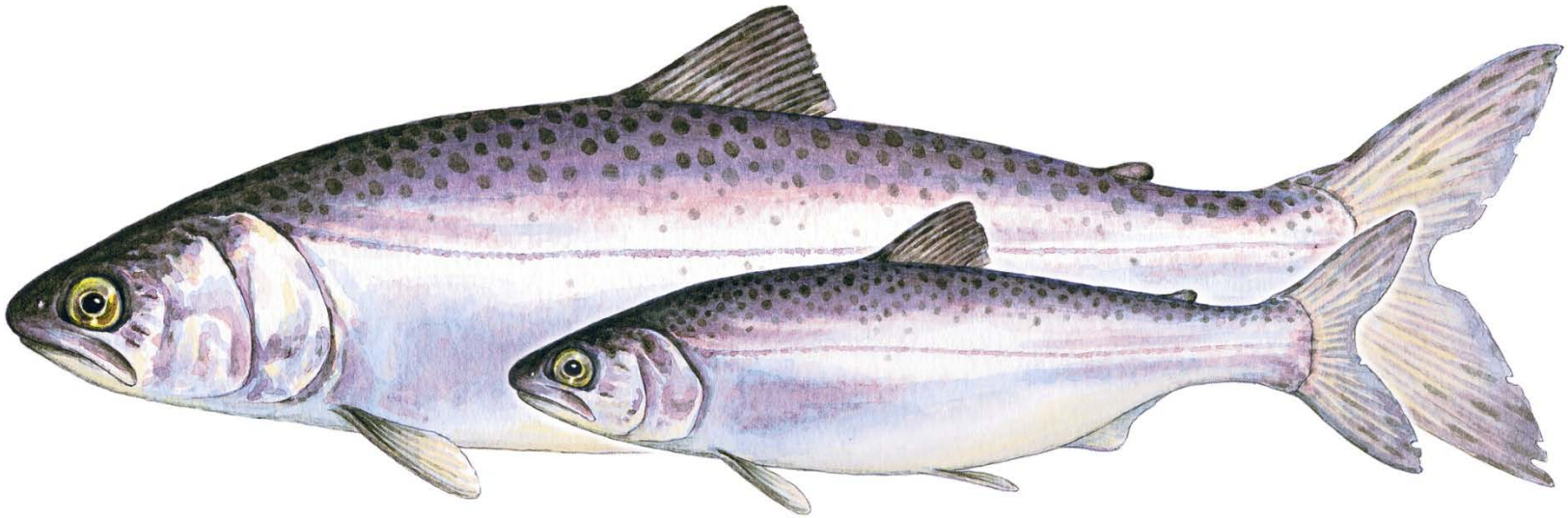
Freshwater Life History of Natural Snake River Basin Fall Chinook Salmon



PNNL

science for a changing world

Washington Department of FISH and WILDLIFE

Bonneville Power Administration

US Army Corps of Engineers

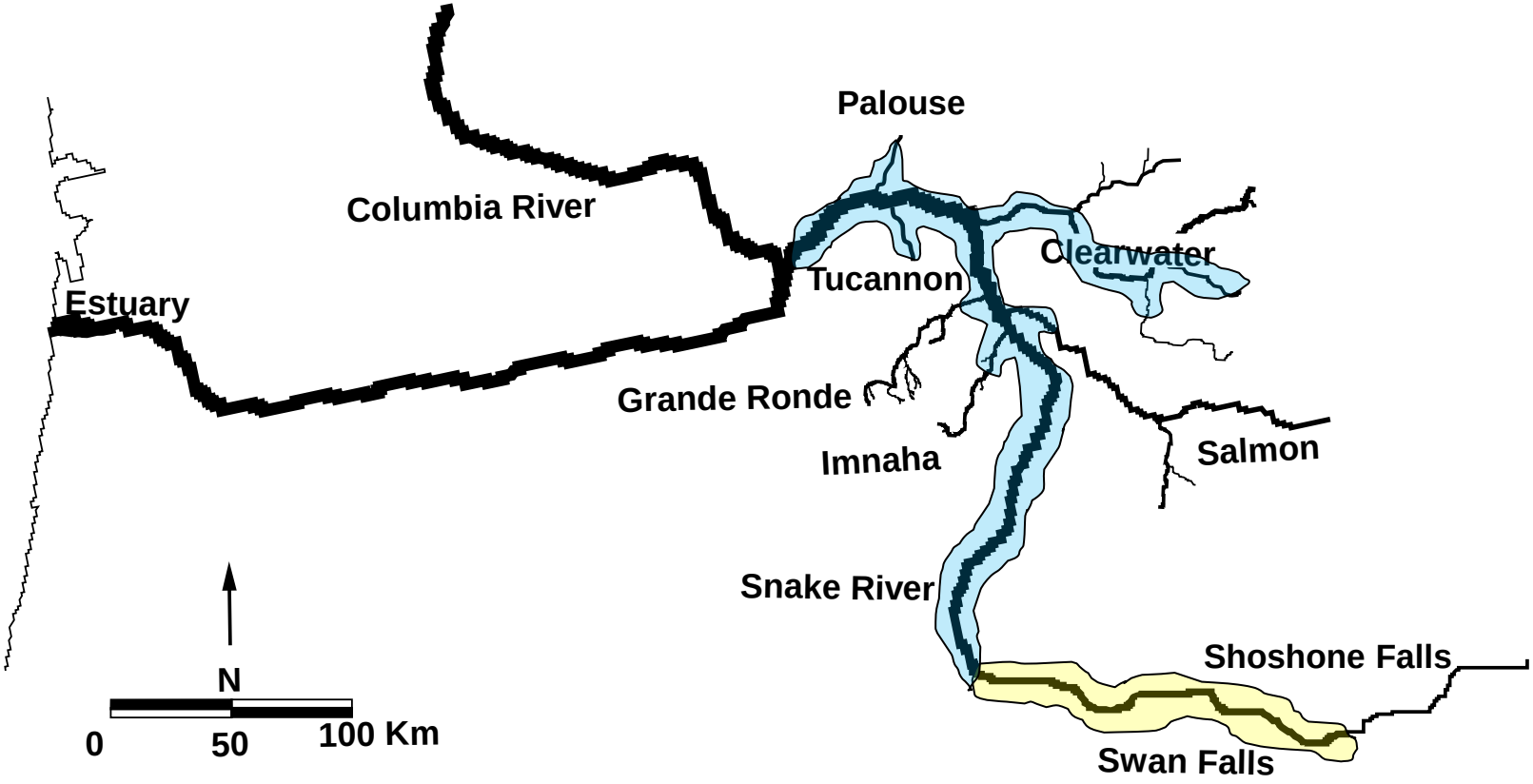
Objective

1. Describe the freshwater early life history of natural fall Chinook salmon produced upstream of Lower Granite Reservoir

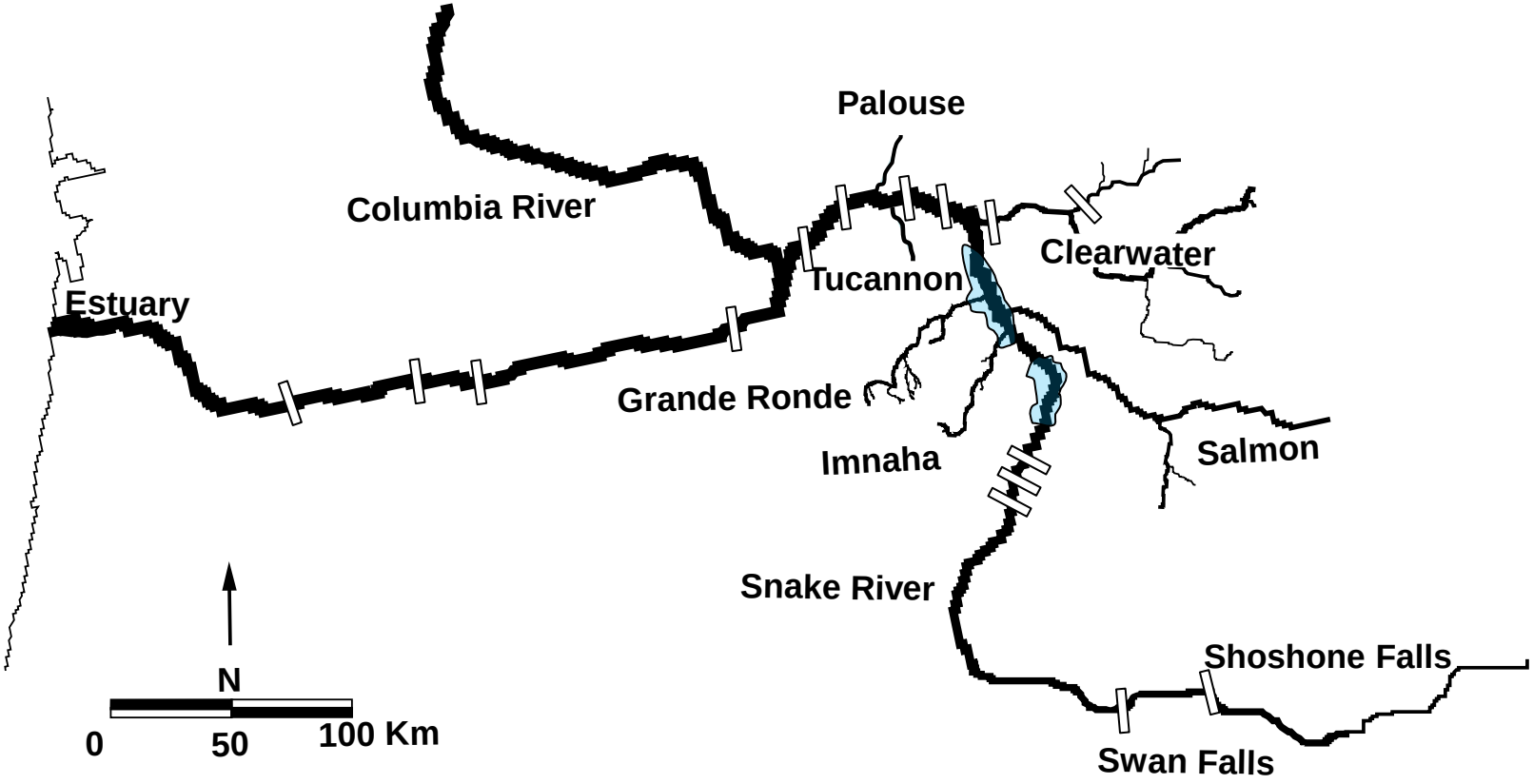
Methods

1. Literature review (1892-present)
2. Empirical redd count data (1947-present)
3. Beach seining and PIT-tag data (1992-present)
4. Laboratory data (last decade)
5. Radio- and acoustic tagging data (last decade)

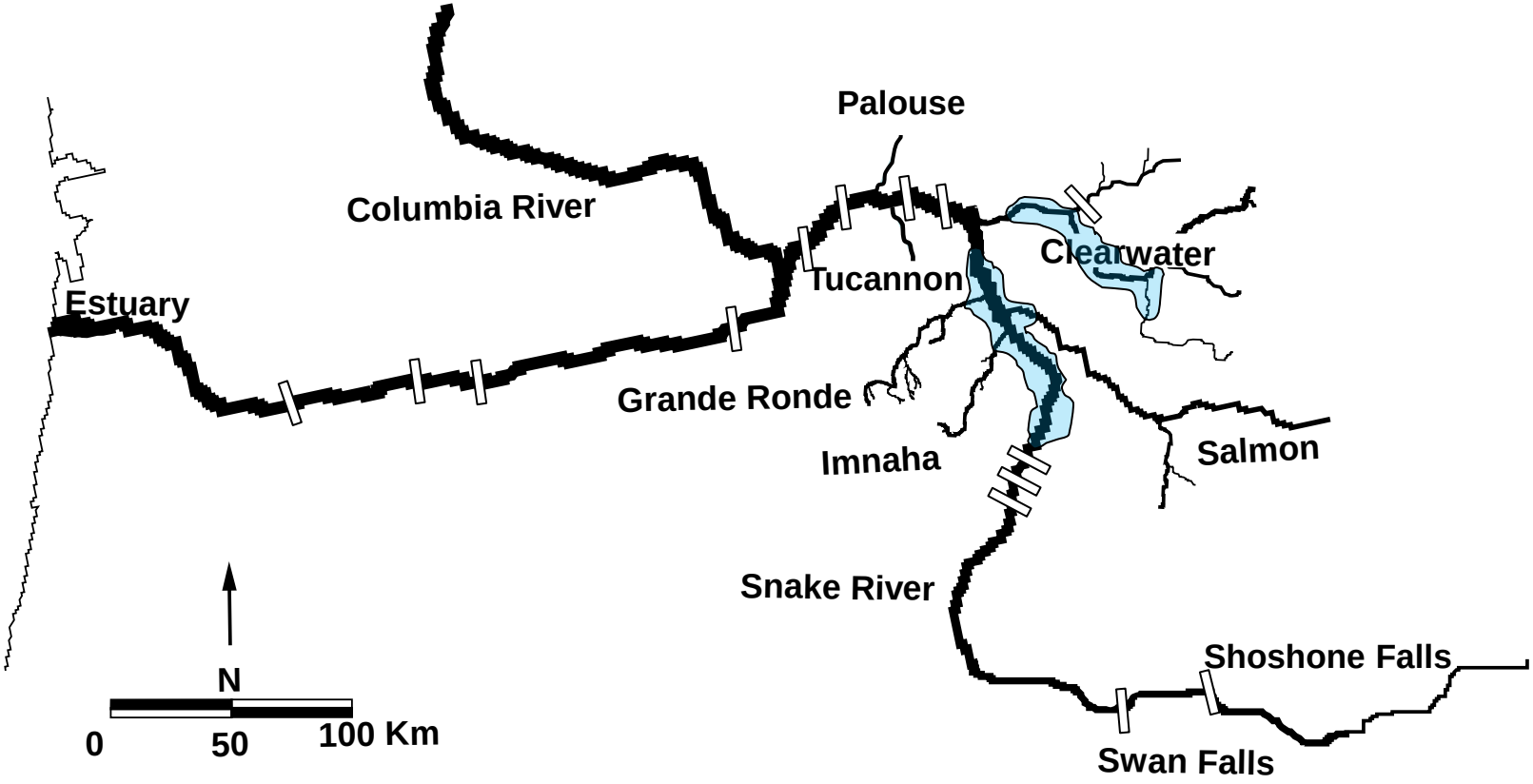
Historical Population = High Potential for Diversity



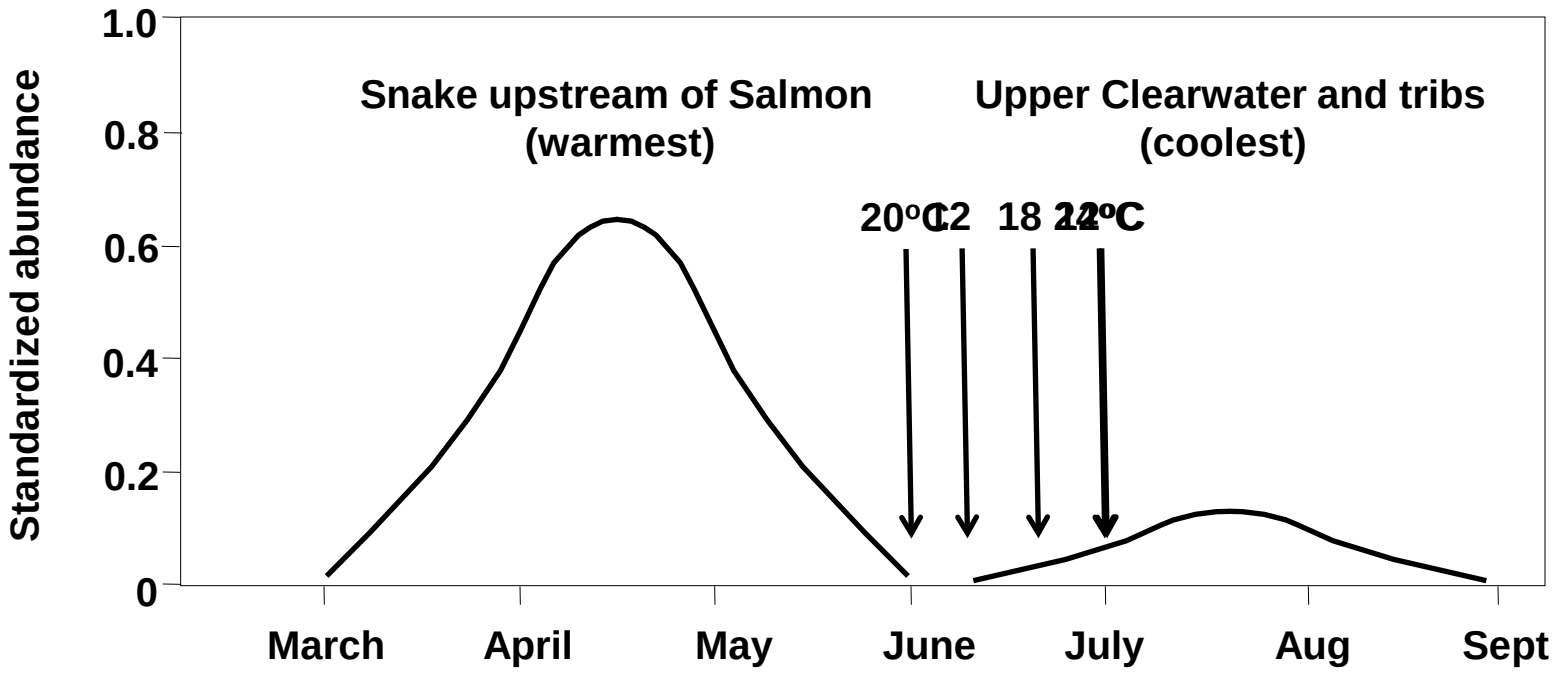
Population during early 1970s = Low Potential for Diversity

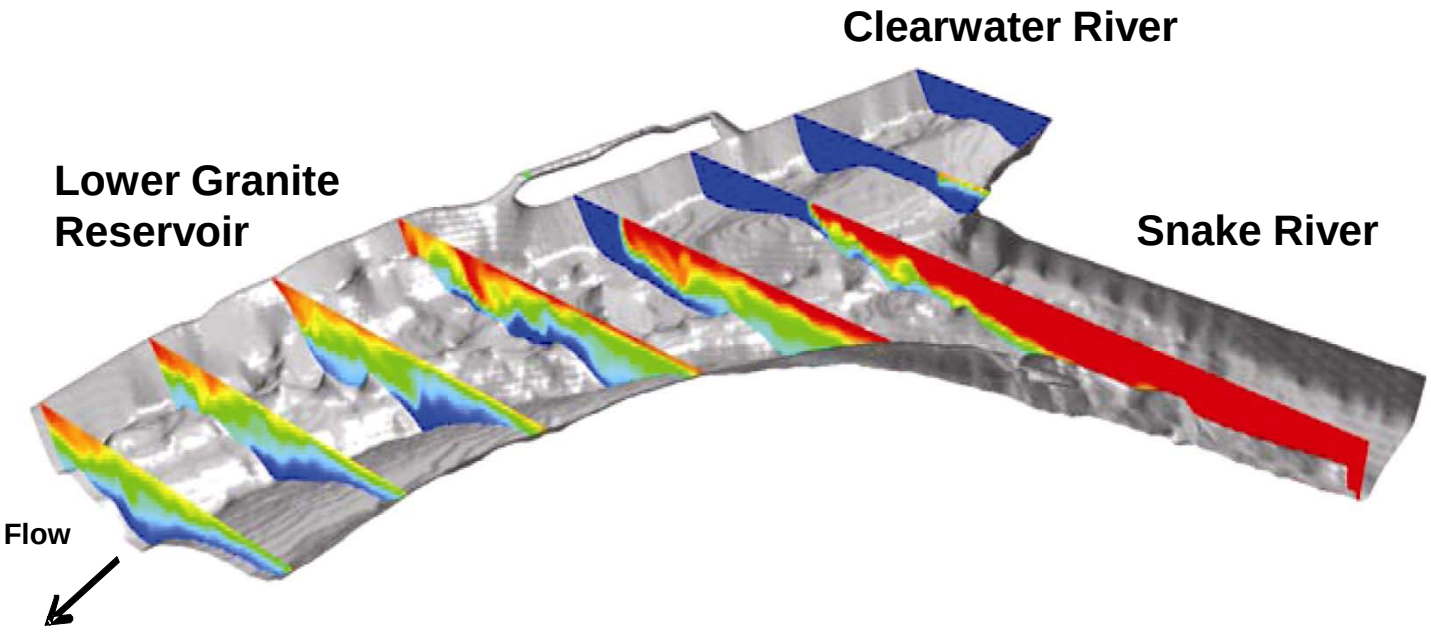


Population after ESA Listing = Potential for Diversity Partly Restored



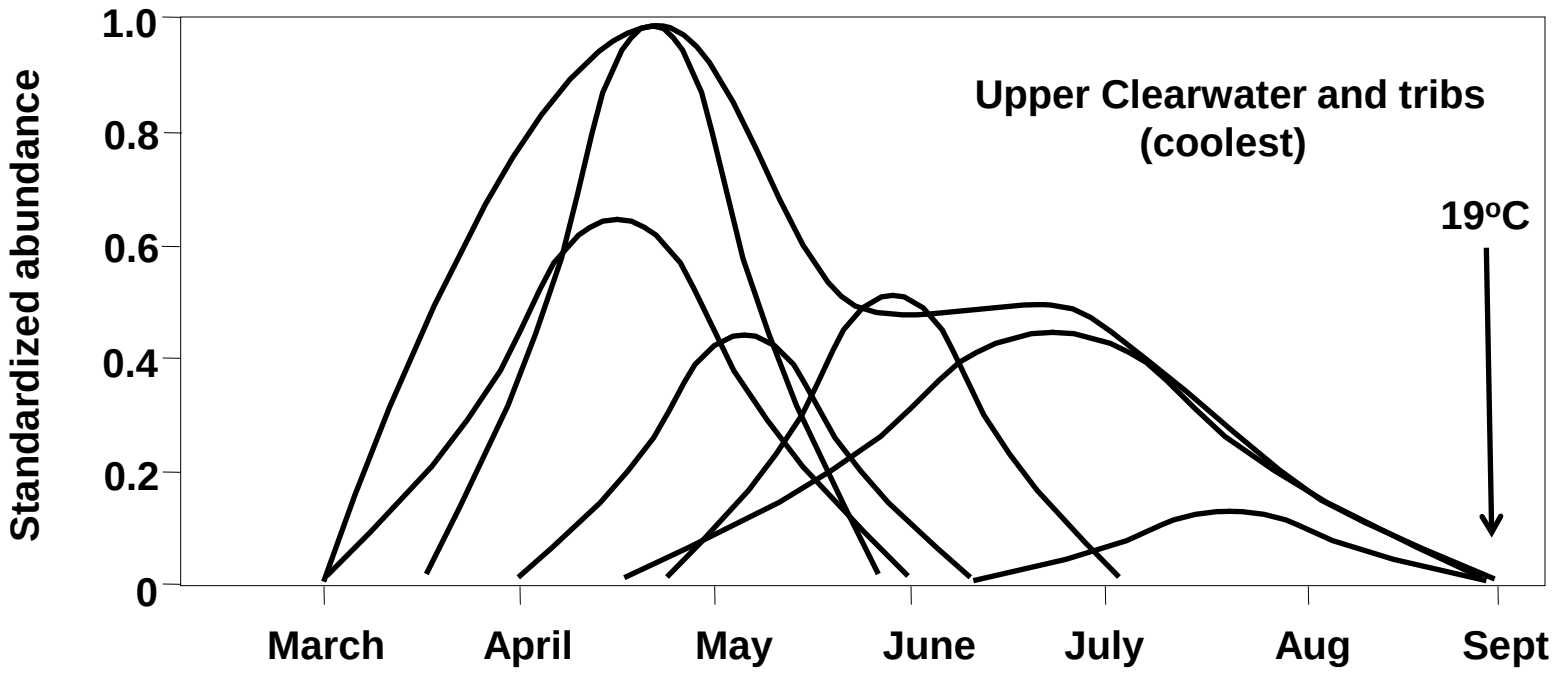
Early and Late Rearing in Riverine Habitat
(based on peer-reviewed literature and empirical data)





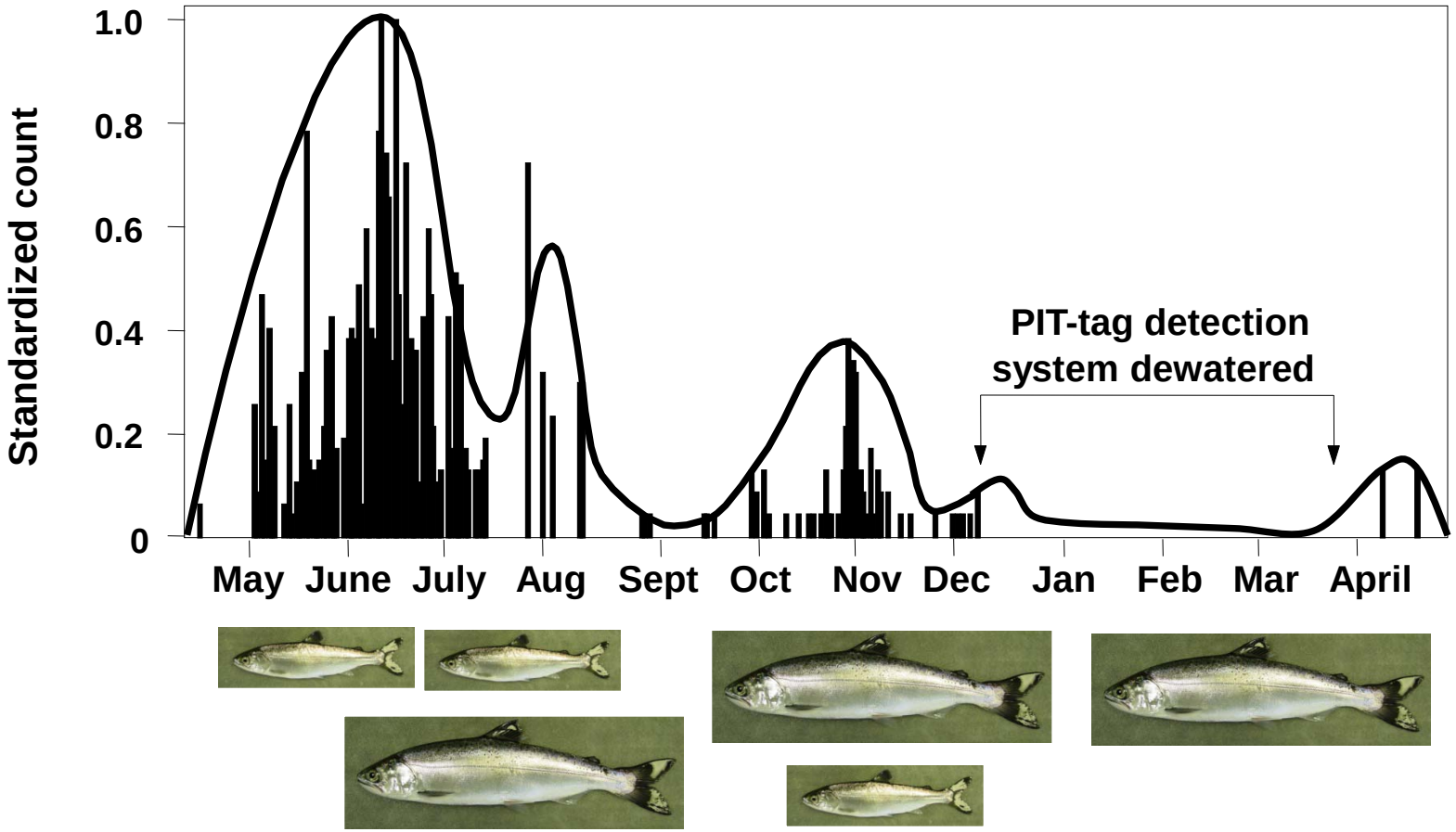
Courtesy of Chris Cook PNNL

Timing of Juvenile Rearing in Riverine Habitat
(based on peer-reviewed literature and empirical data)



Passage and Presence in Reservoirs Impeded by the Federal Columbia River Power System

Average of PIT-tagged Members of the Population that Leaved Grand Coulee Dam (2006 and 2007 data)



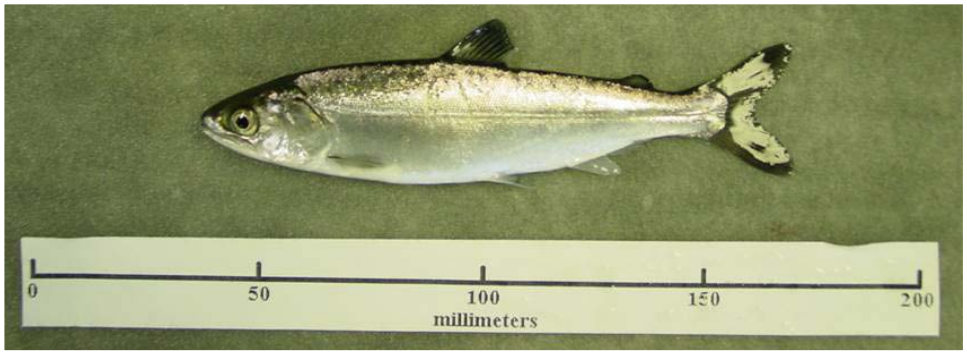
Conclusions

1. **Over the past 24 years of study, we have observed many changes in management that have the potential to affect life history diversity.**

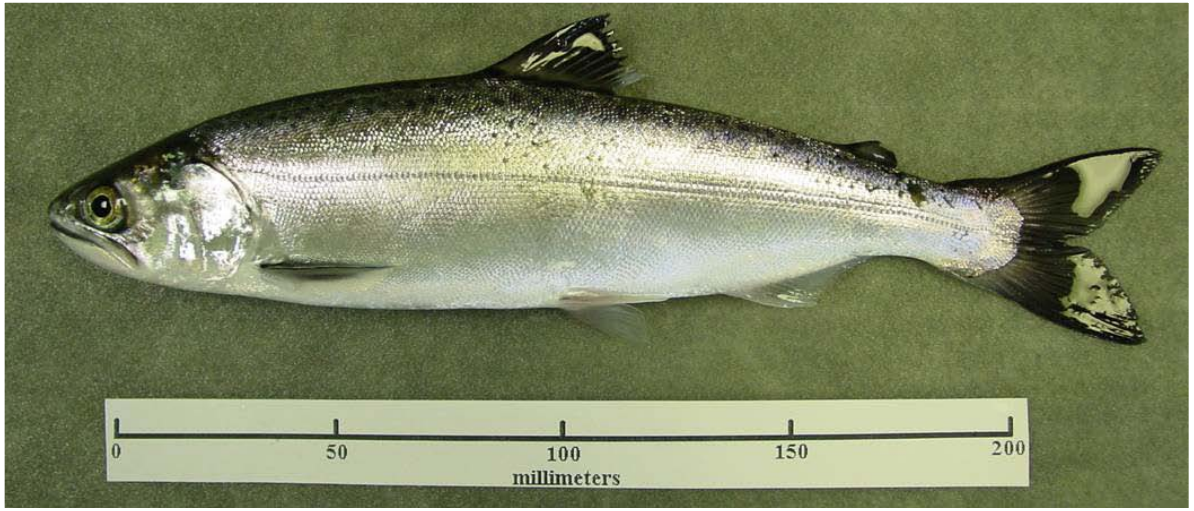
2. **We have a lot to learn about this diversity and need to continually develop new tools to foster this learning.**

3. **For the present, we conclude that life history diversity in freshwater is important to recovery and it needs to be accounted in our studies of dam passage strategies and experiences.**

Size at Bonneville Dam Passage



Subyearling inriver
100-125 mm FL



Yearling inriver
200-225 mm FL