

# Restoration in the White Salmon & Klickitat Basins

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Washington State Section Conference

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Bill Sharp

Research Scientist

Yakama Nation Fisheries



*Honor, Protect, Restore*



## TREATY of 1855

### ARTICLE 3.

*... "The exclusive right of taking fish in all the streams, where running through or bordering said reservation, is further secured to said confederated tribes and bands of Indians, as also the right of taking fish at all usual and accustomed places . . ."*

# Klickitat & White Salmon Basins

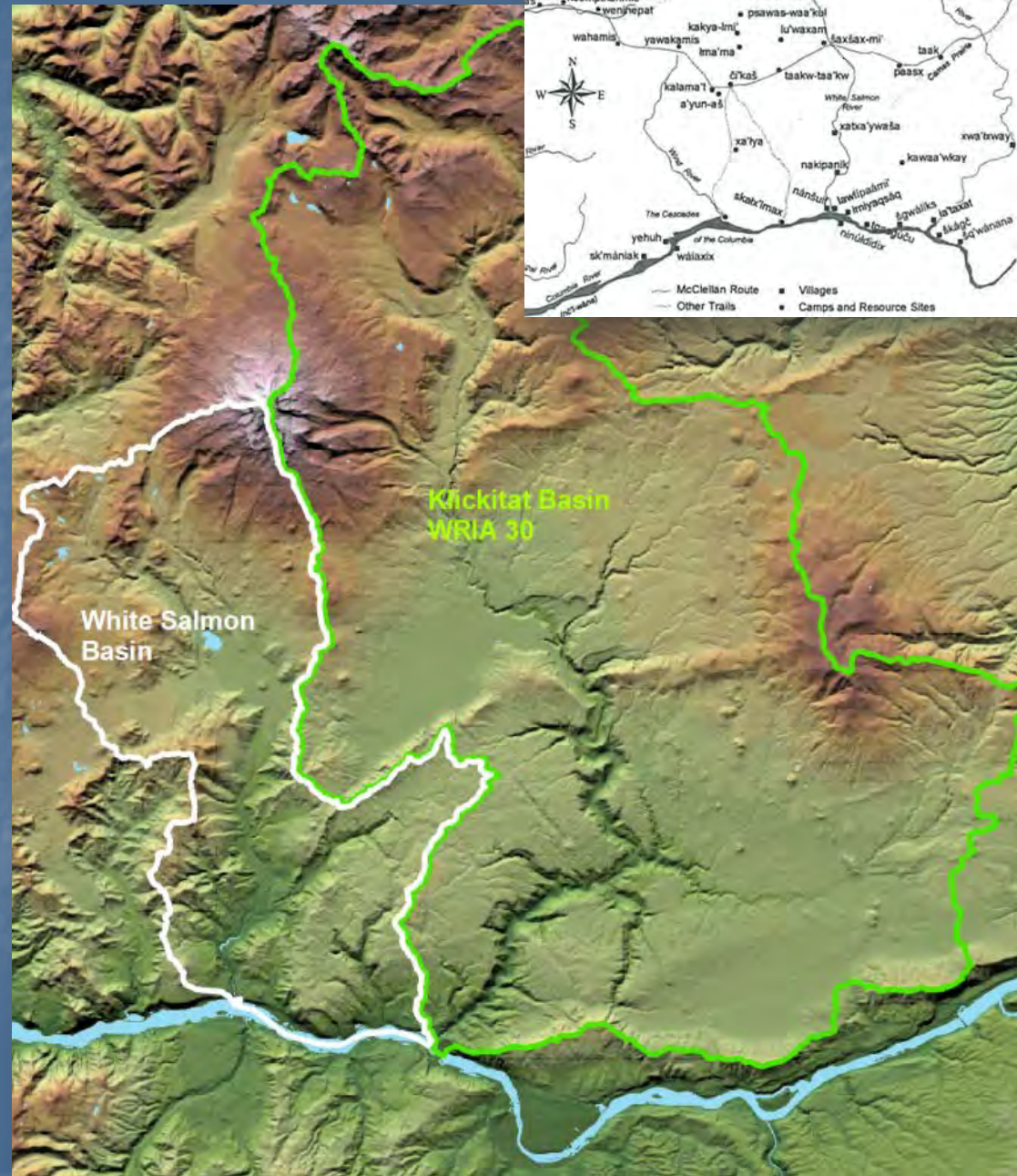
Overview of Yakama Nation Fisheries' Efforts to Restore:

Aquatic Habitats

Stream Function

Fish Passage

Harvest Opportunities



# Monitoring and Evaluation of Anadromous Salmonids in the Klickitat Subbasin



Joe Zendt  
Yakama Nation Fisheries Program

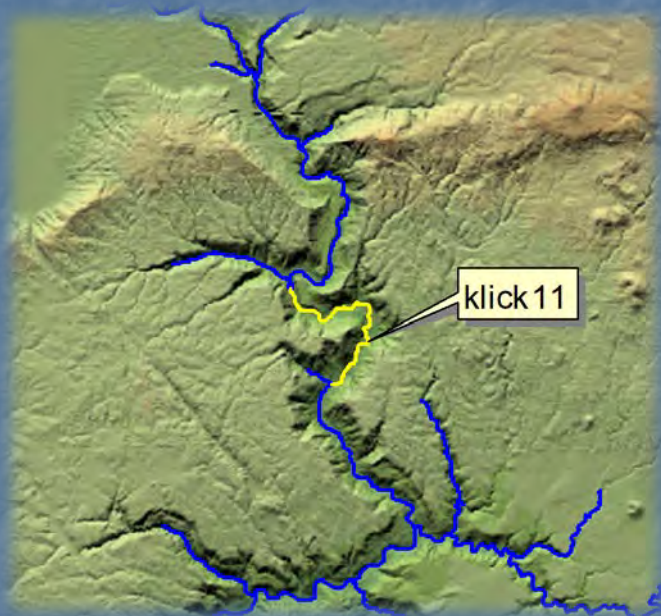
## Primary Monitoring Activities

- Spawner surveys (redd counts)
- Adult monitoring at Lyle Falls Fishway
- Juvenile outmigration monitoring (rotary screw traps)
- Juvenile and resident salmonid population surveys
- Biological/Demographic sampling:
  - Scale sampling
  - Genetic sampling
  - Pathogen sampling
- Sediment monitoring
- Habitat surveys
- Temperature and water quality monitoring
- PIT tagging of Spring Chinook juveniles at Klickitat Hatchery



# Klickitat Watershed Enhancement Project

*Identify & Prioritize Restoration Reaches.  
Protect, Restore, and Enhance Priority Reaches to Increase  
Riparian, Wetland and Stream Habitat Values.*



## Project Partners:

Washington Dept. Fish & Wildlife  
Mid-Columbia RFEG  
Columbia Land Trust  
Washington Dept. of Natural Resources  
Yakama Nation Water Program  
Washington State Parks & Recreation  
Multiple Conservation District  
BIA Forestry and BIA Range  
private individuals

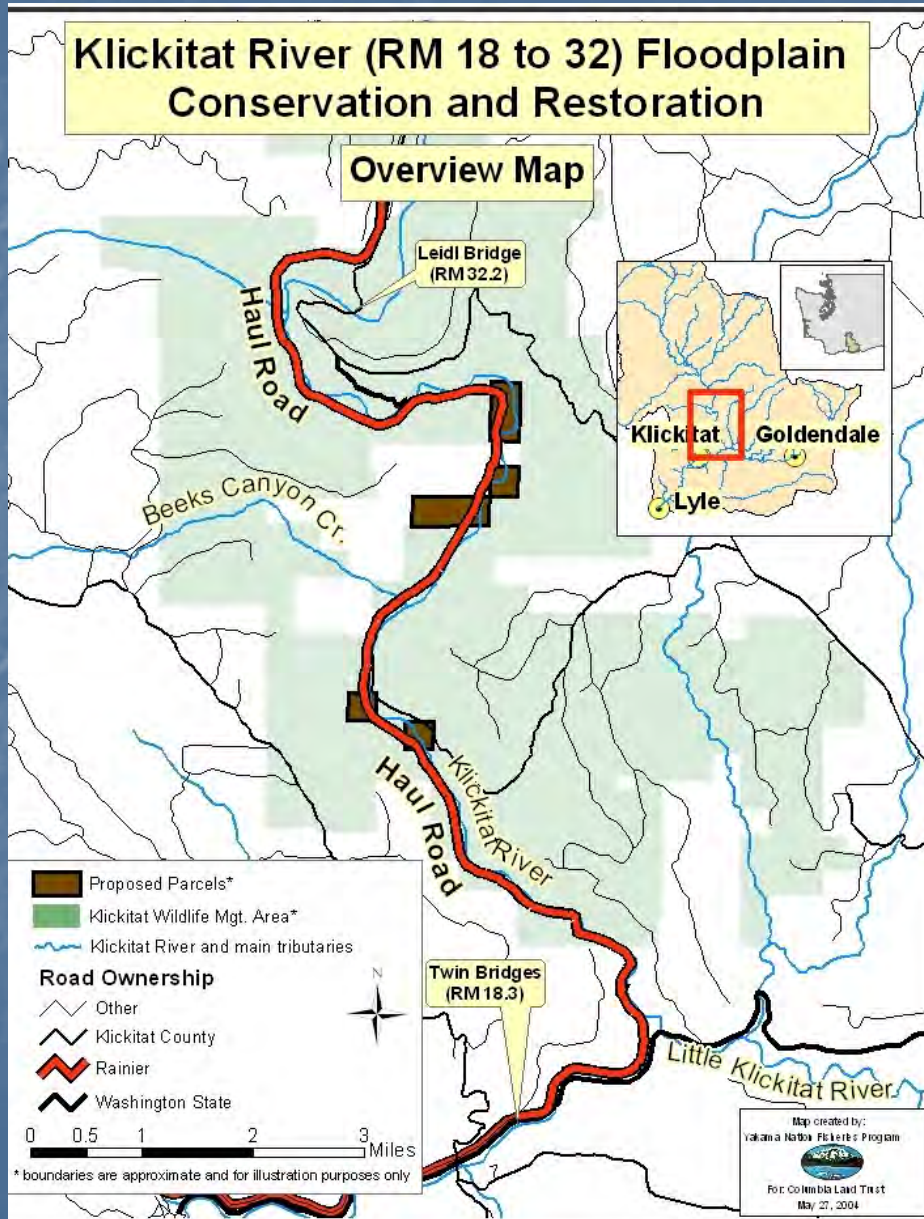


# Resource Priority

- Ranked second highest priority of 21 priority areas within Lead Entity recovery plan
- Accounts for +/- 60% of observed mainstem steelhead spawning, for +/- 20% of basinwide spawning.
- Reach contains the greatest amount of mainstem channel complexity in lower river.
- Migration and rearing corridor for +/- 75% of steelhead and 100% of spring Chinook.
- Important spawning, rearing and migration area for coho and fall Chinook.
- Contains significant areas of disconnected off-channel habitat with high potential for future restoration.



# Klickitat River Haul Road



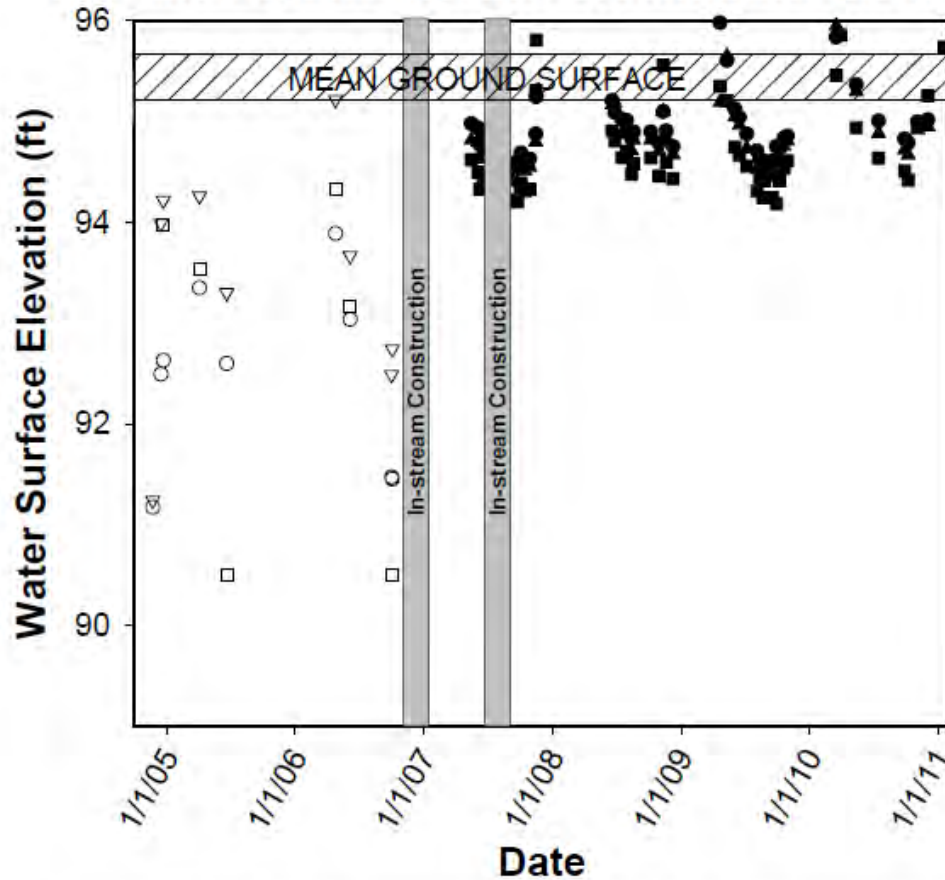
# Fish Passage and Instream Restoration





# Groundwater Monitoring – Tepee Ck

Tepee Creek / IXL Meadows Restoration Project:  
Pre- and Post-Restoration Groundwater Elevations



Higher Water Table – 2' - 4' rise and less variation between and among wells

- |                        |                         |
|------------------------|-------------------------|
| ○ NE Well - PreProject | ● NE Well - PostProject |
| ▽ NW Well - PreProject | ▲ NW Well - PostProject |
| □ SW Well - PreProject | ■ SW Well - PostProject |

# Habitat Enhancement Effectiveness Monitoring Klickitat River Subbasin



**David Lindley and Nicolas Romero  
Yakama Nation Fisheries Program**



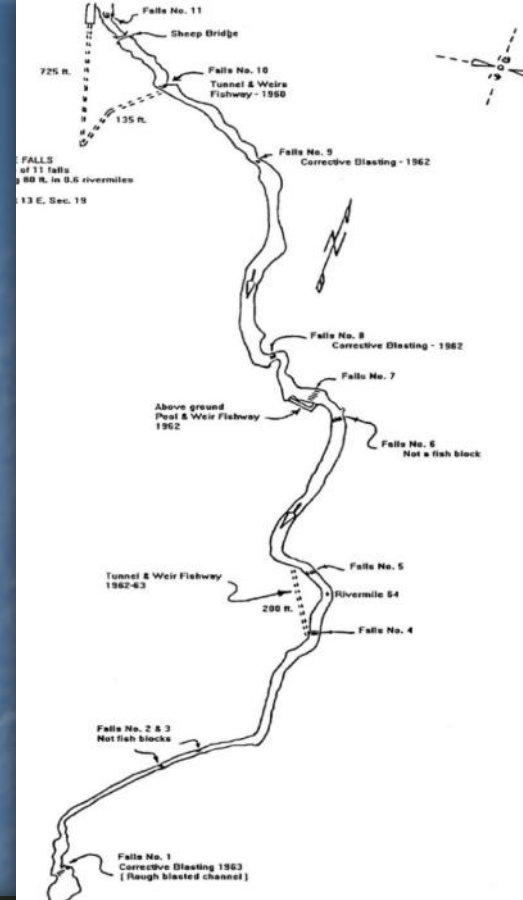
# Near shore reservoir (Bonneville Pool) habitats

- Avian & piscivorous predation hotspots
- Thermal source
- Invasive aquatic/riparian plants



# Castile Falls Fishway Reconstruction & Monitoring Station Construction

- 2004/05 Rebuild opens 55 miles of habitat
- Year round operation
- Satellite data relay
- Adult Collection
  - biosampling
  - brood collection



# Lyle Falls Fishway Passage Improvement Project and Monitoring Facility

- R,M&E Facility
- Meet NMFS passage & handling criteria
- Brood collection
- Lamprey passage



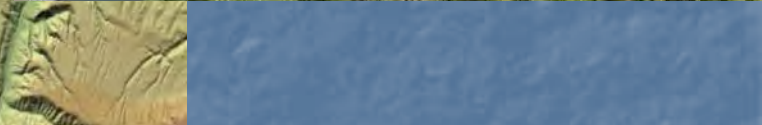
**Yakima Klickitat Fisheries Project**  
**Proper Broodstock Collection**  
**Natural Rearing Techniques**  
**Increased Adult Returns for:**  
C & S Harvest  
Sport Harvest  
Commercial Harvest  
Natural Production  
Nutrient Cycle



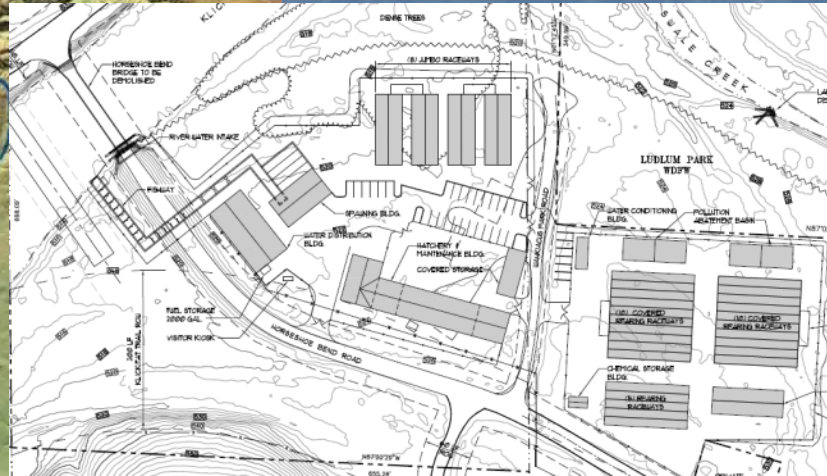
# Klickitat Subbasin – Hatchery Reform



Klickitat Hatchery  
Rm 43.0



Wahkiacus Hatchery  
(proposed)  
Rm 17.0



# White Salmon Monitoring & Evaluation

- Monitor Abundance
- Monitor Distribution
- Genetic Stock Identification
- Juvenile Production
- EDT Model Updates
- Monitor Recolonization
- Research to Guide Restoration





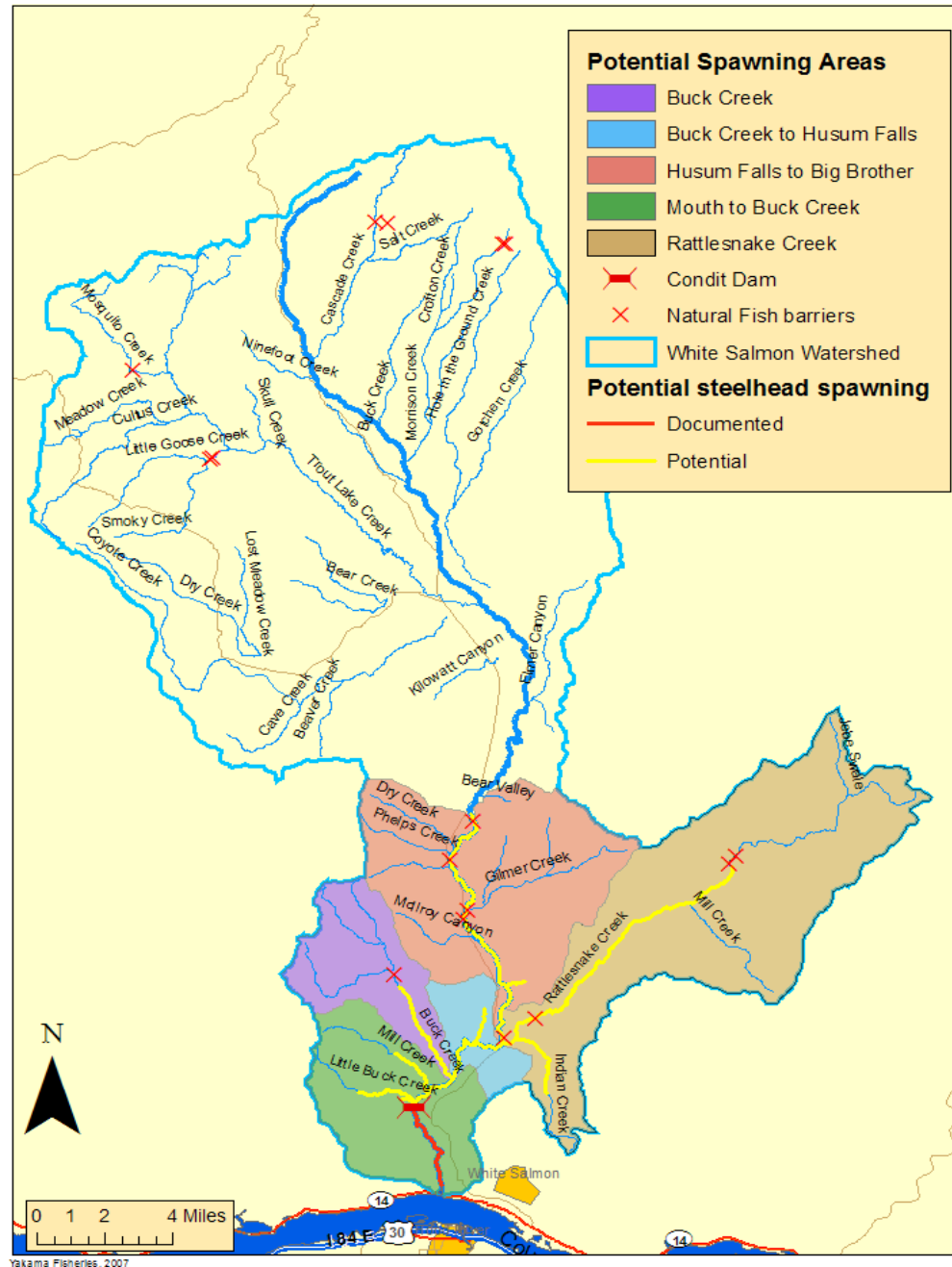
# White Salmon Basin Fisheries Resources

- Spring Chinook (LC, extirpated)
- Fall Chinook (LC, Threatened)
- Coho (LC, Threatened)
- Chum (CR, Threatened)
- Steelhead (Mid-C, Threatened)

Resident:

Rainbow trout, Cutthroat trout  
Bull trout (Threatened), Whitefish  
Brook & Pacific lamprey

## White Salmon River Steelhead Potential Spawning Areas

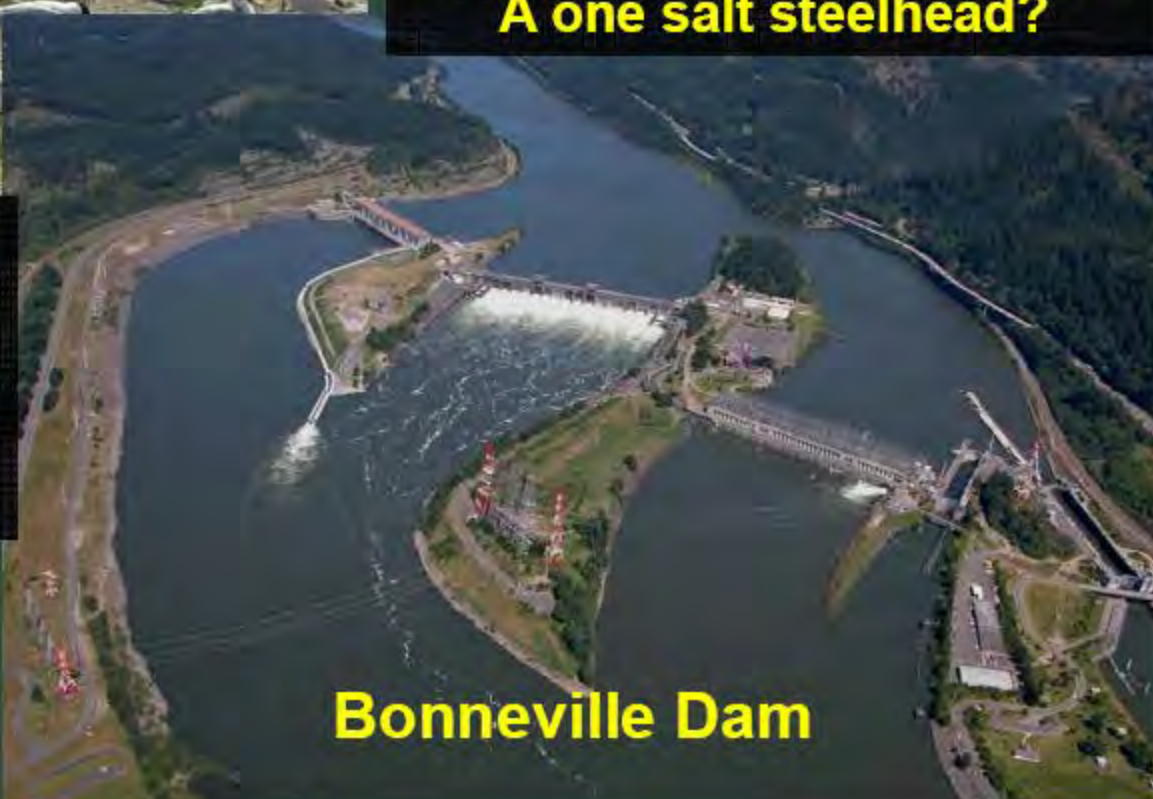


# East Sand Island



**Tagged Sept 2004**  
**Detected March 2005 in**  
**lower Rattlesnake Creek**  
**Detected July 2006 moving**  
**up through adult fish ladder.**  
**A one salt steelhead?**

**Tagged Oct 2004**  
**Detected April 2005 in lower**  
**Rattlesnake Creek**  
**Tag found Nov 2005 at Tern**  
**Colony**



**Bonneville Dam**

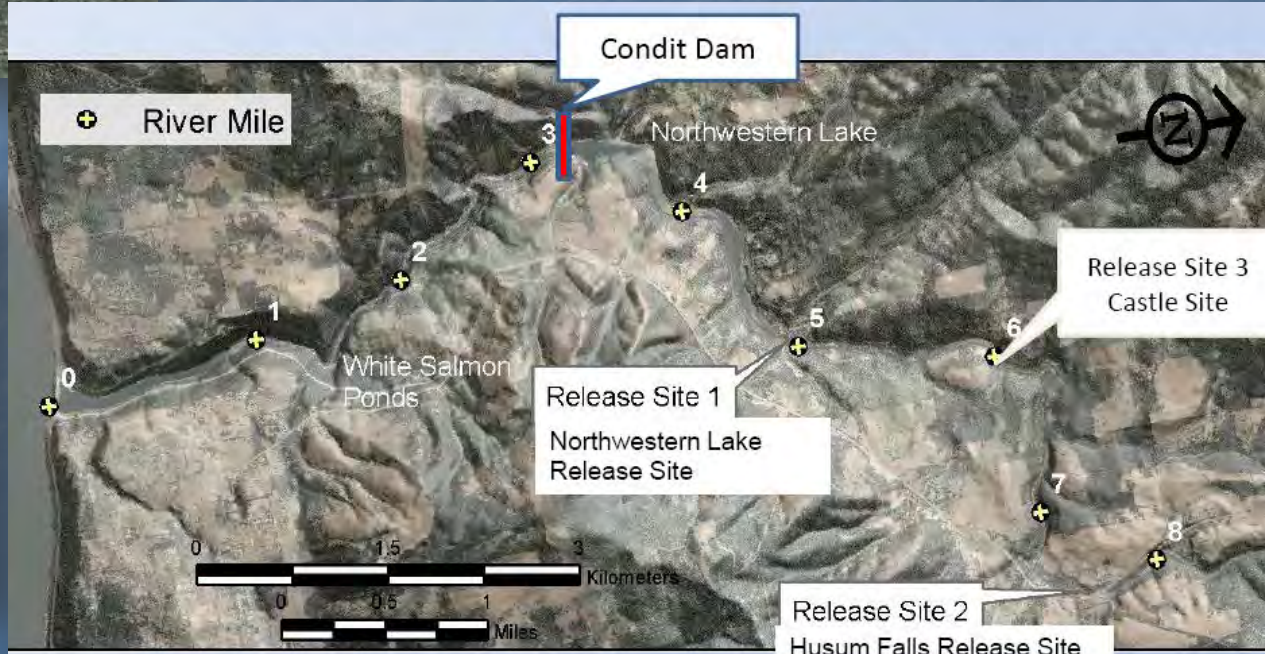
# 2011 Tule Chinook Salvage

299 females  
transported  
180 Redds

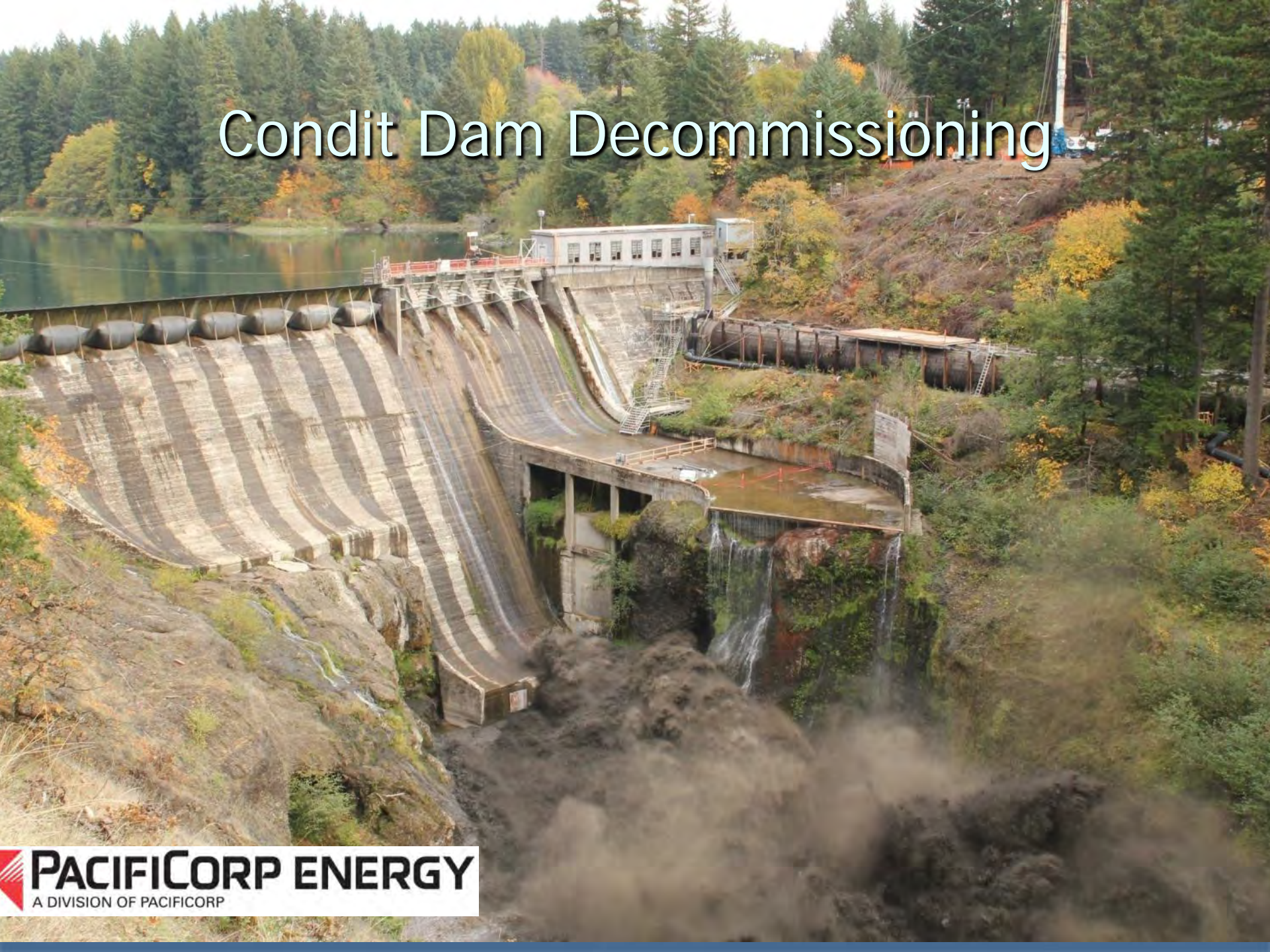


## Redd Survey Results

- 180 total redds (estimate)
- 3.7 adults/redd
- 1.6 females/redd



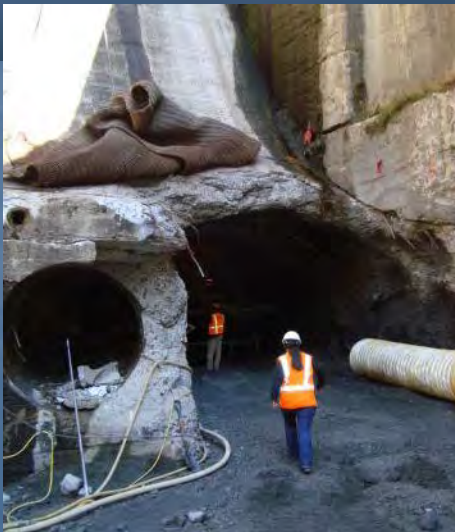
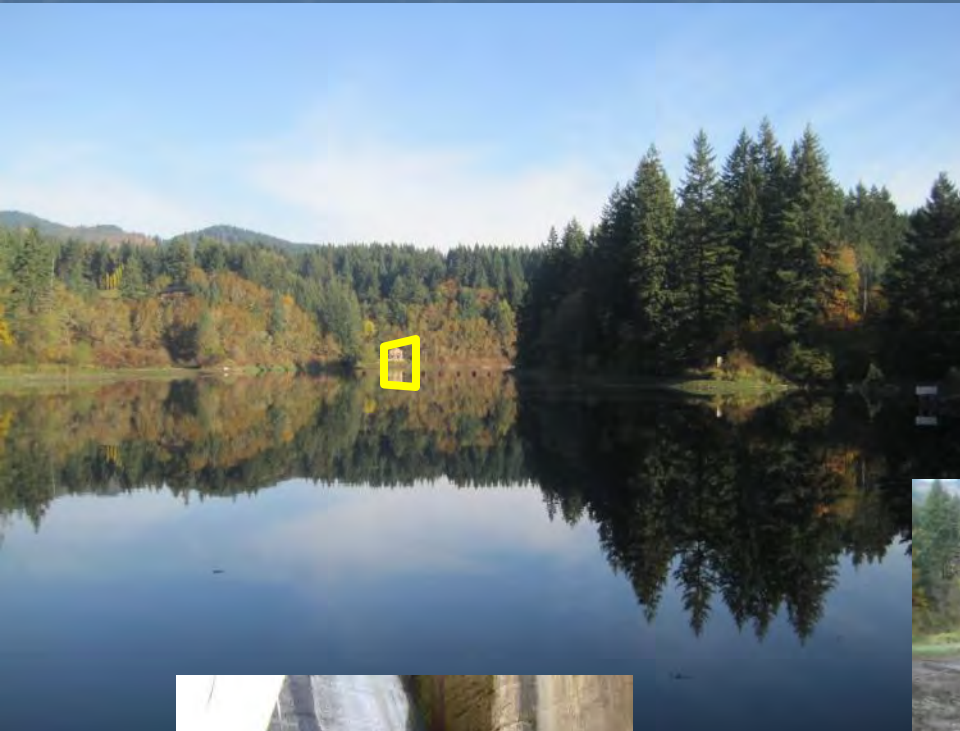
# Condit Dam Decommissioning



# Breach day – October 26, 2011

~1.3M cu. yds mobilized of  
estimated 2.4M cu yds.

93 acre reservoir drained in 1.5  
hrs (*estimated to take 6 hrs.*)



# Post Breach Activities

## Demolition - Dam



# Post Breach Activities

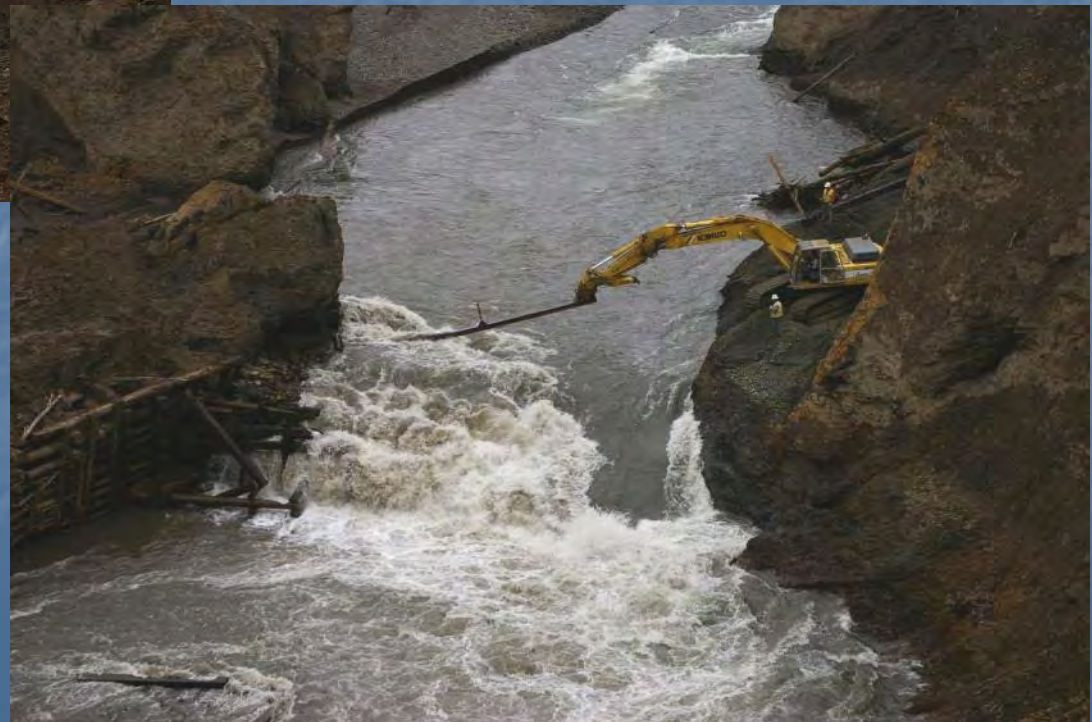
## Sediment management – the former reservoir



# Old Cofferdam Removal



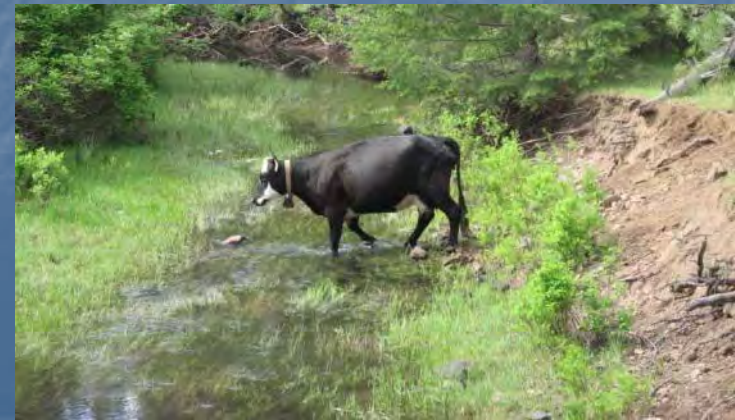
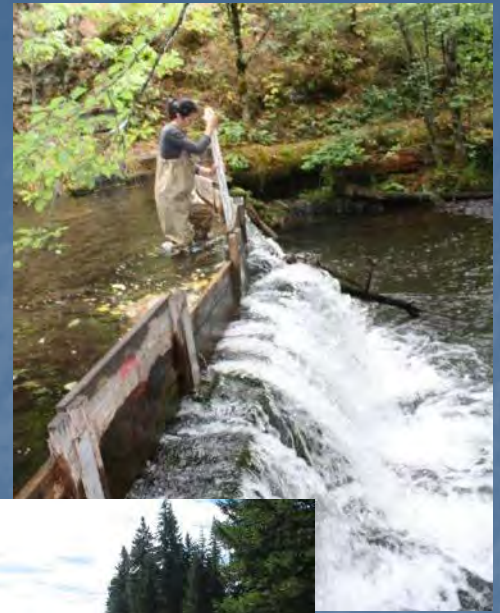
May 2012  
~40,000 cu. yds.





# White Salmon Actions Needed

- Passage projects on key tribs. Buck Creek, Spring Creek, Indian Creek
- Proper screening of irrigation diversions and withdrawals
- Protect and increase base flows in tributaries
- Restore hydrologic function of Upper Rattlesnake Creek
- Protect habitat in the lower river and "reservoir reach" as PacifiCorps divests of lands in the basin



# Continued Education & Outreach

- Hatchery Tours
- Salmon in the Classroom
- Community Events



# Questions?

[ykfp.org/klickitat/S\\_ceded.htm](http://ykfp.org/klickitat/S_ceded.htm)

[pacificorp.com/es/hydro/hl/condit](http://pacificorp.com/es/hydro/hl/condit)

**White Salmon River**

**HOMECOMING CELEBRATION**

**Saturday, September 29, 2012**

**Opening of the River: A Community Raft Float**

Explore the river's whitewater from the seat of a raft with your fellow community members. This discounted raft trip is only available for local residents and will fill up fast. We will determine which river stretch once safety and access has been properly evaluated.

Reserve your spot by calling Wet Planet at 800-308-1673

**WHERE: Wet Planet Whitewater, Husum Washington** WHEN: 9:30 am - 1pm

**Community Salmon Bake**

Share a free meal of salmon and fry bread with your watershed community. Food will be prepared by Yakama tribal cooks and local White Salmon watershed farms. Invoication by Yakanta Matson. Parking at Wet Planet with shuttles to the park every 15 minutes.

**WHERE: Northwestern Park, Washington** WHEN: 3pm



Visit [whitesalmonriverhomecoming.eventbrite.com](http://whitesalmonriverhomecoming.eventbrite.com) to reserve your free meal ticket. Space is limited.

**Removing the Dam and Restoring the River**

Come hear from various organizations and agencies who are working to understand, protect and restore the White Salmon River.

**WHERE: Northwestern Park, Washington** WHEN: 2 pm - 5 pm

For more information contact [susan@smhollingsworth.com](mailto:susan@smhollingsworth.com)



**Friends of the White Salmon River**

