailwater river. Environmental Biology of Fishes 77 (2): 121-132. Doi: 10.1007/s10641-006-9059-7.

Johnson, R.R., S.W. Carothers, D.M. Finch, K.J. Kingsley, and J.T. Stanley, technical editors. 2018. Riparian research and management: Past, present, future. Volume 1. Gen. Tech. Rep. RMRS-GTR-377. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. Doi: 10.2737/RMRS-GTR-377

Johnson, S.C., R. Burgess, and W. Kaemmerer. 1976. Forest overstory vegetation and environment on the Missouri River floodplain in North Dakota. Ecological Monographs 46 (1): 59-84.

Johnson, S.E., K.L. Amatangelo, P.A. Townsend, and D.M. Waller. 2016. Large, connected floodplain forests prone to flooding hest sustain plant diversity. Ecology 97 (11): 3019-3030. Doi: 10.1002/ecy.1556.

Johnson, S.E., and D.M. Waller. 2013. Influences of dam regulation on 55-year canopy shifts in riparian forests. Canadian Journal of Forest Research 43: 159-170.

Johnson, S.L., and A.P. Covich. 2000. The importance of night-time observations for determining habitat preferences of stream biota. Regulated Rivers: Research and Management 16: 91-99.

Johnson, S.L., J.D. Rodgers, M.F. Solazzi, and T.E. Nickelson. 2005. Effects of an increase in large wood on abundance and survival of juvenile salmonids (*Oncorhynchus* spp.) in an Oregon coastal stream. Canadian Journal of Fisheries and Aquatic Sciences 62 (2): 412-424.

Johnson, S.L., F.J. Swanson, G.E. Grant, and S.M. Wondzell. 2000. Riparian forest disturbances by a mountain flood – the influence of floated wood. Hydrol. Process. 14 (16-17): 3031-3050. Doi: 10.1002/1099-1085(200011/12)14:16/17<3031::AID-HYP133>3.0.CO;2-6.

Johnson, T.H. 1985. Density of steelhead parr for mainstem rivers in western Washington during the low flow period, 1984. Washington State Department of Game, Fishery Management Division 85‑6, Olympia.

Johnson, W.C. 1992. Dams and riparian forests: case study from the upper Missouri River. Rivers 3: 229-242.

Johnson, W.C. 1993. Divergent response of riparian vegetation to flow regulation on the Missouri and Platte rivers. U.S. National Biological Survey Biological Report 19: 426-431.

Johnson, W.C. 1994. Woodland expansion in the Platte River, Nebraska: patterns and causes. Ecological Monographs 64: 45-84.

Johnson, W.C. 1998. Adjustment of riparian vegetation to river regulation in the Great Plains, USA. Wetlands 18: 608-618.

Johnson, W.C. 2000. Tree recruitment and survival in rivers: influence of hydrological processes. Hydrological Processes 14: 3051-3074.

 Johnson, W.C. 2002. Riparian vegetation diversity along regulated rivers: contribution of novel and relict habitat. Freshwater Biology 47: 749-759.

Johnson, W.C., M.D. Dixon, R. Simons, S. Jenson, and K. Larson. 1995. Mapping the response of riparian vegetation to possible flow reductions in the Snake River, Idaho. Geomorphology 13: 159-173.

Johnson-Bice, S.M., K.M. Renik, S.W. Windels, and A.W. Hafs. 2018. A review of beaver-salmonid relationships and history of management actions in the Western Great Lakes (USA) region. North American Journal of Fisheries Management 38 (6): 1203-1225. Doi: 10.1002/nafm.10223

Johnston, C., G.B. Zydlewski, S. Smith, J. Zydlewski, and M.T. Kinnison. 2019. River reach restored by dam removal offers suitable spawning habitat for endangered shortnose sturgeon. Transactions of the American Fisheries Society 148 (1): 163-175. Doi: 10.1002/tafs.10126

Johnston, P., N.E. Bergeron, and J.J. Dodson. 2005. Assessment of winter size-selective mortality of young-of-the-year Atlantic salmon (*Salmo salar*) using otolith microstructure analysis. Ecology of Freshwater Fish 14: 168-176.

Johnston, T.A., M.N. Gaboury, R.A. Janusz, and L.R. Janusz. 1995. Larval fish drift in the Valley River, Manitoba: Influence of abiotic and biotic factors and relationships with future year class strengths. Canadian Journal of Fisheries and Aquatic Science 52: 2423-2431.

Johnston, J.W. 1986. Environmental significance of instream flows. St. Mary’s Law Review 17: 1297-1342.

Jones, D.R., J.W. Kiceniuk, and O.S. Bamford. 1974. Evaluation of the swimming performance of several fish species from the Mackenzie River. Journal of the Fisheries Research Board of Canada 31: 1641-1647.

Jones, G. 2002. Setting environmental flows to sustain a healthy working river. Watershed, February 2002, pp. 1-2.

Jones, J.A., and G.E. Grant. 1996. Peak flow responses to clear-cutting and roads in small and large basin, western Cascades, Oregon. Water Resources Research 32: 959-974.

Jones, J.A., E.J. Swanson, B.C. Wemple, and K.U. Snyder. 2000. Effects of roads on hydrology, geomorphology, and disturbance patches in stream networks. Conservation Biology 14: 76-85.

Jones, J.B., G.C. Poole, W.W. Woessner, M.V. Vitale, B.R. Boer, S.J. O’Daniel, S.A. Thomas, and B.A. Geffen. 2007. Geomorphology, hydrology, and aquatic vegetation drive seasonal hyporheic flow patterns across a gravel-dominated floodplain. Hydrol. Processes 22: 2105-2113.

Jones, J.L. 2006. Side channel mapping and fish habitat suitability analysis using LIDAR topography and orthography. Photogrammetric Engineering and Remote Sensing 71: 1202-1206.

Jones, M.J., and I.G. Stuart. 2007. Movements and habitat use of common carp (*Cyprinus carpio*) and Murray cod (*Maccullochella peelii peelii*) juveniles in a large lowland Australian river. Ecology of Freshwater Fish 16: 210-220.

Jones, M.J., and I.G. Stuart. 2008. Regulated floodplains – a trap for unwary fish. Fisheries Management and Ecology 15: 71-79.

Jones, N.E. 2010. Incorporating lakes within the river discontinuum: longitudinal changes in ecological characteristics in stream-lake networks. Canadian Journal of Fisheries and Aquatic Sciences 67 (8)” 1350-1362.

Jones, N.E., and I.C. Petreman. 2013. Relating extremes of flow and air temperature to stream fish communities. Ecohydrology 6(5): 826-835. Doi: 10.1002/eco.1305.

Jones, N.E., and J.C. Petreman. 2014. Environmental influences on fish migration in a hydropeaking river. River Research and Applications 11: 1109-1118.

Jones, N.E., B.J. Schmidt, and S.J. Melles. 2014. Characteristics and distribution of natural flow regimes in Canada: a habitat template approach. Canadian Journal of Fisheries and Aquatic Sciences 71 (11): 1616-1624. Doi:10.1139/cjfas-2014-0040.

Jones, N.E., and W.M. Tonn. 2004. Resource selection functions for age-0 Arctic grayling (*Thymallus arcticus*) and their application to stream habitat compensation. Canadian Journal of Fisheries and Aquatic Sciences 61 (9): 1736-1746.

Jones, WK., and W. Huang. 1996. Modeling changing freshwater delivery to Apalachicola Bay, Florida. Pp. 116-127 in: M.L. Spaulding and R.T. Cheng (editors) Estuarine and coastal modeling. Proceedings of the 4th International Conference 1996. American Society of Civil Engineering, New York.

Joniak, T., and N. Kuczynska-Kippen, 2016, Habitat features and zooplankton community structure of oxbows in the limnophase: reference to transitional phase between flooding and stabilization. Limnetica 35: 37-48.

Jonsson, B., and N. Jonsson. 2009. A review of the likely effects of climate change on anadromous Atlantic salmon *Salmo* *salar* and brown trout *Salmo trutta*, with particular reference to water temperature and flow. J. Fish Biol. 75 (10): 2381-2447. Doi:10.1111/j.1095-8649.2009.02380.x.

Jonsson, B., and N. Jonsson. 2011. Ecology of Atlantic salmon and brown trout: habitat as a template for life histories. Fish and Fisheries Series 33. Doi: 10.1007.978-94-007-1189-1.

Jonsson, B., and N. Jonsson. 2017. Fecundity and water flow influence the dynamics of Atlantic salmon. Ecology of Freshwater Fish 26 (3): 497-501. Doi: 10.1111/eff.12294.

Jonsson, N. 1991. Influence of water flow, water temperature, and light on fish migration in rivers. Nordic Journal of Freshwater Research 66: 20-35.

Jonsson, N., L.P. Hansen, and B. Jonsson. 1991. Variation in age, size and repeat spawning of adult Atlantic salmon in relation to river discharge. J. Anim. Ecol. 60: 937-947.

Jonsson, N., B. Jonsson, and L.P. Hansen. 1990. Partial segregation in the timing of migration of Atlantic salmon of different ages. Animal Behaviour 40: 313-321.

Jonsson, N., B. Jonsson, and L.P. Hansen. 1998. The relative role of density-dependent and density-independent survival in the life cycle of Atlantic salmon *Salmo salar*. J. Anim. Ecol. 67 (5): 751-762. Doi: 10.106/j.1365-2656.1998.00237.x.

Jonsson, N., B. Jonsson, and L.P. Hansen. 2005. Does climate during embryonic development influence parr growth in Atlantic salmon (*Salmo salar*)? Canadian Journal of Fisheries and Aquatic Sciences 62 (10): 2502-2508.

Jordan, G.R., R.A. Klumb, G.A. Wanner, and W.J. Stancill. 2006. Poststocking movements and habitat use of hatchery-reared juvenile pallid sturgeon in the Missouri River below Fort Randall Dam, South Dakota and Nebraska. Transactions of the American Fisheries Society 135: 1499-1511.

Jordan, T.E., D.L. Correll, J. Miklas and D.E. Weller. 1991. Long-term trends in estuarine nutrients and chlorophyll, and short-term effects of variation in watershed discharge. Marine Ecology Progress Series 75: 121-132.

Jorde, K. 1996. Ecological evaluation of instream flow regulations based on temporal and spatial variability of bottom shear stress and hydraulic habitat quality. Pages 6163-6174 in: M. Leclerc, H. Capra, S. Valentin, A. Boudreault, and Y. Cote, editors. Ecohydraulics 2000, Proceedings of the Second International Symposium on Habitat Hydraulics. Quebec. INRS-Ea4.

Jorde, K., M. Schneider, and F. Zoellner. 2000. Analysis of instream habitat quality: preference functions and fuzzy models. In: H. Wang (editor), Stochastic Hydraulics, Balkema, Rotterdam, Netherlands.

Joubert, A.R., and P.R. Hurly. 1994. The use of daily flow data to classify South African rivers. Chapter 11. P. 286-359 in: King, J.M., and R.E. Tharme. Assessment of the Instream Flow Incremental Methodologies and Initial Development of Alternative Instream Flow Methodologies for South Africa. Water Research Commission, Pretoria, South Africa.

Jowett, I.G. 1989. River hydraulic and habitat simulation, RHYHABSIM computer manual. New Zealand Fisheries Miscellaneous Report 49. Ministry of Agriculture and Fisheries. Christchurch, New Zealand.

Jowett, I.G. 1990. Factors related to the distribution and abundance of brown and rainbow trout in New Zealand clear-water rivers. New Zealand Journal of Marine and Freshwater Research 24: 429-440. Doi: 10.1080/00288330.1990.9516434.

Jowett, I.G. 1992. Models of the abundance of large brown trout in New Zealand rivers. North

American Journal of Fisheries Management 12 (3): 417-432. Doi: 10.1577/1548-8675(1992)012<0417:MOTAOL>2.3.CO;2.

Jowett, I.G. 1993. A method for objectively identifying pool, run, and riffle habitats from physical measurements. New Zealand Journal of Marine and Freshwater Research 27: 241-248.

Jowett, I.G. 1993. Minimum flow assessments for instream habitat in Wellington rivers. New Zealand Freshwater Miscellaneous Report No. 63. National Institute of Water and Atmospheric Research, Christchurch, p. 33.

Jowett, I.G. 1993. Report of minimum instream flow requirements for instream habitat in Taranaki rivers. New Zealand Freshwater Miscellaneous Report No. 75. National Institute of Water and Atmospheric Research, Christchurch, p. 35.

Jowett, I.G. 1995. Spatial and temporal variability of brown trout abundance: a test of regression models. Rivers 5 (1): 1-12.

Jowett, I.G. 1997. Instream flow methods: a comparison of approaches. Regulated Rivers: Research and Management 13 (2): 115-128. Doi: 10.1002/(SICI)1099-1646(199703)13:2<115::AID-RRR440>3.0.CO;2-6.

Jowett, I.G. 1997. Environmental effects of extreme flows. Pages 103-116 in: M.P. Mosely and C.P. Pearson, editors. Floods and droughts: the New Zealand experience. New Zealand Hydrological Society, Wellington.

Jowett, I.G. 1998. Hydraulic geometry of New Zealand rivers and its use as a preliminary method of habitat assessment. Regulated Rivers: Research and Management 14 (5): 451-.

Jowett, I.G. 2000. Flow management. Pp. 289-312 *in*: K.J. Collier and M.J. Winterbourn, editors. New Zealand stream invertebrates: ecology and implications for management. New Zealand Limnological Society, Hamilton.

Jowett, I.G. 2002. In-stream habitat suitability criteria for feeding inanga (*Galaxias maculatus*). New Zealand Journal of Marine and Freshwater Research 36: 399-407.

Jowett, I.G. 2003. Hydraulic constraints on habitat suitability for benthic invertebrates in gravel-bed rivers. River Research and Applications 19: 495-507.

Jowett, I.G., and B.J.F. Biggs. 2006. Flow regime requirements and the biological effectiveness of habitat-based minimum flow assessments for six rivers. International Journal of River Basin Management 4: 179-189. Doi: 10.1080/15715124.2006.9635287.

Jowett, I.G., and B.J.F. Biggs. 2009. Application of the ‘natural flow’ paradigm in a New Zealand context. River Research and Applications 25: 1126-1135.

Jowett, I.G., and N.C. Boustead. 2001. Effects of substrate and sedimentation on the abundance of upland bullies (*Gobiomorphus breviceps*). New Zealand Journal of Marine and Freshwater Research 35: 605-613.

Jowett, I.G., and A.J.H. Davey. 2007. A comparison of composite habitat suitability indices and generalized additive models of invertebrate abundance and fish presence-habitat availability. Transactions of the American Fisheries Society 136 (2): 428-444.

Jowett, I.G., and M.J. Duncan. 1990. Flow variability in New Zealand rivers and its relationship to in-stream habitat and biota. New Zealand Journal of Marine and Freshwater Research 24: 305-317. Doi: 10.1080/00288330.1990.9516427.

Jowett, I.G., and M.J. Duncan. 2012. Effectiveness of 1D and 2D hydraulic models for instream habitat analysis in a braided river. Ecol. Eng. 48: 92-100. Doi: 10.1016/j.ecoleng.2011.06.036.

Jowett, I.G., J.W. Hayes, and M.J. Duncan. 2008. A guide to stream habitat survey methods and analysis. NIWA Science and Technology Series No. 5. Wellington, NZ

Jowett, I.G., and J. Richardson. 1989. Effects of a severe flood on instream habitat and trout populations in seven New Zealand rivers. New Zealand Journal of Marine and Freshwater Research 23: 11-17.

Jowett, I.G., and J. Richardson. 1990. Microhabitat preferences of benthic invertebrates in a New Zealand river and the development of in-stream flow-habitat models for *Deleatidium* spp. New Zealand Journal of Marine and Freshwater Research 24: 19-30. Doi: 10.1080/00288330.1990.9516399.

Jowett, I.G., and J. Richardson. 1994. Comparison of habitat use by fish in normal and flooded river conditions. New Zealand Journal of Marine and Freshwater Research 28: 409-416.

Jowett, I.G., and J. Richardson. 1995. Habitat preferences of common, riverine New Zealand native fishes and implications for flow management. New Zealand Journal of Marine and Freshwater Research 29: 13-23.

Jowett, I.G., and J. Richardson. 2008. Habitat use by New Zealand fish and habitat suitability models. MIWA Science and Technology Series 55. Wellington, New Zealand: National Institute of Water and Atmospheric Research.

Jowett, I.G., J. Richardson, and M.L. Bonnett. 2005. Relationship between flow regime and fish abundances in a gravel-bed river, New Zealand. Journal of Fish Biology 66: 1419-1436. Doi: 10.1111/j.1095-8649.2005.00693.x.

Jowett, I.G., J. Richardson, B.J.F. Biggs, C.W. Hickey, and J.M. Quinn. 1991. Microhabitat preferences of benthic invertebrates and the development of generalised *Deleatidium* spp. habitat suitability curves, applied to four New Zealand streams. New Zealand Journal of Marine and Freshwater Research 25: 187-199. Doi: 10.1080/00288330.1991.9516470.

Juanico, M., and E. Friedler. 1999. Wastewater reuse for river recovery in semi-arid Israel. Water Sci. Technol. 40: 43-50.

Juanes, J., B.H. Letcher, and G. Gries. 2000. Ecology of stream fish: insights gained from an individual-based approach to juvenile Atlantic salmon. Ecology of Freshwater Fish 9: 65-73.

Julien, H.P., and N.E. Bergeron. 2006. Effect of fine sediment infiltration on Atlantic salmon (*Salmo salar*) embryo survival. Hydrobiologia 563: 61-71.

Julien, P.Y. 2002. River mechanics. Cambridge University Press, Cambridge, U.K.

June, J.A. 1981. Life history and habitat utilization of cutthroat trout (*Salmo clarki*) in a headwater stream on the Olympic Peninsula, Washington. M.S. thesis, University of Washington, Seattle.

Junk, W.J. 1997. The central Amazon floodplain: ecology of a pulsing system. Springer, Berlin, Germany.

Junk, W.J. 2005. Flood pulsing and linkages between terrestrial, aquatic, and wetland systems. Verhandlungen der Internationale Vereinigung fur Teoretische und Angewandte Limnologie 29: 11-38.

Junk, W.J., P.B. Bayley, and R.E. Sparks. 1989. The flood pulse concept in river floodplain systems. Pp. 110-127 in: Dodge, D.P. (Ed.) Proceedings of the International Large Rivers Symposium. Canadian Special Publication Fisheries Aquatic Sciences 106.

Junk, W.J., and K.M. Wantzen. 2004. The flood pulse concept: new aspects, approaches, and applications – an update. Pages 117-149 in: R.L. Welcomme and T. Petr (editors), Proceedings of the Second International Symposium on the Management of Large Rivers for Fisheries, Volume 2. Food and Agriculture Organization & Mekong River Commission. FAO Regional Office for Asia and the Pacific, Bangkok. RAP Publication 2004/16.

Junk, W.J., and K.M. Wantzen. 2006. Flood pulsing and the development and maintenance of biodiversity in floodplain. Pages 407-435 in: D.P. Batzer and R.R. Sharitz (editors), Ecology of freshwater and estuarine wetlands. University of California Press, Berkeley.

Jurajda, P. 1995. Effect of channelization and regulation on fish recruitment in a flood plain river. Regulated Rivers: Research & Management 10: 207-215.

Jurajda, P. 1999. Comparative nursery habitat use by 0+ fish in a modified lowland river. Regulated Rivers: Research and Management 15: 113-124.

Justice, C., B.J. Pyper, R.C.P Beamesderfer, V.L. Paragamian, P.J. Rust, M.D. Neufeld, and S.C Ireland. 2009. Evidence of density- and size-dependent mortality in hatchery-reared juvenile white sturgeon (*Acipenser transmontanus*) in the Kootenai River. Canadian Journal of Fisheries and Aquatic Sciences 66 (5): 802-815.

Jutila, E., E. Jokikokko, and M. Julkunen. 2006. Long-term changes in the smolt size and age of Atlantic salmon, Salmo salar L., in a northern Baltic river related to parr density, growth opportunity and postsmolt survival. Ecology of Freshwater Fish. 15 (3): 321-330. Doi:10.1111/j.1600-063.2006.00171.x.

Kaartvedt, S. and D.L. Aksnes. 1992. Does freshwater discharge cause mortality of fjord-living zooplankton. Estuarine, Coastal and Shelf Science 34: 305-313.

Kabir, N. 1980. River characteristics from basin characteristics. M.S. thesis, Washington State University, Pullman.

Kahler, T.H., P. Roni, and T.P. Quinn. 2001. Summer movement and growth of juvenile anadromous salmonids in small western Washington streams. Canadian Journal of Fisheries and Aquatic Sciences 58 (10): 1947-1956.

Kakouei, K., J. Kiese, J. Kails, M. Pusch, and S.C. Janig. 2017. Quantitative hydrological preferences of benthic stream invertebrates in Germany. Ecological Indicators 79: 163-172.

Kalischuk, A.R., S.B. Rood, and J.M. Mahoney. 2001. Environmental influences on seedling growth of cottonwood species following a major flood. Forest Ecol. Manage 144: 75-89.

Kallemeyn, L.W. 1987. Correlations of regulated lake levels and climatic factors with abundance of young-of-the-year walleye and yellow perch in four lakes in Voyageurs National Park. North American Journal of Fisheries Management 7: 513-521.

Kaller, M.D., and K.J. Hartman. 2004. Evidence of a threshold level of fine sediment accumulation for altering benthic macroinvertebrate communities. Hydrobiologia 518: 95-104.

Kalliola, R., and M. Puhakka. 1988. River dynamics and vegetation mosaicism: a case study of the River Kamajohka, northernmost Finland. J. Biogeography 15 (5/6): 703-719.

Kallio-Nyberg, J., E. Jutila, I. Saloniemi, and E, Jokikokko. 2004. Association between environmental factors, smolt size and the survival of wild and reared Atlantic salmon from the Simojoki River in the Baltic Sea. Journal of Fish Biology 65 (1): 122-134. Doi:10.1111/j.0022-1112.2004.00435.x.

Kalke, R.D., and P.A. Montagna. 1991. The effect of freshwater inflow on macrobenthos in the Lavaca River delta and upper Lavaca Bay, Texas. Contributions in Marine Science 32: 49-72.

Kalra, A., T.C. Piechota, R. Davies, and G.A. Tootle. 2008. Changes in US streamflow and western US snowpack. Journal of Hydrologic Engineering 13: 156-163.

Kaminskas, S., and P. Humphries. 2009. Diet of Murray cod (*Maccullochella peelii peelii*) (Mitchell) larvae in an Australian lowland river in low flow and high flow years. Hydrobiologia 636: 449-461.

Kandem, Toham, A., and G.G. Teugels. 1997. Patterns of microhabitat use among fourteen abundant fishes of the lower Ntem River basin (Cameroon). Aquat. Liv. Resour. 10: 289-298.

Kanehl, P., D.J. Lyons, and J.E. Nelson. 1997. Changes in the habitat and fish community of the Milwaukee River, Wisconsin, following removal of the Woolen Mills Dam. North American Journal of Fisheries Management 17: 387-400.

Kanno, Y., B.H. Letcher, N.P. Hitt, D.A. Boughton, J.E.B. Wofford, and E.F. Zipkin. 2015. Seasonal weather patterns drive population vital rates and persistence in a stream fish. Global Change Biology 21; 1856-1870.

Kanno, Y., B.H. Letcher, J.C. Vokoun, and E.F. Zipkin. 2014. Spatial variability in adult brook trout (*Salvelinus fontinalis*) survival within two intensively surveyed headwater stream networks. Canadian Journal of Fisheries and Aquatic Sciences 71 (7): 1010-1019. Doi: 10/1139/cjfas-2013-0358.

Kanno, Y., C.U. Schmidt, S.B. Cook, and H.T. Mattingly. 2012. Variation in microhabitat use of the threatened Spotfin Chub (Erimonax monachus) among stream sites and seasons. Ecology of Freshwater Fish 21: 363-374.

Kanno, Y., and J.C. Vokoun. 2010. Evaluating effects of water withdrawals and impoundments on fish assemblages in southern New England streams, USA. Fisheries Management and Ecology 17 (2): 272-283.

Kappesser, G.B. 2002. A riffle stability index to evaluate sediment loading to streams. Journal of the American Water Resources Association 38: 1069-1081.

Karchesky, C.M., and D.H. Bennett. 2004. Winter habitat use by adult largemouth bass in the Pend Oreille River, Idaho. North American Journal of Fisheries Management 24 (2): 577-585.

Karim, F., A. Kinsey-Henderson, J. Wallace, A.H. Arthington, and R. Pearson. 2012. Modeling wetland connectivity during overbank flooding in a tropical floodplain in north Queensland, Australia. Hydrological Processes 26 (18): 2710-2723.

Karim, K., M.E. Gubbels, and I.C. Goutler. 1995. Review of determination of instream flow requirements with special application to Australia. Water Resources Bulletin 31 (6): 1063-1077.

Karr, J.R. 1991. Biological integrity: a long-neglected aspect of water resource management. Ecological Applications 1: 66-84.

Karr, J.M., and E.W. Chu. 1999. Restoring Life in Running Waters: Better Ecological Monitoring. Island Press, Washington.

Karrenberg, S., P.J. Edwards, and J. Kollmann. 2002. The life history of Salicaceae living in the active zone of floodplains. Freshwater Biology 47: 733-748.

Kaser, D.H., A. Binley, A.L. Heathwaite, and S. Krause. 2009. Spatiotemporal variations of hyporheic flow in a riffle-step-pool sequence. Hydrological Processes 23: 2138-2149.

Kaspersson, R., and J. Hojesjo. 2009. Density-dependent growth rate in an age-structured population: a field study on stream-dwelling brown trout Salmo trutta. J. Fish Biol. 74 (10): 2196-2215. Doi: 10.1111/j.1095-8649.2009.02227.x.

Katapodis, C. 2003. Case studies of instream flow modelling for fish habitat in Canadian prairie rivers. Canadian Water Resources Journal 28 (2): 199-216. Doi: 10.4296/cwrj2802199.

Katapodis, C. 2005. Developing a tool kit for fish passage, ecological flow management and fish habitat works. J. Hydraul. Res. 43 (5): 451-467. Doi: 10/1080/00221680509500144.

Kath, J., E. Harrison, B.J. Kefford, L.Moore, P.J. Wood, R.B. Schafer, and F. Dyer, 2016. Looking beneath the surface: using hydrogeology and traits to explain flow variability effects on stream macroinvertebrates. Ecohydrology 9 (8): 1480-1495. Doi: 10.1002/eco.1741

Katz, D. 2006. Going with the flow: preserving and restoring instream water allocations. Pages 29-39 in: P. Gleick, editor, The world’s water: 2006-2007. Island Press, Washington.

Katz, G.L., J.C. Stromberg, and M.W. Denslow. 2009. Streamside herbaceous vegetation response to hydrologic restoration on the San Pedro River, Arizona. Ecohydrology 2: 213-225. Doi: 10.1002/eco.62.

Katz, J.V.E., C. Jeffres, J.L. Conrad, T.R. Sommer, J. Martinez, S. Brumbaugh, N. Corline, and P.B. Moyle. 2017. Floodplain farm fields provide novel rearing habitat for Chinook salmon. PLoS ONE 12 (6): e0177409. Doi: 10.1371/journal.pone.0177409.

Katz, R.A., and M.C. Freeman. 2015. Evidence of population resistance to extreme low flows in a fluvial-dependent fish species. Canadian Journal of Fisheries and Aquatic Sciences 72 (11): 1776-1787. DOI: 10.1139/cjfas-2015-0173.

Kauffman, J.B., R.L. Beschta, N. Otting, and D. Lytjen. 1997. An ecological perspective of riparian and stream restoration in the western United States. Fisheries 22 (5): 12-24.

Kauffman, J.B., R.L. Case, D. Lytjen, N. Otting, and D.L. Cummings. 1995. Ecological approaches to riparian restoration in northeast Oregon. Restoration and Management Notes 13 (1): 12-15.

Kaufmann, P.R., J.M. Faustini, D.P. Larsen, and M.A. Shirazi. 2008. A roughness-corrected index of relative bed stability for regional stream surveys. Geomorphology 99: 150-170.

Kaufmann, P.R., and R.M. Hughes. 2006. Geomorphic and anthropogenic influences on fish and amphibians in Pacific Northwest coastal streams. Pp. 429-455 in: R.M. Hughes, L. Wang, and P.W. Seelbach, editors. Landscape influences on stream habitats and biological assemblages. American Fisheries Society, Symposium 48, Bethesda, Maryland.

Kaufmann, P.R., P. Levine, E.G. Robison, C. Seeliger, and D.V. Peck. 1999. Quantifying physical habitat in wadeable streams. U.S. Environmental Protection Agency, EPA/620/R-99/003, Washington, D.C.

Kawai, H., S. Nagayama, H. Urabe, T. Akasaka, and F. Nakamura. 2014. Combining energetic profitability and cover effects to evaluate salmonid habitat quality. Environ. Biol. Fish 997: 575-586. Doi: 10.1007/s10641-013-0217-4

Kawanishi, R., M. Inoue, R. Dohi, A. Fujii, and Y. Miyake. 2013. The role of the hyporheic zone for a benthic fish in an intermittent river: a refuge, not a graveyard. Aquatic Sciences 75: 425-431.

Keating, K.A., and S. Cherry. 2004. Use and interpretation of logistic regression in habitat selection studies. Journal of Wildlife Management 68: 774-789. Doi: 10.2193/0022-541X(2004)068[0774:UAIOLR]2.0.CO;2.

Keaton, M., D. Haney, and C.B. Anderson. 2005. Impact of drought upon fish assemblage structure in two South Carolina Piedmont streams. Hydrobiologia 54: 209-223. Doi: 10.1007/s10750-005-2674-z

Keck, R., D. Maurer, and L. Watling. 1973. Tidal stream development and its effect on the distribution of the American oyster. Hydrobiologia 42: 369-379.

Keckeis, H., and F. Schiemer. 2001. The ecology of the early life history stages of riverine fish: New perspectives in conservation and river management. Large Rivers 12 (2-4): 517-522.

Keckeis, H., P. Frankiewicz, and F. Schiemer. 1996. The importance of inshore areas for spawning nase *Chondrostoma nasus* (Cyprinidae) in a free-flowing section of a large river (Danube, Austria). Large Rivers 10 (1-4): 51-64.

Keckeis, H., G. Winkler, L. Flore, W. Reckendorfer, and F. Schiemer. 1997. Spatial and seasonal characteristics of 0+ fish nursery habitats of nase, *Chondrostoma nasus*, in the River Danube, Austria. Folia Zool. (Brno) 46 (Suppl. 1): 133-150.

Keefer, M.L., M.L. Moser, C.T. Boggs, W.R. Daigle, and C.A. Peery. 2009. Effects of body size and river environment on the upstream migration of adult Pacific lampreys. North American Journal of Fisheries Management 29 (5): 1214-1224. Doi:10.1577/M08-239.1.

Keefer, M.L., C.A. Peery, and C.C. Caudill. 2008. Migration timing of Columbia River spring Chinook salmon: effects of temperature, river discharge, and ocean environment. Transactions of the American Fisheries Society 137:1120-1133. Doi: 10.1577/T07-008.1.

Keefer, M.L., C.A. Peery, M.A. Jepson, and L.C. Stuehrenberg. 2004. Upstream migration rates of radio-tagged adult chinook salmon in riverine habitats of the Columbia River basin. J. Fish Biol. 65: 1126-1141. Doi: 10.1111/j.0022-1112.2004.00522.x.

Keefer, M.L., C.A. Peery, S.R. Lee, W.R. Daigle, E.L. Johnson, and M.L. Moser. 2011. Behavior of adult Pacific lamprey in near-field flow and fishway design experiments. Fisheries Management and Ecology 18: 177-189.

Keeland, B.D., W.H. Conner, and R.R. Sharitz. 1997. A comparison of wetland tree growth response to hydrologic regime in Louisiana and South Carolina. Forest Ecology and Management 90: 237-250.

Keeley, E.R. 2000. An experimental analysis of territory size in juvenile steelhead trout. Animal Behaviour 59: 477-490. Doi: 10.1006/anbe.1999.1288

Keeley, E.R. 2001. Demographic responses to food and space competition by juvenile steelhead trout. Ecology 82 (5): 1247-1259.

Keeley, E.R., S.O. Campbell, and A.E. Kohler. 2016. Bioenergetic calculations evaluate changes to habitat for salmonid fishes in streams treated with salmon carcass analogs. Canadian Journal of Fisheries and Aquatic Sciences 73 (5): 819-831. Doi: 10.1139/cjfas-2015-0265.

Keeley, E.R., and J.W.A. Grant. 1995. Allometric and environmental correlates of territory size in juvenile Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 52: 186-196. Doi:10.1139/f95-019.

Keeley, E.R., and J.D. McPhail. 1998. Food abundance, intruder pressure, and body size as determinants of territory size in juvenile steelhead trout (*Oncorhynchus mykiss*). Behaviour 135: 65-82.

Keen, J.E., and A.P. Farrell. 1994. Maximum prolonged swimming speed and maximum cardiac performance of rainbow trout, Oncorhynchus mykiss, acclimated to 2 different water temperatures. Comparative Biochemistry and Physiology 108A: 287-295.

Keenleyside, M.H.A., and H.M.C. Dupuis. 1988. Courtship and spawning competition in pink salmon (*Oncorhynchus gorbuscha*). Canadian Journal of Zoology 66: 262‑265.

Keenleyside, M.H.A., and F.T. Yamamoto. 1962. Territorial behaviour of juvenile Atlantic salmon (*Salmo salar*). Behaviour 19: 139-169.

Kehmeier, J.W., R.A. Valdez, C.N. Medley, O.B. Myers. 2007. Relationship of fish mesohabitat to flow in a sand-bed southwestern river. North American Journal of Fisheries Management 27 (3): 750-764.

Keith, R.M., T.C. Bjornn, W.R. Meehan, N.J. Hetrick, and M.A. Brusven. 1998. Response of juvenile salmonids to riparian and instream cover modifications in small streams flowing through second-growth forests in southeast Alaska. Transactions of the American Fisheries Society 124: 886-897.

Kelder, B.F., and J.M. Farrell. 2009. A spatially explicit model to predict walleye spawning in an eastern Lake Ontario tributary. North American Journal of Fisheries Management 29 (6): 1686-1697. Doi: 10.1577/M08-222.1

Kelher, C., T. Wagener, M. Gooseff, B. McGlynn, K. McGuire, and L. Marshall. 2011. Investigating controls on the thermal sensitivity of Pennsylvania streams. Hydrological Processes 26: 137-156.

Keller, C., L. Anderson, and P. Tappel. 1978. Fish habitat changes in Summit Creek, Idaho, after fencing the riparian area. Pages 46-52 in: O.B. Cope, editor. Grazing and riparian/stream ecosystems. Trout Unlimited, Denver, Colorado.

Keller, E.A. 1972. Development of alluvial stream channels: a five-stage model. Geological Society of America Bulletin 83: 1531-1536.

Keller, E.A., and A. MacDonald. 1995. River channel change: the role of large woody debris. Pp. 217-235 in: A. Gurnell and G. Petts (editors), Changing River Channels. John Wiley and Sons, Chichester.

Keller, E.A., and F.J. Swanson. 1979. Effects of large organic material on channel form and fluvial processes. Earth Surface Processes and Landforms 4 (4): 361-380. Doi: 10.1002/esp.3290040406.

Kellerhals, R., and M. Church. 1989. The morphology of large rivers: characterization and management. Pages 31-48 in: D.P. Dodge (editor), Proceedings of the International Large River Symposium. Canadian Special Publication in Fisheries and Aquatic Sciences 106.

Kelly, D., A. Davey, and G. James. 2006. “Like a fish out of water”: life in a disappearing river. Water and Atmosphere 14: 18-19.

Kelly, L.H., J. Hay, N.F. Hughes, E. Goodwin, and J.W. Hayes. 2012. Flow related models for simulating river hydraulics, invertebrate drift transport, and foraging energetics of drift-feeding salmonids: user’s guide (version 1.1). Cawthron Report 922.

Kelly, L.H., J. Hay, N.F. Hughes, E. Goodwin, and J.W. Hayes. 2015. Flow related models for simulating river hydraulics, invertebrate drift transport, and foraging energetics of drift-feeding salmonids: user’s guide (version 1.2). Cawthron Institute, Nelson, New Zealand.

Kelly, V. 2008. Influence of streamflow regime and biotic interactions on fish assemblage structure in rivers of the Northern Great Plains. Dissertation. Oregon State University, Corvallis, Oregon.

Kelsch, S.W. 1994. Lotic fish-community structure following transition from severe drought to high discharge. Journal of Freshwater Ecology 9: 331-341.

Kemp, J.L., D.M. Harper, and G.A. Crosa. 1999. Use of “functional habitats” to link ecology with morphology in river rehabilitation. Aquatic conservation: marine and freshwater ecosystems 9 (1): 159.

Kemp, P.S., J.D. Armstrong, and D.J. Gilvear. 2005. Behavioural responses of juvenile Atlantic salmon (*Salmo salar*) to presence of boulders. River Res. Appl. 21: 1053-1060. Doi: 10.1002/rra.864.

Kemp, P.S., M.H. Gessel, and J.G. Williams. 2005. Fine-scale behavioral responses of Pacific salmonids as they encounter divergence and acceleration of flow. Transactions of the American Fisheries Society 134 (2): 390-398.

Kemp, P.S., D.J. Gilvear, and J.D. Armstrong. 2003. Do juvenile Atlantic salmon parr track local changes in water velocity? Rivers Research and Applications 19: 569-575.

Kemp, P.S., D.J. Gilvear, and J.D. Armstrong. 2006. Variation in performance reveals discharge-related energy costs for foraging Atlantic salmon (*Salmo salar*) parr. Ecology of Freshwater Fish 15: 565-571.

Kemp, P.S., and C. Katapodis. 2017. Environmental flows all at sea? Charting a new course through choppy waters. Journal of Ecohydraulics 2 (2): 85-87.

Kemp, P., D. Sear, A. Collins, P. Naden, and I. Jones. 2011. The impacts of fine sediment on riverine fish. Hydrol. Proc. 25 (11): 1800-1821. Doi: 10.1002/hyp.7940.

Kempema, E.W., and R. Ettema. 2009. Variations in anchor-ice crystal morphology related to river flow characteristics. Pages 159-168 in: F.E. Hicks and S. Warren, editors. Proceedings of the 15th Workshop on River Ice. St. Johns, Newfoundland.

Kendall, N.W., J.R. McMillan, M.R. Sloat, T.W. Buehrens, T.P. Quinn, G.R. Pess, K.V. Kuzishchin, M.M. McClure, and R.W. Zabel. 2015. Anadromy and residency in steelhead and rainbow trout (*Oncorhynchus mykiss*): a review of the processes and patterns. Canadian Journal of Fisheries and Aquatic Sciences 72 (3): 319-342. Doi: 10.1139/cjfas-2014-0192.

Kendy, E. 2005. Impacts of irrigation conversion on ground water, streamflow and wetlands. Proceedings, Western Wetlands Conference, Golden, Colorado.

Kendy, E. 2005. Water-balance considerations for instream flow restoration design: understanding irrigation return flow. Trout Unlimited Western Water Project, Columbia River Transactions, p. 56.

Kendy, E. 2006. Role of artificial ground-water recharge in streamflow management: past, present, and future. Proceedings, American water Resources Association, Montana Section, Polson, Montana, October 12-13, 2006. http://awra.org/state/montana/events/conference.htm.

Kendy, E., C. Apse, and K. Blann. 2012. A practical guide to environmental flows for policy and planning, with nine case studies from the United States. The Nature Conservancy, Arlington, VA.

Kendy, E., and J.D. Bredehoeft. 2006. Transient effects of ground-water pumping and surface-water irrigation returns on streamflow. Water Resources Research 42 W08415, doi:10.1029/2005WR004792.

Kendy, E., K.W. Flessa, K.J. Schlatter, C.A. de la Parra, O.M. Hinojosa-Huerta, Y.K. Carrillo-Guerrero, et al. 20217. Leveraging environmental flows to reform water management policy: lessons learned from the 2014 Colorado River delta pulse flow. Ecol. Eng. 106: 683-694. Doi: 10.1016/j.ecoleng.2017.02012

Kendy, E., J.S. Sanderson, J.D. Olden, C.D. Apse, M.M. DePhilip, J.A. Haney, R.R. Knight, and J.K.H. Zimmerman. 2009. Applications of the ecological limits of hydrologic alteration (ELOHA) in the United States. Int. Conf. on Implementing Environ. Water Allocations, Port Elizabeth, South Africa, 23-26 February. Available at: <http://depts.washington.edu/oldenlab/wordpress/wp-content/uploads/2013/03/Kendy-et-al-ELOHA-applications_2009.pdf>.

Kennard, M.J., S.J. Mackay, S.J. Pusey, J.D. Olden, and N. Marsh. 2010. Quantifying uncertainty in estimation of hydrologic metrics for ecohydrological studies. River Research and Applications 26: 137-156. Doi: 10.1002/rra.1249

Kennard, M.J., J.D. Olden, A.H. Arthington, B.J. Pusey, and N.L. Poff. 2007. Multiscale effects of flow regime and habitat and their interaction on fish assemblage structure in eastern Australia. Canadian Journal of Fisheries and Aquatic Sciences 64 (10): 1346-1359. Doi: 10.1139/f07-108.

Kennard, M.J., J.D. Olden, A.H. Arthington, B.J. Pusey, and N.L. Poff. 2007. Flow regime and habitat interact at multiple scales to shape fish assemblages in hydrologically variable rivers of eastern Australia. Canadian Journal of Fisheries and Aquatic Sciences 64: 1346-1359.

Kennard, M.J., B.J. Pusey, A.H. Arthington, B.D. Harch, and S.J. Mackay. 2006. Development and application of a predictive model of A.A. Arthington,freshwater fish assemblage composition to evaluate river health in eastern Australia. Hydrobiologia 572: 33-57.

Kennard, M.J., B.J. Pusey, J.D. Olden, S.J. Mackay, J.L. Stein, and N. Marsh. 2010. Classification of natural flow regimes in Australia to support environmental flow management. Freshwater Biology 55: 171-193. Doi: 10.1111/j.1365-2427.2009.02307.x.

Kennard, M.J., B.J. Pusey, S.J. Mackay, J.D. Olden, and N. Marsh. 2009. Quantifying uncertainty in estimation of hydrologic metrics for ecohydrological studies. River Research and Applications 25: doi:10.1002/rra

Kennard, N.R. 2000. Development and testing of a rapid assessment methodology for instream habitat. Master’s thesis, Utah State University, Logan, Utah. 69 pp.

Kennedy, B.P., K.M. Nislow, and C.L. Folt. 2008. Habitat-mediated foraging limitations drive survival bottlenecks for juvenile salmon. Ecology 89 (9): 2529-2541. Doi: 10.1890/06-1353.1.

Kennedy, G.J.A., and C.D. Strange. 1982. The distribution of salmonids in upland streams in relation to depth and gradient. Journal of Fish Biology 20: 579-591.

Kennedy, G.J.A., and C.D. Strange. 1986. The effects of intra and inter-specific competition on the distribution of stocked juvenile Atlantic, *Salmo salar* L., in relation to depth and gradient in an upland trout *Salmo trutta* L. stream. Journal of Fish Biology 29: 199-214. Doi:10.1111/j.1095-8649.1986.tb04938.x.

Kennedy, T.A., and B.E. Ralston. 2011. Biological responses to high-flow experiments at Glen Canyon. Pages 93-125 in T.S. Melis, ed. Effects of three high-flow experiments on the Colorado River ecosystem downstream from Glen Canyon Dam, Arizona. U.S. Geological Survey Circular 1366. Reston, VA: U.S. Department of the Interior, U.S. Geological Survey.

Kennedy, T.A., J.D. Muehlbauer, C.B. Yackulic, D.A. Lytle, S.W. Miller, K.L. Dibble, E.W. Kortenhoeven, A.N. Metcalfe, and C.V. Baxter. 2016. Flow management for hydropower extirpates aquatic insects, undermining river food webs. BioScience 66: 561-575.

Kennedy, T.A., C.B. Yackulic, W.T. Cross, P.E. Grams, M.D. Yard, and A.J. Copp. 2013. The relation between invertebrate drift and and two primary controls, discharge and benthic densities, in a large regulated river. Freshwater Biology 59: 557-572. Doi: 10.1111/fwb.12285.

Kennedy, T.L., D.S. Gutzler, and R.L. Leung. 2009. Predicting future threats to the long-term survival of Gila trout using a high-resolution simulation of climate change. Climatic Change 94: 503-515.

Kennen, J.G., and M.A. Ayers. 2002. Relation of environmental characteristics to the composition of aquatic assemblages along a gradient of urban land use in New Jersey, 1996-98. U.S. Geological Survey Water-Resources Investigations Report 2002-4069. 77 pp.

Kennen, J.G., J.A. Henriksen, J. Heasley, B.S. Cade, and J.W. Terrell. 2009. Application of the hydroecological integrity assessment process for Missouri streams. U.S. Geological Survey Open-File Report 2006-1093. 71 pp.

Kennen, J.G., J.A. Henriksen, and S.P. Nieswand. 2007. Development of the hydroecological integrity process for determining environmental flows for New Jersey streams. U.S. Geological Survey, Scientific Investigations Report 2007-5206, West Trenton, New Jersey. http://pubs.er.usgs.gov/usgsp-ubs/sir/sir20075206.

Kennen, J.G., L.J. Kauffman, M.A. Ayers, D.M. Wolock, and S.J. Colarullo. 2008. Use of an integrated flow model to estimate ecologically relevant hydrologic characteristics at stream biomonitoring sites. Ecological Modeling 211: 57-76.

Kennen, J.G., M.L. Riskin, and E.G. Charles. 2014. Effects of streamflow reductions on aquatic macroinvertebrates: Linking groundwater withdrawals and assemblage response in southern New Jersey streams, USA. Hydrological Sciences Journal 59: 545-561. Doi: 10.1080/02626667.2013.877139

Kennen, J.G., K. Riva-Murray, and K.M. Beaulieu. 2009. Determining hydrologic factors that influence stream macroinvertebrate assemblages in the northeastern US. Ecohydrology 2 (1): 88-106.

Kennen, J.G., and M.L. Riskin. 2010. Evaluating effects of potential changes in streamflow regime on fish and aquatic-invertebrate assemblages in the New Jersey Pinelands. U.S. Geological Survey Scientific Investigations Report 2010-5079. Available at: <http://pubs.usgs.gov/sir/2010/5079/>

Kennen, J.G., E.D. Stein, and J.A. Webb. 2018. Evaluating and managing environmental water regimes in a water-scarce and uncertain future. Freshwater Biology doi: 10.1111/fwb.13104.

Kenney, J.F., N.L. Barber, S.S. Hutson, et al. 2009. Estimated use of water in the United States in 2005. Reston, VA. USGS Circular 1344.

Keppeler, E.T., and R.R. Ziemer. 1990. Logging effects on streamflow: water yield and summer low flows at Caspar Creek in northwestern California. Water Resources Research 26: 1669-1679.

Kercher, S.M., and J.B. Zedler. 2004. Flood tolerance in wetland angiosperms: a comparison of invasive and noninvasive species. Aquat. Bot. 80: 89-102.

Kerezsy, A., S.R. Balcombe, A.H. Arthington, and S.E. Bunn. 2011. Continuous recruitment underpins fish persistence in the arid rivers of far western Queensland, Australia. Marine and Freshwater Research 62: 1178-1190.

Kerr, J.L., D.S. Baldwin, and K.L. Whitworth. 2013. Options for managing hypoxic blackwater events in river systems: a review. J. Environ. Manage. 114: 139-147.

Kershner, J.L., B.R. Roper, N. Bouwes, R. Henderson, and E. Archer. 2004. An analysis of stream habitat conditions in reference and managed watersheds on some federal lands within the Columbia River basin. North American Journal of Fisheries Management 24 (4): 1363-1375.

Kershner, J.L., and W.M. Snider. 1992. Importance of a habitat-level classification system to design instream flow studies. Pp. 179-193 in: P.J. Boon, P. Calow, and G.E. Petts (eds.), River Conservation and Management. John Wiley & Sons, New York.

Kessler, R.K., A.F. Casper, and G.K. Weddle. 1995. Temporal variation in microhabitat use and spatial relations in the benthic fish community of a stream. American Midland Naturalist 134: 361-370.

Khoroshko, P.N. 1972. The amount of water in the Volga basin and its effect on the reproduction of sturgeon (Acipenseridae) under conditions of normal and regulated discharge. Journal of Ichthyology 12: 608-616.

Kieffer, M.C., and B. Kynard. 1996. Spawning of the shortnose sturgeon in the Merrimack River, Massachusetts. Transactions of the American Fisheries Society 125: 179-186.

Kieffer, S.W. 1985. The 1983 hydraulic jump in Crystal Rapid: implications for river-running and geomorphic evolution in the Grand Canyon. Journal of Geology 93: 385-406.

Kiernan, J.D., P.B. Moyle. 2012. Flows, droughts, and aliens: factors affecting the fish assemblage in a Sierra Nevada, California, stream. Ecological Applications 22: 1146-1161. Doi: 10.1890/11-1047.1.

Kiernan, J.D., P.B. Moyle, and P.K. Crain. 2012. Restoring native fish assemblages to a regulated California stream using the natural flow regime concept. Ecological Applications 22 (5): 1472-1482. Doi: 10.1890/11-0480.1.

Kiffney, P.M., C.M. Greene, J.E. Hall, and J.R. Davies. 2006. Tributary streams create spatial discontinuities in habitat, biological productivity, and diversity in mainstem rivers. Canadian Journal of Fisheries and Aquatic Sciences 63 (11): 2516-1530.

Kiffney, P.M., and P. Roni. 2007. Relationships between productivity, physical habitat, and aquatic invertebrate and vertebrate populations of forest streams: an information-theoretic approach. Transactions of the American Fisheries Society 136 (4): 1088-1103.

Kiffney, P.M., C.J. Volk, T.J. Beechie, G.L. Murray, G.R. Pess, and R.L. Edmonds. 2004. A high-severity disturbance event alters community and ecosystem properties in West Twin Creek, Olympic National Park, Washington, USA. Am. Midl. Nat. 152 (2): 286-303. Doi: 10.1674/0003-0031(2004)152[0286:AHDEAC]2.0.CO;2.

Kiflawi, M., and A. Genin. 1997. Prey flux manipulation and the feeding rates of reef-dwelling planktivorous fish. Ecology 78 (4): 1062-1077.

Kilgour, B.W., J. Neary, D. Ming, and D. Beach. 2005. Preliminary investigations of the use and status of instream-flow-needs methods in Ontario with specific reference to application with hydroelectric development. Canadian Manuscript Report of Fisheries and Aquatic Sciences 2723. Fisheries and Oceans Canada, Burlington, ON.

Killgore, K.J., and J.A. Baker. 1996. Patterns of larval fish abundance in a bottomland hardwood wetland. Wetlands 16: 288-295.

Killgore, K.J., and J.J. Hoover. 1996. Fishery evaluation of the Pearl River (Walkiah Bluff) restoration project. U.S. Army Engineer District, Vicksburg, Mississippi. 61 pp.

Killintveit, A., and M. Lundteigen Fossdal. 1994. The River System Simulator – an integrated model system for water resources planning and operation. Pages 35-41 in: W.R. Blain and K.L. Katsifarakis, editors. Hydraulic Engineering Software V Water Resources and Distribution. Ecology and Environment. Vol. 7. Wessex Institute, Southampton, UK.

Kilpatrick, F.A., H.H. Barnes. 1964. Channel geometry of Piedmont streams as related to frequency of floods. U.S. Geological Survey Professional Paper 422-E, 10 pp.

Kim, T.J. 2012. Evaluating the impacts of instream flow on water supply for municipal and irrigation use. River Research and Applications 28: 247-257.

Kimmerer, W.J. 2002. Effects of freshwater flow on abundance of estuarine organisms: Physical effects or trophic linkages? Marine Ecology Progress Series 243: 39-55. Doi: 10.3354/meps243039.

Kimmerer, W.J. 2002. Physical, biological, and management responses to variable freshwater flow into the San Francisco estuary. Estuaries 25: 1275-1290.

Kimmerer, W.J. 2008. Losses of Sacramento River Chinook salmon and delta smelt (*Hypomesus transpacificus*) to entrainment in water diversions in the Sacramento-San Joaquin Delta. San Francisco Estuary and Watershed Science [online serial] 6 (2): article 2.

Kimmerer, W.J., E.S. Gross, and M.I. MacWilliams. 2009. Is the response of estuarine nekton to freshwater flow in the San Francisco Estuary explained by variation in habitat volume? Estuaries and Coasts 32: 375-389.

Kimmerer, W.J., M.I. MacWilliams, and E.S. Gross. 2013. Variations of fish habitat and extent of the low-salinity zone with freshwater flow in the San Francisco Estuary. San Francisco Estuary and Watershed Science [online serial] 11 (4).

Kimmerer, W.J. and J.R. Schubel. 1994. Managing freshwater flows into San Francisco Bay using a salinity standard: Results of a workshop, pp. 411-416. In: K.R. Dyer and R.J. Orth (eds.). Changes in fluxes in estuaries: Implications from science to management. Olsen and Olsen, Fredensborg, Denmark.

Kind, P.K. 2002. Movement patterns and habitat use in the Queensland lungfish *Neoceratodus forsteri* (Krefft 1870). Ph.D. thesis, University of Queensland.

King, A.J. 2004. Ontogenetic patters of habitat use by fishes within the main channel of an Australian floodplain river. Journal of Fish Biology 65: 1582-1603. Doi:10.1111/j.0022-1112.2004.00567.x.

King, A.J. 2005. Fish in the Barmah-Millewa Forest – history, status and management challenges. Proceedings of the Royal Society of Victoria 11: 117-126.

King, A.J., D.A. Crook, W. M. Koster, J. Mahoney, and Z. Tonkin. 2005. Comparison of larval fish drift in the Lower Goulburn and mid-Murray Rivers. Ecological Management & Restoration 6: 136-139.

King, A.J., B. Gawne, L. Beesley, J.D. Koehn, D.L. Nielsen, and A. Price. 2015. Improving ecological response monitoring of environmental flows. Environmental Management 55: 991-1005. Doi: 10.1007/s00267-015-0456-6

King, A.J., D.C. Gwinn, z. Tonkin, J. Mahoney, S. Raymond, and L. Beesley. 2016. Using abiotic drivers of fish spawning to inform environmental flow management. Journal of Applied Ecology 53: 34-43/

King, A.J., P. Humphries, and P.S. Lake. 2003. Fish recruitment on floodplains: the roles of patterns of flooding and life history characteristics. Canadian Journal of Fisheries and Aquatic Sciences 60 (7): 773-786. Doi:10.1139/f03-057.

King, A.J., Z.D. Tonkin, and J. Lieshcke. 2012. Short-term effects of a prolonged blackwater event on aquatic fauna in the Murray River, Australia: considerations for future events. Mar. Freshw. Res. 63: 576-86.

King, A.J., Z. Tonkin, and J.M. Mahoney. 2007. Assessing the effectiveness of environmental flows on fish recruitment in Barmah-Millewa Forest. Report to Murray-Darling Basin Commission. Arthur Rylah Institute for Environmental research, Department of Sustainability and Environment, Melbourne, Victoria.

King, A.J., Z. Tonkin, and J.M. Mahoney. 2009. Environmental flows enhance native fish spawning and recruitment in the Murray River, Australia. River Research and Applications 25: 1205-1218. Doi:10.1002/rra.1209.

King, A.J., K.A. Ward, P. O’Connor, D. Green, Z. Tonkin, and J. Mahoney. 2010. Adaptive management of an environmental watering event to enhance native fish spawning and recruitment. Freshwater Biology 55: 17-31. doi:10.1111/j.1365.2009.02178.x.

King, E.G., and K.K. Caylor. 2011. Ecohydrology in practice: strengths, conveniences, and opportunities. Ecohydrology 4: 609-612. Doi: 10.1002/eco.248.

King, J., H. Beuster, C. Brown, and A. Joubert. 2014. Pro-active management: the role of environmental flows in transboundary cooperative planning for the Okavango River system. Hydrol. Sci. J. 59: 786-800.

King, J., and C. Brown. 2006. Environmental flows: striking the balance between development and resource protection. Ecology and Society 11: 26. <http://www.ecologyandsociety.g/vol11/iss2/art26/>.

King, J.M., and C. Brown. 2010. Integrated basin flow assessments: concepts and method development in Africa and South-east Asia. Freshwater Biology 55: 127-146. Doi: 10.1111/j.1365-2427.2009.02316.x.

King, J.M., C. Brown, and H. Sabet. 2003. A scenario-based holistic approach to environmental flow assessments for rivers. River Research and Applications. 19: 619-640. Doi: 10.1002/rra.709.

King, J.M., J.A. Cambray, and D.N. Impson. 1998. Linked effects of dam-released floods and water temperature on spawning of the Clanwilliam yellowfish *Barbus capensis*. Hydrobiologia 384: 245-265.

King, J.M., and D. Louw. 1998. Instream flow assessments for regulated rivers in South Africa using the building block methodology. Aquatic Ecosystem Health and Management 1: 109-124.

King, J.M., and R.E. Tharme. 1994. Assessment of the Instream Flow Incremental Methodology and initial development of alternative instream flow methodologies for South Africa. Water Research Commission, Pretoria, South Africa.

King, J.M., R.E. Tharme, and C. Brown. 1999. Definition and implementation of instream flows. Contributing paper to World Commission on Dams. Prepared for Thematic Review II.1 Available on line at <http://www/dams.org/>.

King, J.M., R.E. Tharme, and M.S. DeVilliers, eds. 2000. Environmental flow assessments for rivers: Manual for the Building Block Methodology. Water Research Commission Report TT 131/00, Pretoria, South Africa.

King, S.L., J.A. Allen, and J.W. McCoy. 1998. Long-term effects of a lock and dam and greentree reservoir management on a bottomland hardwood forest. Forest Ecology and Management 112: 213-226.

Kingsford, M.J., and I.M. Suthers. 1994. Dynamic estuarine plumes and fronts: importance of small fish and plankton in coastal waters of NSW, Australia. Continental Shelf Research 14: 655-672.

Kingsford, R.T. 1999. Aerial survey of waterbirds on wetlands as a measure of river and floodplain health. Freshwater Biology 41: 425-438.

Kingsford, R.T. 2000. Ecological impacts of dams, water diversion and river management on floodplain wetlands in Australia. Austral Ecology 25 (2): 109-127. Doi: 10.1046/j.1442-9993.2000.01036.x.

Kingsford, R.T. 2006. Ecology of desert rivers. Cambridge University Press, Cambridge.

Kingsford, R.T., and K.M. Auld. 2005. Waterbird breeding and environmental flow management in the Macquarie Marshes, arid Australia. River Research and Applications 2: 187-200.

Kingsford, R.T., G. Bino, and J.L. Porter. 2017. Continental impacts of water development on waterbirds, contrasting two Australian river basins: Global implications for sustainable water use. Global Change Biology 23: 4958-4969.

Kingsford, R.T., A.L. Curtin, and J. Porter. 1999. Water flows on Cooper Creek in arid Australia determine “boom” and “bust” periods for waterbirds. Biological Conservation 88: 231-248.

Kingsford, R.T., K.M. Jenkins, and J.L. Porter. 2004. Imposed hydrological stability on lakes in arid Australia and effects on waterbirds. Ecology 85 (9): 2478-2492.

Kingsford, R.T., A.D. Lemly, and J.R. Thompson. 2006. Impacts of dams, river management and diversions on desert rivers. Pages 336-345 in: R.T. Kingsford (editor), Ecology of Desert Rivers. Cambridge University Press, Melbourne, Australia.

Kingsford, R.T., R. Mac Nally, A. King, K.F. Walker, G. Bino, R. Thompson, … P. Humphries. 2015. A commentary on ‘Long-term ecological trends of flow-dependent ecosystems in a major regulated river basin’, by Matthew J. Colloff, Peter Caley, Neil Saintilan, Carmel A. Pollino and Neville D. Crossman. Marine and Freshwater Research 66: 970-980.Kinley, T.A., and N.J. Newhouse. 1997. Relationship of riparian reserve zone width to bird density and diversity in southeastern British Columbia. Northwest Science 71: 75-86.

Kinsolving, A.D., and M.B. Bain. 1993. Fish assemblage recovery along a riverine disturbance gradient. Ecological Applications 3: 531-544.

Kinzie, R.A., and J.I. Ford. 1988. A test of transferability of habitat utilization curves. Pp. 336-362 *in* K. Bovee and J.R. Zuboy, editors. Proceedings of a workshop on the development and evaluation of habitat suitability criteria. U.S. Fish and Wildlife Service, Biological Report 88 (11).

Kirkbride, A.D. 1993. Observations on the influence of bed roughness on turbulence structure in depth limited flows over gravel beds. Pp. 185-196 in: N.J Clifford, J.R. French, and J. Hardisty (eds.), Turbulence: perspectives on flow and sediment transport. John Wiley and Sons Ltd., Chichester.

Kirkbride, A.D., and R. Ferguson. 1995. Turbulent flow structure in a gravel-bed river: Markov chain analysis of the fluctuating velocity profile. Earth Surf. Processes Landforms 20: 721-733.

Kitamura, T., M. Kato, T. Tashiro, and T. Tsujimoto. 2000. Experimental study on detachment of attached algae Cladophola glomerata due to bedload. Advances in River Engineering 6: 125-130.

Kitano, S., K. Maekawa, S. Nakano, and K.D. Fausch. 1994. Spawning behavior of bull trout in the upper Flathead drainage, Montana, with special reference to hybridization with brook trout. Transactions of the American Fisheries Society 123 (6): 988-992.

Kite, G.W. 2000. Developing a Hydrological Model for the Mekong Basin: Impacts for Basin Development on Fisheries Productivity. IWMI Working Paper 2. International Water Management Institute, Colombo.

Kjelson, M.A., and P.L. Brandes. 1989. The use of smolt survival estimates to quantify the effects of habitat changes on salmonid stocks in the Sacramento-San Joaquin Rivers, California. Canadian Special Publication of Fisheries and Aquatic Sciences 105: 100-115.

Kjelson, M.A., P.F. Raquel, and F.W. Fisher. 1981. Influences of freshwater inflow on Chinook salmon (Oncorhynchus tshawytscha) in the Sacramento-San Joaquin estuary. U.S. Fish and Wildlife Service FWS/OBS-81/04.

Klaar, M.J., M.J. Dunbar, M. Warren, and R. Soley. 2014. Developing hydroecological models to inform environmental flow standards: A case study from England. Wiley Interdisciplinary Reviews: Water 1: 207-217.

Klett, K.J.C., C.E. Torgersen, J.A. Henning, and C.J. Murray. 2013. Spatial consistency of Chinook salmon redd distribution within and among years in the Cowlitz River, Washington. North American Journal of Fisheries Management 33 (3): 508-518. Doi: 10.1080/02755947.2013.778924.

Kleynhans, C.J. 1996. A qualitative procedure for the assessment of the habitat integrity status of the Luvuvhu River (Limpopo system, South Africa). Journal of Aquatic Ecosystem Health 5: 41-54.

Klima, C.V. 1988. River regulation effects on floodplain hydrology and ecology. Pp. 40-49 in: Hook, D.D. et al. (eds.) The ecology and management of wetlands. Portland, OR: Timber Press.

Klock, G.O., and J.D. Helvey. 1976. Soil-water trends following wildfire on the Entiat Experimental Forest. Proceedings, Tall Timbers Fire Ecology Conference 15: 193-200.

Klos, P.Z., J.T. Abotzoglou, A. Bean, J. Blades, M.A. Clark, M. Dodd, T.E. Hall, A. Haruch, P.E. Higuera, J.D. Holbrook, V.S. Jansen, K. Kemp, A. Lankford, T.E. Link, T. Magney, A.J.H. Meddens, L. Mitchell, B. Moore, P. Morgan, B.A. Newingham, R.J. Niemeyer, B. Soderquist, A.A. Suazo, K.T. Vierling, V. Walden, and C. Walsh. 2015. Indicators of climate change in Idaho: an assessment framework for coupling biophysical change and social perception. Weather, Climate, and Society 7: 238-254. Doi: 10.1175/WCAS-D-13-00070.sl.

Klotz, J.R., and S. Swanson. 1997. Managed instream flows for woody vegetation recruitment, a case study. Pp. 483-489 *in*: J. Warwick, editor, Symposium proceedings: Water resources education, training, and practice: opportunities for the next century. American Water Works Association, Universities Council on Water Resources, American Water Works Association; 29 June-3 July; Keystone, CO.

Kluender, E.R., R. Adams, and L. Lewis. 2016. Seasonal habitat use of alligator gar in a river-floodplain ecosystem at multiple spatial scales. Ecology of Freshwater Fish 26: 233-246.

Knapp, R.A., and K.R. Mathews. 1996. Livestock grazing, golden trout, and streams in the Golden Trout Wilderness, California: impacts and management implications. North American Journal of Fisheries Management 16: 805-820.

Knapp, R.A., and H.K. Preisler. 1999. Is it possible to predict habitat use by spawning salmonids? A test using California golden trout (*Oncorhynchus mykiss aguabonita*). Canadian Journal of Fisheries and Aquatic Sciences 56 (9): 1576-1584.

Knapp, R.A., and V.T. Vredenburg. 1996. Spawning by California golden trout: characteristics of spawning fish, seasonal and daily timing, redd characteristics, and microhabitat preferences. Transactions of the American Fisheries Society 125 (4): 519-531.

Knapp, R.A., V.T. Vredenburg, and K.R. Matthews. 1998. Effects of stream channel morphology on golden trout spawning habitat and recruitment. Ecological Applications 8: 1104-1117.

Kneib, T., F. Knauer, and H. Kuchenhoff. 2011. A general approach to the analysis of habitat selection. Environmental and Ecological Statistics 18: 1-25.

Knight, R.R., S.W. Gain, and W.J. Wolfe. 2011. Modelling ecological flow regime: An example from the Tennessee and Cumberland River basins. Ecohydrology 5 (5): 613-627. Doi: 10.1002/eco.246

Knight, R.R., M.B. Gregory, and A.K. Wales. 2008. Relating streamflow characteristics to specialized insectivores in the Tennessee River Valley: a regional approach. Ecohydrology 1: 394-407. Doi: 10.1002/eco.32.

Knight, R.R., J.C. Murphy, W.J. Wolfe, C.F. Saylor, and A.K. Wales. 2014. Ecological limit functions relating fish community response to hydrologic departures of the ecologic flow regime in the Tennessee River basin, United States. Ecohydrology 7: 1262-1280. doi: 10.1002/eco.1460

Knighton, D. 1998. Fluvial forms and processes. Oxford University Press, New York.

Knights, B.C., B.L. Johnson, and M.B. Sandheinrich. 1995. Responses of bluegills and black crappies to dissolved oxygen, temperature, and current in backwater lakes of the upper Mississippi River during winter. North American Journal of Fisheries Management 15: 390-399.

Knights, B.C., J.M. Vallazza, S.J. Zigler, and M.R. Dewey. 2002. Habitat and movement of lake sturgeon in the upper Mississippi River system, USA. Transactions of the American Fisheries Society 131 (3): 507-522.

Knowles, N. 2002. Natural and management influences on freshwater inflows and salinity in the San Francisco Estuary at monthly to inter-annual scales. Water Resources Research 38:1-11. Doi: 10.1029/2001WR000360.

Knowles, N., and D. Cayan. 2004. Elevational dependence of projected hydrologic changes in the San Francisco estuary and watershed. Clim. Change 62: 319-336.

Knowlton, M.F., and J.R. Jones. 1997. Trophic status of Missouri River floodplain lakes in relation to basin type and connectivity. Wetlands 17: 468-475.

Knudby, A. A. Brenning, and E. LeDrew. 2010. New approaches to modelling fish-habitat relationships. Ecological Modelling 221: 503-511.

Knudsen, E.E., and S.J. Dilley. 1987. Effects of riprap bank reinforcement on juvenile salmonids in four western Washington streams. North American Journal of Fisheries Management 7: 351-356.

Knudsen, E.E., C.E. Stephens, and W.H. Bradshaw. 1984. A method for measuring flow in rivers. North American Journal of Fisheries Management 4 (4B): 459-461.

Knudsen, G.J. 1962. Relationship of beaver to forests, trout and wildlife in Wisconsin. Wisconsin Department of Conservation, Technical Bulletin Number 25, Madison.

Koch, B. R.C. Brooks, A. Oliver, D. Herzog, J.E. Garvey, H. Hrabik, R. Colombo, Q. Phelps. And T. Spier. 2012. Habitat selection and movement of naturally occurring pallid sturgeon in the Mississippi River. Transactions of the American Fisheries Society 141: 112-120. Doi: 10.1080/00028487.2011.652008

Koch, T.J. 2004. Effects of sedimentation and water velocity on white sturgeon (*Acipenser* *transmontanus*) embryo survival. Master’s thesis. University of Idaho, Moscow.

Kochel, R.C. 1988. Geomorphic impact of large floods: review and new perspectives on magnitude and frequency. Pages 169-187 in V.R. Baker, R.C. Kochel, and P.C. Patton, editors. Flood geomorphology. Wiley-Interscience, New York, New York, USA.

Kocik, J.F., and C.P. Ferreri. 1998. Juvenile production variation in salmonids: population dynamics, habitat, and the role of spatial relationships. Canadian Journal of Fisheries and Aquatic Sciences 55 (Suppl. 1): 191-200.

Kocik, J.F., and W.W. Taylor. 1987. The effects of fall and winter instream flow on year-class strength of Pacific salmon evolutionarily adapted to early fry outmigration: a Great Lakes perspective. American Fisheries Symposium 1: 430-440.

Kocik, J.F., and W.W. Taylor. 1996. Effect of juvenile steelhead on juvenile brown trout habitat use in a low-gradient Great Lakes tributary. Transactions of the American Fisheries Society 125: 244-252.

Kock, T.J., J. Congleton, and P.J. Anders. 2006. Effects of sediment cover on survival and development of white sturgeon embryos. North American Journal of Fisheries Management 26 (1): 134-141. Doi:10.1577/M05-073.1.

Kock, T.J., T.L. Liedtke, D.W. Rondorf, J.D. Serl, M. Kohn, and K.A. Bumbaco. 2012. Elevated streamflows increase dam passage by juvenile coho salmon during winter: implications of climate change in the Pacific Northwest. North American Journal of Fisheries Management 32 (6): 1070-1079. Doi: 10.1080/0255947.2012.720645.

Kock, T.J., R.W. Perry, A.C. Pope, J.D. Serl, M. Kohn, and T.L. Liedtke. 2018. Responses of hatchery- and natural-origin adult spring Chinook salmon to a trap-and-haul reintroduction program. North American Journal of Fisheries Management 38 (5): 1004-1016. Doi: 10.1002/nafm.10199

Koehn, J. 2009. Multi-scale habitat selection by Murray cod Maccullochella peelii peelii in two lowland rivers. Journal of Fish Biology 75: 113-129.

Koehn, J.D., N.A. O’Connor, and P.D. Jackson. 1994. Seasonal and size-related variation in microhabitat use by a southern Victorian stream fish assemblage. Australian Journal of Freshwater Research 45: 1353-1366.

Koel, T.M., and R.E. Sparks. 2002. Historical patterns of river stage and fish communities as criteria for operation of dams on the Illinois River. River Research and Applications 18: 3-19.

Koetsier, P., and A.N. Urquhart. 2012. Desiccation tolerance in a wild population of the invasive oriental weatherfish *Misgurnus anguillicaudatu*s in Idaho, USA. Transactions of the American Fisheries Society 141 (2): 365-369.

Kohler, B. 2001. Hydraulic parameters controlling fish behaviour and stranding in a laboratory river. Thesis, University of Stuttgart, Institute of Hydraulic Engineering.

Koljonen, S., A. Huusko, A. Maki-Petays, P. Louhi, and T. Muotka. 2013. Assessing habitat suitability for juvenile Atlantic salmonin relation to in-stream restoration and discharge variability. Restor. Ecol. 21: 344-352. Doi: 10.1111/j.1526-100X.2012.00908.x.

Koljonen, S., A. Huusko, A. Maki-Petays, H. Mykra, and T. Muotka. 2012. Body mass and growth of overwintering brown trout in relation to stream habitat complexity. River Research and Applications 28: 62-70.

Koltun, G.F., and M.T. Whitehead. 2002. Techniques for estimating selected streamflow characteristics of rural, unregulated streams in Ohio. US Geological Survey Scientific Investigations Report 2002-4068; 50 pages. Available at: <http://oh.water.usgs.gov/reports/wrir/wrir02-4068.pdf>.

Komar, P.D. 1987. Selective gravel entrainment and the empirical evaluation of flow competencies. Sedimentology 34: 1165-1176. Doi: 10.1111/j.1365-3091.1987.tb00599.x

Kondolf, G.M. 1988. Salmonid spawning gravels: a geomorphic perspective on their size distribution, modification by spawning fish and criteria for gravel quality. Ph.D. thesis, Department of Geography and Environmental Engineering, Johns Hopkins University, 396 pp.

Kondolf, G.M. 1993. Lag in stream channel adjustment in livestock exclosure, White Mountains, California. Restoration Ecology 1: 226-230.

Kondolf, G.M. 1995. Geomorphological stream channel classification in aquatic habitat restoration: Uses and limitations. Aquatic Conservation: Marine and Freshwater Ecosystems 5 (2): 127-141. Doi: 10.1002/aqc.3270050205.

Kondolf, G.M. 1997. Hungry water: effects of dams and gravel mining on river channels. Environmental Management 21: 533-551. Doi:10.1007/s002679900048. PMID: 9175542

Kondolf, G.M. 1998. Lessons learned from river restoration projects in California. Aquatic Conservation 8: 39-52.

Kondolf, G.M. 1998. Development of flushing flows for channel restoration on Rush Creek, California. Rivers 6 (3): 183-193.

Kondolf, G.M. 2000. Some suggested guidelines for geomorphic aspects of anadromous salmonid habitat restoration proposals. Restoration Ecology 8 (1): 48-56.

Kondolf, G.M. 2000. Assessing salmonid spawning gravel quality. Transactions of the American Fisheries Society 129 (1): 262-281. Doi:10.1577/1548-8659(2000)129<0262:ASSGQ>2.0.CO;2.

Kondolf, G.M., and R.J. Batalla. 2005. Hydrological effects of dams and water diversions on rivers of Mediterranean-climate regions: examples from California. Developments in Earth Surface Processes 7: 197-211.

Kondolf, G.M., G.F. Cada, and M.J. Sale. 1987. Assessing flushing-flow requirements for brown trout spawning gravels in steep streams. American Water Resources Association Water Resources Bulletin 23: 927-935.

Kondolf, G.M., G.F. Cada, M.J. Sale, and T. Felando. 1991. Distribution and stability of potential salmonid spawning gravels in steep boulder-bed streams of the eastern Sierra Nevada. Transactions of the American Fisheries Society 120 (2): 177-186. Doi:10.1577/1548-8659(1991)120<0177:DASOPS>2.3.CO;2.

Kondolf, G.M., S.S. Cook, H.R. Maddux, and W.R. Persons. 1989. Spawning gravels of rainbow trout in Glen and Grand canyons, Arizona. Journal of the Arizona-Nevada Academy of Science 23: 19-28.

Kondolf, G.M., E.M. Larsen, and J.G. Williams. 2000. Measuring and modeling the hydraulic environment for assessing instream flows. North American Journal of Fisheries Management 20 (4): 1016-1028. Doi: 10.1577/1548-8675(2000)020<1016:MATHME>2.0.CO;2.

Kondolf, G.M., and S. Li. 1992. The pebble count technique for quantifying surface bed material in instream flow studies. Rivers 3: 80-87.

Kondolf, G.M., L.Maloney, and J.G. Williams. 1987. Effects of bank storage and well pumping on baseflow, Carmel River, Monterey County, California. Journal of Hydrology 91: 351-369.

Kondolf, G.M., and W.V.G. Matthews. 1993. Management of Coarse Sediment in Regulated Rivers of California. Report No. 80. University of California Water Resources Center: Riverside.

Kondolf, G.M., D.R. Montgomery, H. Piejay, and L. Schmitt. 2003. Geomorphic classification of rivers and streams. Pp. 171-204 *in*: G.M. Kondolf and H. Piejay (editors), Tools in geomorphology. John Wiley & Sons Ltd., West Sussex, England.

Kondolf, G.M., K. Podolak, and T.E. Grantham. 2013. Restoring Mediterranean-climate rivers. Hydrobiologia 719: 527-545.

Kondolf, G.M., M.J. Sale, and M.G. Wolman. 1993. Modification of gravel size by spawning salmonids. Water Resources Research 29: 2265-2274. Doi: 10.1029/93WR00402.

Kondolf, G.M., J.C. Vick, and T.M. Ramirez. 1996. Salmon spawning habitat rehabilitation on the Merced River, California: An evaluation of project planning and performance. Transactions of the American Fisheries Society 125 (6): 899-912.

Kondolf, G.M., J.W. Webb, M.J. Sale, and T. Felando. 1987. Basic hydrologic studies for assessing impacts of flow diversions on riparian vegetation: Examples from streams of the eastern Sierra Nevada, California. Environmental Management 11 (6): 757-769.

Kondolf, G.M., and P.R. Wilcock. 1996. The flushing flow problem: Defining and evaluating objectives. Water Resources Research 32 (8): 2589-2599. Doi:10.1029/96WR00898.

Kondolf, G.M., J.G. Williams, T.C. Horner, and D. Milan. 2008. Assessing physical quality of spawning habitat. Pages 249-274 in: D.A. Sear and P. DeVries, editors. Salmonid spawning habitat in rivers: Physical controls, biological responses and approaches to remediation. American Fisheries Society Symposium 65, Bethesda, MD

Kondolf, G.M., and M.G. Wolman. 1993. The sizes of salmonid spawning gravels. Water Resources Research 27: 2275-2285. Doi: 10.1029/93WR00402.

Kondou, T., N. Takeshita, A. Nakazono, and S. Kimura. 2001. Egg survival in a fluvial population of Masu salmon in relation to intragravel conditions in spawning redds. Transactions of the American Fisheries Society 130: 969-974.

Kondratieff, M.C., and C.A. Myrick. 2006. How high can brook trout jump? A laboratory evaluation of brook trout jumping performance. Transactions of the American Fisheries Society 135 (2): 361-370.

Kong, H., M. Chevalier, P. Laffaille, and S. Lek. 2017. Spatio-temporal variation of fish taxonomic composition in a South-East Asian flood-pulse system. PLoS ONE 12 (3): e0174582.

Koning, W., A.G.H. Locke, and J.M. Mahoney. 2016. Determining environmental flows for the South Saskatchewan River Basin, Alberta, Canada. In: Watershed and River Basin Management. Doi: 10.22618/TP.EI.20162.120011.

Konrad, C.P. 2010. Monitoring and evaluation of environmental flow prescriptions for five demonstration sites of the Sustainable Rivers Project. U.S. Geological Survey Open-File Report 2010-1065. Reston, VA: U.S. Department of the Interior, U.S. Geological Survey. <https://pubs.usgs.gov/of/2010/1065/pdf/of20101065.pdf>.

Konrad, C.P., and D.B. Booth. 2005. Hydrologic changes in urban streams and their ecological significance. In: L.R. Brown, R.H. Gray, R.M. Hughes, and M.R. Meador, editors, Effects of urbanization on stream ecosystems American Fisheries Society Symposium 47: 175-177.

Konrad, C.P., D.B. Booth, and S.J. Burges. 2005. Effects of urban development in the Puget Lowland, Washington, on interannual streamflow patterns: consequences for channel form and streambed disturbance. Water Resources Research 4 (7): 15. Doi: 10.1029/2005wr004097

Konrad, C.P., D.B. Booth, S.J. Burges, and D.R. Montgomery. 2002. Partial entrainment of gravel bars during floods. Water Resources Research 38: 9.1-9.16.

Konrad, C.P., A.M.D. Brasher, and J.T. May. 2008. Assessing streamflow characteristics as limiting factors on benthic invertebrate assemblages in streams across the western United States. Freshwater Biology 53: 1983-1998. Doi: 10.1111/j.1365-2427.2008.02024.x.

Konrad, C.P., J.D. Olden, D.A. Lytle, T. Melis, J.C. Schmidt, E.N. Bray, M.C. Freeman, K.B. Gido, N.P. Hemphill, M.J. Kennard, L.E. McMullen, M.C. Mims, M. Pyron, C.T. Robinson, and J.G. Williams. 2011. Large-scale flow experiments for managing river systems. BioScience 61 (12): 948-959. Doi: 10.1525/bio.2011.61.12.5.

Konrad, C.P., A. Warner, and J.V. Higgins. 2012. Evaluating dam reoperation for freshwater conservation in the sustainable rivers project. River Research and Applications 28: 777-792.

Kope, R.G., and L.W. Botsford. 1990. Determination of factors affecting recruitment of chinook salmon *Oncorhynchus tshawytscha* in central California. U.S. National Marine Fisheries Service Fishery Bulletin 88: 257-269. http://fishbull.noaa/882/kope.pdf

Korman, J., and S.E. Campana. 2009. Effects of hydropeaking on nearshore habitat use and growth of age-0 rainbow trout in a large regulated river. Transactions of the American Fisheries Society 138 (1): 76-87. Doi:10.1577/T08-026.1.

Korman, J., M. Kaplinski, and T.S. Melis. 2011. Effects of fluctuating flows and a controlled flood on incubation success and early survival rates and growth of age-0 rainbow trout in a large regulated river. Transactions of the American Fisheries Society 140 (2): 487-505. Doi: 10.1080/00028487.2011.572015

Korman, J., S.J.D. Martell, and C. Walters. 2011. Describing population dynamics for early life stages of rainbow trout using a stock synthesis model. Canadian Journal of Fisheries and Aquatic Sciences 68 (6): 1110-1123. Doi:10.1139/F2011-046.

Korman, J., S.J.D. Martell, C.J. Walters, A.S. Makinster, L.G. Coggins, M.D. Yard, and W.R. Persons. 2012. Estimating recruitment dynamics and movement of rainbow trout (*Oncorhynchus mykiss*) in the Colorado River in Grand Canyon using an integrated assessment model. Canadian Journal of Fisheries and Aquatic Sciences 69 (11): 1827-1849. Doi: 10.1139/F2012-097.

Korman, J., C. Walters, S.J.D. Martell, W.E. Pine III, and A. Dutterer. 2011. Effects of flow fluctuations on habitat use and survival of age-0 rainbow trout (*Oncorhynchus mykiss*) in a large, regulated river. Canadian Journal of Fisheries and Aquatic Sciences 68 (6): 1097-1109. Doi:10.1139/F2011-045.

Korman, J., S.M. Wiele, and M. Torizzo. 2004. Modelling effects of discharge on habitat quality and dispersal of juvenile humpback chub (*Gila cypha*) in the Colorado River, Grand Canyon. River Res. Appl. 20 (4): 379-400. Doi: 10.1002/rra.749.

Korman, J., M. Yard, C. Walters, and L.G. Coggins. 2009. Effects of fish size, habitat, flow, and density on capture probabilities of age-0 rainbow trout estimated from electrofishing at discrete sites in a large river. Transactions of the American Fisheries Society 138 (1): 58-75. Doi:10.1577/T08-025.1.

Kostecki, C., F. Le Loc’h, J.M. Roussel, N. Desroy, D. Huteau, P. Riera, H. Le Bris, and O. Le Pape. 2010. Dynamics of an estuarine nursery ground: the spatio-temporal relationship between the river flow and the food web of the juvenile common sole (*Solea solea*, L.) as revealed by stable isotopes analysis. Journal of Sea Research 64: 54-60.

Koster, W.M., D.R. Dawson, C. Liu, P.D. Moloney, D.A. Crook, and J.R. Thompson. 2017. Influence of streamflow on spawning-related movements of golden perch Macquaria ambigua in southeastern Australia. Journal of Fish Biology 90: 93-108.

Koster, W.M., F. Amstaetter, D.R. Dawson, P. Reich, and J.R. Morrongiello. 2016. Provision of environmental flows promotes spawning of a nationally threatened diadromous fish. Marine and Freshwater Research 68: 159-166. Doi: 10.1071/MF15398.

Koster, W.M., D.A. Crook, D.R. Dawson, S. Gaskill, and J.R. Morromgiello. 2017. Predicting the influence of streamflow on migration and spawning of a threatened diadromous fish, the Australian Grayling, *Prototroctes moraena*. Environmental Management doi: 10.1007/s00367-0

17-0853-0

Kotlyakov, V.M. 1991. The Aral Sea basin: a critical environmental zone. Environment 33: 4-38.

Kovach, R.P., C.C. Muhlfield, R. Al-Chokhachy, J.B. Durham, B.H. Letcher, and J.L. Kershner. 2016. Impacts of climatic variation on trout: A global synthesis and path forward. Reviews in Fish Biology and Fisheries 26: 135-151. Doi: 10.1007/s11160-015-9414-x

Kozarek, J.L., W.C. Hession, C.A. Dolloff, and P. Diplas. 2010. Hydraulic complexity metrics for evaluating in-stream brook trout habitat. Journal of Hydraulic Engineering 136: 1067-1076.

Kozel, S.J., and W.A. Hubert. 1989. Testing of habitat assessment models for small trout streams in the Medicine Bow National Forest, Wyoming. North American Journal of Fisheries Management 9 (4): 458-464. Doi:10.1577/1548-8675(1989)009<0458;TOHAMF>2.3.CO;2.

Kozel, S.J., W.A. Hubert, and M.G. Parsons. 1989. Habitat features and trout abundance relative to gradient in some Wyoming streams. Northwest Science 63: 175-182.

Kozlowski, T.T., ed. 1984. Flooding and plant growth. Academic Press, San Diego, California.

Krabbenhoft, T.J., S.P. Platamia, and T.J. Turner. 2014. Interannual variation in reproductive phenology in a riverine fish assemblage: implications for predicting effects of climate change and altered flow regimes. Freshwater Biology 59: 1744-1754.

Kraft, M.E. 1972. Effects of controlled flow reduction on a trout stream. Journal of the Fisheries Research Board of Canada 29: 1405-1411.

Kramer, D.L., R.W. Rangeley, and L.J. Chapman. 1997. Habitat selection: patterns of spatial distribution from behavioural decisions. Pp. 37-80 in: Behavioural ecology of teleost fishes, J-G.J. Godin, ed. Oxford University Press, Oxford.

Kratz, T.K., L.A. Deegan, M.E. Harmon, and W.K. Lauenroth. 2003. Ecological variability in space and time: insights gained from the US LTER program. BioScience 53: 57-67.

Kratzer, J.F., and D.R. Warren. 2013. Factors limiting brook trout biomass in northeastern Vermont streams. North American Journal of Fisheries Management 33 (1): 130-139. Doi: 10.1080/02755947.2012.743934.

Krause, C.W., T.J. Newcomb, and D.J. Orth. 2005. Thermal habitat assessment of alternative flow scenarios in a tailwater fishery. River Research and Applications 21: 1-13.

Krieger, J.R., and J.S. Diana. 2017. Development and evaluation of a habitat suitability model for young lake sturgeon (*Acipenser fulvescens*) in the North Channel of the St Clair River, Michigan. Canadian Journal of Fisheries and Aquatic Sciences 74: 1000-1008.

Kroger, R.L. 1973. Biological effects of fluctuating water levels in the Snake River, Grand Teton National Park, Wyoming. American Midland Naturalist 89: 478-481.

Kruzic, L.M., D.L. Scarnecchia, and B.B. Roper. 2001. Comparison of midsummer survival and growth of age-0 hatchery coho salmon held in pools and riffles. Transactions of the American Fisheries Society 130: 147-154.

Kuehne, L.M., and J.D. Olden. 2014. Ecology and conservation of mudminnow species worldwide. Fisheries 39 (8): 341-351.

Kuehne, L.M., and J.D. Olden. 2016. Environmental drivers of occupancy and detection of Olympic mudminnow. Transactions of the American Fisheries Society 145 (1): 17-26. Doi: 10.1080/00028487.2015.1091383.

Kuhara, N., S. Nakano, and H. Miyasaka. 2000. Flow rate mediates the competitive influence of a grazing caddisfly on mayflies. Ecological Research 15: 145-152.

Kuhn, K.M., W.A. Hubert, K. Johnson, D. Oberlie, and D. Dufek. 2008. Habitat use and movement patterns by adult saugers from fall to summer in an unimpounded small-river system. North American Journal of Fisheries Management 28 (2): 360-367.

Kukulka, T., and D. Jay. 2003. Impacts of Columbia River discharge on salmonid habitat. 2. Changes in shallow-water habitat. Journal of Geophysical Research 108 (C9): 3294.

Kulik, B.H. 1990. A method to refine the New England aquatic base flow policy. Rivers 1: 8-22.

Kummu, M., and J. Sarkkula. 2008. Impact of the Mekong River flow alteration on the Tonle Sap flood pulse. Ambio 37: 185-192. Doi: 10.1579/00447447(2008)37[

Kupferberg, S.J. 1996. Hydrologic and geomorphic factors affecting conservation of a river-breeding frog (Rana boylii). Ecol. Appl. 6: 1332-1344. Doi: 10.2307/2269611.

Kupferberg, S.J., A.J. Lind, V. Thill, and S.M. Yarnell. 2011. Water velocity tolerance in tadpoles of the foothill yellow-legged frog (*Rana boylii*) in northwestern California. Herpetological Review 27: 62-67.

Kupferberg, S.J., A.J. Lind, V. Thill, and S.M. Yarnell. 2011. Water velocity tolerance in tadpoles of the foothill yellow-legged frog (*Rana boylii*): Swimming performance, growth, and survival. Copeia 2011 (1): 141-152.

Kupferberg, S.J., W.J. Palen, A.J. Lind. S. Bobzien, A. Cattenazzi, J. Drennan, and M.E. Power. 2012. Effects of flow regimes altered by dams on survival, population declines, and range-wide losses of California river-breeding frogs. Conservation Biology 26: 513-524. Doi: 10.1111/j.1523-1739.2012.01837.x.

Kushlan, J.A. 1976. Environmental stability and fish community diversity. Ecology 57: 821-825. Doi: 10.2307/1936196.

Kvingedal, E., and S. Einum. 2011. Intracohort and intercohort spatial density dependence in juvenile brown trout (*Salmo trutta*). Canadian Journal of Fisheries and Aquatic Sciences 68 (1): 115-121. Doi: 10.1139/F10-132

Kwak, T.J. 1988. Lateral movement and use of floodplain habitat by fishes in the Kankakee River, Illinois. American Midland Naturalist 120: 241-249.

Kwak, T.J., and T.M. Skelly. 1992. Spawning habitat, behavior, and morphology as isolating mechanisms of the golden redhorse, *Moxostoma erythrurum*, and the black redhorse, *M. duquesnei*, two syntopic fishes. Environmental Biology of Fishes 34: 127-137.

Kwak, T.J., M.J. Wiley, L.L. Osborne, and Larimore. 1992. Application of diel feeding chronology to habitat suitability analysis of warmwater stream fishes. Canadian Journal of Fisheries and Aquatic Sciences 49 (7): 1417-1430.

Kynard, B. 1997. Life history, latitudinal patterns, and status of the shortnose sturgeon, *Acipenser brevirostrum*. Environmental and Ecological Statistics 48: 319-334.

Kynard, B., M. Horgan, M. Keiffer, and D. Seibel. 2000. Habitats used by shortnose sturgeon in two Massachusetts rivers, with notes on estuarine Atlantic sturgeon: a hierarchical approach. Transactions of the American Fisheries Society 129: 487-503. Doi: 10.1577/1548-8659(2000)129<0487:HUBBSI>2.0.CO;2.

Labbe, T.E., and K.D. Fausch. 2000. Dynamics of intermittent stream habitat regulate persistence of a threatened fish at multiple scales. Ecological Applications 10: 1774-1791. Doi: 10.1890/1051-0761(2000)010[1774:DOISHR]2.0.CO;2.

Lacey, G.C., and R.B. Grayson. 1998. Relating base flow to catchment properties in southeastern Australia. Journal of Hydrology 204: 231-250.

Lacey, R.W.J., and R.G. Millar. 2004. Reach scale hydraulic assessment of instream salmonid habitat restoration. Journal of the American Water Resources Association 40: 1631-1648. (<http://www.awra.org/jawra/online_articles/>

J4006\_1631-1644.pdf).

Lacey, R.W.J., V.S. Neary, J.C. Liao, E.C. Enders, and H.M. Tritico. 2012. The IPOS Framework: linking fish swimming performance in altered flows from laboratory experiments to rivers. River Res. Appl. 28: 429-443. Doi: 10.1002/rra.1584.

Lacroix, G.L., D.J. Hood, and J.A. Smith. 1995. Stability of microhabitat use by brook trout and juvenile Atlantic salmon after stream acidification. Transactions of the American Fisheries Society 124 (4): 588-598.

Ladle, M., and J.A.B. Bass. 1981. The ecology of a small chalk stream and its responses to drying during drought conditions. Arch. Hydrobiol. 90: 448-466.

Ladson, A.R., and R.M. Argent. 2002. Adaptive management of environmental flows: Lessons for the Murray-Darling basin from three large North American rivers. Australian Journal of Water Resources 5 (1): 89-101.

Ladson, A.R., R.B. Grayson, B. Jawecki, and L.J. White. 2006. Effect of sampling density on the measurement of stream condition indicators in twow lowland Australian streams. River Research and Applications 22: 853-860.

Ladson, T. 2009. Adaptive management of environmental flows – 10 years on. Pages 261-273 in: C. Allan and G.H, Stankey, editors, Adaptive Environmental Management. Dordrecht: Springer.

Laffaille, P., E. Feunteun, A. Baisez, T. Robinet, A. Acou, A. Legault, and S. Lek. 2003. Spatial organization of European eel (Anguilla Anguilla L.) in a small catchment. Ecology of Freshwater Fish 12. Doi: 10.1046/j.1600-0633.2003.00021.x.

Lafferty, K.D., C.C. Swift, and R.F. Ambrose. 1999. Extirpation and recolonization in a metapopulation of an endangered fish, the tidewater goby. Conservation Biology 13 (6): 1447-1453.

Lafferty, K.D., C.C. Swift, and R.F. Ambrose. 1999. Post flood persistence and recolonization of endangered tidewater goby populations. North American Journal of Fisheries Management 19: 618-622.

Lagarrigue, T., R. Cerehino, P. Lim, P. Reyes-Marchant, R. Chappaz, P. Lavandier, and A. Beland. 2002. Diel and seasonal variations in brown trout (*Salmo trutta*) feeding patterns and relationship with invertebrate drift under natural and hydropeaking conditions in a mountain stream. Aquatic Living Resources 15: 129-137. Doi: 10.1016/S0990-7440(02)01152-X.

LaHaye, M., A. Branchaud, M. Gendron, R. Verdon, and R. Fortin. 1992. Reproduction, early life history, and characteristics of spawning grounds of the lake sturgeon (*Acipenser fulvescens*) in Des Prairies and L’Assomption rivers, near Montreal, Quebec. Canadian Journal of Zoology 70: 1681-1689.

Laize, C.L.R., M.C. Acreman, C. Schneider, M.J. Dunbar, H.A. Houghton-Carr, M. Floerke, and D.M. Hannah. 2014. Projected flow alteration and ecological risk for pan-European rivers. River Res. Appl. 30: 299-314.

Lake, P.S. 2000. Disturbance, patchiness, and diversity in streams. Journal of the North American Benthological Society 19: 573-592. Doi: 10.2307/1468118

Lake, P.S. 2003. Ecological effects of perturbation by drought in flowing waters. Freshwater Biology 48 (7): 1161-1172. Doi: 10.1046/j.1365-2427.2003.01086.x.

Lake, P.S. 2011. Drought and aquatic ecosystems: effects and responses. Chichester, UK: Wiley-Blackwell. Doi: 10.1002/9781444341812

Lake, P.S. 2012. Flows, floods, floodplains and river restoration. Ecol. Manag, Restor. 13: 210-211.

Lake, S., N. Bond, and P. Reich. 2006. Floods down rivers: from damaging to replenishing forces. Advances in Ecological Research 39: 41-62.

Laliberte, J.J., J.R. Post, and J. Rosenfeld. 2014. Hydraulic geometry and longitudinal paterns of habitat quantity and quality for rainbow trout (Oncorhynchus mykiss). River Research and Applications

Lamb, B.L. 1986. Meeting the challenge of policy-relevant science: Lessons from a water resource project. Water Resources Bulletin 22 (5): 811-815.

Lamb, B.L. 1989. Comprehensive technologies and decision-making: reflections on the instream flow incremental methodology. Fisheries 14 (5): 122-16.

Lamb, B.L. 1993. Quantifying instream flows: matching policy and technology. Pages 7-1 to 7-22 in: L.J. MacDonnell and T.A. Rice, editors. Instream flow protection in the West. Revised edition. University of Colorado Natural Resources Law Center, Boulder.

Lamb, B.L., and H.R. Dooerksem. 1987. Instream water use in the United States – water laws and methods for determining instream flow requirements. Pages 109-116 in: National Water Summary 1987. Water Supply Paper 2350, US Geological Survey, Washington, D.C.

Lambert, T.R., and J.M. Handley. 1980. An instream flow needs study involving smallmouth bass (*Micropterus dolomieui*) in the San Joaquin River, California. Proceedings of the Annual Conference of the Western Association of Fish and Wildlife Agencies 80: 433-442.

Lambert, T.R., and D.F. Hanson. 1989. Development of habitat suitability criteria for trout in small streams. Regulated Rivers: Research and Management 3 (1‑4): 291‑303.

Lambert, W.P., and E.G. Fruh. 1978. A methodology for investigating freshwater inflow requirements for a Texas estuary, p. 403-413 in: M.L. Wiley (ed.), Estuarine Interactions. Academic Press, New York.

Lamberti, G.A., S.V. Gregory, L.R. Ashkenas, R.C. Wildman, and K.M.S. Moore. 1991. Stream ecosystem recovery following a catastrophic debris flow. Canadian Journal of Fisheries and Aquatic Sciences 48: 196-208.

Lamberts, D. 2008. Little impact, much damage: the consequences of Mekong River flow alterations for the Tonle Sap ecosystem. Pages 3-18 in: M. Kummu, M. Keskinen, and O. Varis (editors), Modern Myths of the Mekong. Helsinki University of technology, Water and Development Publications, Espoo, Finland.

Lamberts, D., and J. Kopponen. 2008. Flood pulse alterations and productivity of the Tonle Sap ecosystemL A model for impact assessment. Ambio 37: 178-184, doi: 10. Lamberts, D.1579/0044-7447(2008)37[178:FPAAPO]2.0.CO;2

Lammert, M., and J.D. Allan. 1999. Assessing biotic integrity of streams: effects of scale in measuring the influence of land cover/cover and habitat structure on fish and macroinvertebrates. Environmental Management 23: 257-270.

Lamouroux, N. 1998. Depth probability distributions in stream reaches. Journal of Hydraulic Engineering 124: 224-227.

Lamouroux, N. 2007. Hydraulic geometry of stream reaches and ecological implications. Developments in Earth Surface Processes 11: 661-675.

Lamouroux, N. 2007. Hydraulic geometry of stream reaches and ecological implications. In: H. Habersack, T. Hoey, H. Piegay, and M. Rinauldi (editors), Gravel bed rivers. Elsevier, Amsterdam.

Lamouroux, N., and H. Capra. 2002. Simple predictions of instream habitat model outputs for target fish populations. Freshwater Biology 47: 1543-1556. Doi: 10.1046/j.1365-2427.2002.00879.x.

Lamouroux, N., H. Capra, and M. Pouilly. 1998. Predicting habitat suitability for lotic fish: linking statistical hydraulic models with multivariate habitat usage models. Regulated Rivers: Research and Management 14: 1-11.

Lamouroux, N., H. Capra, M. Pouilly, and Y. Souchon. 1999. Fish habitat preferences at the local scale in large streams of southern France. Freshwater Biology 42: 1-25.

Lamouroux, N., H. Capra, M. Pouilly, and Y. Souchon. 1999. Fish habitat preferences in large streams of southern France. Freshwater Biology 42: 673-687.

Lamouroux, N., and F. Cattaneo. 1006. Fish assemblages and stream hydraulics: consistent relations across spatial scales and regions. River Research and Applications 2 Lamouroux, N.,2: 727-737.

Lamouroux, N., C. Hauer, M.J. Steardson, and N.L. Poff. 2017. Physical habitat modeling and ecohydrological tools. Pages 265-285 in: A. Horne, A. Webb, M. Stewardson, B. Richter, and M. Acreman, editors, Water for the environment: Policy, science, and integrated management. Elsevier Press, London.

Lamouroux, N., and I.J. Jowett. 2005. Generalized instream habitat models. Canadian Journal of Fisheries and Aquatic Sciences 62 (1): 7-14. Doi: 10.1139/f04-163.

Lamouroux, N., S. Merigoux, H. Capra, S. Doledec, I.G. Jowett, and B. Statzner. 2010. The generality of abundance-environment relationships in microhabitats: a comment on Lancaster and Downes (2009). River Res. Appl. 26: 915-920. Doi: 10.1002/rra.1366.

Lamouroux, N., J.M. Olivier, H. Persat, M. Pouilly, Y. Souchon, and B. Statzner. 1999. Predicting community characteristics from habitat conditions: fluvial fish and hydraulics. Freshwater Biology 42: 1-25.

Lamouroux, N., J.M. Olivier, H. Capra, M. Zylberblat, A. Chandesris, and P. Roger. 2006. Fish community changes after minimum flow increase: testing quantitative predictions in the Rhone River at Pierre-Benite, France. Freshwater Biology 51 (9): 1730-1743.

Lamouroux, N., N.L. Poff, and P.L. Angermeier. 2002. Intercontinental convergence of stream fish community traits along geomorphic and hydraulic gradients. Ecology 83 (7): 1792-1807. Doi:10.1890/0012-9658(2002)0831[1792:ICOSFC]2.0.CO;2.

Lamouroux, N., and Y. Souchon. 2002. Simple prediction of instream habitat model outputs for fish habitat guilds in large streams. Freshwater Biology 47: 1531-1542. Doi: 10.1046/j.1365-2427.2002.00879.x.

Lamouroux, N., Y. Souchon, and E. Herouin. 1995. Predicting velocity frequency distributions in stream reaches. Water Resources Research 31: 2367-2375.

Lamouroux, N., B. Statzner, U. Fuchs, F. Kohmann, and U. Schmedtje. 1992. An unconventional approach to modeling spatial and temporal variability of local shear stress in stream segments. Water Resources Research 28: 3251-3258.

Lancaster, J., and L.R. Belyea. 1997. Nested hierarchies and scale-dependence of mechanisms of flow refugium use. Journal of the North American Benthological Society 16: 221-238. Doi: 10.2307/1468253.

Lancaster, J., and B.J. Downes. 2010. Linking the hydraulic world of individual organisms to ecological processes: putting ecology into ecohydraulics. River Research and Applications 26: 385-403. Doi: 10.1002/rra.1274.

Lancaster, J., and A.G. Hildrew. 1993. Flow refugia and the microdistribution of lotic invertebrates. J. North Am. Benthol. Soc. 12 (4): 385-393. Doi: 10.2307/1467619.

Lancaster, J., and A.G. Hildrew. 1993. Characterizing in-stream flow refugia. Canadian Journal of Fisheries and Aquatic Sciences 50: 1663-1675.

Lancaster, J., A.G. Hildrew, and C. Gjerlov. 1996. Invertebrate drift and longitudinal transport processes in streams. Canadian Journal of Fisheries and Aquatic Sciences 53 (3): 572-582. Doi:10.1139/cjfas-53-3-572.

Lane, B.A., H.E. Dahlke, G.B. Pasternack, and S. Sandoval-Solis. 2017. Revealing the diversity of natural hydrologic regimes in California with relevance for environmental flows applications. Journal of the American Water Resources Association 53: 411-430.

Lane, E.W. 1955. The importance of fluvial morphology in hydraulic engineering. Proceedings of the American Society of Civil Engineers 81 (745): 1-17.

Lane, E.W., and W.M. Borland. 1972. River-bed scour during floods. Pages 303-313 in: S.A. Schumm, editor. Benchmark papers in geology: river morphology. Dowden, Hutchinson, and Ross, Inc., Stroudsburg, Pennsylvania.

Lane, S.N. 1998. Hydraulic modeling in hydrology and geomorphology: a review of high resolution approaches. Hydrological Processes 12: 1131-1150.

Lane, S.N., K.F. Bradbrook, K.S. Richards, P.A. Biron, and A.G. Roy. 1999. The application of computational fluid dynamics to natural river channels: three-dimensional versus two-dimensional approaches. Geomorphology 29: 1-20.

Lane, S.N., and K.S. Richards. 1997. Linking river channel form and process: time, space, and causality revisited. Earth Surface Processes and Landforms 22: 249-260.

Lane, S.N., and K.S. Richards. 1998. High resolution, two-dimensional spatial modeling of flow processes in a multi-thread channel. Hydrological Processes 12: 1279-1298.

Lane-Miller, C.C., S. Wheeler, H. Bjornlund, and J. Connor. 2013. Acquiring water for the environment: lessons from natural resource management. J. Environ. Policy Plan. 15: 513-532.

Lange, K., P. Meier, C. Trautweinm M. Schmid, C.T. Robinson, C. Weber, and J. Brodersen. 2018. Basin-scale effects of small hydropower on biodiversity dynamics. Frontiers in Ecology and the Environment 16 (7): 397-404. Doi:10.1002/fee.1823

Lange, K., C.R. Townsend, R. Gabrielson, P.C.M. Chanut, and C.D. Matthaei. 2014. Responses of stream fish populations to farming intensity and water abstraction in an agricultural catchment. Freshwater Biology 59: 286-299.

Langerhans, R.B. 2008. Predictability of phenotypic differentiation across flow regimes in fishes. Integrative and Comparative Biology 48: 750-768.

Langerhans, R.B., and D.N. Reznick. 2010. Ecology and evolution of swimming performance in fishes: predicting evolution with biomechanics. Pages 200-248 in: P. Domenici and B.G. Kapoor, editors. Fish locomotion: an etho-ecological perspective. Science Publishers, Enfield, New Hampshire.

Langhans, S.D., and K. Tockner. 2006. The role of timing, duration, and frequency of inundation in controlling leaf litter decomposition in a river-floodplain ecosystem (Tagliamento, northeastern Italy). Oecologia 147: 501-509.

Lanka, R.P., W.A. Hubert, and T.A. Wesche. 1987. Relations of geomorphology to stream habitat and trout standing stock in small Rocky Mountain streams. Transactions of the American Fisheries Society 116 (1): 21-28. Doi:10.1577/1548-8659(1987)116<21:ROGTSH>2.0.CO;2.

Lanthier, G., D. Boisclair, G. Bourque, P. Legendre, M. Lapointe, and B. Angers. 2013. Optimization of temporal versus spatial replication in the development of habitat use models to explain among-reach variations of fish density estimates in rivers. Canadian Journal of Fisheries and Aquatic Sciences 70 (4): 600-609. Doi: dx.doi.org/10.1139/cjfas-2012-0216.

LaPerriere, J.D. 1983. Alkalinity, discharge, average velocity, and invertebrate drift concentrations in subarctic Alaskan streams. Journal of Freshwater Ecology 2: 141-151.

Lapointe, M. 2012. River geomorphology and salmonid habitat: some examples illustrating their complex association, from redd to riverscape scales. Pages 191-215 in: M. Church, P.M. Biron, and A.G. Roy, editors, Gravel-bed rivers: processes, tools, and environments. Wiley, Chichester, UK.

Lapointe, M.F., N.E. Bergeron, F. Berube, M.-A. Pouliot, and P. Johnston. 2004. Interactive effects of substrate sand and silt contents, redd-scale hydraulic gradients, and interstitial velocities on egg-to-emergence survival of Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 61 (12): 2271-2277. Doi:10.1139/f04-236.

Lapointe, M., B. Eaton, S. Driscoll, and C. Latulippe. 2000. Modelling the probability of salmonid egg pocket scour due to floods. Canadian Journal of Fisheries and Aquatic Sciences 57 (6): 1120-1130. Doi:10.1139/cjfas-57-6-1120.

Lapointe, M.F., Y. Secretan, S. Driscoll, N. Bergeron, and M. LeClerc. 1998. Response of the Ha! Ha! River to the flood of July 1996 in the Saguenay Region of Quebec: Large-scale avulsion in glaciated valley. Water Resources Research 34 (9): 2383-2392.

Lapointe, N.W.R., L.D. Corkum, and N.E. Mandrak. 2007. Seasonal and ontogenetic shifts in microhabitat selection by fishes in the shallow waters of the Detroit River, a large connecting channel. Transactions of the American Fisheries Society 136 (1): 155-166.

Largier, J.L. 1993. Estuarine fronts: how important are they? Estuaries 16 (1): 1-11. Doi: 10.2307/1352760.

Larimore, R.W., W.F. Childers, and C. Heckrotte. 1959. Destruction and reestablishment of stream fish and invertebrates affected by drought. Transactions of the American Fisheries Society 88: 261-285.

Larimore, R.W., and D.D. Garrels. 1985. Assessing habitats used by warmwater stream fishes. Fisheries 10 (2): 10-16.

Larned, S.T., D.B. Arscott, J. Schmidt, and J.C. Dietrich. 2010. A framework for analyzing longitudinal and temporal variation in river flow and developing flow-ecology relationships. Journal of the American Water Resources Association 46: 541-553.

Larned, S.T., T. Datry, D.B. Arscott, and K. Tockner. 2010. Emerging concepts in temporary-river ecology. Freshwater Biology 55: 717-738.

Larned, S.T., T. Datry, and C.T. Robinson. 2007. Invertebrate and microbial responses to inundation in an ephemeral river: effects of preceding dry periods. Aquat. Sci. 69: 554-567.

Larned, S.T., J. Schmidt, T. Datry, C.P. Konrad, and J.K. Dumas. 2010. Longitudinal river ecohydrology: flow variation down the lengths of alluvial rivers. Ecohydrology. Doi: 10.1002/eco.126.

Larsen, E. W. 1995. The mechanics and modeling of a river meander migration. Ph.D.

dissertation, University of California, Berkeley.

Larsen, L.G., J.W. Harvey, and M.M. Magliio. 2014. Dynamic hyporheic exchange at intermediate timescales: testing the relative importance of evapotranspiration and flood pulse. Water Resources Research 50: 318-335.

Larson, E.I., N.L. Poff, C.L. Atkinson, and A.S. Flecker. 2018. Extreme flooding decreases stream consumer autochthony by increasing detrital resource availability. Freshwater Biology doi: 10.1111/fwb.13177

Larson, E.R., D.D. Magoulick, C. Turner, and K.H. Laycock. 2009. Disturbance and species displacement: different tolerances to stream drying and desiccation in an native and an invasive crayfish. Freshwater Biology 54: 1899-1908. Doi: 10.1111/j.1365-2427.2009.02243.x

Larson, J.H., D.F, Staples, R.P. Maki, J.M. Vallazza, B.C. Knight, and K.E. Peterson. 2016. Do water level fluctuations influence production of walleye and yellow perch young-of-the-year in large northern lakes? North American Journal of Fisheries Management 36 (6): 1425-1436. Doi: 10.1080/02755947.2016,1214645.

Larson, R.P., J.M. Byrne, D.L. Johnson, M.G. Letts, and S.W. Kienzie. 2011. Modelling climate change impacts on spring runoff for the Rocky Mountains of Montana and Alberta. 1. Model development, calibration and historical analysis. Can. Water Resour. J. 36: 17-34. Doi: 10.4296/cwrj3601017.

Lasne, E., S. Lek, and P. Laffaille. 2007. Patterns in fish assemblages in the Loire floodplain: the role of hydrological connectivity and implications for conservation. Biol. Conserv. 139 (3-4): 258-268. Doi: 10.1016/j.biocon.2007.07.002.

Lasserre, G., M.I. Bebars, and T. Lam Hoai. 1997. Analysis of Egyptian marine and lagoon fishery landings in relation to the construction of the Aswan Dam. Oceanologica Acta 20: 421-436.

Latka, D.C. 1994. Habitat use by shovelnose sturgeon in the channelized Missouri River and selected tributary confluences. Master’s thesis, Iowa State University, Ames.

Latka, D.C., and J.W. Yahnke. 1986. Simulating the roosting habitat of sandhill cranes and validating suitability-of-use indices. Pages 19-22 in: J. Verner, M.L. Morrison, and C.J. Ralph (eds.). Wildlife 2000: modelling habitat relationships of terrestrial vertebrates. Univ. Wisc. Press, Madison, WI.

Latta, W.C. 1965. Relationship of young-of-the-year trout to mature trout and groundwater. Transactions of the American Fisheries Society 94: 32-29.

Latterell, J.J., K.D. Fausch, C. Gowan, and S.C. Riley. 1998. Relationship of trout recruitment to snowmelt runoff flows and adult trout abundance in six Colorado mountain streams. Rivers 6 (4): 240-250.

Latterell, J.J., R.J. Naiman, B.R. Fransen, and P.A. Bisson. 2003. Physical constraints on trout (*Oncorhynchus* spp.) distribution in the Cascade Mountains: a comparison of logged and unlogged stream. Canadian Journal of Fisheries and Aquatic Sciences 60 (8): 1007-1017.

Latuliippe, C., M. Lapointe, and T. Tabot 2001. Visual characterization technique for gravel-cobble river bed surface sediments: validation and environmental applications. Earth Surface Processes and Landforms 26 (3): 3007-318. Doi: 10.1002/1096-9837(200103)26:3<307::AID-ESP160>3.3.CO:2-1.

Launder, B.E., and D.B. Spalding. 1974. The numerical computation of turbulent flows. Comput. Method. Appl. Mech. Eng. 3 (2): 269-289. Doi: 10.1016/0045-7825(74)90029-2.

Lauters, F., P. Lavandier, P. Lim, C. Sabaton, and A. Belaud. 1996. Influences of hydropeaking on invertebrates and their relationship with fish feeding habitats in a Pyrenean river. Regulated Rivers: Research and Management 12: 563-573.

Lavin, M.F., V.M. Godinez, and L.G. Alvarez. 1998. Inverse-estuarine features of the upper Gulf of California. Estuarine, Coastal and Shelf Science 47:769-795.

Lavin, M.F., and S. Sanchez. 1999. On how the Colorado River affected the hydrology of the upper Gulf of California. Continental Shelf Research 19: 1545-1560.

LaVoie, W.J., IV, and W.A. Hubert. 1996. Use of three types of stream-margin habitat by age-0 brown trout late in the growing season. Hydrobiologia 317 (2): 89-95. Doi:10.1007/BF00018732.

Lawson, P.W. 1993. Cycles in ocean productivity, trends in habitat quality, and the restoration of salmon runs in Oregon. Fisheries 18 (8): 6-10.

Lawson, P.W., E.A. Logerwell, N.J. Mantua, R.C. Francis, and V.N. Agostini. 2004. Environmental factors influencing freshwater survival and smolt production in Pacific Northwest coho salmon (*Oncorhynchus kisutch*). Canadian Journal of Fisheries and Aquatic Sciences 61: 360-373. Doi: 10.1139/f04-003

Layher, W.G. 1983. Habitat suitability for selected adult fishes in prairie streams. Doctoral dissertation. Oklahoma State University, Stillwater. 333 pp.

Layher, W.G., and K.L. Brunson. 1992. A modification or the Habitat Evaluation Procedure for determining instream flow requirements in warmwater streams. North American Journal of Fisheries Management 121 (1): 47-54.

Layher, W.G., and O.E. Maughan. 1985. Relations between habitat variables and channel catfish populations in prairie streams. Transactions of the American Fisheries Society 114 (6): 771-781.

Layher, W.G., and O.E. Maughan. 1987. Modeling habitat requirements of a euryhabitat species. Transactions of the Kansas Academy of Science 90 (1-2): 60-70.

Layher, W.G., and O.E. Maughan. 1987. Spotted bass habitat suitability related to fish occurrence and biomass and measurements of physicochemical variables. North American Journal of Fisheries Management 7 (2): 238-251.

Layzer, J.B., M.E. Gordon, and R.M. Anderson. 1993. Mussels: the forgotten fauna of regulated rivers: A case study of the Caney Fork River. Regulated Rivers: Research and Management 8: 63-71.

Layzer, J.B., and L.M. Madison. 1995. Microhabitat use by freshwater mussels and recommendations for determining their instream flow needs. Regulated Rivers: Research & Management 10: 329-345.

Lazzaro, G., C. Soulsby, D.Tetzlaff, and G. Botter. 2017. A probabilistic approach to quantifying hydrologic thresholds regulating migration of adult Atlantic salmon into spawning streams. Water Resources Research 53: 2264-2277. Doi: 10.1002/2016WR019244.

Leach, S.D., and E.D. Houde. 1999. Dynamics of environmental factors on survival, growth, and production of American shad larvae. Journal of Fish Biology 54: 767-786.

Leasure, D.R., D.D. Magoulick, and S.D. Longing. 2016. Natural flow regimes of the Ozark-Ouachita Interior Highlands Region. River Research and Applications 32: 18-35. Doi: 10.1002/rra.2838

Leavy, T.R., and T.H. Bonner. 2009. Relationship among swimming ability, current velocity association, and morphology for freshwater lotic fishes. North American Journal of Fisheries Management 29 (1): 72-83. Doi:10.1577/M07-040.1.

Leblanc, J.P., B.L. Brown, and J.M. Farrell. 2017. Increased walleye egg-to-larvae survival following spaning habitathancement in a tributary of eastern Lake Ontario. North American Journal of Fisheries Management 37 (5): 999-1009. Doi: 10.1080/02755947.2017.1339650.

Lechner, A., H. Keckeis, E. Schludermann, P. Humphries, N. McCasker, and M. Tritthart. 2014. Hydraulic forces impact larval fish drift in the free-flowing section of a large European river. Ecohydrology 7: 648-658.

Lechowicz, M.J. 1982. The sampling characteristics of electivity indices. Oecologia 52: 22-30.

Leclerc, M., J.A. Bechara, P. Boudreau, and L. Belzile. 1996. Numerical method for modelling spawning habitat dynamics of landlocked salmon (*Salmo salar*). Regulated Rivers: Research and Management 12: 273-287.

Leclerc, M., J.F. Bellemare, G. Dumas, and G. Dhatt. 1990. A finite element model of estuarian and river flows with moving boundaries. Advances in Water Resources 4: 158-168.

Leclerc, M., J.F. Bellemare, and S. Trussart. 1990. Simulation hydrodynamique de l’estuaire superieur du fleuve Saint-Laurent (Canada) avec un modele hydrodynamique aux elements finis couvrant-decouvrant. Revue canadienne de Genie civil 17 (5): 739-751.

Leclerc, M., A. Boudreault, J.A. Bechara, L. Belzile, and D. Villeneuve. 1990. A model of habitat dynamics applied to landlocked salmon (*Salmo salar*) juveniles of the Ashuapmushuan River (Quebec, Canada). Bull. Fr. Peche Piscic. 332: 11-32.

Leclerc, M., A. Boudreault, J.A. Bechara, and G. Corfa. 1994. Modelisation de la dynamique de l’habitat des ouananiche (*Salmo salar*) juveniles de la riviere Ashuapmushuan (Quebec, Canada. Bulletin Francais de la Peche et de la Pisciculture 332: 11-32.

Leclerc, M., A. Boudreault, J.A. Bechara, and G. Corfa. 1995. Two-dimensional hydrodynamic modeling: a neglected tool in the instream flow incremental methodology. Transactions of the American Fisheries Society 124 (5): 645-662. Doi: 10.1577/1548-8659(1995)124<0645:TDHMN>2.3.CO;2.

Leclerc, M., A. Saint-Hilaire, and J. Bechara. 2003. State-of-the-art and perspectives of habitat modelling for determining conservation flows. Canadian Water Resources Journal 28 (2): 135-151.

LeCoarer, Y. 2007. Hydraulic signatures for ecological modeling at different scales. Aquatic Ecology 41: 451-459.

LeCoarer, Y., and B. Dumont. 1995. Modelisation de la morphodynamique fluviale pour la recherche des relations habitat/faune aquatique. Coloque “Habitat-Poissons” Bulletin Francaise de la Peche et de la Pisciculture 337/338/339: 309-316.

LeCren, E.D. 1965. Some factors regulating the size of populations of freshwater fish. Mitt. Int. Ver. Theor. Angew. Limnol. 13: 88-105.

LeDrew, L.J., D.A. Scruton, R.S. McKinley, and G. Power. 1996. A comparison of habitat suitability indices developed from daytime versus nighttime observations of Atlantic salmon in a regulated Newfoundland stream. Pp. 33-44 in: Proceeding of the Second IAHR Symposium on Habitat Hydraulics. Ecohydraulics 2000: Vol. B. Edited by M. Leclerc, A. Boudreault, H. Capra, S. Valentin, and Y. Cote. INRS-Eau, Quebec.

Ledger, M.E., L.E. Brown, F.K. Edwards, A.M. Milner, and G. Woodward. 2013. Drought alters the structure and functioning of complex food webs. Nature Climate Change 3: 223-227.

Ledger, M.E., F.K. Edwards, L.E. Brown, A.M. Milner, and G. Woodward. 2011. Impact of simulated drought on ecosystem biomass production: an experimental test in stream mesocosms. Glob. Change Biol. 17 (7): 2288-2297. Doi: 10.1111/j.1365-2486.2011.02420.x.

Ledger, M.E., and A.G. Hildew. 2001. Recolonization by the benthos of an acid stream following a drought. Archiv fur Hydrobiologie 152” 1-17;

Ledger, M.E., and A.M. Milner. 2015. Extreme events in running waters. Freshwater Biology 60 (12): 2455-2460. Doi: 10.111/fwb.12673

Lee, C.G., A.P. Farrell, A. Lotto, M.J. MacNutt, S.G. Hinch, and M.C. Healey. 2003. The effect of temperature on swimming performance and oxygen consumption in adult sockeye salmon (*Oncorhynchus nerka*) and coho salmon (*O. kisutch*) salmon stocks. Journal of Experimental Biology 206: 3239-3251.

Lee, J.H., J.T. Kil, and S. Jeong. 2010. Evaluation of physical fish habitat quality enhancement designs in urban streams using a 2D hydrodynamic model. Ecological Engineering 36 (10): 1251-1259. Doi: 10.1016/j.ecoleng.2010.05.004.

Lee, L.A., and J.W. Terrell. 1987. Habitat suitability index models: flathead catfish. U.S. Fish and Wildlife Service Biological Report 82 (10.152). 39 pp.

Lee, L.S. 2008. Potential effects of altered hydrology on floodplain forests of the Savannah River. M.Sc. thesis, Department of Plant Biology, University of Georgia, Athens.

Lee, P.-Y., and J.-P. Suen. 2012. Niche partitioning of fish assemblages in a mountain stream with frequent natural disturbances: an examination of microhabitat in riffle areas. Ecology of Freshwater Fish 21: 255-265.

Lee, P.-Y., and J.-P. Suen. 2013. Comparing habitat suitability indices (HSIs) based on abundance and occurrence data. North American Journal of Fisheries Management 33 (1): 89-96. Doi: 10.1080/02755947.2012.743933.

Leenhouts, J.M., J.C. Stromberg, and R.L. Scott. 2006. Hydrologic Requirements of and Consumptive Ground-Water Use by Riparian Vegetation Along the San Pedro River, Arizona. Scientific Investigations Report 2005-5163. U.S. Geological Survey, Arizona Water Science Center, Tucson.

Leftwich, K.N., P.L. Angermeier, and C.A. Dolloff. 1997. Factors influencing behavior and transferability of habitat models for a benthic stream fish. Transactions of the American Fisheries Society 126: 725-734.

Leggett, J.W. 1980. Reproductive ecology and behavior of Dolly Varden charr in British Columbia. Pages 721-737 in: E.K. Balon, editor. Charrs: salmonid fishes of the genus *Salvelinus*. Dr. W. Junk, The Hague, The Netherlands.

Leglieter, C.J. 2013. Mapping river depth from publicly available aerial images. River Research and Applications 29: 760-780.

Lehman, B., D.D. Huff, S.A. Hayes, and S.T. Lindley. 2017. Relationships between Chinook salmon swimming performance and water quality in the San Joaquin River, California. Transactions of the American Fisheries Society 146 (2): 349-358. Doi: 10.1080/00028487.2016.1271827

Lehner, B., C. Reidy Liermann, C. Revenga, C. Vorosmarty, B. Fekete, P. Crouzet, P. Doll, M. Endejan, K. Frenken, J. Magone, C. Nilsson, J.C. Robertson, R. Rodel, N. Sindorf, and D. Wisser. 2011. High-resolution mapping of the world’s reservoirs and dams for sustainable river-flow management. Frontiers in Ecology and the Environment 9 (9): 494-502.

Lehtinen, R.M., N.D. Mundahl, and J.C. Madejczyk. 1997. Autumn use of woody snags by fishes in backwater and channel border habitats of a large river. Environmental Biology of Fishes 49: 7-19.

Leibfried, W.C., and D.W. Blinn. 1987. The effects of steady versus fluctuating flows on aquatic macroinvertebrates in the Colorado River below Glen Canyon Dam, Arizona. Glen Canyon Environmental Studies GCES/15/87, Arizona Game and Fish Department, Phoenix, Arizona.

Leidy, R.A. 1992. Microhabitat selection by the johnny darter, *Etheostoma nigrum* Rafinesque, in a Wyoming stream. Great Basin Naturalist 52:68-74.

Leigh, C. 2013. Dry-season changes in macroinvertebrate assemblages of highly seasonal rivers: Responses to low flow, no flow and antecedent hydrology. Hydrobiologia 703: 95-112.

Leigh, C., A.J. Boulton, J.L. Courtwright, K. Fritz, C.L. May, R.H. Walker, and T. Datry. 2015. Ecological research and management of intermittent rivers: an historical review and future directions. Freshwater Biolog 61: 1181-1199.

Leigh, C., M.A. Burford, F. Sheldon, and S.E. Bunn. 2010. Dynamic stability in dry season food webs within tropical floodplain rivers. Marine and Freshwater Research 61: 357-368.

Leigh, C., and T. Datry. 2016. Drying as a primary hydrological determinant of biodiversity in river systems: A broad-scale analysis. Ecography 39: 001-013. Doi: 10.1111/ecog.02230

Leigh, C., and F. Sheldon. 2008. Hydrological changes and ecological impacts associated with water resource development in large floodplain rivers in the Australian tropics. River Research and Applications 24: 1251-1270.

Leigh, C., F. Sheldon, R.T. Kingsford, and A.H. Arthington. 2010. Sequential floods drive ‘booms’ and wetland persistence in dryland rivers: a synthesis. Marine and Freshwater Research 61: 896-908.

Leigh, C., B. Stewart-Koster, F. Sheldon, and M.A. Burford. 2012. Understanding multiple ecological responses to anthropogenic disturbance: rivers and potential flow regime change. Ecological Applications 22: 250-263. Doi: 10.1890/11-0983.1.

Leira, M., and M. Cantonati. 2008. Effects of water-level fluctuation on lakes: an annotated bibliography. Hydrobiologia 613: 171-184.

Leith, R.M., and P.H. Whitfield. 1998. Evidence of climate change effects on hydrology of streams in south-central B.C. Can. Water Resources J. 23: 219-230.

Leitman, H.M., M.R. Darst, and J.J. Nordhaus. 1991. Fishes in the forested floodplain of the Ochlockonee River, Florida, during flood and drought conditions. U.S. Geological Survey, Water Resources Investigations Report 90-4202, Denver, Colorado.

Leitman, H.M., J.E. Sohm, and M.A. Franklin. 1983. Wetland hydrology and tree distribution of the Apalachicola River flood plain, Florida. USGS Water Supply Paper 2196-A.

Lek, S., A. Belaud, P. Baran, I. Dimopoulos, and M. Delacoste. 1996. Role of some environmental variables in trout abundance models using neural networks. Aquatic Living Resources 9: 23-29.

Lele, S.R., E.H. Merrill, and M.S. Boyce. 2013. Selection, use, choice and occupancy: clarifying concepts in resource selection studies. Journal of Animal Ecology 82: 1183-1191.

LeMaitre, D.C., S.J. Milton, C. Jarmain, C.A. Colvin, I. Saayman, and J.H.J. Vlok. 2007. Linking ecosystem services and water resources: landscape-scale hydrology of the Little Karoo. Frontiers in Ecology and the Environment 5 (5): 261-270.

Leman, B., and G.J. Paulik. 1966. Spill-pattern manipulation to guide migrant salmon upstream. Transactions of the American Fisheries Society 95: 397-407.

Leman, V.N. 1993. Spawning sites of chum salmon, *Oncorhynchus keta*: microhydrological regime and viability of progeny in redds (Kamchatka River Basin). Journal of Ichthyology 33: 104‑117.

LeMoune, M.T., and L.R. Bodensteiner. 2014. Barriers to upstream passage by two migratory sculpins, prickly sculpin (*Cottus asper*) and coastrange sculpin (*Cottus aleuticus*), in northern Puget Sound lowland streams. Canadian Journal of Fisheries and Aquatic Sciences 71 (11): 1758-1765. Doi: 10.1139/cjfas-2014-0029.

Lennox, P.A., III, and J.A. Rasmussen. 2016. Long-term effects of channelization on a cold-water stream community. Canadian Journal of Fisheries and Aquatic Sciences 73 (10): 1530-1537. Doi: 10.1139/cjfas-2015-0561.

Lenssen, J., F. Menting, W. Van Der Putten, and K. Blom. 1999. Control of plant species richness and zonation of functional groups along a freshwater flooding gradient. Oikos 86: 523-534.

Leonard, N.J., M.A. Fritsch, J.D. Ruff, J.F. Fazio, J. Harrison, and T. Grover. 2015. The challenge of managing the Columbia River basin for energy and fish. Fisheries Management and Ecology 22: 88-98. Doi: 10.1111/fme.12106.

Leonard, P.M., and D.J. Orth. 1988. Use of habitat guilds to determine instream flow requirements. North American Journal of Fisheries Management 8 (4): 399-409.

Leonard, P.M., and D.J. Orth. 1988. Habitat-use guilds and selection of instream flow target species. U.S. Fish and Wildlife Service (Biological Report 89 [11]: 1-20).

Leonard, P.M., D.J. Orth, and C.J. Goudreau. 1986. Development of a method for recommending instream flows for fishes in the upper James River basin. Virginia Water Resources Research Bulletin 152, Blacksburg.

Leopold, L.B. 1962. Rivers. American Scientist 50: 511-537.

Leopold, L.B. 1992. The sediment size that determines channel morphology . Pp. 297-312 *in*: P. Billi, editor. Dynamics of gravel-bed rivers. John Wiley, New York, New York, USA.

Leopold, L.B. 1994. A view of the river. Harvard University Press, Cambridge, MA.

Leopold, L.B., and W.W. Emmett. 1997. Bedload and River Hydraulics - Influences from the East Fork River, Wyoming. U.S. Geological Survey Professional Paper 1583: 56 pp.

Leopold, L.B., and T. Maddock. 1953. The hydraulic geometry of stream channels and some physiographic implications. United States Geological Survey Paper 252.

Leopold, L.B., M.G. Wolman, and J.P. Miller. 1962. Fluvial processes in geomorphology. W.H. Freeman and Co., San Francisco. 522 pp.

Leopold, P.M., and D.J. Orth. 1988. Use of habitat guilds of fish to determine instream flow requirements. North American Journal of Fisheries Management 8: 399-409.

Le Pape, O., F. Chavet, Y. Desaunay, and D. Guerault. 2003. Relationship between interannual variations of the river plume and the extent of nursery grounds for the common sole (*Solea solea* L.) in Vilaine Bay. Effects on recruitment variability. J. Sea Res. 50: 177-185. Doi: 10.1016/S1385-1101(03)00061-3.

LePichon, C., G. Gorges, J. Baudry, F. Goreraud, and P. Boet. 2009. Spatial metrics and methods for riverscapes: quantifying variability in riverine fish habitat patterns. Environmetrics 20 (5): 512-526. Doi: 10.1002/env.948.

Leppi, J.C., T.H. DeLucca, S.W. Harrar, and S.W. Running. 2012. Impacts of climate change on August stream discharge in the Central Rocky Mountains. Climatic Change 112: 997-1014. doi:10.1007/s10584-011-0235-1

Leppi, J.C., D.J. Rinella, R.R. Wilson, and W.M. Loya. 2014. Linking climate change predictions for an Alaskan watershed to future coho salmon production. Global Change Biology 20 (6): 1808-1820. Doi: 10.1111/gcb.12492

Leprieur, F., M.A. Hickey, C.J. Arbuckle, G.P. Closs, S. Brosse, and C.R. Townsend. 2006. Hydrological disturbance benefits a native fish at the expense of an exotic fish. Journal of Applied Ecology 43 (5): 930-939. Doi:10.1111/j.1365-2664.2006.01201.x.

LeQuesne, T., E. Kendy, and D. Weston. 2010. The Implementation Challenge: Taking stock of Government Policies to Protect and Restore Environmental Flows. WWF-UK and The Nature Conservancy.

LeQuesne, T., J.H. Matthews, C. Von der Heyden, A.J. Wickel, R. Wilby, J. Hartmann, G. Pegrram, E. Kistin, G. Blate, G. Kimura de Freitas, et al. 2010. Flowing Forward: Freshwater ecosystem adaptation to climate change in water resources management and biodiversity conservation. World Wildlife Fund. Water Working Notes No. 28.

Lercari, D., and O. Defeo. 1999. Effects of freshwater discharge in sandy beach populations: The mole crab *Emerita brasiliensis* in Uruguay. Estuarine, Coastal and Shelf Science 49: 457-468.

Lesack, F.W., and J.M. Melack. 1995. Flooding hydrology and mixture dynamics of lake water derived from multiple sources in an Amazon floodplain lake. Water Resources Research 31: 329-345.

Leslie, D.J. 2001. Effect of river management on colonially-nesting water birds in the Barmah-Millewa forest, south-eastern Australia. River Research and Application 17 (1): 21-36.

Leslie, D.J., and K.A. Ward. 2002. River Murray environmental flows 2000-2001. Ecological Management and Restoration 3: 221-223.

Lessard, J., D. Murray Hicks, T. Snelder, D. Arscott, S. Larned, D. Booker, and A. Suren. 2013. Dam design can impede adaptive management of environmental flows: a case study from the Opuha Dam, New Zealand. Environ. Manage. 51 (2): 459-473. Doi: 10.1007/s00267-012-9971-x.

Letcher, B.H, P. Schueller, R.D. Bassar, K.H. Nislow, J.A. Coombs, K. Sakrejda, et al. 2015. Robust estimates of environmental effects on population vital rates: An integrated capture-recapture model of seasonal brook trout growth, survival and movement in a stream network. Journal of Animal Ecology 84: 337-352.

Letcher, B.H, and T.D. Terrick. 1998. Maturation of male age-0 Atlantic salmon following a massive, localized flood. Journal of Fish Biology 53: 1243-1252.

Lettenmaier, D.P., A.W. Wood, R.N. Palmer, E.F. Wood, and E.Z. Stakhiv. 1999. Water resources implications of global warming: a US regional perspective. Climatic Change 43: 537-579.

Leung, E.S., J.S. Rosenfeld, and J.R. Bernhardt. 2009. Habitat effects on invertebrate drift in a small trout stream: implications for prey availability to drift-feeding fish. Hydrobiologia 623 (1): 113-125. Doi: 10.1007/s10750-008-9652-1.

Leung, L.R., Y. Qian, and X. Bian. 2003. Hydroclimate of the western United States based on observations and regional climate simulation of 1981-2000. Part I: seasonal statistics. J. Climate 16: 1892-1911.

Leung, L.R., Y. Qian, X. Bian, and A. Hunt. 2003. Hydroclimate of the western United States based on observations and regional climate simulation of 1981-2000. Part II: Mesoscale ENSO anomalies. J. Climate 16: 1912-1928.

Levasseur, M., N.E. Bergeron, M.F. Lapointe, and F. Berube. 2006. Effects of silt and very fine sand dynamics in Atlantic salmon (*Salmo salar*) redds on embryo hatching success. Canadian Journal of Fisheries and Aquatic Sciences 63 (7): 1450-1459.

Levick, L., J. Fonseca, D. Goodrich, M. Hernandez, D. Semmens, J. Stromberg, R. Leidy, M. Scianni, D.P. Guertin, M. Tluczek, and W. Kepner. 2008. The ecological and hydrological significance of ephemeral and intermittent streams in the arid and semi-arid American Southwest. U.S. Environmental Protection Agency, EPA/600/R-08/134 and U.S. Department of Agriculture, Agricultural Research Service, Southwest Watershed Research Center, ARS/233046, Washington, D.C.

Levick, L.R., D.C. Goodrich, M. Hernandez, J. Fonseca, D.J. Semmens, J. Stromberg, M. Tluczek, R.A. Leidy, M. Scianni, P.D. Guertin, and W.G. Kepner. 2008. The ecological and hydrological significance of ephemeral and intermittent streams in the arid and semi-arid American southwest. U.S. Environmental Protection Agency, Washington, D.C. EPA/600/R-08/134. ARS/233046. 116 pp.

Levine, A.D., and T. Asano. 2004. Recovering sustainable wwater from wastewater. Environ. Sci. Technol 38: 201A-208A.

Lewin, J. 1978. Floodplain geomorphology. Progress in Physical Geography 2: 408-437.

Lewin, J., and D.A. Hughes. 1980. Welsh floodplain studies, II. Application of a qualitative inundation model. Journal of Hydrology 46: 35-49.

Lewis, A.F., and A.C. Mitchell. 1995. Effectiveness of water release as mitigation for hydroelectric impacts to fish. Journal of Energy Engineering 121: 81-88.

Lewis, F.G. 1997. Relationships of river flow and other environmental characteristics with the structure and function of biological communities in Apalachicola Bay, Florida. Northwest Florida Water Management District, Draft final report to the ACF/ACT Comprehensive Study, Havana, Florida.

Lewis, F.G. 1997. Apalachicola River and Bay water demand element: summary and integration of Apalachicola Bay studies. Northwest Florida Water Management District, Draft final report to the ACF/ACT Comprehensive Study, Havana, Florida.

Lewis, S.L. 1969. Physical factors influencing fish populations in pools of a trout stream. Transactions of the American Fisheries Society 98 (1): 14-19.

Lewis, W.M., Jr., S.K. Hamiln, M.A. Lasi, M. Rodriguez, and J.F. Saunders III. 2000. Ecological determinism on the Orinoco floodplain. BioScience 50: 681-692.

Li, F., F. Cai, X. Fu, and J. Liu. 2009. Construction of habitat suitability models (HSMs) for benthic macroinvertebrates and their applications to instream environmental flows: a case study in Xiangxi River of Three Gorges Reservoir region, China. Progress in Natural Science 19: 359-367.

Li, H.W., C.B. Schreck, and K.J. Rodnick. 1984. Assessment of habitat quality models for cutthroat trout (*Salmo clarki*) and coho salmon (*Oncorhynchus kisutch*) for Oregon’s coastal streams. In: J.W. Terrell (ed.), Proceedings of a workshop on fish habitat suitability index models. Washington, D.C.: U.S. Fish and Wildlife Service (Biological Report 85[6]).

Li, M., Q. Shao, L. Zhang, and F.H.S. Chiew. 2010. A new regionalization approach and its application to predict flow duration curve in ungauged basins. Journal of Hydrology 389: 137-145.

Li, R.Y., and F.P. Gelwick. 2005. The relationship of environmental factors to spatial and temporal variation of fish assemblages in a floodplain river of Texas, USA. Ecology of Freshwater Fish 14: 319-330.

Li, X., M.K. Litvak, and J.E. Hughes Clarke. 2007. Overwintering habitat use of shortnose sturgeon (*Acipenser brevirostum*): defining critical habitat using a novel underwater video survey and modeling approach. Canadian Journal of Fisheries and Aquatic Sciences 64 (9): 1248-1257.

Liang, L., S. Fei, J.B. Ripy, B.L. Blandford, and T. Grosshardt. 2013. Stream habitat modelling for conserving a threatened headwater fish in the upper Cumberland River, Kentucky. River Research and Applications 29: 1207-1214.

Liao, J.C. 2007. A review of fish swimming mechanics and behaviour in altered flows. Philosophical Transactions of the Royal Society of London B 362: 1973-1993. Doi: 10.1098/rstb.2007.2082.

Liao, J.C., D.N. Beal, G.V. Lauder, and M.S. Triantafyllou. 2003. Fish exploiting vortices decrease muscle activity. Science 302: 1566-1569. Doi: 10.1126/science.1088295.

Lichatowich, J.A. 1989. Habitat alteration and changes in abundance of coho (*Oncorhynchus kisutch*) and chinook salmon (*O. tshawytscha*) in Oregon coastal streams. In: Proceedings of the National Workshop on Effects of Habitat Alteration on Salmonid Stocks, C.D. Levings, L.B. Holtby, and M.A. Henderson (eds.). Can. Spec. Publ. Fish. Aquat. Sci. No. 105, pp. 92-99.

Liebig, H., R. Cereghino, P. Lim, A. Belaud, and S. Lek. 1997. Impact of hydropeaking on the abundance of juvenile brown trout in a Pyrenean stream. Arch. Hydrobiol. 44: 439-454.

Lienkaemper, G.W., and F.J. Swanson. 1987. Dynamics of large woody debris in streams in old-growth douglas-fir forests. Canadian Journal of Forest Research 17 (2): 150-156.

Light, H.M., M.R. Darst, and J.W. Grubbs. 1998. Aquatic habitats in relation to river flow in the Apalachicola River floodplain, Florida. U.S. Geological Survey Professional Paper 1594. U.S. Government Printing Office, Washington, D.C.

Light, H.M., K.R. Vincent, M.R. Darst, and F.D. Price. 2006. Water level decline in the Apalachicola River, Florida, from 1954 to 2004, and effects on floodplain habitats. U.S. Geological Survey Scientific Investigations Report 2006-5173.

Light, T. 2003. Success and failure in a lotic crayfish invasion: the roles of hydrologic variability and habitat alteration. Freshw. Biol. 48 (10): 1886-1897. Doi:10.1046/j.1365-2427.2003.01122.x.

Light, T., and M.P. Marchetti. 2007. Distinguishing between invasions and habitat changes as drivers of diversity loss among California’s freshwater fishes. Conserv. Biol. 21 (2): 434-446. Doi: 10.1111/j.1523-1739.2006.00643.x

Ligon, F.K., W.E. Dietrich, and W.J. Trush. 1995. Downstream ecological effects of dams. BioScience 45: 183-192. Doi: 10.2307/1312557.

Ligon, F.K., R.J. Nakamoto, B.C. Harvey, and P.F. Baker. 2016. Use of streambed substrate as refuge by steelhead or rainbow trout *Oncorhynchus mykiss* during simulated freshets. Journal of Fish Biology 88: 1475-1485.

Likens, G.E. 2004. Some perspectives on long-term biogeochemical research from the Hubbard Brook ecosystem study. Ecology 85 (9): 2355-2362.

Lillehammer, A., and S.J. Saltveit (eds.). 1984. Regulated Rivers. Universitetsforlaget As, Oslo.

Lima, A.F., F.A. Lansactoha, and C.C. Bonecker. 1996. Zooplankton in the floodplains of a tributary to the Parana River in Mato Grosso Do Sul, Brazil. Studies on Neotropical Fauna and Environment 31: 112-116.

Lima, A.F., F.A. Lansactoha, L.F.M. Velho, and L.M. Bini. 1998. Environmental influence on planktonic cladocerans and copepods in the floodplain of the Upper River Parana, Brazil. Studies on Neotropical Fauna and Environment 22: 188-196.

Limm, M.P., and M.P. Marchetti. 2009. Juvenile Chinook salmon (*Oncorhynchus tshawytscha*) growth in off-channel and main-channel habitats on the Sacramento River, CA using otolith increment widths. Environmental Biology of Fishes 85: 141-151.

Lin, D.S.C., and E.P. Charamaschi. 2005. Responses of the fish community to the flood pulse and siltation in a floodplain lake of the Trombetas River, Brazil. Hydrobiologia 545: 75-91. Doi: 10.s10750-005-2186-x

Linam, G.W., L.J. Kleinsasser, and K.B. Mayes. 2002. Regionalization of the index of biotic integrity for Texas streams. Rivers Studies Report Number 17, Texas Parks and Wildlife Department, Austin.

Lind, P.R., B.J. Robson, and B.D. Mitchell. 2007. Multiple lines of evidence for the beneficial effects of environmental flows in two lowland rivers in Victoria, Australia. River Res. Appl. 23: 933-946.

Lindenschmidt, K.-E., and J. Long. 2012. A GIS approach to define the hydro-geomorphological regime for instream flow requirements using geomorphic response units. River Systems 20 (3-4): 261-275. Doi: 10.1127/1868-5749/2012/0053.

Lindstrom, J.W., and W.A. Hubert. 2004. Ice processes affect habitat use and movements of adult cutthroat trout and brook trout in a Wyoming foothills stream. North American Journal of Fisheries Management 24 (4): 1341-1362. Doi:10.1577/M03-223.1.

Linhard, S.M., J.F. Nania, C.L. Sanders, Jr., and S.A. Archfield. 2012. Computing daily mean streamflow at ungaged locations in Iowa by using the Flow Anywhere and Flow Duration Curve Transfer statistical methods. U.S. Geological Survey Scientific Investigations Report 2012-5232. 50 pp. <http://pubs.er.usgs.gov/publication/sir20125232>

Linnansaari, T., and R.A. Cunjak. 2010. Patterns in apparent survival of Atlantic salmon (*Salmo salar*) parr in relation to variable ice conditions throughout winter. Canadian Journal of Fisheries and Aquatic Sciences 67 (11): 1744-1754. Doi: 10.1139/F10-093

Linnansaari, T., R.A. Cunjak, and R. Newbury. 2008. Winter behavior of juvenile Atlantic salmon Salmo salar L. in experimental stream channels: effect of substratum size and full ice cover on spatial distribution and activity patterns. Journal of Fish Biology 72: 2519-2533.

Linnansaari, T., A. Keskinen, A. Romakkaniemi, J. Erkinaro, and P. Orell. 2010. Deep habitats are important for juvenile Atlantic salmon *Salmo salar* L. in large rivers. Ecol. Freshw. Fish. 19: 618-626.

Linnansaari, T., W.A. Monk, D.J. Baird, and R.A. Curry. 2012. Review of approaches and methods to assess environmental flows across Canada and internationally. DFO Canadian Science Advisory Secretariat, Research Document 2012/039.

Lins, H.F. 1997. Regional streamflow regimes and hydroclimatology. Water Resources Research 33: 1655-1667.

Lins, H.F., and J.R. Slack. 1999. Streamflow trends in the United States. Geophysical Research Letters 26 (2): 227-230.

Lisle, T.E. 1982. Effects of aggradation and degradation on riffle-pool morphology in natural gravel channels, northwestern California. Water Resources Research 18: 1305-1307.

Lisle, T.E. 1986. Stabilization of a gravel channel by large streamside obstructions and bedrock bends, Jacoby Creek, northwestern California. Geol. Soc. Am. Bull. 97: 999‑1011.

Lisle, T.E. 1987. Using “residual depths” to monitor pool depths independently of discharge. U.S. Forest Service Research Note PSW-394.

Lisle, T.E. 1987. Overview: Channel morphology and sediment transport in steepland streams. Pp. 287-297 in: R.L. Beschta, T. Blinn, G.E. Grant, et al. (Editors), Erosion and Sedimentation in the Pacific Rim, International Association of Hydrological Sciences (IAHS) Publication 165.

Lisle, T.E. 1989. Sediment transport and resulting deposition in spawning gravels, north coastal California. Water Resources Research 25: 1303‑1319.

Lisle, T.E., and J. Lewis. 1992. Effects of sediment transport on survival of salmonid embryos in a natural stream: a simulation approach. Canadian Journal of Fisheries and Aquatic Sciences 49: 2337‑2344.

Lister, D.B., and H.S. Genoe. 1970. Stream habitat utilization by cohabiting underyearlings of chinook (*Oncorhynchus tshawytscha*) and coho (*Oncorhynchus kisutch*) in the Big Qualicum River. Journal of the Fisheries Research Board of Canada 27: 1215-1224.

Lister, D.B., and C.E. Walker. 1966. The effect of flow control on freshwater survival of chum, coho and chinook salmon in the Big Qualicum River. Canadian Fish Culturist 37: 3-25.

Lite, S.J., K.J. Bagstad, and J.C. Stromberg. 2005. Riparian plant species richness along lateral and longitudinal gradients of water stress and flood disturbance, San Pedro River, Arizona, USA. Journal of Arid Environments 63: 785-813.

Lite, S.J., and J.C. Stromberg. 2005. Surface water and ground-water thresholds for maintaining *Populus-Salix* forests, San Pedro River, Arizona. Biological Conservation 125: 153-167.

Liu, W.-C., S.-Y. Liu, M.-H. Hsu, and A.Y. Kuo. 2005. Water quality modeling to determine minimum instream flow for fish survival in tidal rivers. Journal of Environmental Management 76 (4): 293-308.

Liu, Y., H. Gupta, E. Springer, and T. Wagener. 2008. Linking science with environmental decision making: experiences from an integrated modeling approach to supporting sustainable water resources. Environmental Modelling & Software 23: 846-858.

Liu, Y.B., S. Gebremeskel, F. De Smedt, L. Hoffman, and L. Pfister. 2004. Simulation of flood reduction by natural river rehabilitation using a distributed hydrological model. Hydrology and Earth Systems Science 8 (6): 1129-1140.

Livingston, R.J. 1997. Trophic response of estuarine fishes to long-term changes of river runoff. Bulletin of Marine Science 60: 984-1004.

Livingston, R.J., F.G. Lewis, G.C. Woodsum, X.-F. Niu, B. Galperin, W. Huang, J.D. Christensen, M.E. Monaco, T.A. Battista, C.J. Klein, R.L. Howell IV, and G.L. Ray. 2000. Modelling oyster population response to variation in freshwater input. Estuarine, Coastal and Shelf Science 50: 655-672.

Livingston, R.J., X. Niu, F.G. Lewis, III, and G. Woodsum. 1997. Freshwater input to a Gulf estuary: long-term control of trophic organization. Ecological Applications 7(1): 277-299.

Lloyd, N., G. Quinn, M. Thoms, A. Arthington, B. Gawne, P. Humphries, and K. Walker. 2003. Does flow modification cause geomorphological and ecological response in rivers? A ;

literature review from an Australian perspective. Technical Report 1/2004, Cooperative Research Centre for Freshwater Ecology, Canberra. ISBN 0-9751642-02.

Loar, J.M., and M.J. Sale. 1981. Analysis of environmental issues related to small-scale hydroelectric development. V. Instream flow needs for fishery resources. Oak Ridge National Laboratory, Environmental Sciences Division Publication 1829, ORNL/TM-7861.

Loar, J.M., M.J. Sale, G.F. Cada, D.K. Cox, R.M. Cushman, G.K. Eddlemon, J.L. Elmore, A.J. Gatz, P. Kanciruk, J.A. Solomon, and D.S. Vaughan. 1985. Application of habitat evaluation models in southern Appalachian trout streams. Oak Ridge National Laboratory, Environmental Sciences Division, Publication No. 2382, ORNL/TM‑9323, Oak Ridge, TN.

Loar, J.M., M.J. Sale, and G.F. Cada. 1986. Instream needs to protect fishery resources. Water Forum 1986: World Water Issues in Evolution 2: 2098-2105.

Loar, S.C., and J.L. West. 1992. Microhabitat selection by brook and rainbow trout in a southern Appalachian stream. Transactions of the American Fisheries Society 121: 729-736.

Lobb, M.D., and D.J. Orth. 1988. Microhabitat use by the bigmouth chub *Nocomis platyrhynchus* in the New River, West Virginia. American Midland Naturalist 120: 32-40.

Lobb, M.D., III, and D.J. Orth. 1991. Habitat use by an assemblage of fishes in a large warmwater stream. Transactions of the American Fisheries Society 120 (1): 65-78. Doi: 10.1577/1548-8659(1991)120<0065:HUBAAO>2.3.CO:2.

Lobon-Cervia, J. 1996. Response of a stream fish assemblage to a severe spate in northern Spain. Transactions of the American Fisheries Society 125 (6): 913-919.

Lobon-Cervia, J*.* 2000. Determinants of parr size variations within a population of brown trout *Salmo trutta* L. Ecol. Freshwater Fish 4: 17-27.

Lobon-Cervia, J. 2003. Spatiotemporal dynamics of brown trout production in a Cantabrian stream: effects of density and habitat quality. Transactions of the American Fisheries Society 132 (4): 621-637.

Lobon-Cervia, J. 2004. Discharge-dependent covariation patterns in the population dynamics of brown trout (*Salmo trutta*) within a Cantabrian river drainage. Canadian Journal of Fisheries and Aquatic Sciences 61 (10): 1929-1939. Doi: 10.1139/f04-118.

Lobon-Cervia, J. 2005. Spatial and temporal variation in the influence of density dependence on growth of stream-living brown trout (*Salmo trutta*). Canadian Journal of Fisheries and Aquatic Sciences 62 (6): 1231-1242.

Lobon-Cervia, J. 2005. The importance of recruitment for the production dynamics of stream-dwelling brown trout (*Salmo trutta*). Canadian Journal of Fisheries and Aquatic Sciences 62 (10): 2484-2493. Doi:10.1139/f05-166.

Lobon-Cervia, J. 2007. Numerical changes in stream-resident brown trout (*Salmo trutta*): uncovering the roles of density-dependent and density-independent factors across space and time. Canadian Journal of Fisheries and Aquatic Sciences 64 (10): 1429-1447. Doi: 10.1139/f07-111.

Lobon-Cervia, J. 2007. Density-dependent growth in stream-living brown trout *Salmo trutta* L. Functional Ecology 21 (1): 117-124. Doi:10.1111/j.1365-2435.2006.01204.x.

Lobon-Cervia, J. 2008. Habitat quality enhances spatial variation in the self-thinning patterns of stream-resident brown trout (*Salmo trutta*). Canadian Journal of Fisheries and Aquatic Sciences 65 (9): 2006-2015.

Lobon-Cervia, J. 2009. Why, when and how do fish populations decline, collapse and recover? The example of brown trout (*Salmo trutta*) in Rio Chaballos (northwestern Spain). Freshwater Biology 54: 1149-1162.

Lobon-Cervia, J. 2014. Recruitment and survival rate variability in fish populations: density-dependent regulation or further evidence of environmental determinants? Canadian Journal of Fisheries and Aquatic Sciences 71 (2): 290-300. Doi: 10.1139/cjfas-2013-0320.

Lobon-Cervia, J., and E. Mortensen. 2005. Population size in stream-living juveniles of lake-migratory brown trout *Salmo trutta* L.: the importance of stream discharge and temperature. Ecology of Freshwater Fish 14 (4): 394-4011. Doi: 10.1111/1600-0633.2005.00111.x.

Lobon-Cervia, J., G. Rasmussen, and E. Mortensen. 2017. Discharge-dependent recruitment in stream-spawning brown trout. In: J. Lobon-Cervia and N. Sanz, editors. Brown Trout: Biology, Ecology and Management. John Wiley & Sons Ltd.

Lobon-Cervia, J., and P.A. Rincon. 2004. Environmental determinants of recruitment and their influence on the population dynamics of stream-living brown trout *Salmo trutta* L. Oikos 105: 471-476. Doi: 10.1111/j.0030-1299.2004.12989.x.

Lock, M.A., and P.H. Johns. 1979. The effect of flow pattern on uptake of phosphorus by river phytoplankton. Limnology and Oceanography 29: 376-392.

Locke, A. 1988. IFIM ‑ microhabitat criteria development: data pooling considerations. Pages 31‑54 in K. Bovee and J.R. Zuboy, editors. Proceedings of a workshop on the development of habitat suitability criteria. U.S. Fish and Wildlife Service, Biological Report 88 (11), Washington D.C.

Locke, A., C. Stalnaker, S. Zellmer, K. Williams, H. Beecher, T. Richards, C. Robertson, A. Wald, A. Paul, and T. Annear. 2008. Integrated approaches to riverine resource stewardship: Case studies, science, law, people, and policy. Instream Flow Council, Cheyenne, WY. 430 pp.

Lockwood, J.L., M.S. Ross, and J.P. Sah. 2003. Smoke on the water: the interplay of fire and water flow on Everglades restoration. Frontiers in Ecology and the Environment 1 (9): 462-468.

Logan, P., and M. Furse. 2002. Preparing for the European Water Framework Directive – making the links between habitat and aquatic biota. Aquatic Conservation: Marine and Freshwater Ecosystems 12: 405-424.

Loganathan, G.V., C.Y. Kuo, and T.C. McCormick. 1985. Methods of analyzing instream flows. Virginia Water Research Center Bulletin 148: 1-70.

Logez, M., D. Pont, and M.T. Ferreira. 2010. Do Iberian and European fish faunas exhibit convergent functional structure along environmental gradients? Journal of the North American Benthological Society 29: 1310-1323.

Lohr, S.C., and K.D. Fausch. 1996. Effects of green sunfish (*Lepomis cyanellus*) predation on survival and habitat use of plains killifish (*Fundulus zebrinus*). Southwestern Naturalist 41: 155-160.

Lohr, S.C., and J.L. West. 1992. Microhabitat selection by brook and rainbow trout in a southern Appalachian stream. Transactions of the American Fisheries Society 121: 729-736.

Lohr, S.C., and R.G. White. 1995. Influence of food and habitat on residency of cutthroat trout in artificial channels. Rivers 5 (1): 13-21.

Lohr, S.M. 1993. Wetted stream channel, fish-food organisms and trout relative to the wetted perimeter inflection point instream flow method. Ph.D. thesis, Montana State University, Bozeman.

Loik, M.E., D.D. Breshears, W.K. Lauenroth, and J. Belknap. 2004. A multi-scale perspective of water pulses in dryland ecosystems: Climatology and ecohydrology of the western USA. Oecologia 141: 269-281.

Lokgariwar, C., V. Chopra, V. Smakhtin, L. Bharati, and J. O’Keefe. 2014. Including cultural water requirements in environmental flow assessment: an example from the upper Ganga River, India. Water Int. 39: 81-96.

Loneragan, N.R., and S.E. Bunn. 1999. River flows and estuarine ecosystems: implications for coastal fisheries from a review and a case study of the Logan River, southeast Queensland. Australian Journal of Ecology 24: 431-440.

Long, J.M., and C. Martin. 2008. The evolution of fisheries management of the upper Chattahoochee River in response to changing water management. /pages 21-36 in: M.S. Allen, S.M. Sammons, and M.J. Maceina, editors. Balancing fisheries management and water uses for impounded river systems. American Fisheries Society Symposium 62, Bethesda, Maryland.

Longley, W.L. 1994. Freshwater inflows to Texas bays and estuaries: ecological relationships and methods for determination of needs. Texas Water Development Board and Texas Parks and Wildlife Department, Austin. 386 pp.

Lonzarich, D.G., R.P. Franckowiak, and M.D. Allen. 2009. Summer movements of juvenile coho salmon under variable stream flow conditions. Transactions of the American Fisheries Society 138 (2): 397-406.

Lonzarich, D.G., M.R. Lonzarich, and M.L. Warren, Jr. 2000. Effects of riffle length on the short-term movement of fishes among stream pools. Canadian Journal of Fisheries and Aquatic Sciences 57 (7): 1508-1514. Doi: 10.1139/f00-082.

Lonzarich, D.G., and T.P. Quinn. 1995. Experimental evidence for the effect of depth and structure on the distribution, growth, and survival of stream fishes. Canadian Journal of Zoology 73: 2223‑2230. Doi:10.1139/z95-263.

Loomis, J., C. Sorg, and D. Donnelly. 1986. Economic losses to recreational fisheries due to small-head hydro-power development: a case study of Henrys Fork in Idaho. Journal of Environmental Management 22: 85-94.

Loomis, J.B. 1987. The economic value of instream flow methodology and benefits for optimum flows. Journal of Environmental Mgmt. 24: 169-179.

Loomis, J.B. 1998. Estimating the public’s value for instream flow: Economic techniques and dollar values. Journal of the American Water Resources Association 34: 1007-1014.

Lopez-Sepulcre, A., and H. Kokko. 2005. Territorial defense, territory size, and population regulation. Am. Nat. 166 (3): 317-329. Doi: 10.1086/432560.

Lorang, M.S., and F.R. Hauer. 2003. Flow competence and streambed stability: an evaluation of technique and application. Journal of the North American Benthological Society 22: 475-491.

Lorenz, J.J., and J.E. Serafy. 2006. Subtropical wetland fish assemblages and changing salinity regimes: implications for Everglades restoration. Hydrobiologia 569: 401-422.

Lorenz, J.M., and J.H. Eiler. 1989. Spawning habitat and redd characteristics of sockeye salmon in the glacial Taku River, British Columbia and Alaska. Transactions of the American Fisheries Society 118: 495-502.

Losee, J.P., L. Phillips. And W.C. Young. 2016. Spawn timing and redd morphology of anadromous coastal cutthroat trout Oncorhynchus clarkii clarkii in a tributary of south Puget Sound, Washington. North American Journal of Fisheries Management 36 (2): 375-384. Doi: 10.1080/02755947.2015.1129001.

Lotspeich, F.B., and F.H. Everest. 1981. A new method for reporting and interpreting textural composition of spawning gravel. Pacific Northwest Forest and Range Experiment Station, Research Note PNW-369.

Louhi, P., A. Maki-Petays, and J. Erkinaro. 2008. Spawning habitat of Atlantic salmon and brown trout: general criteria and intragravel factors. River Res. Appl. 24 (3TY - JOUR): 330-339. Doi: 10.1002/rra.1072.

Louhi, P., T. Vehanen, A. Huusko, A. Maki-Petays, and T. Muotka. 2016. Long-term monitoring reveals the success of salmonid habitat restoration. Canadian Journal of Fisheries and Aquatic Sciences 73 (12): 1733-1741. Doi: 10.1139/cjfas-2015-0546.

Love, D., P. van der Zaag, S. Uhlenbrook, and R.J.S. Owen. 2011. A water balance modeling approach to optimizing the use of water resources in ephemeral sand rivers. River Research and Applications 27 (7): 908-925. Doi: 10.1002/rra.1408

Love, J.W. 2011. Habitat suitability index for largemouth bass in tidal rivers of the Chesapeake Bay watershed. Transactions of the American Fisheries Society 140 (4): 1049-1059. Doi: 10.1080/00028487.2011.607041

Love, J.W., C.M. Taylor, and M.L. Warren Jr. 2008. Effect of seasonal stream drying on fish and macroinvertebrate populations in upland Ouachita Mountain streams, USA. American Midland Naturalist 160: 265-277.

Lowe, L., J. Szemis, and J. A. Webb. 2017. Chapter 15: Uncertainty and environmental water. Pages 317-344 in: A.C. Horne, J.A. Webb, M.J. Stewardson, B. Richter, and M. Acreman, editors. Water For the Environment. Academic Press, Cambridge, MA. Doi: 10.1016/B978-0-12-803907-6.00015-2.

Lowe, M.R., D.R. DeVries, R.A. Wright, S.A. Ludsin, and B.J. Fryer. 2009. Coastal largemouth bass (*Micropterus salmoides*) movement in response to changing salinity. Canadian Journal of Fisheries and Aquatic Sciences 66 (12): 2174-2188. Doi: 10.1139/F09-152.

Lowe, W.H., and G.E. Likens. 2005. Moving headwater streams to the head of the class. Bioscience 55: 196-197.

Lowe, W.H., G.E. Likens, and M.E. Power. 2006. Linking scales in stream ecology. BioScience 56: 591-597.

Lowe-McConnell, R.H. 1987. Ecological studies in tropical fish communities. Cambridge University Press, Cambridge. 382 pp.

Lowie, C.E., J.M. Haynes, and R.P. Walter. 2001. Comparison of walleye habitat suitability index (HSI) information with habitat features of a walleye spawning stream. Journal of Freshwater Ecology 16: 621-632.

Lowry, M.M. 1993. Groundwater elevations and temperature adjacent to a beaver pond in central Oregon. Master’s thesis, Oregon State University, Corvallis.

Lowney, C.L. 2000. Stream temperature variation in regulated rivers: evidence for a spatial pattern in daily minimum and maximum magnitudes. Water Resource Research 36: 2947-2955.

Lu, X., C. Gray, L.E. Brown, M.E. Ledger, A.M. Milner, R.J. Mondragon, G. Woodward, and A. Ma. 2016. Drought rewires the cores of food webs. Nature Climate Change doi: 10.1038/NCLIMATE3002.

Lubinski, B.J., J.R. Jackson, and M.A. Eggleton. 2008. Relationships between floodplain lake fish communities and environmental variables in a large river-floodplain ecosystem. Transactions of the American Fisheries Society 137 (3): 895-908.

Lubinski, K.S., G. Carmody, D. Wilcox, and B. Drazkowski. 1991. Development of water level regulation strategies for fish and wildlife, Upper Mississippi River system. Regulated Rivers: Research and Management 6: 117-124.

Luce, C.H., and Z. Holden. 2009. Declining annual streamflow distributions in the Pacific Northwest United States, 1948-2006. Geophysical Research Letters 36:L16401. Doi: 10.1029/2009GL039407.

Luce, C.H., P. Morgan, K. Dwire, D. Isaak, Z. Holden, and B. Reiman, 2012. Climate change, forests, fire, water, and fish: building resilient landscapes, streams, and managers. Joint Fire Sciences Program, USDA Forest Service, Rocky Mountain Research Station, GTR-RMRS-290, Fort Collins, Colorado.

Luckenbach, M.W., and R.J. Orth. 1992. Swimming velocities and behaviour of blue crab (*Callinectes sapidus* Rathbun) megalopae in still and flowing water. Estuaries 15 (2): 186-192. Doi:10.2307/1352691.

Ludlow, J.A., and T.B. Hardy. 1996. Comparative evaluation of suitability curve based habitat modeling and a mechanistic based bioenergetic model using two-dimensional hydraulic simulations in a natural river system. Proceedings of the 2nd International Symposium on Habitat Hydraulics. June 1996, Quebec, Canada. B519-B530.

Lukas, J.A., and D.J. Orth. 1995. Factors affecting nesting success of smallmouth bass in a regulated Virginia stream. Transactions of the American Fisheries Society 124 (5): 726-735.

Lund, T. 1996. Stream elverdams. Implications of hydraulics and discharge on physical conditions for the brown trout population (in Danish). MSc thesis, Geological Institure, University of Aarhus, Aarhus.

Luo, Y., C. Li, A. Gascho Landis, G. Wang, J. Stoeckel, and E. Peatman. 2014. Transcriptomic profiling of differential responses to drought in two freshwater mussel species, the giant floater Pyganodon grandis and the pondhorn, Uniomerus tetralasmus. PLOS One 9(2): 1-14.

Lupandin, A.I., and D.S. Pavlov. 1996. The effects of starvation on the reaction of fish to flows with different intensity in turbulence. Journal of Ichthyology 36: 408-411.

Lusardi, R.A., M.T. Bogan, P.B. Moyle, and R.A. Dahlgren. 2016. Environment shapes invertebrate assemblage structure differences between volcanic spring-fed and run-off rivers in northern California. Freshwater Science 35: 1010-1022.

Luthy, R.G., D.L. Sedlak, M.H. Plumlee, D. Austin, and V.H. Resh. 2015. Wastewater-effluent-dominated streams as ecosystem-management tools in a drier climate. Frontiers in Ecology and the Environment 13: 477-485.

Luttrell, G.R., A.A. Echelle, and W.L. Fisher. 2002. Habitat correlates of the distribution of *Macrhybopsis hyostoma* (Teleostei: Cyprinidae) in western reaches of the Arkansas River basin. Transactions of the Kansas Academy of Sciences 105: 153-161.

Luttrell, G.R., A.A. Echelle, W.L. Fisher, and D.J. Eisenhour. 1999. Declining status of two species of the *Macrhybopsis aestivalis* complex (Teleostei: Cyprinidae) in the Arkansas River basin and related effects of reservoirs as barriers to dispersal. Copeia 1999: 981-989.

Lynch, A.J., B.J. Myers, C. Chu, L.A. Eby, J.A. Falke, R.P. Kovach, T. Krabbenhoft, T.J. Kwak, J. Lyons, C.P. Paukert, and J.E. Whitney. 2016. Climate change effects on North American inland fish populations and assemblages. Fiaheries 41: 346-361.

Lynch, D.D., and J.C. Risley. 2003. Klamath River Basin hydrologic conditions prior to the September 2002 die-off of salmon and steelhead. U.S. Geological Survey Water-Resources Investigations Report 03-4099.

Lynch, D.T., D.R. Leasure, and D.D. Magoulick. 2018. The influence of drought on flow-ecology relationships in Ozark Highland streams. Freshwater Biology 63 (8): 946-968. Doi: 10.1111/fwb.13089

Lynch, D.T., and D.D. Magoulick. 2016. Effects of pulse and press drying disturbance on benthic stream communities. Freshwater Science 35: 998-1009. Doi: 10.1086/687843

Lyons, J. 1991. Predicting smallmouth bass presence/absence and abundance in Wisconsin streams using physical habitat characteristics. Pp. 96-103 *in*: D.C. Jackson, editor, The First International Smallmouth Bass Symposium. Mississippi Agricultural and Forestry Experiment Station, Mississippi State University, Mississippi State, Mississippi.

Lyons, J., L. Wang, and T.D. Simonson. 1996. Development and validation of an index of biotic integrity for coldwater streams in Wisconsin. North American Journal of Fisheries Management 16: 241-256.

Lyons, J.K., and R.L. Beschta. 1983. Land use, floods and channel changes: Upper Middle Fork Willamette River, Oregon (1936-1980). Water Resources Research 19: 463-471.

Lytle, D.A. 1999. Use of rainfall cues by *Abedus herberti* (Hemiptera: Belostomatidae): a mechanism for avoiding flash floods. Journal of Insect Behavior 12: 1-12.

Lytle, D.A. 2000. Biotic and abiotic effects of flash flooding in a montane desert stream. Archiv fur Hydrobiologie 150: 85-100.

Lytle, D.A. 2001. Disturbance regimes and life-history evolution. American Naturalist 157: 525-536.

Lytle, D.A. 2002. Flash floods and aquatic insect life-history evolution: evaluation of multiple models. Ecology 83 (2): 370-385.

Lytle, D.A., and D.M. Merritt. 2004. Hydrologic regimes and riparian forests: a structured population model for cottonwood. Ecology 85 (9): 2493-2503.

Lytle, D.A., D.M. Merritt, J.D. Tonkin, J.D. Olden, and L.V. Reynolds. 2017. Linking river flow regimes to riparian plant guilds: A community-wide modeling approach. Ecological Applications 27: 1338-1350.

Lytle, D.A., J.D. Olden, and L.E. McMullen. 2008. Drought-escape behaviors of aquatic insects may be adaptations to highly variable flow regimes characteristic of desert rivers. The Southwestern Naturalist53: 399-402.

Lytle, D.A., and N.L. Poff. 2004. Adaptation to natural flow regimes. Trends in Ecology and Evolution 19: 94-100. Doi: 10.1016/j.tree.2003.10.002. PMID:16701235.

Macdonald, J.L., and D.A. Crook. 2014. Nursery sources and cohort strength of young-of-the-year common carp (*Cyprinus carpio*) under differing flow regimes in a related floodplain river. Ecology of Freshwater Fish 23: 269-282.

Macdonald, J.S., C.A. King, and H. Herunter. 2010. Sediment and salmon: the role of spawning sockeye salmon in annual bed load transport characteristics in small, interior streams of British Columbia. Transactions of the American Fisheries Society 139 (3): 758-767. Doi:10.1577/T08-219.1.

Macdonald, J.S., J. Morison, and D.A. Patterson. 2012. The efficacy of reservoir flow regulation for cooling migration temperature for sockeye salmon in the Nechako River watershed of British Columbia. North American Journal of Fisheries Management 32 (3): 415-427. Doi: 10.1080/0275947.2012.675946.

Macdonald, J.S., D.A. Patterson, M.J. Hague, and I.C. Guthrie. 2010. Modeling the influence of environmental factors on spawning migration mortality for sockeye salmon fisheries management in the Fraser River, British Columbia. Transactions of the American Fisheries Society 139 (3): 768-782. Doi:10.1577/T08-223.1.

MacDonald, R.J., S. Boon, J.M. Byrne, M.D. Robinson, and J.B. Rasmussen. 2014. Potential future climate effects on mountain hydrology, stream temperature, and native salmonid life history. Canadian Journal of Fisheries and Aquatic Sciences 71 (2): 189-202. Doi: 10.1139/cjfas-2013-0221.

Maceina, M.J. 2003. Verification of the influence of hydrologic factors on crappie recruitment in Alabama reservoirs. N. Am. J. Fish. Manage. 23 (2): 470-480. Doi: 10.1577/1548-8675(2003)023-<0470:VOTIOH>2.0.CO;2.

MacFarlane, R.B. 2010. Energy dynamics and growth of Chinook salmon (Oncorhynchus tshawytscha) from the Central Valley of California during the estuarine phase and first ocean year. Canadian Journal of Fisheries and Aquatic Sciences 67 (10): 1549-1565. Doi: 10.1139/F10-080

Maciolek, J.A., and P.R. Needham. 1952. Ecological effects of winter conditions on trout and trout foods in Convict Creek, California, 1951. Transactions of the American Fisheries Society 81: 202-217.

Mackay, S.J., A.H. Arthington, and C.S. James. 2014. Classification and comparison of natural and altered flow regimes to support an Australian trial of the Ecological Limits of Hydrological Alteration framework. Ecohydrology 7: 1485-1507. Doi: 10.1002/eco.1473

MacKenzie, D.I. 2006. Modeling the probability of resource use: the effect of, and dealing with, detecting a species imperfectly. J. Wildl. Manage. 70 (2): 367-374. Doi: 10.2193/0022-541X(2006)70[367:MTPORU]2.0.CO;2.

Mackie, J.K,, E.T. Chester, T.G. Matthews, and B.J. Robson. 2013. Macroinvertebrate response to environmental flows in headwater streams in western Victoria, Australia. Ecol. Eng. 53: 100-105. Doi: 10.1016/j.ecoleng.2012.12.018.

MacKinnon, B.D., J. Sagin, H.M. Baulch, K.-E. Lindenschmidt, and T.D. Jardine. 2016. Influence of hydrological connectivity on winter limnology in floodplain lakes of the Saskatchewan River delta, Saskatchewan. Canadian Journal of Fisheries and Aquatic Sciences 73 (1): 140-152. Doi: 10.1139/cjfas-2015-0210.

Macklin, M.G., G. Bento, K.J. Gregory, E. Johnstone, J. Lewin, D.J. Michczynska, R.L. Soja, L. Starkel, and V.R. Thorndycraft. 2006. Past hydrological events reflected in the Holocene fluvial record of Europe. Catena 66: 145-154.

MacLean, A., F.A. Huntingford, G.D. Ruxton, I.J. Morgan, J. Hamilton, and J.D. Armstrong. 2005. Testing the assumptions of the ideal despotic distribution with an unpredictable food supply: experiments in juvenile salmon. J. Anim. Ecol. 74 (2): 214-225. Doi: 10.1111/j.1365-2656.2005.00927.x.

MacLeod, N.A., and D.R. Barton. 1998. Effect of light intensity, water velocity, and species composition on carbon and nitrogen stable isotope ratios in periphyton. Canadian Journal of Fisheries and Aquatic Sciences 55: 1919-1925.

Mac Nally, R., G.F.B. Horrocks, and H. Lada. 2017. Anuran responses to pressures from high-amplitude drought-flood-drought sequences under climate change. Climatic Change 141: 243-257.

Macnaughton, C.J., C. Senay, I. Dolinsek, G. Bourque, A. Maheu, G. Lanthier, S. Harvey-Lavoie, J.Asselin, P. Legendre, and D. Boisclair. Using fish guilds to assess community responses to temperature and flow regimes in unregulated and regulated Canadian rivers. Freshwater Biology 61 (10): 1759-1772. Doi: 10.1111/fwb.12815

MacNutt, M.J., S.G. Hinch, A.P. Farrell, and S. Topp. 2004. The effect of temperature and acclimation period on repeat swimming performance in cutthroat trout. Journal of Fish Biology 65: 342-353.

MacNutt, M.J., S.G. Hinch, C.G. Lee, J.R. Phibbs, A.G. Lotto, M.C. Healey, and A.P. Farrell. 2006. Temperature effects on swimming performance, energetics, and aerobic capacities of mature adult pink salmon *Oncorhynchus gorbuscha* compared with those of sockeye salmon *Oncorhynchus nerka*. Canadian Journal of Zoology 84: 88-97. Doi: 10.1139/z05-181.

Madariaga, I. de, L.Gonzalez-Azpiri, F. Villate, and E. Orive. 1992. Plankton responses to hydrological changes induced by freshets in a shallow mesotidal estuary. Estuarine, Coastal and Shelf Science 35: 425-434.

Maddock, I. 1999. The importance of physical habitat assessment for evaluating river health. Freshwater Biology 41: 373-391.

Maddock, I.P., M.A. Bickerton, R. Spence, and T. Pickering. 2001. Reallocation of compensation releases to restore river flows and improve instream habitat availability in the upper Derwent catchment, Derbyshire, UK. Regulated Rivers: Research and Management 14: 417-441.

Maddock, I., and D. Bird. 1996. The application of habitat mapping to identify representative PHABSIM sites on the River Tavy, Devon UK. Pages 203-214 in: M. Leclerc, H. Capra, S. Valentin, A. Boudreault, and Y. Cote, editors, 2nd International Symposium on Habitat Hydraulics. IRS-EAU; FQSA; IAHR-AIRH, Quebec, Canada.

Maddock, I., M. Thoms, K. Jonson, F. Dyer, and M. Lintermans. 2004. Identifying the influence of channel morphology on physical habitat availability for native fish: application to the two-spined blackfish (*Gadopsis bispinosus*) in the Cotter River, Australia. Marine and Freshwater Research 55: 173-184. Doi: 10.1071/MF03114

Madej, M.A. 1999. Temporal and spatial variability in thalweg profiles of a gravel-bed river. Earth Surf. Processes 24: 1153-1169.

Madej, M.A., and V. Ozaki. 1996. Channel response to sediment wave propagation and movement, Redwood Creek, California, USA. Earth Surface Processes and Landforms 21: 911-927.

Madsen, T.V., and M. Sondergaard. 1983. The effects of current velocity on the photosynthesis of *Callitriche stagnalis* Scop. Aquatic Botany 15: 187-193.

Madsen, T.V., and E. Warncke. 1983. Velocities of currents around and within submerged aquatic vegetation. Archiv fur Hydrobiologie 97: 389-394.

Magalhaes, M.F., D.C. Batalha, and M.J. Collares-Pereira. 2002. Gradients in stream fish assemblages across a Mediterranean landscape: contributions of environmental factors and spatial structure. Freshw. Biol. 47: 1015-1031.

Magalhaes, M.F., P. Beja, C. Canas, and M.J. Collares-Pereira. 2002. Functional heterogeneity of dry-season fish refugia across a Mediterranean catchment: the role of habitat and predation. Freshwat. Biol. 47: 1919-1934.

Magalhaes, M.F., P. Beja, I.J. Schlosser, and M.J. Collares-Pereira. 2007. Effects of multi-year droughts on fish assemblages of seasonally drying Mediterranean streams. Freshwater Biology 52: 1494-1510.

Magalhaes, M.F., I.J. Schlosser, and M.J. Collares-Pereira. 2003. The role of life history in the relationship between population dynamics and environmental variability in two Mediterranean stream fishes. Journal of Fish Biology 63: 300-317.

Magana, H.A. 2012. Habitat use of the Rio Grande silvery minnow (Hybognathus amarus) during a long-term flood pulse in the middle Rio Grande, New Mexico. Environ. Biol. Fish. 95 (2): 201-212. Doi: 10.1007/s10641-012-9977-5.

Magee, J.P., T.E. McMahon, and R.F. Thurow. 1996. Spatial variation in spawning habitat of cutthroat trout in a sediment-rich stream basin. Transactions of the American Fisheries Society 125: 768-779.

Magdaleno, F., and J. A. Fernandez. 2011. Hydromorphological alteration of a large Mediterranean river: Relative role of high and low flows on the evolution of riparian forests and channel morphology. River Research and Applications 27 (3): 374-387. Doi:10.1002/rra.1368

Magilligan, F.J. 1992. Thresholds and the spatial variability of flood power during extreme floods. Geomorphology 5: 373-390.

Magilligan, F.J., and K.H. Nislow. 2001. Long-term changes in regional hydrologic regime following impoundment in a humid-climate watershed. Journal of the American Water Resources Association 436: 1400-1413.

Magilligan, F.J., and K.H. Nislow. 2005. Changes in hydrologic regime by dams. Geomorphology 71: 61-78. Doi: 10.1016/j.geomorph.2004,08.017

Magilligan, F.J., K.H. Nislow, G.B. Fisher, J. Wright, G. Mackey, and M. Laser. 2008. The geomorphic function and characteristics of large woody debris in low gradient rivers, coastal Maine, USA. Geomorphology 97 (3-4): 467-482.

Magilligan, F.J., K.H. Nislow, and B.E. Graber. 2003. Scale-independent assessment of discharge reduction and riparian disconnectivity following flow regulation by dams. Geology 31 (7): 569-572. Doi: 10.1130/0091-7613(2003)031<0569:SAODRA?2.0.CO;2.

Magilligan, F.J., J.D. Phillips, L.A. James, and B. Gomez. 1998. Geomorphic and sedimentological controls on the effectiveness of an extreme flood. Journal of Geology 106: 87-95.

Magirl, C.S., A.S. Gendaszek, C.R. Czuba, C.P. Konrad, and M.D. Marineau. 2012. Geomorphic and hydrologic study of peak-flow management of the Cedar River, Washington. USGS Open-File Report 2012-1240. http://pubs.usgs.gov/of/2012/1240/ofr20121240.pdf

Magoulick, D.D. 2000. Spatial and temporal variation in fish assemblages of drying stream pools: the role of abiotic and biotic factors. Aquatic Ecology 34: 29-41.

Magoulick, D.D. 2014. Impacts of drought and crayfish invasion on stream ecosystem structure and function. River Research and Applications 30: 1309-1317. Doi: 10.1002/rra.2747

Magoulick, D.D., and R.M. Kobza. 2003. The role of refugia for fishes during drought: a review and synthesis. Freshwater Biology 48: 1186-1198. Doi: 10.1046/j.1365-2427.2003.01089.x.

Magoulick, D.D., and D.T. Lynch. 2015. Occupancy and abundance modeling of the endangered yellowcheek darter in Arkansas. Copeia 103: 433-439.

Maguire, T.J., and K.S. Hadley. 2010. A multi-scale assessment of avian diversity following stream rewatering, Owens River Gorge, California. Natural Areas Journal 30: 124-137.

Maheshwari, B.L., K.F. Walker, and T.A. McMahon. 1995. Effects of regulation on the flow regime of the River Murray, Australia. Regulated Rivers: Research and Management 10: 15-38.

Mahoney, J.M., and S.B. Rood. 1991. A device for studying the influence of declining water table on poplar growth and survival. Tree Physiology 8: 305-314.

Mahoney, J.M., and S.B. Rood. 1993. A model for assessing the effects of altered river flows on the recruitment of riparian cottonwoods. Pp. 228-232 *in*: Riparian Management: Common Threads and Shared Interests. U.S. Dept. Agric. For. Serv. Tech. Rep. RM 226.

Mahoney, J.M., and S.B. Rood. 1998. Streamflow requirements for cottonwood seedling recruitment: An integrative model. Wetlands 18: 634-645.

Maier, H.R., M.D. Burch, and M. Bormans. 2001. Flow management strategies to control blooms of the cyanobacterium, *Anabaena circinalis*, in the River Murray at Morgan, South Australia. Regul. Rivers: Res. Mgmt. 17 (6): 637-650.

Mains, E.M., and J.M. Smith. 1964. The distribution, size, time, and current preferences of seaward migrating chinook salmon in the Columbia and Snake rivers. Washington Department of Fisheries, Fisheries Research Papers 2 (3): 5-43.

Majerova, M., B.T. Neilson, N.M. Schmadel, J.M. Wheaton, and C.J. Snow. 2015. Impacts of beaver dams on hydrologic and temperature regimes in a mountain stream. Hydrol. Earth Syst. Sci. Discuss. 12: 839-878.

Major, W.W., III, J.M. Grassley, K.E, Ryding, C.E. Grue, T.N. Pearsons, D.A. Tipton, and A.E. Stephenson. 2005. Abundance and consumption of fish by California gulls and ring-billed gulls at water and fish management structures within the Yakima River, Washington. Waterbirds 28 (3): 366-377.

Maki-Petays, A., J. Erkinaro, E. Niemala, A. Huusko, and T. Muotka. 2004. Spatial distribution of juvenile Atlantic salmon (*Salmo salar*) in a subarctic river: size-specific changes in a strongly seasonal environment. Canadian Journal of Fisheries and Aquatic Sciences 61 (12): 2329-2338.

Maki-Petays, A., A. Huusko, J. Erkinaro, and T. Muotka. 2002. Transferability of habitat suitability criteria of juvenile Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 59 (2): 218-228.

Maki-Petays, A., T. Muotka, and A. Huusko. 1999. Densities of juvenile brown trout (*Salmo trutta*) in two subarctic rivers: assessing the predictive capability of habitat preference indices. Canadian Journal of Fisheries and Aquatic Sciences 56 (8): 1420-1427.

Maki-Petays, A., T. Muotka, A. Huusko, P. Tikkanen, and P. Kreivi. 1997. Seasonal changes in habitat use and preferences by juvenile brown trout, *Salmo trutta*, in a northern boreal river. Canadian Journal of Fisheries and Aquatic Sciences 54: 520-530. Doi:10.1139/cjfas-54-3-520 or 10.1139/f96-311..

Maki-Petays, A., T. Vehanen, and T. Muotka. 2000. Microhabitat use by age-0 brown trout and grayling: seasonal responses to streambed restoration under different flows. Transactions of the American Fisheries Society 129 (3): 771-781.

Malan, H., A. Bath, J. Day, and A. Joubert. 2003. A simple flow concentration modeling method for integrating water quality and water quantity in rivers. Water SA 29: 305-312.

Malanson, G.P. 1993. Riparian landscapes. Cambridge University Press, Cambridge, U.K.

Malard, F., D. Ferreira, S. Doledec, and J.V. Ward. 2003. Influence of groundwater upwelling on the distribution of the hyporheos in a headwater river flood plain. Archiv fur Hydrobiologie 157: 89-116.

Malard, F., M. Lafont, M. Burgherr, and J.V. Ward. 2001. A comparison of longitudinal patterns in hyporheic and benthic oligochaete assemblages in a glacial river. Arctic, Antarctic, and Alpine Research 33: 457-466.

Malard, F., K. Tockner, and J.V. Ward. 1999. Shifting dominance of subcatchment water sources and flow paths in a glacial floodplain, Val Roseg, Switzerland. Arctic, Antarctic, and Alpine Research 31: 135-150.

Malard, F., K. Tockner, and J.V. Ward. 2000. Physico-chemical heterogeneity in a glacial riverscape. Landscape Ecology 15: 679-695.

Malard, F., U. Uehlinger, R. Zah, and K. Tockner. 2006. Flood-pulse and riverscape dynamics in a braided glacial river. Ecology 87 (3): 704-716.

Malcolm, I.A., C.N. Gibbins, C. Soulsby, D. Tetzlaff, and H.J. Moir. 2012. The influence of hydrology and hydraulics on salmonids between spawning and emergence: implications for the management of flows in regulated rivers. Fisheries Management and Ecology 19 (6): 464-474. Doi: 10.1111/j.1365-2400.2011.00836.x.

Malcolm, I.A., S.M. Greig, A.F. Youngson, and C. Soulsby. 2008. Hyporheic influences on salmon embryo survival and performance. Pages 249-274 in: D. Sear and P. DeVries, editors. Salmonid spawning habitat in rivers: Physical controls, biological responses and approaches to remediation. American Fisheries Society Symposium 65, Bethesda, MD/

Malcolm, I.A., C. Soulsby, A.F. Youngson, and D.M. Hannah. 2005. Catchment scale controls on groundwater-surface water interactions in the hyporheic zone: implications for salmon embryo survival. Rivers Research and Applications 21: 977-998.

Malcolm, I.A., C. Soulsby, A.F. Youngson, D.M. Hannah, I.S, McLaren, and A. Thorne. 2004. Hydrological influences on hyporheic water quality: implications for salmon egg survival. Hydrological Processes 18 (9): 1543-1560. Doi:10.1002/hyp.1405.

Malcolm, I.A., A.F. Youngson, C. Soulsby, C. Imholt, and R.J. Fryer. 2011. Is interstitial velocity a good predictor of salmonid embryo survival? Transactions of the American Fisheries Society 140 (4): 898-904. Doi: 10.1080/00028487.2011.601216

Malcolm, I.A., A.F. Youngson, and C. Soulsby. 2003. Survival of salmonid eggs in gravel bed streams: effects of groundwater-surface water interactions. River Research and Applications 19: 303-316. Doi: 10.1002/rra.706.

Mallen-Cooper, M., and I.G. Stuart. 2003. Age, growth, and non-flooded recruitment of two potadromous fishes in a large semi-arid/temperate river system. River Research and Applications 19: 697-719.

Mallet, J., N. Lamouroux, P. Sagnes, and H. Persat. 2000. Habitat preferences of European grayling in a medium size stream, the Ain River, France. J. Fish Biol. 56: 1312-1326. Doi: 10.1006/jfbi.2000.1252.

Malley, Z.J.U., M. Taeb, T. Matsumoto, and H. Takeya. 2008. Linking perceived land and water resources degradation, scarcity and livelihood conflicts in south-western Tanzania: implications for sustainable rural livelihood. Environmental Development Sustainability 10: 349-372.

Mallin, M.A., L.B. Cahoon, and M.J. Durako. 2005. Contrasting food-web support bases for adjoining river-influenced and non-river influenced continental shelf ecosystems. Estuar. Coast. Shelf Sci. 62 (1-2): 55-62. Doi: 10.1016/j.ecss.2004.08.006.

Mallin, M.A., HW. Paerl, J. Rudek, and P.W. Bates. 1993. Regulation of estuarine primary production by watershed rainfall and river flow. Marine Ecology Progress Series 93: 199-203.

Mallin, M.A.,, M.H. Posey, M.R. McIver, D.C. Parsons, S.H. Ensign, and T.D. Alphin. 2002. Impacts and recovery from multiple hurricanes in a piedmont-coastal plain river system. BioScience 52: 999-1010.

Malm Renofalt, B. 2004. Vegetation patterns and processes in riparian landscapes. Doctoral dissertation, Zurich, Switz.

Malm Renofalt, B., D.M. Merritt, and C. Nilsson. 2001. Connecting variation in vegetation and stream flow: the role of geomorphic context in vegetation response to large floods along arboreal rivers. J. Applied Ecology 44 (1): 147-157.

Malmqvist, B. 1980. Habitat selection of larval brook lampreys (*Lampetra planeri* Bloch) in a south Swedish stream. Oecologia 45: 35-38.

Malmqvist, B., and S. Rundle. 2002. Threats to the running water ecosystems of the world. Environmental Conservation 29: 134-153.

Malmqvist, B., and G. Sackman. 1996. Changing risk of predation for a filter-feeding insect along a current velocity gradient. Oecologia 108:450-458.

Malmqvist, B., and P. Sjostrom. 1984. The microdistribution of some lotic insect predators in relation to their prey and to abiotic factors. Freshwater Biology 42: 301-314.

Malone, T.C., L.H. Crocker, S.E. Pike, and B.W. Wendler. 1988. Influence of river flow on the dynamics of phytoplankton production in a partially stratified estuary. Marine Ecology Progress Series 48: 235-249.

Maloney, K.O., H.R. Dodd, S.E. Butler, and D.H. Wahl. 2008. Changes in macroinvertebrate and fish assemblages in a medium-sized river following a breach of a low-head dam. Freshwater Biology 53: 1055-1068.

Maloney, K.O., W.A. Lellis, R.M. Bennett, and T.J. Waddle. 2012. Habitat persistence for sedentary organisms in managed rivers: the case for federally endangered dwarf wedgemussel (*Alamidonta heterodon*) in the Delaware River. Freshw. Biol. 57: 1315-1327. Doi: 10.1111/j.1365-2427.2012.02788.x

Manabe, S., P.C.D. Milly, and R. Wetherald. 2004. Simulated long-term changes in river discharge and soil moisture due to global warming. Hydrol. Sci. J. 49: 625-642.

Mancy, K.H. 1981. The environmental and ecological impacts of Aswan High Dam. *In*: H. Shuval, ed., Developments in Arid Zone Ecology and Environmental Quality. Balaban ISS, Philadelphia.

Manly, B.F.J., L.L. McDonald, and D.L. Thomas. 1993. Resource selection by animals: statistical design and analysis for field studies. Chapman and Hall, London, United Kingdom. 175 pp.

Manly, B.F.J., L.L. McDonald, D.L. Thomas, T.L. McDonald, and W.P. Erickson. 2002. Resource selection by animals: statistical design and analysis for field studies, second edition. Kluwer Academic Publishers, Dordrecht, The Netherlands.

Mann, K.A., and J.M. Holtgren. 2011. Comparing size, movement, and habitat selection of wild and streamside-reared lake sturgeon. North American Journal of Fisheries Management 31 (2): 305-314. Doi:10.1080/02755947.2011.576199

Mann, R.H.K. 1996. Environmental requirements of European non-salmonid fish in rivers. Hydrobiologia 323: 223-235.

Mann, R.H.K., and J.A.B. Bass. 1997. The critical water velocities of larval roach (*Rutilius rutilus*) and dace (*Leuciscus leuciscus*) and implications for river management. Regulated Rivers: Research and Management 13: 295-301.

Manners, R.B., M.W. Doyle, and M.J. Small. 2007. Structure and hydraulics of natural woody debris jams. Water Resources Research 43: 1-17.

Manning, D.J., J.A. Mann, S.K. White, S.D. Chase, and R.C. Benkert. 2005. Steelhead emigration in a seasonal impoundment created by an inflatable rubber dam. North American Journal of Fisheries Management 25 (4): 1239-1255.

Manny, B.A., and G.W. Kennedy. 2002. Known lake sturgeon (*Acipenser fulvescens*) spawning habitat in the channel between Lakes Huron and Erie in the Laurentian Great Lakes. Journal of Applied Ichthyology 18: 486-490.

Mantua, N.J., S.R. Hare, Y. Zhang, J.M. Wallace, and R.C. Francis. 1997. A Pacific interdecadal climate oscillation with impacts on salmon production. Bulletin of the American Meteorological Society 78: 1069-1079.

Mantua, N., I. Tohver, and A. Hamlet. 2010. Climate change impact on streamflow extremes and summertime stream temperature and their possible consequences for freshwater salmon habitat in Washington State. Climatic Change 102: 187-223. Doi: 10.1007/s10584-010-9845-2.

Marcarelli, A.M., and W.A. Wurtsbaugh. 2007. Effects of upstream lakes and nutrient limitation on periphyton biomass and nitrogen fixation in oligotrophic, subalpine streams. Freshw. Biol. 52 (11): 2211-2225. Doi: 10.1111/j.1365-2427.2007.01851.x

March, J.G., J.P. Benstead, C.M. Pringle, and F.N. Scatena. 1998. Migratory drift of larval freshwater shrimps in two tropical streams, Puerto Rico. Freshwater Biology 40: 261-273.

Marchetti, M.P., and P.B. Moyle. 2001. Effects of flow regime on fish assemblages in a regulated California stream. Ecological Applications 11: 530-539. Doi:10.1890/1051-0761(2001)011[0530:EOFROF]2.0.CO;2.

Marchildon, M.A., W.K. Annable, J.G. Imhof, and M. Power. 2011. A high-resolution hydrodynamic investigation of brown trout (*Salmo trutta*) and rainbow trout (*Oncorhynchus mykiss*) redds. River Research and Applications 27 (3): 345-359. Doi: 10.1002/rra.1362

Marcus, W.A. 2012. Remote sensing of the hydraulic environment in gravel-bed rivers. Pages 259-285 in: M. Church, P.M. Biron, and A.G. Roy (editors). Gravel-bed rivers: processes, tools, environments. Wiley, Chichester.

Maret, T.R., C.T., Robinson, and G.W. Minshall. 1997. Fish assemblages and environmental correlates in least-disturbed streams of the upper Snake River basin. Transactions of the American Fisheries Society 126: 200-216.

Marion, C.A., M.C. Scott, and K.M. Kubach. 2015. Multiscale environmental influences on fish assemblage structure of South Atantic coastal plain streams. Transactions of the American Fisheries Society 144 (5): 1040-1057. Doi: 10.1080/00028487.2015.1059887.

Mark, A.F., and K.J.M. Dickinson. 2008. Maximizing water yield with indigenous non-forest vegetation: a New Zealand perspective. Frontiers in Ecology and the Environment 6 (1): 25-34.

Marks, J.C., G.A. Haden, M. O’Neill, and C. Pace. 2010. Effects of flow restoration and exotic species removal on recovery of native fish: lessons from a dam decommissioning. Restor. Ecol. 18: 934-943.

Marks, J.C., M.E. Power, and M.S. Parker. 2000. Flood disturbance, algal productivity, and interannual variation in food chain length. Oikos 90: 20-27.

Marks, K., and P. Bates. 2000. Integration of high-resoluton topographic data with floodplain flow models. Hydrological Processes 14: 2109-2122.

Marotz, B., and C. Althen. 2005. Biological responses to alternative flood control operations at Hungry Horse and Libby Dams, Montana. Appendix D in: Upper Columbia Alternative Flood Control and Fish Operations. Draft Environmental Impact Statement. US Army Corps of Engineers, Seattle District, Seattle, WA, and US Bureau of Reclamation, Pacific Northwest Region, Boise, ID.

Marotz, B., D. Gustafson, C. Althen, and B. Lonon. 1996. Model development to establish Integrated Operation Rule Curves for Hungry Horse and Libby reservoirs, Montana. Montana Fish, Wildlife & Parks report to Bonneville Power Administration, Portland, OR. DOE/BP-92452=1. 114 p.

Marotz, B., D. Gustafson, C. Althen, and B. Lonon. 1999. Integrated operational rule curves for Montana reservoirs and application for other Columbia River storage project Pages 329-352 in: Ecosystem Approaches for Fisheries Management. Alaska Sea Grant College Program. AK-SG-99-01, 1999.

Marotz, B., and C.C. Muhlfeld. 2000. Evaluation of minimum flow requirements in the South Fork Flathead River downstream of Hungry Horse Dam, Montana. Montana Fish, Wildlife, and Parks, Kalispell, report to Bonneville Power Administration, Portland, OR.

Marschall, E.A., and L.B. Crowder. 1995. Density-dependent survival as a function of size in juvenile salmonids in streams. Canadian Journal of Fisheries and Aquatic Sciences 52: 136-140.

Marschall, E.A., and L.B. Crowder. 1996. Assessing population responses to multiple anthropogenic effects: a case study with Brook Trout. Ecological Applications 6: 152-167.

Marsh-Matthews, E., and W.J. Matthews. 2000. Geographic, terrestrial, and aquatic factors – Which most influence the structure of stream fish assemblages in the midwestern United States? Ecology of Freshwater Fish 9: 9-21.

Marsh-Matthews, E., and W.J. Matthews. 2010. Proximate and residual effects of exposure to simulated drought on prairie stream fishes. Am. Fish. Soc. Symp. 73: 461-486.

Marshall, J.C., F. Sheldon, M. Thomas, and S. Choy. 2006. The macroinvertebrate fauna of an Australian dryland river: spatial and temporal patterns and environmental relationships. Mar. Freshw. Res. 57: 61-74.

Marston, R.A., J. Girel, G. Pautou, H. Piegay, J.P. Bravard, and C. Arneson. 1995. Channel metamorphosis, floodplain disturbance, and vegetation development: Ain River, France. Geomorphology 13: 121-131.

Martens, K.D., and P.J. Connolly. 2014. Juvenile anadromous salmonid production in upper Columbia River side channels with different levels of hydrological connection. Transactions of the American Fisheries Society 143 (3): 757-767. Doi: 10.1080/00028487.2014.880740.

Marti, E., S.G. Fisher, J.D. Schade, and N.B. Grimm. 2000. Flood frequency and stream-riparian linkage in arid lands. Pp. 111-136 *in*: J.B. Jones and P.J. Mulholland, editors, Streams and groundwaters. Academic Press, New York, New York, USA.

Marti, E., N.B. Grimm, ad S.G. Fisher. 1997. Pre- and post-flood retention efficiency of nitrogen in a Sonoran Desert stream. Journal of the North American Benthological Society 16: 805-819.

Martin, C.W., J.W. Hornbeck, G.E. Likens, and D.C. Buso. 2000. Impacts of intensive harvesting on hydrology and nutrient dynamics of northern hardwood forests. Canadian Journal of Forest Research 57 (Suppl. 2): 19‑29.

Martin, D.M., J.W. Labadie, and N.L. Poff. 2015. Incorporating social preferences into the ecological limits of hydrologic alteration (ELOHA): a case study in the Yampa-White River basin, Colorado. Freshw. Biol. 60: 1890-1900.

Martin, D.M., S.J. Powell, J.A. Webb, S.J. Nichols, and N.L. Poff. 2017. An objective method to prioritize socio-environmental water management trade-offs using multi-criteria decision analysis. River Research and Applications 33: 586-596.

Martin, E.H., C. Kelleher, and T. Wagener. 2012. Has urbanization changed ecological streamflow characteristics in Maine (USA)? Hydrological Sciences Journal 57 (7): 1337-1354. Doi: 10.1080/02626667.2012.707318.

Martin, F.D., and M.H. Paller. 2008. Ichthyoplankton transport in relation to floodplain width and inundation and tributary creek discharge in the lower Savannah River of Georgia and South Carolina. Hydrobiologia 598: 139-148. Doi: 10.1007/s10750-007-9146-6.

Martin, Q. 1987. Estimating freshwater inflow needs for Texas estuaries by mathematical programming. Water Resources Research 23: 230-238.

Martin, Y. 2003. Evaluation of bed load transport formulae using field evidence from the Vedder River, British Columbia. Geomorphology 53: 75-95. Doi: 10.1016/S0169-555X(02)00348-3

Martinez, A., A. Larranaga, J. Perez, et al. 2016. Climate modukates the magnitude of effects of flow regukation on leaf-litter decomposition. Aquatic Sci. 79: 507-514.

Martinez, P.J., T.E. Chart, M.A. Trammmel, J.G. Wullschleger, and E.P. Bergersen. 1994. Fish species composition before and after construction of a main stem reservoir on the White River, Colorado. Environmental Biology of Fishes 40: 227-239.

Martinez, S.M.C., and J.A. Fernandez Yuste. 2010. IAHRIA 2.2. Indicators of hydrologic alteration in rivers. Methodological reference manual & user’s manual. http://www.ecogesfor.org/IAHRIS\_es.html.

Martinez-Capel, F. 2000. Preferencias de microhabitat de Barbus bocagei, Chondrostoma polylepis y Leuciscus pyrenaicus en la cuenca del rio Tajo. Doctoral thesis. Universidad Politecnica de Madrid.

Martinez-Capel, F., D. Garcia de Jalon, M. Rodilla-Alama. 2004. On the estimation of nose velocities and their influence on the physical habitat simulation for *Barbus Bacagei*. Hydroecologie Appliquee 14 (1): 139-159.

Martins, E.G., S.G. Hinch, D.A. Patterson, M.J. Hague, S.J. Cooke, K.M. Miller, D. Robichaud, K.K. English, and A.P. Farrell. 2012. High river temperature reduces survival of sockeye salmon (Oncorhynchus nerka) approaching spawning grounds and exacerbates female mortality. Canadian Journal of Fisheries and Aquatic Sciences 69 (2): 330-342. Doi: 10.1139/F2011-154

Martinson, E.C., J.H. Helle, D.L. Scarnecchia, and H.H. Stokes. 2008. Density-dependent growth of Alaska sockeye salmon in relation to climate-oceanic conditions, population abundance, and body size, 1925 to 1998. Mar. Ecol. Prog. Ser. 370: 1-18. Doi:10.3354/meps07665.

Marty, J., K.E. Smokorowski, and M. Power. 2009. The influence of fluctuating ramping rates on the food web of boreal rivers. River Research and Applications 25: 962-974. Doi: 10.1002/rra.1194

Mas-Marti, E., E. Garcia-Berthou, S. Sabater, S. Tomanova, and I. Mufoz. 2010. Comparing fish assemblages and trophic ecology of permanent and intermittent reaches in a Mediterranean stream. Hydrobiologia 657: 167-180.

Mason, J.C. 1976. Response of underyearling coho salmon to supplemental feeding in a natural stream. Journal of Wildlife Management 40: 775-778.

Mason, J.C., and D.W. Chapman. 1965. Significance of early emergence, environmental rearing capacity, and behavioral ecology of juvenile coho salmon in stream channels. Journal of the Fisheries Research Board of Canada 22: 173-190.

Massman, W.H. 1952. Characteristics of spawning areas of shad, *Alosa sapidissima* (Wilson), in some Virginia streams. Transactions of the American Fisheries Society 81: 78-93.

Matella, M.K., and A.M. Merenlender. 2015. Scenarios for restoring floodplain ecology given changes to river flows under climate change: case from the San Joaquin River, California. River Research and Applications 31: 280-290.

Matern, S.A., P.B. Moyle, and L.C. Pierce. 2002. Native and alien fishes in a California estuarine marsh: twenty-one years of changing assemblages. Transactions of the American Fisheries Society 131 (5): 797-816.

Matheny, M.P., IV, and C.F. Rabeni. 1995. Patterns of movement and habitat use by northern hog suckers in an Ozark stream. Transactions of the American Fisheries Society 124 (6): 886-897. Doi: 10.1577/1548-8659(1995)124<0886:POMAHU>2.3.CO;2.

Matheussen, B., R.L. Kirschbaum, I.A. Goodman, G.M. O’Donnell, and D.P. Lettenmaier. 2000. Effects of land cover change on streamflow in the interior Columbia River Basin (USA and Canada). Hydrol. Process. 14 (5): 867-885. Doi:10.1002/(SICI)1099-1085(20000415)14:5<867::AID-HYP975>3.0.CO;2-5.

Mathews, R., and B. Richter. 2007. Application oof the indicators of hydrologic alteration software in environmental flow setting. Journal of the American Water Resources Association (JAWRA) 43 (6): 1400-1413. Doi: 10.1111/j.1752-1688.2007.00099.x

Mathews, S.B., and F.W. Olson. 1980. Factors affecting Puget Sound coho salmon (*Oncorhynchus kisutch*) runs. Canadian Journal of Fisheries and Aquatic Sciences 37 (9): 1373‑1378. Doi” 10.1139/f80-176

Mathur, D., W.H. Bason, E.J. Purdy, Jr., and C.A. Silver. 1985. A critique of the Instream Flow Incremental Methodology. Canadian Journal of Fisheries and Aquatic Sciences 42: 825‑831. Doi: 10.1139/f85-185-105.

Mathur, D., W.H. Bason, E.J. Purdy, Jr., and C.A. Silver. 1986. A reply to “In defense of the Instream Flow Incremental Methodology” by D.J. Orth and O.E. Maughan. Canadian Journal of Fisheries and Aquatic Sciences 43: 1093‑1094.

Matlock, J.K., and O.E. Maughan. 1988. The relationships between physical habitat factors and benthic diversity in southeastern Oklahoma streams. Proceedings of the Oklahoma Academy of Science 68: 81-84.

Matono, P., J.M. Bernardo, T. Oberdorff, and M. Ilheu. 2012. Effects of natural hydrological variability on fish assemblages in small Mediterranean streams: implications for ecological assessment. Ecological Indicators 23: 467-481.

Matsumoto, J., G. Powell, and D. Brock. 1994. Freshwater-inflow need of estuary computed by Texas estuarine MP model. Journal of Water Resources Planning and Management 120: 693-714.

Matthaei, C.D., C.J. Arbuckle, and C.R. Townsend. 2000. Stable surface stones as refugia for invertebrates during disturbance in a New Zealand stream. J. N. Am. Benthol. Soc. 19: 82-93. Doi: 10.2307/146828.3.

Matthaei, C.D., J.J. Piggott, and C.R. Townsend. 2010. Multiple stressors in agricultural streams: interactions among sediment addition, nutrient enrichment and water abstraction. Journal of Applied Ecology 47: 639-649. Doi: 10.1111/j.1365-2664.2010.01809.x.

Matthews, K.R. 1996. Diel movement and habitat use of California golden trout in the Golden Trout Wilderness, California. Transactions of the American Fisheries Society 125: 78-86.

Matthews, K.R. 1996. Habitat selection and movement patterns of California golden trout in degraded and recovering stream sections in the Golden Trout Wilderness, California. North American Journal of Fisheries Management 16: 579-590.

Matthews, K.R., and N.H. Berg. 1997. Rainbow trout responses to water temperature and dissolved oxygen in two southern California stream pools. Journal of Fish Biology 50: 50-67.

Matthews, R., and B.D. Richter. 2007. Application of the Indicators of Hydrologic Alteration software in environmental flow setting. Journal of the American Water Resources Association 43 (6): 1400-1413. Doi: 10.1111/j.1752-1688.2007.00099.x.

Matthews, R.C., Jr., and Y. Bao. 1991. Alternative instream flow assessment methodologies for warm water river systems. Pp. 189-196 in: J.L. Cooper and R.H. Hamre, eds. Proceedings of Warmwater Fisheries Symposium 1. Fort Collins, CO: U.S. Forest Service (General Technical Report RM-207).

Matthews, R.C., Jr., and Y. Bao. 1991. The Texas Method of preliminary instream flow determination. Rivers 2: 293-310/

Matthews, W.J. 1985. Critical current speeds and microhabitats of the benthic fishes *Percina roanoka* and *Etheostoma flabellare*. Environmental Biology of Fishes 12: 303-308.

Matthews, W.J. 1985. Distribution of Midwestern fishes on multivariate environmental gradients, with emphasis on *Notropis lutrensis*. American Midland Naturalist 113: 225-237.

Matthews, W.J. 1986. Fish faunal structure in an Ozark stream: stability, persistence, and a catastrophic flood. Copeia 1986 (2): 388-397. Doi: 10.2307//1444997

Matthews, W.J. 1990. Spatial and temporal variation in fishes of riffle habitats: a comparison of analytical approaches for the Roanoke River. American Midland Naturalist 124: 31-45.

Matthews, W.J. 1998. Patterns in freshwater fish ecology. New York: Chapman and Hall. Doi: 10.1007/978-1-4615-4066-3

Matthews, W.J., and L.G. Hill. 1979. Influences of physicochemical factors on habitat selection by red shiner, *Notropis lutrensis* (Pisces: Cyprinidae). Copeia 1979: 70-81.

Matthews, W.J., and L.G. Hill. 1979. Age-specific differences in the distribution of red shiners, *Notropis lutrensis*, over physicochemical ranges. American Midland Naturalist 101: 366-372.

Matthews, W.J., and L.G. Hill. 1980. Habitat partitioning in the fish community of a southwestern river. Southwestern Naturalist 25: 51-60.

Matthews, W.J., and E. Marsh-Matthews. 2003. Effects of drought on fish across axes of space, time, and ecological complexity. Freshwater Biology 48: 1232-1253. Doi: 10.1046/j.1365-2427.2003.01087.x.

Matthews, W.J., and E. Marsh-Matthews. 2016. Dynamics of an upland stream fish community over 40 years: trajectories and support for the loose equilibrium concept. Ecology 97 (3): 706-719. Doi: 10.1890/14-2179.1.

Matthews, W.J., E. Marsh-Matthews, G.L. Adams, and S.R. Adams. 2014. Two catastrophic floods: similarities and differences in effects on an Ozark stream fish community. Copeia 2014: 682-693. Doi: 10.1643/CE-14-041

Matthiopoulos, J., J. Fieberg, G. Aarts, H.L. Hawthorne, J.M. Morales, and D.T. Haydon. 2015. Establishing the link between habitat-selection and animal population dynamics. Ecological Monographs 85: 413-436.

Mattingly, H.T., and T.R. Black. 2013. Nest associations and reproductive microhabitat of the threatened blackside dace, *Chrosomus cumberlandensis*. Southeast. Nat. 12 )Special issue 4): 49-63.

Mattraw, H.C., Jr., and J.F. Elder. 1984. Nutrient and detritus transport in the Apalachicola River, Florida. U.S. Geological Survey Water Supply Paper 2196-C.

Mattson, R. 2002. A resource-based framework for establishing freshwater inflow requirements for the Suwannee River estuary. Estuaries 25 (6B): 1333-1342.

Maul, J.D., J.L. Farris, C.D. Milarn, C.M. Cooper, S. Testa, III, and D.L. Feldman. 2004. The influence of stream habitat and water quality on macroinvertebrate communities in degraded streams of northwest Mississippi. Hydrobiologia 518: 79-94.

Maurer, E.P., and P.B. Duffy. 2005. Uncertainty in projections of stream flow changes due to climate change in California. Geophysical Research Letters 32:L03704.

May, C.L., and D.C. Lee. 2004. The relationships among in-channel sediment storage, pool depth, and summer survival of juvenile salmonids in Oregon Coast Range streams. North American Journal of Fisheries Management 24 (3): 761-774.

May, C.L., and B.S. Pryor. 2013. Initial motion and bedload transport distance determined by particle tracking in a large regulated river. River Research and Applications doi: 10.1002/rra.2665.

May, C.L., B.S. Pryor, T.E. Lisle, and M. Lang. 2009. Coupling hydrodynamic modeling and empirical measures of bed mobility to predict the risk of scour and fill of salmon redds in a large regulated river. Water Resources Research 45: W05402.

May, J.T., and L.R. Brown. 2000. Fish community structure in relation to environmental variables within the Sacramento River basin and implications for the greater Central Valley, California. U.S. Geological Survey Report 00-247, Sacramento, California.

Mayer, T.D., and S.W.. Naman. 2011. Streamflow response to climate as influenced by geology and elevation. Journal of the American Water Resources Association 4: 724-738.

Mazvimavi, D., A.M.J. Meijerink, and A. Stein. 2004. Prediction of base flows from basin characteristics: a case study from Zimbabwe. Hydrological Sciences 49 (4): 703-715.

Mazor, R.D., J.T. May, A. Sengupta, K.S. McCune, B.P. Bledsoe, and E.D. Stein. 2018. Tools for managing hydrologic alteration on a regional scale II: Setting targets to protect stream health. Freshwater Biology 1-18. Doi: 10.1111/fwb.13062

McAdam, D.S.O. 2015. Retrospective weight-of-evidence analysis identifies substrate change as the apparent cause of recruitment failure in the upper Columbia River white sturgeon (*Acipenser transmontanus*).. Canadian Journal of Fisheries and Aquatic Sciences 72 (8): 1208-1220. Doi: 10.1139/cjfas-2014-0423.

McAdam, S.O. 2011. Effects of substrate condition on habitat use and survival by white sturgeon (*Acipenser transmontanus*) larvae and potential implications for recruitment. Canadian Journal of Fisheries and Aquatic Sciences 68 (5): 812-822. Doi:10.1139/F2011-021.

McAdam, S.O., C.J. Walters, and C. Nistor. 2005. Linkages between white sturgeon recruitment and altered bed substrates in the Nechako River, Canada. Transactions of the American Fisheries Society 134 (6): 1448-1456. Doi:10.1577/T04-199.1.

McAlister, L.S., B.E. Peniston, S.G. Leibow Jeffres, C., and P.B. Moyle, B. Abbruzzese, and J.B. Hyman. 2000. A synoptic assessment for prioritizing wetland restoration efforts to optimize flood attenuation. Wetlands 20: 70-83.

McBride, J.R., and J. Strahan. 1984. Establishment and survival of woody riparian species on gravel bars of an intermittent stream. American Midland Naturalist 112 (2): 235-245.

McBride, J.R., N. Sugihara, and E. Norberg. 1988. Growth and survival of three riparian species in relation to simulated water table dynamics. Report to Pacific Gas and Electric Company, San Ramon, CA.

McCabe, D.J., and N.J. Gotelli. 2000. Effects of disturbance frequency, intensity, and area on assemblages of stream macroinvertebrates. Oecologia (Berlin) 124: 270-279. Doi:10.1007/s004420000369.

McCabe, G.J., and D.M. Wolock. 2002. A step increase in streamflow in the conterminous United States. Geophysical Research Letters 29: 2185.

McCargo, J.W., and J.T. Peterson. 2010. An evaluation of the influence of seasonal base flow and geomorphic stream characteristics on coastal plain stream fish assemblages. Transactions of the American Fisheries Society 139 (1): 29-48. Doi:10.1577/T09-036.1

McCarthy, S.G., J.J. Duda, J.J. Emlen, G.R. Hodgson, and D.A. Beauchamp. 2009. Linking habitat quality with trophic performance of steelhead along forest gradients in the South Fork Trinity River watershed, California. Transactions of the American Fisheries Society 138 (3): 506-521. Doi: 10.1577/T08-053.1.

McCarthy, T.K. P. Frankiewicz, P. Cullen, M. Blaszkowski, W. O’Connor, and D. Doherty. 2008. Long-term effects of hydropower installations and associated river regulationon River Shannon eel populations: mitigation and management. Hydrobiologia 609: 109-124.

McClain, M.E., and E.P. Anderson. 2015. The gap between best practice and actual practice in the allocation of environmental flows in integrated water resources management. Pages 103-120 in: S. Setegn and M. Donoso, editors. Sustainability of Integrated Water Resources Management. Springer, Cham.

McClain, M.E., A.L. Sabalusky, E.P. Anderson, S.B. Dessu, A.M. Melesse, P.M. Ndomba, et al. 2014. Comparing flow regime, channel, hydraulics and biological communities to infer flow-ecology relationships in the Mara River of Kenya and Tanzania. Hydrol. Sci. J. 59: 801-819.

McClendon, D.D., and C.F. Rabeni. 1987. Physical and biological variables useful for predicting population characteristics of smallmouth bass and rock bass in an Ozark stream. North American Journal of Fisheries Management 7: 46-56.

McClundy, K.E., N.L. Poff, M.A. Palmer, J.H. Thorp, G.C. Poole, B.S. Williams, M.R. Williams, and J.S. Baron. 2014. Riverine macrosystems ecology: sensitivity, resistance, and resilience of whole river basins with human alterations. Front. Ecol. Environ. <http://dx.doi.org/10/1890/120367>.

McClure, M.M., M. Alexander, D. Borggaard, et al. 2013. Incorporating climate science in applications of the US Endangered Species Act for aquatic species. Conserv. Biol. 27: 1222-1233.

McConnell, W.J. Habitat suitability curves for white sturgeon. U.S. Fish and Wildlife Service, National Ecology Center, Fort Collins, Colorado.

McCormick, S.D., L.P. Hansen, T.P. Quinn, and R.J. Saunders. 1998. Movement, migration, and smolting of Atlantic salmon (*Salmo salar*). Can. J. Fish. Aquat. Sci. 55 (S1): 77-92. Doi: 10.1139/998-011.

McCosker, R.O. 1998. Methods addressing the flow requirements of wetland, riparian and floodplain vegetation. Pages 47-6 in: A.H. Artgo and J.M. Zalucki (editors), Comparative Evaluation of Environmental Flow Assessment Techniques: Review of Methods. Occasional Paper No. 27/98, Land and Water Resources Research and Development Corporation, Canberra, Australia.

McCreadie, J.W., and M.H. Colbo. 1993. Larval and pupal microhabitat selection by *Simulium* *truncatum* Lundstrom, *S. rostratum* Lundstrom, and *S. verecundum* AA (Diptera: Simuliidae). Canadian Journal of Zoology 71: 358-367.

McCubbing, D.J.F., B.D. Bayless, and V.M. Locke. 1998. Spawning migration of radio-tagged landlocked Arctic charr, *Salvelinus alpinus* L., in Ennerdale Lake, the English Lake District. Hydrobiologia 371/372: 173-180.

McCully, P. 1996. Silenced Rivers: The Ecology and Politics of Large Dams. Zed Books, London.

McDevitt-Galles, T., and P.T.J. Johnson. 2018. Drought attenuates the impact of fish on aquatic macroinvertebrate richness and community composition. Freshwater Biology doi: 10.1111/fwb.13173

McDonald, D.G., R.A. Keeler, and W.J. McFarlane. 2007. The relationships among sprint performance, voluntary swimming activity, and social dominance in juvenile rainbow trout. Physiological and Biochemical Zoology 80; 619-634.

McDonald, R.R., J.M. Nelson, V. Paragamian, and G. Barton. 2010. Modeling the effect of flow and sediment transport on white sturgeon spawning habitat in the Kootenai River, Idaho. Journal of Hydraulic Engineering 136: 1077-1092.

McDonough, O.T., and J.D. Hosen. 2011. Temporary streams: the hydrology, geography, and ecology of non-perennially flowing waters. Pages 259-289 in: H.S. Elliot and L.E. Martin (editors), River ecosystems: dynamics, management and conservation. Nova Science Publishers, Hauppauge.

McDowall, R.M. 1995. Seasonal pulses in migrations of New Zealand diadromous fish and the potential impact of river mouth closure. New Zealand Journal of Marine and Freshwater Research 29: 517-526.

McElroy, B., A. DeLonay, and R. Jacobson. 2012. Optimum swimming pathways of fish spawning migrations in rivers. Ecology 93 (1): 29-34.

McEwen, D.C., and M.G. Butler. 2010. The effects of water-level manipulation on benthic invertebrates of a managed reservoir. Freshwater Biology 55: 1086-1101.

McGarigal, K., and W.C. McComb. 1992. Streamside versus upslope breeding bird communities in the Central Oregon Coast Range. Journal of Wildlife Management 56: 10-23.

McGarvey, D.J., and G.M. Ward. 2008. Scale dependence in the species-discharge relationship for fishes of the southeastern U.S.A. Freshwater Biology 53: 2206-2221. Doi: 10.1111/j.1365-2427.2008.02046.x.

McHugh, P., and P. Budy. 2004. Patterns of spawning habitat selection and suitability for two populations of spring Chinook salmon, with an evaluation of generic versus site-specific suitability criteria. Transactions of the American Fisheries Society. 133 (1): 89-97.

McHugh, P., and P. Budy. 2006. A comparison of visual and measurement-based techniques for quantifying cobble embeddedness and fine-sediment levels in salmonid-bearing streams. North American Journal of Fisheries Management 25 (4): 1208-1214.

McHugh, P., P. Budy, and H. Schaller. 2004. A model-based assessment of the potential response of Snake River spring-summer Chinook salmon to habitat improvements. Transactions of the American Fisheries Society 133: 622-638.

McHugh, P.A., W.C. Saunders, N. Bouwes, C.E. Wall, S. Bangen, J.M. Wheaton, M. Nahorniak, J.R. Ruzycki, I.A. Tattam, and C.E. Jordan. 2017. Linking models across scales to assess the viability and restoration potential of a threatened population of steelhead (*Oncorhynchus mykiss*) in the Middle Fork John Day River, Oregon, USA. Ecological Modelling 355 (2017): 24-38. Doi: 10.1016/j.ecolmodel.2017.03.022

McIntosh, B.A., J.R. Sedell, J.E. Smith, R.C. Wissmar, S.E. Clark, and G.H. Reeves. 1994. Historical changes in fish habitat for selected river basins of eastern Oregon and Washington. Northwest Science 68: 36-53.

McIntosh, B.A., J.R. Sedell, R.F. Thurow, S.E. Clarke, and G.L. Chandler. 2000. Historical changes in pool habitat in the Columbia River basin. Ecological Applications 10: 1478-1496. Doi: 10.1890/1051-0761(2000)010[1478.HCIPHI]2.0.CO;2.

McIntosh, M.D., M.E. Benbow, and A.J. Burky. 2002. Effects of stream diversion on riffle macroinvertebrate communities in a Maui, Hawaii, stream. River Research and Applications 18 (6): 569-582. Doi: 10.1002/rra.694.

McIntire, C.D. 1966. Some effects of current velocity on periphyton communities in laboratory streams. Hydrobiologia 27: 557-570.

McIntyre, P.B., A.S. Flecker, M.J. Vanni, J.M. Hood, B.W. Taylor, and S.A. Thomas. 2008. Fish distributions and nutrient cycling in streams: Can fish create biogeochemical hotspots? Ecology 89 (8): 2335-2346.

McIvor, C.C., J.A. Ley, and R.D. Bjork. 1994. Changes in freshwater inflow from the Florida Everglades to Florida Bay including effects on biota and biotic processes: A review, p. 117-146. In: S.M. Davis and J.C. Ogden (eds.). Everglades: The ecosystem and its restoration. St. Lucie Press, Delray Beach, Florida.

McKay, S.F., and A.J. King. 2006. Potential ecological effects of water extraction in small, unregulated streams. River Research and Applications 22: 1023-1027.

McKay, S.J., R.H. Devlin, and M.J. Smith. 1996. Phylogeny of Pacific salmon and trout based on growth hormone type‑2 and mitochondrial NADH dehydrogenase subunit 3 DNA sequences. Canadian Journal of Fisheries and Aquatic Sciences 53 (5): 1165‑1176.

McKay, S.F., and A.J. King. 2006. Potential ecological effects of water extraction in small unregulated streams. River Research and Applications 22: 1023-1037.

McKay, S.K. 2013. Alternative Environmental Flow Management Schemes. ERDC TN-EMRRP-SR-46. Vicksburg, MS. U.S. Army Corps of Engineers Research and Development Center.

McKay, S.K. 2015. Quantifying tradeoffs associated with hydrologic environmental flow methods. Journal of the American Water Resources Association (JAWRA) 51 (6): 1508-1518. Doi: 10.1111/1752-1688.12328

McKay, S.K., M/C. Freeman, and A.P. Covich. 2016. Application of effective discharge analysis to environmental flow decision-making. Environmental Management 57: 1153-1165.

McKean, J.A., D.J. Isaak, and C.W. Wright. 2008. Geomorphic controls on salmon nesting patterns described by a new, narrow-beam terrestrial-aquatic lidar. Frontiers in Ecology and the Environment 6 (3): 125-130.

McKean, J., and D. Tonina. 2013. Bed stability in unconfined gravel bed mountain streams: With implications for salmon spawning viability in future climates. Journal of Geophysica Research: Earth Surface 118: 1227-1240.

McKee, K.L., I.A. Mendelsohn, and M.D. Materne. 3004. Acute salt marsh dieback in the Mississippi River deltaic plain: a drought-induced phenomenon? Global Ecology and Biogeography 13: 65-73.

McKenna, J.E., H.W. Reeves, and P.W. Seelbach. 2018. Measuring and evaluating ecological flows from streams to regions: Steps towards national coverage. Freshwater Biology 63 (8): 874-890. doi: 10.1111/fwb.13086

McKenney, R. 1997. Formation and maintenance of hydraulic habitat units in the streams of the Ozark Plateaus. Doctoral dissertation. Pennsylvania State University, State College.

McKernan, D.L., D.R. Johnson, and J.I. Hodges. 1950. Some factors influencing the trends of salmon populations in Oregon. Transactions of the North American Wildlife Conference 15: 427‑449.

McKinney, M.J. 1991. Water for wildlife: Integrating science and politics in wildlife conservation. Policy Studies Journal 19 (3-4): 534-541.

McKinney, M.J., and J.G. Taylor. 1988. Western state instream flow programs, a comparative assessment. Instream Flow Information Paper 18. U.S. Fish and Wildlife Service Biol. Rep. 89 (2).

McKinney, T., R.S. Rogers, A.D. Ayers, and W.R. Persons. 1999. Lotic community responses in the Lees Ferry reach. Pages 249-258 in: R.H. Webb, J.C. Schmidt, G.R. Marzolf, and R.A. Valdez, editors. The controlled flood in Grand Canyon. American Geophysical Union Geophysical Monograph 119, Washington, D.C., USA.

McKinney, T., R.S. Rogers, and W.R. Persons. 1999. Effects of flow reductions on aquatic biota of the Colorado below Glen Canyon Dam, Arizona. North American Journal of Fisheries Management 19 (4): 984-991.

McKinney, T., D.W. Speas, R.S. Rogers, and W.R. Persons. 2001. Rainbow trout in a regulated river below Glen Canyon Dam, Arizona, following increased minimum flows and reduced discharge variability. North American Journal of Fisheries Management 21: 216-222. Doi:10.1577/1548-8675(2001)021<0216:RTIARR>2.0.CO;2.

McKinnon, L.J. 1997. Monitoring of fish aspects of the flooding of Barmah Forest. Marine and Freshwater Institute, Queenscliff, Australia.

McLaughlin, R.L., and J.W. Grant. 1994. Morphological and behavioral differences among recently emerged brook charr, *Salvelinus fontinalis*, in slow- vs. fast-running water. Environmental Biology of Fishes 39: 289-300. Doi: 10.1007/BF00005130.

McLaughlin, R.L., and D.L.G. Noakes. 1998. Going against the flow - an examination of the propulsive movements made by young brook trout in streams. Canadian Journal of Fisheries and Aquatic Sciences 55: 853-860. Doi: 10.1139/f97-308.

McMahon, T.A., and B.L. Finlayson. 1995. Reservoir system management and environmental flows. Lakes and Reservoirs: Research and Management 1: 65-76.

McMahon, T.A., and B.L. Finlayson. 2003. Droughts and antidroughts: the low flow hydrology of Australian rivers. Freshwater Biology 48 (7): 1147-1160. Doi: 10.1046/j.1365-2427.2003.01098.x.

McMahon, T.E. 1982. Habitat suitability index models: creek chub. U.S. Fish and Wildlife Service FWS/OBS-82/10.4. 23 pp.

McMahon, T.E. 1983. Habitat suitability index models: coho salmon. U.S. Fish and Wildlife Service FWS/OBS-82/10.49.

McMahon, T.E., G. Gebhart, O.E. Maughan, and P.C. Nelson. 1984. Habitat suitability index models and instream flow suitability curves: spotted bass. U.S. Fish and Wildlife Service FWS/OBS-82.10.72. 41 pp.

McMahon, T.E., G. Gebhart, O.E. Maughan, and P.C. Nelson. 1984. Habitat suitability index models and instream flow suitability curves: warmouth. U.S. Fish and Wildlife Service FWS/OBS-82.10.67. 21 pp.

McMahon, T.E., and G.F. Hartman. 1989. Influence of cover complexity and current velocity on winter habitat use by juvenile coho salmon (*Oncorhynchus kisutch*). Canadian Journal of Fisheries and Aquatic Sciences 46: 1551‑1557.

McMahon, T.E., and J.W. Terrell. 1982. Habitat suitability information: channel catfish. U.S. Fish and Wildlife Service, FWS/OBS-82/10.2. 29 pp.

McMahon, T.E., J.W. Terrell, and P.C. Nelson. 1984. Habitat suitability information: walleye. U.S. Fish and Wildlife Service, Washington, D.C.

Mc Mahon, T.E., A.V. Zale, and D.J. Orth. 1996. Aquatic habitat measurements. Pages 83-1120 in: B.R. Murphy and D.W. Willis, editors. Fisheries techniques, 2nd edition. American Fisheries Society, Bethesda, Maryland.

McManamay, R.A. 2014, Quantifying and generalizing hydrologic responses to dam regulation using a statistical modeling approach. J. Hydrol. 519: 1278-1296.

McManamay, R.A., and M.S. Bevelhimer. 2013. A holistic framework for environmental flows determination in hydropower contexts. Oak Ridge National Laboratory. ORNL/TM-2013/159.

McManamay, R.A., M.S. Bevelhimer, and E.A. Frimpong. 2015. Association among hydrologic classifications and fish traits ro support environmental flow standards. Ecohydrology 8: 460-479. Doi: 10.1002.eco.1517

McManamay, R.A., M.S. Bevelhimer, and S.C. Kao. 2014. Updating the US hydrological classification: an approach to clustering and stratifying ecolydrologic data. Ecohydrology 7: 903-926.

McManamay, R.A., S,A, Brewer, H.I. Jager, and M.J. Troia. 2016. Organizing environmental flow frameworks to meet hydropower mitigation needs. Environmental Management doi: 10.1007/s00267-016-0726-y.

McManamay, R.A., and E.A. Frimpong. 2015. Hydrological filtering of fish life history strategies across the United States: implications for stream flow alteration. Ecological Applications 25 (1): 243-263. Doi: 10.1890/14-0247.1.

McManamay, R.A., D.J. Orth, and C.A. Doloff. 2012. Revisiting the homogenization of dammed rivers in the southeastern US. J. Hydrol. 424: 217-237.

McManamay, R.A., D.J. Orth, C.A. Doloff, and M.A. Cantrell. 2010. Gravel addition as a habitat restoration technique for tailwaters. North American Journal of Fisheries Management 30 (5): 1238-1257. Doi: 10.1577/M10-007.1

McManamay, R.A., D.J. Orth, C.A. Doloff, and E.A. Frimpong. 2012. A regional classification of unregulated stream flows: spatial resolution and hierarchical frameworks. River Research and Applications 28 (7):1019-1033. doi: 10.1002/rra.1493.

McManamay, R.A., D.J. Orth, C.A. Doloff, and E.A. Frimpong. 2012. Regional frameworks applied to hydrology: can landscape-based frameworks capture hydrological variability? River Research and Applications 28 (9): 1325-1339. doi: 10.1002/rra.1535.

McManamay, R.A., D.J. Orth, C.A. Doloff, and D.C. Mathews. 2013. Application of the ELOHA framework to regulated rivers in the upper Tennessee River Basin: a case study. Environmental Management 51: 1210-1235. Doi: 10.1007/s00267-013-0055-3.

McManamay, R.A., D.J. Orth, J. Kauffman, and M.M. Davis. 2013. A database and meta-analysis of ecological responses to stream flow in the South Atlantic region. Southeastern Naturalist 12 (Monograph 5): 1-36. <http://www.eaglehill.us/SENAonline/sena-v12-mon5-2013.shtml>.

McManamay, R.A., B.K. Peoples, D.J. Orth, C.A. Doloff, and D.C. Mathews. 2015. Isolating causal pathways between flow and fish in the regulated river hierarchy. Canadian Journal of Fisheries and Aquatic Sciences 72 (11): 1731-1748. Doi: 10.1139/cjfas-2015-0227.

McMichael, G.A., C.A. McKinstry, J.A. Vucelick, and J.A. Lukas. 2005. Fall Chinook salmon spawning activity versus daylight and flow in the tailrace of a large hydroelectric dam. North American Journal of Fisheries Management 25 (2): 573-580.

McMichael, G.A., C.L. Rakowski, B.B. James, and J.A. Lukas. 2005. Estimated fall Chinook salmon survival to emergence in dewatered redds in a shallow side channel of the Columbia River. North American Journal of Fisheries Management 25: 876-884.

McMillan, J.R., G.R. Pess, M. Liermann, S.A. Morley, M.L. McHenry, L.A. Campbell, and T.P. Quinn. 2015. Using redd attributes, fry density, and otolith microchemistry to distinguish the presence of steelhead and rainbow trout in the Elwha River dam removal project. North American Journal of Fisheries Management 35 (5): 1019-1033. Doi: 10.1080/02755947

McMullen, L.E., and D.A. Lytle. Quantifying invertebrate resistance to floods: a global-scale analysis. Ecol. Appl. 22: 2164-2175.

McNeil, W.J. 1964. Redd superimposition and egg capacity of pink salmon spawning beds. Journal of the Fisheries Research Board of Canada 21: 1385‑1396.

McNeil, W.J. 1966. Randomness in distribution of pink salmon redds. Journal of the Fisheries Research Board of Canada 24: 1629-1634.

McNeil, W.J. 1966. Effect of spawning bed environment on reproduction of pink and chum salmon. U.S. Fish and Wildlife Service Fishery Bulletin 65: 495‑523.

McNeil, W.J. 1968. Effect of streamflow on survival of pink and chum salmon in spawning beds. Pp. 96-114 in: R.T. Myren (ed.), Logging and salmon. Proc. Forum Am. Inst. Fish. Res. Biol., Alaska District, Juneau, Alaska.

McNeil, W.J. 1969. Survival of pink and chum salmon eggs and alevins. In: Symposium on salmon and trout in streams. Northcote, T.G. (ed.). H.R. MacMillan Lectures in Fisheries, University of British Columbia, Institute of Fisheries, Vancouver, B.C. Pp. 101‑117.

McNeil, W.J., and W.H. Ahnell. 1964. Success of pink salmon relative to the size of spawning bed material. U.S. Fish and Wildlife Service, Special Scientific Report 469. 15 pp.

McNicol, R.E., and D.L.G. Noakes. 1984. Environmental influences on territoriality of juvenile brook charr, *Salvelinus fontinalis*, in a stream environment. Environmental Biology of Fishes 10: 29-42.

McNicol, R.E., E. Scherer, and E.J. Murkin. 1985. Quantitative field investigations of feeding and territorial behaviour of young-of-the-year brook charr, *Salvelinus fontinalis*. Environmental Biology of Fishes 12: 219-229.

McPhail, I.R., and E.M. Young. 1992. Water for the environment in the Murray-Darling basin. Pages 191-210 in: J.J. Pilgram and B.P. Hooper (editors). Water Allocation for the Environment. The Centre for Water Policy Research, University of New England, Armidale.

McQueen, I.S., and R.F. Miller. 1972. Soil-moisture and energy relationships associated with riparian vegetation near San Carlos, Arizona. Washington, D.C.: U.S. Geological Survey (Professional Paper 655-E).

McRae, B.J., and J.S. Diana. 2005. Factors influencing density of age-0 brown trout and brook trout in the Au Sable River, Michigan. Transactions of the American Fisheries Society 134 (1): 132-140.

Meador, M.R., and D.M. Carlisle. 2011. Relations between altered streamflow variability and fish assemblages in eastern USA streams. River Research and Applications doi: 10.1002/rra.1534

Meador, M.R., and W.J. Matthews. 1992. Spatial and temporal patterns of fish assemblage structure of an intermittent Texas stream. American Midland Naturalist 127: 106-114.

Mebane, C.A. 2001. Testing bioassessment metrics: macroinvertebrate, sculpin, and salmonid responses to stream habitat, sedimentation, and metals. Environ. Monit. Assess. 67 (3): 293-322. Doi: 10.1023/A:1006306013724. PMID: 11334445.

Mederos, E.S.F., and A.H. Arthington. 2011. Flood inundation and the temporal dynamics of floodplain waterholes in an Australian dryland river. In: “Floodplains: Physical Geography, Ecology and Societal Interactions.” Nova Science Publishers.

Medley, C.N., and P.D. Shirey. 2013. Review and reinterpretation of Rio Grande silvery minnow reproductive ecology using egg biology, life history, hydrology and geomorphology information. Ecohydrology 6: 491-505.

Meentemeyer, R.K., and D.R. Butler. 1999. Hydrogeomorphic effects of beaver dams in Glacier Nathional Park, Montana. Physical Geography 20 (5): 436-446.

Meeter, D.A., R.J. Livingston, and G. Woodsum. 1979. Long-term climatological cycles and population changes in a river-dominated estuarine system. Pp. 315-338 in: R.J. Livingston (editor) Ecological processes in coastal and marine systems. Plenum Press, New York.

Meffe, G.K. 1984. Effects of abiotic disturbance on coexistence of predator-prey fish species. Ecology 65: 1525-1534.

Meffe, G.K., and W.L. Minckley. 1987. Persistence and stability of fish and invertebrate assemblages in a repeatedly disturbed Sonoran Desert stream. American Midland Naturalist 117: 177-191.

Meffe, G.K., and A.L. Sheldon. 1988. The influence of habitat structure of fish assemblage composition in southeastern blackwater streams. American Midland Naturalist 120: 225-240.

Meier, W., C. Bonjour, A. Wuest, and P. Reichert. 2003. Modeling the effect of water diversion on the temperature of mountain streams. Journal of Environmental Engineering 129: 755-764.

Meiman, J., and L. Schmidt. 1994. A research strategy for studying stream processes and the effects of altered streamflow regimes. US Dept Agric., For. Serv., Rocky Mountain For. Range Exp. Stn. 12 pp.

Meisner, J.D., J.S. Rosenfeld, and H.A. Regier. 1988. The role of groundwater in the impact of climate warming on stream salmonids. Fisheries 13 (3): 2-8.

Meissner, K., A. Juntunen, B. Malmqvist, and T. Muotka. 2009. Predator-prey interactions in a variable environment: responses of a caddis larva and its blackfly prey to variations in stream flow [online]. Ann. Zool. Fenn. 46: 193-204. Available from <http://www.sekj.org/PDF/anz46-free/anz46-193.pdf>

Meissner, K., T. Muotka, and I. Kananen. 2002. Drift responses of larval blackflies and their invertebrate predators to short-term flow regulation. Archiv fur Hydrobiologie 154: 5 T. Muotka29-542.

Mejia, F.H., C.V. Baxter, E.K. Berntsen, and A.K. Fremier.  2016.  Linking groundwater-surface water exchange to food production and salmonid growth.  Canadian Journal of Fisheries and Aquatic Sciences 73 (11): 1650-1658.  doi: 10.1139/cjfas-2015-0535.

Mekong River Commission. 2006. Integrated Basin Flow Management Report Number 8: Flow-Regime Assessment. Mekong River Commission, Vientiane, Lao PDR. 119 pp.

Melis, T.S., editor. 2011. Effects of three high-flow experiments on the Colorado River ecosystem downstream from the Glen Canyon Dam, Arizona. US Geological Survey Circular 1366.

Melis, T.S., J. Korman, and T.A. Kennedy. 2012. Abiotic and biotic responses of the Colorado River to controlled floods at Glen Canyon Dam, Arizona, USA. River Res. Appl. 28: 764-776.

Mellina, E., R.D. Moore, S.G. Hinch, J.S. Macdonald, and G. Pearson. 2002. Stream temperature responses to clearcut logging in British Columbia: the moderating influences of groundwater and headwater lakes. Canadian Journal of Fisheries and Aquatic Sciences 59 (12): 1886-1900.

Melo, A.S., D.K. Niyogi, C.D. Matthaei, et al. 2003. Resistance, resilience, and patchiness of invertebrate assemblages in native tussock and pasture streams in New Zealand after a hydrological disturbance. Canadian Journal of Fisheries and Aquatic Sciences 60: 731-739.

Mendoza, P.A., et al. 2016. How do hydrologic modelling decisions affect the portrayal of climate change impacts? Hydrological Processes 30: 1071-1095. Doi: 10.1002/hyp.10684/full.

Merenlender, A.M., M.J. Deitch, and S. Feirer. 2008. Decision support tools for stream flow recovery and enhanced water security. California Agriculture 62: 148-155.

Merenlender, A.M., and M. Matella. 2013. Maintaining and restoring hydrologic habitat connectivity in Mediterranean streams: An integrated modeling framework. Hydrobiologia 719: 509-525.

Meretsky, V.J., D.L. Wagner, and L.E. Stevens. 2000. Balancing endangered species and ecosystems: a case study of adaptive management in the Grand Canyon. Environmental Management 25: 579-586.

Merigoux, S., and S. Doledec. 2004. Hydraulic requirements of stream communities: a case study on invertebrates. Freshwater Biology 49: 600-613.

Merigoux, S., S. Doledec, and B. Statzner. 2001. Species traits in relation to habitat variability and state: Neotropical juvenile fish in floodplain creeks. Freshwater Biology 46: 1251-1267.

Merritt, D.M. 1997. Riparian vegetation and geomorphic features on regulated and unregulated rivers: Green and Yampa, northwestern Colorado. M.S. thesis, Colorado State University, Ft. Collins, CO. 65 pp.

Merritt, D.M., and H.L. Bateman. 2012. Linking stream flow and groundwater to avian habitat in a desert riparian system. Ecological Applications doi: 10.1890/12-0303.1.

Merritt, D.M., and D.J. Cooper. 2000. Riparian vegetation and channel change in response to river regulation: a comparative study of regulated and unregulated streams in the Green River basin, USA. Regulated Rivers: Research and Management 16: 543-564. Doi: 10.1002/1099-1646(200011/12)16:6<543::AID-RRR590>3.0.CO;2-N.

Merritt, D.M., and N.L. Poff. 2010. Shifting dominance of riparian *Populus* and *Tamarix* along gradients of flow alteration in western US rivers. Ecological Applications 20: 135-152.

Merritt, D.M., M.L. Scott, N.L. Poff, G.T. Auble, and D.A. Lytle. 2010. Theory, methods and tools for determining environmental flows for riparian vegetation: riparian vegetation-flow response guilds. Freshwater Biology 55: 206-225. doi:10.1111/j.1365-2427.2009.02206.x.

Mertes, L.A.K. 1997. Documentation and significance of the perirheic zone on inundated floodplains. Water Resources Research 33: 1749-1762.

Merz, J.E. 2001. Association of fall-run Chinook salmon redds with woody debris in the lower Mokelumne River, California. California Fish and Game 87: 51-60.

Merz, J.E., and L.K. Chan. 2004. Effects of gravel augmentation on macroinvertebrate assemblages in a regulated California river. River Research and Application 21: 1-14.

Merz, J.E., G.B. Pasternack, and J.M. Wheaton. 2006. Sediment budget for salmonid spawning habitat rehabilitation in a regulated river. Geomorphology 76: 207-228.

Merz, J.E., and J.D. Setka. 2004. Evaluation of a spawning habitat enhancement site for Chinook salmon in a regulated California river. North American Journal of Fisheries Management 34: 397-407.

Merz, J.E., J.D. Setka, G.B. Pasternack, and J.M. Wheaton. 2004. Predicting benefits of spawning-habitat rehabilitation to salmonid (*Oncorhynchus* spp.) fry production in a regulated river. Canadian Journal of Fisheries and Aquatic Sciences 61(8): 1433-1446.

Merz, J.E., J.R. Smith, M.L. Workman, J.D. Setka, and B. Mulchaey. 2008. Aquatic macrophyte encroachment in Chinook salmon spawning beds: lessons learned from gravel enhancement monitoring in the lower Mokelumne River, California. North American Journal of Fisheries Management 28 (5): 1568-1577. Doi:10.1577/M07-043.1.

Mesa, M.G. 1991. Variation in feeding, aggression, and position choice between hatchery and wild cutthroat trout in an artificial stream. Transactions of the American Fisheries Society 120: 723-727.

Mesa, M.G., L.K. Weiland, and G.B. Zydlewski. 2004. Critical swimming speeds of wild bull trout. Northwest Science 78: 59-65.

Mesick, C.F. 1988. Effect of food and cover on numbers of apache and brown trout establishing residency in artificial stream channels. Transactions of the American Fisheries Society 117 (5): 421-431.

Mesick, C.F. 1995. Response of brown trout to streamflow, temperature, and habitat restoration in a degraded stream. Rivers 5(2): 75-95.

Metcalfe, N.B., S.K Valdimarsson, and N.H.C. Fraser. 1997. Habitat profitability and choice in a sit-and-wait predator: juvenile salmon prefer slower currents on darker nights. Journal of Animal Ecology 66: 866-875.

Meybeck, M. 1982. Carbon, nitrogen, and phosphorus transport by world rivers. American Journal of Science 282: 401-450.

Meybeck, M. 2003. Global analysis of river systems: from Earth system controls to Anthropocene syndromes. Philos. Trans. R. Soc. B-Biol. Sci. 358:1935-1955.

Meyer, A., and E.I. Meyer. 2000. Discharge regime and the effect of drying on macroinvertebrate communities in a temporary karst stream in East Westphalia (Germany). Aquat. Sci. 62: 216-231.

Meyer, C.B., M.D. Sparkman, and B.A. Klatte. 2005. Sand seals in coho salmon redds: Do they improve egg survival? North American Journal of Fisheries Management 25 (1): 105-121.

Meyer, D.F., and H.A. Martinson. 1989. Rates and processes of channel development and recovery following the 1980 eruption of Mount St. Helens, Washington. Hydrological Sciences Journal 34: 115-127.

Meyer, J.L., M.J. Sale, P.J. Mulholland, and N.L. Poff. 1999. Impacts of climate change on aquatic ecosystem functioning and health. Journal of the American Water Resources Association 35: 1373-1386. Doi: 10.1002/rra.2709.

Meyer, J.L., D.L. Stayer, J.B. Wallace, S.L. Eggert, G.S. Helfman, and N.E. Leonard. 2007. The contribution of headwater streams to biodiversity in river networks. Journal of the American Water Resources Association 43 (1): 86-103.

Meyer, K.A., F.S. Elle, and J.A. Lamansky, Jr. 2009. Environmental factors related to the distribution, abundance, and life history characteristics of mountain whitefish in Idaho. North American Journal of Fisheries Management 29 (3): 753-767.

Meyer, K.A., and J.S. Griffith. 1997. Effects of cobble-boulder substrate configuration on winter residency of juvenile rainbow trout. North American Journal of Fisheries Management 17: 77-84.

Meyer, K.A., J.A. Lamansky, Jr., D.J. Schill, and D.W. Zaroban. 2013. Nongame fish species distributions and habitat associations in the Snake River basin of southern Idaho. Western North American Naturalist 73: 20-34.

Meyer, W.R. 2002. The effects of seasonal de-watering on three age classes of bull trout, *Salvelinus confluentus*. Master’s thesis, Central Washington University, Ellensburg, WA. 80 pp.

Meyers, E.M., B. Dobrowski, and C.L. Tague. 2010. Climate change impacts on flood frequency, intensity, and timing may affect trout species in Sagehen Creek, California. Transactions of the American Fisheries Society 139 (6): 1657-1664. Doi: 10.1577/T09-192.1

Meyers, P.J., and M.C. Belk. 2014. Shape variation in a benthic stream fish across flow regimes. Hydrobiologia 738: 147-154. Doi: 10.1007/s10750-014-1926-1.

Miah, M.S. 2015. Climatic and anthropogenic factors changing spawning pattern and production zone of hilsa fisheries in the Bay of Bengal. Weather and Climate Extremes 7: 109-115.

Michael, J.H., Jr. 1999. The future of Washington salmon: Extinction is not an option but it may be the preferred alternative. Northwest Science 73 (3): 235-239.

Michaelson, D.L., and R.J. Neves. 1995. Life history and habitat of the endangered dwarf wedgemussel *Alasmidonta heterodon* (Bivalia: Unionidae). JNABS 14 (2): 324-340.

Michel, C.J., A.J. Ammann, S.T. Lindley, P.T. Sandstrom, E.D. Chapman, M.J. Thomas, G.P. Singer, A.P. Klimley, and R.B. MacFarlane. 2015. Chinook salmon outmigration survival in wet and dry years in California’s Sacramento River. Canadian Journal of Fisheries and Aquatic Sciences 72 (11): 1749-1759. Doi: 10.1139/cjfas-2014-0528.

Michener, W.K., and R.A. Haeuber. 1998. Flooding: natural and managed disturbances. BioScience 48: 677-680. Doi: 10.2307/1313330.

Middleton, B.A. 2002. Flood pulsing in wetlands: restoring the natural hydrologic balance. John Wiley and Sons, Hoboken, New Jersey, USA.

Midway, S.R., T.J. Kwak, and D.D. Aday. 2010. Habitat suitability of the Carolina madtom, an imperiled, endemic stream fish. Transactions of the American Fisheries Society 139 (2): 325-338. Doi:10.1577/T08-238.1

Miehls, S.M., N.S. Johnson, and A. Haro. 2017. Electrical guidance efficiency of downstream-migrating juvenile sea lampreys decreases with increasing water velocity. Transactions of the American Fisheries Society 146 (2): 299-307. Doi: 10.1080/00028487.2016.1256834

Mierau, D.W., W.J. Trush, G.J. Rossi, J.K. Carah, M.O. Clifford, and J.K. Howard. 2017. Managing diversions in unregulated streams using a modified percernt-of-flow approach. Freshwater Biology doi: 10.1111/fwb.12985

Miklin, P.P. 1988. Desiccation of the Aral Sea: a water management disaster in the Soviet Union. Science 241: 1170-1176.

Milan, D.J., G.L. Heritage, A. Large, and M.E. Charlton. 2001. Stage dependent variability in tractive force distribution through a riffle-pool sequence. Catena 44: 85-109.

Milhous, R.T. 1982. Effect of sediment transport and flow regulation on the ecology of gravel bed rivers. Pp. 819-841 in: R.D. Hayes, T.C. Bathurst, and C.R. Thorne (eds.), Gravel bed rivers. John Wiley & Sons, London.

Milhous, R.T. 1986. Determining instream flows for flushing rivers and channel maintenance - a review. Proceedings, Hydrology Days, American Geophysical Union, Fort Collins, CO, April 1986.

Milhous, R.T. 1988. Hydraulics, sedimentation, and physical habitat simulation. Hydrosoft 1: 146-151.

Milhous, R.T. 1990. Calculation of flushing flows for gravel and cobble-bed rivers. Pp. 598-603 in: H.H. Chang and J.C. Hill (eds.), Hydraulic Engineering: Proceedings of the 1990 Conference, Volume 1. American Society of Civil Engineers, New York.

Milhous, R.T. 1991. Instream flow needs below peaking hydroelectric projects. Pp. 163-172 *in*: D.D. Darling, editor. Proceedings of the International Conference on Hydropower, American Society of Civil Engineers, New York.

Milhous, R.T. 1992. Determining the minimum instream flow for hydro peaking projects. Hydro Review 1992 (Oct.): 67-74.

Milhous, R.T. 1994. Instream flows and cottonwood establishment in the Bosque del Apache reach of the Rio Grande. Pp. 535-544 in: R.A. Marston and V.R. Hasfurther (eds.) “Effects of human-induced changes on hydrologic systems” Proceedings of the Annual Summer Symposium of the American Water Resources Association.

Milhous, R.T. 1994. On habitat simulation in mountain rivers. Pp. 850-854 in: G.V. Cotroneo and R.R. Rumer (eds.) “Hydraulic Engineering ‘94" Proceedings of the 1994 Conference of the American Society of Civil Engineers.

Milhous, R.T. 1995. The Physical Habitat Simulation System: structure and logic. In: L. Ahiya, J. Leppert, and K. Rojas (eds.) Workshop on Computer Applications in Water Management, proceedings of 1995 workshop.

Milhous, R.T. 1998. Modelling of instream flow needs: the link between sediment and aquatic habitat. Regulated Rivers: Research & Management 14: 79-94.

Milhous, R.T. 1999. Nose velocities in physical habitat simulation. In: Hydraulic Engineering for Sustainable Water Resources Management at the turn of the Millennium. Proceedings of the XXVIII IAHR Congress. Technical University Graz, Institute for Hydraulics and Hydrology. Graz, Austria.

Milhous, R.T. 2004. Mixing physical habitat and streamflow time series analysis. Hydroecologie Appliquee 14 (1): 69-91.

Milhous, R.T., J.M. Bartholow. 2006. Two analytical approaches for quantifying physical habitat as a limit to aquatic ecosystems. International Journal of River Basin Management 4: 191-199.

Milhous, R.T., J.M. Bartholow, M.A. Updike, and A.R. Moos. 1992. Reference manual for generation and analysis of habitat time series-version II. U.S. Fish and Wildlife Service, Instream Flow Information Paper 27, Fort Collins, Colorado.

Milhous, R.T., R.L. Smith, and W.J. Carswell, Jr. 1987. Average annual fulfillment of instream uses: discussion and closure. Journal of Water Resource Planning and Management 113: 443-446.

Milhous, R.T., M.A. Updike, and D.M. Schneider. 1989. Physical habitat simulation system reference manual - version II. Instream Flow Information Paper 26, U.S. Fish and Wildlife Service Biological Report 89 (16). http://www.fort.usgs.gov/Products/Publications/3912/3912.pdf.

Milhous, R.T., D.L. Wegner, and T. Waddle. 1984. User’s guide to the Physical Habitat Simulation System (PHABSIM). Instream Flow Information Paper No. 11, U.S. Fish and Wildlife Service, FWS/OBS-81/43 Revised.

Miller, A.J. 1990. Flood hydrology and geomorphic effectiveness in the central Appalachians. Earth Surface Processes and Landforms 15: 119-134.

Miller, A.J. 1994. Debris-fan constrictions and flood hydraulics in river canyons: some implications from two-dimensional flow modeling. Earth Surface Processes and Landforms 19: 681-697.

Miller, A.J. 1995. Valley morphology and boundary conditions influencing spatial patterns of flood flow. Pages 57-81 in: J.E. Costa, A.J. Miller, K.W. Potter, and P.R. Wilcock, editors, Natural and Anthropogenic Influences in Fluvial Geomorphology American Geophysical Union, Washington, D.C.

Miller, A.J., and B.L. Cluer. 1998. Modeling considerations for simulation of flow in bedrock channels. Pages 61-104 in: E.E. Wohl, and K.J. Tinkler, editors. Rivers over Rock: Fluvial Processes in Bedrock Channels. American Geophysical Union, Washington, D.C.

Miller, A.M., and S. W. Golladay. 1996. Effects of spates and drying on macroinvertebrate assemblages of an intermittent and a perennial stream. Journal of the North American Benthological Society 15: 670-689.

Miller, C.J. D.L. Roelke, S.E. Davis, H.-P. Li, and G. Gable. 2008. The role of inflow magnitude and frequency on plankton communities from the Guadalupe Estuary, Texas, USA: findings from microcosm experiments. Estuar. Coast. Shelf Sci. 80 (1): 67-73. Doi: 10.1016/j.ecss.2008.07.006.

Miller, D.L., P.M. Leonard, R.M. Hughes, J.R. Karr, P.B. Moyle, L.H. Schrader, B.A. Thompson, R.A. Daniels, K.D. Fausch, G.A. Fitzhugh, J.R. Gammon, D.B. Halliwell, P.L. Angermeier, and D.J. Orth. 1988. Regional applications of an index of biotic integrity for use in water resource management. Fisheries 13: 12-20.

Miller, J.R., and R.C. Kochel. 2010. Assessment of channel dynamics, in-stream structures and post-project channel adjustments in North Carolina and its implications to effective stream restoration. Environ. Earth Sci. 59: 1681-1692. Doi: 10.1007/s12665-009-0150-1.

Miller, J.R., T.T. Schulz, N.T. Hobs, K.R. Wilson, D.L. Schrupp, and W.L. Baker. 1995. Changes in the landscape structure of a southeastern Wyoming riparian zone following shifts in stream dynamics. Biological Conservation 72: 371-379.

Miller, J.W. 1976. The effects of minimum and peak Cedar River streamflows on fish production and water supply.. M.Sc. thesis, University of Washington, Seattle. 230 pp.

Miller, K.A., J.A. Webb, S.C. de Little, and M.J. Stewardson. 2013. Environmental flows can reduce the encroachment of terrestrial vegetation into river channels: A systematic literature review. Environmental Management 52: 1201-1212.

Miller, M.P. 2012. The influence of reservoirs, climate, land use, and hydrologic conditions on loads and chemical quality of dissolved organic carbon in the Colorado River. Water Resour. Res. 48: W00M02. Doi: 10.1029/2012.WR012312.

Miller, R.B., and M.J. Paetz. 1959. The effects of power, irrigation, and stock water developments on the fisheries of the South Saskatchewan River. Can. Fish-Cult. 25: 13-26.

Miller, S.C., S.E. Reeb, P.A. Wright, and T.E. Gillis. 2008. Oxygen concentration in the water boundary layer next to rainbow trout (*Oncorhynchus mykiss*) embryos is influenced by hypoxia exposure time, metabolic rate, and water flow. Canadian Journal of Fisheries and Aquatic Sciences 65 (10): 2170-2177.

Miller, S.W., and S. Judson. 2014. Responses of macroinvertebrate drift, benthic assemblages, and trout foraging to hydropeaking. Canadian Journal of Fisheries and Aquatic Sciences 71 (5): 675-687. Doi: 10.1139/cjfas-2013-0562.

Miller, S.W., D. Wooster, and J. Li. 2007. Resistance and resilience of macroinvertebrates to irrigation water withdrawals. Freshwater Biology 52: 2494-2510.

Millidine, K.J., J.D. Armstrong, and N.B. Metcalfe. 2006. Presence of shelter reduces maintenance metabolism of juvenile salmon. Functional Ecology 20: 839-845. Doi: 10.1111/j.1365-2435.2006.01166.x.

Millidine, K.J., I.A. Malcolm, and R.J. Fryer. 2016. Assessing the transferability of hydraulic habitat models for juvenile Atlantic salmon. Ecol. Indic. 69: 434-445. Doi: 10.1016/j.ecolind.2016.05.012

Milligan, C.L., G.B. Hooke, and C. Johnson. 2000. Sustained swimming at low velocity following a bout of exhaustive exercise enhances metabolic recovery in rainbow trout. Journal of Experimental Biology 203: 921-926.

Milliman, J., K.L. Farnsworth, P.D. Jones, K.H. Xu, and L.C. Smith. 2008. Climatic and anthropogenic factors affecting river discharge to the global ocean, 1951-2000. Global Planet. Change 62 (3-4): 187-194. Doi: 1016/j.gloplacha.2008.03.001.

Milliman, J., and J. Syvitski. 1992. Geomorphic/tectonic control of sediment discharge to the ocean: The importance of small mountainous rivers. J. Geol. 100 (5): 525-544. Doi: 1086/629606.

Mills, J.S., J.B. Dunham, G.H. Reeves, J.R. McMillan, C.E. Zimmerman, and C.E. Jordan. 2012. Variability in expression of anadromy by female *Oncorhynchus mykiss* within a river network. Environ. Biol. Fishes 93: 505-517.

Mills, K.E., A.J. Pershing, T.F. Sheehan, and D. Mountain. 2013. Climate and ecosystem linkages explain widespread declines in North American Atlantic salmon populations. Global Change Biology 19: 3046-3061.

Millspaugh, J.J., C.T. Rota, T.W. Bonnot, R.A. Montgomery, J.L. Belant, C.R. Ayers, R.A. Gitzen, D.A. Eads, D.C. Kesler, and C. Bodinof. 2017. Analysis of resource selection by animals. In: D. Murray and B. Sandercock, editors. Population ecology in practice: underused, misused, and abused methods. Cambridge University Press, New York.

Milly, P.C.D., J. Betancourt, Milly, P.C.D.,M. Falkenmark, R.M. Hirsch, Z.W. Kundzewicz, D.P. Lettenmaier, and R.J. Stouffer. 2008. Stationarity is dead: whither water management? Science 319: 573-574. Doi: 10.1126/science.1151915

Milly, P.C.D., K.A. Dunne, and A.V. Vecchia. 2005. Global pattern of trends in streamflow and water availability in a changing climate. Nature 438: 347-350. Doi: 10.1038/nature04312

Milner, A.M., J.E. Brittain, E. Castella, and G.E. Petts. 2001. Trends of macroinvertebrate community structure in glacier-fed rivers in relation to environmental conditions: a synthesis. Freshwater Biology 46: 1833-1847.

Milner, A.M., L.E. Brown, and D.M. Hannah. 2009. Hydroecological effects of shrinking glaciers. Hydrological Processes 23: 62-77.

Milner, A.M., A.L. Robertson, L.E Brown, S.H. Sonderland, M. McDermott, and A.J Veal. 2011. Evolution of a stream ecosystem in recently deglaciated terrain. Ecology 92 (10: 1924-1935.

Milner, A.M., A.L. Robertson, K.A. Monaghan, A.J. Veal, and E.A. Flory. 2008. Colonization and development of an Alaskan stream community over 28 years. Frontiers in Ecology and the Environment 6 (8): 413-419.

Milner, N.J., I.G. Cowx, and K.F. Whelan. 2012. Salmonids and flows: a perspective on the state of the science and its application. Fisheries Management and Ecology 19 (6): 445-450. Doi: 10.1111/fme.12016.

Milner, N.J., J.M. Elliott, J.D. Armstrong, R. Gardiner, J.S. Welton, and M. Ladle. 2003. The natural control of salmon and trout populations in streams. Fisheries Research 62: 111-125. Doi:10.1016/S0165-7836(02)00157-1.

Milner, N.J., J. Scullion, P.A. Carling, and T. Crisp. 1981. The effects of discharge on sediment dynamics and consequent effects on invertebrates and salmonids in upland rivers. Adv. Appl. Biol. 6: 152-220.

Milner, N.J., D.J. Solomon, and G.W. Smith. 2012. The role of river flow in the migration of adult Atlantic salmon, *Salmo salar*, through estuaries and rivers. Fisheries Management and Ecology 19 (6): 537-547.

Milner, N.J., R.J. Wyatt, and M.D. Scott. 1993. Variability in the distribution and abundance of stream salmonids and the associated use of habitat models. J. Fish Biol. 43 (Suppl. A): 103-119.

Mims, M.C., and J.D. Olden. 2012. Life history theory predicts fish assemblage response to hydrologic regimes. Ecology 93 (1): 35-45. Doi: 10.1890/11-0370.1.

Mims, M.C., and J.D. Olden. 2013. Fish assemblages respond to altered flow regimes via ecological filtering of life history strategies. Freshw. Biol. 58: 50-62. Doi: 10.1111/fwb.12037.

Minckley, W.L. 1963. The ecology of a spring stream, Doe Run, Meade County, Kentucky. Wildlife Monographs 11: 124.

Minckley, W.L., and F.B. Cross. 1959. Distribution, habitat, and abundance of the Topeka shiner *Notropis topeka* (Gilbert) in Kansas. American Midland Naturalist 61: 210-217.

Minckley, W.L., and J.E. Deacon. 1968. Southwestern fishes and the enigma of “endangered species”. Man’s invasion of deserts creates problems for native animals, especially for freshwater fishes. Science (Washington, D.C.) 159 (3822): 1424-1434. Doi: 10.1126/science.159.3822.1424

Minckley, W.L., and G.K. Meffe. 1987. Differential selection by flooding in stream-fish communities of the arid American Southwest. Pp. 93-104 in: W.J. Matthews and D.C. Heins, (eds.) Community and evolutionary ecology of North American stream fishes. University of Oklahoma Press, Norman.

Mingelbier, M., P. Brodur, and J. Morin. 2008. Spatially explicit model predicting the spawning habitat and early stage mortality of northern pike (*Esox lucius*) in a large system: the St. Lawrence River between 1960 and 2000. Hydrobiologia 601: 55-69. Doi:10.1007/s10750.007-9266-z

Minns, C.K., J.R.M. Kelso, and R.G. Randall. 1996. Detecting the response of fish to habitat alterations in freshwater ecosystems. Canadian Journal of Fisheries and Aquatic Sciences 53: 403-414.

Minshall, G. 1984. Aquatic insect-substratum relationships. Pp. 358-400 *in*: V.H. Resh and D.M. Rosenberg, editors. The ecology of aquatic insects. Praeger Publishers, Eastbourne, New York.

Minshall, G.W. 1988. Stream ecosystem theory: a global perspective. Journal of the North American Benthological Society 7 (4): 263-288.

Minshall, G.W. 1989. The ecology of stream and riparian habitats of the Great Basin region: a community profile. U.S. Fish and Wildlife Service Biological Report 85(7.24).

Minshall, G.W., K.W. Cummins, R.C. Peterson, C.E. Cushing, D.A. Bruns, J.R. Sedell, and R.L. Vannote. 1985. Developments in stream ecosystem theory. Canadian Journal of Fisheries and Aquatic Sciences 42: 1045-1055.

Minshall, G.W., R.C. Petersen, K.W. Cummins, T.L. Bott, J.R. Sedell, C.E. Cushing, and R.L. Vannote. 1983. Interbiome comparison of stream ecosystem dynamics. Ecological Monographs 53: 1-25.

Minshall, G.W., S.A. Thomas, J.D. Newbold, M.T. Monaghan, and C.E. Cushing. 2000. Physical factors influencing fine particle transport and deposition in streams. Journal of the North American Benthological Society 19: 1-16.

Minshall, G.W., and P.V. Winger. 1968. The effect of reduction in stream flow on invertebrate drift. Ecology 49: 580-582. Doi: 10.2307/1934133.

Mion, J.B., R.A. Stein, and E.A. Marschall. 1998. River discharge drives survival of larval walleye. Ecological Applications 8 (1): 88-103. Doi: 10.1890/1051-0761(1998)008/0088:RDDSOL/2.0.CO;2.

Miranda, L.E. 2005. Fish assemblages in oxbow lakes relative to connectivity with the Mississippi River. Transactions of the American Fisheries Society 134 (6): 1480-1489.

Miranda, L.E. 2016. Fishes in paleochannels of the lower Mississippi River alluvial valley: a national treasure. Fisheries 41 (10): 578-588.

Mitchell, A.C., C.B. James, and J.E. Edinger. 1995. Analyses of flow modification on water quality in the Nechako River. Journal of Energy Engineering 121: 73-80.

Mitchell, S.C., and R.A. Cunjak. 2007. Relationship of upstream migrating adult Atlantic salmon (*Salmo salar*) and stream discharge within Catamaran Brook, New Brunswick. Canadian Journal of Fisheries and Aquatic Sciences 64 (3): 563-573. Doi: 10.1139/f07-032.

Mitro, M.G., and A.V. Zale. 2002. Seasonal survival, movement, and habitat use of age-0 rainbow trout in the Henrys Fork of the Snake River, Idaho. Transactions of the American Fisheries Society 131 (2): 271-286. Doi:10.1577/1548-

8659(2002)131<0271:SSMAHU>2.0.CO;2.

Mitro, M.G., A.V. Zale, and B.A. Rich. 2003. The relation between age-0 rainbow trout (*Oncorhynchus mykiss*) abundance and winter discharge in a regulated river. Canadian Journal of Fisheries and Aquatic Sciences 60 (2): 135-139.

Mitrovic, S.M., L. Hardwick, and F. Dorani. 2011. Use of flow management to mitigate cyanobacterial blooms in the lower Darling River, Australia. J. Plankton Res. 33 (2): 229-241. Doi: 10.1093/plankt/fbq094.

Mitsch, W.J., and W.G. Rust. 1984. Tree growth responses to flooding in a bottomland forest in northern Illinois. Forest Science 30: 499-510.

Mittelbach, G.G. 1981. Foraging efficiency and body size: a study of optimal diet and habitat use by bluegills. Ecology 62: 1370-1386.

Miiyakoshi, Y., H. Hayano, H. Omori, M. Nagata, and J.R. Irvine. 2002. Importance of instream cover for young masu salmon, *Oncorhynchus masou*, in autumn and winter. Fish. Manag. Ecol. 9 (4): 217-223. Doi:10.1046/j.1365-2400.2002.00300.x.

Miyake, Y., and S. Nakano. 2002. Effects of substratum stability on diversity of stream invertebrates during baseflow at two spatial scales. Freshwater Biology 47: 219-230.

Miyazono, S., J.N. Aycock, L.E. Miranda, and T.E. Tietjen. 2010. Assemblage patterns of fish functional groups relative to habitat connectivity and conditions in floodplain lakes. Ecology of Freshwater Fish 19: 578-585.

Miyoshi, K., K. Hayashida, T. Sakashita, M. Fujii, H. Nii, K. Nakao, and H. Ueda. 2014. Comparison of the swimming ability and upstream-migration behavior between chum and masu salmon. Canadian Journal of Fisheries and Aquatic Sciences 71 (2): 217-225. Doi: 10.1139/cjfas-2013-0480. Doi: 10.1111/j.1600-0633.2010.00438.x.

Mochizuki, S., Y. Kayaba, and K. Tanida. 2006. Drift patterns of particulate matter and organisms during artificial high flows in a large experimental channel. Limnology 7: 93-102. Doi: 10.1007/s10201-006-0166-0.

Mochnacz, N.J., J.D. Reist, P. Cott, G. Low, and R. Wastle. 2004. Biological and habitat data for Bull Trout (*Salvelinus confluentus*) and associated species from stream surveys conducted in the southern and central Mackenzie River Valley, Northwest Territories, 2000 to 2001. Canadian Data Report of Fisheries and Aquatic Sciences 1131.

Modde, T., and T.B. Hardy. 1992. Influences of different microhabitat criteria on salmonid habitat simulation. Rivers 3 (1): 37-44.

Modde, T., R.T. Muth, and G.B. Haynes. 2001. Floodplain wetland suitability, access, and potential use by juvenile razorback suckers in the middle Green River, Utah. Transactions of the American Fisheries Society 130: 1095-1105.

Modde, T., and B. Platz. 1990. Influence of operator position on the precision of measurements taken with hand-held velocity meters in rivers. North American Journal of Fisheries Management 10 (2): 247-248.

Moen, C.T., D.L. Scarnecchia, and J.S. Ramsey. 1992. Paddlefish movement and habitat use in Pool 13 of the upper Mississippi River during abnormally low river stages and discharges. North American Journal of Fisheries Management 12: 744-751.

Moerke, A.H., and G.A. Lamberti. 2006. Scale-dependent influences on water quality, habitat, and fish communities in streams of the Kalamazoo River Basin, Michigan (USA). Aquatic Science 68: 193-205/

Mohseni, O., H.G. Stefan, and J.G. Eaton. 2003. Global warming and potential changes in fish habitat in U.S. streams. Climatic Change 59: 389-409.

Moir, H.J. 1999. The characterization of Atlantic salmon spawning habitat in the River Dee and River Don catchments, Scotland. Ph.D. thesis, University of Aberdeen. 351 pp.

Moir, H.J., C.N. Gibbins, J.M. Buffington, J.H. Webb, C. Soulsby, and M.J. Brewer. 2009. A new method to identify the fluvial regimes used by spawning salmonids. Canadian Journal of Fisheries and Aquatic Sciences 66 (9): 1404-1408. Doi:10.1139/F09-136.

Moir, H.J., C.N. Gibbins, C. Soulsby, and J.H. Webb. 2004. Linking channel geomorphic characteristics to spatial patterns of spawning activity and discharge use by Atlantic salmon (*Salmo salar* L.). Geomorphology 60: 21-35. Doi: 10.1016/j.geomorph.2003.07.014.

Moir, H.J., C.N. Gibbins, C. Soulsby, and J.H. Webb. 2006. Discharge and hydraulic interactions in contrasting channel morphologies and their influence on site utilization by spawning Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 63 (11): 2567-2585. Doi: 10.1139/f06-137.

Moir, H.J., C.N. Gibbins, C. Soulsby, and A.F. Youngson. 2005. Validation of PHABSIM predictions for simulating salmon spawning habitat. River Res. Appl. 21: 1-14. Doi: 10.1002/rra.869.

Moir, H.J., C.N. Gibbins, C. Soulsby, and A.F. Youngson. 2005. PHABSIM modelling of Atlantic salmon spawning habitat in an upland stream: testing the influence of habitat suitability indices on model output. Rivers Research and Applications 21: 1021-1034.

Moir, H.J., and G.B. Pasternack. 2008. Relationships between mesoscale morphological units, stream hydraulics and Chinook salmon (*Oncorhynchus tshawytscha*) spawning habitat on the lower Yuba River, California. Geomorphology 100 (3-4): 527-548. Doi:10.1002/rra.1292

Moir, H.J., and G.B. Pasternack. 2010. Substrate requirements of spawning Chinook salmon (*Oncorhynchus tshawytscha*) are dependent on local channel hydraulics. River Research and Applications 26: 456-468. Doi: 10.1002/rra.1292

Moir, H.J., C. Soulsby, and A. Youngson. 1998. Hydraulic and sedimentary characteristics of habitat utilized by Atlantic salmon for spawning in the Girnock Burn, Scotland. Fisheries Management and Ecology 5 (3): 241-254. Doi: 10.1046/j.1365-2400.1998.00105.x.

Moir, H.J., C. Soulsby, and A. Youngson. 2002. Hydraulic and sedimentary controls on the availability and use of Atlantic salmon (*Salmo salar*) spawning habitat in the River Dee system, northeastern Scotland. Geomorphology 60 (1-2): 291-308. Doi:10.1016/S0169-555X(01)00160-X.

Moir, H.J., C. Soulsby, A. Youngson, and C.N. Gibbins. 2005. PHABSIM modeling of Atlantic salmon spawning habitat in an upland stream: testing the influence of habitat suitability indices on model outputs. River Research and Applications 21: 1021-1034.

Mollenhauer. R., T. Wagner, M.G. Kepler, and J.A. Sweka. 2013. Fall and early winter movement and habitat use of wild brook trout. Transactions of the American Fisheries Society 142 (5): 1167-1178. Doi: 10.1080/00028487.2013.793611

Molles, M. 1980. The impacts of habitat alterations and introduced species on the native fishes of the upper Colorado River basin. Pp. 163-181 in: W.O. Spofford, Jr., A.L. Parker, and A.V. Kneese (eds.). Energy development in the Southwest. Washington, D.C., Resources for the Future, Inc.

Molles, M.C., Jr. 1985. Recovery of a stream invertebrate community from a flash flood in Tesuque Creek, New Mexico. Southwestern Naturalist 30: 279-287.

Molles, M.C., C.S. Crawford, and L.M. Ellis. 1995. Effects of an experimental flood on litter dynamics in the Middle Rio Grande riparian ecosystem. Regulated Rivers: Research and Management 11: 275-281.

Molles, M.C., C.S. Crawford, L.M. Ellis, H.M. Valett, and C.N. Dahm. 1998. Managed flooding for riparian ecosystem restoration. BioScience 48: 749-756.

Molles, M.C., Jr., and C.N. Dahm. 1990. A perspective on El Nino and La Nina: global implications for stream ecology. Journal of the North American Benthological Society 9: 68-76.

Molls, F. 1999. New insights into the migration and habitat use by bream and white bream in the floodplain of the Rhine River. Journal of Fish Biology 55: 1187-1200.

Monaghan, J.P. 1985. A study of riverine muskellunge populations and habitat in North Carolina. North Carolina Wildlife Resources Commission, nFederal Aid in Sport Fish Rrstoration, Project F-24, Final Report, Raleigh.

Monahan, J.T. 1991. Development of habitat suitability data for smallmouth bass (*Micropterus* *dolomieui*) and rock bass (*Ambloplites rupestris*). M.S. thesis, Michigan State University, East Lansing.

Monismith, S.G., W. Kimmerer, J.R. Burau, and M.T. Stacey. 2002. Structure and flow-induced variability of the subtidal salinity field in northern San Francisco Bay. J. Phys. Oceanogr. 32 (11): 3003-3019. Doi: 10.1175/1520-0485(2002)032<3003:SAFIVO>2.0.CO;2.

Monk, B., D. Weaver, C. Thompson, and F. Ossiander. 1989. Effects of flow and weir design on the passage behavior of American shad and salmonids in an experimental fish ladder. North American Journal of Fisheries Management 9: 60-67.

Monk, C.L, 1989. Factors that influence stranding of juvenile Chinook salmon and steelhead trout. Master’s thesis, University of Washington, Seattle.

Monk, W.A., Z.G. Compson, D.G. Armanini, J.M. Orlofske, C.J. Curry, D.L. Peters, J.B. Crocker, and D.J. Baird. 2018. Flow velocity-ecology thresholds in Canadian rivers: A comparison of trait and taxonomy-based approaches. Freshwater Biology 63 (8): 891-905. Doi: 10.1111/fwb.13030

Monk, W.A., D.L. Peters, A.R. Curry, and D.J. Baird. 2011. Quantifying trends in indicator hydroecological variables for regime-based groups of Canadian rivers. Hydrological Processes 25 (19): 1085-1099.

Monk, W.A, P.J. Wood, and D.M. Hannah. 2007. Examining the influence of flow regime variability on instream ecology. Pages 165-184 in: P.J. Wood, D.M. Hannah, and J.P. Sadler, editors. Hydroecology and Ecohydrology: Past, present and future. Wiley & Sons. United Kingdom.

Monk, W.A, P.J. Wood, D.M. Hannah, and D.A. Wilson. 2007. Selection of river flow indices for the assessment of hydroecological change. River Research and Applications 23: 113-122.

Monk, W.A, P.J. Wood, D.M. Hannah, and D.A. Wilson. 2008. Macroinvertebrate community response to inter-annual and regional river flow regime dynamics. River Research and Applications 24: 988-1001.

Monk, W.A, P.J. Wood, D.M. Hannah, D.A. Wilson, C.A. Extence, and R.P. Chadd. 2006. Flow variability and macroinvertebrate community response within riverine systems. River Research and Applications 22: 595-615. Doi: 10.1002/(ISSN)1535-1467

Monk, W.A, P.J. Wood, D.M. Hannah, and D.A. Wilson. 2007. Selection of river flow indices for the assessment of hydroecological change. River Research and Applications 23: 113-122.

Monnot, L., J.B. Dunham, T. Hoem, and P. Koetsier. 2008. Influences of body size and environmental factors on autumn downstream migration of bull trout in the Boise River, Idaho. North American Journal of Fisheries Management 28 (1): 231-240.

Montagna, P.A., M. Alber, P. Doering, and M.S. Connor. 2002. Freshwater inflow: science, policy, management. Estuaries 25 (6B): 1243-1245.

Montagna, P.A., and R.D. Kalke. 1992. The effect of freshwater inflow on meiofaunal and macrofaunal populations in the Guadalupe and Nueces estuaries, Texas. Estuaries 15: 307-326.

Montagna, P.A., R.D. Kalke, and C. Ritter. 2002. Effect of restored freshwater inflow on macrofauna and meiofauna in upper Rincon Bayou, Texas, USA. Estuaries 25 (6B): 1436-1447.

Montagna, P.A., T.A. Palmer, and J.B. Pollack. 2013. Hydrological changes and estuarine dynamics. Springer, New York, NY, USA.

Montagna, P.A., and W.B. Yoon. 1991. The effect of freshwater inflow on meiofaunal consumption of sediment bacteria and microphytobenthos in San Antonio Bay, Texas, USA. Estuarine, Coastal and Shelf Science 33: 529-547.

Montague, C.L., and J. Ley. 1993. A possible effect of salinity fluctuation on abundance of benthic vegetation and associated fauna in northeastern Florida Bay. Estuaries 16 (4): 703-717. Doi: 10.2307/1352429.

Montalto, F.A., and T.S. Steenhuis. 2004. The link between hydrology and restoration of tidal marshes in the New York/New Jersey estuary. Wetlands 24 (2): 414-425. Doi: 10.1672/0277-5212(2004)024[0414:TLBHAR]2.0.CO;2.

Montgomery, D.R. 1999. Process domains and the river continuum. Journal of the American Water Resources Association 35: 397-410. Doi: 10.1111/j.1752-1688.1999.tb03598.x

Montgomery, D.R., T.B. Abbe, J.M. Buffington, N.P. Peterson, K.M. Schmidt, and J.D. Stock. 1996. Distribution of bedrock and alluvial channels in forested mountain drainage basins.

Nature 381:587-589.

Montgomery, D.R., E.M. Beamer, G.R. Pess, and T.P. Quinn. 1999. Channel type and salmonid spawning distribution and abundance. Canadian Journal of Fisheries and Aquatic Sciences 56: 377-387. Doi:10.1139/cjfas-56-3-377.

Montgomery, D.R., and J.M. Buffington. 1993. Channel classification, prediction of channel response, and assessment of channel condition. Washington State Department of Natural Resources, Timber/Fish/Wildlife Agreement, Report TFW-SH10-93-002, June 24, 1993, 84 pp.

Montgomery, D.R., and J.M. Buffington. 1997. Channel-reach morphology in mountain drainage basins. Bulletin Geological Society of America 109: 596-611. Doi: 10.1130/0016-7606(1997)109<0596.CRMIMD>2.3.CO;2.

Montgomery, D.R., and J.M. Buffington. 1998. Channel processes, classification and response. Pages 13-42 in: R. Naiman and R. Bilby, editors. River Ecology and Management. Springer-Verlag, New York.

Montgomery, D.R., J.M. Buffington, N.P. Peterson, D. Schuett‑Hames, and T.P. Quinn. 1996. Stream‑bed scour, egg burial depths, and the influence of salmonid spawning on bed surface mobility and embryo survival. Canadian Journal of Fisheries and Aquatic Sciences 53 (5): 1061‑1070. Doi:10.1139/cjfas-53-5-1061.

Montgomery, D.R., J.M. Buffington, R.D. Smith, K.M. Schmidt, and G. Pess. 1995. Pool spacing in forest channels. Water Resources Research 31: 1097-1105. Doi: 10.1029/94WR03285.

Montgomery, D.R., B.D. Collins, J.M. Buffington, and T.B. Abbe. 2003. Geomorphic effects of wood in rivers. In: The ecology and management of wood in world rivers. Edited by S.V. Gregory, K.L. Boyer, and A.M. Gurnell. American Fisheries Society Symposium No. 37, Bethesda, Maryland. Pp. 21-47.

Montgomery, D.R., T.M. Massong, and C.S. Hawley. 2003. Influence of debris flows and log jams on the location of pools and alluvial channel reaches, Oregon Coast Range. Geological Society of America Bulletin 115: 78-88.

Montgomery, D.R., and H. Piegay. 2003. Wood in rivers: interactions with channel morphology and processes. Geomorphology 51 (1-3): 1-5

Montoya, J.V., D.L. Roelke, K.O. Winemiller, J.B. Cotner, and J.A. Snider. 2006. Hydrological seasonality and benthic algal biomass in a Neotropical floodplain river. Journal of the North American Benthological Society 25: 157-170.

Moog, O. 1993. Quantification of daily peak hydropower effects on aquatic fauna and management to minimize environmental impacts. Regulated Rivers: Research and Management 8: 5-14. Doi: 10.1002/rra.3450080105

Moore, G.A. 1944. Notes on the early life history of *Notropis girardi*. Copeia 1944: 209-214.

Moore, J.N., J.T. Harper, and M.C. Greenwood. 2007. Significance of trends toward earlier snowmelt runoff, Columbia and Missouri basin headwaters, western United States. Geophysical Research Letters 34: L16402. Doi: 10.1029/2007/GL031022.

Moore, J.W., M.P. Beakes, H.K. Nesbitt, J.D. Yeakel, D.A. Patterson, L.A. Thompson, C.C. Phillis, D.C. Braun, C. Favaro, D. Scott, C. Carr-Harris, and W.I. Atlas. 2015. Emergent stability in a large, free-flowing watershed. Ecology 96 (2): 340-347.

Moore, J.W., D.E. Schindler, and C.P. Ruff. 2008. Habitat saturation drives thresholds in stream subsidies. Ecology 89 (2): 306-312.

Moore, K.M.S., and S.V. Gregory. 1988. Summer habitat utilization and ecology of cutthroat trout fry (*Salmo clarki*) in Cascade Mountain streams. Canadian Journal of Fisheries and Aquatic Sciences 45 (11): 1921‑1930. Doi: 10.1139/f88-224.

Moore, K.M.S., and S.V. Gregory. 1988. Response of young-of-the-year cutthroat trout to manipulation of habitat structure in a small stream. Transactions of the American Fisheries Society 117 (2): 162-170.

Moore, .D., and S.M. Wondzell. 2005. Physical hydrology and the effects of forest harvesting in the Pacific Northwest: a review. J. Am. Water Resour. Assoc. 41: 753-784.

Moore, M. 2004. Perceptions and interpretations of environmental flows and implications for future water resource management: a survey study. Master’s thesis, Department of Water and Environmental Studies, Linkoping University, Sweden.

Moore, M.R., A. Mulville, and M. Weinberg. 1996. Water allocation in the American West: endangered fish versus irrigated agriculture. Natural Resources Journal 36: 319-357.

Moore, S.L., and J.H. Thorp. 2008. Coping with hydrogeomorphic variations in a prairie river: resiliency in young-of-the-year fishes. River Research and Application 24: 267-278.

Mora, E.A., S.T. Lindley, D.L. Erickson, and A.P. Klimley. 2009. Do impassable dams and flow regulation constrain the distribution of green sturgeon in the Sacramento River, California? Journal of Applied Ichthyology 25: 39-47.

Morales, Y., L.J. Weber, A.E. Mynett, and T.J. Newton. 2006. Effects of substrate and hydrodynamic conditions on the formation of mussel beds in a large river. Journal of the North American Benthological Society 25: 664-676.

Morales, Y., L.J. Weber, A.E. Mynett, and T.J. Newton. 2006. Mussel dynamics model: a hydroinformatics tool for analyzing the effects of different stressors on the dynamics of freshwater mussel communities. Ecological Modelling 197: 448-460.

Morantz, D.L., R.K. Sweeney, C.S. Shirvell, and D.A. Longard. 1987. Selection of microhabitat in summer by Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 44 (1): 120-129.

Morgan, C.A., A. DeRobertis, and R.W. Zabel. 2005. Columbia river plume fronts. I. Hydrography, zooplankton distribution, and community composition. Mar. Ecol. Prog. Ser. 299: 19-31. Doi: 10.3354/meps299019.

Morgan, R.P., R.E. Jacobsen, S.B. Weisberg, L.A. McDowell, and H.T. Wilson. 1991. Effects of flow alteration on benthic macroinvertebrate communities below the Brighton Hydroelectric Dam. Journal of Freshwater Ecology 6: 419-429.

Morhardt, E.J., and E.G. Altouney. 1986. Instream flow methodologies. Research Project 2194-2, The Electric Power Research Institute, Palo Alto.

Morhardt, E.J., and E.G. Altouney. 1988. Instream Flow Methodologies and Requirements. Pages 710-718 in: Proceedings of Waterpower 1987, American Society of Civil Engineering, New York.

Morhardt, E.J., and D.F. Hanson. 1988. Habitat availability considerations in the development of suitability criteria. Pages 392‑403 in K. Bovee and J.R. Zuboy, editors. Proceedings of a workshop on the development of habitat suitability criteria. U.S. Fish and Wildlife Service, Biological Report 88 (11), Washington D.C.

Morhardt, J.E., D.F. Hanson, and P.J. Coulston. 1983. Instream flow analysis: increased accuracy using habitat mapping. Pp. 1294-1304 *in*: Waterpower 83: an international conference of hydropower. Tennessee Valley Authority, Norris, Tennessee.

Mori, T., and T. Saitoh. 2014. Flood disturbance and predator-prey effects on regional gradients in species diversity. Ecology 95 (1): 132-141.

Morin, A., P.-P. Harper, and R.H. Peters. 1986. Microhabitat-preference curves of blackfly larvae (Diptera: Simuliidae): a comparison of three estimation methods. Canadian Journal of Fisheries and Aquatic Sciences 43: 1235-1241.

Morin, A., and R.H. Peters. 1988. Effect of microhabitat features, seston quality, and periphyton on abundance of overwintering black fly larvae in southern Quebec. Limnology and Oceanography 33: 431-446.

Morin, J., M. Leclerc, Y. Secretan, and P. Boudreau. 2000. Integrated two-dimensional macrophytes - hydrodynamic modelling application to Lake Saint-Francois (St. Lawrence River, Quebec, Canada). Journal of Hydraulic Research (IAHR) 3 (38): 163-172.

Morinville, G.R., and J.B. Rasmussen. 2006. Does life-history variability in salmonids affect habitat use by juveniles? A comparison among streams open and closed to anadromy. Journal of Animal Ecology 75: 693-704.

Morris, A., J. Donovan, and M. Strager. 2009. Geospatial analysis of climatic and geomorphic interactions influencing stream discharge, Appalachian Mountains, USA. Environmental Modeling and Assessment 14: 73-84.

Morris, D.W. 1989. Density-dependent habitat selection: testing the theory with fitness data. Evol. Ecol. 3: 80-94. Doi: 10.1007/BF02147934.

Morris, S.E. 1992. Geomorphic assessment of effects of flow diversion on anadromous fish spawning habitat: Newhalem Creek, Washington. Professional Geographer 44 (4): 444-452.

Morrison, J., M.C. Quick, and M.G.G. Foreman. 2002. Climate change in the Fraser River watershed: flow and temperature projections. Journal of Hydrology 263: 230-244.

Morrison, R.R., R.H. Hotchkiss, M. Stone, D. Thurman, and A.R. Horner-Devine. 2009. Turbulence characteristics of flow in a spiral corrugated culvert fitted with baffles and implications for fish passage. Ecological Engineering 35:381-392.

Morrison, R.S. 1990. Recolonization of four small streams in central Scotland following drought conditions in 1984. Hydrobiologia 208: 261-267.

Morrongiello, J.R., D.A. Crook, A.J. King, D.S.L. Ramsey, and P. Brown. 2011. Impacts of drought and predicted effects of climate change on fish growth in temperate Australian lakes. Glob. Change Biol. 17 (2): 745-755, doi: 10.1111/j.1365-2486.2010.02259.x.

Mortazavi, B., R.L. Iverson, and W. Huang. 2001. Dissolved organic nitrogen and nitrate in Apalachicola Bay, Florida: spatial distributions and monthly budgets. Marine Ecology Progress Series 214: 79-91.

Mortazavi, B., R.L. Iverson, W. Huang, F.G. Lewis, and J.M. Caffrey. 2000. Nitrogen budget of Apalachicola Bay, a bar-built estuary in the northeastern Gulf of Mexico. Marine Ecology Progress Series 195: 1-14.

Mortazavi, B., R.L. Iverson, W.M. Landing, and W. Huang. 2000. Phosphorus budget of Apalachicola Bay: a river-dominated estuary in the northeastern Gulf of Mexico. Marine Ecology Progress Series 198: 33-42.

Mortazavi, B., R.L. Iverson, W.M. Landing, F.G. Lewis, and W. Huang. 2000. Control of phytoplankton production and biomass in a river-dominated estuary: Apalachicola Bay, Florida, USA. Marine Ecology Progress Series 198: 19-31.

Mortenson, S.G., P.J. Weisberg, and L.E. Stevens. 2012. The influence of floods and precipitation on *Tamarix* establishment in Grand Canyon, Arizona: consequences for flow regime restoration. Biol. Invasions 14: 1061-1076.

Moscrip, A.L., and D.R. Montgomery. 1997. Urbanization, flood frequency, and salmon abundance in Puget Sound lowland streams. Journal of American Water Resources Association 33: 1289-1297.

Mosely, D.L., and C.A. Jennings. 2007. Flow preferences for juvenile robust redhorses in an experimental microcosm: implications for developing sampling periods. North American Journal of Fisheries Management 27 (4): 1383-1392.

Moses, B.S. 1987. The influence of flood regime on fish catch and fish communities on the Cross River floodplain ecosystem, Nigeria. Environmental Biology of Fishes 18: 51-65.

Mosley, L.M., B. Zammit, E. Leyden, T.M. Heneker, M.R. Hipsey, D. Skinner, and K.T. Aldridge. 2012. The impact of extreme low flows on the water quality of the Lower Murray River and Lakes (South Australia). Water Resour. Manage. 26: 3923-3946.

Mosley, M.P. 1981. The influence of organic debris on a channel morphology and bedload transport in a New Zealand forest stream. Earth Surface Processes and Landforms 6: 571-579.

Mosley, M.P. 1982. Critical depths for passage in braided rivers, Canterbury, New Zealand. New Zealand Journal of Marine and Freshwater Research 16: 351-357. (<http://www.rsnz.org/publish/nzjmfr/1982/36.php>)

Mosley, M.P. 1982. Analysis of the effect of changing discharge on channel morphology and instream uses in a braided river: Ohau River. New Zealand Journal of Water Resources Research 18: 800-812.

Mosley, M.P. 1983. Response of braided rivers to changing discharge. Journal of Hydrology 22: 18-66.

Mosley, M.P. 1983. Flow requirements for recreation and wildlife in New Zealand rivers – a review. New Zealand J. Hydrol. 22: 152-174.

Mosley, M.P. 1985. River channel inventory, habitat and instream flow assessment. Prog. In Phys. Geog. 9: 494-523.

Mosley, M.P. 1992. River morphology. Pages 285-304 in: M.P. Mosley (editor). Waters of New Zealand. New Zealand Hydrological Society, Wellington.

Mosley, M.P., and I/G. Jowett. 1985. Fish habitat analysis using river flow simulation. New Zealand Journal of Marine and Freshwater Research 19 (3): 292-309.

Mosely, P.M., and C.P. Pearson. 1997. Floods and droughts: the New Zealand experience. The Caxton Press, Christchurch, New Zealand.

Mote, P.W., E.A. Parson, A.F. Hamlet, W.S. Keeton, D. Lettenmaier, N. Mantua, E.L. Miles, D.W. Peterson, D.L. Peterson, R. Slaughter, and A.K. Snover. 2003. Preparing for climatic change: the water, salmon, and forests of the Pacific Northwest. Climatic Change 61: 45-88.

Moulin, B., E.R. Schenk, and C.R. Hupp. 2011. Distribution and characterization of in-channel large wood in relation to geomorphic patterns on a low-gradient river. Earth Surface Processes and Landforms. Doi: 10.1002/esp.2135

Mount, J.F. 1995. California rivers and streams: the conflict between fluvial processes and land use. University of California Press, Berkeley.

Mouton, A., H. Meixner, P.L.M. Goethals, N. De Pauw, and H. Maderl. 2007. Concept and application of the usable volume for modeling the physical habitat of riverine organisms. River Research and Applications 23: 545-558.

Mouton, A., M. Schneider, M. Depestele, P.L.M. Goethals, and N. De Pauw. 2007. Fish habitat modelling as a tool for river management. Ecol. Eng. 29: 305-315. Doi: 10.1016/j.ecoleng.2006.11.002.

Mouton, A.M., J.D. Alcararaz-Hernandez, B. De Baets, P.L.M. Goethals, and F. Martinez-Capel. 2011. Data-driven fuzzy habitat suitability models for brown trout in Spanish Mediterranean rivers. Environmental Modeling and Software 26: 615-622.

Mouw, J.E.B., T.H. Tappenbeck, and J.A. Stanford. 2014. Spawning tactics of summer chum salmon *Oncorhynchus keta* in relation to channel complexity and hyporheic exchange. Environmental Biology of Fishes 97 (10): 1095-1107. Doi: 10.1007/s10641-013-0200-0

Moyle, P.B. 2014. Novel aquatic ecosystems: the new reality for streams in California and other Mediterranean climate regions. River Res. Appl. 30: 1335-1344. Doi: 10.1002/rra.2709..

Moyle, P.B., and D.M. Baltz. 1985. Microhabitat use by an assemblage of California stream fishes: developing criteria for instream flow determinations. Transactions of the American Fisheries Society 114 (5): 695‑704.

Moyle, P.B., J. Hobbs, and J.R. Durand. 2018. Delta smelt and water politics in California. Fisheries 43 (1): 42-50. Doi: 10.1002/fsh.10014

Moyle, P.B., J.D. Kiernan, P.K. Crain, and R.M. Quinonrd. 2013. Climate change vulnerability of native and alien freshwater fishes of California: a systematic assessment approach. PLoS ONE 8: e63883..

Moyle, P., M.P. Marchetti, J. Baldrige, and T.L. Taylor. 1998. Fish health and diversity: justifying flows for a California stream. Fisheries 23 (7): 6-15.

Moyle, P.B., and J.F. Mount. 2007. Homogenous rivers, homogenous faunas. Proceedings of the National Academy of Sciences of the United States of America 104: 5711-5712.

Moyle, P.B., J.G. Williams, and J.D. Kiernan. 2011. Improving environmental flow methods used in California Federal Energy Regulatory Commission relicensing. California Energy Commission, PIER. CEC-500-2011-037.

Muehlbauer, J.D., S.F. Collins, M.W. Doyle, and K. Tockner. 2014. How wide is a stream? Spatial extent of the potential “stream signature” in terrestrial food webs using meta-analysis. Ecology 95 (1): 44-55.

Mueller, A.J., and G.A. Matthews. 1987. Freshwater inflow needs of Matagorda Bay system, with focus on penaeid shrimp. NOAA Technical Memorandum No. NMFS-SEFC-189. National Marine Fisheries Service, Galveston, TX.

Mueller, G., P.C. Marsh, G. Knowles, and T. Wolters. 2000. Distribution, movements, and habitat use of razorback sucker *Xyrauchen texanus* in a lower Colorado River reservoir, Arizona-Nevada. Western North American Naturalist 60: 180-187.

Mugodo, J., M. Kennard, P. Liston, S. Nichols, S. Linke, R.H. Norris, and M. Lintermans. 2006. Local stream habitat variables predicted from catchment scale characteristics are useful for predicting fish distribution. Hydrobiologia 572: 59-70.

Muhlfield, C.C. 2002. Spawning characteristics of redband trout in a headwater stream in Montana. North American Journal of Fisheries Management 22 (4): 1314-1320.

Muhlfeld, C.C., D.H. Bennett, and B. Marotz. 2001. Fall and winter habitat use and movement by Columbia River redband trout in a small stream in Montana. North American Journal of Fisheries Management 21 (1): 170-177.

Muhlfeld, C.C., D.H. Bennett, and B. Marotz. 2001. Summer habitat use by Columbia River redband trout in the Kootenai River drainage, Montana. North American Journal of Fisheries Management 21 (1): 223-235.

Muhlfeld, C.C., S. Glutting, R. Hunt, D. Daniels, and B. Marotz. 2003. Winter diel habitat use and movement by subadult bull trout in the upper Flathead River, Montana. North American Journal of Fisheries Management 23 (1): 163-171. Doi: 10.1577/1548-8675(2003)023<0163:WDHUAM>2.0.CO;2

Muhlfeld, C.C., L. Jones, D. Kotter, W.J. Miller, D. Geise, J. Tohtz, and B. Marotz. 2011. Assessing the impacts of river regulation on native bull trout (*Salvelinus confluentus*) and westslope cutthroat trout (*Oncorhynchus clarkii lewisi*) habitats in the upper Flathead River, Montana, USA. River Research and Applications. Doi: 10.1002/rra.1494

Muhlfeld, C.C., and B. Marotz. 2005. Seasonal movement and habitat use by subadult bull trout in the upper Flathead River system, Montana. North American Journal of Fisheries Management 25 (3): 797-810. Doi: 10.1577/M04-045.1

Muhlfield, C.C., T.E. McMahon, D. Belcer, and J.L. Kershner. 2009. Spatial and temporal spawning dynamics of native westslope cutthroat trout, *Oncorhynchus clarkii lewisi*, introduced rainbow trout, *Oncorhynchus mykiss*, and their hybrids. Canadian Journal of Fisheries and Aquatic Sciences 66 (7): 1153-1168. Doi: 10.1139/F09-073

Mull, K.E., and M.A. Wilzbach. 2007. Selection of spawning sites by coho salmon in a northern California stream. North American Journal of Fisheries Management 27 (4): 1343-1354. Doi: 10.1577/M06-054.1.

Mullner, S.A., and W.A. Hubert. 1995. Selection of spawning sites by kokanee and evaluation of mitigative spawning channels in the Green River, Wyoming. North American Journal of Fisheries Management 15: 174-184.

Mullner, S.A., W.A. Hubert, and T.A. Wesche. 1998. Snorkeling as an alternative to depletion electrofishing for estimating abundance and length-class frequencies of trout in small streams. North American Journal of Fisheries Management 18 (4): 947-953.

Mulvaney, T.M. 2009. Instream flows and the Public Trust. Tulane Environmental Law Journal 22: 315-

Mulvaney, T.M., and A.J. Park. 2008. Opportunities for protecting instream flows in Mississippi. Mississippi-Alabama Sea Gran Legal Program. MASGLP 08-007-14. 18 pp. <http://www.masgc.org/pdf/masgp/08-007-14.pdf>

Mundie, J.H. 1974. Optimization of the salmonid nursery stream. Journal of the Fisheries Research Board of Canada 31 (11): 1827-1837. Doi: 10.1139/174-237.

Mundie, J.H. 1991. Overview of effects of Pacific coast river regulation on salmonids and the opportunities for mitigation. Pp. 1-11 in: J. Colt and R.J. White (eds.) Fisheries bioengineering symposium. American Fisheries Society Symposium 10. Bethesda, Maryland.

Muneepeerakul, R., E. Bertuzzo, H.J. Lynch, W.F. Fagan, A. Rinaldo, and I. Rodriguez-Iturbe. 2008. Neutral metacommunity models predict fish diversity patterns in the Mississippi-Missouri basin. Nature 453: 220-222.

Munn, M.D., and M.A. Brusven. 1991. Benthic macroinvertebrate communities in nonregulated and regulated waters of the Clearwater River, Idaho, USA. Regulated Rivers: Research and Management 6: 1-11.

Munoz-Mas, R., F. Martinez-Capel, M. Schneider, and A.M. Mouton. 2012. Assessment of brown trout habitat suitability in the Jucar River Basin (SPAIN): comparison of data-driven approaches with fuzzy-logic models and univariate suitability curves. Sci. Total Environ. 440: 123-131. Doi: 10.1016/j.scitotenv.2012.07.074.

Munro, A.D., A.P. Scott, and T.J. Lam. 1990. Reproductive seasonality in teleosts: environmental influences. CRC Press, Boca Raton, Florida.

Munson, A.B., J.J. Delfino, and D.A. Leeper. 2005. Determining minimum flows and levels: the Florida experience. Journal of the American Water Resources Association 41 (1): 1-10.

Muotka, T. 1993. Microhabitat use by predaceous stream insects in relation to seasonal changes in prey availability. Annales Zoologici Fennici 30: 287-297.

Murchie, K.J., K.P.E. Hair, C.E. Pullen, T.D. Redpath, H.R. Stephens, and S.J. Cooke. 2008. Fish response to modified flow regimes in regulated rivers: research methods, effects, and opportunities. River Research and Applications 24: 197-217. Doi:10.1002/rra.1058.

Murchie, K.J., and K.E. Smokorowski. 2004. Relative activity of brook trout and walleyes in response to flow in a regulated river. North American Journal of Fisheries Management 24 (3): 1050-1057.

Murdoch, A.R., P.W. James, and T.N. Pearsons. 2005. Interactions between rainbow trout and bridgelip sucker spawning in a small Washington stream. Northwest Science 79 (2&3): 120-130.

Murdoch, J.N., K.B., Gido, W.K. Dodds, K.N. Bertrand, and M.R. Whiles. 2010. Consumer return chronology alters recovery trajectory of stream ecosystem structure and function following drought. Ecology 91 (4): 1048-1062.

Murdock, J.N., D.R. Roelke, and F.P. Gelwick. 2004. Interactions between flow, periphyton, and nutrients in a heavily impacted urban stream: implications for stream restoration effectiveness. Ecological Engineering 22: 197-207.

Murle, U., J. Ortlepp, and M. Zahner. 2003. Effects of experimental flooding on riverine morphology, structure and riparian vegetation: the River Spol, Swiss National Park. Aquatic Sciences 65: 191-198.

Murphy, J.C., R.R. Knight, W.J. Wolfe, and S. Gain. 2012. Predicting ecological flow regime at ungaged sites: a comparison of methods. River Research and Applications 29: 660-669. Doi: 10.1002/rra.2570.

Murphy, M.L., J. Heifetz, J.F. Thedinga, S.W. Johnson, and K.V. Koski. 1989. Habitat utilization by juvenile Pacific salmon (*Oncorhynchus*) in the glacial Taku River, southeast Alaska. Canadian Journal of Fisheries and Aquatic Sciences 46 (10): 1677‑1685.

Murray, B.R., M.J.B. Zeppel, G.C. Hose, and D. Eamons. 2003. Groundwater-dependent ecosystems in Australia: it’s more than just water for rivers. Ecological Management and Restoration 4: 110-113.

Murray, C.D., and T.D. Beacham. 1986a. Effect of varying temperature regimes on the development of pink salmon (*Oncorhynchus gorbuscha*) eggs and alevins. Canadian Journal of Zoology 64: 670‑676.

Murray, C.D., and T.D. Beacham. 1986b. Effect of density and substrate on the development of chum salmon (*Oncorhynchus keta*) eggs and alevins. Progressive Fish‑Culturist 48: 242‑249.

Murry, B.A., and J.M. Farrell. 2007. Quantification of native muskellunge nursery habitat: influence of body size, fish community composition and vegetation structure. Environmental Biology of Fishes 79: 37-47.

Mushens, C.J. 2003. Migration, diel movement and habitat use of juvenile Bull Trout (*Salvelinus confluentus*). Master’s thesis, University of Calgary, Calgary, Alberta.

Musick, J.A., and 17 coauthors. 2000. Marine, estuarine, and diadromous fish stocks at risk of extinction in North America (exclusive of Pacific salmonids). Fisheries 25(11): 6-30.

Muth, R.T., L.W. Crist, K.E. LaGory, J.W. Hayse, K.R. Bestgen, T.P. Ryan, J.K. Lyons, and R.A. Valdez. 2000. Flow and temperature recommendations for endangered fishes in the Green River downstream of Flaming Gorge Dam. Upper Colorado River Recovery Program, Lakewood, Colorado.

Muth, R.T., and J.C. Schmulbach. 1984. Downstream transport of fish larvae in a shallow prairie river. Transactions of the American Fisheries Society 113: 224-230.

Mwakalila, S., J. Feyen,, G. Wyseure, et al. 2002. The influence of physical catchment properties on base flow in semi-arid environments. Journal of Arid Environment 52: 245-258.

Myers, R.A. 1998. When do environment-recruitment correlations work? Reviews in Fish Biology and Fisheries 8: 285-305. Doi: 10.1023/A:1008828730759.

Myers, W.K., A.M. Marcarelli, C.D. Arp, M.A. Baker, and W.A. Wurtsbaugh. 2007. Disruptions of stream sediment size and stability by lakes effects periphyton biomass in mountain watersheds: potential effects on periphyton biomass. J. N. Am. Benthol. Soc. 26: 390-400. Doi: 10.1899/06-086.1.

Myrick, C.A., and J.J. Cech. 2000. Swimming performance of four California stream fishes: temperature effects. Environmental Biology of Fishes 58: 289-295.

Myrvold, K.M., and B.P. Kennedy. 2015. Variation in juvenile steelhead density in relation to instream habitat and watershed characteristics. Transactions of the American Fisheries Society 144 (3): 577-590. Doi: 10.1080/00028487.2015.102220.

Myrvold, K.M., and B.P. Kennedy. 2016. Juvenile steelhead movements in relation to stream habitat, population density, and body size: consequences for individual growth rates. Canadian Journal of Fisheries and Aquatic Sciences 73 (10): 1520-1529. Doi: 10.1139/cjfas-2016-0007.

Mysterud, A., and R.A. Ims. 1998. Functional responses in habitat use: availability influences relative use in trade-off situations. Ecology 79: 1435-1441.

Mysterud, A., and R.A. Ims. 1999. Relating populations to habitats. Trends in Ecology and Evolution 14: 489-490.

Nadeau, T.-L., and M.C. Rains. 2007. Hydrological connectivity between headwater streams and downstream waters: how science can inform policy. J. Am. Water Resour. Assoc. 43 (1): 118-133.

Nadeau, T.-L., S.G. Leibowitz, P.J. Wigington, Jr., J.L. Ebersole, K.M. Fritz, R.A. Coulombe, R.L. Comeleo, and K.A. Blocksom. 2015. Validation of rapid assessment methods to determine streamflow duration classes in the Pacific Northwest, USA. Environmental Management doi: 10.1007/s00267-015-0466-4.

Naesje, T.F., B. Jonsson, and O.T. Sandlund. 1986. Drift of cisco and whitefish larvae in a Norwegian river. Transactions of the American Fisheries Society 115: 89-93.

Naesje, T, B. Jonsson, and J. Skurdal. 1995. Spring flood: a primary cue for hatching of river spawning Coregoninae. Canadian Journal of Fisheries and Aquatic Sciences 52 (10): 2190-2196.

Nagasaka, A., and F. Nakamura. 1999. The influences of land-use changes on hydrology and riparian environment in a northern Japanese landscape. Landscape Ecol. 14 (6): 543-556. Doi:10.1023/A:1008164123102.

Nagayama, S., Y. Kawaguchi, D. Nakano, and F. Nakamura. 2009. Summer microhabitat partitioning by different size classes of masu salmon (*Oncorhynchus masou*) in habitats formed by installed large wood in a large lowland river. Canadian Journal of Fisheries and Aquatic Sciences 66 (1): 42-51.

Nagayama, S., F. Nakamura, J. Kawaguchi, , and D. Nakano. 2012. Effects of configuration of instream wood on autumn and winter habitat use by fish in a large remeandering reach. Hydrobiologia 680: 159-170.

Nagid, E.J., W.A. Strong, T. Tuten, and R.A. Kiltie. 2010. Habitat use of Suwannee bas and largemouth bass in the Withlacoochee River, Florida. Proc Annu Conf Southeast. Assoc. Fish and Wildl. Agencies 64: 146-153.

Nagid, E.J., T. Tuten, and K.G. Johnson. 2015. Effects of reservoir drawdowns and the expansion of hydrilla coverage on year-class strength of largemouth bass. North American Journal of Fisheries Management 35 (1): 54-61. Doi: 10.1080/02755947.2014.963750.

Nagrodski, A., G.D. Raby, C.T. Hasler, M.K. Taylor, and S.J. Cooke. 2012. Fish stranding in freshwater systems: Sources, consequences, and mitigation. Environmental Management 103: 133-141.

Naiman , R.J. 1992. New perspectives for watershed management. Pp 3-11 in: R.J. Naiman (editor). Watershed Management: Balancing Sustainability and Environmental Change. Springer-Verlag, New York.

Naiman , R.J., J.R. Alldredge, D.W. Beauchamp, et al. 2012. Developing a broader scientific foundation for river restoration. P. Natl. Acad. Sci. USA09: 21201-21207.

Naiman , R.J., T.J. Beechie, L.E. Benda, D.R. Berg, P.A. Bisson, L.H. MacDonald, M.D.

O'Connor, P.L. Olson and E.A. Steel. 1992. Fundamental elements of ecologically healthy

watersheds in the Pacific Northwest coastal ecoregion. Pages 127-188 *in* R.J. Naiman,

editor, Watershed Management: balancing sustainability and environmental change.

Springer-Verlag, New York.

Naiman, R.J., S.E. Bunn, C. Nilsson, G.E. Petts, G. Pinay, and L.C. Thompson. 2002. Legitimizing fluvial ecosystems as users of water: an overview. Environmental Management 30: 455-467. Doi: 10.1007/s00267—2734-3.

Naiman, R.J., and H. Decamps. 1997. The ecology of interfaces: riparian zones. Annual Review of Ecology and Systematics 28: 621-658.

Naiman, R.J., H. Decamps, and M. McClain. 2005. Riparia: Ecology, Conservation, and Management of Streamside Communities. Elsevier Academic Press, New York.

Naiman, R.J., and D. Dudgeon. 2011. Global alteration of freshwaters: influences on human and environmental well-being. Ecological Research 26: 865-873. doi:10.1007/s11284-010-0693-3.

Naiman, R.J., S.R. Elliott, J.M. Helfield, and T.C. O’Keefe. 2000. Biophysical interactions and the structure and dynamics of riverine ecosystems: the importance of biotic feedbacks. Hydrobiologia 410: 79-86.

Naiman, R.J., C.A. Johnston, and J.C. Kelley. 1988. Alteration of North American streams by beavers. BioScience 38: 753-762.

Naiman, R.J., J.J. Latterell., N.E. Pettit, and J.D. Olden. 2008. Flow variability and the vitality of river systems. Comptes Rendus Geosciences 340 (9-10): 629-643. Doi:10.1016/j.crte.2008.01.002.

Naiman, R.J., J.J. Magnuson, and P.L. Firth. 1998. Integrating cultural, economic, and environmental requirements for fresh water. Ecological Applications 8: 569-570.

Naiman, R.J., J.M. Melillo, M.A. Lock, T.E. Ford, and S.R. Reice. 1987. Longitudinal patterns of ecosystem processes and community structure in a subarctic river continuum. Ecology 68: 1139. Doi: 10.2307/1939199.

Naiman, R.J., and J.R. Sedell. 1980. Relationships between metabolic parameters and stream order in Oregon. Canadian Journal of Fisheries and Aquatic Sciences 37: 834-847.

Naiman, R.J., and M. Turner, 2000. A future perspective on North America’s freshwater ecosystems. Ecol. Appl. 10: 958-970.

Nakamoto, R.J. 1994. Characteristics of pools used by adult summer steelhead oversummering in the New River, California. Transactions of the American Fisheries Society 123 (5): 757-765. Doi:10.1577/1548-8659(1994)123<0757:COPUBA>2.3.CO;2.

Nakamura, S., A. Yabuki, and N. Koizumi. 2004. An IFIM experience in Toyogawa-River, Japan. Hydroecologie Appliquee 14 (1): 55-68.

Nakamura, S., and F.J. Swanson. 2003. Dynamics of wood in rivers in the context of ecological disturbance. In: The ecology and management of wood in world rivers. Edited by S.V. Gregory, K.L. Boyer, and A.M. Gurnell. American Fisheries Society Symposium No. 37, Bethesda, Maryland. Pp. 279-297.

Nakamura, T. 1999. Comparison of physical characteristics of the spawning redds between the fluvial Japanese Charr *Salvelinus leucomaenis* and the Masu Salmon *Oncorhynchus masou masou* in the headwaters of the Kinu River, central Japan. Nippon Suisan Gakkaishi 65: 423-433. (In Japanese with English abstract)

Nakamura, T. 2011. Relationships between physical characteristics of pools and the residency of stream-swelling White-spotted Charr. Aquaculture Science 59: 427-433.

Nakamura, T. 2013. Effects of flow reduction on a whitespotted char population in a Japanese mountain stream. North American Journal of Fisheries Management 33 (6): 1142-1148. Doi: 10.1080/02755947.2013.8326757.

Nakano, S. 1995. Competitive interactions for foraging microhabitats in a size-structured interspecific dominance hierarchy of two sympatric stream salmonids in a natural habitat. Can. J. Zool. Doi:10.1139/z95-217.

Nakano, S., and M. Kaeriyama. 1995. Summer microhabitat use and diet in four sympatric stream-dwelling salmonids in a Kamchatkan stream. Fisheries Science 61: 926-930.

Nakano, S., S. Kitano, K. Nakai, and K.D. Fausch. 1998. Competitive interactions for foraging microhabitat among introduced brook char, *Salvelinus fontinalis*, native bull char *S. confluentus*, and westslope cutthroat trout *Oncorhynchus clarki lewisi* in a Montana stream. Environmental Biology of Fishes 52: 345-355. Doi; 10.1023/A:1007359826470.

Naman, S.M., J.S. Rosenfeld, P.M. Kiffney, and J.S. Richardson. 2018. The energetic consequences of habitat structure for forest stream salmonids. Journal of Animal Ecology

Naman, S.M., J.S. Rosenfeld, and J.S. Richardson. 2016. Causes and consequences of invertebrate drift in running waters: from individuals to populations and trophic fluxes. Canadian Journal of Fisheries and Aquatic Sciences 73 (8): 1292-1305. Doi: 10.1139/cjfas-2015-0363.

Naman, S.M., J.S. Rosenfeld, J.S. Richardson., andJ.L. Way 2016. Species traits and channel architecture mediate flow disturbance impacts on invertebrate drift. Freshwater Biology 62 (2); 1292-1305. doi: 10.1111/fwb.12871.

Nash, D.B. 1994. Effective sediment-transporting discharge from magnitude frequency analysis. Journal of Geology 102: 79-95.

Nash, J., and J. Sutcliffe. 1970. River flow forecasting through conceptual models: part 1 – a discussion of principles. J. Hydrol. 10: 282-290.

Naskar, M., G. Chandra, S.K. Sahu, and R.K. Raman. 2017. A modeling framework to quantify the influence of hydrology on the abundance of a migratory Indian shad, the hilsa *Tenualosa ilisha*. North American Journal of Fisheries Management 37 (6): 1208-1219. Doi: 10.1080/02755947.2017.1353561

Naslund, I., E. Degerman, and F. Nordwall. 1998. Brown trout (*Salmo salar*) habitat use and life history in Swedish streams: possible effects of biotic interactions. Canadian Journal of Fisheries and Aquatic Sciences 55: 1034-1042. Doi:10.1139/cjfas-55-4-1034.

National Research Council (USA). 1992. Restoration of Aquatic Ecosystems: Science, Technology, and Public Policy. National Academy Press, Washington, D.C.

National Research Council (USA). 1996. Upstream: salmon and society in the Pacific Northwest. National Academy Press, Washington, D.C.

National Research Council (USA). 2002. The Missouri River Ecosystem: Exploring the Prospects for Recovery. National Academy Press, Washington, D.C.

National Research Council (USA). 2004. Managing the Columbia River: instream flows, water withdrawals, and salmon survival. National Academy Press, Washington, D.C.

National Research Council (USA). 2004. Endangered and threatened fishes in the Klamath River basin: causes of decline and strategies for recovery. National Academies Press, Washington, D.C.

National Research Council (USA). 2005. The science of instream flows: a review of the Texas Instream Flow Program. The National Academies Press, Washington, D.C.

National Research Council (USA). 2008. Hydrology, ecology, and fishes of the Klamath River Basin. National Academy Press, Washington, D.C.

National Research Council (USA). 2010. A scientific assessment of alternatives for reducing water management effects on threatened and endangered fishes in California’s bay delta. Natl. Acad. Press, Washington, D.C. [available at http:/www.nap.edu/openbook.php>record\_id=12881.]

National Science and Technology Council. 2004. Science and Technology to Support Fresh Water Availability in the United States. Committee on Environment and Natural Resources, Subcommittee on Water Availability and Quantity. Executive Office of The President Washington DC National Science and Technology Council, Washington DC.

Natsumeda, T. 2003. Effects of a severe flood on the movements of Japanese fluvial sculpin. Environmental Biology of Fishes 68: 417-424.

Naughton, G.P., C.C. Caudill, M.L. Keefer, T.C. Bjornn, L.C. Stuehrenberg, and C.A. Peery. 2005. Late-season mortality during migration of radio-tagged adult sockeye salmon (*Oncorhynchus nerka*) in the Columbia River. Canadian Journal of Fisheries and Aquatic Sciences 62 (1): 30-47.

Naumburg, E., R. Mata-Gonzalez, R.G. Hunter, T. Mclendon, and D.W. Martin. 2005. Phreatophytic vegetation and groundwater fluctuations: a review of current research and application of ecosystem response modeling with an emphasis on Great Basin vegetation. Environmental Management 35: 726-740.

Navarro, R.S., M. Stewardson, P. Breil, D. Garcia de Jalon, and M. Eisele. 2007. Hydrological impacts affecting endangered fish species: a Spanish case study. River Research and Applications 23: 511-523.

Neave, F. 1949. Game fish populations of the Cowichan River. Fisheries Research Board of Canada Bulletin 84.

Neave, F. 1953. Principles affecting the size of pink and chum salmon populations in British Columbia. J. Fish. Res. Board Can. 9:450-491.

Neave, F., and W.P. Wickett. 1953. Factors affecting the freshwater development of Pacific salmon in British Columbia. Proceedings of the 7th Pacific Science Congress (1949) 4: 548-555.

Needham, P.R., and A.C. Jones. 1959. Flow, temperature, solar radiation, and ice in relation to activities of fish in Sagehen creek, California. Ecology 40: 465-474.

Neely, B.C., M.A. Pegg, and G.E. Mestl. 2009. Seasonal use distributions and migrations of blue sucker in the Middle Missouri River. Ecol. Freshw. Fish. 19: 437-444.

Neff, M.R., and D.A. Jackson. 2013. Regional-scale patterns in community concordance: testing the roles of historical biogeography versus contemporary abiotic controls in determining stream community composition. Canadian Journal of Fisheries and Aquatic Sciences 70 (8): 1141-1150. Doi: 10.1139/cjfas.2012.0497

Negishi, J.N., M. Inoue, and M. Nunokawa. 2002. Effects of channelization on stream habitat in relation to a spate and flow refugia for macroinvertebrates in northern Japan. Freshwater Biology 47: 1515-1529.

Nehlsen, W., J.E. Williams, and J.A. Lichatowich. 1991. Pacific salmon at the crossroads: stocks at risk from California, Oregon, Idaho, and Washington. Fisheries 16 (2): 4-21. Doi:10.1577/1548-8446(1991)016<0004:PSATCS>2.0.CO;2.

Nehring, R.B., and R.M. Anderson. 1993. Determination of population-limiting critical salmonid habitats in Colorado streams using the Physical Habitat Simulation system. Rivers 4(1): 1-19.

Nehring, R.B., and D.D. Miller. 1987. The influence of spring discharge levels on rainbow and brown trout recruitment and survival, Black Canyon of the Gunnison. Proceedings of the Annual Conference, Western Association of Fish and Wildlife Agencies, Salt Lake City, Utah. 67:388-397.

Neilson, J.D., and C.E. Banford. 1983. Chinook salmon (*Oncorhynchus tshawytscha*) spawning characteristics in relation to redd physical features. Canadian Journal of Zoology 61: 1524-1531.

Neitzel, D.A., M.J. Scott, S.A. Shankle, and J.C. Chatters. 1991. The effect of climate change on stream environments: the salmonid resource of the Columbia River basin. Northwest Environmental Journal 7: 271-293.

Nel, J.L., D.J. Roux, G. Maree, C.J. Kleynhans, J. Moolman, B. Reyers, M. Rouget, and R.M. Cowling. 2007. Rivers in peril inside and outside protected areas: a systematic approach to conservation assessment of river ecosystems. Diversity and Distributions 13: 341-352.

Nel, J., E. Turak, S. Link, and c. Brown. 2011. Integration of environmental flow assessment and freshwater conservation planning: a new era in catchment management. Marine and Freshwater Research 62: 290-299.

Nelson, A., and K. Dube. 2015. Channel response to an extreme flood and sediment pulse in a mixed bedrock and gravel-bed river. Earth Surface Processes and Landforms doi: 10.1002/esp.3843.

Nelson, F.A. 1986. Effect of flow fluctuations on brown trout in the Beaverhead River, Montana. North American Journal of Fisheries Management 6 (4): 551-559.

Nelson, J.A., P.S. Gotwalt, C.A. Simonetti, and J.W. Snodgrass. 2008. Environmental correlates, plasticity, and repeatability of differences in performance among blacknose dace (*Rhinichthys atratulus*) populations across a gradient of urbanization. Physiological and Biochemical Zoology 81: 25-42.

Nelson, J.A., P.S. Gotwalt, and J.W. Snodgrass. 2003. Swimming performance of blacknose dace (*Rhinichthys atratulus*) mirrors home-stream current velocity. Canadian Journal of Fisheries and Aquatic Sciences 60 (3): 301-308.

Nelson, J.M. 1996. Predictive techniques for river channel evolution and maintenance. Water Air Soil Pollut. 90:321-333.

Nelson, J.M., J.P. Bennett, and S.M. Wiehle. 2003. Flow and sediment transport modeling. Pages 539-576 in: G.M. Kondolf and H. Piegay, editors. Tools in fluvial geomorphology. John Wiley, Chichester, UK.

Nelson, K.C., M.A. Palmer, J.E. Pizzuto, G.E. Moglen, P.L. Angermeier, R.H. Hildebrand, M. Dettinger, and K. Hayhoe. 2009. Forecasting the combined effects of urbanization and climate change on stream ecosystems: from impacts to management options. J. Appl. Ecol. 46.

Nelson, M.C., M.D. Hocking, J.N. Harding, J.M.S. Harding, and J.D. Reynolds. 2015. Quantifying the effects of stream habitat on populations of breeding Pacific salmon. Canadian Journal of Fisheries and Aquatic Sciences 72 (10): 1469-1476. Doi: 10.1139/cjfas-2014-0253.

Nelson, R.L. W.S. Platts, D.P. Larson, and S.E. Jensen. 1992. Trout distribution and habitats in relation to geology and geomorphology in the North Fork Humboldt River drainage, northeastern Nevada. Transactions of the American Fisheries Society 121: 405-426.

Nelson, R.W., J.R. Dwyer, and W.E. Greenberg. 1987. Regulated flushing in a gravel-bed river for channel habitat maintenance: a Trinity River fisheries case study. Environmental Management (New York) 11: 479-493.

Nelson, S.M., E.J. Fielding, F. Zamora-Arroyo, et al. 2013. Delta dynamics: Effects of tides, river flows and a major earthquake on Cienega de Santa Clara and the Colorado River delta, Mexico. Ecological Engineering 59: 144-156.

Nelson, W., G. Horak, M. Lewis, and J. Colt. 1976. Assessme of effects of altered stream flow characteristics on fish and wildlife. Part A: Rocky Mountains and Pacific Northwest. U.S. Fish and Wildlife Service, Biol. Serv. Program. FWS/OBS-76/28. 14 pp.

Nerbonne, B.A., and B. Vondracek. 2001. Effects of local land use on physical habitat, benthic macroinvertebrates, and fish in the Whitewater River, Minnesota, USA. Environmental Management 28: 87-99.

Nesler, T.P., R.T. Muth, and A.F. Wasowicz. 1988. Evidence for baseline flow spikes as spawning cues for Colorado squawfish in the Yampa River, Colorado. Pages 68-79 in: R.D. Hoyt (ed). 11th annual larval fish conference. American Fisheries Society, Symposium 5, Bethesda, Maryland.

Nestler, J.M. 1990. Considerations in applying IFIM to warmwater streams. Pp. 34-35 in: M.B. Bain (ed.), Ecology and assessment of warmwater streams: Workshop synopsis. Washington, D.C.: U.S. Fish and Wildlife Service (Biological Report 90[5]).

Nestler, J.M., R.A. Goodwin, D.L. Tripp, J.E. Garvey, D.P. Herzog, D.P. Herzog. D.E. Ostendorf, J.W. Ridings. J.W. Crites, and R.A. Heabik. 2010. Habitat use during early life history infers recovery needs for Scaphirhynchus sturgeon. Transactions of the American Fisheries Society 139: 1060-1068.

Nestler, J.M., R.T. Milhous, and J.B. Layzer. 1989. Instream habitat modeling techniques. Pages 295-315 in: J.A. Gore and G.E. Petts, editors. Alternatives in Regulated River Management . CRC Press, Boca Raton, Florida.

Nestler, J.M., P.S. Pompeu, R.A. Goodwin, D.L. Smith, L.G.M. Silva, C.R.M. Baigun, and N.D. Oldani. 2012. The river machine: a template for fish movement and habitat: fluvial geomorphology, fluid dynamics and biogeochemical cycling. River Res. Appl. 28: 490-503. Doi: 10.1002/rra.1567.

Nestler, J.M., L.T. Schneider, and D. Latka. 1993. RCHARC: a new method for physical habitat analysis, in Engineering Hydrology, a symposium sponsored by the Hydraulics Division/ASCE. July 25-30, San Francisco, CA. Pp. 294-299.

Nestler, J.M., M.J. Stewardson, D..Gilvear, J.A. Webb, and D.L. Smith. 2016. Ecohydraulics exemplifies the emerging “paradigm of the interdisciplines”. Journal of Ecohydraulics 1: 5-15. Doi: 10.1080/24705357.2016.1229142

Neu, C.W., C.R. Byers, and J.M. Peek. 1974. Techniques for analysis of utilization-availability data. Journal of Wildlife Management 8: 22-36.

Neubauer, C.P., G.B. Hall, E.F. Lowe, C.P. Robison, R.B. Hupalo, and L.W. Keenan. 2008. Minimum flows and levels method of the St. Johns River Water Management District, Florida, USA. Environmental Management 42: 1101-1114.

Neufeld, K.R., M.S. Poesch, and D.A. Watkinson. 2016. The effect of hydrologic alteration on capture efficiency of freshwater fishes in a highly modified prairie stream. River Research and Applications 32: 975-983.

Neuman, H.R., and C.P. Newcombe. 1977. Minimum acceptable stream flows in British Columbia: a review. British Columbia Ministry of Recreation and Conservation, Habitat Protection Section, Fisheries Management Report No. 70. 80 pp.

Neuswanger, J.R., M.S. Wipfli, M.J. Evenson, N.F. Hughes, and A.E. Rosenberger. 2015. Low productivity of Chinook salmon strongly correlates with high summer stream discharge in two Alaskan rivers in the Yukon drainage. Canadian Journal of Fisheries and Aquatic Sciences 72 (8): 1125-1137. Doi: 10.1139/cjfas-2014-0498.

New Zealand Ministry for the Environment. 2008. Proposed national environmental standard on ecological flows and water levels: discussion document. Reference ME868. Wellington, NZ.

Newbold, C., and J.O. Mountford. 1997. Water level requirements of wetland plants and animals. English Nature Freshwater Series 5. English Nature, Peterborough.

Newburn, D.A., N. Brozovic, and M. Mezzatesta. 2011. Agricultural water security and instream flows for endangered species. American Journal of Agricultural Economics 93: 1212-1228.

Newbury, R.W. 1984. Hydrologic determinants of aquatic insect habitats. Pages 323-357 in: V.H. Resh and D.M. Rosenberg (editors). The Ecology of Aquatic Insects. Praeger Publishers, New York.

Newbury, R.W. 1996. Dynamics of flow. Pp. 75-92 in: F.R. Hauer and G.A. Lamberti (eds.) Methods in stream ecology. Academic Press, San Diego, California.

Newbury, R.W., and D.J. Bates 2017. Dynamics of flowing water. Pp. 71-87 in: F.R. Hauer and G.A. Lamberti (eds.) Methods in stream ecology, Volume 1 (Third Edition). Academic Press, San Diego, California. Doi: 10.1016/B978-0-12-416558-8.00004-4

Newbury, R., and M. Gaboury. 1993. Exploration and rehabilitation of hydraulic habitats in streams using principles of fluvial behaviour. Freshwater Biology 29: 195-210.

Newcomb, T.J., J.O. Orth, and D.F. Stauffer. 2007. Habitat evaluation. Pages 843-886 in: C.S. Guy and M.L. Brown, editors. Analysis and interpretation of freshwater fisheries data. American Fisheries Society, Bethesda, Maryland.

Newcomb, T.J., S.A. Perry, and W.B. Perry. 1995. Comparison of habitat suitability criteria for smallmouth bass (*Micropterus dolomieui*) from three West Virginia rivers. Rivers 5(3): 170-183.

Newcombe, C. 1981. A procedure to estimate changes in fish populations caused by changes in stream discharge. Transactions of the American Fisheries Society 110 (3): 382-390.

Newcombe, C.P., and J.O.T. Jensen. 1996. Channel suspended sediment and fisheries: a synthesis for quantitative assessment of rk and impact. N. Am, J. Fisheries Manag. 16: 93-727,

Newman, K.B., and P.L. Brandes. 2010. Hierarchical modeling of juvenile Chinook salmon survival as a function of Sacramento-San Joaquin delta water exports. North American Journal of Fisheries Management 30 (1): 157-169. Doi:1577/M07-188.1

Newman, R.M. 1993. A conceptual model for examining density dependence in the growth of stream trout. Ecology of Freshwater Fish 2: 121-131.

Newman, R.M., and T.F. Waters. 1989. Differences in brown trout (*Salmo trutta*) production among contiguous sections of an entire stream. Canadian Journal of Fisheries and Aquatic Sciences 46 (2): 203-213.

Newson, M. 1994. Hydrology and the river environment. Clarendon Press, Oxford, UK.

Newson, M., K. Alfredsen, and A. Harby. 2012. Hydraulic habitat modelling for setting environmental river flow needs for salmonids. Fisheries Management and Ecology 19 (6): 500-517. Doi: 10.1111/j.1365-2400.2011.00825.x.

Newson, M., D. Sear, C. Soulsby. 2012. Incorporating hydromorphology in strategic approaches to managing flows for salmonids. Fisheries Management and Ecology 19 (6): 490-499. Doi: 10.1111/j.1365-2400.2011.00822.x.

Newson, M.D., and C.L. Newson. 2000. Geomorphology, ecology, and river channel habitat: mesoscale approaches to basin-scale challenges. Progress in Physical Geography 24: 195-217.

Nguyen, R.M., and C.E. Crocker. 2007. The effects of substrate composition on foraging behavior and growth rate of fluvial green sturgeon, *Acipenser medirostris*. Env. Biol. Fishes 79 (3-4): 231-241. Doi: 10.1007/s10064-006-9175-4.

Nicholas, A.P., and G.H. Sambrook Smith. 1999. Numerical simulation of three-dimensional flow hydraulic in a braided channel. Hydrol. Process. 13 (6): 913-929. Doi:10.1002/(SICI)1099-1085(19990430)13:6<913::AID-HYP764>3.0.CO;2-N.

Nicholas, A.P., and D.E. Walling. 1997. Modeling hydraulics and overbank deposition on river floodplains. Earth Surface Processes and Landforms 22: 59-77.

Nichols, M.M. 1977. Response and recovery of an estuary following a river flood. Journal of Sedimentary Petrology 47: 1171-1186.

Nicieza, A.G., and N.B. Metcalfe. 1997. Growth compensation in juvenile Atlantic salmon: responses to depressed temperature and food availability. Ecology 78: 2385-2400.

Nickelson, T.E., and P.W. Lawson. 1998. Population viability of coho salmon, *Oncorhynchus kisutch*, in Oregon coastal basins: application of a habitat-based life cycle model. Canadian Journal of Fisheries and Aquatic Sciences55 (11):2383-2392.

Nickelson, T.E., J.D. Rodgers, S.L. Johnson, and M.F. Solazzi. 1992. Seasonal changes in habitat use by juvenile coho salmon (*Oncorhynchus kisutch*) in Oregon coastal streams. Canadian Journal of Fisheries and Aquatic Sciences 49: 783-789. Doi: 10.1139/f92-088.

Nickelson, T.E., M.F. Solazzi, S.L. Johnson, and J.D. Rogers. 1992. Effectiveness of selected stream improvement techniques to create suitable summer and winter rearing habitat for juvenile coho salmon (*Oncorhynchus kisutch*) in Oregon coastal streams. Canadian Journal of Fisheries and Aquatic Sciences 49: 790-794.

Nicol, S., B. Griffith, J. Austin, and C.M. Hunter. 2014. Optimal water depth management on river-fed National Wildlife Refuges in a changing climate. Climatic Change 124: 271-284. Doi: 10.1007/s10584-013-1033-8

Nicola, G.G., A. Almodovar, and B. Elvira. 2009. Influence of hydrologic attributes on brown trout recruitment in low-latitude range margins. Oecologia 160: 515-524. Doi: 10.1007/s00442-009-1317-x.

Nielsen, A. 1951. Is dorsoventral flattening of the body an adaptation to torrential life? Verhandlungen der Internationalen Vereinigung fur theoretische und angewamdte Limnologie 11: 264-267.

Nielsen, D.L., T.J. Hillman, F.J. Smith, and R.J. Shiel. 2002. The influence of seasonality and duration of flooding on zooplankton in experimental billabongs. River Research and Applications 18 (3): 227-238.

Nielsen, G. 1986. Dispersion of brown trout (*Salmo trutta* L.) In relation to stream cover and water depth. Pol. Arch. Hydrobiol. 33: 475-488.

Nielsen, J.L. 1992. Microhabitat‑specific foraging behavior, diet and growth of juvenile coho salmon. Transactions of the American Fisheries Society 121 (5): 617‑634. Doi: 10.1577/1548-8659(1992)121<0617:MFBDAG>2.3.CO;2.

Nigam, S., M. Barlow, and E.H. Berbery. 1999. Analysis links Pacific decadal variability to drought and streamflow in the United States. EOS (Washington, D.C.) 80: 621-625.

Nijssen, B., D.P. Lettenmaier, X. Liang, S.W. Wetzel, and E.F. Wood. 1997. Streamflow simulation for continental-scale river basins. Water Resour. Res. 33 (4): 711-724.

Nikolskii, G.V. 1933. On the influence of the rate of flow on the fish fauna of the rivers of central Asia. Journal of Animal Ecology 2: 266-281.

Nikora, V. 2010. Hydrodynamics of aquatic ecosystems: an interface between ecology, biomechanics and environmental fluid mechanics. River Res. Appl. 26: 367-384. Doi: 10.1002/rra.1293.

Nikora, V.I., J. Aberle, B.J.F. Biggs, I.G. Jowett, and J.R.E. Sykes. 2003. Effects of fish size, time to fatigue, and turbulence on swimming performance: a case study of *Galaxias maculatus*. Journal of Fish Biology 63: 1365-1382. Doi: 10.1111/j.1095-8649.2003.00241.x.

Nikora, V.I., D.G. Goring, and Nikora, V.I., B.J.F. Biggs. 1998. On gravel-bed roughness characterization. Water Resour. Res. 34: 517-527. Doi: 10.1029/97WR02886.

Nilo, P., P. Dumont, and R. Fortin. 1997. Climate and hydrological determinants of year-class strength of St. Lawrence River lake sturgeon (*Acipenser fulvescens*). Canadian Journal of Fisheries and Aquatic Sciences 54: 774-480.

Nilsson, C. 1984. Effects of stream regulation on riparian vegetation. Pp. 93-106 in: A. Lillehammer and S.J. Saltveit (eds.) Regulated Rivers. New York: Columbia University Press.

Nilsson, C. 1987. Distribution of stream-edge vegetation along a gradient of current velocity. Journal of Ecology 75: 513-522.

Nilsson, C. 2000. Minimum river flow. Rivers 7 (2): 171-174.

Nilsson, C., and K. Berggren. 2000. Alteration of riparian ecosystems caused by river regulation. BioScience 50: 783-792. Doi: 10.1641/0006-3568(2000)050<0783:AORECB>2.0.CO;2.

Nilsson, C., R.L. Brown, R. Jansson, and D.M. Merritt. 2010. The role of hydrochory in structuring riparian and wetland vegetation. Biol. Rev. Camb. Phil. Soc. 85: 837-858.

Nilsson, C., A. Ekblad, M. Gardfjell, and B. Carlberg. 1991. Long-term effects of river regulation on river margin vegetation. Journal of Applied Ecology 28 (3): 963-987.

Nilsson, C., M. Gardfjell, and G. Grelsson. 1991. Importance of hydrochory in structuring plant communities along rivers. Canadian Journal of Botany 69: 2631-2633.

Nilsson, C., and R. Jansson. 1995. Floristic differences between riparian corridors of regulated and free-flowing boreal rivers. Regulated Rivers: Research and Management 11: 55-66.

Nilsson, C., R. Jansson, B. Malmqvist, and R.J. Naiman. 2007. Restoring riverine landscapes: the challenge of identifying priorities, reference states, and techniques. Ecology & Society 12: 16. <http://www.ecologyandsociety.org/vol12/iss1/art16/>.

Nilsson, C., R. Jansson, and U. Zinko. 1997. Long-term responses of river-margin vegetation to water-level regulation. Science 276: 798-200.

Nilsson, C., L.E. Polvi, and L. Lind. 2015. Extreme events in streams and rivers in arctic and subarctic regions in an uncertain future. Freshw. Biol. 60: 2535-2546. Doi: 10.1111/fwb.12477.

Nilsson, C., C.A. Reidy, M. Dynesius, and C. Revenga. 2005. Fragmentation and flow regulation of the world’s large river systems. Science 308: 405-408. Doi: 10.1126/science.1107887.

Nilsson, C., and B.M. Renofalt. 2008. Linking flow regime and water quality in rivers: a challenge to adaptive catchment management. Ecology and Society 13. (Available at: http//www.ecologyandsociety.org/vol13/iss2/art18/.)

Nilsson, C., and M. Svedmark. 2002. Basic principles and ecological consequences of changing water regimes: riparian plant communities. Environmental Management 30: 468-480.

Nislow, K.H., and J.D. Armstrong. 2012. Towards a life-history-based management framework for the effects of flow on juvenile salmonids in streams and rivers. Fisheries Management and Ecology 19 (6): 451-463. Doi: 10.1111/j.1365-2400.2011.00810.x.

Nislow, K.H., S. Einum, and C. Folt. 2004. Testing predictions of the critical period for survival concept using experiments with stocked Atlantic salmon. Journal of Fish Biology 65 (Supplement A): 1-13.

Nislow, K.H., C.L. Folt, and D.L. Parrish. 1999. Favorable foraging locations for young Atlantic salmon: application to habitat and population restoration. Ecological Applications 9 (3): 1085-1099. Doi:10.1890/1051-0761(1999)009[1085:FFLFYA]2.0.CO;2.

Nislow, K.H., C.L. Folt, and D.L. Parrish. 2000. Spatially explicit bioenergetic analysis of habitat quality for age-0 Atlantic salmon. Transactions of the American Fisheries Society 129: 1067-1081.

Nislow, K.H., C. Folt, and M. Seandel. 1998. Food and foraging behavior in relation to microhabitat use and survival of age-0 Atlantic salmon. Canadian Journal of Fisheries and Aquatic Sciences 55 (1): 116-127. Doi: 10.1139/f97-222.

Nislow, K.H., F.J. Magilligan, H. Fassnacht, D. Bechtel, and A. Ruesink. 2002. Effects of dam impoundment on the flood regime of natural floodplain communities in the upper Connecticut River. Journal of the American Water Resources Association 38: 1533-1548.

Nislow, K.H., F.J. Magilligan, C.L. Folt, and B.P. Kennedy. 2002. Within-basin variation in the short-term effects of a major flood on stream fishes and invertebrates. Journal of Freshwater Ecology 17: 305-318.

Nislow, K.H., A.J. Sepulveda, and L.C. Folt. 2004. Mechanistic linkage of hydrologic regime to summer growth of age-0 Atlantic salmon. Transactions of the American Fisheries Society 133 (1): 79-88.

Nixon, S.W. 2003. Replacing the Nile: Are anthropogenic nutrients providing the fertility once brought to the Mediterranean by a great river? Ambio 32 (1): 30-39.

Nobriga, M.L., and J.A. Rosenfeld. 2016. Population dynamics of an estuarine forage fish: Disaggregating forces driving long-term decline of longfin smelt in California’s San Francisco estuary. Transactions of the American Fisheries Society 145 (1): 44-56. Doi: 10.1080/00028487.2015.1100136.

Noltie, D.B., and M.H.A. Keenleyside. 1986. Correlates of reproductive success in stream dwelling male rockbass, *Ambloplites rupestris* (Centrarchidae). Environmental Biology of Fishes 17: 61-70.

Nordwall, F., I. Naslund, and E. Degerman. 2001. Intercohort competition effects on survival, movement, and growth of brown trout (*Salmo trutta*) in Swedish streams. Canadian Journal of Fisheries and Aquatic Sciences 58 (11): 2298-2308. Doi:10.1139/cjfas-58-11-2298.

Norris, A.J., D.R. DeVries, and R.A. Wright. 2010. Coastal estuaries as habitat for a freshwater fish species: exploring population-level effects of salinity on largemouth bass. Transactions of the American Fisheries Society 139 (2): 610-625. Doi: 10.1577/T09-135.1.

North, M.P., and J.H. Reynolds. 1996. Microhabitat analysis using radiotelemetry locations and polytomous logistic regression. Journal of Wildlife Management 60: 639-653.

Northcote, T.G. 1981. Juvenile current response, growth and maturity above and below waterfall stocks of rainbow trout, *Salmo gairdneri*. Journal of Fish Biology 18: 741-751.

Northcote, T.G. 1984. Mechanisms of fish migration in rivers. Pp. 317-355 in: J.D. McCleave, G.P. Arnold, J.J. Dodson, and W.H. Neill, editors. Mechanisms of migration in fishes. Plenum Press, New York. 574 pp.

Northcote, T.G. 1992. Prediction and assessment of potential effects of global environmental change on freshwater fish habitat in British Columbia. GeoJournal 28: 38-49.

Northcote, T.G. 1992. Migration and residency in stream salmonids – some ecological consideration and evolutionary consequences. Nordic Journal of Freshwater Research 72: 479-490.

Northcote, T.G., and G.L. Ennis. 1994. Mountain whitefish biology and habitat use in relation to compensation and improvement possibilities. Reviews in Fisheries Science 2 (4): 347-371.

Northrup, J.M., M.B. Hooten, C.R. Anderson, and G. Wittemeyer. 2013. Practical guidance on characterizing availability in resource selection functions under a use-availability design. Ecology 94: 1456-1463.

Notch, J.J. 2017. Out-migration survival of wild Chinook salmon (*Oncorhynchus tshawytscha*) smolts from Mill Creek through the Sacramento River during drought conditions. University of California Santa Cruz, Santa Cruz. Available: http//escholarship.org/uc/item/7bd097f3

Novak, M.A., and R.G. White. 1990. Impact of fire and flood on the trout population of Beaver Creek, upper Missouri basin, Montana. Pp. 120-127 in: F. Richardson and R.H. Hamre (eds.), Wild trout IV: proceedings of the symposium. Trout Unlimited, Arlington, Virginia.

Novak, R., J.G. Kennen, R.W. Abele, C.F. Baschon, D.M. Carlisle, L. Dlugolecki, … P.W. Seelbach. 2016. Final EPA-USGS Technical Report: Protecting Aquatic Life from Effects of Hydrologic Alteration. U.S. Geological Survey Scientific Investigations Report 2016-5164. U.S. Environmental Protection Agency EPA-822-R-156-007. 58 pp. (https://www.epa.gov/final-epausgs-technical-report-protecting-aquatic-life-effects-hydologic-alteration-documents)

Novitzki, R.P. 1973. Improvement of trout streams in Wisconsin by augmenting low flows with ground waters. U.S. Geological Survey Water Supply Paper No. 2017. 52 pp.

Novitzki, R. 1978. Hydrologic characteristics of Wisconsin wetlands, and their influence on floods, stream flow and sediment. Pages 377-388 in: Wetland functions and values: the state of our understanding. American Water Resources Association.

Novotny, E.V., and H.G. Stefan. 2007. Stream flow in Minnesota: indicator of climate change. Journal of Hydrology 334: 319-333.

Nowel, A.R.M., and P.A. Jumars. 1984. Flow environments of aquatic benthos. Annual Review of Ecology and Systematics 15: 303-328.

Nuhfer, A.J., and E.A. Baker. 2004. A long-term field test of habitat change predicted by PHABSIM in relation to brook trout population dynamics during controlled flow reduction experiments. Michigan Department of Natural Resources, Fisheries Research Report 2068, Ann Arbor.

Nuhfer, A.J., R.D. Clark, Jr., and G.R. Alexander. 1994. Recruitment of brown trout in the South Branch of the Au Sable River, Michigan in relation to streamflow and winter severity. Michigan Department of Natural Resources Fisheries Division (Fisheries Research Report 2006), Lansing.

Null, S.E., M.L. Deas, and J.R. Lund. 2010. Flow and water temperature simulation for habitat restoration in the Shasta River, California. River Research and Application 26: 663-681.

Null, S.E., J. Medellin-Azura, A. Escriva-Bou, M. Lent, and J.R. Lund. 2014. Optimizing the dammed: Water supply losses and fish habitat gains from dam removal in California. Journal of Environmental Managment136: 121-131. Doi: 10.1016/j.jenvman.2014.01.024.

Nunn, A.D., J.P. Harvey, J.R. Britton, P.A. Frear, and I.G. Cowx. 2007. Fish, climate and the Gulf Stream: the influence of abiotic factors on the recruitment success of cyprinid fishes in lowland rivers. Freshw. Biol. 52 (8): 1576-1586. Doi:10.1111/j.1365-2427.2007.01789.x.

Nykanen, M., and A. Huusko. 2003. Size-related changes in habitat selection by larval grayling (*Thymallus thymallus*). Ecol. Freshwater Fish. 12: 127-181.

Nykanen, M., and A. Huusko. 2004. Transferability of habitat preference criteria for larval European grayling (*Thymallus thymallus*). Canadian Journal of Fisheries and Aquatic Sciences 61 (2): 185-192.

Nykanen, M., A. Huusko, and M. Lahti. 2004. Changes in movement, range and habitat preferences of adult grayling from late summer to early winter. J. Fish Biol. 64: 1386-1398. Doi: 10.1111/j.0022-1112.2004.00403.x

O’Brien, G.C., C. Dickens, E. Hines, V. Wepener, R. Stassen, and W.G. Landis. 2017. A regional-scale ecological risk framework for environmental flow evaluations. Hydrology and Earth Systems Science Discussions 22: 957-975. Doi: 10.5194/hess-2017-37

O’Brien, J.S. 1987. A case study of minimum streamflow for fishery habitat in the Yampa River. Pp. 921-946 in: C.R. Thorne, J.C. Bathurst, and R.D. Hey (eds.), Sediment Transport in Gravel-bed Rivers. John Wiley and Sons, New York [1992-Chichester].

O’Brien, T.P., W.W. Taylor, E.F. Roseman, C.P. Madenjian, and S.C. Riley. 2014. Ecological factors affecting rainbow smelt recruitment in the main basin of Lake Huron, 1976-2010. Transactions of the American Fisheries Society 143 (3): 784-795. Doi: 10.1080/00028487.2014.880736.

O’Brien, W.J., M. Barfield, and K. Sigler. 2001. The functional response of drift-feeding Arctic grayling: the effects of prey density, water velocity, and location efficiency. Canadian Journal of Fisheries and Aquatic Sciences 58 (10): 1957-1963.

O’Brien, W.J., and J.J. Showalter. 1993. Effects of current velocity and suspended debris on the drift feeding of Arctic grayling. Transactions of the American Fisheries Society 122 (4): 609-615.

O’Connor, B.L., Y. Hamada, E.E. Bowen, M.A. Grippo, H.M. Hartmann, T.L. Patton, R.A. O’Connor, Van Lonkhuyzen, and A.E. Carr. 2014. Quantifying the sensitivity of ephemeral streams to land disturbance activities in arid ecosystems at the watershed scale. Envir. Monit. Assess. 186: 7075-7095.

O’Connor, P., K. Ward, and A.J. King. 2007. Implementation of the Barmah-Millewa Forest Environmental Water Allocation 2005-2006 A case study of the successful delivery of the largest environmental water allocation in Australia and possibly the world. 10th International River Symposium and Environmental Flows Conference, Brisbane, 3-6 September 2007. <http://www.riversymposiium.com/index.php?page=Papers>.

O’Connor, R.R., and F.J. Rahel. 2009. A patch perspective on summer habitat use by brown trout Salmo trutta in a high plains stream in Wyoming, USA. Ecology of Freshwater Fish 18: 473-480.

O’Hare, J.M., M.T. O’Hare, A.M. Gurnell, M.J. Dunbar, P.M. Scarlett, and C. Laize. 2011. Physical constraints on the distribution of macrophytes linked with flow and sediment dynamics in British rivers. River Research and Applications 27 (6): 671-683. Doi: 10.1002/rra.1379

O’Hop, J., and J.B. Wallace. 1983. Invertebrate drift, discharge, and sediment relations in a southern Appalachian headwater stream. Hydrobiologia 98: 71-98. Doi:10.1007/BF00019252.

O’Keeffe, J.H. 2000. Environmental flow assessments within the South African integrated planning process for water resources. Pp. 41-64 *in*: King, J.M., R.E. Tharme, and M.S. DeVilliers, eds. Environmental flow assessments for rivers: Manual for the Building Block Methodology. Water Research Commission, Pretoria, South Africa.

O’Keefe, J.H., and D.A. Hughes. 2002. The Flow Stress Response Method for analyzing flow modifications: applications and developments. In: Proceedings of International Conference on Environmental Flows for Rivers. University of Cape Town, Cape Town, South Africa.

O’Keefe, J.H., D. Hughes, and R. Tharme. 2002. Linking ecological responses to altered flows, for use in environmental flow assessments: the Flow Stressor-Response method. Verh. Internat. Verein. Limnol. 28: 84-92.

O’Keefe, J., and T. LeQuesne. 2009. Keeping Rivers Alive: a Primer on Environmental Flows and Their Assessment. Godalming, UK: WWF Water Security Series 2.

O’Shea, D.T. 1995. Estimating minimum instream flow requirements for Minnesota streams from hydrologic data and watershed characteristics. North American Journal of Fisheries Management 15: 569‑578.

Obedzinski, M., S.N. Pierce, G.E. Horton, and M.A. Dietch. 2018. Effects of flow-related variables on oversummer survival of juvenile coho salmon in intermittent streams. Transactions of the American Fisheries Society 147 (3): 588-605. Doi: 10.1002/tafs.10057

Oberdorff, T., J.-F. Guegan, and B. Hugueny. 1995. Global scale patterns of fish species richness in rivers. Ecography 18: 345-352.

Oberdorff, T., P.A. Tedesco, B. Hugueny, F. Leprieur, O. Beauchard, S. Brosse, and H.H. Durr. 2011. Global and regional patterns in riverine fish species richness: a review. International Journal of Ecology 2011. Doi: 10.1155/2011/967631.

Odum, W.E., E.P. Odum, and H.T. Odum. 1995. Nature’s pulsing paradigm. Estuaries 18: 547-555.

Ogston, L., S. Gidora, M. Foy, and J. Rosenfeld. 2015. Watershed-scale effectiveness of floodplain habitat restoration for juvenile coho salmon in the Chilliwack River, British Columbia. Canadian Journal of Fisheries and Aquatic Sciences 72 (4): 479-490. Doi: 10.1139/cjfas-2014-0189.

Ohlberger, J., T.W. Buehrens, S.J. Brenkman, P. Crain, T.P. Quinn. And R. Hilborn. 2018. Effects of past and projected river discharge variability on freshwater production in an anadromous fish. Freshwater Biology doi: 10.1111/fwb.13070

Ohlund, G., F. Nordwall, E. Degerman, and T. Eriksson. 2008. Life history and large-scale habitat use of brown trout (*Salmo trutta*) amd brook trout (*Salvelinus fontinalis*) – implications for species replacement patterns. Canadian Journal of Fisheries and Aquatic Sciences 65 (4): 633-644. Doi: 10.1139/f08-003.

Ojanguren, A.F., and F. Brana. 2003. Effects of size and morphology on swimming performance in juvenile brown trout (*Salmo trutta* L.). Ecology of Freshwater Fish 12: 241-246.

Okland, F., J. Erkinaro, K. Moen, E. Niemela, P. Friske, R.S. McKinley, and E.B. Thorstad. 2001. Return migration of Atlantic salmon in the River Tana: phases of migratory behavior. J. Fish Biol. 59: 862-874.

Okland, F., E.B. Thorstad, and T.F. Naesje. 2004. Is Atlantic salmon production limited by number of territories? Journal of Fish Biology 65: 1047-1055. Doi: 10.1111/j.0023-1112.2004.00513.x.

Olden, J.D., and M.J. Kennard. 2010. Intercontinental comparison of fish life history strategies along a gradient of hydrologic variability. Pages 83-107 in: K.B. Gido and D.A. Jackson, editors. Community ecology of stream fishes: concepts, approaches, and techniques. American Fisheries Society, Bethesda, Maryland.

Olden, J.D., M.J. Kennard, and B.J. Pusey. 2012. A framework for hydrologic classification with a review of methodologies and applications in ecohydrology. Ecohydrology 5(4): 503-518. Doi: 10.1002/eco.251.

Olden, J.D., C.P. Konrad, T.S. Melis, M.J. Kennard, M.C. Freeman, M.C. Mims, E.N. Bray, K.B. Gido, N.P. Hemphill, D.A. Lytle, L.E. McMullen, M. Pyron, C.T. Robinson, J.C. Schmidt, and J.G. Williams. 2014. Are large-scale flow experiments informing the science and management of freshwater ecosystems? Frontiers in Ecology and the Environment 12 (3): 176-185. Doi: 10.1890/130076.

Olden, J.D., and R.J. Naiman. 2010. Incorporating thermal regimes into environmental flows assessments: modifying dam operations to restore freshwater ecosystem integrity. Freshwater Biology 55: 86-107. doi: 10.1111/j.1365-2427.2009.02179.x.

Olden, J.D., and N.L. Poff. 2003. Redundancy and the choice of hydrologic indices for characterizing streamflow regimes. River Research and Applications 19: 101-121. Doi: 10.1002/rra.700.

Olden, J.D., N.L. Poff, and K.R. Bestgen. 2006. Life-history strategies predict fish invasions and extirpations in the Colorado River Basin. Ecol. Monogr. 76: 25-40.

Oldmeadow, D.F., J. Lancaster, and S.P. Rice. 2010. Drift and settlement of stream insects in a complex hydraulic environment. Freshw. Biol. 55: 1020-1035. Doi: 10.1111/j.1365-1417.2009.02338.x.

Olsen, D.A., J.W, Hayes, D.J. Booker, and P.J. Barter. 2013. A model incorporating disturbance and recovery processes in benthic invertebrate habitat-flow time series. River Research and Applications 30: 413-426.

Olsen, D.A., and C.R. Townsend. 2005. Flood effects on invertebrates, sediments and particulate organic matter in the hyporheic zone of a gravel-bed stream. Freshw. Biol. 50: 839-853.

Olsen, M., E. Boegh, S. Pedersen, and M.F. Pederson. 2009. Impact of groundwater abstraction on physical habitat of brown trout (*Salmo trutta*) in a small Danish stream. Hydrological Research 40: 394-405.

Olsen, N.R.B., and S. Stokseth, 1995. Three-dimensional modeling of water flow in a river with large bed roughness. IAHR Journal of Hydraulic Research 33 (4): 571-581.

Olson, F.W., and R.G. Metzgar. 1988. Downramping to minimize stranding of salmonid fry. Pages 691-701 in: B.W. Clowes, editor. Water Power ,87: Proceedings of the International Conference on Hydropower. American Society of Civil Engineers, Portland, Oregon.

Olson, S.B., T.V. Padma, and B.D. Richter. 2006. Managing freshwater inflows to estuaries: the methods guide. U.S. Agency for International Development, The Nature Conservancy, and University of Rhode Island Coastal Resources Center. Washington, D.C. 44 pp. (http://www.nature.org/initiatives/freshwater/conservationtools/methods.html)

Olsson, T.I., and B.-G. Persson. 1986. Effects of gravel size and peat material concentrations on embryo survival and alevin emergence of brown trout *Salmo trutta* L. Hydrobiologia 135 (1-2): 9-14. Doi:10.1007/BF00006453.

Omernik, J.M., and G.E. Bailey. 1997. Distinguishing between watersheds and ecoregions. Journal of the American Water Resources Association 33 (5): 935-949.

Onodera, K., and T. Ueno. 1961. On the survival of trout fingerlings stocked in a mountain brook. II. Survival rate measured and scouring effect of flood as a cause of mortality. Bulletin of the Japanese Society of Scientific Fisheries 27: 530-557.

Opdyke, D.R., E.L. Oborny, S.K. Vaugh, and K.B. Mayes. 2014. Texas environmental flow standards and the hydrology-based environmental flow regime methodology. Hydrological Sciences Journal 59: 820-830.

Opperman, J.J. 2002. Anadromous fish habitat in California’s Mediterranean-climate watersheds: influences of riparian vegetation, instream large woody debris, and watershed-scale land use. Doctoral dissertation, University of California, Berkeley.

Opperman, J.J. 2008. Ecologically functional floodplains: connectivity, flow regime and scale. AWRA 2008 Summer Specialty Conference –Riparian Buffers and Ecosystems. American Water Resources Association, Virginia Beach, VA.

Opperman, J.J., G.F. Galloway, J. Fargione, J.F. Mount, B.D. Richter, and S. Secchi. 2009. Sustainable floodplains through large-scale reconnections to rivers. Science 326: 1487-1488. Doi: 10.1126/science.1178256.

Opperman, J.J., E. Kendy, R.E. Tharme, A.T. Warner, E. Barrios, and B.D. Richter. 2018. A three-level framework for assessing and implementing environmental flows. Frontiers in Environmental Science doi: 10.3389/fenvs.2018.00076

Opperman, J.J., R. Luster, B.A. McKenney, M. Roberts, and A.W. Meadows. 2010. Ecologically functional floodplains: connectivity, flow regime, and scale. Journal of the American Water Resources Association 46: 211-226. Doi: 10.1111j.1752-1688.2010.0426.x.

Opperman, J.J., and A.M. Merenlender. 2003. Passive restoration of degraded riparian corridors in the Russian River basin: consideration of hydrology, livestock, and deer herbivory. Pages 360-366 in: P.M. Faber, editor. California riparian systems: processes and floodplain management, ecology, and restoration. 2001 Riparian Habitat and Floodplains Conference Proceedings. Riparian Habitat Joint Venture, Sacramento, California.

Opperman, J.J., and A.M. Merenlender. 2004. The effectiveness of riparian restoration for improving instream fish habitat in four hardwood-dominated California streams. North American Journal of Fisheries Management 24 (3): 822-834. Doi: 10.1577/M03-147.1.

Opsahl, R.W., T. Wellnitz, and N.L. Poff. 2003. Current velocity and invertebrate grazing regulate stream algae: results of an in situ electrical exclusion. Hydrobiologia 499: 135-145.

Opsahl, S., S.E. Chapal, D.W. Hicks, and C.K. Wheeler. 2007. Evaluation of ground-water and surface-water exchanges using streamflow difference analyses. Journal of the American Water Resources Association 43: 1132-1141.

Orcutt, D.R., B.R. Pulliam, and A. Arp. 1968. Characteristics of steelhead trout redds in Idaho streams. Transactions of the American Fisheries Society 97: 42-45.

Orr, H.G., A.R.G. Large, M.D. Newson, and C.L. Walsh. 2008. A predictive typology for characterizing hydromorphology. Geomorphology 100: 32-40.

Orsborn, J.F. 1974. Determining stream flows from geomorphic parameters. Journal Irrigation and Drainage Division, American Society of Civil Engineers 100 (IR4): 455-475.

Orsborn, J.F. 1975. Predicting ungaged low flows in diverse hydrologic provinces using river basin geomorphic characteristics. Proceedings, International Symposium, International Association of Hydrol. Sciences, Tokyo, Japan, December 1-8.

Orsborn, J.F. 1982. Estimating spawning habitat using watershed and channel characteristics. Pages 154-161 in: N.B. Armantrout (editor). Acquisition and utilization of Aquatic Habitat Inventory Information. Western Division, American Fisheries Society.

Orsborn, J.F., and C.H. Allman (eds.). 1976. Instream flow needs. American Fisheries Society, Bethesda, Maryland. (Available at: http://.instreamflowcouncil.org/resources/ifc-publications/afs-publications)

Orsborne, L.L., M.J. Wiley, and R.W. Larimore. 1988. Assessment of the water surface profile model: accuracy of predicted instream habitat conditions in low-gradient, warmwater streams. Regulated Rivers: Research and Management 1: 171-181. Doi: 10.1002/rrr.3450020506

Orth, D.J. 1983. Aquatic habitat measurements. Pp. 61-84 in: L.A. Nielsen and D.A. Johnson, editors. Fisheries Techniques. American Fisheries Society, Bethesda.

Orth, D.J. 1987. Ecological considerations in the development and application of instream flow habitat models. Regulated Rivers: Research and Management 1: 171-181. Doi: 10.1002/rr.3450010207.

Orth, D.J. 1995. Food web influences on fish population responses to instream flow. Bulletin Francais de la Peche et de la Pisciculture 337/338/339: 317-328.

Orth, D.J., R.N. Jones, and O.E. Maughan. 1981. Considerations in the development of curves for habitat suitability criteria. Pages 124‑133 in N.B. Armantrout, editor. Acquisition and utilization of aquatic habitat inventory information. Proceedings of a symposium, Portland, Oregon. American Fisheries Society, Western Division, Bethesda.

Orth, D.J., and P.M. Leonard. 1990. Comparison of discharge methods and habitat optimization for recommending instream flows to protect fish habitat. Regulated Rivers: Research and Management 5(2): 129-138.

Orth, D.J., and O.E. Maughan. 1981. Evaluation of the “Montana method” for recommending instream flows in Oklahoma streams. Proceedings of the Oklahoma Academy of Science 61: 62-66.

Orth, D.J., and O.E. Maughan. 1982. Evaluation of the Incremental Methodology for recommending instream flows for fish. Transactions of the American Fisheries Society 111 (4): 413-445. Doi: 10.1577/1548-8659(1982)111<413:EOTIMF>2.0.CO;2.

Orth, D.J., and O.E. Maughan. 1983. Microhabitat preferences of benthic fauna in a woodland stream. Hydrobiologia 106: 157-168.

Orth, D.J., and O.E. Maughan. 1986. In defense of the instream flow incremental methodology. Canadian Journal of Fisheries and Aquatic Sciences 43: 1092-1093.

Orth, D.J., and T.J. Newcomb. 2002. Certainties and uncertainties in defining essential habitats for riverine smallmouth bass. Pages 251-264 in: D.P. Philip and M.S. Ridgway, editors. Black bass: ecology, conservation, and management. American Fisheries Society, Symposium 31, Bethesda, Maryland.

Orth, D.J., and R.J. White. 1993. Stream habitat management. Pages 205-230 in: Inland Fisheries Management in North America. American Fisheries Society, Bethesda, Maryland.

Ortlepp, J., and U. Murle. 2003. Effects of experimental flooding on brown trout (*Salmo trutta fario* L.): the River Spol, Swiss National Park. Aquatic Sciences 65: 232-238.

Osborne, L.L., M.J. Wiley, and R.W. Larimore. 1988. Assessment of the water surface profile: accuracy of predicted instream fish habitat conditions in low-gradient, warmwater streams. Regulated Rivers 2: 269-631.

Osland, M.J., N. Enwright, and C.L. Stagg. 2014. Freshwater availability and coastal wetland foundation species: ecological transitions along a rainfall gradient. Ecology 95 (10): 2789-2802.

Osmundson, D.B., R.J. Ryel, V.L. Lamarra, and J. Pitlick. 2002. Flow-sediment-biota relations: implications for river regulation effects on native fish abundance. Ecological Applications 12: 1719-1739.

Osterback, A.-M.K., D.M. Frechette, S.A. Hayes, M.H. Bond, S.A. Shaffer, and J.W. Moore. 2014 Linking individual size and wild and hatchery ancestry to survival and predation risk of threatened steelhead (*Oncorhynchus mykiss*). Canadian Journal of Fisheries and Aquatic Sciences 71 (12): 1877-1887. Doi: 10.1139/cjfas-2014-0097.

Osterkamp, W.R. 1978. Gradient, discharge, and particle-size relations of alluvial channels in Kansas, with observations on braiding. American Journal of Science 278: 1253-1268.

Osterkamp, W.R., and J.E. Costa. 1987. Changes accompanying an extraordinary flood on a sand-bed stream. Catastrophic Flooding 18: 201-224.

Osterkamp, W.R., and C.R. Hupp. 2010. Fluvial processes and vegetation – glimpses of the past, the present, and perhaps the future. Geomorphology 116: 274-285.

Ostrand, K.G., and G.R. Wilde. 2002. Seasonal and spatial variation in prairie stream-fish assemblages. Ecology of Freshwater Fish 11: 137-149.

Ostrand, K.G., and G.R. Wilde. 2004. Changes in prairie stream fish assemblages restricted to isolated streambed pools. Transactions of the American Fisheries Society 133 (6): 1329-1338.

Ottaway, E.M., P.A. Carling, A. Clark, and N.A. Reader. 1981. Observations on the structure of brown trout, *Salmo trutta* Linnaeus redds. Journal of Fish Biology 19: 593-607.

Ottaway, E.M., and A. Clarke. 1981. A preliminary investigation into the vulnerability of young trout (*Salmo trutta* L.) and Atlantic salmon (*S. salar* L.) to downstream displacement by high water velocities. Journal of Fish Biology 19: 135-145.

Ottaway, E.M., and D.R. Forrest. 1983. The influence of water velocity on downstream movement of alevins and fry of brown trout, *Salmo trutta* L. Journal of Fish Biology 23: 221-227.

Ourrick, C.A., and J.J. Cech. 2000. Swimming performances of four California stream fishes: temperature effects. Environmental Biology of Fishes 58: 289-295.

Overton, I.C. 2005. Modelling floodplain inundation on a regulated river: integrating GIS, remote sensing and hydrological models River Research and Applications 21: 991-1001.

Overton, I.C., I.D. Jolly, P.G. Slavich, M.M. Lewis, and G.R. Walker. 2006. Modeling vegetation health from the interaction of saline groundwater and flooding on the Chowilla floodplain, South Carolina. Ecological Modelling 29: 283-302.

Overton, I.C., D.M. Smith, J. Dalton, S. Barchiesi, M.C. Acreman, J.C. Stromberg, and J.M. Kirby. 2014. Implementing environmental flows in integrated water resources management and the ecosystem approach. Hydrol. Sci. J. 59: 860-877.

Ovidio, M., H. Capra, and J.C. Philippart. 2008. Regulated discharge produces substantial demographic changes on four typical fish species of a small salmonid stream. Hydrobiologia 609: 59-70.

Owen, M. 1991. Groundwater abstraction and river flows. J. Inst. Wat. Environ. Management 5: 697-702.

Owensby, D.P., J.R. Rice, and D.D. Aday. 2017. Mortality, dispersal, and habitat use of stocked juvenile muskellunge in two western North Carolina rivers. North American Journal of Fisheries Management 37 (1): 108-121. Doi: 10.1080.02755947.2016.1245222

Oyebande, L. 2001. Streamflow regime change and ecological response in the Lake Chad basin in Nigeria. Pages 101-111 in: M.C. Acreman (editor), Hydro-ecology: linking hydrology and aquatic ecology. Proceedings of the Birmingham, United Kingdom, Workshop, July 1999. IAHS Publication No. 266.

Ozen, O. and R.L. Noble. 2002. Relationship between water level fluctuations and largemouth bass spawning in a Puerto Rico reservoir. Pages 213-220 in: D.P. Philipp and M.S. Ridgway, editors. Black bass: ecology, conservation, and management. American Fisheries Society, Bethesda, MD.

Pacheco, J.M., and J.H, Kohr. 2018. Update to the Toe-Width Methodology: Determining preferred discharges for spawning and rearing salmonids. North American Journal of Fisheries Management 38: 1404-1414. Doi: 10.1002/nafm.10243

Packman, A.I., and M. Salehin. 2003. Relative roles of stream flow and sedimentary conditions in controlling hyporheic exchange. Hydrobiologia 494: 291-297.

Packman, A.I., M. Salehin, and M. Zaramella. 2004. Hyporheic exchange with gravel beds: basic hydrodynamic interactions and bedform- induced advective flows. J. Hydraul. Eng. 130 (7): 647-656. Doi:10.1061/(ASCE)0733-9429(2004)130:7(647).

Padmore, C.L. 1998. The role of physical biotopes in determining the conservation status and flow requirements of British rivers. Aquatic Ecosystem Health and Management 1: 25-35. Doi: 10.1080/1463989808657003

Padmore, C.L., M.D. Newson, and M/E. Charlton. 1998. Instream habitat in gravel bed rivers: identification and characterisation of biotopes. Pages 345-364 in: P.C. Klingeman, R.L. Beschta, P.D. Komar, and J.B. Bradley (editors), Gravel bed rivers in the Environment. Water Resources Publications, Highlands Ranch, CO.

Paerl, A.J., J.D. Bales, L.W. Ausley, C.P. Buzzell, L.B. Crowder, L.A. Eby, J.M. Fear, M. Go, B.L. Peierls, T.L. Richardson, and J.S. Ramus. 2001. Ecosystem impacts of three sequential hurricanes (Dennis, Floyd, and Irene) on the United States’ largest lagoonal estuary, Pamlico Sound, NC. Proceedings of the National Academy of Sciences of the USA 98:5655-5660.

Paetzold, A., C. Yoshimura, and K. Tockner. 2008. Riparian arthropod responses to flow regulation and river channelization. Journal of Applied Ecology 45: 894-903.

Paez, D.J., R. Hedger, L. Bernatchez, and J.J. Dodson. 2008. The morphological plastic response to water current velocity varies with age and sexual state in juvenile Atlantic salmon, *Salmo salar*. Freshwater Biology 53: 1544-1554.

Pahl-Wostl, C., A. Arthington, J. Bogardi, S.E. Bunn, H. Hoff, L. Lebel, et al. 2013. Environmental flows and water governance: Managing sustainable water uses. Current Opinion in Environmental Sustainability 5: 341-351. Doi: 10.1016/j.cocuct.2013.06.009

Paillex, A., S. Doledec, E. Castella, and S. Merigoux. 2009. Large river floodplain restoration: predicting species richness and trait responses to the restoration of hydrological connectivity. Journal of Applied Ecology 46: 250-258.

Paine, M.D., J.J. Dodson, and G. Power. 1982. Habitat and food resource partitioning among four species of darters (Percidae: *Etheostoma*) in a southern Ontario stream. Canadian Journal of Zoology 60: 1635-1641.

Pajak, P., and R.J. Neves. 1987. Habitat suitability and fish production: A model evaluation for rock bass in two Virginia streams. Transactions of the American Fisheries Society 116 (6): 839-850.

Pakkasmaa, S., and J. Piironen. 2001. Water velocity shapes juvenile salmonids. Evolutionary Ecology 14: 721-730.

Palau, A., and J. Alcazar. 2012. The basic flow method for incorporating flow variability in environmental flows. River Research and Applications 28: 93-102.

Palik, B., S.W. Golladay, P.C. Goebel, and B.W. Taylor. 1998. Geomorphic variation in riparian tree mortality and stream coarse woody debris recruitment from record flooding in a coastal plain stream. Ecoscience 5: 551-560.

Paller, M.H. 1994. Relationships between fish assemblage structure and stream order in South Carolina coastal plains streams. Transactions of the American Fisheries Society 123: 150-161.

Paller, M.H., S.F. Modica, and E.G. Hofstetter. 1992. Short-term changes in a southeastern coastal plain fish assemblage following artificial increases in streamflow. Rivers 3: 243-259.

Paller, M.H., B.A. Prusha, D.E. Fletcher, E. Kosnicki, S.A. Sefick, M.S. Jarrell, S.D. Sterrett, A.M. Grosse, T.D. Tuberville, and J.W. Feminella. 2016. Factors influencing stream fish species composition and functional properties at multiple spatial scales in the sand hills of the southeastern United States. Transactions of the American Fisheries Society 1145 (3): 545-562. Doi: 10.1080/00028487.2015.1135190.

Paller, M.H., and B.M. Saul. 1996. Effects of temperature gradients resulting from reservoir discharge on *Dorosoma cepedianum* spawning in the Savannah River. Environmental Biology of Fishes 45: 151-160.

Palm, D., E. Brannas, F. Lepori, K. Nilsson, and S. Stridsman. 2007. The influence of spawning habitat restoration on juvenile brown trout (*Salmo trutta*) density. Canadian Journal of Fisheries and Aquatic Sciences 64 (3): 509-515. Doi:10.1139/F07-027.

Palm, D., E. Brannas, and K. Nilsson. 2009. Predicting site-specific overwintering of juvenile brown trout (*Salmo trutta*) using a habitat suitability index. Canadian Journal of Fisheries and Aquatic Sciences 66 (4): 540-546. Doi:10.1139/F09-016.

Palmer, M.A., E.S. Bernhardt, J.D. Allan, P.S. Lake, G. Alexander, S. Brooks, J. Carr, S. Clayton, C.N. Dahm, J. Follstad Shah, D.L. Galat, S.G. Loss, P. Goodwin, D.D. Hart, B. Hassett, R. Jenkinson, G.M. Kondolf, R. Lave, J.L. Meyer, T.K. O’Donnell, L Pagano, and E. Sudduth. 2005. Standards for ecologically successful river restoration. Journal of Applied Ecology 42 (2): 208-217. Doi:10.1111/j.1365-2664.2005.01004.x.

Palmer, M.A., D.P. Lettenmaier, N.L. Poff, S.L. Postel, B. Richter, and R. Warner. 2009. Climate change and river ecosystems: protection and adaptation options. Environmental Management 44: 1053-1068. Doi: 10.1007/s00267-009-9329-1.

Palmer, M.A., C.A. Reidy Liermann, C. Nilsson, M. Florke, J. Alcamo, P.S. Lake, and N. Bond. 2008. Climate change and the world’s river basins: anticipating management options. Frontiers in Ecology and the Environment 6 (2): 81-89. Doi: 10.1890/060148

Palmer, M.A., C.M. Swan, K. Nelson, et al. 2000. Streambed landscapes: evidence that stream invertebrates respond to the type and spatial arrangement of patches. Landscape Ecology 19: 99-111.

Palmer, T., P. Montagna, and R. Kalke. 2002. Downstream effects of restored freshwater inflow to Rincon Bayou, Nueces Delta, Texas, USA. Estuaries 25 (6B): 1448-1456.

Palmer, T.A., P.A. Montagna, J.B. Pollack, R.D. Kalke, and H.R. DeVoe. 2011 The role of freshwater infow in lagoons, rivers, and bays. Hydrobiologia 667: 49-67.

Palmer, W.C. 1965. Meteorological drought. U.S. Government Printing Office, U.S. Weather Bureau, Research Report 45, Washington, D.C.

Paloumpis, A.A. 1958. Responses of some minnows to flood and drought conditions in an intermittent stream. Iowa State College Journal of Science 32 (4): 547-561.

Panagoulia, D., and G. Dimou. 1996. Sensitivities of groundwater-streamflow interaction to global climate change. Hydrological Sciences Journal 41: 781-796.

Pang, A., T. Sun, and Z. Yang. 2014. A framework for determining recommended environmental flows for balancing agricultural and ecosystem water demands. Hydrol. Sci. J. 59: 890-903.

Panja, K., T.B. Hardy, and C.M.U. Neale. 1993. Comparison of meso-scale hydraulic features at different discharges in a turbid river system using multispectral videography. *In*: Proceedings of the 14th Workshop on Color Photography and Videography for Resource Monitoring. Utah State University, Logan, Utah, May 25-29.

Paperno, R., D.M. Temain, D.H. Adams, A.P. Sebastian, J.T. Sauer, and J. Dutka-Gianelli. 2006. The disruption and recovery of fish communities in the Indian River Lagoon, Florida, following two hurricanes in 2004. Estuaries and Coasts 29: 1004-1010.

Paragamian, V.L. 1981. Some characteristics that affect abundance and winter survival of smallmouth bass in the Maquoketa River, Iowa. Pp. 45-53 in L.A. Krumholz, editor. The warmwater streams symposium. American Fisheries Society, Bethesda, Maryland.

Paragamian, V.L. 1989. Seasonal habitat use by walleye in a warmwater river system as determined by radiotelemetry. North American Journal of Fisheries Management 9: 392-401.

Paragamian, V.L. 1990. Characteristics of channel catfish populations in streams and rivers of Iowa with varying habitats. Journal of the Iowa Academy of Science 97: 37-45.

Paragamian, V.L. 2000. The effects of variable flows on Burbot spawning migrations in the Kootenai River, Idaho, USA, and Kootenay Lake, British Columbia, Canada, after the construction of Libby Dam. Pages 111-123 in: V.L. Paragamina and D.W. Willis, editors. Burbot: biology, ecology, and management. American Fisheries Society , Fisheries Management Section, Publication 1, Bethesda, Maryland.

Paragamian, V.L., R. Hardy, and B. Gunderman. 2005. Effects of regulated discharge on Burbot migration. Journal of Fish Biology 66: 1199-1213.

Paragamian, V.L., and G. Kruse. 2001. Kootenai River white sturgeon spawning migration behavior and a predictive model. North American Journal of Fisheries Management 21 (1): 10‑21.

Paragamian, V.L., G. Kruse, and V. Wakkinen. 2001. Spawning habitat of Kootenai River white sturgeon, post-Libby Dam. North American Journal of Fisheries Management 21 (1): 22-33. Doi:10.1577/1548-8675(2001)021<0022:SHOKRW>2.0.CO;2.

Paragamian, V.L., R. McDonald, G.J. Nelson, and G. Barton. 2009. Kootenai River velocities, depth, and white sturgeon spawning site selection – a mystery unraveled? Journal of Applied Ichthyology 25 (6): 640-646. Doi:10.1111/j.1439-0426.2009.01364.x.

Paragamian, V.L., and V. Wakkinen. 2002. The effects of flow and temperature on the spawning of Kootenai River white sturgeon. J. Appl. Ichthyol. 18: 608-616. Doi:10.1046/j.1439-0426.2002.00391.x.

Paragamian, V.L., and M.J. Wiley. 1987. Effects of variable streamflows on growth of smallmouth bass in the Maquoketa River, Iowa. North American Journal of Fisheries Management 7 (3): 357‑362.

Parasiewicz, P. 1996. Estimation of physical habitat characteristics using automation and geodesic-based sampling. Regulated Rivers: Research and Management 12 (6): 575.

Parasiewicz, P. 2001. MesoHABSIM: A concept for application of instream flow models in river restoration planning. Fisheries 26 (9): 6-13.

Parasiewicz, P. 2003. Upscaling: integrating habitat model into river management. Canadian Water Resources Journal 28 (2): 283-300.

Parasiewicz, P. 2007. Using MesoHABSIM to develop a reference habitat template and ecological management scenarios. River Research and Application 23: 924-932.

Parasiewicz, P. 2007. The MesoHABSIM model revisited. River Research and Application 23: 893-903.

Parasiewicz, P. 2008. Application of MesoHABSIM and target fish community approaches to restoration of the Quinebaug River, Connecticut and Massachusetts, USA. River Research and Application 24: 459–471.

Parasiewicz, P. 2008. Habitat time series analysis to define flow augmentation strategy for the Quinnebaug River, Connecticut and Massachusetts, USA. River Research and Applications 24: 439-452. doi:10.1002/rra.1066.

Parasiewicz, P., E. Castelli, J.N. Rogers, and E. Plunkett. 2012. Multiplex modeling of physical habitat for endangered freshwater mussels. Ecological Modelling 228: 66-75. Doi: 10.1016/j.ecolmodel.2011.12.023

Parasiewicz, P., E. Castelli, J.N. Rogers, P. Vezza, and A. Kaupsta. 2017. Implementation of the natural flow paradigm to protect dwarf wedgemussel (*Alasmidonta heterodon*) in the upper Delaware River. River Research and Applications 33: 277-291.

Parasiewicz, P., and M.J. Dunbar. 2001. Physical habitat modelling for fish - a developing approach. Archiv fur Hydrobiologie Supplement. 135/2-4: 239-268.

Parasiewicz, P., M. Mattl, and K. Moder. 1999. A study of effectiveness of alternative physical habitat sampling strategies in streams. *In:* T.B. Hardy, ed. Proceedings of 3rd international symposium on ecohydraulics. Utah State University, Logan.

Parasiewicz, P., S. Schmutz, and A. Melcher. 1999. A hybrid model - assessment of habitat conditions combining state of the art modeling tools. *In*: T.B. Hardy, ed. Proceedings of 3rd international symposium on ecohydraulics. Utah State University, Logan.

Parasiewicz, P., S. Schmutz, and O. Moog. 1998. The effect of managed hydropower peaking on the physical habitat, benthos and fish fauna in the River Bregenzerach in Austria. Fisheries Management and Ecology 5: 403-417. Doi: 10.1046/j.1365-2400.1998.550403.x

Parasiewicz, P., and J.D. Walker. 2007. Comparing and testing results of three different micro and meso hirver habitat models. River Res. Appl. 23 (8): 904-923.

Parasiewicz, P., and J.D. Walker. 2007. Comparison of MesoHABSIM with two microhabitat models (PHABSIM and HARPHA). River Research and Applications 23 (8): 904-923.

Pardue, G.B. 1983. Habitat suitability index models: alewife and blueback herring. U.S. Fish and Wildlife Service FWS/OBS-82/10.58.

Park, C.C. 1977. Worldwide variations in hydraulics geometry exponents of stream channels – an analysis and some observations. Journal of Hydrology 33: 133-146.

Parker, G.W., D.S. Armstrong, and T.A. Richards. 2004. Comparison of methods for determining streamflow requirements for aquatic habitat protection at selected sites on the Assabet and Charles Rivers, eastern Massachusetts, 2000-2002. U.S. Geological Survey Scientific Investigations Report 2004-5092. 72 pp.

Parker, G., C.M. Toro-Escobar, M. Ramey, and S. Beck. 2003. Effect of floodwater extraction on mountain stream morphology. Journal of Hydraulic Engineering ASCE 129: 885-895.

Parker, H., and N. Oates. 2016. How do healthy rivers benefit society? A review of the evidence. WWF and ODI Working Group Paper 430.

Parker, M. 1986. Beaver, water quality and riparian systems. Wyoming Water Resources Center, Laramie.

Parker, M.S. 1989. Effect of substrate composition on detritus accumulation and macroinvertebrate distribution in a southern Nevada desert stream. Southwestern Naturalist 34: 181-187.

Parker, M.S. 1991. Relationship between cover availability and larval Pacific giant salamander density. Journal of Herpetology 25: 355-357.

Parker, T.M., and M.E. Barnes. 2014. Rearing velocity impacts on landlocked fall Chinook salmon (Oncorhynchus tshawytscha) growth, condition, and survival. Open Journal of Animal Sciences (online serial) 4: 244-252,

Parker, T.M., and M.E. Barnes. 2015. Effects of different water velocities on the hatchery rearing performance and recovery from transportation of rainbow trout fed two different rations. Transactions of the American Fisheries Society 144 (5): 882-890. Doi: 10.1080/00028487.2015.1047533.

Parkos, J.J., III, L.F. Wolski, W.F. Loftus, and J.C. Trexler. 2015. Dynamic movement patterns of Florida gar within a fluctuating hydroscape. Copeia 103: 132-140.

Parkyn, S.M., and K.J. Collier. 2004. Interaction of press and pulse disturbance on crayfish populations: flood impacts in pasture and forest streams. Hydrobiologia 527: 113-124.

Parmesan, C. 2006. Ecological and evolutionary responses to recent climate change. Annu. Rev. Ecol. Evol. Syst. 37 (1): 637-669. Doi:10.1146/annurev.ecolsys.37.091305.110100.

Parra, I., A. Almodovar, D. Ayllon, C.G. Nicola, and B. Elvira. 2011. Ontogenetic variation in density-dependent growth of brown trout through habitat competition. Freshw. Biol. 56(3): 530-540. Doi: 10.1111/j.1365-2427.2010.02520.x

Parrish, D.L, R.J. Behnke, S.R. Gephard, S.D. McCormick, and G.H. Reeves. 1998. Why aren’t there more Atlantic salmon (*Salmo salar*)? Canadian Journal of Fisheries and Aquatic Sciences 55 (Suppl. 1): 281-287.

Parrish, D.L., E.J. Hawes, and K.G. Whalen. 2004. Winter growth and survival of juvenile Atlantic salmon (*Salmo salar*) in experimental raceways. Canadian Journal of Fisheries and Aquatic Sciences 61 (12): 2350-2357.

Parry, E., S.D. Gregory, R.B. Lauridsen, and S.W. Griffiths. 2017. The effects of flow on Atlantic salmon (Salmo salar) redd distribution in a UK chalk stream between 1980 and 2015. Ecology of Freshwater Fish. Doi: 10.1111/eff.1230/full

Parsley, M.J., and L.G. Beckman. 1994. White sturgeon spawning and rearing habitat in the lower Columbia River. North American Journal of Fisheries Management 14 (4): 812‑827. Doi:10.1577/1548-8675(1994)014<0812:WSSARH>2.3.CO;2.

Parsley, M.J., L.G. Beckman, and G. McCabe, Jr. 1993. White sturgeon spawning and rearing habitat in the Columbia River downstream of McNary Dam. Transactions of the American Fisheries Society 122: 217‑228.

Parsons, B.G.M., and W.A. Hubert. 1988. Influence of habitat availability on spawning site selection by kokanee in streams. North American Journal of Fisheries Management 8 (4): 426‑431.

Parsons, G.R., and P. Smiley. 2003. The effect of environmental changes on swimming performance of the white crappie. Journal of Freshwater Ecology 18: 89-96.

Parsons, M., C.A. McLoughlin, K.A. Kotschy, K.H. Rogers, and M.W. Rountree. 2005. The effects of extreme floods on the biophysical heterogeneity of river landscapes. Frontiers in Ecology and the Environment 3 (9): 487-494.

Parsons, M., M.C. Thoms, and R.H. Norris. 2004. Development of a standardized approach to river habitat assessments in Australia. Environmental Monitoring and Assessment 98: 109-130.

Parsons, M., C.A. McLoughlin, M.W. Rountree, and K.H. Rogers. 2006. The biotic and abiotic legacy of a large infrequent flood disturbance in the Sabie River, South Africa. River Research and Applications 22: 187-201. Doi:10.1002/rra.905

Pasternack, G.B. 2008. Spawning habitat rehabilitation: advances in analysis tools. Pages 321-348 in: D.A. Sear and P. DeVries, editors. Salmonid spawning habitat in rivers: physical controls, biological responses, and approaches to remediation. American Fisheries Society, Symposium 65, Bethesda, Maryland.

Pasternack, G.B. 2011. 2D Modeling and hydraulic analysis. Createspace, Seattle.

Pasternack, G.B., M.K. Bounrisavong, and K.K. Parikh. 2008. Backwater control on pool-riffle hydraulics, fish habitat quality, and sediment transport regime in gravel-bed rivers. Journal of Hydrology 357: 125-139.

Pasternack, G.B., and R.A. Brown. 2013. Ecohydraulic design of riffle-pool relief and morphological-unit geometry in support of regulated gravel-bed river rehabilitation. Pages 337-353 in: I. Maddock, A. Harby, P. Kemp, and P. Wood, editors, Ecohydraulics: an integrated approach. Wiley, Chichester, U.K.

Pasternack, G.B., A.T. Gilbert, J.M. Wheaton, and E.M. Buckland. 2006. Error propagation for velocity and shear stress prediction using 2D models for environmental management. Journal of Hydrology 328: 227-241. Doi: 10.1016/j.hydrol.2005.12.03.

Pasternack, G.B., C.L. Wang, and J.E. Merz. 2004. Application of a 2D hydrodynamic model to design of reach-scale spawning gravel replenishment on the Mokelumne River, California. River Research and Application 20: 205-225.

Pastor, A.V., F. Ludwig, H. Biemans, H. Hoff, and P. Kabat. 2014. Accounting for environmental flow requirements in global water assessments. Hydrol. Earth Syst. Sci. 18: 5041-5059.

Pastuchova, Z., M. Lehotsky, and A. Greskova. 2008. Influence of morphohydraulic habitat structure on invertebrate communities (Ephemeroptera, Plecoptera and Trichoptera). Biologia 63: 720-729.

Paton, R.S., and J. Matthiopoulos. 2016. Defining the scale of habitat availability for models of habitat selection. Ecology 97 (5): 1113-1122. Doi: 10.1890/14-2241.1.

Patrick, C.J., and L.L. Yuan. 2017. Modeled hydrologic metrics show links between hydrology and the functional composition of stream assemblages. Ecological Applications 27: 1605-1617.

Patterson, D. 1951. Beaver-trout relationships. Wisconsin Conservation Department, Investigative Report Number 822, Madison.

Patten, D.T. 1998. Riparian ecosystems of semi-arid North America: diversity and human impacts. Wetlands 18: 498-512.

Patten, D.T., D.A. Harpman, M.I. Voita, and T.J. Randle. 2001. A managed flood on the Colorado River: background, objectives, design, and implementation. Ecological Applications 11: 635-643.

Patten, D.T., and L.E. Stevens. 2001. Restoration of the Colorado River ecosystem using planned flooding. Ecological Applications 11: 633-634.

Patterson, R.J., and K.E. Smokorowski. 2011. Assessing the benefit of flow constraints on the drifting invertebrate community of a regulated river. River Res. Appl. 27: 99-112. Doi: 10.1002/rra.1342.

Patton, T.M., and W.A. Hubert. 1988. Reservoirs on a Great Plains stream affect downstream habitat and fish assemblages. Journal of Freshwater Ecology 8: 279-285.

Paukert, C., and W.L. Fisher. 2001. Characteristics of paddlefish in a southwestern U.S. reservoir, with comparisons of lentic and lotic populations. Transactions of the American Fisheries Society 130: 634-643.

Paukert, C., and R.S. Rogers. 2004. Factors affecting condition of flannelmouth suckers in the Colorado River, Grand Canyon, Arizona. North American Journal of Fisheries Management 24 (2): 648-653.

Paul, A.J. 2013. Environmental flows and recruitment of walleye (Sander vitreus) in the Peace-Athabasca Delta. Canadian Journal of Fisheries and Aquatic Sciences 70 (2): 307-315. Doi: 10.1139/cjfas-2012-0229.

Paulsen, C.M., and T.R. Fisher. 2001. Statistical relationship between parr-to-smolt survival of Snake River spring-summer Chinook salmon and indices of land use. Transactions of the American Fisheries Society 130: 347-358.

Paulsen, C.M., and T.R. Fisher. 2005. Do habitat actions affect juvenile survival? An information theoretic approach applied to endangered Snake River Chinook salmon. Transactions of the American Fisheries Society 134 (1): 68-85.

Pautou, G., and H. Decamps. 1985. Ecological interactions between the alluvial forests and hydrology of the upper Rhone. Archiv fur Hydrobiologie 104: 13-37.

Pavey, S.A., J.L. Nielsen, R.H. Mackas, T.R. Hamon, and F. Breden. Contrasting ecology shapes juvenile lake-type and riverine sockeye salmon. Transactions of the American Fisheries Society 139 (5): 1584-1594.

Pavlov, D.S. 1994. The downstream migration of young fishes in rivers: mechanisms and distribution. Folia Zool. (Brno) 43: 193-208.

Pavlov, D.S., I.A. Lupandin, and N.G. Degtyareva. 1995. Role of turbulence in the distribution of downstream-migrating young fishes (early larval stages) in wide and narrow channels. Doklady Biological Sciences 341: 211-215.

Pavlov, D.S., I.A. Lupandin, and M.A. Skorobogatov. 2000. The effects of flow turbulence on the behavior and distribution on fish. Journal of Ichthyology 40 (Supplement 2): S232-S261.

Pavlov, D.S., V.N. Mikheev, I.A. Lupandin, and M.A. Skorobogatov. 2008. Ecological and behavioral influences on juvenile fish migrations in regulated rivers: a review of experimental and field studies. Hydrobiologia 609 (1): 125-138. Doi: 10.1007/s10750-008-9396-y.

Pavlov, D.S., M.A. Skorobogatov, and L.G. Shtaf. 1982. [The critical current velocity of fish and the degree of flow turbulence.] Reports of the USSR Academy of Sciences 267: 1019-1021. (In Russian)

Pavlov, D.S., M.A. Skorobogatov, and L.G. Shtaf. 1983. [Threshold speeds for rheoreaction of roach in flows with different degrees of turbulence.] Reports of the USSR Academy of Sciences 268: 510-512. (In Russian)

Payne, B.A., and M.F. Lapointe. 1997. Channel morphology and lateral stability: effects on distribution of spawning and rearing habitat for Atlantic salmon in a wandering cobble-bed river. Canadian Journal of Fisheries and Aquatic Sciences 54: 2627-2636. Doi: 10.1139/f97-171.

Payne, B.S., and A.C. Miller. 2000. Recruitment of *Fusconaia ebena* (Bivalvia: Unionidae) in relation to discharge of the lower Ohio River. American Midland Naturalist 144: 328-341.

Payne, J., A. Wood, A. Hamlet, R. Palmer, and D. Lettenmaier. 2004. Mitigating the effects of climate change on the water resources of the Columbia River basin. Clim. Change 62: 233-256.

Payne, T.R. 1988a. PHABSIM analytical errors and the implications for IFIM. Instream

Flow Chronicle 5(3): 1‑2.

Payne, T.R. 1988b. A comparison of weighted usable area calculations using four variations of the IFG4 hydraulic model. American Fisheries Society, Fisheries Bioengineering Symposium. Portland, OR. 9 pp. & app.

Payne, T.R., S.D. Eggers, and D.B. Parkinson. 2004. The number of transects required to compute a robust PHABSIM habitat index. Hydroecologie Appliquee 14 (1): 27-53. <http://www.hydroecologie.org/articles/hydro/pdf/2004/01/hyro04103.pdf>. Doi: 10.1051/hydro:2004003.

Payne Wynne, M.L., K.A. Wilson, and K.E. Limburg. 2015. Retrospective examination of habitat use by blueback herring (*Alosa aestivalis*) using otolith microchemical methods. Canadian Journal of Fisheries and Aquatic Sciences 72 (7): 1073-1086. Doi: 10.1139/cjfas-2014-0206.

Peake, P., J. Fitzsimmons, D. Frood, M. Mel, N. Withers, M. White, and R. Webster. 2011. A new approach to determining environmental flow requirements: Sustaining the natural values of floodplains of the southern Murray-Darling Basin. Ecological Management and Restoration 12: 128-137. Doi: 10.1111/j.1442-8903.2011.00581.x.

Peake, S. 1999. Substrate preferences of juvenile hatchery-reared lake sturgeon, *Acipenser fulvescens*. Environmental Biology of Fishes 56: 367-374.

Peake, S.J. 2004. An evaluation of the use of critical swimming speed for determination of culvert water velocity criteria for smallmouth bass. Transactions of the American Fisheries Society 133: 1472-1479.

Peake, S.J. 2008. Behavior and passage performance of three warmwater nonsalmonid fish species in an experimental raceway. North American Journal of Fisheries Management 28: 321-327.

Peake, S.J. 2008. Swimming performance and behavior of fish species endemic to Newfoundland and Labrador: a literature review for the purpose of establishing design and water velocity criteria for fishways and culverts. Canadian Manuscript Report of Fisheries and Aquatic Sciences 2843.

Peake, S.J., and A.P. Farrell. 2004. Locomotory behavior and postexercise physiology in relation to swimming speed, gait transition, and metabolism in free-swimming smallmouth bass (Micropterus dolomieui). Journal of Experimental Biology 207: 1563-1575.

Peake, S., R.S. McKinley, and D.A. Scrutton. 1997. Swimming performance of various freshwater Newfoundland salmonids relative to habitat selection and fishway design. J. Fish Biol. 51: 710-723. Doi: 10.1111/j.1095-8649.1997.tb01993.x.

Pearce, F. 2007. When the River Runs Dry: What Happens When Our Water Runs Out? Transworld Publishers, London, UK.

Pearlstine, L., H. McKellar, and W. Kitchens. 1985. Modelling the impacts of a river diversion on bottomland forest communities in the Santee River floodplain, South Carolina. Ecological Modelling 29: 283-302.

Pearsall, S.H., B.J. McCrodden, and P.A. Townsend. 2005. Adaptive management of flows in the lower Roanoke River, North Carolina, USA. Environmental Management 35: 1-15.

Pearson, L.S., K.R. Conover, and R.E. Sams. 1970. Factors affecting the natural rearing of juvenile coho salmon during the summer low-flow season. Oregon Fish Commission, Portland. 64 pp. Unpublished.

Pearson, S.F., and D.A. Manuwal. 2001. Breeding bird response to riparian buffer width in managed Pacific Northwest Douglas-fir forests. Ecological Applications 11: 840-853.

Pearson, W.D., and D.R. Franklin. 1968. Some factors affecting drift rates of *Baetis* and Simuliidae in a large river. Ecology 49: 75-81.

.

Pearsons, T.N., H.W. Li, and G.A. Lamberti. 1992. Influence of habitat complexity on resistance to flooding and resilience of stream fish assemblages. Transactions of the American Fisheries Society 121 (4): 427-436.

Pease, A.A., J.J. Davis, M.S. Edwards, and T.F. Turner. 2006. Habitat and resource use by larval and juvenile fishes in an arid-land river (Rio Grande, New Mexico). Freshwater Biology 51: 475-486.

Pease, A.A., J.M. Taylor, K.O. Winemiller, and R.S. King. 2011. Multiscale environmental influences on fish assemblage structure in central Texas streams. Transactions of the American Fisheries Society 140 (5): 1409-1427. Doi: 10.1080/00028487.2011.623994

Peckarsky, B.L. 1991. Habitat selection by stream-dwelling predatory stoneflies. Canadian Journal of Fisheries and Aquatic Sciences 48: 1069-1076.

Peckarsky, B.L., S.D. Cooper, and A.R. McIntosh. 1997. Extrapolating from individual behavior to populations and communities in streams. Journal of the North American Benthological Society 16: 375-390.

Peckarsky, B.L., S.C. Horn, and B. Statzner. 1990. Stonefly predation along a hydraulic gradient: a field test of the harsh-benign hypothesis. Freshwater Biology 24: 181-191.

Peckarsky, B.L., B.W. Taylor, and C.C. Caudill. 2000. Hydrologic and behavioural constraints on oviposition of stream insects: implications for adult dispersal. Oecologia 125: 186-200.

Pedersen, M., and N. Friberg. 2007. Two lowland stream riffles – linkages between physical habitats and benthic invertebrates across multiple spatial scales. Aquatic Ecology 41: 475-490.

Pederson, M.L., E.A. Kristensen, B. Kronvang, and H. Thodsen. 2009. Ecological effects of re-introduction of salmonid spawning gravel in lowland Danish streams. River Research and Applications 25: 626-638.

Pederson, M.L., B. Kronvang, K. Sand-Jensen, and C.C. Hoffmann. 2006. Lowland river systems – processes, form and function. Pages 13-26 in: K. Sand-Jensen, N. Friberg, and J. Murphy, editors. Running waters: Historical Development and Restoration of Lowland Danish Streams. National Environmental Research Institute, Silkeborg.

Pederson, N., A.R. Bell, T.A. Knight, et al. 2012. A long-term perspective on a modern drought in the American Southeast. Environ. Res. Lett. 7: 1-8.

Peer, A.C., D.R. DeVries, and R.A. Wright. 2006. First-year growth and recruitment of coastal largemouth bass (*Micropterus salmoides*): spatial patterns unresolved by critical periods along a salinity gradient. Canadian Journal of Fisheries and Aquatic Sciences 63: 1911-1924.

Pegg, M.A., K.S. Irons, T.M. O’Hara, and M.A. McClelland. 2006. Initial response of a floodplain lake fish community to water level stabilization. Ecology of Freshwater Fishes 15: 40-47.

Pegg, M.A., C.L. Pierce, and A. Roy. 2003. Hydrological alteration along the Missouri River basin: a time series approach. J. Aquat. Sci. 65: 63-72.

Peirson, G., J.D. Bolland, and I. Cowx. 2008. Lateral dispersal and displacement of fish during flood events in lowland river systems in the UK – implications for sustainable floodplain management. Ecology Ecohydrol. 8 (2-4): 363-373.

Pelley, J. 2018. Water conservation could revive drying lake. Frontiers in Ecology and the Environment 16 (8): 433.

Penaluna, B.E., S.F. Railsback, J.B. Dunham, S. Johnson, R.E. Bilby, and A.E. Skaugset. 2015. The role of the geophysical template and environmental regimes in controlling stream-living trout populations. Canadian Journal of Fisheries and Aquatic Sciences 72 (6): 893-901. Doi: 10.1139/cjfas-2014-0377.

Penas, F.J., J.A. Juanes, M. Alvarez-Cabria, C. Alvarez, A. Garcia, A. Puente, and J. Barquin. 2013. Integration of hydrological and habitat simulation methods to define minimum environmental flows at the basin scale. Water and Environment Journal. doi: 10.1111/wej.12030

Penas, F.J., J.A. Juanes, C. Galvan, R. Medina, S. Castadedo, C. Alvarez, and J.F. Barcena. 2013. Estimating minimum environmental flow requirements for well-mixed estuaries in Spain. Estuarine, Coastal and Shelf Science 134: 138-149. Doi: 10.1016/j.ecss.2013..05.020.

Penaz, M., V. Barusm, and M. Prokes. 1999. Changes in the structure of fish assemblages in a river used for energy production. Regul. Rivers 15: 169-180.

Penaz, M., A.-L. Roux, and P. Jurjada. 1992. Drift of larval and juvenile fishes in a by-passed floodplain of the upper River Rhone, France. Folia Zool. 41 (3): 281-288.

Penczak, T., G. Zieba, H. Koszalinski, and A. Kruk. 2003. The importance of oxbow lakes for fish recruitment in a river system. Archiv fur Hydrobiologie 158: 267-281.

Pendleton, R.M., C.R. Standley, A.L. Higgs, G.H. Kenney, P.J. Sullivan, S.A. Sethi, and B.P. Harris. 2019. Acoustic telemetry and benthic habitat mapping inform the spatial ecology of shortnose sturgeon in the Hudson River, New York, USA. Transactions of the American Fisheries Society 148 (1): 35-47. Doi: 10.1002/tafs.10114

Pennock, C.A. 2017. Beautification of Great Plains rivers: a perspective on the use and appreciation of aquatic resources. Fisheries 42 (2): 83-87.

Peoples, B.K., S.P. Floyd, and E.A. Frimpong. 2015. Nesting microhabitat comparison of central stoneroller and bluehead chub: potential inference for host-switching by nest associates. J. Freshw. Ecol. 31: 251-259.

Peoples, B.K., R.A. McManamay, D.J. Orth, and E.A. Frimpong. 2014. Nesting habitat use by river chubs in a hydrologically variable Appalachian tailwater. Ecol. Freshw. Fish. 23: 283-293. Doi: 10.1111/eff.12078.

Perkin, J.S. 2009. Historical composition and long-term trends of fish assemblages in two Texas river and microhabitat associations and movement of Guadalupe bass *Micropterus treculii* in the Pedernales and South Llano rivers. Master’s thesis, Texas State University-San Marcos.

Perkin, J.S., and T.H. Bonner. 2011. Long-term changes in flow regime and fish assemblage composition in the Guadalupe and San Marcos Rivers of Texas. River Research and Applications. Doi: 10.1002/rra.1373

Perkin, J.S., and K.B. Gido. 2011. Stream fragmentation thresholds for a reproductive guild of Great Plains fishes. Fisheries 36: 371-383.

Perkin, J.S., K.B. Gido, A.R. Cooper, T.F. Turner, M.J. Osborne, E.R. Johnson, and K.B. Mayes. 2015. Fragmentation and dewatering transform Great Plains stream fish communities. Ecological Monographs 85: 73-92.

Perkin, J.S., K.B. Gido, K.H. Costigan, M.D. Daniels, and E.R. Johnson. 2014. Fragmentation and drying rachet down Great Plains stream fish diversity. Aquatic Conservation: Marine and Freshwater Ecosystems 25: 639-655.

Perkin, J.S., Z.R. Shattuck, P.T. Bean, T.H. Bonner, E. Saraeva, and T.B. Hardy. 2010. Movement and microhabitat associations of Guadalupe bass in two Texas rivers. North American Journal of Fisheries Management 30 (1): 33-46. Doi:10.1577/M09-070.1

Perkin, J.S., Z.R. Shattuck, J.E. Gerken, and T.H. Bonner. 2013. Fragmentation and drought legacy correlate with distribution of burrhead chub in subtropical streams of North America. Transactions of the American Fisheries Society 142 (5): 1287-1298. Doi: 10.1080/00028487.2013.806352.

Perkins, S.J. 1994. The shrinking Cedar River – channel changes following flow regulation and bank armoring. Proceedings: Effects if Human-Induced Changes on Hydrologic Systems. 1994 Annual Summer Symposium, American Water Resources Association, Middleburg, Virginia. Pp. 649-658.

Perret, A.J, M.D. Kaller, W.E. Kelso, and D.A. Rutherford. 2010. Effects of Hurricanes Katrina and Rita on sports fish community abundance in the eastern Atchafalaya River basin, Louisiana. North American Journal of Fisheries Management 30: 511-517.

Perrin, C.J., L.L. Rempel, and M.L. Rosenau. 2003. White sturgeon spawning habitat in an unregulated river, Fraser River, Canada. Transactions of the American Fisheries Society 132 (1): 154-165.

Perry, D.M., D.A. Scruton, R.S. McKinley, and K.D. Clarke. 1999. Validation of habitat hydraulic modeling: a telemetry study of Atlantic salmon (*Salmo salar*) and brook trout (*Salvelinus fontinalis*) movements and habitat use in relation to flow changes in the West Salmon River, Newfoundland, Canada. In: Proceedings of the Third International Symposium on Ecohydraulics. Utah State University, Salt Lake City.

Perry, R.W., P.L. Brandes, J.R. Burau, P.T. Sandstrom, and J.R. Skalski. 2015. Effect of tides, river flow, and gate operations on entrainment of juvenile salmon into the interior Sacramento-San Joaquin River delta. Transactions of the American Fisheries Society 144 (3): 445-455. Doi: 10.1080/00028487.2014.1001038.

Perry, S.A., and W.B. Perry. 1986. Effects of experimental flow regulation on invertebrate drift and stranding in the Flathead and Kootenai Rivers, Montana, USA. Hydrobiologia 134: 171-182. Doi: 10.1007/BF00006739.

Perry, S.A., W.B. Perry, and J.A. Stanford. 1986. Effects of stream regulation on density, growth, and emergence of two mayflies (*Ephemeroptera: Ephemerellidae*) and a caddisfly (*Trichoptera: Hydropsychidae*) in two Rocky Mountain rivers (USA). Canadian Journal of Zoology 64: 656-666. Doi: 10.1139/z86-097

Persinger, J.W. 2003. Developing habitat suitability criteria for individual species and habitat guilds in the Shenandoah River basin. M.Sc. thesis, Virginia Polytechnic Institute and State University. Blacksburg, VA. 252 pp. <http://scholar.lib.vt.edu/theses/available/etd-04072003-160721>

Persinger, J.W., D.J. Orth, and A.W. Averett. 2011. Using habitat guilds to develop habitat suitability criteria for a warmwater stream fish assemblage. River Research and Applications 27 (8): 956-966.

Person, G.N. 1950. Cyclic variations in Columbia River flow studied. Civil Engineering 20 (4): 47-48.

Pert, E.J., and D.C. Erman. 1994. Habitat use by adult rainbow trout under moderate artificial fluctuations in flow. Transactions of the American Fisheries Society 123 (6): 913-923.

Perucca, E., C. Camporeale, and L. Ridolfi. 2006. Influence of river meandering dynamics on riparian vegetation pattern formation. Journal of Geophysical Research 111: G01001.

Pess, G.R., R. Hilborn, K. Kloehn, and T.P. Quinn. 2012. The influence of population dynamics and environmental conditions on pink salmon (*Oncorhynchus gorbuscha*) recolonization after barrier removal in the Fraser River, British Columbia, Canada. Canadian Journal of Fisheries and Aquatic Sciences 69 (5): 970-982.

Pess, G.R., P.M. Kiffney, M.C. Liermann, T.R. Bennett, J.H. Anderson, and T.P. Quinn. 2011. The influences of body size, habitat quality, and competition on the movement and survival of juvenile coho salmon during the early stages of stream recolonization. Transactions of the American Fisheries Society 140 (4): 883-897. Doi: 10.1080/00028487.2011.587752

Pess, G.R., D.R. Montgomery, E.A. Steel, R.E. Bilby, B.E. Feist, and H.M. Greenberg. 2002. Landscape characteristics, land use, and coho salmon (*Oncorhynchus kisutch*) abundance, Snohomish River, Wash., U.S.A. Canadian Journal of Fisheries and Aquatic Sciences 59 (4): 613-623.

Peters, D.L., D.J. Baird, W.A. Monk, and D.G. Armanini. 2012. Establishing standards and assessment criteria for ecological instream flow needs for agricultural watersheds in Canada. Journal of Environmental Quality 41: 41-51.

Peters, D.L., and J.M. Buttle. 2009. The effects of flow regulation and climatic variability on obstructed drainage and reverse flow contribution in an northern river-lake-delta complex, Mackenzie basin headwaters. River Research and Applications 26: 1065-1089. Doi: 10.1002/rra.1314.

Peters, D.L., D. Caissie, W.A. Monk, S.B. Rood, and A. St-Hilaire. 2016. An ecological perspective on flood in Canada. Canadian Journal of water Resources 41: 288-306.

Peters, J.C. 1982. Effects of river and streamflow alteration on fishery resources. Fisheries 7 (2): 20-22.

Peters, R.J. 1996. An evaluation of habitat enhancement and wild fry supplementation as a means of increasing coho salmon production of the Clearwater River, Washington. Ph.D. dissertation, University of Washington, Seattle. 206 pp.

Peters, R.J., E.E. Knudsen, G.B. Pauley, and C.J. Cederholm. 2015. Influence of wood and other habitat characteristics on the distribution and abundance of coho salmon in a relatively large river. Northwest Science 89 (4): 336—354. Doi: 10.3955/046.089.0404.

Peterson, C.G. 1986. Effects of discharge reduction on diatom colonization below a large hydroelectric dam. Journal of the American Benthological Society 5: 278-289.

Peterson, C.G. 1987. Influences of flow regime on development and desiccation response of lotic diatom communities. Ecology 68 (4): 946-954. Doi: 10.2307/1938366.

Peterson, C.G. 1996. Mechanisms of lotic microalgal colonization following space-clearing disturbances acting at different spatial scales. Oikos 77: 417-435.

Peterson, C.G. 1996. 13 – Response of benthic algal communities to natural physical disturbance. Pages 372-402 in: R.J. Stevenson, M.L. Bothwell, and R.L. Lowe (editors), Algal Ecology. Aquatic ecology. San Diego, CA: Academic Press. Doi: 10.1016/B978-012668450-6/50042-4

Peterson, C.G., and R.J. Stevenson. 1992. Resistance and resilience of lotic algal communities: importance of disturbance timing and current. Ecology 73: 1445-1461.

Peterson, J.T., C.R. Jackson, C.P. Shea, and G. Li. 2009. Development and evaluation of a stream channel classification for estimating fish responses to changing streamflow. Transactions of the American Fisheries Society 138: 1123-1137.

Peterson, J.T., and C.F. Rabeni. 2001. Evaluating the physical characteristics of channel units in an Ozark stream. Transactions of the American Fisheries Society 130 (5): 898-910. Doi: 10.1577/1548-8659(2001)130<0898:ETPCOC>2.0.CO;2.

Peterson, J.T., and C.F. Rabeni. 2001. The relation of fish assemblages to channel units in an Ozark stream. Transactions of the American Fisheries Society 130 (5): 911-926.

Peterson, J.T., and C.P. Shea. 2015. An evaluation of the relations between flow regime components, stream characteristics, species traits, and meta-demographic rates of warm-water stream fishes: Implications for aquatic resource management. River Research and Applications 31: 1227-1241.

Peterson, J.T., J.M. Wisniewski, C.P. Shea, and C.R. Jackson. 2011. Estimation of mussel population response to hydrologic alteration in a southeastern U.S. stream. Environmental Management 48: 109-122. Doi: 10.1007/s00267-011-9688-2

Peterson, M.L., A.N. Fuller, and D. Demko. 2017. Environmental factors associated with the upstream migration of fall-run Chinook salmon in a regulated river. North American Journal of Fisheries Management 37 (1): 78-93. Doi: 10.1080/02755947.2016.1240120

Peterson, M.S., J.-M. Havrylkoff, P.O. Grammer, P.F. Mickle, and W.T. Slack. 2016. Consistent spatiotemporal estuarine habitat use during emigration of a western population of Gulf sturgeon. Transactions of the American Fisheries Society 145 (1): 27-43. Doi: 10.1080/00028487.2015.1091382.

Peterson, M.S., and M.R. Meador. 1994. Effects of salinity on freshwater fishes in coastal plain drainages in the southeastern U.S. Reviews in Fisheries Science 2: 95-121. Doi: 10.1080/10641269409388554.

Peterson, N.P., and T.P. Quinn. 1996. Persistence of egg pocket architecture in redds of chum salmon, *Oncorhynchus keta*. Environmental Biology of Fishes 46: 243-253.

Peterson, N.P., R.K. Simmons, T. Cardoso, and J/T. Light. 2013. A probabilistic model for assessing passage performance of coastal cutthroat trout through corrugated metal culverts. North American Journal of Fisheries Management 33 (1): 192-199. Doi: 10.1080/002755947.2012.750633.

Peterson, R.C., and C.A. Jennings. 2007. Effects of river discharge on abundance and instantaneous growth of age-0 carpsuckers in the Oconee River, Georgia, USA. River Research and Applications 23: 1016-1025.

Petre, S.J., and S.A. Bonar. 2017. Determination of habitat requirements for Apache trout. Transactions of the American Fisheries Society 146 (1): 1-15. Doi: 10.1080/00028487.2016.1225597

Petrosky, C.E., and H.A. Schaller. 2010. Influence of river conditions during seaward migration and ocean conditions on survival rates of Snake River Chinook salmon and steelhead. Ecology of Freshwater Fish 19: 520-536. Doi: 10.1111/j.1600-0633.2010.00425.x

Petry, A.C., A.A. Agostinho, and L.C. Gomes. 2003. Fish assemblages of tropical floodplain lagoons: exploring the role of connectivity in a dry year. Neotropical Ichthyology 76: 606-627.

Petry, P., P.B. Bayley, and D.F. Markle. 2003. Relationships between fish assemblages, macrophytes, and environmental gradients in the Amazon River floodplain. Journal of Fish Biology 63: 547-579. Doi: 10.1046/j.1095-8649.2003.00169.x.

Pettit, N.E., and R.J. Naiman. 2005. Flood-deposited wood debris and its contribution to heterogeneity and regeneration in a semi-arid riparian landscape. Oecologia 145: 434-444.

Pettit, N.E., and R.J. Naiman. 2007. Postfire response of flood-regenerating riparian vegetation in a semi-arid landscape. Ecology 88 (8): 2094-2104.

Pettit, N.E., R.J. Naiman, K.H. Rogers, and J.E. Little. 2005. Post-flooding distribution and characteristics of large woody debris piles along the semi-arid Sabie River, South Africa. River Res. Appl. 21: 27-38.

Petts, G.E. 1979. Complex response of river channel morphology subsequent to reservoir construction. Progress in Physical Geography 3: 329-362.

Petts, G.E. 1980. Long-term consequences of upstream impoundment. Environmental Conservation 7 (4): 325-332.

Petts, G.E. 1984. Impounded Rivers: Perspective for Ecological Management. John Wiley and Sons, Chichester.

Petts, G.E. 1989. Perspectives for ecological management of regulated rivers. Pages 3-24 in: J.A. Gore and G.E. Petts (editors). Alternatives in Regulated River Management. CRC Press, Boca Raton, Florida.

Petts, G.E. 1990. Regulation of large rivers: problems and possibilities for environmentally-sound river development in South America. Inter cencia 15 (6): 388-395.

Petts, G.E. 1996. Water allocation to protect river ecosystems. Regulated Rivers 12: 353-365.

Petts, G.E. 2009. Instream flow science for sustainable river management. Journal of the American Water Resources Association 45 (5): 1071-1086. Doi: 10.1111/j.1752-1688.2009.00360.x

Petts, G., P. Armitage, and E. Castella. 1993. Physical habitat changes and macroinvertebrate response to river regulation: the River Rede, U.K. Regulated Rivers: Research and Management 8: 167-176.

Petts, G.E., M.A. Bickerton, C. Crawford, D.N. Lerner, and D. Evans. 1999. Flow management to sustain groundwater-dominated stream ecosystems. Hydrological Processes 13: 497-513.

Petts, G.E., and P. Calow. 1996. River Flows and Channel Forms. Blackwell Science, Oxford, UK.

Petts, G.E., J.G. Imhof, B.A. Manny, J.F.B. Maher, and S.B. Weisberg. 1989. Management of fish populations in large rivers: a review of tools and approaches. Pp. 578-588 in: D.P. Dodge (ed.) Proceedings of the International Large Rivers Symposium. Can. Special Publ. Fish. Aquatic Sciences 106.

Petts, G.E., and I. Maddock. 1996. Flow allocation for in-river needs. Pp. 60-79 in: G. Petts and P. Calow, eds. River restoration. Blackwell Science. London.

Petts, G.E., I. Maddock, M.A. Bickerton, and A.J.D. Ferguson. 1995. Linking hydrology and ecology: the scientific basis for river management. Pages 1-16 in: D.M. Harper and A.J.D. Ferguson, editors. The Ecological Basis for River Management. Wiley, Chichester.

Petts, G.E., Y. Morales, and J. Sadler. 2006. Linking hydrology and biology to assess the water needs of river ecosystems. Hydrological Processes 20: 2247-2251.

Petty, J.T., J. Freund, P. Lamothe, and P. Mazik. 2001. Quantifying instream habitat in the upper Shavers Fork basin at multiple spatial scales. Proceedings of the Annual Conference Southeastern Association Fish and Wildlie Agencies 55: 81-94.

Petty, J.T., and G.D. Grossman. 1996. Patch selection by mottled sculpin (Pisces: Cottidae) in a southern Appalachian stream. Freshwater Biology 35: 261-276.

Petty, J.T., J.L. Hansbarger, B.M. Huntsman, and P.M. Mazik. 2012. Brook trout movement in response to temperature, flow, and thermal refugia within a complex Appalachian riverscape. Transactions of the American Fisheries Society 141 (4): 1060-1073. Doi: 10.1080/00028487.2012.681102

Pezeshki, S.R., R.D. DeLaune, and W.H. Patrick, Jr. 1987. Response of baldcypress (*Taxodium distichum* L. var. *distichum*) to increases in flooding salinity in Louisiana’s Mississippi River deltaic plain. Wetlands 7: 1-10.

Phelan, J., T. Cuffney, L. Patterson, M. Eddy, R. Dykes, S. Pearsall, C. Goudreau, J. Mead, and F. Tarver. 2017. Fish and invertebrate flow-biology relationships to support the determination of ecological flows for North Carolina. Journal of the American Water Resources Association 53: 42-55. Doi: 10.1111/1752-1688.12497

Phelps, Q.E., S.J. Tripp, J.E. Garvey, D.P. Herzog, D.E. Ostendorf, J.W. Ridings, J.W. Crites, and R.A. Hrabik. 2009. Ecology and habitat use of age-0 paddlefish in the unimpounded middle Mississippi River. Pages 423-440 in: C.P. Paukert and G.D. Scholten, editors. Paddlefish management, propagation, and conservation in the 21st Century: building from 20 years of research and management. American Fisheries Society, Symposium 66, Bethesda, Maryland.

Phelps, Q.E., S.J. Tripp, J.E. Garvey, D.P. Herzog, D.E. Ostendorf, J.W. Ridings, J.W. Crites, and R.A. Hrabik. 2010. Habitat use during early life history infers recovery needs for shovelnose sturgeon and pallid sturgeon in the middle Mississippi River. Transactions of the American Fisheries Society 139 (4): 1060-1068. Doi: 10.1577/T09-199.1

Phelps, Q.E., S.J. Tripp, D.P. Herzog, and J.E. Garvey. 2015. Temporary connectivity: The relative benefits of large river floodplain inundation in the lower Mississippi River. Restoration Ecology 23 (1): 53-56.

Phelps, Q.E., S.J. Tripp, W.D. Hintz, J.E. Garvey, D.P. Herzog, D.E. Ostendorf, J.W. Ridings, J.W. Crites, and R.A. Hrabik. 2010. Water temperature and river stage influence mortality and abundance of naturally occurring Mississippi River *Scaphyrhynchus* sturgeon. North American Journal of Fisheries Management 30 (3): 767-775.

Phillip, D.A. 1993. Reproduction and feeding of the mountain mullet in Trinidad, West Indies. Environmental Biology of Fishes 37: 47-55.

Phillips, R.W., R.L. Lantz, E.W. Claire, and J.R. Moring. 1975. Some effects of gravel mixtures on emergence off coho salmon and steelhead trout fry. Transactions of the American Fisheries Society 104: 461-466.

Phipps, R.L. 1979. Simulation of wetlands forest vegetation dynamics. Ecological Modelling 7: 257-288.

Piao, S., P. Friedlingstein, P. Ciais, N. deNoblet-Ducoudre, D. Labat, and S. Zaehle. 2007. Changes in climate and landuse have a large direct impact than rising CO2 on global river runoff trends. Proceedings of the National Academy of Sciences 104: 15242-15247.

Piccolo, J.J. 2005. The influence of water velocity and depth on prey detection and capture by juvenile coho salmon and steelhead: implications for habitat selection and segregation. Ph.D. dissertation, Fairbanks, Alaska. University of Alaska, Fairbanks.

Piccolo, J.J., B.M. Frank, and J.W. Hayes. 2014. Food and space revisited: The role of drift-feeding theory in predicting the distribution, growth, and abundance of stream salmonids. Environmental Biology of Fishes 97 (5): 475-488. Doi: 10.1007/s10641-014-0222-2.

Piccolo, J.J., N.F. Hughes, and M.D. Bryant. 2007. The effects of water depth on prey detection and capture by juvenile coho salmon and steelhead. Ecology of Freshwater Fishes 16 (3): 432-441. Doi: 10.1111/j.1600-0633.2007.00242.x

Piccolo, J.J., N.F. Hughes, and M.D. Bryant. 2008. Water velocity influences prey detection and capture by drift-feeding juvenile coho salmon (*Oncorhynchus kisutch*) and steelhead (*Oncorhynchus mykiss irideus*). Canadian Journal of Fisheries and Aquatic Sciences 65 (2): 266-275. Doi: 10.1139/f07-172.

Piccolo, J.J., N.F. Hughes, and M.D. Bryant. 2008. Development of net energy intake models for drift-feeding juvenile coho salmon and steelhead. Environ. Biol. Fishes 83: 259-267. Doi: 10.1007/s10641-008-9330-1.

Pickup, G., and R.F. Warner. 1976. Effects of hydrologic regime on magnitude and frequency of dominant discharge. Journal of Hydrology 29: 51-75.

Piegay, H. 1997. Interactions between floodplain forests and overbank flows: data from three piedmont rivers of southeastern France. Global Ecology and Biogeography Letters 6: 187-196.

Piegay, H., and A.M. Gurnell. 1997. Large woody debris and river geomorphological pattern: examples from S.E. France and S. England. Geomorphology 19: 99-116.

Pierce, C.L., C.S. Guy, P.J. Braaten, and M.A. Pegg. 2003. Fish growth, mortality, recruitment, condition, and size structure: population structure and habitat use of benthic fishes along the Missouri and Yellowstone rivers, volume 4. U.S. Geological Survey, Cooperative Research Units, Iowa State University Press, Ames.

Pierce, R., C. Podner, and K. Carim. 2013. Response of wild trout to stream restoration over two decades in the Blackfoot River basin, Montana. Transactions of the American Fisheries Society 142 (1): 68-81. Doi: U.S. Environmental Protection Agency. 2000. 10.1080/00028487.2012.720626.

Pierce, R., C. Podner, T. Wendt, R. Shields, and K. Carim. 2014. Westslope cutthroat trout movements through restored habitat and Coanda diversions in the Nevada Spring Creek complex, Blackfoot Basin, Montana. Transactions of the American Fisheries Society 143 (1):230-239. Doi: 10.1080/00028487.2013.839959

Pierson, W.L., K. Bishop, D. Van Senden, P.R. Horton, and C.A. Adamantidis. 2002. Environmental water requirements to maintain estuarine processes. Environmental Flows Initiative Technical Report No. 3, WRL 00/11. Canberra, Commonwealth of Australia: Environment Australia.

Piffady, J., Y. Souchon, H. Capra, and E. Parent. 2010. Quantifying the effects of temperature and flow regime on the abundance of 0+ cyprinids in the upper River Rhone using Bayesian hierarchical modeling. Freshwater Biology 55: 59-237.

Piggott, A.R., S. Molin, and C. Southam. 2005. A revised approach to the UKIH method for the calculation of base flow. National Water Research Institute, Canada.

Pilling, C.G., and J.A.A. Joness. 2002. The impact of future climate change on seasonal discharge, hydrological processes and extreme flows in the upper Wye experimental catchment, mid-Wales. Hydrological Processes 16: 1210-1213.

Pinay, G., J.C. Clement, and R.J. Naiman. 2002. Basic principles and ecological consequences of changing water regimes on nitrogen cycling in fluvial ecosystems. Environmental Management 30: 481-491.

Pinay, G., B. Gumiero, E. Tabacchi, O. Gimenez, A.M. Tabacchi-Planty, M.M. Hefting, T.P. Burt, V.A. Black, C. Nilsson, V. Iordache, F. Bureau, L. Vought, G.E. Petts, and H. Decamps. 2007. Patterns of denitrification rates in European alluvial soils under various hydrological regimes. Freshwater Biology 52: 252-266.

Pinder, G.F., and S.P. Sauer. 1971. Numerical simulation of flood wave modification due to bank storage effects. Water Resources Researh 7 1): 63-70.

Pinto, M.C., J.R. Post, A.J. Paul, F.D. Johnston, C.D. Mushens, and J.D. Stelfox. 2013. Lateral and longitudinal displacement of stream-rearing juvenile bull trout in response to upstream migration of spawning adults. Transactions of the American Fisheries Society 142 (6): 1590-1601. DOI: 10.1080/00028487.2013.822419.

Pires, A.M., I.G. Cowx, and M.M. Coelho. 1999. Seasonal changes in fish community structure of intermittent streams in the middle reaches of the Guadiana basin, Portugal. Journal of Fish Biology 54: 235-249.

Pitlick, J. 1993. Response and recovery of a subalpine stream following a catastrophic flood. Geological Society of America Bulletin 105: 657-670.

Pitlick, J. 1994. Coarse sediment transport and the maintenance of fish habitat in the Upper Colorado River. Pp. 855-859 *in*: G.V. Cotroneo and R.R. Rumer (editors), Proceedings of the 1994 Conference Hydraulic Engineering ‘94, Vol 2, ASCE Hydraulic Division, Buffalo, NY, August 1-5.

Pitlick, J., Y. Cui, and P. Wilcock. 2009. Manual for computing bed load transport in gravel bed streams. Gen. Tech. Rept. RMRS-GTR-223. USDA Forest Service, Rocky Mountain Research Station, Fort Collins, CO.

Pitlick, J., and M.M. Van Streeter. 1998. Geomorphology and endangered fish habitats of the upper Colorado River 2. Linking sediment transport to habitat maintenance. Water Resour. Res. 34: 303-316.

Pitlick, J., and P. Wilcock. 2001. Relations between streamflow, sediment transport, and aquatic habitat in regulated rivers. Geomorphic Processes and Riverine Habitat, Water Science and Application 4: 185-198.

Pitman, V.M., and O.J. Parks. 1994. Habitat use and movement of young paddlefish (*Polyodon spathula*). Journal of Freshwater Ecology 9: 181-189.

Pittock, J;, and B.A. Lankford. 2010. Environmental water requirements: Demand management in an era of water scarcity. Journal of Integrative Environmental Sciences 7: 75-93.

Pizzuto, J.E. 1994. Channel adjustments to changing discharges, Powder River, Montana. Geological Society of America Bulletin 106: 1494-1501.

Pizzuto, J. 2002. Effects of dam removal on river form and process. BioScience 52: 683-691.

Platania, S.P., and C.S. Altenbach. 1998. Reproductive strategies and egg types of seven Rio Grande basin cyprinids. Copeia 1998: 559-569.

Platts, W.S. 1979. Relationships among stream order, fish populations, and aquatic geomorphology in an Idaho river drainage. Fisheries 4 (2): 5-9.

Platts, W.S., W.F. Megahan, and G.W. Minshall. 1983. Methods for evaluating stream, riparian, and biotic conditions. U.S. Forest Service Gen. Tech. Rep. INT-138. Intermountain Forest and Range Experiment Station, Ogden, Utah. http://www.treesearch.fs.fed.us/pubs/29138

Platts, W.S., and R.L. Nelson. 1985. Stream habitat and fisheries response to livestock grazing and instream improvement structures, Big Creek, Utah. Journal of Soil and Water Conservation 40 (July-August): 374-379.

Platts, W.S., M.A. Shirazi, and D.H. Lewis. 1979. Sediment particle sizes used by salmon for spawning with methods for evaluation. U.S. Environmental Protection Agency Report 600/3-79-043: 1-33.

Platts, W.S., R.J. Torquemada, M.L. McHenry, and C.K. Graham. 1989. Changes in salmon spawning and rearing habitat from increased delivery of fine sediment to the South Fork Salmon River, Idaho. Transactions of the American Fisheries Society 118: 274-283.

Plaut, I. 2001. Critical swimming speed: its ecological relevance. Comparative Biochemistry and Physiology 131A: 41-50.

Plaut, I. 2002. Does pregnancy affect swimming performance of female mosquitofish, *Gambusia affininis*? Functional Ecolog 16 ): 290-295.

Plumstead, E.E. 1990. Changes in ichthyofaunal diversity and abundance within the Mbashe estuary, Transkei, following construction of a river barrage. South African Journal of Marine Science 9: 399-407.

Poff, B., K.A. Koestner, D.G. Neary, and V. Henderson. 2011. Threats to riparian ecosystems in western North America: An analysis of existing literature. Journal of the American Water Resources Association 47 (6): 1241-1254.

Poff, N.L. 1992. Why disturbance can be predictable: a perspective on the definition of disturbance in streams. Journal of the North American Benthological Society 11: 405-422.

Poff, N.L. 1996. A hydrogeography of unregulated streams in the United States and an examination of scale-dependence in some hydrological descriptors. Freshwater Biology 36: 71-91.

Poff, N.L. 1997. Landscape filters and species traits: towards mechanistic understandings and prediction in stream ecology. Journal of the North American Benthological Society 16 (2): 391-409.

Poff, N.L. 2002. Ecological response to and management of increased flooding caused by climate change. Philosophical Transactions: Mathematical, Physical and Engineering Sciences Royal Society London A 360: 1497-1510.

Poff, N.L. 2009. Managing for variation to sustain freshwater ecosystems. Journal of Water Resources Planning and Management 135: 1-4. Doi: 10.1061/(ASCE)0733-9496(2009)135:1(1)

Poff, N.L. 2014. Rivers of the Anthropocene? Frontiers in Ecology and the Environment 12 (8): 427.

Poff, N.L. 2018. Beyond the natural flow regime? Broadening the hydro-ecological foundation to meet environmental flows challenges in a non-stationary world. Freshwater Biology 63 (8): 1011-1021. doi: 10.1111/fwb.130338.

Poff, N.L., and J.D. Allen. 1995. Functional organization of stream fish assemblages in relation to hydrological variability. Ecology 76: 606-627. Doi:10.1007/BF02394713.

Poff, N.L., J.D. Allan, M.B. Bain, J.R. Karr, K.L. Prestergaard, B. Richter, R. Sparks, and J. Stromberg. 1997. The natural flow regime: a paradigm for river conservation and restoration. Bioscience 47: 769-784. Doi:10.2307/1313099.

Poff, N.L., J.D. Allan, M.A. Palmer, D.D. Hart, B.D. Richter, A.H. Arthington, K.H. Rogers, J.L. Meyer, and J.A. Stanford. 2003. River flows and water wars: emerging science for environmental decision making. Frontiers in Ecology and the Environment 1 (6): 298-306. Doi: 10.1890/1540-9295(2003)001[0298:RFAWWE]2.0CO;2.

Poff, N.L., P.L. Angermeier, S.D. Cooper, P.S. Lake, K.D. Fausch, K.O. Winemiller, L.A.K. Mertes, M.W. Oswood, J.D. Reynolds, and F.J. Rahel. 2001. Fish diversity in streams and rivers. Pages 315-349 *in*: O.E.S. Chapin, III, and E. Huber-Sannwald, editors. Global biodiversity in a changing environment: scenarios for the 21st century. Springer, New York, New York, USA.

Poff, N.L., B.P. Bledsoe, and C.O. Cuhaciyan. 2006. Hydrologic variation with land use across the contiguous United States: geomorphic and ecological consequences for stream ecosystems. Geomorphology 79: 264-285.

Poff, N.L., C.M. Brown, T.E. Grantham, J.H. Matthews, M.A. Palmer, C.M. Spence, R.L. Wilby, M. Haasnoot, G.F. Mendoza, K.C. Dominique, and A. Baeza. 2015. Sustainable water management under future uncertainty with eco-engineering decision scaling. Nature Climate Change 6: 1-23. Doi: 10.1038/NCLIMATE2765.

Poff, N.L., and A.D. Huryn. 1998. Multi-scale determinants of secondary production in Atlantic salmon (*Salmo salar*) streams. Canadian Journal of Fisheries and Aquatic Sciences 55 (Suppl. 1): 201-217.

Poff, N.L., E.I. Larson, P.E. Salemo, S.G. Morton, B.C. Kondratieff, A.S. Flecker, … W. Chris Funk. 2018. Extreme streams: Species persistence and genomic change in montane insect populations across a flooding gradient. Ecology Letters 21: 525-535. Doi: 10.1111/3l3.12918

Poff, N.L., and J.H. Matthews. 2013. Environmental flows in the Anthropocene: past progress and future prospects. Current Opinions in Environmental Sustainability 5: 1-9. http://dx.doi.org/10.1016/j/cosust.2013.11.006.

Poff, N.L., J.D. Olden, D.M. Merritt, and D.M. Pepin. 2007. Homogenization of regional river dynamics by dams and global biodiversity implications. Proceedings of the National Academy of Sciences of the United States of America 104: 5732-5737. Doi: 10.1073/pnas.0609812104

Poff, N.L., J.D. Olden, D.M. Pepin, and B.P. Bledsoe. 2006. Placing global streamflow variability in geographic and geomorphic contexts. River Research and Applications 22: 149-166.

Poff, N.L., J.D. Olden, and D.L. Strayer. 2012. Climate change and freshwater fauna extinction risk. In: L. Hannah (editor), Saving a million species: extinction risk from climate change. Island Press, Washington, D.C.

Poff, N.L., M.I. Pyne, B.P. Bledsoe, C.C. Cuhaciyan, and D.M. Carlsile. 2010. Developing linkages between species traits and multiscaled environmental variation to explore vulnerability of stream benthic communities to climate change. Journal of the North American Benthological Society 25; 730-755.

Poff, N.L., B.D. Richter, A.H. Arthington, S.E. Bunn, R.J. Naiman, E. Kendy, M. Acreman, C.
Apse, B.P. Bledsoe, M.C. Freeman, J. Henriksen, R.B. Jacobson, J.G. Kennen, D.M. Merritt, J.H. O’Keefe, J.D. Olden, K. Rogers, R.E. Tharme, and A. Warner. 2010. The ecological limits of hydrologic alteration (ELOHA): a new framework for developing regional environmental flow standards. Freshwater Biology 55: 147-170. doi:10.1111/j.1365-2427.2009.02204.x.

Poff, N.L., and J.C. Schmidt. 2016. How dams can go with the flow: small changes to water flow regimes can help to restore river ecosystems. Science 353 (6304): 1099-1100.

Poff, N.L., R.E. Tharme, and A.H. Arthington. 2017. Evolution of environmental flows assessment science, principles, and methodologies. Chapter 11. Pages 203-236 *in*: A.C. Horne, J.A. Webb, M.J. Stewardson, B. Richter, and M. Acreman (editors). Water for the Environment from Policy and Science to Implementation and Management. Academic Press. Doi: 10.1016/B978-0-12-803907-6.0001-5.

Poff, N.L., and J.V. Ward. 1989. Implications of streamflow variability and predictability for lotic community structure: a regional analysis of streamflow patterns. Canadian Journal of Fisheries and Aquatic Sciences 46 (10): 1805‑1818. Doi: 10.1139/f89-228.

Poff, N.L., and J.V. Ward. 1990. Physical habitat template of lotic systems: recovery in the context of historical pattern of spatiotemporal heterogeneity. Environmental Management 14: 629-645.

Poff, N.L., and J.V. Ward. 1991. Drift responses of benthic invertebrates to experimental streamflow variation in a hydrologically stable stream. Canadian Journal of Fisheries and Aquatic Sciences 48: 1926-1936. Doi: 10.1139/f91-229

Poff, N.L., and J.V. Ward. 1995. Herbivory under different flow regimes: a field experiment and test of a model with a benthic stream insect. Oikos 71: 179-188.

Poff, N.L., and J.K.H. Zimmerman. 2010. Ecological responses to altered flow regimes: a literature review to inform the science and management of environmental flows. Freshwater Biology 55: 194-205. doi:10.1111/j.1365-2427.2009.02272.x.

Poizat, G., and A.J. Crivelli. 1997. Use of seasonally flooded marshes by fish in a Mediterranean wetland: timing and demographic consequences. Journal of Fish Biology 51: 106-119.

Poizat, G., and D. Pont. 1996. Multi-scale approach to species-habitat relationships: juvenile fish in a large river section. Freshwater Biology 36: 611-622.

Polacek, M.C., and P.W. James. 2003. Diel microhabitat use of age-0 bull trout in Indian Creek, Washington. Ecology of Freshwater Fish 12: 81-86.

Polivka, K.M. 1999. The microhabitat distribution of the Arkansas River shiner, *Notropis girardi*: a habitat mosaic approach. Environmental Biology of Fishes 55: 265-278.

Polivka, K.M., E.A. Steel, and J.L. Novak. 2015. Juvenile salmon and steelhead occupancy of stream pools treated and not treated with restoration structures, Entiat River, Washington. Canadian Journal of Fisheries and Aquatic Science 72 (2): 166-174. Doi: 10.1139/cjfas.2014-0228.

Pollock, M.M., M. Heim, and R.J. Naiman. 2003. Hydrologic and geomorphic effects of beaver dams and their influences on fishes. Pages 215-225 in: S.V. Gregory, K. Boyer, and A. Gurnell, editors. The ecology and management of wood in world rivers. American Fisheries Society, Bethesda, Maryland.

Pollock, M.M., M. Heim, and D. Wener. 2003. Hydrologic and geomorphic effects of beaver dams and their influence on fishes. Pages 213-233 in: S.V. Gregory, K. Boyer, and A. Gurnell (editors), The Ecology and Management of Wood in World Rivers. American Fisheries Society, Bethesda, MD.

Pollock, M.M., R.J. Naiman, H.E. Erickson, C.A. Johnston, J. Paster, and G. Pinay. 1994. Beaver as engineers: Influences on biotic and abiotic characteristics of drainage basins. Pages 117-126 in C.G. Jones, and J.H. Lawson, editors. Linking species to ecosystems. Chapman and Hall, New York.

Pollock, M.M., G.R. Pess, T.J. Beechie, and D.R. Montgomery. 2004. The importance of beaver ponds to coho salmon production in the Stillaguamish basin, Washington, USA. North American Journal of Fisheries Management 24 (3): 749-760.

Polzin, M.L. 1998. River and riparian dynamics and black cottonwoods in the Kootenay River basin. Master’s thesis, University of Lethbridge, Department of Biology, Alberta.

Polzin, M.L., and S.B. Rood. 2000. Effects of damming and flow stabilization on riparian processes and black cottonwoods along the Kootenay River. Rivers 7 (3): 221-232.

Pon, L.B., S.G. Hinch, S.J. Cooke, D.A. Patterson, and A.P. Farrell. 2009. A comparison of the physiological condition, and fishway passage time and success of migrant adult sockeye salmon at Seton River Dam, British Columbia, under three operational water discharge rates. North American Journal of Fisheries Management 29 (5): 1195-1205. Doi:10.1577/M08-114.1.

Pon, L.B., S.G. Hinch, G.N. Wagner, A.G. Lotto, and S.J. Cooke. 2007. Swimming performance and morphology of juvenile sockeye salmon, *Oncorhynchus nerka*: comparison of inlet and outlet fry populations. Environmental Biology of Fishes 78: 257-269.

Ponce, V.M., and D.S. Lindquist. 1990. Management of baseflow augmentation: a review. Water Resources Bulletin 26: 259-268.

Pont, D., B. Hugueny, and T. Oberdorff. 2005. Modeling habitat requirements of European fishes: do species have similar responses to local and regional environmental constraints? Canadian Journal of Fisheries and Aquatic Sciences 62: 163-173.

Pool, T.K., J.D. Olden, J.B. Whittier, and C.P. Paukert. 2010. Environmental drivers of fish functional diversity and composition in the lower Colorado River basin. Canadian Journal of Fisheries and Aquatic Sciences 67 (11): 1791-1807. Doi:10.1139/F10-095.

Poole, G.C. 2010. Stream hydrogeomorphology as a physical science basis for advances in stream ecology. J. N. Am. Benthol. Soc. 29 (1): 12-25. Doi: 10.1899/08-070.1.

Poole, G.C., C.A. Frissell, and S.C. Ralph. 1997. Instream habitat unit classification: inadequacies for monitoring and some consequences for management. Water Resources Bulletin 33: 879-896.

Poole, G.C., S.J. O’Daniel, K.L. Jones, W.W. Woessner, E.S. Bernhardt, A.M. Helton, J.A. Stanford, B.R. Boer, and T.J. Beechie. 2008. Hydrologic spiraling: the role of multiple interactive flow paths in stream ecosystems. River Research and Applications 24: 1018-1031.

Poole, G.C., J.A. Stanford, C.A. Frissell, and S.W. Running. 2002. Three-dimensional mapping of geomorphic controls on floodplain hydrology and connectivity from aerial photos. Geomorphology 48: 329-347.

Poole, G.C., J.A. Stanford, S.W. Running, and C.A. Frissell. 2006. Multi-scale geomorphic drivers of groundwater flow paths: subsurface hydrologic dynamics and hyporheic habitat diversity. Journal of the North American Benthological Society 25: 288-303.

Poole, G.C., J.A. Stanford, S.W. Running, et al. 2004. A patch hierarchy approach to modelling surface and subsurface hydrology in complex flood-plain environments. Earth Surf. Proc. Land 29: 1259-1274.

Pope, D.P. 1984. Methods of vegetative regeneration and moisture requirements of selected Southwest riparian species. Master’s thesis. Arizona State University, Tempe.

Porter, M., and J. Rosenfeld. 1999. Microhabitat selection and partitioning by an assemblage of fish in the Nazko River. BC Ministry of Fisheries Fish. Proj. Rep. No. RD77, Victoria, BC.

Post, J.R., B.T. van Poorten, T. Rhodes, P. Askey, and A. Paul. 2006. Fish entrainment into irrigation canals: an analytical approach and application to the Bow River, Alberta, Canada. North American Journal of Fisheries Management 26 (4): 875-887.

Postel, S. 2002. Rivers of life: The challenge of restoring health to freshwater ecosystems. Water Science Technology 45: 3-8.

Postel, S.L., and S. Carpenter. 1997. Freshwater ecosystem services. Pp. 195-241 in: G.C. Daily (ed.), Nature’s services. Island Press, Washington, D.C.

Postel, S.L., G.C. Daily, and P.R. Ehrlich. 1996. Human appropriation of renewable fresh water. Science 271: 785-788. Doi: 10.1126/science Mundie, J.H. 19.271.5250.785.

Postel, S., and B. Richter. 2003. Rivers for Life: Managing Water for People and Nature. Island Press, Washington, Covelo, London. 253 pp.

Pouilly, M. 1993. Habitat, ecomorphologie et structure des peuplements de poissons dans trois petit cours d’eau tropicaux de Guinee. Rev. Hydrobiol. Trop. 26:313-325.

Pouilly, M., and Y. Souchon. 1994. Simulation de l’habitat physique du barbeau fluviatile (*Barbus barbus,* L. 1758): choix des modeles biologiques et sensibilite de la reponse. Bulletin Francaise de la Peche et de la Pisciculture 334: 213-215*.*

Pouilly, M. and Y. Souchon. 1995. Methode des microhabitats: validation et perspectives. Bulletin Francaise de la Peche et de la Pisciculture 337/338/339: 329-336*.*

Powell, G.C. 1958. Evaluation of the effects of a power dam water release pattern upon the downstream fishery. M.S. thesis, Colorado State University, Fort Collins. 149 pp.

Powell, G.L. 1979. Estuarine fishery dynamics and freshwater inflow fluctuations in the San Antonio Bay System, Texas. Proceedings of the 31st Southeastern Association of Fish and Wildlife Agencies 31: 498-504.

Powell, G.L. and J. Matsumoto. 1994. Texas Estuarine Mathematical Programming Model: A tool for freshwater inflow management, pp. 401-406. In: K.R. Dyer and R.J. Orth (eds.). Changes in fluxes in estuaries: Implications from science to management. Olsen and Olsen, Fredensborg, Denmark.

Powell, G.L., J. Matsumoto, and D.A. Brock. 2002. Methods for determining minimum freshwater inflows needs of Texas bays and estuaries. Estuaries 25 (6B): 1262-1274.

Power, G. 1981. Stock characteristics and catches of Atlantic salmon (*Salmo salar*) in Quebec, and Newfoundland and Labrador in relation to environmental variables. Canadian Journal of Fisheries and Aquatic Sciences 38: 1601-1611.

Power, G., R.S. Brown, and J.G/ Imhof. 1999. Groundwater and fish – insights from northern North America. Hydrological Processes 13: 401-422. Doi:10.1002/(SICI)1099-1085(19990228)13:3<401::AID-HYP746>3.0.CO;2-A.

Power, M.E. 1984. Depth distributions of armored catfish: predator-induced resource avoidance? Ecology 65: 523-528. Doi: 10.2307/1941414.

Power, M.E. 1984. Habitat quality and the distribution of algae-grazing catfish in a Panamanian stream. J. Anim. Ecol. 53: 357-374. Doi: 10.2307/4521.

Power, M.E. 1987. Predator avoidance by grazing fishes in temperate and tropical streams: importance of stream depth and prey size. Pages 333-351 in: W.C. Kerfoot and A. Sih, editors. Predation: direct and indirect impacts in aquatic communities. University Press of New England, Dartmouth, New Hampshire.

Power, M.E. 1995. Floods, food chains, and ecosystem processes in rivers. Pages 52-60 in: C.G. Jones and J.H. Lawton, editors. Linking species and ecosystems. Chapman and Hall, New York, New York, USA.

Power, M.E., K. Bouma-gregson, P. Higgins, S.M. Carlson, et al. 2015. The thirsty Eel: Summer and winter flow thresholds that tilt the Eel River of northwestern California from salmon-supporting to cyanobacterially degraded states. Copeia 2015: 200-211.

Power, M.E., N. Brozovic, C. Bode, et al. 2005. Spatially explicit tools for understanding and sustaining inland water ecosystems. Frontiers of Ecology and the Environment 3: 47-55.

Power, M.E., W.E. Dietrich, and J.C. Finlay. 1996. Dams and downstream aquatic biodiversity: potential food web consequences of hydrologic and geomorphic change. Environmental Management 20: 887-895.

Power, M.E., M.S. Parker, and W.E. Dietrich. 2008. Seasonal reassembly of a river food web: floods, droughts, and impacts of fish. Ecological Monographs 78: 263-282. Doi: 10.1890/06-0902.1.

Power, M.E., R..J. Stout, C.E. Cushing, P.P. Harper, F.R. Hauer, W.J. Matthews, P.B. Moyle, B. Statzner, and I.R. Wais de Badgen. 1988. Biotic and abiotic controls in river and stream communities. Journal of the North American Benthological Society 7: 456-479.

Power, M.E., A. Sun, G. Parker, W.E. Dietrich, and J.T. Wootton. 1995. Hydraulic food-chain models: an approach to the study of food-web dynamics in large rivers. BioScience 45: 159-167. Doi: 10.2307/1312555

Powers, P.D., and J.F. Orsborn. 1985. Analysis of barriers to upstream fish migration: An investigation of the physical conditions affecting fish passage success at culverts and waterfalls. Final Report 1984 (Project No. 82-14). Portland, OR: U.S. Department of Energy, Bonneville Power Administration, Division of Fish and Wildlife. xiii+120 pp. (Http://www.efw.bpa.gov/Publications/U36523-1.pdf)

Poytress, W.R., J.J. Gruber, J.P. Van Eenennaam, and M. Gard. 2015. Spatial and temporal distribution of spawning events and habitat characteristics of Sacramento River green sturgeon. Transactions of the American Fisheries Society 144 (6): 1129-1142. Doi: 10.1080/00028487.2015.1069213.

Pracheil, B.M., P.B. McIntyre, and J.D. Lyons. 2013. Enhancing conservation of large-river biodiversity by accounting for tributaries. Frontiers in Ecology and the Environment 11 (3): 124-128. Doi: 10.1890/120111.

Pracheil, B.M., M.A. Pegg, and G.E. Mestl. 2009. Tributaries influence recruitment of fish in large rivers. Ecol. Freshw. Fish. 18: 603-609.

Pratt, A.E., and T.E. Lauer. 2013. Habitat use and separation among congeneric darter species. Transactions of the American Fisheries Society 142 (2): 568-577. Doi: 10.1080/00028487.2012.754787.

Pratt, K.L. 1984. Habitat selection and species interactions of juvenile westslope cutthroat trout (*Salmo clarki lewisi*) and bull trout (*Salvelinus confluentus*) in the upper Flathead River basin. Master’s thesis, University of Idaho, Moscow.

Predick, K.L., and M.G. Turner. 2008. Landscape configuration and flood frequency influence invasive shrubs of the floodplain forest of the Wisconsin River (USA). Journal of Ecology 96: 91-102.

Prenda, J. 1993. Uso del habitat en algunas poblaciones de animales acuaticos de un rio del sur de Espana. Influencia de las interacciones bioticas. Doctoral thesis, University of Seville.

Prevost, M., A.P. Plamondon, and P. Belleau. 1999. Effects of drainage of a forested peatland on water quality and quantity. J. Hydrol. 214: 130-143.

Prewitt, C.G. 1982. The effects of depth-velocity correlations on aquatic physical habitat usability estimates. Doctoral dissertation. Fort Collins: Colorado State University.

Prewitt, C.G., and C.A. Carlson. 1980. Evaluation of four instream flow methodologies used on the Yampa and White Rivers, Colorado. Bureau of Land Management, Denver, CO, USA, Biological Sciences Series 2,

Price, A.E., and P. Humphries. 2010. The role of dispersal and retention in the early life stages of shrimp in a lowland river. Canadian Journal of Fisheries and Aquatic Sciences 67 (4): 720-729. Doi:10.1139/F10-015.

Price, A.E., P. Humphries, B. Gawne, and M.C. Thoms. 2013. Effects of discharge regulation on slackwater characteristics at multiple scales in a lowland river. Canadian Journal of Fisheries and Aquatic Sciences 70 (2): 253-262.

Price, K., A. Suski, J. McGarvie, B. Beasley, and J.S. Richardson. 2003. Communities of aquatic insects of old-growth and clear cut coastal headwater streams of varying flow persistence. Canadian Journal of Forestry Research 33 (8): 1416-1432. Doi: 10.1139/x03-089.

Primack, A.G.B. 2000. Simulation of climate-change effects on riparian vegetation in the Pere Marquette River, Michigan. Wetlands 20: 538-547.

Pringle, C.M. 1997. Exploring how disturbance is transmitted upstream: going against the flow. Journal of the North American Benthological Society 16: 425-438. Doi: 10.2307/1468028.

Pringle, C.M. 2000. River conservation in tropical versus temperate latitudes. Pp. 371-381 *in*: P.J. Boon, B.R. Davies, and G.E. Petts, eds. Global Perspectives on River Conservation: Science, Policy and Practice. John Wiley & Sons, New York.

Pringle, C.M. 2000. Threats to US public lands from cumulative hydrologic alterations outside of their boundaries. Ecological Applications 10: 971-989.

Pringle, C.M. 2001. Hydrological connectivity and the management of biological reserves: a global perspective. Ecological Applications 11: 981-988.

Pringle, C.M. 2003. What is hydrological connectivity and why is it ecologically important? Hydrological Processes 17: 2685-2689.

Pringle, C.M., M.C. Freeman, and B.J. Freeman. 2000. Regional effects of hydrological alterations on riverine macrobiota in the New World: Tropical-temperate comparisons. BioScience 50: 807-823.

Pringle, C.M., R.J. Naiman, G. Bretschko, J.R. Karr, M.W. Oswood, J.R. Webster, R.L. Welcomme, and M.J. Winterbourn. 1988. Patch dynamics in lotic systems: the stream as a mosaic. Journal of the North American Benthological Society 7: 503-524.

Pringle, C.M., and T. Hamazaki. 1997. Effects of fishes on algal response to storms in a tropical stream. Ecology 78: 2432-2442.

Pritchard, A.L. 1936. Factors influencing the upstream spawning migration of the pink salmon, *Oncorhynchus gorbuscha* (Walbaum). J. Biol. Board Canada 2 (4): 383-389.

Pritchett, T., and M. Pyron. 2011. Fish assemblages respond to habitat and hydrology in the Wabash River, Indiana. River Research and Applications doi: 10.1002/rra.1528

Progar, RA., and A.R. Moldenke 2002. Insect production from temporary and perennially flowing headwater streams in western Oregon. Journal of Freshwater Ecology 17: 391-407.

Propst, D.L., and K.B. Gido. 2004. Responses of native and nonnative fishes to natural flow regime mimicry in the San Juan River. Transactions of the American Fisheries Society 133 (4): 922-931. Doi: 10.1577/T03-057.1

Propst, D.L., K.B. Gido, and J.A. Stefferud. 2008. Natural flow regimes, nonnative fishes, and native fish persistence in arid-land river systems. Ecological Applications 18 (5): 1236-1252. Doi: 10.1890/07-1489.1

Propst, D.L., and J.A. Stefferud. 1997. Population dynamics of Gila trout in the Gila River drainage of the south-western United States. J. Fish Biol. 51: 1137-1154. Doi:10.1111/j.1095-8649.1997.tb01132.x.

Prowse, T.D. 1994. Environmental significance of ice to streamflow in cold regions. Freshwater Biology 32: 241-259. Doi: 10.1111/j.1365-2427.1994.tb01124.x.

Prowse, T.D., F.J. Wrona, J.D. Reist, J.J. Gibson, J.E. Hobbie, L.M.J. Levesque, and W.F. Vincent. 2006. Climate change effects on hydroecology of arctic freshwater ecosystems. Ambio 35 (7): 347-358. Doi: 10.1577/0044-7447(2006)35[347:CCEOHO]2.0.CO;2

Pruski, F.F., A.A. Nunes, P.L. Pruski, and R.G. Rodriguez. 2013. Improved regionalization of streamflow by use of the streamflow equivalent of precipitation as an explanatory variable. Journal of Hydrology 476: 52-71.

Ptolemy, R.A. 2001. Water use planning (WUP) Delphi curves. BC Ministry of Environment, Victoria, BC.

Ptolemy, R.A. 2013. Predictive models for differentiating habitat use of coastal cutthroat trout and steelhead at the reach and landscape level. North American Journal of Fisheries Management 33 (6): 1210-1220. Doi: 10.1080/02755947.2013.829140.

Puckett, K.J., and L.M. Dill. 1984. Cost of sustained and burst swimming to juvenile coho salmon (*Oncorhynchus kisutch*). Canadian Journal of Fisheries and Aquatic Sciences 41: 1546-1551.

Puckett, K.J., and L.M. Dill. 1985. The energetics of feeding territoriality in juvenile coho salmon (*Oncorhynchus kisutch*). Behaviour 92: 97‑111.

Puckridge, J.T., J. Costelloe, and J.R.W. Reid. 2010. Ecological responses to variable water regimes in arid zone wetlands: Coongie Lakes, Australia. Marine and Freshwater Research 61: 832-841.

Puckridge, J.T., F. Sheldon, K.F. Walker, and A.J. Boulton. 1998. Flow variability and the ecology of large rivers. Australian Journal of Marine and Freshwater Research 49: 55-72. Doi: 10.1071/MF94161.

Puckridge, J.T., K.F. Walker, and J. Costelloe. 2000. Hydrological persistence and the ecology of dryland rivers. Regulated Rivers: Research & Management 16: 385-402.

Pugh, J.R., G.E. Monan, and J.R. Smith. 1970. Effect of water velocity on the fish-guiding efficiency of an electrical guiding system. U.S. National Marine Fisheries Service Fishery Bulletin 68: 307-324.

Pulwarty, R.S., and K.T. Redmond. 1997. Climate and salmon restoration in the Columbia River basin: the role and usability of seasonal forecasts. Bulletin of the American Meteorological Society 78: 381-397.

Purchase, C.F., and J.A. Hutchings. 2008. A temporally stable spatial pattern in the spawner density of a freshwater fish: evidence for an ideal despotic distribution. Canadian Journal of Fisheries and Aquatic Sciences 65 (3): 382-388.

Purkett, C.A., Jr. 1961. Reproduction and early development of the paddlefish. Transactions of the American Fisheries Society 90: 125-129.

Purseglove, J. 1988. Taming the Flood: History and Natural History of Rivers and Wetlands, Oxford University Press, Oxford.

Purtlebaugh, C.H., and M.S. Allen. 2010. Relative abundance, growth, and mortality of five age-0 estuarine fishes in relation to discharge of the Suwannee River, Florida. Transactions of the American Fisheries Society 139 (4): 1233-1246.

Pusey, B.J. 1998. Methods assessing the flow requirements of fish. Pages 66-105 in: A.H. Arthington and J.M. Zalucki (editors), Comparative Evaluation of Environmental Flow Assessment Techniques. Occasional Paper No. 27/98. Land and Water Resources Research and Development Corporation, Canberra, Australia.

Pusey, B.J., and A.H. Arthington. 2003. Importance of the riparian zone to the conservation and management of freshwater fish: a review. Marine and Freshwater Research 54: 1-16.

Pusey, B.J., A.H. Arthington, and M.J. Kennard. 2004. Hydrologic regime and its influence on broad-scale patterns of fish biodiversity in north-eastern Australian rivers. In: Proceedings of the 5th International Symposium on Ecohydraulics, 12th-17th September 2004, Madrid, Spain.

Pusey, B.J., A.H. Arthington, and M.G. Read. 1993. Spatial and temporal variation in fish assemblage structure in the Mary River, southeastern Queensland: the influence of habitat structure. Environmental Biology of Fishes 37: 355-380.

Pusey, B.J., M.J. Kennard, and A.H. Arthington. 2000. Discharge variability and the development of predictive models relating stream fish assemblage structure to habitat in northeastern Australia. Ecology of Freshwater Fish 9: 30-50.

Pyne, M.I., and N.L. Poff. 2016. Vulnerabioity of stream community composition and function to projected thermal warming and hydrologic change across ecoregions in the western United States. Global Change Biology. Doi: 10.1111/gcb.13437

Pyron, M., and T.E. Lauer. 2004. Hydrological variation and fish assemblage structure in the middle Wabash River. Hydrobiologia 525: 203-213.

Quammen, M.L., and C.P. Onuf. 1993. Laguna Madre: Seagrass changes continue decades after salinity reduction. Estuaries 16: 1163-1174.

Quinn, G.P., T.J. Hillman, and R. Cook. 2000. The response of macroinvertebrates to inundation in floodplain wetlands: a possible effect of river regulation. Regulated Rivers: Research and Management 16: 4469-477.

Quinn, J.M., and C.W. Hickey. 1990. The magnitude of the effects of substrate particle size, recent flooding, and catchment development on benthic invertebrates in 88 New Zealand rivers. New Zealand Journal of Marine and Freshwater Research 24: 411-427.

Quinn, J.M., and C.W. Hickey. 1994. Hydraulic parameters and benthic invertebrate distributions in two gravel-bed New Zealand rivers. Freshwater Biology 32: 489-500.

Quinn, J.W. and T.J. Kwak. 2003. Fish assemblage changes in an Ozark river after impoundment: a long-term perspective. Transactions of the American Fisheries Society 132 (1): 110-119.

Quinn, T.P. 2005. The behavior and ecology of Pacific salmon and trout. Bethesda, Maryland. American Fisheries Society and the University of Washington Press.

Quinn, T.P., and D.J. Adams. 1996. Environmental changes affecting migratory timing of American shad and sockeye salmon. Ecology 77 (4): 1151-1162.

Quinn, T.P., and G.B. Buck. 2001. Size- and sex-selective mortality of adult sockeye salmon: bears, gulls, and fish out of water. Transactions of the American Fisheries Society 130: 995-1005.

Quinn, T.P., D.M. Eggers, J.H. Clark, and H.B. Rich, Jr. 2007. Density, climate, and the processes of prespawning mortality and egg retention in Pacific salmon (*Oncorhynchus* spp.). Canadian Journal of Fisheries and Aquatic Sciences 64 (3): 574-582.

Quinn, T.P., A.P. Hendry, and L.A. Wetzel. 1995. The influence of life history trade-offs and the size of incubation gravels on egg size variation in sockeye salmon (*Oncorhynchus nerka*). Oikos 74: 425-438.

Quinn, T.P., S. Hodgson, and C. Peven. 1997. Temperature, flow, and the migration of adult sockeye salmon (*Oncorhynchus nerka*) in the Columbia River. Canadian Journal of Fisheries and Aquatic Sciences 54 (6): 1349‑1360. Doi: 10.1139/f97-038.

Quinn, T.P., P. McGinnity, and T.E. Reed. 2016. The paradox of “premature migration” by adult anadromous salmonid fishes: patterns and hypotheses. Canadian Journal of Fisheries and Aquatic Sciences 73 (7): 1015-1030. Doi: 10.1139/cjfas-2015-0345

Quinn, T.P., and N.P. Peterson. 1996. The influence of habitat complexity and fish size on over‑winter survival and growth of individually marked juvenile coho salmon (*Oncorhynchus kisutch*) in Big Beef Creek, Washington. Canadian Journal of Fisheries and Aquatic Sciences 53 (7): 1555‑1564.

Quinones, R.M., M. Holyoak, M.L. Johnson, and P.B. Moyle. 2014. Potential factors affecting survival differ by run-timing and location: linear mixed-effects models of Pacific salmonids (*Oncorhynchus* spp.) in the Klamath River, California. PLoS One 9: e98392.

Quiros, R., and S. Cuch. 1989. The fisheries and limnology of the lower Plata Basin. Pp. 429-443 in: D.P. Dodge (ed.) Proceedings of the International Large Rivers Symposium. Can. Special Publ. Fish. Aquatic Sciences 106.

Quist, M.C., W.A. Hubert, and F.J. Rahel. 2004. Relations among habitat characteristics, exotic species, and turbid-river cyprinids in the Missouri River drainage of Wyoming. Transactions of the American Fisheries Society 133 (3): 727-742.

Quist, M.C., F.J. Rahel, and W.A. Hubert. 2005. Hierarchical faunal filters: an approach to assessing effects of habitat and nonnative species on native fishes. Ecology of Freshwater Fish 14: 24-39. Doi:10.1111/j.1600-0633.2004.00073.x.

Quist, M.C., and J.R. Spiegel. 2010. Population demographics of catostomids in large river ecosystems: effects of discharge and temperature on recruitment dynamics and growth. River Research and Applications 26: 1567-1586.

Quist, M.C., J.S. Tillma, M.N. Burlingame, and C.S. Guy. 1999. Overwinter habitat use of shovelnose sturgeon in the Kansas River. Transactions of the American Fisheries Society 128 (3): 522-527.

Raabe, E.A., R.E. Edwards, C.C. Mcivor, J.W. Grubbs, and G.D. Dennis. 2007. Habitat and hydrology: assessing biological resources of the Suwannee River estuarine system. U.S. Geological Survey, Open-File Report 2007-1382, St. Petersburg, Florida.

Raabe, J.K., and M.A. Bozek. 2015. Influence of wind, wave, and water level dynamics on walleye eggs in a north temperate lake. Canadian Journal of Fisheries and Aquatic Sciences 72: 570-581.

Rabeni, C.F., and R.B. Jacobson. 1993. The importance of fluvial hydraulics to fish-habitat restoration in low-gradient alluvial streams. Freshwater Biology 29: 211-220.

Rabeni, C.F., and R.B. Jacobson. 1993. Geomorphic and hydraulic influences on the abundances and distribution of stream centrarchids in Ozark, USA streams. Polskie Archiwum Hydrobiologii 40: 87-99.

Rader, R.B. 1997. A functional classification of the drift: traits that influence invertebrate availability to salmonids. Canadian Journal of Fisheries and Aquatic Sciences 54: 1211-1234.

Rader, R.B., and T.A. Belish. 1999. Influence of mild to severe flow alterations on invertebrates in three mountain streams. Regulated Rivers: Research & Management 15: 353-363. Doi: 10.1002/(SICI)1099-1646(199907/08)15:4<353::AID-RRR551>3.0.CO;2-U.

Rahel, F.J., and W.A. Hubert. 1991. Fish assemblages and habitat gradients in a Rocky Mountain – Great Plains stream: biotic zonation and additive patterns of community change. Transactions of the American Fisheries Society 120: 319-332.

Rahel, F.J., and J.D. Olden. 2008. Assessing the effects of climate change on aquatic invasive species. Conserv. Biol. 22: 521-533.

Raibley, P.T., K.S. Irons, T.M. O’Hara, and K.D. Blodgett. 1997. Winter habitats used by largemouth bass in the Illinois River, a large floodplain ecosystem. North American Journal of Fisheries Management 17: 401-412.

Raibley, P.T., T.M. O’Hara, K.S. Irons, K.D. Blodgett, and R.E. Sparks. 1997. Largemouth bass size distributions under varying annual hydrological regimes in the Illinois River. Transactions of the American Fisheries Society 126: 850-856.

Railsback, S. 1999. Reducing uncertainties in instream flow studies. Fisheries 24 (4): 24-26.

Railsback, S. 2001. Instream flow assessment methods: guidance for evaluating instream flow needs in hydropower licensing. Electric Power Research Institute, Palo Alto, California.

Railsback, S. 2016. Why it is time to put PHABSIM out to pasture. Fisheries 41 (12): 720-725.

Railsback, S.F. 2017. Why it is time to put PHABSIM out to pasture: Response to Comments 1 and 2. Fisheries 42 (10): 517-518. Doi: 10.1080/03632415.2017.1368296.

Railsback, S.F., R.F. Blackett, and N.D. Pottinger. 1993. Evaluation of the fisheries impact assessment and monitoring program for the Terror Lake hydroelectric project. Rivers 4 (4): 312-327.

Railsback, S.F., M. Gard, B.C. Harvey, J.L. White, and J.K.H. Zimmerman. 2013. Contrast of degraded and restored stream habitat using an individual-based salmon model. North American Journal of Fisheries Management 33 (2): 384-399. Doi: 10.1080/02755947.2013.765527.

Railsback, S.F., and V. Grimm. 2012. Agent-based and individual-based modeling: a practical introduction. Princeton University Press, Princeton, New Jersey.

Railsback, S.F., and B.C. Harvey. 2001. Individual-based model formulation for cutthroat trout, Little Jones Creek, California. General Technical Report PSW-GTR-182, Pacific Southwest Research Station, Forest Service, US Department of Agriculture.

Railsback, S.F., and B.C. Harvey. 2002. Analysis of habitat selection rules using an individual-based model. Ecology 83: 1817-1830. Doi: 10.1890/0012-9658(2002)083[1817:AOHSRU]2.0.CO;2.

Railsback, S.F., and B.C. Harvey. 2011. Importance of fish behavior in modelling conservation problems: food limitation as an example. Journal of Fish Biology 79: 1648-1662.

Railsback, S.F., B.C. Harvey, J.W. Hayse, and K.E. LaGory. 2005. Tests of theory for diel variation in salmonid feeding activity and use. Ecology 86 (4): 947-959.

Railsback, S.F., B.C. Harvey, S.K. Jackson, and R.H. Lamberson. 2005. inSTREAM: the individual-based stream trout research and environmental assessment model. US Forest Service, General Technical Report PSW-GTR-218, Albany, California. (Humboldt State University and Redwood Sciences Laboratory, Arcata, California.)

Railsback, S.F., B.C. Harvey, S.J. Kupferberg, M.M. Lang, S. McBain, and H.H. Welsh, Jr. 2016. Modeling potential river management conflicts between frogs and salmonids. Canadian Journal of Fisheries and Aquatic Sciences 73 (5): 773-784. Doi: 10.1139/cjfas-2015-0267.

Railsback, S.F., B.C. Harvey, R.H. Lamberson, D.E. Lee, N.J. Claasen, and S. Yoshihara. 2002. Population-level analysis and validation of an individual-based cutthroat trout model. Natural Resource Modeling 15: 83-110.

Railsback, S.F., B.C. Harvey, and J.L. White. 2011. InSALMO version 1.0; model improvements and demonstration application to Chinook salmon spawning, incubation, and rearing in Clear Creek, California. Lang, Railsback and Associates, Arcata, California. [www.fws.gov/sacramento/Fisheries/Instream-Flow/fisheries\_instream-flow\_inSalmo.htm](http://www.fws.gov/sacramento/Fisheries/Instream-Flow/fisheries_instream-flow_inSalmo.htm).

Railsback, S.F., B.C. Harvey, and J.L. White. 2014. Facultative anadromy in salmonids: linking habitat, individual life history decisions, and population-level consequences. Candian Journal of Fisheries and Aquatic Sciences 71: 1270-1278.

Railsback, S.F., B.C. Harvey, and J.L. White. 2015. Effects of spatial extent on modeled relations between habitat and anadromous salmonid spawning success. Transactions of the American Fisheries Society 144 (6): 1220-1226. Doi: 10.1080/00028487.2015.1079553.

Railsback, S.F., J.W. Hayse, and K.E. LaGory. 2006. Simulation analysis of within-day flow fluctuation effects on trout below Flaming Gorge Dam. Argonne National Laboratory ANL/EVS/TM/06-01 EPRI 1012855.

Railsback, S.F., and J. Kadvany. 2008. Demonstration Flow Assessment: Judgment and visual observation in instream flow studies. Fisheries 33 (5): 217-227.

Railsback, S.F., R.H. Lamberson, B.C. Harvey, and W.E. Duffy. 1999. Movement rules for spatially-explicit individual-based models of stream fish. Ecological Modelling 123: 73-89.

Railsback, S.F., H.B. Stauffer, and B.C. Harvey. 2003. What can habitat preference models tell us?: tests using a virtual trout population. Ecological Applications 13: 1580-1594. Doi: 10.1890/02-5051.

Rains, M.C., J.E. Mount, and E.W. Larsen. 2004. Simulated changes in shallow groundwater and vegetation distributions under different reservoir operations scenarios. Ecological Applications 14: 192-207.

Raleigh, R.F. 1982. Habitat suitability index models: brook trout. U.S. Fish and Wildlife Service FWS/OBS-82/10.24. 42 pp.

Raleigh, R.F., T. Hickman, R.C. Solomon, and P.C. Nelson. 1984. Habitat suitability information: rainbow trout. U.S. Fish and Wildlife Service FWS/OBS-82/10.60. 64 pp.

Raleigh, R.F., W.J. Miller, and P.C. Nelson. 1986. Habitat suitability index models and instream flow suitability curves: Chinook salmon. U.S. Fish and Wildlife Service Biological Report 82 (10.122). 64 pp.

Raleigh, R.F., and P.C. Nelson. 1985. Habitat suitability index models and instream flow suitability curves: Pink salmon. U.S. Fish and Wildlife Service Biological Report 82 (10.109). 36 pp.

Raleigh, R.F., L.D. Zuckerman, and P.C. Nelson. 1986. Habitat suitability index models and instream flow suitability curves: brown trout, revised U.S. Fish and Wildlife Service, Biological Report 82 (10: 124). 65 pp.

Ralston, B.E. 2011. Summary report of responses of key resources to the 2000 Low Steady Summer Flow Experiment, along the Colorado River downstream from Glen Canyon Dam, Arizona. USGS Open-File Report 2011-1220. U.S. Geological Survey, Reston, VA.

Ralston, B.E., and D.A. Sarr. 2017. Case studies of riparian and watershed restoration in the souhwestern United States – Principles, challenges, and successes. U.S. Geological Survey Open-File Report 207-1091. 116 pp. doi: 10.3133/ofr20171091.

Rampel, L.L., J.S. Richardson, and M.C. Healy. 2000. Macroinvertebrate community structure along gradients of hydraulic and sedimentary conditions in a large gravel-bed river. Freshwater Biol. 45: 57-73.

Rand, P.S., and S.G. Hinch. 1998. Swim speeds and energy use of upriver-migrating sockeye salmon (*Oncorhynchus nerka*): simulating metabolic power and assessing risk of energy depletion. Canadian Journal of Fisheries and Aquatic Sciences 55: 1832-1841. Doi: 10.1139/f98-068.

Rand, P.S., S.G. Hinch, J. Morrison, M.G.G. Foreman, M.J. MacNutt, J.S. MacDonald, M.C. Healey, A.P. Farrell, and D.A. Higgs. 2006. Effects of river discharge, temperature, and future climates on energetics and mortality of adult migrating Fraser River sockeye salmon. Transactions of the American Fisheries Society 135 (3): 655-667. Doi:10.1577/T05-023.1.

Randall, M., and K.J. Sulak. 2007. Relationship between recruitment of Gulf sturgeon and water flow in the Suwannee River, Florida. Pages 69-84 in: J. Munro, D. Hatin, J.E. Hightower, K. McKown, K.J. Sulak, A.W. Kahnle, and F. Caron, editors. Anadromous sturgeons: habitats, threats, and management. American Fisheries Society, Symposium 56, Bethesda, Maryland.

Randall, R.G., and C.K. Minns. 2000. Use of fish production per unit biomass ratios for measuring the productive capacity of fish habitats. Canadian Journal of Fisheries and Aquatic Sciences 57: 1657-1667.

Raney, E.C., and E.A. Lachner. 1946. Age, growth, and habitats of the hog sucker, Hypentelium nigricans (LeSueur), in New York. American Midland Naturalist 36: 76-85.

Rankin, E.T. 1986. Habitat selection by smallmouth bass in response to physical characteristics in a natural stream. Transactions of the American Fisheries Society 115 (2): 322-334.

Rantz, S.E. 1964. Stream hydrology related to the optimum discharge for king salmon spawning in the northern California Coast Ranges. US. Geological Survey Water-Supply Paper 1779-AA. Washington, D.C., USA.

Rantz, S.E. 1982. Measurement and computation of streamflow, Volume 1. Measurement of stage and discharge. U.S. Geological Survey. Water Supply Paper 2175.

Rao, A.R., T. Voeller, J.W. Delleur, and A. Spacie. 1993. Estimation of instream flow requirements for fish. J. Environ. Syst. 22: 381-396.

Rasanen, T.A., et al. 2017. Observed river discharge changes due to hydropower in the Upper Mekong Basin. J. Hydrol. 545: 28-41. Doi: 10.1016/j.hydrol.2016.12.023

Rashleigh, B., R. Parmar, J.M. Johnston, and M.C. Barber. 2005. Predictive habitat models for the occurrence of stream fishes in the Mid-Atlantic Highlands. North American Journal of Fisheries Management 25 (4): 1353-1366.

Rasmussen, J.B., and V. Trudeau. 2007. Influence of velocity and chlorophyll standing stock on periphyton d13C and d15N in the Ste. Marguerite River system, Quebec. Canadian Journal of Fisheries and Aquatic Sciences 64 (10): 1370-1381.

Rasmussen, P.P., and J.R. Gray. 2010. Computing time-series suspended sediment concentrations and loads from in-stream turbidity sensor and streamflow data. In: Proceedings of the Joint Federal Interagency Conference 2010: hydrology and sedimentation for a changing future – existing and emerging issues. U.S. Geological Survey, Reston, Virginia/

Raspopov, V.M., A.S. Novikova, O.L. Zhuravleva, I.N. Lepilina, and A.E. Egorova. 1994. Effectiveness of natural reproduction of the Russian sturgeon *Acipenser gueldenstaedti*, during regulation of the Volga. J. Ichthyol. 34 (7): 348-352.

Rathburn, S., D.M. Merritt, E. Wohl, H. Knight, and J. Sanderson. (in press 2010). Streamflow and sediment management for maintenance of river ecosystems: North Fork Cache la Poudre River, Colorado. Journal of the Geological Society of America Special Paper.

Rathburn, S., D.M. Merritt, E. Wohl, J.A. Sanderson, and H.A.L. Knight. 2009. Characterizing environmental flows for maintenance of river ecosystems: North Fork Cache La Poudre River, Colorado. Pages 143-157 in: L.A. James, S.L. Rathburn, and G.R. Whittecar, editors. Management and Restoration of Fluvial Systems with broad Historical Changes and Human Impacts. Geological Society of America Special Paper 451.

Ravenscroft, N.O.M., and C.H. Bearall. 2003. Freshwater ecosystem services. Pages 195-214 in: G.C. Daily (editor). Nature’s services: societal dependence on natural ecosystems. Island Press, Washington.

Ray, C., and A. Hastings. 1996. Density-dependence: are we searching at the wrong spatial scale? Journal of Animal Ecology 65: 556-566.

Ray, D.K., J.M. Duckles, and B.C. Pijanowski. 2010. The impact of future land use scenarios on runoff volumes in the Muskegon River watershed. Environ. Manage. 46: 351-366.

Raymond, H.L. 1968. Migration rates of yearling chinook salmon in relation to flow and impoundments in the Columbia and Snake River. Transactions of the American Fisheries Society 97 (4): 356-359.

Raymond, H.L. 1979. Effects of dams and impoundments on migrations of juvenile chinook salmon and steelhead from the Snake River, 1966 to 1975. Transactions of the American Fisheries Society 108: 505-529.

Raymond, H.L. 1988. Effects of hydroelectric development and fisheries enhancement on spring and summer chinook salmon and steelhead in the Columbia River basin. North American Journal of Fisheries Management 8 (1): 1‑24.

Raymond, P.A., N.H. Oh, R.E. Turner, and W. Broussard. 2008. Anthropogenically enhanced fluxes of water and carbon from the Mississippi River. Nature 451: 449-452.

Raymond, P.A., J.E. Saiers, and W.V. Sobczak. 2016. Hydrological and biogeochemical controls on watershed dissolved organic matter transport: pulse-shunt concept. Ecology 97 (1): 5-16.

Rayner, T.S., R.T. Kingsford, I.M. Suthers, and D.O. Cruz. 2015. Regulated recruitment: native and alien fish responses to widespread floodplain inundation in the Macquarie Marshes, arid Australia. Ecohydrology 8: 148-159.

Razurel, P., L. Gorla, B. Crouzy, et al. 2016. Non-proportional rules optimize environmental flows and energy production. Water Resour Manag. 30: 207-223.

Rea, A.M. 1977. Historic changes in avifauna of the Gila River Indian Reservation, central Arizona. Ph.D. dissertation, University of Arizona.

Rea, N., and G.G. Ganf. 1994. The role of sexual reproduction and water regime in shaping the distribution patterns of clonal emergent aquatic plants. Australian Journal of Marine and Freshwater Research 45: 1469-1479.

Reddering, J.S.V. 1988. Prediction of the effects of reduced river discharge on the estuaries of the south-eastern Cape Province. South African Journal of Science 84: 726-730.

Redmond, K.T., and R.W. Koch. 1991. Surface climate and streamflow variability in the western United States and their relationship to large-scale circulation indices. Water Resources Research 27: 2381-2399.

Rees, D.W., W.J. Miller, J.A. Ptacek, M.D. Harvey, R.A. Mussetter, and C.E. Morris. 2008. Ecological and physical processes during spring peak flow and summer baseflows in the 15-mile reach of the Colorado River. Final report prepared for Colorado River Water Conservation District, Glenwood Springs, CO, 229 p.

Reeves, G.H., L. E. Benda, K.M. Burnett, P.A. Bisson, and J.R, Sedell. 1995. A disturbance-based ecosystem approach to maintaining and restoring freshwater habitats of evolutionarily significant units of anadromous salmonids in the Pacific Northwest. Pages 334-349 in: J.L. Nielson, editor. Evolution and the aquatic ecosystem: defining unique units in population conservation. American Fisheries Society, Bethesda, Maryland.

Reeves, G.H., F.H. Everest, and T.E. Nickelson. 1989. Identification of physical habitats limiting the production of coho salmon in western Oregon and Washington. USDA Forest Service General Technical Report PNW-GTR-245.

Reeves, G.H., F.H. Everest, J.R. Sedell, and Hohler. 1990. Influence of habitat modifications on habitat composition and anadromous fish populations in Fish Creek, Oregon 1983-88. U.S. Department of Energy, Bonneville Power Administration, Division of Fish and Wildlife, Portland, OR. 44 pp.

Reeves, G.H., J.B. Grunbaum, and D.W. Lang. 2010. Seasonal variation in diel behavior and habitat use by age I+ steelhead (*Oncorhynchus mykiss*) in Coast and Cascade Range streams in Oregon, U.S.A. Environmental Biology of Fishes 87: 101-111. Doi: 10.1007/s10641-009-9569-1.

Reeves, G.H., J.D. Sleeper, and D.W. Lang. 2011. Seasonal changes in habitat availability and the distribution and abundance of salmonids along a stream gradient from headwaters to mouth in coastal Oregon. Transactions of the American Fisheries Society 140 (3): 537-548. Doi:10.1080/00028487.2011.572003.

Regnart, J.R. 1991. Physical parameters associated with coho salmon redds in northwest California. Master’s thesis, Humboldt State University, Arcata, California.

Regonda, S.K., B. Rajagopalan, M. Clark, and J. Pitlick. 2005. Seasonal cycle shifts in hydroclimatology over the western United States. Journal of Climate 18: 372-384.

Rehage, J.S., and W.F. Loftus. 2007. Seasonal fish community variation in headwater mangrove creeks in the southwestern Everglades: an examination of their role as dry-down refuges. Bulletin of Marine Science 80: 625-645.

Rehn, A.C. 2009. Benthic macroinvertebrates as indicators of biological condition below hydropower dams on west slope Sierra Nevada streams, California, USA. River Research and Applications 25: 208-228.

Reice, S.R. 1980. The role of substratum in benthic macroinvertebrate microdistribution and litter decomposition in a woodland stream. Ecology 61: 580-590. Doi: 10.2307/1937424.

Reice, S.R., R.C. Wissmar, and R.J. Naiman. 1990. Disturbance regimes, resilience, and recovery of animal communities and habitats in lotic ecosystems. Environmental Management 14: 647-659.

Reich, P., D. McMaster, N. Bond, L. Mezeling, and P.S. Lake. 2010. Examining the ecological consequences of restoring flow intermittency to artificially perennial lowand streams: patterns and predictions from the Broken-Boosey creek sysem in northern Victoria, Australia. River Res. Appl. 26: 529-545.

Reichard, M., and P. Jurajda. 2004. The effect of elevated river discharge on the downstream drift of young-of-the-year cyprinid fishes. J. Freshwat. Ecol. 19 (3): 19 (3): 465-471. Doi: 10.1080/02705060.2004.9664921.

Reichard, M., P. Jurajda, A. Simkova, and I. Matejusova. 2002. Size-related habitat use by bitterling (*Rhodeus sericeus*) in a regulated lowland river. Ecology of Freshwater Fish 11: 112-122.

Reichert, J.M., B.J. Fryer, K.L. Pangle, T.B. Johnson, J.T. Tyson, A.D. Drelich, and S.A. Ludsin. 2010. River-plume use during the pelagic larval stage benefits recruitment of a lentic fish. Canadian Journal of Fisheries and Aquatic Sciences 67 (6): 987-1004.

Reid, I., and L.E. Frostick. 1997. Channel form, flows and sediments in deserts. Pp. 205-229 in: D.S.G. Thomas, editor. Arid zone geomorphology. 2nd Edition. Wiley, Chichester, U.K.

Reid, J.R., M Reid, L., L.E. Frostick, and J.T, Layman. 1985. The incidence and nature of bedload transport during flood flows in coarse-grained alluvial channels. Earth Surface Processes and Landforms 10: 33-44.

Reid,.J.R., M.J. Colloff, A.D. Arthur, and H.M. McGunness. 2013. Of catchment condition and water resource development on waterbird assemblages in the Murray-Darling basin, Australia. Biological Conservation 165: 25-34.Reid, K.A. 1952. The effect of beaver on trout waters. Maryland Conservationist 29 (4): 21-23.

Reid, K.A. 1955. Increasing summer stream flows. Trans. 20th North American Wildlife Conference 229-241.

Reid, L., L.E. Frostick, and J.T, Layman. 1985. The incidence and nature of bedload transport during flood flows in coarse-grained alluvial channels. Earth Surface Processes and Landforms 10: 33-44.

Reid, S.M., N.E. Mandrak, L.M. Carl, and C.C. Wilson. 2008. Influence of dams and habitat condition on the distribution of redhorse (Moxostoma) species in the Grand River watershed, Ontario. Environmental Biology of Fishes 81: 111-125. Doi: 10.1007/s10641-006-9179-0.

Reidy Liermann, C., C. Nilsson, J. Robertson, and R.Y. Ng. 2012. Implications of dam obstruction for global freshwater fish diversity. Bioscience 62: 539-548.

Reidy Liermann, C.A., J.D. Olden, T.J. Beechie, M.J. Kennard, P.D. Skidmore, C.P. Konrad, and H. Imaki. 2011. Hydrogeomorphic classification of Washington State rivers to support emerging environmental strategies. River Research and Applications 28: 1340-1358. doi: 10.1002/rra.1541.

Reily, P.W., and W.C. Johnson. 1982. The effects of altered hydrological regime on tree growth along the Missouri River in North Dakota. Canadian Journal of Botany 60 (11): 2410-2423.

Reinfelds, I, T. Haeusler, A. Brooks, and S. Williams. 2004. Refinement of the wetted perimeter breakpoint method for setting cease-to-pump limits and minimum environmental flows: an example from the Kangaroo River, NSW, Australia. Rivers Research and Applications 20 (6): 671-685. Doi: 10.1002/rra.784..

Reinfelds, I, M. Lincoln-Smith, T. Haeusler, D. Ryan, and I. Growns. 2010. Hydraulic assessment of environmental flow regimes to facilitate passage through natural riffles: Shoalhaven River below Tallowa Dam, New South Wales, Australia. River Research and Applications 26: 589-604.

Reinhardt, U.G., and M.C. Healey. 1997. Size-dependent foraging behaviour and use of cover in juvenile coho salmon under predation risk. Can. J. Zool. 75: 1642-1651.

Reiser, D.W. 1976. Determination of physical and hydraulic preferences of brown and brook trout in the selection of spawning locations. M.Sc. thesis, University of Wyoming. 112 pp.

Reiser, D.W. 1981. In situ dewatering of salmonid eggs: effects on hatching success and fry quality. Proceedings of the 60th Annual Conference of the Western Association of Fish and Wildlife Agencies: 443-465.

Reiser, D.W., and T.C. Bjornn. 1979. Habitat requirements of anadromous salmonids. U.S. Forest Service General Technical Report PNW-96.

Reiser, D.W., D. Chapin, P. DeVries, and M.P. Ramey. 2004. Flow regime and ecosystem interactions in spring-dominated streams: implications for selecting instream flow methods. Hydroecologie Appliquee 14 (1): 93-104.

Reiser, D.W., T.L. Nightengale, A.N. Hendrix, and S.M. Beck. 2008. Effects of pulse-type flows on aquatic biota. Hydro Review July 2008: 54-63.

Reiser, D.W., and P.J. Hilgert. 2018. A practitioner’s perspective on the continuing technical merits of PHABSIM. Fisheries 43 (6): 278-283. Doi: 10.1002/fish.10082.

Reiser, D.W., C.-M. Huang, S. Beck, M. Gagner, and E. Jeanes. 2006. Defining flow windows for upstream passage of adult anadromous salmonids at cascades and falls. Transactions of the American Fisheries Society 135 (3): 668-679. Doi: 10.1577/T05-169.1.

Reiser, D.W., M.P. Ramey, S. Beck, T.R. Lambert, and R.E. Geary. 1989, Flushing flow recommendations for maintenance of salmonid spawning gravels in a steep, regulated stream. Regulated Rivers: Research and Management 3: 267-275.

Reiser, D.W., M.P. Ramey, and T.R. Lambert. 1985. Reviewing of flushing flow requirements in regulated streams. Dep. Eng. Res. Pacific Gas and Electric Co., San Ramon, CA. 97 pp.

.

Reiser, D.W., M.P. Ramey, and T.R. Lambert. 1987. Considerations in assessing flushing flow needs in regulated stream systems. Pp. 45-58 in: J.F. Craig and J.B. Kemper, editors. Regulated Streams: Advances in Ecology. Plenum Press, New York and London.

Reiser, D.W., M.P. Ramey, and T.A. Wesche. 1989. Flushing flows. Pp. 91-135 *in*: J.A. Gore and G.E. Petts, editors. Alternatives in regulated river management. CRC Press, Boca Raton, Florida.

Reiser, D.W., and T.A. Wesche. 1977. Determination of physical and hydraulic preferences of brown and brook trout in the selection of spawning locations. Laramie: University of Wyoming, Water Resources Research Institute (Publication 64).

Reiser, D.W., T.A. Wesche, and C. Estes. 1989. Status of instream flow legislation and practices in North America. Fisheries 14 (2): 22-29. Doi: 10.1577/1548-8446(1989014<0022:SOIFLA>2.0.CO;2.

Reiser, D.W., and R.G. White. 1983. Effects of complete redd dewatering on salmonid egg-hatching success and development of juveniles. Transactions of the American Fisheries Society 112 (4): 532-540. Doi: 10.1577/1548-8659(1983)112<532:EOCRDO>2.0.CO:2.

Reiser, D.W., and R.G. White. 1988. Effects of two sediment size-classes on survival of steelhead and chinook salmon eggs. North American Journal of Fisheries Management 8 (4): 432‑437. Doi: 10.1577/1548-8675(1988)008<0432:EOTSSC>2.3.CO;2.

Reiser, D.W., and R.G. White. 1990. Effects of streamflow reductions on chinook salmon egg incubation and fry quality. Rivers 1 (2): 110-118.

Rempel, L.L., and M. Church. 2009. Physical and ecological response to disturbance by gravel mining in a large alluvial river. Canadian Journal of Fisheries and Aquatic Sciences 66 (1): 52-71. Doi:10.1139/F08-184.

Rempel, L.L., K. Healey, and F.J.A. Lewis. 2012. Lower Fraser River juvenile fish habitat suitability criteria. Canadian Technical Report of Fisheries and Aquatic Sciences 2991.

Rempel, L.L., J.S. Richardson, and M.C. Healey. 1999. Flow refugia for benthic macroinvertebrates during flooding of a large river. Journal of the North American Benthological Society 18: 34-48. Doi:10.2307/1468007.

Rempel, L.L., J.S. Richardson, and M.C. Healey. 2000. Macroinvertebrate community structure along gradients of hydraulic and sedimentary conditions in a large gravel-bed river. Freshwater Biology 45: 57-73.

Remshardt, W.J., and W.L. Fisher. 2009. Effects of variation in streamflow and channel structure on smallmouth bass habitat in an alluvial stream. River Research and Applications 25: 661-674.

Renkawitz, M.D., T.F. Sheehan, and G.S. Goulette. 2012. Swimming depth, behavior, and survival of Atlantic postsmolts in Penobscot Bay, Maine. Transactions of the American Fisheries Society 141 (5): 1219-1229. Doi: 10.1080/00028487.2012.688916.

Rennie, C.D., and R.G. Millar. 2000. Spatial variability of stream bed scour and fill: a comparison of scour depth in chum salmon (*Oncorhynchus keta*) redds and adjacent bed. Canadian Journal of Fisheries and Aquatic Sciences 57 (5): 928-938. Doi:10.1139/cjfas-57-5-928.

Renofalt, B.M., R. Jansson, and C. Nilsson. 2010. Effects of hydropower generation and opportunities for environmental flow management in Swedish riverine ecosystems. Freshwater Biology 55: 49-67.

Renofalt, B., D.M. Merritt, and C. Nilsson. 2007. Connecting variation in vegetation and stream flow: the role of geomorphic context in vegetation response to large floods along boreal rivers. Journal of Applied Ecology 44: 147-157.

Resh, V.H., A.V. Brown, A.P. Covich, M.E. Gurtz, H.W. Li., G.W. Minshall, S.R. Reice, A.L. Sheldon, J.B. Wallace, and R.C. Wissmar. 1988. The role of disturbance in stream ecology. Journal of the North American Benthological Society 7: 433-455. Doi:10.2307/1467300.

Reum, J.C.P., T.E. Essington, C.M. Greene, C.A. Rice, and K.L. Fresh. 2011. Multiscale influence of climate on estuarine production of forage fish: the role of coastal upwelling, freshwater flow and temperature.; Marine Ecology Progress Series 425: 203-215.

Reuter, J.M., R.B. Jacobson, C.E. Elliott, and A.J. DeLonay. 2009. Assessment of lower Missouri River physical aquatic habitat and its use by adult sturgeon (genus *Scaphirhynchus*), 2005-2007. U.S, Geological Survey Scientific Investigation Report 2009-5121.

Reuter, J.M., R.B. Jacobson, C.E. Elliott, H.E. Johnson III, and A.J. DeLonay. 2008. Hydraulic and substrate maps of reaches used by sturgeon (genus *Scaphirhynchus*) in the lower Missouri River, 2005-2007. U.S. Geological Survey, Data Series 386.

Reyes-Gavilan, F.G., R. Garrido, A.G. Nicieza, M.M. Toledo, and F. Brana. 1996. Fish community variation along physical gradients in short streams of northern Spain and the disruptive effects of dams. Hydrobiologia 321: 155-163.

Reyjol, Y., P. Lim, A. Belaud, and S. Lek. 2001. Modeling of microhabitat used by fish in natural and regulated flows in the river Garonne (France). Ecological Modelling 146: 1-3.

Reyjol, Y., P. Lim, F. Dauba, P. Baran, and A. Belaud. 2001. Role of temperature and flow regulation on the salmoniform-cypriniform transition. Arch. Hydrobiol. 152: 561-582.

Reyjol, Y., M.A. Rodriguez, N. Dubuc, P. Magnan, and R. Fortin. 2008. Among- and within-tributary responses of riverine fish assemblages to habitat features. Canadian Journal of Fisheries and Aquatic Sciences 65 (7): 1379-1392.

Reynolds, C.R., and C.J. O’Bara. 1991. Reproductive ecology and spawning habitat of smallmouth bass in two small streams of the Tennessee River system. Pp. 61-65 *in*: D.C. Jackson, editor, The First International Smallmouth Bass Symposium. Mississippi Agricultural and Forestry Experiment Station, Mississippi State University, Mississippi State, Mississippi.

Reynolds, J.B. Ecology of over-wintering fishes in Alaskan freshwaters. Ecol. Stud. 119: 281-308.

Reynolds, L.V., P.B. Shafroth, and P.K. House. 2014. Abandoned floodplain plant communities along a regulated dryland river. River Research and Applications 30 (9): 1084-1098.

Rhoads, B.L., J.S. Schwartz, and S. Porter. 2003. Stream geomorphology, bank vegetation, and three-dimensional habitat hydraulics for fish in midwestern agricultural streams. Water Resour. Res. 39: 1218.

Rice, S.P., T. Buffin-Belanger, J. Lancaster, and I. Reid. 2008. Movements of a macroinvertebrate (*Potamophylax latipennis*) across a gravel bed substrate: effects of local hydraulic engineering and micro-topography under increasing discharge. Pages 637-660 in: H. Habersack, T. Hoey, H. Piegay, and M. Rinaldi, editors, Gravel-bed rivers: from process understanding to river restoration. Elsevier, Amsterdam, the Netherlands.

Rice, S.P., M. Church, C.L. Wooldridge, and E.J. Hicklin. 2008. Morphology and evolution of bars in a wandering gravel-bed river; lower Fraser River, British Columbia, Canada. Sedimentology 55. Doi:10.1111/j.1365-3091.2008.00994.x.

Rice, S.P., R.I. Ferguson, and T.B. Hoey. 2006. Tributary control of physical heterogeneity and biological diversity at river confluences. Canadian Journal of Fisheries and Aquatic Sciences 63 (11): 2553-2566.

Rich, C.F., T.E. McMahon, B.E. Reiman, and W.L. Thompson. 2003. Local-habitat, watershed, and biotic features associated with bull trout occurrence in Montana streams. Transactions of the American Fisheries Society 132: 1053-1064. Doi: 10.1577/T02-109.

Richard, A., L. Bernatchez, E. Valiquette, and M. Dionne. 2014. Telemetry reveals how catch and release affects prespawning migration in Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 71 (11): 1730-1739. Doi: 10.1139/cjfas-2014-0072.

Richard, J.C., and A.J. Rypel. 2013. Water body type influences climate-growth relationships of freshwater drum. Transactions of the American Fisheries Society 142 (5): 1308-1320. Doi: 10.1080/00028487.2013.806350

Richards, C., J. Haro, L.B. Johnson, and G.E. Host. 1997. Catchment and reach-scale properties as indicators of macroinvertebrate species traits. Freshwater biology 37: 219-230.

Richards, K.S. 1976. Channel width and the pool-riffle sequence. Bulletin of the Geological Society of America 87: 877-896.

Richards, K.S. 1976. The morphology of pool-riffle sequences. Earth Surface Processes and Landforms 1: 87-95.

Richards, K.S. 1977. Channel and flow geometry: a geomorphological perspective. Progress in Physical Geography 1: 65-102.

Richards, K.S. 1978. Channel geometry in the pool-riffle sequence. Geograpiska Annaler. Series A 60: 23-27.

Richards, K. 1982. Rivers: form and process in alluvial channels. Methuen, London.

Richards, K., J. Brasington, and F. Hughes. 2002. Geomorphic dynamics of floodplains: ecological implications and a potential modeling strategy. Freshwater Biology 47: 559-579.

Richards, R.R., K.K. Gates, and B.L. Kerans. 2013. Effects of simulated rapid water level fluctuations (hydropeaking) on survival of sensitive benthic species. River Research and Applications 30: 954-963.

Richardson, B.A. 1986. Evaluation of in-stream flow methodologies for freshwater fish in New South Wales. Pp. 143-167 *in*: I.C. Campbell, ed., Stream Protection: The Management of Rivers for Instream Uses. Water Studies Centre, Chisholm Institute of Technology, Victoria, Australia.

Richardson, J., and I.G. Jowett. 1998. Freshwater fish communities in Northland and methods for setting minimum flows. NIWA Technical Report 25. Hamilton.

Richardson, J.S., E. Taylor, D. Schluter, M. Pearson, and T. Hatfield. 2010. Do riparian zones qualify as critical habitat for endangered freshwater fishes? Canadian Journal of Fisheries and Aquatic Sciences 67 (7): 1197-1204. Doi: 10.1139/F10-063

Richmond, M.C., and W.A. Perkins. 2009. Efficient calculation of dewatered and entrapped areas using hydrodynamic modeling and GIS. Environmental Modeling and Software. doi:10.1016/j.envsoft.2009.06.001

Richter, B.D. 2007. Meeting urban water demands while protecting rivers: a case study from the Rivanna River, Virginia. Journal of the American Water Works Association. June 2007: 24-26.

Richter, B.D. 2010. Re-thinking environmental flows: from allocations and reserves to sustainability boundaries. River Research and Applications 26: 1052-1063. doi:10.1002/rra.1320.

Richter, B.D., J.V. Baumgartner, D.P. Braun, and J. Powell. 1998. A spatial assessment of hydrologic alteration within a river network. Regulated Rivers 14: 329-340.

Richter, B.D., J.V. Baumgartner, J. Powell, and D.P. Braun. 1996. A method for assessing hydrologic alteration within a river network. Conservation Biology 10: 1163-1174. Doi: 10.1046/j.1523-1739.1996.10041163.x.

Richter, B.D., J.V. Baumgartner, R. Wigington, and D.P. Braun. 1997. How much water does a river need? Freshwater Biology 37 (1): 231-249. Doi: 10.1046/j.1365-2427.1997.00153.x

Richter, B.D., D.P. Braun, M.A. Mendelson, and L.L. Master. 1997. Threats to imperiled freshwater fauna. Conservation Biology 11: 1081-1093. Doi: 10.1046/j.1523-1739.1997.96236.x

Richter, B.D., M.M. Davis, C. Apse, and C. Konrad. 2011. A presumptive standard for environmental flow protection. River Research and Applications 28: 1312-1321. doi: 10.1002/rra.1511.

Richter, B.D., R. Matthews, D.L. Harrison, and R. Wigington. 2003. Ecologically sustainable water management: managing river flows for ecological integrity. Ecological Applications 13: 206-224. Doi: 10.1890/1051-0761(2003)013[0206:ESWMMR]2.0.CO;2

Richter, B.D., J.L. Meyer, K. Lutz, and A. Warner. 2003. Specifying water flow requirements to support river health. Proceedings of the 2003 Georgia Water Resources Conference; 23-24 April; University of Georgia, Athens. Pp. 457-459.

Richter, B.D., D.T. Patten, and J.C. Stromberg. 1990. Evaluating the role of flooding in a Southwestern riparian system. Journal of the Arizona-Nevada Academy of Science 25 (1): 35.

Richter, B.D., S. Postel, C. Revenga, T. Scudder, B. Lehner, A. Chruchill, and M. Chow. 2010. Lost in development’s shadow: the downstream human consequences of dams. Water Alternatives 3: 14-42.

Richter, B.D., and J. Powell. 1996. Simple hydrologic models for use in floodplain research. Natural Areas Journal 16: 362-366.

Richter, B.D., and H.E. Richter. 1992. Development of groundwater and ecological models for protecting a southwestern riparian ecosystem. Pp. 231-245 in: J.A. Stanford and J.J. Simons, eds. Proceedings of the First International Conference on Ground Water Ecology. American Water Resources Association, Bethesda, Md.

Richter, B.D., and H.E. Richter. 2000. Prescribing flood regimes to sustain riparian ecosystems along meandering rivers. Conservation Biology 14 (5): 1467-1478.

Richter, B.D., R. Roos-Collins, and A.C. Fahlund. 2005. A framework for ecologically sustainable water management. Hydro Review.

Richter, B.D., and G.A. Thomas. 2007. Restoring environmental flows by modifying dam operations. Ecology and Society 12: 12. (Available at http://www.ecologyandsociety.org/vol12/iss1/art12/.)

Richter, B.D., A.T. Warner, J.L. Meyer, and K. Lutz. 2006. A collaborative and adaptive process for developing environmental flow recommendations. River Research and Applications 22: 297-318.

Richter, H.E. 1992. Development of a conceptual model for floodplain restoration in a desert riparian system. Arid Lands Newsletter 32: 13-17.

Richter, H.E. 1999. Alteration of forest structure and ecosystem function along the Yampa River, Colorado. Ph.D. dissertation, Colorado State University, Fort Collins.

Ricker, W.E., H.T. Bilton, and K.V. Iro. 1978. Causes of decrease in size of pink salmon (*Oncorhynchus gorbuscha*). Tech. Rep. Fish. Mar. Serv. Can. No. 820.

Ridenour, C.J., W.J. Doyle, and T.D. Hill. 2011. Habitats of age-0 sturgeon in the lower Missouri River. Transactions of the American Fisheries Society 140 (5): 1351-1358. Doi: 10.1080/00028487.2011.620493

Ridenour, C.J., A.B. Starostka, W.J. Doyle, and T.D. Hill. 2009. Habitat used by *Macrohybopsis* chubs associated with channel modifying structures in a large regulated river: implications for river modification. River Research and Applications 25: 472-485.

Riebe, C.S., L.S. Sklar, B.T. Overstreet, and J.K. Wooster. 2014. Optimal reproduction in salmon spawning substrates linked to grain size and fish length. Water Resources Research 50: 1-21.

Riehle, M.D., and J.S. Griffith. 1993. Changes in habitat use and feeding chronology of juvenile rainbow trout (*Oncorhynchus mykiss*) in fall and the onset of winter in Silver Creek, Idaho. Canadian Journal of Fisheries and Aquatic Sciences 50 (10): 2119‑2128. Doi:10.1139/f93-237.

Rieman, B.E., and J.D. McIntyre. 1993. Demographic and habitat requirements for conservation of bull trout. Gen. Tech. Rep. INT-302. U.S. Department of Agriculture, Forest Service, Intermountain Research Station, Ogden, Utah..

Rieman, B.E., and J.D. McIntyre. 1995. Occurrence of bull trout in naturally fragmented habitat patches of varied sizes. Transactions of the American Fisheries Society 124: 285-296. Doi: 10.1577/1548-8659(1995)124<0285:OOBTIN>2.3.CO;2

Ries, I.K.G., and P.J. Friesz. 2000. Methods for estimating low-flow statistics for Massachusetts streams. U.S. Geological Survey, Water-Resources Investigation Report 00-4135. 81 pp.

Riley, G.A. 1937. The significance of the Mississippi River drainage for biological conditions in the northern Gulf of Mexico. Journal of Marine Research 1: 60-74.

Riley, S.C., and K.D. Fausch. 1995. Trout population response to habitat enhancement in six northern Colorado streams. Canadian Journal of Fisheries and Aquatic Sciences 52 (1): 34‑53.

Riley, W.D., M.O, Eagle, M.J. Ives, P. Rycroft, and A. Wilkinson. 2003. A portable passive integrated transponder multi-point decoder system for monitoring habitat use and behaviour of freshwater fish in small streams. Fish. Manage. Ecol. 10: 265-268. Doi: 10.1046/j.1365-2400.2003.00343.x.

Riley, W.D., M.J. Ives, M.G. Pawson, and D.L. Maxwell. 2006. Seasonal variation in habitat use by salmon, *Salmo salar*, trout, *Salmo trutta*, and grayling, *Thymallus thymallus*, in a chalk stream. Fisheries Management and Ecology 13: 221-236. Doi: 10.1111/j.1365-2400.2006.00496.x

Riley, W.D., D.L. Maxwell, M.G. Pawson, and M.J. Ives. 2009. The effects of low summer flow on wild salmon (*Salmo salar*), trout (*Salmo trutta*) and grayling (*Thymallus thymallus*) in a small stream. Freshwater Biology 54: 2581-2599. Doi: 10.1111/j.1365-2427.2009.02268.x

Rimmer, D.M. 1985. Effects of reduced discharge on production and distribution of age-0 rainbow trout in seminatural channels. Transactions of the American Fisheries Society 114: 388-396.

Rimmer, D.M., U. Paim, and R.L. Saunders. 1983. Autumnal habitat shift in juvenile Atlantic salmon *(Salmo salar*) in a small river. Canadian Journal of Fisheries and Aquatic Sciences 40: 671‑680. Doi:10.1139/f83-090.

Rimmer, D.M., U. Paim, and R.L. Saunders. 1984. Changes in the selection of microhabitat by juvenile Atlantic salmon (*Salmo salar*) at the summer-autumn transition in a small river. Canadian Journal of Fisheries and Aquatic Sciences 41: 469‑475.

Rimmer, D.M., R.L. Saunders, and U. Paim. 1985. Effects of temperature and season on the position holding performance of juvenile Atlantic salmon (*Salmo salar*). Canadian Journal of Zoology 63: 92-96.

Rincon, P.A., and J. Lobon-Cervia. 1993. Microhabitat use by stream-resident brown trout: bioenergetic consequences. Transactions of the American Fisheries Society 122 (4): 575-587.

Rincon, P.A., and J. Lobon-Cervia. 2002. Nonlinear self-thinning in a stream-resident population of brown trout (*Salmo trutta*). Ecology 83(7): 1808-1816.

Ringler, N.H., and D.F. Brodowski. 1983. Functional response of brown trout (*Salmo trutta* L.) to invertebrate drift. J. Freshwater Ecology 2: 45-57.

Ringold, P.L. J. Boyd, D. Landers, and M. Weber. 2013. What data should we collect? A framework for identifying indicators of ecosystem contributions to human well-being. Frontiers in Ecology and the Environment 11 (2): 98-105. Doi: 10.1890/110156.

Rinne, J.N. 1980. Spawning habitat and behavior of Gila trout, a rare salmonid of the southwestern United States. Transactions of the American Fisheries Society 109: 83-91.

Rinne, J.N. 1982. Movement, home range, and growth of a rare southwestern trout in improved an unimproved habitats. North American Journal of Fisheries Management 2: 150-157.

Rinne, J.N. 1985. Physical habitat evaluation of small stream fishes: point vs. transect, observation vs. capture methodologies. Journal of Freshwater Ecology 3: 121-131.

Rinne, J.N. 1991. Habitat use by spikedace, *Meda fulgida* (Pisces: Cyprinidae) in southwestern streams with reference to probable habitat competition by red shiner, *Notropis lutrensis* (Pisces: Cyprinidae). Southwestern Naturalist 36: 7-13.

Rinne, J.N. 1992. Physical habitat utilization of fish in a Sonoran Desert stream, Arizona, southwestern United States. Ecology of Freshwater Fishes 1: 35-41.

Rinne, J.N. 2001. Effects of substtate composition on Apache trout fry emergence. Journal of Freshwater Ecology 16: 355-365.

Rinne, J., and D. Miller. 2006. Hydrology, geomorphology and management: implications for sustainability of native southwestern fishes. Reviews in Fisheries Science 14 (1-2): 91-110. Doi: 10.1080/10641260500341379

Rinne, J.N., R.J. Simms, and H. Blasius. 2005. Changes in hydrology and fish fauna in the Gila River, Arizona-New Mexico: Epitaph for a native fish fauna? Pages 127-137 in: J.N. Rinne, R.M. Hughes, and B. Calamusso (editors), Historical Changes in Large River Fish Assemblages of the Americas. American Fisheries Society, Bethesda, MD 127-137.

Riseng, C.M., M.J. Wiley, and R.J. Stevenson. 2004. Hydrologic disturbance and nutrient effects on benthic community structure in midwestern US streams: a covariance structure analysis. Journal of the North American Benthological Society 23 (2): 309-326. Doi: 10.1899/0887-3593(2004)023<0309:HDANEO>2.0.CO;2.

Risley, J., J.R. Walick, I. Waite, and A. Stonewall. 2010. Development of an environmental flow framework for the McKenzie River Basin, Oregon. U.S. Geological Survey Scientific Investigations Report no 2010-5016.

Risser, R.J., and R.R. Harris. 1989. Mitigation for impacts to riparian vegetation of western montane streams. Pp. 235-252 in: J.A. Gore and G.E. Petts (eds.) Alternatives in Regulated River Management. Boca Raton: CRC Press.

Rissik, D., and I.M. Suthers. 1996. Feeding in a larval fish assemblage: the nutritional significance of an estuarine plume front. Mar. Biol. (Berl.) 125 (2): 233-240. Doi: 10.1007/BF00346303.

Rivaes, R., J.M. Santos, I. Boavida, A.N. Pinheiro, and T. Ferreira. 2014. Towards an holistic approach on environmental flow science – adding riparian requirements into consideration. 10th ISE 2014, Trondheim, Norway.

Rivers-Moore, N.A., F.C. DeMoor, C. Morris, and J. O’Keefe. 2007. Effect of flow variability modification and hydraulics on invertebrate communities in the Great Fish River (Eastern Cape Province, South Africa), with particular reference to critical hydraulic thresholds limiting larval densities of Simulium chutteri Lewis (Diptera, Simuliidae). River Research and Applications 23: 201-222.

Rivinoja, P., S. McKinnell, and H. Lundqvist. 2001. Hindrances to upstream migration of Atlantic salmon (Salmo salar) in a northern Swedish river caused by a hydroelectric power station. Regulated Rivers Research and Management 17 (2): 101-116.

Roach, K.A. 2013. Texas water wars: how politics and scientific uncertainty influence environmental flow decision-making in the Lone Star state. Biodivers. Conserv. Doi: 10.10077/s10531-013-0443-2

Roach, K.A. 2013. Environmental factors affecting incorporation of terrestrial material into large river food webs. Freshwater Science 32 (1): 283-298. Doi: 10.1899/12-063.1

Roach, K.A., and K.O. Winemiller. 2015. Hydrologic regime and turbidity influence entrance of terrestrial material into river food webs. Canadian Journal of Fisheries and Aquatic Sciences 72 (7): 1099-1122. Doi: 10.1039/cjfas-2014-0459.

Roach, K.A., K.O. Winemiller, and S.E. Davis, III. 2014. Autochthonous production in shallow littoral zones of five floodplain rivers: effects of flow, turbidity, and nutrients. Freshw. Biol. 59: 1278—1294. Doi: 10.1111/fwb.12347.

Robbins, C.H. 1986. Techniques for simulating flood hydrographs and estimating flood volumes for ungauged basins in central Tennessee. USGS Water Resources Investigations Report 86-4192. Nashville, TN.

Roberge, M., J.M.B. Hume, C.K. Minns, and T. Slaney. 2002. Life history characteristics of freshwater fishes occurring in British Columbia and the Yukon, with major emphasis on stream habitat characteristics. Can. Manuscr. Rep. Fish. Aquat. Sci. 2611.

Roberts, J., and F. Marston. 2011. Water regime for wetland and floodplain plants: A source book for the Murray-Darling Basin. Canberra, ACT: National Water Commission.

Roberts, J.H., and P.L. Angermeier. 2007. Spatiotemporal variability of stream habitat and movement of three species of fish. Oecologia 151: 417-430. Doi: 10.1007/s00442-006-0598-6.

Robertson, A.I., P. Bacon, and G. Heagney. 2001. The responses of floodplain primary production to flood frequency and timing. Journal of Applied Ecology 38: 126-136.

Robertson, A.L., L.E. Brown, M.J. Klaar, and A.M. Milner. 2015. Stream ecosystem responses to an extreme rainfall event across multiple catchments in southeast Alaska. Freshwater Biology 60: 2523-2534. Doi: 10.1111/fwb.12638

Robertson, A.L., J. Lancaster, L.R. Belyea, and A.G. Hildrew. 1997. Hydraulic habitat and assemblage structure of stream benthic microcrustacea. Journal of the North American Benthological Society 16: 562-575.

Robertson, A.L., J. Lancaster, and A.G. Hildrew. 1995. Stream hydraulics and the distribution of microcrustacea: a role for refugia. Freshwater Biology 33: 469-484.

Robertson, C.R., K. Aziz, D.L. Buckmeier, N.G, Smith, and N. Raphelt. 2018. Development of a flow-specific floodplain inundation model to assess alligator gar recruitment success. Transactions of the American Fisheries Society 147 (4): 674-686. Doi: 10.1002/tafs.10045

Robertson, C.R., S.C. Zeug, and K.O. Winemiller. 2008. Associations between hydrological -connectivity and resource partitioning among sympatric gar species (Lepisosteidae) in a Texas river and associated oxbows. Ecology of Freshwater Fishes 17: 119-129. Doi: 10.1111/j.1600-0633.2007.0265.x

Robertson, J.H., and P.L. Angermeier. 2007. Spatiotemporal variability of stream habitat and movement of three species of fish. Oecologia 151: 417-430.

Robertson, M.J., C.J. Pennell, D.A. Scruton, G.J. Robertson, and J.A. Brown. 2004. Effect of increased flow on the behaviour of Atlantic salmon parr in winter. Journal of Fish Biology 65: 1070-1079. Doi: 10.1111/j.0022-1112.2004.00516.x.

Robins, J.B., I.A. Halliday, J. Staunton-Smith, D.G. Mayer, and M.J. Sellin. 2005. Freshwater-flow requirements of estuarine fisheries in tropical Australia: a review of the state of knowledge and application of a suggested approach. Marine and Freshwater Research 56: 343-360.

Robins, J., D. Mayer, J. Staunton-Smith, I. Halliday, B. Sawynok, and M. Sellin. 2006. Variable growth rates of the tropical estuarine fish barramundi *Lates calcarifer* (Bloch) under different freshwater flow conditions. Journal of Fish Biology 69: 379-391.

Robinson, C.T. 2012. Long-term changes in community assembly, resistance, and resilience following experimental floods. Ecol. Appl. 22: 1949-1961.

Robinson, C.T., S. Aebischer, and U. Uehlinger. 2004. Immediate and habitat-specific responses of macroinvertebrates to sequential experimental floods. J. North Am. Benthol. Soc. 23: 853-867. Doi: 10.1899/0887-3593(2004)023<0853:IAHROM>2.0.CO:2.

Robinson, C.T., G.W. Minshall, and T.V. Royer. 2000. Inter-annual patterns in macroinvertebrate communities of wilderness streams in Idaho, USA. Hydrobiologia 421: 187-198. Doi: 10.1023/A:1003956114073

Robinson, C.T., and U. Uehlinger. 2008. Experimental floods cause ecosystem regime shift in a regulated river. Ecological Applications 18: 511-526.

Robinson, M. 1990. Impact of Improved Land Drainage on River Flows. Institute of Hydrology, Wallingford. 233 pages.

Robinson, M., A.L. Cognard-Plancq, C. Cosandey, J. David, P. Durand, H.-W. Fuhrer, R. Hall, M.O. Henriques, V. Marc, R. McCarthy, M. McDonnel, C. Martin, T. Nisbet, P. O’Dea, M. Rodgers, and A. Zollmer. 2003. Studies of the impact of forests on peak flows and baseflows: A European perspective. Forest Ecol. Manage. 18: 85

Robinson, M., and D.W. Rycroft. 1999. The impact of drainage on streamflow. Pages 767-800 in: R.W. Skaggs and J. Van Schilfgaarde, editors. Agricultural drainage. American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Agronomy Monograph 38, Madison, Wisconsin.

Robinson, T.C., and J.M. Bayer. 2005. Upstream migration of Pacific lampreys in the John Day River, Oregon: behavior, timing, and habitat use. Northwest Science 79 (2-3): 106-119.

Robison, H.W., and G.L. Harp. 1985. Distribution, habitat, and food of the Ouachita madtom, *Noturus lachneri*, an Ouachita River drainage endemic. Copeia 1985: 216-220.

Robson, B.J., E.T. Chester, and C.M. Austin. 2011. Why life history information matters: drought refuges and macroinvertebrate persistence in non-perennial streams subject to a drier climate. Mar Freshwater Res 62: 801-810.

Robson, B.J., R.E. Lester, D.S. Baldwin, N.R. Bond, R. Drouart, R.J. Rolls, …, and R.M. Thompson. 2017. Modelling food-web mediated effects of hydrological variability and environmental flows. Water Research 124: 108-128.

Robson, B.J., T.G. Matthews, P.R. Lind, and N.A. Thomas. 2008. Pathways for algal recolonization in seasonally-flowing streams. Freshw. Biol. 53 (12): 2385-2401. Doi: 10.1111/j.1365-2427.2008.02061.x.

Rockstrom, J., M. Falkenmark, T. Allan, C. Folke, L. Gordon, A. Jagerskog, et al. 2014. The unfolding water drama in the Anthropocene: towards a resilience-based perspective on water for global sustainability. Ecohydrology 7: 1249-1261. Doi: 10.1002/eco.1562

Rodger, A.W., K.B. Mayes, and K.O. Winemiller. 2016. Preliminary findings for a relationship between instream flow and shoal chub recruitment in the lower Brazos River, Texas. Transactions of the American Fisheries Society 145 (5): 943-950. Doi: 10.1080/00028487.2016.1173588.

Rodger, A.W., K.B. Mayes, and K.O. Winemiller. 2016. Larval fish abundance in relation to environmental variables in two Texas Gulf Coast rivers. Journal of Freshwater Ecology 31: 625-640.

Rodnick, K.J., S. St.-Hilaire, P. Battiprolu, S.M. Seiler, M.L. Kent, M.S. Powell, and J.L. Ebersole. 2008. Habitat selection influences sex distribution, morphology, tissue biochemistry, and parasite load of juvenile coho salmon in the West Fork Smith River, Oregon. Transactions of the American Fisheries Society 137 (6): 1571-1590.

Rodriguez, C.A., K.W. Flessa, and D.L. Dettman. 2001. Effects of upstream diversion of Colorado River water on the estuarine bivalve mollusc *Mulinaria coloradoensis*. Conservation Biology 15 (1): 249-258.

Rodriguez, J.F., F.A. Bombardelli, M.H. Garcia, K.M. Frothingham, B.L. Roads, and J.D. Abad. 2004. High-resolution numerical simulation of flow through a highly sinuous river reach. Water Resources Management 18 177-199.

Rodriguez, M.A. 2002. Restricted movement in stream fish: The paradigm is incomplete, not lost. Ecology 83 (1): 1-13. Doi: 10.1890/0012-9658(2002)083/0001:RMISFT/2.0.CO;2.

Rodriguez, M.A., and W.M. Lewis. 1997. Structure of fish assemblages along environmental gradients in floodplain lakes of the Orinoco River. Ecological Monographs 67: 109-128.

Roelke, D.L., B.W. Brooks, J.P. Grover, G.M. Gable, L. Schwierzke-Wade, and N.C. Hewitt. 2012. Anticipated human population and climate change effects on algal blooms of a toxic haptophyte in the south-central USA. Canadian Journal of Fisheries and Aquatic Sciences 69 (8): 1389-1404. Doi: 1139/F2012-019.

Roelke, D.L., J.P. Grover, B.W. Brooks, J. Glass, D. Buzann, G.M. Southard, L. Fries, G.M. Gable, L. Schwierzke-Wade, M. Byrd, and J. Nelson. 2011. A decade of fish-killing Prymnesium parvum blooms in Texas: roles of inflow and salinity. J. Plankton Res. 33 (2): 243-253. Doi: 10.1093/plankt/fbq079.

Rogers, K.B., and G.C. White. 2007. Analysis of movement and habitat use from telemetry data. Pages 625-676 in C.S. Guy and M.L. Brown, editors. Analysis and interpretation of freshwater fisheries data. American Fisheries Society. Bethesda Maryland.

Rogers, K.H. 2006. The real river management challenge: integrating scientists, stakeholders, and service agencies, River Research and Applications 22: 269-280.

Rogers, K.H., and J. O’Keefe. 2003. River heterogeneity : ecosystem structure, function, and management. In: J.T. du Toit, K.H. Rogers, and H.C. Biggs (Eds.). The Kruger experience: ecology and management of savannah heterogeneity. Island Press: Washington, D.C.

Rogers, K.H., D. Roux, and H. Biggs. 2000. Challenges for catchment management agencies: lessons from bureaucracies, business and resource management. Water SA 26: 505-511.

Rogers, M.W., M.S. Allen, and M.D. Jones. 2005. Relationships between river surface levels and fish assemblages in the Ocklawaha River, Florida. River Research and Applications 21: 501-511. Doi: 10.1002/rra.818.

Rogers, S.G., T.E. Targett, and S.B. Van Sant. 1984. Fish nursery use in Georgia salt-marsh estuaries: the influence of springtime freshwater conditions. Transactions of the American Fisheries Society 113: 595-606.

Roghair, C.N., C.A. Dolloff, and M.K. Underwood. 2002. Response of a brook trout population and instream habitat to a catastrophic flood and debris flow. Transactions of the American Fisheries Society 131 (4): 718-730.

Rolls, R.J., and A.H. Arthington. 2014. How do low magnitudes of hydrologic alteration impact riverine fish populations and assemblage characteristics? Ecological Indicators 39: 179-188. Doi: 10.1016/j.ecolind.2013.12.017

Rolls, R.J., D.S. Baldwin, N.R. Bond, R.E. Lester, B.J. Robson, D.S. Ryder, …, and G.A. Watson. 2017. A framework for evaluating food-web responses to hydrological manipulations in riverine systems. Journal of Environmental Management 203: 136-150.

Rolls, R.J., A.J. Boulton, I.O. Growns, and S.E. Maxwell. 2011. Response by fish assemblages to an environmental flow release in a temperate coastal Australian river: A paired catchment analysis. River Research and Applications 27 (7): 867-880. Doi: 10.1002/rra/1402

Rolls, R.J., C. Leigh, and F. Sheldon. 2012. Mechanistic effects of low-flow hydrology on riverine ecosystems: ecological principles and consequences of alteration. Freshwater Science 31: 1163-1186. Doi: 10.1899/12-002.1.

Rolls, R.J., and D. Sternberg. 2015. Can species traits predict the susceptibility of riverine fish to water resource development? An Australian case study. Environmental Management 55: 1315-1326. Doi: 10.1007/s00267-015-0462-8

Rolls, R.J., and G.G. Wilson. 2010. Spatial and temporal patterns in fish assemblages following an artificially extended floodplain inundation event, northern Murray-Darling basin, Australia. Environmental Management 45: 822-833.

Roni, P. 2002. Habitat use by fishes and Pacific giant salamanders in small western Oregon and Washington streams. Transactions of the American Fisheries Society 131 (4): 743-761.

Roni, P. 2019. Does river restoration increase fish abundance and survival or concentrate fish? The effects of project scale, location, and fish life history. Fisheries 44 (1): 7-19. Doi: 10.1002/fsh.10120

Roni, P., K. Hanson, and T. Beechie. 2008. Global review of the physical and biological effectiveness of stream habitat rehabilitation techniques. North American Journal of Fisheries Management 28: 856-890.

Roni, P., C. Johnson, T. De Boer, G. Pess, A. Dittman, and D. Sear. 2016. Interannual variability in the effects of physical habitat and parentage on Chinook salmon egg-to-fry survival. Canadian Journal of Fisheries and Aquatic Sciences 73 (7): 1047-1059. Doi: 10.1139/cjfas-2015-0372.

Roni, P., and T.P. Quinn. 2001. Density and size of juvenile salmonids in response to placement of large woody debris in western Oregon and Washington streams. Canadian Journal of Fisheries and Aquatic Sciences 58 (2): 282-292. Doi:10.1139/cjfas-588-2-282. Doi:10.1139/cjfas-58-2-282.

Rood, S.B., J.H. Braatne, and F.M.R. Hughes. 2003. Ecophysiology of riparian cottonwoods: stream flow dependency, water relations and restoration. Tree Physiol. 23: 1113-1124.

Rood, S.B., L.A. Goater, J.M. Mahoney, C.M. Pearce, and D.G. Smith. 2007. Floods, fire, and ice: disturbance ecology of riparian cottonwoods. Canadian Journal of Botany-Revue Canadienne de Botanique 85: 1019-1032.

Rood, S.B., C. Gourley, E.M. Ammon, L.G. Heki, J.R. Klotz, M.L. Morrison, D. Mosley, G.G. Scoppettone, S. Swanson, and P.L. Wagner. 2003. Flows for floodplain forests: successful riparian restoration. BioScience 53 (7): 647-656.

Rood, S.B., and S. Heinze-Milne. 1989. Abrupt downstream forest decline following river damming in southern Alberta. Canadian Journal of Botany 67: 1744-1749.

Rood, S.B., A.R. Kalischuk, and J.M. Mahoney. 1998. Initial cottonwood seedling recruitment following the flood of the century of the Oldman River, Alberta, Canada. Wetlands 8: 557-570.

Rood, S.B., and J.M. Mahoney. 1990. Collapse of riparian poplar forests downstream from dams in western Canada in western prairies: Probable causes and prospects for mitigation. Environmental Management 14 (4): 451-464.

Rood, S.B., and J.M. Mahoney. 1993. A model for assessing the effects of altered river flows on the recruitment of riparian cottonwoods. Riparian management: common threads and shared interests. USDA Forest Service General Technical Report RM-226: 228-232.

Rood, S.B., and J.M. Mahoney. 1995. River damming and riparian cottonwoods along the Marias River, Montana. Rivers 5 (3): 195-207.

Rood, S.B., and J.M. Mahoney. 2000. Revised instream flow regulation enables cottonwood recruitment along the St. Mary River, Alberta, Canada. Rivers 7 (2): 109-125.

Rood, S.B., J.M. Mahoney, D.E. Reid, and L. Zilm. 1995. Instream flows and the decline of riparian cottonwoods along the St. Mary River, Alberta. Canadian Journal of Botany 73: 1250-1260.

Rood, S.B., J. Pan, K.M. Gill, C.G. Franks, G.M. Samuelson, and A. Shepherd. 2008. Declining summer flows of Rocky Mountain rivers: changing seasonal hydrology and probable impacts on floodplain forests. J. Hydrol. 349: 397-410.

Rood, S.B., G.M. Samuelson, J.H. Braatne, C.R. Gourley, F.M.R. Hughes, and J.M. Mahoney. 2005. Managing river flows to restore floodplain forests. Frontiers in Ecology and the Environment 1 (4): 193-201.

Rood, S.B., G.M. Samuelson, J.K. Weber, and K.A. Wywrot. 2005. Twentieth-century decline in streamflows from the hydrographic apex of North America. Journal of Hydrology 306: 215-233.

Rood, S.B., K. Taboulchanas, C.E. Bradley, and A.R. Kalischuk. 1999. Influence of flow regulation on channel dynamics and riparian cottonwoods along the Bow River, Alberta. Rivers 7 (1): 33-48.

Ropella, G.E.P., S.F. Railsback, and S.K. Jackson. 2002. Software engineering considerations for individual-based models. Natural Resource Modeling 15: 5-22.

Roper, B., J. Kershner, E. Archer, R. Henderson, and N. Bouwes. 2002. An evaluation of physical stream habitat attributes used to monitor streams. Journal of American Water Resources Association 38: 1637-1646.

Roper, B.R., and D.L. Scarnecchia. 1999. Emigration of age-0 chinook salmon (*Oncorhynchus tshawytscha*) smolts from the upper South Umpqua River basin, Oregon, U.S.A. Canadian Journal of Fisheries and Aquatic Sciences 56 (6): 939-946.

Roper, B.B., D.L. Scarnecchia, and T.J. Marr. 1994. Summer distribution of and habitat use by Chinook salmon and steelhead within a major basin of the south Umpqua River, Oregon. Transactions of the American Fisheries Society 123: 298-308.

Ropke, C.P., S. Amadio, K.O. Winemiller, and J. Zuanon. 2015. Seasonal dynamics of the fish assemblage in a floodplain lake at the confluence of the Negro and Amazon Rivers. Journal of Fish Biology 89 (1): doi: 10.1111/jfb.12791

Rorslett, B., M. Mjelde, and S.W. Johansen. 1989. Effects of hydropower development on aquatic macrophytes in Norwegian rivers: present state of knowledge and some case studies. Regulated Rivers: Research and Management 3: 19-28.

Rose, K.A. 2000. Why are quantitative relationships between environmental quality and fish populations so elusive? Ecological Applications 10: 367-385. Doi: 10.1890/1051-0761(2000)010/0367:WAQRBE/2.0.CO;2.

Rose, K.A., J.H. Cowan, K.O. Winemiller, R.A. Myers, and R. Hilborn. 2001. Compensatory density dependence in fish populations: importance, controversy, understanding, and prognosis. Fish and Fisheries Series 2: 293-327.

Rose, K.A., W.J. Kimmerer, K.P. Edwards, W.A. Bennett. 2013. Individual-based modeling of Delta smelt population dynamics in the upper San Francisco estuary: I. Model description and baseline results. Transactions of the American Fisheries Society 142 (5): 1238-1259. Doi: 10.1080/00028487.2013.799518.

Rose, P., L. Metzeling, and S. Catzikiris. 2008. Can macroinvertebrate rapid bioassessment methods be used to assess river health during drought in south eastern Australian streams? Freshwater Biology 53 (12): 2626-2638. Doi: 10.1111/j.1365-2427.2008.02074.x.

Rosenberg, D.M., F. Berkes, R.A. Bodaly, R.E. Hecky, C.A. Kelly, and J.W.M. Rudd. 1997. Large-scale impacts of hydroelectric development. Environ. Rev. 5 (1): 27-54. Doi: 10.1139/a97-001.

Rosenberg, D.M., P. McCully, and C.M. Pringle. 2000. Global-scale environmental effects of hydrological alterations: Introduction. BioScience 50: 746-751. Doi: 10.1641/0006-3568(2000)050[0746:GSEEOH]2.0.CO;2

Rosenberger, A., and P.L. Angermeier. 2003. Ontogenetic shifts in habitat use by the endangered Roanoke logperch (*Percina rex*). Freshwater Biology 48: 1563-1577.

Rosenfeld, J.S. 2003. Assessing the habitat requirements of stream fishes: An overview and evaluation of different approaches. Transactions of the American Fisheries Society 132 (5): 953-968. Doi:10.1577/T01-126.

Rosenfeld, J. 2017. Developing flow-ecology relationships: Implications of nonlinear biological responses for water management. Freshwater Biology 62 (Suppl. 1): 1305-1324. doi: 10.1111/fwb.12938.

Rosenfeld, J., H. Beecher, and R. Ptolemy. 2016. Developing bioenergetic-based habitat suitability curves to improve the biological accuracy of instream flow models. North American Journal of Fisheries Management 36 (5): 1205-1219. Doi: 10.1080/02755947.2016.1198285

Rosenfeld, J.S., and S. Boss. 2001. Fitness consequences of habitat use for juvenile cutthroat trout: energetic costs and benefits in pools and riffles. Canadian Journal of Fisheries and Aquatic Sciences 58 (3): 585-593. Doi:10.1139/cjfas-58-3-585.

Rosenfeld, J.S., N. Bouwes, C.E. Wall, and S.M. Naman. 2013. Success, failures, and opportunities in the practical application of drift-foraging models. Environmental Biology of Fish 97: 551-574. doi: 10.1007/s10641-013-0195-6.

Rosenfeld, J.S., K. Campbell, E.S. Leung, J. Bernhardt, and J. Post. 2011. Habitat effects on depth and velocity frequency distributions: implications for modeling hydraulic variation and fish habitat suitability in streams. Geomorphology 130 (3-4): 127-135. Doi: 10.1016/j.geomorph.2011.03.007.

Rosenfeld, J.S., and T. Hatfield. 2006. Information needs for assessing critical habitat of freshwater fish. Canadian Journal of Fisheries and Aquatic Sciences 63 (3): 683-698. Doi:10.1139/f05-242.

Rosenfeld, J.S., T. Leiter, G. Lindner, and L. Rothman. 2005. Food abundance and fish density alters habitat selection, growth, and habitat suitability curves for juvenile coho salmon (*Oncorhynchus kisutch*). Canadian Journal of Fisheries and Aquatic Sciences 62 (8): 1691-1701. Doi: 10.1139/f05-072

Rosenfeld, J.S., M. Porter, and E. Parkinson. 2000. Habitat factors affecting the abundance and distribution of juvenile cutthroat trout (*Oncorhynchus clarki*) and coho salmon (*Oncorhynchus kisutch*). Canadian Journal of Fisheries and Aquatic Sciences 57: 766-774. Doi:10.1139/cjfas-57-4-766.

Rosenfeld, J.S., M. Porter, M. Pearson, B. Wicks, P. van Dishoeck, D. Patton, E. Parkinson, G. Haas, and D. McPhail. 2001. The influence of temperature and habitat on the distribution of chiselmouth, *Acrocheilus alutaceus*, in British Columbia. Environ. Biol. Fishes 62 (4): 401-413. Doi: 10.1023/A:1012222415961.

Rosenfeld, J.S., J. Post, G. Robins, and T. Hatfield. 2007. Hydraulic geometry as a physical template for the River Continuum: application to optimal flows and longitudinal trends in salmonid habitat. Canadian Journal of Fisheries and Aquatic Sciences 64 (5): 755-767. Doi: 10.1139/f07-020.

Rosenfeld, J.S., and R. Ptolemy. 2012. Modelling available habitat versus available energy flux: do PHABSIM applications that neglect prey abundance underestimate optimal flows for juvenile salmonids? Canadian Journal of Fisheries and Aquatic Sciences 69 (12): 1920-1934. doi: 10.1139/f2012-115.

Rosenfeld, J.S., and R. Ptolemy. 2017. Trade-offs and the importance of separating science and values in environmental flow assessment. Canadian Water Resources Journal 42: 88-96.

Rosenfeld, J.S., and E. Raeburn. 2009. Effects of habitat and internal prey subsidies on juvenile coho salmon growth: implications for stream productive capacity. Ecol. Freshw. Fish. 18 (4): 572-584. Doi: 10.1111/j/1600-0633.2009.00372.x.

Rosenfeld, J.S., E. Raeburn, P.C. Carrier, and R. Johnson. 2008. Effects of side channel structure on productivity of floodplain habitats for juvenile coho salmon. North American Journal of Fisheries Management 28 (4): 1108-1119.

Rosenfeld, J.S., and J. Taylor. 2009. Prey abundance, channel structure, and the allometry of growth rate potential for juvenile trout. Fisheries Management and Ecology 16: 202-218. Doi: 10.1111/j.1365-2400.2009.00656.x.

Rosenzweig, M.L. 1981. A theory of habitat selection. Ecology 62: 327-335.

Rosenzweig, M.L. 1991. Habitat selection and populations interactions: the search for mechanisms. American Naturalist 137: 5-28.

Rosgen, D.L. 1994. A classification of natural rivers. Catena 22 (3): 169-199.

Rosgen, D. 1996. Applied river morphology. Wildland Hydrology. Pagosa Springs, Colorado.

Rosgen, D.L., H.S. Silvey, and J.P. Potyondy. 1986. The use of channel maintenance flow concepts in the Forest Service. Hydrological Science and Technology 2(1): 19-26.

Ross, R.M., R.M. Bennet, and T.W.H. Backman. 1993. Habitat use by spawning adult, egg, and larval American shad in the Delaware River. Rivers 4: 227-238.

Ross, S.T. 1986. Resource partitioning in fish assemblages: a review of field studies. Copeia 1986: 352-388.

Ross, S.T., and J.A. Baker. 1983. The response of fishes to periodic spring floods in a southeastern stream. American Midland Naturalist 109: 1-14. Doi: 10.2307/2425509.

Ross, S.T., J.G. Knight, and S.D. Wilkins. 1990. Longitudinal occurrence of the bayou darter (Percidae: *Etheostoma rubrum*) in Bayou Pierre - a response to stream order or habitat availability. Polskie Archiwum Hydrobiologii 37 (1-2): 221-233.

Ross, S.T., J.G. Knight, and S.D. Wilkins. 1992. Distribution and microhabitat dynamics of the threatened Bayou Darter, *Etheostoma rubrum*. Copeia 1992 (3): 658-671.

Ross, S.T., B.R. Kreiser, W.T. Slack, M.A. Dugo, R.J. Heise, B.R. Bowen, and P. Mickle. 2004. Movement, spawning sites, habitat use, and genetic structure of Gulf sturgeon (*Acipenser oxyrhinchus desotoi*) in the Pascagoula drainage, Mississippi (year VII). Mississippi Museum of Natural Science, Technical Report 103, Jackson.

Ross, S.T., W.J. Matthews, and A.J. Echelle. 1985. Persistence of stream fish assemblages: effects of environmental change. American Naturalist 126: 24-40.

Rountree, M.W., K.H. Rogers, and G.L. Heritage. 2000. Landscape state change in the semi-arid Sabie River, Kruger National Park, in response to flood and drought. S. Afr. Geogr. J. 82: 173-181.

Roussel, J.M., and A. Bardonnet. 1997. Diel and seasonal patterns of habitat use by fish in a natural salmonid brook: an approach to the functional role of the riffle-pool sequence. Bulletin Francais Peche Pisciculture 346:573-588.

Roussel, J.M., and A. Bardonnet. 1999. Ontogeny of diel pattern of stream-margin habitat use by emerging brown trout, *Salmo trutta*, in experimental channels: influence of food and predator presence. Environmental biology of Fishes 56: 253-262.

Roussel, J.M., and A. Bardonnet. 2000. Habitat de la truite commune (*Salmo trutta* L.) pendant la periode juvenile en ruisseau: preferences, mouvements, variations journalieres et saisonnierres. Bull. Fr. Peche Piscic. 365/366: 435-454. Doi: 10.1051/kmae:2002044.

Roussel, J.M., A. Bardonnet, and A. Claude. 1999. Microhabitats of brown trout when feeding on drift and when resting in a lowland salmonid brook: effects on weighted usable area. Arch. Hydrobiol. 146: 413-429.

Roussel, J.M., R.A. Cunjak, R. Newbury, D. Caissie, and A. Haro. 2004. Movements and habitat use by PIT-tagged Atlantic salmon parr in early winter: the influence of anchor ice. Freshwater Biology 49: 1026-1035. Doi:10.1111/j.1365-2427.2004.01246.x.

Rowe, D.C., C.L. Pierce, and T.F. Wilton. 2009. Fish assemblage relationships with physical habitat in wadeable Iowa streams. North American Journal of Fisheries Management 29 (5): 1314-1332. Doi:10.1577/M08-192.1.

Rowe, D.C., C.L. Pierce, and T.F. Wilton. 2009. Physical habitat and fish assemblage relationships with landscape variables at multiple spatial scales in wadeable Iowa streams. North American Journal of Fisheries Management 29 (5): 1333-1351. Doi:10.1577/M08-193.1.

Rowell, K., K.W. Flessa, D.L. Dettman, M.J. Roman, L.R. Gerber, and L.T. Findley. 2008. Diverting the Colorado River leads to a dramatic life history shift in an endangered marine fish. Biological Conservation 141: 1138-1148.

Rowntree, K.M., and R.A. Wadeson. 1996. Translating channel geomorphology into hydraulic habitat: application of the hydraulic biotope concept to an assessment of discharge related habitat changes. Pages 342-351 in: M. Leclerc, A. Boudreault, H. Capra, Y. Cote, and S. Valentin (editors), Proceedings of the 2nd International Symposium on Habitat Hydraulics, Quebec City. INRS-EAU, Quebec.

Rowntree, K., and R. Wadeson. 1998. A geomorphological framework for the assessment of instream flow requirements. Aquat. Ecosyst. Health Manage. 1: 125-141.

Roy, A.G., R. Roy, and N. Bergeron. 1988. Hydraulic geometry and changes in flow velocity at a river confluence with coarse bed material. Earth Surface Processes and Landforms 13: 583-598.

Roy, A.G., R. Roy, and P. Legendre. 2010. The relations between ‘standard’ fluvial habitat variables and turbulent flow at multiple scales in morphological units of a gravel-bed river. River Research and Applications 26: 439-455. Doi:10.1002/rra.1281

Roy, A.H., C.L. Faust, M.C. Freeman, and J.L. Meyer. 2005. Reach-scale effects of riparian forest cover on urban stream ecosystems. Canadian Journal of Fisheries and Aquatic Sciences 62 (10): 2312-2329.

Roy, A.H., M.C. Freeman, B.J. Freeman, S.J. Wenger, W.E. Ensign, and J.L. Meyer. 2005. Investigating hydrologic alteration as a mechanism of fish assemblage shifts in urbanizing streams. Journal of the North American Benthological Society 24: 656-678. Doi: 10.1899%2F04-022.1

Roy, M.L., A.G. Roy, and P. Legendre. 2009. The relationship between “standard” fluvial habitat variables and turbulent flow at multiple scales in morphological units of a gravel bed river. River Research and Applications. DOI:10.1002/rra.1281.

Roy, M.L., A.G. Roy, J.W.A. Grant, and N.E. Bergeron. 2013. Individual variability in the movement behaviour of juvenile Atlantic salmon. Canadian Journal of Fisheries and Aquatic Sciences 70 (2): 339-347. Doi: 10.1139/cjfas-2012-0234.

Roy, M.L., A.G. Roy, J.W.A. Grant, and N.E. Bergeron. 2013. Individual variability of wild juvenile Atlantic salmon activity patterns: effect of flow stage, temperature, and habitat use. Canadian Journal of Fisheries and Aquatic Sciences 70: 1082-1091. Doi: 10.1139/cjfas-2012-0274.

Royer, T.C., C.E. Grosch, and L.A. Mysack. 2001. Interdecadal variability of Northeast Pacific coastal freshwater and its implications on biological productivity. Progress in Oceanography 49: 95-111.

Rozengurt, M.A., and J.W. Hedgpeth. 1989. The impact of altered river flow on the ecosystem of the Caspian Sea. CRC Critical Reviews in Aquatic Science 1: 337-362.

Rubec, P.J., J.C.W. Bexley, H. Norris, M.S. Coyne, M.E. Monaco, S.G. Smith, and J.S. Ault. 1999. Suitability modeling to delineate habitat essential to sustainable fisheries. American Fisheries Society Symposium 22: 108-133.

Rubin, D.M. D.J. Topping, J.C. Schmidt et al. 2002. Recent sediment studies refute Glen Canyon Dam hypothesis. Eos 83: 273-278.

Rubin, J.F. 1998. Survival and emergence pattern of the sea trout fry in substrata of different compositions. J. Fish Biol. 53: 84-92. Doi: 10.1111/j.1095-8649.1998.tb00111.x.

Rubin, S.P., T.C. Bjornn, and B. Dennis. 1991. Habitat suitability curves for juvenile chinook salmon and steelhead development using a habitat‑oriented sampling approach. Rivers 2 (1): 12‑29.

Rudek, J., H.W. Paerl, M.A. Mallin, and P.W. Bates. 1991. Seasonal and hydrological control of phytoplankton nutrient limitation in the lower Neuse River estuary, North Carolina. Marine Ecology Progress Series 75: 133-142.

Ruetz, C.R., III, and C.A. Jennings. 2000. Swimming performance of larval robust redhorse *Moxostoma robustum* and low-velocity habitat modeling in the Oconee River, Georgia. Transactions of the American Fisheries Society 129: 398-407.

Rugel, K., C.R. Jackson, J.J. Romeis, S.W. Golloday, D.W. Hicks, and J.F. Dowd. 2012. Effects of irrigation withdrawals on streamflows in a karst environment: lower Flint River basin, Georgia, USA. Hydrological Processes 26: 523-534.

Ruggles, C.P. 1966. Depth and velocity as a factor in stream rearing and production of juvenile coho salmon. Canadian Fish Culturist 38: 215‑228.

Ruhi, A., E.E. Holmes, J.N. Rinne, and J.L.Sabo. 2015. Anomalous droughts, not invasion, decrease persistence of native fishes in a desert river. Global Change Biology 21: 1482-1496. Doi: 10.1111/gcb.12780.

Ruhi, A., J.D. Olden, and J.L.Sabo. 2016. Declining streamflow induces collapse and replacement of native fish in the American Southwest. Frontiers in Ecology and the Environment 14 (9): 465-472. Doi: 10.1002/fee.1424.

Rukhlov, F.N. 1969. Materials characterizing the texture of bottom material in the spawning grounds and redds of the pink salmon (Oncorhynchus gorbuscha (Walbaum)) and the chum salmon (Oncorhynchus keta (Walbaum)) on Sakhalin. 635-644.

Rulifson, R.A., and C.S. Manooch, III. 1990. Recruitment of juvenile striped bass in the Roanoke River, North Carolina, as related to reservoir discharge. North American Journal of Fisheries Management 10: 397-407.

Ruochuan, G., S. McCutcheon, and C.-J. Chen. 1999. Development of weather-dependent flow requirements for river temperature control. Environ. Manage. 24 (4): 529-540. Doi: 10.1007/s002679900252

Russell, M.J., P.A. Montagna, and R.D. Kalke. 2006. The effect of freshwater inflow on net ecosystem metabolism in Lavaca Bay, Texas. Estuar. Coast Shelf S. 68: 2321-244.

Rutherford, D.A., K.R. Gelwicks, and W.E. Kelso. 2001. Physicochemical effects of the flood pulse on fishes in the Atchafalaya River basin, Louisiana. Transactions of the American Fisheries Society 130 (2): 276-288.

Rutherford, D.A., W.E. Kelso, C.F. Bryant, and G.C. Constant. 1995. Influence of physicochemical characteristics on annual growth increments of four fishes from the lower Mississippi River. Transactions of the American Fisheries Society 124: 68769

Rutherford, E.S., J. Allison, C.R. Ruetz, III, J.R. Elliott, J.K. Nohner, M.R. DuFour, R.P. O’Neial, D.J. Jude, and S.R. Hensler. 2016. Density and survival of walleye eggs and larvae in a Great Lakes tributary. Transactions of the American Fisheries Society 145 (3): 563-577. Doi: 10.1080/00028487.2016.1145135

Ryan, S. 1997. Morphologic response of subalpine streams to transbasin flow diversion. Journal of the American Water Resources Association 33: 839-854. Doi: 10.1111/j.1752-1688.1997.tb04109.x.

Rypel, A.L., W.R. Haag, and R.H. Findlay. 2009. Pervasive hydrological effects on freshwater mussels and riparian trees in southeastern floodplain ecosystems. Wetlands 29: 497-504.

Sabater, S. 2008. Alterations of the global water cycle and their effects on river structure functions and services. Freshwater Reviews 1: 75-88.

Sabaton, C., Y. Souchon, H. Capra, V. Gouraud, J.-M. Lascaux, and L. Tissot. 2008. Long-term brown trout populations responses to flow manipulation. River Research and Applications 24: 476-505.

Sabaton, C., Y. Souchon, J.M. Lascaux, F. Vandewalle, P. Baran, D. Baril, H. Capra, V. Gouraud, F. Lauters, P. Lim, G. Merle, and G. Paty. 2004. The “Guaranteed Flow Working Group”: A French evaluation of microhabitat component of IFIM based on habitat and brown trout population monitoring. Hydroecologie Appliquee 14 (1): 245-270.

Sabo, J.L., J.C. Finlay, T. Kennedy, and D.M. Post. 2010. The role of discharge variation in scaling of drainage area and food chain length in rivers. Science 33: 6-967. Doi: 10.1126/science.1196005.

Sabo, J.L., and D.M. Post. 2008. Quantifying periodic, stochastic, and catastropohic environmental variation. Ecological Monographs 78 (1): 19-40. Doi: 10.1890/06-1340.1

Sabo, J.L, A. Ruhi, G.W. Holtgrieve, V. Elliott, M.E. Arias, P.B. Ngor, T.A. Rasanen, and S. Nam. 2017. Designing river flows to improve food security future in the lower Mekong Basin. Science 358: 1270. http://science.scierncemag.org/content/suppl/2017/12/06/358.6368.eaao1053.DC1).

Sabo, J.L., T. Sinha, L.C. Bowling, et al. 2010. Reclaiming freshwater sustainability in the Cadillac Desert. Proc. Natl. Acad. Sci. USA 107: 21263-21270.

.

Sabo, J.L., R. Sponseller, M. Dixon, K. Gade, T. Harms, J. Heffernan, A. Jani, G. Katz, C. Soykan, J. Watts, and J. Welter. 2005. Riparian zones increase regional species richness by harboring different, not more, species. Ecology 86 (1): 56-62.

Sabo, M.J. 1993. Microhabitat use and its effect on growth of age-0 smallmouth bass in the North Anna River, Virginia. Ph.D. dissertation, Virginia Polytechnic Institute and State University, Blacksburg. 174 pp.

Sabo, M.J., C.F. Bryan, W.E. Kelso, and D.A. Rutherford. 1999. Hydrology and aquatic habitat characteristics of a riverine swamp: I. Influence of flow on water temperature and chemistry. Regulated Rivers: Research and Management 15: 505-523.

Sabo, M.J., W.E. Kelso, C.F. Bryan, and D.A. Rutherford. 1991. Physicochemical factors affecting larval fish densities in Mississippi River floodplain ponds, Louisiana (U.S.A.). Regulated Rivers: Research and Management 6: 109-116.

Sabo, M.J., and D.J. Orth. 1994. Temporal variation in microhabitat use by age-0 smallmouth bass in the North Anna River, Virginia. Transactions of the American Fisheries Society 123: 733-746.

Sabo, M.J., D.J. Orth, and E.J. Pert. 1996. Effect of stream microhabitat characteristics on rate of net energy gain by juvenile smallmouth bass, *Micropterus dolomieui*. Environmental Biology of Fishes 46: 393-403.

Saffel, P.D., and D.L. Scarnecchia. 1995. Habitat use by juvenile bull trout in belt-series geology watersheds of northern Idaho. Northwest Science 69: 304-317.

Sagar, P.M. 1986. The effects of floods on the invertebrate fauna of a large, unstable braided river. New Zealand Journal of Marine and Freshwater Research 20: 37-46.

Sagnes, P., J.-Y. Champagne, and R. Morel. 2000. Shifts in drag and swimming potential during grayling ontogenesis: relations with habitat use. Journal of Fish Biology 57: 52-68.

Sagnes, P. P. Gaudin, and B. Statzner. 1997. Shifts in morphometrics and their relation to hydrodynamic potential and habitat use during grayling ontogenesis. Journal of Fish Biology 50: 846-858.

Sahin, V., and M.J. Hall. 1996. The effects of afforestation on water yields. J. Hydrol. 178: 293-309.

Saito, T. 2000. Natural production of chum salmon in the Horonai stream: spatial segregation of redd formation between chum salmon and other salmonids. Bulletin of the National Salmon Resources Center 3: 15-24.

Sakaris, P.C., and E.R. Irwin. 2010. Tuning stochastic matrix models with hydrologic data to predict the population dynamics of a riverine fish. Ecological Applications 20: 483-496.

Salas, A.K., and E.B. Snyder. 2010. Diel fish habitat selection in a tributary stream. The American Midland Naturalist 163: 3343.

Sale, M.J., E.D. Brill, Jr., and E.E. Herricks. 1982. An approach to optimizing reservoir operations for downstream aquatic resources. Water Res. Research 18: 705-712.

Sale, M.J., S.F. Railsback, and E.E. Herricks. 1982. Frequency analysis of aquatic habitat: a procedure for determining instream flow needs. Pp. 340-346 in: N.B. Armantrout (ed.) Acquisition and utilization of aquatic habitat inventory information. Proceedings of a symposium, Portland, Oregon. American Fisheries Society, Western Division, Bethesda.

Salen-Picard, C., A.M. Darnaude, D. Arlhac, and M.L. Harmelin-Viven. 2002. Fluctuations of macrobenthic populations: a link between climate-driven river run-off and sole fishery yields in the Gulf of Lions. Oecologia (Berl.) 133 (3): 380-388. Doi: 10.1007/s00442-002-1032-3.

Salinger, D.H., and J.J. Anderson. 2006. Effects of temperature and flow on adult salmon migration swim speed and delay. Transactions of the American Fisheries Society 135 (1): 188-199. Doi: 10.1577/T04-181.1.

Salmon, A., and H. Green. 1983. Environmental determinants of unionid clam distribution in the Middle Thames River, Ontario. Can. J. Zool. 61: 832-838.

Salo, J., R. Kalliola, I. Hakkinen, Y. Makinen, P. Niemela, M. Puhakka, and P.D. Coley. 1986. River dynamics and the diversity of Amazon lowland forest. Nature 322: 254-258.

Saltveit, S.J., T. Bremnes, and O.R. Lindas. 1995. Effect of sudden increases in discharge in a large river on newly emerged Atlantic salmon (*Salmo salar*) and brown trout (*S. trutta*) fry. Ecology of Freshwater Fish 4: 126-136.

Saltveit, S.J., J.H. Halleraker, J.V. Arnekleiv, and A. Harby. 2001. Field experiments on stranding in juvenile Atlantic salmon (*Salmo salar*) and brown trout (*Salmo trutta*) during rapid flow decreases caused by hydropeaking. Regulated Rivers: Research and Management 17: 609-622. Doi:10.1002/rrr.652.

Sambrook, H.T., and I.G. Cowx. 2000. Wimbleball pumped storage scheme: integration of water resource management, engineering design and operational control to compliment the needs of the salmonid fisheries of the River Exe, UK. Pages 212-223 in: I.G. Cowx, editor. Management and Ecology of River Fisheries. Blackwell Science, Oxford.

Sammons, S.M. 2015. First evidence of potadromy and partial migration in black basses: shoal bass *Micropterus catgaractae* (Actinopterygii, Centrarchidae) in the upper Flint River, USA. Hydrobiologia 751: 135-146.

Sammons, S.M., P.W. Bettoli, and V.A. Grear. 2001. Early life history characteristics of age-0 white crappies in response to hydrology and zooplankton densities in Normandy Reservoir, Tennessee. Transactions of the American Fisheries Society 130: 442-449.

Sammons, S.M., and M.J. Maceina. 2009. Effects of river flows on growth of redbreast sunfish *Lepomis auritus* (Centrarchidae) in Georgia rivers. Journal of Fish Biology 74: 1580-1593.

Samways, K.M., P.R. Leavitt, P. Magnan, M.A, Rodriquez, and P.R. Peres-Neto. 2015. Convergent polymorphism between stream and lake habitats: the case of brook char. Canadian Journal of Fisheries and Aquatic Sciences 72 (9): 1406-1414. Doi: 10.1139/cjfas-2015-0116.

Sanborn, S.C., and B.P. Bledsoe. 2005. Predicting streamflow regime metrics for ungauged streams in Colorado, Washington, and Oregon. Journal of Hydrology 325: 241-261.

Sanches, P.V., K. Nakatani, A. Bialetzki, G. Baumgartner, L.C. Gomes, and E.A. Luiz. 2006. Flow regulation by dams affecting ichthyoplankton: the case of Porto Primavera dam, Parana River, Brazil. River Research and Applications 22: 555-565.

Sanderson, J.S., N. Rowan, T. Wilding, B.P. Bledsoe, W.J. Miller, and N.L. Poff. 2011. Getting to scale with environmental flow assessment: the watershed flow evaluation tool. River Research and Applications 28: 1369-1377. Doi: 10.1002/rra.1542.

Sand-Jensen, K. N. Friberg, and J. Murphy. 2006. Running Waters: Historical Development and Restoration of Lowland Danish streams. National Environmental Research Institute, Denmark.

Sandheinrich, M.B., and G.J. Atchison. 1986. Fish associated with dikes, revetments, and abandoned channels in the middle Missouri River. Proceedings of the Iowa Academy of Science 93: 188-191.

Sandin, L., and P.F.M. Verdonschot. 2006. Stream and river typologies: major results and conclusions from the STAR project. Hydrobiologia 566: 33-37.

Sando, S.K. 1981. The spawning and rearing habitats of rainbow trout and brown trout in two rivers in Montana. M.S. thesis, Montana State University.

Sankey, J.B., B.E. Ralston, P.E. Grams, et al. 2015. Riparian vegetation, Colorado River, and climate: Five decades of spatiotemporal dynamics in the Grand Canyon with river regulation. Journal of Geophysical Research: Biogeosciences 120: 1532-1547.

Santhi, C., P.M. Allen, R.S. Muttiah, J.G. Arnold, and P. Tuppad. 2008. Regional estimation of base flow for the conterminous United States by hydrologic landscape regions. Journal of Hydrology 351: 139-153. Doi:10.1016/j.jhydrol.2007.12.018

Santos, A.N., and R.D. Stevenson. 2011. Comparison of macroinvertebrate diversity and community structure among perennial and non-perennial headwater streams. Northeast Nat. 18 (1): 7-26.

Santos, J.M., F.N. Godinho, and M.T. Ferreira. 2004. Microhabitat use by Iberian nase *Chondrostoma polylepis* and Iberian chub *Squalius carolitertii* in three small streams, north-west Portugal. Ecology of Freshwater Fish 13: 223-230.

Santos, R.O., and D. Lirman. 2012. Using habitat suitability models to predict changes in seagrass distribution caused by water management practices. Canadian Journal of Fisheries and Aquatic Sciences 69 (8): 1380-1388. Doi: 10.1139/f2012-018.

Santoul, F., J. Figuerola, S. Mastorillo, and R. Cereghino. 2005. Patterns of rare fish and aquatic insects in a southwestern French river catchment in relation to simple physical variables. Ecography 28: 307-314.

Santoul, F., N. Mengin, R. Cereghino, J. Figuerola, and S. Mastorillo. 2005. Environmental factors influencing the regional distribution and local density of a small benthic fish: the stoneloach *Barbatula barbatula*. Hydrobiologia 544: 347-355.

Saraeva, E., and T.B. Hardy. 2009. Prediction of fisheries physical habitat values based on hydraulic geometry and frequency distributions of depth and velocity. Int. J. River Basin Manag. 7: 31-41. Doi: 10.1080/15715124.2009.9635368.

Saraeva, E., and T.B. Hardy. 2009. Extrapolation of site-specific weighted usable area curves and instream flow requirements to unmeasured streams within the Nooksack watershed in support of strategic watershed planning. International Journal of River Basin Management 7: 91-103. Doi: 10.1080/15715124.2009.9635372.

Saraniemi, M., A. Huusko, and H. Tahkola. 2008. Spawning migration and habitat use of adfluvial brown trout, *Salmo trutta*, in a strongly seasonal boreal river. Boreal Env. Res. 13: 121-132.

Sarriquet, P.E., P. Bordenave, and P. Marmonier. 2007. Effect of bottom sediment restoration on interstitial habitat characteristics and benthic macroinvertebrate assemblages in a headwater stream. River Research and Applications 23: 815-828.

Satterthwaite, W.H., M.P. Beakes, E.M. Collins, D.R. Swank, J.E. Merz, R.G. Titus, S.M. Sogard, and M. Mangel. 2009. Steelhead life history on California’s central coast: insights from a state-dependent model. Transactions of the American Fisheries Society 138 (3): 532-548.

Scarabotti, P.A., J.A. Lopez, and M. Pouilly. 2011. Flood pulse and the dynamics of fish assemblage structure from Neotropical floodplain lakes. Ecology of Freshwater Fish 20: 605-618. Doi: 1111/j.1600-0633.2011.00510.x

Scarnecchia, D.L. 1981. Effects of streamflow and upwelling on yield of wild coho salmon (*Oncorhynchus kisutch*) in Oregon. Canadian Journal of Fisheries and Aquatic Sciences 38: 471-475. Doi: 10.1139/f81-066.

Scarnecchia, D.L. 1984. Climatic and oceanic variation affecting yield of Icelandic stocks of Atlantic salmon (*Salmo salar*). Canadian Journal of Fisheries and Aquatic Sciences 41: 1456-1468.

Scarnecchia, D.L., and E.P. Bergersen. 1987. Trout production and standing crop in Colorado’s small streams, as related to environmental features. North American Journal of Fisheries Management 7 (3): 315‑330.

Scarnecchia, D.L., L.A. Isaksson, and S.E. White. 1989. Oceanic and riverine influences on variation in yield among Icelandic stocks of Atlantic salmon. Transactions of the American Fisheries Society 118: 482-494.

Scarnecchia, D.L., and B.B. Roper. 2000. Large-scale, differential summer habitat use of three anadromous salmonids in a large river basin in Oregon, USA. Fish. Manag. Ecol. 7: 197-209.

Scatena, F.N. 2004. A survey of methods for setting minimum instream flow standards in the Caribbean basin. River Research and Applications 20: 127-135. Doi: 10.1002/rra.738

Scatena, F.N., and S.L. Johnson. 2001. Instream-flow analysis for the Luquillo Experimental Forest, Puerto Rico: Methods and analysis. U.S. Forest Service and International Institute of Tropical Forestry, Rio Piedras, Puerto Rico. USDA Forest Service General Technical Report IITF-GTR-11.

Schaefer, J. 2001. Riffles as barriers to interpool movement by three cyprinids (*Notropis boops*, *Campostoma anomalum*, and *Cyprinella venusta*). Freshw. Biol. 46: 379-388. Doi: 10.1046/j.1365-2427.2001.00685.x.

Schaefer, J.F., W.L. Lutterschmidt, and L.G. Hill. 1999. Physiological performance and stream microhabitat use by the centrarchids *Lepomis megalotis* and *Lepomis macrochirus*. Environmental Biology of Fishes 54: 303-312.

Schaffter, R.G. 1997. White sturgeon spawning migrations and location of spawning habitat in the Sacramento River, California. California Fish and Game 83: 1-20.

Schaller, H.A., C.E. Petrosky, and E.S. Tinus. 2014. Evaluating river management during seaward migration to recover Columbia River stream-type Chinook salmon considering the variation in marine conditions. Canadian Journal of Fisheries and Aquatic Sciences 71 (2): 259-271. Doi: 10.1139/cjfas=2013-0226.

Schamberger, M., A.H. Farmer, and J.W. Terrell. 1982. Habitat suitability index models: introduction. U.S. Fish and Wildlife Service Report FWS/OBS-82/10.

Scheerer, A.E., and N. Santangelo. 2014. Assessment of reproductive requirements in habitat conservation efforts: a case study on blackside dace (*Chrosomus cumberlandensis*) a federally listed threatened species. Canadian Journal of Fisheries and Aquatic Sciences 71 (3): 408-415. Doi: 10.1139/cjfas-2013-0404.

Scheerer, P.D. 2002. Implications of floodplain isolation and connectivity on the conservation of an endangered minnow, Oregon chub, in the Willamette River, Oregon. Transactions of the American Fisheries Society 131 (6): 1070-1080.

Scheidegger, K.L., and M.B. Bain. 1995. Larval fish distribution and macrohabitat use in free-flowing and regulated rivers. Copeia 1995: 125-135.

Schemel, L.E., T.R. Sommer, A.B. Muller-Solger, and W.C. Harrell. 2004. Hydrologic variability, water chemistry, and phytoplankton biomass in a large floodplain of the Sacramento River, CA, USA. Hydrobiologia 513 (1-3): 129-139.

Scherer, E., R.E. McNicol, and E.J. Murkin. 1984. Observations on habitat selection and partitioning by brook charr, *Salvelinus fontinalis* (Mitchill), in the South Duck River, a Manitoba woodland stream. Canadian Manuscript Report of Fisheries and Aquatic Sciences 1788.

Scheurer, J.A., K.D. Fausch, and K.R. Bestgen. 2003. Multiscale processes regulate brassy minnow persistence in a Great Plains river. Transactions of the American Fisheries Society 132 (5): 840-855. Doi:10.1577/T02-037.

Scheuerell, M.D., R. Hillborn, M.H. Ruckelshaus, K.K. Bartz, K.M. Lagueux, A.D. Haas, and K. Rawson. 2006. The shiraz model: a tool for incorporating anthropogenic effects and fish-habitat relationships in conservation planning. Canadian Journal of Fisheries and Aquatic Sciences 63: 1596-1607. Doi: 10.1139/f06-056.

Scheuerell, M.D., and J.G. Williams. 2005. Forecasting climate-induced changes in the survival of Snake River spring/summer Chinook salmon. Fisheries Oceanography 14: 1-10.

Scheuerell, M.D., R.W. Zabel, and B.P. Sandford. 2009. Relating juvenile migration timing and survival to adulthood in two species of threatened Pacific salmon (*Oncorhynchus* spp.). Journal of Applied Ecology 46: 983-990.

Schiemer, F. 2000. Fish as indicators for the assessment of the ecological integrity of large rivers. Hydrobiologia 422/423: 271-278.

Schiemer, F., H. Keckeis, and E. Kamler. 2003. The early life history stages of riverine fish: ecophysiological and environmental bottlenecks. Comparative Biochemistry and Physiology Part A 133: 439-449.

Schiemer, F., H. Keckeis, H. Winkler, and L. Flore. 2001. Large rivers: the relevance of ecotonal structure and hydrological properties for the fish fauna. Archiv fur Hydrobiologie, Supplement 135, Large Rivers 12: 487-508.

Schindler, D.E., and L.A. Rogers. 2009. Responses of salmon populations to climate variations in freshwater ecosystems. Pp. 1127-1142 in: C.C. Krueger, and C.E. Zimmerman (eds.) Pacific salmon: ecology and management of western Alaska’s populations. American Fisheries Society Symposium 70, Bethesda, Maryland.

Schlacher, T.A., and T.H. Wooldridge. 1996. Ecological responses in freshwater supply and quality in South Africa’s estuaries: Lessons for management and conservation. Journal of Coastal Conservation 2: 115-130.

Schlosser, I.J. 1982. Fish community structure and function along two habitat gradients in a headwater stream. Ecological Monographs 52: 395-414.

Schlosser, I.J. 1985. Flow regime, juvenile abundance, and the assemblage structure of stream fishes. Ecology 66 (5): 1484-1490. Doi: 10.2307/1938001.

Schlosser, I.J. 1987. The role of predation in age- and size-related habitat use by stream fishes. Ecology 68 (3): 651-659. Doi: 10.2307/1938470.

Schlosser, I.J. 1987. A conceptual framework for fish communities in small warmwater streams. Pp. 17-24 in: W.J. Matthews and D.C. Heins (eds.) Community and evolutionary ecology of North American freshwater fishes. Oklahoma University Press.

Schlosser, I.J. 1988. Predation risk and habitat selection by two size-classes of a stream cyprinid: experimental test of a hypothesis. Oikos 52: 36-40.

Schlosser, I.J. 1990. Environmental variation, life history attributes, and community structure in stream fishes: implications for environmental management and assessment. Environmental Management 14 (5): 621-628. Doi: 10.1007/BF02394713

Schlosser, I.J. 1992. Effects of life-history attributes and stream discharge on filter-feeder colonization. Journal of the North American Benthological Society 11: 366-376.

Schlosser, I.J. 1995. Dispersal, boundary processes, and trophic-level interactions in streams adjacent to beaver ponds. Ecology 76 (3): 907-925.

Schlosser, I.J. 1995. Critical landscape attributes that influence fish population dynamics in headwater streams. Hydrobiologia 303: 71-81.

Schlosser, I.J., and P.J. Angermeier. 1990. The influence of environmental variability, resource abundance, and predation on juvenile cyprinid and centrarchid fishes. Pol. Arch. Hydrobiol. 37: 265-284.

Schlosser, I.J., and K.K. Ebel. 1989. Effects of flow regime and cyprinid predation on a headwater stream. Ecological Monographs 59: 41-57. Doi: 10.2307/2937291.

Schlosser, I.J., J.D. Johnson, W.L. Knotek, and M. Lapinska. 2000. Climate variability and size-structured interactions among juvenile fish along a lake-stream gradient. Ecology 81 (4): 1046-1057.

Schlosser, I.J., and L.W. Kallemeyn. 2000. Spatial variation in fish assemblages across a beaver-influenced successional landscape. Ecology 81: 1371-1382.

Schlosser, I.J., and L.A. Toth. 1984. Niche relationships and population ecology of rainbow (*Etheostoma caeruleum*) and fantail (*E. flabellare*) darters in a temporally variable environment. Oikos 42: 229-238.

Schludermann, E., M. Tritthart, P. Humphries, and H. Keckels. 2012. Dispersal and retention of larval fish in a potential nursery habitat of a large temperate river: an experimental study. Canadian Journal of Fisheries and Aquatic Sciences 69 (8): 1302-1315. Doi: 10.1139/F2012-061

Schmetterling, D.A. 2000. Redd characteristics of fluvial westslope cutthroat trout in four tributaries to the Blackfoot River, Montana. North American Journal of Fisheries Management 20 (3): 776-783.

Schmetterling, D.A. 2001. Seasonal movements of fluvial westslope cutthroat trout in the Blackfoot River drainage, Montana. North American Journal of Fisheries Management 21 (3): 507-520. Doi: 10.1577/1548-8675(2001)021<0507 Doi: 10.1890/1051-0761(2003)013[0206:ESWMMR]2.0.CO;2:SMOFWC>2.0.CO;2

Schmidt, J.C. 1999. Summary and synthesis of geomorphic studies conducted during the 1996 controlled flood in Grand Canyon. Pages 329-341 in: R.H. Webb, J.C. Schmidt, G.R. Marzolf, and R.A. Valdez, editors, The Controlled Flood in Grand Canyon. American Geophysical Union Geophysical Monograph 110, Washington, D.C., USA.

Schmidt, J.C., E.D. Andrews, D.L. Wegner, D.T. Patten, G.R. Marzolf, et al. 1999. Origins of the 1996 controlled flood in Grand Canyon. Pp. 23-36 in: R.H. Webb, J.C. Schmidt, G.R. Marzolf, and R.A. Valdez, editors, The Controlled Flood in Grand Canyon. AGU Geophys. Monogr. 110.

Schmidt, J.C., R.A. Parnell, P.E. Grams, J.E. Hazel, M.A. Kaplinski, L.E. Stevens, and T.L. Hoffnagle. 2001. The 1996 controlled flood in Grand Canyon: flow, sediment transport, and geomorphic change. Ecological Applications 11 (3): 657-671.

Schmidt, J.C., and D.M. Rubin. 1995. Regulated streamflow, fine-grained deposits, and effective discharge in canyons with abundant debris fans. Pages 177-195 in: J.E. Costa, A.J. Miller, K.W. Potter, and P.R. Wilcock, editors. Natural and anthropogenic influences in fluvial geomorphology. American Geophysical Union Geophysical Monograph 89. Washington, D.C., USA.

Schmidt, J.C., R.H. Webb, R.A. Valdez, G.R. Marzolf, and L.E. Stevens. 1998. Science and values in river restoration in the Grand Canyon. BioScience 48: 735-747.

Schmidt, L.J., and J.P. Potyondy. 2004. Quantifying channel maintenance instream flows: an approach for gravel-bed streams in the western United States. General Technical Report RMRS-GTR-128. U.S. Department of Agriculture Forest Service, Rocky Mountain Research Station, Fort Collins, CO, USA.

Schmutz, S. 2004. Development evaluation and implementation of a standardised fish-based assessment method for the ecological status of European rivers (FAME): A contribution to the Water Framework Directive. Report to European Commission. <http://www.fame.boku.ac.at>.

Schneider, C., C.L.R. Laize, M.C. Acreman, and M. Florke. 2013. How will climate change modify river flow regimes in Europe? Hydrology and Earth System Sciences 17: 325-339.

Scholz, O., B. Gawne, B. Ebner, and I. Ellis. 2002. The effects of drying and re-flooding on nutrient availability in ephemeral deflation basin lakes in western New South Wales, Australia. River Research and Applications 18 (2): 185-196.

Schrader, W.C. 1989. Trout mortality, movements, and habitat selection during winter in South Willow Creek, Montana. M.S. thesis, Montana State University, Bozeman. 89 pp.

Schramm, H.L., Jr., and M.A. Eggleton. 2006. Applicability of the flood-pulse concept to temperate floodplain river ecosystems: thermal and temporal components. River Research and Application 22: 543-553. Doi: 10.1002/rra.921.

Schrank, A.J., and F.J. Rahel. 2006. Factors influencing summer movement patterns of Bonneville cutthroat trout (*Oncorhynchus clarkii utah*). Canadian Journal of Fisheries and Aquatic Sciences 63 (3): 660-669.

Schrank, S.J., C.S. Guy, M.R. Whiles, and B.L. Brock. 2001. Influence of instream and landscape-level factors on the distribution of Topeka shiners *Notropis topeka* in Kansas streams. Copeia 2001: 413-421.

Schroeder, W.W. 1978. Riverine influence on estuaries: A case study, p. 347-364 in: M.L. Wiley (ed.), Estuarine Interactions. Academic Press, Inc., New York.

Schuett-Hames, D.E., N.P. Peterson, R. Conrad, and T.P. Quinn. 2000. Patterns of gravel scour and fill after spawning by chum salmon in a western Washington stream. North American Journal of Fisheries Management 20 (3): 610-617. Doi:10.1577/1548-8675(2000)020<0610:POGSAF>2.3.CO;2.

Schultz, A.A., O.E. Maughan, S.A. Bonar, and W.J. Matter. 2003. Effect of flooding on abundance of native and nonnative fishes downstream from a small impoundment. North American Journal of Fisheries Management 23 (2): 503-511.

Schumm, S.A. 1969. River metamorphosis. Am. Soc. Civil Engineers Proc., Journal Hydraulics Division 95 (HYI): 255-273.

Schumm, S.A. 1971. Fluvial geomorphology: channel adjustments and river metamorphosis. *In*: H.W. Shen (ed.), River Mechanics, Vol. 1, Fort Collins, CO 5.1-5.22

Schumm, S.A. 1977. The Fluvial System. Wiley-Interscience, New York.

Schuytema, G.S. 1982. A review of aquatic habitat assessment methods. Report EPA-600/3-82-002, Environmental Research Laboratory, US Environmental Protection Agency, Corvallis, Oregon.

Schwartz, J.S., and E.E. Herricks. 2005. Fish use of stage-specific fluvial habitat as refuge patches during a flood in a low-gradient Illinois stream. Canadian Journal of Fisheries and Aquatic Sciences 62: 1540-1552. Doi:10.1139/f05-060.

Schwartz, K.M., and A.R. Orme. 2005. Opening and closure of a seasonal river mouth: the Malibu estuary-barrier-lagoon system, California. Z. Geomorphol. Suppl. 141: 91-109.

Schwarz, H.E., J. Emel, W.J. Dickens, P. Rogers, and J. Thompson. 1990. Water quality and flows. Pages 253-270 in: B.L. Turner, W.C. Clark, R.W. Cates, J.F. Richards, J.T. Mathews, and W.B. Meyer (editors), Earth as Transformed by Human Action. Cambridge University Press, Cambridge, UK.

Schweizer, P.E., and H.I. Jager. 2011. Modeling regional variation in riverine fish biodiversity in the Arkansas-White-Red River basin. Transactions of the American Fisheries Society 140 (5): 1227-1239. Doi: 10.1080/00028487.2011.618354

Schweizer, S., M.E. Borsuk, I. Jowett, and P. Reichert. 2007. Predicting joint frequency distributions of depth and velocity for instream habitat assessment. River Res. Appl. 23: 110-119.

Scott, D., and C.S. Shirvell. 1987. A critique of the Instream Flow Incremental Methodology and observations on flow determination in New Zealand. Pages 27‑44 in J.F. Craig and J.B. Kemper, editors. Regulated Streams: Advances in Ecology. Plenum Press, New York and London. 431 pp.

Scott, J.M., P.J. Heglund, M.L. Morrison, J.B. Haufler, M.C. Raphail, W.A. Wall, and F.B. Samson (editors). 2002. Predicting species occurrences: issues of accuracy and scale. Island Press, Washington, D.C.

Scott, M.K., and D.D. Magoulick. 2008. Swimming performance of five warmwater stream fish species. Transactions of the American Fisheries Society 137 (1): 209-215.

Scott, M.L., and G.T. Auble. 2002. Conservation and restoration of semi-arid riparian forests: a case study from the upper Missouri River, Montana. Pp. 145-190 *in*: Flood pulsing in wetlands: restoring the natural hydrological balance. John Wiley & Sons, Inc., New Jersey.

Scott, M.L., G.T. Auble, and J.M. Friedman. 1997. Flood dependency of cottonwood establishment along the Missouri River, Montana, USA. Ecological Applications 7 (2): 677-690. http://www.mesc.usgs.gov/products/Publications/2851/2851.pdf.

Scott, M.L., G.T. Auble, J.M. Friedman, L.S. Ischinger, E.D. Eggleston, M.S. Wondzell, P.B. Shafroth, J.T. Back, and M.S. Jordan. 1993. Flow recommendations for maintaining riparian vegetation along the upper Missouri River, Montana. U.S. Geological Survey, Fort Collins, CO.

Scott, M.L., J.M. Friedman, and G.T. Auble. 1996. Fluvial processes and the establishment of bottomland trees. Geomorphology 14: 327-339.

Scott, M.L., G.C. Lines, and G.T. Auble. 2000. Channel incision and patterns of cottonwood stress and mortality along the Mojave River, California. Journal of Arid Environments 44: 399-414.

Scott, M.L., L.J. Martin, G.T. Auble, and C.A. Segelquist. 1991. Predicting the response of woody riparian vegetation to changes in instream flows through integrated monitoring of stream hydrology and riparian vegetation. P. 46 *in*: South Platte River resource management: Finding a balance. Conference proceedings of the Colorado Water Resources Research Institute, Info. Series 66.

Scott, M.L., P.B. Shafroth, and G.T. Auble. 1999. Responses of riparian cottonwoods to alluvial water table declines. Environmental Management 23 (3): 347-358.

Scott, M.L., P.B. Shafroth, G.T. Auble, and E.D. Eggleston. 1997. Flood dependency of cottonwood establishment along the Missouri River, Montana, USA. Ecological Applications 7: 677-690.

Scott, M.L., M.A. Wondzell, and G.T. Auble. 1993. Hydrograph characteristics relevant to the establishment and growth of western riparian vegetation. Pp. 237-246 in: H.J. Morrel-Soytoux, editor. Proceedings of the Thirteenth Annual American Geophysical Union Hydrology Days. Atherton, CA: Hydrology Days Publications.

Scott, M.T., and L.A. Nielsen. 1989. Young fish distribution in backwaters and main-channel borders of the Kanawha River, West Virginia. J. Fish Biol. 35: 21-27.

Scrimgeour, G.J., R.J. Davidson, and J.M. Davidson. 1988. Recovery of benthic macroinvertebrates and epilithic communities following a large flood, in an unstable, braided, New Zealand river. New Zealand Journal of Marine and Freshwater Research 22: 337-344. Doi: 10.1080/00288330.1988.9516306.

Scrivener, J.C., and M.J. Brownlee. 1989. Effect of forest harvesting on spawning gravel and incubation survival of chum (*Oncorhynchus keta*) and coho salmon (*O. kisutch*) in Carnation Creek, British Columbia. Canadian Journal of Fisheries and Aquatic Sciences 46: 681‑696.

Scrivener, J.C., and J.S. Macdonald. 1998. Interrelationships of streambed gravel, bedload transport, beaver activity and spawning sockeye salmon in Stuart-Takla tributaries, British Columbia, and possible impacts from forest harvesting. Pp. 267-282 in: M.K. Brewin and D.M.A. Monita, editors, Land Management Practices Affecting Aquatic Ecosystems. Can. For. Serv., Calgary, Alberta.

Scruton, D.A., K.D. Clarke, F.A. Bowdring, and C.J. Pennell. 1997. Winter habitat availability for salmonids in Newfoundland streams: a comparison between stream order and habitat type. Pages 425-439 in: S. Ismail, editor. Proceedings of the 9th workshop on river ice. Canadian Geophysical Union, Fredericton, New Brunswick.

Scruton, D.A., and R.J. Gibson. 1993. The development of habitat suitability curves for juvenile Atlantic salmon (*Salmo salar*) in riverine habitat in insular Newfoundland, Canada. Canadian Special Publication of Fisheries and Aquatic Sciences 118: 149-161.

Scruton, D.A., L.M.N. Ollerhead, K.D. Clarke, C. Pennell, K. Alfredsen, A. Harby, and D. Kelley. 2003. The behavioural response of juvenile Atlantic salmon (*Salmo salar*) and brook trout (*Salvelinus fontinalis*) to experimental hydropeaking on a Newfoundland (Canada) river. River Research and Applications 19: 577-587. Doi:10.1002/rra.733.

Scruton, D.A., C.J. Pennell, M.J. Robertson, L.M.N. Ollerhead, K.D. Clarke, K. Alfredsen, A. Harby, and R.S. McKinley. 2005. Seasonal response of juvenile Atlantic salmon to experimental hydropeaking power generation in Newfoundland, Canada. North American Journal of Fisheries Management 5: 277-282.

Scullion, J., C.A. Parish, M. Morgan, and R.W. Edwards. 1982. Comparison of benthic macroinvertebrate fauna and substratum in riffles and pools in the impounded River Elan and the unregulated River Wye, mid-Wales. Freshw. Biol. 12: 579-595.

Seabloom, E.W., A.G. Van Der Valk, and K.A. Moloney. 1998. The role of water depth and soil temperature in determining initial composition of prairie wetland coenoclines. Plant Ecology 138: 203-216.

Seamons, T.R., L. Hauser, K.A. Naish, and T.P. Quinn. 2012, Can interbreeding of wild and artificially propagated animals be prevented by using broodstock selected for a divergent life history? Evolutionary Applications doi: 10.1111/j.1752-4571.2012.00247.x

Sear, D.A. 1993. Fine sediment infiltration into gravel spawning beds within a regulated river experiencing floods: ecological implications for salmonids. Regulated Rivers: Research and Management 8: 373-390.

Sear, D.A. 1995. Morphological and sedimentological changes in a gravel-bed river following 12 years of flow regulation for hydropower. Regulated Rivers: Research and Management 10: 247-264.

Sear, D.A., and P. DeVries, editors. 2008. Salmonid spawning habitat in rivers: physical controls, biological responses, and approaches to remediation. American Fisheries Society, Symposium 65, Bethesda, Maryland.

Sechler, D.R., Q.E. Phelps, S.J. Tripp, J.E. Garvey, D.P. Herzog, D.E. Ostendorf, J.W. Ridings, J.W. Crites. And R.A. Hrabik. 2012. Habitat for age-0 shovelnose sturgeon and pallid sturgeon in a large river: interaction among abiotic factors, food, and energy intake. North American Journal of Fisheries and Aquatic Science 32 (1): 24-31. Doi: 10.1080/02755947.2012.655848

Sechnick, C.W., R.F. Carline, R.A. Stein, and E.T. Rankin. 1986. Habitat selection by smallmouth bass in response to physical characteristics of a simulated stream. Transactions of the American Fisheries Society 115 (2): 314-321.

Secor, D.H., and W.E. Morrison. 2001. Movement and habitat use by yellow phase American eels in estuaries. Page 43-45 in: K. Aida, K. Tsukamoto, and K. Yamauchi, editors. Proceedings of the International Symposium ‘Advances in Eel Biology’, 28-30 September, 2001, Tokyo, Japan.

Secretan, Y., M. Leclerc, S. Duchesne, and M. Heniche. 2001. Une methodologie de modelisation numerique de terrain pour la simulation hydrodynamique bidimensionnelle. Revue de Sciences de l’eau 14 (2): 187-212.

Seegrist, D.W., and R. Gard. 1972. Effects of floods on trout in Sagehen Creek, California. Transactions of the American Fisheries Society 101: 478-482. Doi:10.1577/1548-8659(1972)101<478:EOFOTI>2.0.CO;2.

Seelbach, P.W. 1993. Population biology of steelhead in a stable-flow, low-gradient tributary of Lake Michigan. Transactions of the American Fisheries Society 122: 179-198.

Seelbach, P.W., L.C. Hinz, M.J. Wiley, and A.R. Cooper. 2010. Use of multiple linear regression to estimate flow regimes for all rivers across Illinois, Michigan, and Wisconsin. Michigan Department of Natural Resources and Environment, Fisheries Research Report 2095, Ann Arbor.

Seelbach, P.W., M.J. Wiley, J.C. Kotanchik, and M.E. Baker. 1997. A Landscape-Based Ecological Classification for River Valley Segments in Lower Michigan (MI-VSEC Version 1.0). Fisheries research Report 2036. Michigan Department of Natural Resources, Ann Arbor, MI.

Seesholtz, A.M., M.J. Manuel, and J.P. Van EEnennaam. 2015. First documented spawning and associated habitat conditions for green sturgeon in the Feather River, California. Environmental Biology of Fishes 98: 905-912.

Segelquist, C.A., M.L. Scott, and G.T. Auble. 1993. Establishment of *Populus deltoides* under simulated alluvial groundwater declines. American Midland Naturalist 130: 274-285.

Segura, C., J.H. McCutchan, W.M. Lewis, and J. Pitlick. 2011. The influence of channel bed disturbance on algal biomass in a Colorado mountain stream. Ecohydrology 4: 411-421. Doi: 10.1002/eco.142

Seiler, D., S. Neuhauser, and L. Kishimoto. 2003. 2002 Skagit River wild 0+ Chinook production evaluation annual report. Washington Department of Fish and Wildlife, Rep. FPA 03-11.

Seiler, S.M., and E.R. Keeley. 2007. Morphological and swimming stamina differences between Yellowstone cutthroat trout (*Oncorhynchus clarki bouvieri*), rainbow trout (*O. mykiss*) and their hybrids. Canadian Journal of Fisheries and Aquatic Sciences 64: 127-135.

Selch, T.M., C.W. Hoagstrom, E.J. Weimer, J.P. Duehr, and S.R. Chipps. 2007. Influence of fluctuating water levels on mercury concentrations in adult walleye. Bulletin of Environmental Contamination and Toxicology 79: 36-40.

Sellheim, K.L., C.B. Watry, B. Rook, S.C. Zeug, J. Hannon, J. Zimmerman, K. Dove, and J.E. Merz. In press (2015). Juvenile salmonid utilization of floodplain rearing habitat after gravel augmentation in a regulated river. River Research and Applications doi: 10.1002/rra.2876.

Semenchenko, N.N. 1988. Mechanisms of innate population control in sockeye salmon, *Oncorhynchus nerka*. Journal of Ichthyology 28: 149-157.

Sempeski, P., and P. Gaudin. 1995. Habitat selection by grayling. II. Preliminary results on larval and juvenile daytime habitats. Journal of Fish Biology 47: 345-349.

Sempeski, P., and P. Gaudin. 1995. Construction of habitat preference curves for spawning sites and young stages of grayling (*Thymallus thymallus*, L.). Bull. Fr. Peche Piscic. 337/338/339: 277-282.

Sempeski, P., and P. Gaudin. 1995. Habitat selection by grayling - I. Spawning habitats. J. Fish Biol. 47:256-265.

Sengupta, A., S.K. Adams, B.P. Bledsoe, E.D. Stein, K.S. McCune, and R.D. Mazor. 2018. Tools for managing hydrologic alteration on a regional scale: Estimating changes in flow characteristics at ungauged sites. Freshwater Biology 63 (8): 769-785. Doi: 10.1111/fwb.13074

Serafy, J.E., K.C. Lindeman, T.E. Hopkins, and J.S. Ault. 1997. Effects of freshwater canal discharge on fish assemblages in a subtropical bay: Field and laboratory observations. Marine Ecology Progress Series 160: 161-172.

Serchuk, F.M., C.J. Schmidt, and B. Floyd. 1980. Rainbow trout: a population simulation based on individual responses to varying environmental and demographic parameters. Environmental Biology of Fishes 5: 15-26.

Sexauer, H.M., and P.W. James. 1997. A comparison of the microhabitat use by juvenile bull trout in four streams located in the eastern Cascades, Washington. Pp. 361-370 in: W.C. Mackay, M.K. Brewin, and M. Monita, eds. Trout Unlimited Canada. Bull Trout Task Force, Calgary, Alberta.

Shaff, C.D. 2006. Incorporation of salmon derived nutrients into Oregon coastal streams and the role of physical habitat. Master’s thesis. Oregon State University, Corvallis.

Shafroth, P.B. 2003. Natural flooding and dams: effects on riparian systems. Southwest Hydrology 2 (March/April): 20-21, 27.

Shafroth, P.B., G.T. Auble, and M.L. Scott. 1995. Germination and establishment of the native plains cottonwood (*Populus deltoides* Marshall subsp. *monilifera*) and the exotic Russian-olive (*Elaeagnus angustifolia* L.). Conservation Biology 9 (5): 1169-1175.

Shafroth, P.B., G.T. Auble, J.C. Stromberg, and D.T. Patten. 1998. Establishment of woody riparian vegetation in relation to annual patterns of streamflow, Bill Williams River, Arizona. Wetlands 18: 577-590. Doi: 10.1007/BF03161674.

Shafroth, P.B., and V.B. Beauchamp. 2006. Defining ecosystem flow requirements for the Bill Williams River. U.S. Geological Survey Open-File Report 2006-1314.

Shafroth, P.B., J.M. Friedman, G.T. Auble, and M.L. Scott. 2004. Vegetation responses to dam removal. Arid Ecosystems 10 (21): 95-105.

Shafroth, P.B., J.M. Friedman, G.T. Auble, M.L. Scott, and J.H. Braatne. 2002. Potential responses of riparian vegetation to dam removal. BioScience 52: 703-712.

Shafroth, P.B., J.C. Stromberg, and D.T. Patten. 2000. Woody riparian vegetation response to different alluvial water table regimes. Western North American Naturalist 60: 66-76.

Shafroth, P.B., A.C. Wilcox, D.A. Lytle, J.T. Hickey, D.C. Andersen, V.B. Beauchamp, A. Hautzinger, L.E. McMullen, and A. Warner. 2010. Ecosystem effects of environmental flows: modeling and experimental floods in a dryland river. Freshwater Biology 55: 68-85. doi:10.1111/j.1365-2427.2009.02271.x.

Shaikh, M., D. Green, and H. Cross. 2001. A remote sensing approach to determine the environmental flows for wetlands of the Lower Darling River, New South Wales, Australia. International Journal of Remote Sensing 23: 1737-1751.

Shankman, D. 1993. Channel migration and vegetation patterns in the southeastern coastal plain. Conservation Biology 7: 176-183.

Shannon, J.P., D.S. Blinn, T. McKinney, E.P. Benenati, K.P. Wilson, and C. O’Brien. 2001. Aquatic food base response to the 1996 test flood below Glen Canyon Dam, Colorado River, Arizona. Ecological Applications 11: 672-685.

Shapovalov, L., and A.C. Taft. 1954. The life histories of the steelhead rainbow trout (*Salmo gairdneri gairdneri*) and silver salmon (*Oncorhynchus kisutch*) with special reference to Waddell Creek, California, and recommendations regarding their management. California Department of Fish and Game, Fisheries Bulletin 98, 375 pp.

Sharma, R., and R. Hilborn. 2001. Empirical relationships between watershed characteristics and coho salmon (*Oncorhynchus kisutch*) smolt abundance in 14 western Washington streams. Canadian Journal of Fisheries and Aquatic Sciences 58 (7): 1453‑1463. Doi:10.1139/cjfas-58-7-1453.

Sharpe, C.P. 2011. Spawning and recruitment ecology of golden perch (*Macquaria ambigua* Richardson 1845) in the Murray and Darling Rivers. Ph.D. dissertation, Griffith University, Brisbane.

Shaw, A., and J.S. Richardson. 2001. Direct and indirect effects of sediment pulse duration on stream invertebrate assemblages and rainbow trout (*Oncorhynchus mykiss*) growth and survival. Canadian Journal of Fisheries and Aquatic Sciences 58 (11): 2213-2221. Doi:10.1139/cjfas-58-11-2213.

Shaw, J., and D.J. Cooper. 2008. Watershed and stream reach characteristics controlling riparian vegetation in semiarid ephemeral stream networks. Journal of Hydrology 350: 68-82.

Shea, C.P., P.W. Bettoli, K.M. Potoka, C.F. Saylor, and P.W. Shute. 2015. Use of dynamic occupancy models to assess the response of darters (Teleostei: Percidae) to varying hydrothermal conditions in a southeastern United States tailwater. River Res. Appl. 31: 676-691.

Shea, C.P., and J.T. Peterson. 2007. An evaluation of the relative influence of habitat complexity and habitat stability on fish assemblage structure in unregulated and regulated reaches of a large southeastern warmwater stream. Transactions of the American Fisheries Society 136 (4): 943-958. Doi:10.1577/T06-165.1.

Shea, C.P., J.T. Peterson, M.J. Conroy, and J.M. Wisniewski. 2013. Evaluating the influence of land use, drought and reach isolation on the occurrence of freshwater mussel species in the lower Flint River Basin, Georgia (USA). Freshwater Biology 58: 382-395. Doi: 10.1111/fwb.12066.

Sheaffer, W.A., and J.G. Nickum. 1986. Backwater areas as nursery habitats for fishes in Pool 13 of the Upper Mississippi River. Hydrobiologia 136: 131-140.

Sheaffer, W.A., and J.G. Nickum. 1986. Relative abundance of macroinvertebrates found in habitats associated with backwater area confluences in Pool 13 of the Upper Mississippi River. Hydrobiologia 136: 131-140.

Shearer, K., J. Hayes, I. Jowett, and D. Olsen. 2015. Habitat suitability curves for benthic macroinvertebrates from a small New Zealand river. New Zealand Journal of Marine and Freshwater Research 49: 178-191.

Sheffield, J., and E.F. Wood. 2008. Projected changes in drought occurrence under future global warming from multi-model, multi-scenario, IPCC AR4 simulations. Clim. Dynam. 31: 79-105.

Sheldon, A.L. 1967. Species diversity and longitudinal succession in stream fishes. Ecology 49: 193-198.

Sheldon, A.L., and G.K. Meffe. 1995. Path analysis of collective properties and habitat relationships of fish assemblages in coastal plain streams. Canadian Journal of Fisheries and Aquatic Sciences 52 (1): 23‑33.

Sheldon, F. 2005. Incorporating natural variability into the assessment of ecological health in Australian dryland rivers. Hydrobiologia 552: 45-56.

Sheldon, F., A.J. Boulton, and J.T. Puckridge. 2002. Conservation value of variable connectivity: aquatic invertebrate assemblages of channel and floodplain assemblages of channel and floodplain habitats of a central Australian arid-zone river, Cooper Creek. Biological Conservation 103: 13-31.

Sheldon, F.,S.E. Bunn, J.M. Hughes, A.H. Arthington, S.R. Balcombe, and C.S. Fellows. 2010. Ecological roles and threats to aquatic refugia in arid landscapes: dryland river waterholes. Marine and Freshwater Research 61: 885-895.

Sheldon, F., M.C. Thoms, O. Berry, and J.T. Puckridge. 2000. Using disaster to prevent catastrophe: referencing the impacts of flow changes in large dryland rivers. Regulated Rivers: Research and Management 16: 403-420.

Sheldon, J.E., and M. Alber. 2002. A comparison of residence time calculations using simple compartment models of the Altamaha River estuary, Georgia. Estuaries 25 (6B): 1304-1317.

Shellberg, J.G. 2002. Hydrologic, geomorphic, and biologic influences on redd scour in bull char (*Salvelinus confluentus*) spawning streams. M.Sc. thesis, University of Washington. Seattle, WA. 206 pp. (http://depts.washington.edu/cwws/Theses/shellberg.html).

Shellberg, J.G., S.M. Bolton, and D.R. Montgomery. 2010. Hydrogeomorphic effects on bedload scour in bull char (*Salvelinus confluentus*) spawning habitat, western Washington, USA. Canadian Journal of Fisheries and Aquatic Sciences 67 (4): 626-640. Doi:10.1139/F10-007

Shen, Y., and P. Diplas. 2008. Application of two- and three-dimensional computational fluid dynamics models to complex ecological stream flows. Journal of Hydrology 348: 195-214.

Shenton, W., N.R. Bond, J.D.L. Yen, and R. MacNally. 2012. Putting the “ecology” into environmental flows: ecological dynamics and demographic modelling. Environ. Manage. 50: 1-10.

Shenton, W., B.T. Hart, and T. Chan. 2010. Bayesian network models for environmental flow decision-making: I. Latrobe River Australia. River Research and Applications. Doi:10.1002/rra.1348

Shenton, W., B.T. Hart, and T.U. Chan. 2014. A Bayesian network approach to support environmental flow restoration decisions in the Yarra River, Australia. Stochastic Environmental Research and Risk Assessment 28: 57-65.: Doi: 10.1007/s00477-013-0698-x

Shentsis, I., and E. Rosenthal. 2003. Recharge of aquifers by flood events in an arid region. Hydrol. Process. 17: 695-712.

Shepard, M.F. 1972. Timing of adult steelhead migrations as influenced by flow and temperature in four representative Washington streams. M.Sc. thesis, University of Washington. Seattle, WA. 197 pp.

Sheppard, J.D., and J.H. Johnson. 1985. Probability‑of‑use for depth, velocity, and substrate by subyearling coho salmon and steelhead in Lake Ontario tributary streams. North American Journal of Fisheries Management 5 (2B): 277‑282.

Sher, A.A., D.L. Marshall, and S.A. Gilbert. 2000. Competition between native *Populus deltoides* and invasive *Tamarix ramosissima* and the implications of reestablishing flooding disturbance. Conservation Biology 14: 1744-1754.

Sheridan, W.L. 1962. Waterflow through a salmon spawning riffle in southeastern Alaska. U.S. Fish and Wildlife Service, Special Rep. - Fish. 407. 20 pp.

Sherton, C.C. 1981. Preserving instream flows in Oregon’s rivers and streams. Environmental Law 11: 379-419.

Shiau, J.-T., and F.-C. Wu. 2004. Feasible diversion and instream flow release using range of variability approach. Journal of Water Resources Planning and Management 130: 395-404.

Shiau, J.-T., and F.-C. Wu. 2007. Pareto-optimal solutions for environmental flow schemes incorporating the intra-annual and interannual variability of the natural flow regime. Water Resource Research 43: W06433.

Shields, A. 1936. Application of similarity principles and turbulence research to bed load movement. Translated from German by W.P. Ott and J.C. van Uchelen. U.S. Department of Agriculture, Soil Conservation Service Cooperative Laboratory , California Institute of Technology, Hydrodynamics Laboratory Publication 167, Pasadena, California.

Shields, F.D., Jr., S.S. Knight, and C.M. Cooper. 1994. Effects of channel incision on base flow stream habitat and fishes. Environmental Management 18: 43-57.

Shields, F.D., Jr., S.S. Knight, and C.M. Cooper. 1995. Use of biotic integrity to assess physical habitat degradation in warmwater streams. Hydrobiologia 312: 191-208.

Shields, F.D., Jr., S.S. Knight, C.M. Cooper , and S.I. Testa. 2003. Use of acoustic Doppler current profilers to describe velocity distributions at the reach scale. Journal of the American Water Resources Association 39: 1397-1408.

Shields, F.D., Jr., and J. Rigby. 2005. River habitat quality from river velocities measured using acoustic Doppler current profiler. Environmental Management 36: 565-575.

Shields, F.D., A. Simon, and L.J. Steffen. 2000. Reservoir effects on downstream river channel migration. Environmental Conservation 27: 54-66.

Shipley, B., P.A. Keddy, and L.P. Lefkovitch. 1991. Mechanisms producing plant zonation along a water depth gradient: a comparison with the exposure gradient. Canadian Journal of Botany 69: 1420-1424.

Shirazi, M.A., and W.K. Seim. 1981. Stream system evaluation with emphasis on spawning habitat for salmonids. Water Resources Research 17: 592-594.

Shirvell, C.S. 1986. Pitfalls of physical habitat simulation in the Instream Flow Incremental Methodology. Canadian Technical Report of Fisheries and Aquatic Sciences 1460: 68 pp.

Shirvell, C.S. 1989. Ability of PHABSIM to predict chinook salmon spawning habitat. Regulated Rivers: Research & Management 3 (1‑4): 277‑289.

Shirvell, C.S. 1989. Habitat models and their predictive capability to infer habitat effects on stock size. In: C.D. Levings, L.B. Holtby, and M.A. Henderson (eds.), Proceedings of the National Workshop on Effects of Habitat Alteration on Salmonid Stocks. Can. Spec. Publ. Fish. Aquat. Sci. No. 105. Pp. 173-179.

Shirvell, C.S. 1990. Role of instream rootwads as juvenile coho salmon (*Oncorhynchus kisutch*) and steelhead trout (*O. mykiss*) cover habitat under varying streamflows. Canadian Journal of Fisheries and Aquatic Sciences 47 (5): 852‑861. Doi:10.1139/f90-098.

Shirvell, C.S. 1994. Effects of changes in streamflow on the microhabitat use and movements of sympatric juvenile coho salmon (*Oncorhynchus kisutch*) and chinook salmon (*O. tshawytscha*) in a natural stream. Canadian Journal of Fisheries and Aquatic Sciences 51 (7): 1644‑1652.

Shirvell, C.S., and R.G. Dungey. 1983. Microhabitats chosen by brown trout for feeding and spawning in rivers. Transactions of the American Fisheries Society 112 (3): 355-367.

Shirvell, C.S., and D.L. Morantz. 1983. Assessment of the Instream Flow Incremental Methodology for Atlantic salmon in Nova Scotia. Transactions Canadian Electrical Association, Engineering and Operation Division, Vol. 22, 83-H-108, Montreal.

Shoji, J., and M. Tanaka. 2006. Influences of spring river flow on the recruitment of Japanese seaperch *Lateolabrax japonicus* into the Chikugo estuary, Japan. Scientia Marina 2: 159-164.

Shoup, D.E., and D.H. Wahl. 2009. Fish diversity and abundance in relation to interannual and lake-specific variation in abiotic characteristics of floodplain lakes of the lower Kaskaskia River, Illinois. Transactions of the American Fisheries Society 138: 1076-1092.

Shrestha, R.R., D.L. Peters, and M.A. Schnorbus. 2013. Evaluating the ability of a hydrologic model to replicate hydro-ecologically relevant indicators. Hydrological Processes doi: 10.1002/hyp.9997

Shtaf, L.G., D.S. Pavlov, M.A. Skorobogativ, and A.S. Baryekian. 1983. [Fish behavior as affected by the degree of flow turbulence.] Voprosy Ikhtiologii 3: 307-317. (In Russian)

Shuler, S.W., and R.B. Nehring. 1993. Using the Physical Habitat Simulation Model to evaluate a stream habitat enhancement project. Rivers 4: 175-193.

Shuler, S.W., R.B. Nehring, and K.D. Fausch. 1994. Diel habitat selection by brown trout in the Rio Grande River, Colorado, after placement of boulder structures. North American Journal of Fisheries Management 14: 99-111.

Shumway, D.L., G.E. Warren, and P. Doudoroff. 1964. Influence of oxygen concentration and water movement on the growth of steelhead trout and coho salmon embryos. Transactions of the American Fisheries Society 93 (4): 342-356.

Shumway, S.E. 1977. Effect of salinity fluctuation on osmotic pressure and Na+, Ca++, and Mg++ ion concentrations in haemolymph of bivalve molluscs. Marine Biology 41{ 153-177.

Shuter, B.J., and J.R. Post. 1990. Climate, population variability, and the zoogeography of temperate fishes. Transactions of the American Fisheries Society 119: 314-336.

Sidle, J.G., D.E. Carlson, E.M. Kirsch, and J.J. Dinan. 1992. Flooding mortality and habitat renewal for least terns and piping plovers. Colonial Waterbirds 15: 132-136.

Sidle, R.C., and A.M. Milner. 1989. Stream development in Glacier Bay National Park, Alaska. Arctic and Alpine Research 21: 350-363.

Siebentritt, M.A., G.G. Ganf, and K.F. Walker. 2004. Effects of an enhanced flood on riparian plants of the River Murray, South Australia. River Research and Applications 20: 765-774.

Sierra, J.P., A. Sanchez-Arcilla, P.A. Figueras, J. Gonzalez del Rio, E.K. Rasmussen, and C. Mosso. 2004. Effects of discharge reductions on salt wedge dynamics of the Ebro River. River Research and Applications 20: 61-77.

Sievert, N.A., C.P. Paukert, Y.P. Tsang, and D. Infante. 2016. Development and assessment of indices to determine stream fish vulnerability to climate change and habitat alteration. Ecological Indicators 67: 403-416.

Sigafoos, R.S. 1961. Vegetation in relation to flood frequency near Washington, D.C. U.S. Geol. Surv. Prof. Pap. 424-C, pp. 248-249.

Silk, N., J. McDonald, and R. Wigington. 2000. Turning instream flow water rights upside down. Rivers 7: 298-313.

Silliman, B.R., van de Koppel, M.D. Bertness, L.E. Stanton, and L.A. Mendelssohn. 2005. Drought, snails, and large-scale die-off of southern U.S. salt marshes. Science 310 (5755): 1803-1806. Doi: 10.1126/science.1118229.

Silva, M.T. d., J. d. O. Pereira, L.J.S. Vierira, and A.C. Petry. 2013. Hydrological seasonality of the river affecting fish community structure of oxbow lakes: a Limnological approach on the Amapa Lake, southwestern Amazon. Limnologica 43: 79-90. Doi: 10.1016/j. limno.2012.05.002

Silver, S.J., G.E. Warren, and P. Doudoroff. 1963. Dissolved oxygen requirements of developing steelhead trout and chinook salmon embryos at different water velocities. Transactions of the American Fisheries Society 92 (4): 327-343.

Simcox, B.L., D.R. DeVries, and R.A. Wright. 2015. Migratory characteristics and passage of paddlefish at two southeastern U.S. lock-and-dam systems. Transactions of the American Fisheries Society 144 (3): 456-466. Doi: 10.1080/00028487.2014.995832.

Simkins, D.G., W.A. Hubert, and T.A. Wesche. 2000. Effects of fall-to-winter changes in habitat and frazil ice on the movements and habitat use of juvenile rainbow trout in a Wyoming tailwater. Transactions of the American Fisheries Society 129: 101-118.

Simm, D.J., D.E. Walling, P.D. Bates, and M.G. Anderson. 1997. The potential application of finite element modelling of flood plain inundation to predict patterns of overbank deposition. Hydrological Sciences 42: 859-875.

Simmons, D.L., and R.J. Reynolds. 1982. Effect of urbanization on base flow of selected south-shore streams, Long Island, New York. Water Resources Bulletin 18: 797-805.

Simon, A. 1989. A model of channel response in disturbed alluvial channels. Earth Surf. Proc. Land. 14: 11-26.

Simon, A., W. Dickerson, and A. Heins. 2004. Suspended-sediment transport rates at the 1.5-year recurrence interval for ecoregions of the United States: Transport conditions at the bankfull and effective discharge? Geomorphology 58(1-4): 243-262.

Simon, A., and M. Rinaldi. 2006. Disturbance, stream incision, and channel evolution: The roles of excess transport capacity and boundary materials in controlling channel response. Geomorphology 79: 361-383.

Simon, T.P. 1999. Assessing the sustainability and biological integrity of water resources using fish communities. CRC Press, Boca Raton, Florida.

Simons, D.B., 1979. Effects of stream regulation on channel morphology. Pp. 95-111 in J.V. Ward and J.A. Stanford, editors. The ecology of regulated streams. Plenum Press, New York.

Simonson, T.D., J. Lyons, and P.D. Kanehl. 1994. Quantifying fish habitat in streams: transect spacing, sample size, and a proposed framework. North American Journal of Fisheries Management 14: 607-615.

Simonson, T.D., and R.J. Neves. 1993. Habitat suitability and reproductive traits of the orangefin madtom *Noturus gilberti* (Pisces: Ictaluridae). American Midland Naturalist 127: 115-124.

Simonson, T.D., and W.A. Swenson. 1990. Critical stream velocities for young-of-year smallmouth bass in relation to habitat use. Transactions of the American Fisheries Society 119 (5): 902-909.

Simpkins, D.G., and W.A. Hubert. 1998. A technique for estimating the accuracy of fish locations identified by radiotelemetry. Journal of Freshwater Ecology 13: 263-268.

Simpkins, D.G., W.A. Hubert, C.M. del Rio, and D.C. Rule. 2004. Constraints of body size and swimming velocity on the ability of juvenile rainbow trout to endure periods without food. J. Fish Biol. 65: 530-544.

Simpkins, D.G., W.A. Hubert, and T.A. Wesche. 2000. Effects of fall-to-winter changes in habitat and frazil ice on the movements and habitat use of juvenile rainbow trout in a Wyoming tailwater. Transactions of the American Fisheries Society 129 (1): 101-118. Doi:10.1577/1548-8659(2000)129<0101:EOFTWC>2.0.CO;2.

Simpkins, D.G., W.A. Hubert, and T.A. Wesche. 2000. Effects of a spring flushing flow on the distribution of radio-tagged juvenile rainbow trout in a Wyoming tailwater. North American Journal of Fisheries Management 20: 546-551.

Simpkins, D.G., W.A. Hubert, C. Martinez del Rio, and D.C. Rule. 2004. Constraints of body size and swimming velocity on the ability of juvenile rainbow trout to endure periods without food. Journal of Fish Biology 65: 530-544.

Simpson, K.W., J.P. Fagnani, R.W. Bode, M. DeNicola, and L.E. Abele. 1986. Organism-substrate relationships in the main channel of the lower Hudson River. Journal of the North American Benthological Society 5: 41-57.

Simpson, W.G., and K.G. Ostrand. 2012. Effects of entrainment and bypass at screened irrigation canals on juvenile steelhead. Transactions of the American Fisheries Society 141 (3): 599-609/ doi: 10.1080/00028487.2012.683473

Sindt, A.R., M.C. Quist, and C.L. Pierce. 2012. Habitat associations of fish species of greatest conservation need at multiple spatial scales in wadeable Iowa streams. North American Journal of Fisheries Management 32 (6): 1046-1061. Doi: 10.1080/02755947.2012.716015.

Singer, G.A., M. Panzenbock, G. Weigelhofer, C. Marchesani, J. Waringer, W. Wanek, and T.J. Battin. 2005. Flow history explains temporal and spatial variation of carbon fractionation in stream periphyton. Limnology and Oceanography 50: 706-712.

Singer, M.B., and T. Dunne. 2006. Modeling the influence of river rehabilitation scenarios on bed material flux in a large river over decadal timescales. Water Resources Research 42: W12415.

Singh, K.P., and S.M. Broeren. 1989. Hydraulic geometry of streams and stream habitat assessment. J. Water Res. Planning Manag. 115: 583-597.

Singh, V.P., and D.A. Woolhiser. 2002. Mathematical modeling of watershed hydrology. Journal of Hydrologic Engineering 7: 270-292.

Sinha, M., M.K. Mukhopadhyay, P.M. Mitra, M.M. Bagchi, and H.C. Karamkar. 1996. Impact of the Farakka barrage on the hydrology and fishery of the Hooghly Estuary. Estuaries 19 (3): 710-722.

Sinokrot, B.A., and J.S. Gulliver. 2000. In-stream flow impact on river water temperatures. Journal of Hydraulic Research 38: 339-349.

Skagen, S.K., C.P. Melcher, W.H. Howe, and F.L. Knopf. 1998. Comparative use of riparian corridors and oases by migrating birds in southeast Arizona. Conservation Biology 12: 896-909.

Skidmore, P.B. 2006. Assessment of Freshwater Systems in Washington State. The Nature Conservancy, Seattle. (<http://waconservation.org/freshwaterAssessment.shtml>)

Sklar, F.H. and J.A. Browder. 1998. Coastal environmental impacts brought about by alterations to freshwater flow in the Gulf of Mexico. Environmental Management 22 (4): 547-562. Doi: 10.1007/s002679900127.

Sklar, F.H., and W.H. Conner. 1979. Effects of altered hydrology on primary production and aquatic animal populations in a Louisiana swamp forest. Pp. 191-208 in: J.W. Day, Jr., editor. Third Coastal Marsh and Estuary Management Symposium. Louisiana State University, Baton Rouge.

Skreslet, S. (ed.) 1986. The role of freshwater outflow in coastal marine ecosystems. NATO ASI Series, G edition. Springer, Berlin.

Skreslet, S. 1986. Freshwater outflow in relation to space and time dimensions of complex ecological interactions in coastal waters, p. 3-12. In: S. Skreslet (ed.). The role of freshwater outflow in coastal marine ecosystems. Springer-Verlag, Berlin, Germany.

Skyfield, J.P., and G.D. Grossman. 2008. Microhabitat use, movements and abundance of gilt darters (*Percina evides*) in southern Appalachian (USA) streams. Ecology of Freshwater Fish 17: 219-230.

Slaney, T.L., K.D. Hyatt, T.G. Northcote, and R.J. Fielden. 1996. Status of anadromous salmon and trout in British Columbia and Yukon. Fisheries 21 (10): 20-35. Doi: 10.1577/1548-8446(1996)021<0020:SOASAT>2.0.CO;2.

Slavik, O., L. Bartok, and P. Horky. 2009. Effect of river fragmentation and flow regulation on occurrence of landlocked brown trout in a fish ladder. Journal of Applied Ichthyology 25: 67-72.

Slavik, O., P. Horky, and L. Bartos. Slavik, O., P. Horky. 2009. Occurrence of cyprinids in fish ladders in relation to flow. Biologia 64: 999-1004.

Slavik, O., P. Horky, T. Randak, P. Balvin, and M. Bily. 2012. Brown trout spawning migration in fragmented central European headwaters: effect of isolation by artificial obstacles and the moon phase. Transactions of the American Fisheries Society 141 (3): 673-680. Doi: 10.1080/00028487.2012.675897

Slinger, J.K. 2000. Decision support for the conservation and management of estuaries: Final report of the predictive capability sub-project of the co-ordinated research program. WRC Report No. 577/2/00. Water Research Commission, Pretoria, S. Africa.

Slinger, J.H., S Taljaard, and J.L. Largier. 1994. Changes in estuarine water quality in response to a freshwater flow event, p. 551-56. In: K.R. Dyer and R.J Orth (eds.), Changes in fluxes in Estuaries: Implications from Science to Management. Olsen and Olsen, Fredensborg, Denmark.

Sloat, M.R., and G.H. Reeves. 2014. Demographic and phenotype responses of juvenile steelhead trout to spatial predictability of food resoures. Ecology 95 (9): 2423-2433.

Sloto, R.A., and M.Y. Crouse. 1996. HYSEP: a computer program for streamflow hydrograph separation and analysis. U.S. Geological Survey Water-Resources Investigations Report 96-4040.

Smakhtin, V.Y. 2001. Low flow hydrology: a review. Journal of Hydrology 240: 147-186.

Smahktin, V.U., and M. Anputhas. 2006. An Assessment of Environmental Flow Requirements of Indian River Basins. IWMI Research Report 107. International Water Management Institute, Columbo, Sri Lanka.

Smakhtin, V., C. Revenga, and P. Doll. 2004. A pilot global assessment of environmental water requirements and scarcity. Water International 29: 307-317.

Smakhtin, V., C. Revenga, and P. Doll. 2005. Taking into Account Environmental Water Requirements in Global-Scale Water Resources Assessments. International Water Management Institute.

Smart, G.M. 1999. Turbulent velocity profiles and boundary shear in gravel bed rivers. Journal of Hydraulic Engineering 1 and25: 106-116.

Smetacek, V.S. 1986. Impact of freshwater discharge on production and transfer of materials in the marine environment. Pages 85-106 *in*: S. Skeslet (ed.). The role of freshwater outflow in coastal marine ecosystems. Springer, Berlin.

Smiley, P.C., and E.D. Dibble. 2005. Implications of a hierarchical relationship among channel form, instream habitat, and stream communities for restoration of channelized streams. Hydrobiologia 548: 279-292. Doi: 10.1007/s10750-005-5447-9.

Smith, A.K. 1973. Development and application of spawning velocity and depth criteria for Oregon salmonids. Transactions of the American Fisheries Society 102 (2): 312-316.

Smith, B.D. 2000. Trends in wild adult steelhead (*Oncorhynchus mykiss*) abundance for snowmelt-driven watersheds of British Columbia in relation to freshwater discharge. Canadian Journal of Fisheries and Aquatic Sciences 57 (2): 285-297. Doi: 10.1139/f99-255.

Smith, C.B. 2011. Adaptive management on the central Platte River – science, engineering, and decision analysis to assist in the recovery of four species. Journal of Environmental Management 92: 1414-1419. Doi: 10.1016/j.jenvman.2010.10.013

Smith, C.D., M.C. Quist, and R.S. Hardy. 2016. Fish assemblage structure and habitat associations in a large western river system. River Research and Applications 32: 622-638.

Smith, D.L. 2003. The shear flow environment of juvenile salmonids. Doctoral dissertation. University of Idaho, Moscow.

Smith, D.L., and E.L. Brannon. 2007. Influence of cover on mean column hydraulic characteristics in small pool-riffle morphology streams. River Research and Applications 23: 125-139.

Smith, D.L., E.L. Brannon, and M. Odeh. 2005. Response of juvenile rainbow trout to turbulence produced by prismatoidal shapes. Transactions of the American Fisheries Society 134 (3): 217-229.

Smith, D.L., E.L. Brannon, B. Shafii, and M. Odeh. 2006. Use of the average and fluctuating velocity components for estimation of volitional rainbow trout density. Transactions of the American Fisheries Society 135 (2): 431-441.

Smith, D.M., S.A. Welsh, and P.J. Turk. 2011. Selection and preference of benthic habitat by small and large ammocoetes of the least brook lamprey (*Lampetra aepyptera*). Environmental Biology of Fish 91: 421-428.

Smith, F.E. 1976. Water development impact on fish resources and associated values on the Trinity River, California. Pp. 98-111 in: J.F. Orsborn and C.H. Allman (eds.) Instream Flow Needs, vol. ii, Bethesda, Maryland: American Fisheries Society.

Smith, G.L. (Ed.) 1979. Proceedings, workshop in instream flow habitat criteria and modeling. Colorado Water Resour. Res. Inst. Inform. Ser. 40. (Available at: http://www.arlis.org/docs/vol1/G/7089263.pdf)

Smith, G.W. 1990. The relationship between river flow and net catches of salmon (Salm salar L.) in and around the mouth of the Aberdeenshire Dee between 1973 and 1986. Fish. Res. 10: 73-91. Doi: 10.1016/0165-7836(90)90016-0.

Smith, G.W., I.P. Smith, and S.M. Armstrong. 1994. The relationship between river flow and entry to the Aberdeenshire Dee by returning adult Atlantic salmon. J. Fish. Biol. 45: 953-960.

Smith, I.M., and M.J. Sale. 1993. Standardizing instream flow requirements at hydropower projects in the Cascades Mountains, Washington. Pp. 286-295 in W.D. Hall, ed. Waterpower ‘93, proceedings of the international conference on hydropower. American Society of Civil Engineers, New York.

Smith, J.C., F. Berube, and N.E. Bergeron. 2005. A field application of particle image velocimetry (PIV) for the measurement of surface flow velocities in aquatic habitat studies. Special issue of the Canadian Journal of Remote Sensing: Proceedings of the 26th Canadian Symposium on Remote Sensing: Managing resources and monitoring the environment, Wolfville, Nova Scotia. 32 (2): paper no. 87.

Smith, J.M., and M.E. Mather. 2013. Beaver dams maintain fish biodiversity by increasing habitat heterogeneity throughout a low-gradient stream network. Freshwater Biology 58: 1523-1538.

Smith, J.J., and H.W. Li. 1984. Energetic factors influencing foraging tactics of juvenile steelhead trout, *Salmo gairdneri*. Pp. 173-180 in: D.L.G. Noakes et al. (eds.) Predators and prey in fishes. The Hague: Junk Publishers.

Smith, M., H. Caswell, and P. Mettler-Cherry. 2005. Stochastic flood and precipitation regimes and the population dynamics of a threatened floodplain plant. Ecological Applications 21: 609-628.

Smith, M.C. 2006. Habitat use of early *Alosa* spp. and striped bass *Morone saxatilis* in the lower Tar River, North Carolina. Master’s thesis. East Carolina University, Greenville, North Carolina.

Smith, M.C., and R.A. Rulifson. Overlapping habitat use of multiple anadromous fish species in a restricted coastal watershed. Transactions of the American Fisheries Society 144 (6): 1178-1183. Doi: 10.1080/00028487.2015.1074617.

Smith, R.D., R.C. Sidle, and P.E. Porter. 1993. Effects on bedload transport of experimental removal of woody debris from a forest gravel-bed river. Earth Surf. Process. Landf. 18 (5): 455-468. Doi:10.1002/esp.3290180507.

Smith, S.D., D.A. Devitt, A. Sala, J.R. Cleverly, and D.E. Busch. 1998. Water relations of riparian plants from warm desert regions. Wetlands 18: 687-696.

Smith, S.D., J.L. Nachlinger, A.B. Wellington, and Fox. 1989. Water relations of obligate riparian plants as a function of streamflow diversion on the Bishop Creek watershed. Pp. 360-365 in: D.L. Abell (ed) California riparian systems conference: Protection, management and restoration for the 1990s. U.S. Forest Service General Technical Report PSW-110.

Smith, S.D., R.B. Wellington, J. Nachlinger, and Fox. 1991. Functional responses of riparian vegetation to streamflow diversion in the eastern Sierra Nevada. Ecological Applications 1 (1): 89-97.

Smith, S.G., W.D. Muir, E.E. Hockersmith, R.W. Zabel, R.J. Graves, C.V. Ross, W.P. Connor, and B.D. Arnesberg. 2003. Influence of river conditions on survival and travel time of Snake River subyearling fall Chinook salmon. North American Journal of Fisheries Management 23 (3): 939-961.

Smith, S.G., W.D. Muir, J.G. Williams, and J.R. Skalski. 2002. Factors associated with travel time and survival of migrant yearling chinook salmon and steelhead in the lower Snake River. North American Journal of Fisheries Management 22 (2): 385-405.

Smith, S.M., J.S. Odenkirk, and S.J. Reeser. 2005. Smallmouth bass recruitment variability and its relation to stream discharge in three Virginia rivers. North American Journal of Fisheries Management 25: 1112-1121. Doi: 10.1577/M04-047.1

Smith, T.A., and C.E. Kraft. 2005. Stream fish assemblages in relation to landscape position and local habitat variables. Transactions of the American Fisheries Society 134 (2): 430-440.

Smock, L.A., J.E. Gladden, J.L. Riekenberg, L.C. Smith, and C.R. Black. 1992. Lotic macroinvertebrate production in three dimensions: channel surface, hyporheic, and floodplain environments. Ecology 73: 876-886.

Smoker, W.A. 1953. Stream flow and silver salmon production in western Washington. Washington Department of Fisheries, Fisheries Research Papers 1 (1): 5-12.

Smoker, W.A. 1955. Effects of streamflow on silver salmon production in western Washington. Doctoral dissertation. University of Washington, Department of Fisheries, Seattle.

Smoker, W.A. 1956. Preliminary report on Minter Creek streamflows on the juvenile production of silver salmon, chum salmon and steelhead trout. Unpublished report, Washington Department of Fisheries, Olympia.

Smokorowski, K.E., R.A. Metcalfe, S.D. Finucan, N. Jones, J. Marty, M. Power, R.S. Pyrce, and R. Steele. 2010. Ecosystem level assessment of environmentally based flow restrictions for maintaining ecosystem integrity: a comparison of a modified peaking versus unaltered river. Ecohydrology 4 (6): 791-806. Doi: 10.1002/eco.167

Smolders, A.J.P., M.A. Guerrero Hiza, G. van der Velde, and J.G.M. Roelofs. 2002. Dynamics of discharge, sediment transport, heavy metal pollution and sabalo (*Prochilodus lineatus*) catches in the lower Pilcomato River (Bolivia). River Research and Applications 18 (5): 415-428.

Snedaker, S., D. De Sylva, and D. Cottrell. 1977. A review of the role of freshwater in estuarine ecosystems. Final report, Southwest Florida Water Management District, Brooksville, Florida.

Snedden, G.A., W.E. Kelso, and D.A. Rutherford. 1999. Diel and seasonal patterns of spotted gar movement and habitat use in the lower Atchafalaya River basin, Louisiana. Transactions of the American Fisheries Society 128: 144-154.

Snelder, T.H., and B.J.F. Biggs. 2002. Multi-scale river environment classification for water resource management. Journal of the American Water Resources Association 38: 1225-1240.

Snelder, T.H., B.J.F. Biggs, and R.A. Woods. 2005. Improved eco-hydrological classification of rivers. River Research and Applications 21: 609-628. Doi: 10.1002/rra.826.

Snelder, T., D. Booker, and N. Lamouroux. 2011. A method to assess and define environmental rules for large jurisdictional regions. Journal of the American Water Resources Association 47 (4): 828-840. Doi: 10.1111/j.1752-1688.2011.00556.x

Snelder, T.H., and N.L. Lamouroux. 2010. Co-variation of fish assemblages, flow regime and other habitat factors. Freshwater Biology 55: 881-892.

Snelder, T.H., N.L. Lamouroux, J.R. Leathwick, H. Pella, E. Sauquet, and U. Shankar. 2009. Predictive mapping of the natural flow regimes of France. Journal of Hydrology 373: 57-67.

SNIFFER. 2007. Guidance on environmental flow releases from impoundments to implement the Water Framework Directive. Scotland and Northern Ireland Forum for Environmental Research, Edinburgh. [Http://www.sniffer.org](http://www.sniffer.org).

Snodgrass, J.W., L. Bryan, Jr., R.F. Lide, and G.M. Smith. 1996. Factors affecting the occurrence and structure of fish assemblages in isolated wetlands of the upper coastal plain, U.S.A. Canadian Journal of Fisheries and Aquatic Sciences 53: 443-454.

Snodgrass, J.W., and G.K. Meffe. 1998. Influence of beavers on stream fish assemblages: effects of pond age and watershed position. Ecology 79: 928-942.

Snook, D.L., and A.M. Milner. 2002. Biological traits of macroinvertebrates and hydraulic conditions in a glacier-fed catchment (French Pyrenees). Archiv fur Hydrobiologie 153: 245-271.

Snucins, E.J., R.A. Curry, and J/M/ Gunn. 1992. Brook trout (*Salvelinus fontinalis*) embryo habitat and timing of alevin emergence in a lake and a stream. Canadian Journal of Zoology 70: 423-427.

Snyder, C., and Z.B. Johnson. 2006. Macroinvertebrate assemblage recovery following a catastrophic flood and debris flows in an Appalachian mountain stream. J. N. Am. Benthol. Soc. 25 (4): 825-840. Doi: 10.1899/0887-3595(2006)025[0825:MARFAC]2.0.CO;2.

Snyder, C.D., N.P. Hitt, and J.A. Young. 2015. Accounting for groundwater in stream fish thermal habitat responses to climate change. Ecol. Appl. 25: 1397-1419.

Snyder, E.B., and G.W. Minshall. 1996. Ecosystem metabolism and nutrient dynamics in the Kootenai River in relation to impoundment and flow enhancement for fisheries management. Ecology Center, Idaho State University, Pocatello, Idaho.

Soar, P.J., and C.R. Thorne. 2011. Design discharge for river restoration. Geophysical Monograph 194: 123-149.

Sobrino, I., L. Silva, J.M. Bellido, and F. Ramos. 2002. Rainfall, river discharges and sea temperatures as factors affecting abundance of two coastal benthic cephalopod species in the Gulf of Cadiz (SW Spain). Bulletin of Marine Science 7: 851-865.

Sogard, S.M. 1994. Use of suboptimal foraging habitats by fishes: consequence for growth and survival. Pages 103-131 in: D.J. Strouder, K.L. Fresh, and R.J. Feller, editors. Theory and application in fish feeding ecology. University of South Carolina Press, Columbia.

Sogard, S.M., J.E. Merz, W.H. Satterthwaite, M.P. Beakes, D.R. Swank, E.M. Collins, R.G. Titus, and M. Mangel. 2012. Contrasts in habitat characteristics and life history patterns of Oncorhynchus mykiss in California’s central coast and Central Valley. Transactions of the American Fisheries Society 141 (3): 747-760. Doi: 10.1080/0028487.2012.675902.

Sogard, S.M., T.H. Williams, and H. Fish. 2009. Seasonal patterns of abundance, growth, and site fidelity of juvenile steelhead in a small coastal California stream. Transactions of the American Fisheries Society 138 (3): 549-563.

Sokal, R.R., and F.J. Rohlf. 1981. Biometry. Second edition. W.H. Freeman and Company, San Francisco.

Solans, M.A., and D.G. de Jalon. 2016. Basic tools for setting environmental flows at the regional scale: application of the ELOHA framework in a Mediterranean river basin. Ecohydrology 9: 1517-1538. Doi: 10.1002/eco.1745.

Solans, M.A., and A. Mellado-Diaz. 2015. A landscape-based regionalization of natural flow regimes in the Ebro River basin and its biological validation. River Research and Applications 31: 457-469. Doi: 10.1002/rra.2860.

Solans, M.A., and N.L. Poff. 2013. Classification of natural flow regimes in the Ebro Basin (Spain) by using a wide range of hydrologic parameters. River Res. Appl. 29: 1147-1163. Doi: 10.1002/rra.2598.

Solazzi, M.F., T.E. Nickelson, S.L. Johnson, and J.D. Rodgers. 2000. Effects of increasing winter rearing habitat on abundance of salmonids in two coastal Oregon streams. Canadian Journal of Fisheries and Aquatic Sciences 57 (5): 906-914.

Solomon, C.T., J.J. Cole, R.R. Doucett, M.L. Pace, N.D. Preston, L.E. Smith, and B.C. Weidel. 2009. The influence of environmental water on the hydrogen stable isotope ratio in aquatic consumers. Oecologica 161: 313-324. Doi: 10.1007/s00442-009-1370-5

Solomon, D.J., and D. Paterson. 1980. Influence of natural and regulated streamflow on survival of brown trout (*Salmo trutta* L.) in a chalk stream. Environmental Biology of Fishes 5: 379-382.

Solomon, D.J., and H.T. Sambrook. 2004. Effects of hot dry summers on the loss of Atlantic salmon, *Salmo salar*, from estuaries in South West England. Fisheries Management and Ecology 11 (5): 353-363.

Solomon, D.J., H.T. Sambrook, and K.J. Broad. 1999. Salmon migration and river flow: Results of tracking radio tagged salmon in six rivers in south west England. Bristol Environmental Agency.

Som, N.A., D.H. Goodman, R.W. Perry, and T.B. Hardy. 2015. Habitat suitability criteria via parametric distributions: estimation, model selection, and uncertainty. River Research and Applications 32: 1128-1137. Doi: 10.1002/rra.2900

Sommer, T.R., R.D. Baxter, and F. Feyrer. 2007. Splittail “delisting”: a review of recent population trends and restoration activities. American Fisheries Society Symposium 53: 25-28.

Sommer, T.R., W.C. Harrell, A. Mueller-Solger, B. Tom, and J.W. Kimmerer. 2004. Effects of flow variation on the channel and floodplain biota and habitats of the Sacramento River, California, USA. Aquatic Conservation: Marine and Freshwater Ecosystems 14: 247-261.

Sommer, T., W.C. Harrell, and M. Nobriga. 2005. Habitat use and stranding risk of juvenile Chinook salmon on a seasonal floodplain. North American Journal of Fisheries Management 25 (4): 1493-1504.

Sommer, T., B. Harrell, M. Nobriga, R. Brown, P. Moyle, W. Kimmerer, and L. Schemel. 2001. California’s Yolo Bypass: evidence that flood control can be compatible with fisheries, wetlands, wildlife, and agriculture. Fisheries 26: 6-16.

Sommer, T.R., M.L. Nobriga, W.C. Harrell, W. Batham, and W.J. Kimmerer. 2001. Floodplain rearing of juvenile chinook salmon: evidence of enhanced growth and survival. Canadian Journal of Fisheries and Aquatic Sciences 58: 325-333. Doi:10.1139/cjfas-58-2-325.

Sophocleous, M. 2002. Interactions between groundwater and surface water: the state of the science. Hydrogeology Journal 1: 52-67.

Sotiropoulos, J.C., K.H. Nislow, and M.R. Ross. 2006. Brook trout, *Salvelinus fontinalis*, microhabitat selection and diet under low summer stream flows. Fisheries Management and Ecology 13 (3): 149-155. Doi:10.1111/j.1365-2400.2006.00487.x.

Souchon, Y., H. Andriamahefa, P. Breil, M.B. Albert, H. Capra, and N. Lamouroux. 2002. Vers de nouveaux outils pour l’aide a la gestion des hydrosystemes: couplage des recherches physiques et biologiques sur les cours d’eau. Natures Sciences Societes 10: 26-41.

Souchon, Y., and H. Capra. 2004. Aquatic habitat modelling: biological validations of IFIM/Phabsim methodology and new perspectives. Hydroecologie Appliquee 14 (1): 9-25. Doi: 10.1051/hydro:2004002.

Souchon, Y., and P. Keith. 2001. Freshwater fish habitat: science, management and conservation in France. Aquatic Ecosystem Health and Management 4: 401-412.

Souchon, Y., C. Sabaton, R. Deibel, D. Reiser, J. Kershner, M. Gard, C. Katapodis, P. Leonard, N.L. Poff, W.J. Miller, and B.L. Lamb. 2008. Detecting biological responses to flow management: missed opportunities; future decisions. River Research and Applications. 24 (1): 1-13. Doi: 10.1002/rra.1134.

Souchon, Y. F. Trocherie, E. Fragnoud, and C. Lacombe. 1989. Les modeles numerique des microhabitats des poissons: applications et nouveaux developpements. Revue des Sciences de l’Eau 2: 807-830.

Soulsby, C., C. Birkel, and D. Tetzlaff. 2016. Modelling storage-driven connectivity between landscapes and riverscapes: towards a simple framework for long-term ecohydrological assessment. Hydrol. Process. 30: 2482-2497. Doi: 10.1002/hyp.10862.

Soulsby, C., I.A. Malcolm, D. Tetzlaff, and A.F. Youngson. 2009. Seasonal and interannual variability in hyporheic water quality revealed by continuous monitoring in a salmon spawning stream. River Research and Applications 25: 1304-1319.

Soulsby, C., A.F. Youngson, H.J. Moir, and I.A. Malcolm. 2001. Fine sediment influence on a salmonid spawning habitat in a lowland agricultural stream: a preliminary assessment. Science of the Total Environment 265: 295-307.

Southall, P.D., and W.A. Hubert. 1984. Habitat use by adult paddlefish in the upper Mississippi River. Transactions of the American Fisheries Society 113: 125-131.

Souter, N.J., T. Wallace, M. Walter, and R. Watts. 2014. Raising river level to improve the condition of a semi-ariid floodplain forest. Ecohydrology 7: 334-344. Doi: 10.1002/eco.1351

Souther, S., M.W. Tingley, V.D. Popescu, D.T.S. Hayman, M.E. Ryan, T.A. Graves, B. Hartl, and K. Terrell. 2014. Biotic impacts of energy development from shale: research priorities and knowledge gaps. Frontiers in Ecology and the Environment 12 (6): 330-338. Doi: 10.1890/130324.

Sowa, S.P., G. Annis, M.E. Morey, and D.D. Diamond. 2007. A gap analysis and comprehensive conservation strategy for riverine ecosystems in Missouri. Ecological Monographs 77: 301=334.

Sowa, S.P., and C.F. Rabeni. 1995. Regional evaluation of the relation of habitat to distribution and abundance of smallmouth bass and largemouth in Missouri streams. Transactions of the American Fisheries Society 124: 240-251.

Sowden, T.K., and G. Power. 1985. Prediction of rainbow trout embryo survival in relation to groundwater seepage and particle size of spawning substrates. Transactions of the American Fisheries Society 114: 804‑812.

Spalding, S., N.P. Peterson, and T.P. Quinn. 1995. Summer distribution, survival, and growth of juvenile coho salmon under varying experimental conditions of brushy instream cover. Transactions of the American Fisheries Society 124 (1): 124‑130.

Spangler, R.E., and D.L. Scarnecchia. 2001. Summer and fall microhabitat utilization of juvenile bull trout and cutthroat trout in a wilderness stream, Idaho. Hydrobiologia 452: 145-154.

Sparks, R.E. 1992. Risks of altering the hydrologic regime of large rivers. Pp. 119-152 in: J. Cairns, Jr., B.R. Niederlehner, and D.R. Orvos, editors. Predicting ecosystem risk: advances in modern environmental toxicology, volume 20. Princeton Scientific Publishing, Princeton, New Jersey.

Sparks, R.E. 1995. Need for ecosystem management of large rivers and their floodplains. BioScience 45: 168-182.

Sparks, R.E. 1995. Maintaining and restoring the ecological integrity of the Mississippi River: importance of floodplains and floodpulses. Transactions of the North American Wildlife and Natural Resources Conference 60: 90-97.

Sparks, R.E., P.B. Bayley, S.L. Kohler, and L.L. Osborne. 1990. Disturbance and recovery of large floodplain rivers. Environmental Management 14: 699-709.

Sparks, R.E., J.C. Nelson, and Y. Yin. 1998. Naturalisation of the flood regime in regulated rivers. BioScience 48: 706-720.

Sparks, R.E., and A. Spink. 1998. Disturbance, succession and ecosystem processes in rivers and estuaries: effects of extreme hydrologic events. Regulated Rivers: Research and Management 14: 155-159.

Speas, D.W. 2000. Zooplankton density and community composition following an experimental flood in the Colorado River, Grand Canyon, Arizona. Regulated Rivers: Research and Management 16: 73-81.

Speed, R. J. Binney, B. Pusey, and J. Catford. 2011. Policy measures, mechanisms, and frameworks for addressing environmental flows. ACEDP Project Report. International Water Centre, Brisbane, QLD.

Speed, T. 1993. Modeling and managing a salmon population. Pp. 267-292 in: V. Barnett and K.F. Turkman, eds. Statistics for the environment. Wiley, New York.

Spence, B.C., and E.J. Dick. 2014. Geographic variation in environmental factors regulating outmigration timing of coho salmon (Oncorhynchus kisutch) smolts. Canadian Journal of Fisheries and Aquatic Sciences 71 (1): 56-69. Doi: 10.1139/cjfas-2012-0479

Spence, C. 2006. Hydrological processes and streamflow in a lake dominated watercourse. Hydrol. Process. 20 (17): 3665-3681. Doi; 10.1002/hyp.6381.

Spence, R., and P. Hickley. 2000. The use of PHABSIM in the management of water resources and fisheries in England and Wales. Ecological Engineering 16: 153-158.

Spina, A.P. 2001. Incubation discharge and aspects of brown trout population dynamics. Transactions of the American Fisheries Society 130: 322-327. Doi: 10.1577/1548-8659(2001)130<0322:IDAAOB>2.0.CO;2.

Spina, A.P. 2003. Habitat associations of steelhead trout near the southern extent of their range. Calif. Fish Game 2: 81-95.

Spina, A.P., M.A. Allen, and M. Clarke. 2005. Downstream migration, rearing abundance, and pool habitat associations of juvenile steelhead in the lower main stem of a south-central California stream. North American Journal of Fisheries Management 25: 919-930.

Spina, A.P., M.R. McGoogan, and T.S. Gaffney. 2006. Influence of surface-water withdrawal on juvenile steelhead and their habitat in a south-central California nursery stream. California Fish and Game 92 (2): 81-90.

Spindler, B.D. 2008. Modeling spatial distribution and habitat associations for juvenile pallid sturgeon (*Scaphyrhynchus albus*) in the Missouri River. Master’s thesis, South Dakota State University, Brookings.

Spindler, B.D., S.R. Chipps, R.A. Klumb, B.D.S. Graeb, and M.C. Wimberly. 2012. Habitat and prey availability attributes associated with juvenile and early adult pallid sturgeon occurrence in the Missouri River, USA. Endangered Species Research 16: 225-234.

Sponseller, R.A., and S.G. Fisher. 2006. Drainage size, stream intermittency, and ecosystem function in a Sonoran Desert landscape. Ecosystems 9 (3): 344-356. Doi:10.1007/s10021-005-0167-6.

Spooner, D.E., M.A. Xenopoulos, C. Schneider, and D.A. Woolnaugh. 2011. Coextirpation of host-affiliate relationships in rivers: The role of climate change, water withdrawal, and host-specificity. Global Change Biol. 17 (4): 1720-1732.

Spranza, J.J., and E.H. Stanley. 2000. Condition, growth, and reproductive styles of fishes exposed to different environmental regimes in a prairie drainage. Environmental Biology of Fishes 59 (1): 99-109.

Sprenger, M.D., L.M. Smith, and J.P. Taylor. 2001. Testing control of saltcedar seedlings using fall flooding. Wetlands 21: 437-441.

Springer, A.F., J.M. Wright, P.B. Shafroth, J.C. Stromberg, and D.T. Patten. 1999. Coupling groundwater and riparian vegetation models to assess effects of reservoir releases. Water Resources Research 35: 3621-3630.

Spurgeon, J.J., M.J. Hamel, and M.A. Pegg. 2016. Multi-scale approach to hydrological classification provides insight to flow structure in altered river system. River Research and Applications 32: 1841-1852.

Stabler, D.F. 1981. Effects of altered flow regimes, temperatures, and river impoundment on adult steelhead trout and Chinook salmon. M.S. thesis. University of Idaho, Moscow.

Stachelek, J., and K.H. Dunton. 2013. Freshwater inflow requirements for the Nueces Delta, Texas: *Spartina alterniflora* as an indicator of ecosystem condition. Texas Water Journal 4: 62-73.

Stahlberg, S. and P. Peckmann. 1987. The critical swimming speed of small teleost fish species in a flume. Archiv fur Hydrobiologie 110: 179-193.

Stalnaker, C.B. 1980. The use of habitat structure preferenda for establishing flow regimes necessary for the maintenance of fish habitat. Pp. 321-337 in: J.V. Ward and J.A. Stanford (eds.) The ecology of regulated streams. Plenum Publishing Corporation, New York.

Stalnaker, C.B. 1981. Low flow as a limiting factor in warmwater streams. Pp. 192-199 in: L. Krumholz (ed.) Warmwater Streams Symposium. Bethesda, Maryland: American Fisheries Society.

Stalnaker, C.B. 1982. Instream flow assessment comes of age in the decade of the 1970s. Pp. 119-142 in: W.T. Mason, Jr., and S. Iker (ed.) Research on fish and wildlife habitat. EPA-600/8-82-022.

Stalnaker, C.B. 1990. Minimum flow is a myth, p. 31-33. In: M.B. Bain (ed.). Ecology and Assessment of Warm Water Streams: Workshop Synopsis. U.S. Fish and Wildlife Service, Washington, D.C.

Stalnaker, C.B. 1993. Fish habitat models in environmental assessments. Pp. 104-162 in: S.G. Hildebrand and J.B. Cannon (eds.) Environmental Analysis: The NEPA Experience. CRC Press, Boca Raton, Florida.

Stalnaker, C.B. 1994. Evolution of instream flow habitat modeling. Chapter 14. P. Calow and G.E. Petts (eds.) The Rivers Handbook, Hydrological and Ecological Principles. Vol. II. Blackwell Scientific Publications, Oxford.

Stalnaker, C.B., and J.L. Arnette. 1976. Methodologies for determination of stream resource flow requirements: an assessment. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C. Report No. FWS/OBS-76/03.

Stalnaker, C.B., K.D. Bovee, and T.J. Waddle. 1994. The importance of the temporal aspects of habitat hydraulics in fish populations. In: Proceedings of the 1st International Symposium on Habitat Hydraulics. SINTEF, Trondheim, Norway. Pp. 1-11.

Stalnaker, C.B., K.D. Bovee, and T.J. Waddle. 1996. Importance of the temporal aspects of habitat hydraulics to fish population studies. Regulated Rivers: Research and Management 12: 145-153.

Stalnake, C.B., I. Chisholm, and A. Paul. 2017. Comment 2: Don’t throw out the baby (PHABSIM) with the bathwater: Bringing scientific credibility to use of hydraulic habitat models, specifically PHABSIM. Fisheries 42 (10): 510-516. Doi: 10.1080/03632415.2017.1380986.

Stalnaker, C.B., B.L. Lamb, J. Henriksen, K. Bovee, and J. Bartholow. 1995. The instream flow incremental methodology: a primer for IFIM. National Biological Service Biological Report 29. 45 pp.

Stalnaker, C.B., R.T. Milhous, and K.D. Bovee. 1989. Hydrology and hydraulics applied to fishery management in large rivers, pp. 13-30 in: D.P. Dodge (ed.), Proceedings of the International Large Rivers Symposium. Canadian Sp. Publ. Fish. Aquatic. Sci. 106.

Stalnaker, C.B., and E.J. Wick. 2000. Planning for flow requirements to sustain stream biota. Chapter 16 *in*: E.E. Wohl, ed. Inland Flood Hazards: Human, Riparian, and Aquatic Communities. Cambridge University Press, London.

Stancil, V.F. 2000. Effects of watershed and habitat conditions on stream fishes of the upper Roanoke River watershed, Virginia. M.S. thesis, Virginia Polytechnic Institute and State University, Blacksburg, Virginia.

Standen, E.M., S.G. Hinch, and P.S. Rand. 2004. Influence of river speed on path selection by migrating adult sockeye salmon (*Oncorhynchus nerka*). Canadian Journal of Fisheries and Aquatic Sciences 61 (6): 905-912.

Stanfield, L.W., and M.L. Jones. 1998. A comparison of full-station visual and transect based methods of conducting habitat surveys in support of habitat suitability index models for southern Ontario. North American Journal of Fisheries Management 18: 657-675.

Stanford, J.A. 1994. Instream flows to assist the recovery of endangered fishes of the upper Colorado River basin. National Biological Survey Biological Report 24. 47 pp.

Stanford, J.A., and E.R. Hauer. 1992. Mitigating the impacts of stream and lake regulation in the Flathead River catchment, Montana, USA: an ecosystem perspective. Aquatic Conservation: Marine and Freshwater Ecosystems 2: 35-63.

Stanford, J.A., M.S. Lorang, and E.R. Hauer. 2005. The shifting habitat mosaic of river ecosystems. Internat. Vern. Limnol. (Proceedings of the International Association of Theoretical and Applied Limnology) 29: 123-136.

Stanford, J.A., and J.V. Ward. 1988. The hyporheic habitat of river ecosystems. Nature (London) 335: 64-66.

Stanford, J.A., and J.V. Ward. 1993. An ecosystem perspective of alluvial rivers: connectivity and the hyporheic corridor. Journal of the North American Benthological Society 12: 48-62.

Stanford, J.A., J.V. Ward, W.J. Liss, C.A. Frissell, R.N. Williams, J.A. Lichatowich, and C.C. Coutant. 1996. A general protocol for restoration of regulated rivers. Regulated Rivers: Research and Management 12: 391-414.

Stanish, L.F., T.J. Kohler, R.M.M. Esposito, B.L. Simmons, U.N. Nielsen, D.H. Wall, D.R. Nemergut, and D.M. McKnight. 2012. Extreme streams: flow intermittency as a control on diatom communities in meltwater streams in the McMurdo Dry Valleys, Antarctica. Canadian Journal of Fisheries and Aquatic Sciences 69 (8): 1405-1419. Doi: 10.1139/f2012-022.

Stanish, L.F., D.R. Nemergut, and D.M. McKnight. 2011. Hydrologic processes influence diatom community composition in Dry Valley streams. J. N. Am. Benthol. Soc. 30 (4): 1057-1073. Doi: 1899/11-008.1.

Stanley, C.E., J.M. Taylor, and R.S. King. 2012. Coupling fish community structure with instream flow and habitat connectivity between two hydrologically extreme years. Transactions of the American Fisheries Society 141 (4): 1000-1015. Doi: 10.1080.00028487.2012.675893.

Stanley, E.H., and A.J. Boulton. 1995. Hyporheic processes during flooding and drying in a Sonoran Desert stream. I. Hydrological and chemical dynamics. Arch. Hydrobiol. 134: 1-26.

Stanley, E.H., D.L. Buschman, A.J. Boulton, N.B. Grimm, and S.G. Fisher. 1994. Invertebrate resistance and resilience to intermittency in a desert stream. American Midland Naturalist 131: 288-300.

Stanley, E.H., M.J. Catalano, N. Mercado-Silva, and C.H. Orr. 2007. Effects of dam removal on brook trout in a Wisconsin stream. River Research and Applications 23: 792-798.

Stanley, E.H., S.G. Fisher, and N.B. Grimm. 1997. Ecosystem expansion and contraction in streams. BioScience 47: 427-435. Doi: 10.2307/1313058.

Stanley, J.G., and J.G. Trial. 1995. Habitat suitability index models: nonmigratory freshwater life history stages of Atlantic salmon. U.S. DOI, Biological Science Report 3.

Stark, E.J. 2001. Effects of water level fluctuations on benthic macroinvertebrates in the Hanford Reach, Columbia River. Master’s thesis, University of Idaho, Moscow, Idaho.

Stark, W.J., and A.A. Echelle. 1998. Genetic structure and systematics of smallmouth bass, with emphasis on interior Highlands populations. Transactions of the American Fisheries Society 127: 393-416.

Starrett, W.C. 1951. Some factors affecting the abundance of minnows in the Des Moines River, Iowa. Ecology 32: 13-27.

Starrs, D. 2009. Swimming speed performance and migration potential of Macquarie perch *Macquaria autralasica*. Honours thesis, Australian National University, Canberra.

Statzner, B., M.F. Arens, J.Y. Champagne, R. Morel, and E. Herouin. 1999. Silk-producing stream insects and gravel erosion: Significant biological effects on critical shear stress. Water Resources Research 35: 3495-3506.

Statzner, B., and L.A. Beche. 2010. Can biological invertebrate traits resolve effects of multiple stressors on running water ecosystems? Freshwater Biology 55: 80-119.

Statzner, B., J.A. Gore, and V.H. Resh. 1988. Hydraulic stream ecology: observed patterns and potential applications. Journal of the North American Benthological Society 17: 324-337. Doi: 10.2307/1467296.

Statzner, B., and B. Higler. 1986. Stream hydraulics as a major determinant of benthic invertebrate zonation patterns. Freshwater Biology 16: 127-139.

Statzner, B., and T.F. Holm. 1982. Morphological adaptations of benthic invertebrates to stream flow – an old question studied by means of a new technique (Laser Doppler Anemometry). Oecologia 53: 290-292.

Stauffer, J.C., and R.M. Goldstein. 1997. Comparison of three qualitative habitat indices and their applicability to prairie streams. North American Journal of Fisheries Management 17: 348-361.

Stauffer, J.C., R.M. Goldstein, and R.M. Newman. 2000. Relationship of wooded riparian zones and runoff potential to fish community composition in agricultural streams. Canadian Journal of Fisheries and Aquatic Sciences 57 (2): 307-316.

Stauffer, J.R., Jr., J.M. Bolz, K.A. Kellogg, and E.S. van Snik. 1996. Microhabitat partitioning in a diverse assemblage of darters in the Allegheny River system. Environmental Biology of Fishes 46: 37-44.

Staunton-Smith, J., J.B. Robins, D.G. Mayer, M.J. Sellin, and I.A. Halliday. 2004. Does the quantity and timing of freshwater flowing into a dry tropical estuary affect year-class strength of barramundi (*Lates calcarifer*)? Marine and Freshwater Research 5: 787-797.

Stearly, R.F., and G.R. Smith. 1993. Phylogeny of the Pacific trouts and salmons (*Oncorhynchus*) and genera of the family Salmonidae. Transactions of the American Fisheries Society 122 (1): 1‑33.

Stednick, J.D. 1996. Monitoring the effect of timber harvest on annual water yield. Journal of Hydrology 176: 79-95.

Steel, A.E., P.T. Sanderson, P.L. Brandes, and A.P. Klimley. 2013. Migration route selection of juvenile Chinook salmon at the Delta Cross Channel, and the role of water velocity and individual movement patterns. Environmental Biology of Fishes 96: 215-234.

Steel, A.E., R.A. Peek, R.A. Lusardi, and S.M. Yarnell. 2018. Associating metrics of hydrologic variability with benthic macroinvertebrate communities in regulated and unregulated snowmelt-dominated rivers. Freshwater Biology 63 (8): 844-858. Doi: 10.1111/fwb.12994

Steele, R.J., and K.E. Smokorowski. 2000. Review of literature related to downstream ecological effects of hydroelectric power generation. Canadian Technical Report of Fisheries and Aquatic Sciences 2334.

Steffensen, K.D., B.L. Eder, and M.A. Pegg. 2014. Fish community response to floodplain inundation in a regulated river. Journal of Freshwater Ecology 29 (3): 413-427. doi: 10.1080/02705060.2014.909891.

Stefferud, J.A. 1993. Spawning season and microhabitat use by California golden trout (*Oncorhynchus mykiss aquabonita*) in the southern Sierra Nevada. California Fish and Game 79: 133-144.

Stefferud, J.A., K.B. Gido, and D.L. Propst. 2011. Spatially variable response of native fish assemblages to discharge, nonnative predators and habitat characteristics in an arid-land river. Freshwater Biology 56: 1403-1416. Doi:10.1111/j.1365-2427.2011.02577.x.

Stefferud, J.A., and S.E. Stefferud. 1998. Influence of low flows on the abundance of fish in the upper San Pedro River, Arizona. Pages 167-180 in: G.J. Gottfried, C.B. Edminster, and M.C. Dillon, editors. Cross-border waters: fragile treasures for the 21st Century. Ninth U.S./Mexico Border States Conference on Recreation, Parks, and Wildlife, 3-6 June 1998. USDA Forest Service. Rocky Mountain Research Station. Proceedings RMRS-P-5. Fort Collins, Colorado.

Steffler, P. 2000. River 2D. Two dimensional depth averaged model of river hydrodynamics and fish habitat. Users manual. University of Alberta.

Steffler, P., and J. Blackburn. 2002. Two-dimensional depth-averaged model of river hydrodynamics and fish habitat: introduction to depth-averaged modeling and users manual. University of Alberta, Alberta, Canada. http://www.river2d.ualberta.ca.software/River2D.pdf.

Stehr, W.M., and W.J. Branson. 1938. An ecological study of an intermittent stream. Ecology 19: 294-310, 329, 404.

Steiger, J., E. Tabacchi, S. Dufour, D. Corenblit, and J.L. Peiry. 2005. Hydrogeomorphic processes affecting riparian habitat within alluvial channel-floodplain river systems: a review for the temperate zone. River Research and Applications 14: 13-23.

Stein, E.D., A. Sengupta, R.D. Mazor, K. McCune, B.P. Bledsoe, and S. Adams. 2017. Application of regional flow-ecology relationships to inform watershed management decisions: Application of the ELOHA framework in the San Diego River watershed, California, USA: ELOHA application to support management decisions in San Diego River. Ecohydrology e1869. doi: 10.1002/eco.1869.

Steingrimsson, S.O., and J.W.A. Grant. 1999. Allometry of territory-size and metabolic rate as predictors of self-thinning in young-of-the-year Atlantic salmon. Journal of Animal Ecology 68: 17-26. Doi: 10.1046/j.365-2656.1999.00261.x.

Steingrimsson, S.O., and J.W.A. Grant. 2008. Multiple central-place territories in wild young-of-the-year Atlantic salmon Salmo salar. J. Anim. Ecol. 77 (3): 448-457. Doi: 10.1111/j.1365-2656.2008.01360.x.

Stella, J.C., J.J. Battles, B.K. Orr, and J.R. McBride. 2006. Synchrony of seed dispersal, hydrology and local climate in a semi-arid river reach in California. Ecosystems 9: 1200-1214.

Stendera, S.E., R. Adrian, N. Bonada, M. Canedo-Arguelles, B. Hugueny, K. Januschke, F. Pletterbauer, and D. Hering. 2012. Drivers and stressors of freshwater biodiversity patterns across different ecosystems and scales: A review. Hydrobiologia 696: 1-28.

Sternberg, D., S.R. Balcombe, J.C. Marshall, J. Lobegeiger, and A.H. Arthington. 2012. Subtle boom and bust response of *Macquaria ambigua* to flooding in an Australian dryland river. Environmental Biology of Fishes 93: 95-104.

Sternecker, K., and J. Geist. 2010. The effects of stream substratum composition on the emergence of salmonid fry. Ecol. Freshw. Fish 19 (4): 537-544. Doi: 10.1111/j.1600-0633.2010.00432.x.

Steuer, J.J., T.J. Newton, and S.J. Zeigler. 2008. Use of complex hydraulic variables to predict the distribution and density of unionids in a side channel of the upper Mississippi River. Hydrobiologia 610: 67-82. Doi: 10.1007/s10750-008-9423-z

Steuer, J.J., K.A. Stensvold, and M.B. Gregory. 2010. Determination of biological significant hydrologic condition metrics in urbanizing watersheds: an empirical analysis over a range of environmental settings. Hydrobiologia 654: 27-55.

Stevens, D.E. 1977. Striped bass (*Morone saxatilis*) year class strength in relation to river flow in the Sacramento-San Joaquin estuary, California. Transactions of the American Fisheries Society 106 (1): 34-42.

Stevens, D.E. and L.W. Miller. 1983. Effects of river flow on abundance of young chinook salmon, American shad, longfin smelt, and delta smelt in the Sacramento-San Joaquin River system. North American Journal of Fisheries Management 3: 425-437.

Stevens, L.E., T.J. Ayers, J.B. Bennett, K. Christensen, M.J.C. Kearsley, V.J. Meretsky, A.M. Phillips III, R.A. Parnell, J. Spence, M.K. Sogge, A.E. Springer, and D.L. Wegner. 2001. Planned flooding and Colorado River riparian trade-offs downstream from Glen Canyon Dam, Arizona. Ecological Applications 11: 701-710.

Stevens, L.E., J.C. Schmidt, T.J. Ayers, and B.T. Brown. 1995. Flow regulation, geomorphology, and Colorado River marsh development in the Grand Canyon, Arizona. Ecological Applications 5: 1025-1039.

Steven, M.A., E.V. Richardson, and D.B. Simons. 1975. Nonequilibrium river form. Journal of the Hydraulics Division 101: 557-566.

Stevens, L.E., and G.L. Waring. 1985. The effects of prolonged flooding on the riparian plant community in Grand Canyon. Pages 81-86 in: R.R. Johnson, C.D. Ziebell, D.R. Patton, et al., tech. cords. Riparian exosystems and their management: Reconciling conflicting uses. First North America riparian conference; 1985 April 16-18; Tucson, AZ. Gen. Tech. Rep. Rep. RM-GTR-120. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station.

Stevens, L.E., J.C. Schmidt, and T.J. Ayers, et al. 1995. Flow regulation, geomorphology, and Colorado River marsh development in the Grand Canyyon, Arizona. Ecological Applications 5 (4): 1025-1039.

Stevens, P.W., M.F.D. Greenwood, and D.A. Blewett. 2013. Fish assemblages in the oligohaline stretch of a southwest Florida river during periods of extreme freshwater inflow variation. Transactions of the American Fisheries Society 142 (6): 1644-1658. Doi: 10.1080/00028487.2013.824930.

Stevens, P.W., M.F.D. Greenwood, C.F. Idleberger, and D.A. Blewett. 2010. Mainstem and backwater fish assemblages in the tidal Caloosahatchee River: implications for freshwater inflow studies. Estuaries and Coasts 33:1216-1234.

Stevenson, R.J. 1990. Benthic algal community and dynamics in a stream during and after a spate. Journal of the North American Benthological Society 9:277-288.

Stevenson, R.J. 1996. The stimulation and drag of current. Pages 321-341 in: R.J. Stevenson, M.L. Bothwell, and R.L. Lowe, editors. Algal ecology: freshwater benthic ecosystems. Academic Press, New York, New York, USA.

Steward, A.L., D. von Schiller, K. Tockner, J.C. Marshall, and S.E. Bunn. 2012. When the river runs dry: human and ecological values of dry riverbeds. Frontiers in Ecology and the Environment 10 (4): 202-209. Doi: 10.1890/110136

Stewardson, M.J., and P. Cottingham. 2002. A demonstration of the Flow Events Method: environmental flow requirements of the Broken River, Australia. Australian Journal of Water Resources 5: 33-48.

Stewardson, M.J., and C.J. Gippel. 1997. Instream environmental flow design: A review. Cooperative Research Centre for Catchment Hydrology, Department of Civil and Environmental Engineering, University of Melbourne, Victoria, Australia, draft report.

Stewardson, M.J., and C.J. Gippel. 2003. Incorporating flow variability into environmental flow regimes using the Flow Events Method. River Research and Applications 19: 459-472.

Stewardson, M.J., and F. Guarino. 2018. Basin-scale environmental water delivery in the Murray-Darling, Australia: A hydrological perspective. Freshwater Biology 63 (8): 969-985. Doi: 10.1111/fwb.13102

Stewardson, M.J., and D. Skinner. 2018. Evaluating use of environmental flows to aerate streams by modelling the counterfactual case. Environmental Management 61: 390-397.

Stewardson, M., and J.A. Webb. 2010. Modelling ecological responses to flow alteration: Making the most of existing data amd knowledge. Pages 37-49 in: N. Saintilan and I. Overton (eds.). Ecosystem response modelling in the Murray-Darling Basin. Melbourne, Vic.: CSIRO Publishing.

Stewardson, M., J.A. Webb, S. de Little, K.A. Miller, N.L. Poff, I. Rutherfurd, and A. Sharpe. 2012. Monitoring and evaluating environmental flows at the basin-scale: A science and management challenge. Pages 1-7 in: J.R. Grove, and I.D. Rutherfurd, editors. Proceedings of the 6th Australian Stream Management Conference: Managing for Extremes. River Basin Management Society.

Stewart, G.B. 2000. Two-dimensional hydraulic modelling for making instream-flow recommendations. MSc thesis, Colorado State University, Fort Collins. 88 pp.

Stewart, G., R. Anderson, and E. Wohl. 2005. Two-dimensional modeling of habitat suitability as a function of discharge in two Colorado rivers. River Research and Applications 21: 1061-1074. Doi: 10.1002/RRA.868

Stewart, I.T., D.R. Cayan, and M.D. Dettinger. 2004. Changes in snowmelt runoff timing in western North America under a “business as usual” climate change scenario. Climatic Change 62: 217-232. Doi: 10.1023/B:CLIM.0000013702.22656.e8.

Stewart, I.T., D.R. Cayan, and M.D. Dettinger. 2005. Changes toward earlier streamflow timing across western North America. Journal of Climatol 18: 1136-1155.

Stewart-Koster, B., S.E. Bunn, S.J. Mackay, N.L. Poff, R.J. Naiman, and P.S. Lake. 2010. The use of Bayesian networks to guide investments in flow and catchment restoration for impaired river ecosystems. Freshwater Biology 55: 243-260. doi:10.1111/j.1365-2427.2009.02219.x.

Stewart-Koster, B., J.D. Olden, and K.B. Gido. 2014. Quantifying flow-ecology relationships with functional linear models. Hydrological Sciences Journal 59: 629-644. Doi: 10,1080/02626667.2013.860231. ([http://www.k-state.edu/fishecology/msreprints/Stewart\_Koster et al. 2014.pdf](http://www.k-state.edu/fishecology/msreprints/Stewart_Koster%20et%20al.%202014.pdf))

Stewart-Koster, B., J.D. Olden, M.J. Kennard, B.J. Pusey, E.L. Boone, and S. Jackson . 2011. Fish response to the temporal hierarchy of the natural flow regime in the Daly River, northern Australia. Journal of Fish Biology 79: 1525-1544. Doi: 10.1111/j.1095-8649.2011.03072.x.

Stich, D.S., M.M. Bailey, C.M. Holbrook, and J.D. Zydlewskii. 2015. Catchment-wide survival of wild- and hatchery-reared Atlantic salmon smolts in a changing system. Canadian Journal of Fisheries and Aquatic Sciences 72 (9): 1352-1365. Doi: 10.1139/cjfas-2014-0573

Stich, D.S., M.T. Kinnison, J.F. Kocik, and J.D. Zydlewskii. 2015. Initiation of migration and movement rates of Atlantic salmon smolts in fresh water. Canadian Journal of Fisheries and Aquatic Sciences 72 (9): 1339-1351. Doi: 10.1139/cjfas-2014-0570

Stickler, M., K. Alfredsen, D.A. Scruton, C. Pennell, A. Harby, and F. Okland. 2007. Mid-winter activity and movement of Atlantic salmon parr during ice formation events in a Norwegian regulated river. Hydrobiologia 582: 81-89. Doi:10.1007/s10750-006-0559-4.

Stickler, M., E.C. Enders, C.J. Pennell, D. Cote, K.T. Alfredsen, and D.A. Scruton. 2008. Habitat use of Atlantic salmon *Salmo salar* parr in a dynamic winter environment: the influence of anchor-ice dams. Journal of Fish Biology 73: 926-944.

Stier, D.J., and J.H. Crance. 1985. Habitat suitability index models and instream flow suitability curves: American shad. U.S. Fish and Wildlife Service Biological Report 82 (10.88). 34 pp.

Stillman, R.A., S.F. Railsback, J. Giske, U. Berger, and V. Grimm. 2015. Making predictions in a changing world: the benefits of individual-based ecology. BioScience 65: 140-150.

Stine, S., D. Gaines, and P. Vorster. 1984. Destruction of riparian systems due to water development in the Mono Lake watershed. Pp. 528-533 in: R.E. Warner and K.L. Hendrix (eds.) California riparian systems: Ecology, conservation, and productive management. Berkeley: University of California Press.

Stober, Q.J. 1984. Interpretation of IFIM results. Unpublished paper presented at Pacific Fishery Biologists, 46th annual conference, Ocean Shores, WA, March 19-21.

Stober, Q.J., and R.W. Tyler. 1982. Rule curves for irrigation drawdown and kokanee salmon (*Oncorhynchus nerka*) egg to fry survival. Fisheries Research 1: 195-218.

Stocks, J.R., K.F. Scott, M.P. Rodgers, C.T. Walsh, D.E. van der Meulen, and D. Gilligan. 2016. Short-term intervention monitoring of a fish community response to an environmental flow in the mid and lower MacQuarie River: 2014/2015 watering year. Fisheries Final Report Series – NSW Trade and Investment 150.

Stockton, C.W., and G.C. Jacoby. 1976. Long-term surface-water supply and streamflow trends in the Upper Colorado River Basin based on tree ring analyses. Bulletin 18. Lake Powell Research Project, University of California, Los Angeles.

Stockwell, D.A 1989. Nitrogen processes study (NIPS), effect of freshwater inflow on the primary production of a Texas coastal bay system. UTMSI Report to TWDB. University of Texas at Austin, Port Aransas, Texas.

Stoddard, J.L., D.P. Larsen, C.P. Hawkins, R.K. Johnson, and R.H. Norris. 2006. Setting expectations for the ecological condition of streams: the concept of reference condition. Ecological Applications 16: 1267-1276.

Stoddard, J.L., D.V. Peck, S.G. Paulsen, J. Van Sickle, C.P. Hawkins, A.T. Herlihy, R.M. Hughes, P.R. Kauffmann, D.P. Larsen, G. Lomnicky, A.R. Olsen, S.A. Peterson, P.L. Ringold, and T.R. Whittier. 2005. An ecological assessment of western streams and rivers. Washington, DC: US EPA. EPA 620/R-05/005.

Stoffels, R.J., N.R. Bond, and S. Nicol. 2018. Science to support the management of riverine flows. Freshwater Biology. 63 (8): 996-1010. Doi: 10.1111/fwb.13061

Stoffels, R.J., K.R. Clarke, R.A. Rehwinkel, and B.J. McCarthy. 2014. Response of a floodplain fish community to river-floodplain connectivity: natural versus managed reconnection. Canadian Journal of Fisheries and Aquatic Sciences 71 (2): 236-245. Doi: 10.1139/cjfas-2013-0042.

Stoffels, R.J., R.A. Rehwinkel, A.E. Price, and W.F. Fagan. 2016. Dynamics of fish dispersal during river-floodplain connectivity and its implications for community assembly. Aquatic Sciences 78: 355-365.

Stolarski, J. 2007. Age and growth of Appalachian brook trout in relation to life-history and habitat features. M.Sc. Thesis, West Virginia University, Morgantown, W.V.

Stolbov, A.Y., and Y.S. Alikin. 1978. Temperature dependence of active metabolism and swimming speed of the Baikal grayling, *Thymallus arcticus baicalensis*. Journal of Ichthyology 17: 178-179.

Stone, J. 2006. Observations on nest characteristics, spawning habitat, and spawning behavior of Pacific and western brook lamprey in a Washington stream. Northwestern Naturalist 87: 225-232.

Stone, J., and S. Barndt. 2005. Spatial distribution and habitat use of Pacific lamprey (*Lampetra tridentata*) ammocoetes in a western Washington stream. Journal of Freshwater Ecology 20: 171-185.

Stone, J., S. Barndt, and M. Gangloff. 2004. Spatial distribution and habitat use of the western pearlshell (*Margaritifera falcata*) in a western Washington stream. Journal of Freshwater Ecology 19: 341-352.

Stoneman, C.L., and M.L. Jones. 2000. The influence of habitat features on the biomass and distribution of three species of southern Ontario stream salmonines. Transactions of the American Fisheries Society 129: 639-657. Doi:10.1577/1548-8659(2000)129<0639:TIOHFO>2.3.CO;2.

Stora, G., and A. Arnoux. 1983. Effects of large freshwater diversions on benthos of a Mediterranean lagoon. Estuaries 6: 115-125.

Storey, R.G., K.W.F. Howard, and D.D. Williams. 2003. Factors controlling riffle-scale hyporheic exchange flows and their seasonal changes in a gaining stream: A three-dimensional groundwater flow model. Water Resour. Res. 39 (2): 1034. Doi: 10.1029/2002WR001367.

Stormer, D.G., and M.J. Maceina. 2008. Relative abundance, distribution, and population metrics of shoal bass in Alabama. Journal of Freshwater ecology 23: 651-661.

Stormer, D.G., and M.J. Maceina. 2009. Habitat use, home range, and movement of shoal bass in Alabama. North American Journal of Fisheries Management 29 (3): 604-613.

Stover, S.C., and D.R. Montgomery. 2001. Channel change and flooding, Skokomish River, Washington. Journal of Hydrology 243 (3-4): 272-286.

Stradmeyer, L., J. Hojesjo, S.W. Griffiths, D.J. Gilver, and J.D. Armstrong. 2008. Competition between brown trout and Atlantic salmon parr over pool refuges during dewatering. Journal of Fish Biology 72: 848-860.

Strahler, A.N. 1957. Quantitative analysis of watershed geomorphology. Transactions, American Geophysical Union 38: 913-920.

Straight, C.A., C.R. Jackson, B.J. Freeman, and M.C. Freeman. 2015. Diel patterns and temporal trends in spawning activities of robust redhorse and river redhorse in Georgia, assessed using passive acoustic monitoring. Transactions of the American Fisheries Society 144 (3): 563-576. Doi: 10.1080/00028487.2014.1001040.

Strakosh, T.R., R.M. Neumann, and R.A. Jacobson. 2003. Development and assessment of habitat suitability criteria for adult brown trout in southern New England rivers. Ecology of Freshwater Fish 12: 265-274.

Strange, E.M., P.B. Moyle, and T.C. Foin. 1992. Interaction between stochastic and deterministic processes in stream fish community assembly. Environmental Biology of Fishes 36: 1-15.

Strange, J.S. 2012. Migration strategies of adult Chinook salmon runs in response to diverse environmental conditions in the Klamath River basin. Transactions of the American Fisheries Society 141 (6): 1622-1636. Doi: 10.1080/00028487.2012.716010.

Stratford, D.S., C.A. Pollino, and A.E. Brown. 2016. Modelling population responses to flow: The development of a generic fish population model. Environmental Modelling and Software 79: 96-119.

Strayer, D. 1981. Notes on the microhabitats of unionid mussels in some Michigan streams. American Midland Naturalist 106: 411-415.

Strayer, D. 1983. The effects of surface geology and stream size on freshwater mussel (Bivalvia, Unionidae) distribution in southeastern Michigan, U.S.A. Freshwater Biology 13: 253-264.

Strayer, D. 1993. Macrohabitats of freshwater mussels (Bivalvia: Unionacea) in streams of the northern Atlantic slope. Journal of the North American Benthological Society 12: 236-246.

Strayer, D.L. 1999. Use of flow refuges by unionid mussels in rivers. Journal of the North American Benthological Society 18: 468-476.

Strayer, D.L., M.L. Pace, N.F. Caraco, J.J. Cole, and S.E.G. Findlay. 2008. Hydrology and grazing jointly control a large-river food web. Ecology 89 (1): 12-18.

Strayer, D.L., and J. Ralley. 1993. Microhabitat use by an assemblage of stream-dwelling Unionaceans (Bivalvia), including two rare species of *Alasmidonta*. Journal of the North American Benthological Society 12: 247-258.

Stringham, E. 1924. The maximum speed of freshwater fishes. American Naturalist 58: 156-161.

Strobel, B., D.R. Shively, and B.B. Roper. 2009. Salmon carcass movements in forest streams. North America Journal of Fisheries Management 29 (3): 702-714.

Stromberg, J.C. 1993. Instream flow models for mixed deciduous riparian vegetation within a semiarid region. Regulated Rivers: Research & Management 8 (3): 225-235.

Stromberg, J.C. 1997. Growth and survivorship of Fremont cottonwood, Goodding willow, and salt cedar after large floods in central Arizona. Great Basin Naturalist 57: 198-208.

Stromberg, J.C. 2001. Influence of stream flow regime and temperature on growth rate of the riparian tree, *Platanu wrightii*, in Arizona. Freshwater Biology 46: 227-239.

Stromberg, J.C. 2001. Restoration of riparian vegetation in the southwestern United States: importance of flow regimes and fluvial dynamism. Journal of Arid Environments 49: 17-34.

Stromberg, J.C. 2002. Flood flows and population dynamics of Arizona sycamore (*Platanus wrightii*). Western North American Naturalist 62: 170-187.

Stromberg, J.C., K.J. Bagstad, J.M. Leenhouts, et al. 2005. Effects of stream flow intermittency on riparian vegetation of a semiarid region river (San Pedro River, Ariizona). River Research and Applications 21: 925-938.

Stromberg, J.C., V.B. Beauchamp, M.D. Dixon, S.J. Lite, and C. Paradzick. 2007. Importance of low-flow and high-flow characteristics to restoration of riparian vegetation along rivers in arid south-western United States. Freshwater Biology 52: 651-679.

Stromberg, J.C., J. Fry, and D.T. Patten. 1997. Marsh development after large floods in an alluvial, arid-land river. Wetlands 17: 292-300.

Stromberg, J.C., A.F. Hazelton, and M.S. White. 2008. Plant species richness in ephemeral and perennial reaches of a dryland river. Biodiversity and Conservation 18 (3): 663-677.

Stromberg, J.C., S.J. Lite, and M.D. Dixon. 2010. Effects of stream flow patterns on riparian vegetation of a semiarid river: implications for a changing climate. River Research and Applications 26: 712-729.

Stromberg, J.C., S.J. Lite, R. Marler, C. Paradzick, P.B. Shafroth, D. Shorrock, J.M White, and M.S. White. 2007. Altered stream-flow regimes and invasive plant species: the *Tamarix* case. Global Ecology and Biogeography 16 (3): 381-393. Doi: 10.1111/j.1466-8238.2007.00297.x.

Stromberg, J.C., and D.T. Patten. 1989. Early recovery of an eastern Sierra Nevada riparian system after forty years of stream diversion. Pp. 399-404 in: D.L. Abell (ed.) California riparian systems conference: Protection, management and restoration for the 1990s. U.S. Forest Service General Technical Report PSW-110.

Stromberg, J.C., and D.T. Patten. 1990. Riparian vegetation instream flow requirements: A case study from a diverted stream in the eastern Sierra Nevada, California. Environmental Management 14 (2): 185-194.

Stromberg, Julie, and Duncan T. Patten. 1991. Instream flow requirements for cottonwoods at Bishop Creek, Inyo County, California. Rivers 2 (1): 1-11.

Stromberg, J.C., and D.T. Patten. 1992. Mortality and age of black cottonwood stands along diverted and undiverted streams in the eastern Sierra Nevada, California. Madrono 39: 205-223.

Stromberg, J.C., and D.T. Patten. 1996. Instream flow and cottonwood growth in the eastern Sierra Nevada of California, USA. Regulated Rivers: Research and Management 12: 1-12.

Stromberg, J.C., D.T. Patten, and B.D. Richter. 1991. Flood flows and dynamics of Sonoran riparian forests. Rivers 2 (3): 221-235.

Stromberg, J.C., B.D. Richter, D.T. Patten, and L.G. Wolden. 1993. Response of a Sonoran riparian forest to a 10-year return flood. Great Basin Naturalist 53: 118-130.

Stromberg, J.C., P.B. Shafroth, and A.F. Hazelton. 2012. Legacies of flood reduction on a dryland river. River Research and Applications 28 (2): 143-159.

Stromberg, J.C., R. Tiller, and B.D. Richter. 1996. Effects of groundwater decline on riparian vegetation of semiarid regions: the San Pedro River, Arizona, USA. Ecological Applications 6: 113-131.

Stromberg, J.C., S.D. Wilkins, and J.A. Tress. 1993. Vegetation-hydrology models: implications for management of *Prosopis vetulina* (velvet mesquite) riparian ecosystems. Ecological Applications 3: 307-314.

Stromberg, J.C., J.A. Tress, S.D. Wilkins, and Clark. 1992. Response of velvet mesquite to groundwater decline. Journal of Arid Environments 23: 45-58.

Strong, W.A., E.J. Nagid, and T. Tuten. 2010. Observations of physical and environmental characteristics of Suwannee bass spawning in a spring-fed Florida river. Southeastern Naturalist 9 (4): 699-710.

Strydom, N.A., A.K. Whitfield, and A.W. Paterson. 2002. Influence of altered freshwater flow regimes on abundance of larval and juvenile *Gilchristella aestuaria* (Pisces: Clupeidae) in the upper reaches of two South African estuaries. Marine and Freshwater Research 53: 431-438.

Stoneman, C.L., and M.L. Jones. 2000. The influence of habitat features on the biomass and distribution of three species of southern Ontario salmonines. Transactions of the American Fisheries Society 129 (3): 639-657.

Stuart, M. 2004. River flow regulation and wetland conservation in a dry country: Ichkeul, Tunisia. In: Assessment and provision of environmental flows in Mediterranean watercourses. Malaga, Spain: IUCN Centre for Mediterranean Cooperation.

Stuart, T.A. 1953. Water currents through permeable gravels and their significance to spawning salmonids. Nature, London 172: 407-408.

Stuart, T.A. 1956. The selection of spawning sites by trout. Proc. Linn. Soc. Lond. 167: 74-76.

Stuber, R.J., G. Gebhart, and O.E. Maughan. 1982. Habitat suitability index models: largemouth bass. U.S. Fish and Wildlife Service FWS/OBS-82/10.16.

Stubbington, R., A.J. Boulton, S.Little, and P.J. Wood. 2015. Changes in invertebrate assemblage composition in benthic and hyporheic zones during a severe supraseasonal drought. Freshwater Science 3 P.J. Wood4: 344-354. Doi: 10.1086/679467

Stubbington, R., P.J. Wood, and A.J. Boulton. 2009. Low flow controls on benthic and hyporheic macroinvertebrate assemblages during supraseasonal drought Hydrological Processes 23: 2252-2263.

Stubbington, R., P.J. Wood, I. Reid, and J. Gunn. 2010. Benthic and hyporheic invertebrate community responses to seasonal flow recession in a groundwater dominated stream. Ecohydrology 4: 500-511.

Stuby, L. 2018. Contributions to the life history of Kuskokwim River inconnu. Transactions of the American Fisheries Society 147 (5): 879-890. Doi: 10.1002/tafs.10069

Stuckey, M.H. 2006. Low-Flow, Base-Flow, and Mean-Flow Regression Equations for Pennsylvania Streams. Survey Scientific Investigations Report 2006-5130. U.S. Geological Survey, Reston, VA.

Studley, T.K., S.F. Railsback, and J.E. Baldrige. 1996. Predicting fish population response to instream flows. Hydro Review 15 (6): 48-57.

Studley, T.K., and 10 coauthors. 1995. Response of fish populations to altered flows project, volumes I-III, predicting trout populations from streamflow and habitat variables. Pacific Gas and Electric Company, Report 009.4-94.3, San Ramon, California.

Sturrock, A.M., T. Heyne, J.D. Wikert, C. Mesick, T. Hinkelman, A. Hubbard, P.K. Weber, G. Whitman, J.J. Glessner, and R.C. Johnson. 2015. Reconstructing the migratory behavior and long-term survivorship of juvenile Chinook salmon under contrasting hydrologic regimes. PLoS ONE 10 (5): e0122380

Stypula, J.M. 1986. Geometric characteristics of natural streams. M.S. thesis, Washington State University, Pullman.

Suarez, Y.R., M.P. Junior, and A.C. Catella. 2004. Factors regulating diversity and abundance of fish communities in Pantanal lagoons, Brazil. Fisheries Management and Ecology 11: 45-50.

Suarez, Y.R., M. Petrere, and A.C. Catella. 2001. Factors determining the structure of fish communities in Pantanal lagoons (MS, Brazil). Fisheries Management and Ecology 8: 173-186.

Suen, J.-P., and J.W. Eheart. 2006. Reservoir management to balance ecosystem and human needs: incorporating the paradigm of the ecological flow regime. Water Resource Research 42: W03417.

Suen, J.-P., J.W. Eheart, E.E. Herricks, and F.J. Chang. 2009. Evaluating the potential impact of reservoir operation on fish communities. Journal of Water Resources Planning and Management 135: 475-48..

Sullivan, A.M. 2000. Habitat suitability index modeling for fisheries management using a geographic information system: an analysis of environmental factors and essential fish habitat. Master’s thesis, Florida Institute of Technology, Melbourne.

Sullivan, B.E., L.S. Rigsby, A. Berndt, M. Jones-Wuellner, T.P. Simon, T. Lauer, and M. Pyron. 2004. Habitat influence onf fish community assemblage in an agricultural landscape in four east central Indiana streams. J. Freshw. Ecol. 19: 131-148. Doi: 10.1080/02705060.2004.9664521.

Sullivan, K. 1986. Hydraulics and fish habitat in relation to channel morphology. Doctoral dissertation, John Hopkins University, Baltimore, Maryland.

Sullivan, S.M.P., and M.C. Watzin. 2009. Stream-floodplain connectivity and fish assemblage diversity in the Champlain Valley, Vermont, USA. J. Fish Biol. 74 (7): 1394-1418. Doi: 10.1111/j.1095-8649.2009.02205.x.

Sun, G., S.G. McNulty, J. Lu, D.M. Amatya, Y. Liang, and R.K. Kolka. 2005. Regional annual water yield from forest lands and its response to potential deforestation across the southeastern United States. Journal of Hydrology 308 (1-4): 258-268.

Sun, T., and Z.F. Yang. 2004. Calculating methods for ecological flows in estuary and its application in Haube River Basin. Environmental Informatics Archives 2: 464-470.

Sun, T., Z.F. Yang, and B. Cui. 2008. Critical environmental flows to support integrated ecological objectives for the Yellow River Estuary, China. Water Resources Management 22: 973-989.

Sun, T., Z.F. Yang, Z.Y. Shen, and R. Zhao. 2009. Environmental flows for the Yangtze Estuary based on salinity objectives. Communications in Nonlinear Science and Numerical Simulation 14: 959-971.

Sun, T., H. Zhang, Z. Yang, and W. Yang. 2015. Environmental flow assessments for transformed estuaries. J. Hydrol. 520: 75-84.

Sunardi, T. Asaeda, J. Manatunge, and T. Fujino. 2007. The effects of predation risk and current velocity stress on growth, condition, and swimming energetics of Japanese minnow (Pseudorasbora parva). Ecological Research 22: 32-40. Doi: 10.1007/s11284-00600186-6.

Suren, A.M., and I.G. Jowett. 2006. Effects of floods versus low flows on invertebrates in a New Zealand gravel-bed river. Freshwater Biology 51: 2207-2227. Doi: 10.1111/j.1365-2427.2006.01646.x

Suren, A.M., and T. Riis. 2010. The effects of plant growth on stream invertebrate communities during low flow: a conceptual model. Journal of the North American Benthological Society 29: 711-724.

Surian, N. 1999. Channel changes due to river regulation: the case of the Piave river, Italy. Earth Surface Process. Landf. 24: 1135-1151. Doi:10.1002/(SICI)1096-9837(199911)24:12<1135::AID-ESP40>3.0.CO;2-F.

Surian, N., and M. Rinaldi. 2003. Morphological response to river engineering and management in alluvial channels in Italy. Geomorphology 50: 307-326.

Sutcliffe, W.H., Jr. 1973. Correlations between seasonal river discharge and local landings of American lobster (*Homarus americanus*) and Atlantic halibut (*Hippoglossus hippoglossus*) in the Gulf of St. Lawrence. Journal of the Fisheries Research Board of Canada 30 (6): 856-859.

Suttle, K. B., M.E. Power, J.M. Levine, and C. McNeely. 2004. How fine sediment in riverbeds impairs growth and survival of juvenile salmonids. Ecological Applications 14: 969-974.

Sutton, R.J., M.L. Deas, S.K. Tanaka, T. Soto, and R.A. Corum. 2007. Salmonid observations at a Klamath River thermal refuge under various hydrological and meteorological conditions. River Research and Applications 23: 775-785.

Sutton, R.J., W.J. Miller, and S.J. Patti. 1997. Application of the instream flow incremental methodology to a tropical river in Puerto Rico. Rivers 6 (1): 1-9.

Suzuki, H.I., A.A. Agostinho, D. Bailly, M.F. Gimenes, H.F. Gulio, Jr., and L.C. Gomes. 2009. Inter annual variation in the abundance of young-of-the-year of migratory fishes in the Upper Parana River Floodplain: Relations with hydrographic attributes. Brazilian Journal of Biology 69 (suppl.): 649-660. Doi: 10.1590/s1519-69842009000300019

Svendsen, J.C., A. Koed, and K. Aarestup. 2004. Factors influencing the spawning migration of female anadromous brown trout. J. Fish Biol. 64: 528-540.

Svendson, K.M., C.E. Renshaw, F.J. Magilligan, K.H. Nislow, and J.M. Kaste. 2009. Flow and sediment regimes at tributary junctions on a regulated river: Impact on sediment residence time and benthic macroinvertebrate communities. Hydrological Processes 23: 284-296.

Svensson, C., W.Z. Kundzewicz, and T. Maurer. 2005. Trend detection in river flow series. 2. Flood and low-flow index series. Hydrological Sciences Journal 50 (5): 811-824.

Swales, S., F. Caron, J.R. Irvine, and C.D. Levings. 1988. Overwintering habitats of coho salmon (*Oncorhynchus kisutch*) and other juvenile salmonids in the Keogh River system, British Columbia. Canadian Journal of Zoology 66: 254-261.

Swales, S., and J.H. Harris. 1995. The expert panel assessment method (EPAM): a new tool for determining environmental flows in regulated rivers. Pages 125-134 in D.M. Harper, and A.J.D. Ferguson, ed. The ecological basis for river management. John Wiley & Sons, Inc., New York.

Swales, S., R.B. Lauzier, and C.D. Levings. 1986. Winter habitat preferences of juvenile salmonids in two interior rivers in British Columbia. Canadian Journal of Zoology 64: 1506-1514.

Swales, S., and C.D. Levings. 1989. Role of off-channel ponds in the life cycle of coho salmon (*Oncorhynchus kisutch*) and other juvenile salmonids in the Keogh River system, British Columbia. Canadian Journal of Fisheries and Aquatic Sciences 46: 232-242.

Swales, S., A.W. Storey, I.D. Roderick, and B.S. Figa. 1999. Fishes of floodplain habitats of the Fly river system, Papua New Guinea, and changes associated with El Nino droughts and algal blooms. Environmental Biology of Fishes 51: 399-410.

Swan, G.A. 1989. Chinook salmon spawning surveys in deep waters of a large, regulated river. Regulated Rivers: Research and Management 4: 355-370.

Swan, G.A., E.M. Dawley, R.D. Ledgerwood, W.T. Norman, W.F. Cobb, and D.T. Harman. 1988. Distribution and relative abundance of deep-water redds for spawning fall chinook salmon at selected study sites in the Hanford Reach of the Columbia River. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Seattle, Washington.

Swanberg, T. 1997. Movements and habitat use by fluvial bull trout in the Blackfoot River, Montana. Transactions of the American Fisheries Society 126: 735-746. Doi: 10.1577/1548-8659(1997)126<0735:MOAHUB>2.3.CO;2

Swansburg, E., N. El-Jabi, D. Caissie, and G. Chaput. 2004. Hydrometeorological trends in the Miramichi River, Canada: Implications for Atlantic salmon growth. North American Journal of Fisheries Management 24 (2): 561-576.

Swanson, B.J., G.A. Meyer, and J.E. Coonrod. 2011. Historical channel narrowing along the Rio Grande near Albuquerque, New Mexico in response to peak discharge reductions and engineering magnitude and uncertainty of changes from air photo measurements. Earth Surface Processes and Landforms 36: 885-900.

Swanson, C., P.S. Young, and J.J. Cech Jr. 1998. Swimming performance of delta smelt: maximum performance, and behavioral and kinematic limitations of swimming at submaximal velocities. Journal of Experimental Biology 201: 333-345.

Swanson, C., P.S. Young, and J.J. Cech Jr. 2004. Swimming in two-vector flows: performance and behavior of juvenile Chinook salmon near a simulated screened water diversion. Transactions of the American Fisheries Society 133: 265-278.

Swanson, F.J., S.L. Johnson, S.V. Gregory, and S.A. Acker. 1998. Flood disturbance in a forested mountain landscape – interactions of land use and floods. Bioscience 48 (9): 681-689. Doi: 10.2307/1313331.

Sweeney, B.W., T.L. Bott, J.K. Jackson, L.A. Kaplan, J.D. Newbold, L.J. Standley, W.C. Hession, and R.J. Horwitz. 2004. Riparian deforestation, stream narrowing, and loss of stream ecosystem services. Proceedings of the National Academy of Sciences 101 (39): 14132-14137.

Sweka, J.A., J. Mohler, M.J. Millard, T. Kehler, A. Kahnle, K. Hattala, G. Kenney, and A. Higgs. 2007. Juvenile Atlantic sturgeon habitat use in Newburgh and Haverstraw Bays of the Hudson River: Implications for population monitoring. North American Journal of Fisheries Management 27 (4): 1058-1067.

Swenson, W.A., B.J. Shuter, D.J. Orr, and G.D. Heberling. 2002. The effects of stream temperature and velocity on first-year growth and year-class abundance of smallmouth bass in the upper Mississippi River. Pages 101-113 in: D.P. Philipp and M.S. Ridgway, editors. Black bass: ecology, conservation, and management. American Fisheries Society, Symposium 31, Bethesda, Maryland.

Swift, C.H., III. 1976. Estimation of stream discharges preferred by steelhead trout for spawning and rearing in western Washington. U.S. Geological Survey Open-File Report 75-155, Tacoma.

Swift, C.H., III. 1979. Preferred stream discharges preferred for salmon spawning and rearing in Washington. U.S. Geological Survey Open-File Report 77-422, Tacoma. 51 pp.

Swirepik, J.L., I.C. Burns, F.J. Dyer, I.A. Neave, M.G. O’brien, G.M. Pryde, and R.M. Thompson. 2016. Establishing environmental water requirements for the Murray-Darling Basin, Australia‘s largest developed river system. River Research and Applications 32: 1153-1165. Doi: 10.1002/rra.2975

Sykes, G.E. 2007. The role of temperature and flow on the migration of Chinook salmon (*Oncorhynchus tshawytscha*) smolts. Master’s thesis. University of Northern British Columbia, Prince George.

Sykes,, G.E., C.J Johnson, and J.M. Shrimpton. 2009. Temperature and flow effects on migration timing of Chinook salmon smolts. Transactions of the American Fisheries Society 138 (6): 1252-1265. Doi:10.1577/T08-180.1

Sykes,, G.E., and J.M. Shrimpton. 2010. Effect of temperature and current manipulation on smolting in Chinook salmon (*Oncorhynchus tshawytscha*): the relationship between migratory behaviour and physiological development. Canadian Journal of Fisheries and Aquatic Sciences 67 (1): 191-201. Doi:10.1139/F09-166.

Symons, P.E.K. 1976. Behavior and growth of juvenile Atlantic salmon (*Salmo salar*) and three competitors at two stream velocities. Journal of the Fisheries Research Board of Canada 33: 2766-2773.

Symons, P.E.K., and M. Heland. 1978. Stream habitats and behavioral interactions of underyearling and yearling Atlantic salmon (*Salmo salar*). Journal of the Fisheries Research Board of Canada 35: 175-183.

Syrjanen, J., K. Korsu, P. Louhi, R. Paavola, and T. Muotka. 2011. Stream salmonids as opportunistic foragers: the importance of terrestrial invertebrates along a stream-size gradient. Canadian Journal of Fisheries and Aquatic Sciences 68 (12): 2146-2156. Doi: 10.1139/F2011-118.

Szerris, J.M., G.C. Dandy, and H.R. Maier. 2013. A multiobjective ant colony approach for scheduling environmental flow management alternatives with application to the River Murray, Australia. Water Resour. Res. 49: 6393-6411. Doi: 10.1002/wrcr.20518.

Tabacchi, E., D.L. Corbell, F.R. Hauer, G. Pinay, A. Planty-Tabacchi, and R.C. Wissmar. 1998. Development, maintenance and role of riparian vegetation in the river landscape. Freshwater Biology 40: 497-516.

Tagart, J.V. 1984. Coho salmon survival from egg deposition to fry emergence. Pp. 173-181 *in*: J.M. Walton and D.B. Houston, editors, Proceedings of the Olympic Wild Fish Conference, Port Angeles, Washington.

Taguchi, M., and J.C. Liao. 2011. Rainbow trout consume less oxygen in turbulence: the energetics of swimming behaviors at different speeds. J. Exp. Biol. 214: 1428-1436. Doi: 10.1242/jeb.052027.

Tague, C., G. Grant, M. Farrell, J. Choate, and A. Jefferson. 2008. Deep groundwater mediates streamflow response to climate warming in the Oregon Cascades. Climatic Change 86: 189-210. Doi:10.1007/s10584-007-9294-8.

Talbot, M.M., W.T. Knoop, and G.C. Bate. 1990. The dynamics of estuarine macrophytes in relation to flood/siltation cycles. Botanica Marina 33: 159-164.

Talmage, P.J., J.A. Perry, and R.M. Goldstein. 2002. Relation of instream habitat and physical conditions to fish communities of agricultural streams in the northern midwest. North American Journal of Fisheries Management 22 (3): 825-833.

Tamai, N., and T. Chibana. 2000. Suitability curves for fishes for riverine habitat evaluation. In: U. Maione, B.M. Lehto, and R. Monti (editors). New Trends in Water and Environmental Engineering for Safety and Life. A.A. Balkema, Rotterdam, Netherlands.

Tamminga, A., C. Hugenholtz, B. Eaton, and M. Lapointe. 2015. Hyperspatial remote sensing of channel reach morphology and hydraulic fish habitat using an unmanned aerial vehicle (UAV): a first assessment in the context of river management and research. River Research and Applications 31: 379-391.

Tan, L.W., and R.J. Shiel. 1993. Responses of billabong rotifer communities to inundation. Hydrobiologia 255/256: 361-369.

Tank, J.L., E.J. Rosi-Marshall, M.A. Baker, and R.O. Hall, Jr. 2008. Are rivers just big streams? A pulse method to quantify nitrogen demand in a large river. Ecology 89 (10): 2935-2945.

Tanner, T.L. 2008. Geomorphology and inconnu spawning site selection: an approach using GIS and remote sensing. Master’s thesis, University of Alaska, Fairbanks.

Tappel, P.D., and T.C. Bjornn. 1983. A new method of relating size of spawning gravel to salmonid embryo survival. North American Journal of Fisheries Management 3: 123-135.

Tarbet, K., and T.B. Hardy. 1996. Evaluation of one-dimensional and two-dimensional hydraulic modeling in a natural river and implications in instream flow assessment methods. In: Proceedings of the 2nd International Symposium on Habitat Hydraulics. June 1996, Quebec, Canada. B395-B406.

Tardif, J., and Y. Bergeron. 1993. Radial growth of *Fraxinus nigra* in a Canadian boreal floodplain in response to climatic and hydrological fluctuations. Journal of Vegetation Science 4: 751-758.

Tatara, C.P., S.C. Riley, and J.A. Scheurer. 2009. Growth, survival, and habitat use of naturally reared and hatchery steelhead fry in streams: effects of an enriched hatchery rearing environment. Transactions of the American Fisheries Society 138: 441-457.

Tate, W.B., M.S. Allen, R.A. Myers, E.J. Najid, and J.R. Estes. 2003. Relation of age-0 largemouth bass abundance to hydrilla coverage and water level at Lochloosa and Orange lakes, Florida. North American Journal of Fisheries Management 23: 251-257.

Tautz , A.F., and C. Groot. 1975. Spawning behavior of chum salmon (*Oncorhynchus keta*) and rainbow trout (*Salmo gairdneri*). Journal of the Fisheries Research Board of Canada 32: 633-642.

Taylor, A.T., J.M. Long, M.D. Tringali, and B.L. Barthel. 2019. Conservation of black bass diversity: an emerging management paradigm. Fisheries 44 (1): 20-36. Doi; 10.1002/fsh.10187

Taylor, B.E., and D.L. Mahoney. 1990. Zooplankton in Rainbow Bay, a Carolina Bay pond: population dynamics in a temporary habitat. Freshwater Biology 24: 597-612.

Taylor, C.M. 1997. Fish species richness and incidence patterns in isolated and connected stream pools: effects of pool volume and spatial position. Oecologia 110: 560-566.

Taylor, C.M., and R.J. Miller. 1990. Reproductive ecology and population structure of the plains minnow, *Hybognathus placitus* (Pisces: Cyprinidae), in central Oklahoma. American Midland Naturalist 123: 32-29.

Taylor, C.M., D.S. Millican, M.E. Roberts, and W.T. Slack. 2008. Long-term change to fish assemblages and the flow regime in a southeastern U.S. river system after extensive ecosystem fragmentation. Ecography 31: 787-797. Doi: 10.1111/j.1600-0587.2008.05526.x

Taylor, C.M., M.R. Winston, and W.J. Matthews. 1993. Fish species-environment and abundance relationships in a Great Plains river system. Ecography 16: 16-23.

Taylor, D.W. 1982. Eastern Sierra riparian vegetation: ecological effects of stream diversion. Mono Basin Research Group Contribution 6, Report to Inyo National Forest.

Taylor, E.B. 1988. Water temperature and velocity as determinants of microhabitats of juvenile chinook and coho salmon in a laboratory stream. Transactions of the American Fisheries Society 117: 22‑28. Doi: 10.1577/1548-8659(1988)117<0022;WTAVAD>2.3.CO;2.

Taylor, E.B. 1991. Behavioural interaction and habitat use in juvenile chinook, *Oncorhynchus* *tshawytscha*, and coho, *O. kisutch*, salmon. Animal Behaviour 42: 729-744.

Taylor, E.B., and P.A. Larkin. Current response and agonistic behavior in newly emerged fry of Chinook salmon, *Oncorhynchus tshawytscha*, from ocean type and stream type populations. Canadian Journal of Fisheries and Aquatic Sciences 43: 565-573.

Taylor, E.B., and J.D. McPhail. 1985. Variation in burst and prolonged swimming performance among British Columbia populations of coho salmon, *Oncorhynchus kisutch*. Canadian Journal of Fisheries and Aquatic Sciences 42: 2029-2033.

Taylor, J.M., T.S. Seilheimer, and W.I. Fisher. 2014. Downstream fish assemblage response to river impoundment varies with degree of hydrologic alteration. Hydrobiologia 728: 23-39. Doi: 10.1007/s10750-013-1797-x.

Taylor, M.K., and S.J. Cooke. 2012. Meta-analysis of the effects of river flow on fish movement and activity. Environmental Reviews 20: 211-219.

Taylor, R.C. 1983. Drought-induced changes in crayfish populations along a stream continuum. American Midland Naturalist 110: 286-298.

Taylor, R.C. 1988. Population dynamics of the crayfish *Procambarus spiculifer* observed in different-sized streams in response to two droughts. Journal of Crustacean Biology 8: 401-409.

Tedesco, P.A., B. Hugueny, T. Oberdorff, H.H. Durr, S. Merigoux, and B. de Merona. 2008. River hydrological seasonality influences life history strategies of tropical riverine fishes. Oecologia 156: 691-702. Doi: 10.1007/s00442-008-1021-2.

Tedesco, P.A., B. Hugueny, D. Paugy, and Y. Fermon. 2004. Spatial synchrony in population dynamics of West African fishes: a demonstration of an intraspecific and interspecific Moran effect. Journal of Animal Ecology 73: 693-705.

Teichert, M.A.K., A. Foldvik, T. Forseth, O. Ugedal, S. Einum, A.G. Finstad, R.D. Hedger, and E. Bellier. 2011. Effects of spawning distribution on juvenile Atlantic salmon (*Salmo salar*) density and growth. Canadian Journal of Fisheries and Aquatic Sciences 68 (1): 43-50. Doi: 10.1139/F10-141

Teichert, M.A.K., E. Kvingedal, T. Forseth, O. Ugedal, and A.G. Finstad. 2010. Effects of discharge and local density on the growth of juvenile Atlantic salmon *Salmo salar*. J. Fish. Biol. 76 (7): 1751-1769. Doi: 10.1111/j.1095-8649.2010.02614.x.

Teixeira, A., and R. Cortes. 2007. PIT telemetry as a method to study the habitat requirements of fish populations: application to native and stocked trout movements. Hydrobiologia 582: 171-185.

Tejerina-Garro, F.L., R. Fortin, and M.A. Rodriguez. 1998. Fish community structure in relation to environmental variation in floodplain lakes of the Araguaia River, Amazon Basin. Environmental Biology of Fishes 51: 399-410. Doi: 10.1023/A:1007401714671

Tennant, D.L. 1976. Instream flow regimes for fish, wildlife, recreation and related environmental resources. Fisheries 1 (4): 6-10. Doi: 10.1577/1548-8446(1976)001<0006:IFRFFW>2.0.CO;2.

Tennant, D.L. 1976. Instream flow regimes for fish, wildlife, recreation and related environmental resources. Pp. 359-373 in: N.B. Armantrout, editor. Acquisition and utilization of aquatic habitat inventory information. Proceedings of a symposium, Portland, Oregon. American Fisheries Society, Western Division, Bethesda.

Tentelier, C., N. Larranaga, O. Lepais, A. Manicki, J. Rives, and F. Lange. 2016. Space use and its effects on reproductive success of anadromous Atlantic salmon. Canadian Journal of Fisheries and Aquatic Sciences 73 (10): 1461-1471. Doi: 10.1139/cjfas-2015-0518.

Terrell, J.W. (Editor). 1984. Proceedings of a workshop on fish habitat suitability index models. Washington, D.C.: U.S. Fish and Wildlife Service (Biological Report 85[6])

Terrell, J.W., B.S. Cade, J. Carpenter, and J.M. Thompson. 1996. Modeling stream fish habitat limitations from wedge-shaped patterns of variation in standing stock. Transactions of the American Fisheries Society 125: 104-117. Doi: 10.1577/1548-8659(1996)125<0104>MSHLF>2.3.CO;2.

Terrell, J.W., and J. Carpenter, eds. 1997. Selected habitat suitability index model evaluations. U.S. Geological Survey, Biological Resources Division, Information and Technology Report 1997 (0005): 62 pp. http>//ww.nwrc.usgs.gov/wdb/pub/his/USGS-BRD-ITR\_1997-0005.pdf

Terrell, J.W., T.E. McMahon, P.D. Inskip, R.F. Raleigh, and K.L. Williamson. 1982. Habitat suitability index models: Appendix A. Guidelines for riverine and lacustrine applications of fish HSI models with the Habitat Evaluation Procedures. U.S. Fish and Wildlife Service, Report FWS/OBS-82/10.A, Washington, D.C.

Tessman, S.A. 1980. Environmental Assessment, Technical Appendix E, in Environmental Use sector Reconnaissance Elements of the Western Dakotas Region of South Dakota study. Water Resources Research Institute, South Dakota State University, Brookings, South Dakota.

Tett, P., C. Gallegos, M.G. Kelly, G.H. Hornberger, and B.J. Cosby. 1978. Relationships among substrate, flow, and benthic macroalgal pigment density in the Mechums River, Virginia. Limnology and Oceanography 23: 785-797.

Tetzlaff, D., C.N. Gibbins, P.J. Bacon, A.F. Youngson, and C. Soulsby. 2008. Influences of hydrological regimes on the pre-spawning entry of Atlantic salmon (*Salmo salar* L.) into an upland river. River Res. Appl. 24 (5): 528-542. Doi: 10.1002/rra.1144.

Tetzlaff, D., C. Soulsby, P.J. Bacon, A.F. Youngson, and I.A. Malcolm. 2007. Connectivity between landscapes and riverscapes – A unifying theme in integrating hydrology and ecology in catchment science? Hydrol. Processes 21 (10): 1385-1389. Doi: 10.1002/hyp.6701.

Tetzlaff, D., C. Soulsby, C.N. Gibbins, P.J. Bacon, and A.F. Youngson. 2005. An approach to assessing hydrological influences on feeding opportunities of juvenile Atlantic salmon (*Salmo salar*): A case study of two contrasting years in a small, nursery stream. Hydrobiologia 549 (1): 65-77. Doi: 10.1007/s10750-005-4166-6.

Texas Department of Water Resources. 1982. The influence of freshwater inflows upon the major bays and estuaries of the Texas Gulf coast, executive summary. Publication LP-115. Austin, TX.

Texas Instream Flow Program. 2018. Instream flow study of the middle and lower Brazos River. Texas Commission on Environmental Quality, Texas Parks and Wildlife Department, and Texas Water Development Board, Austin, Texas. <http://www.twdb.texas.gov/surfacewater/flows/instream/middle> lower brzos/doc/Brazos River Basin FinalRecommendationsReport 180615.pdf

Texas Instream Flow Program and San Antonio River Authority. 2018. Instream flow study of the lower San Antonio River and lower Cibolo Creek. Texas Commission on Environmental Quality, Texas Parks and Wildlife Department, and Texas Water Development Board, Austin, Texas. <http://www.twdb.texas.gov/surfacewater/flows/instream/lower_san_antonio/doc/instream_flow_study_of_the_lower_san_antonio_river_and_lower_cibolo_creek.pdf>

\_

Tharme, R.E. 1996. Review of international methodologies for the quantification of the instream flow requirements of rivers. Department of Water Affairs and Forestry, Pretoria, South Africa.

Tharme, R.E. 1997. Sabie-Sand River system: Instream flow requirements. Department of Water Affairs and Forestry, Pretoria, South Africa.

Tharme, R.E. 2000. An overview of environmental flow methodologies, with particular reference to South Africa. Pages 15-40 in: J.M. King, R.E. Tharme, and M.S. DeVilliers (editors), Environmental flow assessments for rivers: manual for the building block methodology. Water research Commission Technology Transfer Report no. TT13/00. Water Research Commission, Pretoria.

Tharme, R.E. 2003. A global perspective on environmental flow assessment: emerging trends in the development and application of environmental flow methodologies for rivers. River Research and Applications 19: 397-441. Doi: 10.1002/rra.736

Tharme, R.E., and J.M. King. 1998. Development of building block methodology for instream flow assessments and supporting research on the effects of different magnitude flows on riverine ecosystems. WRC Report No. 576/1/98. Water Research Commission, Pretoria, South Africa. 452 pp.

Theodoropoulos, C., and N. Skoulikidis. 2014. Environmental flows: the European approach through the water framework directive 2006/60/EC. Proceedings of the 10th International Congress of the Hellenic Geographical Society.

Thibault, I., and J. Dodson. 2013. Impacts of exotic rainbow trout on habitat use by native juvenile salmonid species at an early invasive stage. Transactions of the American Fisheries Society 142 (4): 1141-1150. Doi: 10.1080/00028487.2013.799516.

Thielke, J. 1985. A logistic regression approach for developing suitability-of-use functions for fish habitat. Pp. 32-38 in: F.W. Olson, R.G. White, and R.H. Hamre (editors), Proceedings of the Symposium on Small Hydropower and Fisheries. American Fisheries Society, Aurora, Colorado.

Thiem, J.D., T.R. Binder, P. Dumont, D. Hatin, C. Hatry, C. Katapodis, K.M. Stamplecoskie, and S.J. Cooke. 2013. Multispecies fish passage behavior in a vertical slot fishway on the Richelieu River, Quebec, Canada. River Research and Applications 29: 582-992.

Thieme, M.L., C.C. McIvor, M.J. Brouder, and T.L. Hoffnagle. 2001. Effects of pool formation and flash flooding on relative abundance of young-of-year flannelmouth suckers in the Paria River, Arizona. Regulated Rivers: Research and Management 17: 145-156.

Thomas, A.E. 1975. Migration of chinook salmon fry from simulated incubation channels in relation to water temperature, flow, and turbidity. Progressive Fish-Culturist 37 (4): 219-223.

Thomas, D.L., C. Ianuzzi, and R.P. Barry. 2004. A Bayesian multinomial model for analyzing categorical habitat selection data. Journal of Agricultural, Biological, and Environmental Statistics 9: 432-442.

Thomas, D.L., and E.J. Taylor. 1990. Study designs and tests for comparing resource use and availability. Journal of Wildlife Management 54: 322-330. Doi: 10.2193/0022-541X(2006)70[324:SDATFC]2.0.CO;2.

Thomas, G.A. 2017. Managing infrastructure to maintain natural functions in developed rivers. In: A. Horne, J.A. Webb, M. Steewardson, M. Acreman, and B.D. Richter (eds.), Water for the Environment: From Science and Policy to Management and Implementation. Elsevier: Cambridge, MA.

Thomas, H., and T.R. Nisbet. 2006. An assessment of the impact of floodplain woodland on flood flows. Water and Environment Journal 1-13. Doi: 10.1111/j.1747-6593.2006.00056.x.

Thomas, J.A., and K.D. Bovee. 1993. Application and testing of a procedure to evaluate transferability of habitat suitability criteria. Regulated Rivers: Research & Management 8: 285‑294. Doi: 10.1002/rra.3450080307.

Thomas, M.J., M.L. Peterson, E.D. Chapman, A.R. Hearn, G.P. Singer, R.D. Battleson, and A.P. Klimley. 2014. Behavior, movements, and habitat use of adult green sturgeon, Acipenser medirostris, in the upper Sacramento River. Environmental Bioloby of Fishes 97: 133-146.

Thomas, M.J., M.L. Peterson, N. Friedenberg, J.P. Van Eenennaam, J.R. Johnson, J.J. Hoover, and A.P. Klimley. 2013. Stranding of spawning run green sturgeon in the Sacramento River: post-rescue movements and potential population-level effects. North American Journal of Fisheries Management 33 (2): 287-297. Doi: 10.1080/02755947.2012.758201.

Thomas, R.B., and W.F. Megahan. 1998. Peak flow responses to clear-cutting and roads in small and large basins, western Cascades, Oregon: a second opinion. Water Resour. Res. 34: 3393-3403.

Thomaz, S.M., L.M. Bini, and R.L. Bozelli. 2007. Floods increase similarity among aquatic habitats in river-floodplain systems. Hydrobiologia 579: 1-13. Doi: 10.1007/s10750-006-0285y-006-0285-y.

Thompson, A.R., J.T, Petty, and G.D. Grossman. 2001. Multi-scale effects of resource patchiness on foraging behavior and habitat use by longnose dace, *Rhinichthys cataractae*. Freshwater Biology 46: 145-160. Doi: 10.1046/j.1365-2427.2001.00654.x

Thompson, D.M., and M.W. Schwartz. 2006. Using population count data to assess the effects of changing river flow on an endangered riparian plant. Conservation Biology 20: 1132-1142.

Thompson, D.M., and E.E. Wohl. 2009. The linkage between velocity patterns and sediment entrainment in a forced-pool and riffle unit. Earth Surface Processes and Landforms 34: 177-192.

Thompson, J.N., and D.A. Beauchamp. 2014. Size-selective mortality of steelhead during freshwater and marine life stages related to freshwater growth in the Skagit River, Washington. Transactions of the American Fisheries Society 910-925. Doi: 10.1080/0028487.2014.901253.

Thompson, J.R., N.R. Bond, S.C. Cunningham, L. Metzeling, P. Reich, R.M. Thompson, and R. MacNally. 2012. The influence of climatic variation and vegetation on stream biota: lessons from the Big Dry in southeastern Australia. Global Change Biology 18: 1582-1596.

Thompson, J.R., C.L.R. Laize, A.J. GreenM.C. Acreman, and D.G. Kingston. 2014. Climate change uncertainty in environmental flows for the Mekong River. Hydrolog. Sci. J. 59: 1-20.

Thompson, J.R., M.P. Taylor, K.A. Fryirs, and G.J. Brierley. 2001. A geomorphological framework for river characterization and habitat assessment. Aquatic Conservation Marine and Freshwater Ecosystems 11: 373-389.

Thompson, K.E. 1972. Determining instream flows for fish life. Pp. 31-50 in: Proceedings of the instream flow requirement workshop. Pacific Northwest River Basins Commission, Portland, Oregon.

Thompson, L.C., S.A. Cocherell, S.N. Chun, J.J. Cech, and A.P. Klimley. 2011. Longitudinal movement of fish in response to a single-day flow pulse. Environmental Biology of Fish 90: 253-261.

Thompson, L.C., M.I. Escobar, C.M. Mosser, D.R. Purkey, D. Yates, and P.B. Moyle. 2012. Water management adaptations to prevent loss of spring Chinook salmon in California under climate change. Journal of Water Resources Management and Planning 138: 465-478. Doi: 10.1061/(ASCE)WR.1943-5452.0000194

Thompson, R.M., N. Bond, N.L. Poff, and N. Byron. 2018. Towards a systems approach for river basin management – Lessons from Australia’s largest river. River Research and Applications doi: 10.1002/rra.3242

Thompson, R.M., A.J. King, R.M. Kingsford, R. MacNally, and N.L. Poff. 2017. Legacies, lags and long-term trends: Effective flow restoration in a changed and changing world. Freshwater Biology 63 (8): 986-995. doi: 10,1111/fwb.13029.

Thoms, M.C., and P. Cullen. 1998. The impact of irrigation withdrawals on inland river systems. The Rangeland Journal 20: 226-236.

Thoms, M.C., and M. Parsons. 2003. Identifying spatial and temporal patterns in the hydrological character of the Condamine-Balonne River, Australia, using multivariate statistics. River Research and Applications 19: 443-457.

Thoms, M.C., and F. Sheldon. 2000. Water resource development and hydrological change in a large dryland river: the Barwon-Darling River, Australia. Journal of Hydrology 228: 10-21.

Thoms, M.C., and F. Sheldon. 2002. An ecosystem approach for determining environmental water allocations in Australian dryland river systems: the role of geomorphology. Geomorphology 47: 153-168.

Thoms, M.C., F. Sheldon, J. Roberts, J. Harris, and T. Hillman. 1996. Scientific panel assessment of environmenta flows for the Barwon-Darling River. New South Wales Department of Land and water Conservation, Sydney.

.

Thoms, M.C., M. Southwell, and H.M. McGinness. 2005. Water resource development and the fragmentation of floodplain river ecosystems. Geomorphology 71: 126-138.

Thoms, M.C., and J. Swirepik. 1998. Environmental flows in New South Wales, Australia. Pages 281-287 in: H. Wheater and C. Kirby (editors), Hydrology in a changing environment. Proceedings of the British Hydrological Society International Conference, Exeter, United Kingdom, July 1998. John Wiley & Sons, Chichester.

Thomson, D.M., and M.W. Schwartz. 2006. Using population count data to assess the effects of changing river flow on an endangered riparian plant. Conserv. Biol. 20: 1132-1142. Doi: 10.1111/j.1523-1739.2006.00376.x.

Thomson, J.R., M.P. Taylor, K.A. Fryirs, and G.J. Brierley. 2001. A geomorphological framework for river characterization and habitat assessment. Aquatic Conservation: Marine and Freshwater Ecosystems 11: 373-389.

Thorn, P., and J.C. Conallin. 2006. RHYHABSIM as a stream management tool: case study in the River Kornerup catchment, Denmark. The Journal of Transdisciplinary Environmental Studies 5 (1-2): 1-17.

Thorne, C.R. 1990. Effects of vegetation on river-bank erosion and stability. Pp. 203-233 *in*: J.B. Thornes, editor, Vegetation and Erosion. Wiley, Chichester. 518 pp.

Thorne, C.R., L.W. Zevenbergen, J.C. Pitlick, S. Rais, J.B. Bradley, and P.Y. Julien. 1985. Direct measurements of secondary currents in a meandering sand-bed river. Nature 316: 746-747.

Thorne, R.E., and J.J. Ames. 1987. A note on the variability of marine survival of sockeye salmon (*Oncorhynchus nerka*) and effects of flooding on spawning success. Canadian Journal of Fisheries and Aquatic Sciences 44: 1791‑1795.

Thorp, J.H. 1992. Linkage between islands and benthos in the Ohio River, with implications for riverine management. Canadian Journal of Fisheries and Aquatic Sciences 49: 1873-1882. Doi:10.1139/f92-207.

Thorp, J.H., and M.D. Delong. 2002. Dominance of autochthonous autotrophic carbon in food webs of heterotrophic rivers. Oikos 96: 543-550.

Thorp, J.H., M.C. Thoms, and M.D. Delong. 2006. The riverine ecosystem synthesis: biocomplexity in river networks across space and time. River Research and Applications 22 (2): 123-147. Doi:10.1002/rra.901.

Thorp, J.H., M.C. Thoms, and M.D. Delong. 2008. The riverine ecosystem synthesis toward conceptual cohesiveness in river science. Aquatic Ecology Series. Elsevier, Burlington, Massachusetts. Xv+208 p. ISBN: 978-0-12-370612-6.

Thorstad, E.B., and T.G. Heggberget. 1998. Migration of adult Atlantic salmon (*Salmo salar*); the effects of artificial freshets. Hydrobiologia 371: 339-346.

Thorstad, E.B., F. Okland, K. Aarestrup, and T.G. Heggberger. 2008. Factors affecting the within-river spawning migration of Atlantic salmon, with emphasis on human impacts. Reviews in Fish Biology 18: 345-371.

Thorstad, E.B., F. Okland, B.O. Johnsen, and T.F. Naesje. 2003. Return migration of adult Atlantic salmon, *Salmo salar*, in relation to water diverted through a power station. Fish. Manage. Ecol. 10: 13-22. Doi: 10.1046/j.1365-2400.2003.00324.x.

Thorstad, E.B., F. Okland, F. Krogland, and N. Jepsen. 2003. Upstream migration of Atlantic salmon at a power station on the River Nidelva, southern Norway. Fisheries Management and Ecology 10: 139-146.

Thurow, R.F. 1997. Habitat utilization and diel behaviour of juvenile bull trout (*Salvelinus confluentus*) at the onset of winter. Ecology of Freshwater Fish 6: 1-7.

Thurow, R.F., and J.G. King. 1994. Attributes of Yellowstone cutthroat trout redds in a tributary of the Snake River, Idaho. Transactions of the American Fisheries Society 123 (1): 37-50.

Tibbles, M., J.A. Falke, A.R. Mahoney, M.D. Robards, and A.C. Seitz. 2018. An interferometric synthetic aperture radar (InSAR) habitat suitability model to identify overwinter conditions for coregonine whitefishes in Arctic lagoons. Transactions of the American Fisheries Society 147 (6): 1167-1178. Doi: 10.1002/tafs.10111

Tickner, D.P., P.G. Angold, A.M. Gurnell, and J.O. Mountford. 2001. Riparian plant invasions: hydrogeomorphological control and ecological impacts. Prog. Phys. Geog. 25: 22-52.

Tiffan, K.F., L.O. Clark, R.D. Garland, and D.W. Rondorf. 2006. Variables influencing the presence of subyearling fall Chinook salmon in shoreline habitats of the Hanford Reach, Columbia River. North American Journal of Fisheries Management 26 (2): 351-360.

Tiffan, K. F., R.D. Garland, and D.W. Rondorf. 2002. Quantifying flow-dependent changes in subyearling fall chinook salmon rearing habitat using two-dimensional spatially explicit modeling. North American Journal of Fisheries Management 22 (3): 713-726. Doi: 10.1577/1548-8659(1977)017<0975:DMPOJB>2.3.CO;2

Tiffan, K. F., R.D. Garland, and D.W. Rondorf. 2006. Predicted changes in subyearling fall Chinook salmon rearing and migratory habitat under two drawdown scenarios for John Day Reservoir, Columbia River. North American Journal of Fisheries Management 26 (4): 894-907.

Tiffan, K.F., C.A. Haskell, and T.J. Kock,. 2009. Quantifying the behavioral response of spawning chum salmon to elevated discharges from Bonneville Dam, Columbia River, USA. River Research and Applications 26: 87-101.

Tiffan, K.F., J.R. Hatten, and D.A. Trachtenbarg. 2016. Assessing juvenile salmon rearing habitat and associated predation risk in a lower Snake River reservoir. River Research and Applications 32: 1030-1038.

Tiffan, K.F., T.J. Kock, C.A. Haskell, W.P. Connor, and R.K. Steinhorst. 2009. Water velocity, turbulence, and migration rate of subyearling fall Chinook salmon in the free-flowing and impounded Snake River. Transactions of the American Fisheries Society 138 (2): 373-384.

Tiffan, K.F., T.J. Kock, W.P. Connor, F. Mullinsl, and R.K. Steinhorst. 2012. Downstream movement of fall Chinook salmon juveniles in the lower Snake River reservoirs during winter and early spring. Transactions of the American Fisheries Society 141 (2): 285-293. Doi: 10.1080/00028487.2012.662203

Tiffan, K.F., T.J. Kock, W.P. Connor, M.C. Richmond, and W.A. Perkins. 2018. Migratory behavior and physiological development as potential determinants of life history diversity in fall Chinook salmon in the Clearwater River. Transactions of the American Fisheries Society 147 (2): 400-415. Doi: 10.1002/tafs.10035

Tillma, J.S., C.S. Guy, and C.S. Mammolitti. 1998. Relations among habitat and population characteristics of spotted bass in Kansas streams. North American Journal of Fisheries Management 18: 886-893.

Timm, R.K., and R.C. Wissmar. 2014. Influence of natural and anthropogenic disturbances on spawning sockeye salmon distributions in the Cedar River, Washington. Transactions of the American Fisheries Society 143 (3): 709-720. Doi: 10.1080/00028487.2014.890131.

Tingley, R.W. 2010. Evaluating stream habitat in northern Michigan: implications for conserving Arctic Grayling (*Thymallus arcticus*). Master’s thesis, Michigan State University, East Lansig.

Tockner, K., F. Malard, and J.V. Ward. 2000. An extension of the flood pulse concept. Hydrological Processes 14: 2861-2883. Doi: 10.1002/1099-1085(200011/12)14:16/17<2861::AID-HYP124>3.0.CO;2-F.

Tockner, K., A. Paetzold, U. Karaus, C. Claret, and J. Zettel. 2006. Ecology of braided rivers. Pp. 332-352 *in*: G.H. Sambrook Smith, J.L. Best, C.S. Bristow, and G. Petts, editors. Braided Rivers - IAS Special Publication. Blackwell Publishing, London, U.K.

Tockner, K., F. Scheimer, C. Baumgartner, G. Kum, E. Weigand, I. Zweimuller, and J.V. Ward. 1999. The Danube restoration project: species diversity patterns across connectivity gradients in the floodplain system. Regulated Rivers: Research and Management 15: 245-258.

Tockner, K., and J.A. Stanford. 2002. Riverine flood plains: present state and future trends. Environmental Conservation 29: 38-330.

Tockner, K., J.V. Ward, P.J. Edwards, and J. Kollmann. 2002. Riverine landscapes: an introduction. Freshwater Biology 47: 497-500.

Tockner, K., and J.A. Waringer. 1997. Measuring drift during a receding flood: results from an Austrian mountain brook (Ritrodat-Lunz). Int. Rev. Hydrobiol. 82: 1-13. Doi: 10.1002/iroh.19970820102.

Todd, A.S., M.A. Coleman, A.M. Konowal, M.K. May, S. Johnson, N.K.M. Veiria, and J.F. Saunders. 2008. Development of new water temperature criteria to protect Colorado’s fisheries. Fisheries 33: 433-443. Doi: 10.1577/1548-8446-33/9.433.

Todd, B.L., and C.F. Rabeni. 1989. Movement and habitat use by stream-dwelling smallmouth bass. Transactions of the American Fisheries Society 118 (3): 229-242.

Todd, C.R., T. Ryan, S.J. Nicol, and A.R. Bearlin. 2005. The impact of cold water releases on the critical period of post-spawning survival and its implications for Murray cod (*Maccullochella peelii peelii*: a case study of the Mitta Mitta River, south-eastern Australia. River Research and Applications 21: 1035-1052.

Toepfer, C.S., W.L. Fisher, and J.A. Haubelt. 1999. Swimming performance of the threatened leopard darter in relation to road culverts. Transactions of the American Fisheries Society 128: 155-161.

Toham, A.K., and G.G. Teugels. 1997. Pattern of microhabitat use among fourteen abundant fishes of the lower Ntem River basin (Cameroon). Aquat. Living Resour. 10: 289-298.

Tolkkinen, M., H. Mykra, M. Annala, A.M. Markkola, K.M. Vuorl, and t. Muotka. 2015. Multi-stressor impacts on fungal diversity and ecosystem functions in streams: natural vs. anthropogenic stress. Ecology 96 (3): 672-683.

Tomasko, D.A. and M.O. Hall. 1999. Productivity and biomass of the seagrass *Thalassia testudineum* along a gradient of freshwater influence in Charlotte Harbor, Florida. Estuaries 22: 592-602.

Tommasi, D., J. Nye, C. Stock, J.A. Hare, M. Alexander, and K. Drew. 2015. Effect of environmental conditions on juvenile recruitment of alewife (*Alosa pseudoharengus*) and blueback herring (*Alosa aestivalis*) in fresh water: a coastwide perspective. Canadian Journal of Fisheries and Aquatic Sciences 72 (7): 1037-1047. Doi: 10.1139/cjfas-2014-0259.

Tompkins, M.R., and E. Herricks. 2004. PHABSIM analysis of a straight trapezoidal reach and a highly sinuous reach in a low-order agricultural stream in the midwest. Hydroecologie Appliquee 14 (1): 175-192.

Toner, M., and P. Keddy. 1997. River hydrology and riparian wetlands: a predictive model for ecological assembly. Ecological Applications 7: 236-246.

Tonina, D., and J.M. Buffington. 2007. Hyporheic exchange in gravel bed rivers with pool-riffle morphology: Laboratory experiments and three-dimensional modeling. Water Resources Research 43: W01421. Doi: 10.1029/2005WR004328.

Tonina, D., and J.M. Buffington. 2009. A three-dimensional model for analyzing the effects of salmon redds on hyporheic exchange and egg pocket habitat. Canadian Journal of Fisheries and Aquatic Sciences 66 (12): 2157-2173. Doi:10.1139/F09-146

Tonina, D., and J.M. Buffington. 2011. Effects of stream discharge, alluvial depth and bar amplitude on hyporheic flow in pool-riffle channels. Water Resources Research 47. Doi: 10.1029/2010WR009140.

Tonina, D., C.H. Luce, B. Rieman, J.M. Buffington, P. Goodwin, S.R. Clayton, S.M. Ali, J.J. Barry, and C. Berenbrock. 2008. Hydrological response to timber harvest in northern Idaho: implications for channel scour and persistence of salmonids. Hydrol. Process. 22 (17): 3223-3235. Doi:10.1002/hyp.6918.

Tonkin, J.D., D.M. Merritt, J/D. Olden, L.V. Reynolds, and D.A. Lytle. 2007. Flow regime alteration degrades ecological networks in riparian ecosystems. Nature Ecology & Evolution. Doi: 10.1038/s41559-017-0379-0

Tonkin, Z.D., A.J. King, A.I. Robertson, and D.S.L. Ramsey. 2011. Early fish growth varies in response to components of the flow regime in a temperate floodplain river. Freshwater Biology 56: 1769-1782.

Tonkin, Z., A. Kitchingman, J. Lyon, J. Kearns, G. Hackett, J. O’Mahoney, P.D. Moloney, K. Krusic-Golub, and T, Bird. 2017. Flow magnitude and variability influence growth of two freshwater species in a large regulated floodplain river. Hydrobiologia 797: 389-401.

Tooth, S. 2000. Process, form and change in dryland rivers: a review of recent research. Earth-Science Reviews 51: 67-107.

Torgerson, C.E., C.V. Baxter, J.L. Ebersole, and R.E. Gresswell. 2012. Incorporating spatial context into the analysis of salmonid habitat relations. Pages 216-224 in: M. Church, P.M. Biron, and A.G. Roy, editors, Gravel-bed rivers: processes, tools, environments. Wiley, Chichester, UK.

Torgerson, C.E., C.V. Baxter, H.W. Li, and B.A. McIntosh. 2006. Landscape influences on longitudinal patterns of river fishes: spatially continuous analysis of fish-habitat relationships. Pages 473-492 in: R.M. Hughes, L. Wang, and P.W. Seelbach, editors. Landscape influences on stream habitats and biological assemblages. American Fisheries Society, Symposium 48, Bethesda, Maryland.

Torgerson, C.E., D.M. Price, H.W. Li, and B.A. McIntosh. 1999. Multiscale thermal refugia and stream habitat associations of chinook salmon in northeastern Oregon. Ecological Applications 9: 327-345.

Tornes, E., and S. Sabater. 2010. Variable discharge alters habitat suitability for benthic algae and cyanobacterial in a forested Mediterranean stream. Mar. Freshw. Res. 61: 441.

Toth, L.A. 1995. Principles and guidelines for restoration of river/floodplain ecosystem - Kissimmee River, Florida. Pp. 49-73 *in*: J. Cairns, ed. Rehabilitating Damaged Ecosystems. Lewis Publications, CRC Press, Cherry Hill, NJ.

Toth, L.A., D.A. Arrington, M.A. Brady, and D.A. Muszick. 1995. Conceptual evaluation of factors potentially affecting restoration of habitat structure within the channelized Kissimmee River ecosystem. Restoration Ecology 3: 160-180.

Toth, L.A., S.L. Melvin, D.A. Arrington, and J. Chamberlain. 1998. Hydrological manipulation of the channelized Kissimmee River: implications for restoration. BioScience 48: 757-764.

Toth, L.A., J.T.B. Obeyssekera, W.A. Perkins, and M.K. Loftin. 1993. Flow regulation and restoration of Florida’s Kissimmee River. Regulated Rivers: Research and Management 8: 155-166.

Towns, D.R., and D.R. Towns. 1985. Limnological characteristics of a South Australian intermittent stream, Brown Hill Creek. Marine and Freshwater Research 36: 821-837.

Townsend, C., M. Scarsbrook, and S. Doledec. 1997. Quantifying disturbance in streams: alternative measures of disturbance in relation to macroinvertebrate species traits and species richness. Journal of the North American Benthological Society 16: 531-544.

Townsend, C.R. 1989. The patch dynamics concept of stream community ecology. Journal of the North American Benthological Society 8: 36-50.

Townsend, C.R., B.J. Downes, K. Peacock, and C.J. Arbuckle. 2004. Scale and the detection of land-use effects on morphology, vegetation and macroinvertebrate communities of grassland streams. Freshwater Biology 49: 448-462.

Townsend, C.R., and A.G. Hildrew. 1994. Species traits in relation to a habitat templet for river systems. Freshwater Biology 31: 265-276.

Townsend, P.A., and S.J. Walsh. 1998. Modelling floodplain inundation using an integrated GIS with radar and optical remote scanning. Geomorphology 21: 295-312.

Toyoshima, T., S. Nakano, M. Inoue, Y. Ono, and Y. Kurashige. 1996. Fish population responses to stream habitat improvement in a concrete-lined channel. Jap. J. Ecol. 46 (1): 9-20. [Japanese with English summary]

Tracy-Smith, E. 2018. Evaluating fish community changes to stream flow alterations. Organization of Fish and Wildlife Information Managers 2018 (1): 7,

Tramer, E.J. 1977. Catastrophic mortality of stream fishes trapped in shrinking pools. Am. Midl. Nat. 97: 469-478. Doi: 10.2307/2425110.

Trape, S. 2009. Impact of climate change on the relict tropical fish fauna of central Sahara: Threat for the survival of Adrar Mountains fishes, Mauritania. PLoS ONE 4 (2): e4400. Doi: 10.1371/journal.po ne.0004-400.

Travnichek, V.H., M.B. Bain, and M.J. Maceina. 1995. Recovery of a warmwater fish assemblage after the initiation of a minimum-flow release downstream from a hydroelectric dam. Transactions of the American Fisheries Society 124 (6): 836-844. Doi: 10.1577/1548-8659(1995)124<0836:ROAWFA>2.3.CO;2.

Travnichek, V.H., and M.J. Maceina. 1994. Comparison of flow regulation effects on fish assemblages in shallow and deep water habitats in the Tallapoosa River, Alabama. Journal of Freshwater Ecology 9: 207-216. Doi: 10.1080/02705060.1994.9664888

Tregenza, T. 1995. Building on the ideal free distribution. Adv. Ecol. Res. 26: 253-307. Doi: 10.1016/S0065-2504(08)60067-7.

Tremblay, G., F. Caron, R. Verdon, and M. Lessard. 1993. Influences des parametres hydromorphologiques sur l’utilisation de l’habitat par les juveniles du saumon atlantiques (*Salmo salar*). In: Production of juvenile Atlantic salmon, *Salmo salar*, in natural waters. Edited by: R.J. Gibson and R.E. Cutting. Can. Spec. Publ. Fish. Aquat. Sci. No. 118, pp. 127-137.

Trenberth, K.E., A. Dai, G. van der Schrier, P.D. Jones. J. Barichivich, K.R. Briffa, and J. Sheffield. 2014. Global warming and changes in drought. Nat. Clim. Change 4 (1): 17-22. Doi: 10.1038/NCLIMATE2067.

Trepanier, S., M.A. Rodriguez, and P. Magnan. 1996. Spawning migrations in landlocked Atlantic salmon: time series modelling of river discharge and water temperature effects. Journal of Fish Biology 48 (5): 925-936. Doi: 10.1111/j.1095-8649.1996.tb01487.x.

Trested, D.G., M.D. Chan, W.C. Bridges, and J.J. Isely. 2011. Seasonal movement and mesohabitat usage of adult and juvenile lake sturgeon in the Grasse River, New York. Transactions of the American Fisheries Society 140 (4): 1006-1014. Doi: 10.1080/00028487.2011.603981

Trial, J.G., J.G. Stanley, M. Batcheller, G. Gebhart, O.E. Maughan, and P.C. Nelson. 1983. Habitat suitability information: blacknose dace. U.S. Fish and Wildlife Service, FWS/OBS-82/10.41. 28 pp.

Trial, J.G., C.S. Wade, J.G. Stanley, and P.C. Nelson. 1983. Habitat suitability information: Fallfish. U.S. Fish and Wildlife Service, FWS/OBS-82/10.48. 15 pp.

Trial, J.G., C.S. Wade, J.G. Stanley, and P.C. Nelson. 1983. Habitat suitability information: common shiner. U.S. Fish and Wildlife Service, FWS/OBS-82/10.40. 22 pp.

Trihey, E.W. 1981. Using time series stream flow data to determine project effects on physical habitat for spawning pink salmon. Pp. 232-240 in: N.B. Armantrout, editor. Acquisition and utilization of aquatic habitat inventory information. Proceedings of a symposium, Portland, Oregon. American Fisheries Society, Western Division, Bethesda.

Trihey, E.W., and C.B. Stalnaker. 1985. Evolution and application of instream flow methodologies to small hydropower development. Pp. 176-183 *in*: F.W. Olson, R.H. White, and R.H. Hamre, editors, Symposium on small hydropower and fisheries, American Fisheries Society, Bethesda, MD.

.

Trihey, E.W., and D.L. Wegner. 1983. Field data collection procedures for use with the Physical Habitat Simulation system of the Instream Flow Group. U.S. Fish and Wildlife Service, Cooperative Instream Flow Service Group, Fort Collins, Colorado.

Trimble, S.W., F.H. Weirich, and B.L. Hoag. 1987. Reforestation and the reduction of water yield on the Southern Piedmont since circa 1940. Water Resour. Res. 23: 425-437.

Tripp, D.B., and V.A. Poulin. 1985. Gravel scour as a factor limiting chum and coho spawning success. In: Proceedings of the 1985 northeast Pacific pink and chum salmon workshop. Department of Fisheries and Oceans. Pages 27‑37.

Triska, F.J. 1984. Role of woody debris in modifying channel geomorphology and riparian areas of a large lowland river under pristine conditions: a historical case study. Verhandlung Internationale Vereinigung Limnologie 22: 1876-892.

Tritico, H.M., and A.J. Cotel. 2010. The effects of turbulent eddies on the stability and critical swimming speed of creek chub (*Semotilus atromaculatus*). J. Exp. Bio. 213: 2284-2293. Doi: 10.1242/jeb.041806.

Tritthart, M. 2005. Three-dimensional numerical modeling of turbulent river flow using polyhedral finite volumes. Wiener Mitteilungen Wasser-Abwasser-Gewasser No. 193.

Tritthart, M., and D. Gutknecht. 2007. Three-dimensional simulation of free-surface flows using polyhedral finite volumes. Engineering Applications of Computational Fluid Mechanics 1: 1-14.

Tritthart, M., M. Liedermann, and H. Habersack. 2009. Modelling spatio-temporal flow characteristics in groyne fields. River Res. Appl. 25 (1): 62-81. Doi: 10.1002/rra.1169.

Troendle, C.A., and G.S. Bevenger. 1996. Effects of fire on streamflow and sediment transport Shoshone National Forest, Wyoming. Pp. 43-52 in: J. Greenlee (ed.), Proceedings of the second biennial conference on the Greater Yellowstone Ecosystem: the ecological implications of fire in Greater Yellowstone. International Association of Wildland Fire, Fairfield, Washington.

Troendle, C.A., and W.K. Olsen. 1994. Potential effects of timber harvest and water management of streamflow dynamics and sediment transport. Pp. 34-41 *in*: Sustainable Ecological Systems Proceedings, USDA Forest Service, General Technical Report RM-247, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO.

Troendle, C.A., M.S. Wilcox, G.S. Bevenger, and L.S. Porth. 2001. The Coon Creek Water Yield Augmentation Project: Implementation of timber harvesting technology to increase streamflow. Forest Ecol. Manage. 143: 179.

Troia, M.J., and K.B. Gido. 2015. Functional strategies drive community assembly of stream fishes along environmental gradients and across spatial scales. Oecologia 177: 545-559.

Troia, M.J., L.R. Williams, M. G. Williams, and N.B. Ford. 2015. The process domains concept as a framework for fish and mussel habitat in a coastal plain river of southeastern North America. Ecological Engineering 75: 484-496. Doi: 0.1016/j.ecoleng.2014.12.016.

Trotzky, H.M., and R.W. Gregory. 1974. The effects of water flow manipulation below a hydroelectric power dam on the bottom fauna of the upper Kennebec River, Maine. Transactions of the American Fisheries Society 103 (2): 318-324.

Trudeau, V., and J.B. Rasmussen. 2003. The effect of water velocity on stable carbon and nitrogen isotope signatures of periphyton. Limnology and Oceanography 48: 2194-2199.

Trudel, M., and D.W. Welch. 2005. Modeling the oxygen consumption rates in Pacific salmon and steelhead: model development. Transactions of the American Fisheries Society 134 (6): 1341-1561.

Truscott, A.-M., C. Soulsby, S.C.F. Palmer, L. Newell, P.E. Hulme. 2006. Dispersal characteristics of the invasive plant *Mimulus guttatus* and the ecological significance of increased occurrence of high-flow events. Journal of Ecology 94 (6): 1080-1091.

Trush, W.J., S.F. McBain, and L.B. Leopold. 2000. Attributes of an alluvial river and their relation to water policy and management. Proceedings of the National Academy of Sciences 97 (22): 11858-11863. Doi: 10.1073/pnas.97.22.11858.

Tsang, M. Y.-L. 1980. Relationships among streamflow, drainage basin and channel characteristics. M/S. thesis, Washington State University, Pullman.

Tschaplinski, P.J., and G.F. Hartman. 1983. Winter distribution of juvenile coho salmon (*Oncorhynchus kisutch*) before and after logging in Carnation Creek, British Columbia, and some implications for overwintering survival. Canadian Journal of Fisheries and Aquatic Sciences 40: 452‑461.

Tsou, T.-S., and R.E. Matheson, Jr. 2002. Seasonal changes in the nekton community of the Suwannee River estuary and the potential impacts of freshwater withdrawal. Estuaries 25 (6B): 1372-1381.

Tsujimoto, T. 1999. Fluvial processes in streams with vegetation. Journal of Hydraulic Research 37 (6): 789-804.

Tsujimoto, T., and T. Tashiro. 2004. Application of population dynamics modeling to habitat evaluation. Hydroecologie Appliquee 14 (1): 161-174.

Tu, Z., L. Li, X. Yuan, Y. Huang, and D. Johnson. 2012. Aerobic swimming performance of juvenile largemouth bronze gudgeon (Coreius guichenoti) in the Yangtze River. Journal of Experimental Zoology Part A 317: 294-302.

Tuck, R.L. 1995. Impacts of irrigation development on anadromous fish in the Yakima River basin, Washington. Master’s thesis, Central Washington University, Ellensburg.

Tucker, J.K. 1996. Post-flood strandings of unionid mussels. J. Freshw. Ecol. 11: 433-438.

Tung, Y.-K., Y. Bao, L.W. Mays, and G.H. Ward. 1990. Optimization of freshwater inflow to estuaries. Journal of Water Resources Planning and Management 116: 567-584.

Turek, J.G., T.E. Goodger, T.E. Bigford, and J.S. Nichols. 1987. Influence of freshwater inflows on estuarine productivity. U.S. National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northeast Fisheries Center Technical Memorandum 46: 26 pp. (<http://www.st.nmfs.noaa.gov/tm/nec_image/nec046image.pdf>).

Turgeon, K., and M.A. Rodriguez. 2005. Predicting microhabitat selection in juvenile Atlantic salmon Salmo salar by the use of logistic regression and classification trees. Freshwater Biology 50: 539-551. Doi: 10.1111/j.1365-2427.2005.01340.x.

Turner, D., M.J. Bradford, J.G. Venitti, and R.M. Peterman. 2016. Evaluating uncertainty in physical habitat modelling in a high gradient mountain stream. River Research and Applications 32: 1106-1115.

Turner, J.L., and H.K. Chadwick. 1972. Distribution and abundance of young-of-the-year striped bass, *Morone saxatilis*, in relation to river flow in the Sacramento-San Joaquin estuary. Transactions of the American Fisheries Society 101: 442-452.

Turner, M., and M. Stewardson. 2014. Hydrologic indicators of hydraulic conditions that drive flow-biota relationships. Hydrological Sciences Journal 59: 659-672. Doi: 10.1080/02626667.2014.896997

Turner, T.F., T.J. Krabbenhoft, M.J. Collyer, C.A. Krabbenhof, M.S. Edwards, and Z.D. Sharp. 2015. Retrospective stable isotope analysis reveals ecosystem responses to river regulation over the last century. Ecology 96 (12): 3213-3226.

Turnpenny, A.W.H., and R. Williams. 1980. Effects of sedimentation on the gravels of an industrial river system. Journal of Fish Biology 17: 681-693.

Twomey, K.A., G. Gebhart, O.E. Maughan, and P.C. Nelson. 1984. Habitat suitability index models and instream flow suitability curves: Redear sunfish. U.S. Fish and Wildlife Service, FWS/OBS-82/10.79. 29 pp.

Twomey, K.A., G. Gebhart, O.E. Maughan, and P.C. Nelson. 1984. Habitat suitability index models and instream flow suitability curves: White sucker. U.S. Fish and Wildlife Service, FWS/OBS-82/10.64. 56 pp.

Tyler, J.A. 1993. Effects of water velocity, group size, and prey availability on the stream-drift capture efficiency of blacknose dace, *Rhinichthys atratulus*. Canadian Journal of Fisheries and Aquatic Sciences 50 (5): 1055‑1061.

Tyler, J.A., and J.F. Gilliam. 1995. Ideal free distributions of stream fish: a model and test with minnows, *Rhinichthys atratulus*. Ecology 76 (2): 580-592.

Tyree, M.T., K.J. Kolb, S.J. Rood, and S. Patino. 1994. Vulnerability to drought-induced cavitation of riparian cottonwoods in Alberta: a possible factor in the decline of the ecosystem? Tree Physiology 14: 455-466.

Tyus, H.M. 1990. Effects of altered stream flows on fishery resources. Fisheries 15 (3): 18-20.

Tyus, H.M. 1991. Movements and habitat use of young Colorado squawfish in the Green River, Utah. J. Freshwat. Ecol. 6: 43-51.

Tyus, H.M. 1992. An instream flow philosophy for recovering endangered Colorado River fishes. Rivers 3 (1): 27-36.

Tyus, H.M., C.W. Brown, and J.F. Saunders. 2000. Movements of young Colorado pikeminnow and razorback sucker in response to water flow and light level. Journal of Freshwater Ecology 15: 525-535.

Tyus, H.M., and G.B. Haines. 1991. Distribution, habitat use, and growth of age-0 Colorado squawfish in the Green River Basin, Colorado and Utah. Transactions of the American Fisheries Society 120 (1): 79-89.

Tyus, H.M., and C.A. Karp. 1989. Habitat use and streamflow needs of rare and endangered fishes, Yampa River, Colorado. Washington, D.C.: USFWS (Biological Report 89 [14]).

Tyus, H.M., and C.W. McAda. 1984. Migration, movements, and habitat preferences of Colorado squawfish, Ptychocheilus lucius, in the Green, White, and Yampa rivers, Colorado and Utah. Southwestern Naturalist 29: 289-299.

Uehlinger, U., H. Buhrer, and P. Reichert. 1996. Periphyton dynamics in a floodprone prealpine river: Evaluation of significant processes by modelling. Freshwater Biology 36: 249-263. Doi: 10.1046/j.1365-2427.1996.00082.x

Uehlinger, U., B. Kawecka, and C.T. Robinson. 2003. Effects of experimental floods on periphyton and stream metabolism below a high dam in the Swiss Alps (River Spol). Aquatic Sciences 65: 199-209.

Ugedal, O., T.F. Naesje, E.B. Thorstad, T. Forseth, L.M. Saksgard, and T.G. Heggberget. 2008. Twenty years of hydropower regulation in the River Alta: Long-term changes in abundance of juvenile and adult Atlantic salmon. Hydrobiologia 609: 9-23/

Ulses, C., C. Grenz, P. Marsaleix, E. Schaaff, C. Estournel, S. Meule, and C. Pinazo. 2005. Circulation in a semi-enclosed bay under influence of strong freshwater input. Journal of Marine Systems 56: 113-132/

Underwood, Z.E., and C.A, Myrick. 2014. Comparative swimming performance of five catostomids species and roundtail chub. North American Journal of Fisheries Management 34 (4): 753-763. Doi: 10.1080/02755947.2014.902412.

Unfer, G., C. Hauer, and E. Lautsch. 2011. The influence of hydrology on the recruitment of brown trout in an Alpine river, the Ybbs River, Austria. Ecol. Freshw. Fish 20 (3): 438-448. Doi: 10.1111/j.1600-0633.2010.00456.x.

United Nations Environmental Program (UNEP). 2012. The Drying of Iran’s Lake Urmia and its Environmental Consequences. (<http://na.unep.net/geas/getUNEPPageWithArticleII>) Script.php?article\_id-79)

Unmack, P.J. 2001. Fish persistence and fluvial geomorphology in central Australia. J. Arid Environ. 49: 653-669.

Unwin, M.J. 1997. Survival of chinook salmon, *Oncorhynchus tshawytscha*, from a spawning tributary of the Rakaia River, New Zealand, in relation to spring and summer mainstem flows. U.S. National Marine Fisheries Service Fishery Bulletin 95: 812-825.

Urabe, H., M. Nakajima, M. Torao, and T. Aoyama. 2010. Evaluation of habitat quality for stream salmonids based on a bioenergetics model. Transactions of the American Fisheries Society 139 (6): 1665-1676. Doi: 10.1577/T09-210.1

Urabe, H., M. Nakajima, M. Torao, and T. Aoyama. 2014. Application of a bioenergetics model to estimate the influence of habitat degradation by check dams and potential recovery of masu salmon populations. Environmental Biol. Fish 97: 587-598. Doi: 10.1007/s10641-014-0218-y

Urabe, H., and S. Nakano. 1999. Linking microhabitat availability and local density of rainbow trout in low-gradient Japanese streams. Ecological Research 14: 341-349. Doi:10.1046/j.1440-1703.1999.00311.x.

USAID. 2016. Environmental flows in Rufiji River Basin assessed from perspective of planned development in Killombero and Lower Rufiji sub-basins. Technical assistance to support the development of irrigation and rural roads infrastructure project (IRRIP2). United States Agency for International Development, final report.

U.S. Environmental Protection Agency. 2000. Ensuring adequate instream flows in New England. USEPA, New England Office, Boston.

U.S. Environmental Protection Agency. 2010. National rivers and streams assessment. Washington, DC: US EPA.

U.S. Fish and Wildlife Service. 1981. Standards for development of habitat suitability models. USFWS, Ecological Services, Washington, D.C.

Usseglio-Polatera, P., M. Bournaud, P. Richoux, and H. Tachet. 2000. Biological and ecological traits of benthic freshwater macroinvertebrates: relationships and definition of groups with similar traits. Freshwater Biology 43: 175-205.

Usvyatsov, S., J. Picka, A. Taylor, J. Watmough, and M.K. Litvak. 2013. Timing and extent of drift of shortnose sturgeon larvae in the Saint John River, New Brunswick, Canada. Transactions of the American Fisheries Society 142 (3): 717-730. Doi: 10.1080/00028487.2012.760484

Uthe, P., R. Al-Chokhachy, B.B. Shepard, A.V. Zale, and J.L. Kershner. 2019. Effects of climate-related stream factors on patterns of individual summer growth of cutthroat trout. Transactions of the American Fisheries Society 148 (1): 21-34. Doi: 10.1002/tafs.10106

Utz, R.M., and K.J. Hartman. 2006. Temporal and spatial variation in the energy intake of a brook trout (*Salvelinus fontinalis*) population in an Appalachian watershed. Canadian Journal of Fisheries and Aquatic Sciences 63 (12): 2675-2686.

Utz, R.M., and K.J. Hartman. 2009. Density-dependent individual growth and size dynamics of central Appalachian brook trout (*Salvelinus fontinalis*). Canadian Journal of Fisheries and Aquatic Sciences 66 (7): 1072-1080. Doi:10.1139/F09-063.

Vaccaro, J.J., and K.J. Maloy. 2006. A thermal profile method to identify potential ground-water discharge areas and preferred salmonid habitats for long river reaches. U.S. Geological Survey, Scientific Investigations Report 2006-5136, Reston, Virginia.

Vadas, R.L., Jr. 1992. Seasonal habitat use, species associations, and assemblage structure of forage fishes in Goose Creek, northern Virginia. II. Mesohabitat patterns. Journal of Freshwater Ecology 7: 149-164.

Vadas, R.L., Jr. 1994. Habitat tools for assessing instream-flow needs for fishes in the upper Roanoke River, Virginia. Doctoral dissertation. Virginia Polytechnic Institute and State University, Blacksburg.

Vadas, R.L., Jr. 2000. Instream-flow needs for anadromous salmonids and lamprey on the Pacific coast, with special reference to the Pacific Southwest. Environmental Monitoring and Assessment 64: 331-358.

Vadas, R.L., Jr. 2006. Variations in spawning-flow timing in Washington desert streams of the mid-Columbia (abstract). Northwestern Naturalist 87: 190.

Vadas, R.L., Jr., H.A. Beecher, S.N. Boessow, and K.A. Ensenat. 2008. Coastal cutthroat ecohydrology and habitat use in Irely Creek, Washington. In: P.J. Connelly, T.H. Williams, and R.E. Greswell, editors. The 2005 coastal cutthroat trout symposium: status, management, biology, and conservation. Oregon Chapter, American Fisheries Society, Portland.

Vadas, R.L., Jr., H.A. Beecher, S.N. Boessow, and J.H. Kohr. 2016. Coastal cutthroat trout redd counts impacted by natural water supply variations. North American Journal of Fisheries Management 36 (4): 900-912. Doi: 10.1080/02755947.2016.1173138.

Vadas, R.L., Jr., and D.J. Orth. 1993. A new technique for estimating the abundance and habitat use of stream fishes. Journal of Freshwater Ecology 8: 305-317.

Vadas, R.L., Jr., and D.J. Orth. 1997. Species associations and habitat use of stream fishes: the effects of unaggregated-data analysis. Journal of Freshwater Ecology 12: 27-37.

Vadas, R.L., Jr., and D.J. Orth. 1998. Use of physical variables to discriminate visually determined mesohabitat types in North American streams. Rivers 6 (3): 143-159.

Vadas, R.L., Jr., and D.J. Orth. 2000. Habitat use of fish communities in a Virginia stream system. Environmental Biology of Fishes 59: 253-269.

Vadas, R.L., Jr., and D.J. Orth. 2001. Formulation of habitat-suitability models for stream-fish guilds: Do the standard methods work? Transactions of the American Fisheries Society 130 (2): 217-235. Doi: 10.1577/1548-8659(2001)130-0217:FOHSMF>2.0.CO;2.

Vadas, R.L., Jr., and J.E. Sanger. 1997. Lateral zonation of trees along a small Ohio stream. Ohio J. Science 97 (5): 107-112.

Vadas, R.L., Jr., and D.L. Weigmann. 1993. The concept of instream flow and its relevance to drought management in the James River basin. Virginia Water Resources Research Center, Bulletin 182. Virginia Polytechnic Institute and State University, Blacksburg.

Valdez, R.A., T.L. Hoffnagle, C.C. McIvor, T. Mckinney, and W.C. Liebfried. 2001. Effects of a test flow on fishes of the Colorado River in Grand Canyon, Arizona. Ecological Applications 11: 686-700. Doi:10.1890/1051-0761(2001)011[0686:EOATFO]2.0.CO;2.

Valdez, R.A., P.B. Holden, and T.B. Hardy. 1990. Habitat suitability index curves for humpback chub of the upper Colorado River basin. Rivers 1 (1): 31-42.

Valdimarsson, S.K., and N.B. Metcalfe. 1998. Shelter selection in juvenile Atlantic salmon, or why do salmon seek shelter in winter? Journal of Fish Biology 52: 42-49.

Valdimarsson, S.K., N.B. Metcalfe, J.E. Thorpe, and F.A. Huntingford. 1997. Seasonal changes in sheltering: effect of light and temperature on diel activity in juvenile salmon. Animal Behavior 54: 1405-1412.

Valentin, S., P. Sempeski, Y. Souchon, and P. Gaudin. 1994. Short-term habitat use by young grayling (*Thymallus thymallus*) under variable flow conditions in an experimental stream. Fisheries Research and Management 1: 57-65.

Valentin, S., J.G. Wasson, and M. Philippe. 1995. Effects of hydropower peaking on epilithon and invertebrate community structure. Regulated Rivers: Research and Management 10: 105-119.

Valentin, S., Y. Souchon, and J.G. Wasson. 1994. Evaluation of hydro-peaking effects on fish community and habitat. Pages 138-151 in: I.G. Crown, editor. Rehabilitation of freshwater fisheries. Fishing News Books, Oxford.

Valett, H.M., M.A. Baker, J.A. Morrice, C.S. Crawford, M.C. Molles, Jr., C.N. Dahm, D.L. Moyer, J.R. Thibault, and L.M. Ellis. 2005. Biogeochemical and metabolic responses to the flood pulse in a semiarid floodplain. Ecology 86 (1): 220-234. Doi: 10.1890/03-4091.

Valett, H.M., C.N. Dahm, M.E. Campana, J.A. Morrice, M.A. Baker, and C.S. Fellows. 1997. Hydrologic influences on groundwater-surface water ecotones: heterogeneity in nutrient composition and retention. J. North Am. Benthol. Soc. 16: 239-247.

Van den Avyle, M.J., and M.A. Maynard. 1994. Effects of saltwater intrusion and flow diversion on reproductive success of striped bass in the Savannah River estuary. Transactions of the American Fisheries Society 123 (6): 886‑903.

Van den Berghe, E.P., and M.R. Gross. 1989. Natural selection resulting from female breeding competition in a Pacific salmon (coho: *Oncorhynchus kisutch*). Evolution 43 (1): 125-140.

Vandenbos, R.E., W.M. Tonn, and S.M. Boss. 2006. Cascading life-history interactions: alternative density-dependent pathways drive recruitment dynamics in a freshwater fish. Oecologia 148: 573-582.

Van den Brink, F.W.B., J.P.H.M. De Leeuw, G. Van Der Velde, and G.M. Verheggen. 1993. Impact of hydrology on the chemistry and phytoplankton development in floodplain lakes along the lower Rhine and Meuse. Biogeochemistry 19: 103-128.

Vanden Byllaardt, J., and J.D. Ackerman. 2014. Hydrodynamic habitat influences suspension feeding by unionid mussels in freshwater ecosystems. Freshw. Biol. 59: 1187-1196.

Van der Lee, G.E.M., D.T. Van der Molen, H.F.P Van den Boogaard, and H. Van der Klis. 2006. Uncertainty analysis of a spatial habitat suitability model and implication for ecological management of water bodies. Landscape Ecology 21: 1019-1032. Doi: 10.1007/s10980-006-6587-7

Van der Nat, D., A. Schmidt, K. Tockner, P.J. Edwards, and J.V. Ward. 2002. Inundation dynamics in braided flood plains. Ecosystems 5: 636-647.

Van der Nat, D., A. Schmidt, K. Tockner, P.J. Edwards, J.V. Ward, and A.M. Gurnell. 2003. Habitat change in braided flood plains Tagliamento, NE-Italy. Freshwater Biology 48: 1799-1812.

Vanderploeg, H.A., T.H. Johengen, P.J. Lavrentyev, C. Chen, G.A. Lang, M.A. Agy, M.H. Bundy, J.F. Cavaletto, B.J. Eadie, J.R. Liebig, G.S. Miller, S.A. Ruberg, and M.J. McCormick. 2007. Anatomy of the recurrent coastal plume in Lake Michigan: the importance of turbulence, suspended sediments, and zebra mussels on nutrients and plankton distributions. J. Geophys. Res. 112: doi: 10.1029/2004JC002379.

Van Der Snam, A.J.M., N.N. Joosten, and C.W.P.M. Blom. 1993. Flooding regimes and life-history characteristics of short-lived species in river forelands. Journal of Ecology 81: 121-130.

Van der Valk, A.G., L. Squires, and C.H. Welling. 1994. Assessing the impacts of an increase in water-level on wetland vegetation. Ecological Applications 4: 525-534.

VanDerWal, J., L.P. Shoo, C.N. Johnson, and S.E. Williams. 2009. Abundance and the environment environmental niche: environmental suitability estimated from niche models predicts the upper limit of local abundance. The American Naturalist 174 (2): 282-291.

Van de Wolfshaar, K.E., H. Middlekoop, E. Addink, H.V. Winter, and L.A.J. Nagelkerke. 2011. Linking flow regime, floodplain lake connectivity and fish catch in a large river-floodplain system, the Volga-Akhtuba floodplain (Russian Federation). Ecosystems 14: 920-934. Doi: 10.1007/s10021-011-9457-3.

Van Dijk, A.I.J.M., H.E. Beck, R.S. Crosbie, R.A.M. de Jeu, Y.Y. Liu, G.M. Podger, B. Timbal, and N.R. Viney. 2013. The Millenium Drought in southeast Australia (2001-2009): Natural and human causes and implications for water resources, ecosystems, economy, and society: CAUSES AND IMPACTS OF AUSTRALIA’S RECORD DROUGHT. Water Resour. Res. 49: 1040-1057. Doi: 10.1002/wrcr.20123.

Van Horne, B. 1983. Density as a misleading indicator of habitat quality. Journal of Wildlife Management 47: 893-901. Doi: 10.2307/3808148.

Van Iooy, K., J.D. Tonkin, M. Floury, C. Leigh, J. Soininen, S. Larsen, J. Heino, N.L. Poff, M. Delong, S.C. Jahnig, T. Datry, N. Bonada, J. Tison-Roseberry, A. Jamoneau, S.J. Ormerod, K. Collier, and C. Wolter. 2019. The three Rs of river ecosystem resilience: Resoursec, recruitment, and refugia. River Research and Applications. Doi: 10.1002/rra.3396

Van Kirk, R.W., and R. Martin. 2000. Interaction among aquatic vegetation, waterfowl, flows, and the fishery below Island Park Dam. Intermountain Journal of Science 6: 249-262.

Van Leeuwen, T.E., J.S. Rosenfeld, and J.G. Richards. 2011. Failure of physiological metrics to predict dominance in juvenile Pacific salmon (*Oncorhynchus spp*.): habitat effects on the allometry of growth in dominance hierarchies. Canadian Journal of Fisheries and Aquatic Sciences 68 (10): 1811-1818. Doi: 10.1139/F2011-099

Van Leeuwen, T.E., J.S. Rosenfeld, and J.G. Richards. 2011. Adaptive trade-offs in juvenile salmonid metabolism associated with habitat partitioning between coho salmon and steelhead trout in coastal streams. J. Anim. Ecol. 80: 1012-1023.

Van Niekerk, A.W., G.L. Heritage, and B.P. Moon. 1995. River classification for management: the geomorphology of the Sabie River in the Eastern Transvaal. S. Afr. Geogr. 77: 68-76.

VanRheenen, A. Wod, R. Palme, and D. Lettenmaier. 2004. Potential implications of PCM climate change scenarios for Sacramento-San Joaquin river basin hydrology and water resources. Clim. Change 62: 257281.

Van Snik Gray, E., K.A. Kellogg, and J.R. Stauffer, Jr. 2005. Habitat shift of a native darter *Etheostoma olmstedi* (Teleostei: Percidae) in sympatry with a non-native darter *Etheostoma zonale*. American Midland Naturalist 154: 166-177.

Van Snik Gray, E., and J.R. Stauffer, Jr. 1999. Comparative microhabitat use of ecologically similar benthic fishes. Environmental Biology of Fishes 56: 443-453.

Van Snik Gray, E., and J.R. Stauffer, Jr. 2001. Substrate choice by three species of darters (Teleostei: Percidae) in an artificial stream: effects of a non-native species Copeia 2001: 254-261.

Van Steeter, M.M., and J. Pitlick. 1998. Geomorphology and endangered fish habitats of the upper Colorado River 1. Historic changes in streamflow, sediment load, and channel morphology. Water Resources Research 34: 287-302. Doi: 10.1029/97WR02766.

Van Vliet, M.T.H., F. Ludwig, J.J.G. Zwolsman, G.P. Weedon, and P. Kahat. 2011. Global river temperatures and sensitivity to atmospheric warming and changes in river flow. Water Resources Research 47: W02544. Doi: 10.1029/2010WR009198.

Van Vrancken, J., and M. O’Connell. 2010. Effects of Hurricane Katrina on freshwater fish assemblages in a small coastal tributary of Lake Pontchartrain, Louisiana. Transactions of the American Fisheries Society 139 (6): 1723-1732. Doi: 10.1577/T09-217.1

Van Winkle, W., C.C. Coutant, H.I. Jager, J.S. Mattice, D.J. Orth, R.G. Otto, S.F. Railsback, and M.J. Sale. 1997. Uncertainty and instream flow standards: Perspectives based on hydropower research and assessment. Fisheries 22 (7): 21-22.

Van Winkle, W., H.I. Jager, S.F. Railsback, B.D. Holcomb, T.K. Studley, and J.E. Baldrige. 1998. Individual-based model of sympatric populations of brown and rainbow trout for instream flow assessment: model description and calibration. Ecological Modelling 110: 175-207. Doi: 10.1016/S0304-3800(98)00065-9.

Vannote, R.L., and G.W. Minshall. 1982. Fluvial processes and local lithology controlling abundance, structure, and composition of mussel beds. Proceedings of the National Academy of Sciences 79: 4103-4107.

Vannote, R.L., G.W. Minshall, K.W. Cummins, J.R. Sedell, and C.E. Cushing. 1980. The river continuum concept. Canadian Journal of Fisheries and Aquatic Sciences 37: 130-137. Doi: 10.1139/f80-017.

Vasquez, E., A.M. Romani, F. Sabater, and A. Butturini. 2007. Effect of the dry-wet hydrological shift on dissolved organic carbon dynamics and fate across stream-riparian interface in a Mediterranean catchment. Ecosystems (N.Y. Print), 10: 239-251.

Vaughan, I.P., M. Diamond, A.M. Gurnell, K.A. Hall, A. Jenkins, N.J. Milner, L.A. Naylor, D.A. Sear, G. Woodward, and S.J. Ormerod. 2007. Integrating ecology with hydromorphology: a priority for river science and management. Aquatic Conservation: Marine and Freshwater Ecosystems 19: 113-125.

Vaughan, I.P., and S.J. Ormerod. 2010. Linking ecological and hydromorphological data: approaches, challenges and future prospects for riverine science. Aquatic Conservation: Marine and Freshwater Ecosystems 20 (Supplement 1): S125-S130.

Vaughn, C.C., C.L. Atkinson, and J.P. Julian. 2015. Drought-induced changes in flow regimes lead to long-term losses in mussel-provided ecosystem services. Ecology and Evolution doi: 10.1002/ece3.1442

Vaughn, C.C., and C.M. Taylor. 1999. Impooundments and the decline of freshwater mussels: a case study of an extinction gradient. Conserv. Biol. 13: 912-920. Doi: 10.1046/j.1523-1739.1999.97343.x.

Vaux, W.G. 1968. Intragravel flow and interchange of water in a stream bed. U.S. Fish and Wildlife Service Fishery Bulletin 66: 479-489.

Vazquez, E., S. Amalfitano, S. Fazi, and A. Butturini. 2011. Dissolved organic matter composition in a fragmented Mediterranean fluvial system under severe drought conditions. Biogeochemistry 102: 59-72.

Vehanen, T., P.L. Bjerke, J. Heggenes, A. Huusko, and A. Maki-Petays. 2000. Effect of fluctuating flows and temperature on cover type selection by juvenile brown trout in artificial flumes. Journal of Fish Biology 56: 923-937.

Vehanen, T., and S. Hamari. 2004. Predation threat affects behavior and habitat use by hatchery brown trout (*Salmo trutta* L.) juveniles. Hydrobiologia 525: 229-237.

Vehanen, T., and A. Huusko. 2002. Behaviour and habitat use of young-of-the-year Atlantic salmon (*Salmo salar*) at the onset of winter in artificial streams. Arch. Hydrobiol. 154: 133-150.

Vehanen, T., A. Huusko, A. Maki-Petays, H. Mykra, P. Louhi, and T. Muotka. 2010. Effects of habitat rehabilitation on habitat and brown trout in boreal forest streams. Freshw. Biol. 55: 2200-2214. Doi: 10.1111/j.1365-2427.2010.02467.x.

Verhille, C.E., J.B. Poletto, D.E. Cocherell, B. DeCourten, S. Baird, J.I. Cech, Jr., and N.A. Fangue. 2014. Larval green and white sturgeon swimming performance in relation to water diversion flows. Conservation Physiology [online serial] 2:cou031.

Ver Hoef, J.M., E. Peterson, and D. Theobald. 2006. Spatial statistical models that use flow and stream distance. Environmental and Ecological Statistics 13: 449-464. Doi: 10.1007/s10651-006-0022-9.

Verry, E.S., J.R. Lewis, and K.N. Brooks. 1983. Aspen clear-cutting increases snowmelt and storm peak flows in north central Minnesota. Water Resour. Bull. 19: 59-67.

Vertessy, R.A. 1999. The impacts of forestry on streamflows: A review. Pages 93-109 in: Forest Management for the Protection of Water Quality and Quantity, J. Croke and P. Lane (editors), Proceedings of the Second Erosion in Forests Meeting, Warburton, 4-6 May 1999, Cooperative Research Centre for Catchment Hydrology, Report 99/6, University of Canberra, Canberra, ACT, Australia.

Vervuren, P.J.A., C.W.P.M. Blom, and H. DeKroon. 2003. Extreme flooding events on the Rhine and the survival and distribution of riparian plant species. Journal of Ecology 91: 135-146.

VerWey, B.J., M.J. Kaylor, T.S. Garcia, and D.R. Warren. 2018. Effects of a severe drought on summer abundance, growth, and movement of cutthroat trout in a western Oregon headwater stream. Northwestern Naturalist 99: 209-222. Doi: 10.1898%2NWN17-27.1

Vezza, P., P. Parasiewicz, M. Rosso, and C. Comoglio. 2011. Defining minimum environmental flows at regional scale: application of mesoscale habitat models and catchment classification. River Research and Applications doi:10.1002/rra

Vicenzi, S., A.J. Crivelli, D. Jesensek, J.-F. Rubin, and G.A. DeLeo. 2007. Density-dependent individual growth of marble trout (*Salmo marmoratus*) in the Soca and Idrijca river basins, Slovenia. Hydrobiologia 583 (1): 57-68. Doi:10.1007/s10750-006-0470-z.

Vicuna, S., E.P. Maurer, B. Joyce, J.A. Dracup, and D. Purkey. 2007. The sensitivity of California water resources to climate change scenarios. JAWRA Journal of the American Water Resources Association 43: 482-498.

Videler, J.J., and B.A. Nolet. 1990. Cost of swimming measured at optimum speed: scaling effects, differences between swimming styles, taxonomic groups and submerged and surface swimming. Comparative Biochemistry and Physiology a 97: 91-99.

Videler, J.J., and C.S. Wardle. 1991. Fish swimming stride by stride: speed limits and endurance. Rev. Fish Biol. Fish. 1: 23-40.

Vilizzi, L. 2012. Abundance trends in floodplain fish larvae: the role of annual flow characteristics in the absence of overbank flooding. Fundamentals and Applied Limnology 181: 215-227.

Vilizzi, L., and G.H. Copp. 2005. An analysis of 0+ barbel (*Barbus barbus*) response to discharge fluctuations in a flume. River Research and Applications 21: 421-438.

Vilizzi, L., G.H. Copp, and J.M. Roussel. 2004. Assessing variation in suitability curves and electivity profiles in temporal studies of fish habitat use. River Research and Applications 20: 605-618.

Vilizzi, L., B.J. McCarthy, O. Scholz, C.P. Sharpe, and D.B. Wood. 2013. Managed and natural inundation: benefits for conservation of native fish in a semi-arid wetland system. Aquat. Conserv. Mar. Freshw. Ecosyst. 23 (1): 37-50. Doi: 10.1002/aqc.2281.

Vincenzi, S., A.J. Crivelli, D. Jesenseck, and G.A. DeLeo. 2008. The role of density-dependent individual growth in the persistence of freshwater salmonid populations. Oecologia 156: 523-534.

Vincenzi, S., A.J. Crivelli, D. Jesenseck, J.F. Rubin, and G.A. DeLeo. 2007. Density-dependent individual growth of marble trout (Salmo marmoratus) in the Soca and Idrijca river basins. Slovenia Hydrobiologia 583: 57-68.

Vinson, M.R. 2001. Long-term dynamics of an invertebrate assemblage downstream from a large dam. Ecol. Appl. 11: 711-730. Doi: 10.1890/1051-0761(2001)011[0711:1.TDOAI]2.0.CO;2.

Vinson, M.R., D.K. Vinson, and T.R. Angradi. 1992. Aquatic macrophytes and instream flow characteristics of a Rocky Mountain river. Rivers 3 (4): 260-265.

Viroux, L. 1997. Zooplankton development in two large lowland rivers, the Moselle (France) and the Meuse (Belgium), in 1993. Journal of Plankton Research 19: 1743-1762.

Vis, C. C. Hudon, R. Carigan, and P. Gagnon. 2007. Spatial analysis of production by macrophytes, phytoplankton and epiphyton in a large river system under different water-level conditions. Ecosystems (NY, Print), 10: 293-310.

Vis, M., R. Knight, S. Pool, W. Wolfe, and J. Seibert. 2015. Model calibration for estimating ecological flow characteristics. Water 7: 2358-2381. Doi: 10.3390/w7052358.

Vismara, R., A. Azzellino, R. Bosi, G. Crosa, and G. Gentili. 2001. Habitat suitability curves for brown trout (*Salmo trutta fario* L.) in the River Adda, Northern Italy: comparing univariate and multivariate approaches. Regulated Rivers: Research and Management 17: 37-50.

Visser, A., L. Beevers, and S. Patidar. 2017. Macro-invertebrate community response to multi-annual hydrological indicators. River Research and Applications 33: 707-717. Doi: 10.1002/rra.3125

Vives, S.P. 1993. Choice of spawning substrate in red shiner with comments on crevice spawning in *Cyprinella*. Copeia 1993: 229-232.

Vivian, L.M., D.J. Marshall, and R.C. Godfree. 2014. Response of an invasive native wetland plant to environmental flows: Implications for managing reulated floodplain ecosystems. Journal of Environmental Management 132: 268-277.

Voelz, N.J., and J.V. Ward. 1991. Biotic response along the recovery gradient of a regulated stream. Canadian Journal of Fisheries and Aquatic Sciences 48: 2477-2490.

Vogel, R., J. Sieber, S. Archfield, M. Smith, C. Apse, and A. Huber-Lee. 2007. Relations among storage, yield and instream flow. Water Resources Research 43: W05403; doi: 10.1029/2006WR005226.

Vogel, R.M., and C.N. Kroll. 1992. Regional geohydrologic-geomorphic relationships for the estimation of low flow statistics. Water Resources Research 28 (9): 2451-2458.

Vogel, R.M., I, Wilson, and c. Daly. 1999. Regional regression models of annual streamflow for the United States. Journal of Irrigation and Drainage Engineering 125: 148-157. Doi: 10.1061/(ASCE)0733-9437(1999)125:3(148).

Vogel, S. 1981. Life in moving fluids: the physical biology of flow. Willard Grant Press, Boston, Mass.

Vogel, S. 1994. Life in moving fluids. Princeton University Press, Princeton, New Jersey.

Vogl, A.L., and V.L. Lopez. 2009. Impacts of water resources development on flow regimes in the Brazos River. Environmental Monitoring and Assessment 157: 331-345.

Vokoun, J.C. 2003. Movement and habitat use of flathead catfish (Pylodictis olivaris) in two Missouri interior streams. Doctoral dissertation. University of Missouri, Columbia.

Vokoun, J.C., and C.F. Rabeni. 2005. Home ranges and space use patterns of flathead catfish during the summer-fall period in two Missouri streams. Transactions of the American Fisheries Society 134{ 509-517.

Vollestad, V.A., E.M. Olsen, and T. Forseth. 2002. Growth-rate variation in brown trout in small neighbouring streams: evidence of density dependence? J. Fish Biol. 61 (6): 1513-1527. Doi:10.1111/j.1095-8649.2002.tb02494.x.

Vondracek, B., and D.R. Longanecker. 1993. Habitat selection by rainbow trout *Oncorhynchus mykiss* in a California stream: implications for the Instream Flow Incremental Methodology. Ecology of Freshwater Fish 2: 173-186.

Von Fumetti, S., and P. Nagel. 2012. Discharge variability and its effect on faunistic assemblages in springs. Freshwater Science 31: 647-656.

Voos, K.A. 1981. Simulated use of the exponential polynomial/maximum likelihood technique in developing suitability of use functions for fish habitat. Ph.D. thesis. Utah State University, Logan, Utah. 85 pp.

Vorosmarty, C.J., P. Green, J. Salisbury, and R.B. Lammers. 2000. Global water resources: Vulnerability from climate change and population growth. Science 289: 284-288.

Vorosmarty, C.J., A.Y. Hoeckstra, S.E. Bunn, D. Conway, and J. Gupta. 2015. Fresh water goes global. Science 349: 478-479. Doi: 10.1126/science.aac6009

Vorosmarty, C.J., D. Lettenmaier, C. Leveque, M. Meybeck, C. Pahl-Wostl, J. Alcamo, W. Cosgrove, H. Grassl, H. Hoff, P. Kabat, et al. 2004. Humans transforming the global water system. Eos AGU Trans. 85: 509-514.

Vorosmarty, C.J., P.B. McIntyre, M.O. Gessner, D. Dudgeon, A. Prusevich, P. Green, S. Glidden, S.E. Bunn, C.A. Sullivan, C.R. Liermann, et al. 2010. Global threats to human water security and river biodiversity. Nature 467: 555-561.

Vorosmarty, C.J., C. Pahl-Wostl, S.E. Bunn, and R. Lawford. 2013. Global Water, the Anthropocene and the transformation of a science. Curr. Opin. Environ. Sustain. 5: 539-550. Doi: 10.1016/j.cosust.2013.10.005

Vorosmarty, C., and D. Sahagian. 2000. Anthropogenic disturbance of the terrestrial water cycle. BioScience 50: 753-765.

Votinov, N.P., and V.P. Kasyanov. 1978. The ecology and reproductive efficiency of the Siberian sturgeon, *Acipenser baeri*, in the Ob as affected by hydraulic engineering works. J. Ichthyol. 18: 20-28.

Vranovsky, M. 1995. The effects of current velocity upon the biomass of zooplankton in the River Danube side arms. Biologia 50: 461-464.

Vronskiy, B.B. 1972. Reproductive biology of the Kamchatka River chinook salmon [*Oncorhynchus tshawytscha (Walbaum)*]. Journal of Ichthyology 12: 259-273.

Vronskii, B.B., and V.N. Leman. 1991. Spawning station, hydrological regime and survival of progeny in nests of chinook salmon, *Oncorhynchus tshawytscha*, in the Kamchatka River basin. Journal of Ichthyology 31: 91-102.

Waco, K.E., and W.W. Taylor. 2010. The influence of groundwater withdrawal and land use changes on brook charr (*Salvelinus fontinalis*) thermal habitat in two coldwater tributaries in Michigan, USA. Hydrobiologia 650: 101-116.

Wada, L.L. 1991. Summer habitat use by Apache trout (Oncorhynchus apache), in five streams on the Fort Apache Indian Reservation. Master’s thesis, University of Arizona, Tucson.

Wade, A.A., T.J. Beechie, E. Fleishman, N.J. Mantua, H. Wu, J.S. Kimball, D.M. Stoms, and J.A. Stanford. 2013. Steelhead vulnerability to climate change in the Pacific Northwest. Journal of Applied Ecology 50: 1093-1104. Doi: 10.1111/1365-2664.12137

Waddle, T. 1992. Are high and low flow habitat values really the same? Pp. 374-379 *in* M. Karamouz, editor. Water resources planning and management: saving a threatened resources - in search of solutions. American Society of Civil Engineers, New York.

Waddle, T.J. 1998. Development of 2-dimensional habitat models. Pages 19-22 in S. Blazkova, C.B. Stalnaker, and O. Novicky (editors), Hydroecological modelling: research, practice, legislation and decision-making. Occasional non-periodical publication. T.G. Masaryk Water Research Institute, Prah, Czech Republic.

Waddle, T.J. (editor). 2001. PHABSIM for Windows: user’s manual and exercises. U.S. Geological Survey Open-File Report 2001-340.

Waddle, T. 2010. Field evaluation of a two-dimensional hydrodynamic model near boulders for habitat calculation. River Research and Applications 26: 730-741. Doi: 10.1002/rra.1278

Waddle, T.W., and J.G. Holmquist. 2011. Macroinvertebrate response to flow changes in a subalpine stream: Predictions from two-dimensional hydrodynamic models. River research and Applications. Doi: 10.1002/rra.1607.

Waddle, T., P. Steffler, A. Ghanem, C. Katopodis, and A. Locke. 2000. Comparison of one and two-dimensional open channel flow models for a small habitat stream. Rivers 7 (3): 205-220.

Wagener, T., H.S. Wheater, and H.V. Gupta. 2004. Rainfall-Runoff Modeling in Gauged and Ungauged Catchments. Imperial College Press, London.

Wagner, R., and H.H. Schmidt. 2004. Yearly discharge patterns determine species abundance and community diversity: analysis of a 25 year record from the Breitenbach. Archiv fur Hydrobiologie 161: 511-540.

Wahl, K.L., and T.L. Wahl. 1988. Effects of regional ground water declines on streamflows in the Oklahoma Panhandle. Pages 239-249 in: Proceedings of Symposium on Water-Use Data for Water Resources Management: Tucson, Arizona. American Water Resources Association. <http://www.usbr.gov/pmts/hydraulics_lab/twahl/bfi/bfi_beaver_river.pdf>>.

Waid, R.B. 1991. Summary of the response of animal populations to hurricanes in the Caribbean. Biotropica 23: 508-512.

Waite, I. R., and R.A. Barnhart. 1992. Habitat criteria for rearing steelhead: A comparison of site-specific and standard curves for use in the Instream Flow Incremental Methodology. North American Journal of Fisheries Management 12 (1): 40-46.

Waite, I.R., L.R. Brown, J.G. Kennen, J.T. May, T.F. Cuffney, J.L. Orlando, and K.A. Jones. 2010. Comparison og watershed disturbance predictive models for stream benthic macroinvertebrates for three distinct ecoregions in western US. Ecological Indicators 10: 1125-1136. Doi: 10.1016/j.ecolind.2010.03.011

Waite, I. R., and K.D. Carpenter. 2000. Associations among fish assemblage structure and environmental variables in Willamette Valley streams, Oregon. Transactions of the American Fisheries Society 129: 754-770.

Walburg, C.H., J.F. Novotny, K.E. Jacobs, W.D. Swink, T.M. Campbell, J.M. Nestler, and G.E. Saul. 1981. Effect of reservoir releases on tailwater ecology: a literature review. U.S. Army Engineer Waterways Experiment Station, Technical Report E-81-12, Vicksburg, Mississippi.

Wald, A.R. 2009. Reports of investigations in instream flow: High flows for fish and wildlife in Washington. State of Washington Department of Fish and Wildlife, Olympia. 30 pages. <http://wdfw.wa.gov/publications/pub.php?id=00578>

Walker, K.F. 1985. A review of the ecological effect of river regulation in Australia. Hydrobiologia 125: 111-129.

Walker, K.F., A.J. Boulton, M.C. Thoms, and F. Sheldon. 1994. Effects of water-level changes induced by weirs on the distribution of littoral plants along the River Murray, South Australia. Australian Journal of Marine and Freshwater Research 45: 1421-1438.

Walker, K.F., F. Sheldon, and J.T. Puckridge. 1995. An ecological perspective on dryland rivers. Regulated Rivers: Research and Management 11: 85-104.

Walker, K.F., and M.C. Thoms. 1993. Environmental effects of flow regulation on the lower River Murray, Australia. Regulated Rivers: Research and Management 8: 103-119.

Wall, C.E., N. Bouwes, J.M. Wheaton, W.C. Saunders, and S.N. Bennett. 2016. Net rate of energy intake predicts reach-level steelhead (*Oncorhynchus mykiss*) densities in diverse basins from a large monitoring program. Canadian Journal of Fisheries and Aquatic Sciences 73 (7): 1081-1091. Doi: 10.1139/cjfas-2015-0290.

Wall, S,S., and C.R. Berry, Jr. 2006. The importance of Multiscale habitat relations and biotic associations to the conservation of an endangered fish species, the Topeka shiner. Pages 305-322 in: R.M. Hughes, L. Wang, and P.W. Seelbach, editors. Landscape influences on stream habitat and biological assemblages. American Fisheries Society, Symposium 48, Bethesda, Maryland.

Wallace, J.B., J.R. Webster, and J.L. Meyer. 1995. Influence of log additions on physical and biotic characteristics of a mountain stream. Canadian Journal of Fisheries and Aquatic Sciences 52 (10): 2120‑2137.

Wallerstein, N.P., and C.R. Thorne. 2004. Influence of large woody debris on morphological evolution of incised, sand bed channels. Geomorphology 57: 53-73.

Walrath, J.D., D.C. Dauwalter, and D. Reinke. 2016. Influence of stream condition on habitat diversity and fish assemblages in an impaired upper Snake River basin watershed. Transactions of the American Fisheries Society 145 (4): 821-834. Doi: 10.1080/00028487.2016.1159613

Walser, C.A., and H.L. Bart. 1999. Influence of agriculture on in-stream habitat and fish community structure in Piedmont watersheds of the Chattahoochee River system. Ecology of Freshwater Fish 8: 237-246.

Walser, C.A., M.C. Belk, and D.K. Shiozowa. 1999. Habitat use of Leatherside Chub (*Gila copei*) in the presence of Brown Trout (*Salmo trutta*). Great Basin Naturalist 59: 272-277.

Walsh, C.J., A.W. Leonard, A.R. Ladson, and T.D. Fletcher. 2004. Urban stormwater and the ecology of streams. Cooperative Research Center for Freshwater Ecology, Canberra, Australia.

Walsh, C..J., A.,.H. Roy, J.W. Feminella, P.D. Cottingham, P.M. Groffman, and R.P. Morgan. 2005. The urban stream syndrome: current knowledge and the search for a cure. Journal of the North American Benthological Society 24: 706-723.

Walsh, C.J., and J.A. Webb. 2014. Spatial weighting of land use and temporal weighting of antecedent discharge improves prediction of stream condition. Landscape Ecology 29: 1171-1185. Doi: 10.1007/s10980-014-0050-y

Walsh, C.J., and J.A. Webb. 2016. Interactive effects of urban stormwater drainage, land clearance and flow regime on stream macroinvertebrate assemblages across a large metropolitan region. Freshwater Science 35: 216-228.

Walsh, C.L. and C.G. Kilsby. 2007. Implications of climate change on flow regime affecting Atlantic salmon. Hydrology and Earth System Sciences 11 (3): 1127-1143. Doi: 10.1080/09613210500491514.

Walters, A.W. 2011. Resistance of aquatic insects to a low-flow disturbance: exploring a trait-based approach. Journal of the North American Benthological Society 30: 346-356.

Walters, A.W. 2016. The importance of context dependence for understanding the effects of low-flow events on fish. Freshwater Science 35 (1): 216-228. Doi: 10.1086/683831.

Walters, A.W., K.K. Bartz, and M.M. McClure. 2013. Interactive effects of water diversion and climate change for juvenile Chinook in the Lemhi River basin (U.S.A.). Con. Biol. 27: 1179-1189. Doi: 10.1111/cobi.12170

Walters, A.W., D.M. Holzer, J.R. Faulkner, C.D. Warren, P.D. Murphy, and M.M. McClure. 2012. Quantifying cumulative entrainment effects for Chinook salmon in a heavily irrigated watershed. Transactions of the American Fisheries Society 141 (5): 1180-1190. Doi: 10.1080/00028487.2012.679019.

Walters, A.W., and D.M. Post. 2008. An experimental disturbance alters fish size structure but not food chain length in streams. Ecology 89 (12): 3261-3267.

Walters, A.W., and D.M. Post. 2011. How low can you go? Impacts of a low-flow disturbance on aquatic insect communities. Ecological Applications 21: 163-174.

Walters, C., L. Gunderson, and C.S. Holling. 1992. Experimental policies for water management in the Everglades. Ecological Applications 2: 189-202.

Walters, C.J., and F Juanes. 1993. Recruitment limitation as a consequence of natural selection for use of restricted feeding habits and predation risk-taking by juvenile fishes. Canadian Journal of Fisheries and Aquatic Sciences 50 (10): 2058‑2070. Doi: 10.1139/f93-229.

Walters, D.M., D.S. Leigh, M.C. Freeman, B.J. Freeman, and C.M. Pringle. 2003. Geomorphology and fish assemblages in a Piedmont river basin, U.S.A. Freshw. Biol. 48: 1950-1970.

Walters, J.P., and J.R. Wilson. 1996. Intraspecific habitat segregation by smallmouth bass in the Buffalo River, Arkansas. Transactions of the American Fisheries Society 125: 284-290.

Walters, M.A., R.O. Teskey, and T.M. Hinckley. 1980. Impact of water level changes on woody riparian and wetland communities. Washington, D.C.: U.S. Fish and Wildlife Service (OBS-78/95).

Walvoord, M.A., and R.G. Striegl. 2007. Increased groundwater to stream discharge from permafrost thawing in the Yukon River basin: potential impacts on lateral export of carbon and nitrogen. Geophys. Res. Lett. 34 (12): L12402. Doi: 10.1029/2007GL030216.

Wang, D.B., and X.M. Cai. 2009. Detecting human interferences to low flows through base flow recession analysis. Water Resour. Res. 45: W07426.

Wang, L., and P. Kanehl. 2003. Influences of watershed urbanization and instream habitat on macroinvertebrates in cold water streams. Journal of the American Water Resources Association 39: 1181-1196.

Wang, L., J. Lyons, and P. Kanehl. 2003. Impacts of urban land cover on trout streams in Wisconsin and Minnesota. Transactions of the American Fisheries Society 132 (5): 825-839.

Wang, L., J. Lyons, P. Kanehl, and R. Bannerman. 2001. Impacts of urbanization on stream habitat and fish across multiple spatial scales. Environmental Management 28: 255-266.

Wang, L., J. Lyons, P. Rasmussen, P.W. Seelbach, T. Simon, M.J. Wiley, P. Kanehl, E. Baker, S. Niemela, and P.M. Stewart. 2003. Watershed, reach, and riparian influences on stream fish assemblages in the Northern Lakes nad Forest Ecoregion, U.S.A. Canadian Journal of Fisheries and Aquatic Sciences 60 (5): 491-505.

Wang, L., T.D. Simonson, and J. Lyons. 1996. Accuracy and precision of selected stream habitat estimates. North American Journal of Fisheries Management 16: 340-347.

Wang, P., Y. Shen, C. Wang, J. Hou, J. Qian, Y. Yu, and N. Kong. 2017. An improved habitaqt model to evaluate the impact of water conservancy projects on Chinese sturgeon (*Acipenser sinensis*) spawning sites in the Yangtze River, China. Ecological Engineering 104: 165-176.

Wang, S., G. Morishima, R. Sharma, and L. Gilbertson. 2009. The use of generalized additive models for forecasting the abundance of Queets River coho salmon. North American Journal of Fisheries Management 29 (2): 423-433.

Wankowski, J.W.J. 1981. Behavioral aspects of predation by juvenile Atlantic salmon (*Salmo salar* L.) on particulate, drifting prey. Animal Behaviour 29: 557-571.

Wankowski, J.W.J., and J.E. Thorpe. 1979. Spatial distribution and feeding in Atlantic salmon *Salmo salar* L. juveniles. J. Fish Biol. 14: 239-247.

Wantzen, K.M., F. de Arruda Machado, M. Voss, H. Boriss, and W.J. Junk. 2002. Seasonal isotopic shifts in fish of the Pantanal wetland, Brazil. Aquatic Sciences 64: 239-251.

Wantzen, K., W. Junk, and K. Rothhaupt. 2008. An extension of the flood pulse concept (FPC) for lakes. Hydrobiologia 613: 151-170. Doi: 10.1007/s10750-008-9480-3.

Warburton, J. 1992. Observations of bed load transport and channel bed changes in a proglacial mountain stream. Arctic and Alpine Research 24 (3): 195-203.

Ward, B.R. 2000. Declivity in steelhead (*Oncorhynchus mykiss*) recruitment at the Keogh River over the past decade. Canadian Journal of Fisheries and Aquatic Sciences 57 (2): 298-306.

Ward, B.R., and P.A. Slaney. 1988. Life history and smolt-to-adult survival of Keogh River steelhead trout (*Salmo gairdneri*) and the relationship to smolt size. Canadian Journal of Fisheries and Aquatic Sciences 45: 1110-1122.

Ward, B.R., P.A. Slaney, A.R. Fachin, and R.W. Land. 1989. Size-biased survival in steelhead trout: back-calculated lengths from adults’ scales compared to migrating smolts at the Keogh River, B.C. Canadian Journal of Fisheries and Aquatic Sciences 46: 1853-1858.

Ward, D.L., A.A. Schultz, and P.G. Matson. 2003. Differences in swimming ability and behavior in response to high water velocities among native and nonnative fishes. Environmental Biology of Fishes 68: 87-92.

Ward, D.M., K.H. Nislow, J.D. Armstrong, S. Einum, and C.L. Folt. 2007. Is the shape of the density-growth relationship for stream salmonids evidence for exploitative rather than interference competition? J. Anim. Ecol. 76 (1): 135-138. Doi:10.1111/j.1365-2656.2006.01169.x.PMID:17184361.

Ward, D.M., K.H. Nislow, and C.L. Folt. 2008. Predators reverse the direction of density dependence for juvenile salmon mortality. Oecologia (Heidelberg) 156: 515-522.

Ward, D.M., K.H. Nislow, and C.L. Folt. 2009. Increased population density and suppressed prey biomass: relative impacts on juvenile Atlantic salmon growth. Transactions of the American Fisheries Society 138 (1): 135-143.

Ward, E.J., J.H. Anderson, T.J. Beechie, G.R. Pess, and M.J. Ford. 2015. Increasing hydrologic variability threatens depleted anadromous fish populations. Global Change Biology 21: 2500-2509. Doi: 10.1111/gcb.12847.

Ward, F.A., and J.F. Booker. 2003. Economic costs and benefits of instream flow protection in an international basin. Journal of the American Water Resources Association 39: 427-440.

Ward, G.H. 1985. Evaluation of marsh enhancement by freshwater diversion. Journal of Water Resources Planning and Management, ASCE 111: 1-23.

Ward, G.H., M.J. Irlbeck, and P.A. Montagna. 2002. Experimental river diversion for marsh enhancement. Estuaries 25 (6B): 1416-1425.

Ward, J.A. 1982. Ecological aspects of stream regulation: responses in downstream lotic reaches. Water Pollut. Manage. Rev. (New Delhi) 2: 1-26.

Ward, J.D., and C.M. Breen. 1983. Drought stress and the demise of *Acacia albida* along the lower Kuiseb River, central Namib desert, south west Africa: preliminary findings. S. Afr. J. Sci. 79: 444-447.

Ward, J.V. 1976. Effects of flow patterns below large dams on stream benthos: a review. Pages 235-255 in: J.F. Orsborn and C.H. Allman, editors. Proceedings of a symposium and specialty conference on instream flow needs. Volume 2. American Fisheries Society, Washington, D.C.

Ward, J.V. 1982. Ecological aspects of stream regulation: responses in downstream lotic reaches. Water Pollution Management Review 2: 1-26.

Ward, J.V. 1989. Riverine-wetland interactions. Pp. 385-400 in: R.R. Sharitz and W. Gibbons, eds. Freshwater wetlands and wildlife. United States Department of Energy, Office of Scientific and Technical Information, Oak Ridge, Tennessee.

Ward, J.V. 1989. The four-dimensional nature of lotic ecosystems. J. North Am. Benthol. Soc. 8: 2.

Ward, J.V. 1998. Riverine landscapes: biodiversity patterns, disturbance regimes and aquatic conservation. Biological Conservation 83: 267-278.

Ward, J.V., and J.A. Stanford. 1987. The ecology of regulated streams: past accomplishments and directions for future research. Pages 391-409 in: J.F. Craig and J.B. Kemper, editors. Regulated streams: advances in ecology. Plenum, New York.

Ward, J.V., and J.A. Stanford. 1989. The four-dimensional nature of lotic ecosystems. Journal of North American Benthological Society 8: 2-8.

Ward, J.V., and J.A. Stanford. 1995. Ecological connectivity in alluvial river ecosystems and its disruption by flow regulation. Regulated Rivers: Research and Management 11: 105-119. Doi: 10.1002/rra.3450110109.

Ward, J.V., L. Tockner, and F. Schiemer. 1999. Biodiversity of floodplain river ecosystems: ecotones and connectivity. Regulated Rivers: Research and Management 15: 125-139.

Ward, J.V., L. Tockner, U. Uehlinger, and F. Malard. 2001. Understanding natural patterns and processes in river corridors as the basis for effective river restoration. Reg. Rivers Res. Manage. 17: 311-3233. Doi: 10.1002/rra.646.abs.

Wardle, C.S. 1977. Effects of size on the swimming speeds of fish. Pages 299-313 in: T. Pedley, editor. Scale effects in animal locomotion. Academic Press, London.

Wardle, C.S. 1980. Effects of temperature on the maximum swimming speed of fishes. Pp. 519-531 in: M.A. Ali, editor, Environmental physiology of fishes. Plenum, New York.

Warner, A.T., L.B. Bach, and J.T. Hickey. 2014. Restoring environmental flows through adaptive reservoir management: planning, science, and implementation through the sustainable rivers project. Hydrolog. Sci. J. 54: 770-785.

Warner, G.S., F.L. Ogden, A.C. Bagtzoglou, and P. Parasiewicz. 2006. Long-term impact analysis of the University of Connecticut’s Fenton River water supply wells on the habitat of the Fenton River. University of Connecticut, Storrs, Connecticut. 121 pp.

Warren, D.R., A.G. Ernst, and B.P. Baldigo. 2009. Influence of spring floods on year-class strength of fall- and spring-spawning salmonids in Catskill Mountains streams. Transactions of the American Fisheries Society 138 (1): 200-210. Doi:10.1577/T08-046.1.

Warren, L.H. 2013. Spawning and nursery habitat of wild muskellunge and fate of stocked muskellunge in middle Tennessee rivers. Master’s thesis, Tennessee Technological University, Cookeville.

Warren, M., M.J. Dunbar, and C. Smith. 2015. River flow as a determinant of salmonid distribution and abundance: a review. Environmental Biology of Fishes 98 (6): 1695-1717.

Wassems, S., and M. Maher. 2011. River regulation influences the composition and distribution of inland frog communities. River Research and Applications 2 (2): 238-246. Doi: 10.1002/rra.134

Waters, B.F. 1976. A methodology for evaluating the effects of different streamflows on salmonid habitat. Pages 224-234 in: J.F. Orsborn and C.H. Allman, editors. Proceedings of the Symposium and Specialty Conference on Instream Flow Needs. II, 3-6 May 1976, Boise, Idaho. American Fisheries Society, Bethesda, MD.

Waters, T.F. 1972. The drift of stream insects. Annual Review of Entomology 17: 253-272.

Waters, T.F. 1995. Sediment in streams: sources, biological effects and control. American Fisheries Society, Bethesda, Maryland.

Wathen, G., S.M. Coghlan Jr., J. Zydlewski, and J.G. Trial. 2011. Habitat selection and overlap of Atlantic salmon and smallmouth bass juveniles in nursery streams. Transactions of the American Fisheries Society 140 (5): 1145-1157. Doi:10.1080/00028487.2011.613284

Watkins, C.J., T.J. Ross, M.C. Quist, and R.S. Hardy, 2017. Response of fish population dynamics to mitigation activities in a large regulated river. Transactions of the American Fisheries Society 146 (4): 703-715. Doi: 10.1080/00028487.2017.1308882.

Watkins, C.J., B.S. Stevens, M.C. Quist, B.B. Shepard, and S.C. Irland. 2015. Patterns of fish assemblage structure and habitat use among main- and side-channel environments in the lower Kootenai River, Idaho. Transactions of the American Fisheries Society 144 (6): 1340-1355. Doi: 10.1080/00028487.2015.1069756.

Watkins, M.S., S. Doherty, and G.H. Copp. 1997. Microhabitat use by 0+ and older fishes in a small English chalk stream. J. Fish Biol. 50 (5): 1010-1024. Doi: 10.1111/j.1095-8649.1997.tb01626.x.

Watson, J.M. 2006. Patterns and habitat associations of a desert spring fish assemblages and responses to a large-scale flood. Master’s thesis. Texas State University-San Marcos.

Watson, P.L. 2008. Managing the River as Well as the Dam: Assessing Environmental Flow Requirements – Lessons from the Lesotho Highlands Water Project. World bank, Directions in Development Series. Washington.

Watters, G.T. 2000. Freshwater mussels and water quality: a review of the effects of hydrologic and instream habitat alterations. Pages 261-274 in: R.A. Tankersley, D.I. Warmolts, G.T. Watters, B.J. Armitage, P.D. Johnson, and R.S. Butler (editors). Freshwater Mollusk Symposium Proceedings. Ohio Biological Survey, Columbus, Ohio.

Watts, R.J., D.S. Ryder, C. Allan, and S. Commens. 2010. Using river-scale experiments to inform the adaptive management process for variable flow releases from large dams. Marine and Freshwater Research 61: 786-797.

Weatherly, N.S., E.W. Campbellendrum, and S.J. Ormerod. 1991. The growth of brown trout in mild winters and summer droughts in upland Wales - model validation and preliminary prediction. Freshwater Biology 26: 121-131.

Weaver, C.R. 1963. Influence of water velocity upon orientation and performance of adult migrating salmonids. Fishery Bulletin 63: 97-121.

Webb, B.W., P.D. Clack, and D.E. Walling. 2003. Water-air temperature relationships in a Devon river system and the role of flow. Hydrol. Proc. 17: 3069-3084. Doi: 10.1002/hyp.1280.

Webb, B.W., and F. Nobilis. 2007. Long-term changes in river temperature and the influence of climatic and hydrological factors. Hydrol. Sci. J. 52: 74-85.

Webb, B.W., and D.E. Walling. 1993. Temporal variability in the impact of river regulation on thermal regime and some biological implications. Freshwater Biology 29: 167-182.

Webb, B.W., and D.E. Walling. 1997. Complex summer water temperature behaviour below a UK regulating reservoir. Regulated Rivers: Research and Management 13: 463-477.

Webb, J.A., A.H. Arthington, and J.D. Olden. 2017. Models of ecological responses to flow regime change to inform environmental flow assessments. Pages 287-316 in: A. Horne, A. Webb, M. Stewardson, B. Richter, and M. Acreman (editors), Water for the environment: From policy to implementation and management. Amsterdam: Elsevier Press. Doi: 10.1016/8978-0-12-803907-6.00014-0

Webb, J.A., S.C. de Little, K.A. Miller, M.J. Stewardson, I.D. Rutherford, A.K. Sharpe, L. Patulny, and N.L. Poff. 2015. A general approach to predicting ecological responses to environmental flows: making best use of the literature, expert knowledge, and monitoring data. River Res. Appl. 31: 505-514. Doi: 10.1002/rra.2832.

Webb, J.A., S.C. de Little, K.A. Miller, and M.J. Stewardson. 2018. Quantifying and predicting the benefits of environmental flows: Combining large-scale monitoring data and expert knowledge within hierarchical Bayesian models. Freshwater Biology 63 (8): 831-843. Doi: 10.1111/fwb.13069

Webb, J.A., W.M. Koster, I.G. Stuart, P. Reich, and M.J. Stewardson. 2016. Adaptive management of Australian grayling recruitment: using Bayesian models and indicator species to assess benefits of spring flows. In: J.A. Webb, J.F. Costelloe, R. Casas-Mulet, J.P. Lyon, and M.J. Stewardson, edjtors. Proceedings of the 11th International Symposium on Ecohydraulics. The University of Melbourne, Melbourne, VIC.

Webb, J.A., W.M. Koster, I.G. Stuart, P. Reich, and M.J. Stewardson. 2017. Make the most of the data you’ve got: Bayesian models and a surrogate species approach to assessing benefits of upstream migration flows for the endangered Australian grayling. Environmental Management doi: 10.1007/s00267-017-0822-7

Webb, J.A., K.A. Miller, S.C. deLittle, and M.J. Stewardson. 2014. Overcoming the challenges of monitoring and evaluating environmental flows through science-management partnerships. International Journal of River Basin Management 12: 111-121.

Webb, J.A., K.A. Miller, E.L. King, S.C. deLittle, M.J. Stewardson, J.K.H. Zimmerman, et al. 2013. Squeezing the most out of existing literature: a systematic re-analysis of published evidence on ecological responses to altered flow. Freshwater Biology 58: 2439-2451. Doi: 10.1111/fwb.12234

Webb, J.A., S.J. Nichols, R.H. Norris, M.J. Stewardson, S.R. Wealands., and P. Lea. 2012. Ecological responses to flow alteration Assessing causal relationships with Eco Evidence. Wetlands 32 (2): 203-213.

Webb, J.A., M.J. Stewardson, Y.E, Chee, E.S.G. Schreiber, A.K. Sharpe, and M.C. Jensz. 2010. Negotiating the turbulent boundary: The challenges of building a science management collaboration for landscape-scale monitoring of environmental flows. Marine and Freshwater Research 61: 798-807.

Webb, J.A., M.J. Stewardson, and W.M. Koster. 2010. Detecting ecological responses to flow variation using Bayesian hierarchical models. Freshwater Biology 55: 108-126. doi:10.1111/j.1365-2427.2009.02205.x.

Webb, J.A., R.J. Watts, C. Allan, and J.C. Conallin. 2018. Adaptive management of environmental flows. Environ. Manage. Doi: 10.1007/s00267-017-0981-6

Webb, J.A., R.J. Watts, C.A. Allan, and A. Warner. 2017. Chapter 25: Principles for monitoring, evaluation, and adaptive management of environmental water regimes. Pages 599-623 in: A.C. Horne, J. Angus Webb, M.J. Stewardson, B. Richter, and M. Acreman, editors. Water for the Environment. Academic Press, Cambridge, MA.

Webb, J.H., R.J. Fryer, J.B. Taggart, C.E. Thompson, and A.F. Youngson. 2001. Dispersion of Atlantic salmon (*Salmo salar*) fry from competing families as revealed by DNA profiling. Canadian Journal of Fisheries and Aquatic Sciences 52 (12): 2386-2395.

Webb, J.H., C.N. Gibbins, H.J. Moir, and C.S. Soulsby. 2001. Flow requirements of spawning Atlantic salmon (*Salmo salar*) in an upland stream: implications for water resources management. Journal of the Chartered Institution of Water and Environmental Management 15 (1): 1-8.

Webb, J.H., H.J. Moir, C.N. Gibbins, and C. Soulsby. 2001. Flow requirements of spawning Atlantic salmon (*Salmo salar*) in an upland stream: implications for water resource management. Journal of the Institute of Water and Environmental Management 15: 1-8.

Webb, P. 1975. Hydrodynamics and energetics of fish propulsion. Bulletin of the Fisheries Research Board of Canada 190.

Webb, P., C. Gerstner, and S. Minton. 1996. Station-holding by mottled sculpin, *Cottus bairdi* (Teleostei: Cottidae), and other fishes. Copeia 1996: 488-493.

Webb, P.W., P.T. Kostecki, and E.D. Stevens. 1984. The effect of size and swimming speed on locomotor kinematics of rainbow trout. Journal of Experimental Biology 109: 77-95.

Webber, J.D., S.N. Chun, T.R. Maccoll, L.T. Mirise, A. Kawabata, E.K. Anderson, T. Sung Cheong, L. Kavvas, M. Mcgee Rotondo, K.L. Hochgraf, R. Churchwell, and J.J. Cech Jr. 2007. Upstream swimming performance of adult white sturgeon: effects of partial baffles and a ramp. Transactions of the American Fisheries Society 136: 402-408.

Weber, D.T. 1959. Effects of reduced stream flows on the trout fishery below Granby Dam, Colorado. M.S. thesis, Colorado State University, Fort Collins. 149 pp.

Webster, D.A., and G. Eiriksdottir. 1976. Upwelling as a factor influencing choice of spawning sites by brook trout (*Salvelinus fontinalis*). Transactions of the American Fisheries Society 105: 416-421.

Wedderburn, S.D., M.P. Hammer, and C.M. Bice. 2012. Shifts in small-bodied fish assemblages resulting from drought-induced water level recession in terminating lakes of the Murray-Darling Basin, Australia. Hydrobiologia 691: 35-46.

Wedderburn, S.D., K.A. Hillyard, and R.J. Shiel. 2013. Zooplankton response to flooding of a drought refuge and implications for the endangered fish species *Craterocephalus fluviatilis* cohabiting with alien *Gambusia affinis*. Aquatic Ecology 47: Wedderburn, S.D.,263-275.

Weeber. M.A., G.R. Giannico, and S.E. Jacobs. 2010. Effects of redd superimposition by introduced kokanee on the spawning success of native bull trout. North American Journal of Fisheries Management 30 (1): 47-54.

Wegener, M.G., K.M. Harriger, J.R. Knight, and M.A. Barrett. 2017. Movement and habitat use of alligator gars in the Escambia River, Florida. North American Journal of Fisheries Management 37 (5): 1028-1038. Doi: 10.1080/02755947.2017.1342722.

Weigel, B.M., J. Lyons, P.W, Rasmussen, and L. Wang. 2006. Relative influence of environmental variables at multiple spatial scales on fishes in Wisconsin’s warm-water nonwadeable rivers. Pages 493-511 in: R. Hughes, L. Wang, and P. Seelbach, editors. Landscape influences on stream habitats and biological assemblages. American Fisheries Society, Symposium 48, Bethesda, Maryland.

Weihs, D. 1973. Optimal fish cruising speed. Nature (London) 245: 48-50.

Weihs, D. 1974. Energetic advantages of burst swimming of fish. Journal of Theoretical Biology 48: 215-229.

Weinheimer, J., J.H. Anderson, M. Downen, M. Zimmerman, and T. Johnson. 2017. Monitoring climate impacts: survival and migration timing of summer chum salmon in Salmon Creek, Washington. Transactions of the American Fisheries Society 146 (5): 983-995. Doi: 10.1080/00028487.2017.1321580.

Weisberg, S.B., and W. H. Burton. 1993. Enhancement of fish feeding and growth after an increase in minimum flow below the Conowingo Dam. North American Journal of Fisheries Management 13 (1): 103-109.

Weisberg, S.B., A.J. Janicki, J. Gerritsen, and H.T. Wilson. 1990. Enhancement of benthic macroinvertebrates by minimum flow from a hydroelectric dam. Regulated Rivers: Research and Management 5: 265-277.

Weise, A.M., M. Levasseur, F.J. Saucier, S. Senneville, E. Bonneau, S. Roy, G. Sauve, S. Michaud, and J. Fauchot. 2002. The link between precipitation, river runoff, and blooms of the toxic dinoflagellate *Alexandrium tamarense* in the St. Lawrence. Canadian Journal of Fisheries and Aquatic Sciences 59 (3): 464-473.

Welcomme, R. 1979. Fisheries ecology of floodplain rivers. Longman, London. 317 pp.

Welcomme, R.L. 1986. The effect of Sahelian drought on the fishery of the central delta of the Niger River. Aquaculture Research 17: 147-154.

Welcomme, R.L. 1988. Concluding remarks I: On the nature of large tropical rivers, floodplains, and future research directions. Journal of the North American Benthological Society 7 (4): 525-526.

Welcomme, R. 1989. Review of the present state of knowledge of fish stocks and fisheries of African rivers. Pp. 515-532 in: D.P. Dodge (ed.), Proceedings of the International Large Rivers Symposium. Canadian Sp. Publ. Fish. Aquatic. Sci. 106.

Welcomme, R.L., C. Bene, C.A. Brown, A.H. Arthington, P. Dugan, J.M. King, and V. Sugunan. 2006. Predicting the water requirements of river fisheries. Pages 123-154 in: J.T.A. Verhoeven, B. Beltman, R. Bobbink, and D.F. Whigham, editors. Wetlands and Natural Resource Management. Ecological Studies, Vol. 90. Springer-Verlag, Berlin.

Welcomme, R.L., and A.S. Halls. 2001. Some considerations of the effects of differences in flood patterns on fish populations. Ecohydrol. Hydrobiol. 1: 313-321.

Welcomme, R., and D. Hagborg. 1977. Towards a model of a floodplain fish population and its fishery. Environmental Biology of Fishes 2: 7-74.

Welcomme, R., R.A. Ryder, and J.A. Sedell. 1989. Dynamics of fish assemblages in river systems - a synthesis. Pp. 569-577 in: D.P. Dodge (ed.), Proceedings of the International Large Rivers Symposium. Canadian Sp. Publ. Fish. Aquatic. Sci. 106.

Welcomme, R.L., K.O. Winemiller, and I.J. Cowx. 2006. Fish environmental guilds as a tool for assessment of ecological condition of rivers. River Research and Applications 22: 377-396.

Welker, T.L., and D.L. Scarnecchia. 2004. Habitat use and population structure of four native minnows (family Cyprinidae) in the upper Missouri and lower Yellowstone rivers, North Dakota (USA). Ecology of Freshwater Fish 13: 8-22. Doi: 10.1111/j.0906-6691.2004.00036.x.

Wellmeyer, J.L., M.C. Slattery, and J.D. Phillips. 2005. Quantifying downstream impacts of impoundment on flow regime and channel planform, lower Trinity River, Texas. Geomorphology 69: 1-13.

Welsh, H.H., Jr., G.R. Hodgson, B.C. Harvey, and M.F. Roche. 2001. Distribution of juvenile coho salmon in relation to water temperatures in tributaries of the Mattole River, California. North American Journal of Fisheries Management 21 (3): 464-470.

Welsh, H., and L.M. Ollivier. 1998. Stream amphibians as indicators of ecosystem stress: a case study from California’s redwoods. Ecological Applications 8: 1118-1132.

Welsh, S.A., and H.L. Liller. 2013. Environmental correlates of upstream migration of yellow-phase American eels in the Potomac River drainage. Transactions of the American Fisheries Society 142 (2(: 483-491. Doi: 10.1080/00028487.2012.754788.

Welsh, S.A., and S.A. Perry. 1998. Habitat partitioning in a community of darters in the Elk River, West Virginia. Environmental Biology of Fishes 51: 411-419.

Welsh, W.D., J. Vaze, D. Dutta, J.M. Rassam, J.M. Rahman, I.D. Jolly, …, J. Teng. 2013. An integrated modelling framework for regulatd river systems. Environmental Modelling & Software 39: 81-102.

Welter, J.R., S.G. Fisher, and N.B. Grimm. 2005. Nitrogen transport and retention in an arid land watershed: Influence of storm characteristics on terrestrial-aquatic linkages. Biogeochemistry 76: 421-440. Doi: 10.1007/s10533-005-6997-7

Wen, F., and X. Chen. 2006 Evaluation of the impact of groundwater irrigation on streamflow in Nebraska. Journal of Hydrology 327: 603-617.

Weng, Z., N. Mookerji, and A. Mazumder. 2001. Nutrient-dependent recovery of Atlantic salmon streams from a catastrophic flood. Canadian Journal of Fisheries and Aquatic Sciences 58 (8): 1672-1682.

Wenger, S.J., D.J. Isaak, J.B. Dunham, K.D. Fausch, C.H. Luce, H.M. Neville, B.E. Reiman, M.K. Young, D.E. Nagel, D.L. Horan, and G.L. Chandler. 2011. Role of climate and invasive species in structuring trout distributions in the interior Columbia River Basin, USA. Canadian Journal of Fisheries and Aquatic Sciences 68 (6): 988-1008.

Wenger, S.J., D.J. Isaak, C.H. Luce, H.M. Neville, K.D. Fausch, J.D. Dunham, D.C. Dauwalter, M.K. Young, M.M. Elsner, B.E. Rieman, A.F. Hamlet, and J.E. Williams. 2011. Flow regime, temperature, and biotic interactions drive differential declines of trout species under climate change. Proceedings of the National Academy of Sciences of the United States of America 108: 14175-14180. doi:10.1073/pnas.1103097108.

Wenger, S.J., C.H. Luce, A.F. Hamlet, D.J. Isaak, and H.M. Neville. 2010. Macroscale hydrologic modeling of ecologically relevant flow metrics. Water Resour. Res. 46 (9): W09513. Doi:10.1029/2009WR008839.

Wenger, S.J., J.T. Peterson, M.C. Freeman, B.J. Freeman, and D.D. Homans. 2008. Stream fish occurrence in response to impervious cover, historic land use, and hydrogeomorphic factors. Canadian Journal of Fisheries and Aquatic Sciences 65 (7): 1250-1264. Doi: 10.1139/F08-046.

Wentworth, C.K. 1922. A scale of grade and class terms for cladistic sediments. Journal of Geology 30: 377-392.

Wenzel, C.R. 1993. Flushing flow requirements of a large, regulated Wyoming river to maintain trout spawning habitat quality. M.S. thesis, Department of Range Management, University of Wyoming, Laramie.

Werren, G., and A.H. Arthington. 2002. The assessment of riparian vegetation as an indicator of stream condition, with particular emphasis on the rapid assessment of flow-related impacts. Pages 194-222 in: J. Playford, A. Shapcott, and A. Franks (editors), Landscape Health of Queensland. Royal Society of Queensland, Brisbane, Australia.

Wesche, T.A. 1973. Parametric determination of minimum stream flow for trout. Water Resources Research Institute, University of Wyoming, Laramie. 102 pp.

Wesche, T.A. 1974. Evaluation of trout cover in smaller streams. Proceedings of the Annual Conference of the Western Association of Game and Fisheries Commissioners 54: 286-294.

Wesche, T.A. 1980. A procedure for measuring trout cover in smaller streams. Proceedings of the Annual Conference of the Western Association of Fish and Wildlife Agencies 80: 466-479.

Wesche, T.A. 1990. Analysis of flushing flows required for channel maintenance. Ph.D. dissertation, Washington State University, Pullman.

Wesche, T.A., C.M. Goertler, and C.B. Frye. 1987. Contribution of riparian vegetation to trout cover in small streams. North American Journal of Fisheries Management 7: 151-153.

Wesche, T.A., C.M. Goertler, and W.A. Hubert. 1987. Modified habitat suitability index model for brown trout in southeastern Wyoming. North American Journal of Fisheries Management 7 (2): 232-237.

Wesche, T.A., V.R. Hasfurther, W.A. Hubert, and Q.D. Skinner. 1987. Assessment of flushing flow needs in a steep, rough, regulated tributary. Pp. 59-70 in: J.F. Craig and J.B. Kemper, editors. Regulated Streams: Advances in Ecology. Plenum Press, New York and London.

Wesche, T.A., and P.A. Rechard. 1980. A summary of instream flow methods for fisheries and related research needs. Water Resources Research Institute Eisenhower Consortium Bulletin 9, University of Wyoming, Laramie.

Wesche, T.A., S.W. Wolff, and Q.D. Skinner. 1989. Response of mountain stream channels and associated areas to flow regulation. P. 182 *in*: R.E. Gresswell, B. Barton, and J.L. Kershner (eds.), Practical Approaches to Riparian Resource Management. U.S. Bureau of Land Management, Billings, MT.

Wesner, J.S., and M.C. Belk. 2012. Habitat relationships among biodiversity indicators and co-occurring species in a freshwater fish community. Animal Conservation 15: 445-456.

Westbrook, C., D.J. Cooper, and P. Baker. 2006. Beaver dams and overbank floods influence groundwater-surface water interactions of a Rocky Mountain riparian area. Water Resources Research 42: W06404. Doi: 10.1029/2005WR004560.

Westbrook, C., D.J. Cooper, and D.R. Butler. 2013. Beaver hydrology and geomorphology. Treatise on Geomorphology. Pages 293-306. Elsevier.

Westlake, D.F. 1967. Some effect of low-velocity currents on the metabolism of aquatic macrophytes. Journal of Experimental Botany 18: 187-205.

Wetherall, J.A. 1971. Estimation of survival rates for chinook salmon during their downstream migration in the Green River, Washington. Ph.D. dissertation. College of Fisheries, University of Washington, Seattle. 170 pp.

Wetmore, S.H., R.J. Mackay, and R.W. Newbury. 1990. Characterization of the hydraulic habitat of *Brachycentrus occidentalis*, a filter-feeding caddisfly. Journal of the American Benthological Society 9: 157-169.

Weyers, R.S., C.A. Jennings, and M.C. Freeman. 2003. Effects of pulsed, high-velocity water flow on larval robust redhorse and V-lip redhorse. Transactions of the American Fisheries Society 132: 84-91.

Whalen, K.G., and D.L. Parrish. 1999. Nocturnal habitat use of Atlantic salmon parr in winter. Canadian Journal of Fisheries and Aquatic Sciences 56 (9): 1543-1550.

Whalen, K.G., D.L. Parrish, and M.E. Mather. 1999. Effect of ice formation on selection of habitats and winter distribution of post-young-of-the-year Atlantic salmon parr. Canadian Journal of Fisheries and Aquatic Sciences 56 (1): 87-96. Doi: 10.1139/cjfas-56-1-87

Wharton, G., J. Cotton, R. Wottton, J. Bass, C. Heppell, M. Trimmer, I. Sanders, and L. Warren. 2006. Macrophytes and suspension-feeding invertebrates modify flows and fine sediments in the Frome and Piddle catchments, Dorset (U.K.). Journal of Hydrology 330: 171-184.

Wheaton, J.M., J. Brasington, S.E. Darby, J. Merz, G.B. Pasternack, D. Sear, and D. Vericat. 2010. Linking geomorphic changes to salmonid habitat at a scale relevant to fish. River Research and Applications 26: 469-486. Doi: 10.1002/rra.1305.

Wheeler, A.P., and M.S. Allen. 2003. Habitat and diet partitioning between shoal bass and largemouth bass in the Chipola River, Florida. Transactions of the American Fisheries Society 132 (3): 438-449.

Wheeler, K., S.J. Wenger, and M.C. Freeman. 2018. States and rates: Complementary approaches to developing flow-ecology relationships. Freshwater Biology 63 (8): 906-916. doi: 10.1111/fwb.13001.

Wheelock, K. 2003. Pulsed river flooding effects on sediment deposition in Breton Sound estuary, Louisiana. Thesis, Louisiana State University, Baton Rouge, Louisiana, USA.

Whitacre, H.W., B.B. Roper, and J.L. Kershner. 2007. A comparison of protocols and observer precision for measuring physical stream attributes. Journal of the American Water Resources Association 43: 923-937.

White, D.S. 1990. Biological relationships to convective flow patterns within stream beds. Hydrobiologia 196 (2): 149-158. Doi:10.1007/BF00006106.

White, G. 1988. The environmental effects of the high dam at Aswan. Environment

White, J.C., D.M. Hannah, A. House, S.J.V. Beaton, A. Martin, and P.J. Wood. 2017. Macroinvertebrate responses to flow and stream temperature variability across regulated and non-regulated rivers. Ecohydrology 10: e1773. Doi: 10.1002/eco.1773

White, J.L., and B.C. Harvey. 2007. Winter feeding success of stream trout under different streamflow and turbidity conditions. Transactions of the American Fisheries Society 136 (5): 1187-1192.

White, M.D., and K.A. Greer. 2006. The effects of watershed urbanization on the stream hydrology and riparian vegetation of Los Penasquitos, California. Landscape and Urban Planning 74: 125-138. Doi: 10.1016/j.landurbplan.2004.11.015

White, R.G. 1976. A methodology for recommending stream resource maintenance flows for large rivers. Pp. 376-386 *in*: J.F. Orsborn and C.H. Allman (editors), Proceedings of the Symposium and Specialty Conference on Instream Flow Needs II, 3-6 May 1976. American Fisheries Society, Bethesda, Md.

White, R.G., A.E. Bingham, R.A. Ruediger, and T.S. Vogel. 1981. Response of fish and fish-food organisms to reduction in stream discharge. Proceedings of the 60th Annual Conference of the Western Association of Fish and Wildlife Agencies: 480-493.

White, R.J. 1973. Stream channel suitability for coldwater fish. Proceedings of the 28th Annual Meeting of the Soil Conservation Society of America (Plants, Animals and Man), September 30 ‑ October 3, Hot Springs, Arkansas. pp. 61‑79.

White, R.J. 1975. Trout population responses to streamflow fluctuation and habitat management in Big Roche-a-Cri Creek, Wisconsin. Internationale Vereinigung fur Theoretische und Angewandte Limnologie Verhandlungen 19: 2469-2477.

White, R.J., E.A. Hansen, and G.R. Alexander. 1976. Relationship of trout abundance to stream flow in midwestern streams. Pages 597-615 in: J.F. Osborn and C.H. Allman, editors. Instream Flow Nees, Vol. 2. American Fisheries Society, Bethesda, MD.

White, R.S.A., P.A. McHugh, and A.R. McIntosh. 2016. Drought survival is a threshold function of habitat size and population in a fish metapopulation. Global Change Biology 22: 3341-3348. Doi: 10.1111/gcb.13265

White, S.L., C. Gowan, K.D. Fausch, J.G. Harris, and W.C. Saunders. 2011. Response of trout populations in five Colorado streams two decades after habitat manipulation. Canadian Journal of Fisheries and Aquatic Sciences 68 (12): 2057-2063. Doi: 10.1139/F2011-125

White, S.M., and F.J. Rahel. 2008. Complementation of habitats for Bonneville cutthroat trout in watersheds influenced by beavers, livestock, and drought. Transactions of the American Fisheries Society 137 (3): 881-894. Doi: 10.1577/T06-207.1.

Whited, D., J.A. Stanford, and J.S. Kimball. 2002. Application of airborne multispectral digital imagery to quantify riverine habitats at different base flows. River Research and Application 18: 583-594.

Whited, D.C., M.S. Lorang, M.J. Harner, F.R. Hauer, J.S. Kiball, and J.A. Stanford. 2007. Climate, hydrologic disturbance, and succession: drivers of floodplain patterns. Ecology 88(4): 940-953.

Whitehead, A.L., B.D. David, and G.P. Gloss. 2002. Ontogenetic shift in nocturnal microhabitat selection by giant kokopu in a New Zealand stream. Journal of Fish Biology 61: 1373-1385.

Whiteley, A.R., J.A. Coombs, M. Cembrola, M.J. O’Donnell, M. Hudy, K.H. Nislow, and B.H. Letcher. 2015. Effective number of breeders provides a link between interannual variation in stream flow and individual reproductive contribution in a stream salmonid. Mol. Ecol. 24: 3585-3602.

Whitfield, A.K. 1994. Abundance of larval and 0+ juvenile marine fishes in the lower reaches of three southern African estuaries with differing freshwater inputs. Marine Ecology Progress Series 105: 257-267.

Whitfield, A.K., and M.N. Bruton. 1989. Some biological implications of reduced fresh water inflow into eastern Cape estuaries: A preliminary assessment. South African Journal of Science 85: 691-694.

Whitfield, A.K., and T.D. Harrison. 2003. River flow and fish abundance in a South African estuary. Journal of Fish Biology 62: 1467-1472.

Whitfield, A.K., and T.H. Wooldridge. 1994. Changes in freshwater supplies to southern African estuaries: Some theoretical and practical considerations, p. 41-50. In: K.R. Dyer and R.J. Orth (eds.). Changes in Fluxes in Estuaries: Implications from Science and Management. Olsen and Olsen, Fredensborg, Denmark.

Whitfield, P.H., and H. Schreier. 1981. Hysteresis in relationships between discharge and water chemistry in the Fraser River Basin, British Columbia. Limnology and Oceanography 26: 1179-1182.

Whitford, L.A., and G.J. Schumacher. 1964. Effect of a current on respiration and mineral uptake in *Spirogyra* and *Oedogonium*. Ecology 45: 168-170.

Whiting, P.J. 1998. Floodplain maintenance flows. Rivers 6 (3): 160-170.

Whiting, P.J. 2002.Streamflow necessary for environmental maintenance. Annual Reviews of Earth and Planetary Sciences 30: 181-206.

Whiting, P.J., and J.B. Bradley. 1993. A process-based classification for headwater streams. Earth Surface Processes and Landforms 18: 603-612.

Whiting, P.J., and M. Pomeranets. 1997. A numerical study of bank storage and its contribution to streamflow. Journal of Hydrology 202: 121-136.

Whiting, P.J., J.F. Stamm, D.B. Moog, and R.L. Orndorff. 1999. Sediment-transporting flows in headwater streams. Geol. Soc. Am. Bull. 111 (3): 450-466. Doi:10.1130/0016-7606(1999)111<0450:STFIHS>2.3.CO;2.

Whitledge, G.W., C.F. Rabeni, G. Annis, and S.P. Sowa. 2006. Riparian shading and groundwater enhance growth potential for smallmouth bass in Ozark streams. Ecological Applications 16 (4): 1461-1473.

Whitney, E.J., A.H. Beaudreau, and D.H. Duncan. 2017. Spatial and temporal variation in the diets of Pacific staghorn sculpin related to hydrological factors in a glacially influenced estuary. Transactions of the American Fisheries Society 146 (6): 1156-1167. Doi: 10.1080/00028487.2017.1341852

Whitney, J.E., K.B. Gido, and D.L. Propst. 2014. Factors associated with the success of native and nonnative species in an unfragmented arid-land riverscape. Canadian Journal of Fisheries and Aquatic Sciences 71 (8): 1134-1145. Doi: 10.1139/cjfas-2014-0153.

Whitworth, K.L., D.S. Baldwin, and J.L. Kerr. 2012. Drought, floods and water quality: drivers of a severe hypoxic blackwater event in a major river system (the southern Murray-Darling Basin, Australia). J. Hydrol. 450-451: 190-198. Doi: 10.1016/j.hydrol.2012.04.057.

Whitworth, K.L., J.L. Kerr, L.M. Mosley, J. Conallin, L. Hardwick, and D.S. Baldwin. 2013. Options for managing hypoxic blackwater in river systems: case studies and framework. Environmental Management 52: 837-850. doi: 10.1007/s00267-013-0130-9

Wiberg, P.L., and J.D. Smith. 1991. Velocity distribution and bed roughness in high-gradient streams. Water Resources Research 27: 825-838.

Wickett, W.P. 1951. The coho salmon population of Nile Creek. Fisheries Research Board of Canada Pacific Prog. Rep. 89: 88-89.

Wickett, W.P. 1958. Review of certain environmental factors affecting the production of pink and chum salmon. Journal of the Fisheries Research Board of Canada 15: 1103‑1126.

Wickham, M.G. 1967. Physical microhabitat of trout. M.S. thesis. Colorado State University, Fort Collins.

Wickert, A.D., J.M. Martin, M. Tal, W. Kim, B. Sheets, and C. Paola. 2013. River channel lateral mobility: metrics, time scales, and controls. Journal of Geophysical Research, Earth Surface 118: 396-412. Doi: 10.1029/2012JF002386.

Widdows, J., J.S. Lucas, M.D. Brinsley, P.N. Salkeld, and F.J. Staff. 2002. Investigations of the effects of current velocity on mussel feeding and mussel stability using an annular flume. Helgoland Marine Research 56: 3-12.

Widmer, A., J.I. Fluder, J. Kehmeier, C. Medley, and R. Valdez. 2012. Drift and retension of pelagic spawning minnow eggs in a regulated river. River Research and Applications 28: 192-203.

Wiens, J.A. 2002. Riverine landscapes: taking landscape ecology into the water. Freshwater Biology 47: 501-515.

Wigington, P.J., Jr., J.L. Ebersole, M.E. Colvin, S.G. Liebowiz, B. Miller, B. Hanson, H.R. Lavigne, D. White, J.P. Baker, M.R. Church, J.R. Brooks, M.A. Cairns, and J.E. Compton. 2006. Coho salmon dependence on intermittent streams. Frontiers in Ecology and the Environment 4 (10): 513-518.

Wilber, D.H. 1992. Association between freshwater inflows and oyster productivity in Apalachicola Bay, Florida. Estuar. Coast Shelf Sci. 35: 179-190.

Wilber, D.H. 1994. The influence of Apalachicola River flows on the blue crab, *Callinectes sapidus*, in north Florida. Fishery Bulletin 92: 180-188.

Wilber, D.A., and R. Bass. 1998. Effect of Colorado River diversion on Matagordo Bay epifauna. Estuarine, Coastal and Shelf Science 47: 309-318.

Wilby, R.L, and M.D. Dettinger. 2000. Streamflow changes in the Sierra Nevada, California, simulated using a statistically downscaled general circulation model scenario of climate change. Pages 99-121 in: S.J. McLaren and D.R. Kniveton (editors), Linking Climate change to Land Surface Change, Kluwer Academic Publishers: Dordrecht, Netherlands.

Wilby, R.L, C.R. Fenn, P.J. Wood, R. Timlett, and T. LeQuesne. 2011. Smart licensing and environmental flows: Modelling framework and sensitivity testing. Water Resources Research 47: 1-15.

Wilcock, P.R. 1996. Estimating local bed shear stress from velocity observations. Water Resour. Res. 32 (11): 3361-3366. Doi:10.1029/96WR02277.

Wilcock, P.R., A.F. Barta, C.C. Shea, G.M. Kondolf, W.V. Graham Matthews, and J. Pitlick. 1996. Observations of flow and sediment entrainment on a large gravel-bed river. Water Resources Research 32: 2897-2909.

Wilcock, P.R., G.M. Kondolf, W.V. Graham Matthews, and A.F. Barta. 1996. Specification of sediment maintenance flows for a large gravel-bed river. Water Resources Research 32 (9): 2911-2921.

Wilcox, A.C., B.L. Peckaesky, B.W. Taylor, and A.C. Encalada. 2008. Hydraulic and geomorphic effects on mayfly drift in high-gradient streams at moderate discharges. Ecohydrology 186: 176-186. Doi: 10.1002/eco.16.

Wilcox, B.P. 2002. Shrub control and streamflow on rangelands: a process based viewpoint. J. Range Manage 55: 318-326.

Wilcox, B.P., D.D. Breshears, and C.D. Allen. 2003. Ecohydrology of a resource-conserving semiarid woodland: temporal and spatial scaling and disturbance. Ecological Monographs 73: 223-239.

Wilcox, B.P., M.K. Owens, W.A. Dugas, et al. 2006. Shrubs, streamflow, and the paradox of scale. Hydrol. Proc. 20: 3245-59.

Wilcox, B.P., M.K. Owens, R.W. Knight, et al. 2005. Do woody plants affect streamflow on semiarid karst rangelands? Ecol. Appl. 15: 127-136.

Wilde, G.R., and B.W. Durham. 2008. Daily survival rates of larvae and juveniles of six species of Great Plains cyprinid fishes. Transactions of the American Fisheries Society 137: 830-833.

Wilde, G.R., and B.W. Durham. 2008. A life history model for peppered chub, a broadcast-spawning cyprinid. Transactions of the American Fisheries Society 137: 1657-1666.

Wildhaber, M.L., V.M. Tabor, J.E. Whitaker, A.L. Allert, D.W. Mulhern, P.J. Lamberson, and K.L. Powell. 2000. Ictalurid populations in relation to the presence of a main-stem reservoir in a midwestern warmwater stream with emphasis on the threatened Neosho madtom. Transactions of the American Fisheries Society 129 (6): 1264-1280.

Wildhaber, M.L., P.J. Lamberson, and D.L. Galat. 2003. A comparison of measures of riverbed form for evaluating distributions of benthic fishes. North American Journal of Fisheries Management 23 (2): 543-557.

Wilding, T.K. 2012. Regional methods for evaluating the effects of flow alteration on stream ecosystems. Ph.D. thesis, Biology, Colorado State University, Fort Collins.

Wilding, T.K., B. Bledsoe, N.L. Poff, and J. Sanderson. 2014. Predicting habitat response to flow using generalized habitat models for trout in Rocky Mountain streams. River Research and Applications 30: 805-824. Doi: 10.1002/rra.2678

Wilding, T., and L. Poff. 2008. Flow ecology relationships for the watershed flow evaluation tool. Fort Collins, CO: Colorado State University.

Wildish, D., and D. Kristmanson. 1997. Benthic suspension feeders and flow. Cambridge University Press, Cambridge.

Wiley, D. 1995. Development and evaluation of flushing flow recommendations for the Big Horn River. Master’s thesis, University of Wyoming, Laramie.

Wiley, D.J. 2004. Relations between physical habitat and American eel abundance in five river basins in Maryland. Transactions of the American Fisheries Society 133 (3): 512-526.

Wiley, M.J., and S.J. Kohler. 1981. An assessment of biological interactions in an epilithic stream community using time lapse cinematography. Hydrobiologia 78: 183-188.

Wiley, M.J., L.L. Osborne, R.W. Larimore, and T.J. Kwak. 1987. Augmenting concepts and techniques for examining critical flow requirements of Illinois stream fishes. Illinois State Natural History Survey, Aquatic Biology Section. Champagne, IL.

Wilhere, G.F. 2012. Using Bayesian network to incorporate uncertainty uncertainty in habitat suitability index models. Journal of Wildlife Management 76 (6): 1298-1309. Doi: 10.1002/jwmg.366.

Wilhite, D.A., M.V.K. Sivakumar, and R. Pulwarty. 2014. Managing drought risk in a changing climate: the role of national drought policy. Weather and Climate Extremes 3: 4-13. Doi: 10.1016/j.wace.2014.01.002

Wilkes, M.A., I. Maddock, F. Visser, and M.C. Acreman. 2013. Incorporating hydrodynamics into ecohydraulics: the role of turbulence in the swimming performance and habitat selection of stream-dwelling fish. Pages 9-30 in: I. Maddock, A. Harby, P. Kemp, and P. Wood, editors, Ecohydraulics: an integrated approach. Wiley, Chichester, U.K.

Williams, C.A., and D.J. Cooper. 2005. Mechanisms of riparian cottonwood decline along regulated rivers. Ecosystems 8: 382-395.

Williams, C.S., and T.H. Bonner. 2006. Habitat associations, life history, and diet of the Sabine shiner *Notropis sabinae* in an east Texas stream. American Midland Naturalist 155: 84-102.

Williams, D.D. 1980. Temporal patterns in recolonization of stream benthos. Archives of Hydrobiology 90: 56-74.

Williams, D.D. 1996. Environmental constraints in temporary freshwaters and their consequences for the insect fauna. J. N. Am, Benthol. Soc. 15 (4): 634-650. Doi: 10.2307/1467813.

Williams, D.D., and H.B.N. Hynes. 1976. The ecology of temporary streams. I. The faunas of two Canadian streams. Int. Rev. Ges. Hydrobio. 61: 761-787.

Williams, G.P. 1978. Bankfull discharge of rivers. Water Resources Research 14: 1141-1153.

Williams, G.P. 1978. The case of shrinking river channels - the North Platte and Platte Rivers in Nebraska. U.S. Geological Survey, Circular 781, Washington, D.C.

Williams, G.P., and M.G. Wolman. 1984. Downstream effects of dams on alluvial rivers. U.S. Geological Survey Professional Papers 1286.

Williams, I.V., and J.R. Brett. 1987. Critical swimming speed of Fraser and Thompson river pink salmon (*Oncorhynchus gorbuscha*). Canadian Journal of Fisheries and Aquatic Sciences 44: 348-356.

Williams, J.G. 1996. Lost in space: minimum confidence intervals for idealized PHABSIM studies. Transactions of the American Fisheries Society 125 (3): 458‑465.

Williams, J.G. 1997. Comment: testing the independence of microhabitat preferences and flow (part 1). Transactions of the American Fisheries Society 126 (3): 536‑537.

Williams, J.G. 2001. Tripping over spatial scales: a comment on Guay et al. (2000). Canadian Journal of Fisheries and Aquatic Sciences 58 (10): 2105-2107.

Williams, J.G. 2001. Testing models used for instream flow assessment. Fisheries 26 (12): 19-20.

Williams, J.G. 2010. Lost in space, the sequel: spatial sampling issues with 1-D PHABSIM. River Research and Applications 26: 341-352. Doi: 10.1002/rra.1258.

Williams, J.G. 2010. Sampling for environmental flow assessments. Fisheries 35 (9): 434-443.

Williams, J.G. 2010. Comment on Gard (2009): comparison of spawning habitat predictions of PHABSIM and River2D models. International Journal of River Basin Management 8: 117-119.

Williams, J.G., and G.M. Matthews. 1995. A review of flow and survival relationships for spring and summer chinook salmon, *Oncorhynchus tshawytscha*, from the Snake River basin. Fishery Bulletin 93: 732-740.

Williams, J.G., S.G. Smith, and W.D. Muir. 2001. Survival estimates for downstream migrant yearling juvenile salmonids through the Snake and Columbia Rivers hydropower system, 1966-1980 and 1993-1999.

Williams, J.G., T.P. Speed, and W.F. Forrest. 1999. Comment: Transferability of habitat suitability criteria. North American Journal of Fisheries Management 19 (2): 623-625.

Williams, L.R., M.L. Warren, Jr., S.B. Adams, J.L. Arvai, and C.M. Taylor. 2004. Basin visual estimation technique (CVET) and representative reach approaches to wadeable stream surveys: methodological limitations and future directions. Fisheries 29 (8): 12-22.

Williams, P.B. 1989. Managing freshwater inflow to the San Francisco Bay estuary. Regulated Rivers: Research and Management 4: 285-298.

Williams, R.D., and R.N. Winget. 1979. Macroinvertebrate response to flow manipulation in the Strawberry River, Utah. Pp. 365-376 in: J.V. Ward and J.A. Stanford (eds.) The ecology of regulated streams. Plenum Publishing Corporation, New York.

Williams, R.N., P.A. Bisson, D.L. Bottom, L.D. Calvin, C.C. Coutant, M.W. Erho, C.A. Frissell, J.A. Lichatowich, W.J. Liss, W.E. McConnaha, P.R. Mundy, J.A. Stanford, and R.R. Whitney. 1999. Return to the river: scientific issues in the restoration of salmonid fishes in the Columbia River. Fisheries 24: 10-19.

Williams, R.W., R.M. Laramie, and J.J. Ames. 1975. A catalog of Washington streams and salmon utilization, Volume 1 Puget Sound region. Washington Department of Fisheries, Olympia.

Willliamson, K.L., and P.C. Nelson. 1985. Habitat suitability index models and instream flow suitability curves: Gizzard shad. U.S. Fish and Wildlife Service Biological Report 82 (10.112). 33 pp.

Williamson, S.C., J.M. Bartholow, and C.B. Stalnaker. 1993. A conceptual model for quantifying pre-smolt production from flow-dependent physical habitat and water temperature. Regulated Rivers: Research & Management 8: 15-28.

Willis, K.G., and G.D. Garrod. 1999. Angling and recreation values of low-flow alleviation in rivers. Journal of Environmental Management 57: 71-83.

Willms, C.R., D.W. Pearce, and S.B. 2006. Growth of riparian cottonwoods: a developmental pattern and the influence of geomorphic context. Trees 20: 210-218.

Willms, J., S.B. Rood, W. Willms, and M. Tyree. 1998. Branch growth of riparian cottonwoods: a hydrologically sensitive dendrochronological tool. Trees 12: 215-223.

Wills, D.B., and N.K. Whittlesey. 1998. Water management policies for streamflow augmentation in an irrigated river basin. Journal of Agricultural and Resource Economics 23: 170-190.

Wills, T.C., E.A. Baker, A.J. Nuhfer, and T.G. Zorn. 2006. Response of the benthic macroinvertebrate community in a northern Michigan stream to reduced summer streamflows. River Research and Applications 22: 819-836. Doi: 10.1002/rra.938.

Wilson, G.G., and P.J. Berney. 2009. Delivering multi-objective environmental flows into terminal floodplain wetlands, Northern Murray-Darling basin, Australia. Proceedings of the International Conference on Environmental water Allocations, Port Elizabeth, South Africa.

Wilson, H.F., and M.A. Xenopoulos. 2008. Landscape influences on stream fish assemblages across spatial scales in a northern Great Plains ecoregion. Canadian Journal of Fisheries and Aquatic Sciences 65 (2): 245-257.

Wilson, J.D., C.T. Winne, M.E. Dorcas, and J.W. Gibbons. 2006. Post-drought responses of semi-aquatic snakes inhabiting an isolated wetland: insights on different strategies for persistence in a dynamic habitat. Wetlands 26: 1071-1078.

Wilson, K.W., and M.C. Belk. 2001. Habitat characteristics of leatherside chub (*Gila copei*) at two spatial scales. Western North American Naturalist 61: 36-42.

Wilzbach, M.A. 1985. Relative roles of food abundance and cover in determining the habitat distribution of stream-dwelling cutthroat trout (*Salmo clarki*). Canadian Journal of Fisheries and Aquatic Sciences 42: 1668-1672.

Wilzbach, M.A., K.W. Cummins, and J.D. Hall. 1986. Influence of habitat manipulations on interactions between cutthroat trout and invertebrate drift. Ecology 67: 898-911.

Winemiller, K.O. 1989. Patterns of variation in life history traits among South American fishes in seasonal environments. Oecologia 81: 225-241.

Winemiller, K.O. 2005. Life history strategies, population regulation, and implications for fisheries management. Canadian Journal of Fisheries and Aquatic Sciences 52: 875.

Winemiller, K.O., P.B. McIntyre, L. Castello, E. Fluet-Chouinard, T. Giarrizzo, S. Nam, et al. 2016. Balancing hydropower and biodiversity in the Amazon, Congo, and Mekong. Science 351: 128-129. Doi: 10.1126/science.aac7082

Winemiller, K.O., C.G. Montana, D.L. Roelke, J.B. Cotner , J.V. Montoya, L. Sanchez, M.M. Castillo, and C.A. Layman. 2014. Pulsing hydrology determines top-down control of basal resources in a tropical river-floodplain ecosystem. Ecological Monographs 84: 621-635.

Winemiller, K.O., J.V. Montoya, D.L. Roelke, C.A. Layman, and J.B. Cotner. 2006. Seasonally varying impact of detritivorous fishes on the benthic ecology of a tropical floodplain river. Journal of the North American Benthological Society 25: 250-262.

Winemiller, K.O., and K.A. Rose. 1992. Patterns of life-history diversification in North American fishes: implications for population regulation. Canadian Journal of Fisheries and Aquatic Sciences 49: 2196-2218. Doi: 10.1139/f92-242

Winemiller, K.O., S. Tarim, D. Shormann, and J.B. Cotner. 2000. Fish assemblage structure in relation to environmental variation among Brazos River oxbow lakes. Transactions of the American Fisheries Society 129: 451-568.

Wing, M.G., and A. Skaugset. 2002. Relationships of channel characteristics, land ownership, and land use patterns to large woody debris in western Oregon streams. Canadian Journal of Fisheries and Aquatic Sciences 59 (5): 796-807.

Winker, K., J.H. Roppole, and M.A. Ramos. 1995. The use of movement data as an assay of habitat quality. Oe7082cologia 101: 211-216.

Winkle, P.L., W.A. Hubert, and F.J. Rahel. 1990. Relations between brook trout standing stocks and habitat features in beaver ponds in southeastern Wyoming. North American Journal of Fisheries Management 10 (1): 72-79.

Winne, C.T., J.D. Wilson, and J.W. Gibbons. 2010. Drought survival and reproduction impose contrasting selection pressures on maximum body size and sexual size dimorphism in a snake, *Seminatrix pygaea*. Oecologia 16: 913.

Winstone, A.J., A.S. Gee, and P.V. Varallo. 1985. The assessment of flow characteristics at certain weirs in relation to the upstream movement of migratory salmonids. Journal of Fish Biology 27 (sA): 75-83.

Winter, T.C. 1999. Relation of streams, lakes, and wetlands to groundwater flow systems. Hydrogeology Journal 7: 28-45.

Winter, T.C. 2007. The role of ground water in generating streamflow in headwater areas and in maintaining baseflow. Journal of the American Water Resources Association 43 (1): 15-25.

Winterbottom, S.J., and D.J. Gilvear. 1997. Quantification of channel bed morphology in gravel-bed rivers using airborne multispectral imagery and aerial photography. Regulated Rivers: Research and Management 13: 489-499.

Wintersberger, H. 1996. Species assemblages and habitat selection of larval and juvenile fishes in the River Danube. Arch. Hydrobiol. 113: 497-505.

Wirth, L., A. Rosenberger, A. Prakash, R. Gens, F.J. Margraf, and T. Hamazaki. 2012. A remote-sensing, GIS-based approach to identify, characterize, and model spawning habitat for fall-run chum salmon in a sub-Arctic, glacially-fed river. Transactions of the American Fisheries Society 141 (5): 1349-1363. Doi: 10.1080/00028487.2012.692348.

Wiseman, W.J. and F.J. Kelly. 1994. Salinity variability within the Louisiana coastal current during the 1982 flood season. Estuaries 17: 732-739.

Wishart, M.J. 2006. Water scarcity: politics, populations and the ecology of desert rivers. Pages 76-99 in: R.T. Kingsford (editor), Ecology of Desert Rivers. Cambridge University Press, Melbourne, Australia.

Wissel, B., A. Gace, and B. Fry. 2005. Tracing river influences on phytoplankton dynamics in two Louisiana estuaries. Ecology 86 (10): 2751-2762.

Wissmar, R.C. (and S. Craig.) 1997. Bull trout spawning activity, Gold Creek, Washington. University of Washington School of Fisheries, Fisheries Research Institute FRI-UW-9701. 15 pp.

Wissmar, R.C,.R.K. Timm, and M.G. Logsdon. 2004. Effects of changing forest and impervious land covers on discharge characteristics of watersheds. Environmental Management 34: 91-98.

Witte, C.C., M.L. Wildhaber, A. Arab, and D.B. Noltie. 2009. Substrate choice of territorial male Topeka shiners (*Notropis topeka*) in the absence of sunfish (*Lepomis* sp.). Ecology of Freshwater Fish 18: 350-359.

Witzel, L.D., and H.R. MacCrimmon. 1981. Role of gravel substrate on ova survival and alevin emergence of rainbow trout, Salmo gairdneri. Canadian Journal of Zoology 59 (4): 629-636. Doi: 10.1139/z81-092.

Witzel, L.D., and H.R. MacCrimmon. 1983. Embryo survival and alevin emergence of brook charr, *Salvelinus fontinalis*, and brown trout, *Salmo trutta*, relative to redd gravel composition. Can. J. Zool. 61: 1783-1792.

Witzel, L.D., and H.R. MacCrimmon. 1983. Redd-site selection by brook trout and brown trout in southwestern Ontario streams. Transactions of the American Fisheries Society 112 (6): 760-771. Doi:10.1577/1548-8659(1983)112<760:RSBBTA>2.0.CO;2.

Woelfle-Erskine, C., L.G. Larsen, and S.M. Carlson. 2017. Abiotic habitat thresholds for salmonid over-summer survival in intermittent streams. Ecosphere 8 (2): e01645. Doi: 10.1002/ecs2.1645.

Wohl, E. 2017. Connectivity in rivers. Progress in Physical Geography 41 (3): 345-362. Doi: 10.1177/0309133317714972.

Wohl, E., B.P. Bledsoe, R.B. Jacobson, N.L. Poff, S.L. Rathburn, D.M. Walters, et al. 2015. The natural sediment regime in rivers: broadening the foundation for ecosystem management. BioScience 65:358-371.

Wohl, E.E., K.R. Vincent, and D.J. Merritts. 1993. Pool and riffle characteristics in relation to channel gradient. Geomorphology 6: 99-110.

Woinarski, J.C.Z., C. Brock, M. Armstrong, C. Hempel, D. Cheal, and K. Brennan. 2000. Bird distribution in riparian vegetation in the extensive natural landscape of Australia’s tropical savannah: a broad-scale survey and analysis of a distributional data base. Journal of Biogeography 27: 843-868.

Wolanski, E. 2007. Estuarine Ecohydrology. Elsevier, Amsterdam, Netherlands.

Wolfe, B.B., R.I. Hall, T.W.D. Edwards, S.R. Vardy, M.D. Falcone, C. Sjunneskog, F. Sylvestre, S. McGowan, P.R. Leavitt, and P. van Driel. 2008. Hydroecological responses of the Athabasca Deslta, Canada, to changes in river flow and climate during the 20th century. Ecohydrology 1 (2): 131-148. Doi: 10.1002/eco.13.

Wolfe, B.B., R.I. Hall, W.M. Last, T.W.D. Edwards, M.C. English, T.L. Karst-Tiddoch, A. Paterson, and R. Palmini. 2006. Reconstruction of multi-century flood histories from oxbow lake sediments, Peace-Athabasca Delta, Canada. Hydrological Processes 20: 4131-4153. Doi: 10.1002/hyp.6423.

Wolff, S.W., T.A. Wesche, D.D. Harris, and W.A. Hubert. 1990. Brown trout population and changes associated with increased minimum flows in Douglas Creek, Wyoming. U.S. Fish and Wildlife Service Biological Report 90 (11).

Wolff, S.W., T.A. Wesche, and W.A. Hubert. 1989. Stream channel and habitat changes due to flow augmentation. Regul. Rivers: Res. Manage. 4: 225.

Woll, C., A. Prakash, and T. Sutton. 2011. A case-study of in-stream juvenile salmon habitat classification using decision-based fusion of multispectral aerial images. Applied Remote Sensing Journal 2: 37-46.

Wollebaek, J., R. Thue, and J. Heggenes. 2008. Redd site microhabitat utilization and quantitative models for wild large brown trout in three contrasting boreal rivers. North American Journal of Fisheries Management 28: 1249-1258.

Wollheim, W.M., C.J. Vorosmarty, B.J. Peterson, S.P. Setzinger, and C.S. Hopkinson. 2008. Relationship between river size and nutrient removal. Geophysical Research Letters 33:1-4.

Wolman, M.G., and R. Gerson. 1978. Relative scales of time and effectiveness of climate in watershed geomorphology. Earth Surface Processes 3: 189-208.

Wolman, M.G., and J.P. Miller. 1960. Magnitude and frequency of forces in geomorphic processes. Journal of Geology 68: 54-74.

Wolock, D.M. 2003. Base flow index grid for the conterminous United States. U.S. Geological Survey Open-File Report 03-263. <http://water.usgs.gov/lookup/getspatial?bfi48grd>

Wolock, D.M. 2003. Flow characteristics at US Geological Survey streamgages in the conterminous United States. U.S. Geological Survey Open-File Report 03-146. http:// water.usgs.gov/lookup/getspatial?qsitedd

Wolock, D.M,, and G.J. McCabe. 1999. Explaining spatial variation in mean annual runoff in the conterminous United States. Climate Research 11: 149-159.

Wolock, D.M., T.C. Winter, and G. McMohan. 2004. Delineation and evaluation of hydrologic-landscape regions in the United States using geographic information system tools and multivariate statistical analyses. Environmental Management 14 (1): 71-88.

Wolter, C., and R. Arlinghaus. 2003. Navigation impacts on freshwater fish assemblages: the ecological relevance of swimming performance. Rev. Fish Biol. Fish. 13 (1): 63-89. Doi: 10.1023/A:1026350223459.

Wolter, C., and A. Sukhodolov. 2008. Random displacement versus habitat choice of fish larvae in rivers. River Research and Applications 24 (5): 661-672. Doi: 10.1002/rra.1146.

Wondzell, S.M. 2006. Effect of morphology and discharge on hyporheic exchange flows in two small streams in the Cascade Mountains of Oregon, USA. Hydrological Processes 20: 267-287.

Wondzell, S.M., and F.J. Swanson. 1996. Seasonal and storm dynamics of the hyporheic zone of a 4th-order mountain stream. I. Hydrological processes. J. North Am. Benthol. Soc. 15: 3-19.

Wondzell, S.M., and F.J. Swanson. 1999. Floods, channel change, and the hyporheic zone. Water Resources Research 35: 555-567.

Wong, S. 2002. Villagers chart recovery since Pak Mun gates opened. World Rivers Review 17: 10-11.

Woo, M., and J.M. Waddington. Effect of beaver dams on subarctic wetland hydrology. Arctic 43: 223-230.

Woo, M-K., and P.R. Waylen. 1984. Areal prediction of annual floods generated by two distinct processes. Hydrol. Sci. J. 29: 75-88.

Wood, B.M., and M.B. Bain. 1995. Morphology and microhabitat use in stream fish. Canadian Journal of Fisheries and Aquatic Sciences 52: 1487-1498. Doi: 10.1139/f95-143.

Wood, J., and P. Budy. 2009. The role of environmental factors in determining early survival and invasion success of exotic brown trout. Transactions of the American Fisheries Society 138 (4): 756-767.

Wood, J.L.A., J.W.A. Grant, and M.H. Belanger. 2012. Population density and territory size in juvenile rainbow trout, *Oncorhynchus mykiss*: implications for population regulation. Canadian Journal of Fisheries and Aquatic Sciences 69 (6): 1121-1128. Doi: 10.1139/F2012-048

Wood, P.J., and P.D. Armitage. 1997. Biological effects of fine sediment in the lotic environment. Environmental Management 21: 203-217.

Wood, P.J., and P.D. Armitage. 2004. The response of the macroinvertebrate community to low-flow variability and supra-seasonal drought within a groundwater dominated stream. Archiv fur Hydrobiologie 161: 1-20.

Wood, P.J., M.D. Agnew, and G.E. Petts. 2000. Flow variations and macroinvertebrate community responses in a small groundwater-dominated stream in south-east England. Hydrological Processes 14: 3133-3147.

Wood, P.J., D.M. Hannah, M.D. Agnew, and G.E. Petts. 2001. Scales of hydroecological variability within a groundwater-dominated chalk stream. Regulated Rivers: Research and Management 17: 347-367.

Wood, P.J., and G.E. Petts. 1994. Low flows and recovery of macroinvertebrates in a small regulated chalk stream. Regulated Rivers: Research and Management 9: 303-316.

Wood, P.J., and G.E. Petts. 1999. The influence of drought on chalk stream invertebrates. Hydrological Processes 13: 387-399. Doi: 10.1002/(SICI)1099-1085(19990228)13:3<387::AID-HYP745>3.

Wood, R.K., and D.E. Whelon. 1965. Low-flow regulations as a means of improving stream fishing. Proceedings of the Annual Conference of Southeastern Game and Fish Commissioners 16: 375-386.

Woodhouse, C.A., S.T. Gray, and D.M. Meko. 2006. Updated streamflow reconstructions for the upper Colorado River basin. Water Resources Research 42:

Woodin, R.M. 1984. Evaluation of salmon fry stranding induced by fluctuating hydroelectric discharge in the Skagit River 1980-1983. Washington Department of Fisheries Technical Report 83.

Woodside, K.L., C.J. Paxton, and N.C. Kierl. 2015. Stock assessment of shoal bass in the Chipola River, Florida. Pages 139-155 in: M.D. Tringall, J.M. Long, T.W. Birdsong, and M.S. Allen, editors. Black bass diversity: multidisciplinary science for conservation. American Fisheries Society Symposium 82, Bethesda, Maryland.

Woodward, G., D.M. Perkins, and L.E. Brown. 2010. Climate change and freshwater ecosystems: impacts across multiple levels of organization. Phil. Trans. R. Soc. B 365: 2093-2106.

Woodward, G., N. Bonada, L.E. Brown, R.G. Death, L. Durance, C. Gray, S. Hladyz, M.E. Ledger,A.M. Milner, S.J. Ormerod, R.M. Thompson, andS. Pawar. 2016. The effects of climatic fluctuations and extreme events on running water ecosystems. Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences 371: 20150274. Doi: 10.1098/rstb.2015.0274

Woodward, G., N. Bonada, H.B. Feeeley, and P.S. Giller. 2015. Resilience of a stream community to extreme climatic events and long-term recovery from a catastrophic flood. Freshwater Biology 60: 2497-2510. Doi: 10.1111/fwb.12592

Woodward, G., L.E. Brown, F.K. Edwards, L.N. Hudson, A.M. Milner, D/C. Reuman, and M.E. Ledger. 2012. Climate Change impacts in multispecies systems: drought alters food web size structure in a field experiment. Phil. Trans. R. Soc. B 367” 2990-2997.

Wooley, C.M., and E.J. Crateau. 1985. Movement, microhabitat, exploitation, and management of Gulf of Mexico sturgeon, Apalachicola River, Florida. North American Journal of Fisheries Management 5: 590-605.

Woolnough, D.A., J.A. Downing, and T.J. Newton. 2009. Fish movement and habitat use depends on water body size and shape. Ecology of Freshwater Fish 18: 83-91.

Wooster, D., S.W. Miller, and S.J. DeBano. 2016. Impact of season-long water abstraction on invertebrate drift composition and concentration. Hydrobiologia 772 (1): 15-30.

Wootton, J.T., M.S. Parker, and M.E. Power. 1996. Effects of disturbance on river food webs. Science 273: 1558-1561. Doi: 10.1126/science.273.5281.1558.

World Wildlife Fund. 2009. Keeping Rivers Alive: A primer on environmental flows and their assessment. Water Security series 2.

Worrall, T.P., M.J. Dunbar, C.A. Extence, C.L. Laize, W.A. Monk, and P.J. Wood. 2014. The identification of hydrological indices for the characterization of macroinvertebrate community response to flow regime variability. Hydrological Sciences Journal 59: 645-658. Doi: 10.1080/02626667.2013.825722

Worthington, T.A., S.K. Brewer, N. Farless, T.B. Grabowski, and M.S. Gregory. 2014. Interacting effects of discharge and channel morphology on transport of semibuoyant fish eggs in large, altered river systems. PLoS ONE 9 (5): e96599.

Wright, J.F., P.D. Armitage, M.T. Furse, and D. Moss. 1988. Predicting invertebrate communities using stream measurements. Regulated Rivers: Research and Management 4: 147-155.

Wright, J.F., and A.D. Berrie. 1987. Ecological effects of groundwater pumping and a natural drought on the upper reaches of a chalk stream. Regulated Rivers: Research and Management 1: 145-160.

Wright, J.F., P.D. Hiley, D.A. Cooling, A.C. Cameron, M.E. Wigham, and A.D. Berrie. 1984. The invertebrate fauna of a small chalk stream in Berkshire, England, and the effect of intermittent flow. Arch. Hydrobiol. 99: 176-199.

Wrona, F.J., T.D. Prowse, J.D. Reist, J.E. Hobbie, L.M.J. Levesque, and F.V. Warwick. 2006. Climate change effects on aquatic biota, ecosystem structure and function. Ambio 35: 359-369.

Wu, F.C. 2000. Modeling embryo survival affected by sediment deposition into salmonid spawning gravels: application to flushing flow prescriptions. Water Resources Research 36: 1595-1603. Doi: 10.1029/2000WR00021.

Wu, F.-C., and C.-F. Wang. 2002. Effect of flow-related substrate alteration on physical habitat: a case study of the endemic river loach *Sinogastromyzon puliensis* (Cypriniformes, Holmalopteridae) downstream of Chi-Chi diversion weir, Chou-Shi Creek, Taiwan. River Research and Applications 18 (2): 155-170.

Wu, H., J.S. Kimball, M. Elsner, N.J. Mantua, R.F. Adler, and J. Stanford. 2012. Projected climate change impacts on the hydrology and temperature of Pacific Northwest rivers. Water Resources Research 48. Doi: 10.1029/2012WR01082.

Wu, H., J.S. Kimball, N. Mantua, and J.A. Stanford. 2011. Automated Upscaling of river networks for macroscale hydrologic modeling. Water Resources Research 47: W03517. Doi: 10.1029/WR008871.

Wydoski, R.S. 1977. Potential impacts of alterations in stream flow and water quality on the fish and macroinvertebrates in the upper Colorado River basin. In: Proceedings of a symposium on impact of energy development on western waters, fish, and wildlife. Resources for the Future. Washington, D.C.

Wyzga, B. 1999. Estimating mean flow velocity in channel and floodplain areas and its use for explaining the pattern of overbank deposition and floodplain retention. Geomorphology 28: 281-297.

Xenopoulos, M.A., and D.M. Lodge. 2006. Going with the flow: using species-discharge relationships to forecast losses in fish biodiversity. Ecology 87 (8); 1907-1914. Doi: 10.1890/0012-9658(2006)87[1907:GWTFUS]2.0.CO;2.

Xenopoulos, M.A., D.M. Lodge, J. Alcamo, M. Marker, K. Schulze, and D.P. van Vuuren. 2005. Scenarios of freshwater fish extinctions from climate change and water withdrawal. Global Change Biology 11 (10): 1557-1564. Doi: 10.1111/j.1365-2486.2005.001008.x.

Xu, C.L., B.H. Letcher, and K.H. Nislow. 2010. Size-dependent survival of brook trout *Salvelinus fontinalis* in summer: effects of water temperature and stream flow. Journal of Fish Biology 76: 2342-2369. Doi: 10.1111/j.1095-8649.2010.02619.x.

Xu, K., and J.D. Milliman. 2009. Seasonal variations of sediment discharge from the Yangtze River before and after impoundment of the Three Gorges Dam. Geomorphology 104: 276-283.

Yager, L.A., M.D. Dixon, T.C. Cowman, and D.A. Soluk. 2011. Historic changes (1941-2008) in side channel and backwater habitats on an unchannelized reach of the Missouri River. River Research and Applications doi: 10.1002/rra.1614

Yalin, M.S. 1977. Mechanics of sediment transport. Pergamon Press, New York.

Yang, C.T. 1971. Formation of riffles and pools. Water Resour. Res. 7: 1567-1574.

Yang, L.H., J.L. Bastow, K.O. Spence, and A.N. Wright. 2008. What can we learn from resource pulses? Ecology 89: 621-634.

Yang, W. 2011. A multi-objective optimization approach to allocate environmental flows to the artificially restored wetlands of China’s Yellow River Delta. Ecological Modelling 222: 261-267. Doi: 10.1016/j.ecolmodel.2010.08.024

Yang, W., and Z.F. Yang. 2014. Evaluation of sustainable environmental flows based on the valuation of ecosystem services: a case study for the Baiyangdian Wetland, China. J. Environ. Inf. 24: 90-100.

Yang, Y.C., X. Cai, and E.E. Herricks. 2008. Identification of hydrologic indicators related to fish diversity and abundance. A data mining approach for fish community analysis. Water Resources Research 44: WO4412. Doi:10.1029/2006WR005764.

Yang, Y.E., and X. Cai. 2011. Reservoir reoperation for fish ecosystem restoration using daily inflows – case study of Lake Shelbyville. J. Water Resour. Plan. and Manag. Doi: 10.1061/(ASCE)WR.1943-5452.0000139.

Yarnell, S.M., A.J. Lind, and J.F. Mount. 2012. Dynamic flow modelling of riverine amphibian habitat with application to regulated flow management. River Res. Appl. 28: 1777-191. Doi: 10.1002/rra.1447.

Yarnell, S.M., G.E. Petts, J.C. Schmidt, A.A. Whipple, E.E. Beller, C.N. Dahm, … and J. Viers.. 2015. Functional flows in modified riverscapes: hydrographs, habitats and opportunities. BioScience 65: 963-972. Doi: 10.1093/biosci/biv102

Yarnell, S.M., J.H. Viers, and J.F. Mount. 2010. Ecology and management of the spring snowmelt recession. BioScience 60: 114-127.

Yates, D., D. Purkey, J. Sieber, A. Huber-Lee, H.Galbraith, J. West, and S. Herrod-Julius. 2009. A climatically driven, water resource planning model of the Sacramento Basin, California, USA. ASCE Journal of Water Resources Planning amd Management.

Yellen, B., and D.F. Boutt. 2015. Hydropeaking induces losses from a river reach: observations at multiple spatial scales. Hydrological Processes doi: 10.1002/hyp.10438.

Yen, J.D.L., N.R. Bond, W. Shenton, D.A. Spring, and R. MacNally. 2013. Identifying effective water-management strategies in variable climates using population dynamics models. J. Appl. Ecol. 50: 691-701.

Yin, K., P.J. Harrison, and R.J. Beamish. 1997. Effects of a fluctuation in Fraser River discharge on primary production in the central Strait of Georgia, British Columbia, Canada. Canadian Journal of Fisheries and Aquatic Sciences 54 (5): 1015‑1024.

Yoder, C.O. and B.H. Kulik. 2003. The Development and Application of Multimetric Biological Assessment Tools for the Assessment of Impacts to Aquatic Assemblages in Large, non-Wadeable Rivers. Canadian Water Resources Journal 28 (2)

Yoon, J.-H., S.Y. Wang, R.R. Gillies, H. Kravitz, L. Hipps, and P.J. Rasch. 2015. Increasing water cycle extremes in California and its relation to ENSO cycle under global warming. Nature Communications 6: 8657-8663.

Young, A.A., and H.F. Blaney. 1942. Use of water by native vegetation. California Department of Public Works, Division of Water Resources, Sacramento 160 pp.

Young, A., R. Grew, and M.G.R. Holmes. 2003. Low flows 2000: a national water resources assessment and decision support tool. Water Science and Technology 48: 119-126.

Young, A.R., A. Gustard, A. Bullock, A.E. Sekulin, and K.M. Croker. 2000. A river network based hydrological model for predicting natural and influenced flows statistics at ungauged sites: Micro LOW FLOWS. The Science of the Total Environment 251: 293-304.

Young, K.A. 2001. Habitat Diversity and Species Diversity: Testing the Competition Hypothesis With Juvenile Salmonids. Oikos 95: 87-93. Doi: 10.1034/j.1600-0706.2001.960110.x.

Young, K.A. 2004. Asymmetric competition, habitat selection, and niche overlap in juvenile salmonids. Ecology 85: 134-149. Doi: 10.1890/02-0402.

Young, M.K. 1991. Selection of measures of substrate composition to estimate survival to emergence of salmonids and to detect changes in stream substrates. North American Journal of Fisheries Management 11: 339-346.

Young, M.K. 1996. Summer movements and habitat use by Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*) in small, montane streams. Canadian Journal of Fisheries and Aquatic Sciences 53: 1403-1408.

Young, M.K. 1998. Absence of autumnal changes in habitat use and location of adult Colorado River cutthroat trout in a small stream. Transactions of the American Fisheries Society 127: 147-151. Doi:10.1577/1548-8659(1998)127<0147:AOACIH>2.0.CO;2.

Young, M.K., W.A. Hubert, and T.A. Wesche. 1991. Selection of measures of substrate composition to estimate survival to emergence of salmonids and to detect changes in stream substrates. North American Journal of Fisheries Management 11: 339-346.

Young, N.C. 2006. Physical characterization of freshwater mussel habitats in Upper Mississippi River pool 16. Ph.D. thesis, University of Iowa, Iowa City, Iowa.

Young, P.J., B.D. Keeland, and R.R. Sharitz. 1995. Growth response of baldcypress to an altered hydrologic regime. American Midland Naturalist 133: 206-212.

Young, P.S., J.J. Cech. 1996. Environmental tolerances and requirements of splittail. Transactions of the American Fisheries Society 125: 664-678.

Young, P.S., J.J. Cech, and L.C. Thompson. 2011. Hydropower-related pulsed-flow impacts on stream fishes: a brief review, conceptual model, knowledge gaps, and research needs. Rev. Fish Biol. Fish. 21: 713-731. Doi: 10.1007/s11160-011-9211-0.

Young, P.S., C. Swanson, and J.J. Cech, Jr. 2010. Close encounters with a fish screen III: behavior, performance, physiological stress responses, and recovery of adult delta smelt exposed to two-vector flows near a fish screen. Transactions of the American Fisheries Society 139 (3): 713-726. Doi:10.1577/T09-029.1

Young, R.G., J. Wilkinson, J. Hay, and J.W. Hayes. 2010. Movement and mortality of adult brown trout in the Motupiko River, New Zealand: effects of water temperature, flow, and flooding. Transactions of the American Fisheries Society 139 (1): 137-146. Doi:10.1577/T08-148.1

Young, S.P., T.R. Ingram, J.E. Tannehill, and J.J. Isely. 2012. Passage of spawning Alabama shad at Jim Woodruff Lock and Dam, Apalachicola River, Florida. Transactions of the American Fisheries Society 141 (4): 881-889.

Young, W.J., B.C. Chessman, W.D. Erskine, T.A. Raadik, D.J. Wimbush, J. Tilleard, A.J. Jakeman, I. Varley, and T.J. Verhoeven. 2004. Improving expert panel assessments through the use of a composite river condition index – the case of the rivers affected by the Snowy Mountains hydroelectric scheme, Australia. River Research and Applications 20: 733-750.

Young, W.J., and R.T. Kingsford. 2006. Flow variability in large unregulated dryland rivers. Pages 11-46 in: R.T. Kingsford (editor), Ecology of Desert Rivers. Cambridge University Press, Melbourne, Australia.

Young, W.T., and D.L. Scarnecchia. 2005. Habitat use of juvenile white sturgeon in the Kootenai River, Idaho and British Columbia. Hydrobiologia 537: 25-271.

Youngson, A.F., I.A. Malcolm, J.L. Thorley, P.J. Bacon, and C. Soulsby. 2004. Long-residence groundwater effects on incubating salmonid eggs: low hyporheic oxygen impairs embryo development. Canadian Journal of Fisheries and Aquatic Sciences 61: 2278-2287.

Younk, J.A., M.F. Cook, T.J. Goeman, and P.D. Spencer. 1996. Seasonal habitat use and movements of adult muskellunge in the Mississippi River. Minnesota Department of Natural Resources Section of Fisheries Investigation Report 449.

Yu, S.-L., and E.J. Peters. 1997. Use of Froude number to determine habitat selection by fish. Rivers 6 (1): 10-18.

Yu, S.-L., and E.J. Peters. 2002. Diel and seasonal habitat use by red shiner (*Cyprinella lutrensis*). Zoological Studies 41: 229-235.

Yu, S.-L., E.J. Peters, and W.W. Stroup. 1995. Application of logistic regression to develop habitat suitability criteria for sand shiner, *Notropis stramineus*. Rivers 5 (1): 22-34.

Yulianti, J.S., and D.H. Bunn. 1998. Investigating links between climatic warming and low streamflow in the Prairies region of Canada. Canadian Water Resources Journal 23 (1); 45-60.

Zabel, R.W., and S. Achord. 2004. Relating size of juveniles to survival within and among populations of Chinook salmon. Ecology 85: 795-806.

Zalewski, M. 2002. Ecohydrology - the use of ecological and hydrological processes for sustainable management of water resources. Hydrological Sciences Journal 47: 825-834.

Zalewski, M., M. Lapinska, and P.B. Bayley. 2003. Fish relationships with wood in large rivers. In The ecology and management of wood in world rivers. Edited by S.V. Gregory, K.L. Boyer, and A.M. Gurnell. American Fisheries Society Symposium No. 37, Bethesda, Maryland. Pp. 195-211.

Zalewski, M., and R.J. Naiman. 1985. The regulation of riverine fish communities by a continuum of abiotic-biotic factors. Pages 3-9 in: J.S. Alabaster, editor. Habitat modification and freshwater fisheries. Food and Agriculture Organization of the United Nations, EIFAC/85, Rome.

Zampatti, B.P., and S.J. Leigh. 2013. Within-channel flows promote spawning and recruitment of golden perch, *Macquaria ambigua ambigua* – implications for environmental flow management in the River Murray, Australia. Marine and Freshwater Research 64 (7): 618-630.

Zarriello, P.J., G.W. Parker, A.S. Armstrong, and C.S. Carlson. 2010. Effects of water use and land use on streamflow and aquatic habitats in the Sudbury and Assabet River Basins, Massachusetts – Chapter 1, Simulated effects of water use, and projected water-use and land-use change on streamflow with a precipitation-runoff model; Chapter 2, Fish communities, stream temperature, and assessment of minimum streamflow targets for aquatic habitat at selected sites. U.S. Geological Survey Scientific Investigations Report 2010-5042. 160 pp.

Zarriello, P.J., and K.G. Ries. 2000. A precipitation-runoff model for the analysis of the effects of water withdrawals on stream flow, Ipswich River basin, Massachusetts. Denver, CO: U.S. Geological Survey Information Services. USGS Water-Resources Investigation Report 00-4029.

Zedler, J.B. 1983. Freshwater impacts in normally hypersaline marshes. Estuaries 6: 346-355.

Zehfuss, K.P. 2000. The status, movement, habitat preference, and monitoring of Gulf sturgeon in several Florida rivers. Doctoral dissertation. North Carolina State University, Raleigh.

Zeigler, M.P., A.S. Todd, and C.A. Caldwell. 2012. Evidence of recent climate change within the historic range of Rio Grande cutthroat trout: implications for management and future persistence. Transactions of the American Fisheries Society 141 (4): 1045-1059. Doi: 10.1080/00028487.2012.676589.

Zeiringer, B., C. Sediger, F. Greimel, and S. Schmutz. 2018. Chapter 4. River hydrology, flow alteration, and environmental flow. In: S. Schmutz and J. Sendzimir, editors, Riverine Ecosystem Management. Aquatic Ecology Series 8. Doi: 10.1007/978-3-73250-3\_4.

Zeug, S.C., L.K. Albertson, H. Lenihan, J. Hardy, and B. Cardinale. 2010. Predictors of Chinook salmon extirpation in California’s Central Valley. Fisheries Management and Ecology 18 (1): 61-71. doiL 10.1111/j.1365-2400.2010.00769.x

Zeug, S.C., K. Sellheim, C. Watry, B. Rook, J. Hannon, J. Zimmerman, D. Cox, and J. Merz. 2013. Gravel augmentation increases spawning utilization by anadromous salmonids: a case study from California, USA. River Research and Applications doi: 10.1002/rra.2680.

Zeug, S.C., K. Sellheim, C. Watry, J.D. Wikert, and J. Merz. 2014. Response of juvenile Chinook salmon to managed flow: lessons learned from a population at the southern extent of their range in North America. Fish. Manage. Ecol. 21 (2): 155-168. Doi: 10.1111/fme.12063.

Zeug, S.C., and K.O. Winemiller. 2007. Ecological correlates of fish reproductive activity in floodplain rivers. Canadian Journal of Fisheries and Aquatic Sciences 64 (10): 1291-1301. Doi: 10.1139/f07-094.

Zeug, S.C., and K.O. Winemiller. 2008. Relationships between hydrology, spatial heterogeneity, and fish recruitment dynamics in a temperate floodplain river. River Research and Applications 24: 90-102. Doi:10.1002/rra.1061.

Zeug, S.C., and K.O. Winemiller. 2008. Evidence supporting the importance of terrestrial carbon in a large-river food web. Ecology 89 (6): 1733-1743.

Zeug, S.C., K.O. Winemiller, and S. Tarim. 2005. Response of Brazos River oxbow fish assemblages to patterns of hydrologic connectivity and environmental variability. Transactions of the American Fisheries Society 134 (5): 1389-1399. Doi: 10.1577/T04-148.1

Zhang, X., K.D. Harvey, W.D. Hogg, and T.R. Yuzyk. 2001. Trends in Canadian streamflow. Water Research 37: 987-998.

Zhang, Y., A.H. Arthington, S.E. Bunn, S. MacKay, J. Xia, and M. Kennard. 2012. Classification of flow regimes for environmental flow assessment in regulated rivers: the Huai River Basin, China. River Research and Applications 28: 989-1005. doi: 10.1002/rra.1483.

Zhang, Y., and B. Malmqvist. 1997. Phenotypic plasticity in a suspension-feeding insect, *Simulium lundstromi* (Diptera: Simuliidae), in response to current velocity. Oikos 78: 503-510.

Zhang, Z., T. Wagener, P. Reed, and R. Bhushan. 2008. Ensemble streamflow predictions in ungauged basins combining hydrologic indices regionalization and multiobjective optimization. Water Resources Research 44: W00B04. Doi: 10.1029/2008WR006833.

Zhong, Y.G., and G. Power. 1996. Environmental impacts of hydroelectric projects on fish resources in China. Regulated Rivers: Research and Management 12: 81-98.

Zhu, C., D. Pierce, T. Barnett, A. Wood, and D. Lettenmair. 2004. Evaluation of hydrologically relevant PCM climate variables and large-scale variability over the continental U.S. Clim. Change 62: 45-74.

Zigler, S.J., M.R. Dewey, and B.C. Knights. 1999. Diel movement and habitat use by paddlefish in Navigation Pool 8 of the Upper Mississippi River. North American Journal of Fisheries Management 19 (1): 180-187.

Zigler, S.J., M.R. Dewey, and B.C. Knights, A.L. Runstrom, and M.T. Steingraeber. 2003. Movement and habitat use by radio-tagged paddlefish in the upper Mississippi River and tributaries. North American Journal of Fisheries Management 23 (1): 189-205.

Zigler, S.J., M.R. Dewey, and B.C. Knights, A.L. Runstrom, and M.T. Steingraeber. 2004. Hydrologic and hydraulic factors affecting passage of paddlefish through dams in the upper Mississippi River. Transactions of the American Fisheries Society 133: 160-172.

Zigler, S.J., T.J. Newton, J.J. Steuer, M.R. Bartsch, and J.S. Sauer. 2008. Importance of physical and hydraulic characteristics to unionid mussels: a retrospective analysis in a reach of large river. Hydrobiologia 598: 343-360.

Zika, U., and A. Peter. 2002. The introduction of woody debris into a channelized stream: effect on trout populations and habitat. River Res. Appl. 18 (4): 355-366. Doi:10.1002/rra.677.

Zillges, G. 1977. Methodology for determining Puget Sound coho escapement goals, escapement estimates, 1977 preseason run size prediction and in‑season run assessment. Washington Department of Fisheries Technical Report 28. Olympia.

Zimmer, M.P., and M. Power. 2006. Brown trout spawning habitat selection preferences and redd characteristics in the Credit River, Ontario. Journal of Fish Biology 68: 1333-1346.

Zimmermann, A.E., and M. Lapointe. 2005. Intergranular flow velocity through salmonid redds: sensitivity to fines infiltration from low intensity sediment transport events. River Research and Applications 21: 865-881. Doi:10.1002/rra.856.

Zimmerman, C.E., and D.E. Ratliff. 2003. Controls on the distribution and life history of fish populations in the Deschutes River. Pages 51-70 in: J.E. O’Connor and G.E. Grant, editors. A peculiar river: geology, geomorphology, and hydrology of the Deschutes River, Oregon. American Geophysical Union, Washington, D.C.

Zimmerman, M.S., C. Kinsel, E. Beamer, E.J. Connor, and D.E. Pflug. 2015. Abundance, survival, and life history strategies of juvenile Chinook salmon in the Skagit River, Washington. Transactions of the American Fisheries Society 144 (3)” 627-641. Doi: 10.1080/00028487.2015.1017658.

Zimmermann, J.K.H., D.M. Carlisle, J.T. May, K.R. Klausmeyer, T.E. Grantham, L.R. Brown, and J.K. Howard. 2018. Patterns and magnitude of flow alteration in California, USA. Freshwater Biology 63 (8): 859-873. Doi: 10.1111/fwb.13058

Zimmermann, J.K.H., B.H. Letcher, K.H. Nislow, K.A. Lutz, and F.J. Magillan. 2010. Determining the effects of dams on subdaily variation in river flows at a whole-basin scale. River Research and Applications 26: 1246-1260.

Zimmerman, R.C., J.C. Goodlett, and G.H. Comer. 1967. The influence of vegetation on channel form of small streams. Pp. 255-275 *in*: Comm. of Surface Waters, Proc. Gen. Assembly of Bern. Int. Ass. Sci. Hydrol. Pub. No. 75, Sept-Oct.

Zincone, L.H., Jr., and R.A. Rulifson. 1991. Instream flow and striped bass recruitment in the lower Roanoke River, North Carolina. Rivers 2 (2): 125-137.

Zitek, A., and S. Schmutz. 2004. Efficiency of restoration measures in a fragmented Danube/tributary network. Pages 652-657 in: Garcia de Jalon, D, and P.V. Martinez, editors. Proceedings of the Fifth International Association for Hydraulic Engineering and Research, Madrid, Spain.

Ziv, G., E. Baran, S. Nam, et al. 2012. Trading-off fish biodiversity, food security, and hydropower in the Mekong River Basin. P. Natl. Acad. Sci. USA 109: 5609-5614.

Zoellick, B.W. 1999. Stream temperatures and the elevational distribution of redband trout in southwestern Idaho. Great Basin Naturalist 59: 136-143.

Zoellick, B.W., and B.S. Cade. 2006. Evaluating redband trout habitat in sagebrush desert basins in southwestern Idaho. North American Journal of Fisheries Management 26 (2): 268-281.

Zorn, S.A., T.L. Margenau, J.S. Diana, and C.J. Edwatds. 1998. The influence of spawning habitat on natural reproduction of muskellunge in Wisconsin. Transactions of the American Fisheries Society 127: 995-1005.

Zorn, T.G., and A.J. Nuhfer. 2007. Regional synchrony of brown trout and brook trout population dynamics among Michigan rivers. Transactions of the American Fisheries Society 136: 706-717.

Zorn, T.G., and A.J. Nuhfer. 2007. Influences on brown trout and brook trout population dynamics in a Michigan river. Transactions of the American Fisheries Society 136: 691-705.

Zorn, T.G., and P.W. Seelbach. 1995. The relation between habitat availability and the short-term carrying capacity of a stream reach for smallmouth bass. North American Journal of Fisheries Management 15: 773-783.

Zorn, T.G., P.W. Seelbach, and E.S. Rutherford. 2012. A regional-scale habitat suitability model to assess the effects of flow reduction on fish assemblages in Michigan streams. Journal of the American Water Resources Association 48: 871-895. doi: 10.1111/j.1752-1688.2012.00656.x

Zorn, T.G., P.W. Seelbach, E.S. Rutherford, T.C. Wills, S.-T. Cheng. And M.J. Wiley. 2008. A regional-scale habitat suitability model to assess the effects of flow reduction on fish assemblages in Michigan streams. Michigan Department of Natural Resources Fisheries Division, Fisheries Research Report 2089, Ann Arbor. 46 pp.

Zorn, T.G., P.W. Seelbach, and M.J. Wiley. 2002. Distributions of stream fishes and their relationship to stream size and hydrology in Michigan’s Lower Peninsula. Transactions of the American Fisheries Society 131 (1): 70-85.

Zorn, T.G., P.W. Seelbach, and M.J. Wiley. 2009. Relationships between habitat and fish density in Michigan streams. Michigan Department of Natural Resources and Environment, Fisheries Research Report 2091, Ann Arbor. www.michigandnr.com/PUBLICATIONS/PDFS/ifr/ifrlibra/Research/reports/2091/RR2091.pdf.

Zorn, T.G., P.W. Seelbach, and M.J. Wiley. 2011. Developing user-friendly habitat suitability tools from regional stream fish survey data. North American Journal of Fisheries Management 31 (1): 41-55. Doi: 10.1080/02755947.2011.557965

Zorn, T.G., and M.J. Wiley. 2006. Influence of landscape characteristics on local habitat and fish biomass in streams of Michigan’s Lower Peninsula. Pages 375-393 in: R.M. Hughes, L. Wang, and P.W. Seelbach (editors). Landscape influences on stream habitats and biological assemblages. American Fisheries Society, Special Publication No. 48, Bethesda, Maryland.

Zou, C.B., F.F. Ffoliott, and M. Wine. 2010. Streamflow response to vegetation manipulations along a gradient of precipitation in the Colorado River Basin. Forest Ecol. Manage. 259: 1268.

Zwolinski, Z. 1992. Sedimentology and geomorphology of overbank flows on meandering river floodplains. Geomorphology 4: 367-379.