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August 3, 2020

### MEMORANDUM

**TO: Council Members**

**FROM: Erik Merrill, Independent Science Manager**

**SUBJECT: ISRP Final Report: Category Review of Resident Fish and Sturgeon Projects**

### BACKGROUND:

**Presenter:** Dr. Stan Gregory, ISRP Chair, and Dr. Desiree Tullos, ISRP Vice Chair

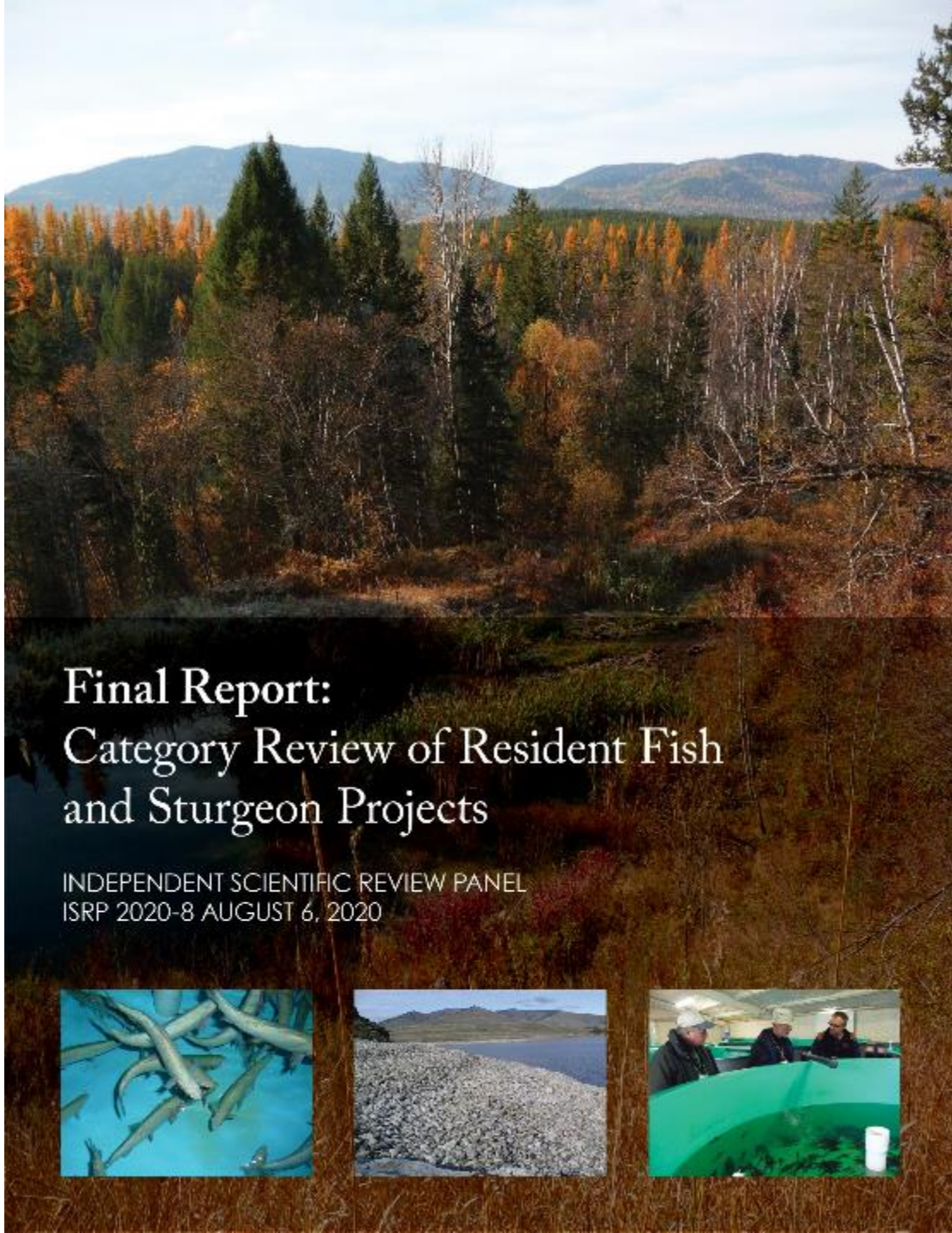
**Summary:** The presentation will summarize the Independent Scientific Review Panel's (ISRP) findings from its Final Report: Category Review of Resident Fish and Sturgeon Projects. This report provides the Panel's recommendations and comments on 44 proposals submitted for the Resident Fish and Sturgeon Category Review to implement the Columbia River Basin Fish and Wildlife Program. The Panel finds that 30 proposals meet scientific review criteria and 10 proposals meet scientific criteria with some conditions requiring further action. Two projects are primarily administrative and "not applicable" for the Panel's scientific criteria; the science of those projects is being reviewed in the Council's Step Review process. The Panel requested responses on two other projects, but the proponents were given a time extension to complete their responses. A final review of those projects is anticipated by fall 2020.

The Panel recognizes the personal and societal hardships and uncertainty caused by the coronavirus pandemic, and greatly appreciates the effort put into this review by all involved. In the preliminary review, the Panel asked for responses for 43 out of the 44 proposals, which was the highest percentage in category reviews. Despite work restrictions, the project proponents provided informative and constructive responses that largely

addressed the Panel's requests. This positive response effort and increased scientific dialogue with the Panel should provide a strong foundation for the projects moving forward and also reduce follow-up reviews by the Panel. Overall, the Panel was impressed with the proponents' commitment to the objectives of the Program as demonstrated by their many accomplishments, their constructive approach toward scientific review, support and interest in other projects beyond their own, and the effort they devoted to the proposals, presentations, and responses.

This report provides final recommendations on each project and includes the Panel's preliminary report comments and response requests. The report also provides a discussion of programmatic issues that apply across projects to inform Program development and performance. Programmatic topics include integration of projects within geographic areas, improving communication, adaptive management, native and non-native fish management, habitat restoration, and climate change. The Panel strives to ensure that its multi-year recommendations for the projects and the Program have a sound, well-documented scientific foundation.

- Relevance: Section 4(h)(10)(D) of the Northwest Power Act guides the Council in recommending projects to implement the Fish and Wildlife Program. Project reviews increase Program accountability and transparency; improve project design, implementation, and overall effectiveness; help track project and program performance; and facilitate information sharing and adaptive management.
- Workplan: Project reviews are an integral part of the Fish and Wildlife Program's workplan.
- More Info: The full report will be distributed to the Council on August 6 and available on the Council's website by August 7 ([ISRP 2020-8](#)).



**Final Report:**  
Category Review of Resident Fish  
and Sturgeon Projects

INDEPENDENT SCIENTIFIC REVIEW PANEL  
ISRP 2020-8 AUGUST 6, 2020



# ISRP

Presentation to the  
Northwest Power and  
Conservation Council,  
August 12, 2020

Stan Gregory, Chair  
Desiree Tullos, Vice Chair

# ISRP and Peer Review Group (PRG)

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- ***Independent Scientific Review Panel***

- Richard Carmichael, M.S.
- Patrick Connolly, Ph.D.
- Kurt Fausch, Ph.D.
- Kurt Fresh, M.S.
- Stan Gregory, Ph.D.
- Wayne Hubert, Ph.D.
- Josh Korman, Ph.D.
- Alec Maule, Ph.D.
- Thomas P. Quinn, Ph.D.
- Desiree Tullos, Ph.D.

- ***Peer Review Group***

- John Epifanio, Ph.D.
- Dave Heller, M.S.
- Robert Naiman, Ph.D.
- Greg Ruggerone, Ph.D.
- Steve Schroder, Ph.D.
- Chris Wood, Ph.D.

- ***Coordinator***

- Erik Merrill, J.D.



# Resident Fish Species\*

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## Native Fish

- Westslope cutthroat trout
- Redband trout
- Bull trout
- *Kokanee*
- White sturgeon
- Burbot
- *Yellowstone cutthroat trout*
- Whitefish
- Largescale sucker
- *Rainbow trout*

## Non-native Fish

- Smallmouth bass
- Walleye
- Northern pike
- Brook trout
- *Rainbow trout*
- Lake trout
- *Yellowstone cutthroat trout*
- Lahonton cutthroat trout
- *Kokanee*
- Largemouth bass

\* Ranked by number of projects that focus on these species

*Fish species in italics were native in some locations and non-native in other locations*



# Geographic Locations

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## Rivers

- Lower Columbia River
- Upper Columbia River
- Snake River
- Sanpoil River
- Spokane River
- Kootenai River
- Flathead River
- Pend Oreille River
- Priest River
- Owyhee River
- Warm Springs River
- Other Streams and Tributaries
  - More than 100 streams



Kootenai River, MT

# Geographic Locations

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## Lakes

- Flathead Lake
- Lake Pend Oreille
- Lake Coeur d'Alene
- Upper and Lower Priest Lake
- Kootenay Lake
- Other Ponds and Lakes
  - More than 50 ponds and lakes



Lake Pend Oreille, ID

# Geographic Locations

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## Reservoirs

- Lake Roosevelt
- Rufus Woods Lake
- Lake Koocanusa
- Dworshak Reservoir
- Hungry Horse Reservoir
- Banks Lake
- Box Canyon Reservoir
- Mission Reservoir



Lake Roosevelt, WA



# Resident Fish & Sturgeon Category Review

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- 44 Projects reviewed in 2020
- Most last reviewed in 2012



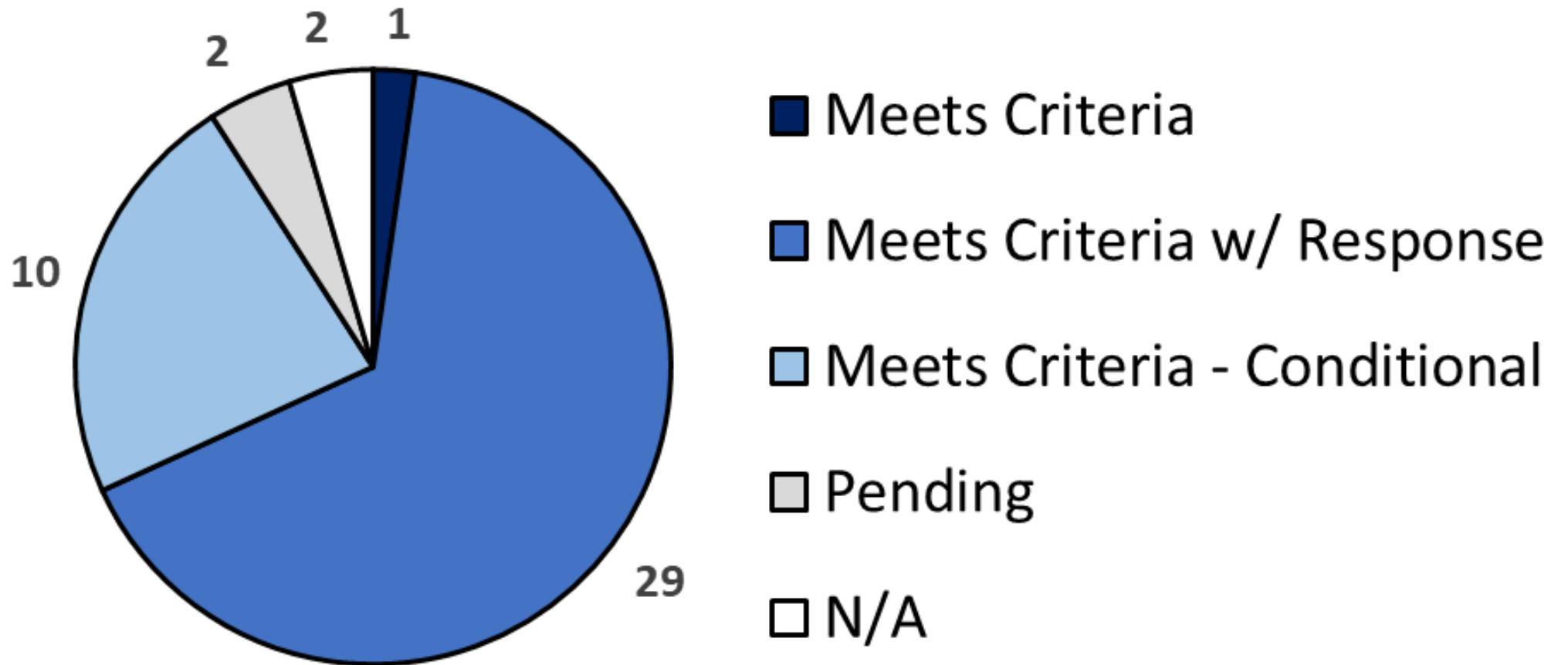
# Resident Fish & Sturgeon Category Review

- 1 project meets scientific review criteria without response loop
- ISRP requested responses from 43 of 44 projects
- 30 meet criteria
- 10 meet criteria with conditions
- 2 were not amenable to scientific review
- 2 are pending final review



# Resident Fish & Sturgeon Category Review

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# Resident Fish & Sturgeon Category Review

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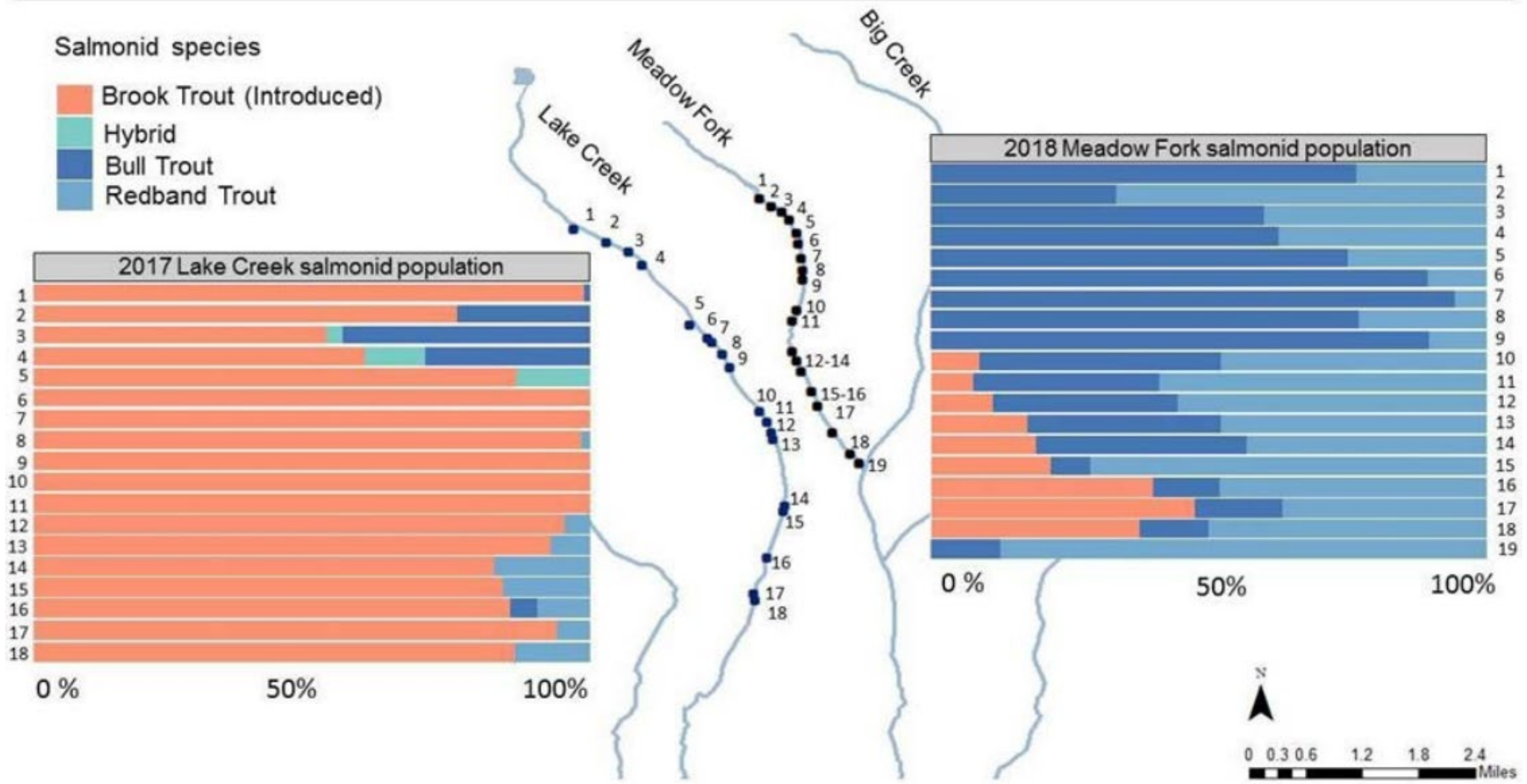
## Evaluate the Life History of Native Salmonids in the Malheur River Subbasin

- This proposal from the Burns Paiute Tribe met scientific review criteria and did not require a response to ISRP questions.
  - Well-organized and clearly written
  - A model for other projects
  - Reflects a productive and successful effort over multiple years
  - Presents evidence that brook trout in the Malheur River Subbasin are a serious and primary threat to recovery and persistence of bull trout populations
  - Excellent set of goals and objectives
  - A stepwise progression of new work built on the findings and uncertainty of previous work
  - Strong demonstration of adaptive management with extensive collaboration.

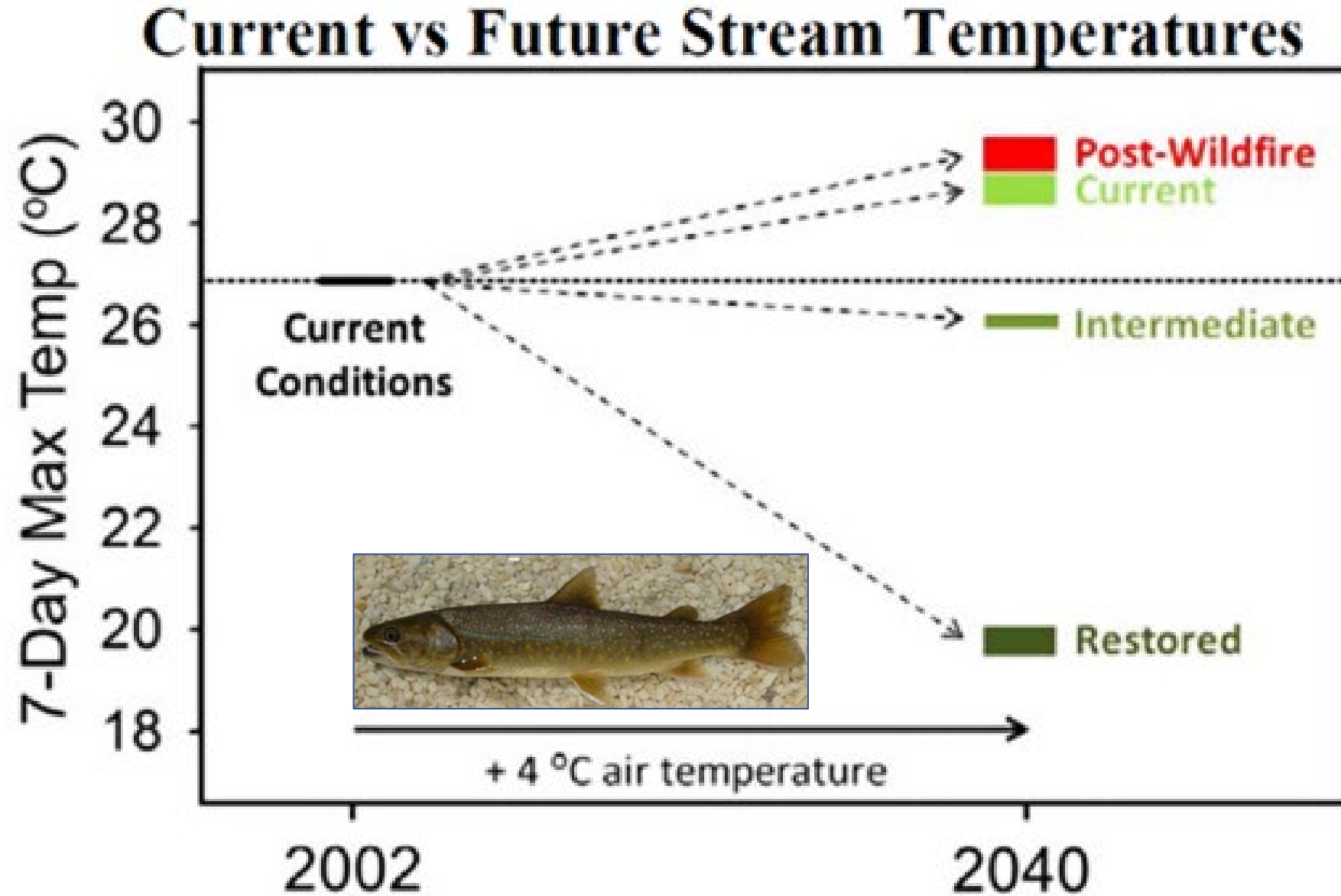


# Life History of Native Salmonids in the Malheur River Subbasin

Relative Abundance of Salmonids in Two Upper Malheur Headwaters

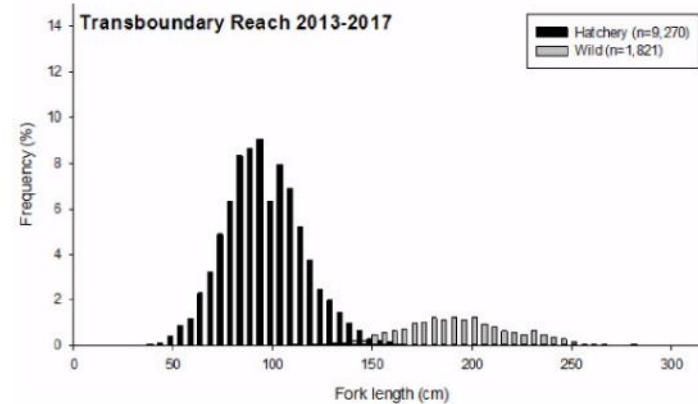
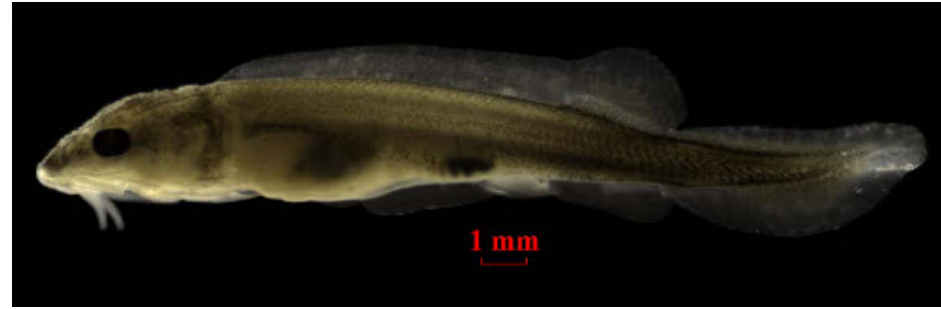


# Life History of Native Salmonids in the Malheur River Subbasin



# White Sturgeon Enhancement

- Colville Confederated Tribes
- Advances in using larval and juvenile sturgeon in population recovery and enhancement
  - New laboratory methods
  - New field methods
  - New analytical approaches

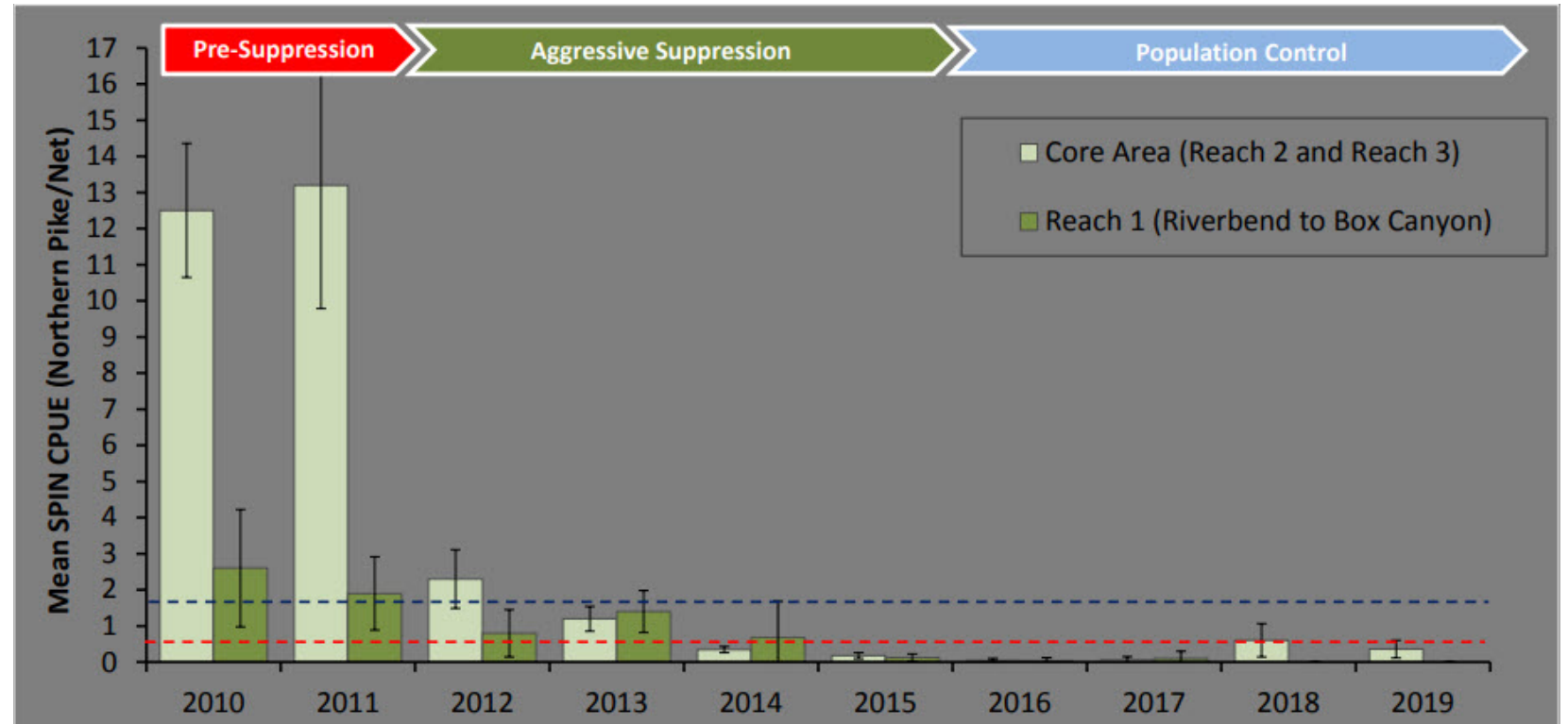


High survival of hatchery fish released at age-1



# Non-Native Fish Suppression

- Kalispel Tribe
- Successful suppression
  - Northern pike
  - Brook trout
  - Lake trout
- Multiple techniques
  - Gill netting
  - Electrofishing
  - Piscicides
  - YY males (trial phase)





# South Fork Snake River Yellowstone Cutthroat Trout

- Idaho Department of Fish & Game
- Genetic integrity and population and viability of Yellowstone cutthroat
  - Eyed-egg outplanting
  - Rainbow trout removal
  - Trapping efficiency for RBT increased from 40% up to 90%
    - Improved weir designs
    - Techniques to differentiate rainbow trout and hybrids



# Kootenai River Fish Mitigation

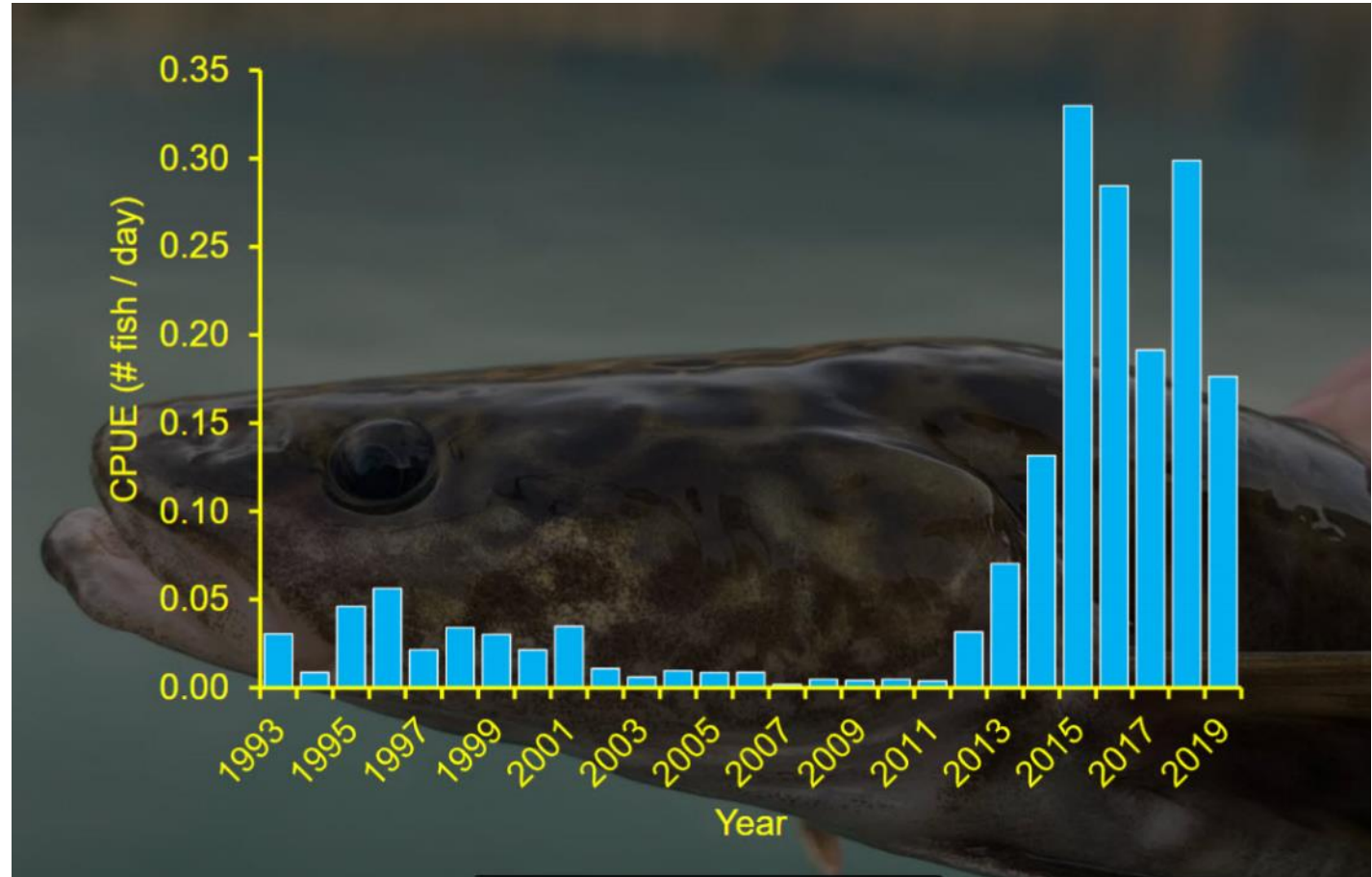
- Kootenai Tribe of Idaho & Idaho Department of Fish & Game
- Changes to the operations of Libby Dam
- Development of conservation aquaculture
- Parental based tagging
- Monitoring of all life stages
- Burbot fishery opened in the Kootenai River after nearly 30 years of being closed





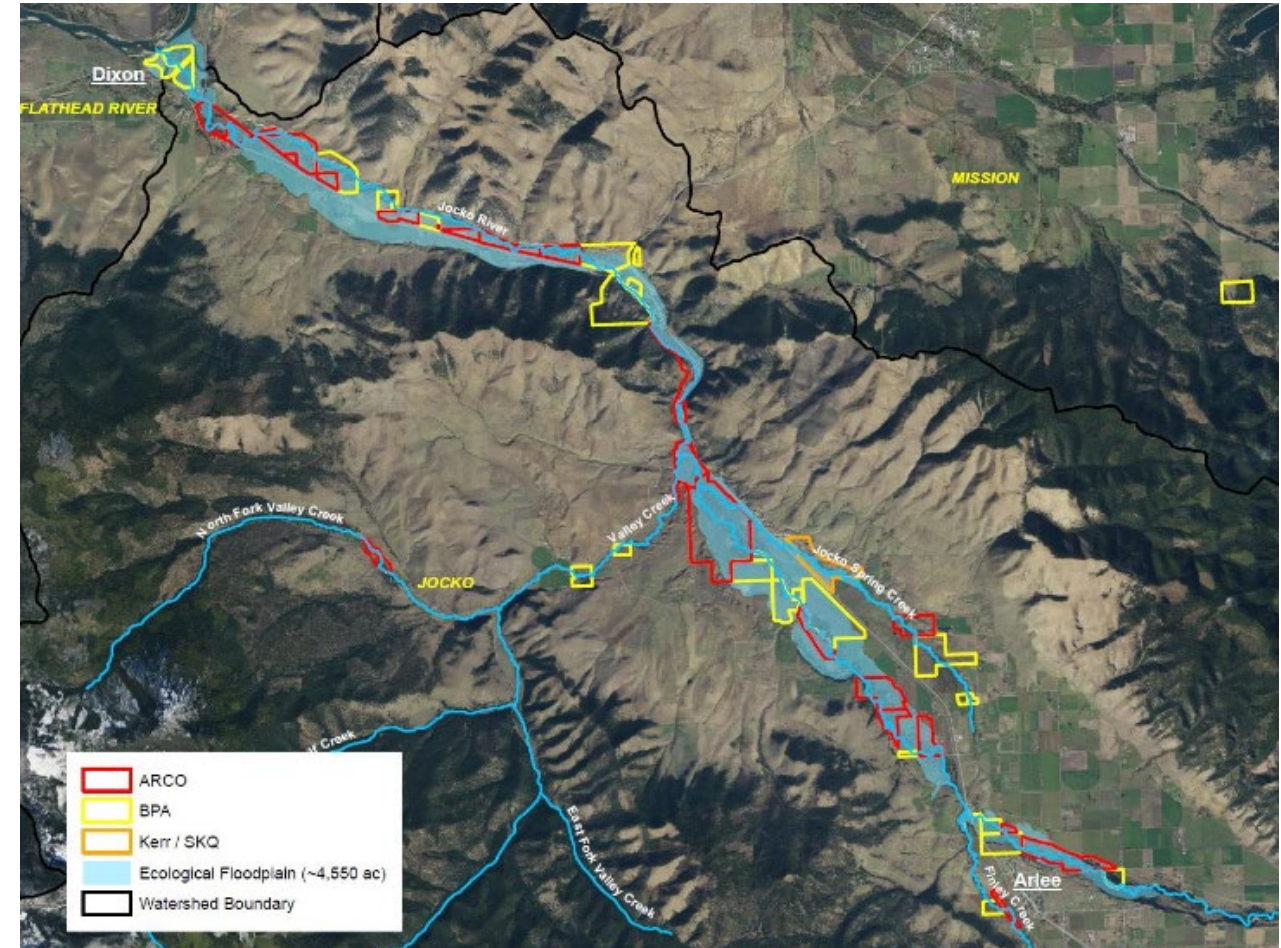
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# Secure and Restore Fish and Wildlife Habitat in Montana

- Salish and Kootenai Confederated Tribes
- Protected over 64 km of streams within the Flathead River watershed, with emphasis on Jocko River floodplain
- Strong proposal and response, collaborative interactions; Response led to important dialogue on documenting benefits of protection vs. restoration





# Programmatic Comments

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- Native and Non-native Fish Interactions
- Lake and River Fertilization
- Habitat Protection versus Restoration
- Climate Change
- Adaptive Management
- Cultural Perspectives of Knowledge & Adaptive Management
- Communication and Integration

# Programmatic Comments

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## Native and Non-Native Fish Interactions

- Non-native fish in recreational fisheries
- Bycatch
- Northern pike
- Stocking triploids
- YY males in brook trout suppression
- Risk of translocation and reintroduction
- Contaminants

# Programmatic Comments

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## Northern Pike

- Importance of rigorous diet and bioenergetic studies in the region to determine:

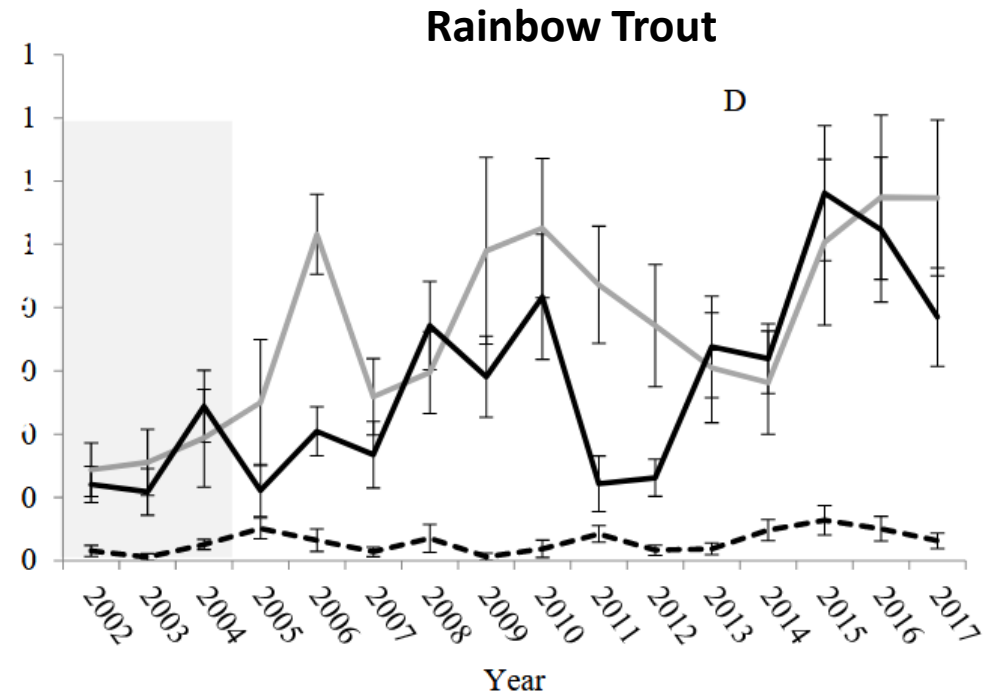
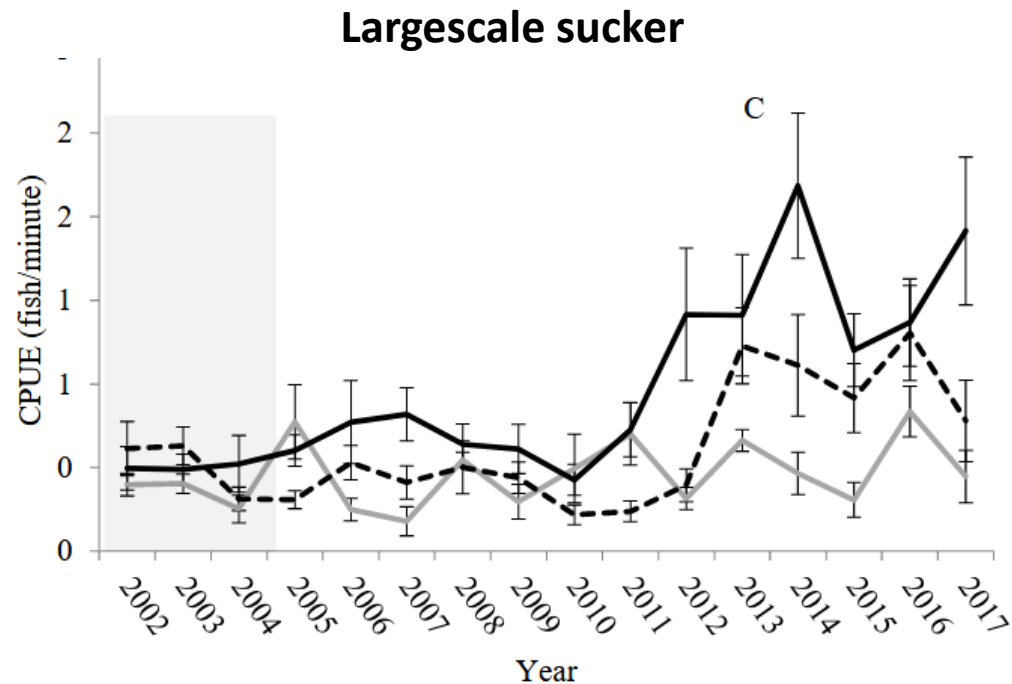


- The extent to which northern pike prey on salmonids and other focal fish species, and
- Whether the effects of northern pike on their prey are linear or complex and indirect food web responses.

# Programmatic Comments

## Lake and River Fertilization

- Several projects implementing fertilization - Dworshak Reservoir, South Arm of Kootenay Lake, and Kootenai River
- Clear effects on phytoplankton; Benefits to fish not as clear
- Questions about interpretation of data
- Potential unintended consequences (e.g., cyanobacteria)



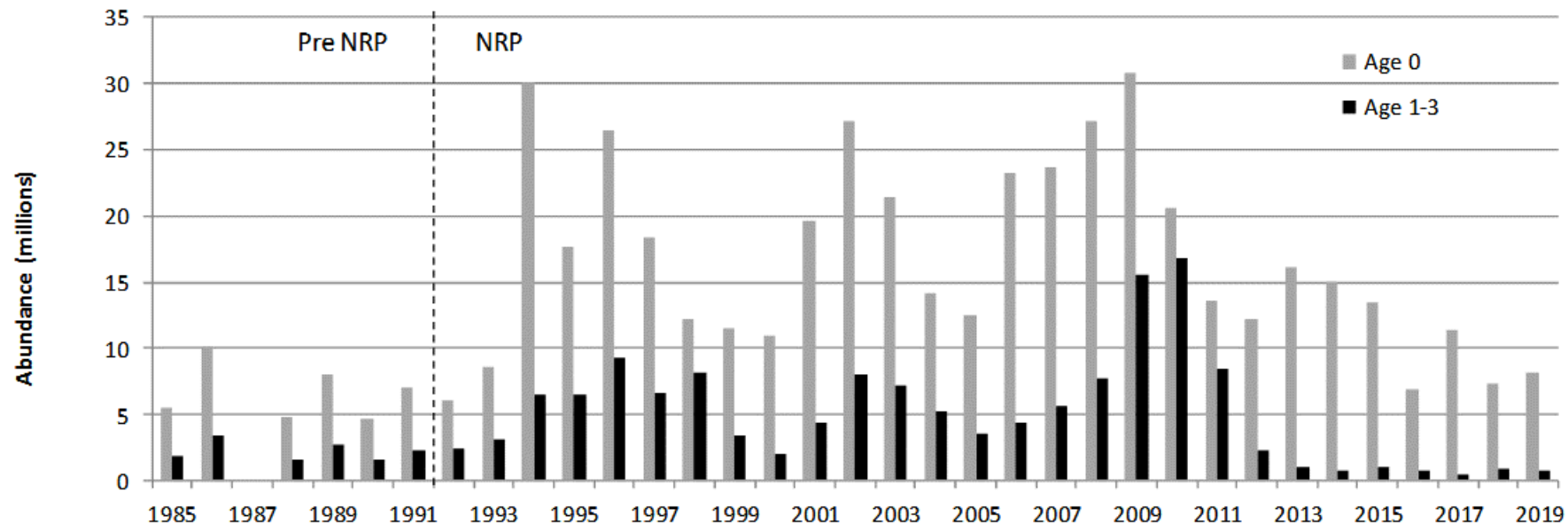
— control  
— nutrient addition  
- - - downstream



# Programmatic Comments

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# Programmatic Comments

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## Communication and Integration

- Communication between BPA, the Council, and ISRP
- Information sharing and publication of results
- Fish management plans
- Synthesis documents



# Communication between BPA, Council, and ISRP

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The ISRP believes better communication of BPA's decisions regarding implementation of recommendations from the Council and ISRP would encourage coordination and consistent actions across the Fish and Wildlife Program.

It would also improve the relationship between the ISRP and proponents by reducing the likelihood that the ISRP will repeatedly make requests of proponents without knowledge of BPA's decisions and restrictions.

The ISRP looks forward to assisting as needed.



# Multiple Cultural Perspectives

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- Cultural knowledge and scientific knowledge
- Relationships between adaptive management processes and tribal decision making processes
- The ISRP will explore parallel application and awareness rather than integration and homogenization.



# Resident Fish & Sturgeon Category Review

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The ISRP appreciates the dedication of the proponents to protect and restore the natural resources of the Columbia River Basin and strengthen the Fish and Wildlife Program.

We also appreciate the constructive exchange of information by both proponents and ISRP reviewers during the Response Loop.

We look forward to learning how our scientific reviews and programmatic comments inform Council decision and subsequent project implementation and improvement by BPA and the project proponents.

We welcome ongoing dialogue if you or others have any questions about our review.