

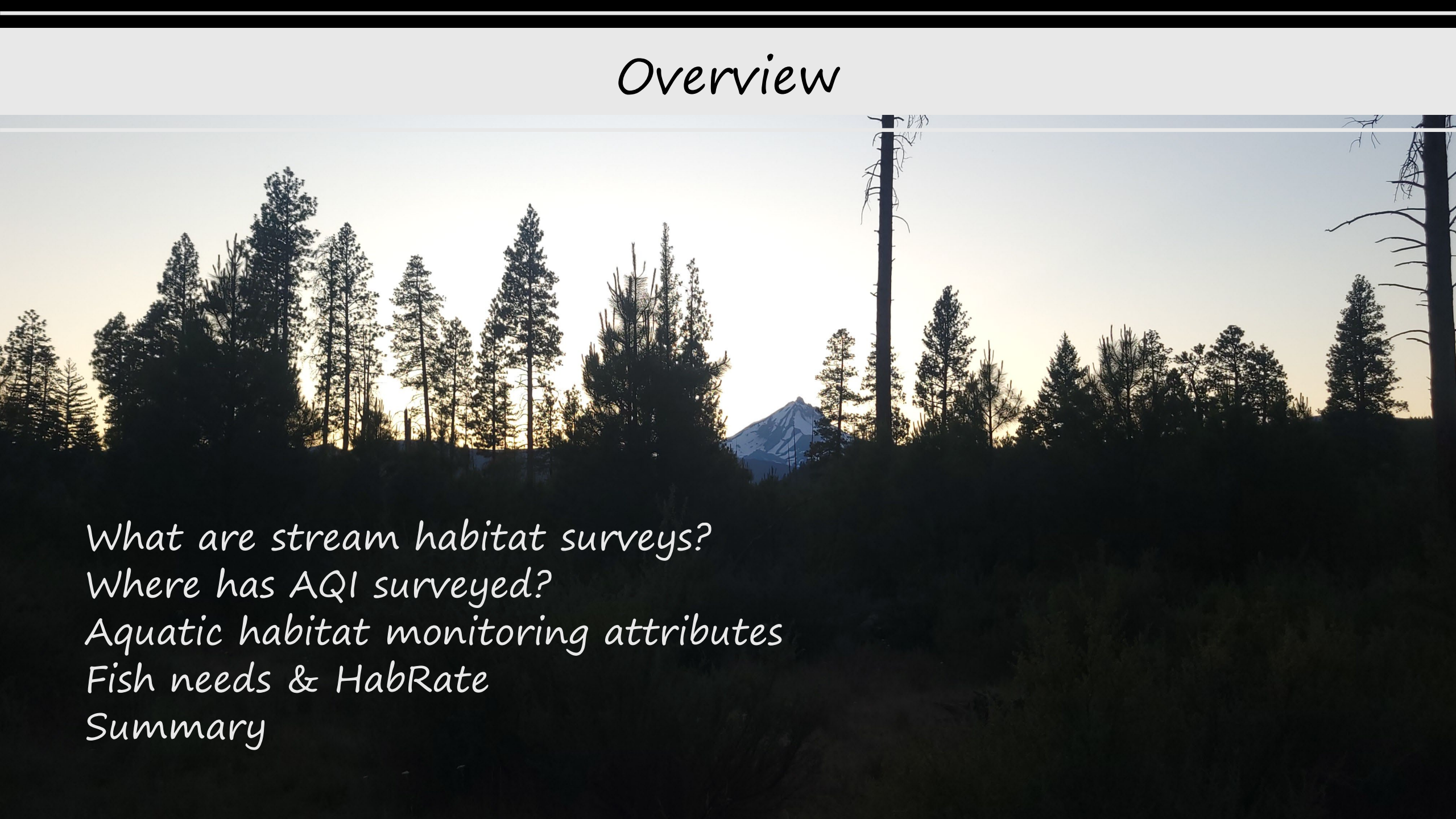
Aquatic Habitat Monitoring



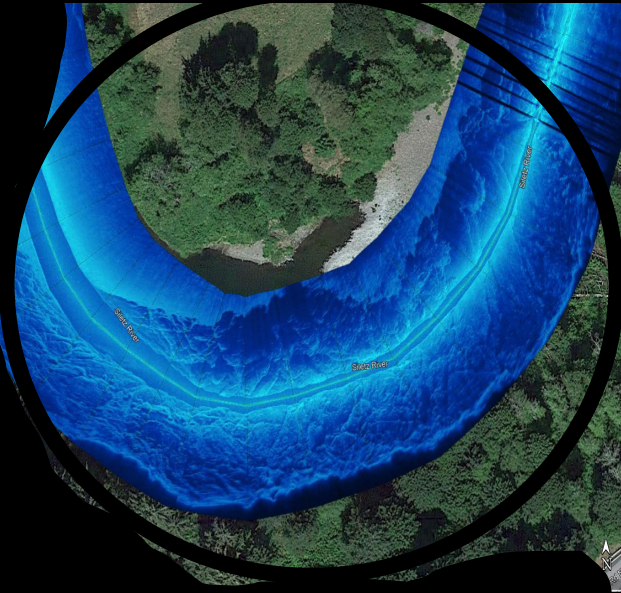
Peggy Kavanagh
Aquatic Inventories Program



Overview



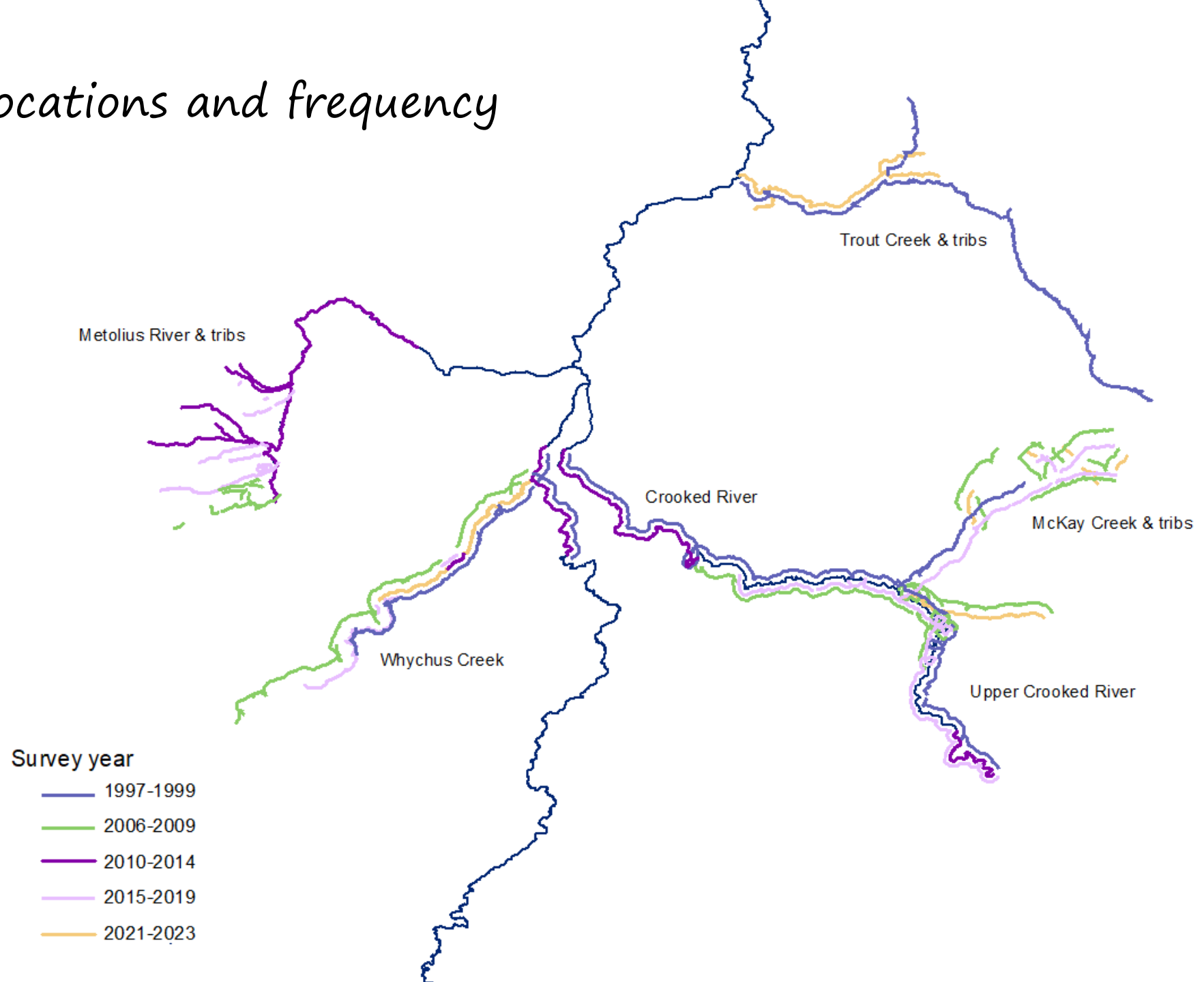
What are stream habitat surveys?
Where has AQI surveyed?
Aquatic habitat monitoring attributes
Fish needs & HabRate
Summary



- Statewide protocol
- Crosswalk to other protocols
- Survey types
 - Census wadeable habitat
 - GRTS-based wadeable habitat
 - Non-wadeable habitat
 - Aerial (UAS)
 - Sonar
- First partnered with PGE in 1997
- 853km (530mi) of mainstem
117km (73mi) of side channel
habitat in the Deschutes basin



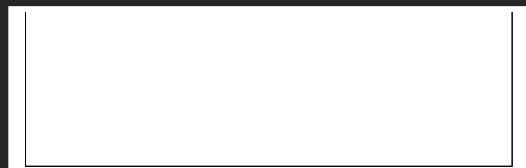
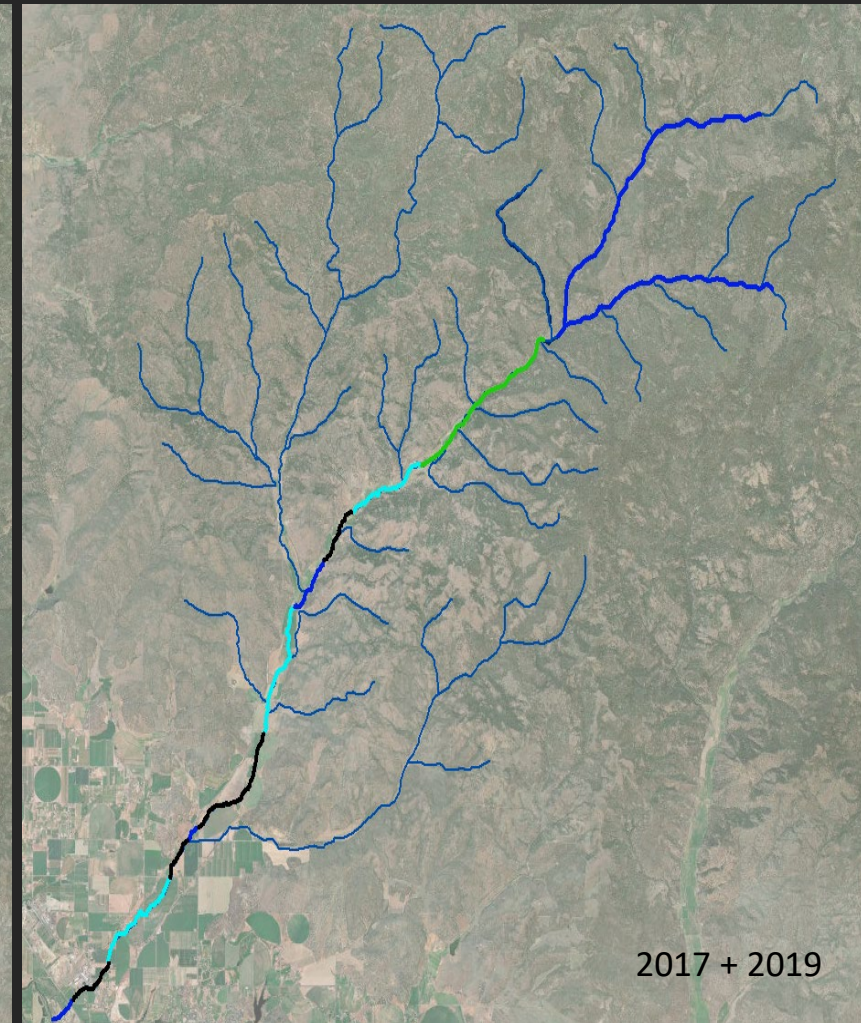
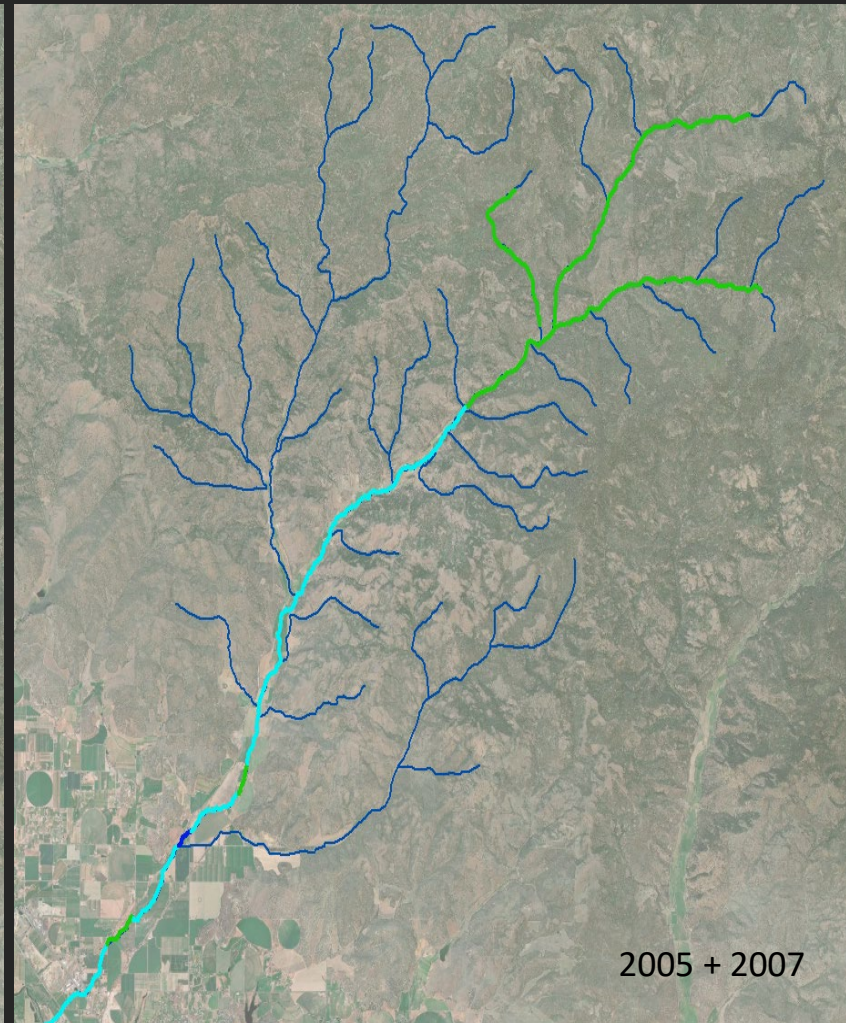
Survey locations and frequency



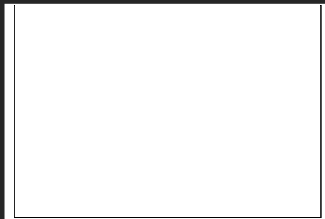
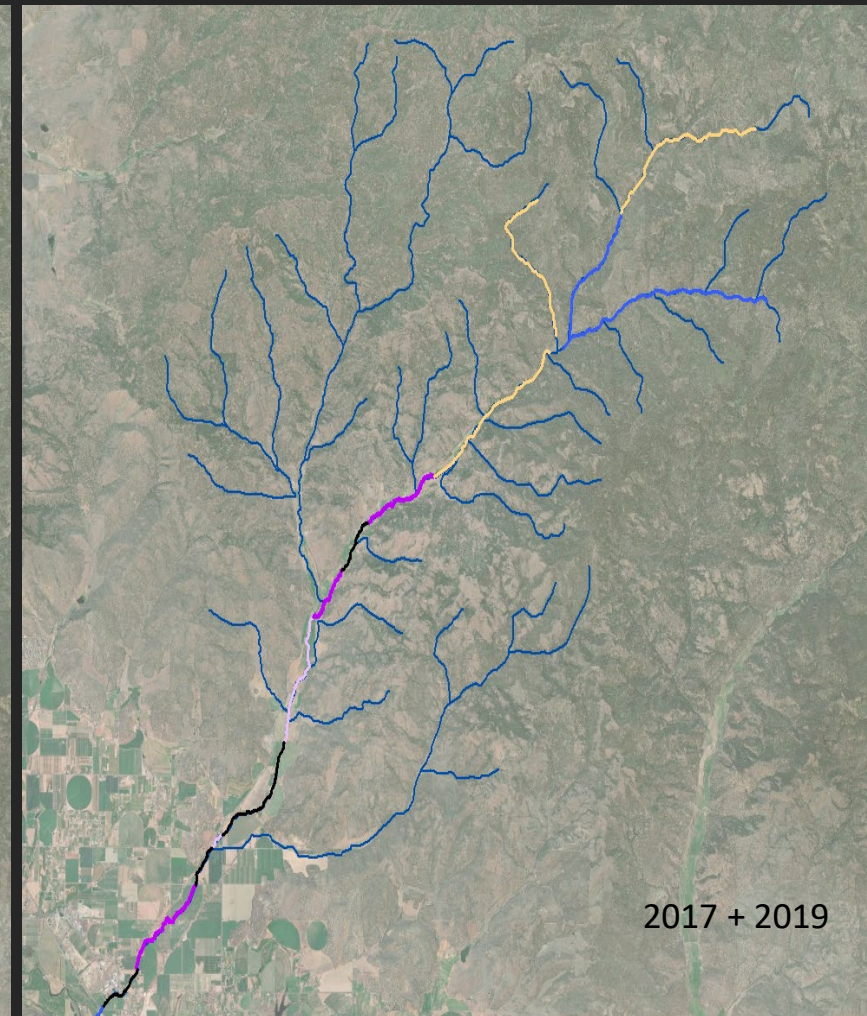
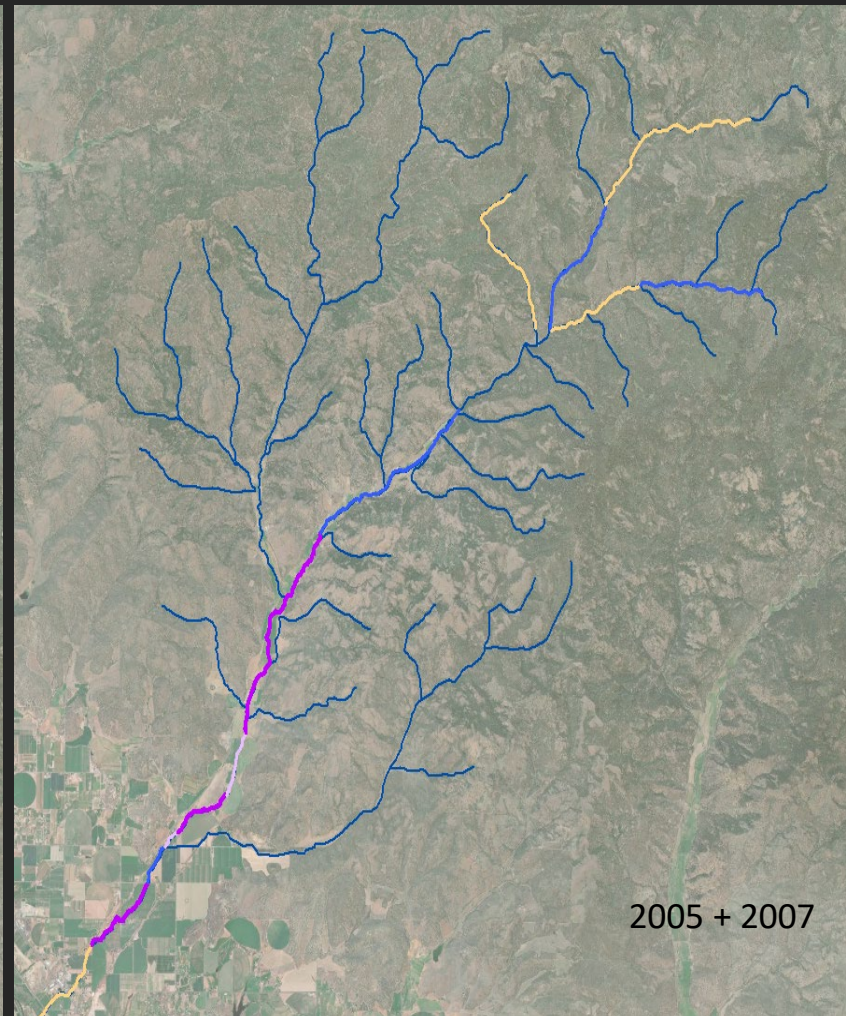
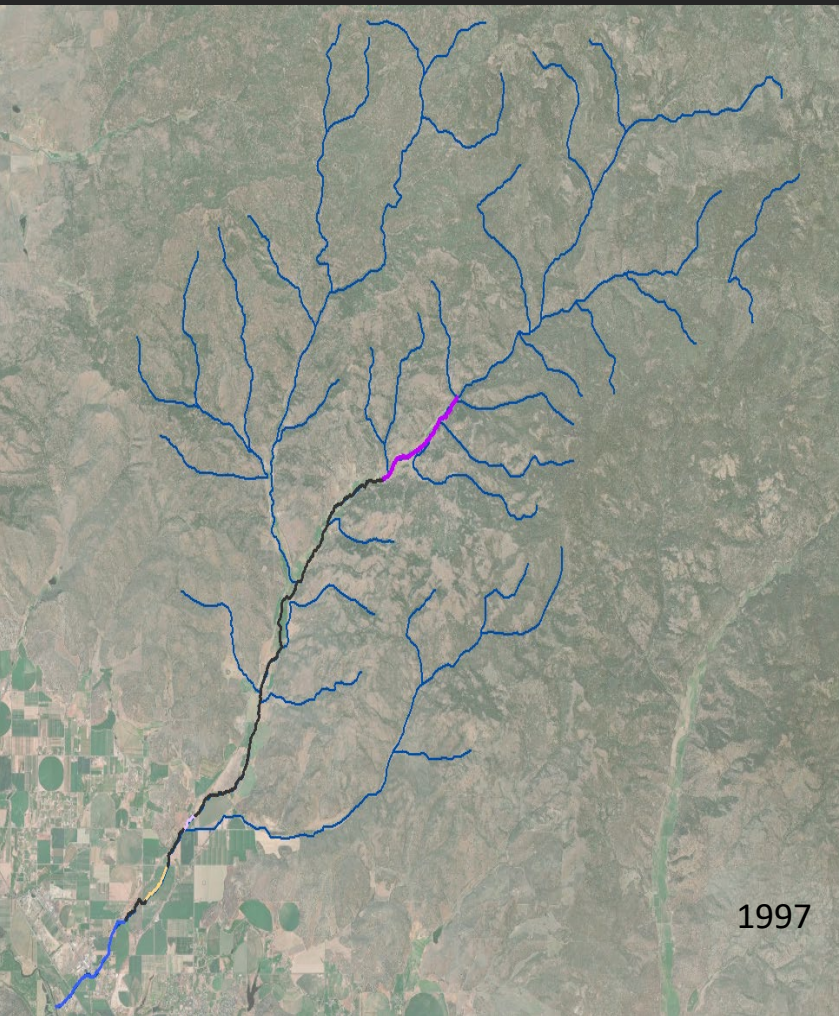
McKay Creek & tributaries



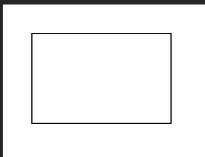
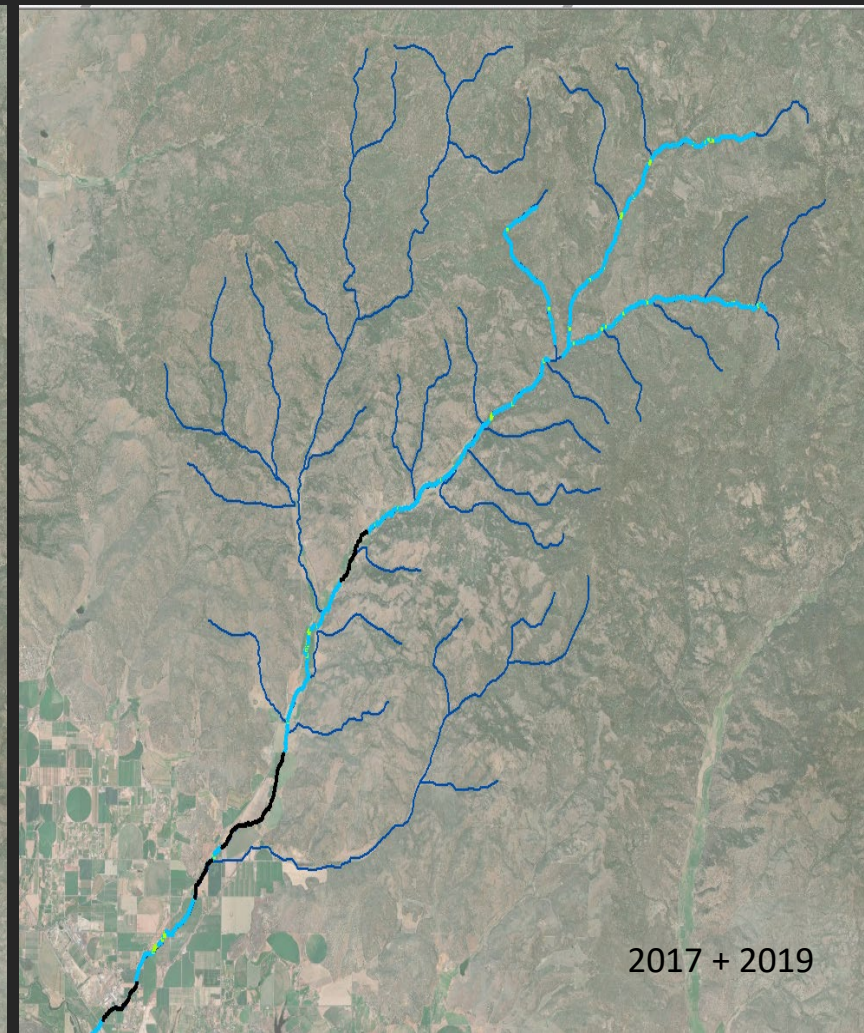
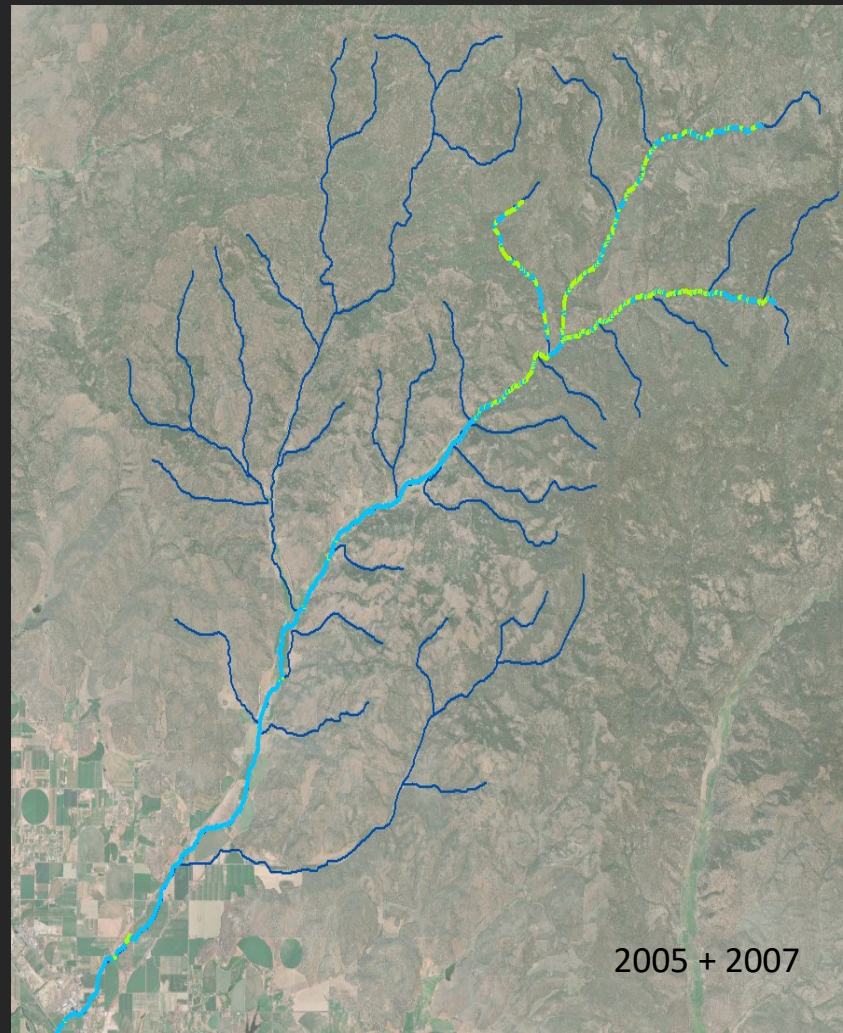
Reach level view – Percent fine sediment in riffle habitat



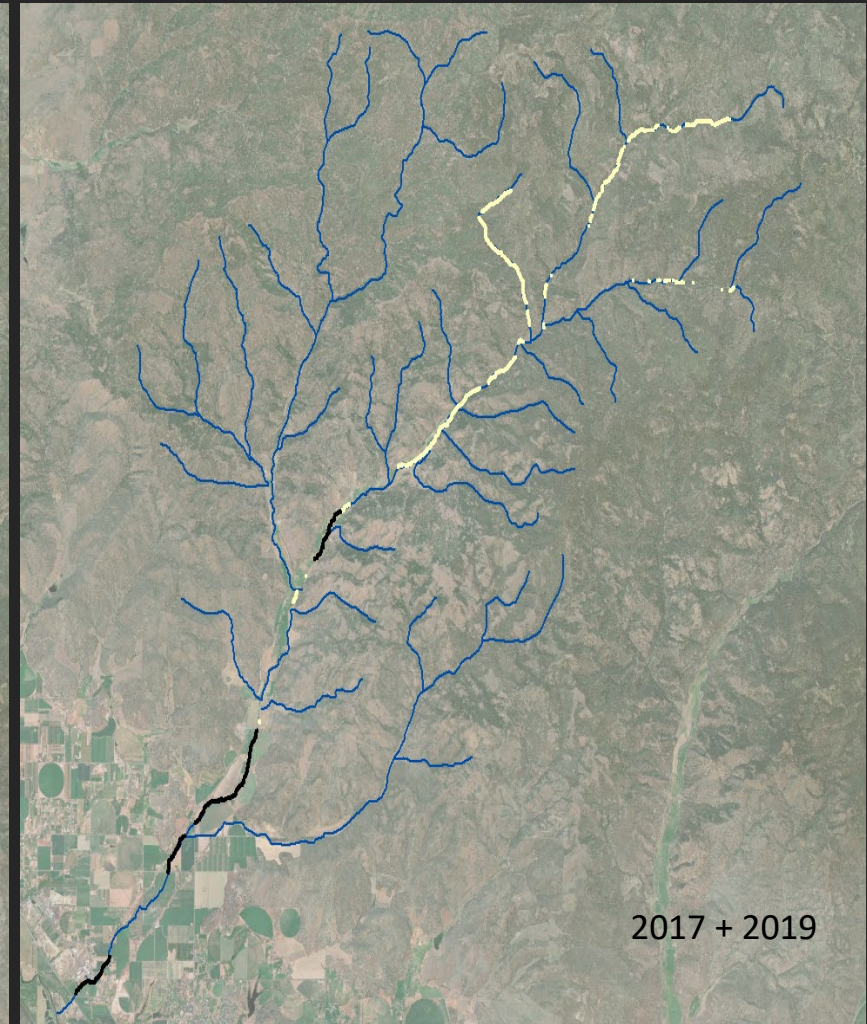
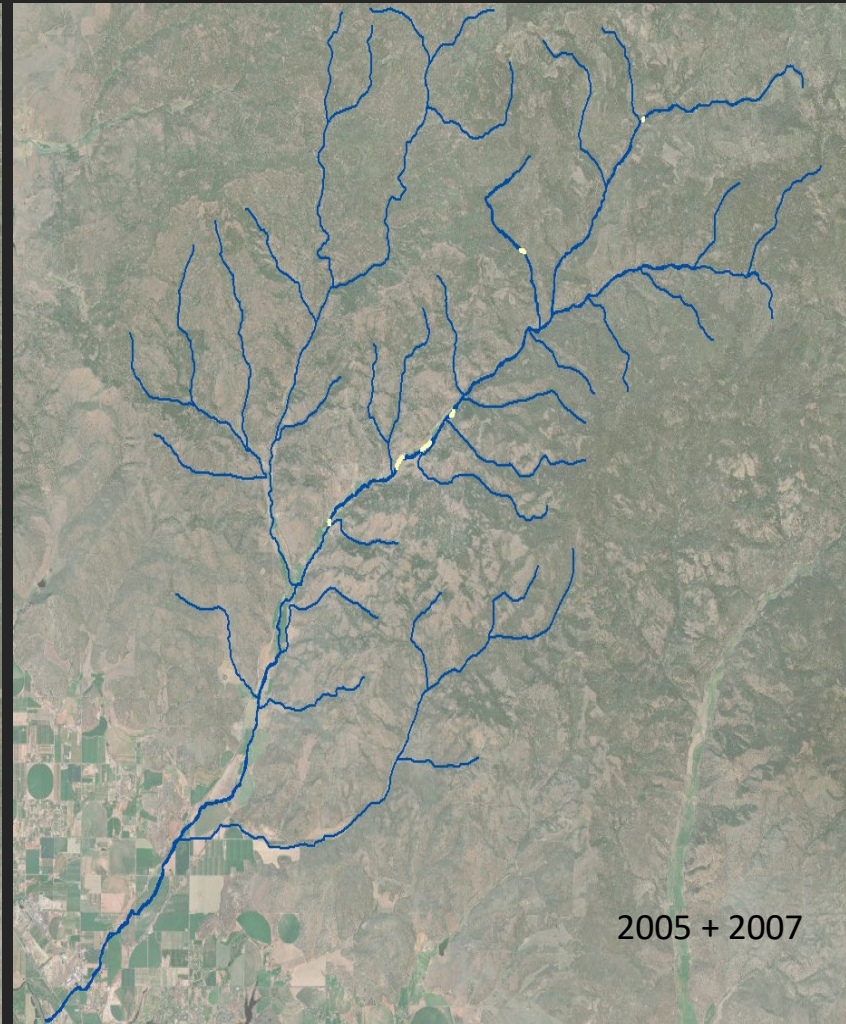
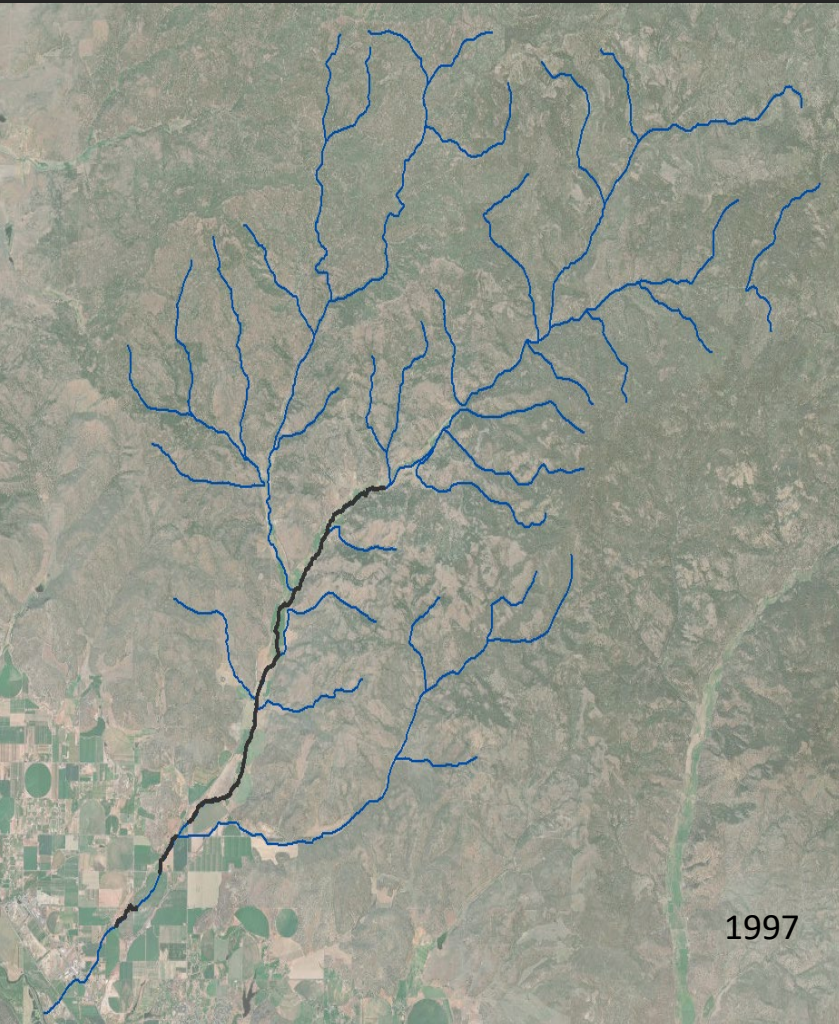
Reach level view – Percent pool habitat



Unit level view – Habitat with gravel substrate



Unit level view – Dry habitat



Whychus Creek



Canyon Preserve pre-restoration

straight, entrenched channel

<4% side channel habitat

low fine sediment &
moderate gravel

27% pool habitat

deep pools (n=20)

4 pieces wood/km
no key pieces



Canyon Preserve

5 years post-restoration

Three-fold increase side channel habitat (1600m : 3590m)

Wider channel and floodplain

High levels fine sediment & good gravel

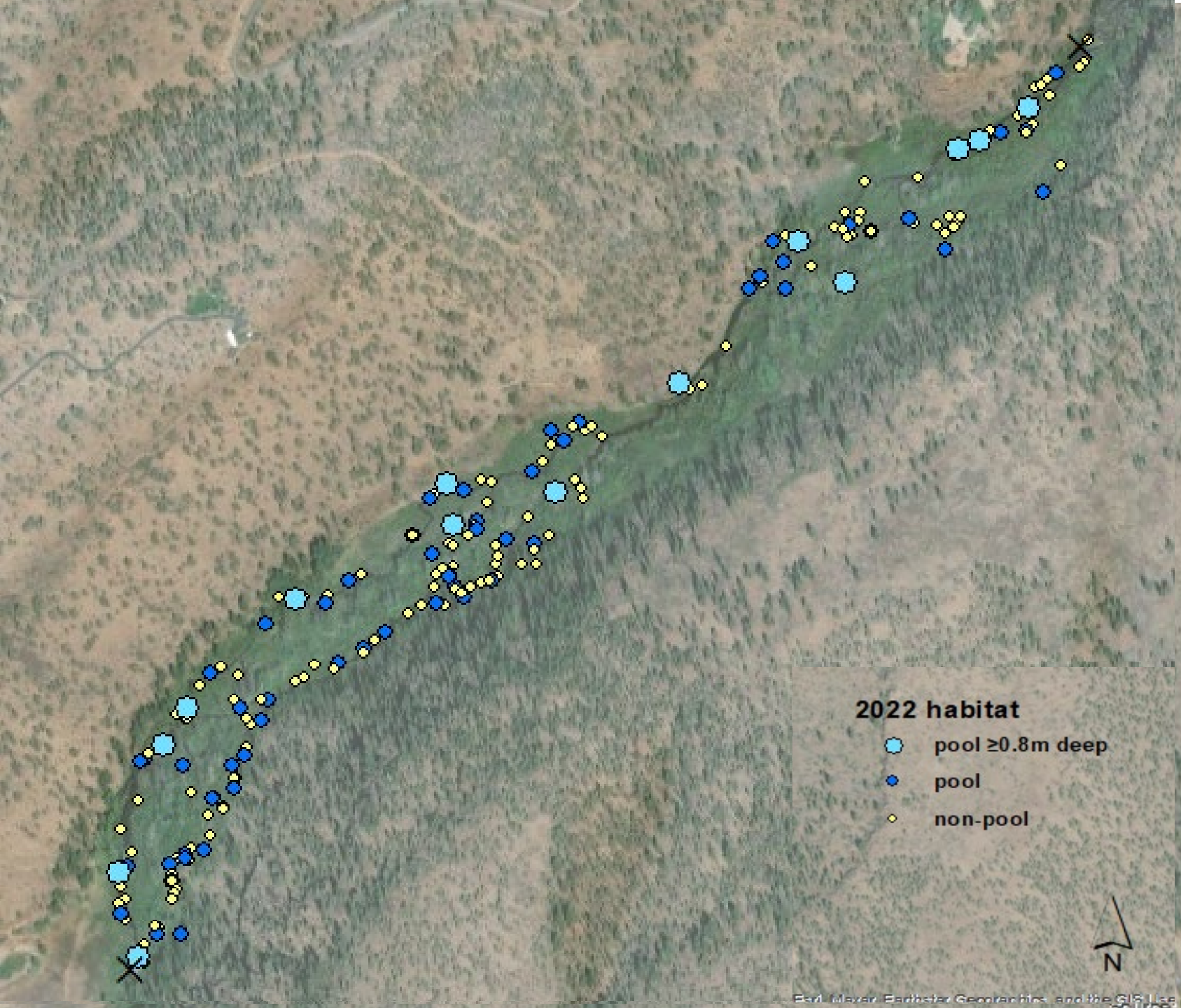
38% pool habitat

Deep pools (n=14)


Increase complex pools (5.4/km)

28 pieces of wood/km

0.2 key pieces/km

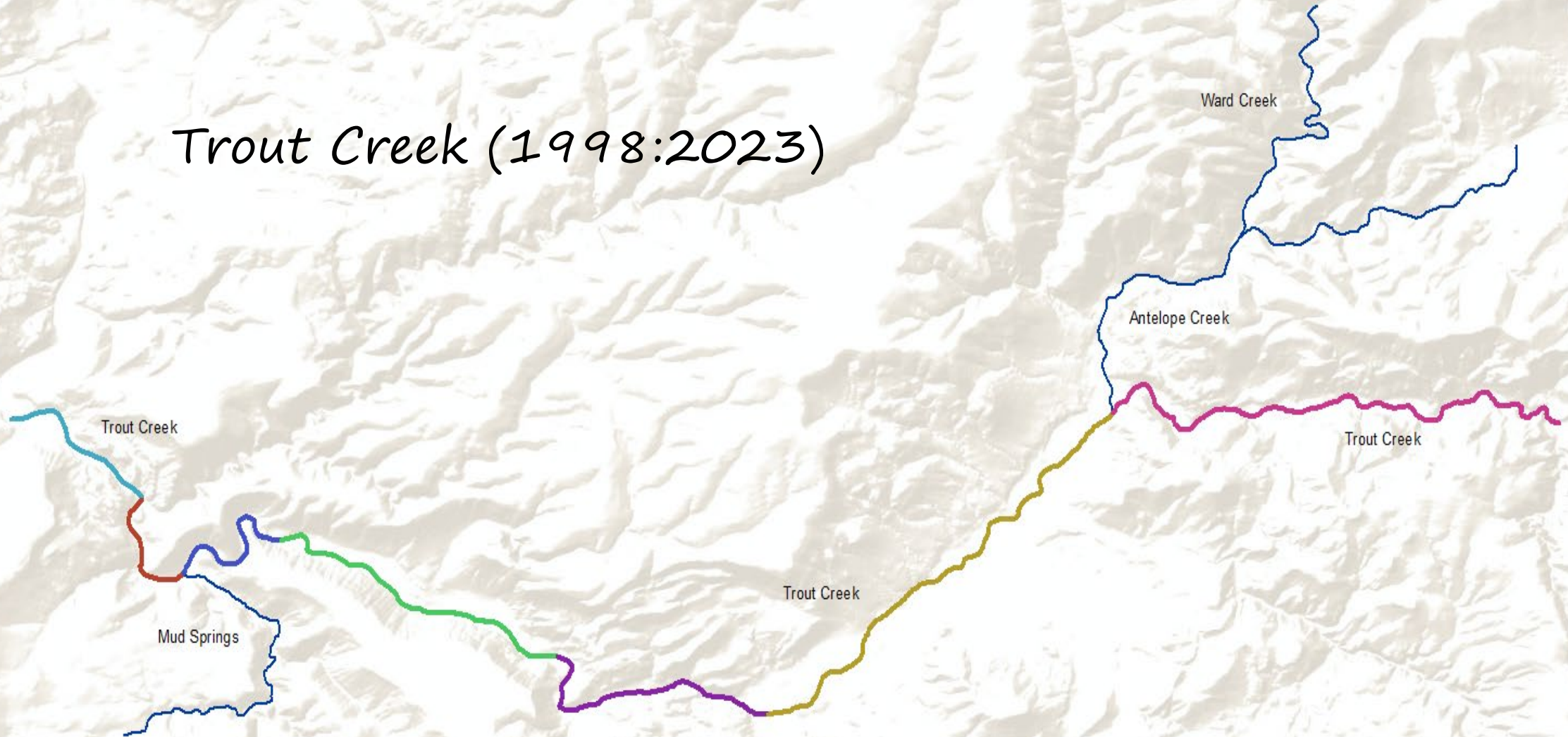


HabRate

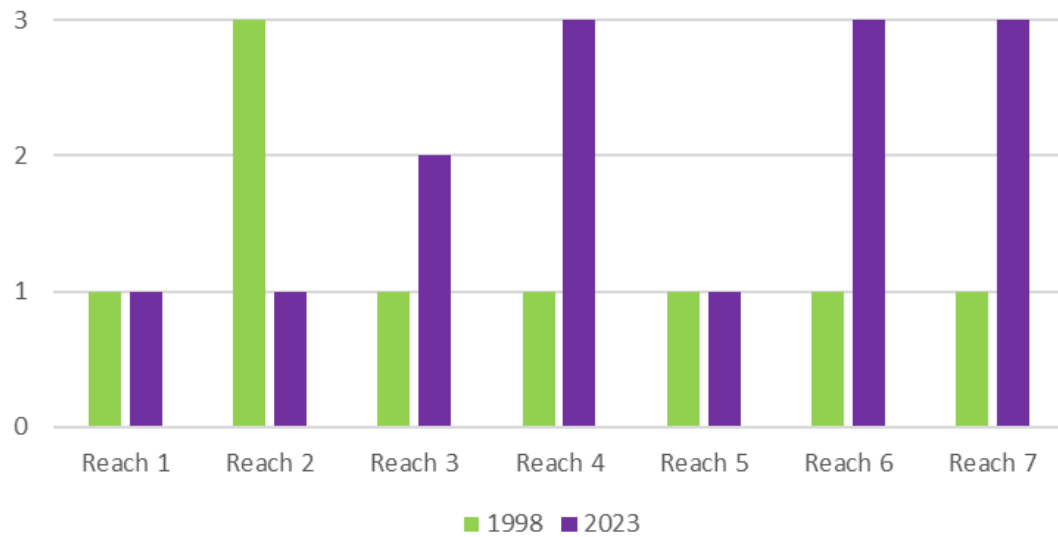
A large number of juvenile salmon, likely steelhead, are swimming in a stream. The fish are silvery with dark spots and are moving in a coordinated manner, possibly during a spawning run. The water is clear, and the stream bed is visible, showing rocks and some aquatic vegetation. The background is a solid blue color.

Decision-making tool based on Reach and Unit-level data
Habitat ratings to assess quality of stream habitat
Juvenile life stage for salmon and steelhead
Qualitative ratings 1-3 (poor to good)

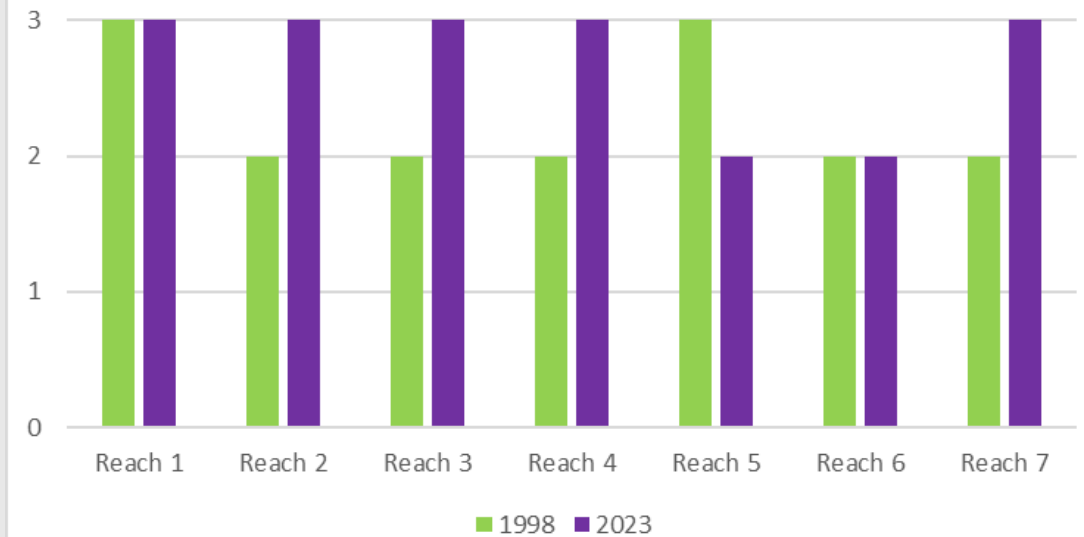
Trout Creek (1998:2023)



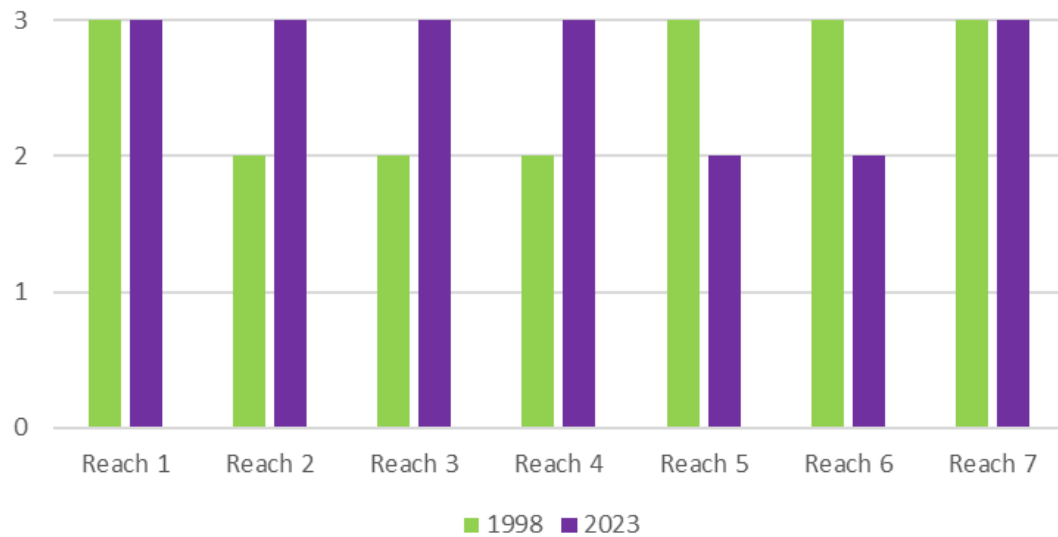
Chinook Salmon Spawning & Emergence



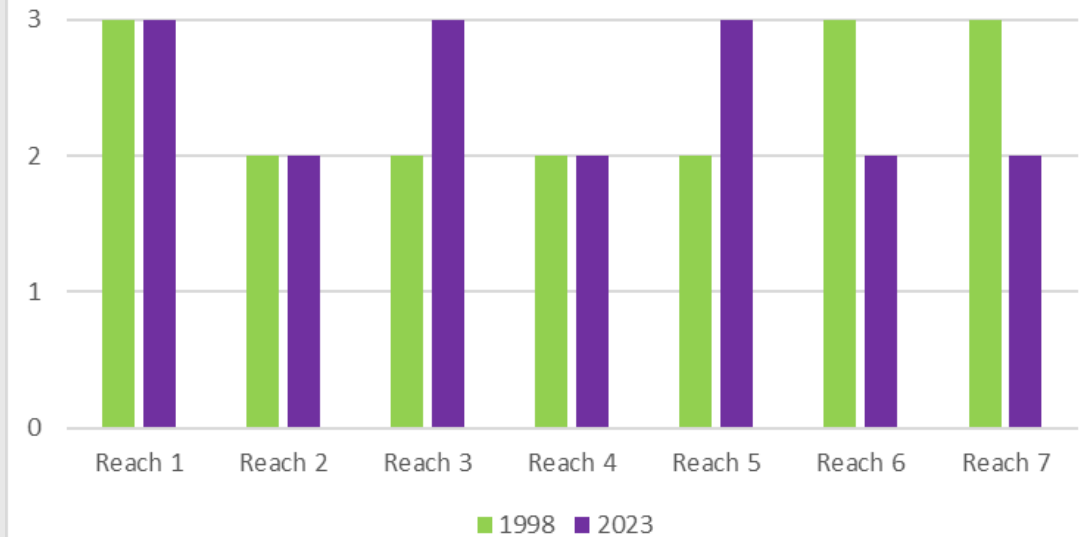
Chinook Salmon Age 0 Summer Rearing



Chinook Salmon Age 0 Overwintering

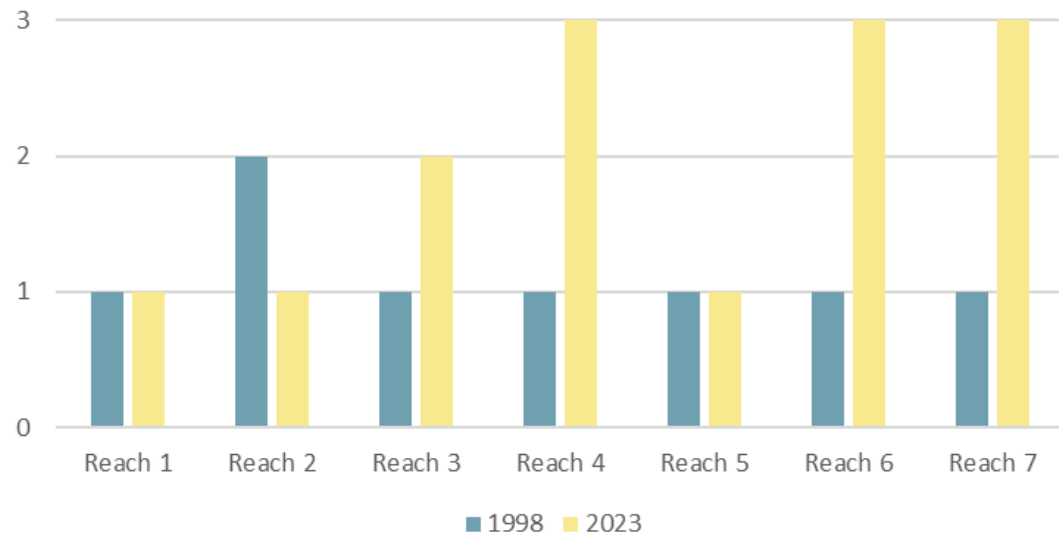


Chinook Salmon - Pool Complexity

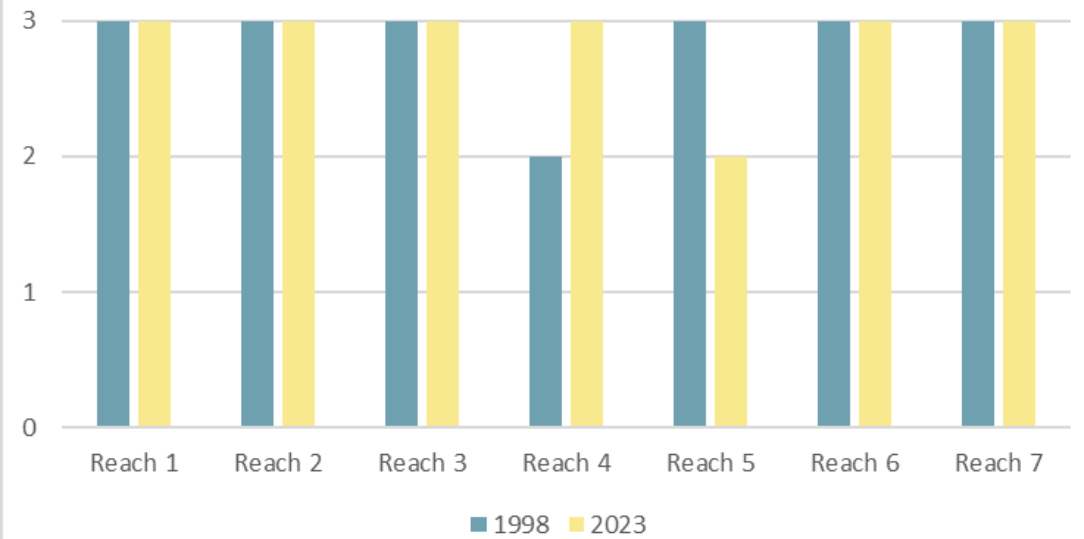


Habitat quality: 3 = good, 2 = fair, 1 = poor

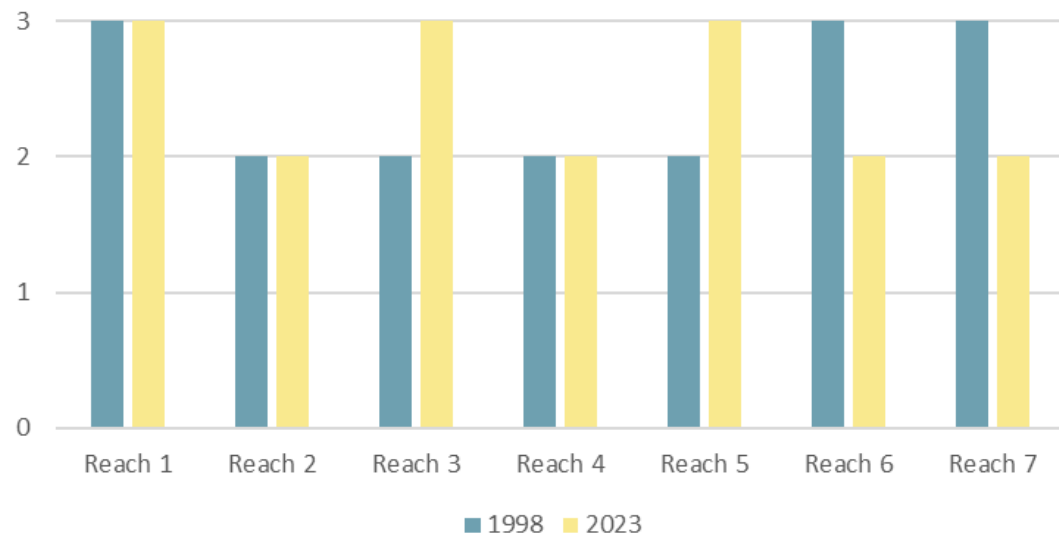
Steelhead Spawning & Emergence



Steelhead Age 0 Summer Rearing



Steelhead - Pool Complexity



Habitat quality: 3 = good, 2 = fair, 1 = poor

Summary

Value of AQI Stream Habitat surveys:

- Identify and quantify quality habitat
- Measure trends across temporal scales
- Reflect impacts of a changing climate
- Identify key habitat to protect or enhance
- Inform Management decisions
- Link habitat and fish assessments

