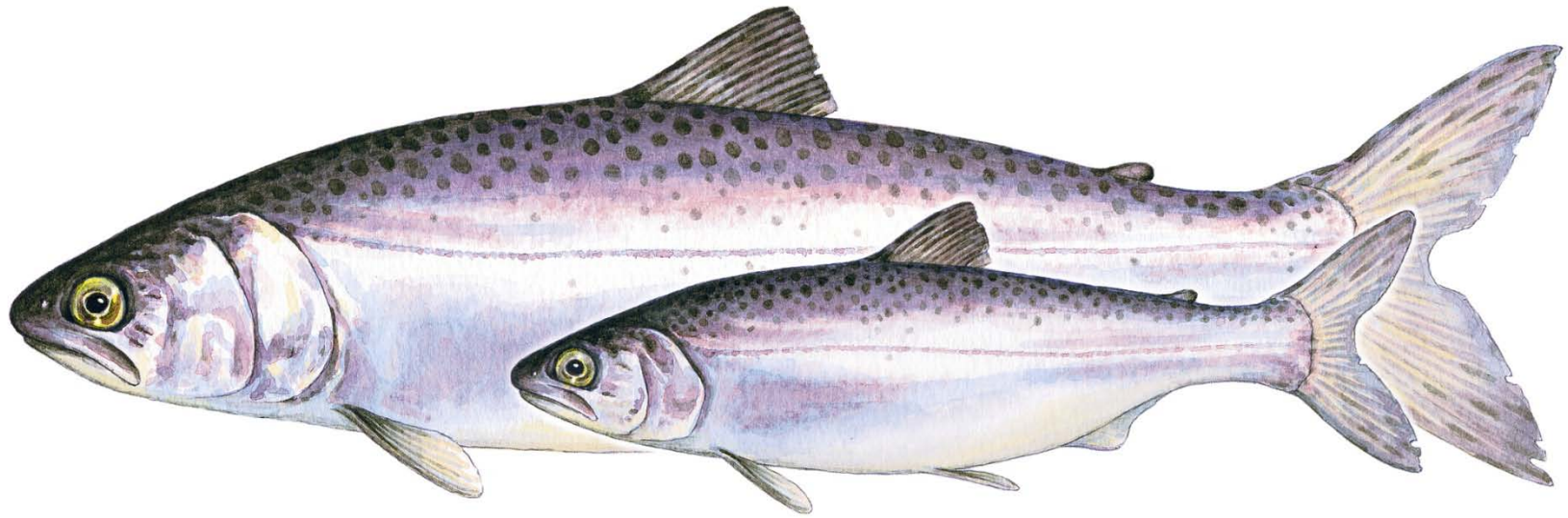


# Freshwater Life History of Natural Snake River Basin Fall Chinook Salmon



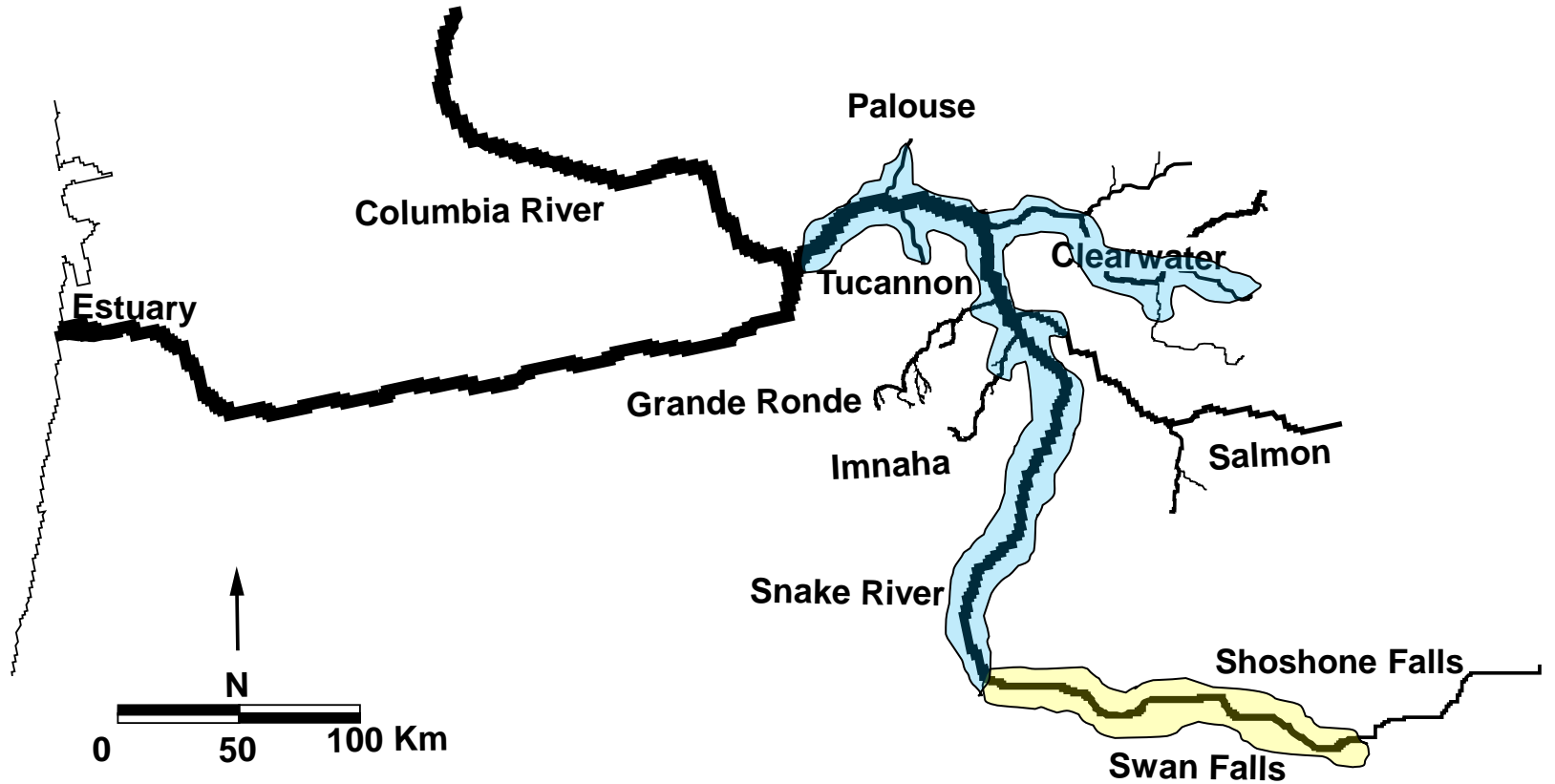
## **Objective**

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

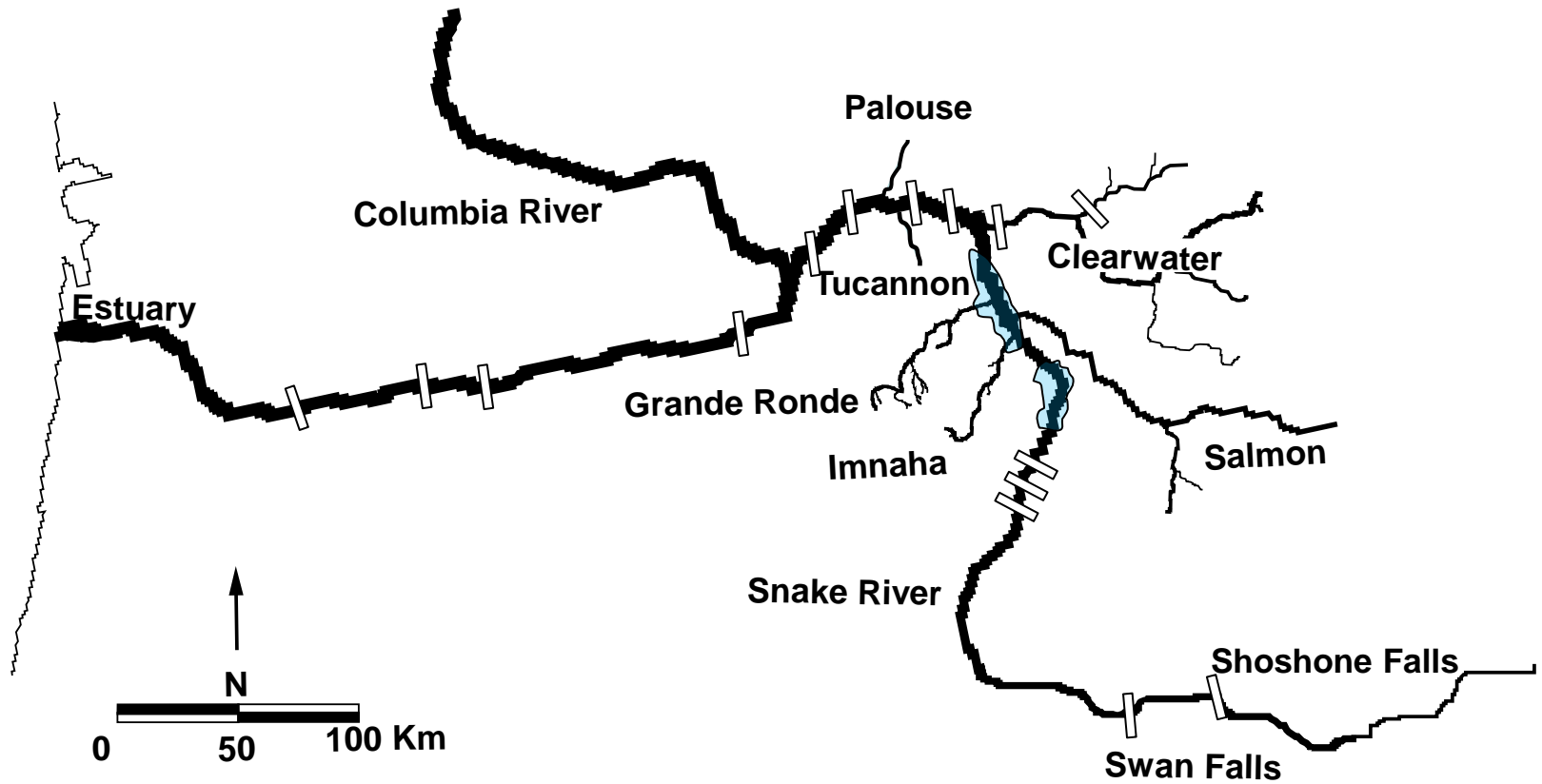
## **Methods**

- 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)**

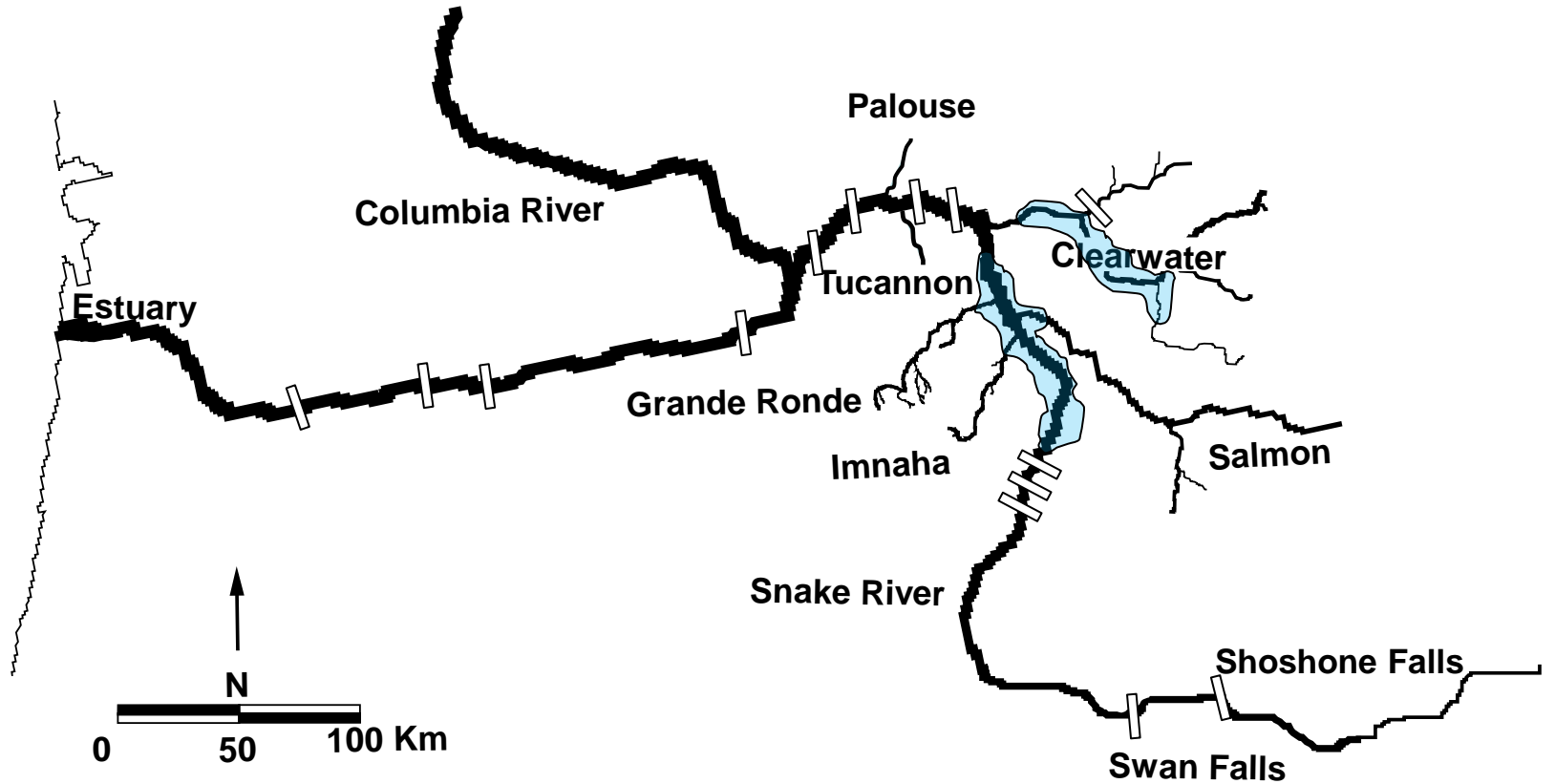
# Historical Population = High Potential for Diversity



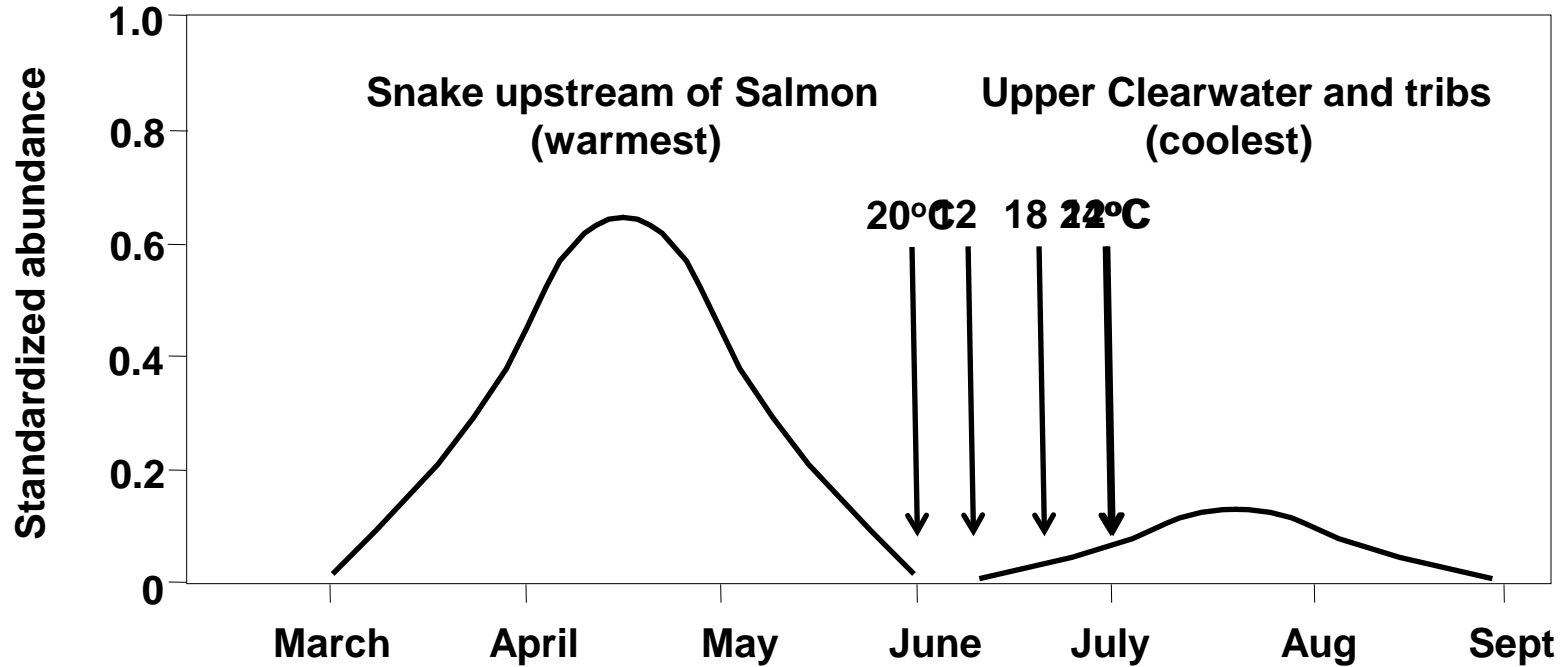
# Population during early 1970s = Low Potential for Diversity

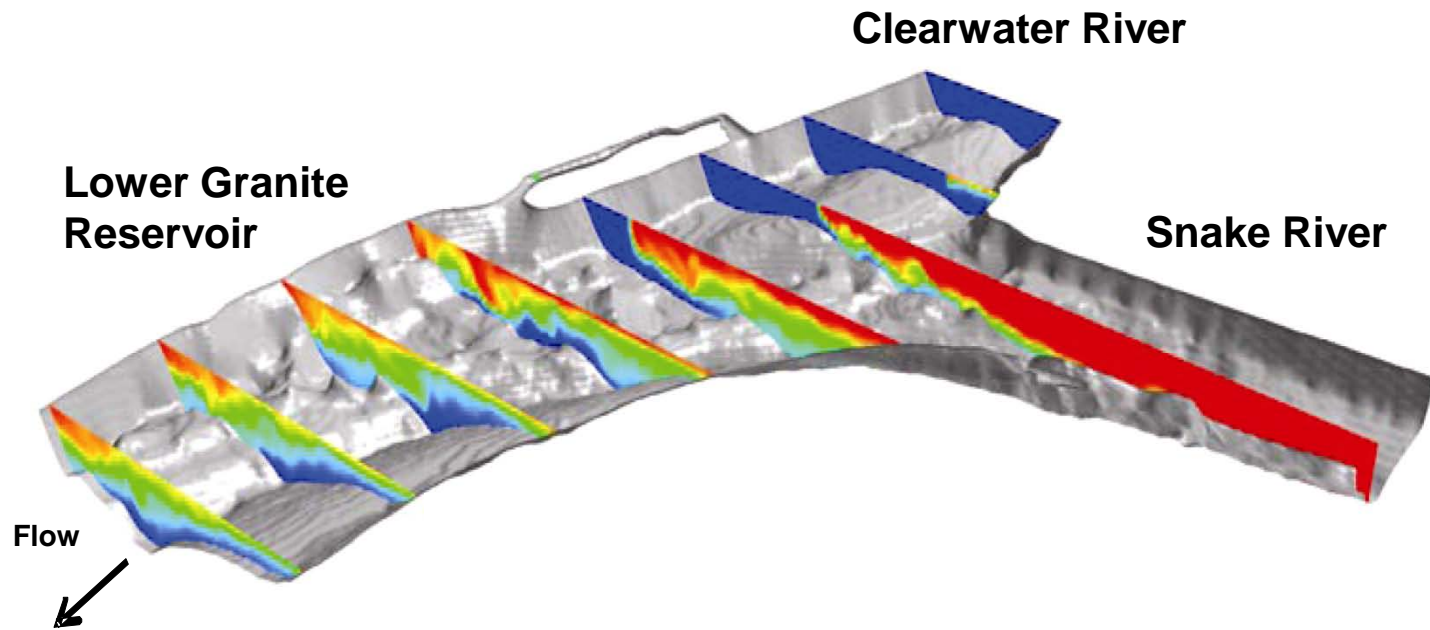


# Population after ESA Listing = Potential for Diversity Partly Restored



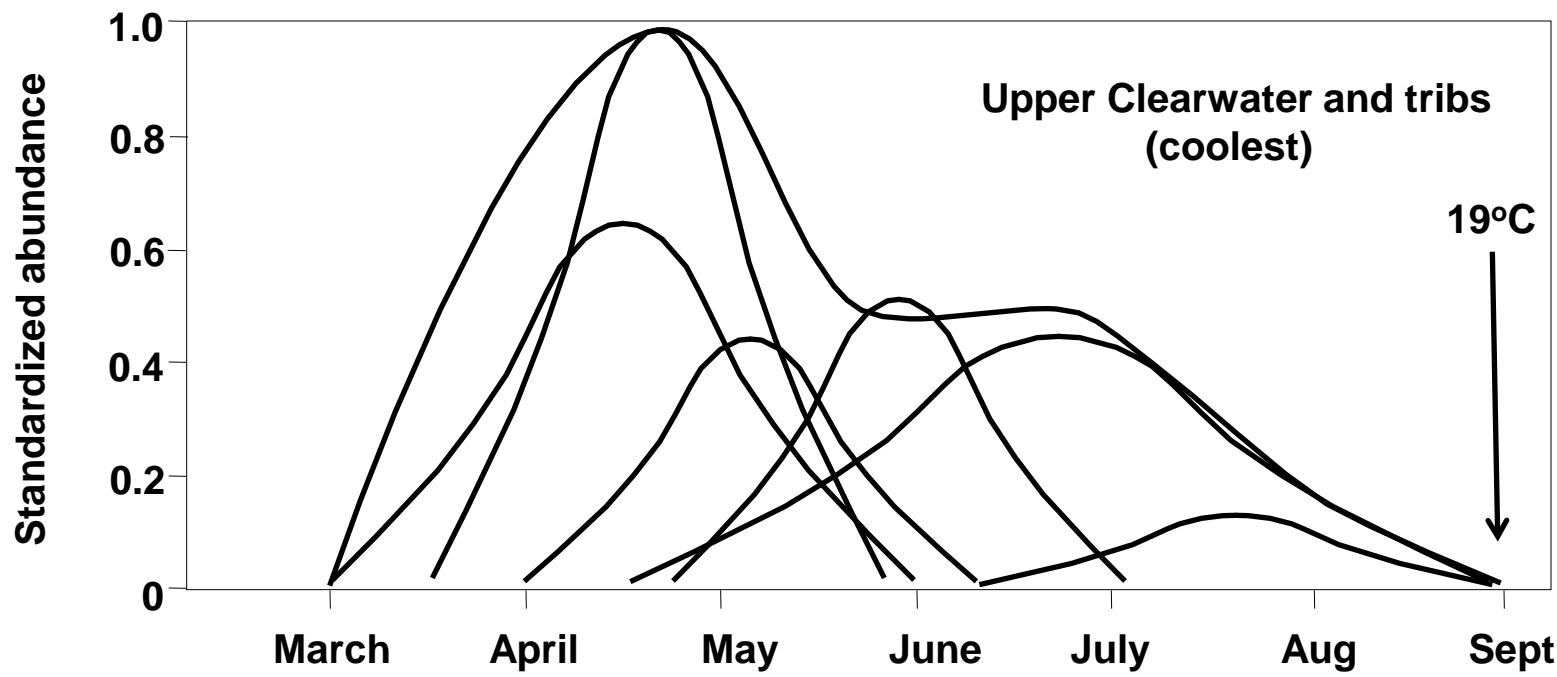
# Early and Late Rearing in Riverine Habitat (based on peer-reviewed literature and empirical data)



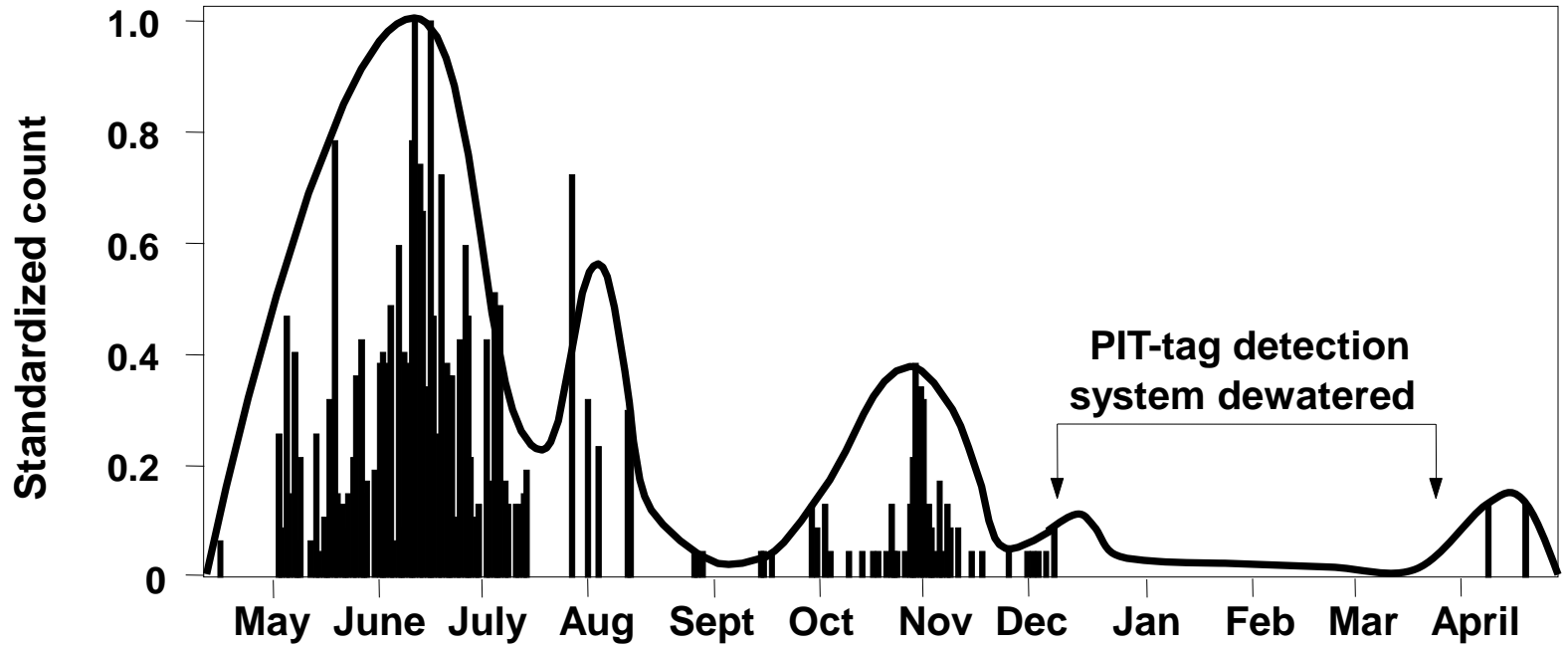


Courtesy of Chris Cook PNNL

# Timing of Population Recruits in Riverine Habitat (based on peer-reviewed literature and empirical data)



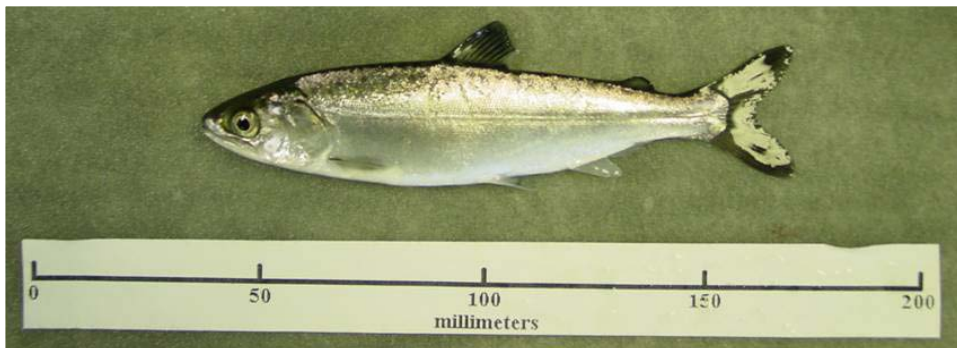
# Passage of PIT-tagged Merreservoirs the Population that Fed the Columbia (2006 Row 2007 data)



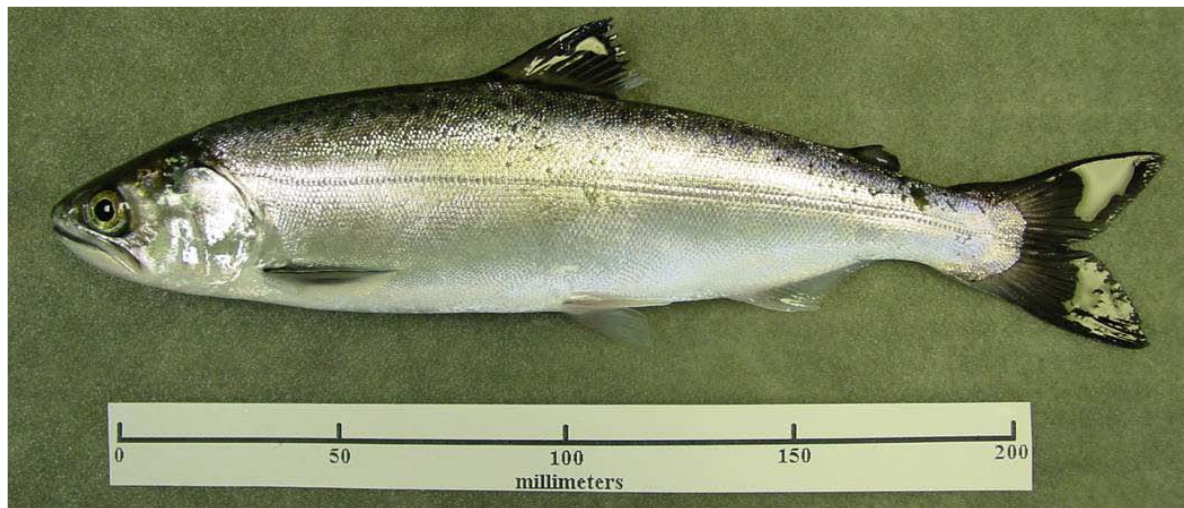
## **Conclusions**

- 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**