

Assessing and Containing Risks to Indigenous Fish Taxa Associated With Salmon Supplementation and Re-introduction

Gabriel M. Temple
Hatchery Vs. Wild Symposium,
Oregon AFS, Portland, Oregon
January 24, 2015

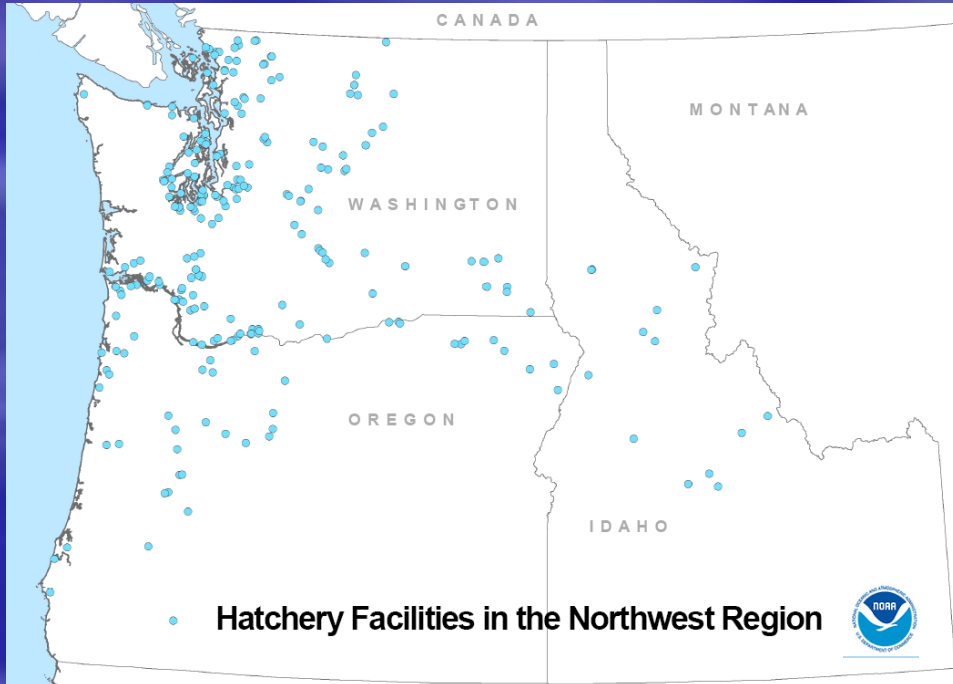


Managing Reality:

Co-existing Wild and Hatchery Populations

The reality is:

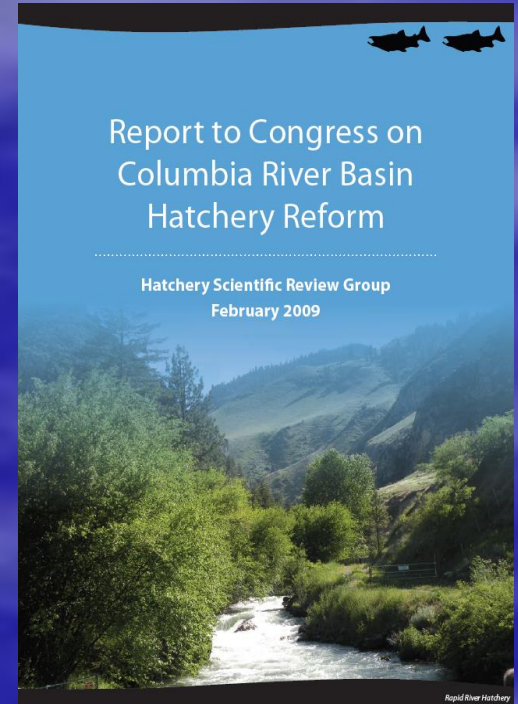
- PNW has a lot of hatcheries
- Hatcheries play a critical role in conservation, recreation, subsistence, and ceremonial uses of salmon
- Only recently have they been evaluated in an ecosystem context



Managing Reality:

Co-existing Wild and Hatchery Populations

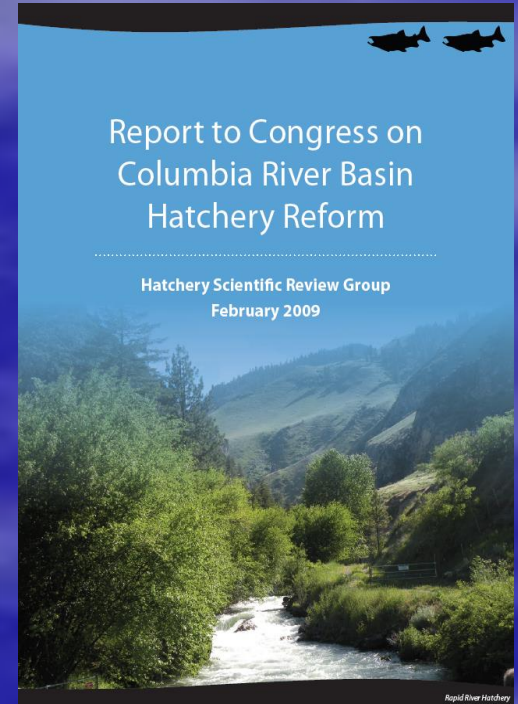
- Manage broodstock (segregation or integration-program goals)
- Promote local adaptation
- Minimize adverse ecological interactions
- Minimize hatchery effects on the ecosystem
- Maximize hatchery fish survival



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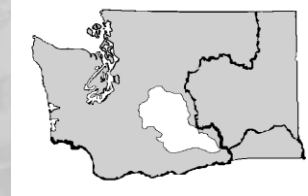


Yakima Program Initial Proposal

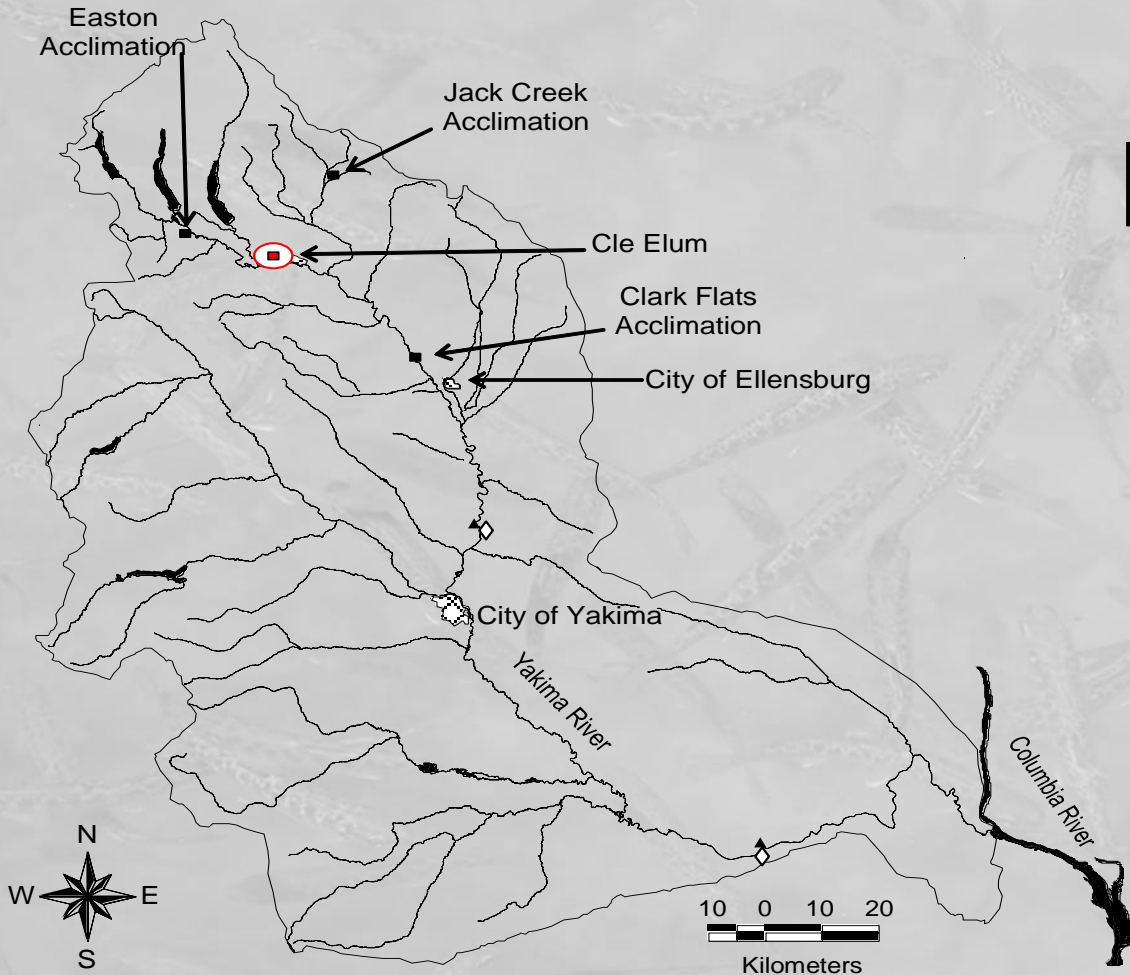


- ◻ Central Facility
- Spring Chinook
- Summer Steelhead
- ◇ Adult Traps
- ▲ Juvenile Traps
- Satellite Facility

Proposed Production:
7.8 million smolts including
Spring, Summer, Fall Chinook,
Summer Steelhead, Coho,
Sockeye



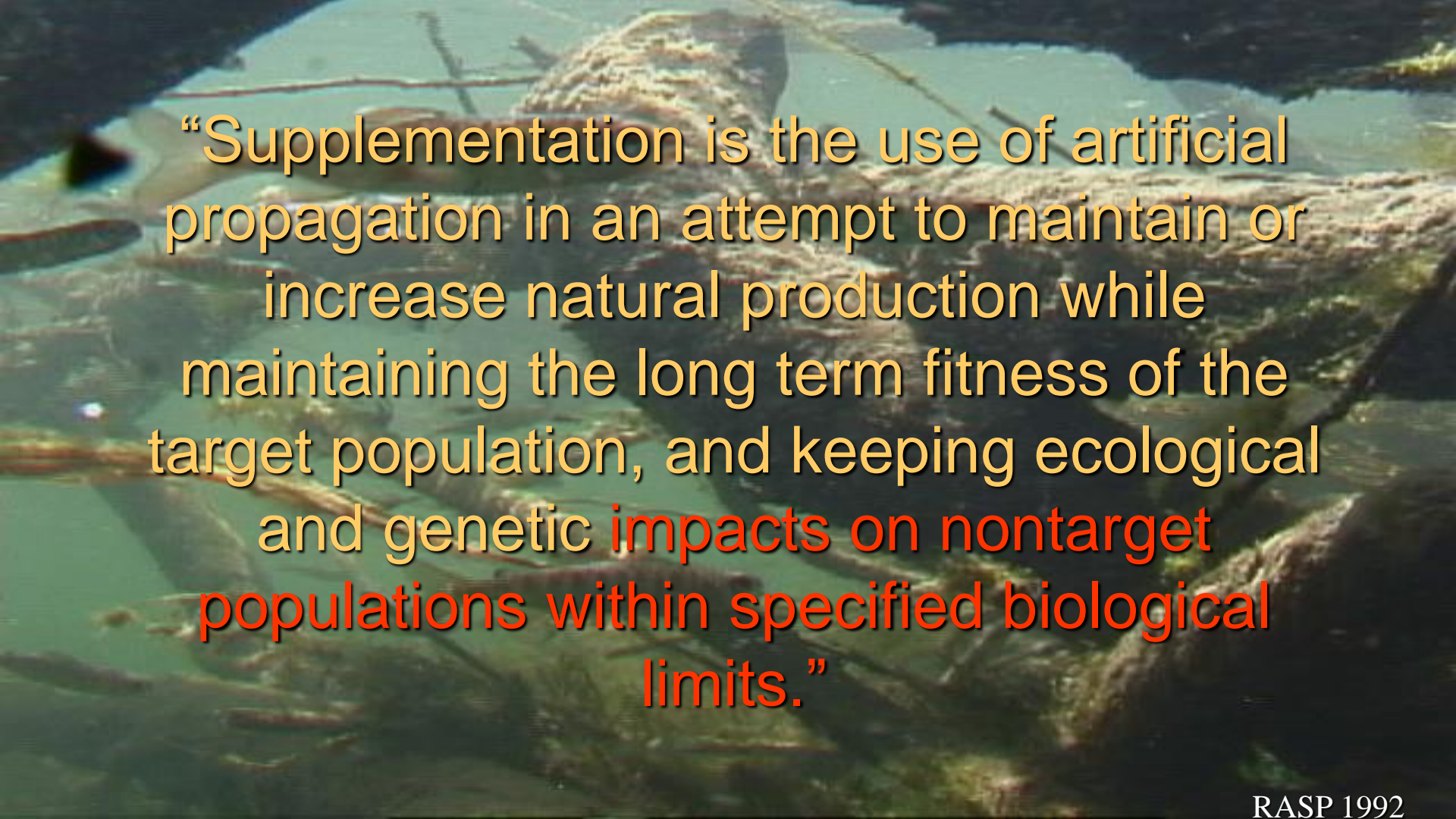
Yakima Program



- ◻ Central Facility
- Acclimation Facility
- ◊ Adult Trap
- ▲ Juvenile Trap

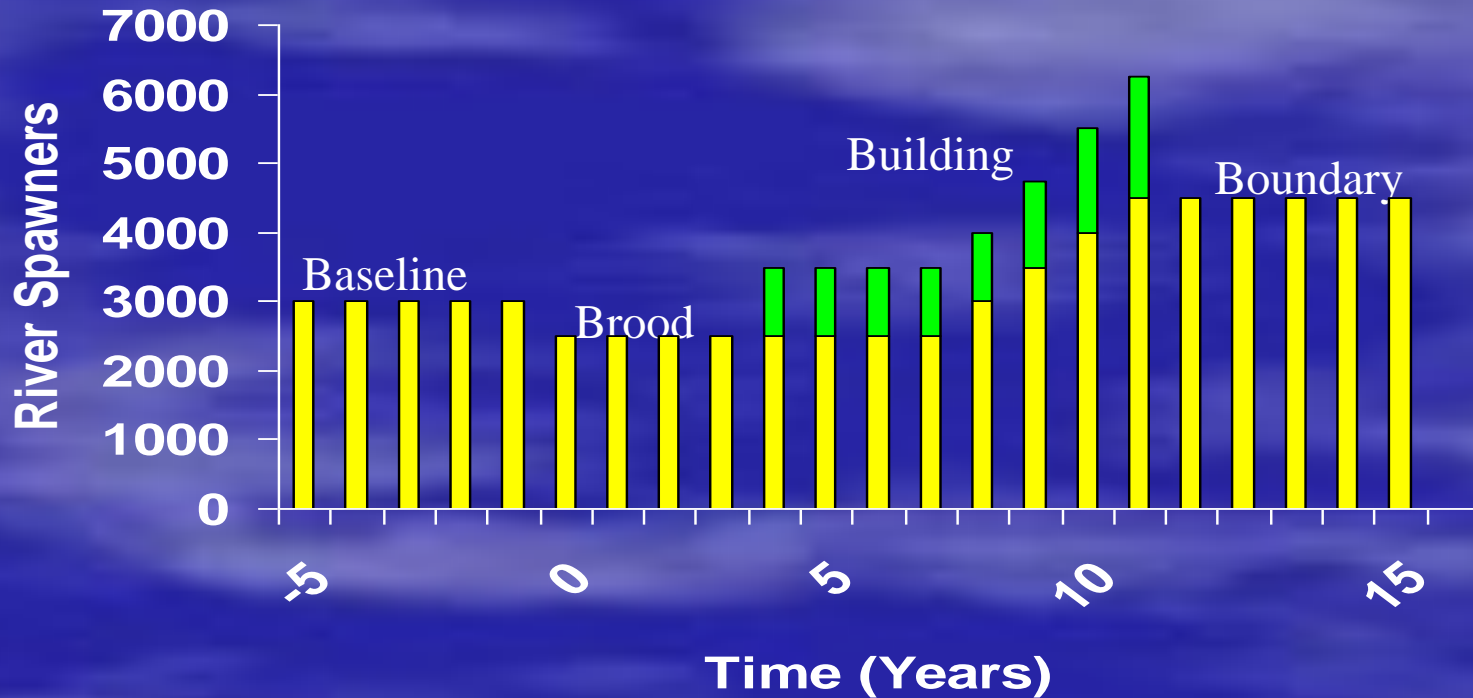
Current Production Goal:
810,000 Spring Chinook
(*All stock initiative)





“Supplementation is the use of artificial propagation in an attempt to maintain or increase natural production while maintaining the long term fitness of the target population, and keeping ecological and genetic **impacts on nontarget populations within specified biological limits.**”

Supplementation Chronology



NTT Risk Containment Process

Identify NTTOC

Set Containment Objectives

Implement Detection Strategies

Identify Changes to NTT Status

Determine Causation

Adaptive Management

Containment Objectives

$\leq 0\%$



$\leq 5\%$



$\leq 10\%$



$\leq 40\%$



sustainability



Methods.....



Sieve Approach to Risk Management Monitoring

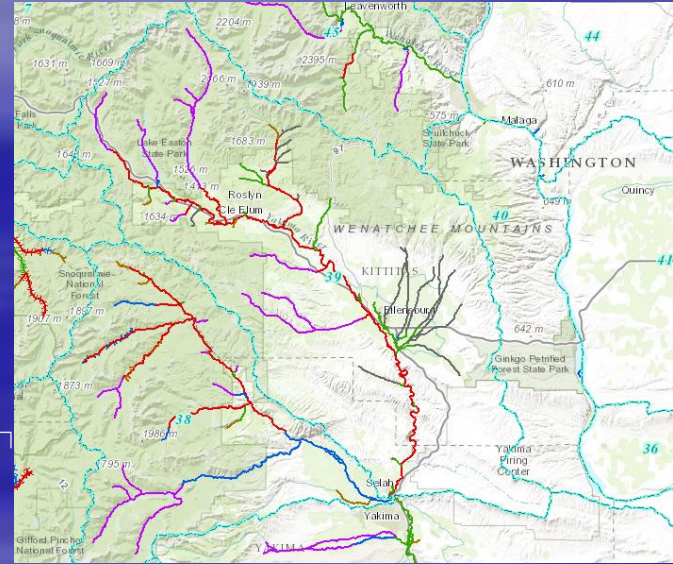
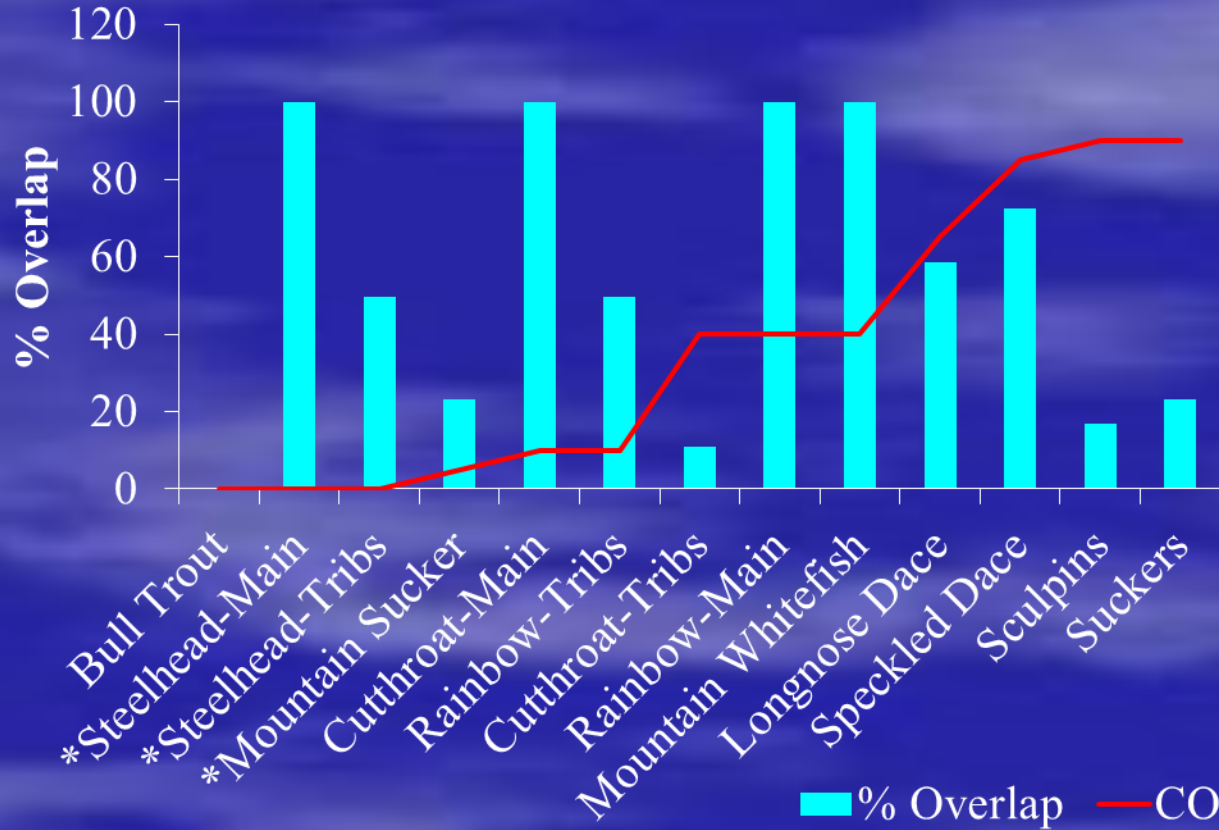
1). Evaluate Distribution

2) Evaluate status

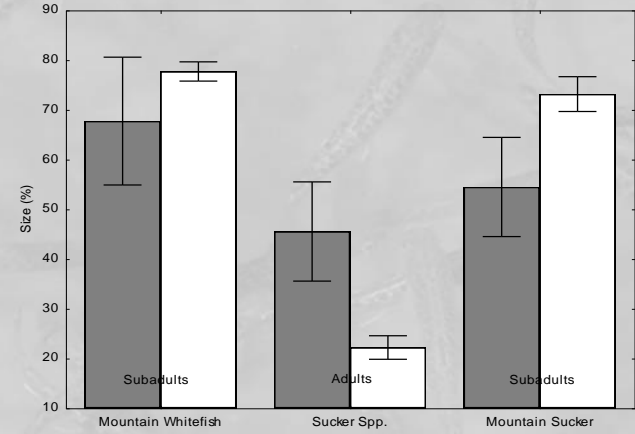
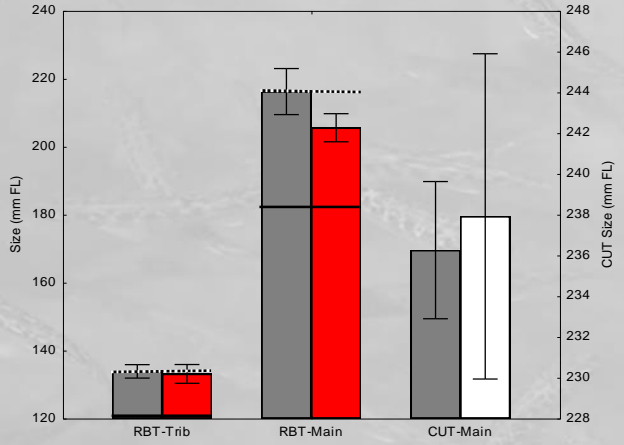
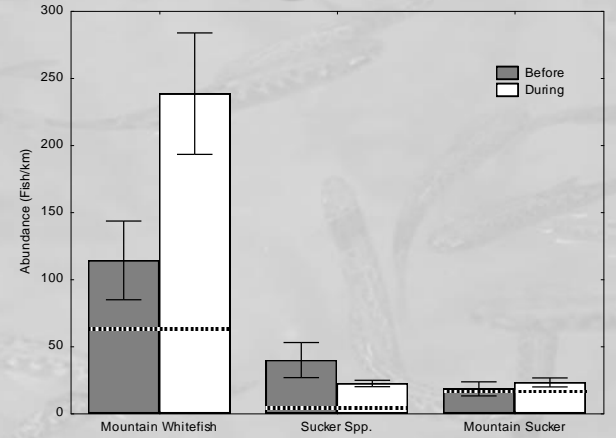
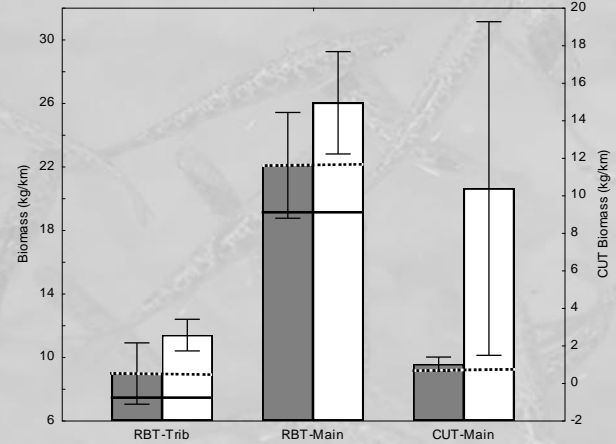
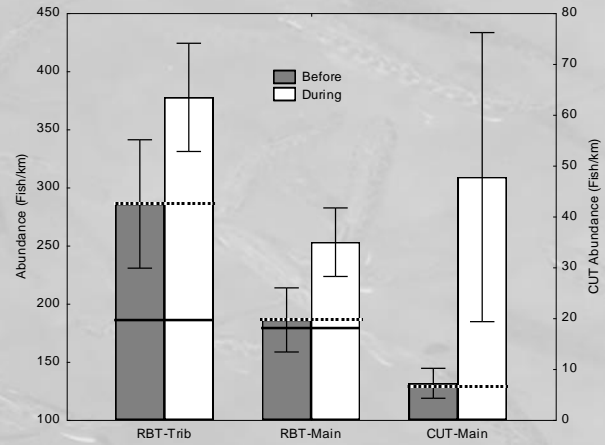
3) Causation



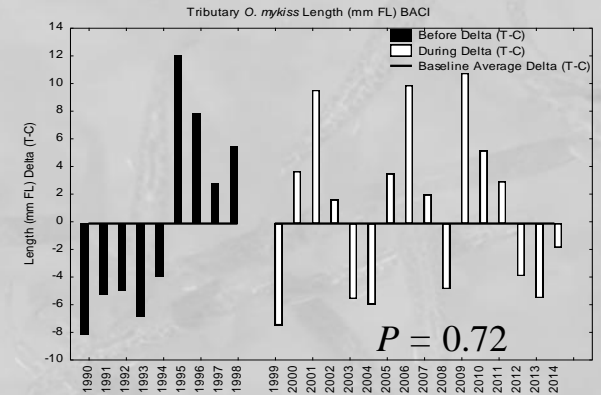
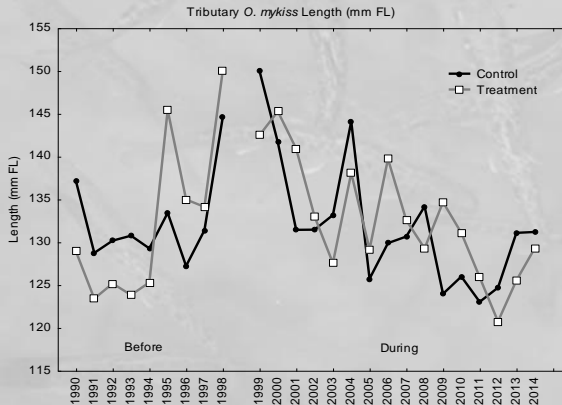
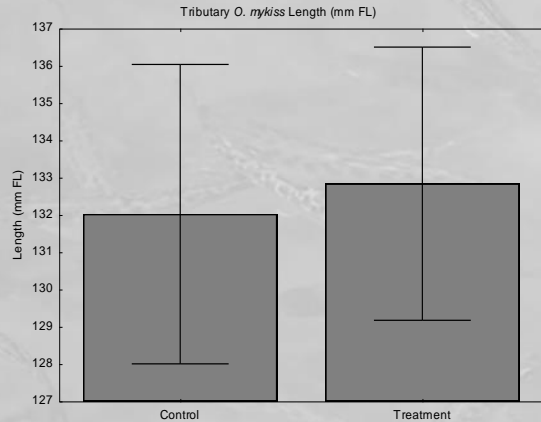
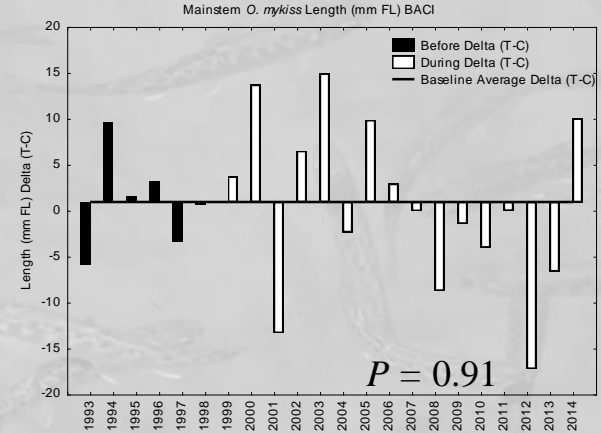
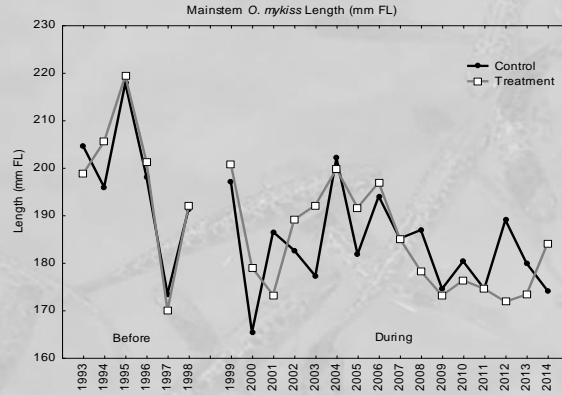
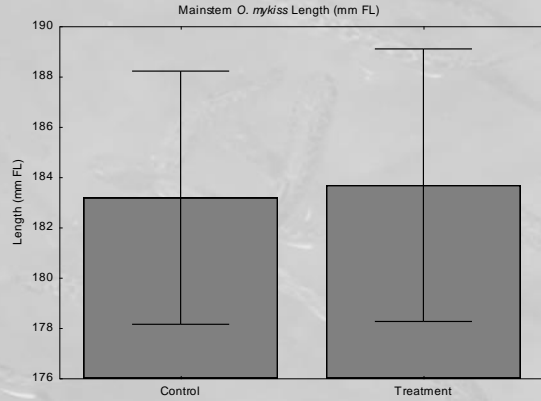
Distribution



Status-Before vs. During



Causation-*O. mykiss* Size



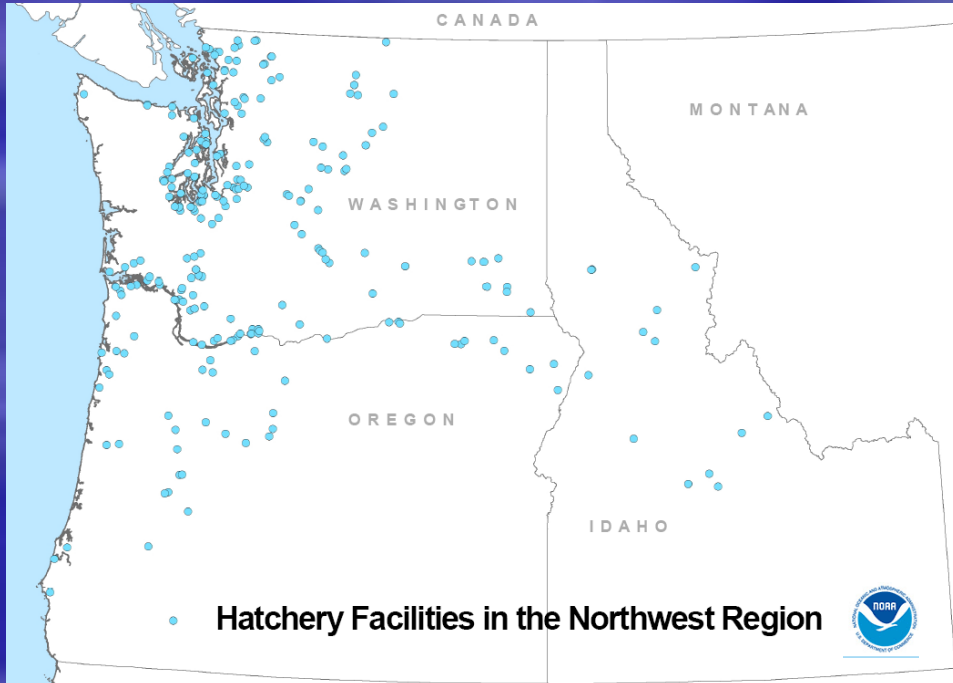
Lessons Learned


- Pre-implementation planning had bigger influence on ecological interactions than adaptive management monitoring
 - (fine tuning- Temple and Pearsons 2012)
- Sieve approach may not pick up changes of interest
 - (e.g., Pearsons and Temple 2010)
- Value of reference sites/populations (NTT risk monitoring perspective)
- Adaptive monitoring as information becomes available (e.g., rare dispersed species-PAL, SND, LPD)
- Containment monitoring can support program from unfounded accusations (e.g., precocious males)

Managing Reality: Co-existing Wild and Hatchery Populations

The reality is:

- PNW has a lot of hatcheries
- Recommend programs consider the ecological perspective in judging success
- Stay informed on HWI science



 [Redacted] May 4, 2010

If every Salmon suddenly disappeared from the face of the earth nothing would change. We spend entirely too many billions, wreck too much commerce, and take away too many property rights and freedoms over some stupid fish that doesn't mean a hill of beans to the earth. I think society has totally lost it's freakin' marbles.

The Oregonian- May 4, 2010