

Klickitat River Anadromous Fisheries Master Plan Pathway to Hatchery Reform

Klickitat - White Salmon Fisheries & Watershed Science Conference
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Bill Sharp, Research Scientist
Chris Frederiksen, Research Scientist

Presentation Outline:

Yakima/Klickitat Fisheries Project

Project Status Update

Hatchery Reform Measures & Production Goal

Next Steps – NEPA Process



Yakima/Klickitat Fisheries Project

- The YKFP established in 1982 - NPCC's F&W Program
- NPCC instructed YN, WDFW and BPA to address uncertainties regarding adequacy of hatchery supplementation for meeting production objectives and limiting adverse ecological and genetic impacts.
- Apply a scientifically rigorous process that fosters application of knowledge gained about hatchery supplementation and habitat restoration throughout the Columbia River Basin.
- Use Ecosystem Diagnosis and Treatment (EDT), All H Analyzer (AHA) and other modeling tools to facilitate planning for project activities, enhance existing stocks, and re-introduce extirpated stocks.

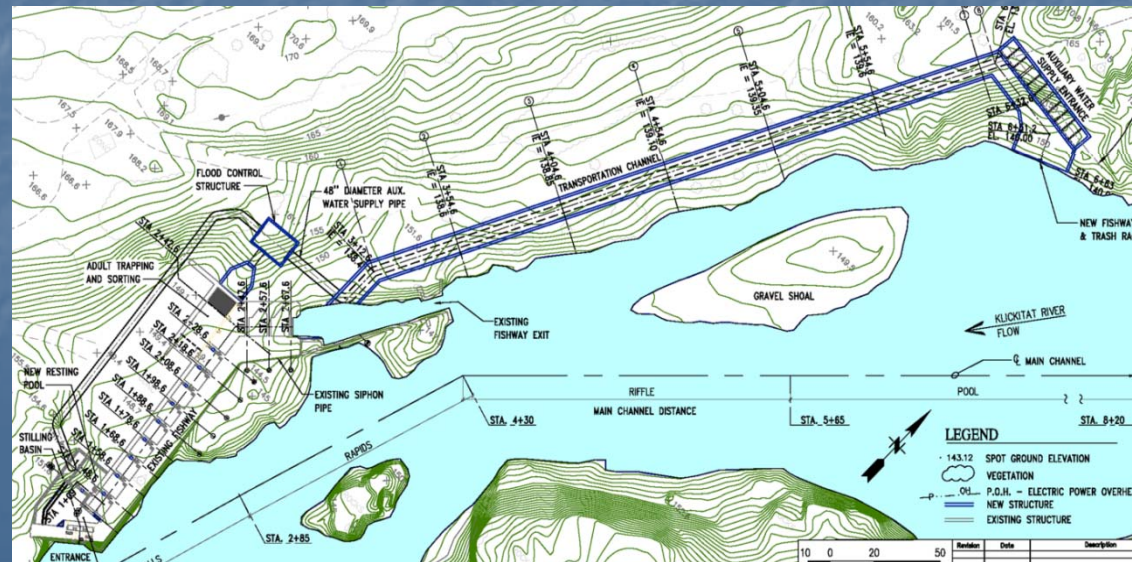
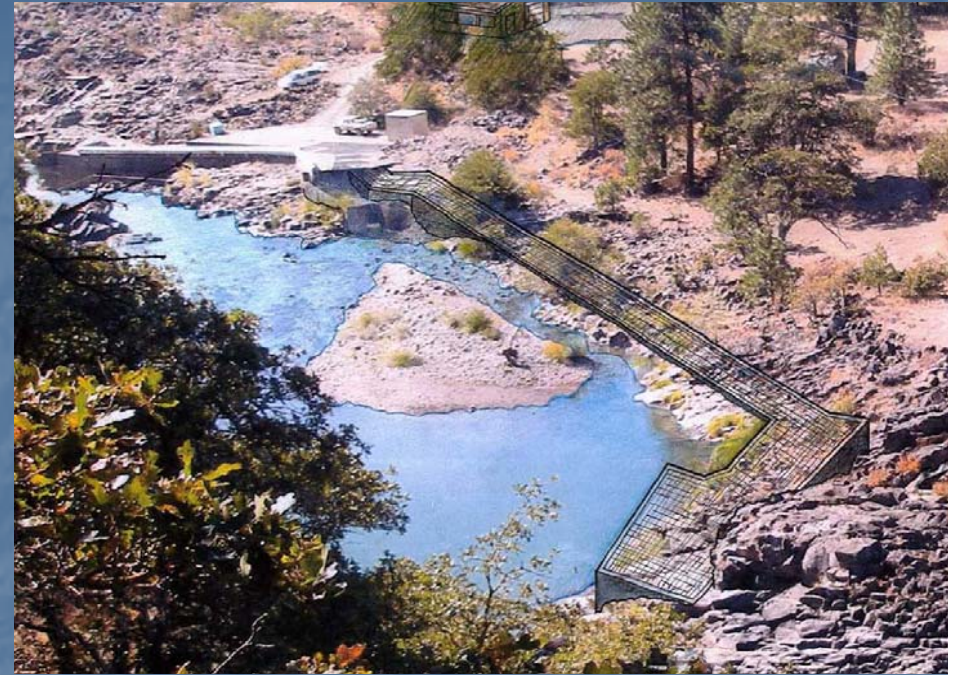
Key Hatchery Reform Infrastructure

- Lyle Falls Fishway
- Wahkiacus Hatchery & Acclimation Facility
- Klickitat Hatchery
- Castile Falls Fishway
- McCreedy Acclimation Facility*



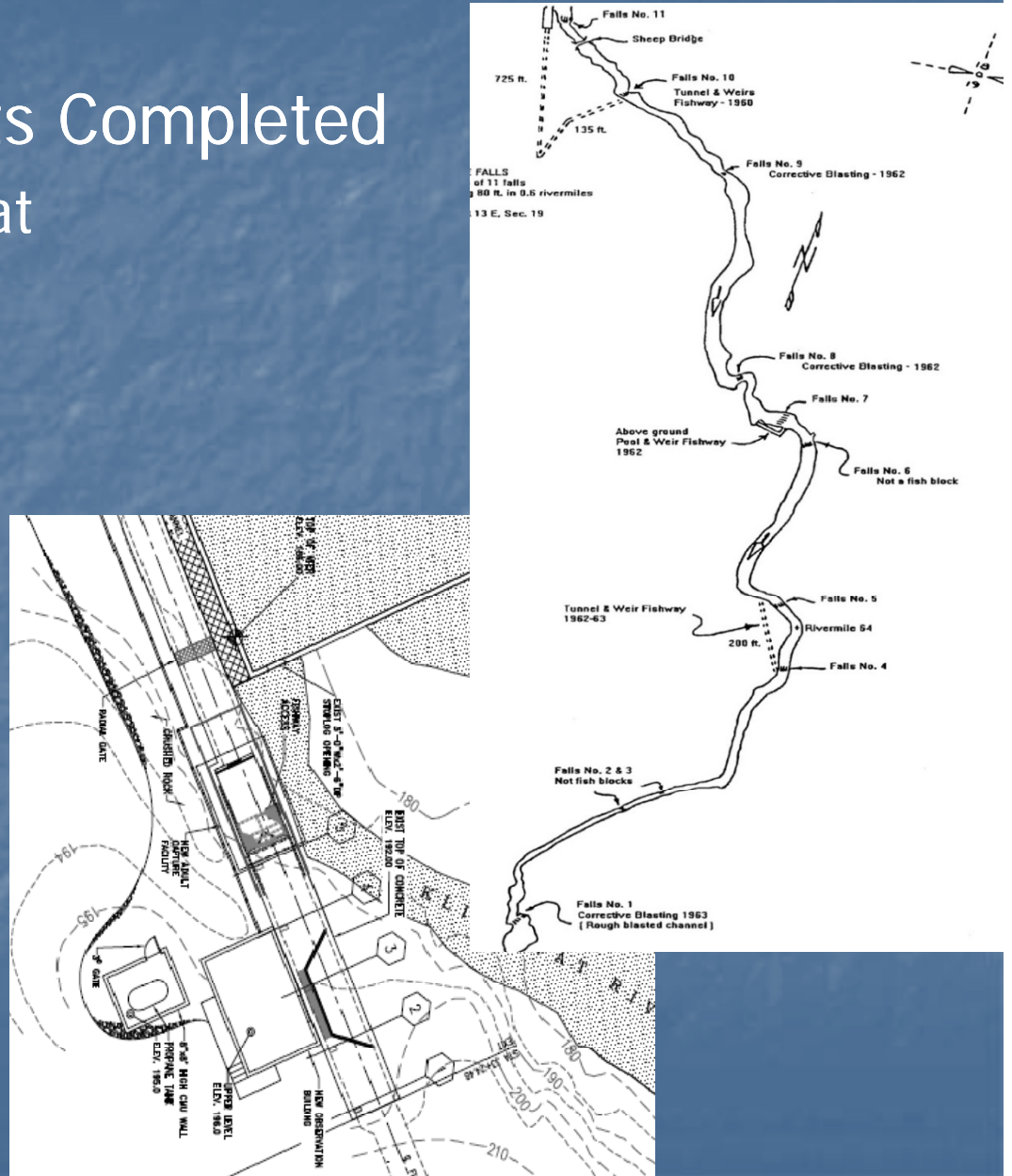
Lyle Falls Fishway #5

- NEPA - EIS ROD
- Final Design Review (NOAA/WDFW Eng.)
- Incorporate USFWS Lamprey Design Elements
- Secure Final Permits
- R,M&E Facility
- Construction 09/10



Castile Falls Enumeration Facility

- Passage Improvements Completed
 - Over 55 Miles of Habitat
 - Reduced Maintenance
- NEPA Complete
- Adult Sampling
- Enumeration
 - (PIT Detectors, Video)
- Construction 2009



Klickitat River Anadromous Fisheries Master Plan

NEPA Development

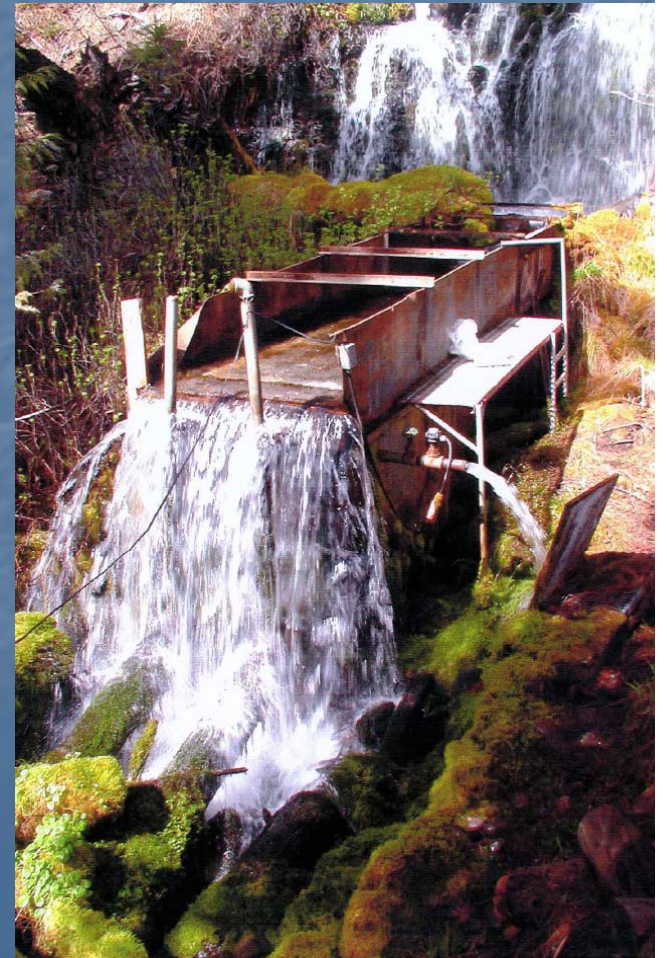
EIS Details:

- Purpose and Need of Action
- Alternatives
- Consultation, Review and Permit Requirements
- State Salmon & Steelhead Production Objectives
- Construction Phasing and Potential Environmental Impacts
- Timeline: Summer 2010

Klickitat Hatchery Improvements

Incorporate Hatchery Reform Elements

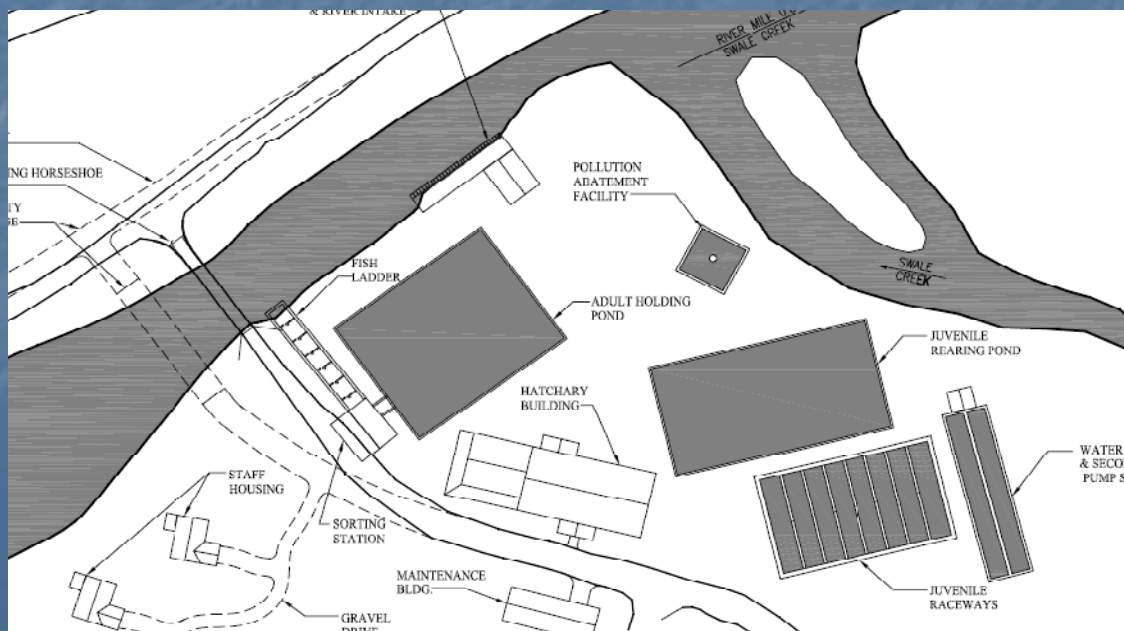
- Secure Water Transmission
- Capture Additional Spring Water
- Upgrade Rearing Ponds
- Increase Adult Holding Ponds
- Develop Steelhead Hatchery



Wahkiacus Hatchery/Acclimation Facility

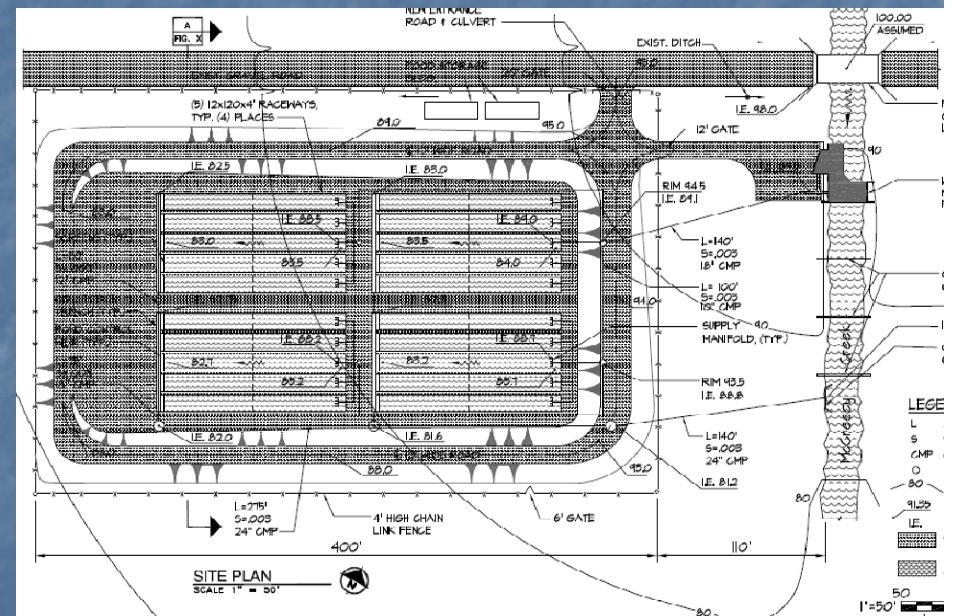
Key to Hatchery Reform

- Develop Hatchery & Acclimation Facility Lower in the Basin
- “Free up” 26 Miles of High Quality Rearing/Spawning Habitat
- Coordination with Local Partners
- Design Work Underway
- Secure Funding



McCreedy Creek Acclimation

- Steelhead Acclimation – if needed
- Stand By to Assess Natural Re-colonization Rates
- Located in Key Spawning Area of Upper River
- Conceptual Design Stage



Klickitat River Anadromous Fisheries Master Plan

Hatchery Reform Measures - HSRG

Principles:

- Develop Clear, Specific, Quantifiable Harvest and Conservation Goals for Natural and Hatchery Populations within an “All H” Context
- Design and Operate Hatchery Programs in a Scientifically Defensible Manner
- Monitor, Evaluate and Adaptively Manage Hatchery Programs.

Types of Hatchery Programs

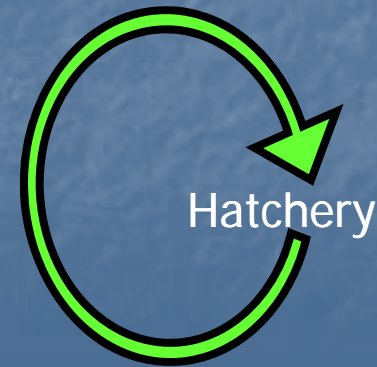
I. Segregated Program

- ❑ Isolate hatchery/wild populations
- ❑ HSRG: <5% pHOS



Appropriate Conditions

- ❑ Harvest augmentation
- ❑ Minimal habitat
- ❑ Removal of surplus fish



Types of Hatchery Programs

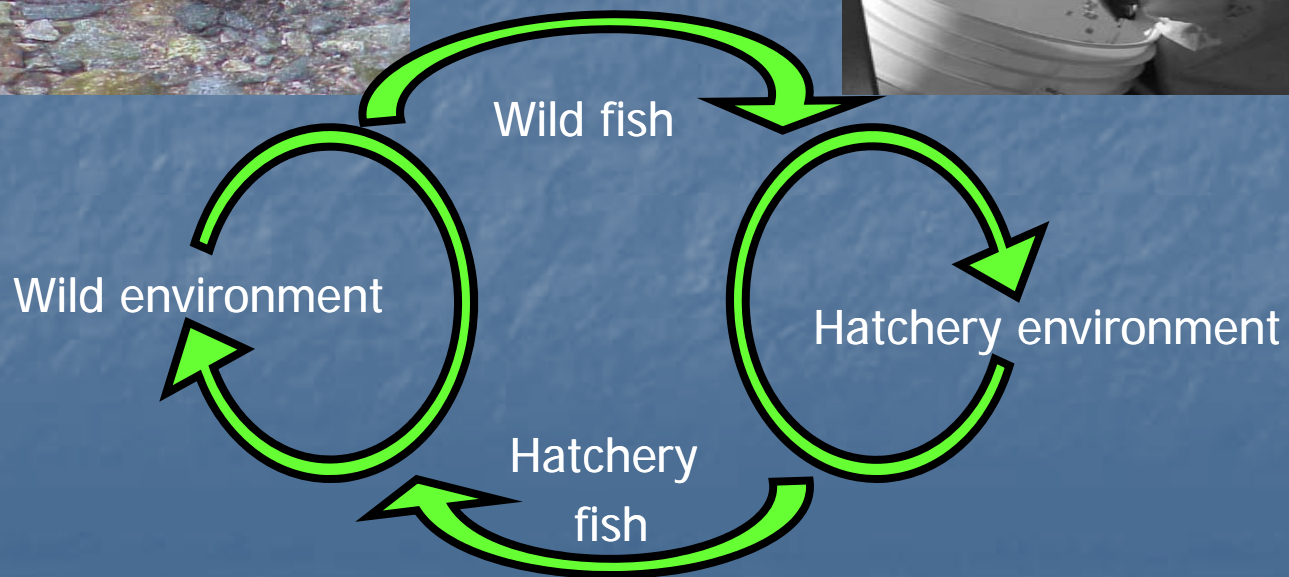
II. Integrated Program

- ❑ Single population
- ❑ "Integrate" adult reproduction



Appropriate Conditions

- ❑ Conservation goals
- ❑ Suitable Habitat



Environmental Adaptation



Hatchery
Optimum

Hatchery
selective
forces



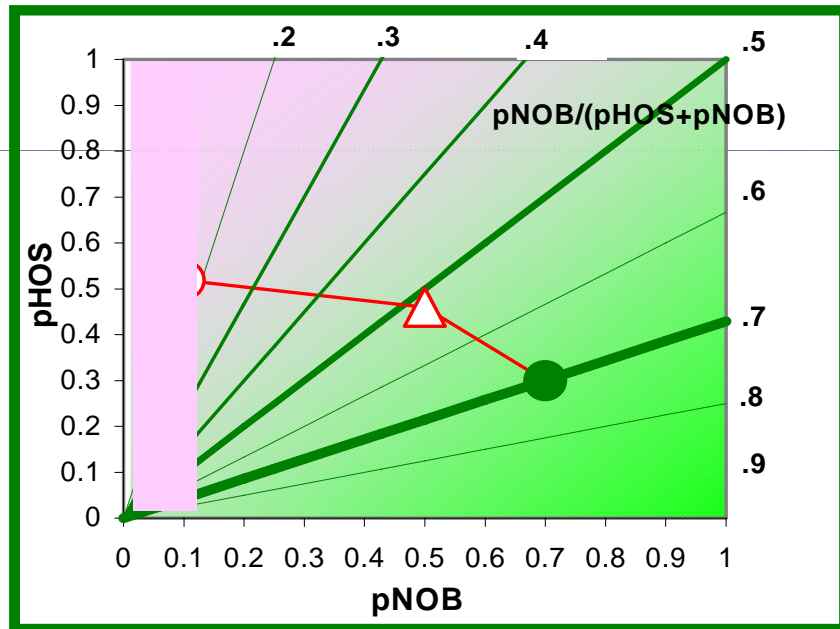
Natural
selective
forces



Natural
Optimum

Integrated
population

The PNI Concept:



I. PNI- Proportion of Natural Influence

- Integrated programs:
 - Minimum
 - 0.5
 - Biological Significance
 - 0.67

Klickitat River Anadromous Species Overview

Native Stocks:

- I. Spring Chinook



- II. Steelhead



Introduced Stocks:

- I. Fall Chinook



- II. Coho



- All stocks have existing artificial (hatchery) production
- Programs designed for harvest augmentation

Spring Chinook

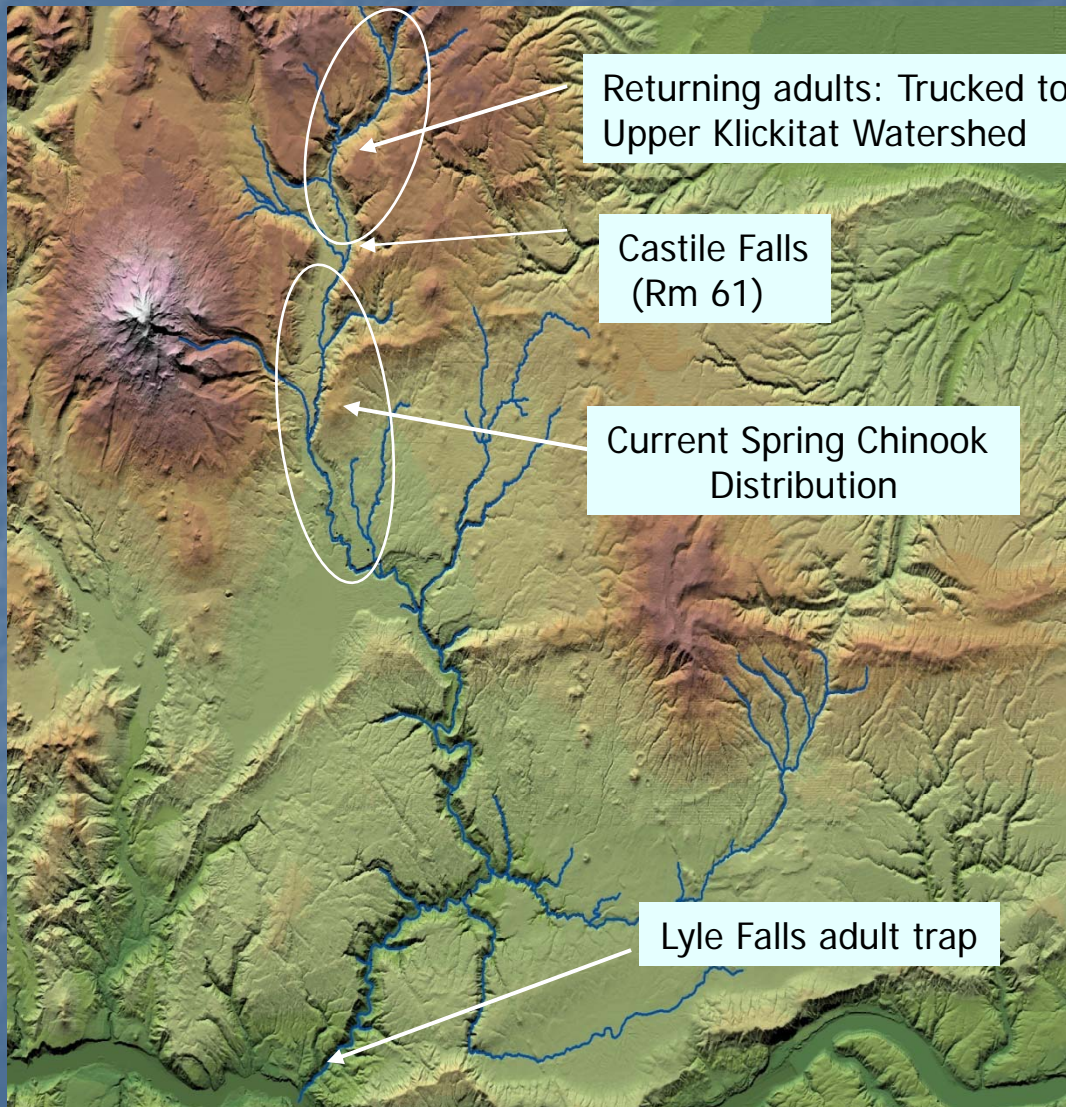


Current program

I. Harvest augmentation

- ❑ ~550 adults
- ❑ 95-100% hatchery broodstock
- ❑ ~800k on-station release
- ❑ PHOS ~ 10-20%
 - ❑ PNI = 0.25
- ❑ Standards:
 - ❑ Does not meet HSRG criteria

Spring Chinook



Future program

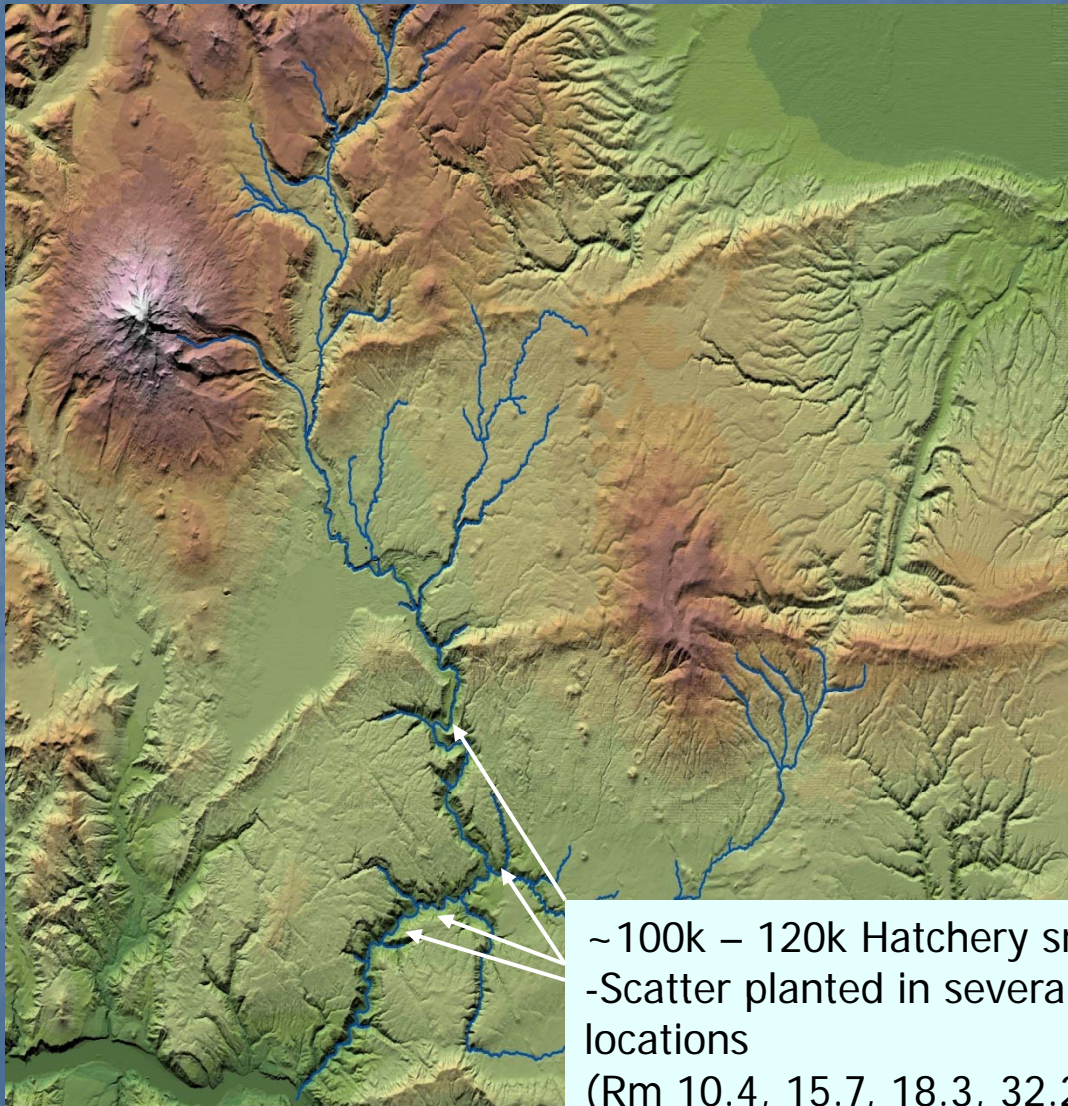
I. Conservation & Harvest

- ❑ Integrated program
 - ❑ Incorporate greater proportion natural origin fish
- ❑ Broodstock collection
 - ❑ Lyle Falls Trap
- ❑ ~550 Adults
 - ❑ 800k on-station release

Conservation benefits

- ❑ Increase spawning & rearing distribution
 - ❑ Increase abundance
- ❑ Increase PNI

Steelhead

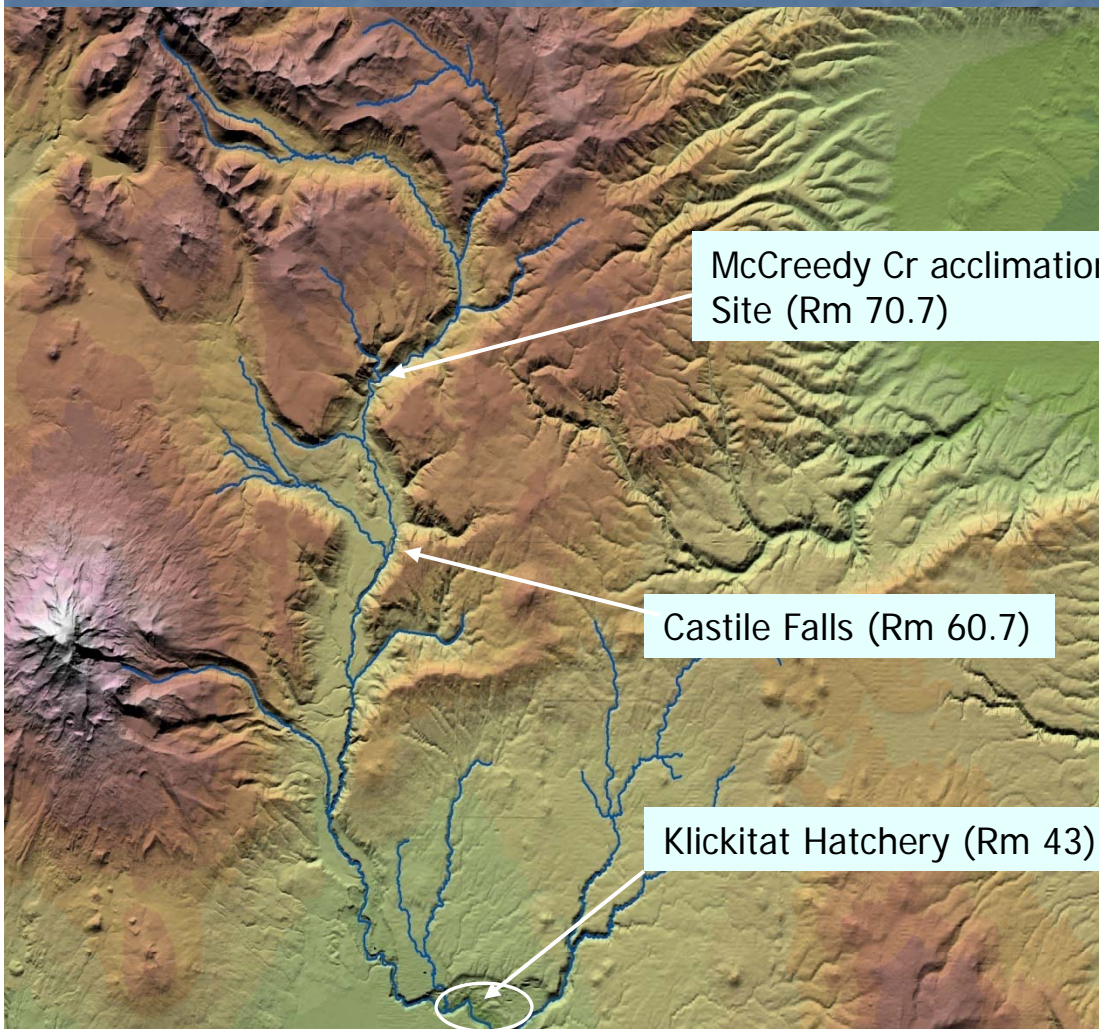


~100k – 120k Hatchery smolts
-Scatter planted in several
locations
(Rm 10.4, 15.7, 18.3, 32.2)

Current program

- I. Harvest augmentation
 - ❑ Smolts imported from Washougal hatchery
 - ❑ 105k release
 - ❑ 100% adipose clipped
 - ❑ Successful program
 - ❑ Tribal & non-tribal fisheries
 - ❑ Hatchery Steelhead escaping fisheries:
 - ❑ Spawn in wild
 - ❑ Inability to remove
 - ❑ Introgression has occurred between hatchery and natural origin fish

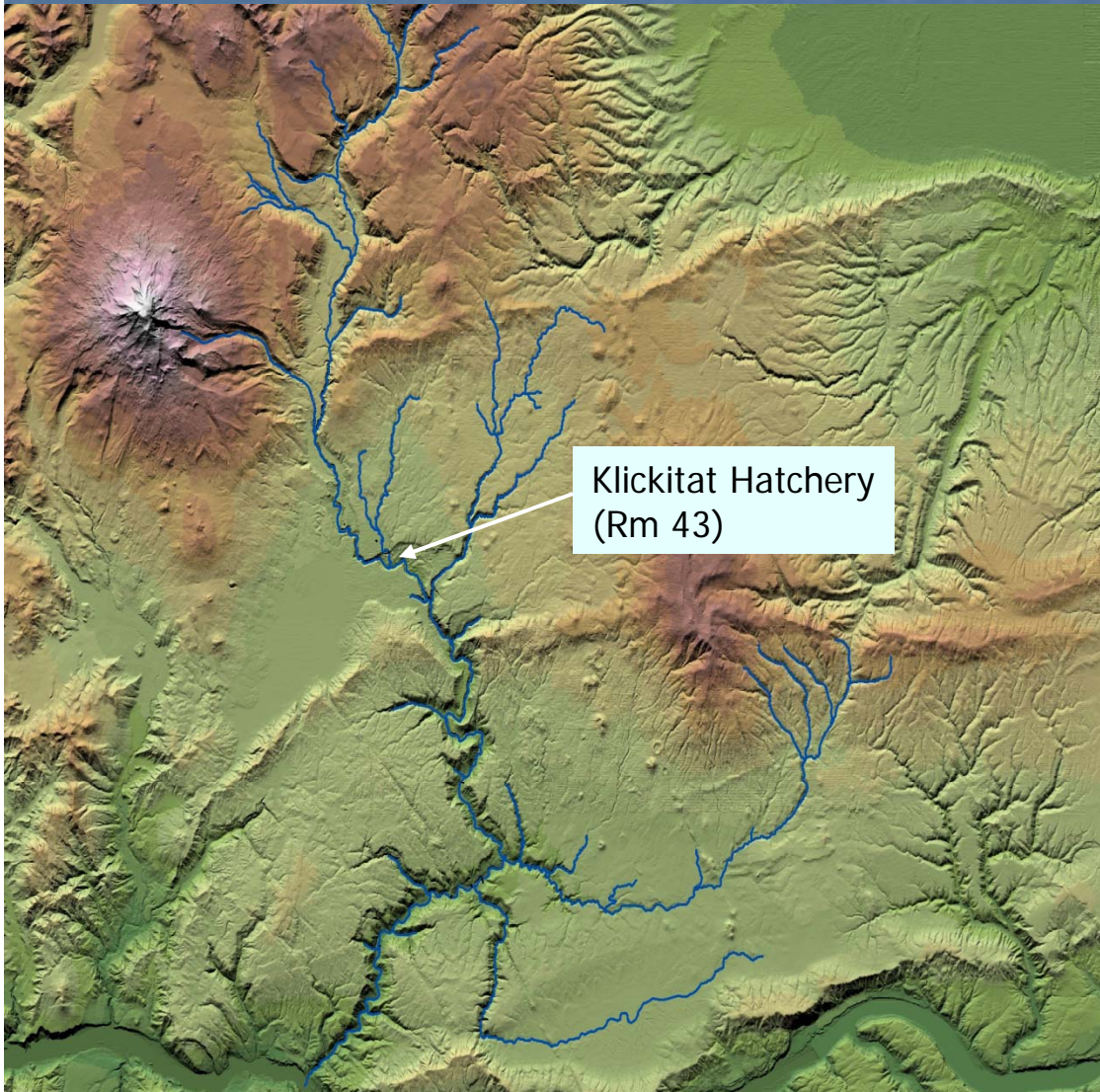
Steelhead



Future program

- I. Natural production & conservation component
 - ❑ 100% NOR broodstock
 - ❑ Potentially use both anadromous and resident life history forms
 - ❑ ~30-40 adults needed
 - ❑ ~65k smolts acclimated at McCreeedy Cr facility
 - ❑ Seed upper Klickitat watershed
 - ❑ Hatchery releases in Upper watershed terminated or moved downstream to Klickitat hatchery
- Conservation benefits
- ❑ Increase spawning & rearing distribution

Steelhead



Future program

- II. Harvest augmentation component
- ❑ Broodstock Source: Natural origin fish
 - ❑ ~70-80 adults needed
 - ❑ ~130k smolts acclimated and released from Klickitat Hatchery
 - ❑ 100% ad-clipped for harvest retention
 - ❑ Hatchery fish escaping fisheries:
 - ❑ High volunteer rate expected (75-90%)

Fall Chinook

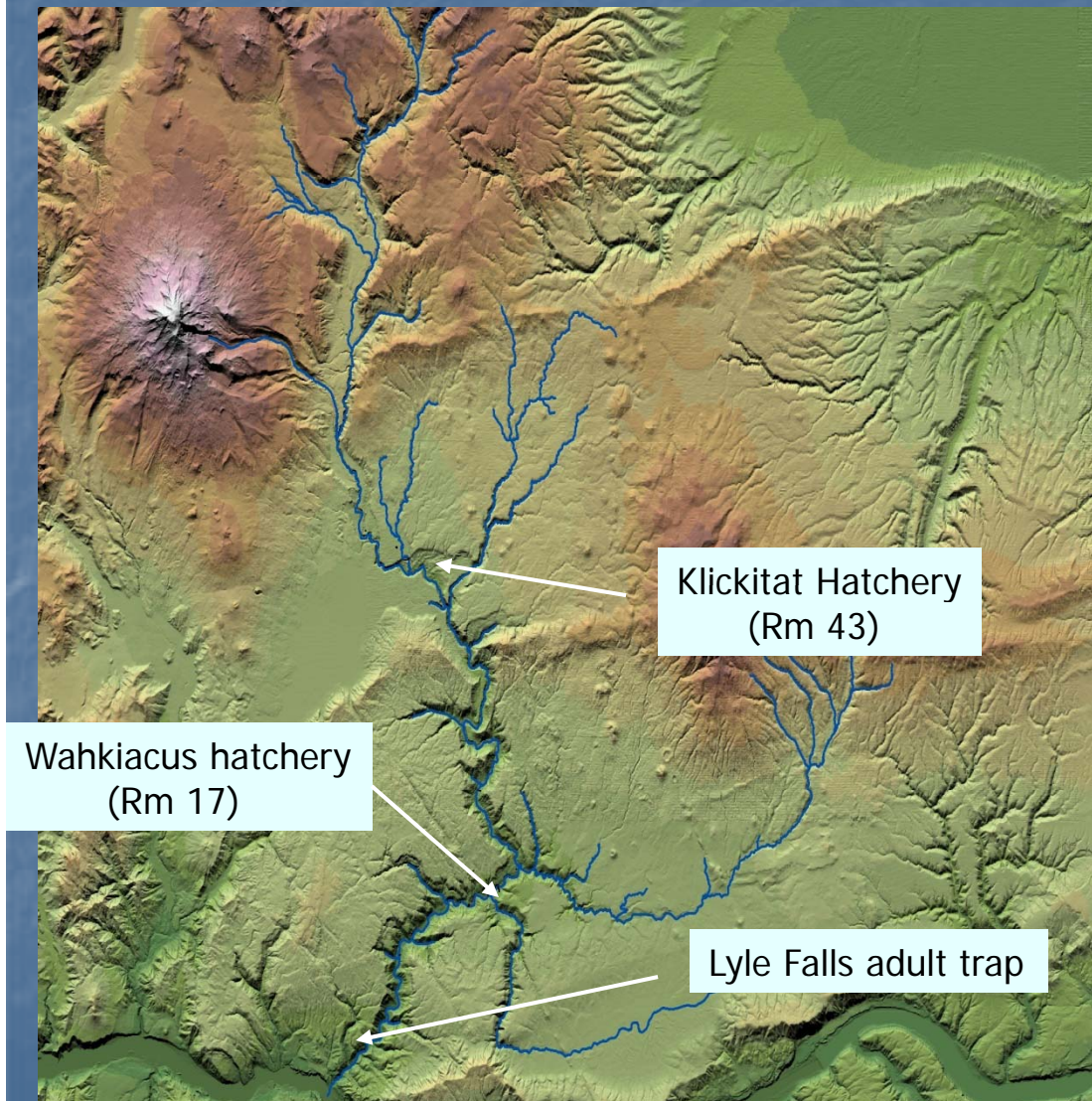


Current program

- I. Harvest augmentation
 - ❑ Imports 4.5 million eyed eggs
 - ❑ 4.3 M sub-yearlings
 - ❑ Released from Klickitat hatchery
 - ❑ 17% marked

- ★ Contributes substantially to combined fisheries

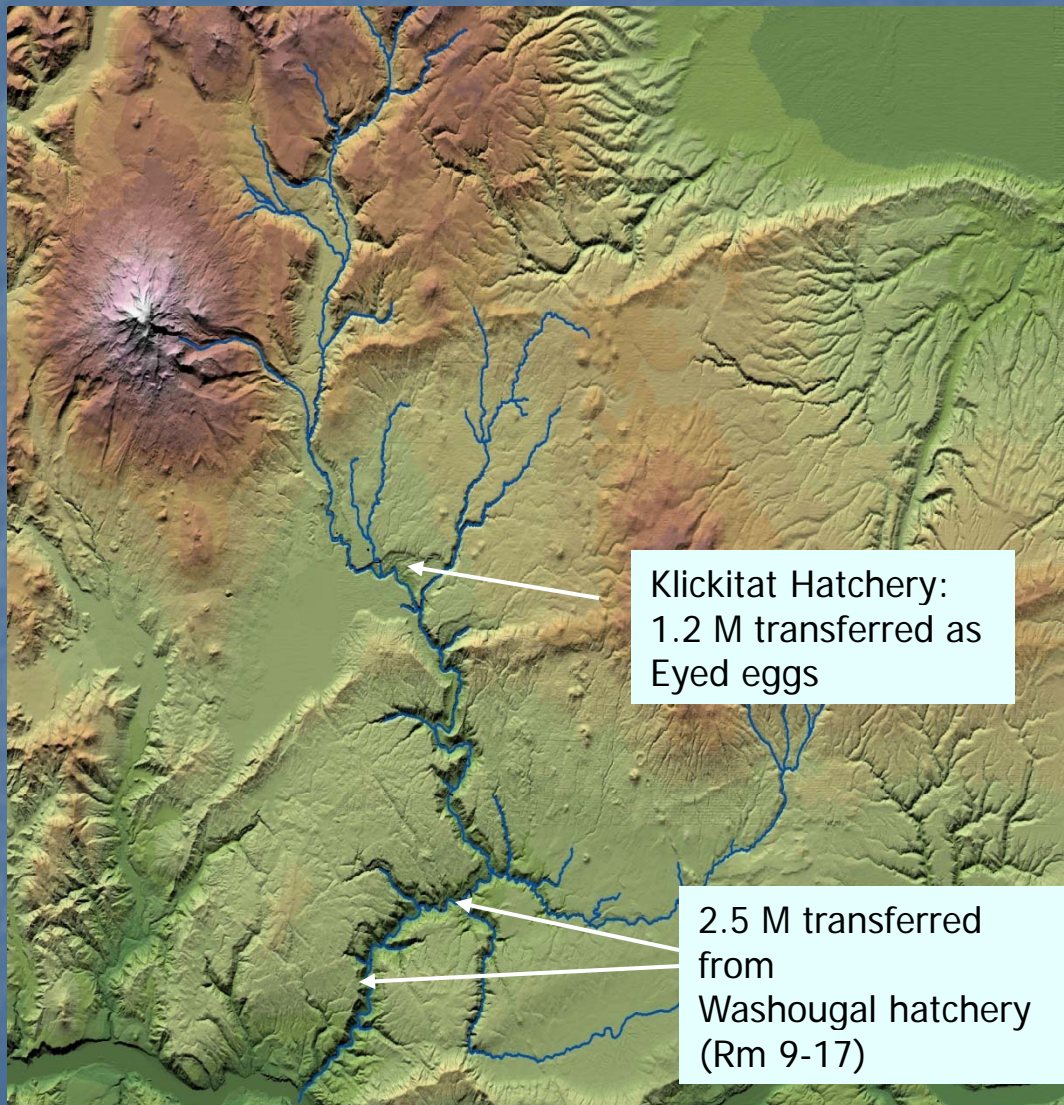
Fall Chinook



Future program

- I. Harvest augmentation
 - ❑ Segregated program
 - ❑ Develop local broodstock
 - ❑ Eliminate out-of-basin transfers
 - ❑ Reduce risk of disease transfers
 - ❑ Broodstock collection:
 - ❑ Lyle Falls, Wahkiacus
 - ❑ 2500 adults
 - ❑ 4 M sub-yearlings
 - ❑ Move 50% of juveniles downstream
 - ❑ Reduce competition with spring chinook

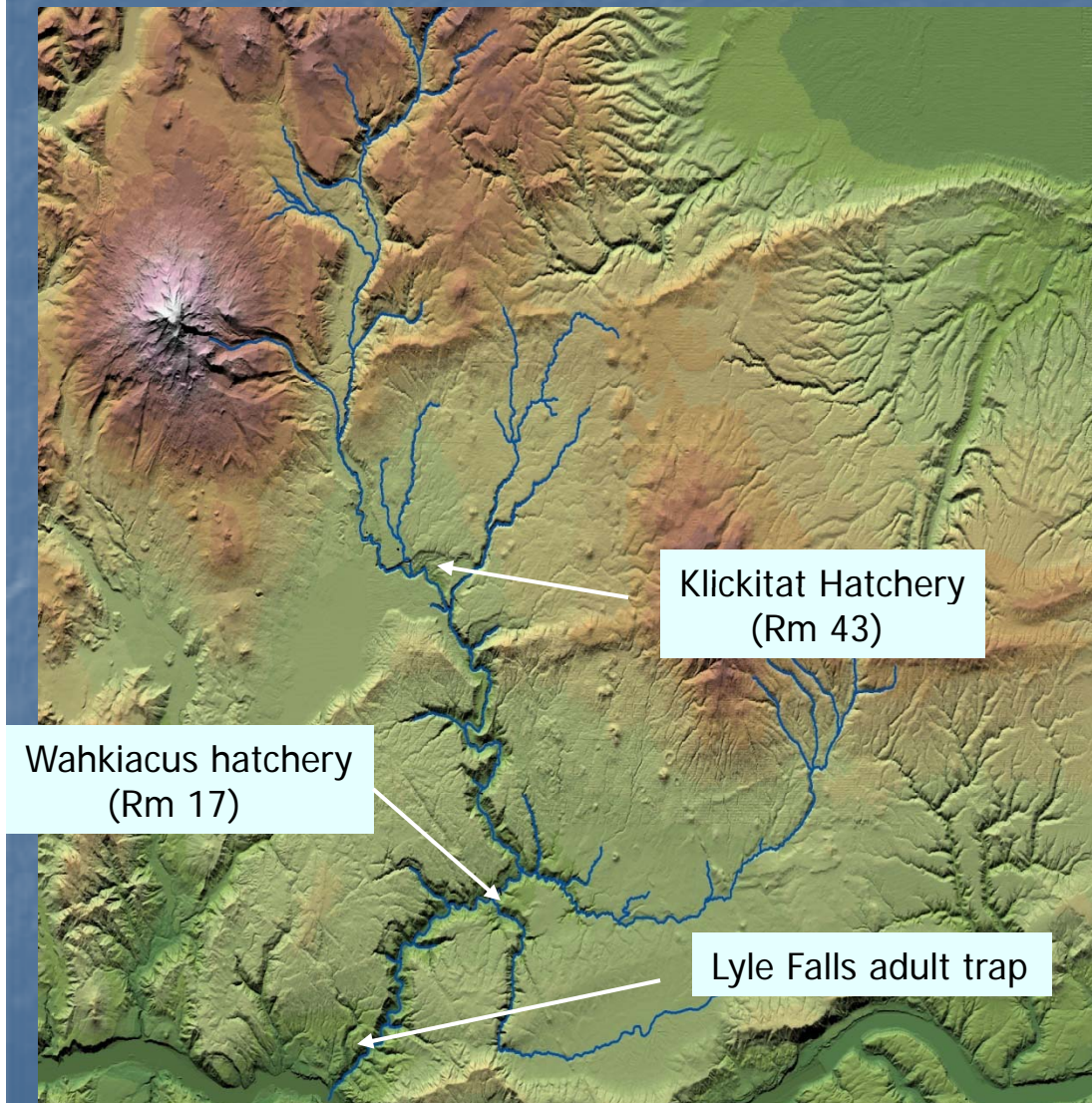
Coho



Current program

- I. Harvest augmentation
 - ❑ Imports 3.7 million juveniles
 - ❑ Klickitat hatchery release group
 - ❑ Survival rate 3 times greater than 2.5 M release group
 - ❑ Chronic disease problems
 - ❑ Reduced imprintment
- ★ Contributes substantially to combined fisheries

Coho



Future program

I. Harvest augmentation

- ❑ Segregated program
 - ❑ Develop local broodstock
 - ❑ Eliminate out-of-basin transfers
 - ❑ Reduce risk of disease transfers
 - ❑ Broodstock collection:
 - ❑ Lyle Falls
 - ❑ 750 adults
 - ❑ 1 M smolt release
 - ❑ Juveniles released from Wahkiacus
 - ❑ Reduce interactions with native stocks

Summary

- Construction – Summer 2009
 - Lyle Fishway Passage Project
 - Castile Falls Monitoring Station
- Master Plan EIS Underway
- BPA & YN Updating NPCC (Step Review)
- Secure Funding for Wahkiacus Hatchery

Questions

www.ykfp.org/klickitat

