

Clearwater River Basin Hatchery Steelhead



ISRP Review Symposium

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Idaho Dept of Fish and Game

Acknowledgements

Hatchery Staff

- CFH
- DNFH

Clearwater Regional staff

Eagle Fish Genetics Lab

Harvest monitoring crews

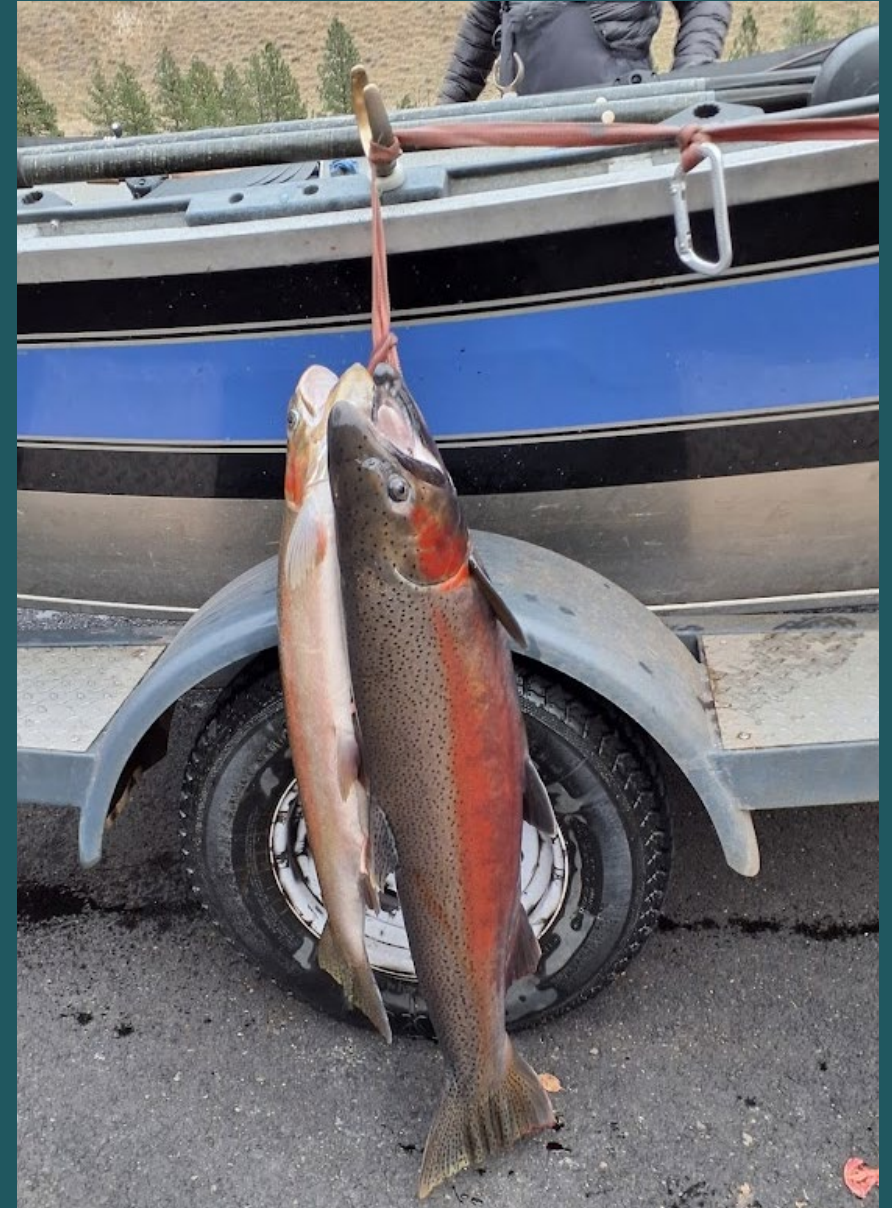
Mark/Tagging crews

Data coordinators

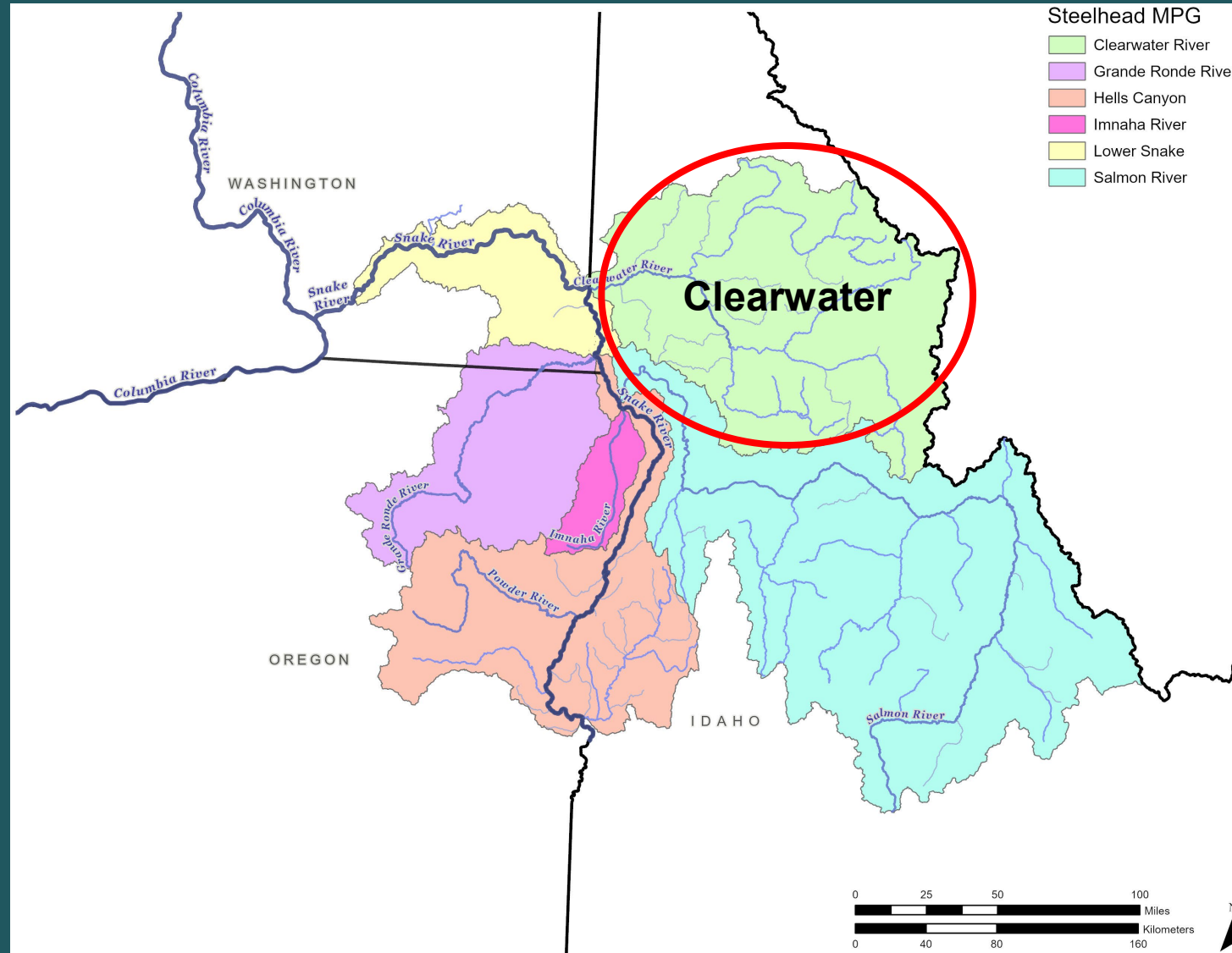


Outline

- Management Objectives
- Management Framework
- Natural Populations
- Mitigation Goals
- Hatchery Program
- Hatchery Performance
 - In-hatchery
 - Post release
- Harvest Mitigation
- Program Summary



On the Map- Clearwater R. Basin



Management Objectives for Hatchery Program

- Restore and maintain recreational and tribal fisheries
- Meet LSRCF adult mitigation goals
- Reduce impacts of the hatchery program on natural populations



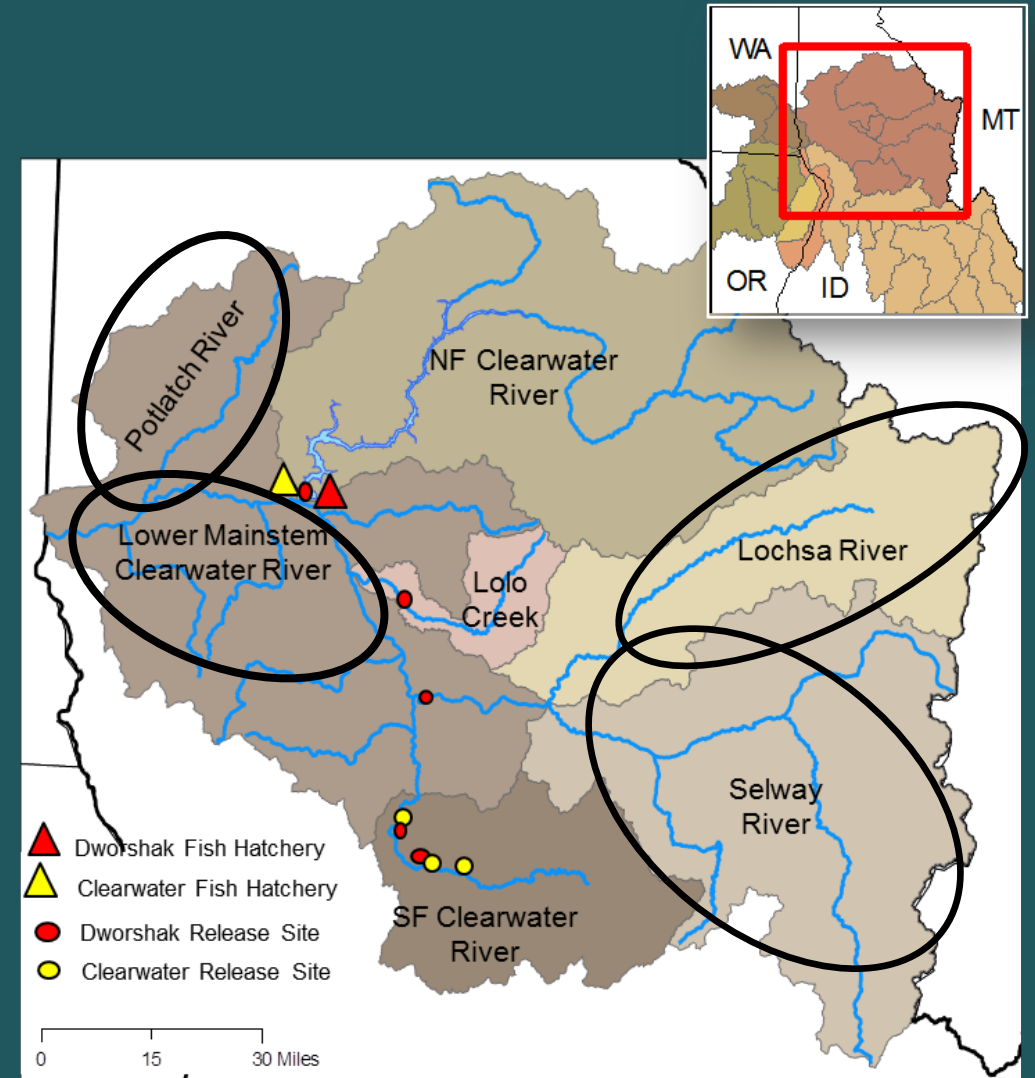
Management Objectives for Natural Populations

- Restore and maintain existing natural populations in the Clearwater River
- Reduce impacts of the hatchery program on natural populations by managing areas specifically for natural population emphasis



Management Framework

- South Fork Clearwater managed with significant hatchery footprint
- Confine releases of hatchery steelhead
 - SF Clearwater R.
 - NF Clearwater R.
 - Lolo Creek
 - Clear Cr.
- Manage all other areas for natural population emphasis

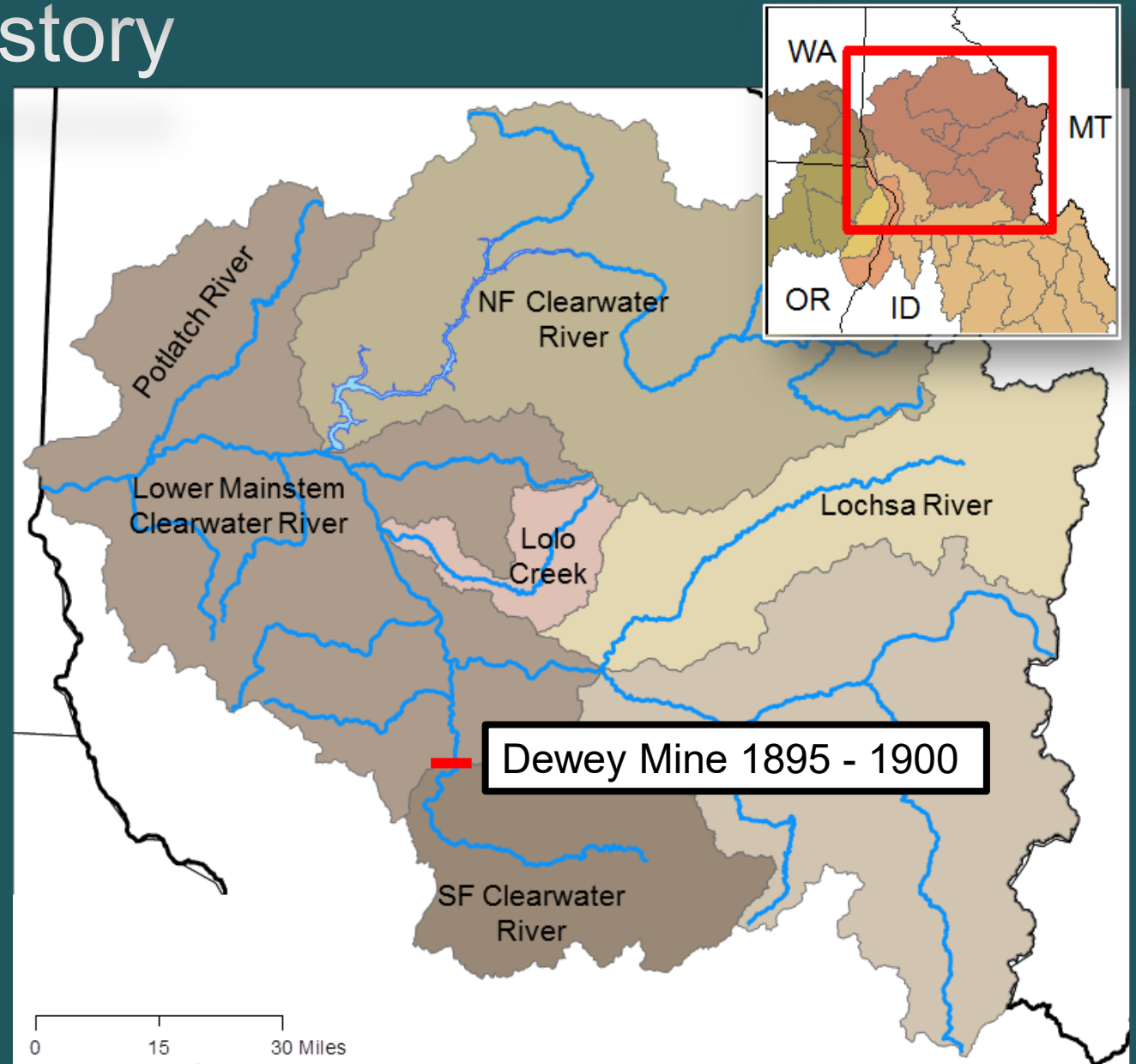
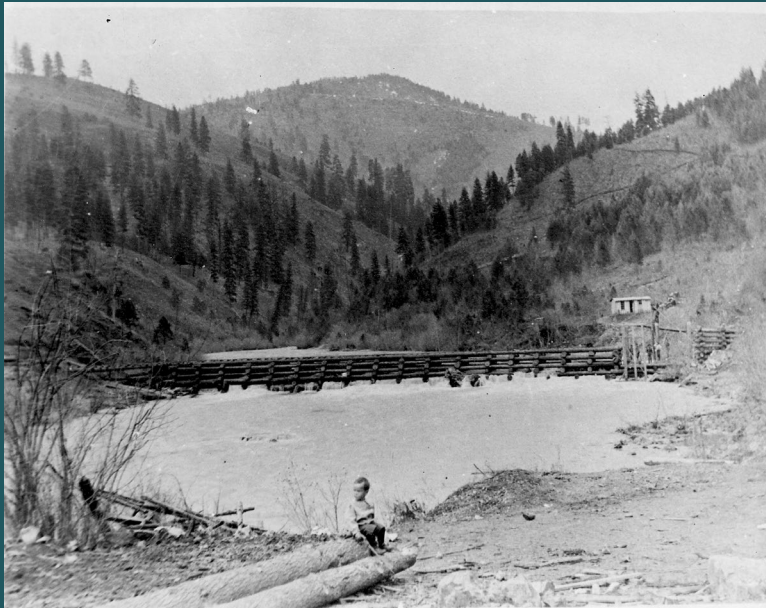


Natural Populations - History

Prior to 1900

Dewey Mine

- Hydropower
- No official record of fish passage
- Resident complaints to the Game and Fish Commission



Natural Populations - History

1900 – 1935

Kooskia Flour Mill – hydropower

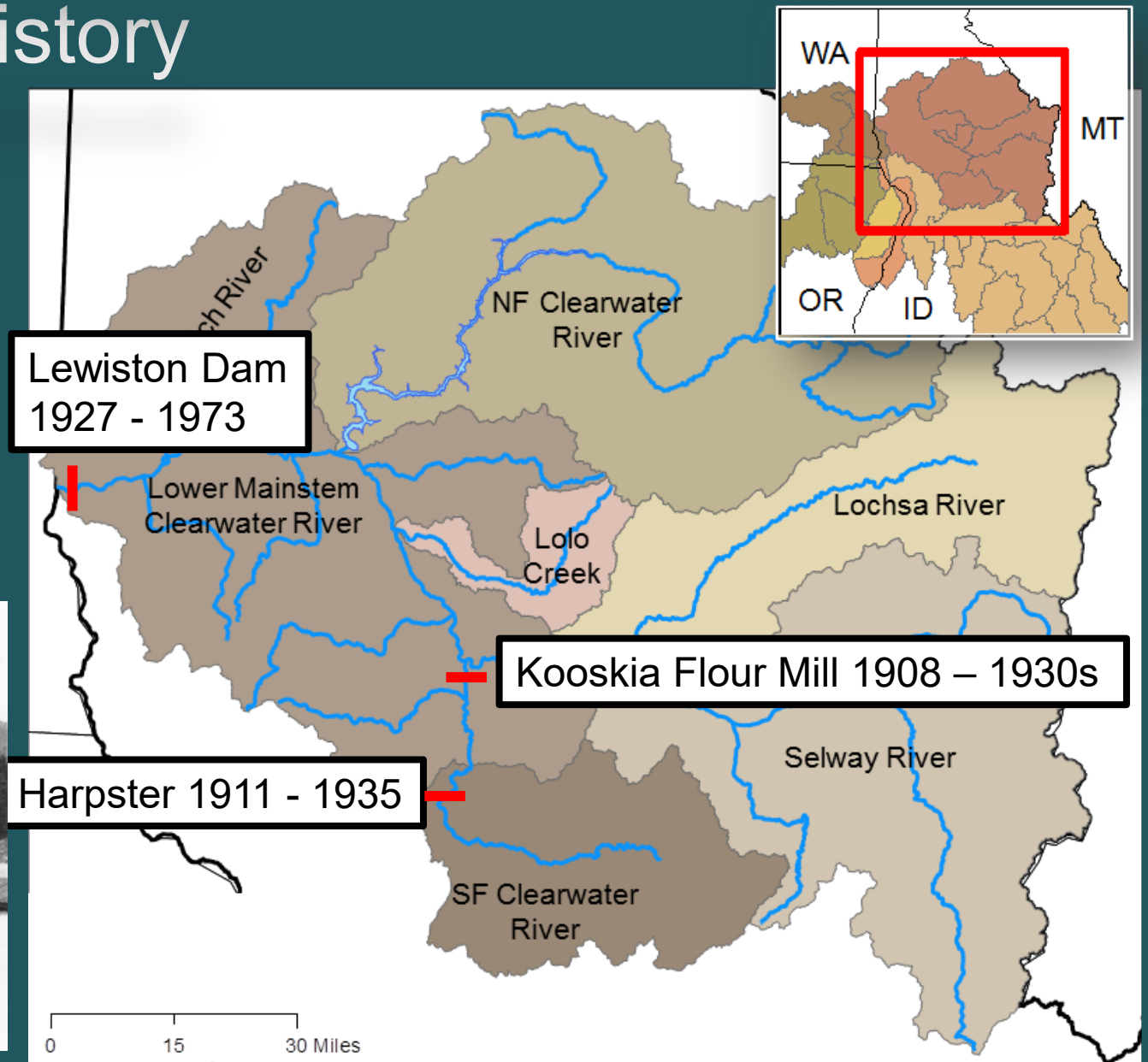
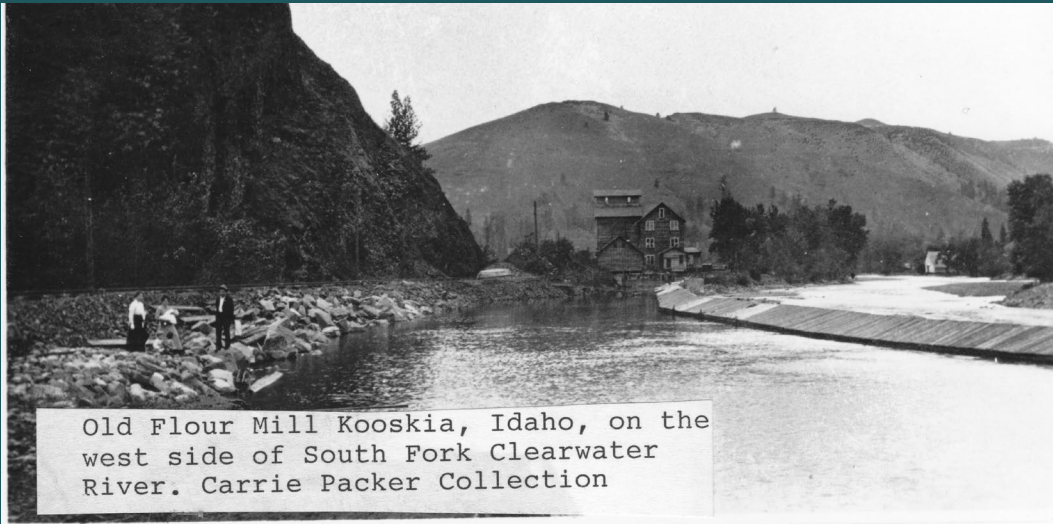
- Fish passage unknown

Harpster Dam (Washington Water Power)

- No fish passage

Lewiston Dam

- Fish passage present

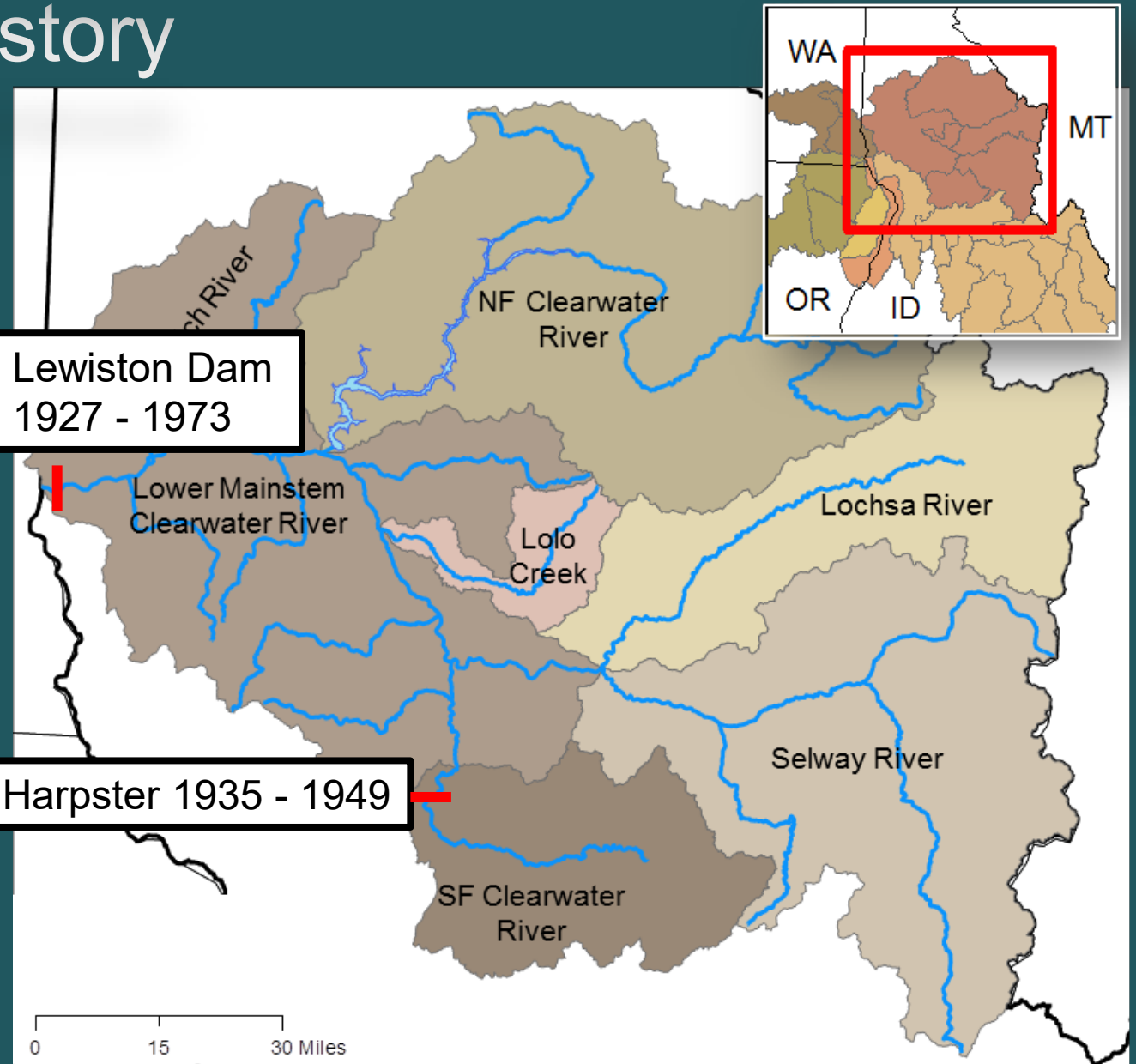


Natural Populations - History

1935 - 1949

Harpster Dam (Washington Water Power)

- Fish ladder in operation
- Failed to pass significant numbers of fish



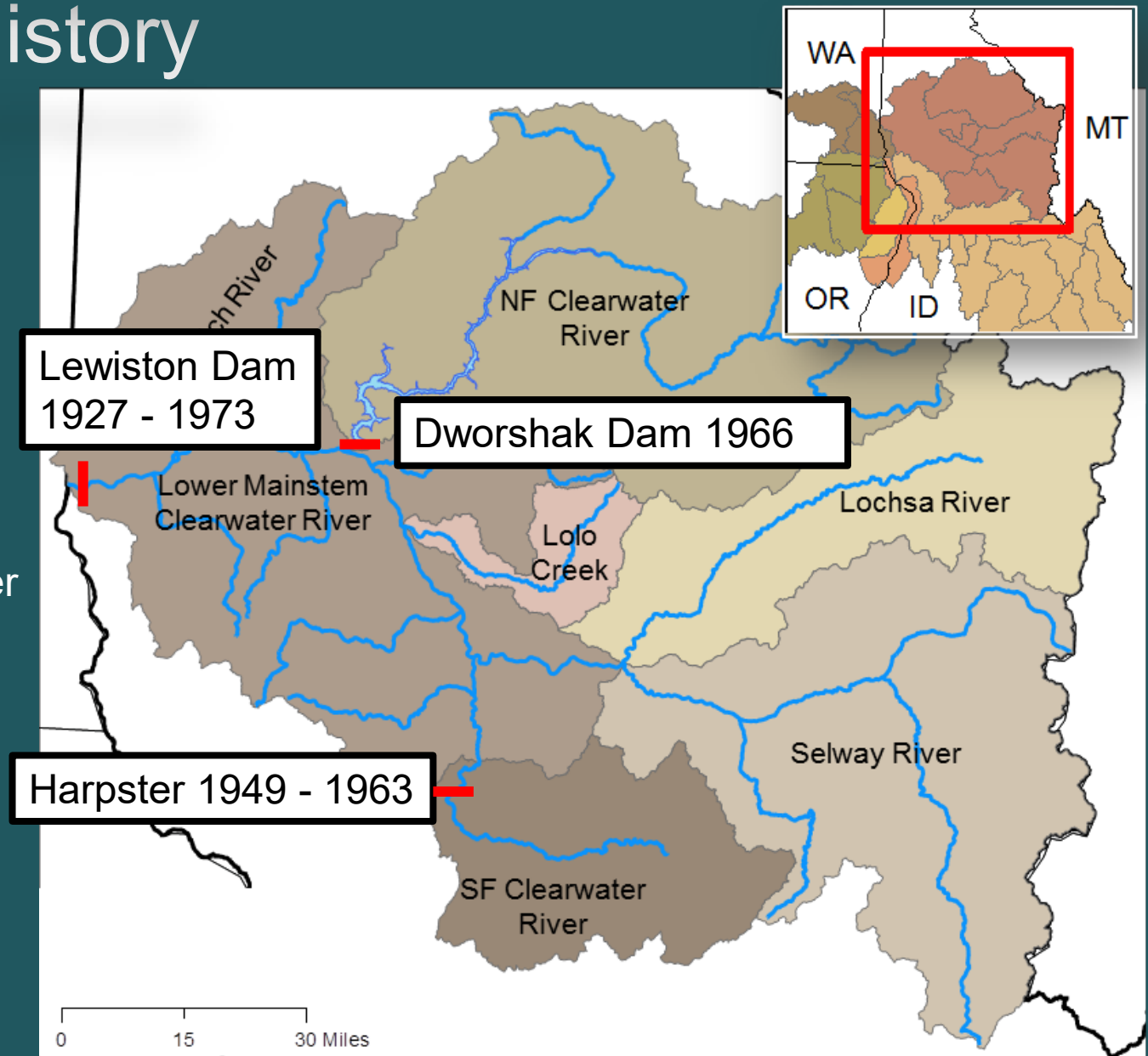
Natural Populations - History

1949 – 1973

Harpster Dam (Washington Water Power)

- No fish passage
- Reintroduction efforts from Lewiston Dam (1962)
- Removed 1963
- 40 years of no fish passage

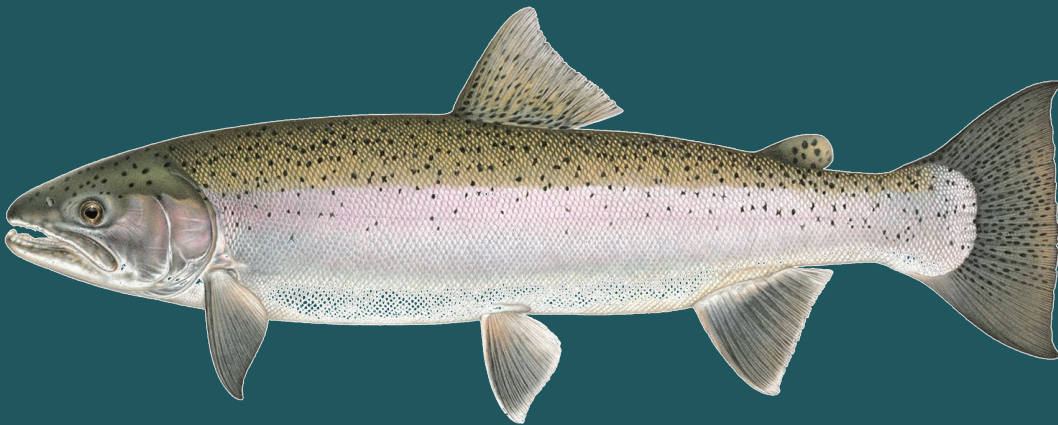
Dworshak Dam blocked entire NF Clearwater River
Lewiston Dam Removed



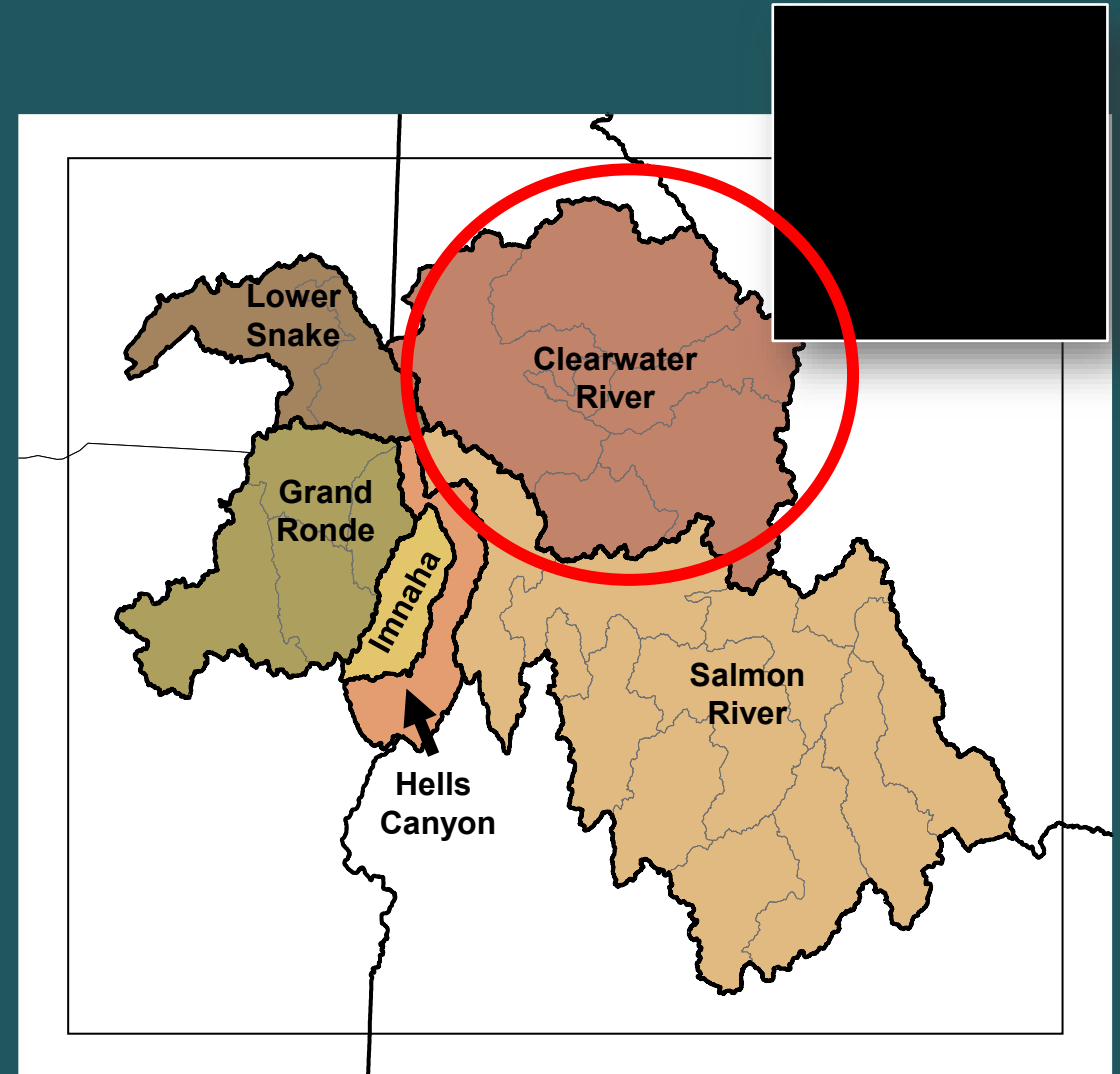
Status of Natural Populations

Snake River Distinct Population Segment (DPS)

- Listed as Threatened in 1997
- Six Major Population Groups (MPGs) in the DPS
 - None are currently viable
- Clearwater River Major Population Group (MPG)
 - 5 extant populations
 - 1 Blocked population



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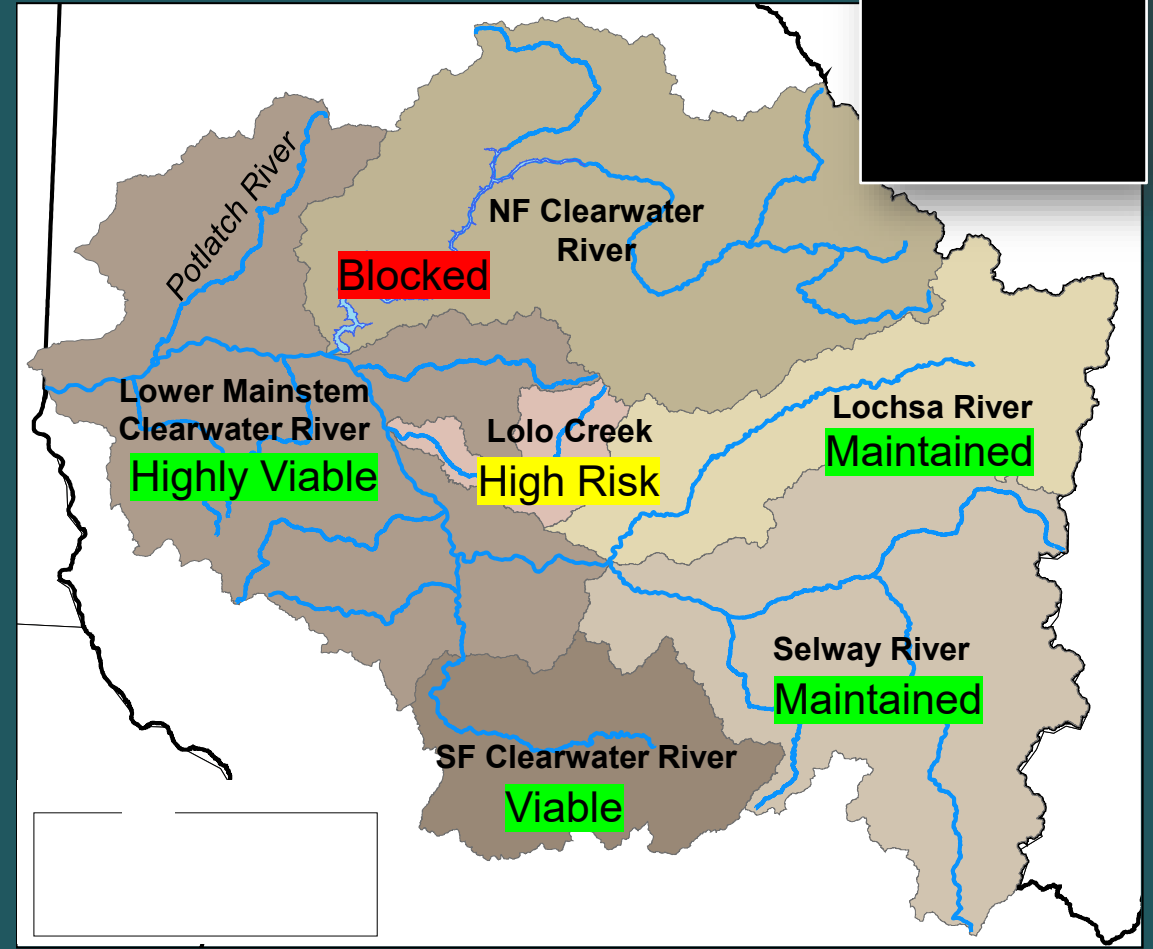
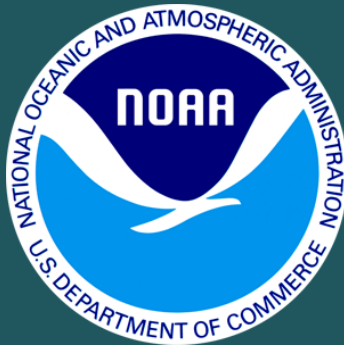


Natural Populations- 2022 ESA Status Review- Clearwater MPG

MPG Recovery Scenario

Three populations must be viable (1 highly viable)
Two remaining populations must be at least maintained

Population	Overall Risk Rating
Lower Mainstem Clearwater R.	Highly Viable
North Fork Clearwater R.	Blocked
South Fork Clearwater R.	Viable
Lolo Cr.	High Risk
Lochsa R.	Maintained
Selway R.	Maintained



Hatchery Mitigation Goals

Total Adult Goal

- 2:1 ratio of catch to escapement

Original smolt release target

- 1,750,000
- Production limited by water availability

CFH accounts for 25% of LSRCP mitigation goal



Metric	Clearwater FH
Adult Goal (above Project Area)	14,000
Adult Goal (below Project Area)	28,000
Total Adult Goal	42,000
SAR needed to Reach Goal	1.66%
SAS needed to Reach Goal	4.98%
Current Smolt Release Target	843,000
Total LSRCP Project Area Goal	55,100
LSRCP Total Adult Goal	165,300

Hatchery Program

- Clearwater Fish Hatchery
 - 843,000 Smolt Target
 - LSRCP Funded
 - Angler brood collection in SF Clearwater R.
- Dworshak National Fish Hatchery
 - 2,100,000 smolt target
 - USACOE Funded
 - Adult brood trapped in NF Clearwater R.
 - Spawning for both facilities occurs here



Hatchery Program: Inter-Agency Coordination

Pre- and Post-Season Meetings

- Juvenile releases
- Harvest
- Brood collection

Annual Operating Plans (AOP and SOP)

Fishery Planning

In-Season Weekly Coordination Calls

- Adult estimates and projections
- Conversion rates



2024 ANNUAL OPERATING PLAN for FISH PRODUCTION PROGRAMS in the CLEARWATER RIVER BASIN by U.S. Fish and Wildlife Service Idaho Department of Fish and Game Nez Perce Tribe February 26, 2024	Standard Operating Procedures for Fish Production Programs in the Clearwater River Basins Prepared by Idaho Department of Fish and Game Nez Perce Tribe U.S. Fish and Wildlife Service
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Hatchery Program on the Landscape

Dworshak Reservoir

Bruce Eddy

The High Country Inn
Top rated

Ahsahka Water
& Sewer District

Clearwater River

Old ID 7

Clearwater Main
Fish Hatchery

Dworshak National
Fish Hatchery
Recently viewed

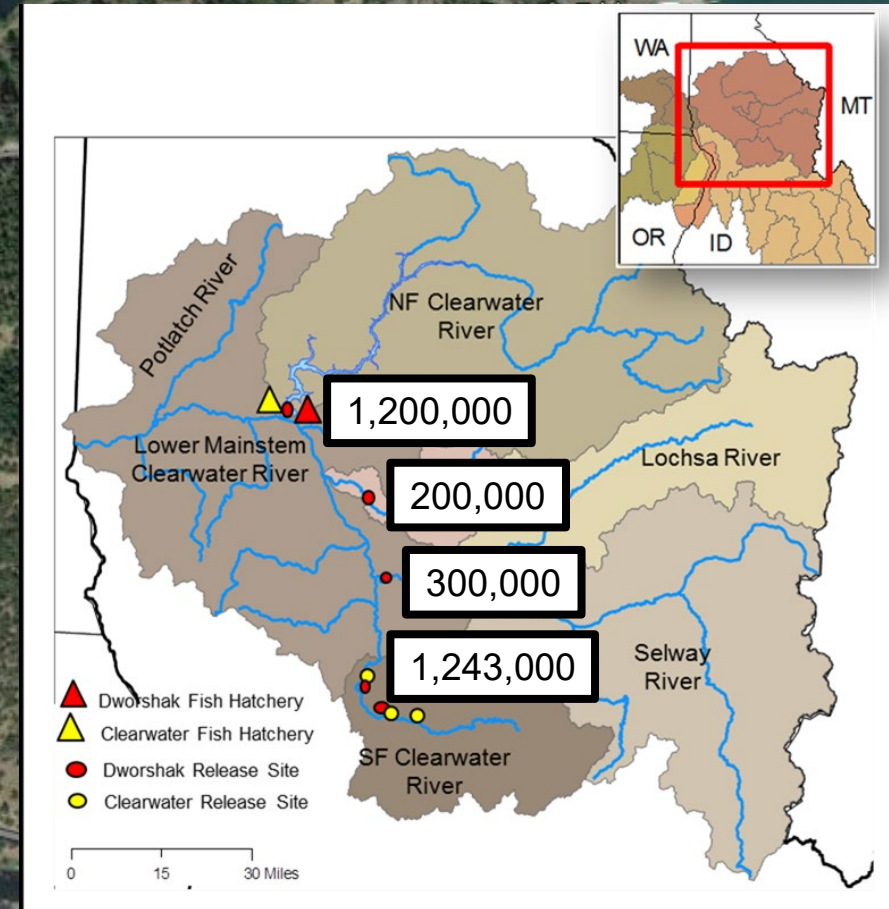
Cavendish Hwy

Clearwater River

Exxon
High-quality
premium gas

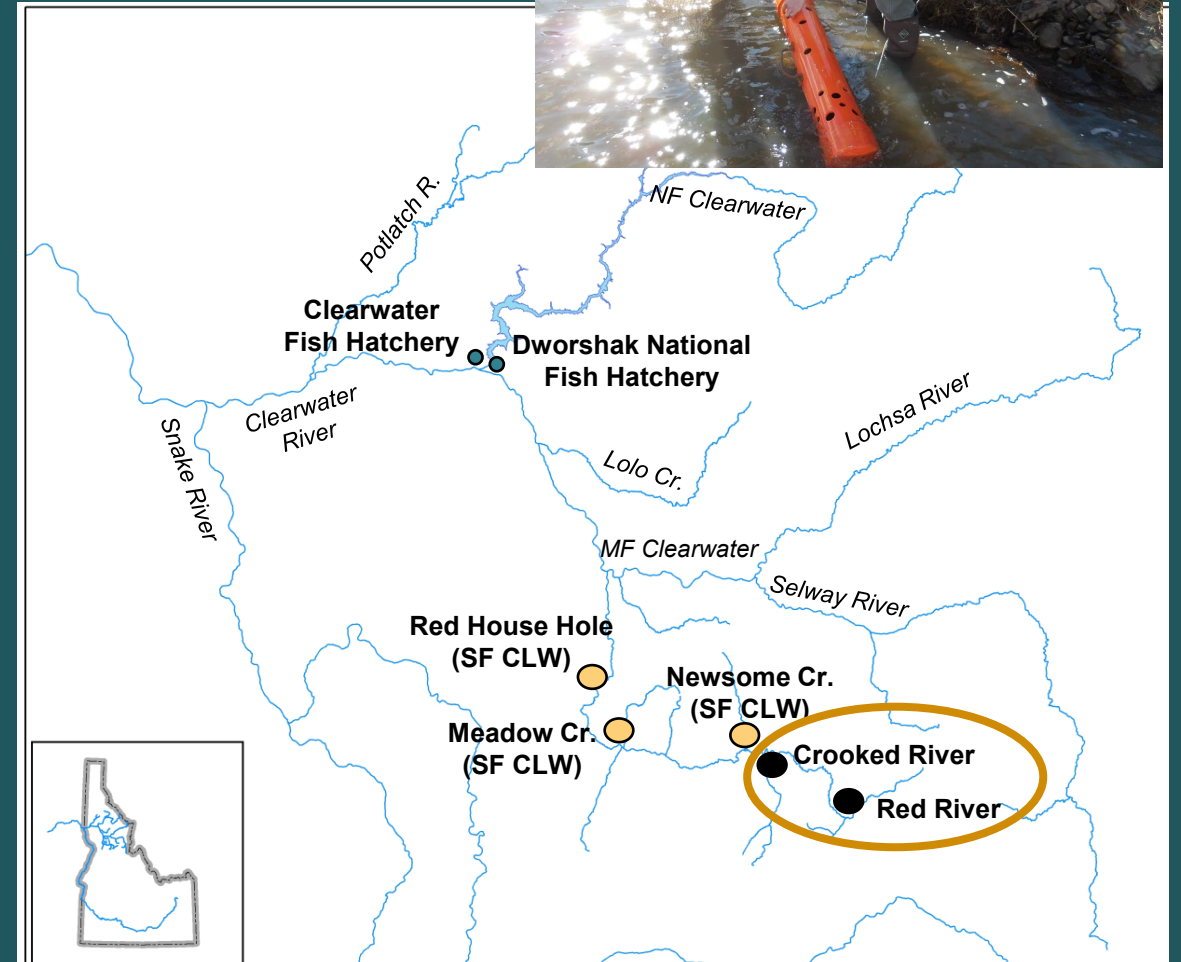
Barney's Harvest Foods
Kingdom Hall of
Jehovah's Witnesses

Google Earth



Hatchery Program- Broodstock History

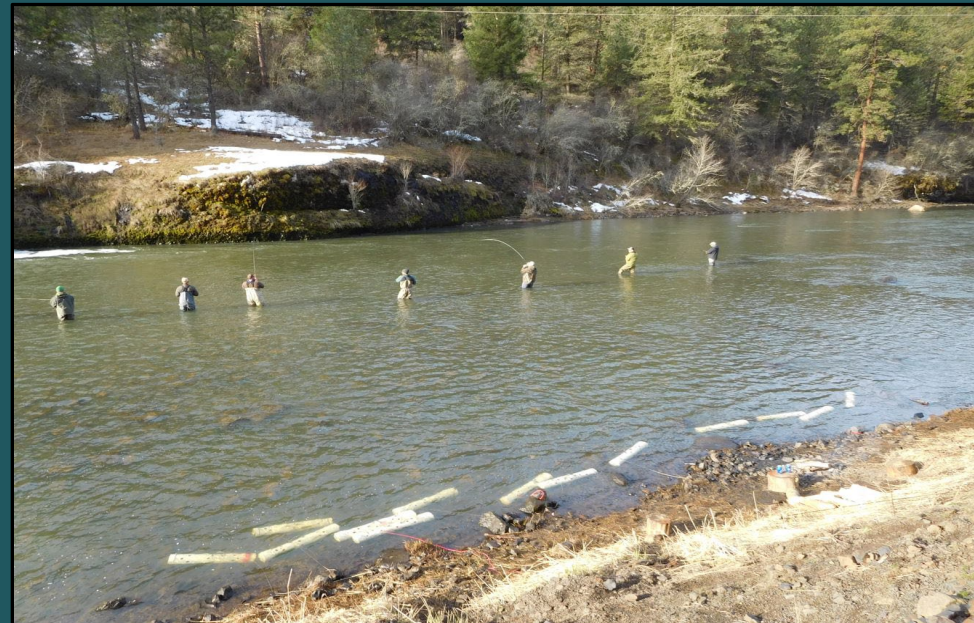
- NF stock
 - Wild fish returning to NF Clearwater R. in mid-1960s
 - No out of basin fish
- Dworshak NFH was source of eggs 1992-2009
- Locally adapted SF Clearwater R. Stock
 - Upper SF Clearwater collection failed
 - Fallout
 - Velocity barrier (~10 miles)



Hatchery Performance- Brood Collection

Since 2010, sourced from SF Clearwater River

- Volunteer angler contribution program
 - 2010 – IDFG & 50 Volunteers (12 days)
 - Current – 500 Volunteers (2 months)
- Current Broodstock goal – 181 females
- Goal met most years
- Backfilled with DWOR stock



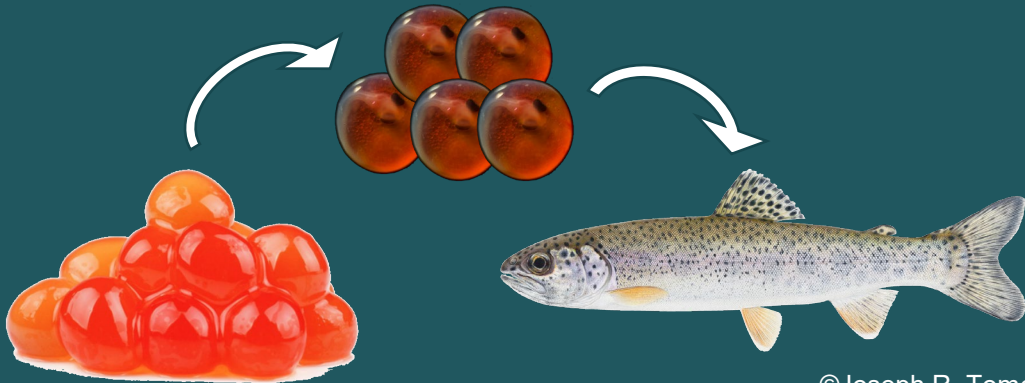
Hatchery Performance: In-Hatchery Survival

BY95 – 2023

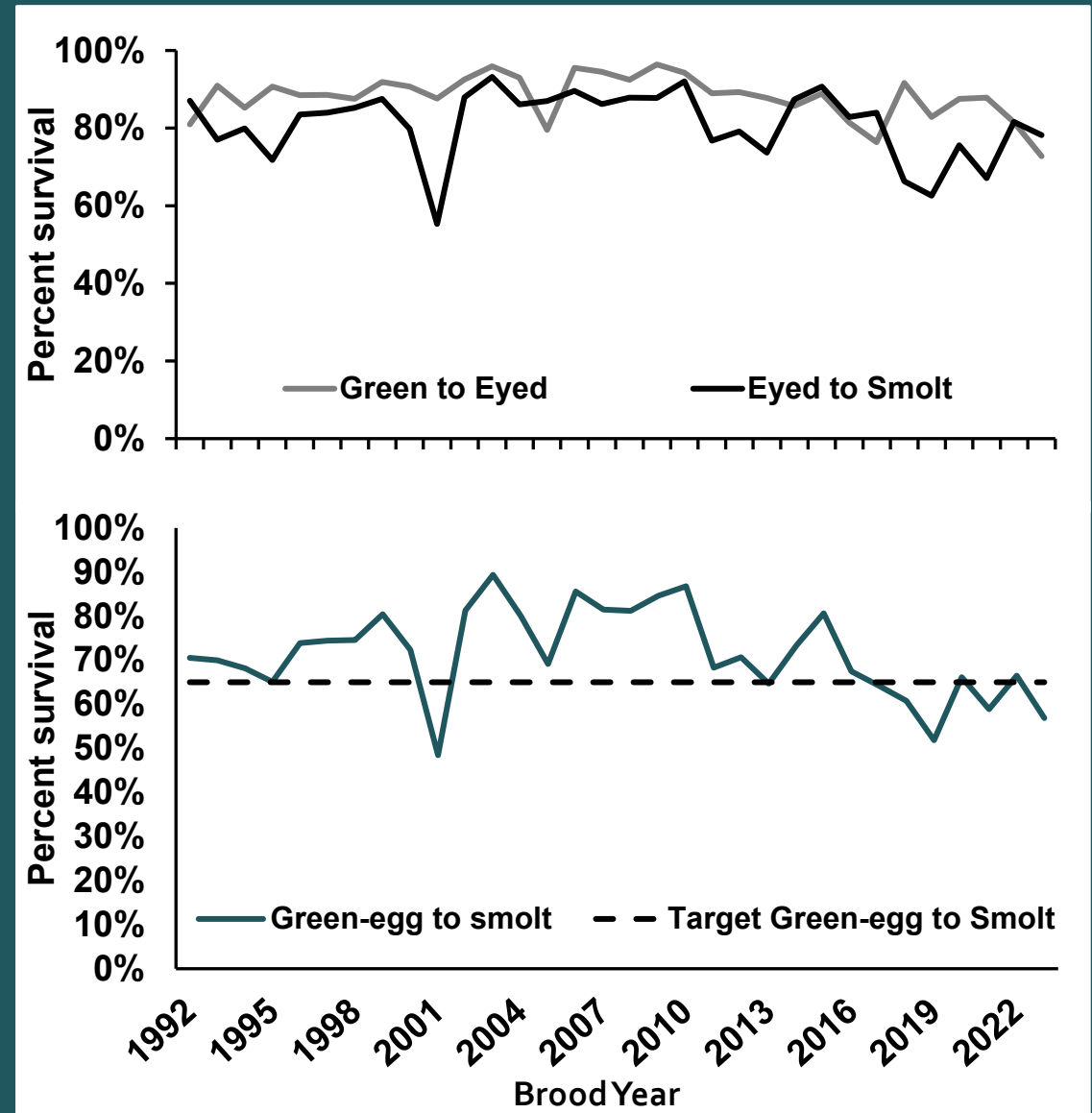
- Green to eyed-egg **88.4 %** (72.8 – 96.4)
- Eyed to smolt **81.1%** (55.3 – 93.2)
- Green egg to smolt **71.7%** (48.4 – 89.4)

BY10 – 2023

- Green to eyed-egg **85.5%** (72.8 – 94.2)
- Eyed to smolt **78.4%** (62.6 – 92.1)
- Green egg to smolt **66.9%** (51.9 – 86.8)



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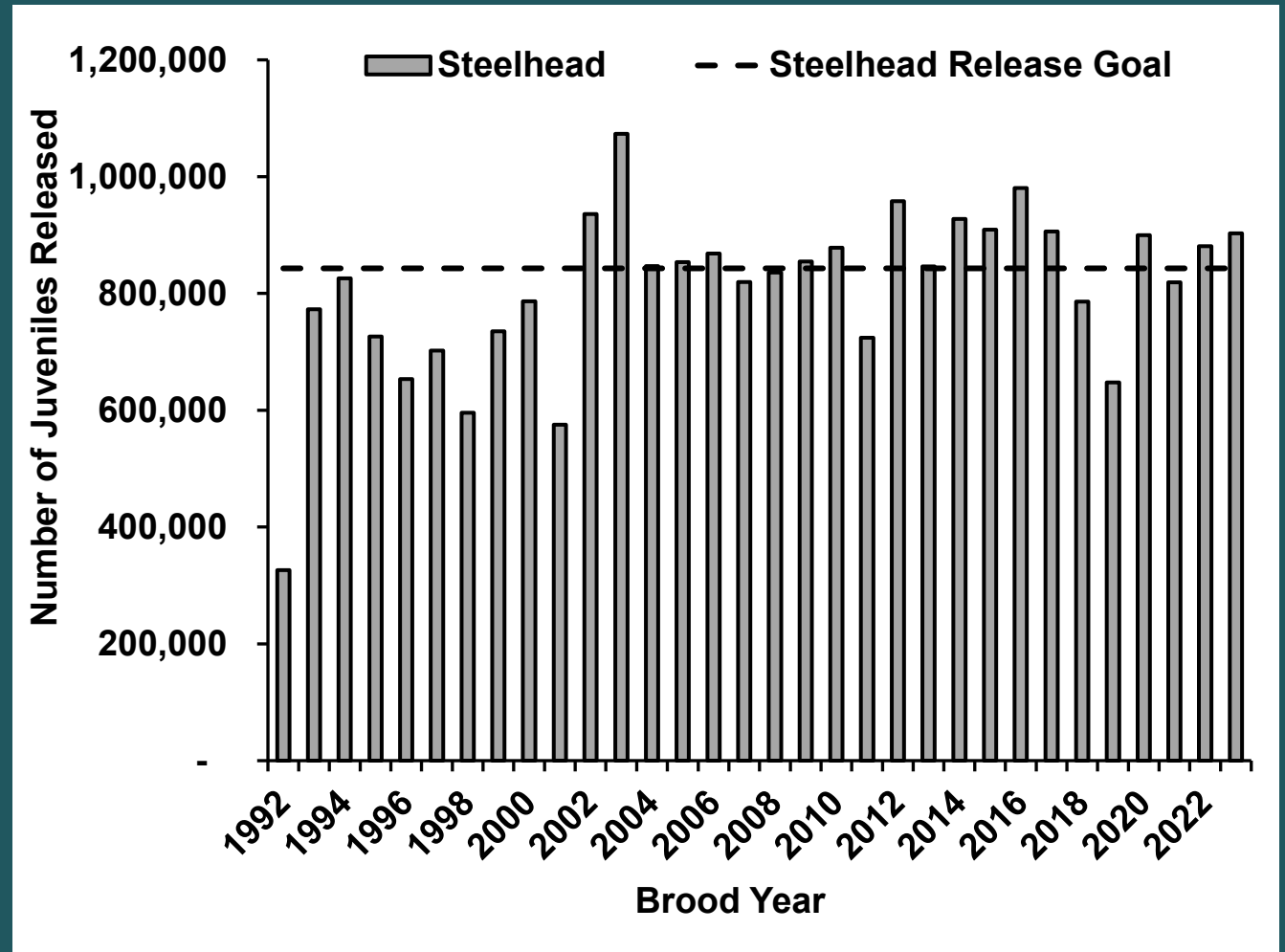


Hatchery Performance- Juvenile Releases

- Met release goal 12 of 14 years
- 5.4 FPP (4.4 – 7.8)



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Hatchery Performance- Juvenile outmigration Survival

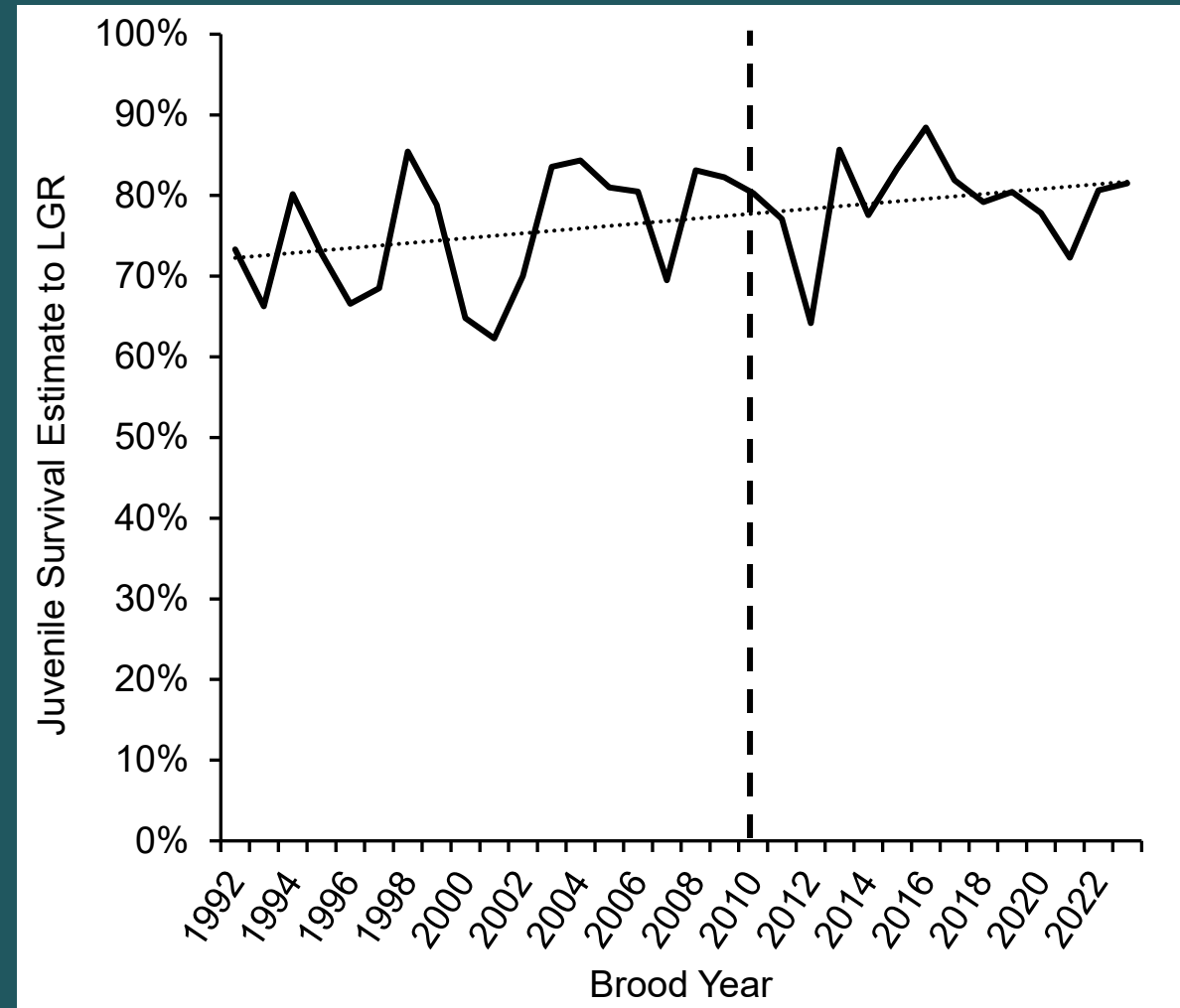
Direct Releases

BY95 – 2023

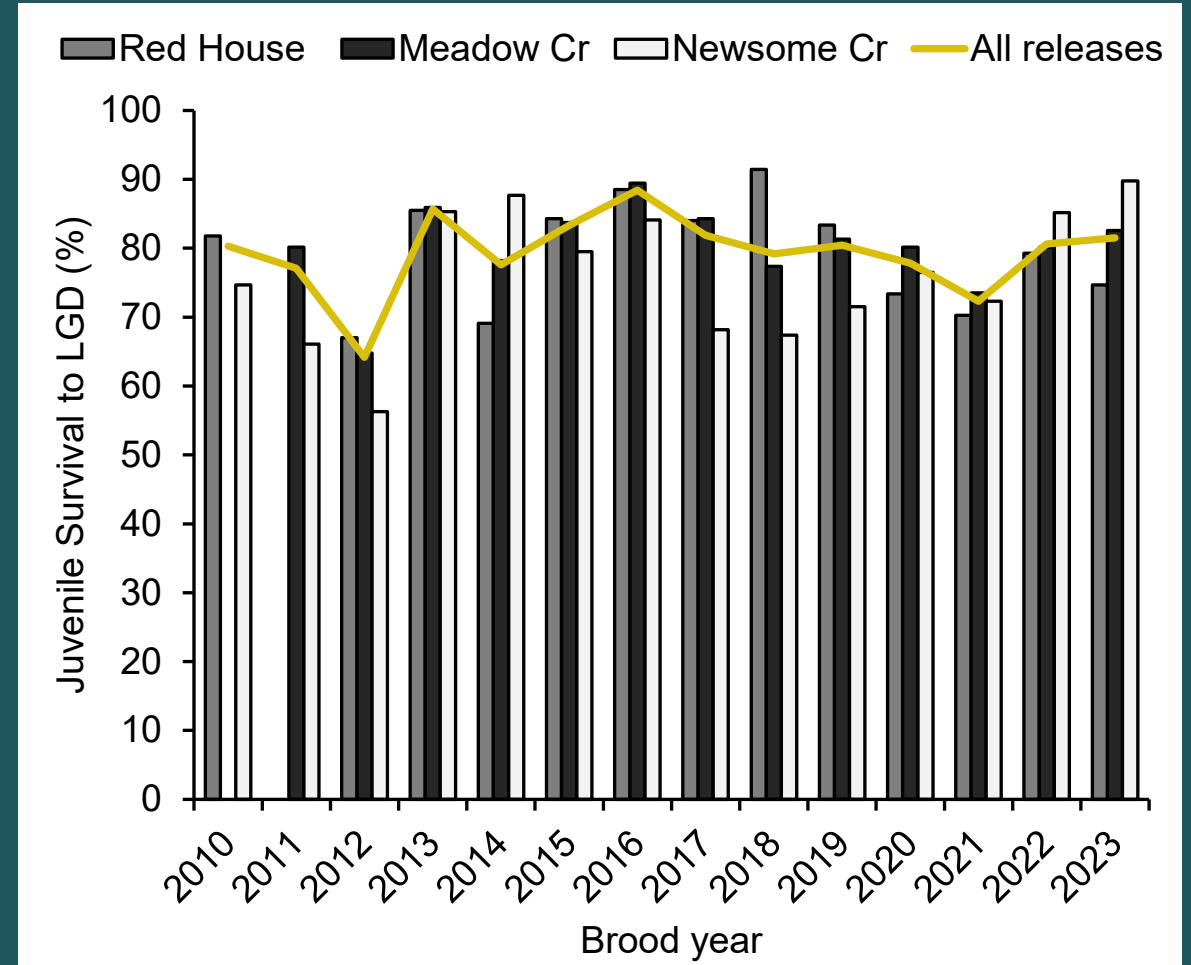
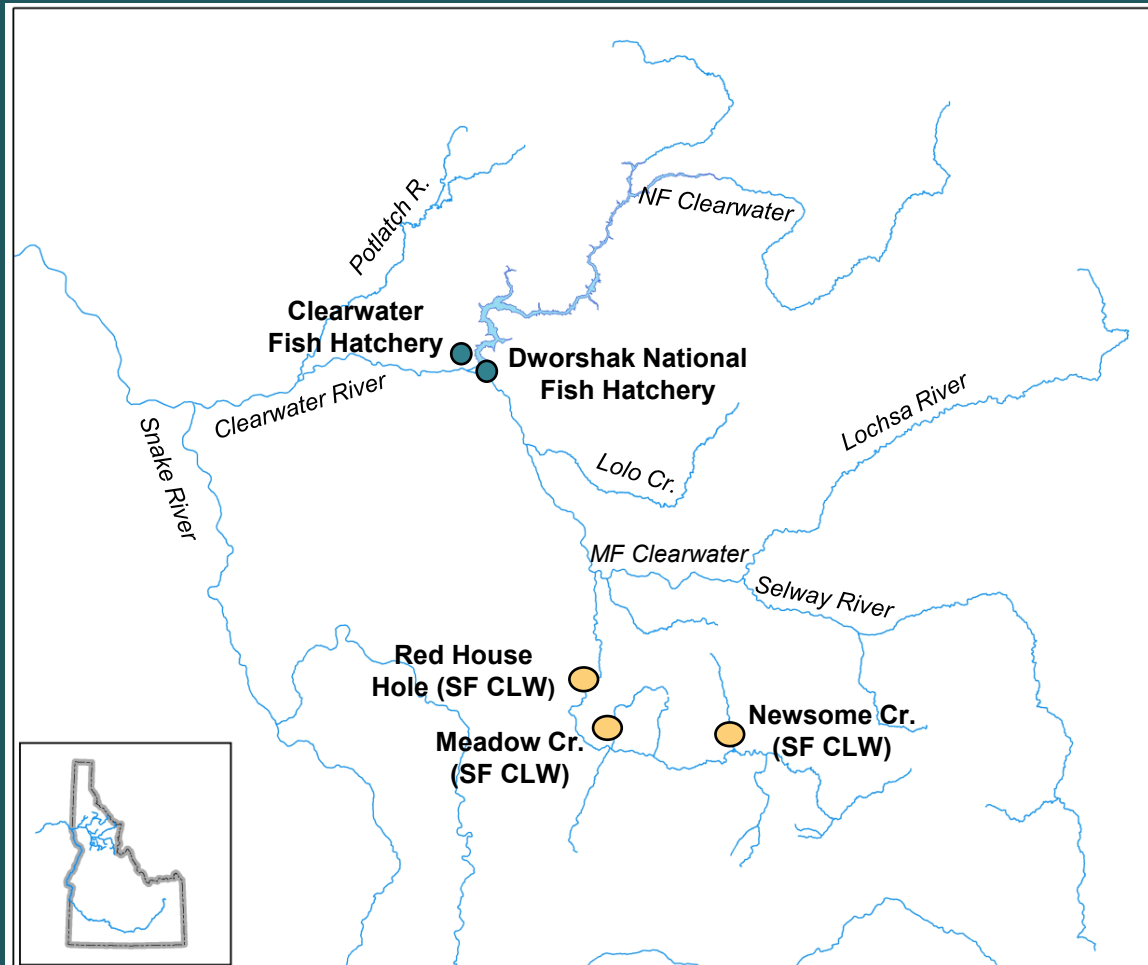
- 77.4% (62.3 – 88.4)

BY10 – 2023

- 79.3% (64.2 – 88.4)



Hatchery Performance- Juvenile outmigration Survival

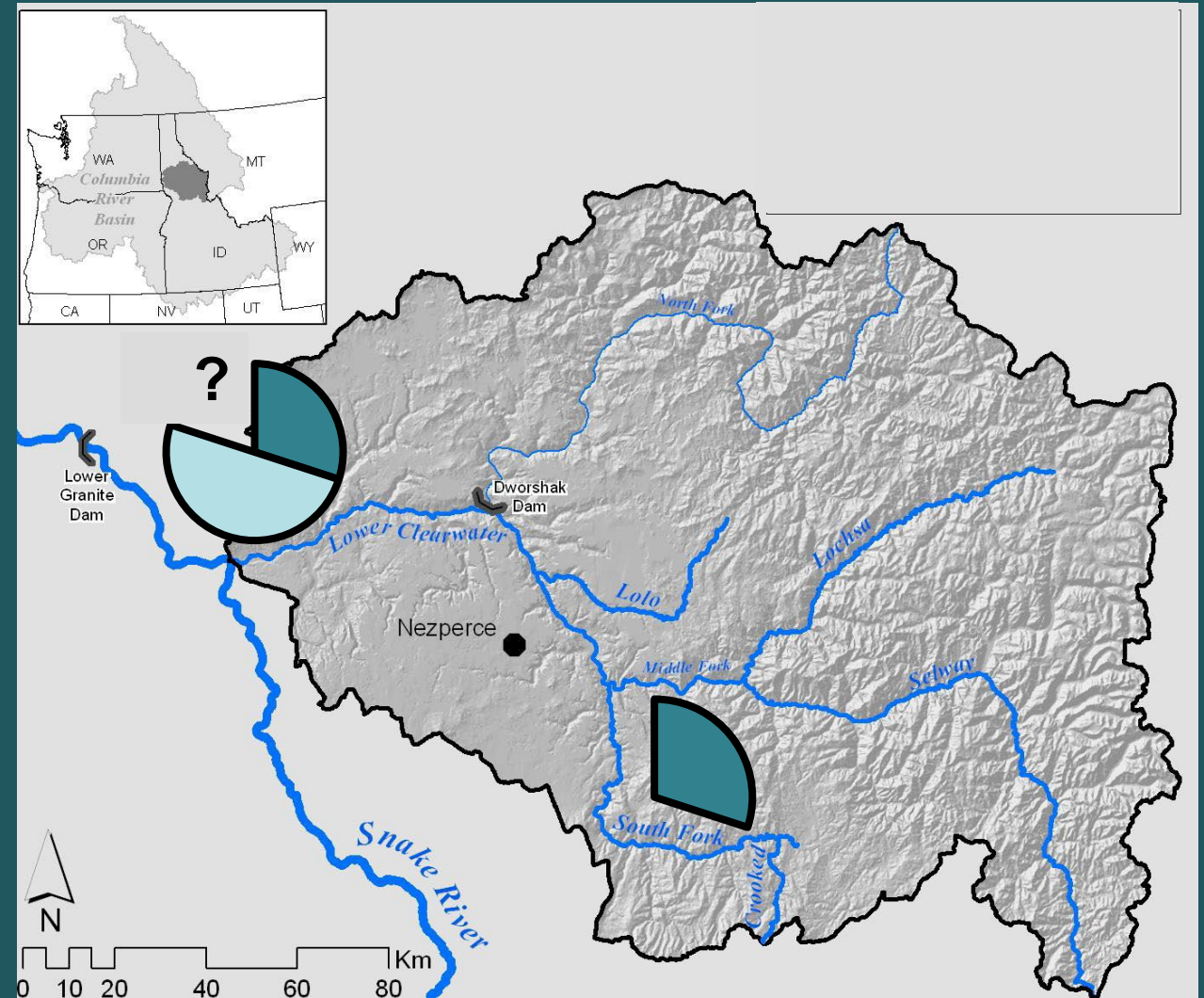


Hatchery Performance –Adult Returns and Survival

Methods

- **Project Area Returns**

- Historically Traditional Run Reconstruction
 - Hatchery Traps
 - Fisheries (CWT)
- Currently (since 2013)
 - Systematic sampling at LGD
 - 4 times an hour, 24/7
 - Genetic Analysis to estimate composition



Hatchery Performance –Adult Returns and Survival

Methods

- **Total Adult Return**
 - Historically Traditional Run Reconstruction
 - LGD estimate
 - Harvest BONN – LGD (CWT)
 - Harvest Downstream of BONN (CWT)
 - Strays
 - Hatchery racks
 - Fisheries
 - Spawning ground surveys
 - Currently (since 2013)
 - LGD estimate (PBT)
 - PIT tag conversion BONN to LGD
 - Harvest downstream BONN (PBT)



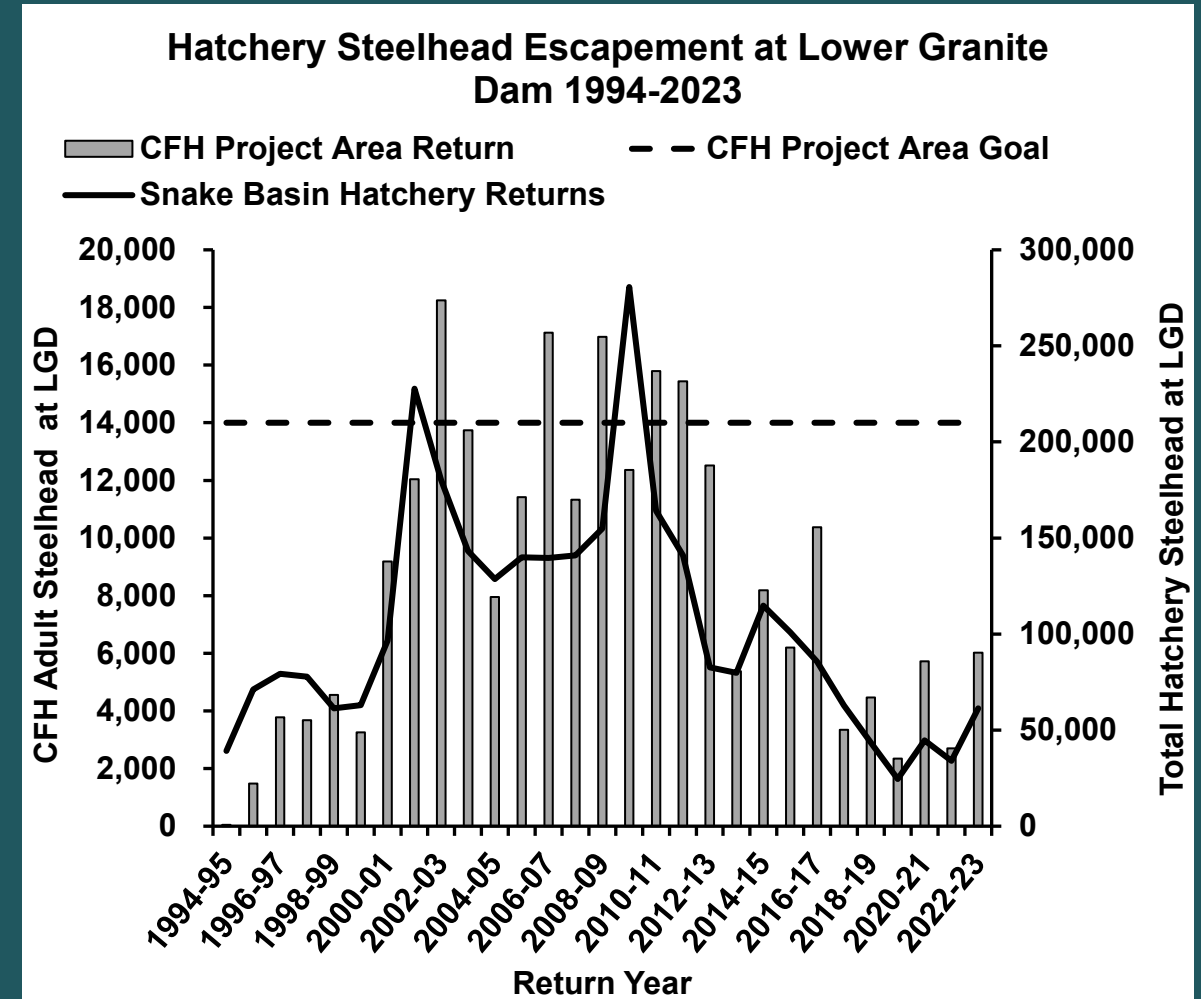
Hatchery Performance- Project Area Adult Escapement Goal

1995 – 2023

- 8,471 (44 – 18,243)
- 6 of 29 years

2010 – 2023

- 7,917 (2,341 – 15,789)
- 2 of 14 years
- Recent decrease from CFH is reflective of basin wide decline in returns
- Average percent of total hatchery return since 2000 is 9% (4-15%)
- CFH releases 9% of smolts upstream of LGD



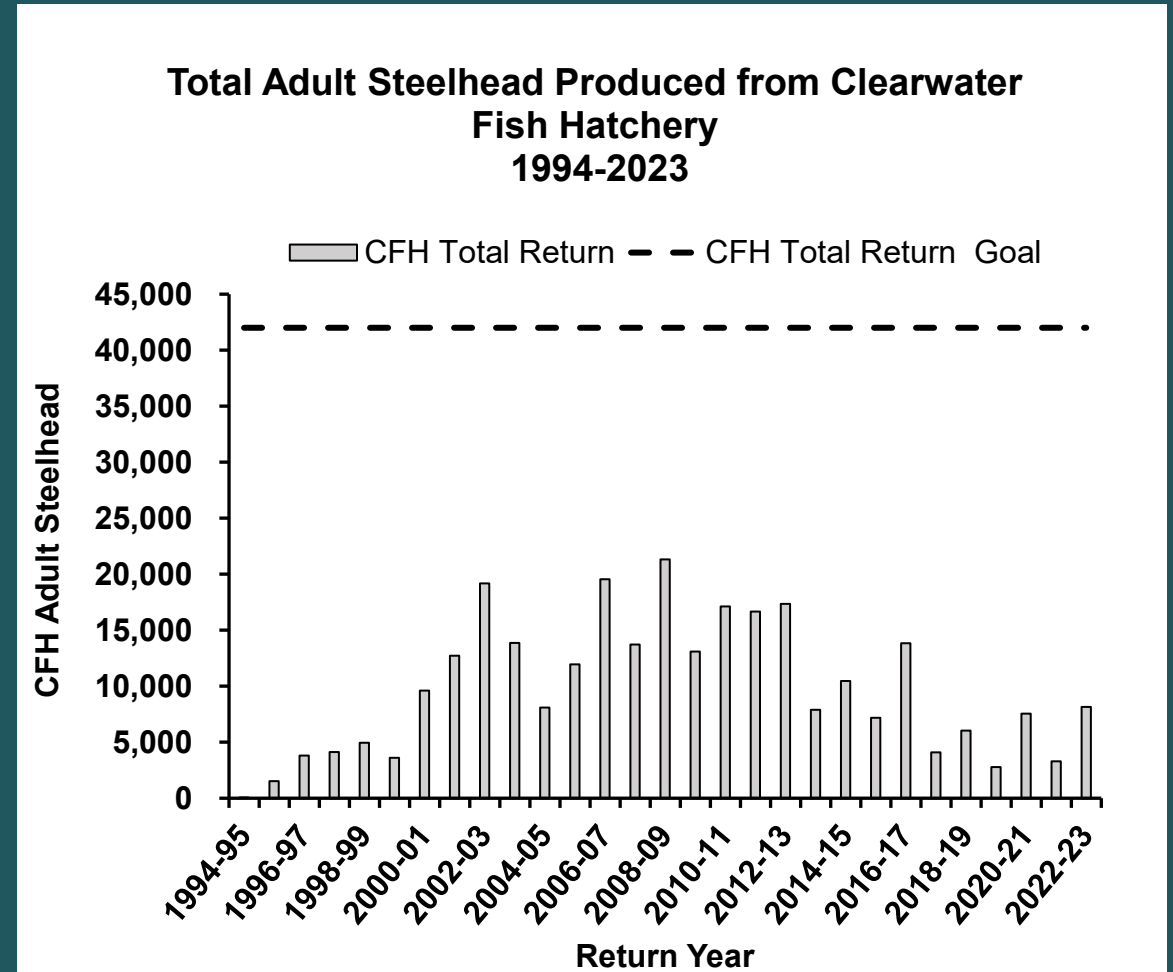
Hatchery Performance- Total Adult Return Goal

1995 – 2023

- 10,701 (2,784 – 21,311)

2010 – 2023

- 9,680 (2,784 – 17,345)



Hatchery Performance- Adult Survival

SAR (Smolt-to-Adult Return)

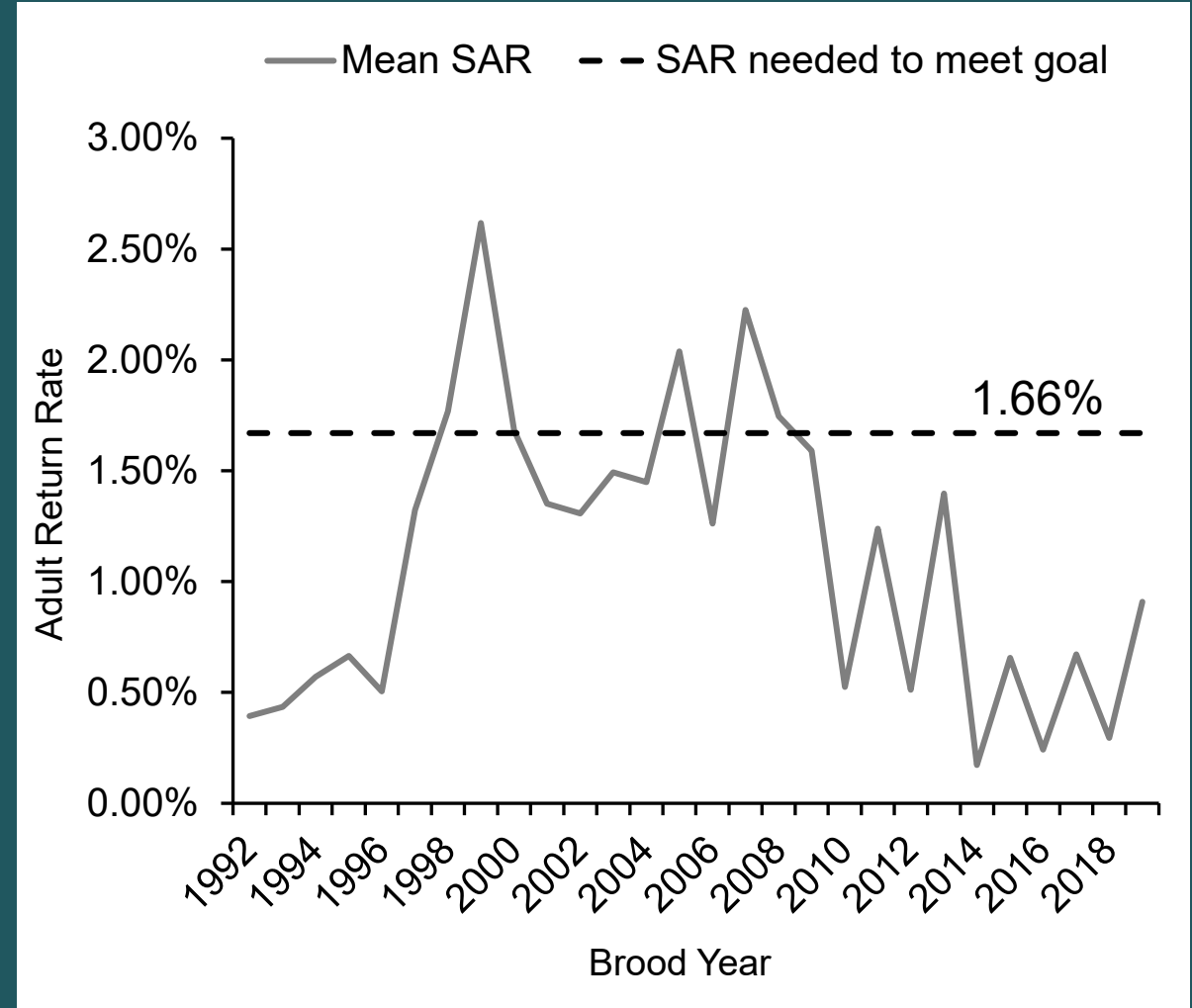
- % of smolts that return as adults to LGD

BY95 – 2019

- 1.19% (0.17 – 2.62)

BY07 – 2019

- 0.94% (0.17 – 2.23)



Hatchery Performance- Adult Survival

SAS (Smolt-to-Adult Survival)

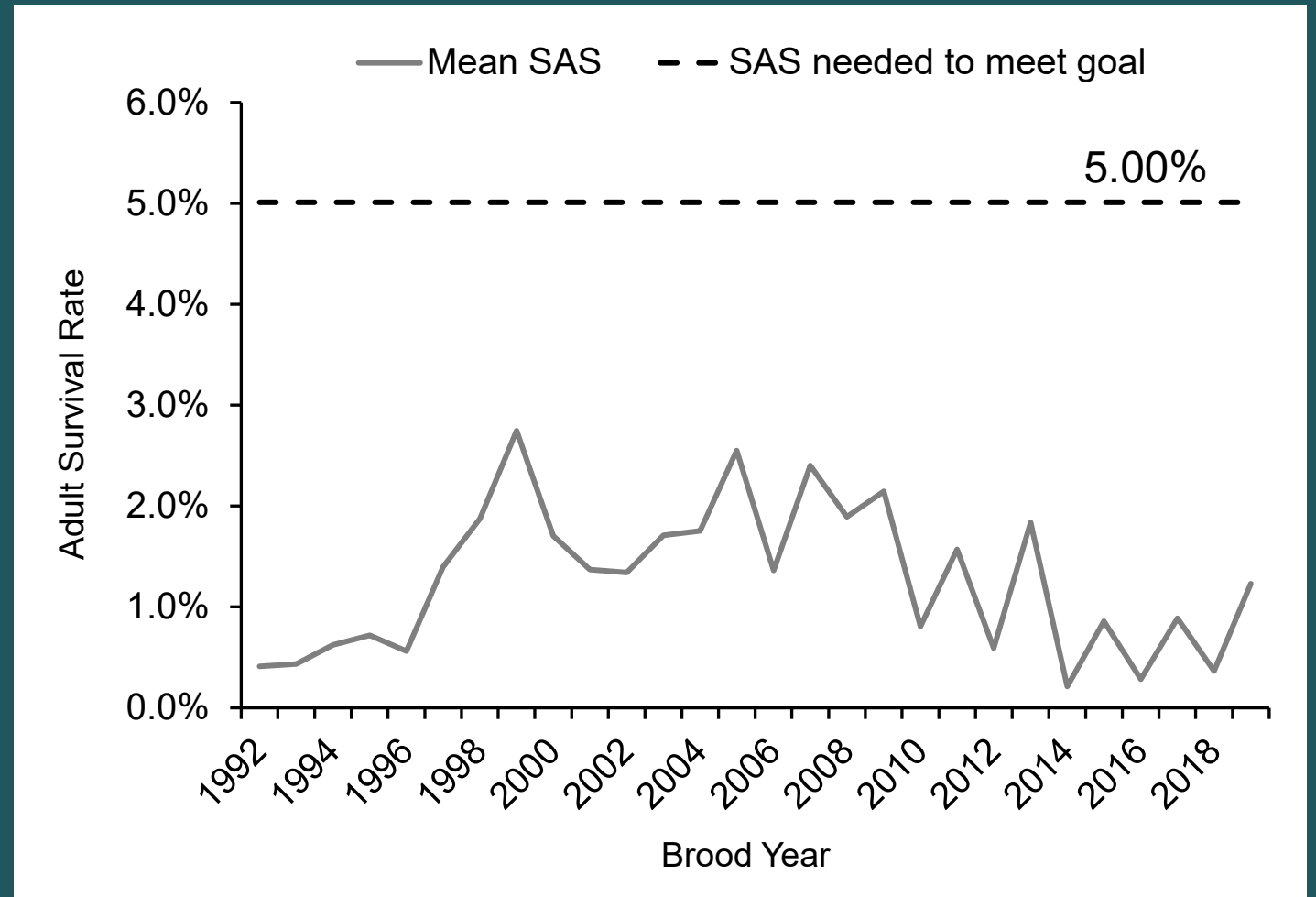
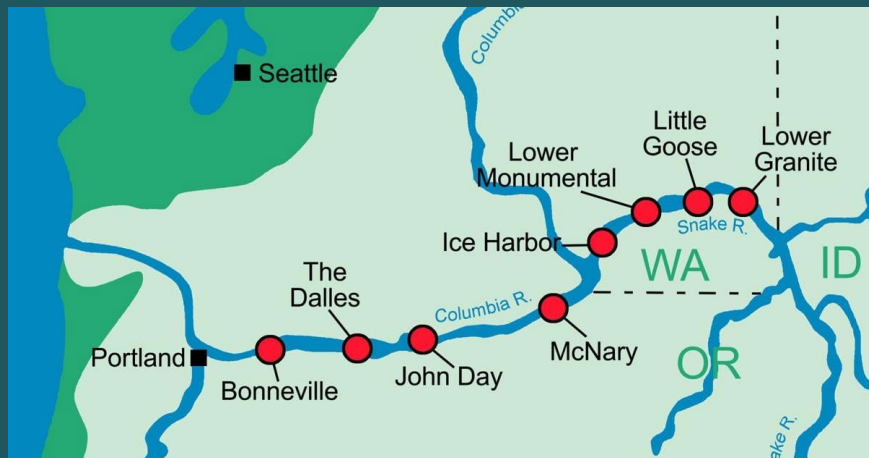
- % of smolts that survive to adult

BY95 – 2019

- 1.37% (0.21 – 2.75)

BY07 – 2019

- 1.16% (0.21 – 2.40)



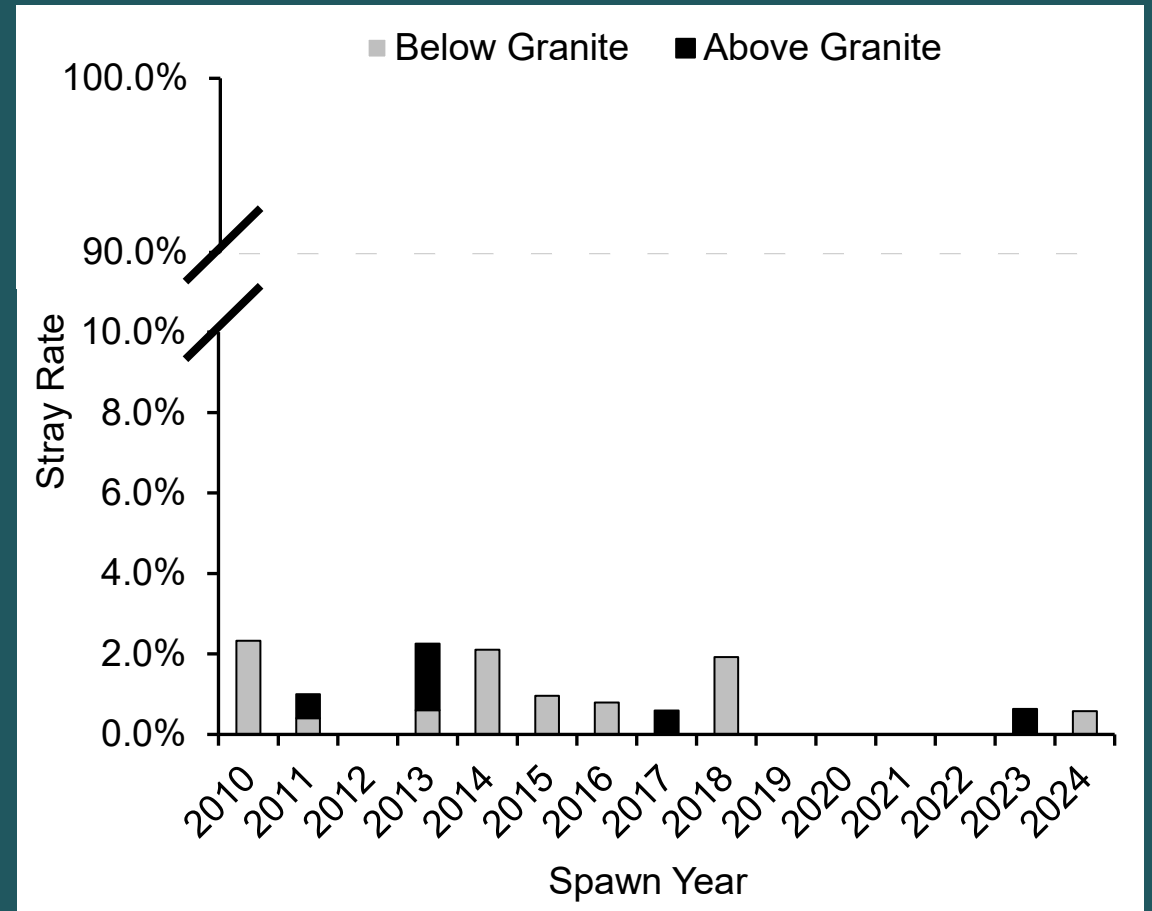
Hatchery Performance: Stray Rates

Downstream of LGD

- 2,373 PITs at BONN
- 0.5% (0.0 – 2.3)
- 7 of 15 years 0.0%

Upstream of LGD

- 1,780 PITs at LGD
- 0.3% (0.0 – 1.7)
- 11 of 15 years 0.0%



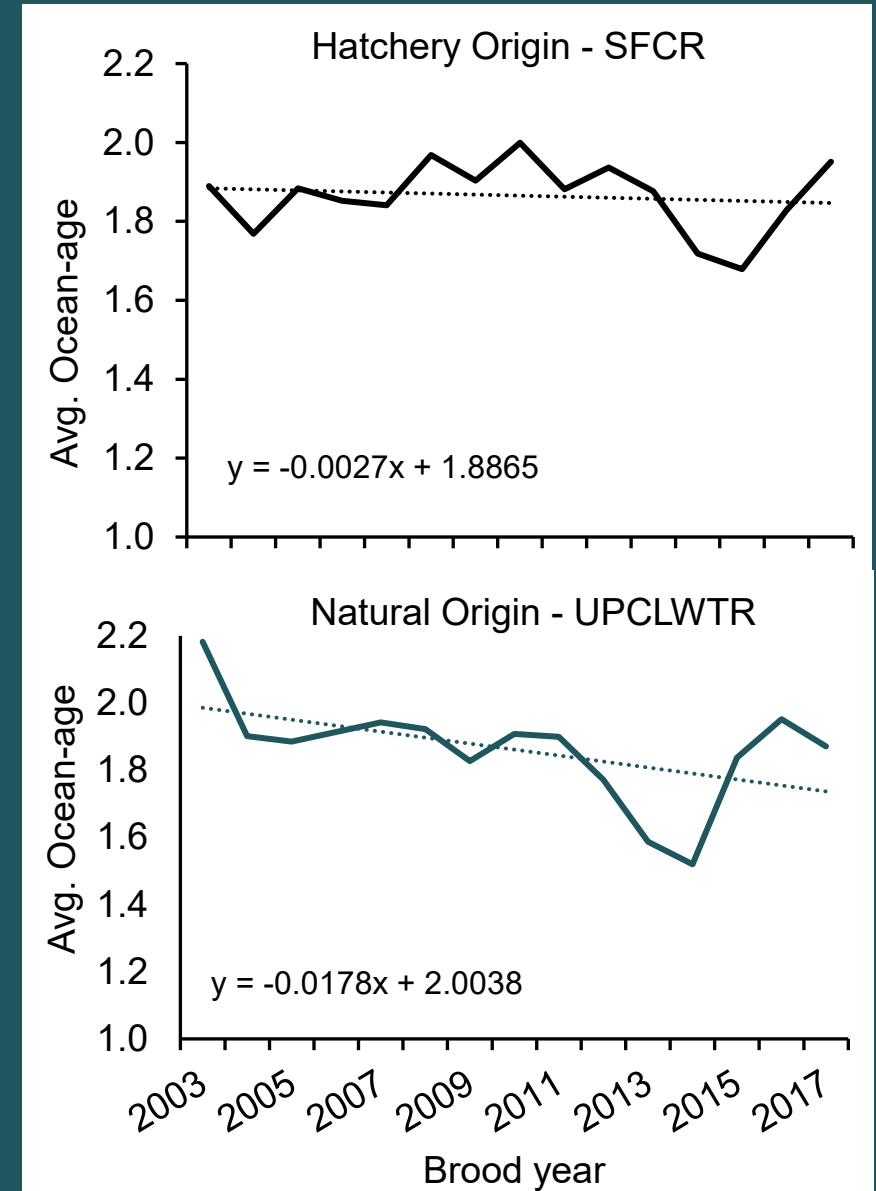
Hatchery Performance: Age Composition

Hatchery-Origin (HO) Ocean-age

- SF Clearwater
 - 1.9 years (1.7 – 2.0)

Natural-Origin (NO) Ocean-age

- Upper Clearwater
 - 1.9 years (1.5 – 2.2)



Harvest Mitigation- Downstream of Project Area

1995 – 2023

- 912 (26 – 4,326)

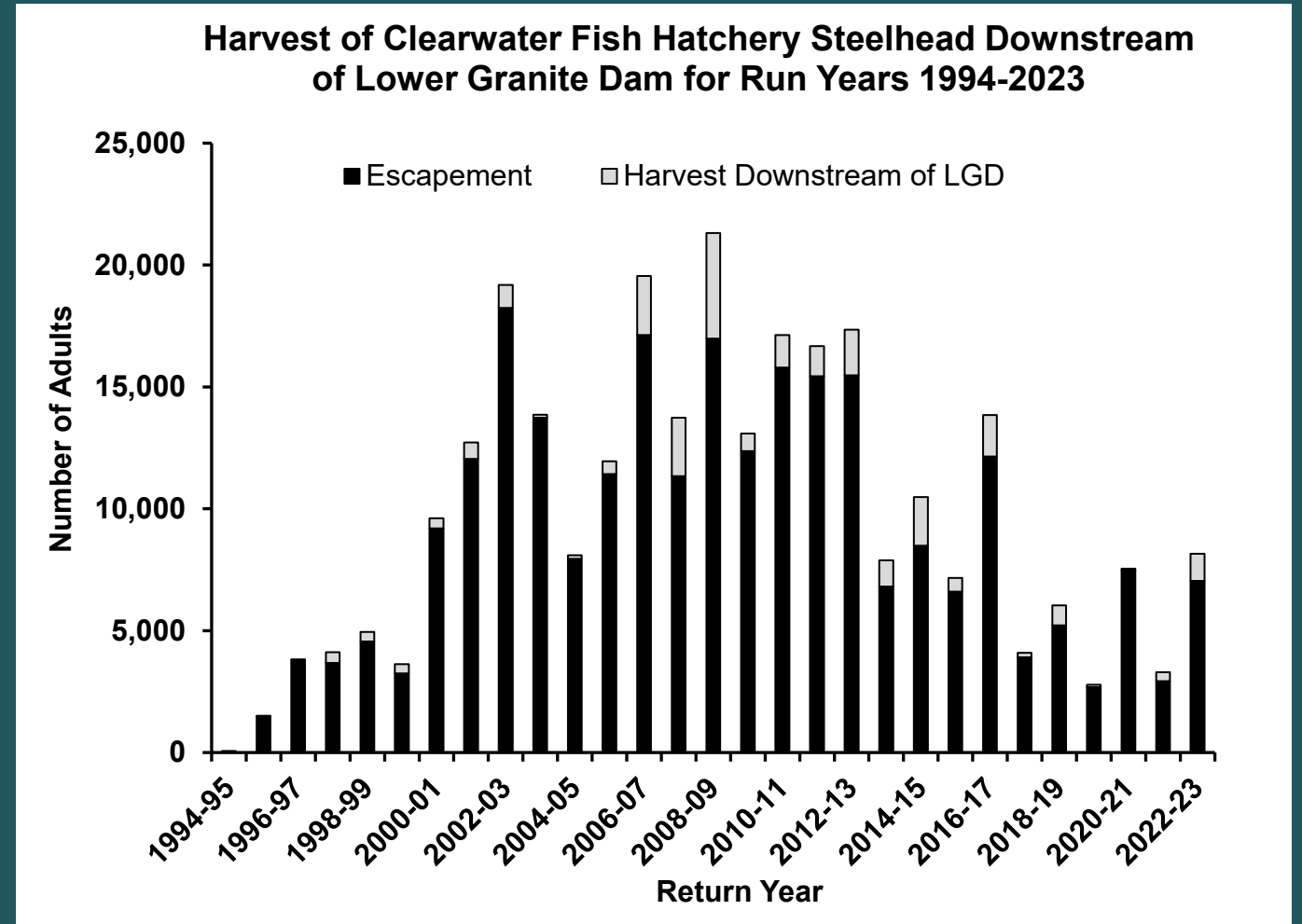
2010 – 2023

- 941 (77 – 1,986)

Distribution of Harvest

- 2:1 ratio not realized

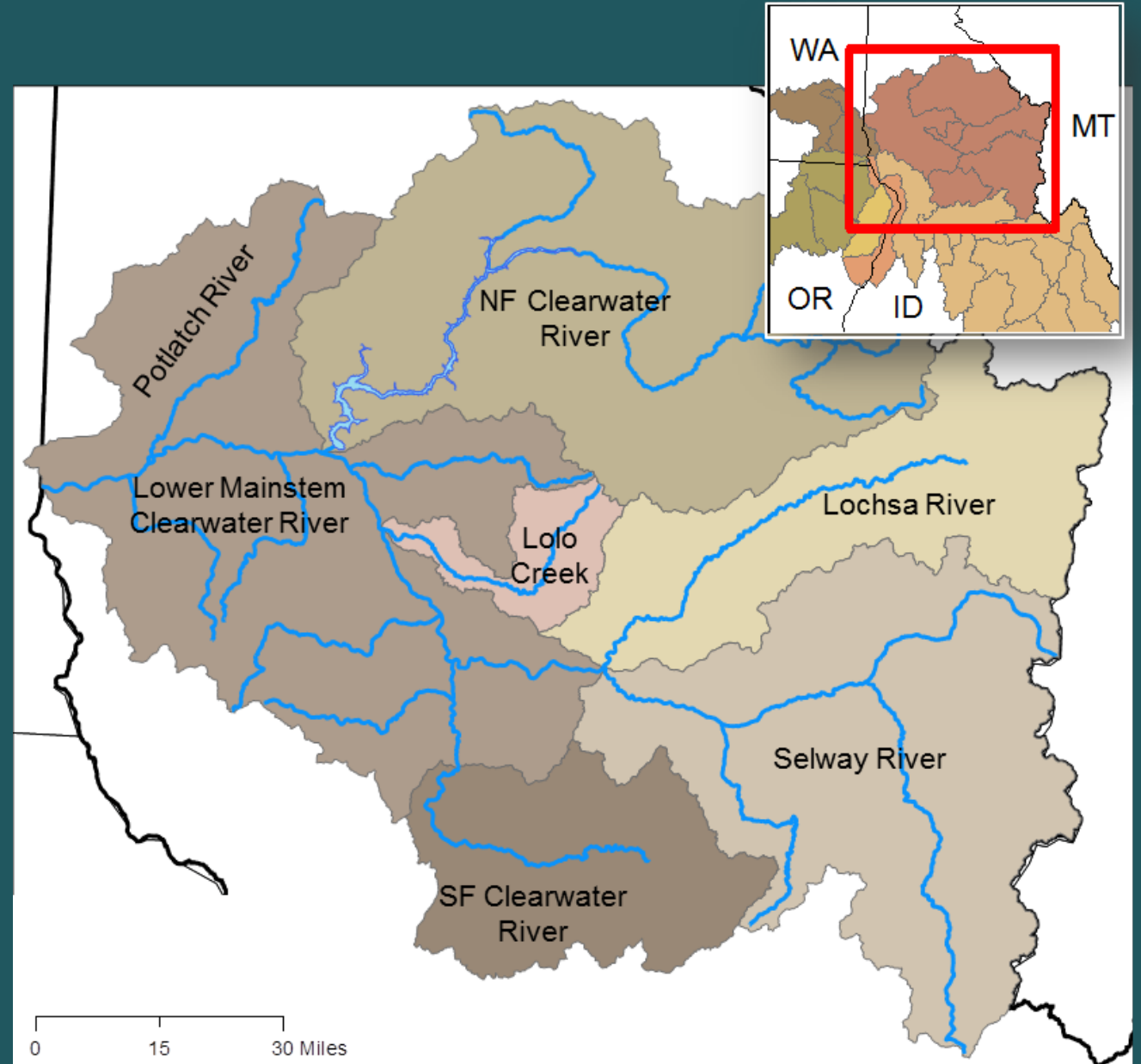
Harvest Restrictions



Map of harvest areas

State of Idaho

- Mainstem areas (~660 mi.)
- Clearwater (~140 mi)
- Fishing season Sept – April
 - Catch-and-Release July & August
- Only statewide closure (1976)



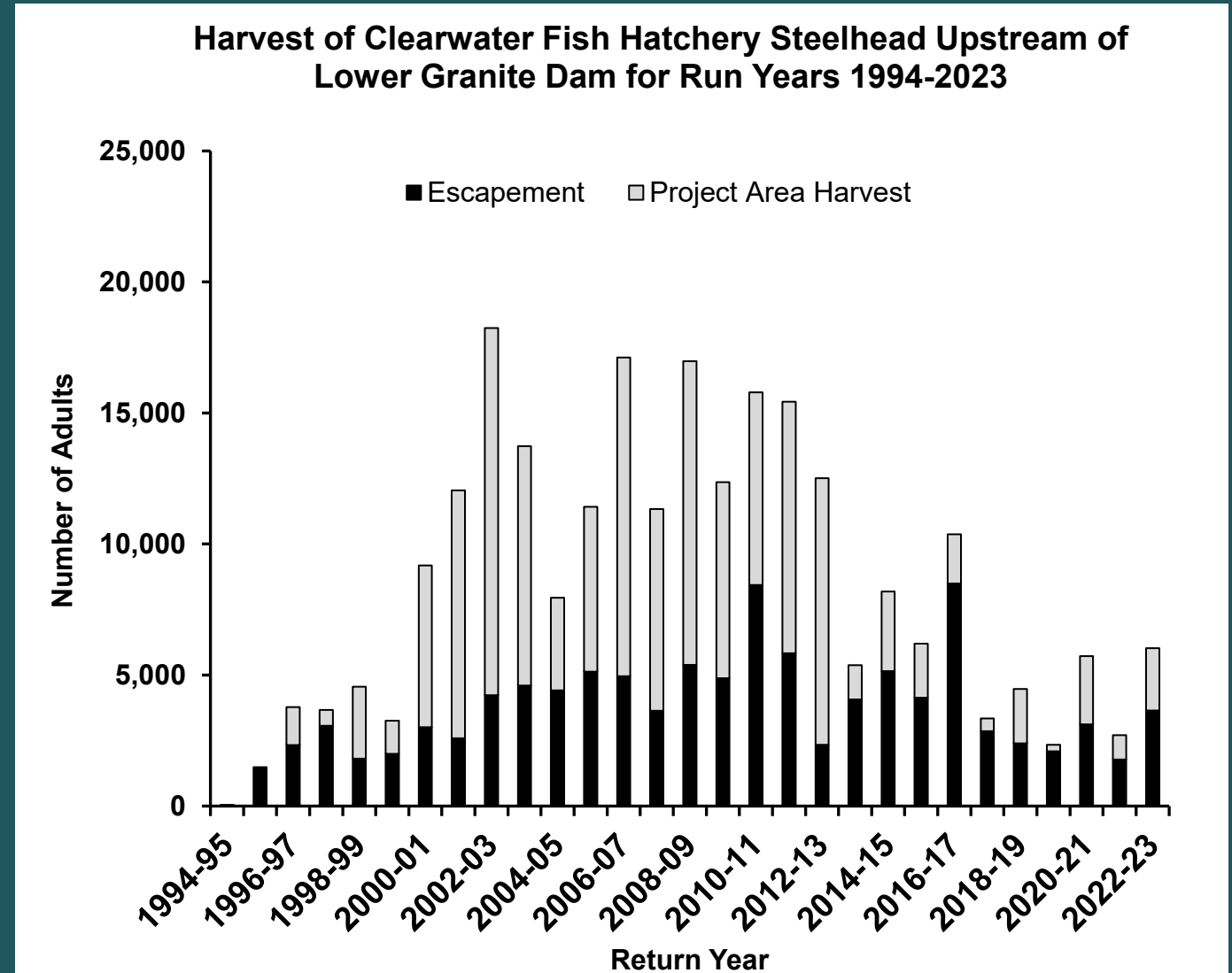
Harvest Mitigation- Upstream of Project Area

1995 – 2023

- 4,751 (0 – 14,007)

2010 – 2023

- 3,688 (256 – 10,178)



Restore and Maintain Harvest

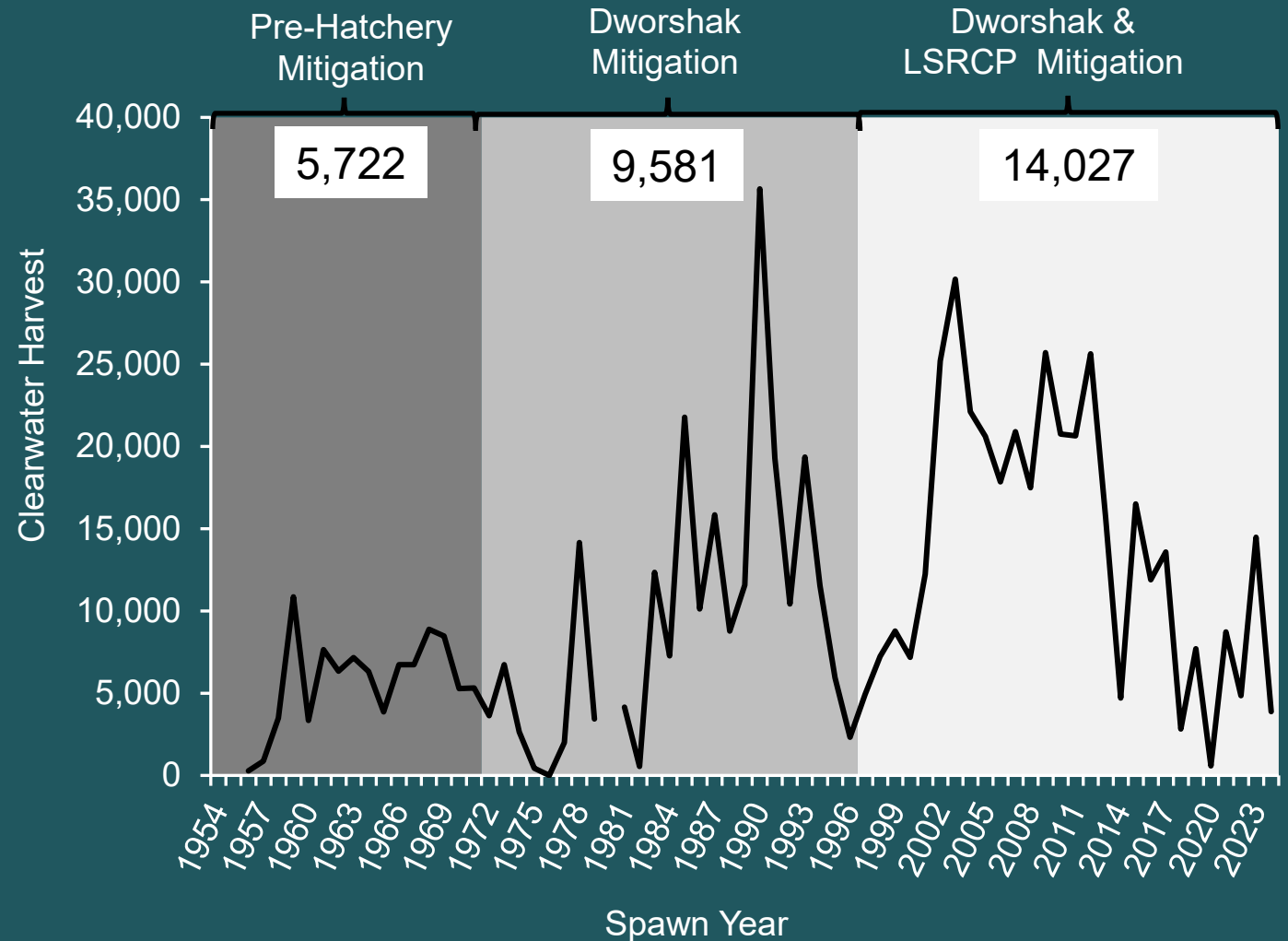
Pre-Hatchery Mitigation (1955 – 1971)

Dworshak Mitigation (1972 – 1996)

- Statewide closure 1976
- 1983 – Harvest of Hatchery fish ONLY

Dworshak & LSRCP Mitigation

- 1977 - Current



Summary

- Restore and maintain harvest
 - Harvesting more fish than pre-hatchery period
 - Fishery every year since implementation
- LSRCP Mitigation Objectives
 - Project Area
 - Met 2 of 14 years since last review; Mean – 57%
 - Met 6 of 29 years; Mean – 61%
 - Highly variable SARs
 - Adults are proportional to juveniles released
- Reduce impacts to natural populations
 - Low stray rates
 - Grandparentage analysis – pHOS



Summary

- Broodstock Collection
 - Localized SF stock
 - Angler collection program
- Fish culture
 - High on station survival
 - Meet smolt production targets
 - High juvenile survival
- Inter-agency coordination
 - Vital to program management



