

2012 Baseline Monitoring of Spring Chinook Salmon Above and Below Project Dams: **McKenzie 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
 - Leaburg Passage Counts: Mike Hogansen
 - Maps: David Hewlett
 - Hatchery Records: Kurt Kremers
- PGE: Dan Cramer & Tim Shibahara
- 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 ($H_0: H \approx W?$)
- Video Monitoring
 - Run Size, Species Comp.
 - Run Timing ($H_0: H \approx W?$)

Monitoring Tasks

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

Monitoring Tasks

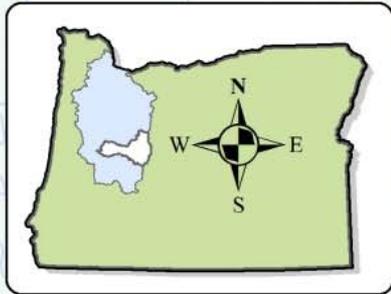
Methods



Redd
Surveys

Carcass
Sampling





Leaburg to
Cougar Dam

N: 251
d: 7.0
PSM: 2%
PHOS: 26%

McKenzie Above SF
McKenzie

N: 183
d: 2.5
PSM: 0%
PHOS: 7%

Legend

Peak Redd Count



PHOS

PNOS

Barriers

Hatcheries

ChS Outplants

Reservoirs

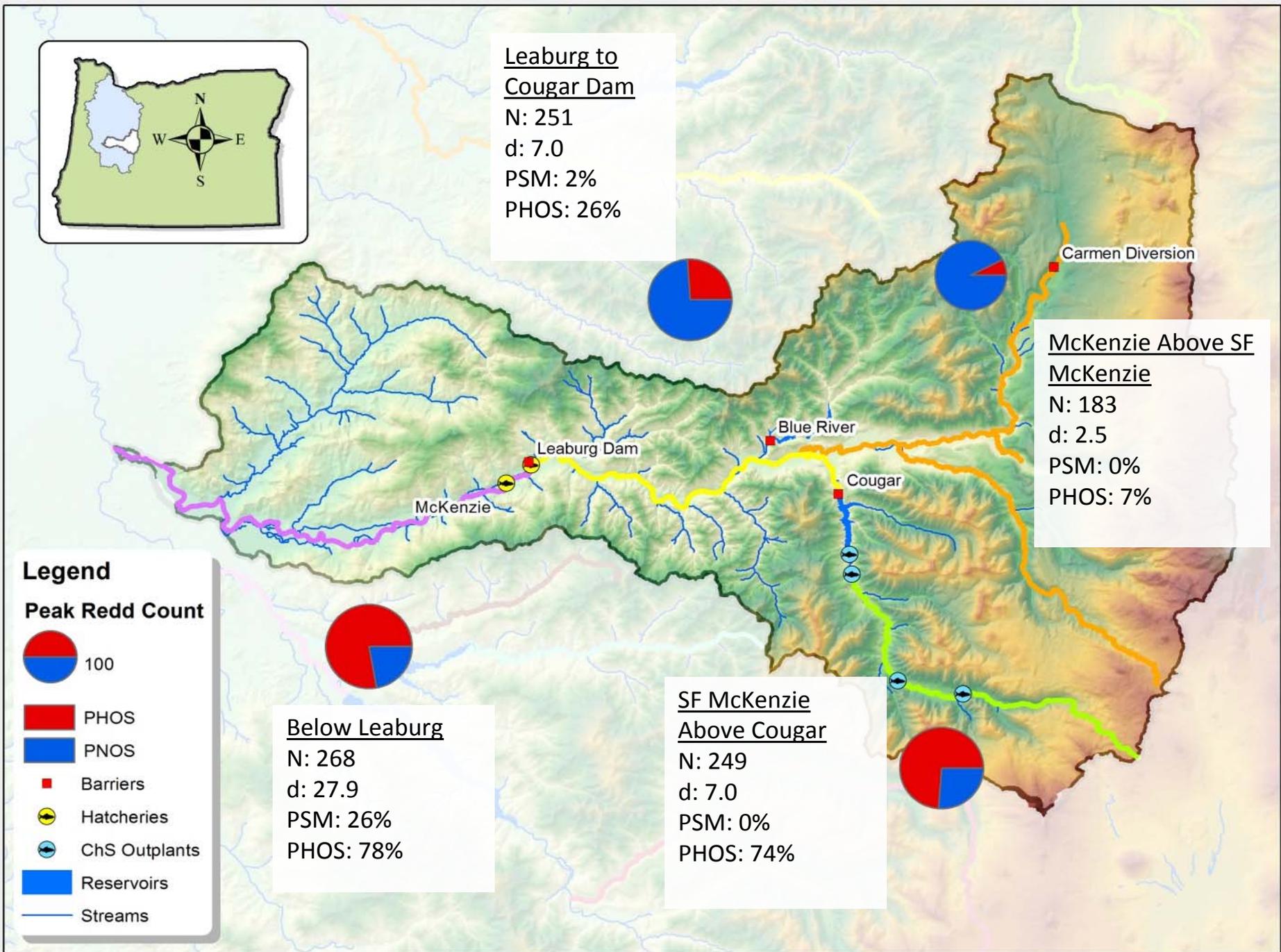
Streams

Below Leaburg

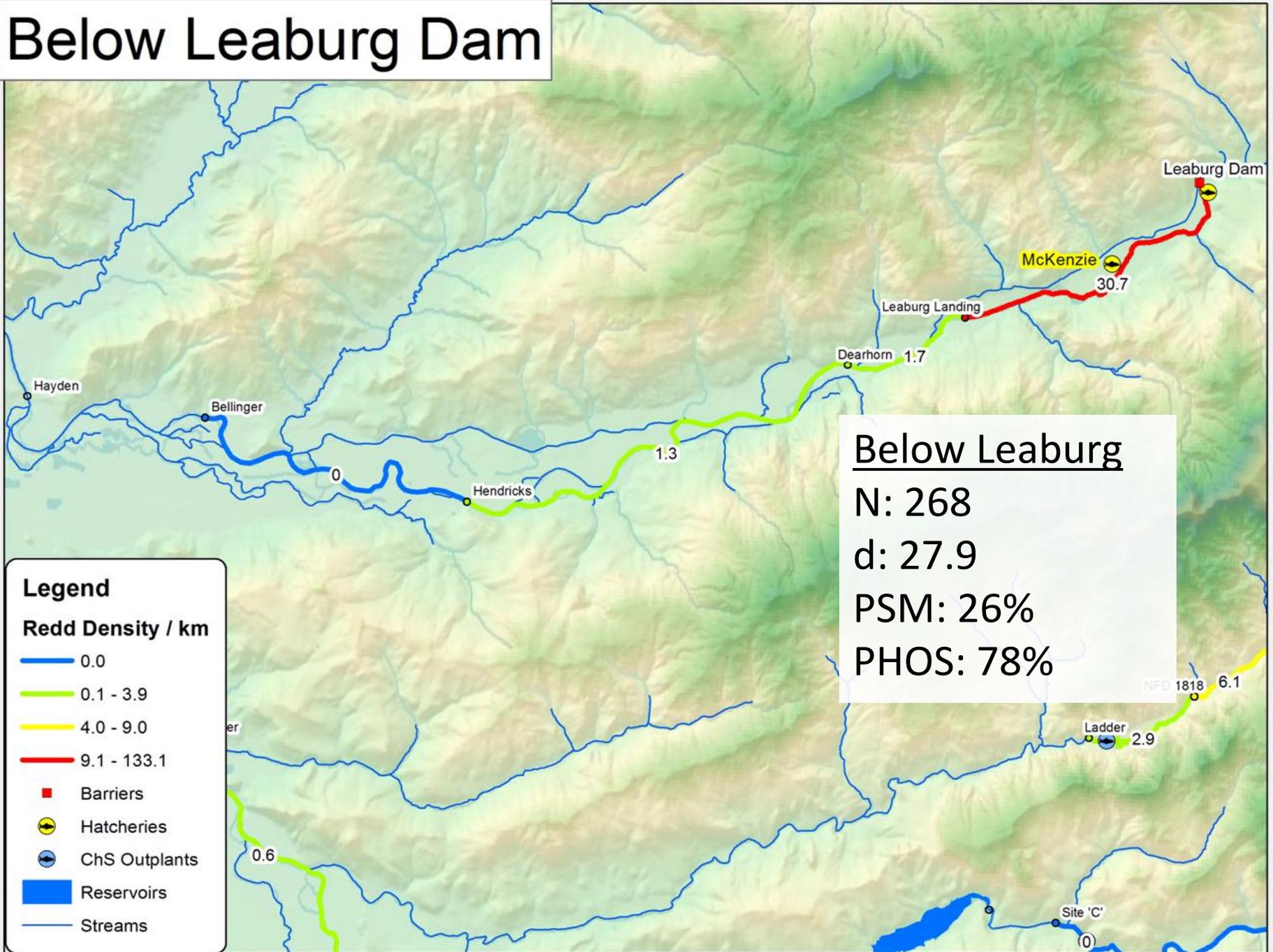
N: 268
d: 27.9
PSM: 26%
PHOS: 78%

SF McKenzie
Above Cougar

N: 249
d: 7.0
PSM: 0%
PHOS: 74%



Below Leaburg Dam



Leaburg Dam to Cougar Dam

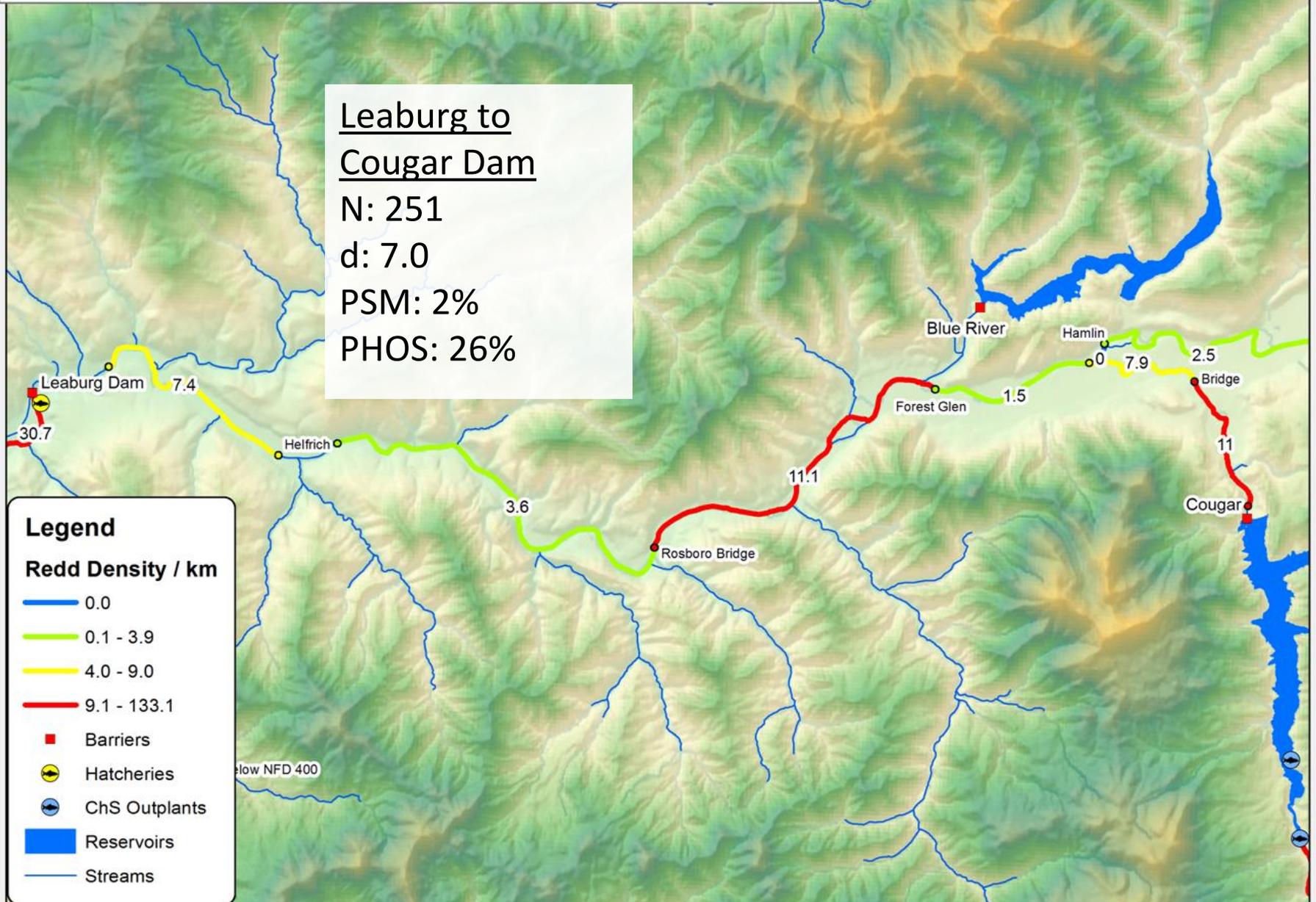
Leaburg to Cougar Dam

N: 251

d: 7.0

PSM: 2%

PHOS: 26%



Legend

Redd Density / km

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

- Barriers
- Hatcheries
- ChS Outplants
- Reservoirs
- Streams

Above South Fork McKenzie

McKenzie Above SF

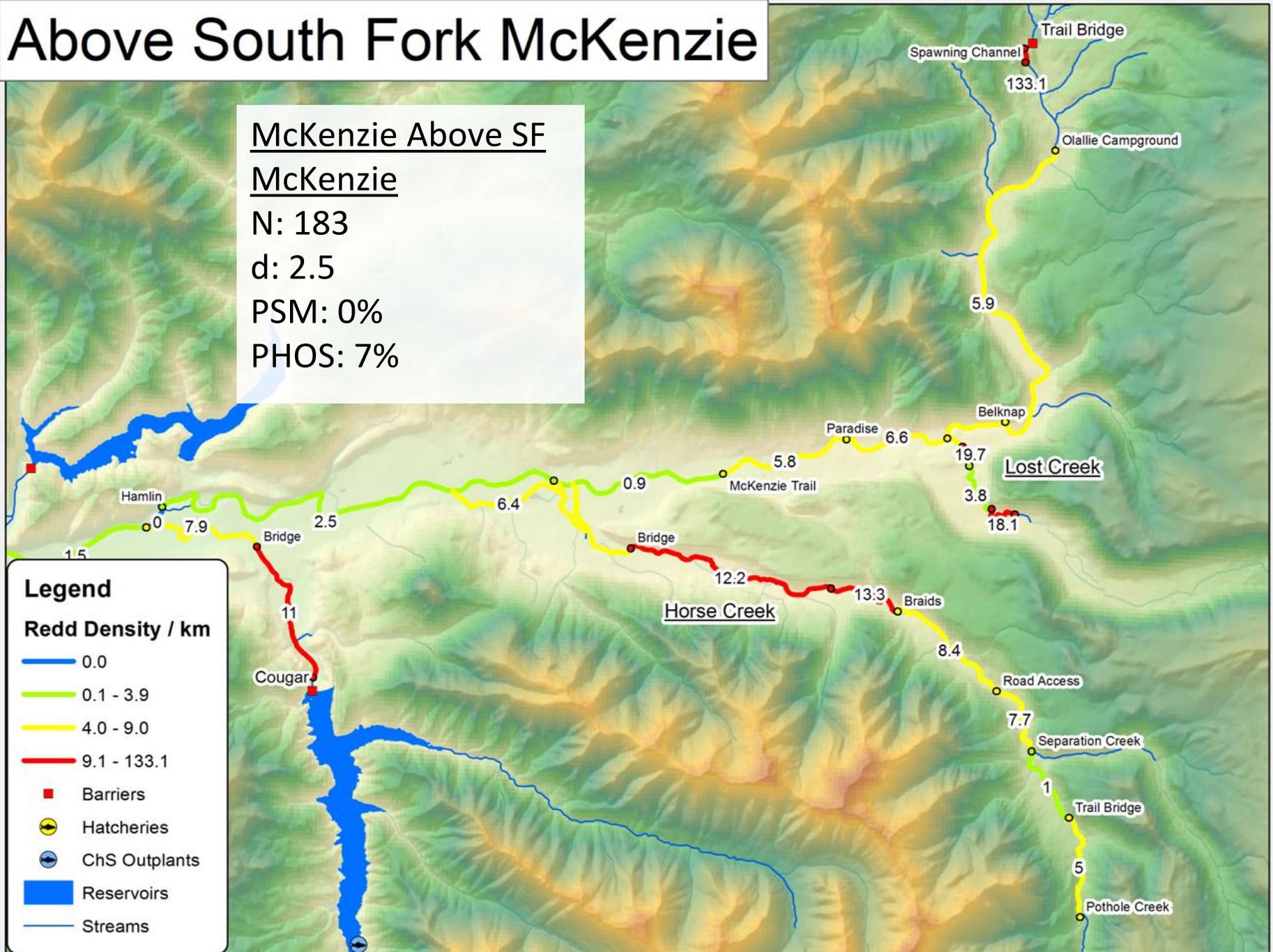
McKenzie

N: 183

d: 2.5

PSM: 0%

PHOS: 7%

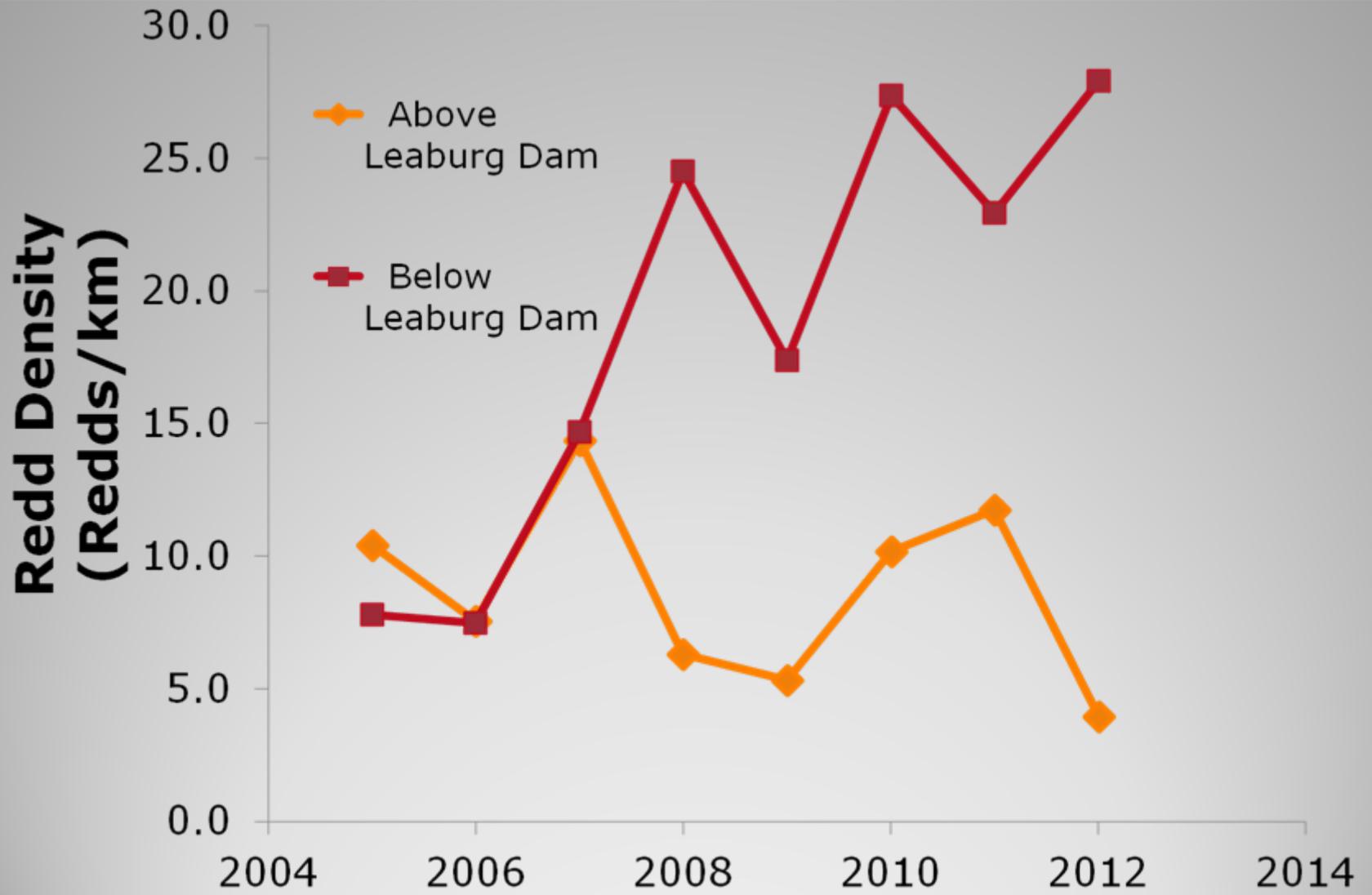


Legend

Redd Density / km

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

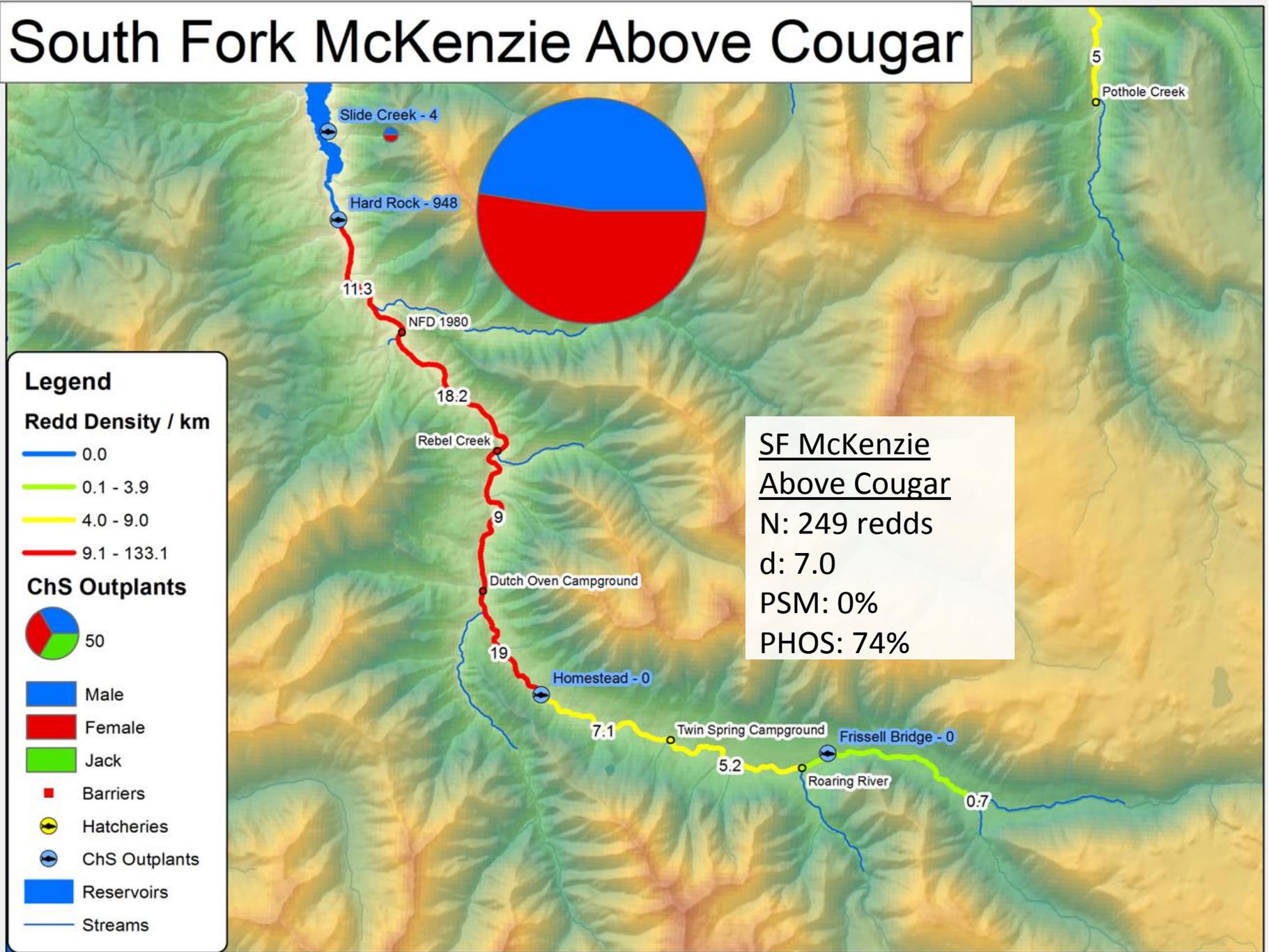
- Barriers
- Hatcheries
- ChS Outplants
- Reservoirs
- Streams

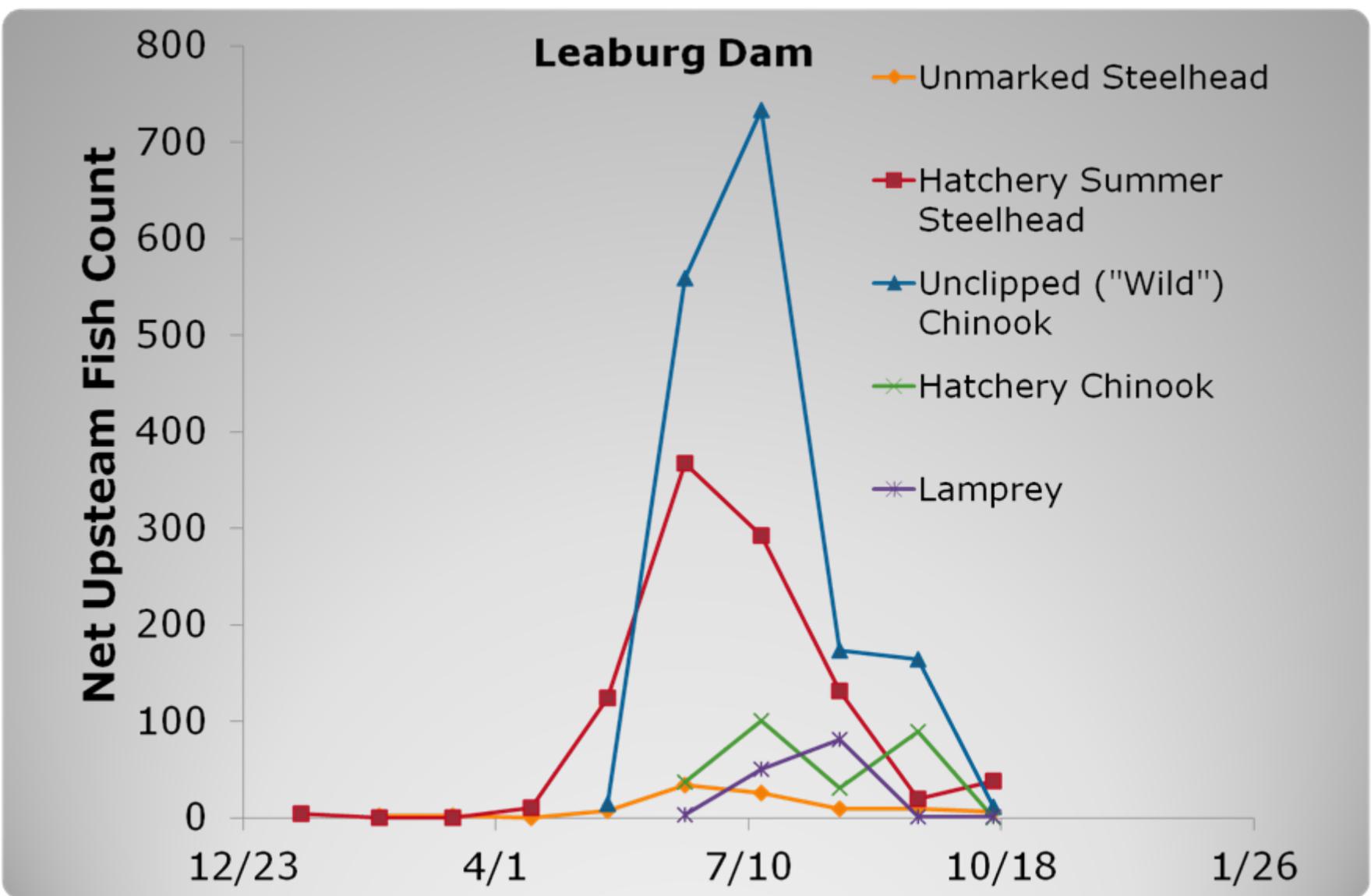


- Outplanting from Cougar Dam Trap & McKenzie Hatchery
 - Corps folks outplant mostly unclipped fish from Cougar Dam Trap.
 - ODFW folks transport clipped Chinook from McKenzie Hatchery to match unclipped Cougar fish
 - All fish sampled for scales, DNA, morphology

Outplanting: S Fork McKenzie

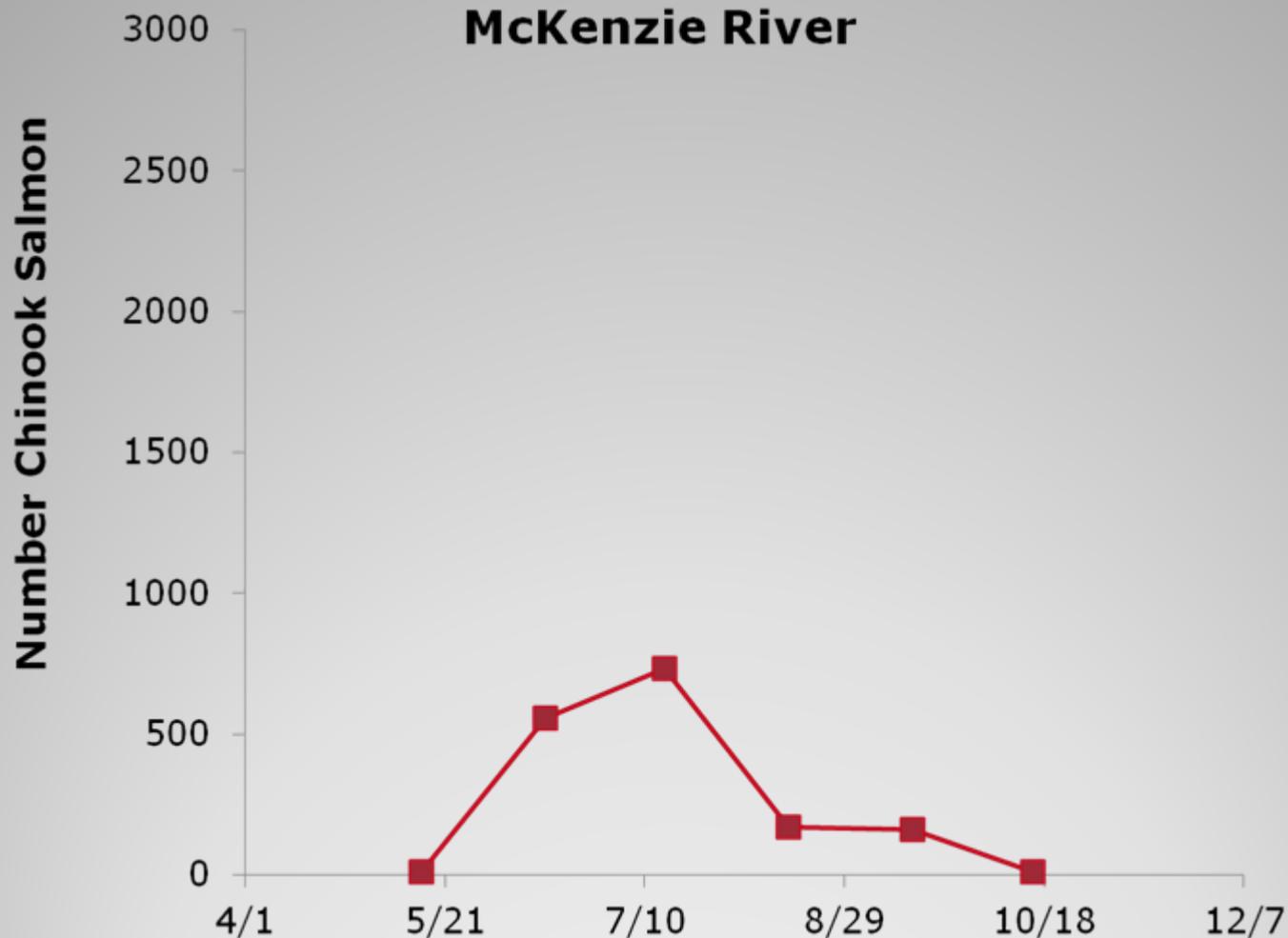
South Fork McKenzie Above Cougar



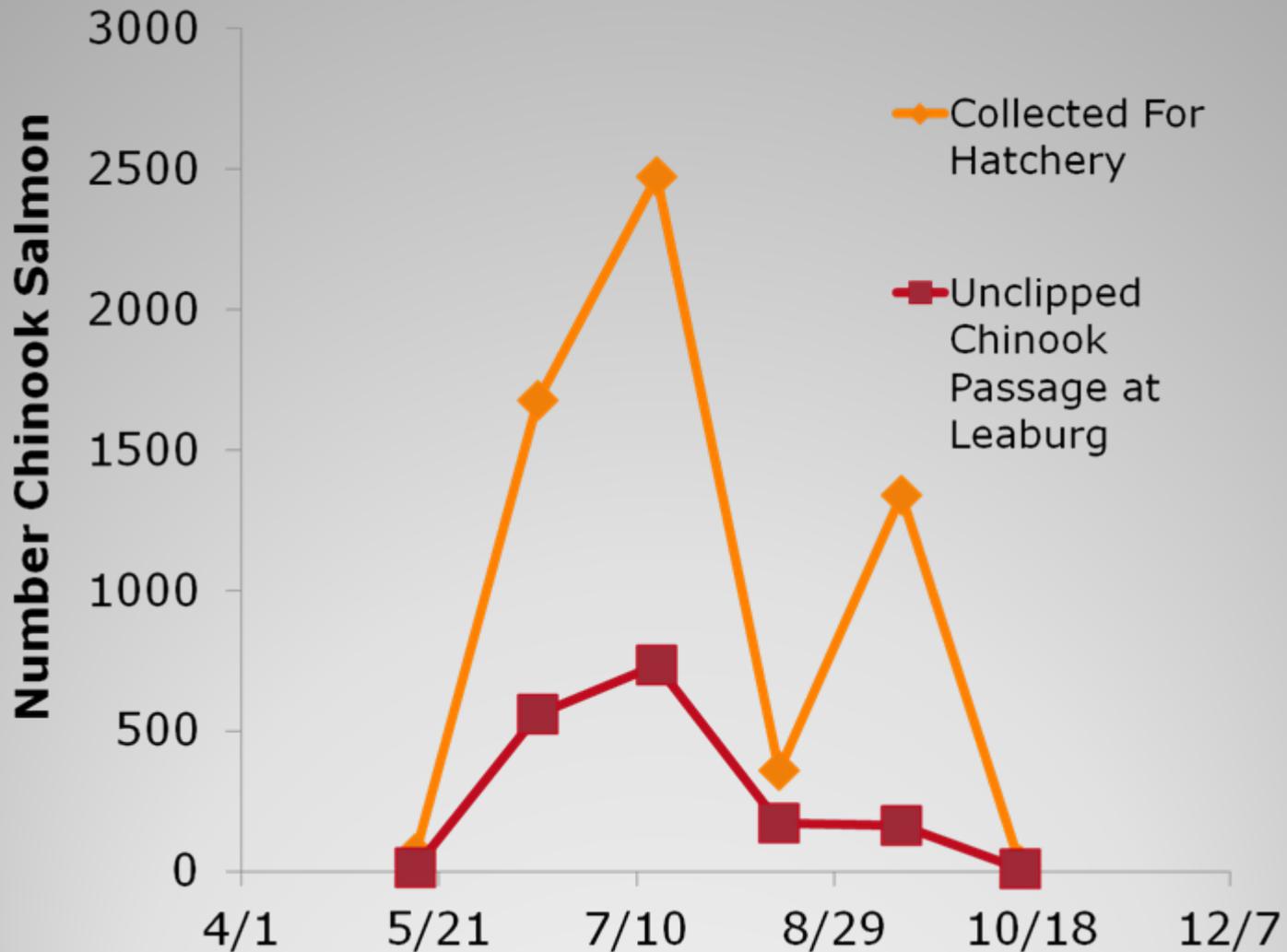


Net Upstream Migration

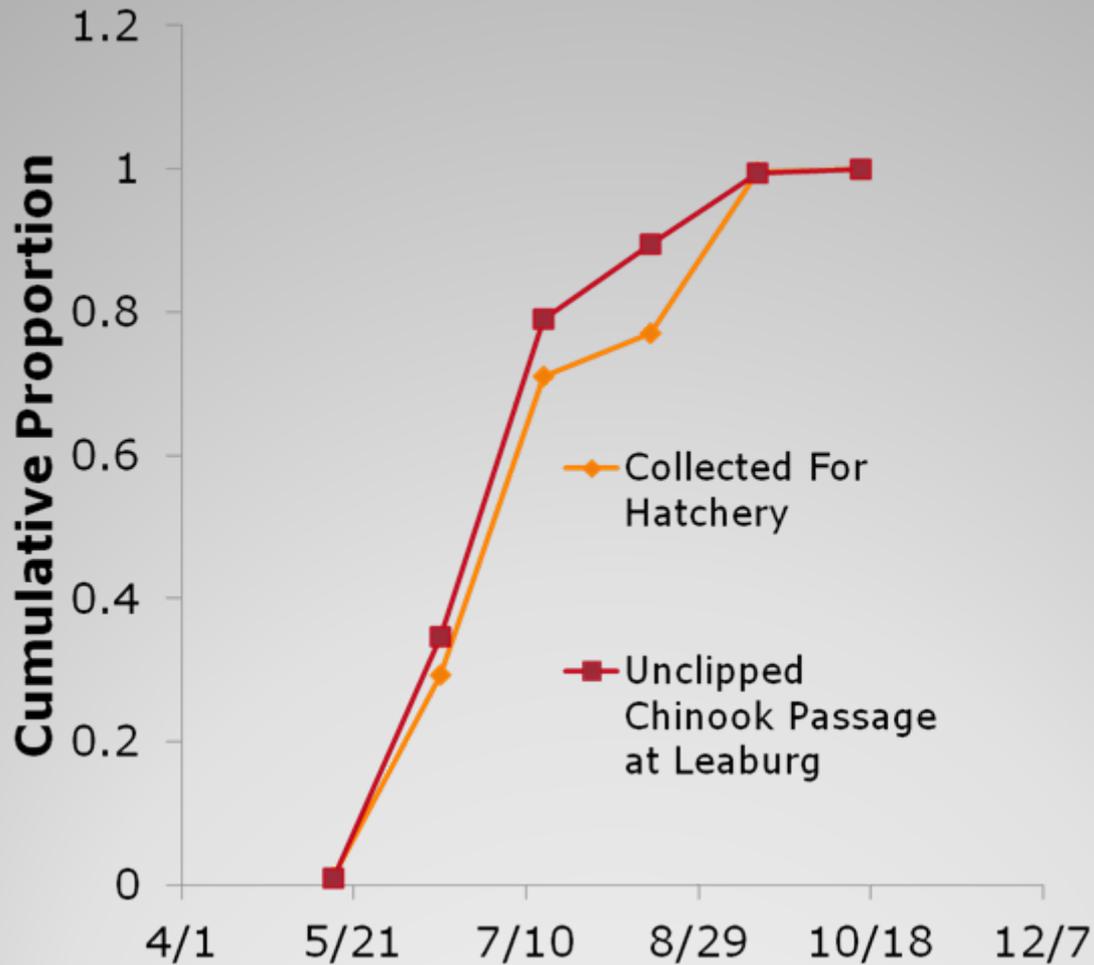
Run Timing: Does timing of collection into the hatchery (includes broodstock) match run timing of naturally-produced fish?



**Unclipped Chinook Salmon
Passage at Leaburg**



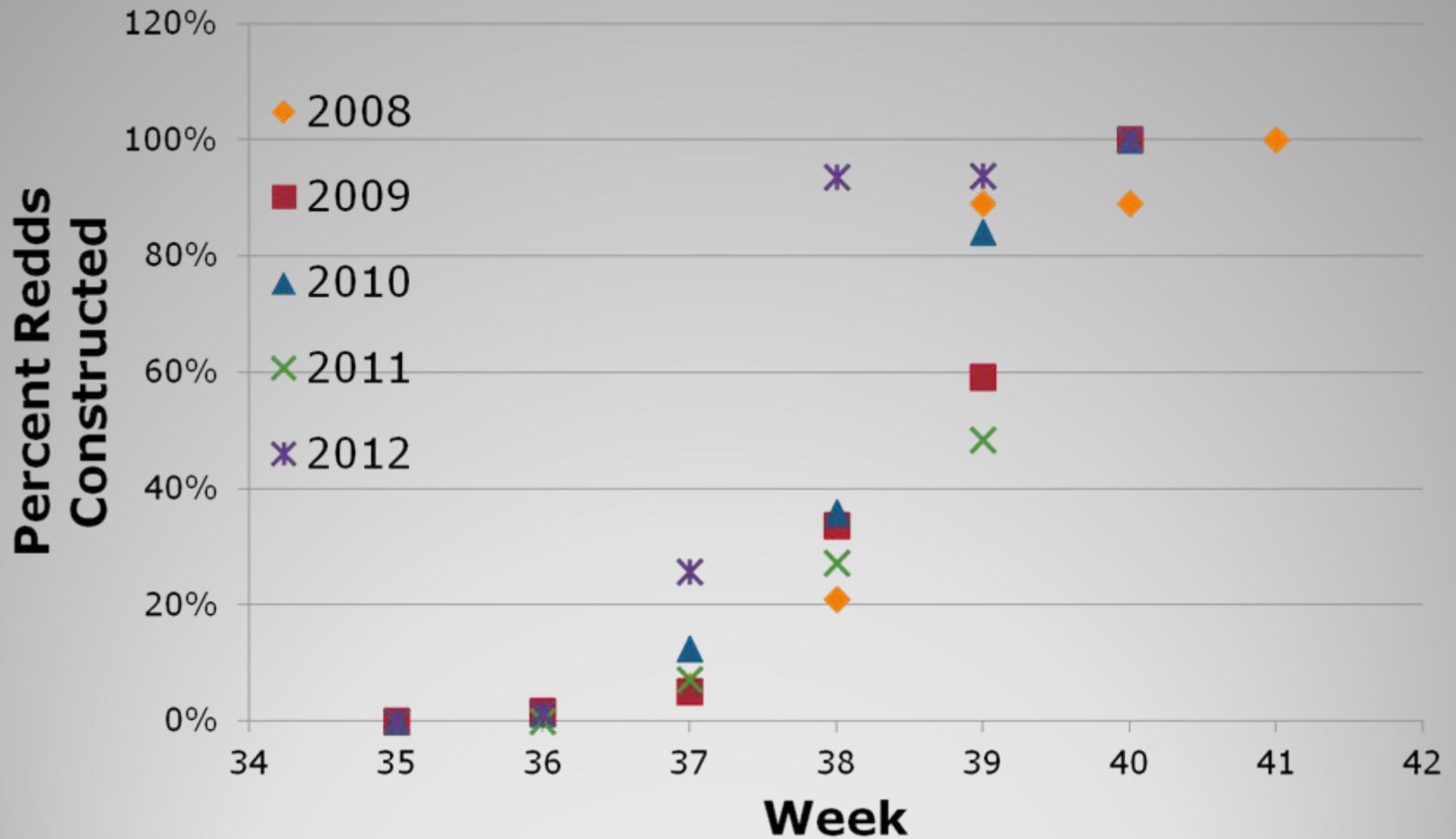
Hatchery Collections vs. Run-Of-River



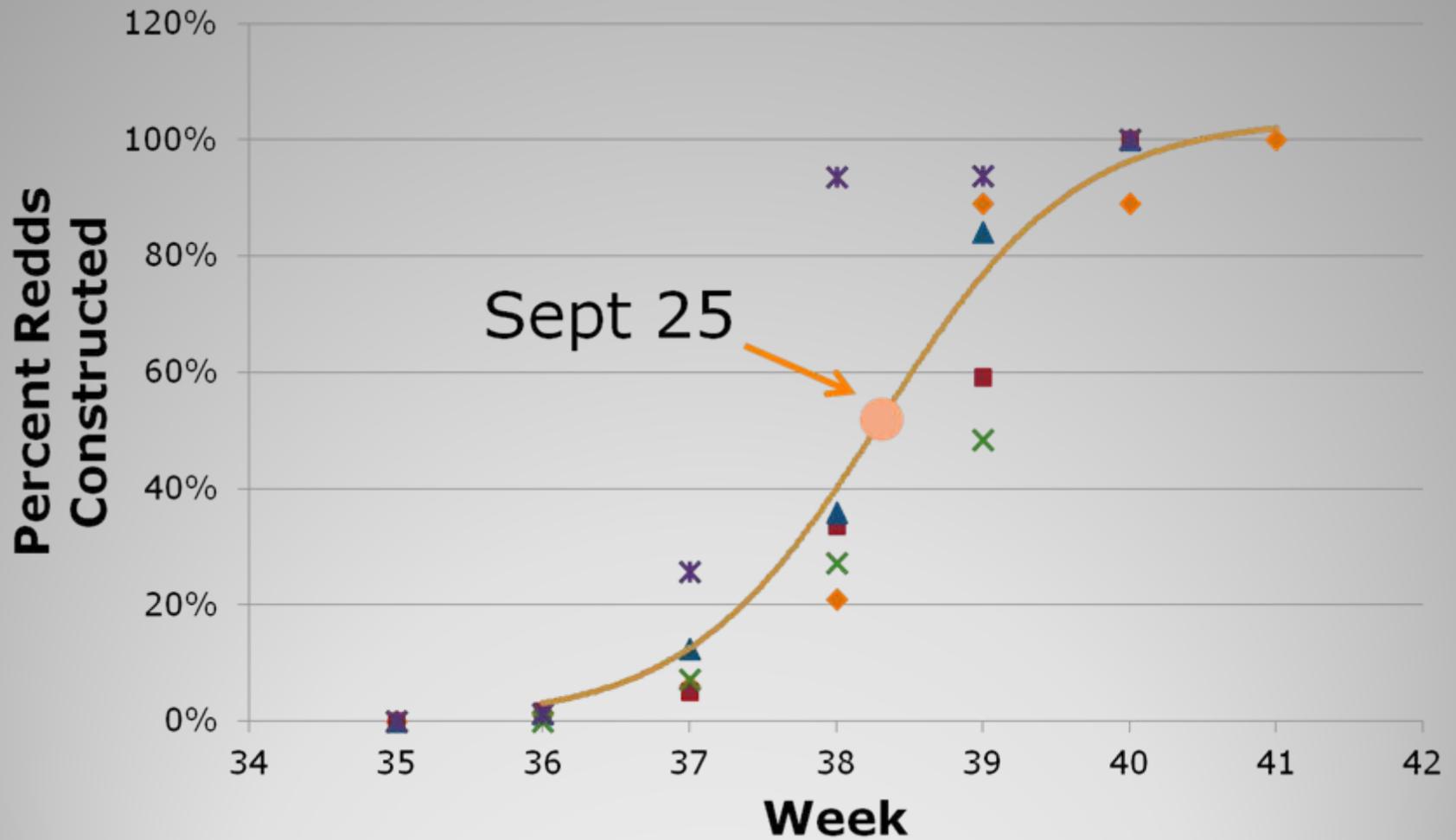
Hatchery Collections vs. Run-Of-River

Spawn Timing:

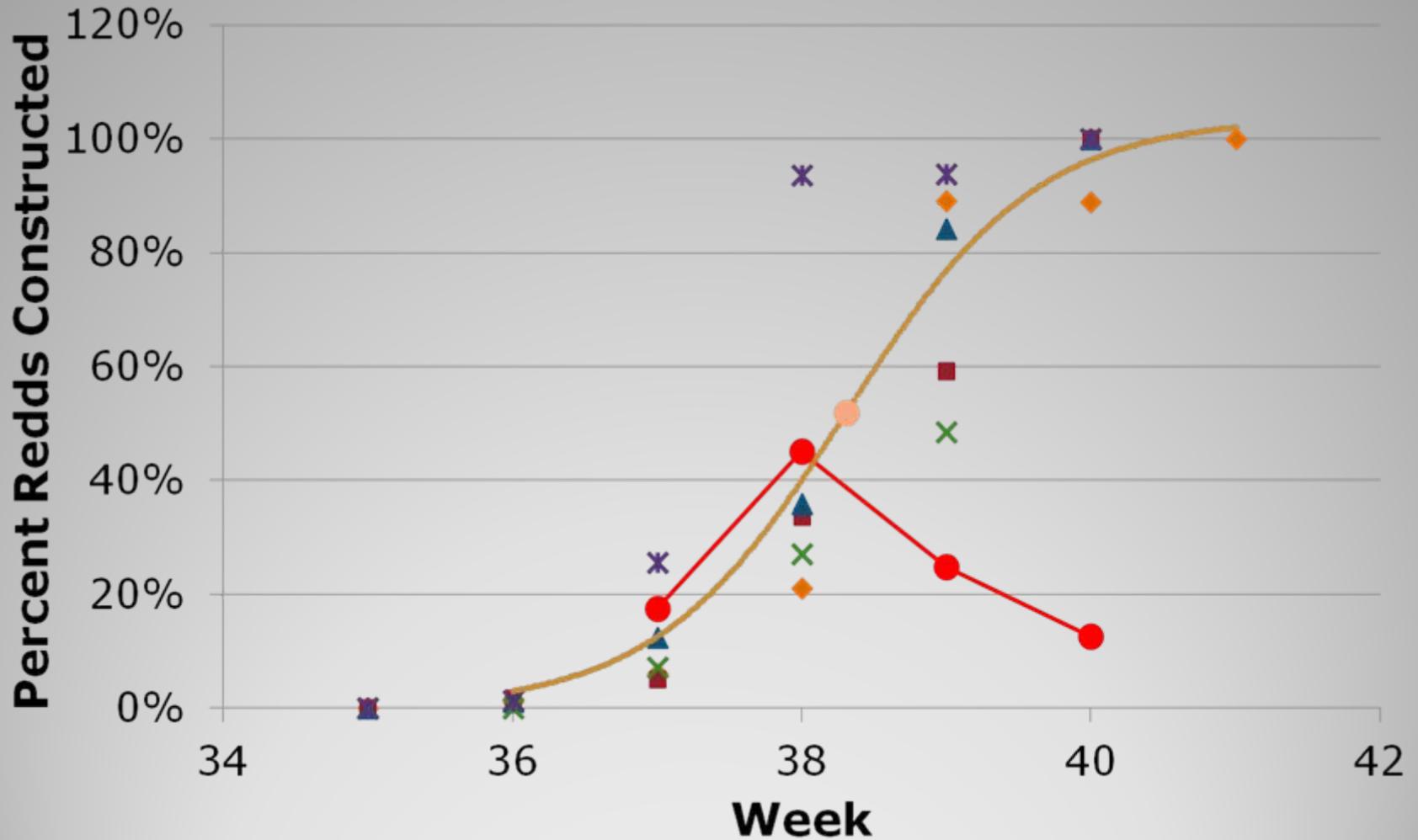
Does timing of spawning in the hatchery match timing of naturally-spawning fish?



Cumulative McKenzie Redd Counts: 2008 - 2012



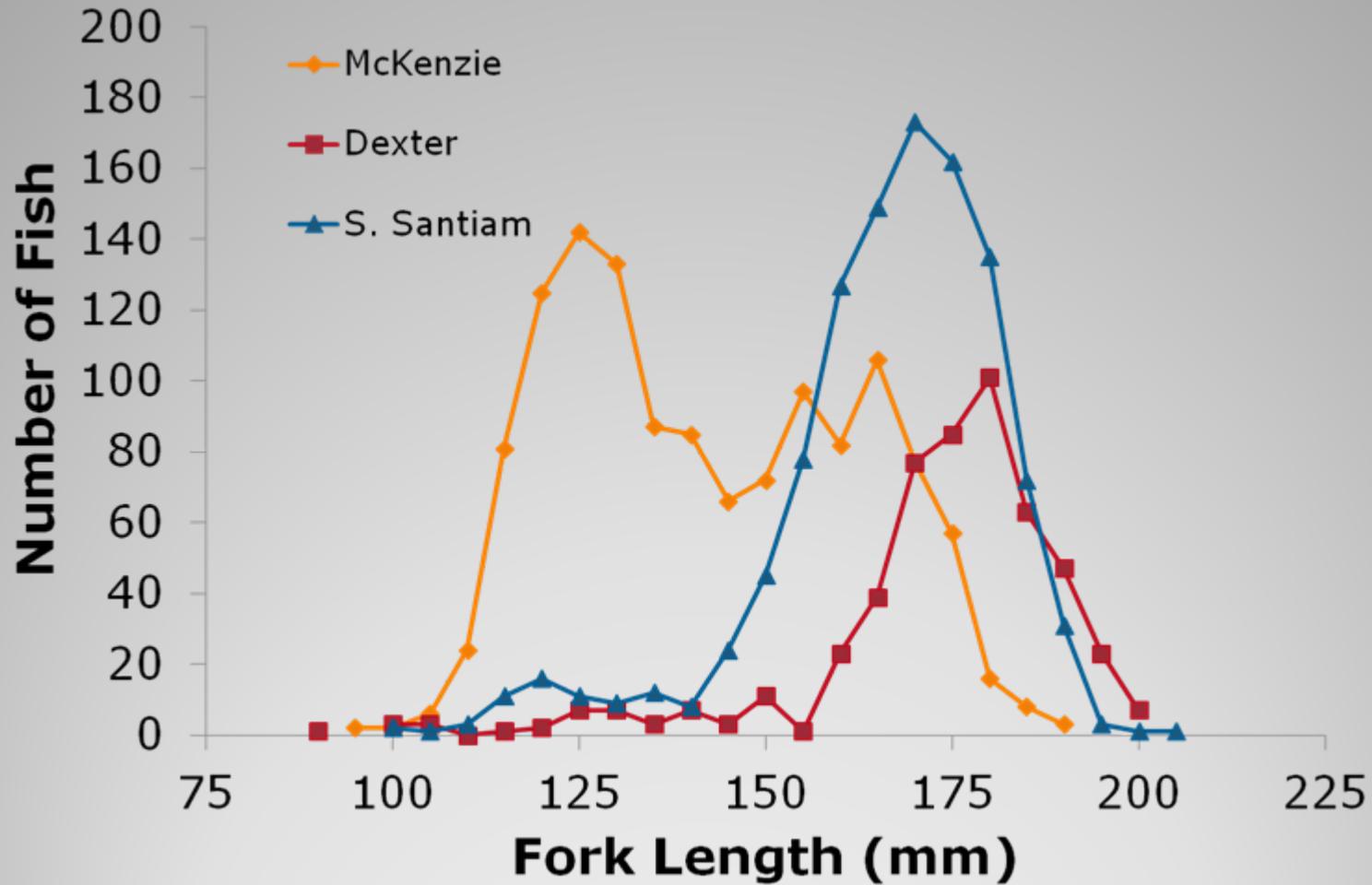
Maximum rate of redd construction



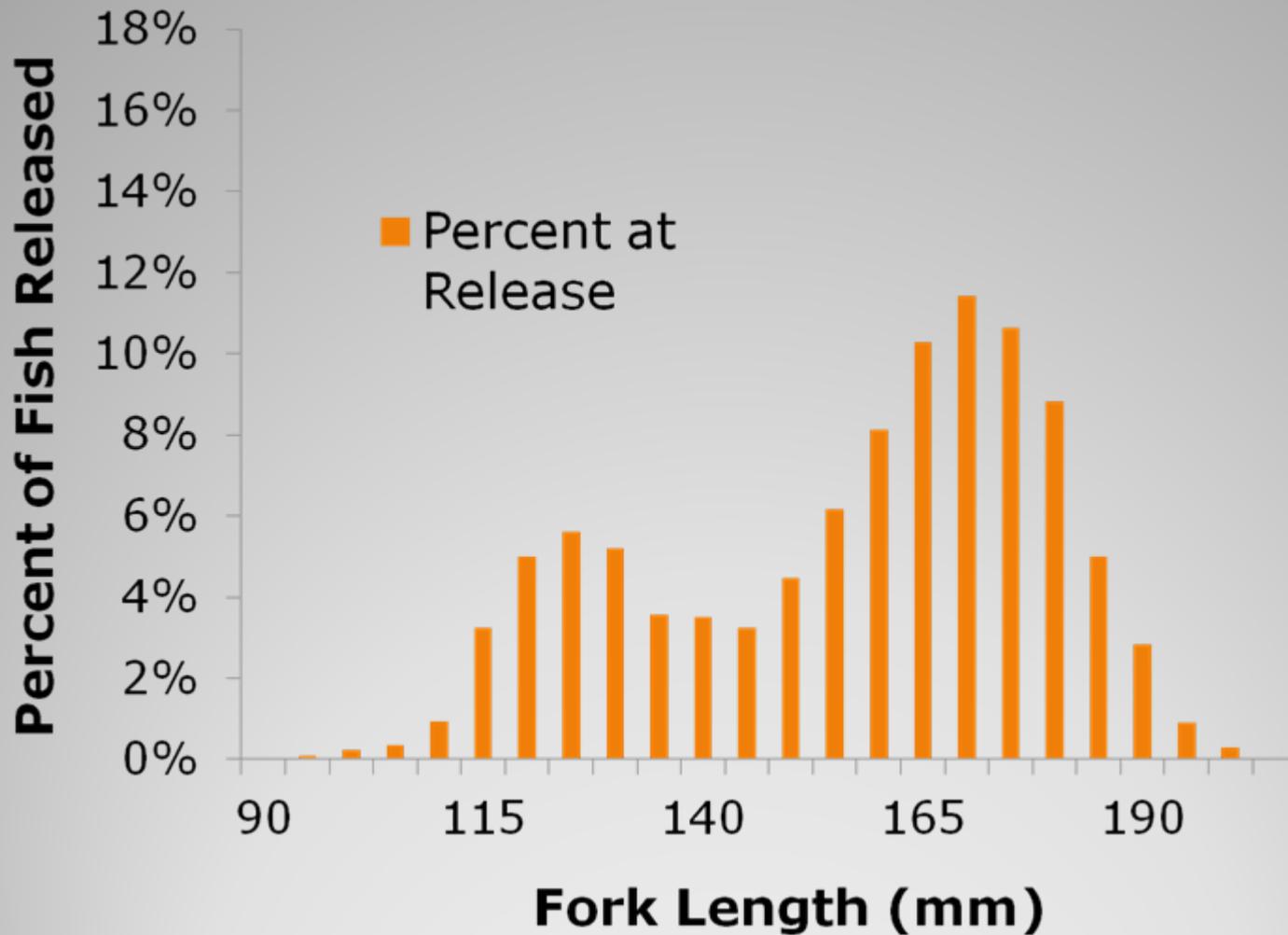
Spawning at McKenzie Hatchery in 2012

- Pre-liberation Samples
 - November 2012 release only
- Migrant Samples
 - November 2012 release only
- Fish Pathology
 - Brood Year 2010 Spring Release & BY 2011 Fall Release

Juvenile Monitoring: McKenzie H.



Juvenile Chinook salmon released in 2012 (November Release)



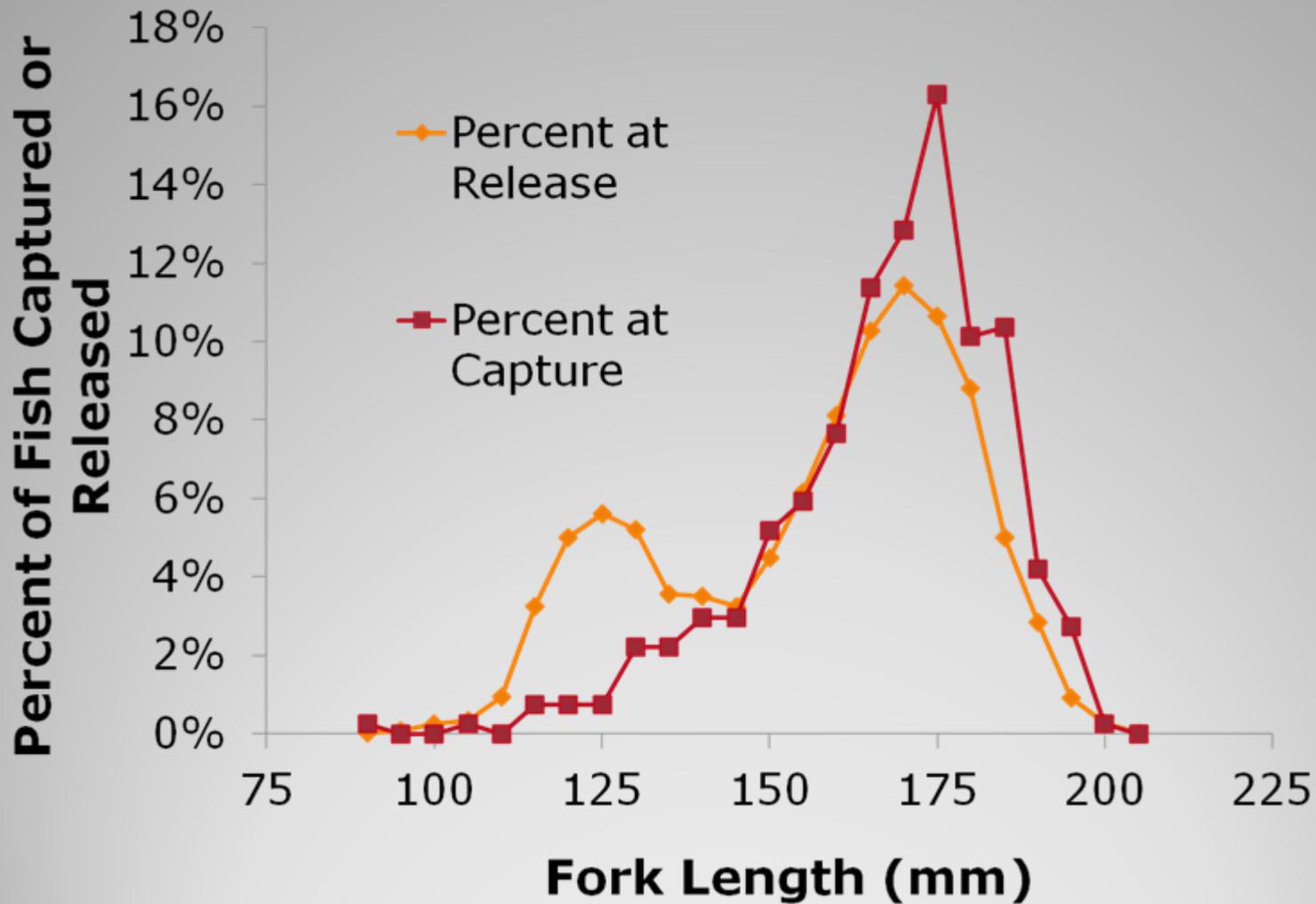
**Juvenile Chinook salmon released
in 2012 (November Release)**







- Willamette Falls Sampling
 - Species Composition (Hatchery and Wild)
 - Biometrics (FL, Wt, Morphology)
 - CWT detection/recovery
 - PIT tag detection



Released vs. Captured at Willamette Falls

- Fish Pathology

- CHS (McKenzie Stock):
EIBS/CWD is several ponds.
CWD treated.
- CHS (N. Santiam Stock adults):
High prespawn mortality due to
fungus (damage from trap and
transport from Bennett)

Fish Pathology Report:
McKenzie Hatchery

- Program Changes
 - Reprogramming Spring 2012/2013 Chinook Releases to Coast Fork (267K)
 - Shifting production to Willamette Hatchery (using Willamette stock) for future Coast Fork releases
 - Shifting 100K production of McKenzie stock to SAFE

Program Changes: McKenzie H.

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

WRITE THIS DOWN!!!



Photo by Brian Franklin 9/21/2012