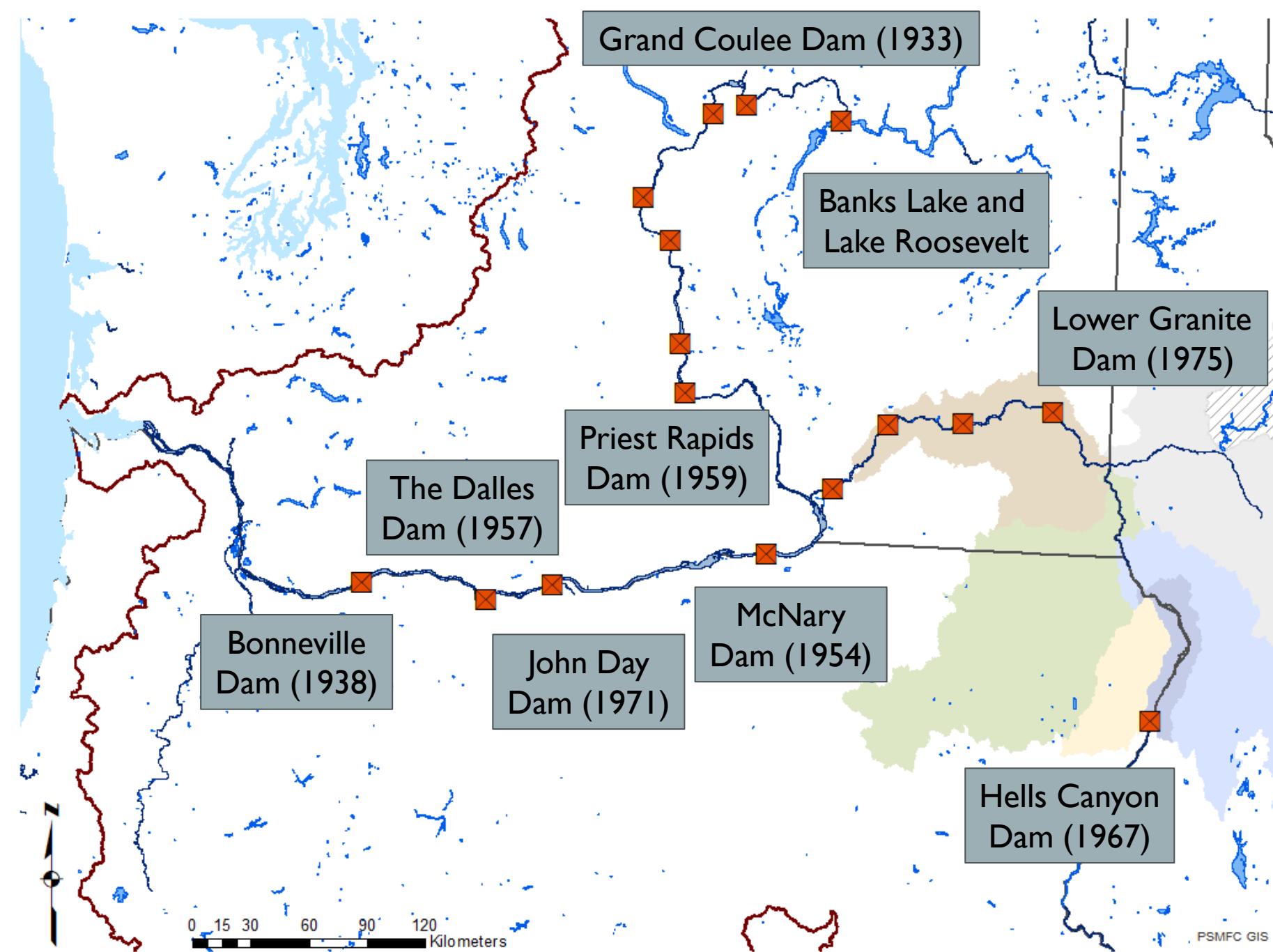




# LOWER GRANITE DAM WALLEYE PASSAGE STUDY



## EXPANSION TREND

- 1940s: first introduction
- 1990s: lower Columbia River surveys
- Late 1990s: first observations in the Snake River
- 2010–2018: notable increase from angler reports and surveys

## BIOLOGY AND BACKGROUND

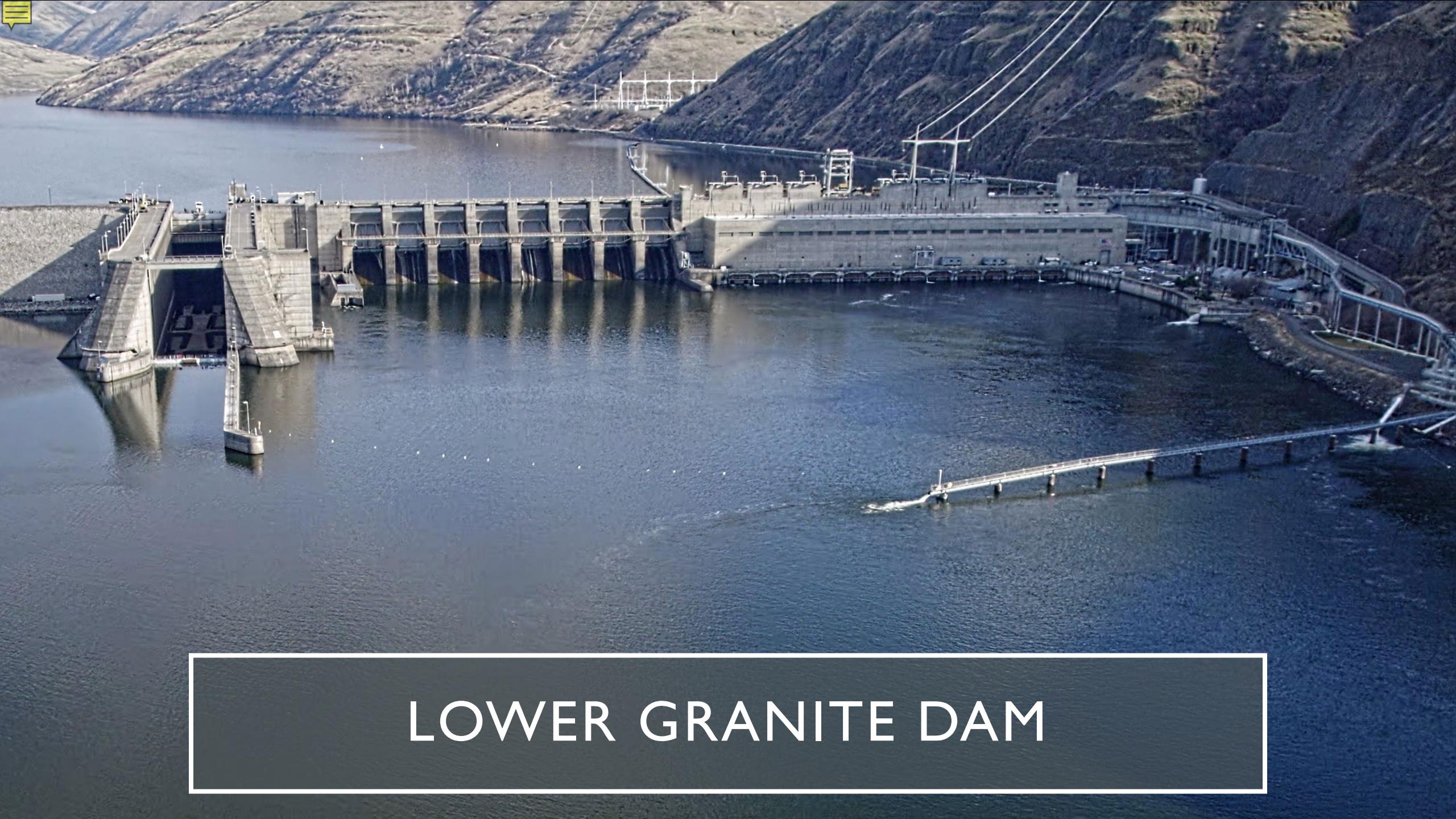
- Coolwater species
- Maturation and growth
  - Males: 2 yrs; Females: 4 yrs
  - Up to 20+ yrs and 20+ lbs
- High potential for reproductive success
  - 12" female = 30,000 eggs/yr
  - 10lb female = 250,000 eggs/yr
- Apex predators



## VORACIOUS PREDATORS

- Many native prey sources are spiny
- Good cover in native habitat helps prey evade predation
- Native fishes have soft fins
- Reservoirs have little cover





# LOWER GRANITE DAM

# ADULT FISH TRAP FOR SALMONIDS

Year	Trap count	Mean and range (TL; mm)
2016	2	500 (410–590)
2017	11	377 (220–490)
2018	49	449 (360–570)
2019	20	464 (380–550)



## GETTING INFORMATION

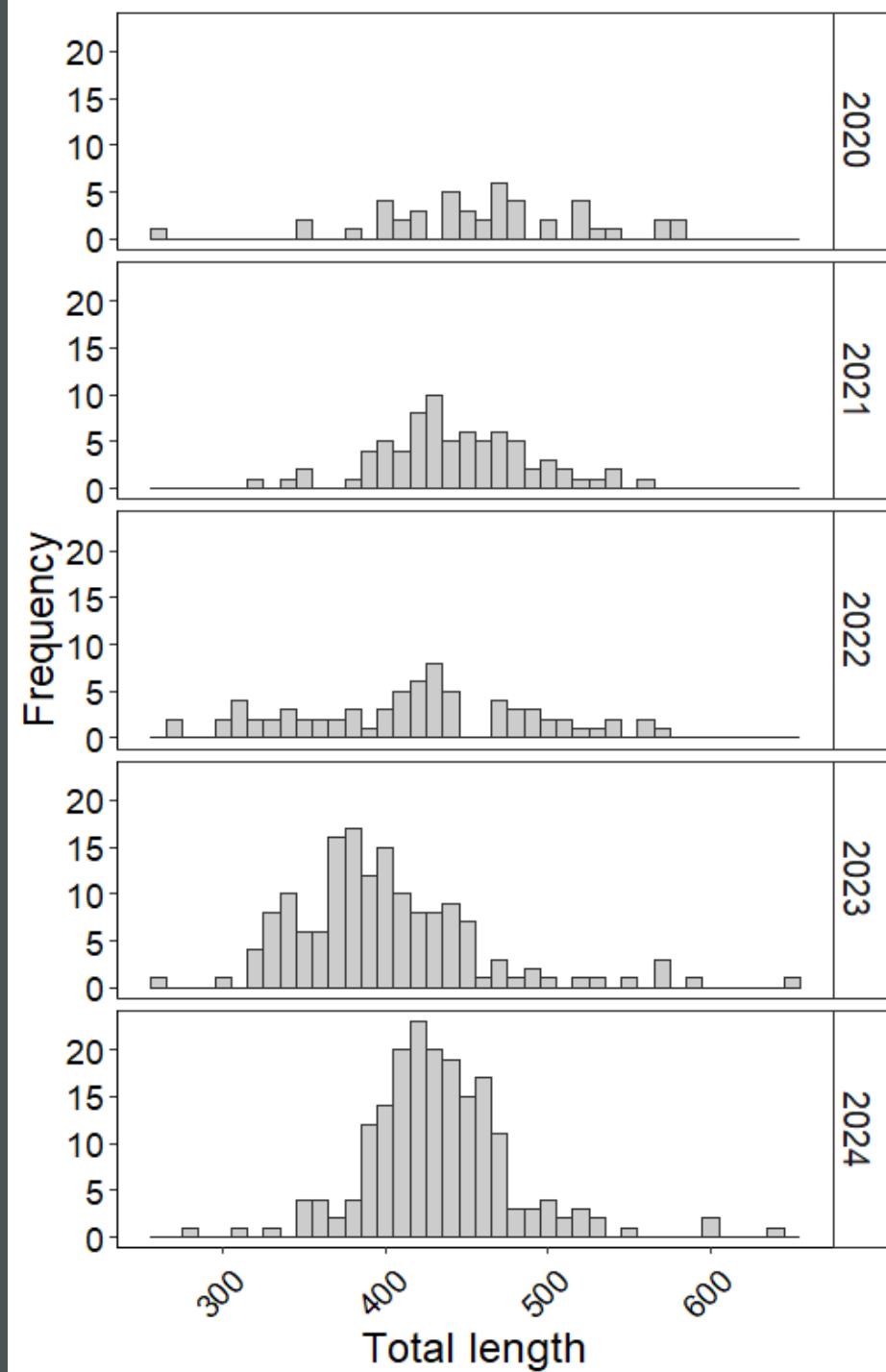
Lethally sample all Walleye trapped  
(2020–2022)

Understand movement at Lower Granite  
Dam (2023–2024)

Collaborate with other agencies for data

Work with Idaho anglers for distribution

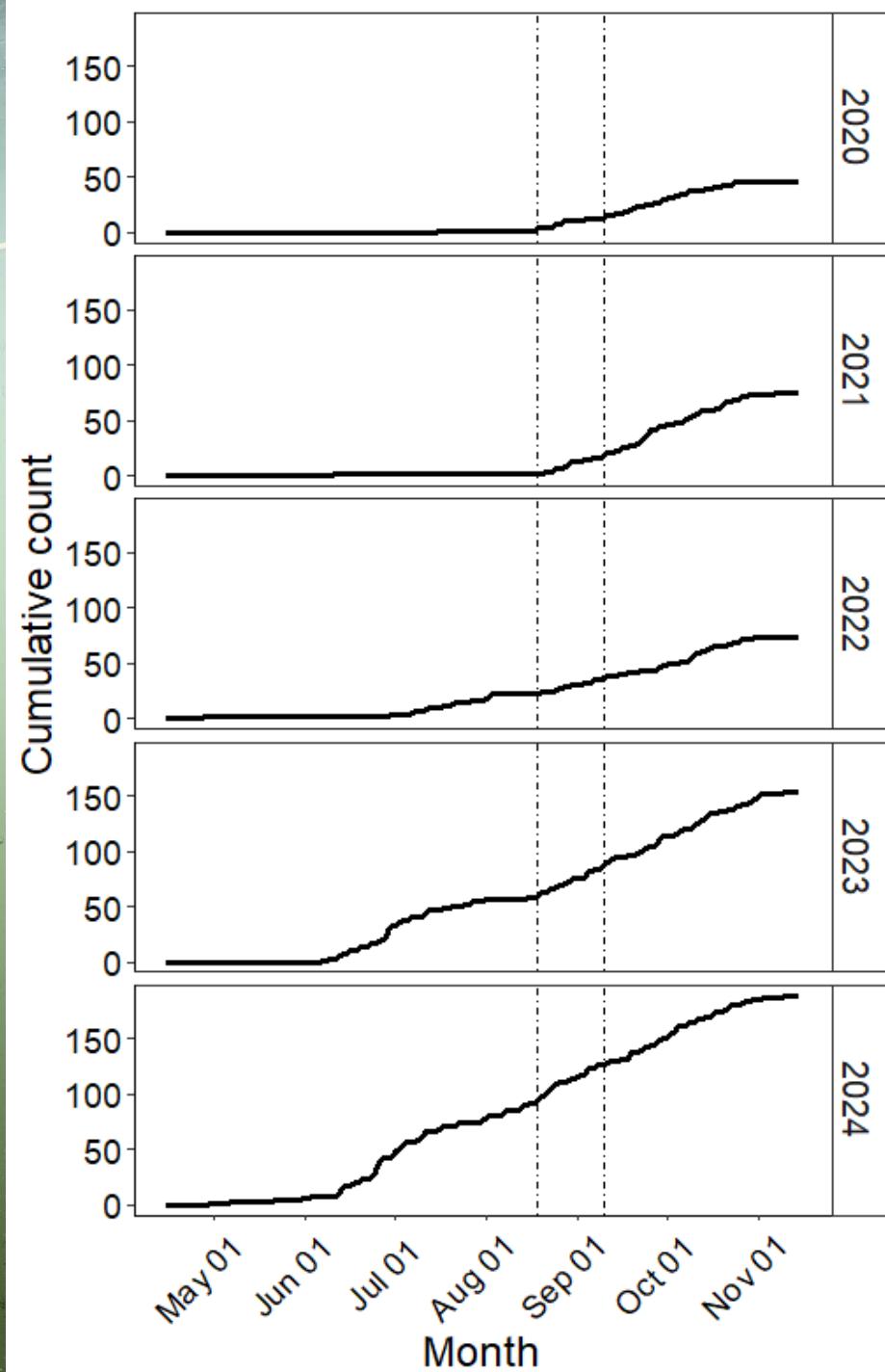
# SIZE DISTRIBUTION AT LOWER GRANITE DAM



## TIMING AND WINDOW COUNTS

Window counts (USACE)

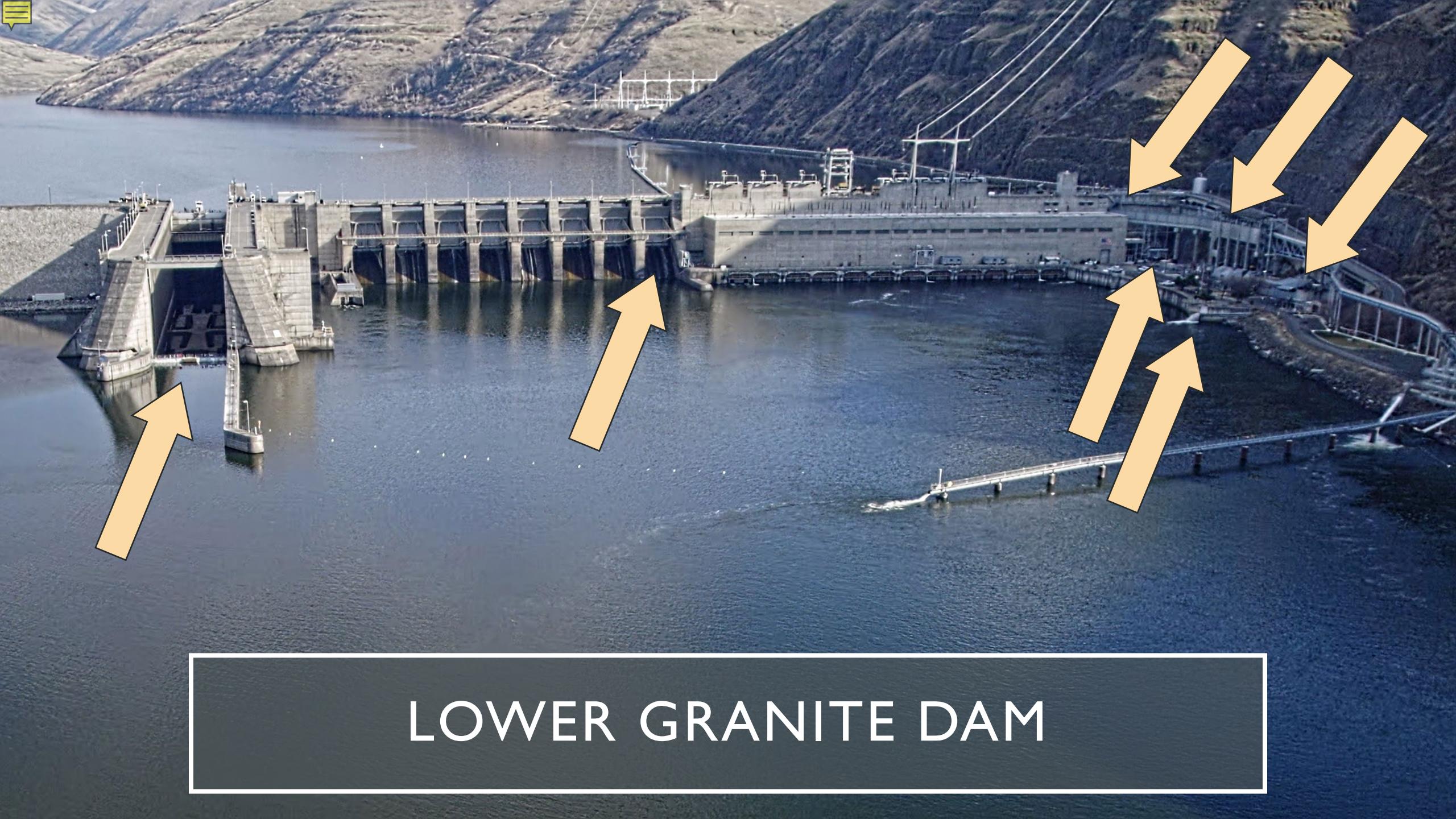
- 1,877 (Apr–Oct) in 2021
- 75 trapped in 2021
- ~5,000 in 2022
- 73 trapped in 2022



# 2023–2024 PIT TAGGING EFFORT

- Tailrace release
- Detection sites (LGR)
  - Ladder entrance weir
  - Ladder bypass loop
  - Upstream ladder weirs
  - Ladder exit weirs
  - Spillway array



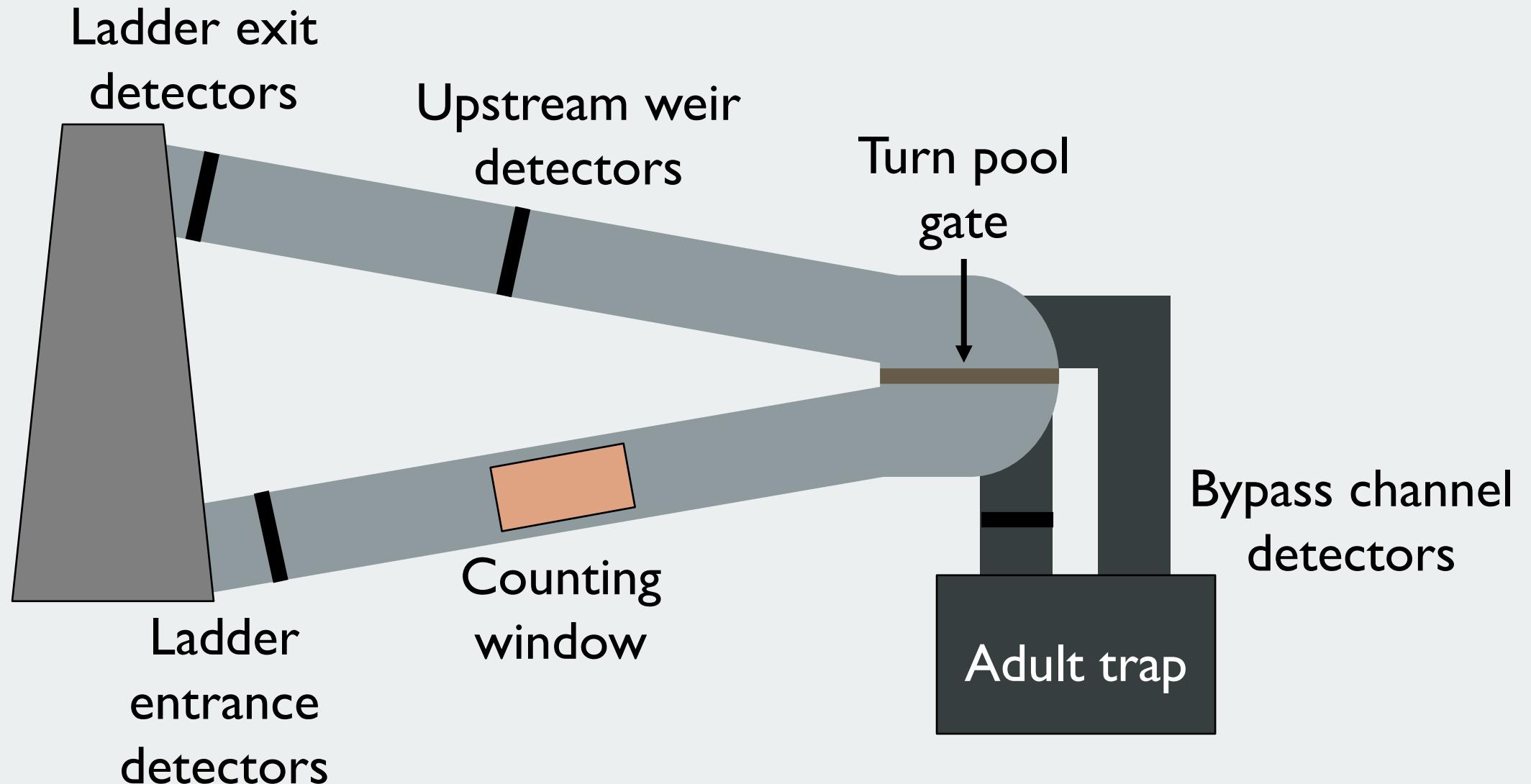


LOWER GRANITE DAM

# ADULT TRAP BYPASS LOOP



# LOWER GRANITE DAM LADDER PASSAGE



# TURN POOL AND BYPASS LOOP



# DETECTION RESULTS

154 walleye tagged in 2023  
189 walleye tagged in 2024

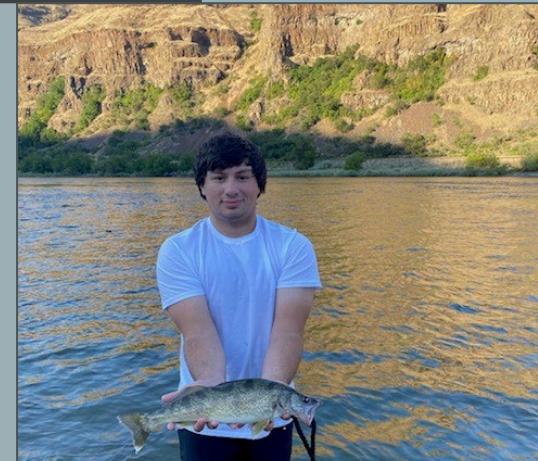
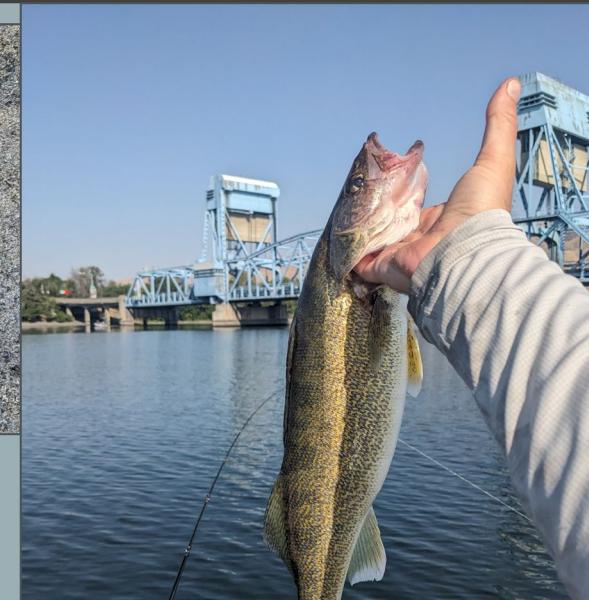
Dam	Year tagged	Detection site	2023	2024	Both years	Percentage in the first year
Lower Granite Dam	2023	Entrance weirs	74	72	37	48.1%
Lower Granite Dam	2023	Ladder bypass loop	11	16	2	7.1%
Lower Granite Dam	2023	Trap recapture	3	4	0	1.9%
Lower Granite Dam	2023	Upstream weirs	9	11	2	5.8%
Lower Granite Dam	2023	Exit weirs	9	11	2	5.8%
Lower Granite Dam	2023	Spillway	4	8	0	2.6%
Little Goose Dam	2023	Ladder	1	7	0	0.6%
Little Goose Dam	2023	Juvenile bypass	0	2	0	0.0%
Lower Granite Dam	2024	Entrance weirs	NA	87	NA	46.0%
Lower Granite Dam	2024	Ladder bypass loop	NA	28	NA	14.8%
Lower Granite Dam	2024	Trap recapture	NA	5	NA	2.6%
Lower Granite Dam	2024	Upstream weirs	NA	24	NA	12.7%
Lower Granite Dam	2024	Exit weirs	NA	24	NA	12.7%
Lower Granite Dam	2024	Spillway	NA	5	NA	2.6%
Little Goose Dam	2024	Ladder	NA	2	NA	1.1%
Little Goose Dam	2024	Juvenile bypass	NA	2	NA	1.1%

# SUMMARY



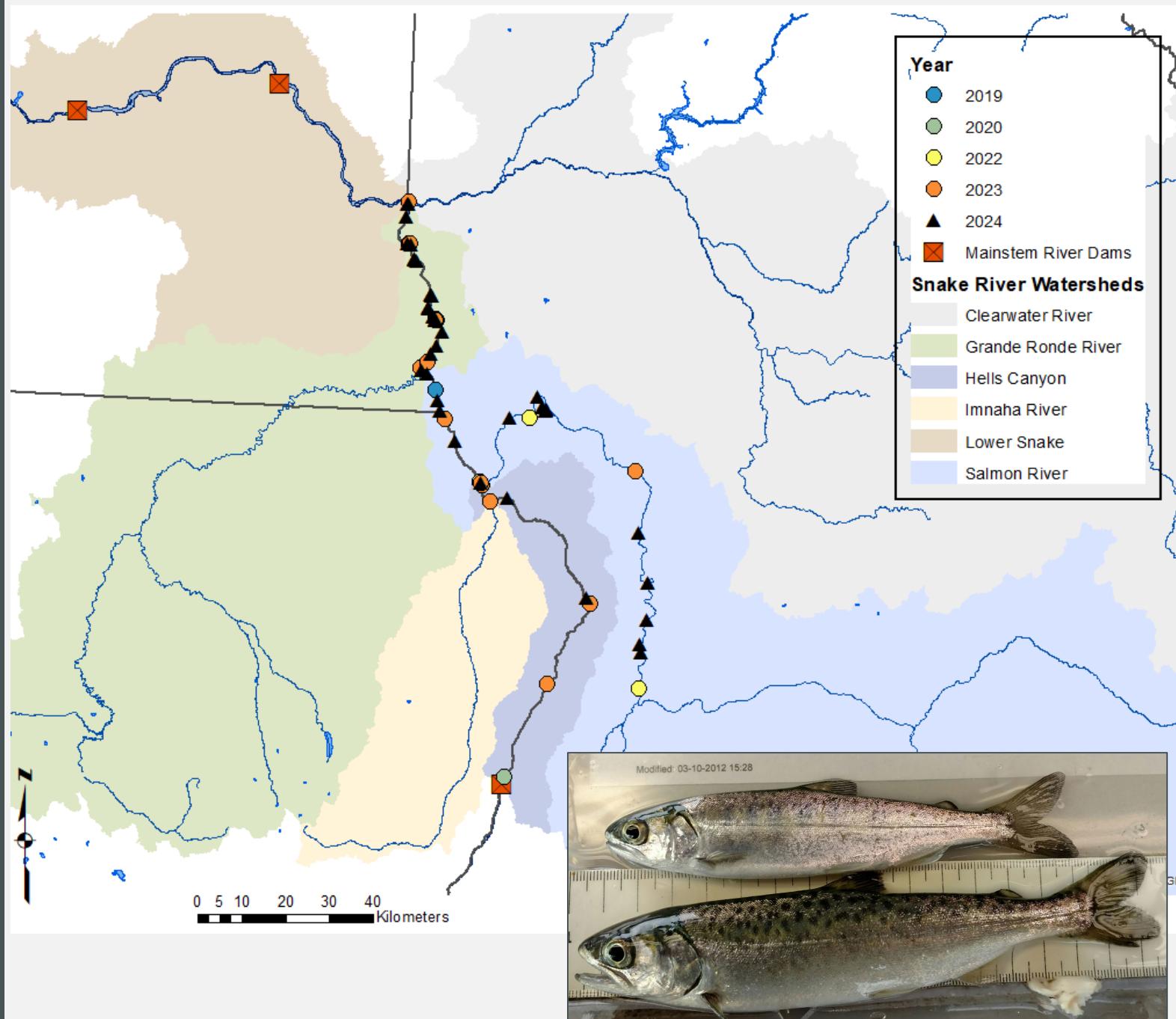
	2023	2024
Total tagged	154	189
Total tagged fish that entered the ladder	74	87(72)
Upstream of LGR based on detections	12	22
Fallback - spillway detections	6	5
Fallback - without spillway detections	5	0
Fallback - lock passage	3	3
Success rate of all walleye still upstream of LGR (12 fish from the '23 tag group, 22 from the '24 tag group)	7.8%	11.6%
Success rate of all walleye that entered and exited the ladder ('23 and '24 tagged fish combined for 2024 detections)	12.2%	22.0%
Success rate of walleye that entered the ladder (by year) that are still upstream of LGR	4.1%	19.5%
Estimated trap rate of walleye that enter the ladder	4.1%	5.7%
Estimated trap rate of walleye that enter the bypass loop	27.3%	20.5%
Expanded estimate of walleye that entered the ladder	3,799	3,339
Expanded estimate of walleye that exited the ladder	462	735
Expanded estimate of walleye upstream of LGR	154	651

# WALLEY CAUGHT IN IDAHO DURING 2024



# ANGLER CATCH AND PREDATION THREAT

- Overlap with important rearing habitat in mainstem rivers
- Overlap with fall Chinook Salmon hatchery releases
- Established walleye population and further expansion = lower survival of wild salmon and steelhead



## WHY DOES IT MATTER?

Status	2023	2024
Expanded estimate of walleye that entered the ladder	3,799	3,339
Expanded estimate of walleye that exited the ladder	462	735
Expanded estimate of walleye upstream of LGR	154	651

- Need to slow population growth upstream of LGR
- Need to identify factors upstream of LGR that influence walleye
- Examine potential impediments to upstream migration
- More difficult to manage an open population
- Not a lot of attention so far despite many other predation management programs



# WALLEYE/ NON-NATIVE PISCIVORE WORK GROUP

- Confederated Tribes of the Umatilla Indian Reservation
- Idaho Department of Fish and Game
- Nez Perce Tribe
- Oregon Department of Fish and Wildlife
- US Geological Survey
- Washington Department of Fish and Wildlife
- NOAA – Northwest Fisheries Science Center



Implement research and management actions with a goal to reduce, minimize, and prevent piscine predation-related mortality from introduced non-native fishes on anadromous species within the Columbia River basin.