

White Salmon River Subbasin Monitoring Post-Dam Removal



Photo Credit:
Andy Maser and
Steve Stampfli

Joe Zendt
Yakama Nation Fisheries Program



Photo Credit:
Jeanette Burkhardt

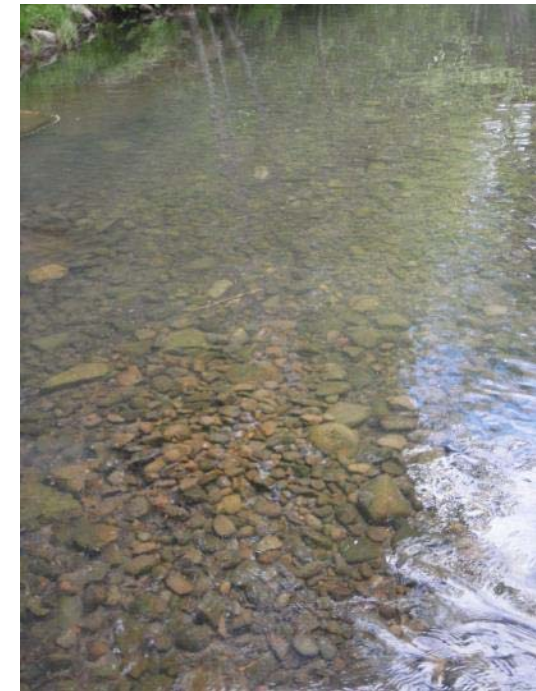
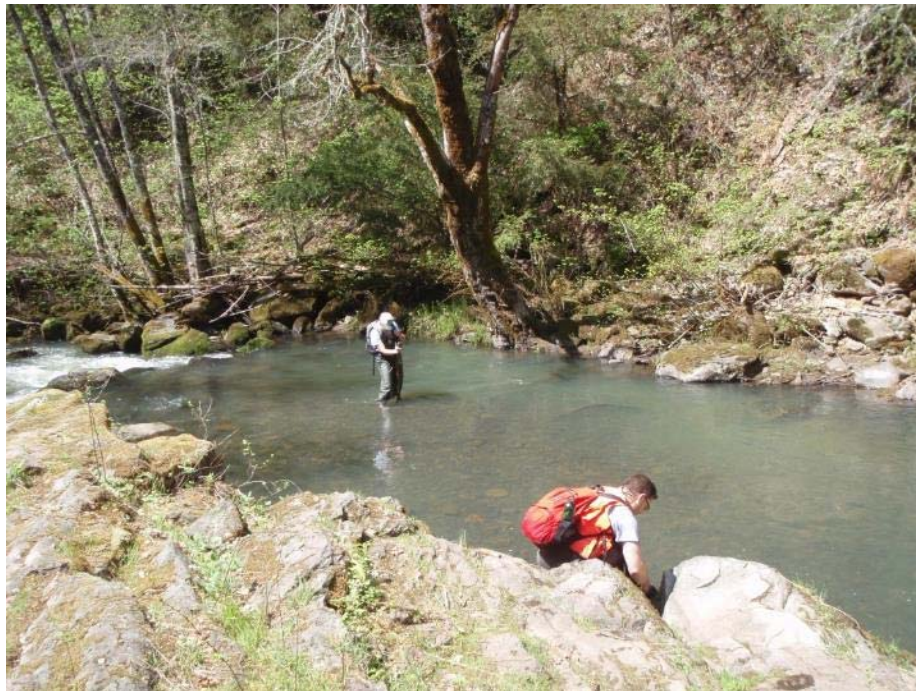
Background

- Condit Dam
 - 1912-2012
 - Blocked fish passage
 - Several attempts at passage failed
 - Breached 2011, removed 2012
- Post-removal monitoring
 - Adult salmonid abundance and distribution
 - Spawner surveys
 - Other monitoring efforts
- Multi-agency workgroup



Steelhead Spawner Surveys

- Redd counts
- GPS locations recorded
- Possible, Probable, Definite
- Usually undercounts
- Tributaries only (no mainstem surveys)



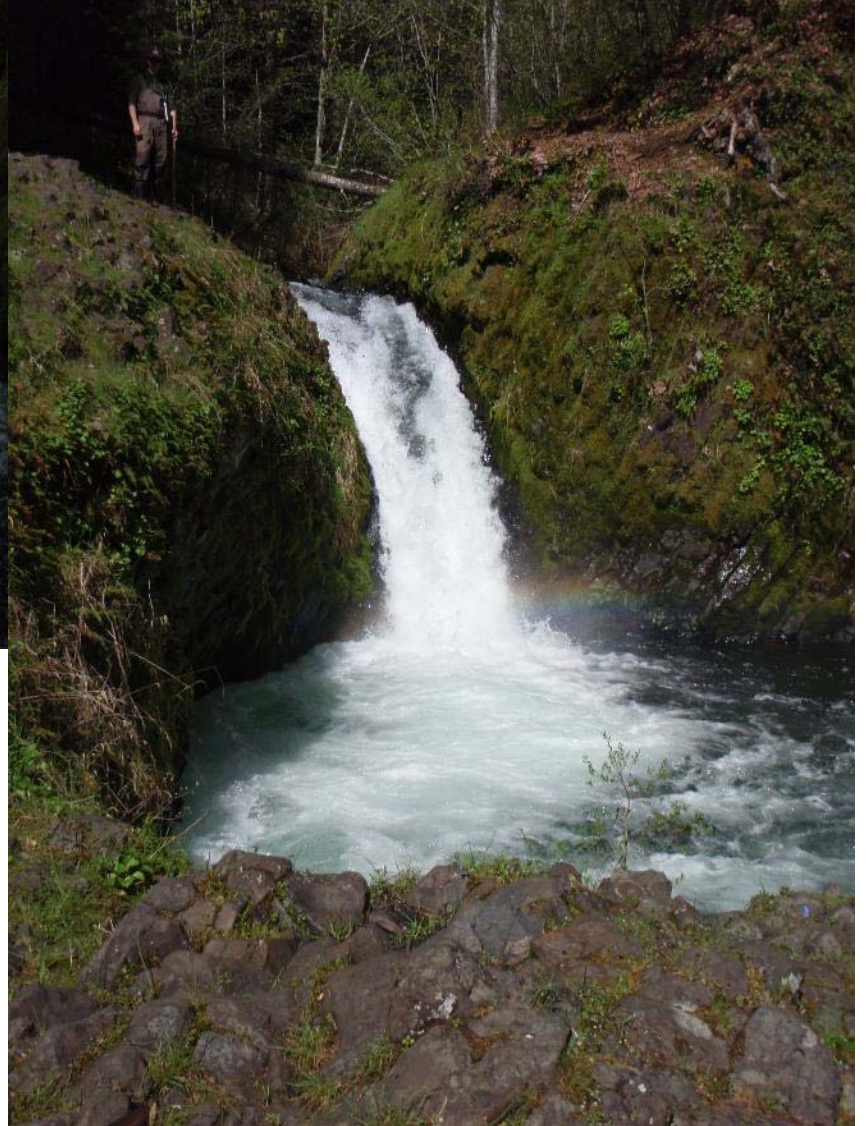
April 2012



May 2013







Steelhead/Rainbow Trout Biology & Electronic tags

- Passive Integrated Transponder (PIT) tags



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?

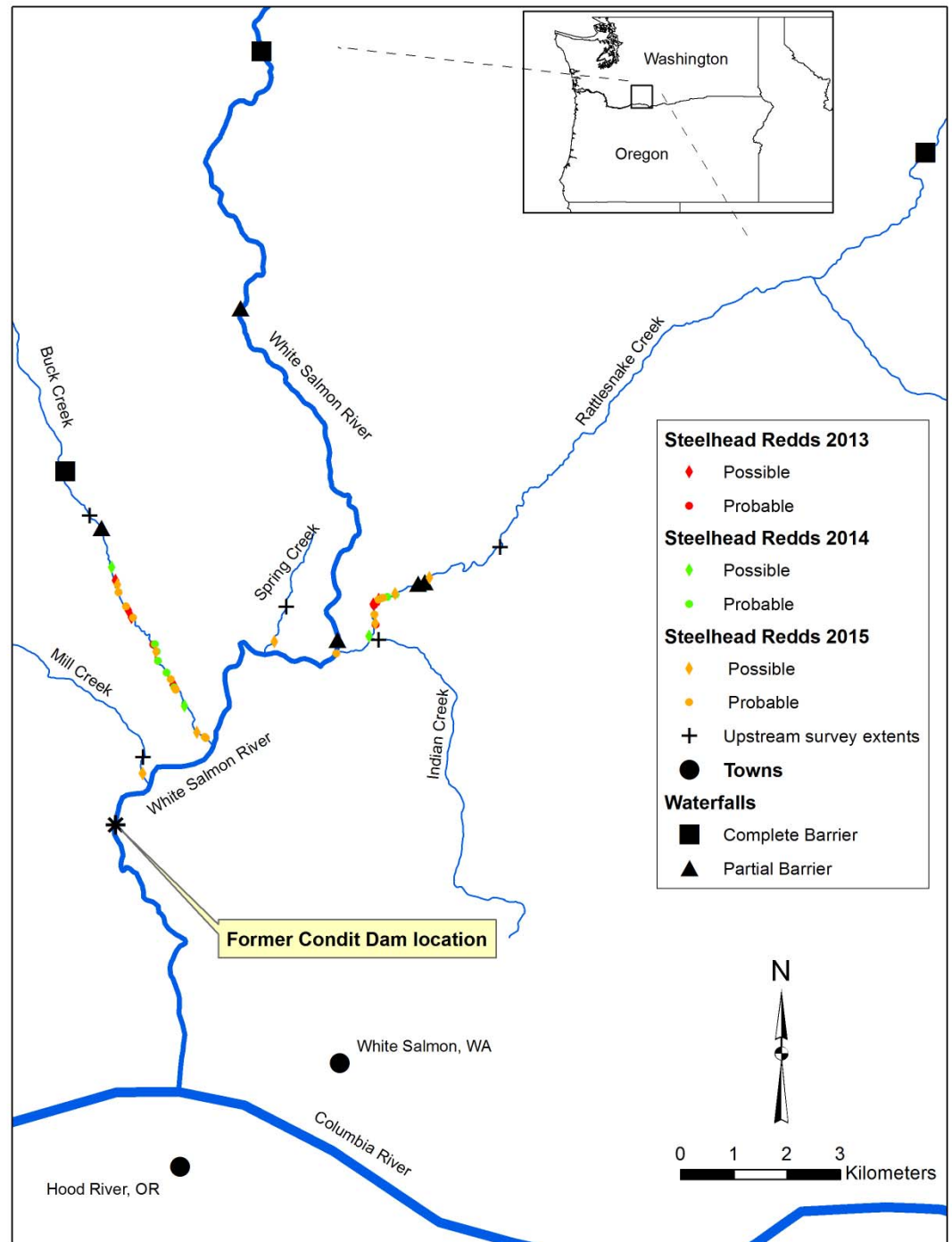
Tagged Oct 2004
Detected April 2005 in lower
Rattlesnake Creek
Tag found Nov 2005 at Tern
Colony

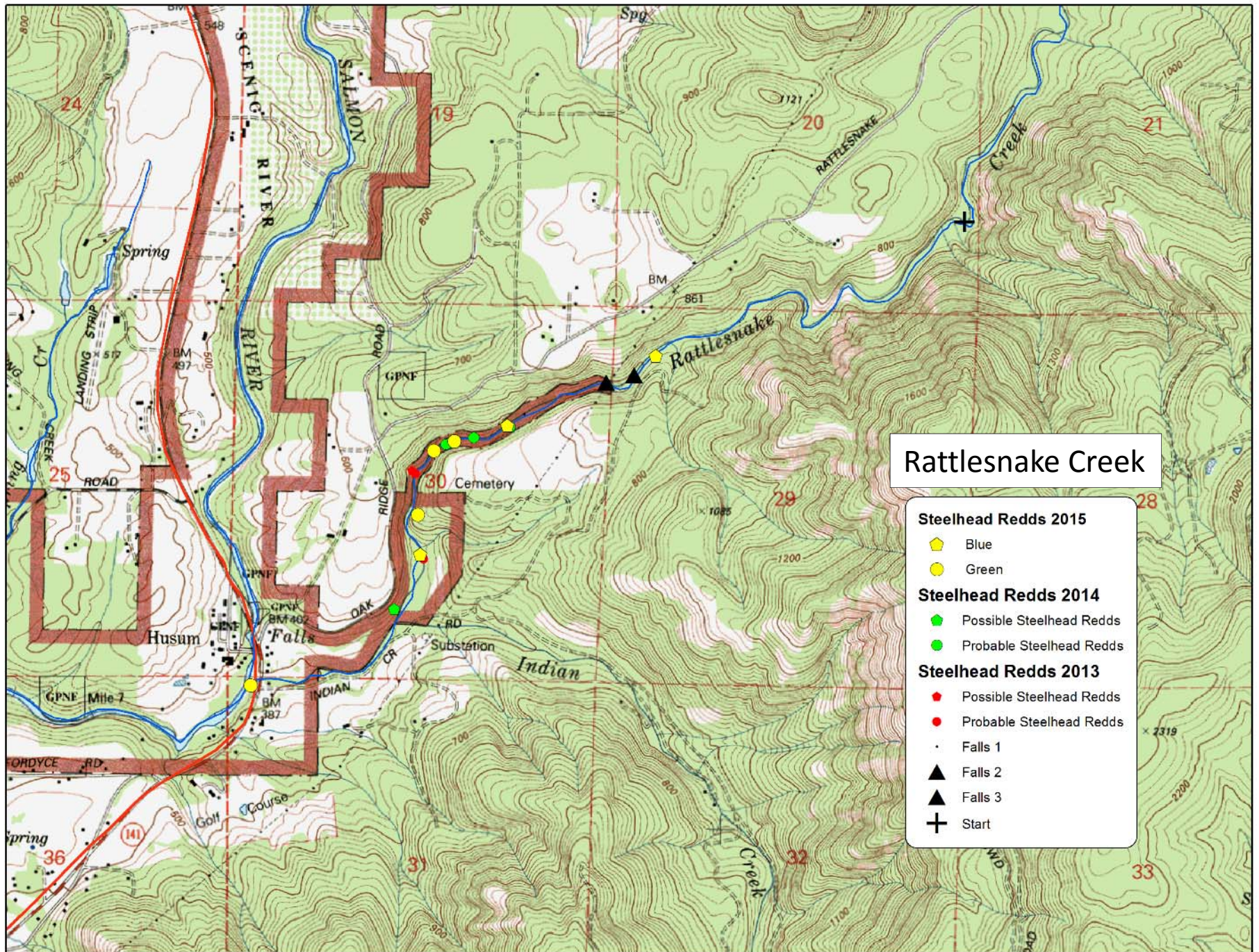


Bonneville Dam

White Salmon tributaries Steelhead spawner/ Redd count results 2013-2015

- Tributaries only (no mainstem surveys)





Buck Creek
Spring Creek
Mill Creek

Steelhead Redds 2015

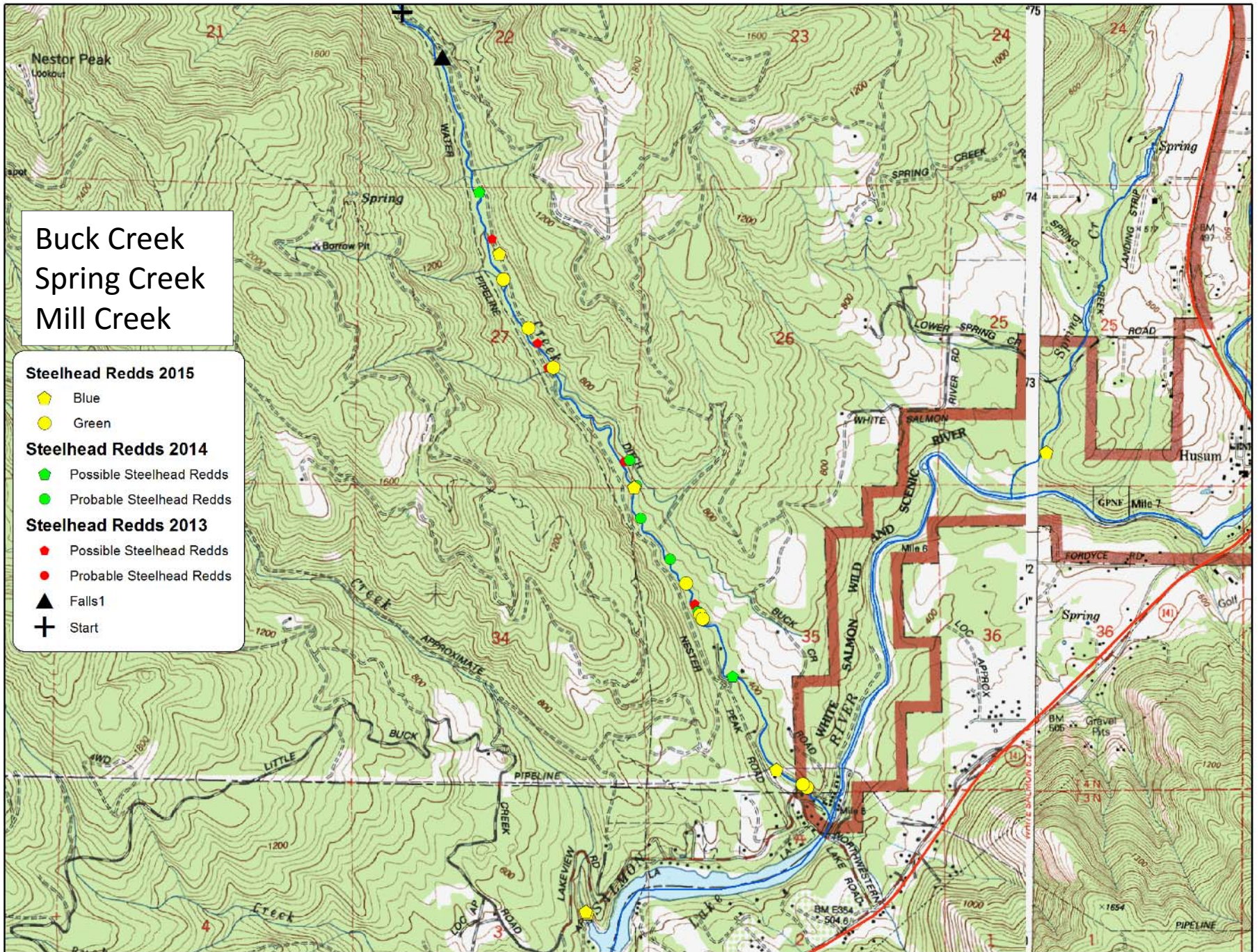
- ◆ Blue
- ◆ Green

Steelhead Redds 2014

- ◆ Possible Steelhead Redds
- ◆ Probable Steelhead Redds

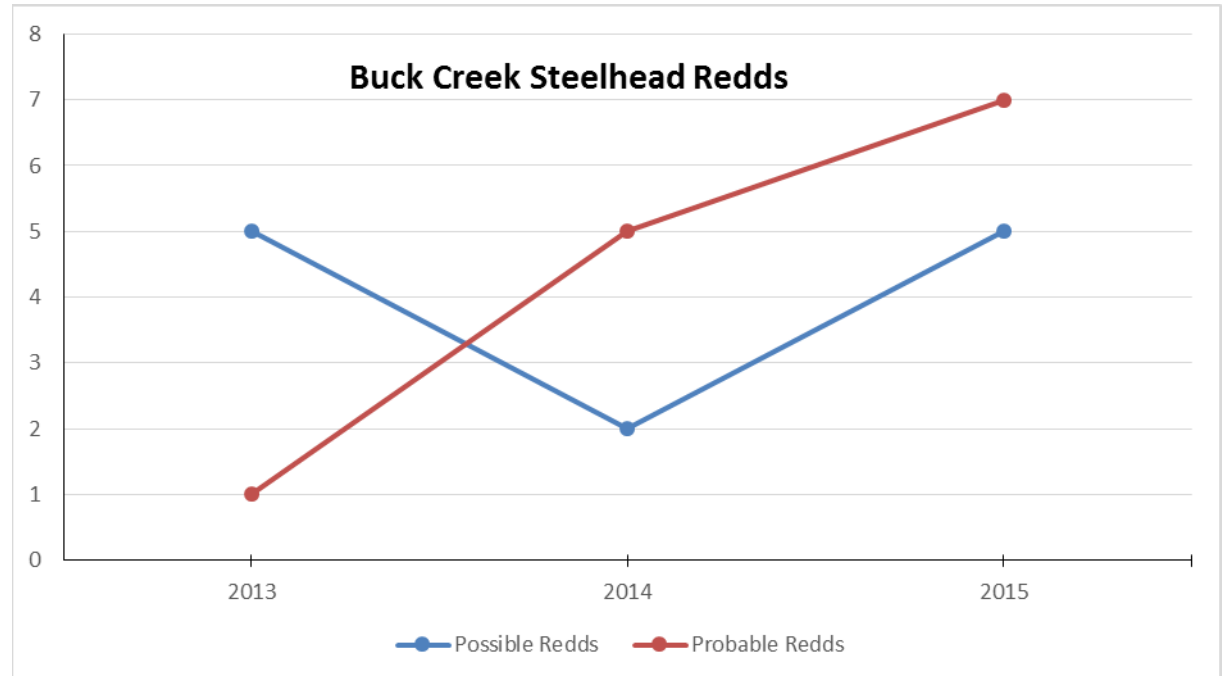
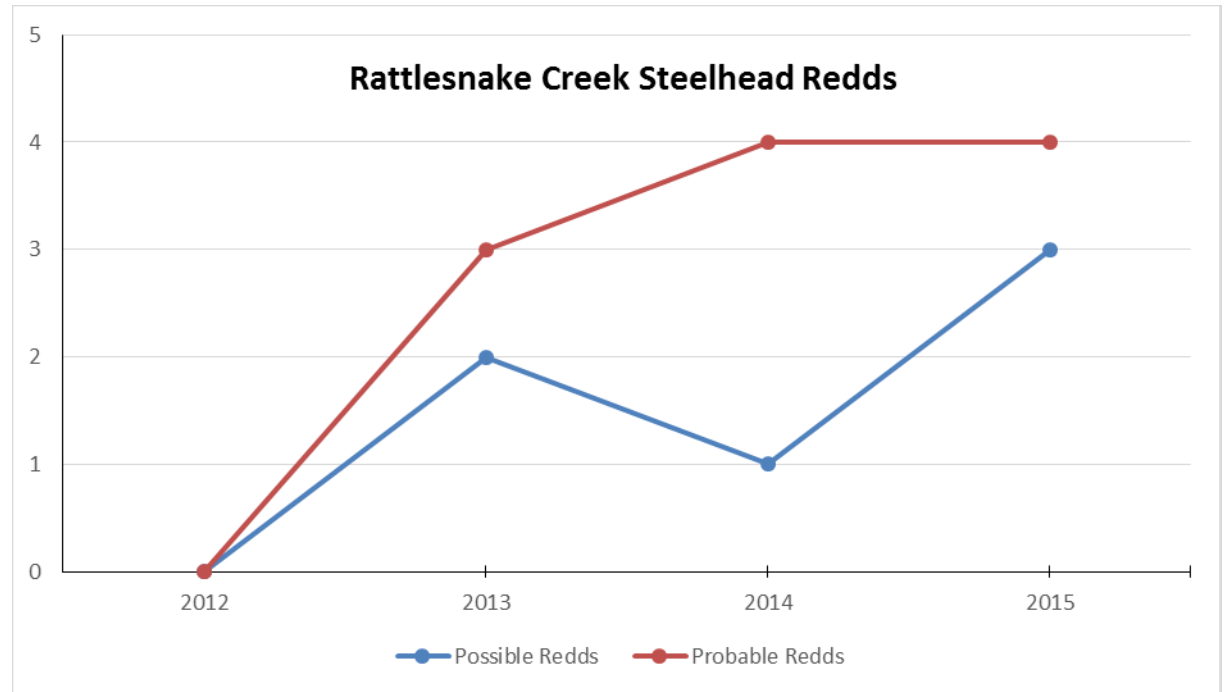
Steelhead Redds 2013

- ◆ Possible Steelhead Redds
- ◆ Probable Steelhead Redds
- ▲ Falls 1
- ⊕ Start



White Salmon tributaries Steelhead spawner/ Redd count results

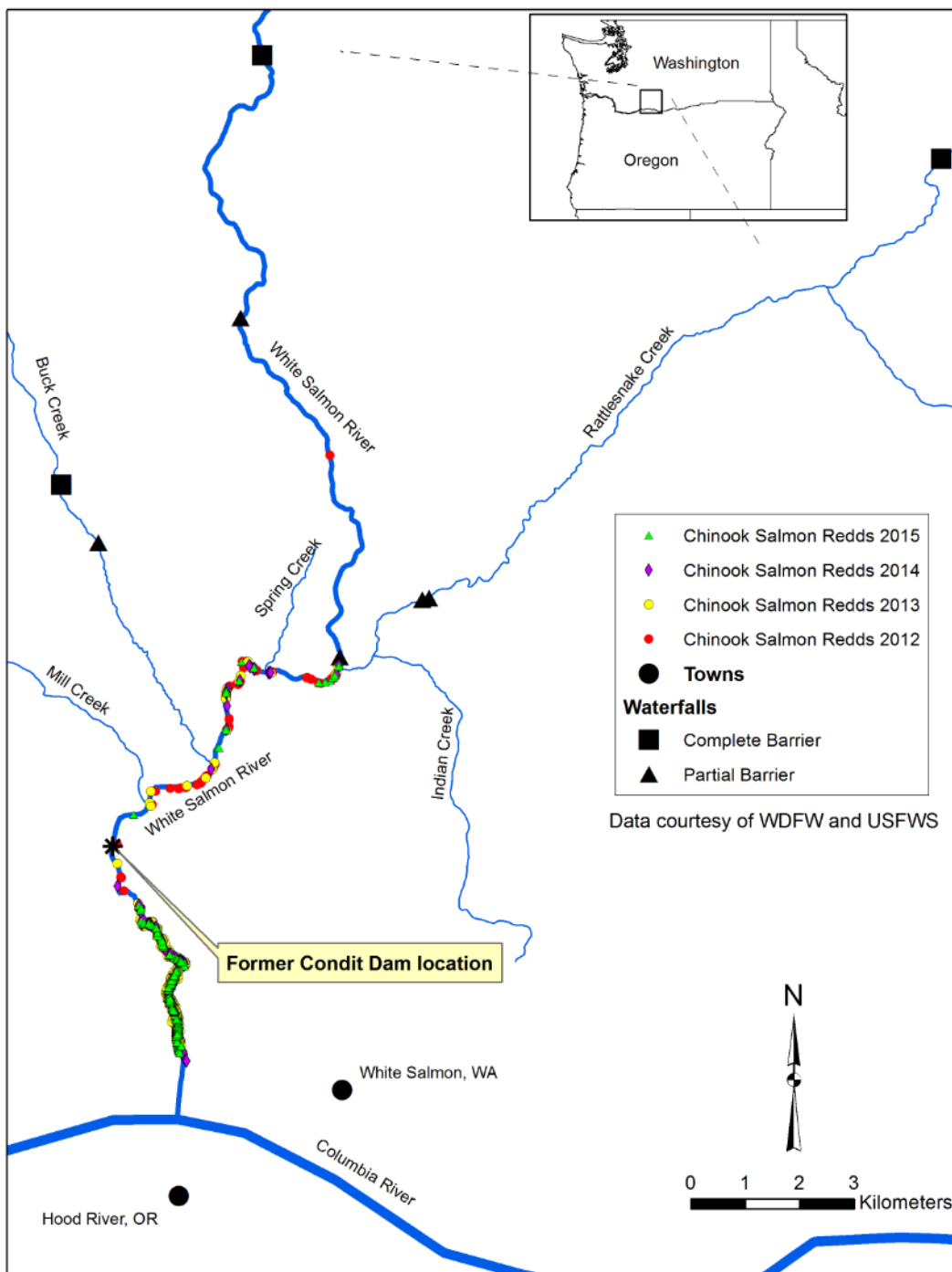
- Spawner numbers are relatively small but indicate possible increases
- Source of spawners still unknown (returning native White Salmon fish or strays from other basins)
- Overall steelhead spawner escapement to tributaries likely at least 50-60 fish in 2015



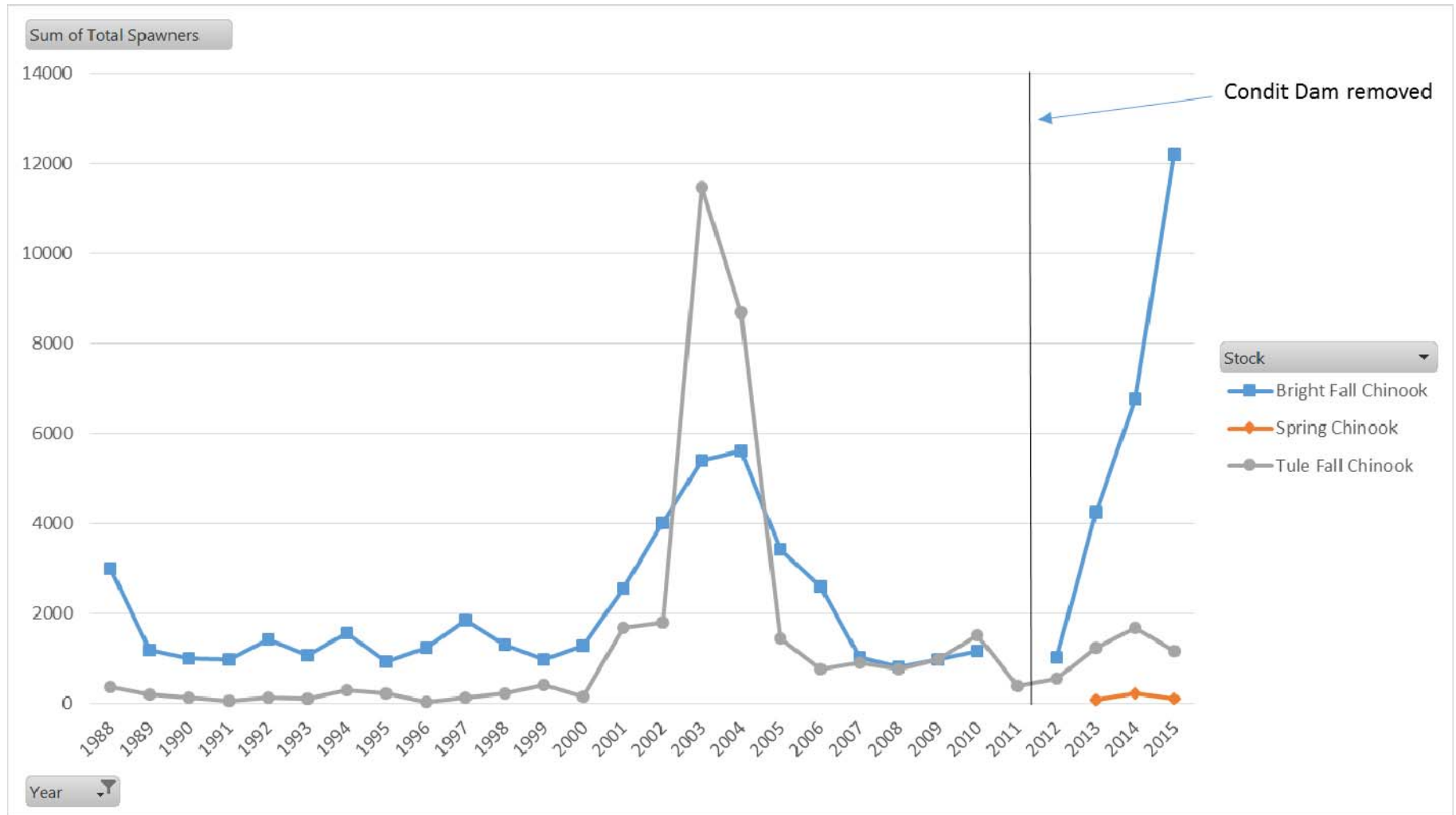


White Salmon River Chinook Salmon Spawner Surveys (conducted by WDFW)

- 3 stocks of Chinook Salmon (average run size):
 - Spring (130 since removal)
 - Tule Fall (1330)
 - Upriver Bright Fall (2570)
- Most spawning is still below former dam site, in newly formed spawning habitat (gravels formerly trapped behind dam)
 - But spawners observed up to and above Husum Falls



White Salmon River Chinook Salmon Spawner Escapement (data courtesy of WDFW)



***Note – 2013-2015 had very high Fall Chinook Salmon returns throughout Columbia basin. Large returns to the White Salmon in those years are probably not due solely to dam removal.**

**Pacific lamprey larvae discovered in the
White Salmon River upstream of the
former Condit Dam site
(USFWS press release March 2016)**

- 2015 electrofishing sampling of mainstem White Salmon and tributaries
- Pacific lamprey larvae found at 3 locations in former reservoir area
- Genetic identification

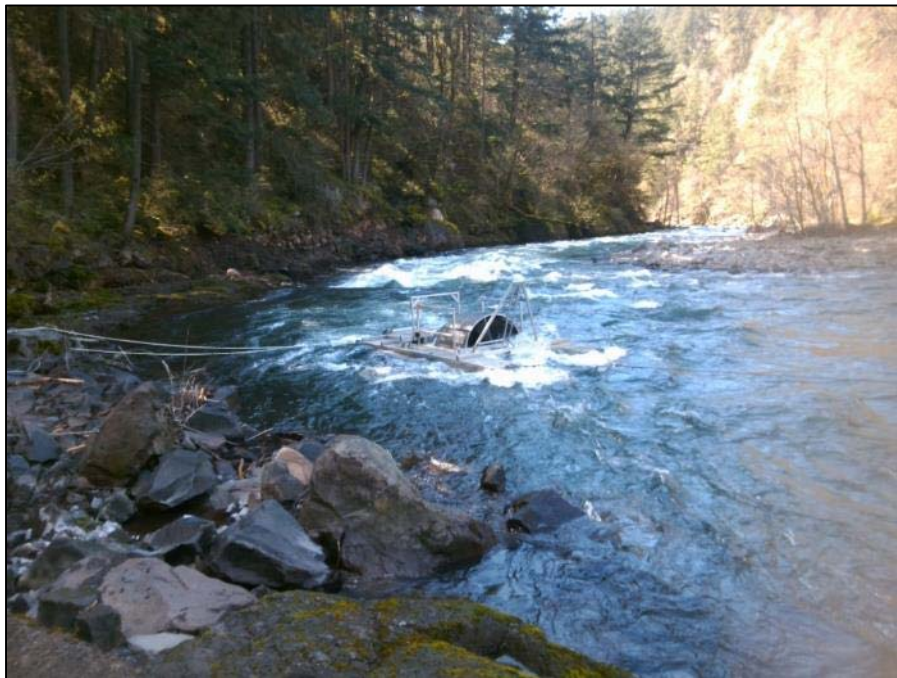


Photos courtesy of USFWS



Smolt Monitoring 2016

- Rotary screw trap operated by USGS Columbia River Research Lab and Mid-Columbia Regional Fisheries Enhancement Group
- Captured to date: juvenile steelhead, coho, Chinook, and lamprey (+ 1 steelhead kelt)



Photos courtesy USGS



What We Know

- Recolonization above former dam site by multiple anadromous species:
 - Steelhead
 - Chinook Salmon – estimates of spawner abundance
 - Coho Salmon ?
 - Pacific Lamprey
- Some juvenile production by these species

What We Don't Know

- Steelhead
 - Precise abundance estimates
 - Source/origin of recolonizing spawners
 - Full spatial distribution?
- Coho, Pacific Lamprey
 - Distribution, Abundance
- Chum, Bull Trout
 - Presence, Distribution, Abundance
- Juvenile Productivity and Abundance (all species)
- Many other questions...

Future Monitoring?

- Limited funds
- Multi-agency coordination and cooperation

Acknowledgements

- Yakama Nation: Jeremy Takala, Dean Antone, Jeanette Burkhardt, Bill Sharp, Monica Clark
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- USGS: Ian Jezorek, Jill Hardiman, Brady Allen (now BPA)
- Numerous landowners

