Region 5 (Canada)

British Columbia and Alberta

Rich McCleary

Lauren Makowecki


Yukon
Whitehorse
Great Bear Lake
Northwest Territories
Yellowknife
Great Slave Lake
Nunavut
Iqaluit
British Columbia
Victoria
Lake Athabasca
Alberta
Edmonton
Saskatchewan
Regina
Manitoba
Lake Winnipeg
Winnipeg
Ontario
Lake Superior
Lake Huron
Lake Michigan
Lake Ontario
Lake Erie
Ottawa
Toronto
Quebec
Quebec
Newfoundland and Labrador
St. John's
Charlottetown
Prince Edward Island
Fredericton
New Brunswick
Halifax
Nova Scotia

BRITISH COLUMBIA

British Columbia Drought Response Plan

Updated July 2016

Prepared by the Ministry o
on behalf of the Inter-Agency Dr

Level	Conditions	Significance	Objective	Target
1 (Green)	Normal Conditions	There is sufficient water to meet human and ecosystem needs	Preparedness	Ongoing reductions in community water use
2 (Yellow)	Dry Conditions	First indications of a potential water supply problem	Voluntary conservation	Minimum 10% reduction
3 (Orange)	Very Dry Conditions	Potentially serious ecosystem or socioeconomic impacts are possible	Voluntary conservation and restrictions	Minimum additional 20% reduction to a minimum total of 30%
4 (Red)	Extremely Dry Conditions	Water supply insufficient to meet socio-economic and ecosystem needs	Voluntary conservation, restrictions and regulatory action as necessary.	Maximum reduction
Loss of Supply		Potential loss of a community's potable or fire fighting supply	Emergency response	Ensure health and safety

BRITISH COLUMBIA

British Columbia Drought Response Plan

Updated July 2016

Prepared by the Ministry of Environment
on behalf of the Inter-Agency Drought Working Group

BRITISH COLUMBIA
Ministry of
Forests, Lands and
Natural Resource Operations

Thompson Okanagan Region

Drought Response Implementation Plan

By Richard McCleary, Phil Belliveau, Christian St. Pierre

VERSION 1: Modified July 10, 2015




Regional Drought Teams
-> Regional Drought Plans

British Columbia

***Water Sustainability Act* 2016**

***WSA* introduces new regulatory tools to give priority to environmental low flow thresholds**

Critical Environmental Flow Thresholds (CEFTs)

- **Flow below which significant or irreversible harm to the aquatic ecosystem is likely to occur**

Critical Environmental Flow Needs can take precedence over other water users rights

The Critical Environmental Flow Thresholds (CEFTs) change with region, species, life-stage and week

Fish Species/Indicator	Lifestage/Period	May				June				July				August				September			
Rainbow trout	Adult spawning migration																				
	Spawning																				
	Incubation																				
	Fry Emergence																				
	Rearing																				
	Overwintering																				
Crtical Flow Targets	% MAD	20%	20%	20%	20%	20%	20%	10%	10%	10%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Crtical Flow Targets	**Discharge (litres/s)**	57	57	57	57	57	57	28	28	28	14	14	14	14	14	14	14	14	14	14	14

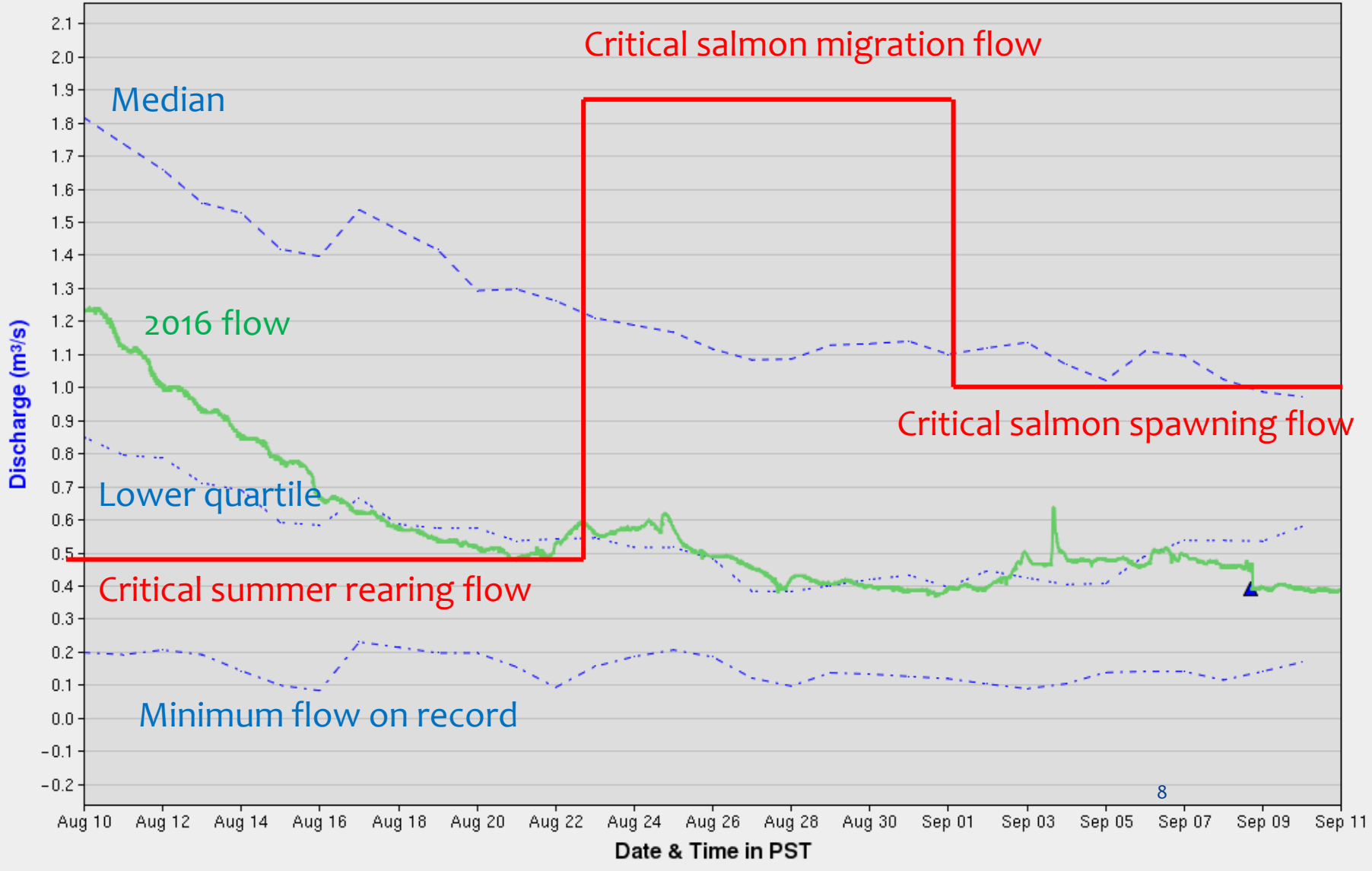
Setting a CEFT for the summer rearing period

Steps:

1. Calculate Long Term Mean Annual Discharge (LT MAD) (naturalized)
2. Calculate relevant benchmark flows including 5, 10 and 20 % LT MAD.
3. Calculate 30 day average flows for the period of record
4. Determine minimum 30 day average values for the critical period of interest to relevant benchmark flows (5, 10 and 20 % LT MAD)
5. **Compare minimum 30 day average flow on record to 5% LT MAD. Whichever is greater is the Critical Environmental Flow Threshold.**

→ **Relies on extensive hydrometric data**

Fall salmon spawning, an ongoing challenge in Thompson-Okanagan

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Nova Scotia

Southern Alberta

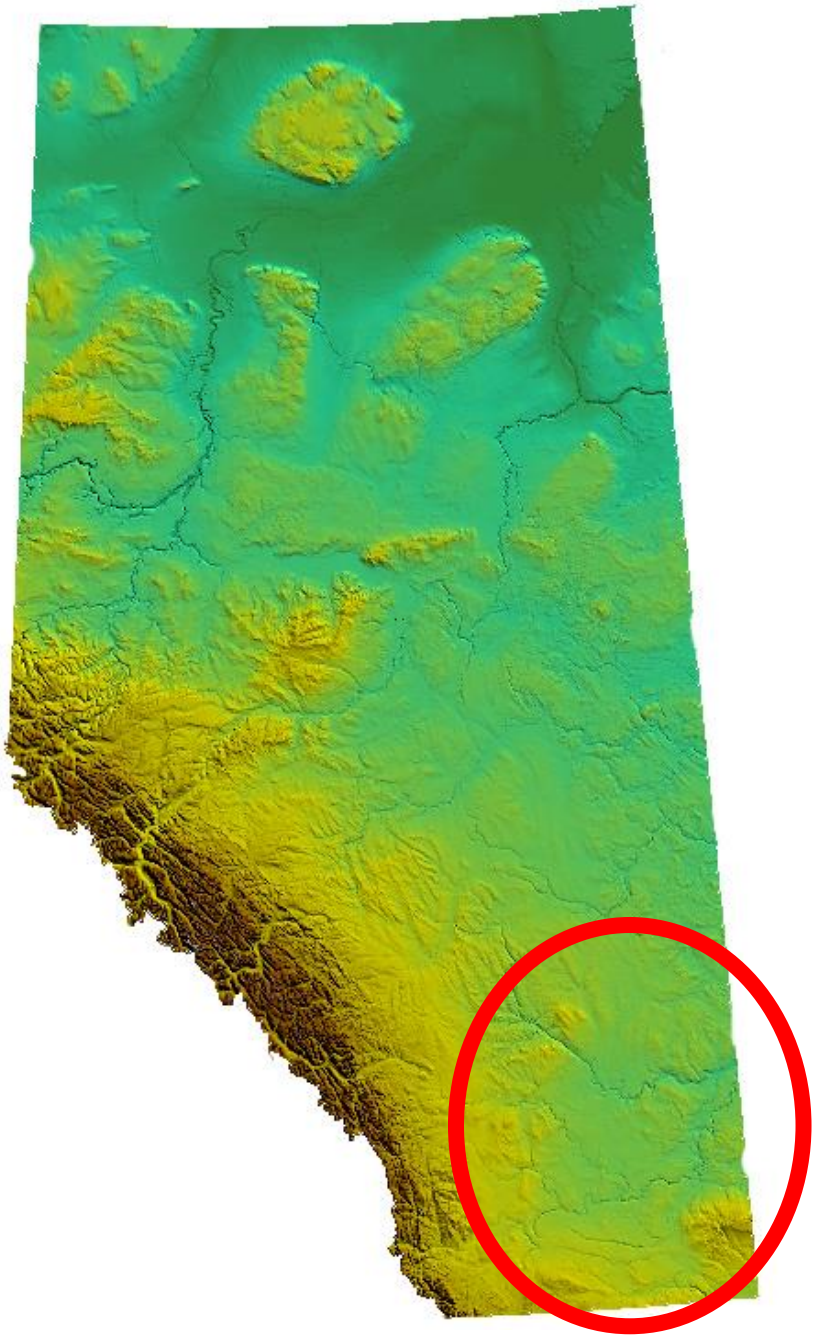
- Dry, hot, prone to drought
- Most of population and agriculture

Provincial Actions:

- Water Management Plans set Water Conservation Objectives
- Water Sharing Agreements between Sr/Jr licence holders (S.33 *Water Act*)
- Water holdbacks possible when licences are transferred or renewed

Fisheries Actions:

- Streams and reservoirs closed to angling due to temperatures



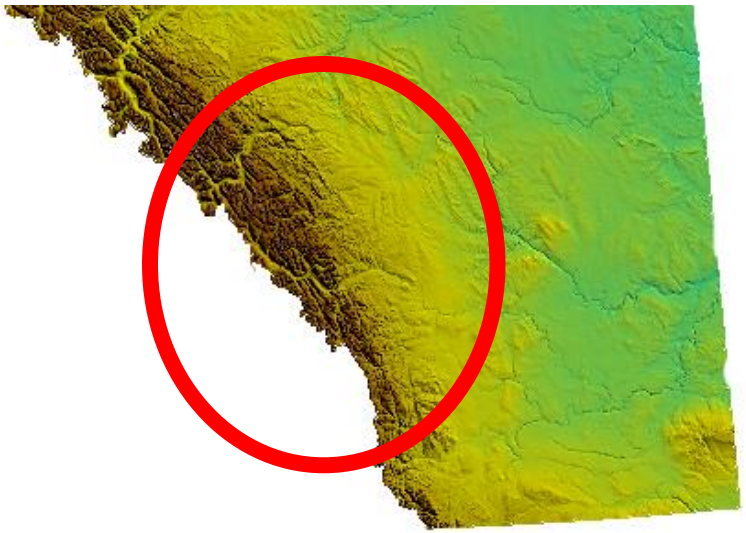
Alberta Eastern Slopes

- World class trout fisheries
- Where most of that population goes when its warm and sunny
- Flow reduction -> habitat area reduction

‘Alberta Trouts and Droughts’ Policy

(M. Sullivan, Alberta Environment and Parks)

- Protect long-term health of aquatic systems from impacts of overfishing during times of drought
- Inform the public re: value of conservation measures
- Maintain access to fisheries less impacts by drought



‘Alberta Trouts and Droughts’ in-term Policy

(M. Sullivan, Alberta Environment and Parks)

- Marginal in summer for flow and temperature naturally
- Only lever is to minimize the high sport fishing effort

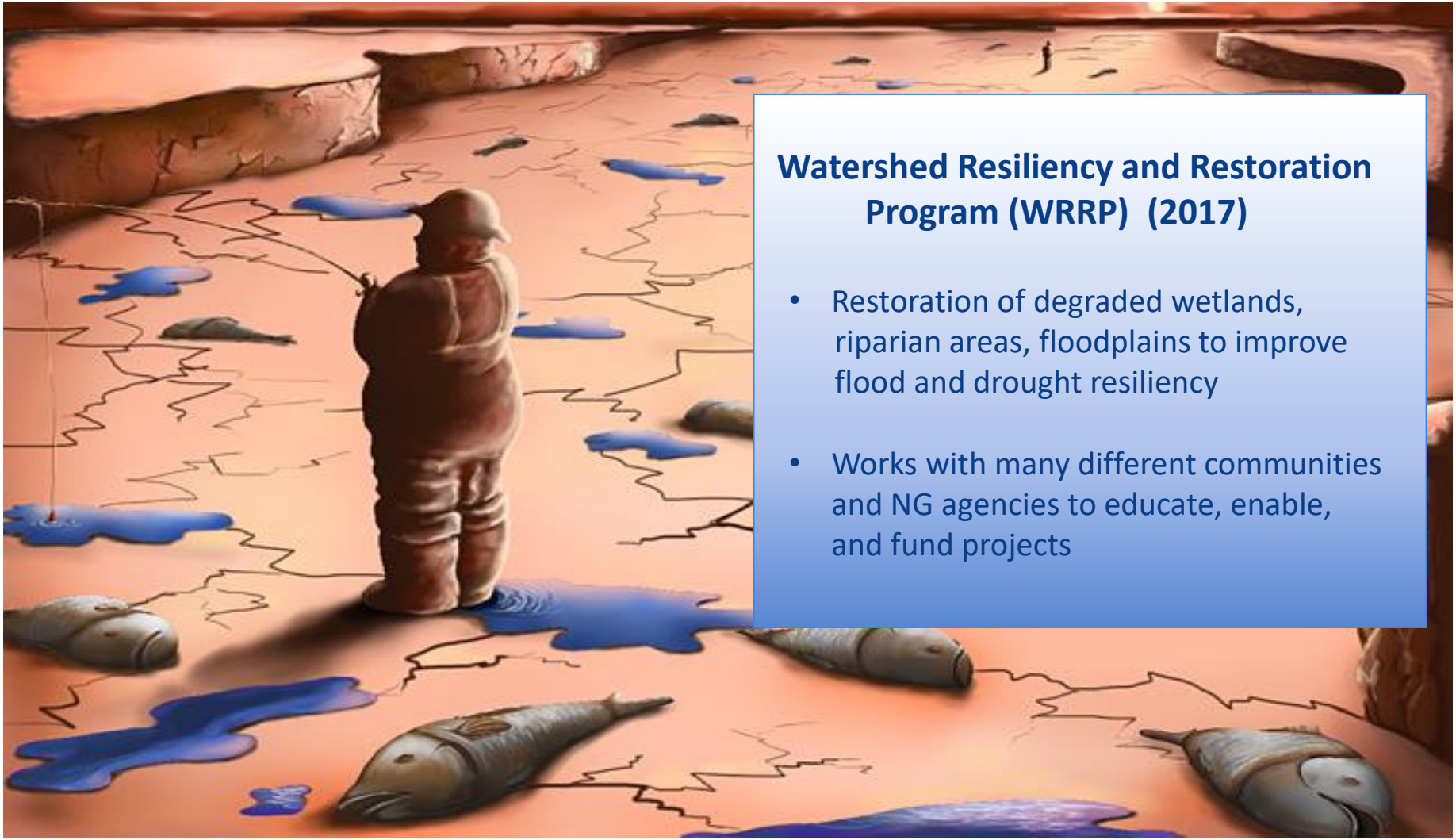
1. **Regional Stream Flows**
   - thresholds based on % normal flow
2. **Water Temps / Air Temps**
   - threshold for the most sensitive species
3. **Anticipated Angler Effort**

‘Alberta Trouts and Droughts’ in-term Policy

(M. Sullivan, Alberta Environment and Parks)

Closure Options

- **Low Risk** Voluntary Closures
- **Moderate Risk** Summer Time-of-Day (from 2:00pm to midnight)
- **High Risk** Summer Drought Closure (full closure)



Watershed Resiliency and Restoration Program (WRRP) (2017)

- Restoration of degraded wetlands, riparian areas, floodplains to improve flood and drought resiliency
- Works with many different communities and NG agencies to educate, enable, and fund projects

Canadian Geographic, October 2010

Restore Degraded Watersheds for Drought Resiliency

Thank You

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