

Seasonal Movements of Lake Clark Humpback Whitefish



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Background

- Humpback whitefish are important subsistence fish for residents in the Kvichak River drainage.
- Reported declines in subsistence harvests.
- Lack of information regarding distribution, seasonal movements, and basic life history characteristics.





Humpback Whitefish



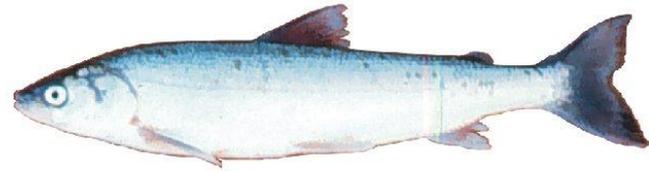
Round Whitefish



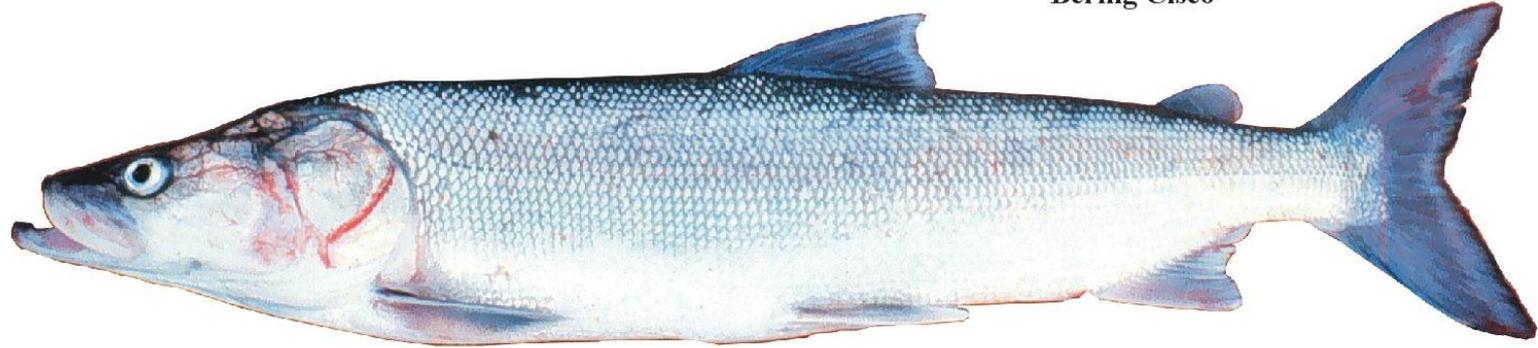
Broad Whitefish



Least Cisco

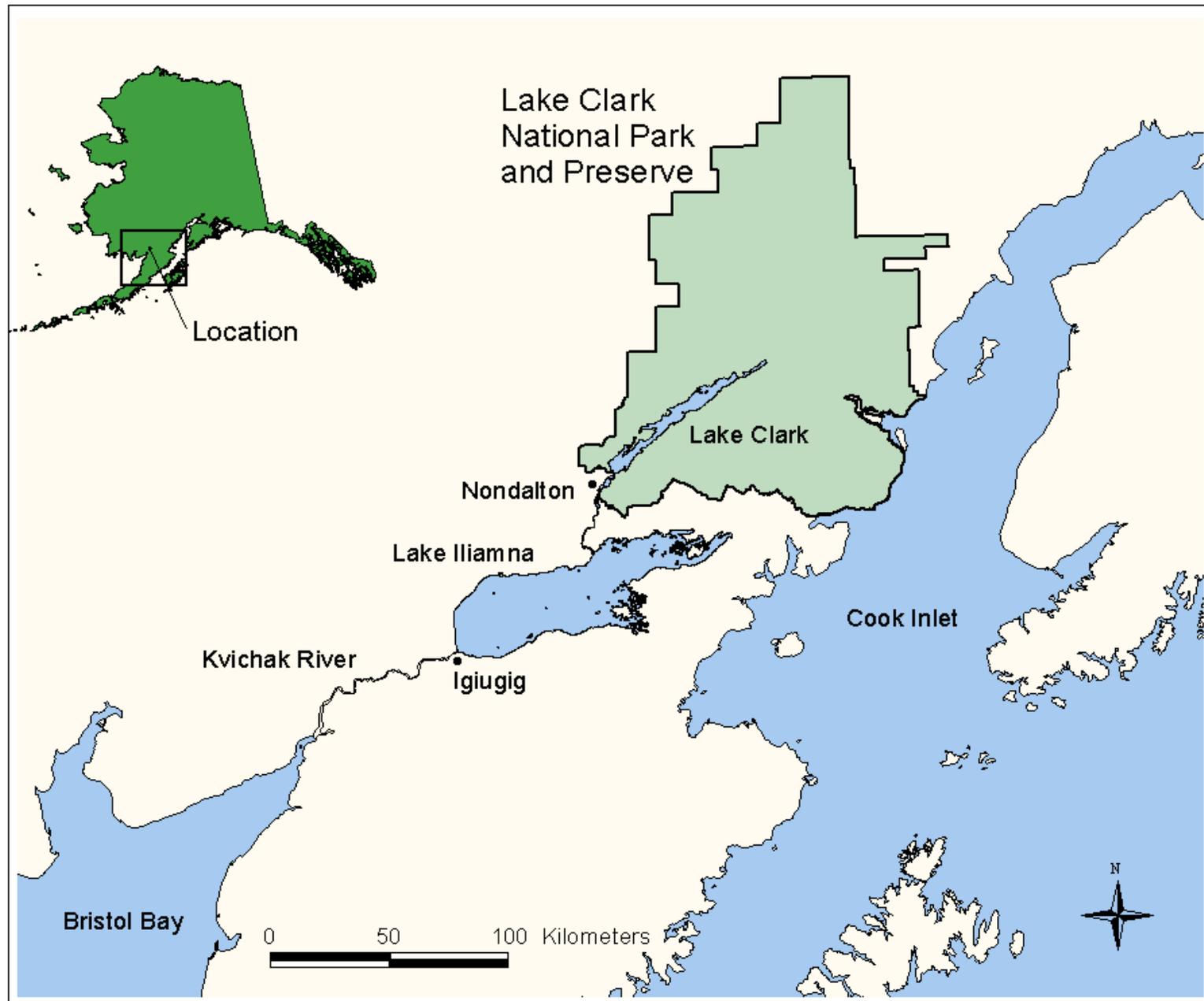


Bering Cisco



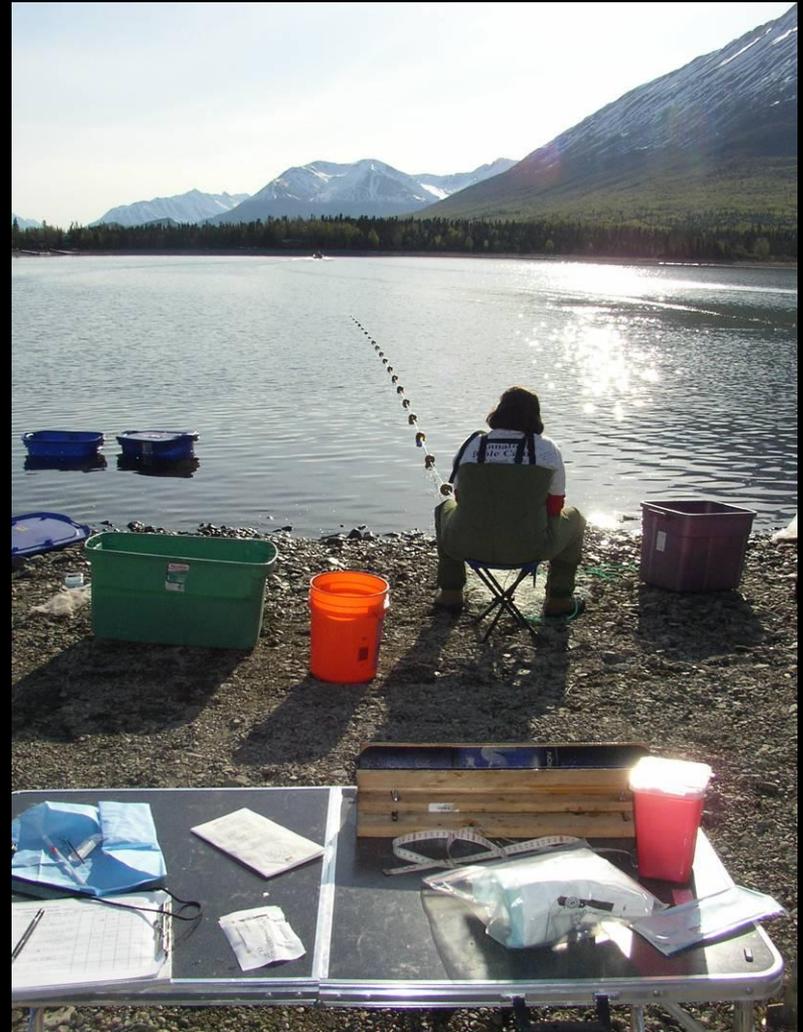
Sheefish





Objective

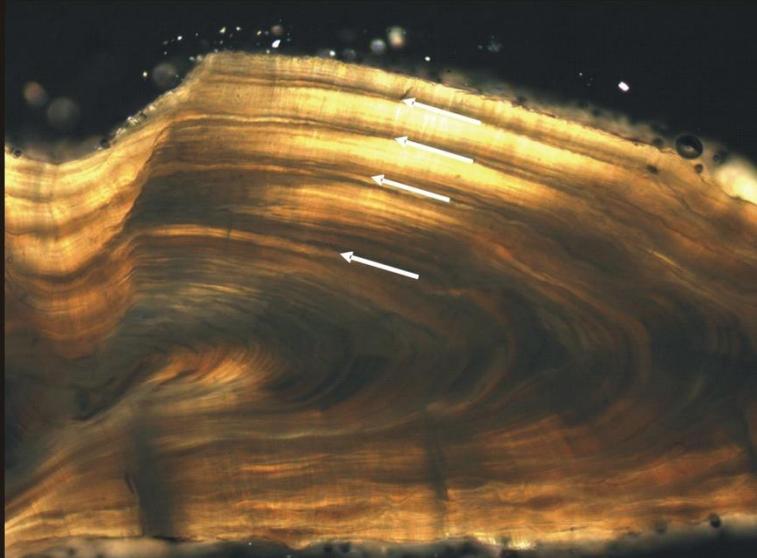
- Determine seasonal migration patterns and habitat use
 - Anadromy
 - Feeding, spawning, and winter habitats
 - Depth and temperature habitats



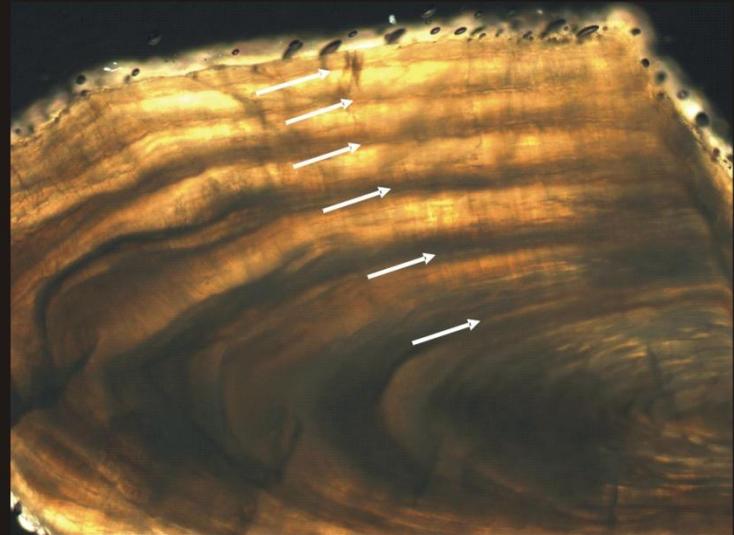
Methods



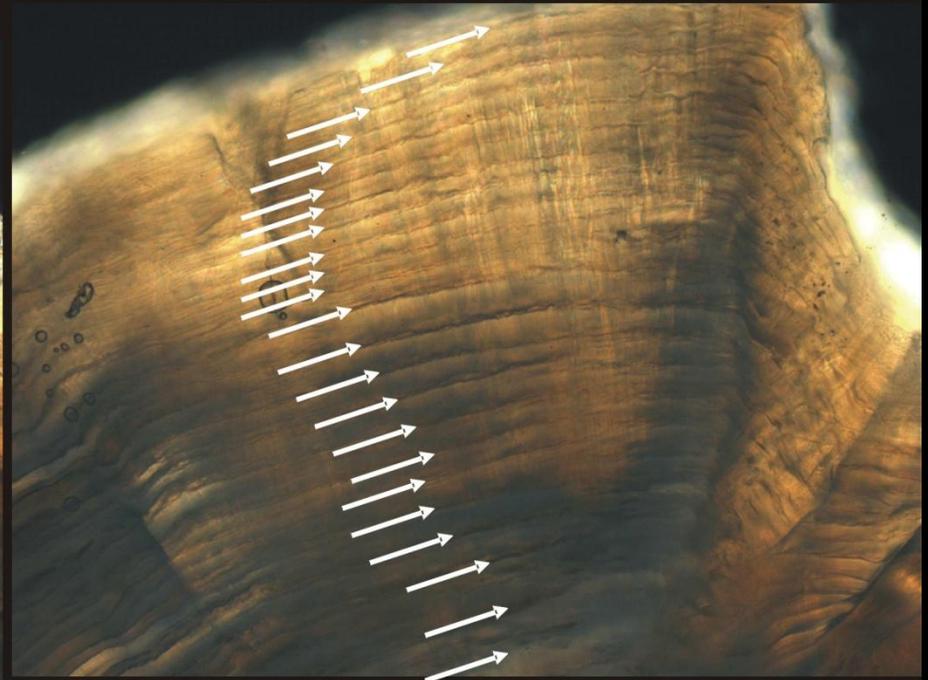
HBWF 152, Age 4



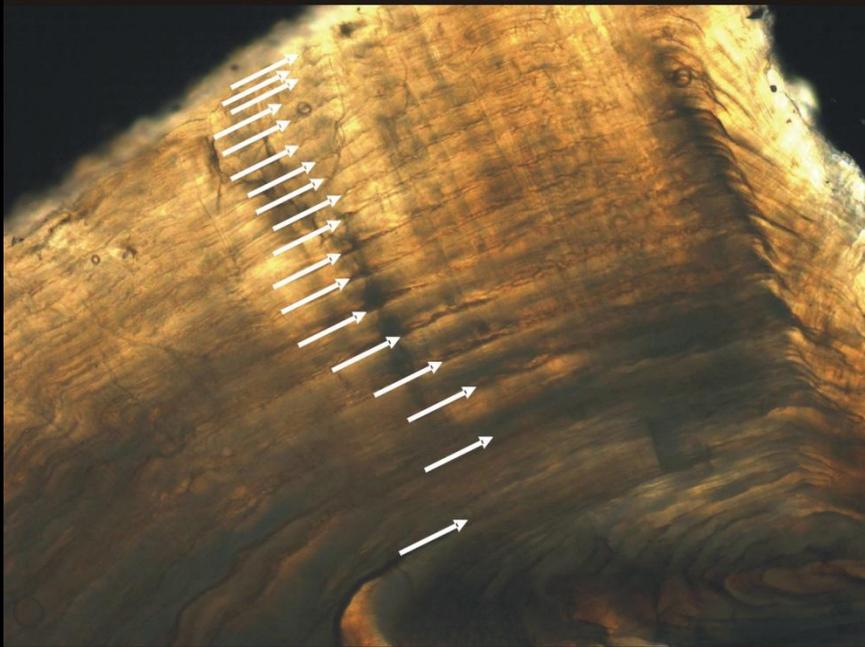
HBWF 33, Age 6

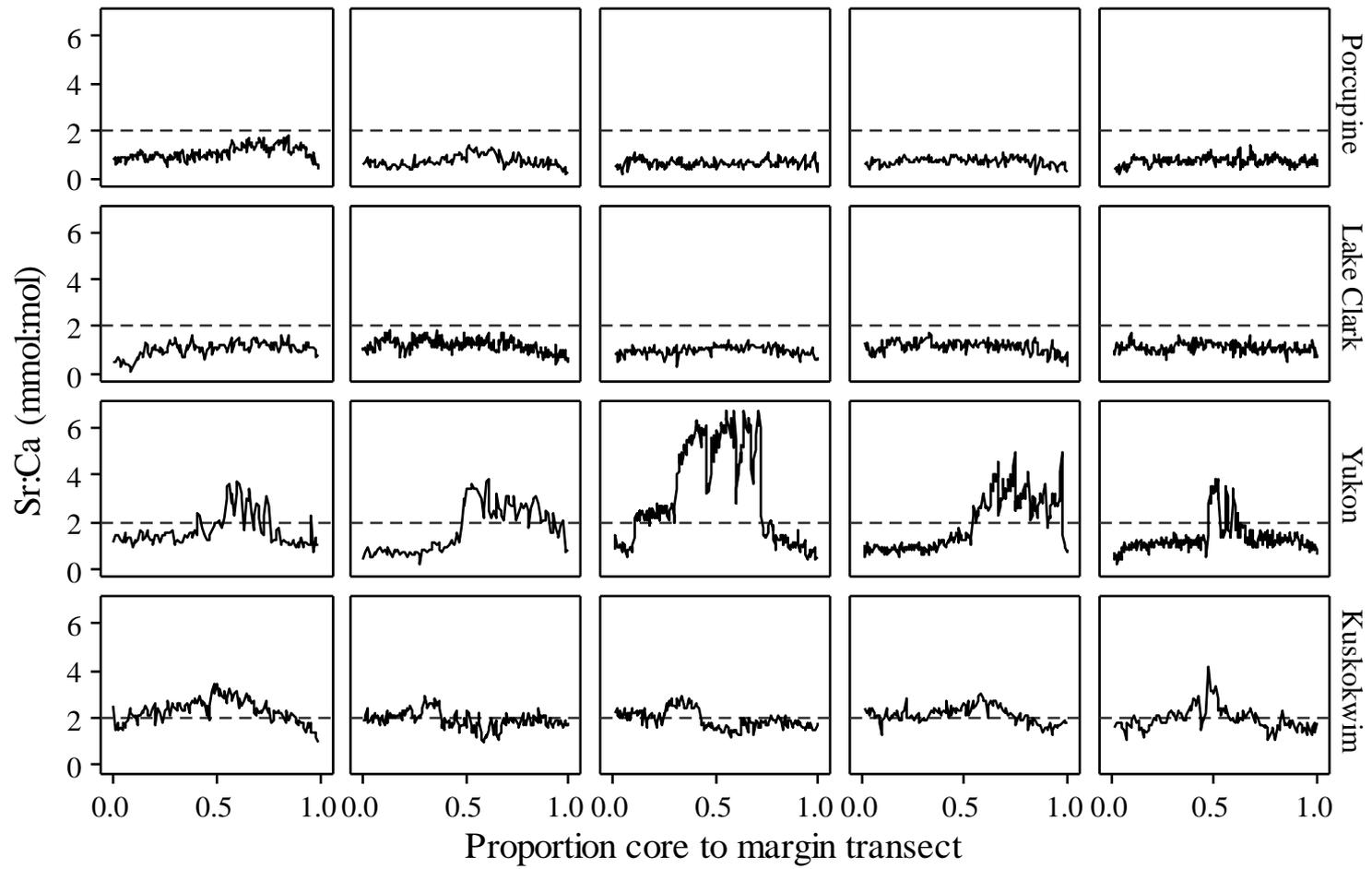


HBWF 122, Age 23



HBWF 15, Age 18





Randy Brown (USFWS)

Radio telemetry



Radio tagging summary

Tagged fish May - August

- 2006 (n=94)
- 2007 (n=75)
- 2008 (n=46)
- 2008* (n=30) – Archival

Total = 216 fish tagged

Three tagging locations

- Chulitna Bay (n=58)
- Port Alsworth (n=85)
- Sixmile Lake (n=73)



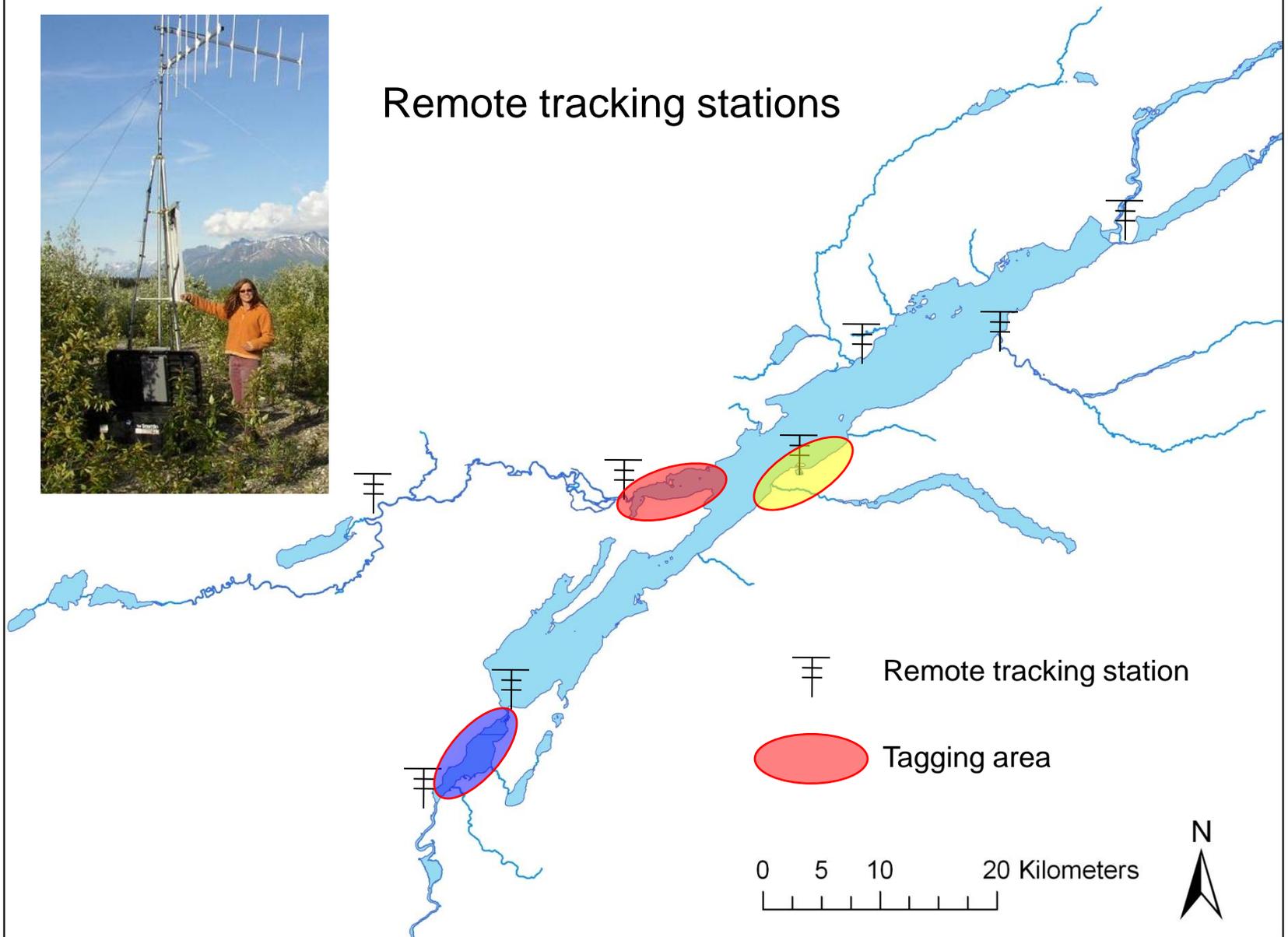
Radio tracking

Tracked fish movements
by boat, plane, and





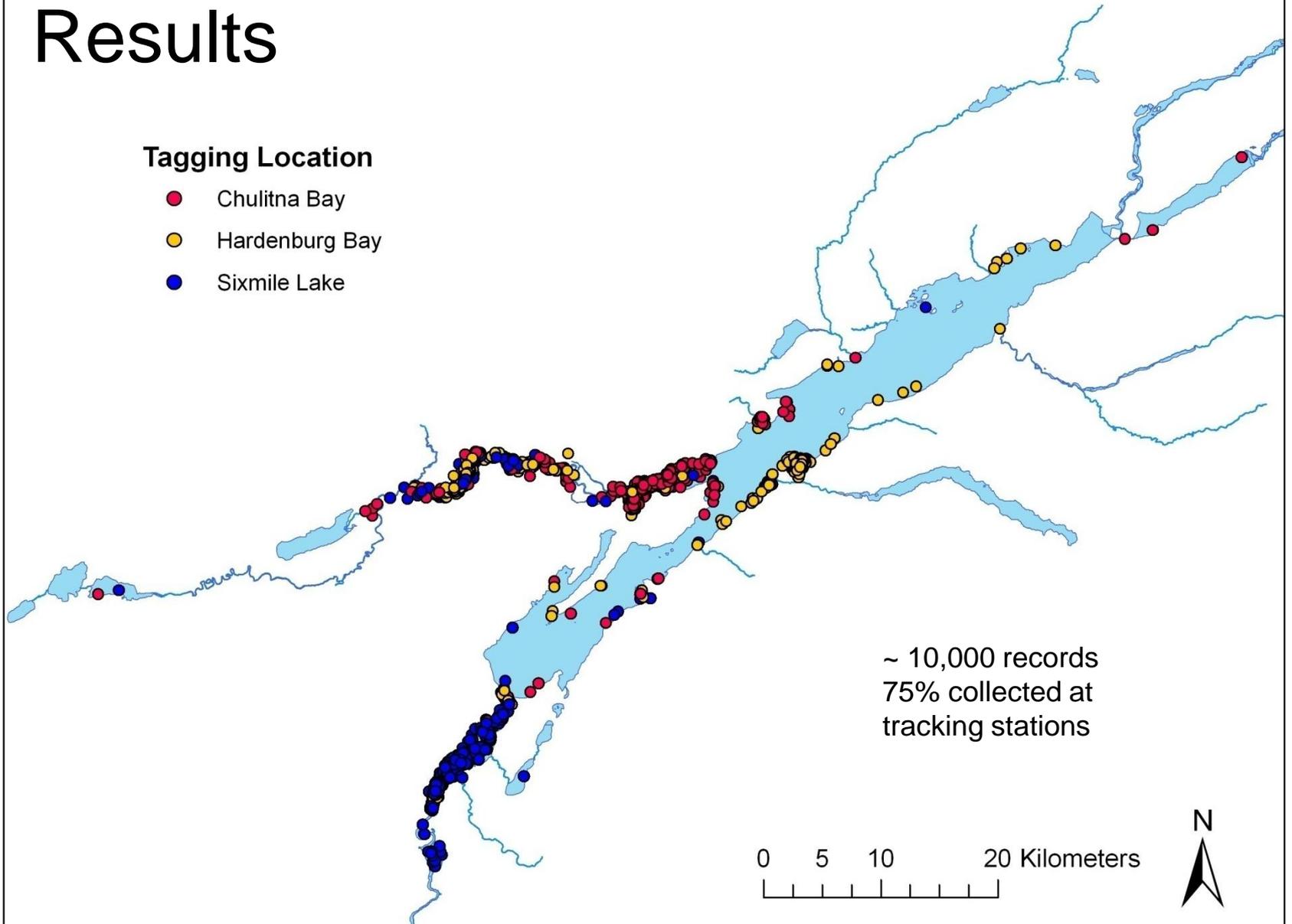
Remote tracking stations



Results

Tagging Location

- Chulitna Bay
- Hardenburg Bay
- Sixmile Lake



Results

General movement patterns were similar for fish from all tagging sites

Early summer

- Movement to shallow nearshore habitats



Results

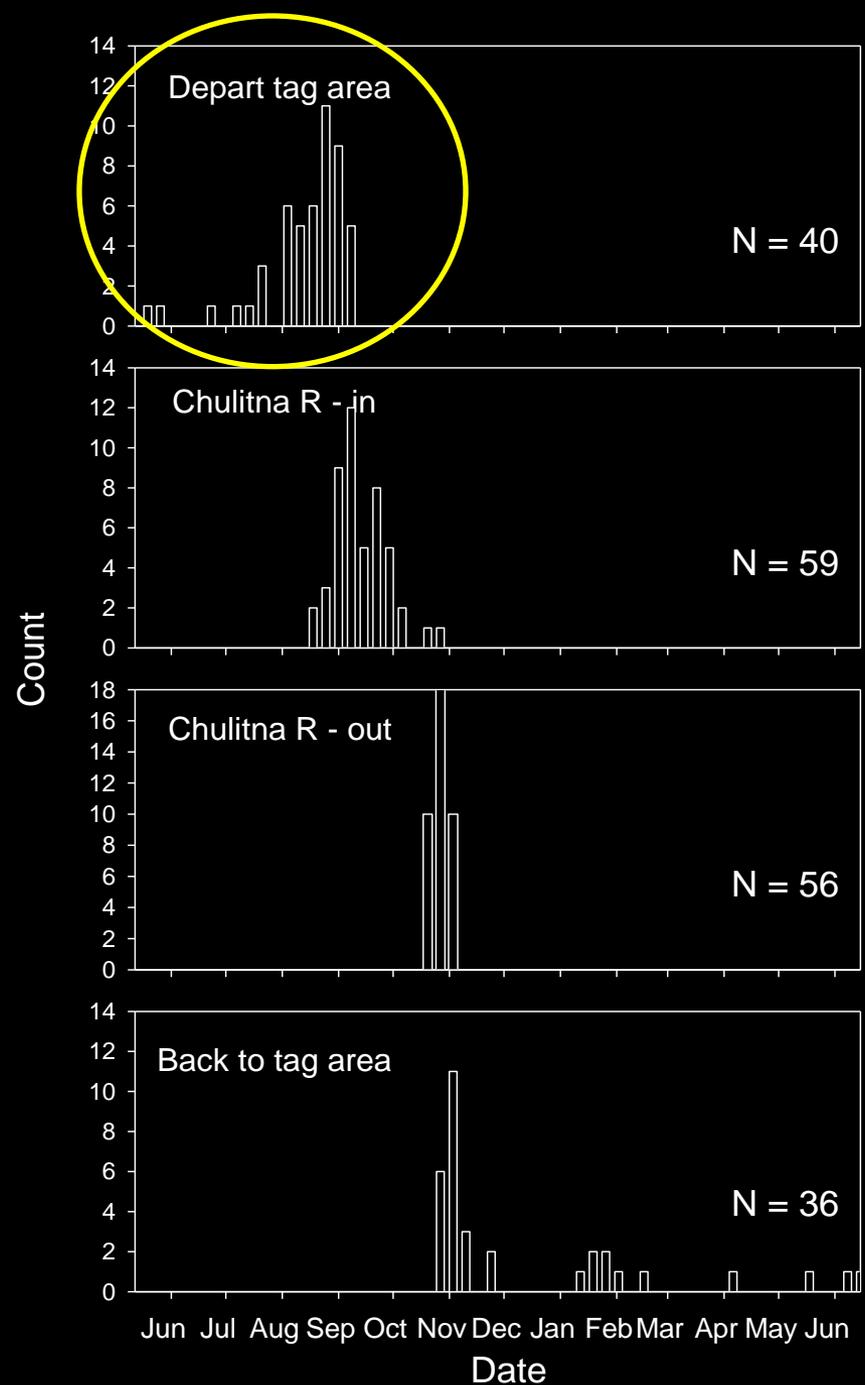
- Mid summer
 - Movement to locations associated with salmon harvest and processing





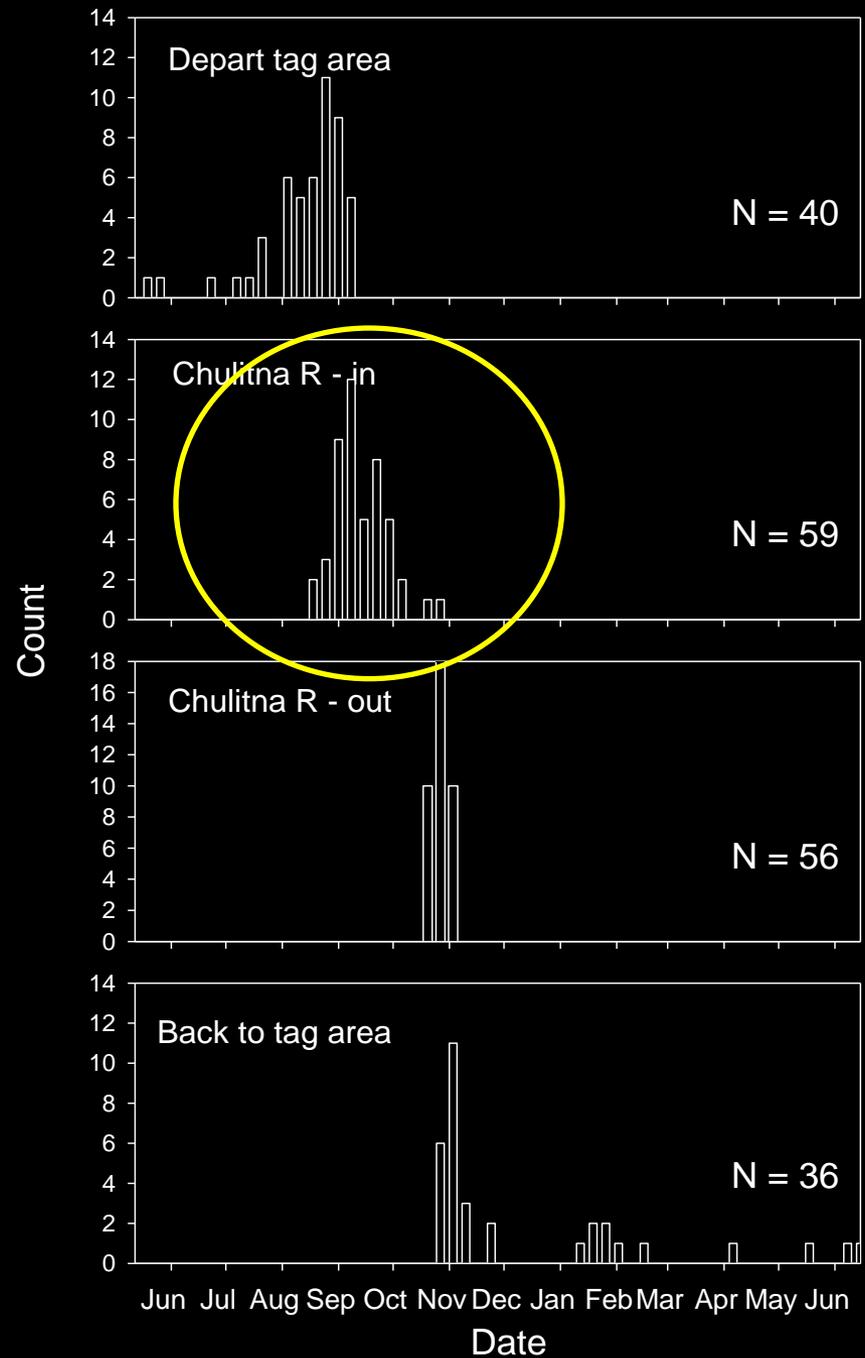
Results

- Late summer
 - Movement away from shallow nearshore habitats



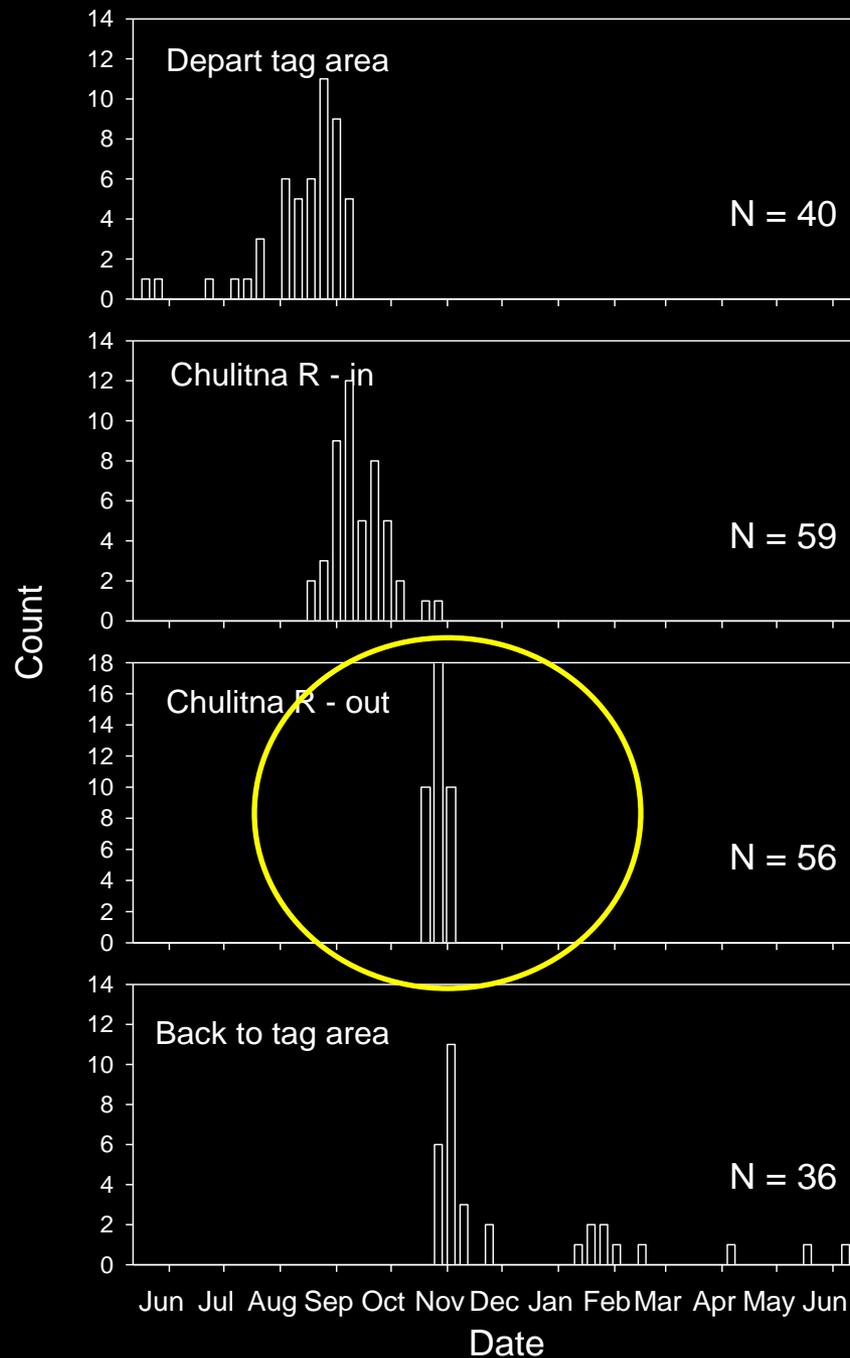
Results

- Fall
 - Movement to spawning areas in the Chulitna River



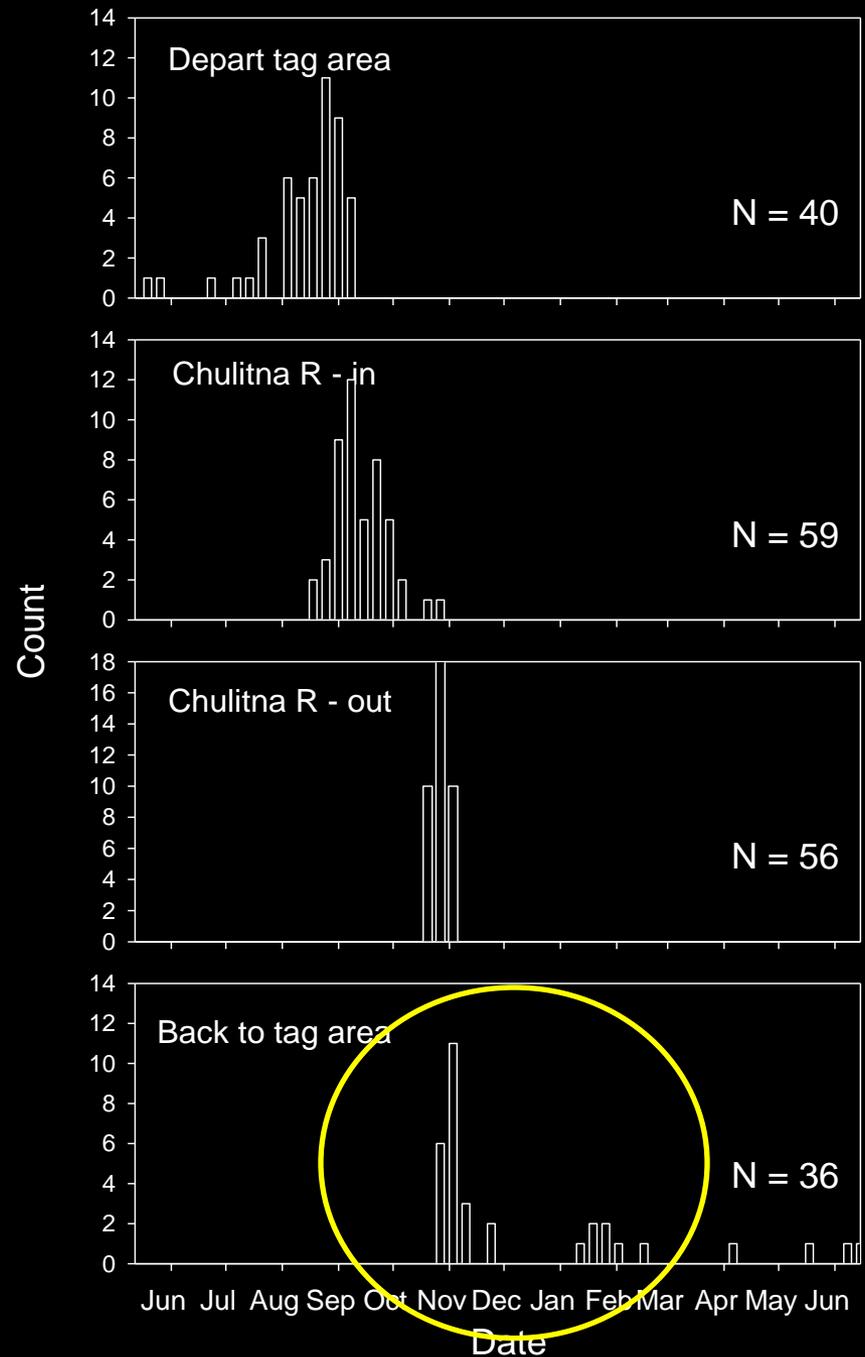
Results

- Late fall
 - Migrate downriver into Lake Clark



Results

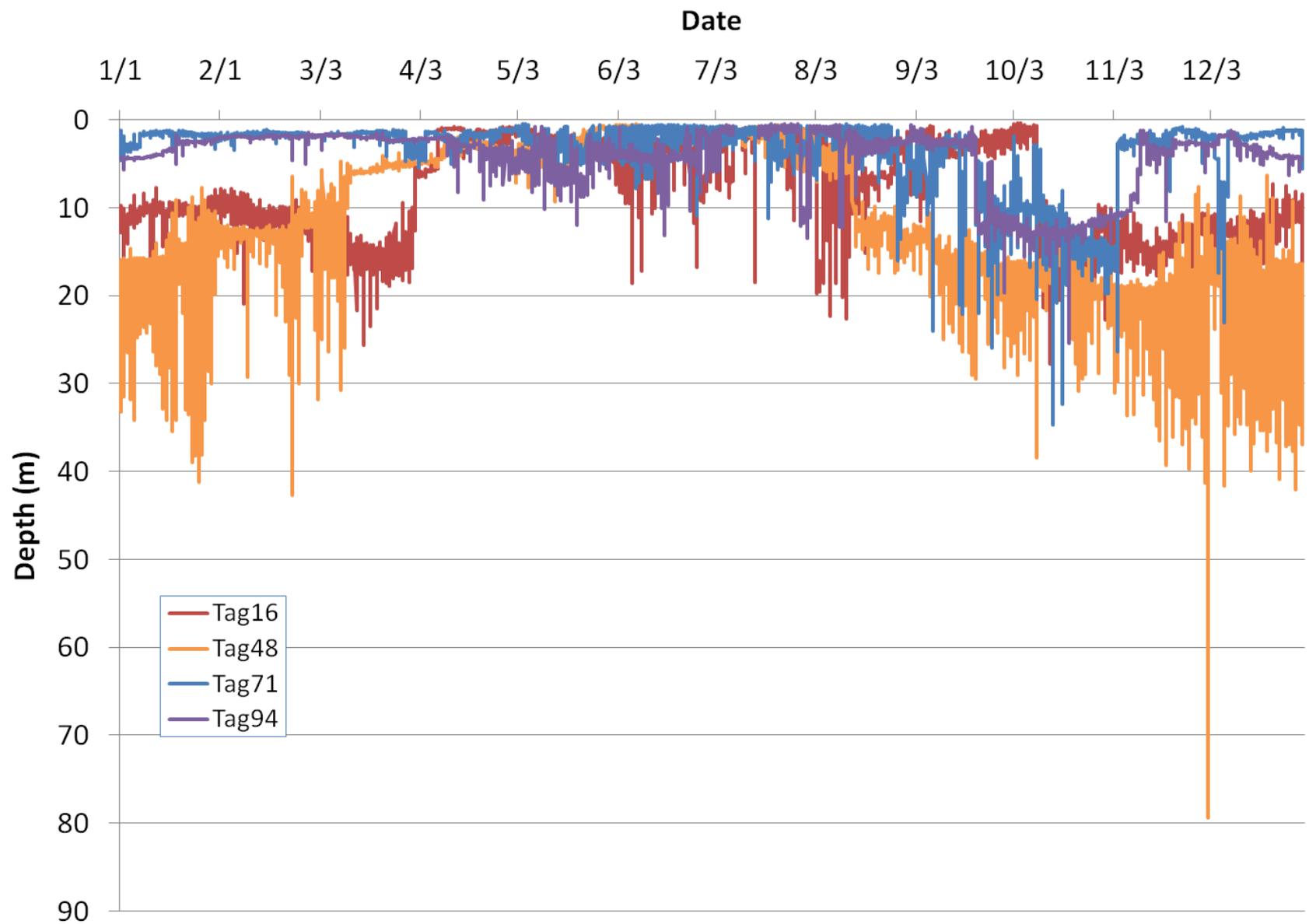
- Late fall – early winter
 - Migrate back to tagging area or undetected

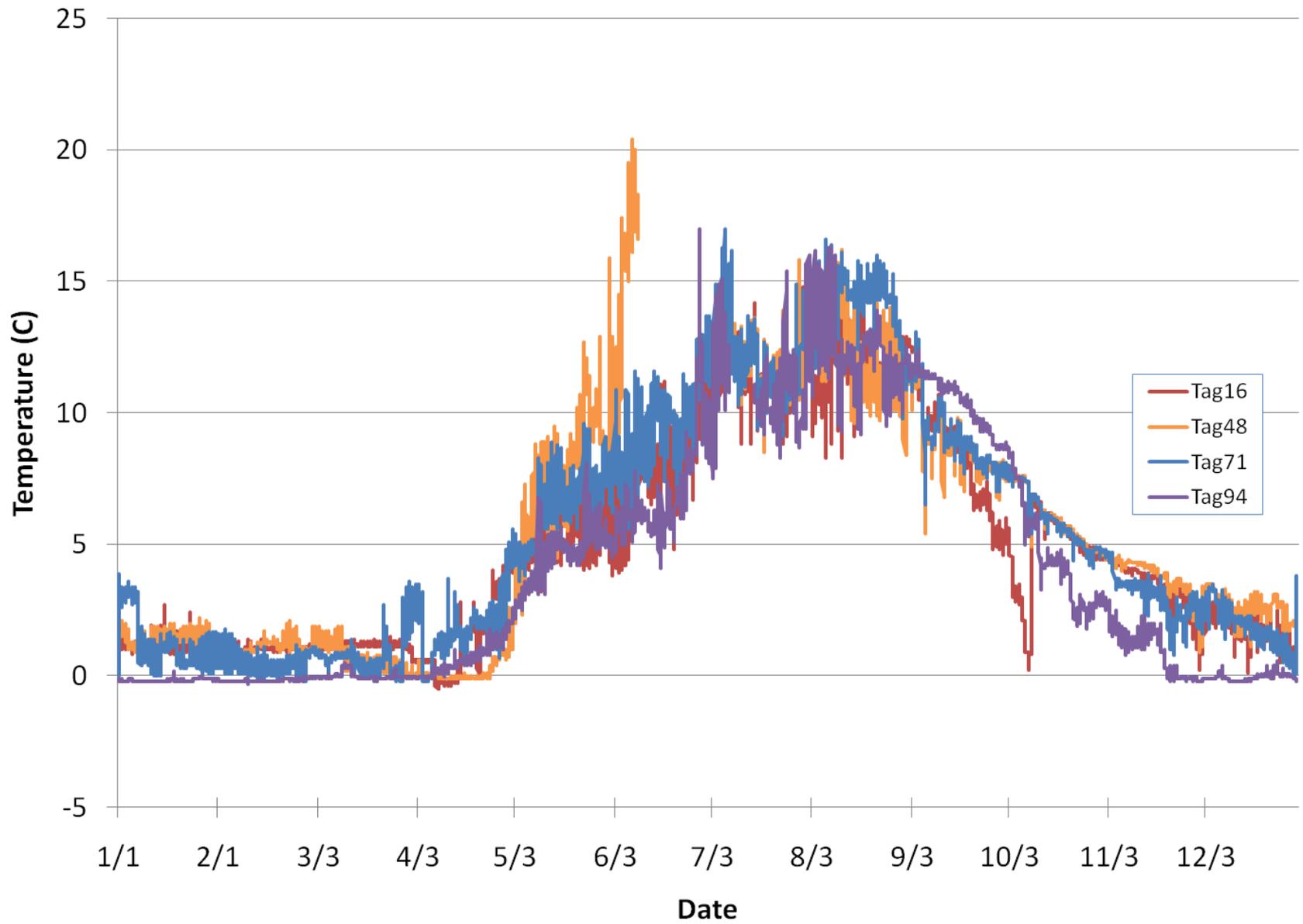


Results

- Winter
 - Near tagging area
 - Undetected
 - At depth?







Conclusions

- Freshwater residents
- Fish from all tagging areas mixed throughout the drainage – although strong fidelity to tagging areas.
- Feeding aggregations at salmon processing areas
- River spawners – migration and spawn timing similar to other studies
- Winter distribution – most tags undetected during this time – likely at depth



