Massachusetts Stream Flows

How to have a water crisis amid 44” of annual precipitation

Now THAT’S Uncertainty

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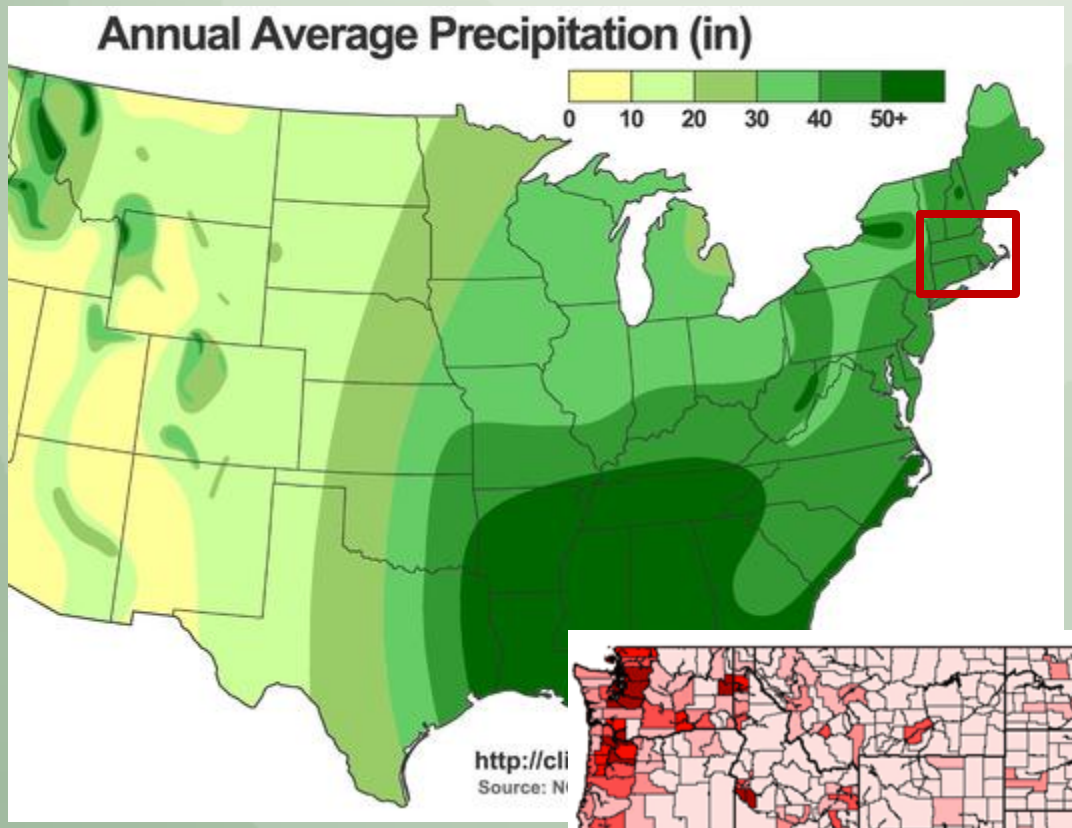
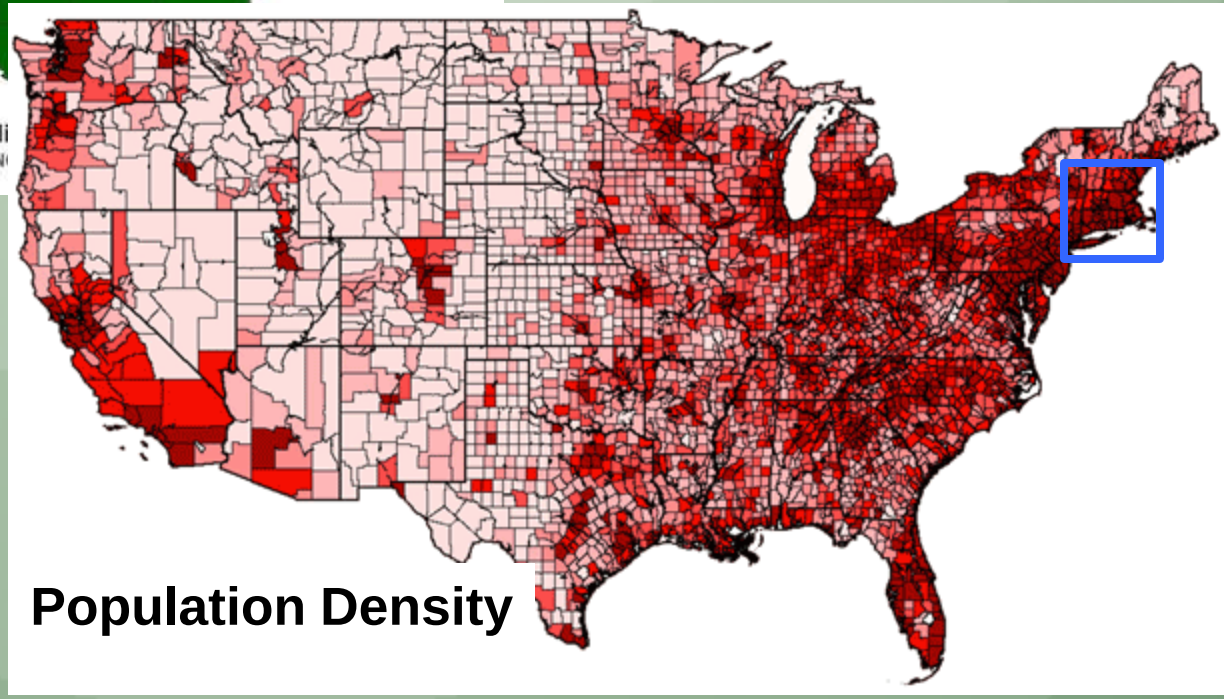
Presentation Organization

- Orientation
- Water use
- Water policy
- Tools for minimizing uncertainty



Massachusetts receives nearly 44” (1.1 m) of precipitation annually



Massachusetts also has 6.7 Million residents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Massachusetts' Regulatory Setting

- Regulated Riparianism
- 15,000 permitted groundwater wells
- 150 surface water supply reservoirs

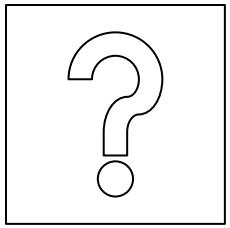
Why did Massachusetts need Water Policy Revisions?

- Rivers and streams have shown flow impacts from water withdrawals, impervious cover and other factors.

Why did Massachusetts need Water Policy Revisions?

- Disputes over water allocation have led to costly litigation, long delays and lack of certainty in water withdrawal permit decisions

- By court order, the MassDEP/ Water Management Act Program's "safe yield" issue was remanded back to MassDEP for a redetermination of safe yield.



Water Withdrawal Permit

Sustainable Water Management Initiative

Advisory Committee

Stakeholder Buy-In

Technical Subcommittee

Consensus

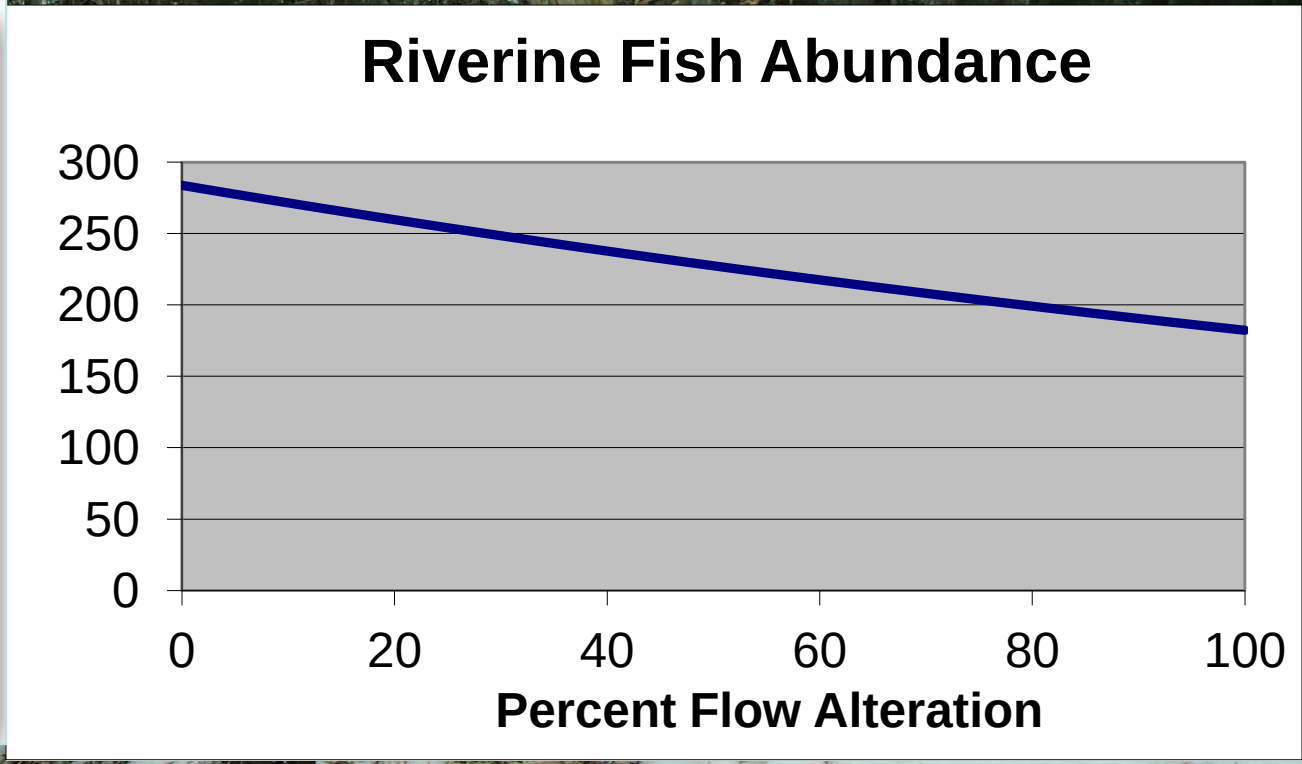
- Recognize the importance of existing water supply
- Keep conditions from getting worse
- Require suitable mitigation if they do get worse
- Protect the “Best of the Best”
  - Least Altered Conditions
  - Coldwater Fishery Resources

Minimize uncertainty using a series of common sense statements supported by science

Minimizing Uncertainty

- Increases in flow alteration cause decreases in fish communities

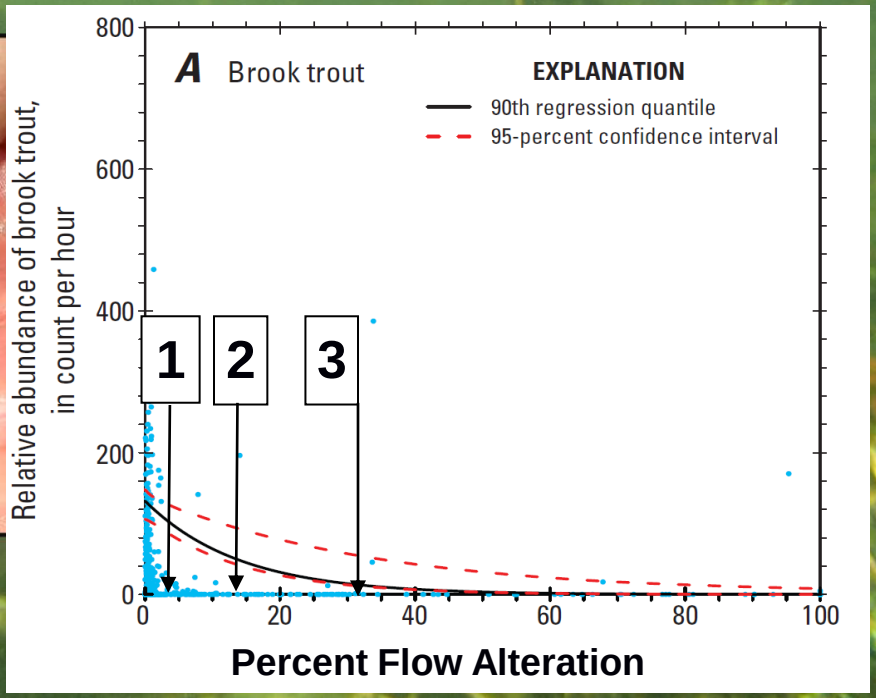
True or False



Minimizing Uncertainty

- Not all species respond the same.
- More sensitive species or life stages need more protection.

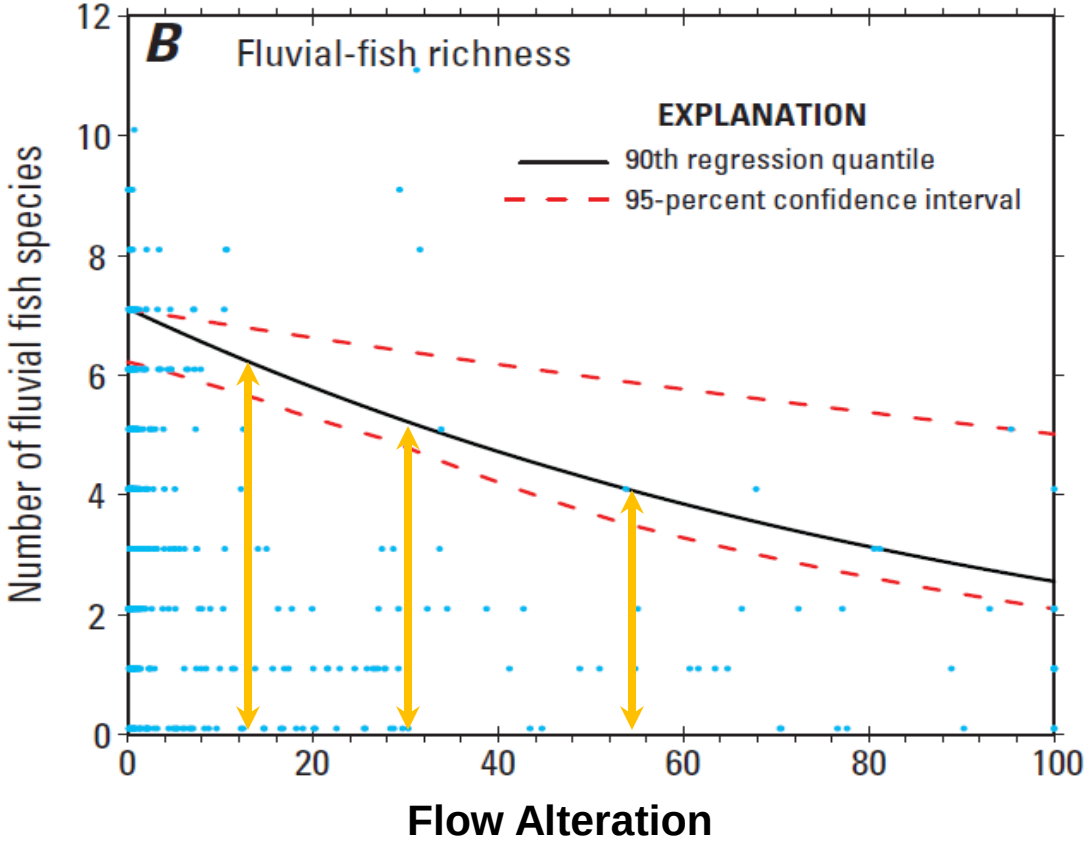
True or False

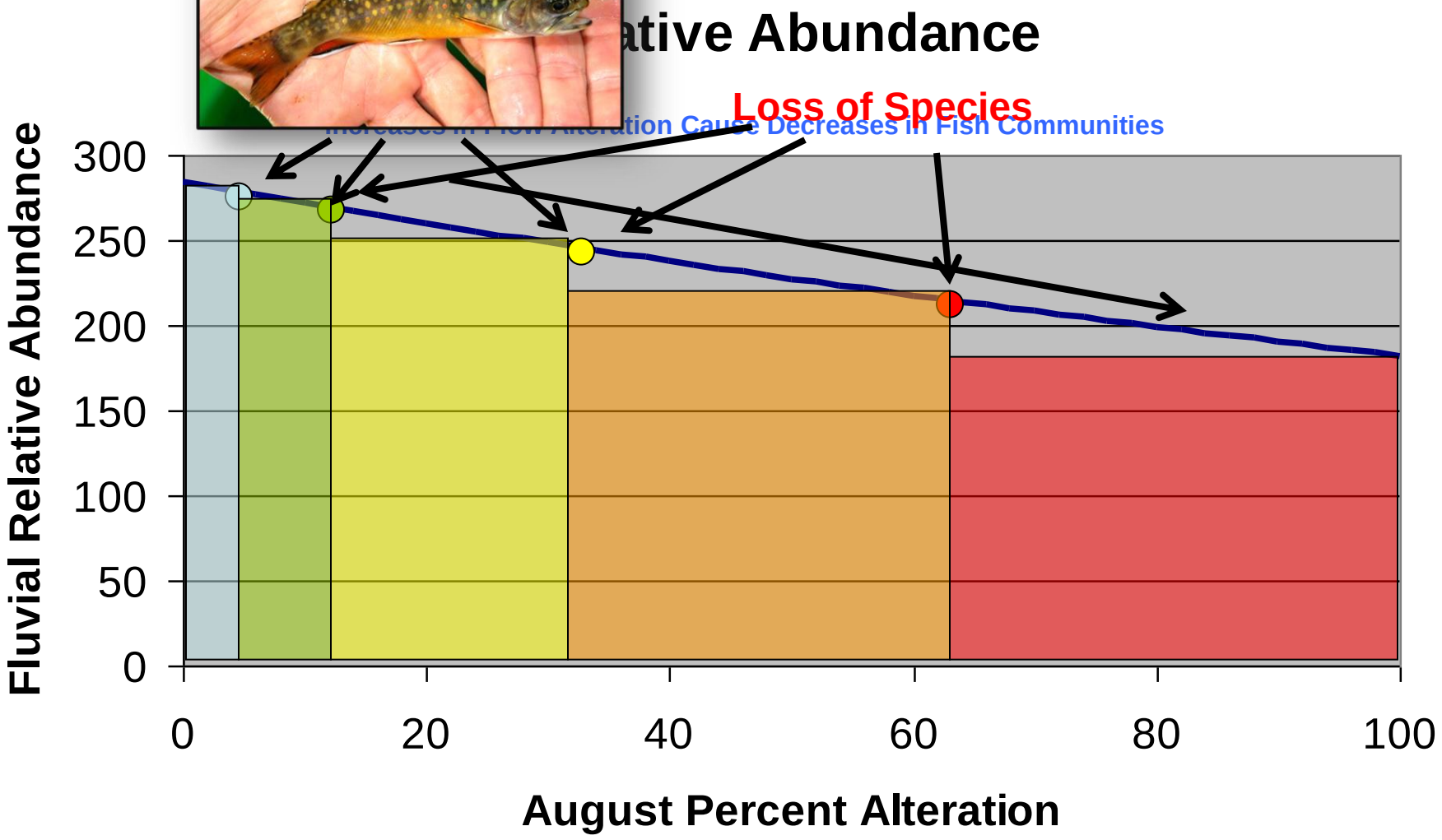


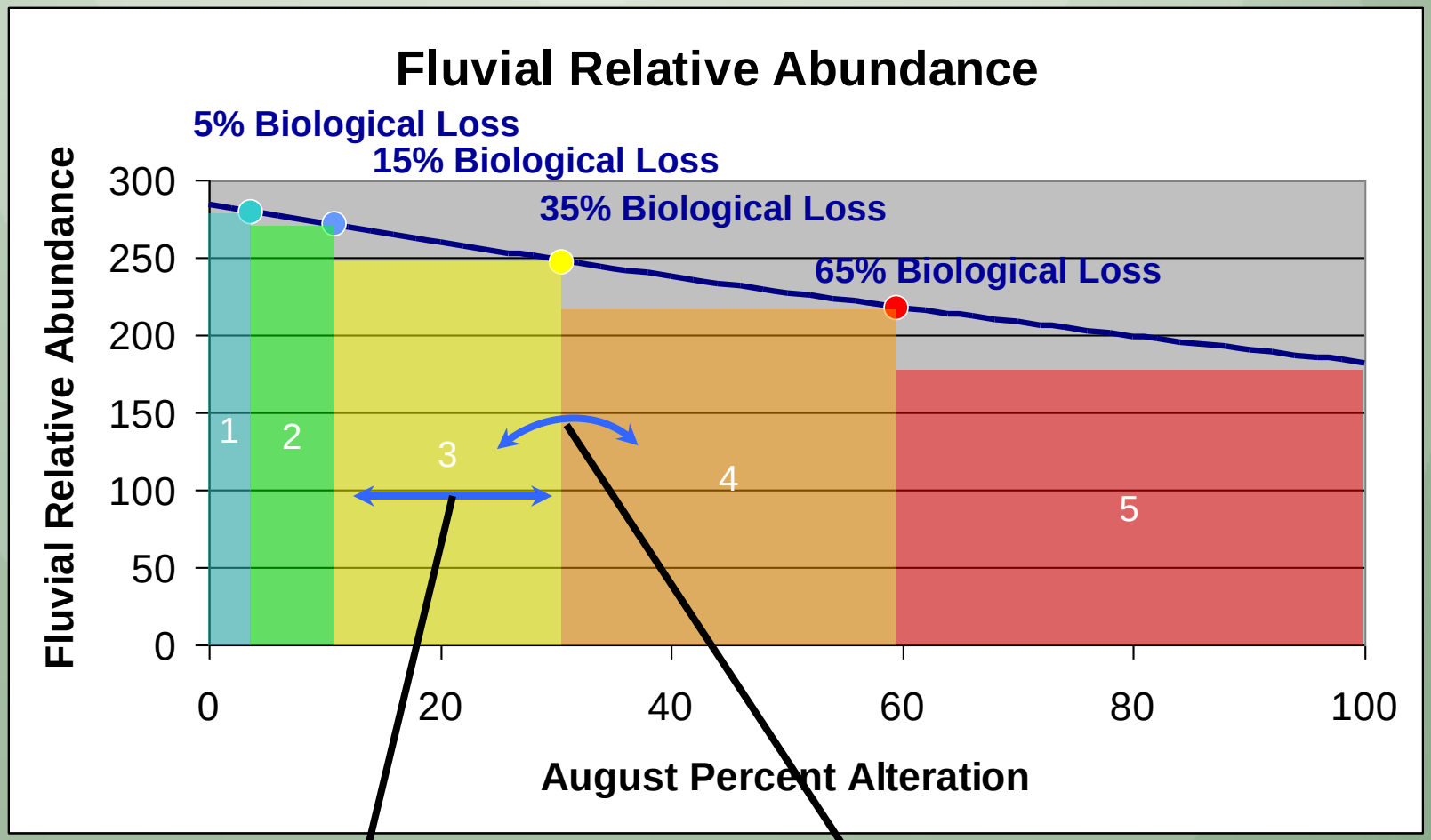
Minimizing Uncertainty

- Loss of species is bad.

True or False




ative Abundance
Loss of Species
Increases in Flow Alteration Cause Decreases in Fish Communities
Fluvial Relative Abundance
300
250
200
150
100
50
0
0
20
40
60
80
100
August Percent Alteration

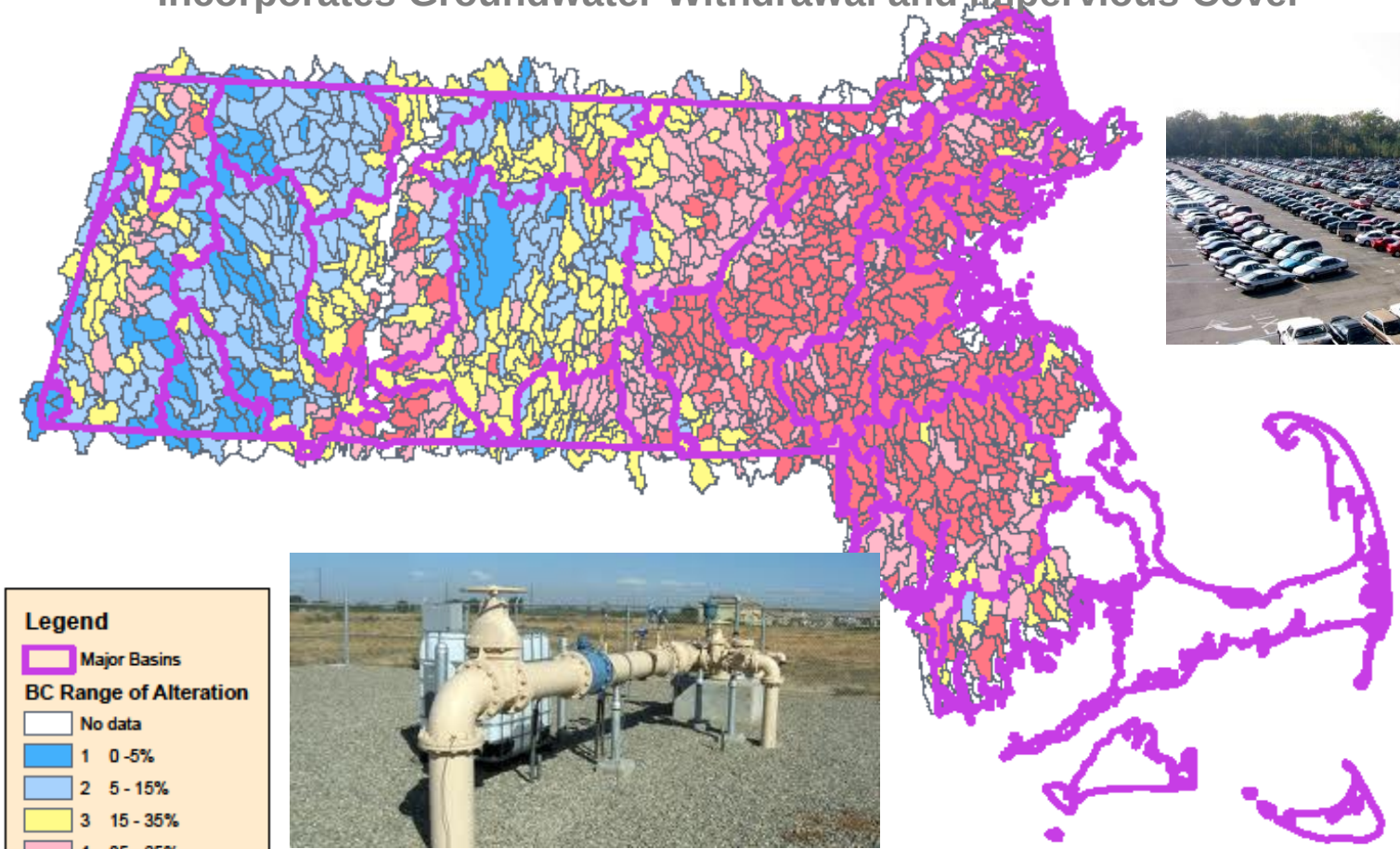


Mitigation required for increase withdrawal within category

Additional Mitigation required Increase that results in a change in category

Biological Category
Sustainable Water Management Initiative (SWMI)

Incorporates Groundwater Withdrawal and Impervious Cover



Summary

- Develop a tool for Management
  - Fish Community Attributes & Flow Alteration Measure
- Build consensus among stakeholders
  - Flow alteration results in habitat alteration
  - Protect coldwater fisheries
  - Prevent loss of species
- Use a series of common sense statements, to supported by science to address uncertainty

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