Sockeye & Chinook Otolith Microchemistry

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Gratitude, Collaborators, & Funders

- Chignik Regional Aquaculture Association

- Bristol Bay Native Association

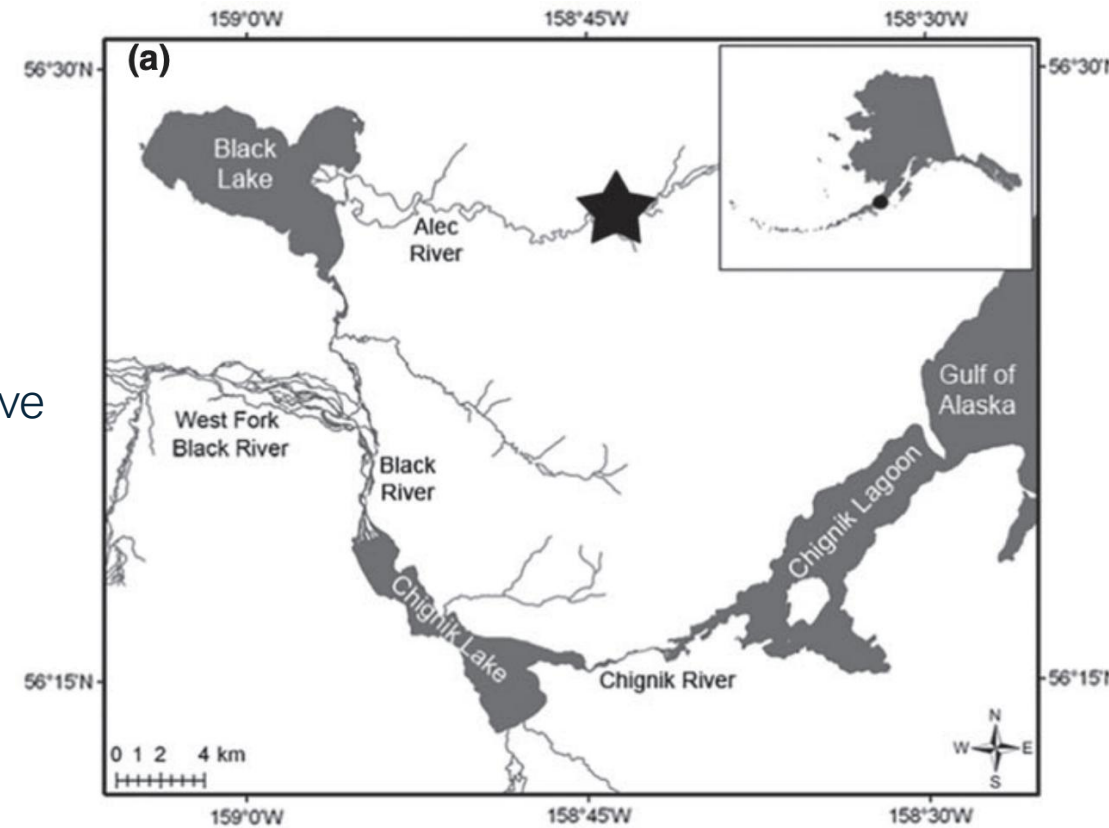- University of Alaska, Fairbanks

Project Overviews

Project Overview

Sockeye Project

- Investigate Alec River juvenile behavior strategies during freshwater rearing
- Use environmental data to see what interactions drive different rearing behaviors
  - Lake temperature
  - Zooplankton
  - Lake water level
  - River flows
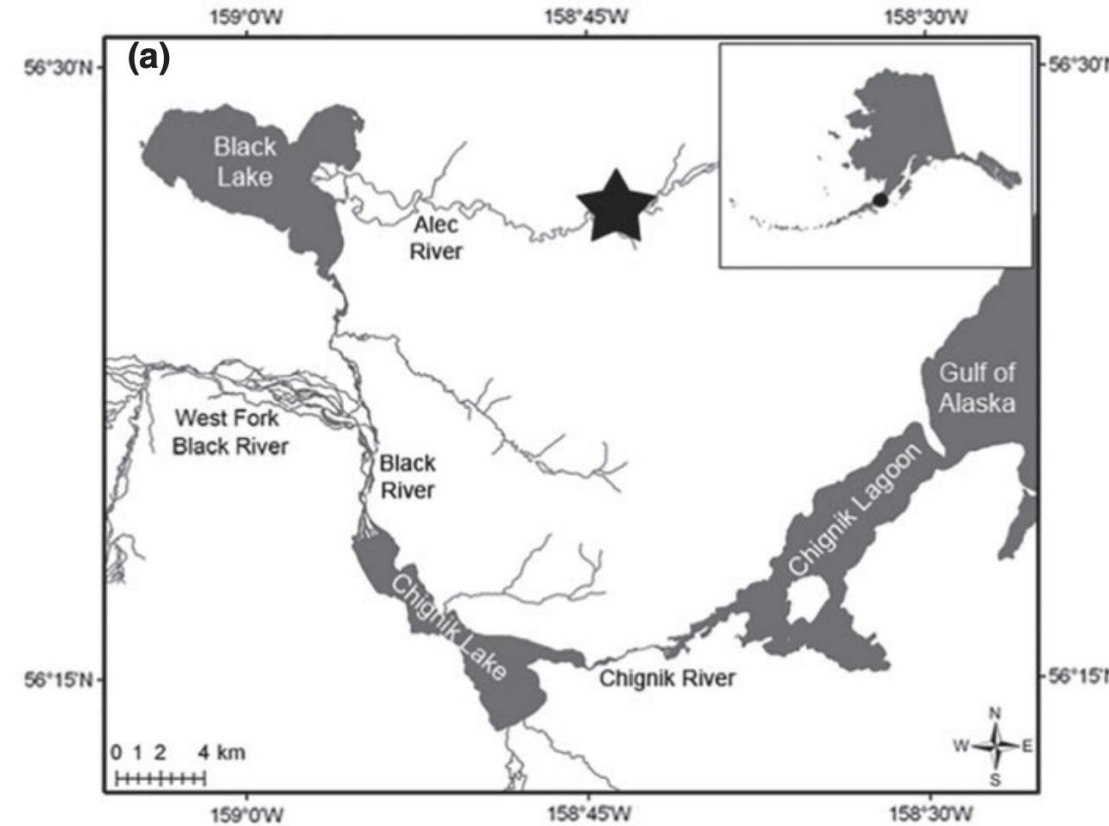- Primary focus on the 2018 collapse

Project Overview

Chinook Project

- Primary focus to better understand the life history of Chignik kings

- Investigate the importance of freshwater and lagoon rearing habitats

What are otoliths?

- Calcified structures in the inner ear of fish

- Similar structure to tree rings

- Growth is proportional to fish size

- Locks away elements from the environment

- Distinct rings:
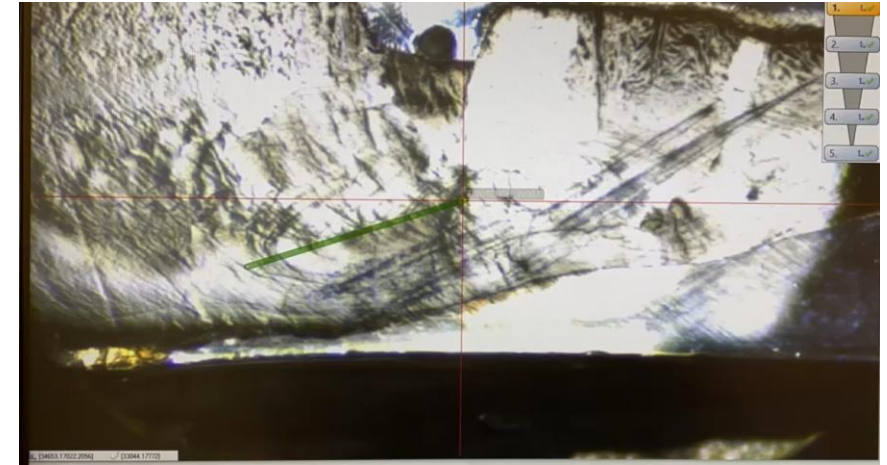 - Ocean entry
  - Annual markers
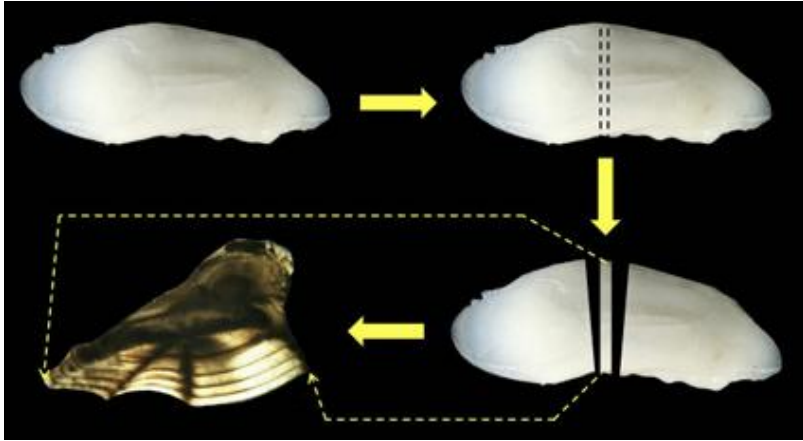
Virginia Marine Resources Commission. 2023. Preparation of otolith transverse cross-sections for age estimation: protocol. Ageing /Fisheries Management Division, Virginia Marine Resources Commission, Newport News, Virginia. OctobeLaboratoryr 2, 2023.

Otolith Preparation

Microchemistry Analysis

Winter 2024-2025 Progress

- 199 Chinook Otoliths

- 760 Sockeye Otoliths
  - *2013 samples are Chignik Lake sockeye
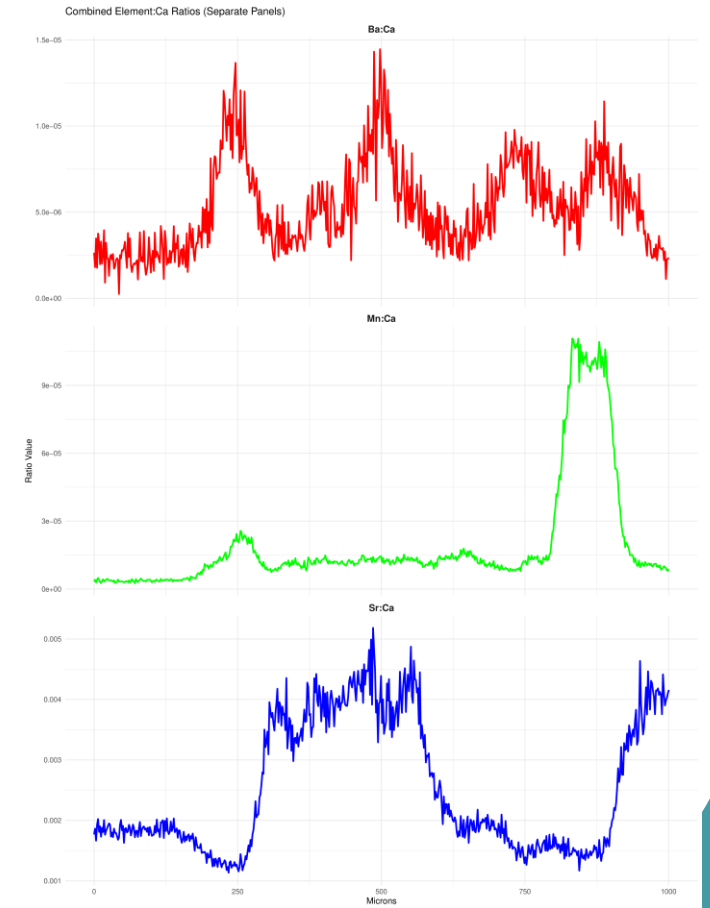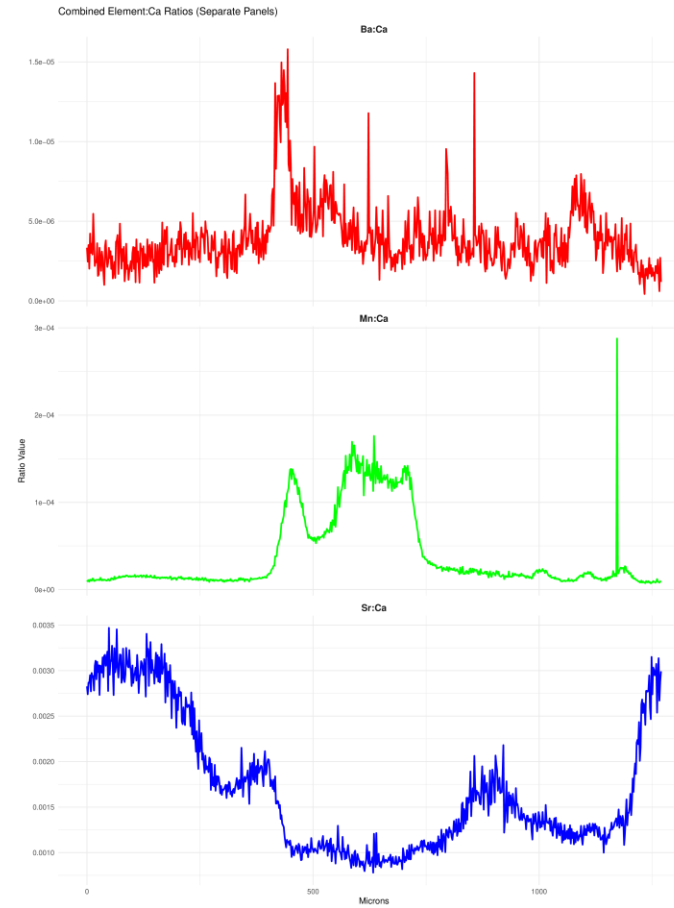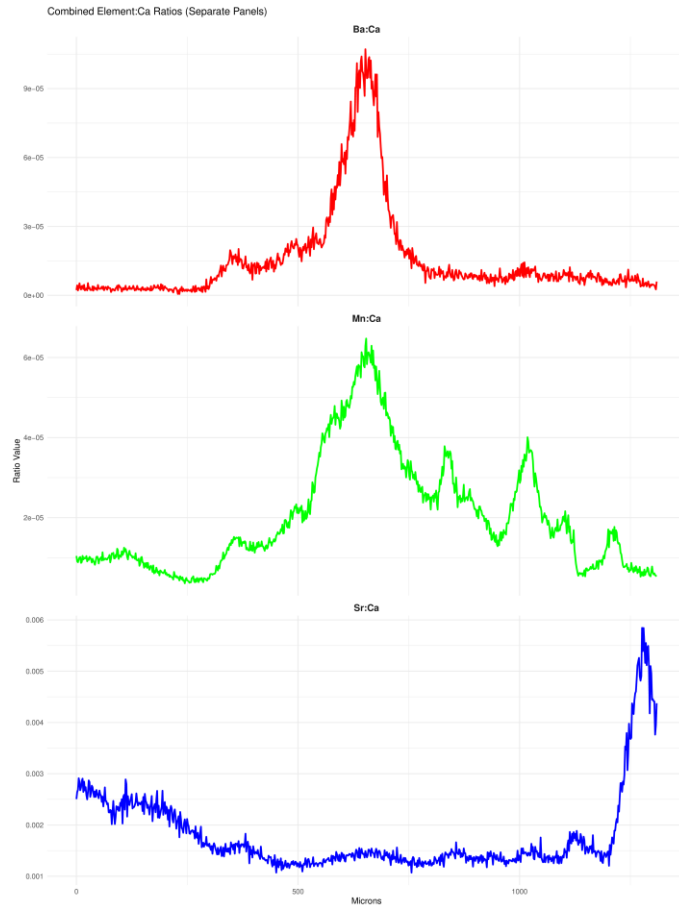   - - 20 Hatchery Beach & 20 Clark River

- Grand Total: 959 Otoliths

Chinook

Year	# of Samples
2015	15
2016	56
2017	85
2018	2
2019	5
2022	36

Sockeye

Year	# of Samples
2013	40
2017	100
2018	100
2019	99
2020	100
2021	100
2022	100
2023	98
2024	23

Chinook Data

Thank you!

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- Questions

- Thoughts/ideas for Chinook project

- Areas that people would like research to expand on