

Tucannon River Spring Chinook Salmon

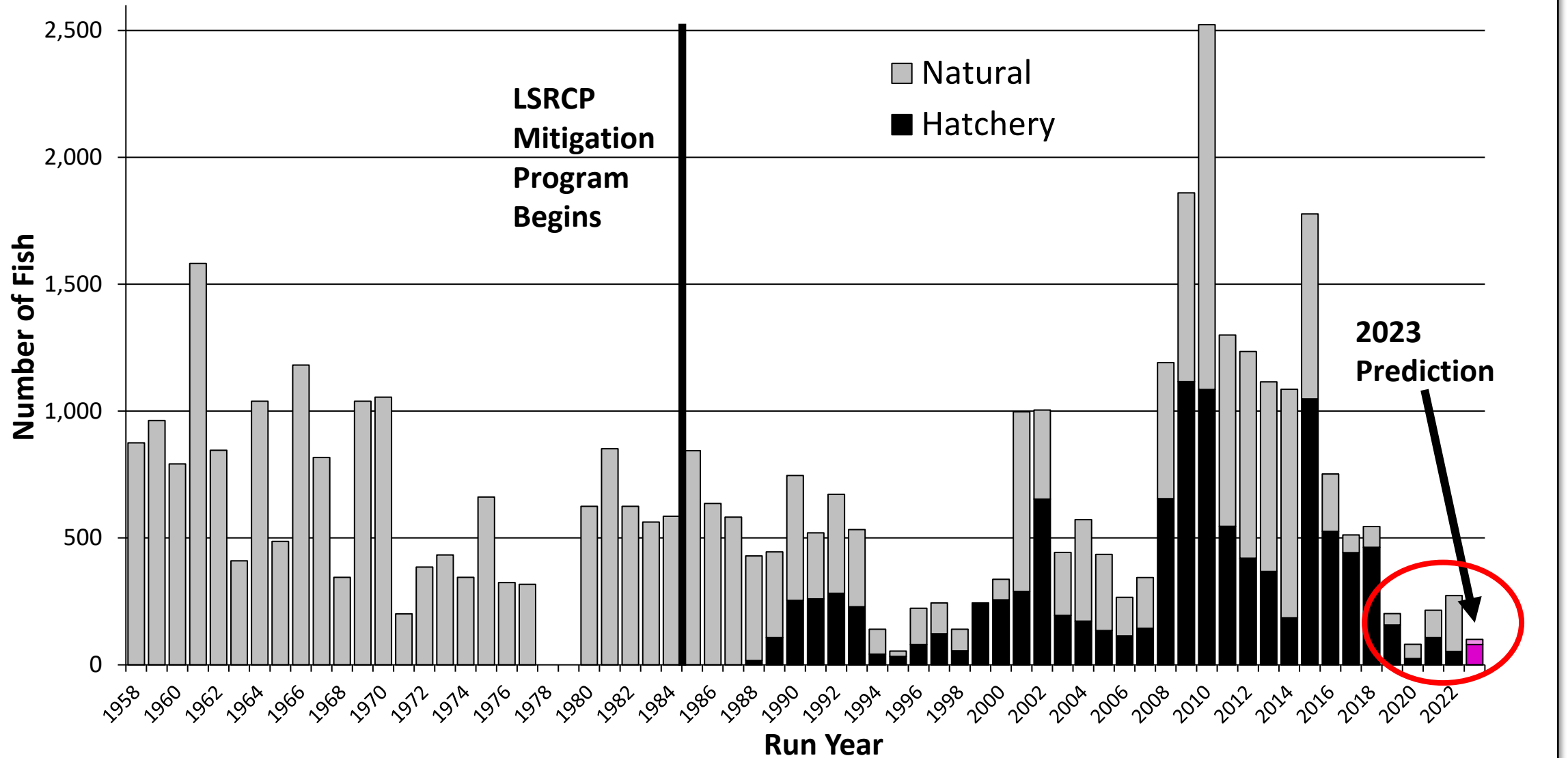
Stock
Conservation
Efforts

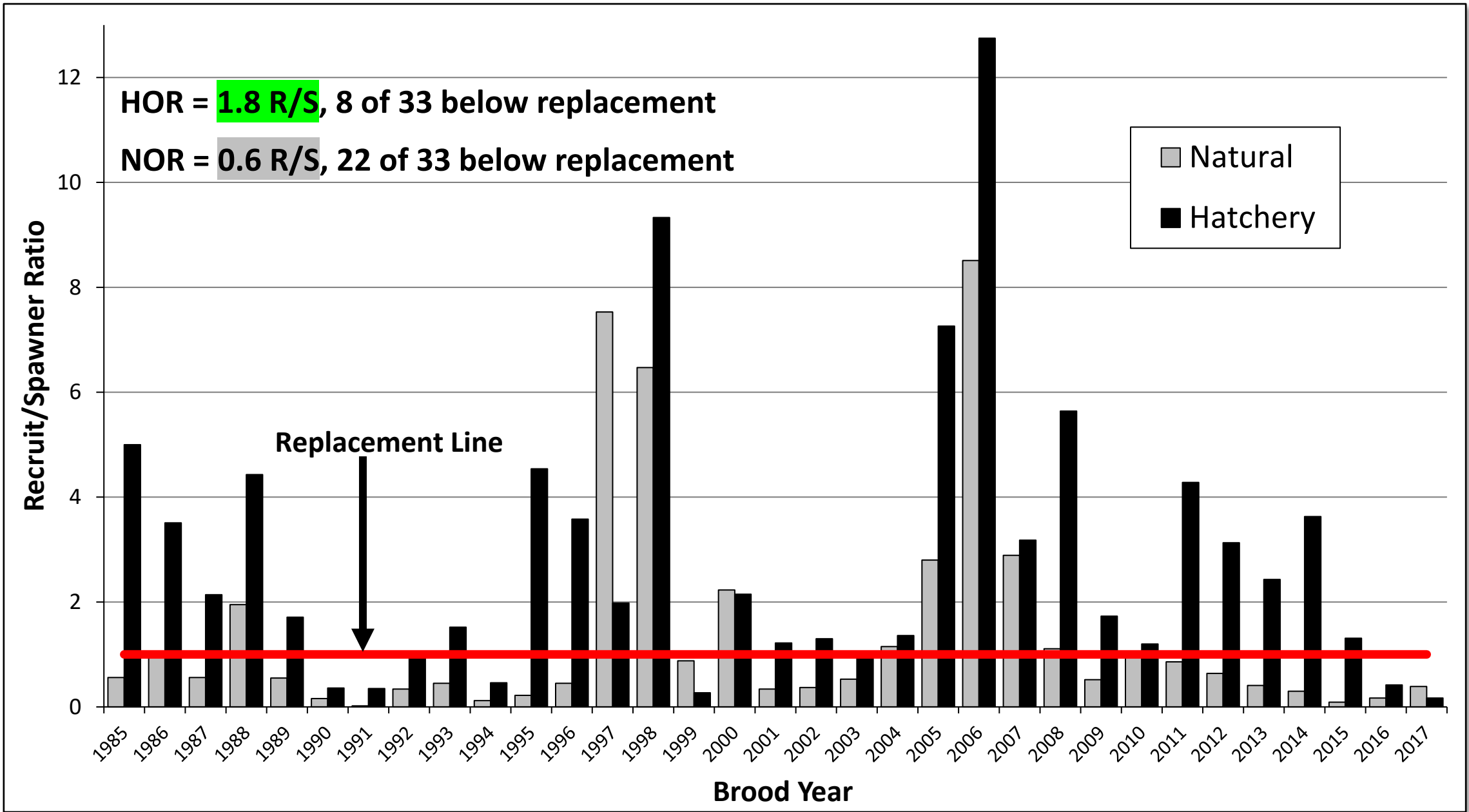


*Washington
Department of*
**FISH and
WILDLIFE**

Joe Bumgarner
Michael Gallinat
Chris Donley
Alf Haukenes

Tucannon River Spring Chinook Returns



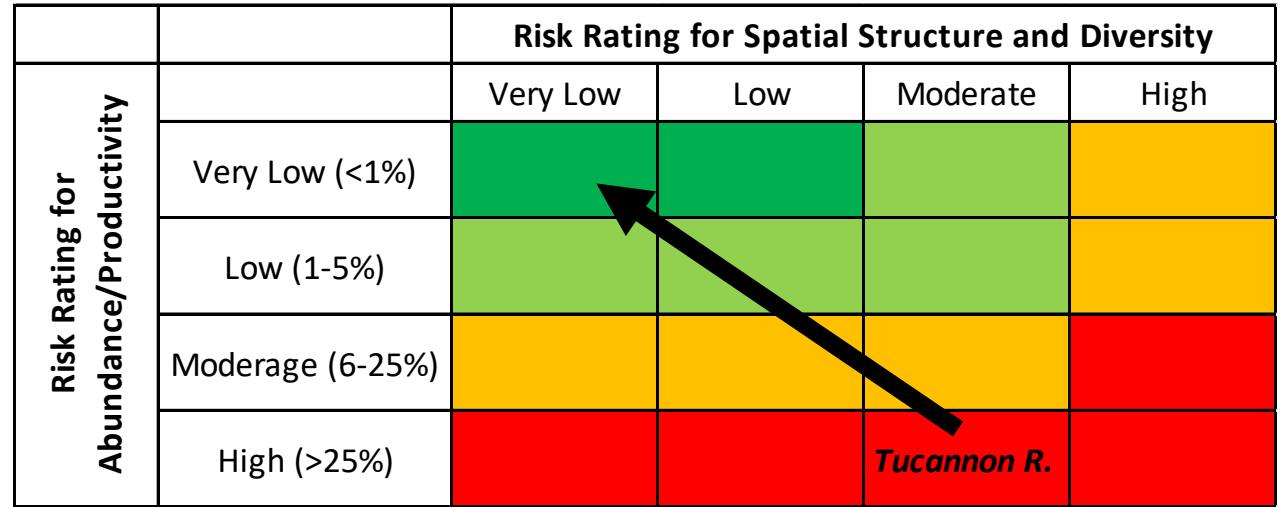


ESA Recovery

Lower Snake MPG

- Tucannon
- Asotin – Extirpated

		Risk Rating for Spatial Structure and Diversity			
		Very Low	Low	Moderate	High
Risk Rating for Abundance/Productivity	Very Low (<1%)	Very Low	Low	Moderate	High
	Low (1-5%)	Low	Moderate	High	Very High
	Moderage (6-25%)	Moderate	High	Very High	Extremely High
	High (>25%)	High	Very High	Extremely High	Critical



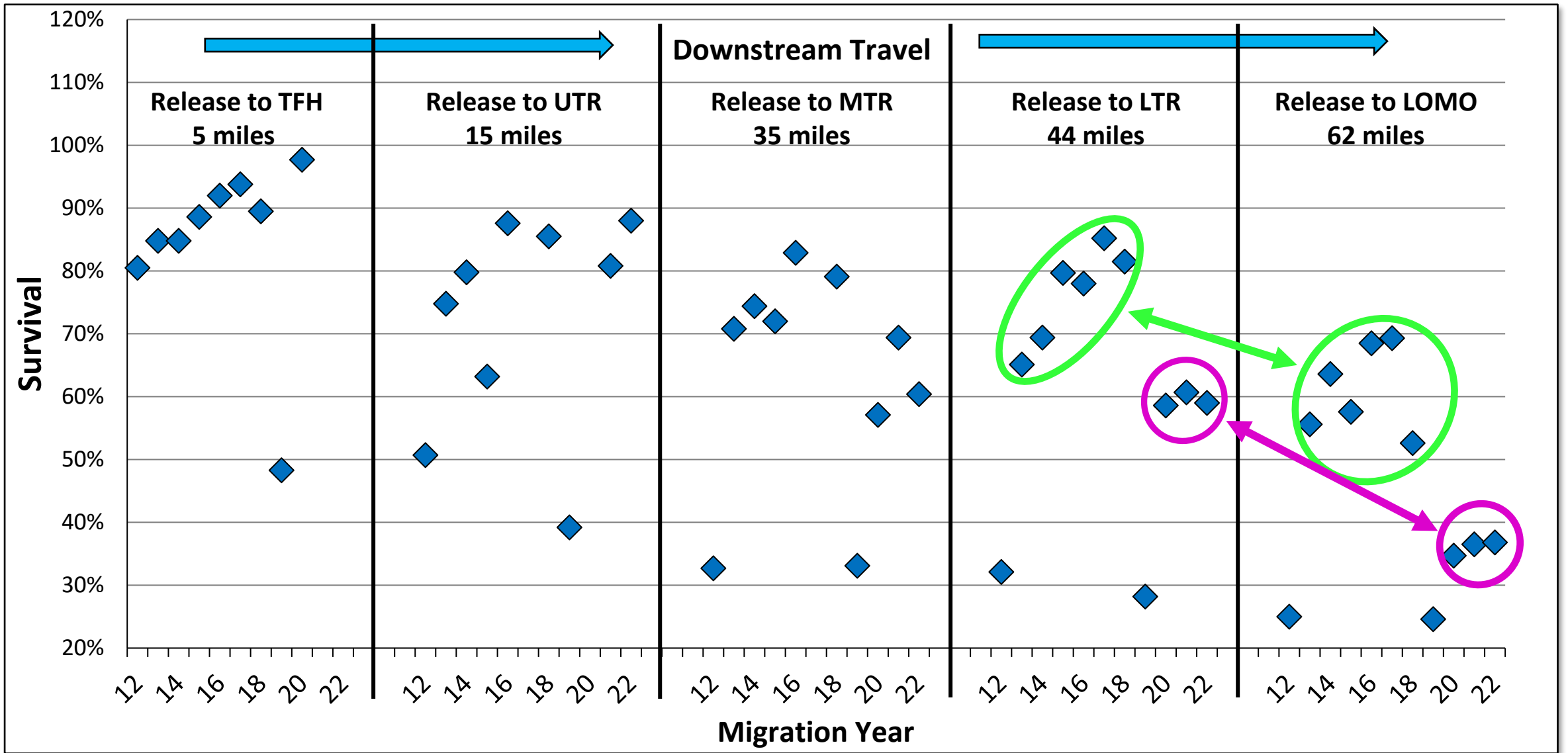
2022 NOAA Fisheries Status Review

“The ICTRT criteria would call for both the Tucannon River and Asotin Creek populations to be restored to viable status, with one achieving highly viable status.”

“The proposed MPG recovery scenario identified in the Snake River recovery plan (NMFS 2017a) is to achieve highly viable status (very low risk) for the Tucannon River population, with the focus for initial recovery efforts on improving status of the Tucannon River population, but support a reintroduction program for the extirpated Asotin Creek population.”

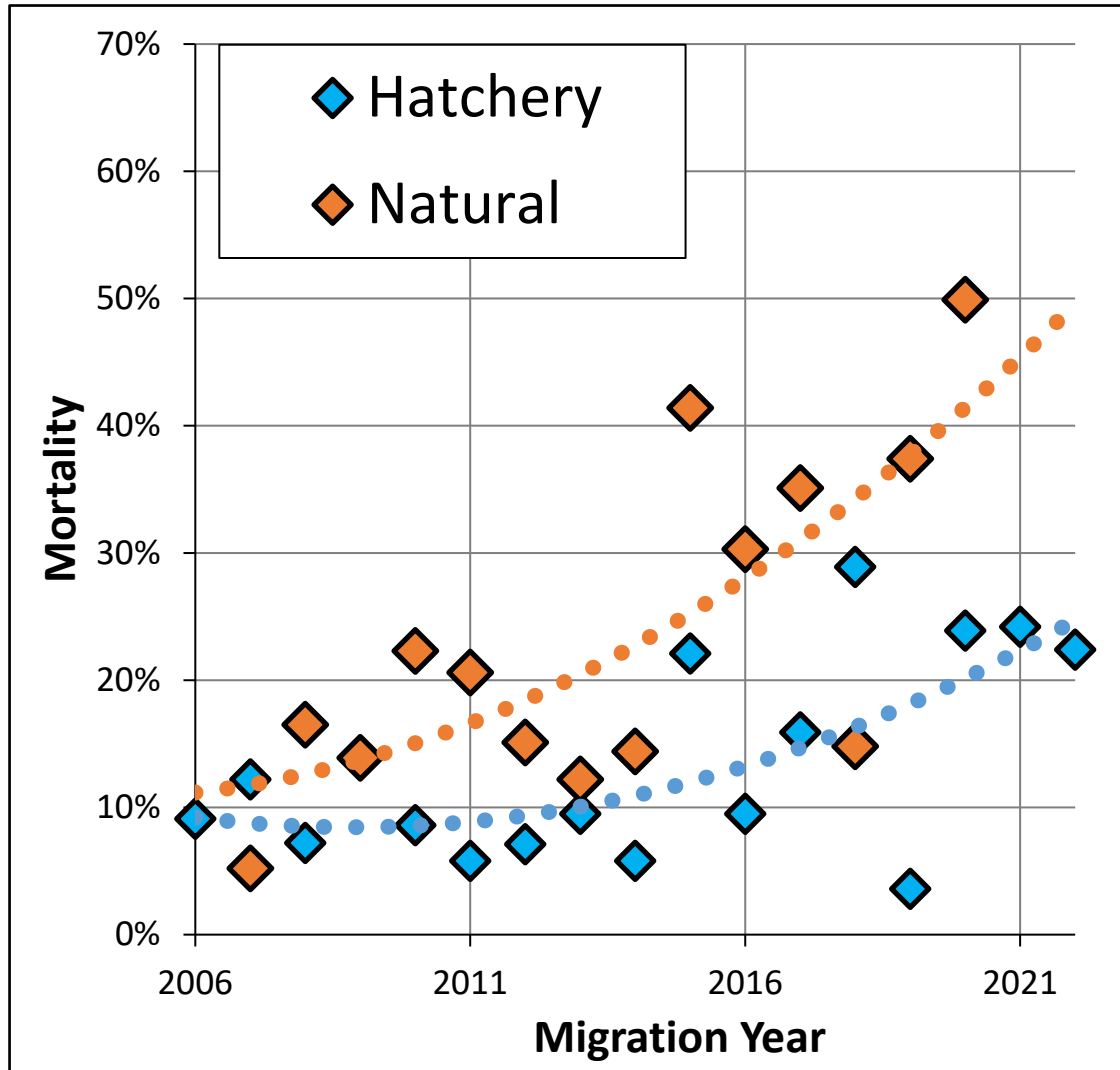
Tucannon Hatchery Origin Spring Chinook

Juvenile Survival - DART Point Estimates to Downstream Locations



Juvenile Mortality

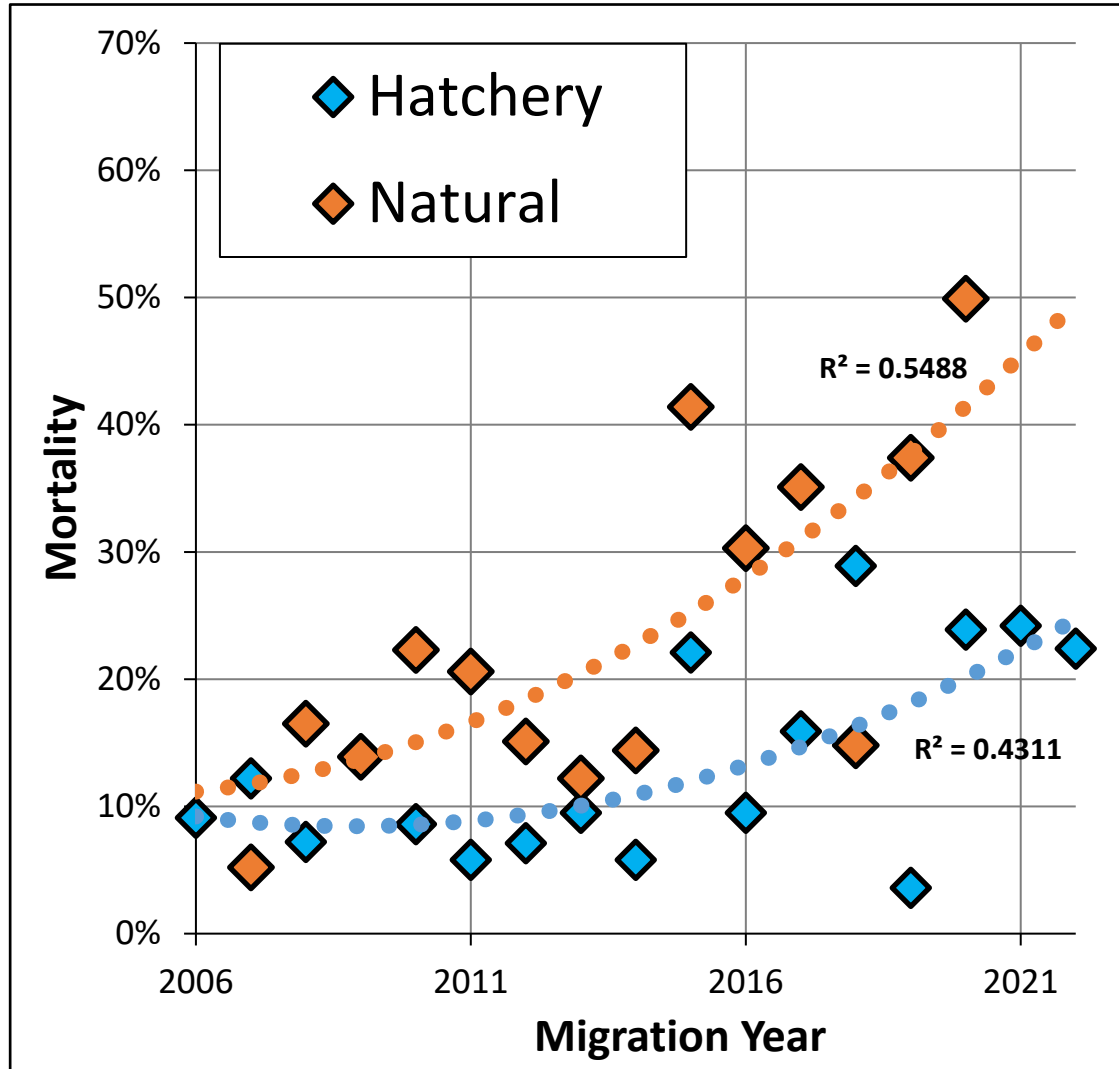
Tucannon River Mouth to Lower Monumental Dam



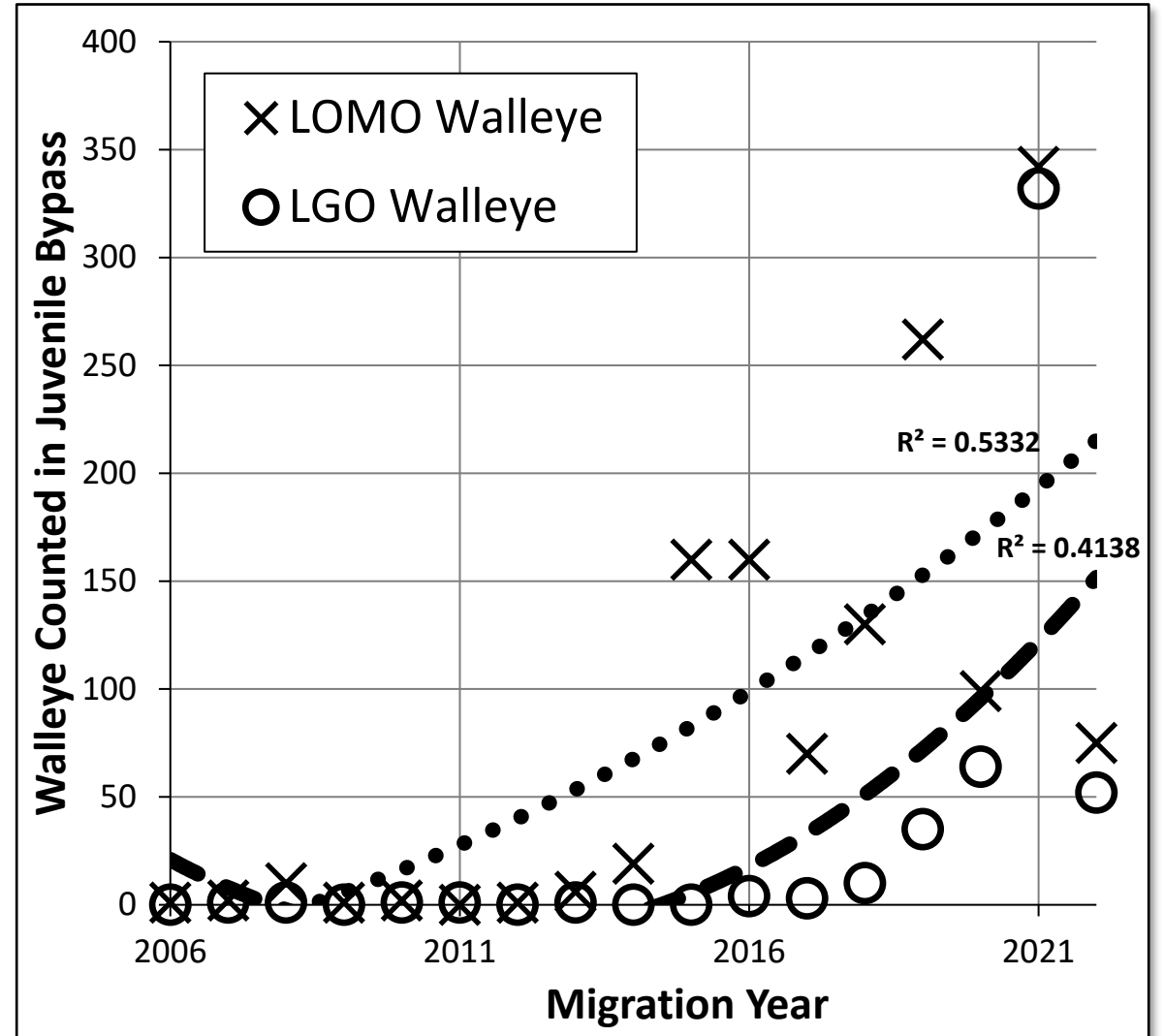
Why the recent increase in mortality?

Juvenile Mortality

Tucannon River Mouth to Lower Monumental Dam



Walleye in Juvenile Bypasses



Walleye



Other Predators Contributing



5 Walleye captured in
Tucannon smolt trap in 2022

0 captured in the previous 25
years at the same trap location



Tucannon FH



Lyons Ferry FH

NOT THE ONLY GAME IN TOWN

Other In-Basin Actions.....

PLANS: Tucannon Model Watershed (1996), Limiting Factors Analysis (2002), Tucannon Sub-Basin Plan (2004), Snake River Salmon Recovery Plan (2005, updated in 2011), Tucannon Geomorphic Assessment (2011), Tucannon Habitat Programmatic (2011), Tucannon Geomorphic Assessment – Phase 2 (2021).

FACTORS Addressed

Reduce Fine Sediment

Increase Riparian Corridor

Improved Irrigation Efficiencies

Screened Diversions

Eliminate Fish Passage Barriers

Increase Large Woody, Channel Complexity

Increase Floodplain Connections, Pool and SC

Reduce Stream Power



Extensive habitat restoration, (~25-30 million) over the last 20 years, with more extensive restoration still planned in future years

What are some options going forward...

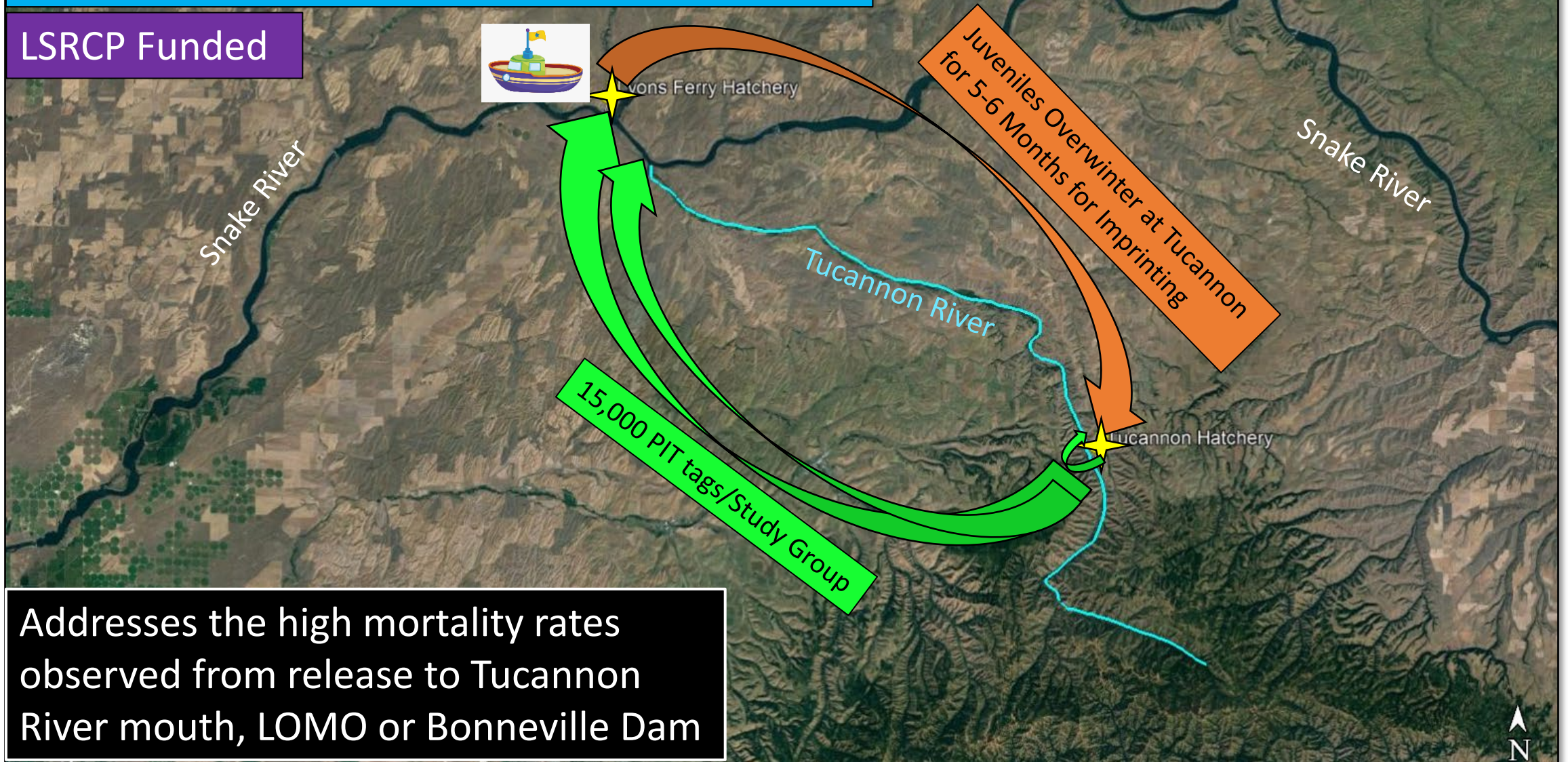
- **Local Vicinity Releases (On-Going LSRCF Funded Evaluation)**
 - Comparing returns/distributions between releases at Tucannon FH, the Tucannon River Mouth, or Barged from Lyons Ferry



Local Vicinity Release Evaluation

LSRCP Funded

Hatchery
Untitled Path



Addresses the high mortality rates observed from release to Tucannon River mouth, LOMO or Bonneville Dam

Tucannon Spring Chinook 2022 Releases

60,000 fish total production

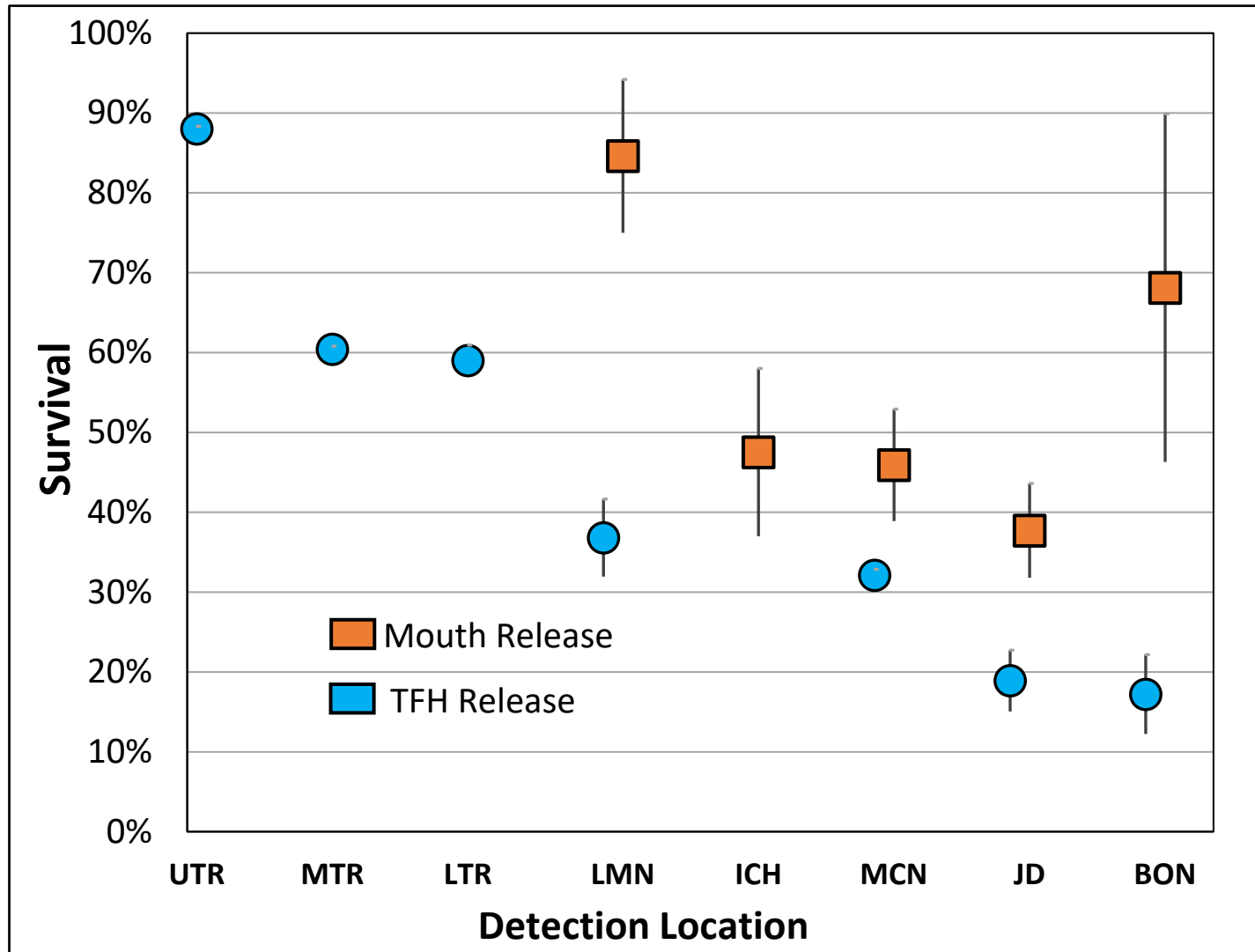


Two Release Groups

- TFH Release (20,000 PIT tags)
- Mouth Release (20,000 PIT tags)
 - timed to coincide with the majority of TFH released fish arriving at the mouth using PIT tag detections in Lower Tucannon River

Assess juvenile migration and survival – Change if needed

Tucannon Spring Chinook 2022 Survival to Downstream Locations



Results Encouraging!

But...will we see greater survival in the adults?

Concerns regarding straying/overshoot rates and return distribution within the Tucannon River?

Jacks returns in 2023??

What are some options going forward...

- Local Vicinity Releases (On-Going LSRCF Funded Evaluation)

- Tucannon FH, Tucannon Mouth, Barge from Lyons Ferry

- **Out-of-Basin Releases (Proposed Action – Funding Needed)**

- Kalama Falls Fish Hatchery Release

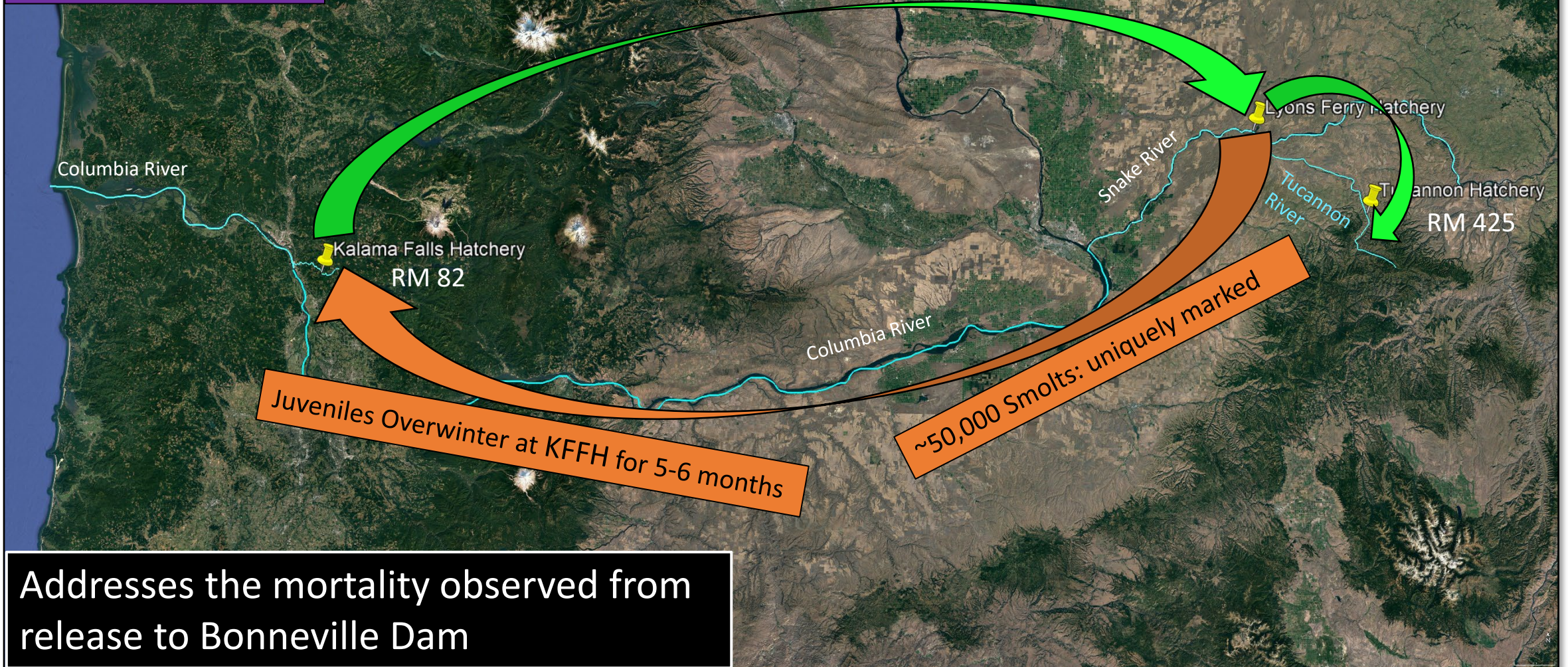
- Currently proposing three generations

- Trigger points established (Tucannon Basin and Kalama Basin) to adaptively manage the program as needed

Kalama River Release

Funding Needed

Adults will be hauled back to LFH to use as broodstock (if needed) or outplanted in Upper Tucannon River



Addresses the mortality observed from release to Bonneville Dam

Kalama River Option

- **Benefits**

- 50,000 smolt release, moderate survival expectations (SAR=1%), we could get 500 adults back
- Could be used for broodstock shortfalls if runs remain low, or used for outplanting into upper Tucannon to quickly rebuild the natural component of the Tucannon population
- Cheap to implement

- **Risks**

- Not all fish expected to convert to KFFH trap
- Straying and Genetic introgression into Lower Columbia River populations (also ESA listed)

Discussions with NOAA are on-going..., 2024 release?

What are some options going forward...

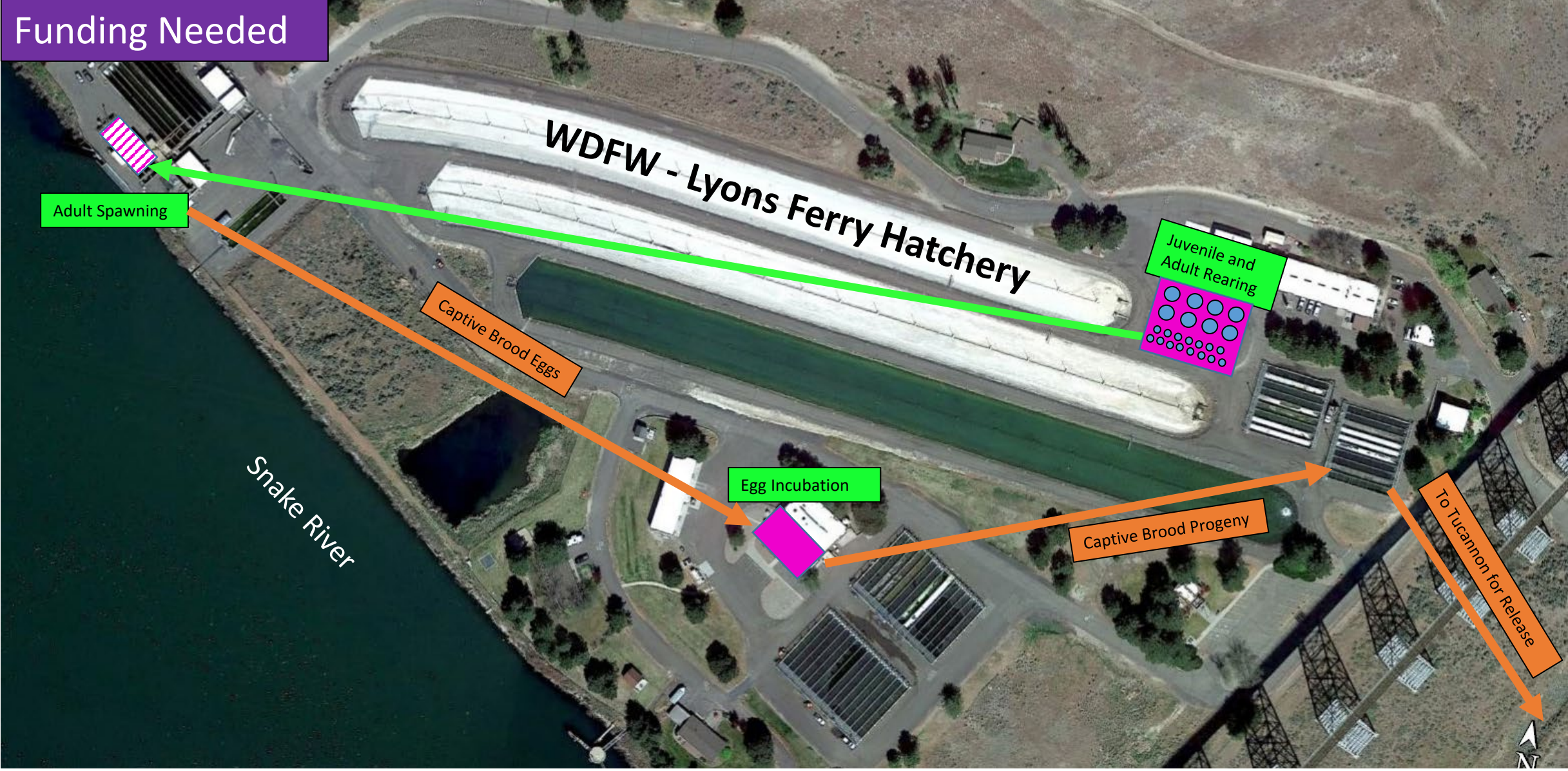
- Local Vicinity Releases (On-Going LSRCF Funded Evaluation)
 - Tucannon FH, Tucannon Mouth, Barge from Lyons Ferry
- Out-of-Basin Releases (Proposed Action – Funding Needed)
 - Kalama Falls Fish Hatchery Release
- **Captive Broodstock Program (Proposed Action – Funding Needed)**
 - Identical to what was done previously from 1997-2002 for Tucannon Spring Chinook

Captive Broodstock Program

Funding Needed

Legend

- Hatchery
- Untitled Path



Captive Broodstock Option

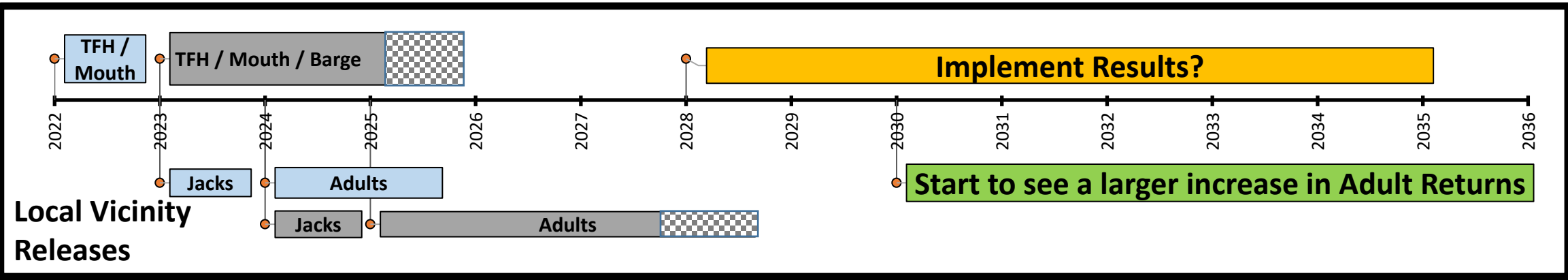
- **Benefits**

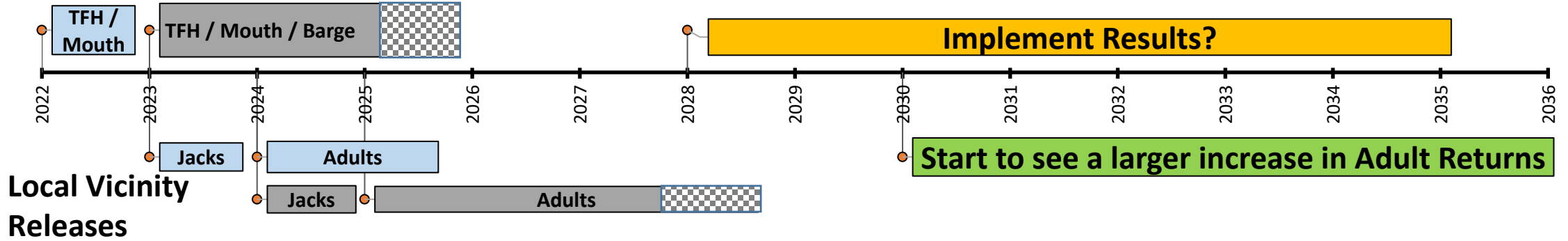
- If it went as before, we could get ~350 adults back
- Used to re-seed upper Tucannon with spawners
- Excess (progeny) could be used to start a re-introduction into Asotin Creek for a “Safety-Net”

- **Risks**

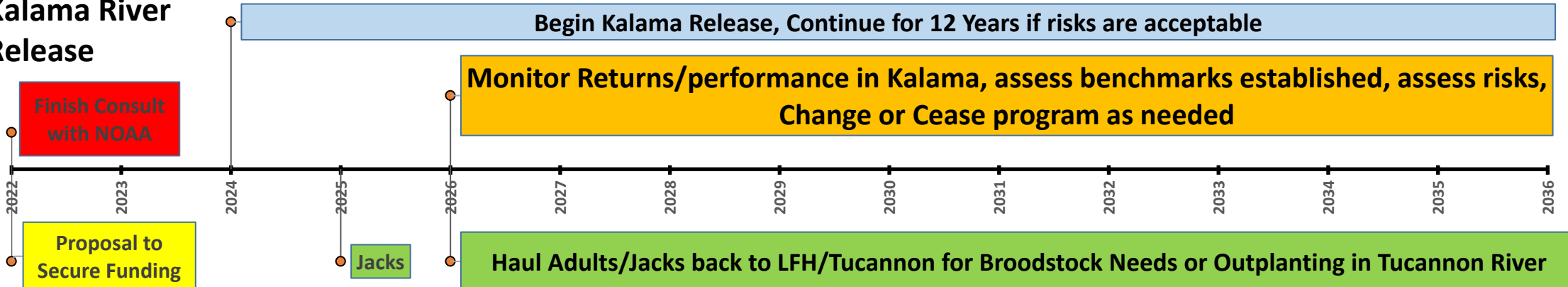
- Overall Genetic Risks associate with Captive Broodstock programs, and any lingering effects that it could have on the population in the future.

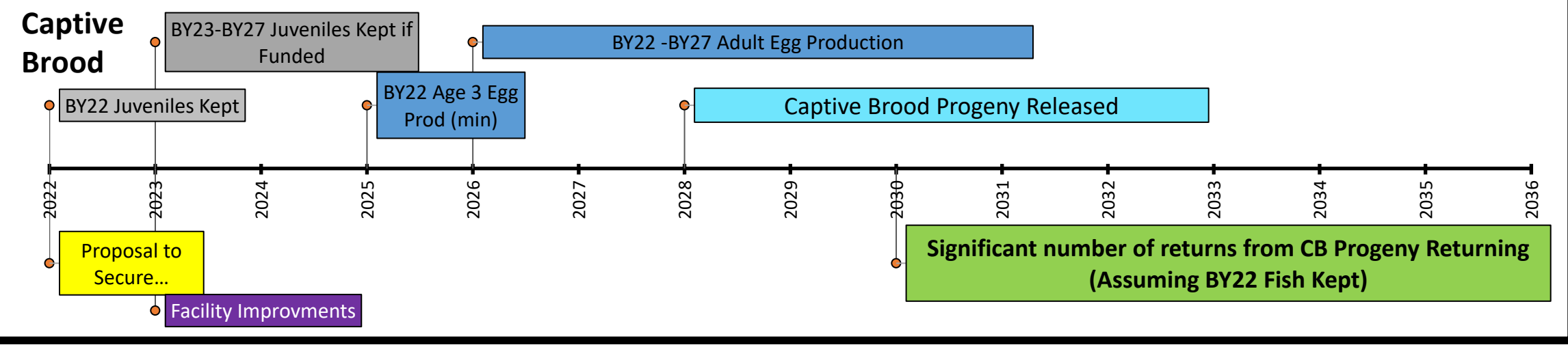
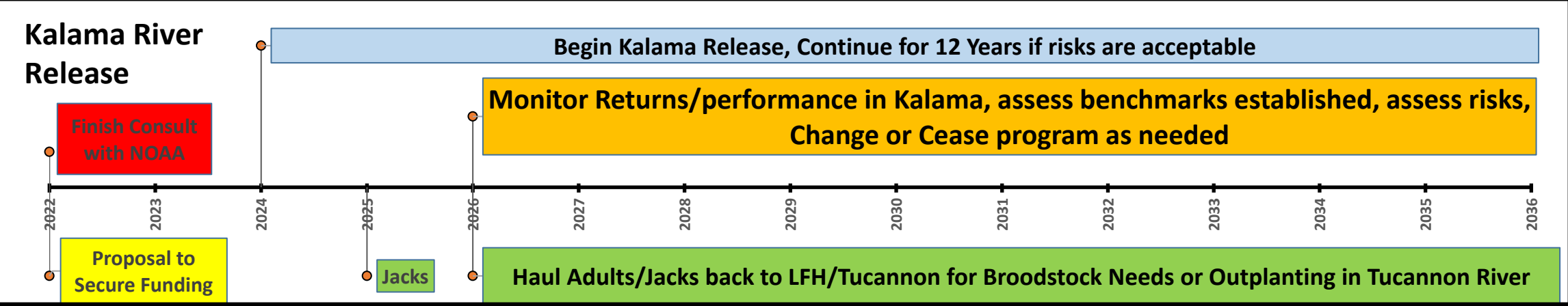
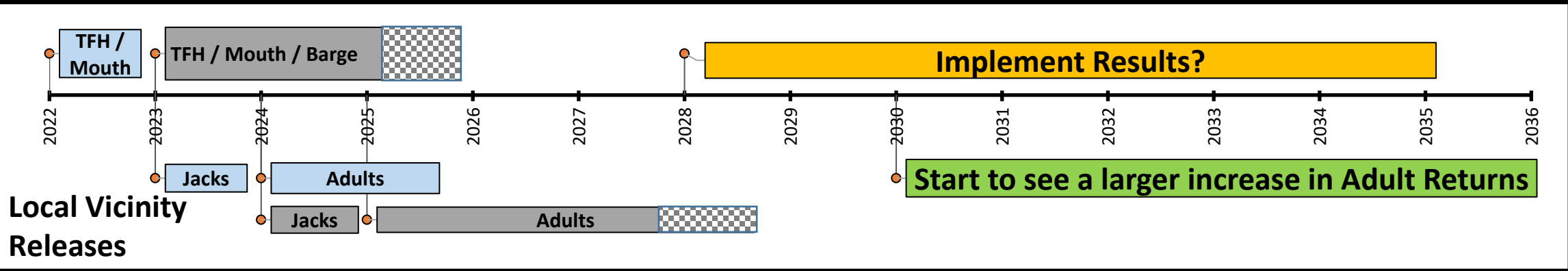
Currently holding BY2022 (15 family units – 80 fish/family)





Kalama River Release





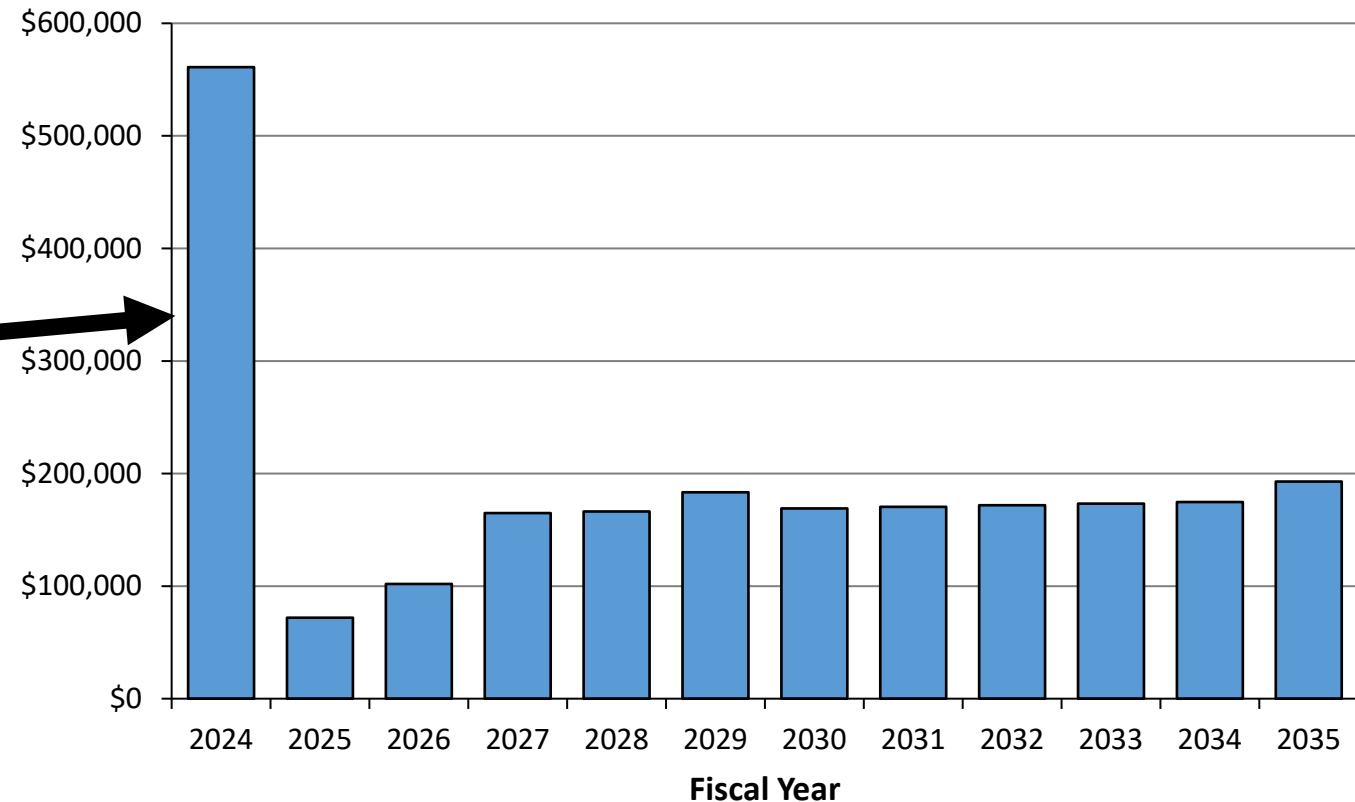
Estimated Costs

- Kalama Release

- Initial Years: ~\$25K-30K/year (Staffing + Transport)
- Later Years: Genetic Assessment would be needed, ~10-15K)

- Captive Brood

Circular tanks,
concrete pad, misc
plumbing



Tucannon River Spring Chinook Salmon

Stock Conservation Efforts

Summary

- The Tucannon River spring Chinook population continues to struggle; the hatchery program has implemented changes but it still hasn't been enough
- Extensive efforts in habitat restoration (25-30 million) over the last 20 years, with more restoration coming in future years
- Even with everything that's being done, we're still proposing some extreme actions to maintain (but hopefully increase) spring Chinook returns (both natural and hatchery) to the basin for the future
- Going to need some additional financial support to implement at least one of the proposed actions (Kalama, Captive Brood), otherwise the population may be in further jeopardy and too late to save in the future