

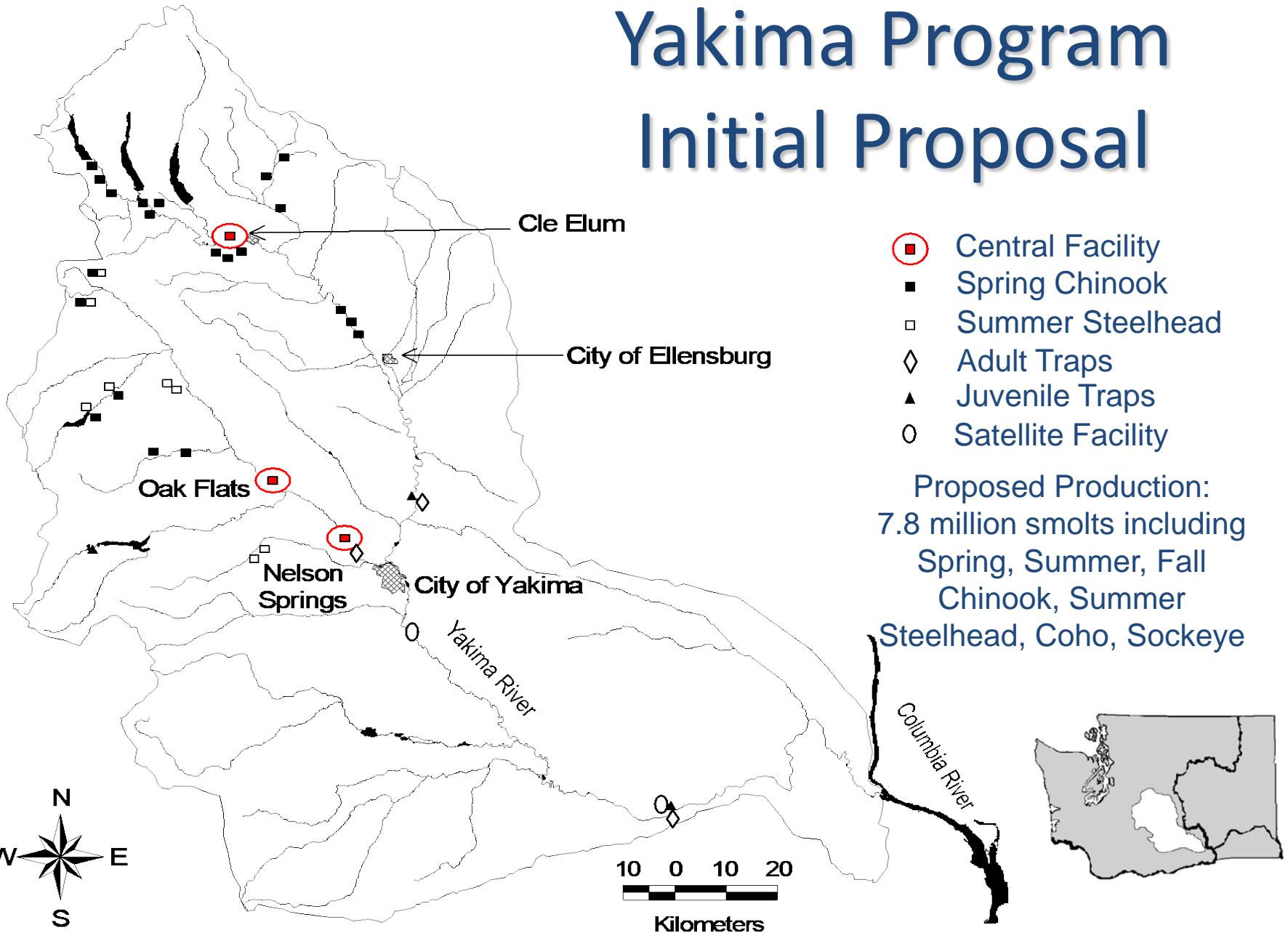
# Ecological Interactions: Non-target Taxa of Concern Monitoring

Yakima Basin Science and Management Conference,  
June 16, 2011, presented by

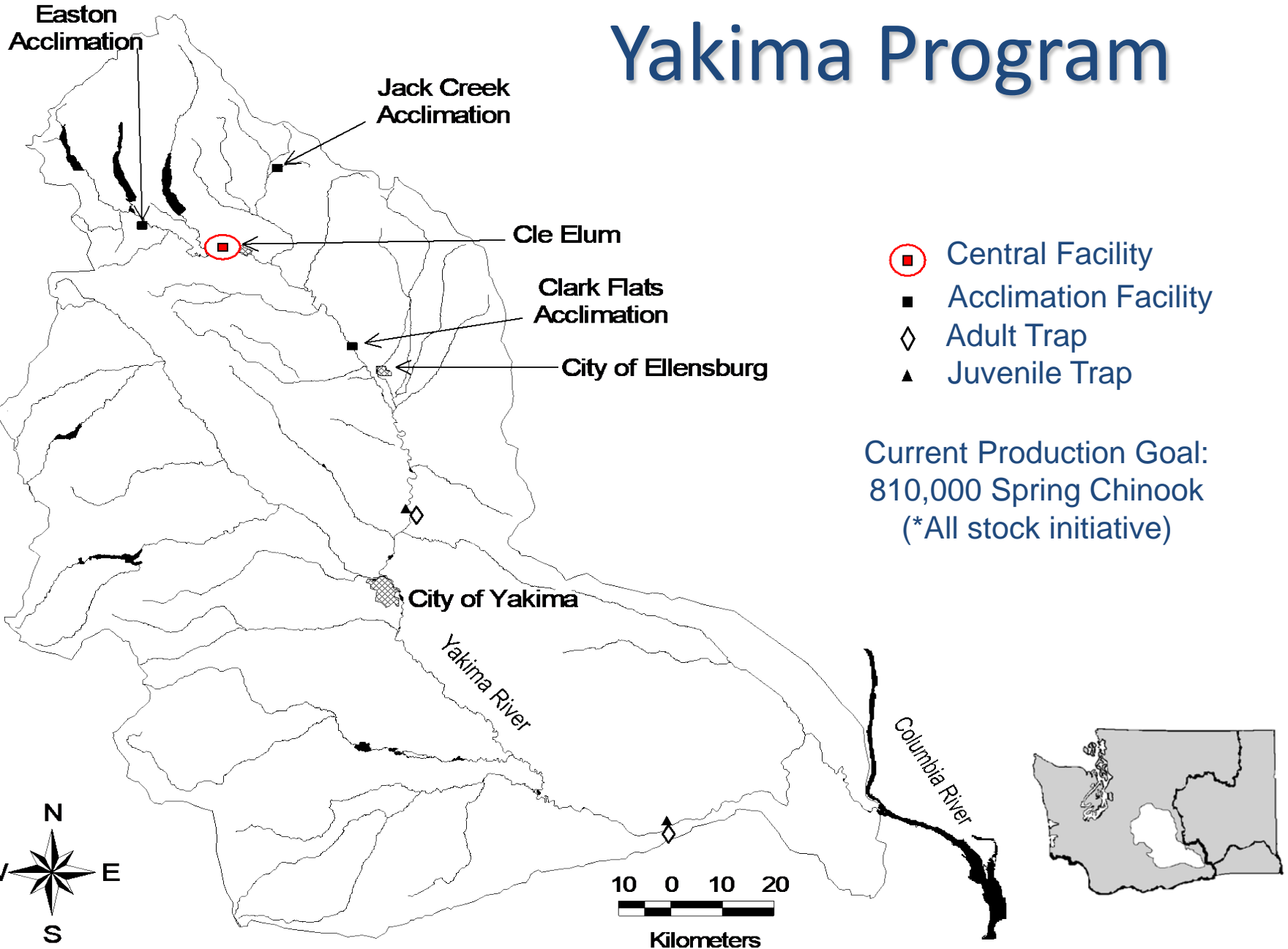
Gabriel Temple

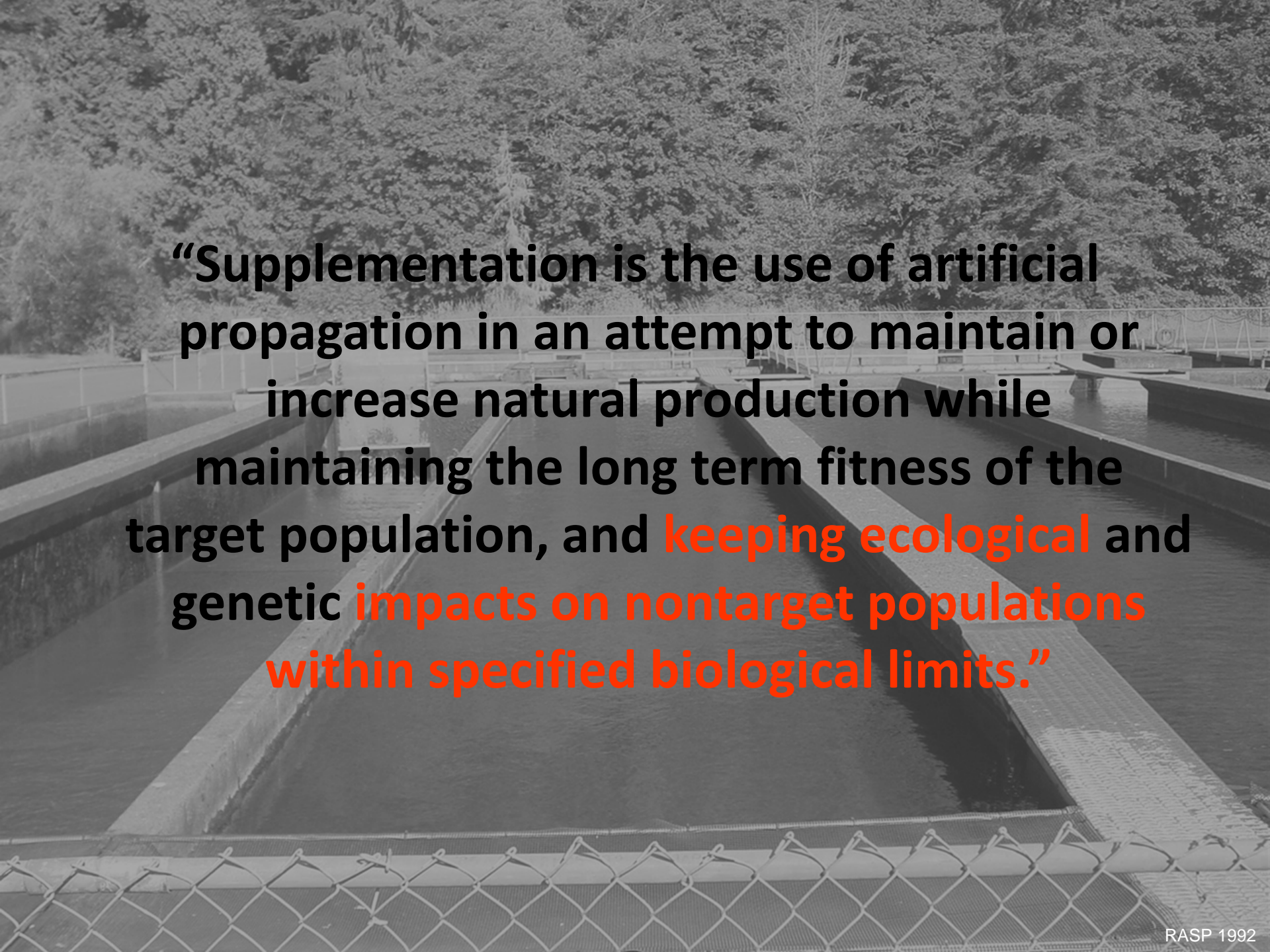


# Yakima Program Initial Proposal



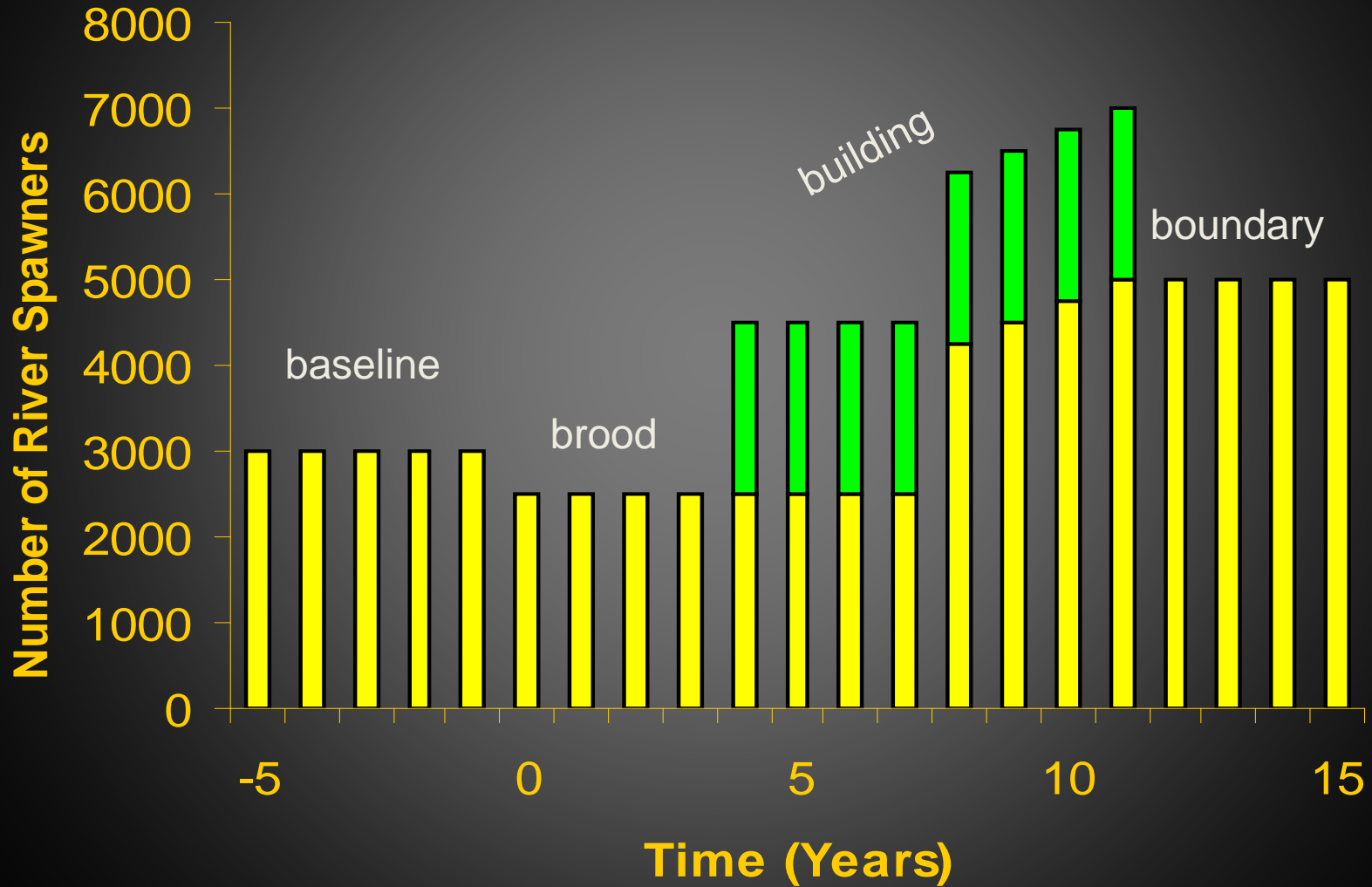
# Yakima Program





**“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





# Containment Objectives

$\leq 0\%$



$\leq 5\%$



$\leq 10\%$



$\leq 40\%$



sustainability



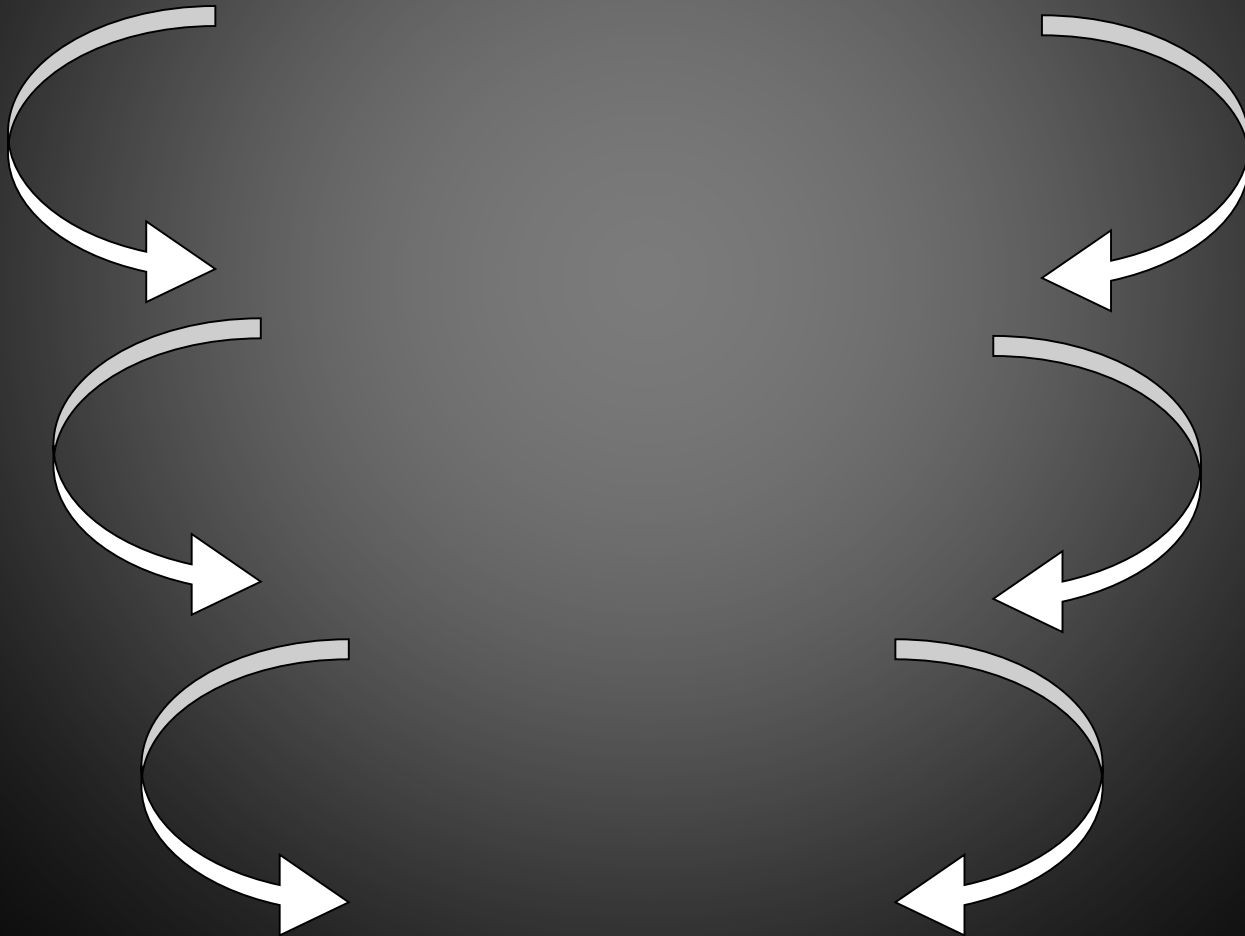


# Methods.....



Special thanks: BPA, YN, and WDFW staff

# Risk Management Sieve

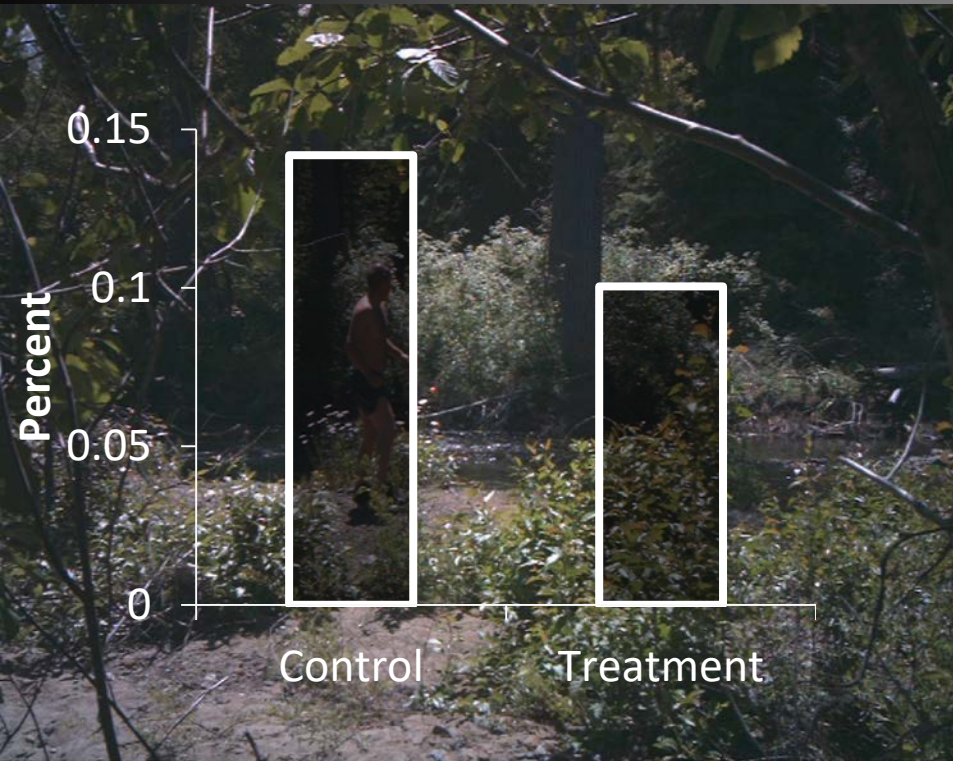




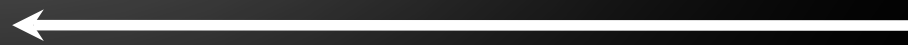
# Interactions Summary to Date

- Observed decreased *O. mykiss* size structure post-supplementation (BACI indicates unrelated to our supplementation program)
- Observed reduced\* *O. mykiss* abundance, biomass and combined salmonid biomass in vicinity of Jack Creek relative to controls
  - Effect is reduced with increased distance downstream
  - Population level abundance has increased
  - Movement? Perhaps increased anadromy?
  - Harvest?

# PIT tag detections at fixed interrogation sites



Undercover  
Creel Survey  
(Spy Camera)





# Taneum Coho Interactions

- Tributary scale experiment
- Multiple Objectives
  - 1) Determine Taneum's reintroduction potential
  - 2) Determine ecological benefits of stocking (e.g. Conversion of resources to biomass)





# Methods

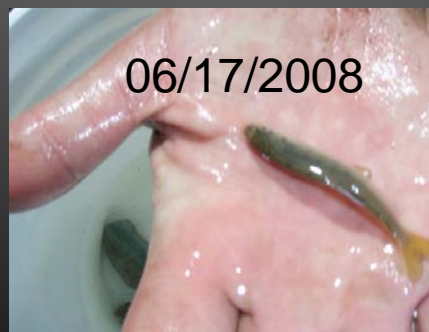
- 300 adult coho transported and released in index monitoring locations and encouraged to spawn



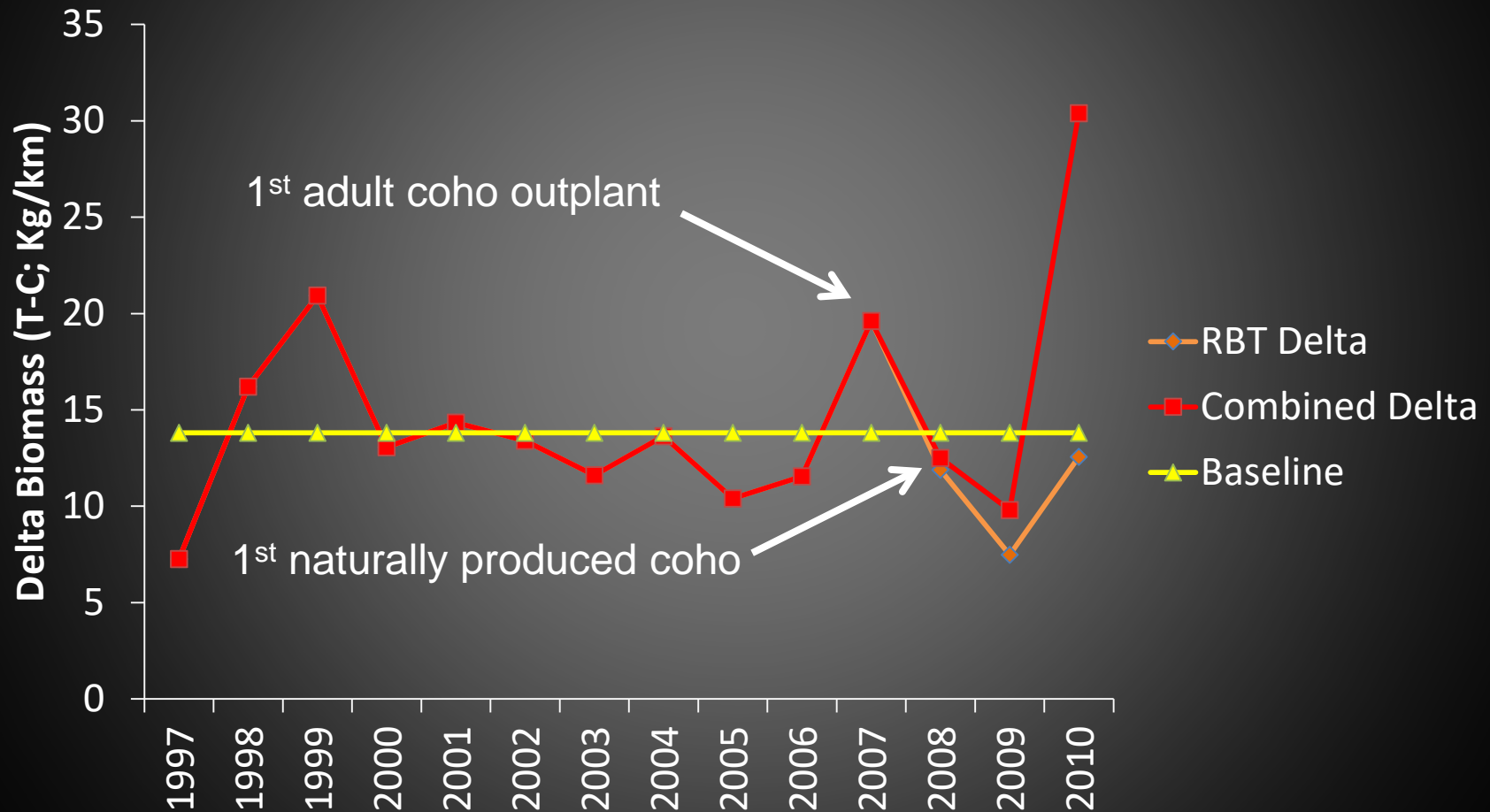
- Evaluate natural production (parr abundance)
- BACI test on NTT response variables

# Observations to Date

- 1) Successful natural production in Taneum
- 2) Observed coho parr in all habitats (e.g. strong potential for interactions with NTT)
  - No detectable impact to RBT abundance
  - Reduced RBT size and Condition (K) but not instantaneous growth of PIT tagged RBT
  - Increase in combined RBT/coho rearing biomass



# Taneum Combined Salmonid Rearing Biomass





# Lessons Learned

- Pre-implementation planning had bigger influence on ecological interactions than adaptive management monitoring (fine tuning)
- Learned the value of reference sites/populations
- Sieve approach may not pick up changes of interest (e.g., Tributary Scale Interactions)
- 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)