

# 2012 Baseline Monitoring of Spring Chinook Salmon Above and Below Project Dams: **North Santiam River**

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Willamette Science Review  
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# Acknowledgments

- Funding: US Army Corps of Engineers and Federal Sport Fish Restoration Fund
- New Analyses and Archival Data
  - Bennett Passage Counts: Bart DeBow
  - Maps: David Hewlett
  - Hatchery Records: Greg Grenbemer
- Field Staff: Awesome!

- Spawner Surveys
  - Redd Counts and Carcass Recovery
  - Spawner Abundance, Distribution, Biometrics (Size, Age)
  - Spawner Origin (pHOS using fin clips, CWTs, and otoliths)
  - Spawning Success (PSM)
  - Spawn Timing ( $H_0: H \simeq W?$ )
- Video Monitoring
  - Run Size, Species Comp.
  - Run Timing ( $H_0: H \simeq W?$ )

- Hatchery Sampling: Adults
  - Integration Rates (pNOB)
  - Stray Rates (from CWTs)
- Hatchery Sampling: Juveniles
  - Survival
  - Size at Release
  - Migration
- Hatchery Program Changes

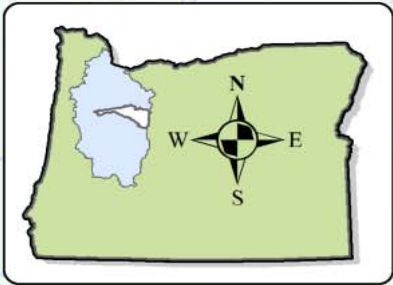
# Methods



Carcass  
Sampling

Redd  
Surveys





Little North Santiam

N: 45  
 d: 3.0  
 PSM: 39%  
 PHOS: 19%

Above Detroit

N: 78  
 d: 6.3  
 PSM: 0%  
 PHOS: 100%

Below Bennett

Dams  
 N: 9  
 d: 2.8  
 PSM: 96%  
 PHOS: 81%



Bennett Dams To Minto

N: 503  
 d: 13.4  
 PSM: 19%  
 PHOS: 76%

**Legend**

**Peak Redd Count**



PHOS

PNOS

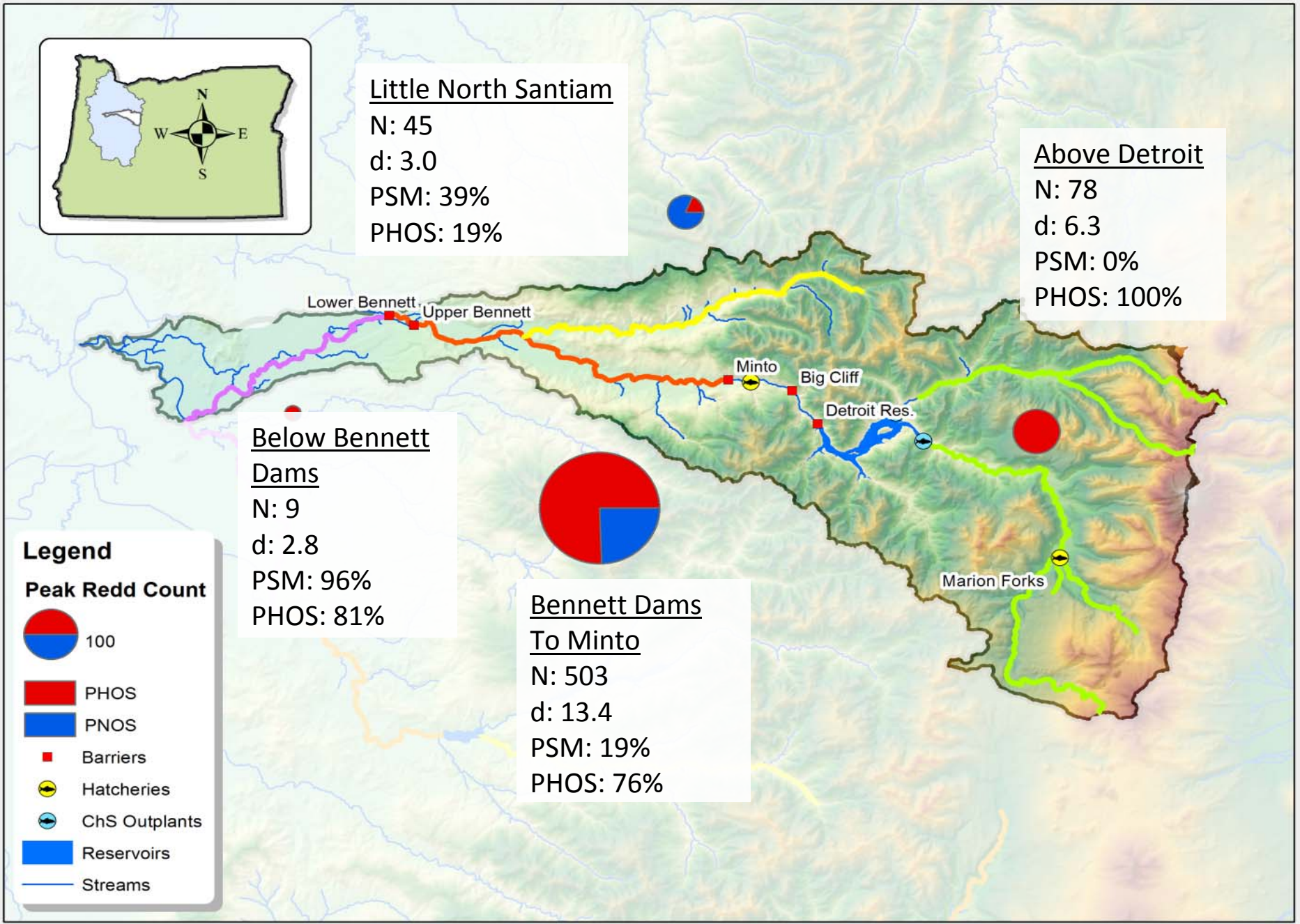
Barriers

Hatcheries

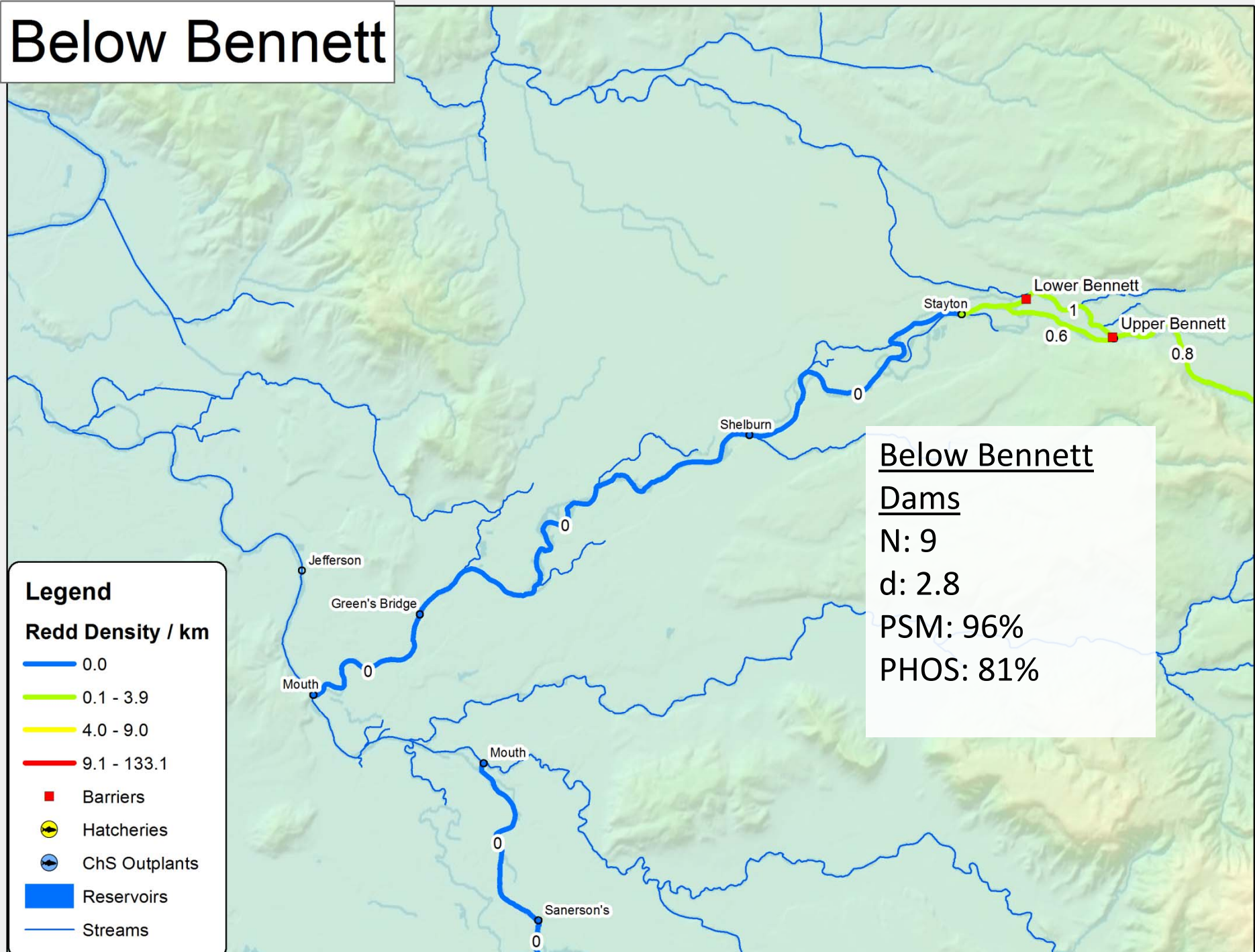
ChS Outplants

Reservoirs

Streams



# Below Bennett



## Legend

### Redd Density / km

- 0.0
- 0.1 - 3.9
- 4.0 - 9.0
- 9.1 - 133.1

- Barriers
- Hatcheries
- ChS Outplants
- Reservoirs
- Streams

## Below Bennett

### Dams

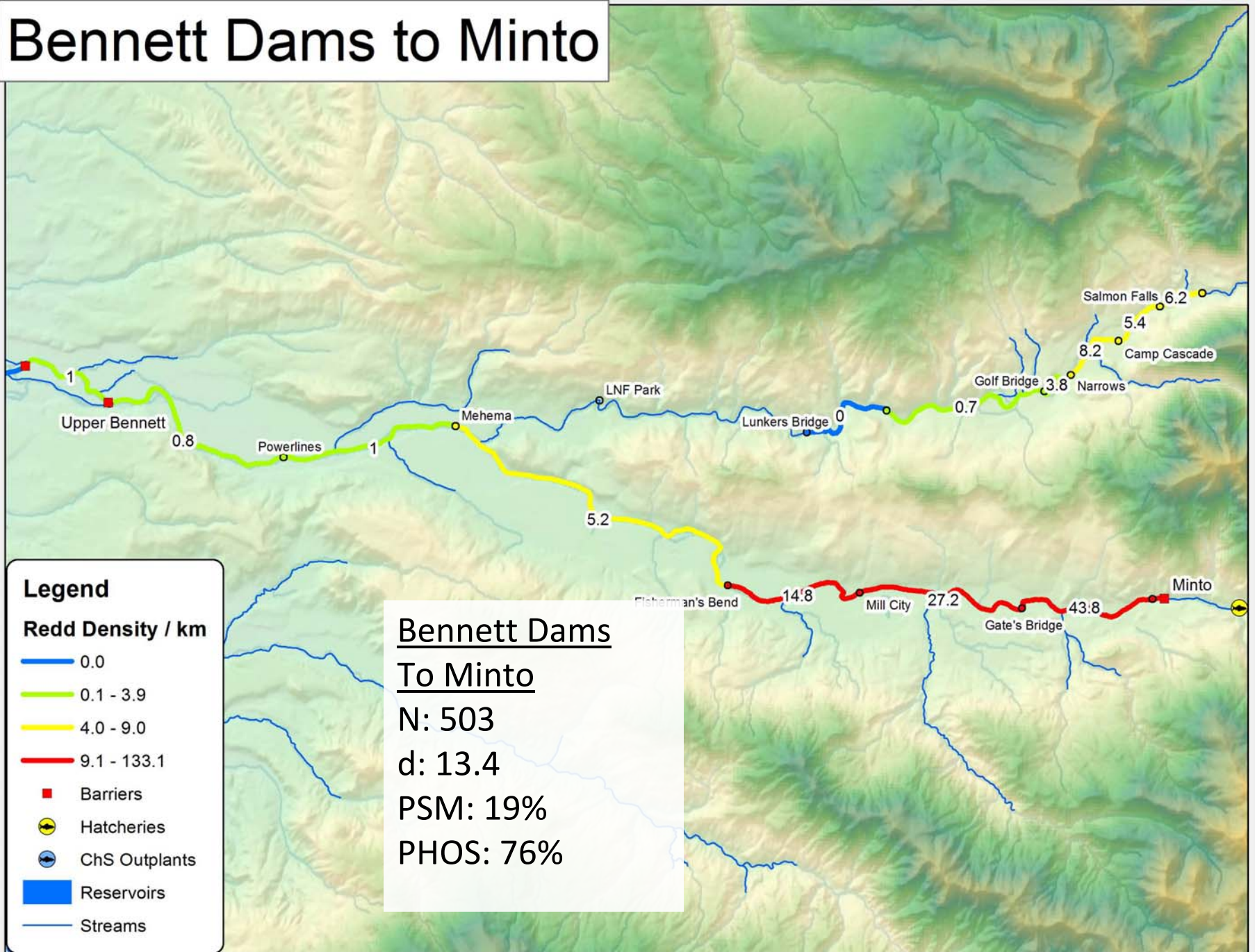
N: 9

d: 2.8

PSM: 96%

PHOS: 81%

# Bennett Dams to Minto





# Little North Santiam

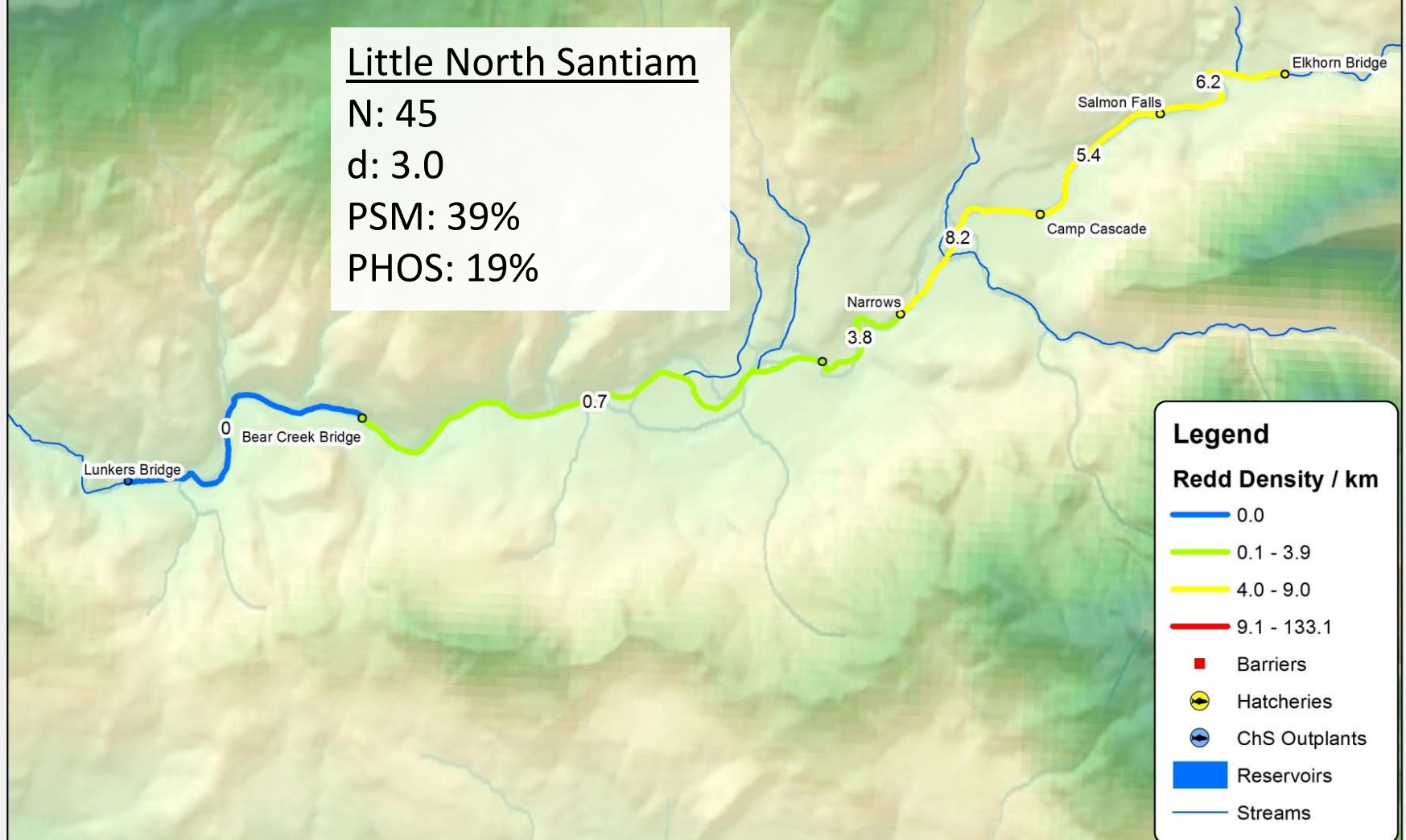
## Little North Santiam

N: 45

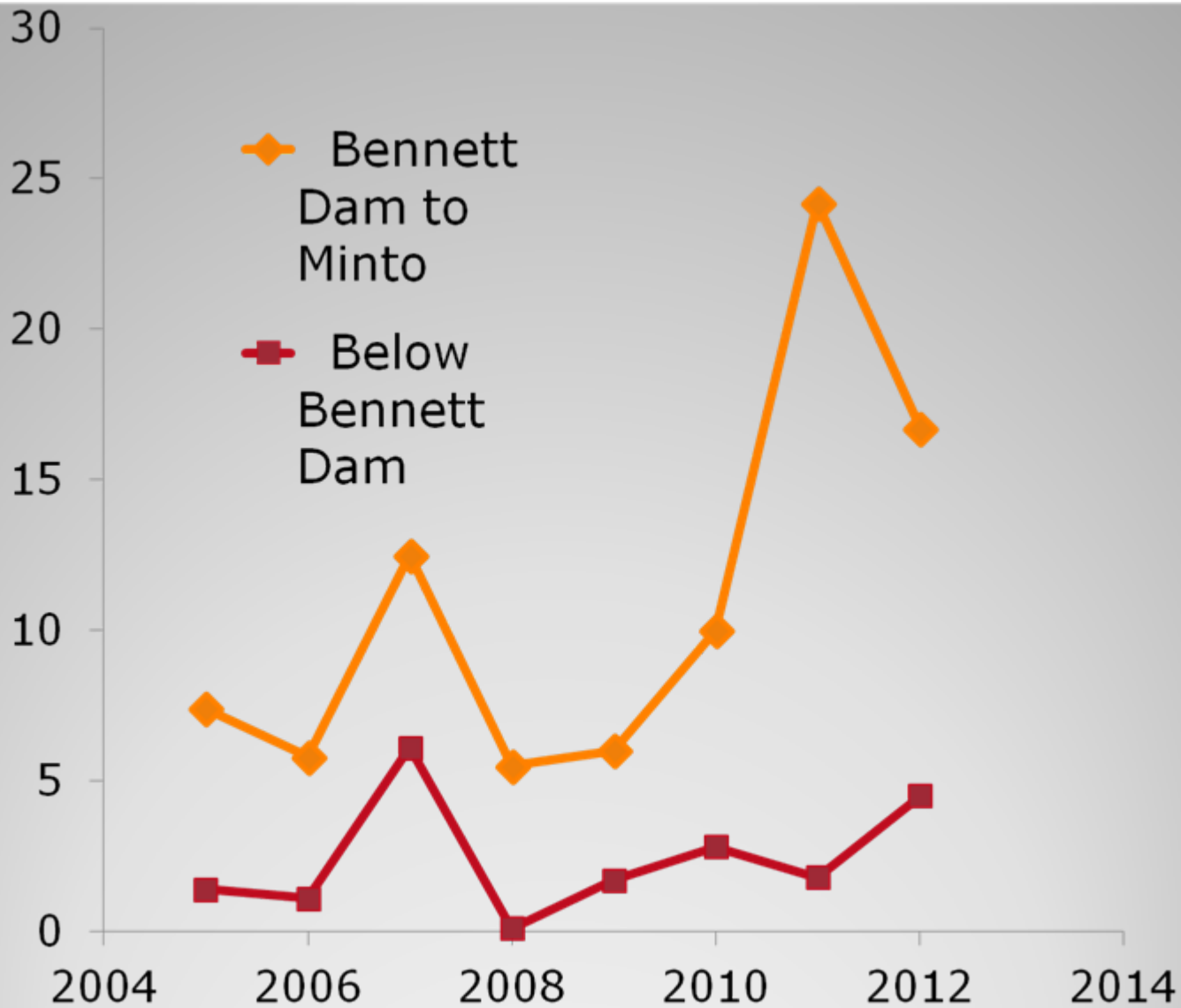
d: 3.0

PSM: 39%

PHOS: 19%



# Redd Density (Redds/km)

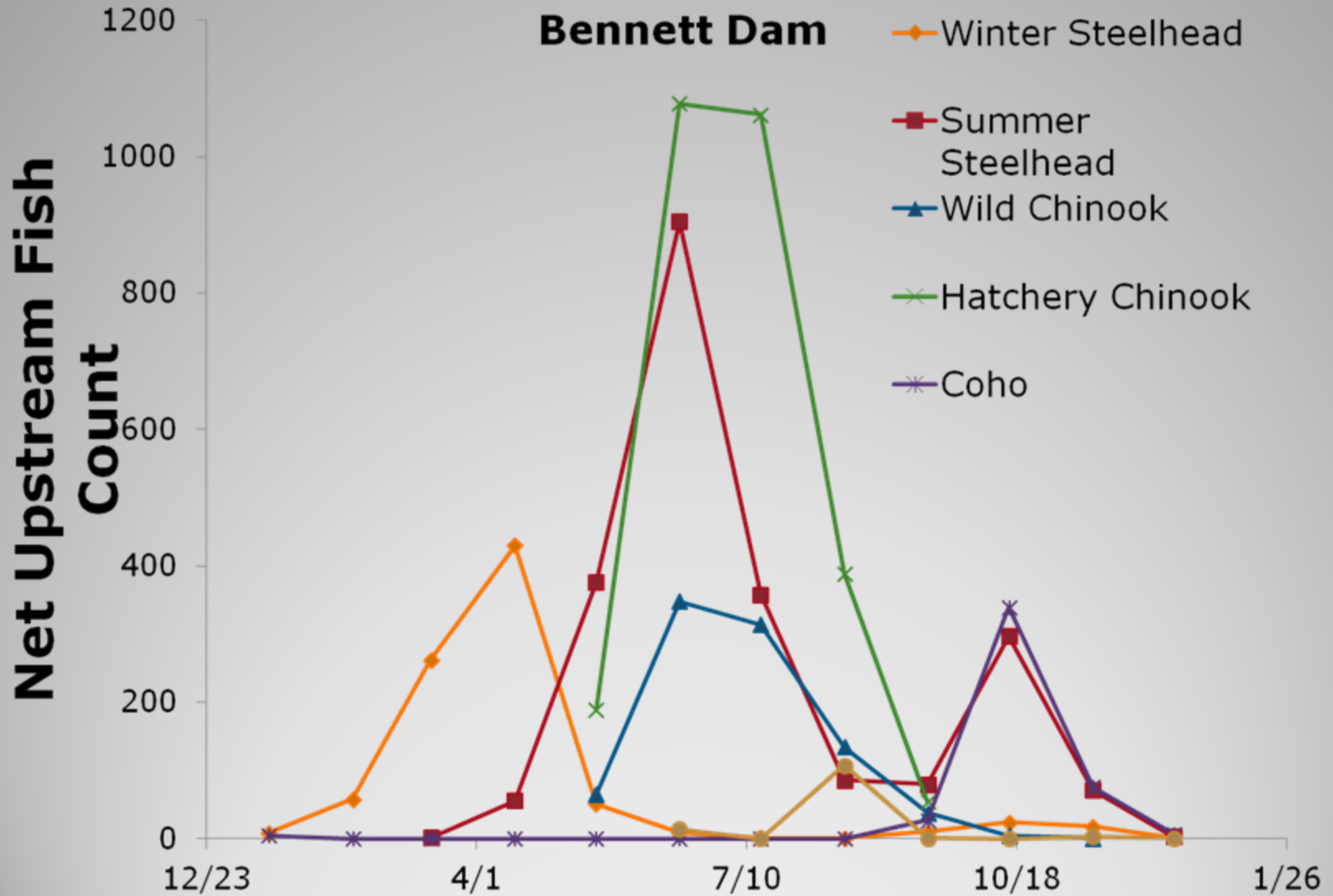


- Outplanting from Bennett Dam Trap
  - Chinook and steelhead volunteer to Bennett Dam trap
  - All fish hand crowded
  - Clipped Chinook sorted (using electro-anesthesia), loaded, and trucked upstream
  - All unclipped Chinook & steelhead passed upstream
  - Minto facility nearing completion

**Outplanting: North Santiam**

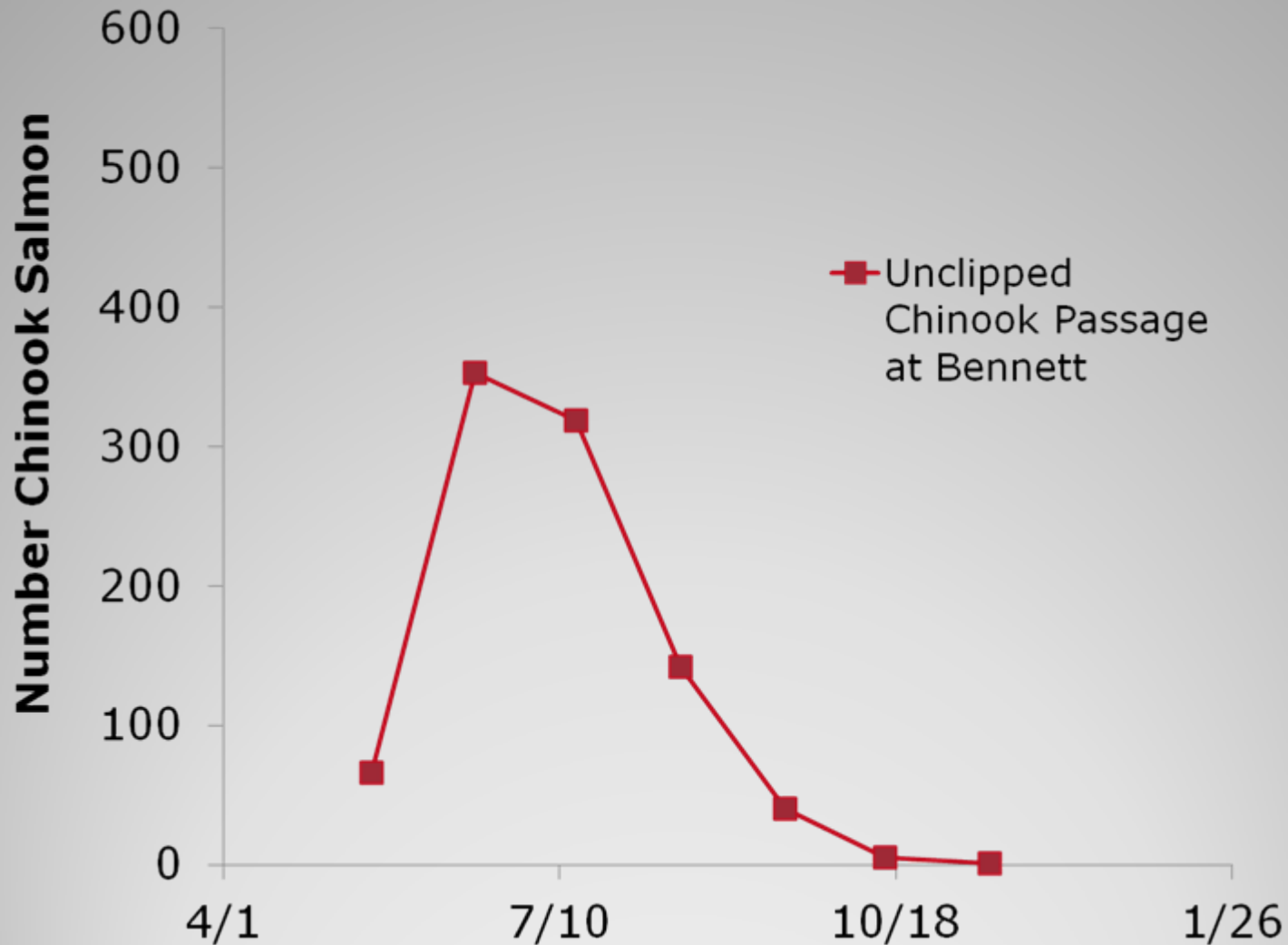
# Above Detroit Reservoir



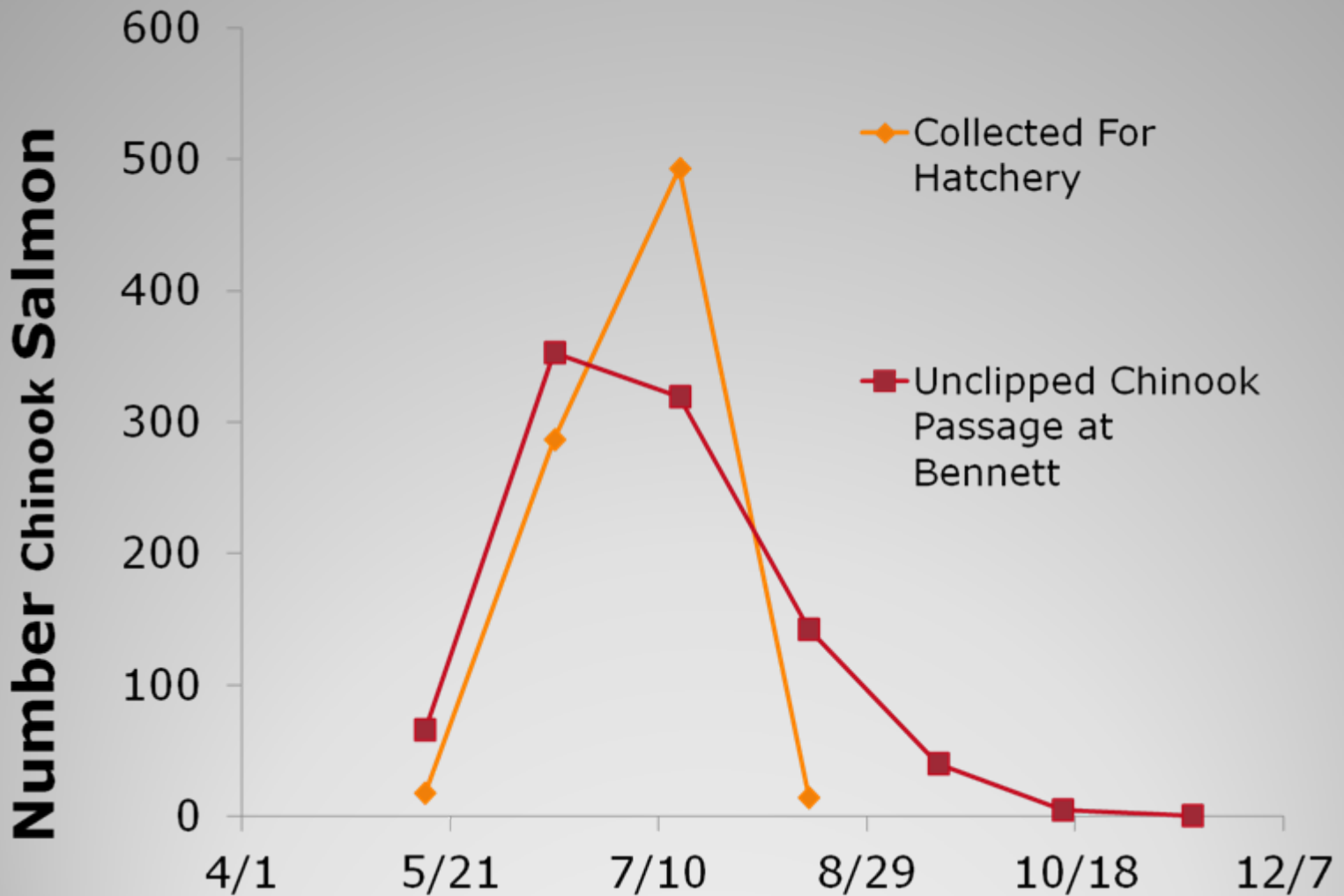


# Net Upstream Migration

**Run Timing:** Does timing of collection into the hatchery broodstock match run timing of naturally-produced fish?

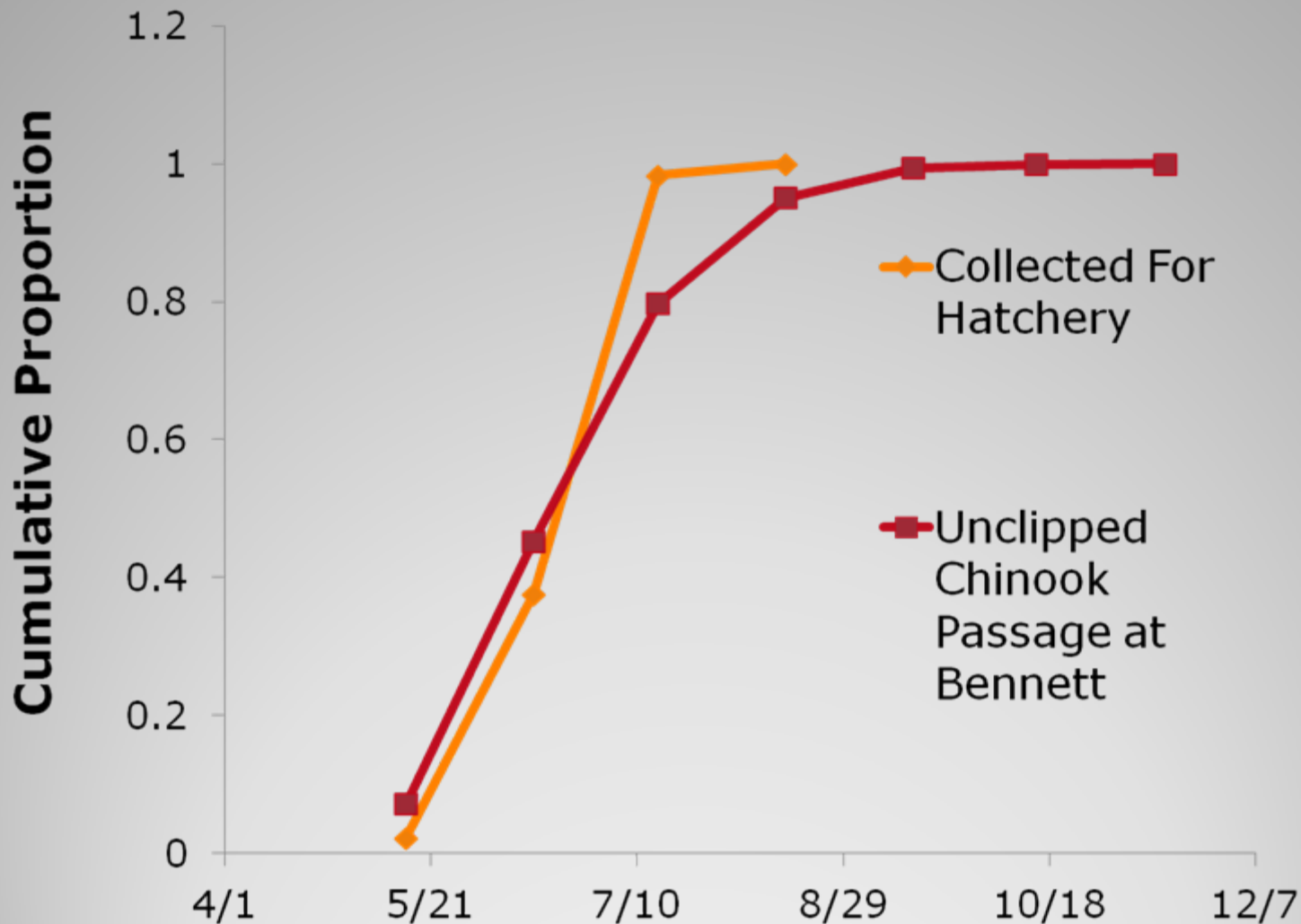


## Unclipped Chinook Passage at Upper Bennett



## Hatchery Collections vs. Run-Of-River



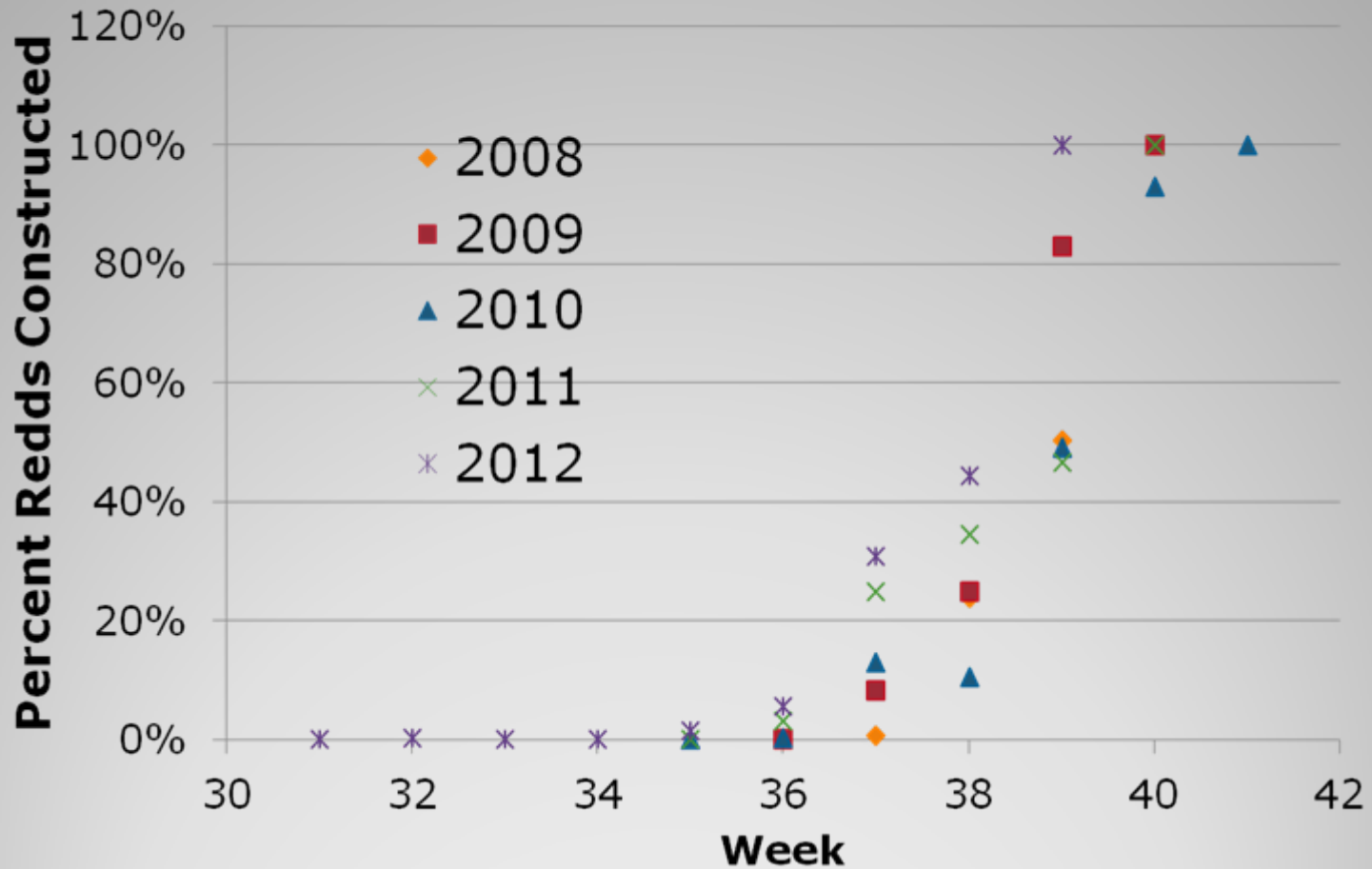


# Hatchery Collections vs. Run-Of-River

# **Spawn Timing:**

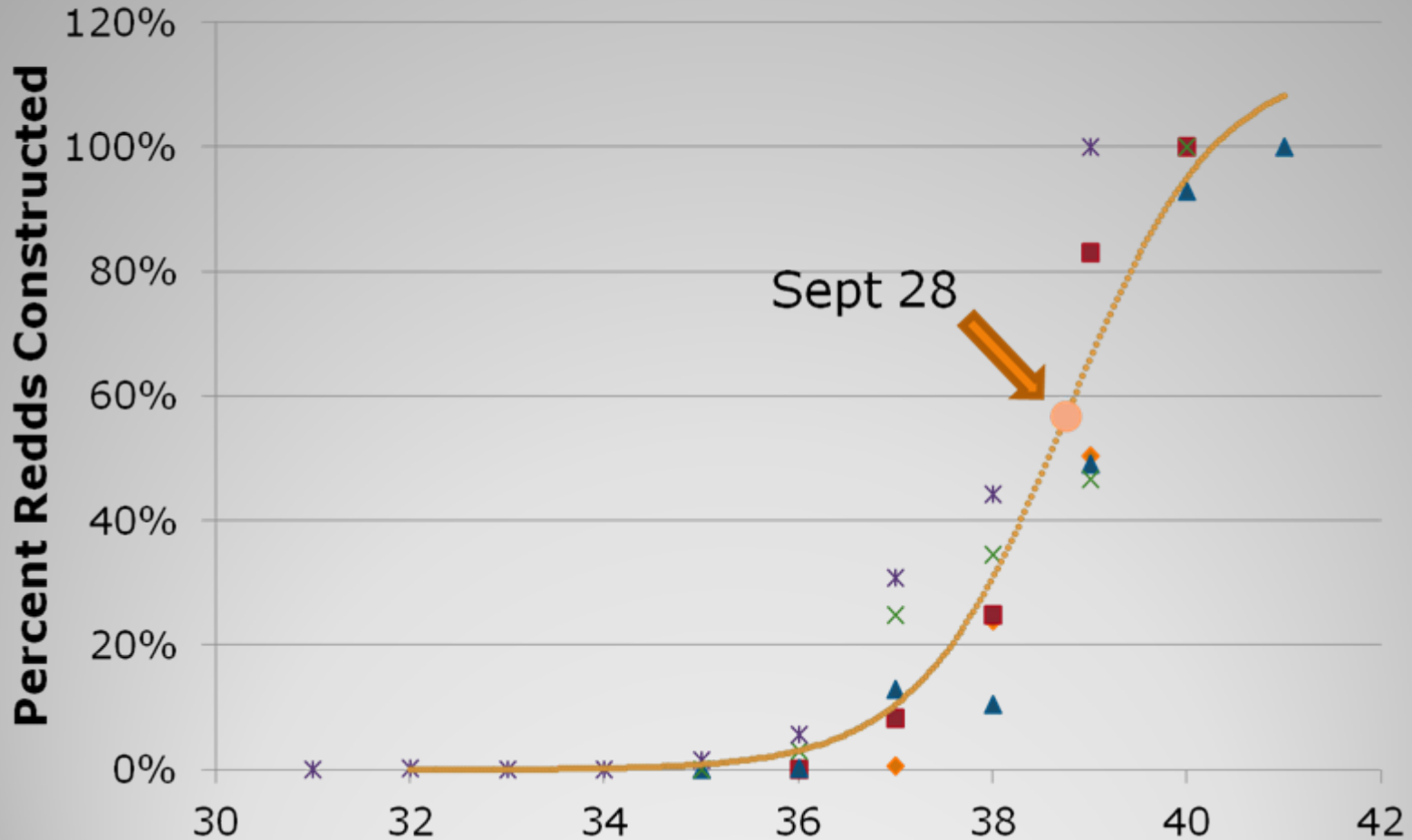
**Does timing of spawning in the hatchery match timing of naturally-spawning fish?**

## North Santiam



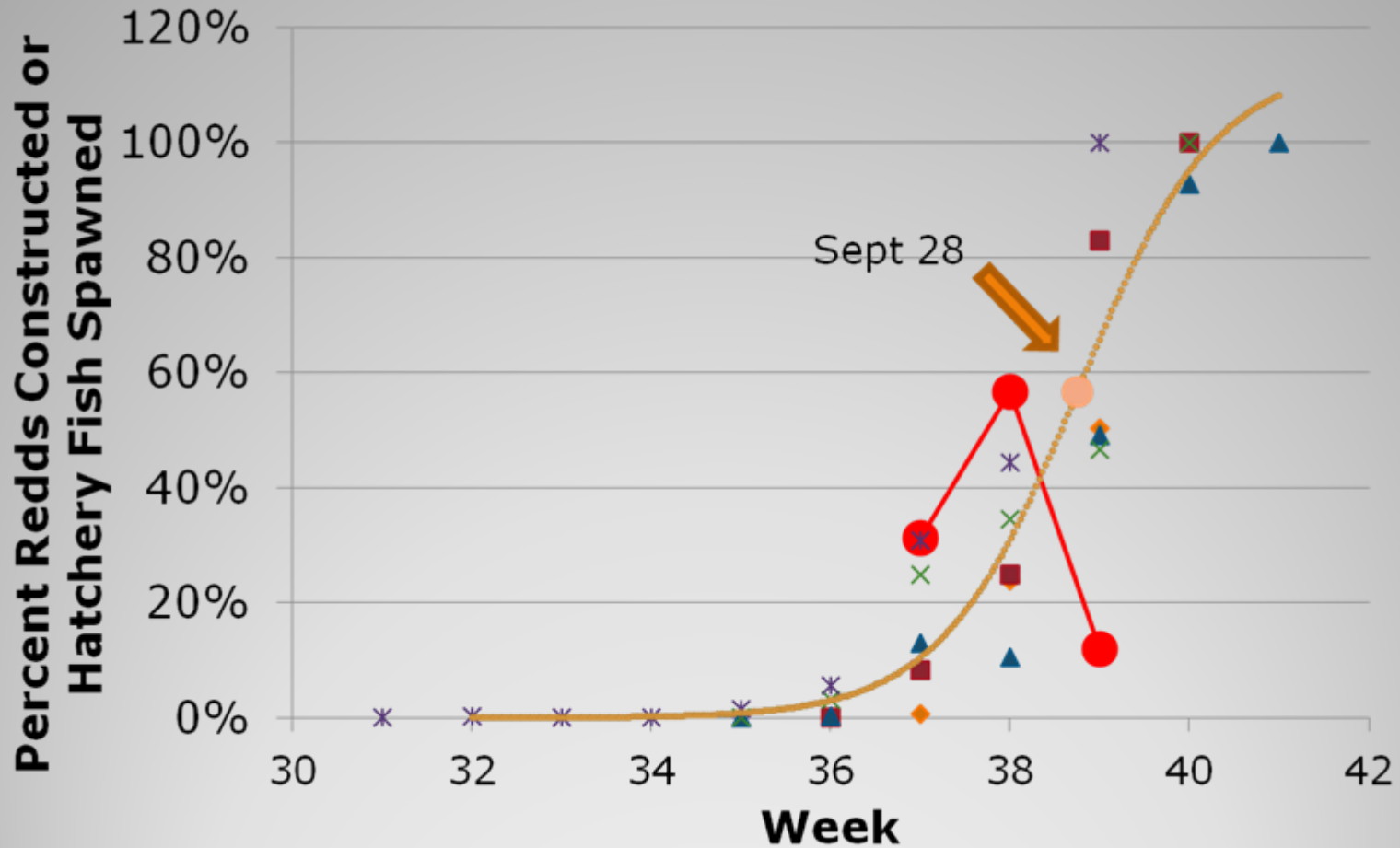
**Cumulative N. Santiam Redd  
Counts: 2008 - 2012**

## North Santiam



**Peak Spawn Timing in River**

## North Santiam



**Spawn Timing at Hatchery**

- Fish Pathology
  - No problems on station – low CWD, low BKD, no viruses
  - Note issues with adult mortality at McKenzie

**Fish Pathology: Marion Forks H.**

- Program Changes
  - Minto Fish Collection Facility nearing completion
  - Bennett trapping facility offline. Passive video monitoring only.

**Program Changes: Marion Forks H.**

- Willamette BiOp and SFR Website
- <http://oregonstate.edu/dept/ODFW/willamettesalmonidrme/home>

**WRITE THIS DOWN!!!**



# Questions?



Photo by Brian Franklin 9/21/2012