



# What Can We Say After Thirty Years of PIT-Tagging Sockeye Salmon?

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WA-BC American Fisheries Society  
2018 Annual General Meeting

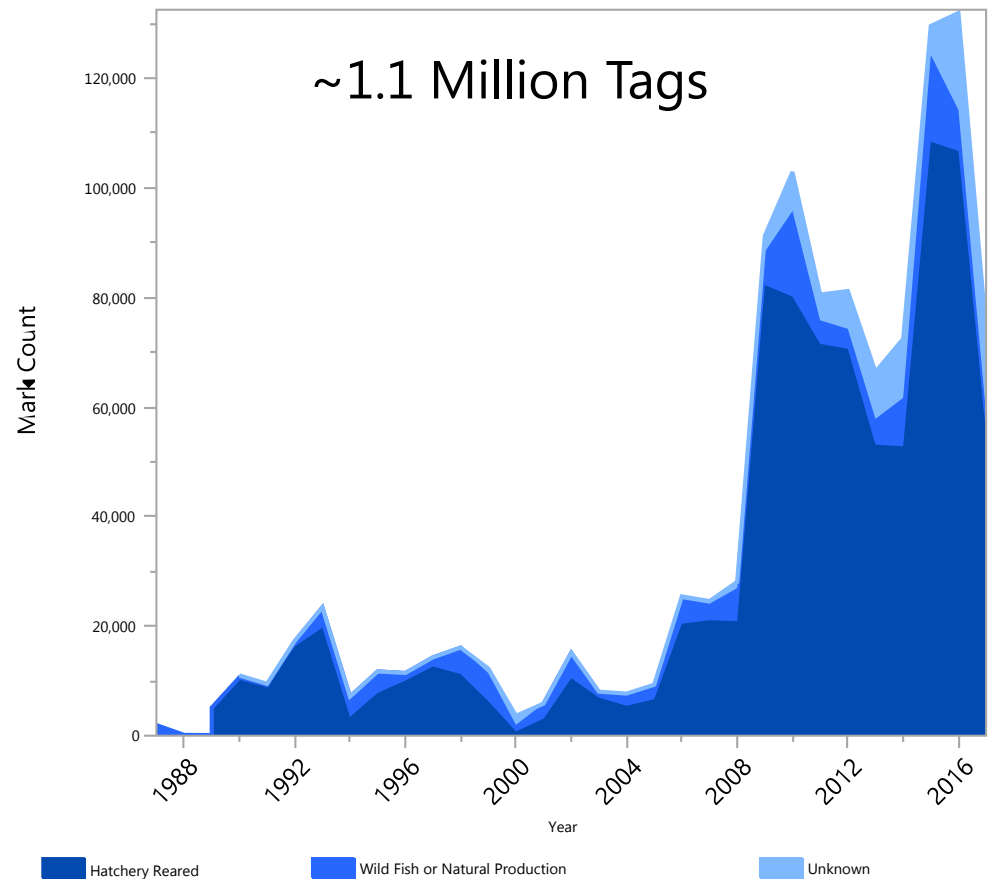


# History of PIT Tags & Sockeye

- Need for salmon tag with benefits over CWT
- Identification Devices Inc. (livestock industry)
- Passive Integrated Transponder, Prentice & Park 1983
- Sockeye Salmon tagged, released in Columbia River  
1987

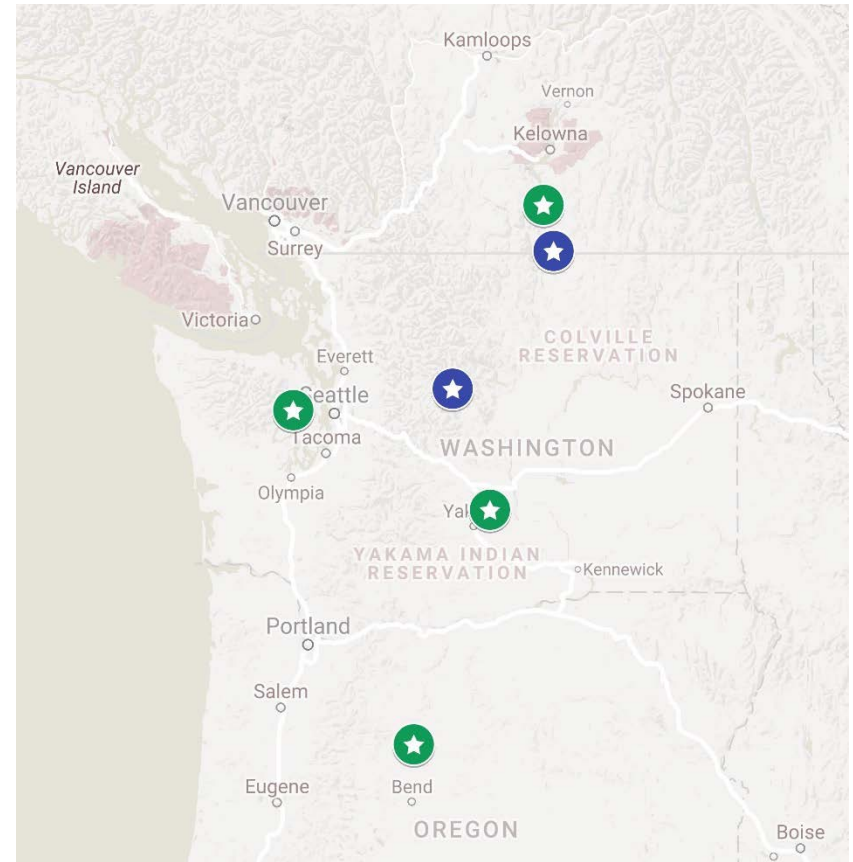
# History of PIT Tags & Sockeye

- Major Release Locations
  - Redfish/Sawtooth, ID
  - Lake Wenatchee, WA
  - Cle Elum River, WA
  - Rock Island Dam, WA
  - Osoyoos, BC
  - Bonneville Dam, WA/OR



# History of PIT Tags & Sockeye

- New Releases
  - Skaha Lake, BC
  - Metolius R., OR
  - Yakima R., WA
  - Hood Canal, WA



# Nature of Data

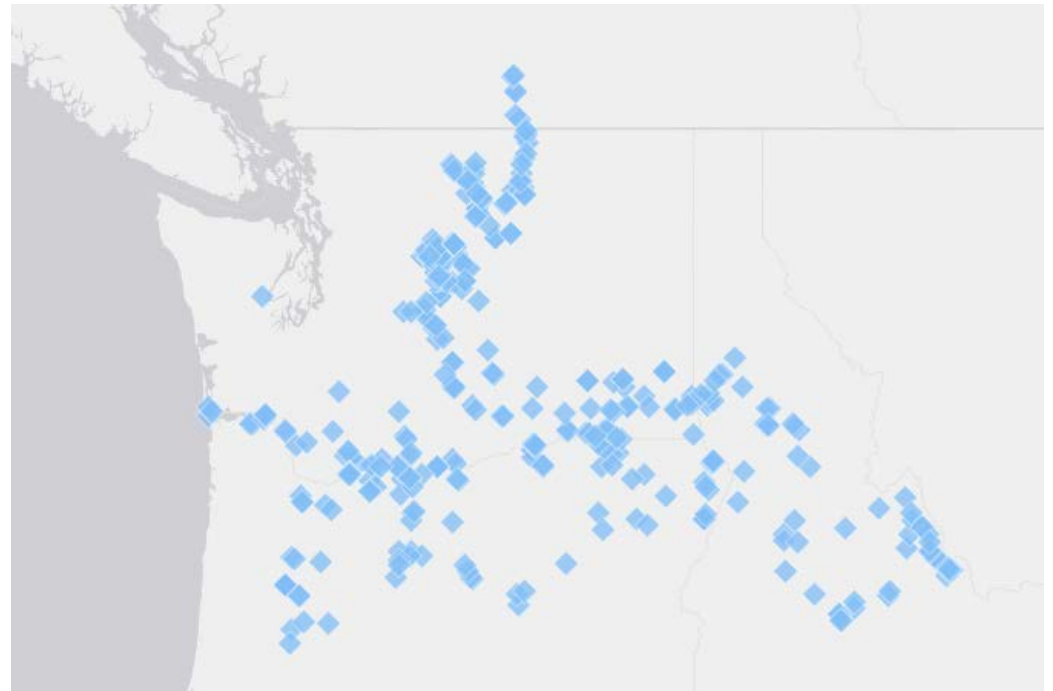
- File Types
  - Tagging detail
  - Interrogation detail
  - Recapture detail
  - Mortality detail





# PIT Interrogation Sites, 2018

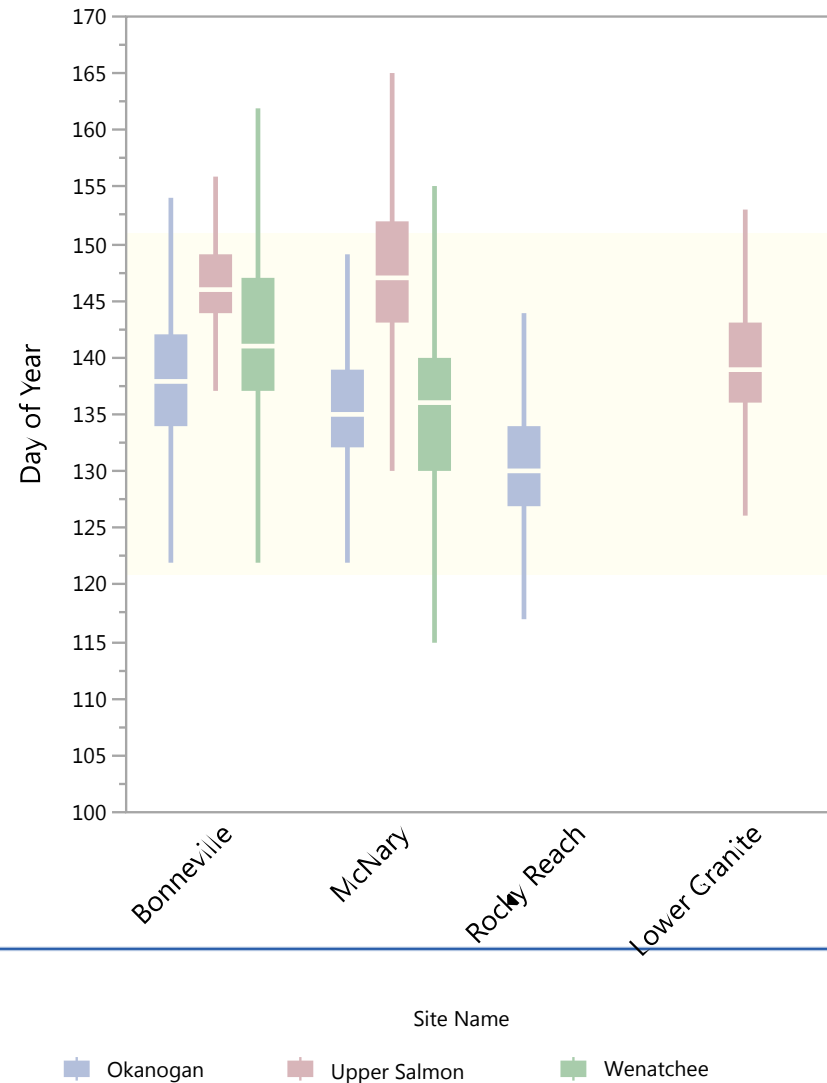
- Key Metrics
  - Behavior
  - Survival
  - Bottlenecks



Interrogation sites in the Pacific Northwest

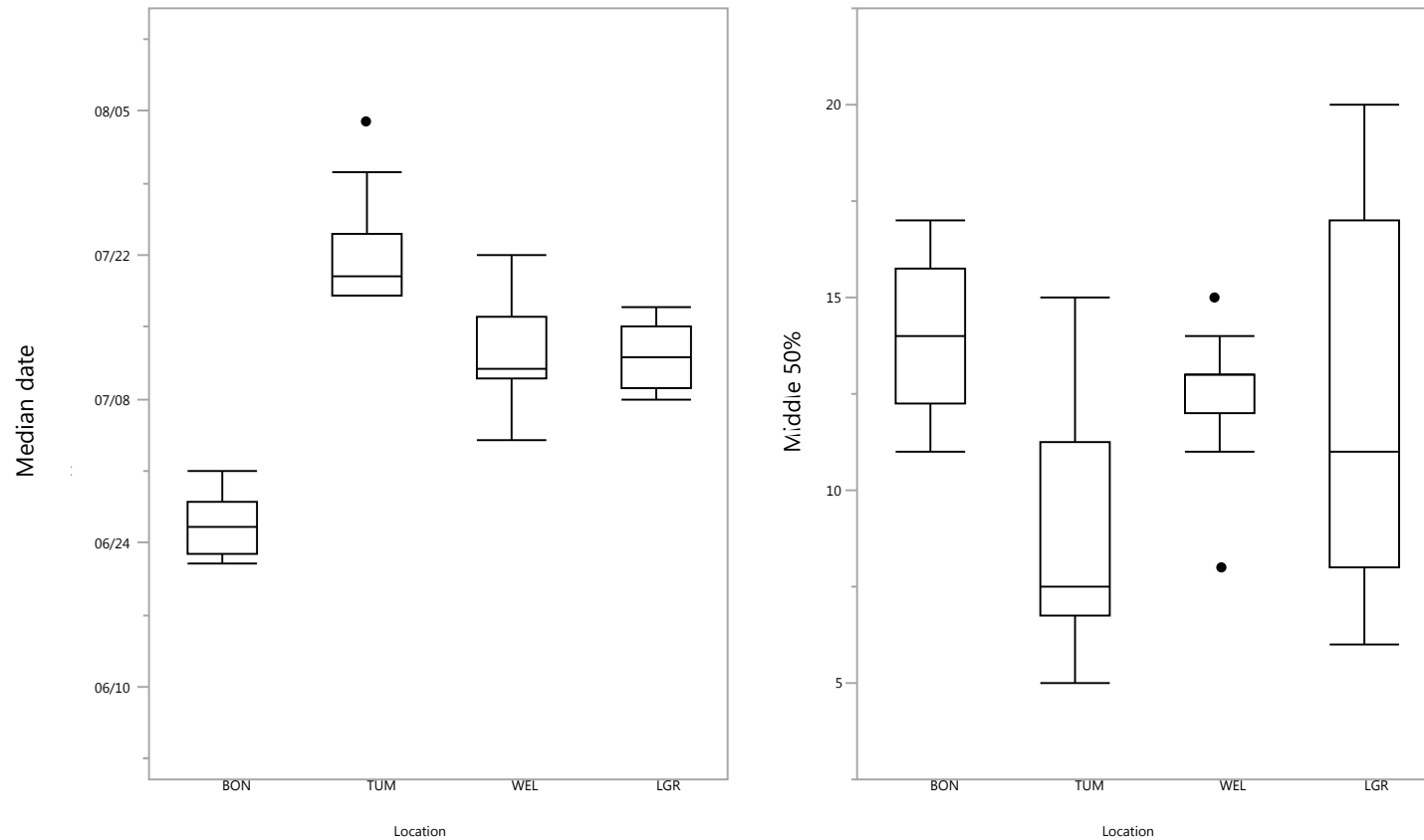
# Smolt Passage Season

- Most detections in May
- Okanagan earliest
- Snake latest
- Middle 50% ~ 10 days



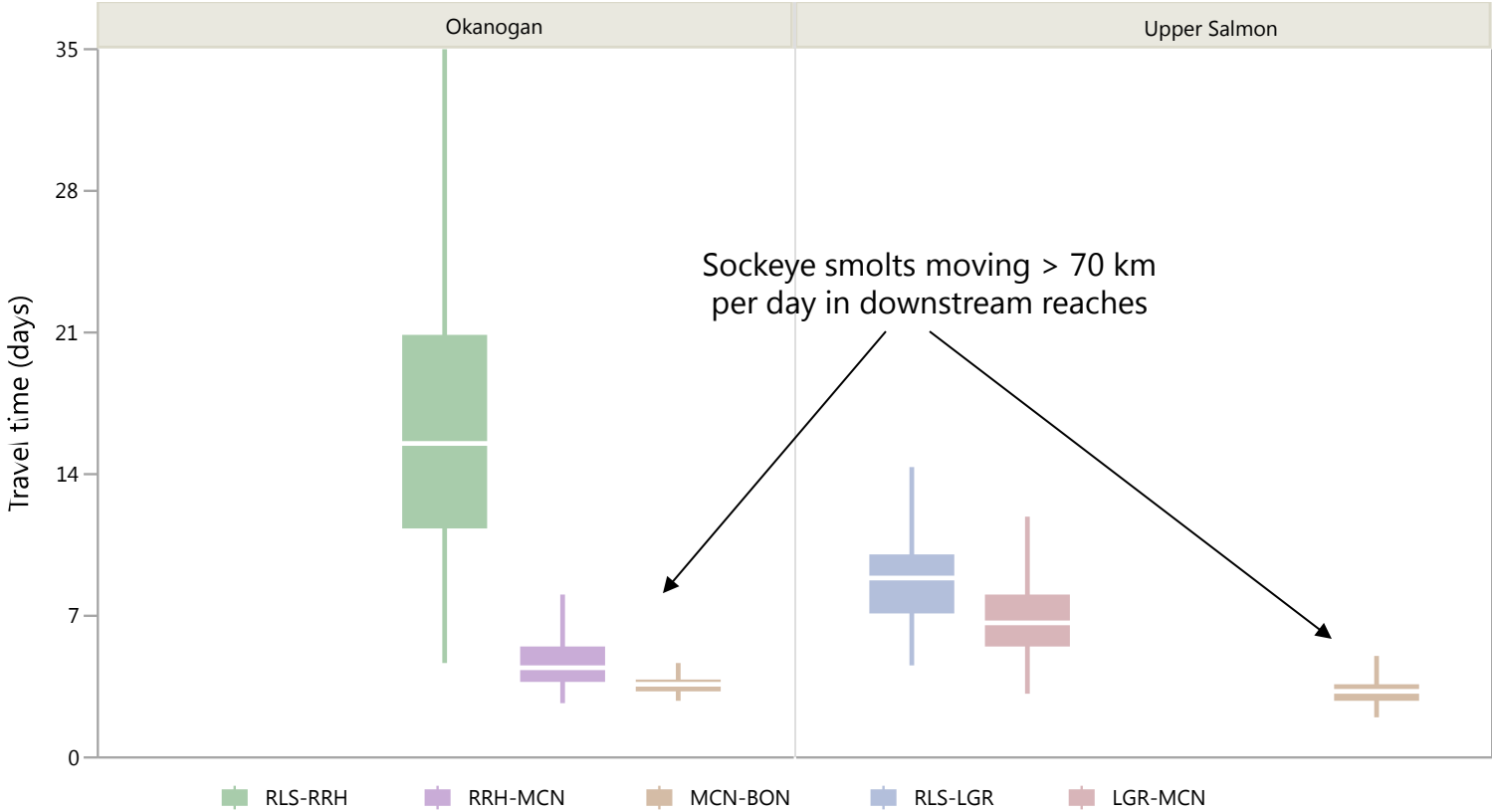


# Adult Passage Season

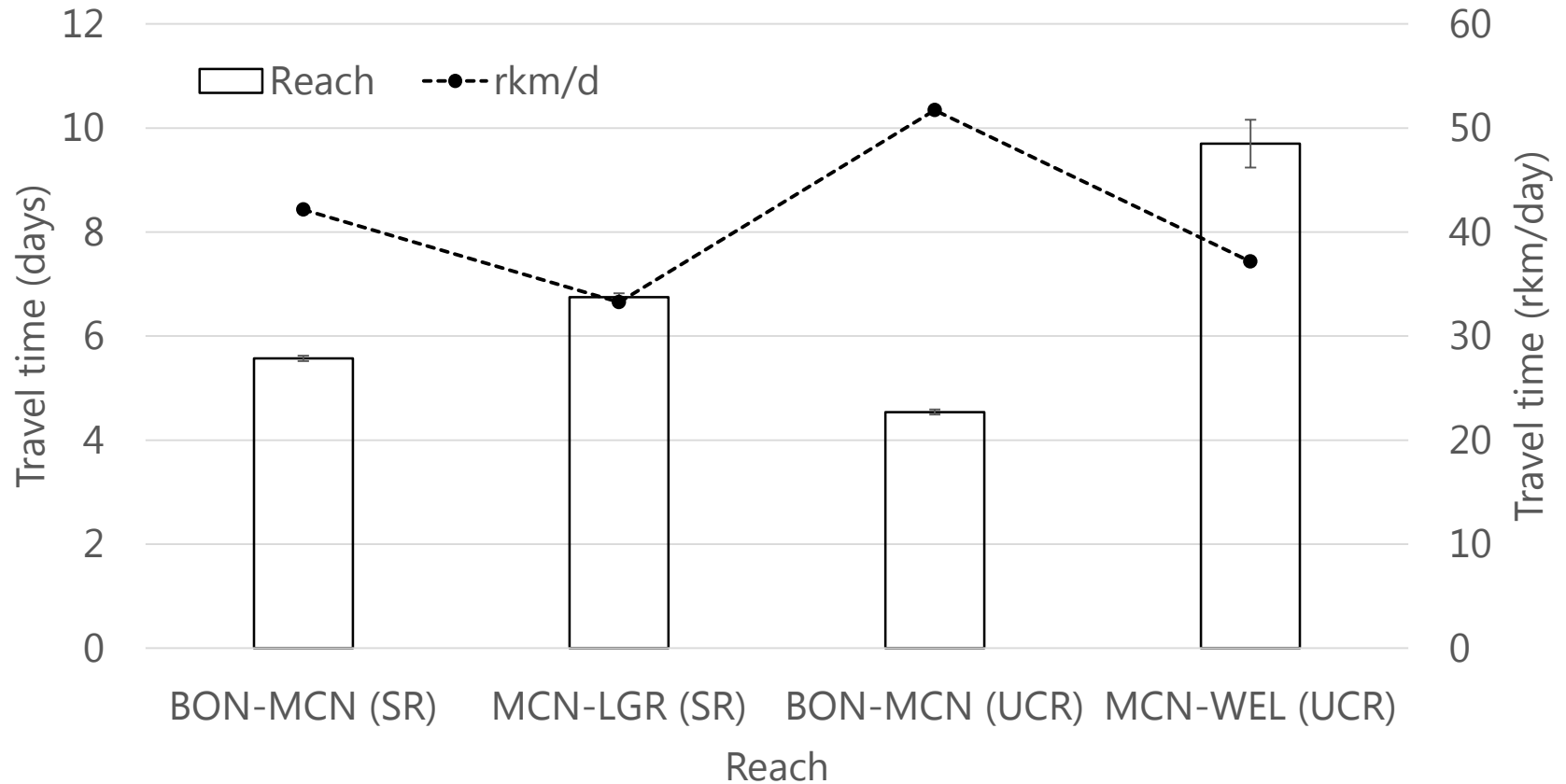




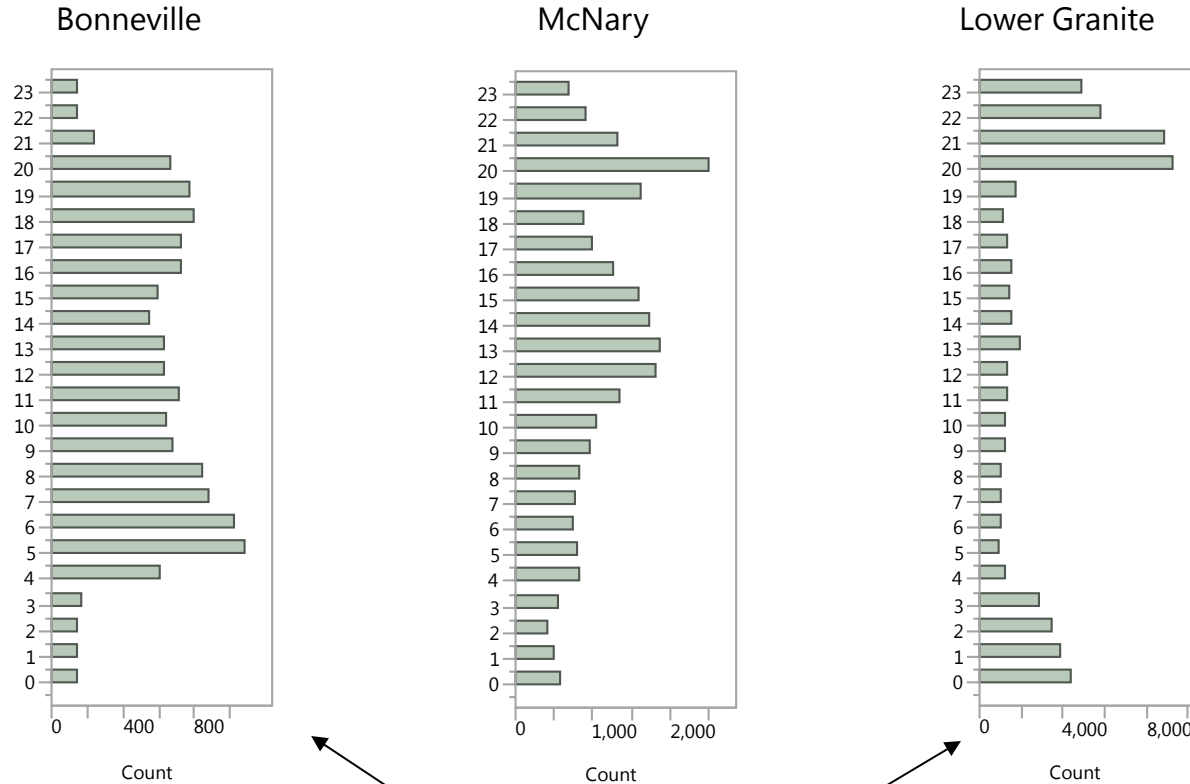
# Smolt Travel Time



# Adult Travel Time

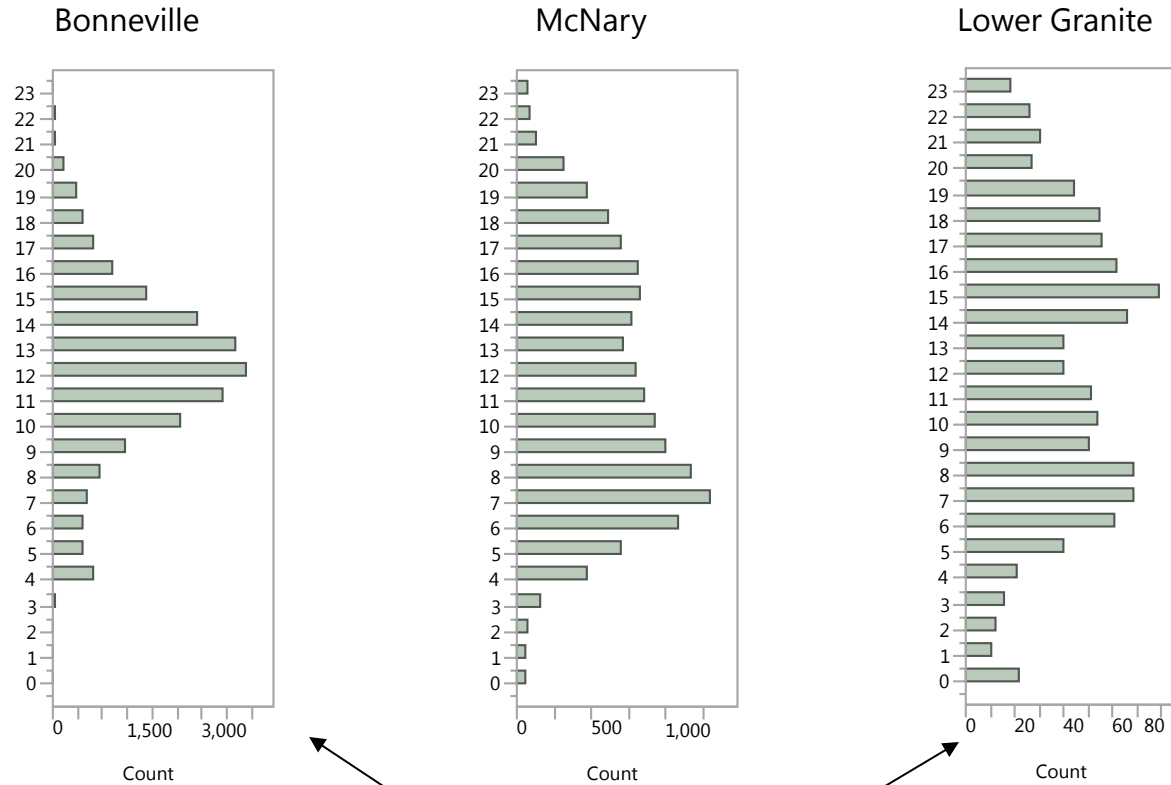


# Smolt Diel Passage



Night time vs day time?

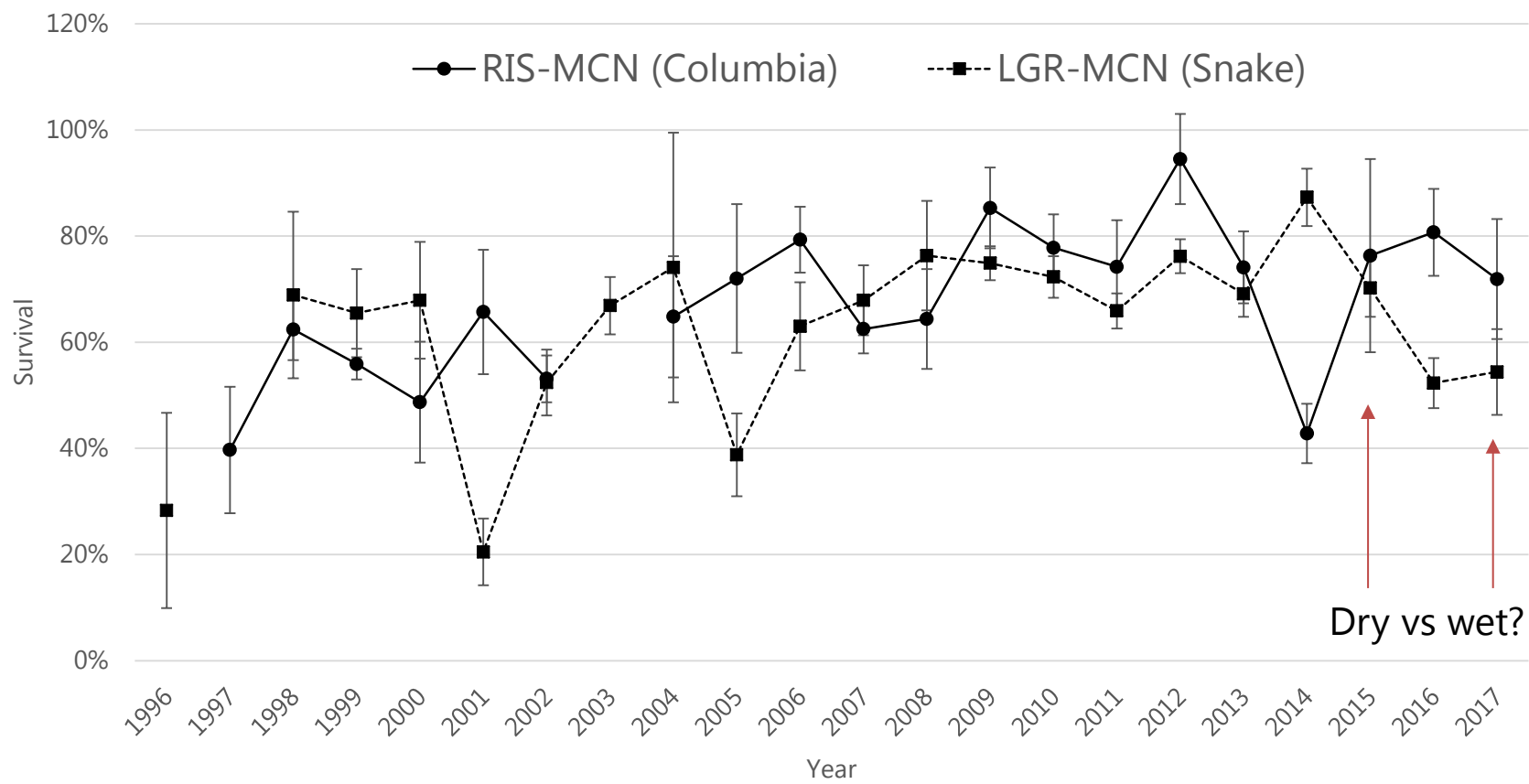
# Adult Diel Passage



Day time vs night time?

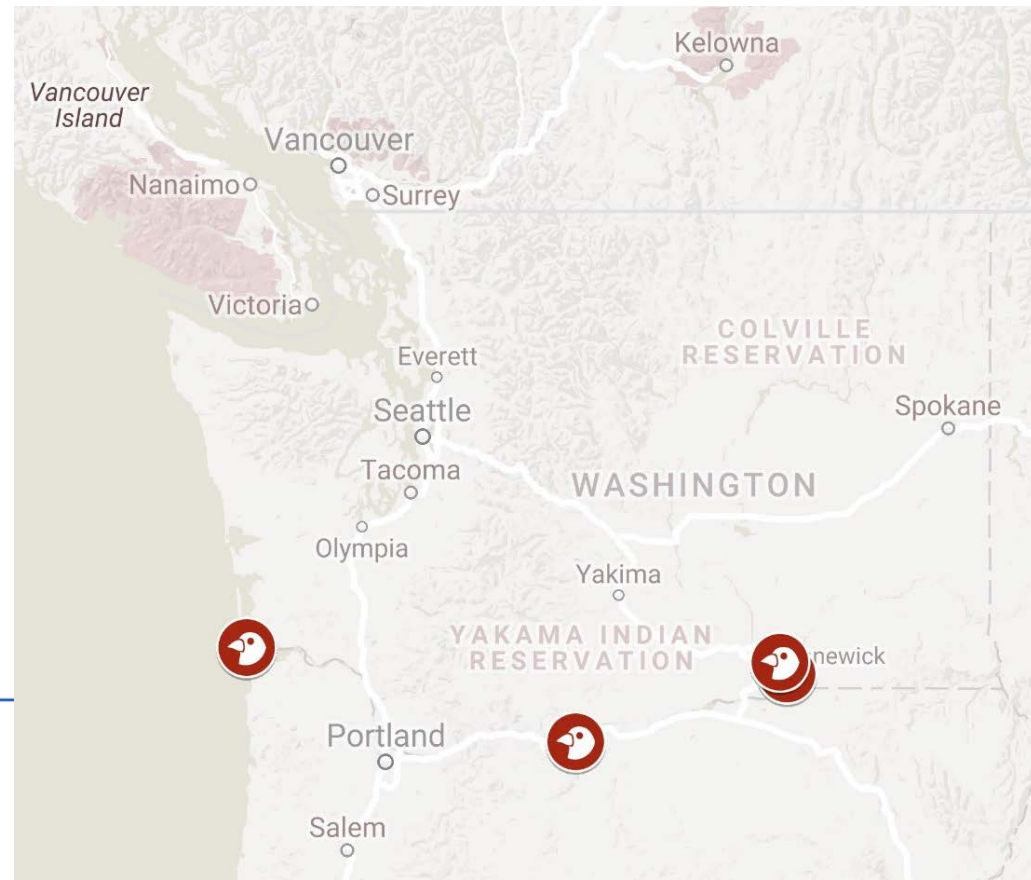


# Smolt Survival



# Avian Predation

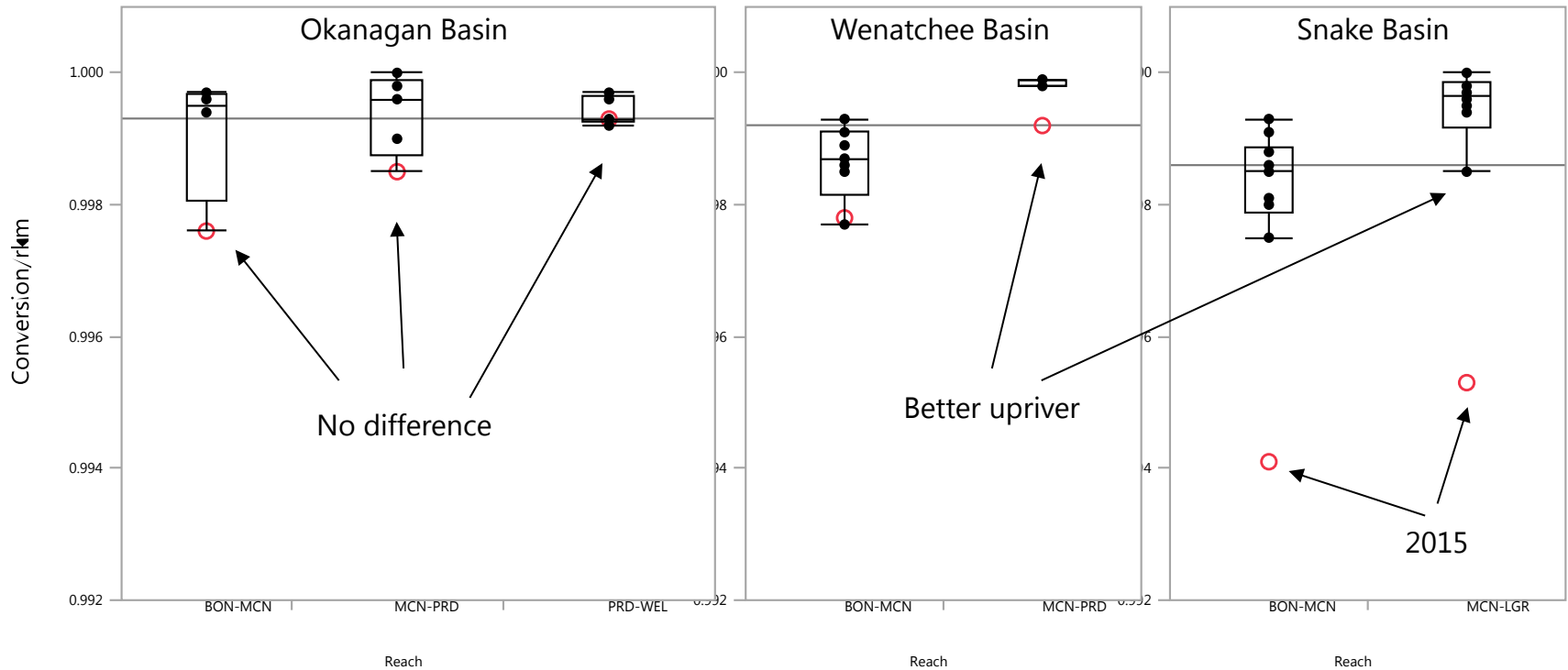
- > 16,000 PIT tags from Sockeye Salmon recovered
  - East Sand Island
  - Crescent Island
  - Little Miller Island
  - Foundation Island



# Adult Conversion Rates



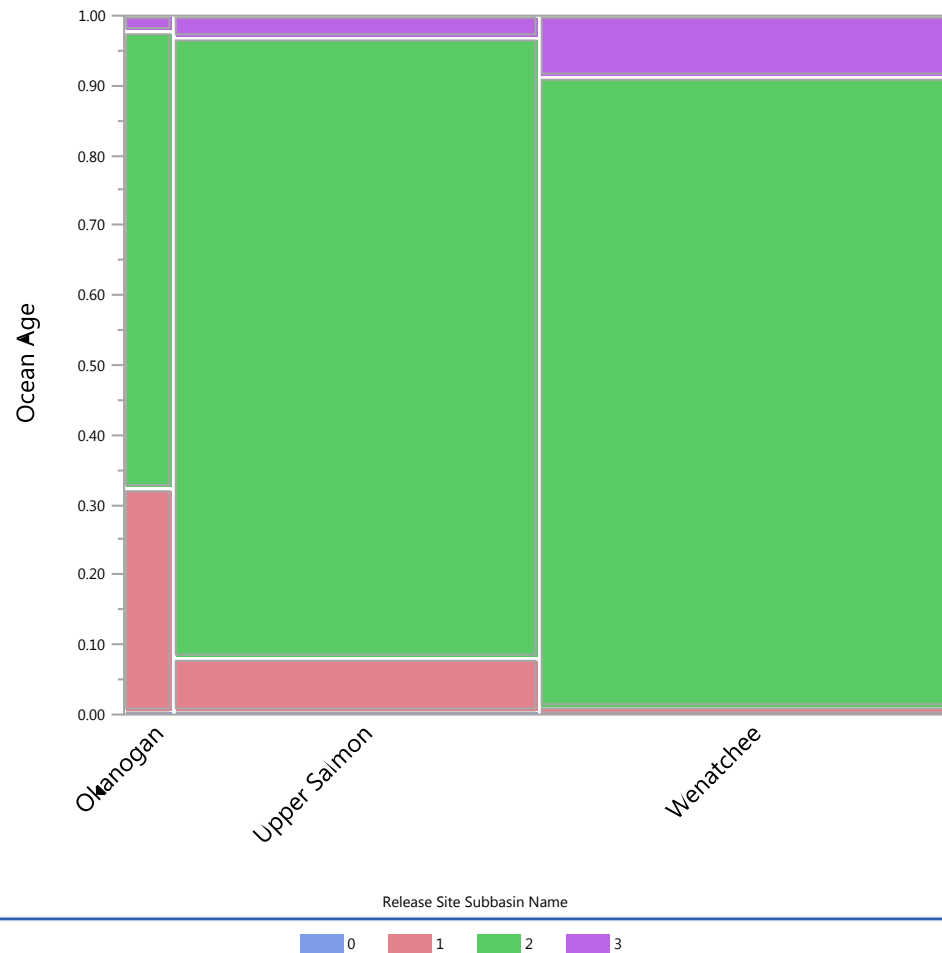
# Adult Conversion Rates



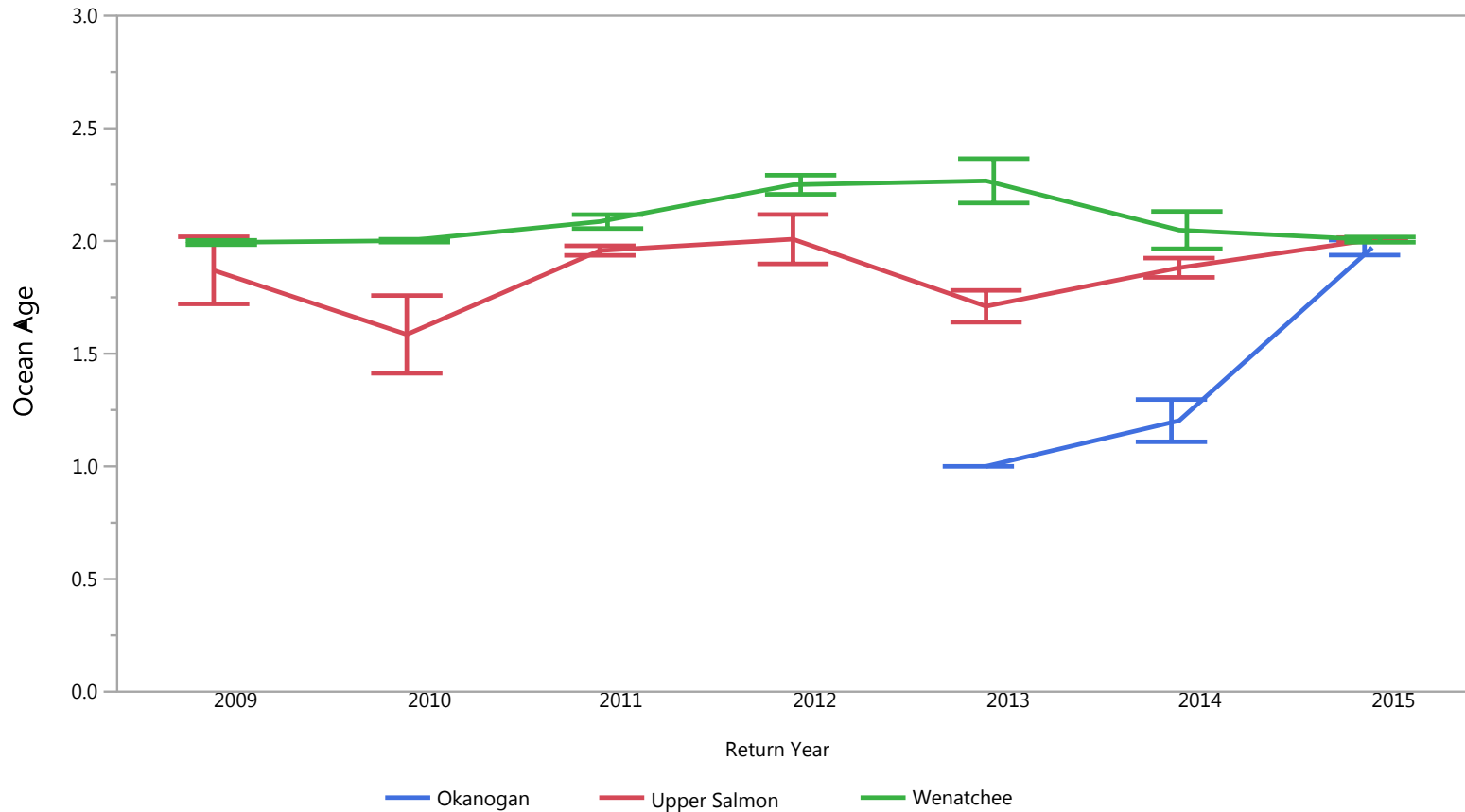


# Age Structure

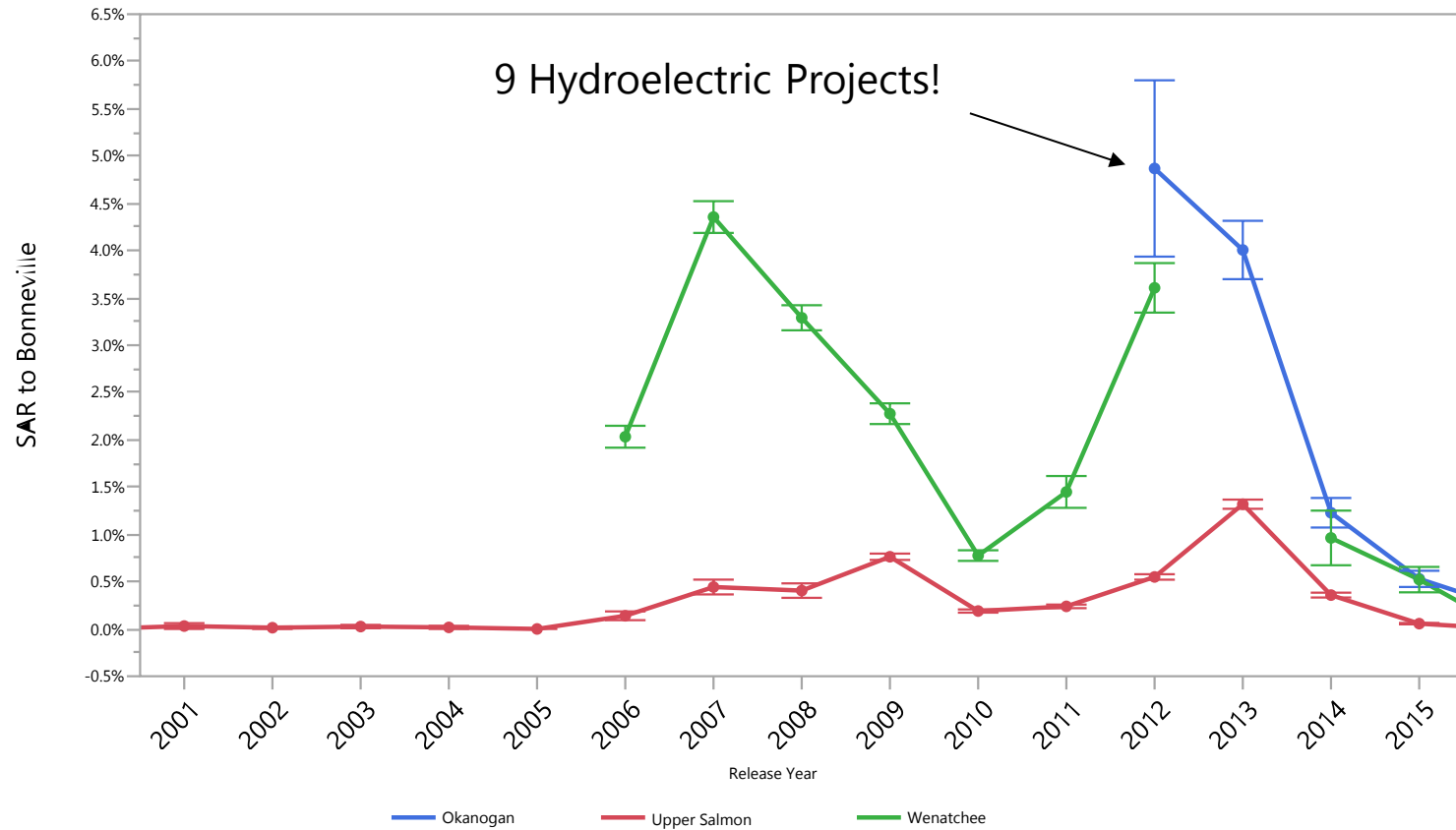
- Mostly 2-ocean fish
- Older fish in Wenatchee
- Younger fish in Okanogan
- Variation across years



# Age Structure



# Smolt to Adult Survival





# Common Themes

- Consistency – Season & passage
- Speed – 30-70 km/day
- Performance – Highest SARs in upriver reaches
- Thresholds – Some conditions are extremely detrimental
- Considerable data available to inform management!

# Acknowledgments

- Rick Klinge (1951-2014)
- Kim Hyatt, Jeff Fryer
- Bryan Nordlund
- Chelan PUD
- Columbia Basin Research
- Okanagan Nation Alliance





# Questions or Comments?

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