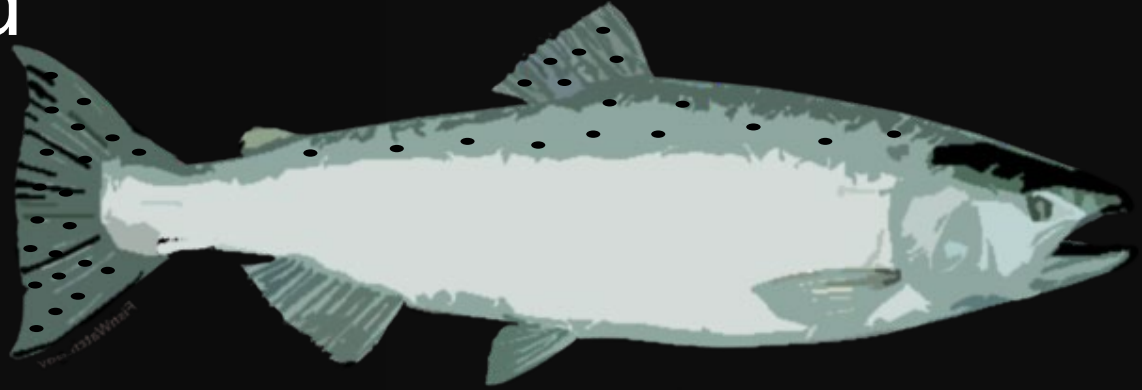


# AYK Chinook and Chum Salmon Marine Research Update

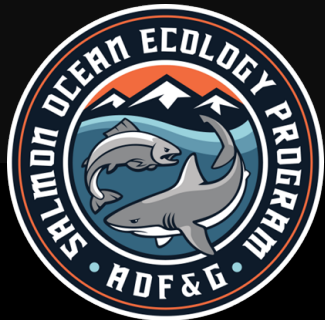


Sabrina Garcia, AYK Fishery Biologist

Kathrine Howard, Statewide Fisheries  
Scientist

ADF&G Salmon Ocean Ecology Program

YRDFA Annual meeting, October 2023





Chukchi Sea

Juvenile salmon (1st summer at sea)

Immature and Maturing Chinook (2–4 years)

Bering Sea

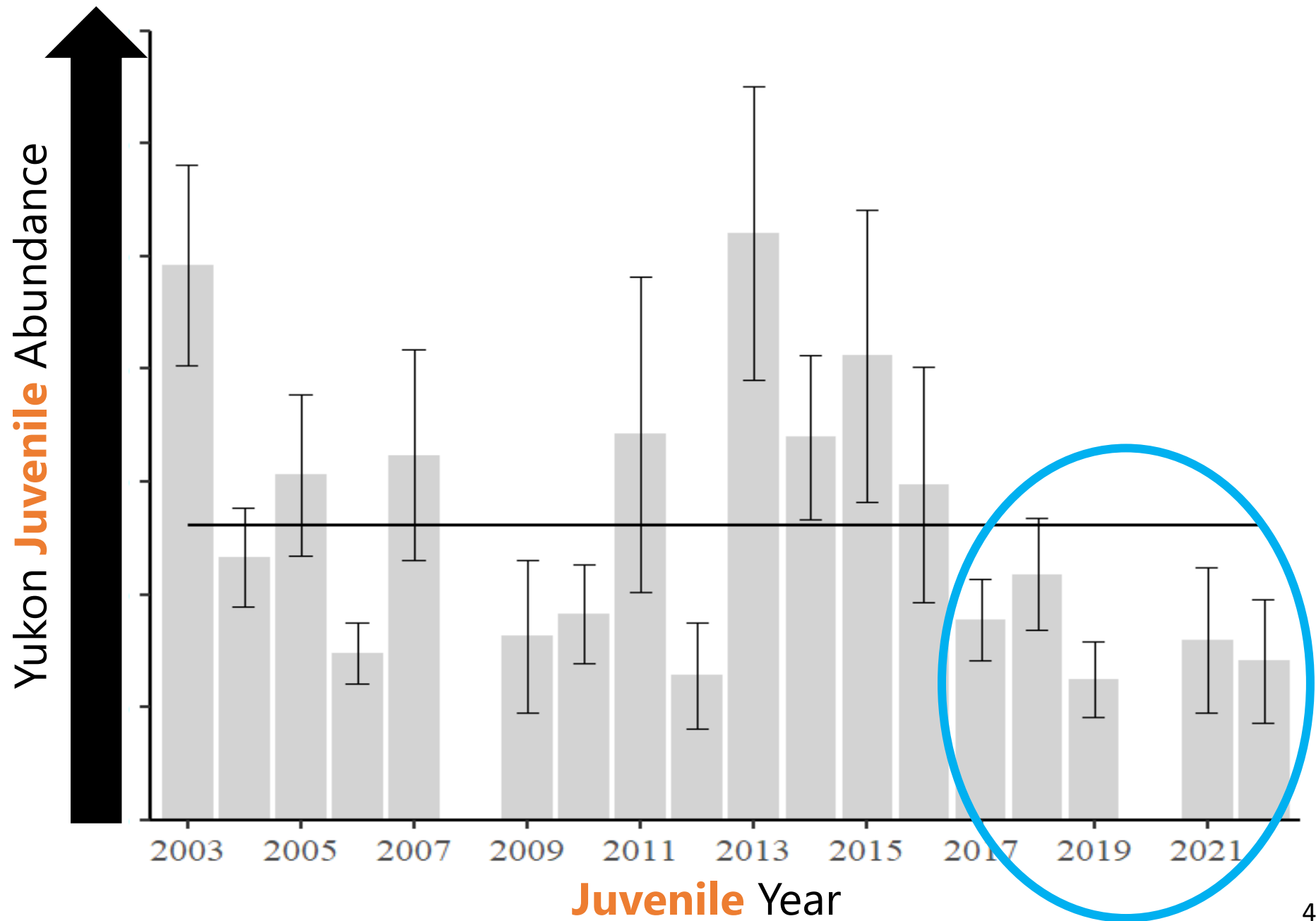
Gulf of Alaska

Immature and Maturing Chum (3–4 years)

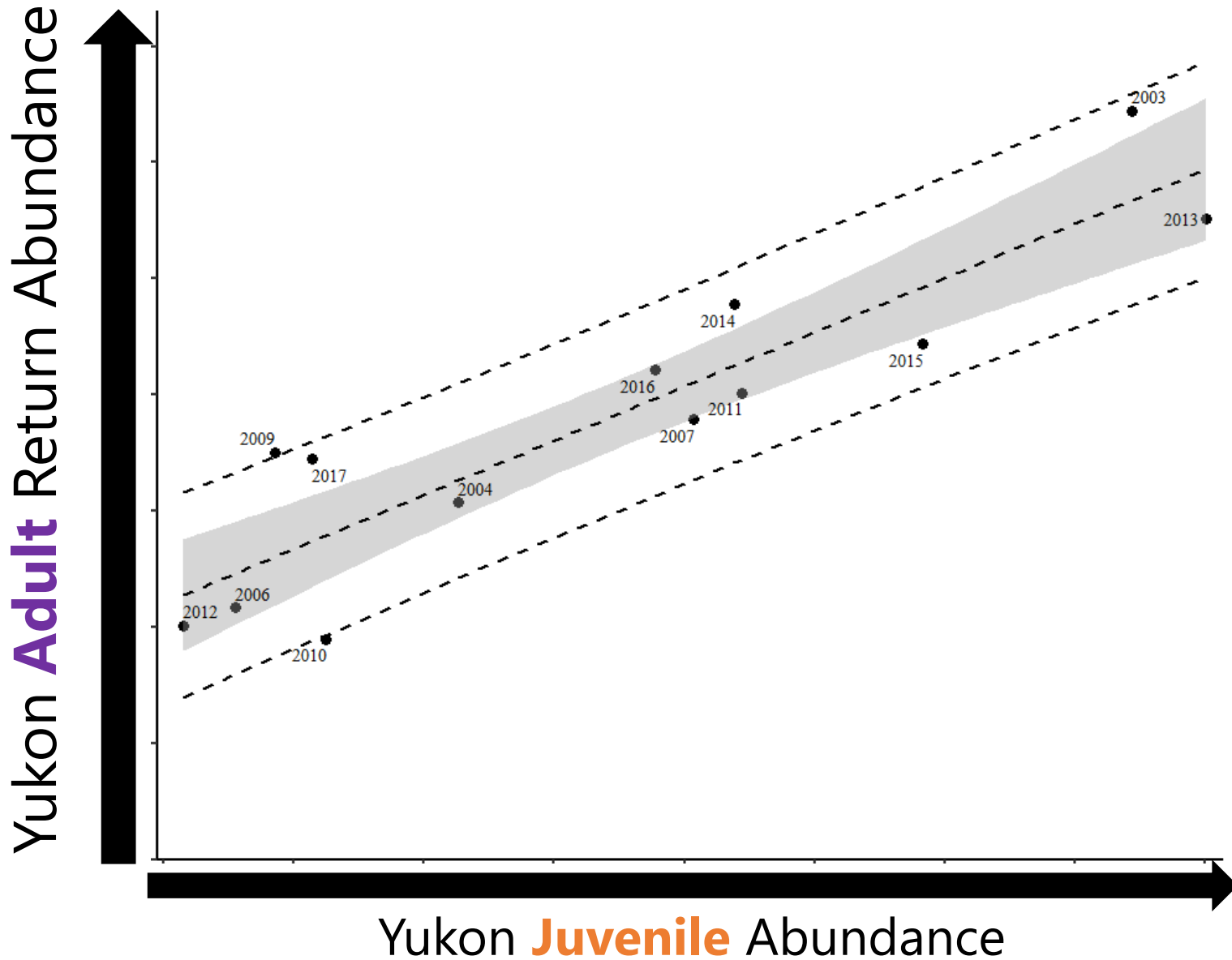
# Northern Bering Sea Salmon and Ecosystem Survey



# Yukon River Chinook salmon



# Yukon River Chinook salmon



RIVER

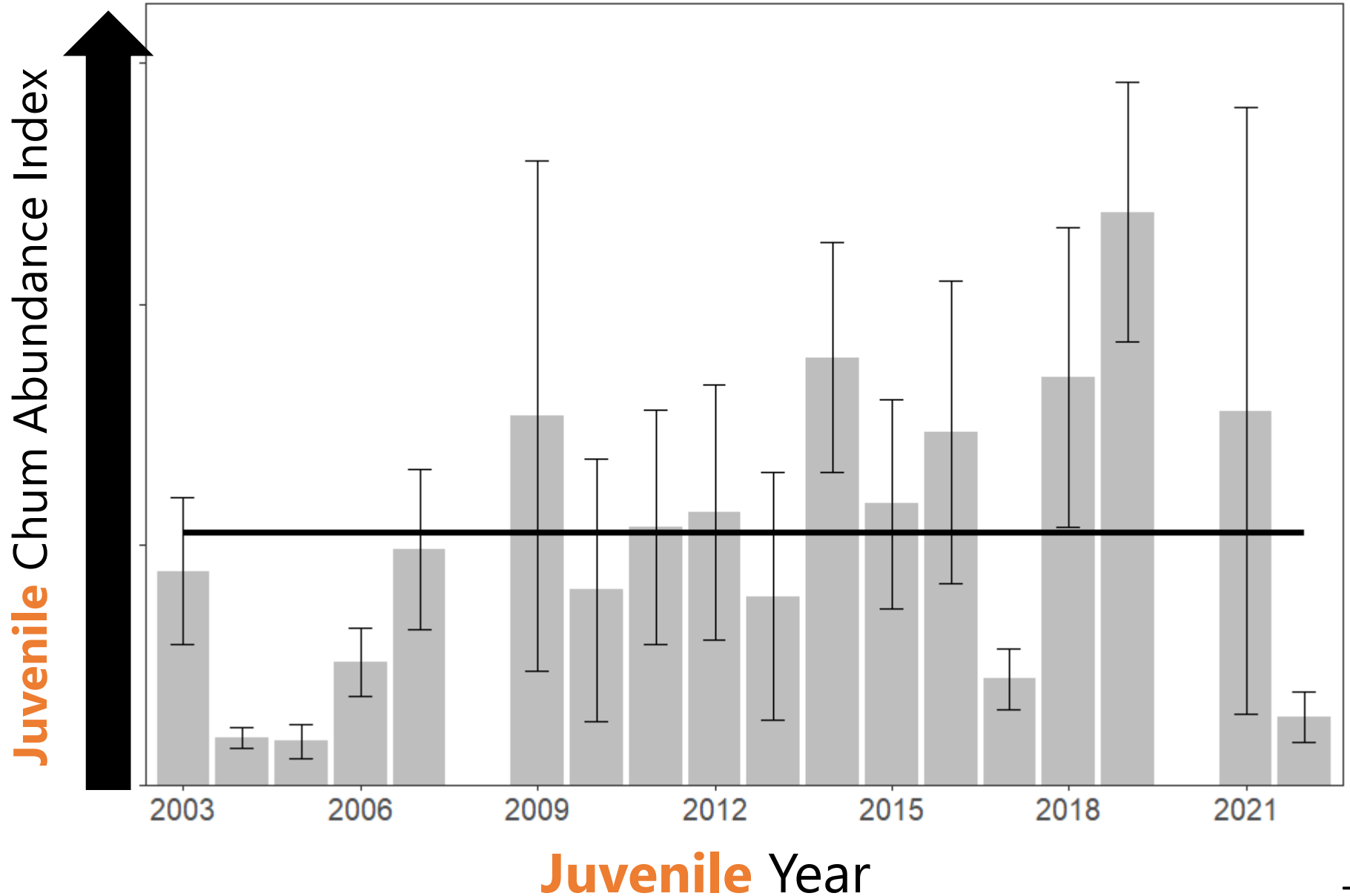
**Future run size of Yukon Chinook Salmon is determined very early in their life – before their first winter at sea**

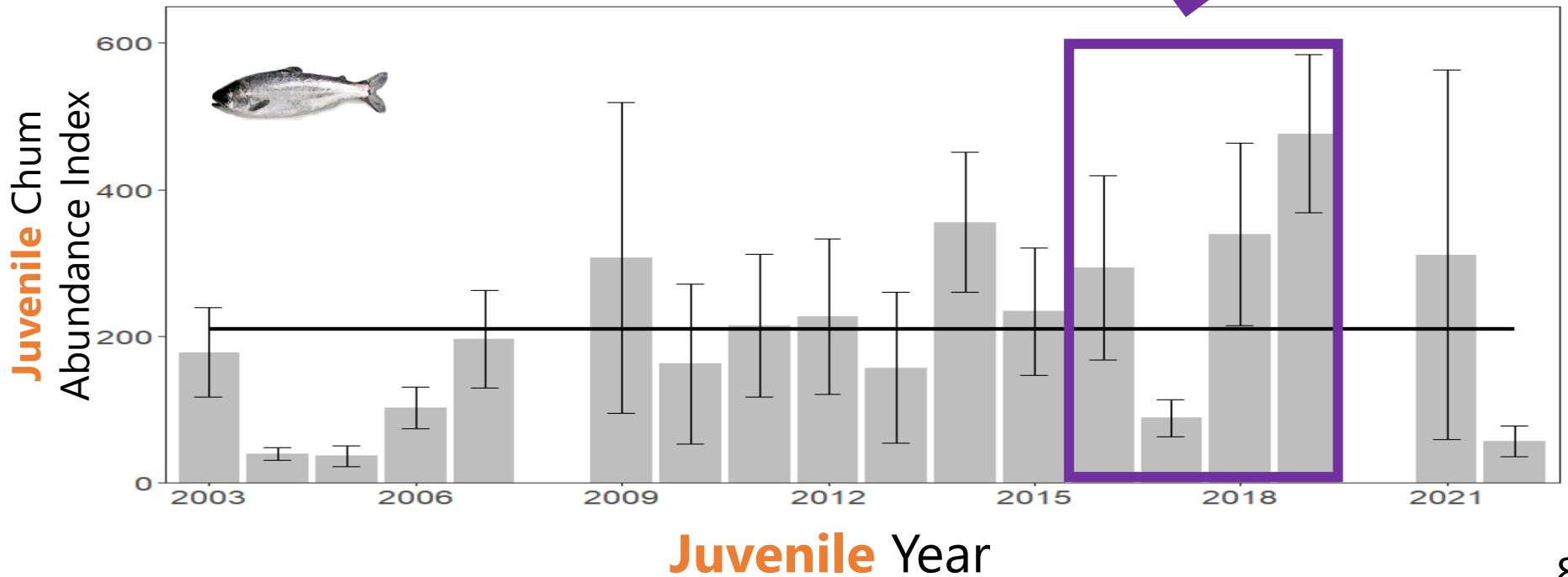
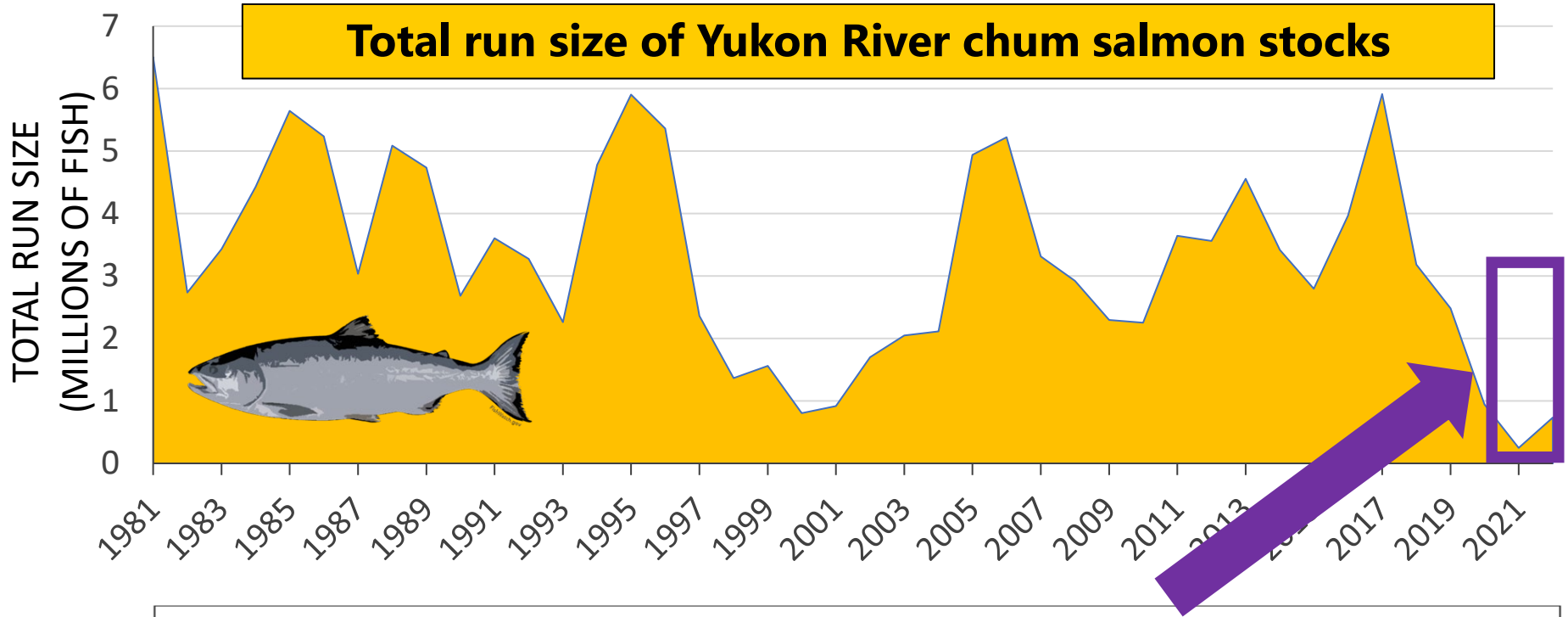


OCEAN



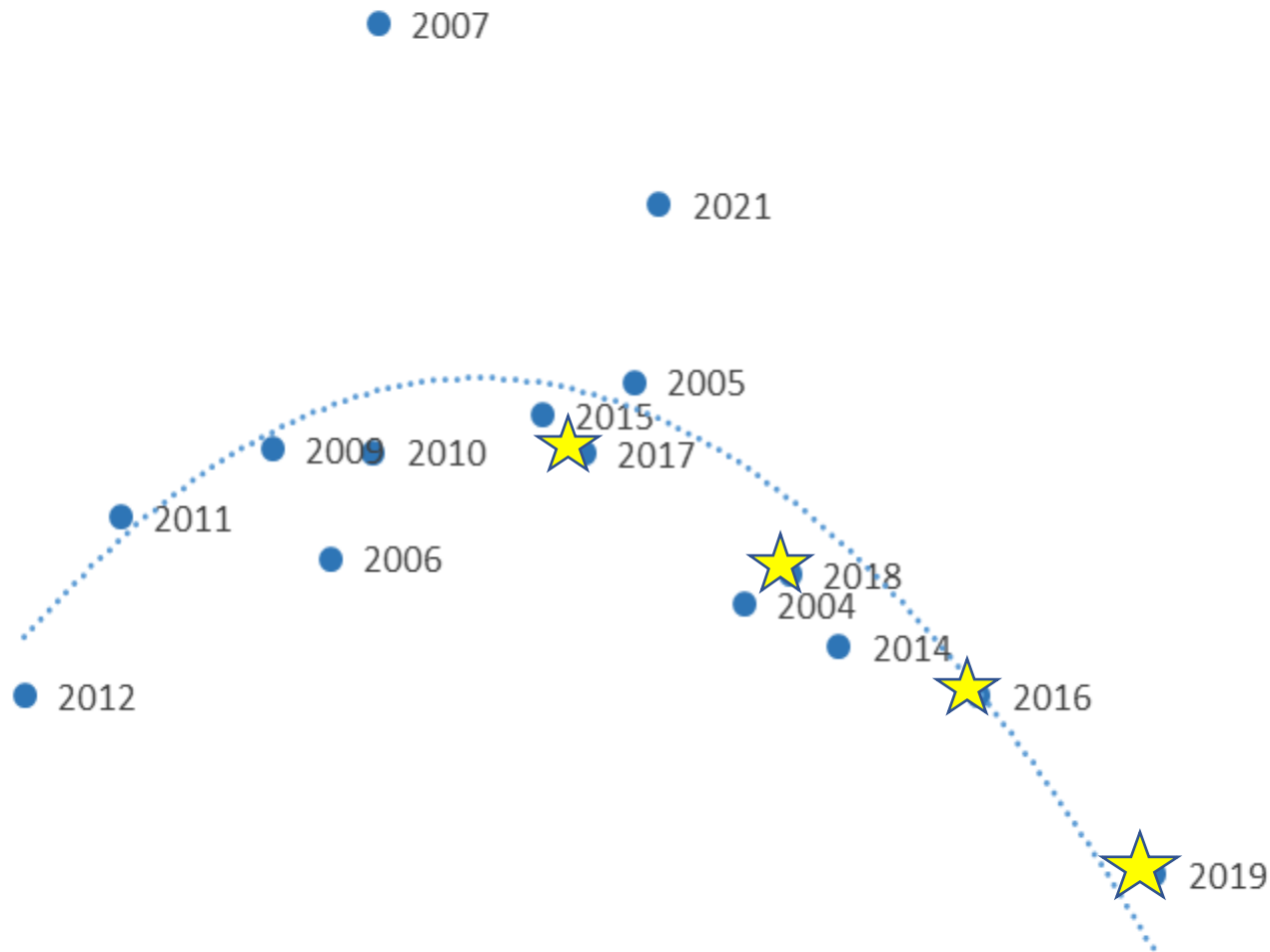
# Chum salmon (mixed stocks)





# Juvenile Chum Stored Energy (ED)

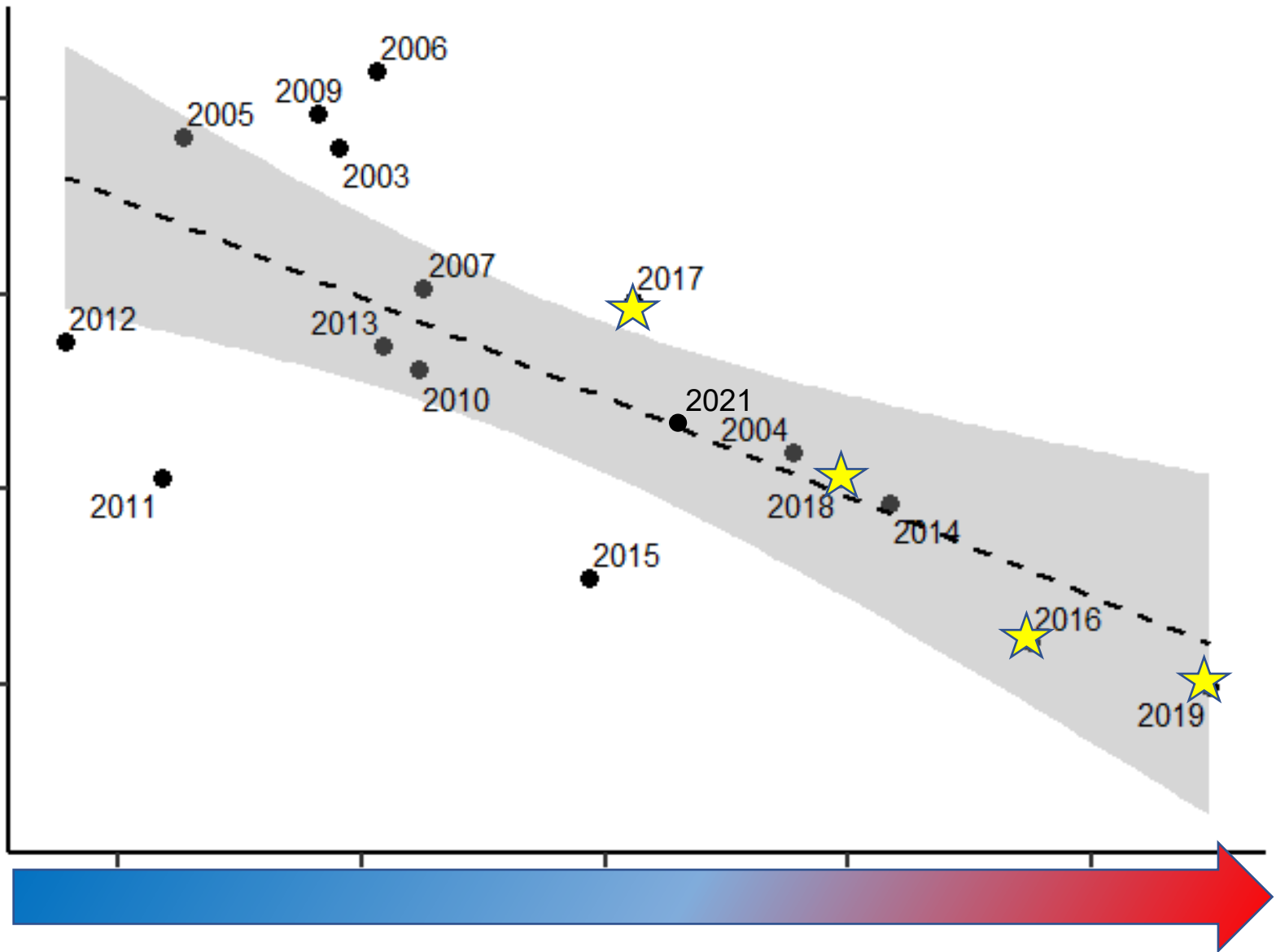
Energy Density



# Juvenile Chum Stomach Fullness

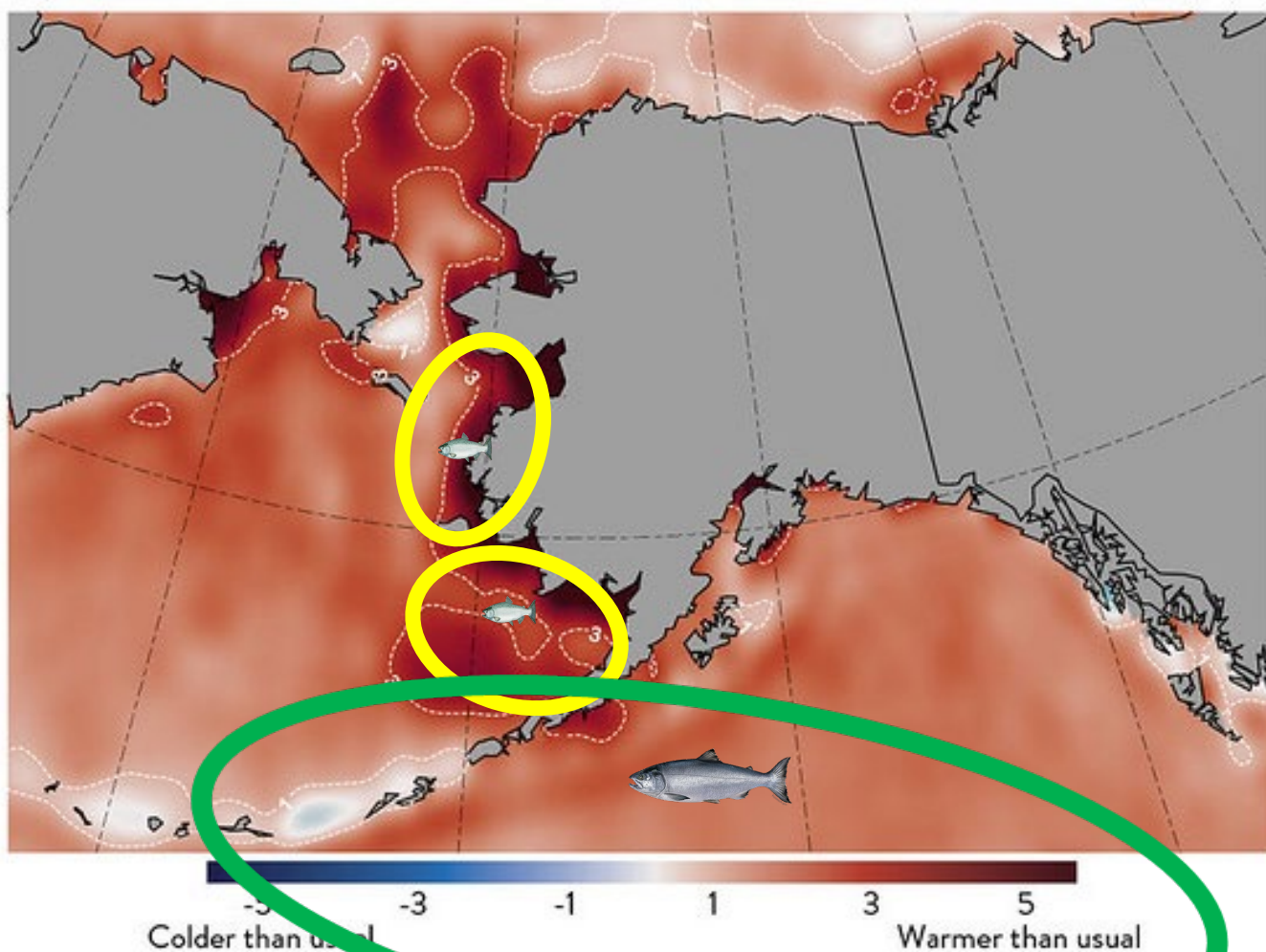


Stomach Fullness



Sea Surface Temperature

# Summer sea surface temperatures off Alaska, 2014–2019



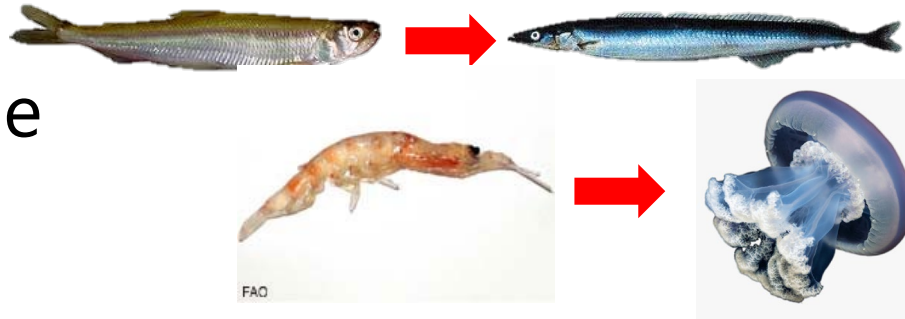
Data source: AMAP Ocean Acidification Report, 2016, *Nature Climate Change*, 2017; *Progress in Oceanography*, 2015

# Temperature Changes Affect Salmon

Stocks moving north



Different food available



Empty stomachs 

Increasing ocean temperatures  = poorer condition

# 2023 Northern Bering Sea Survey Preliminary Results

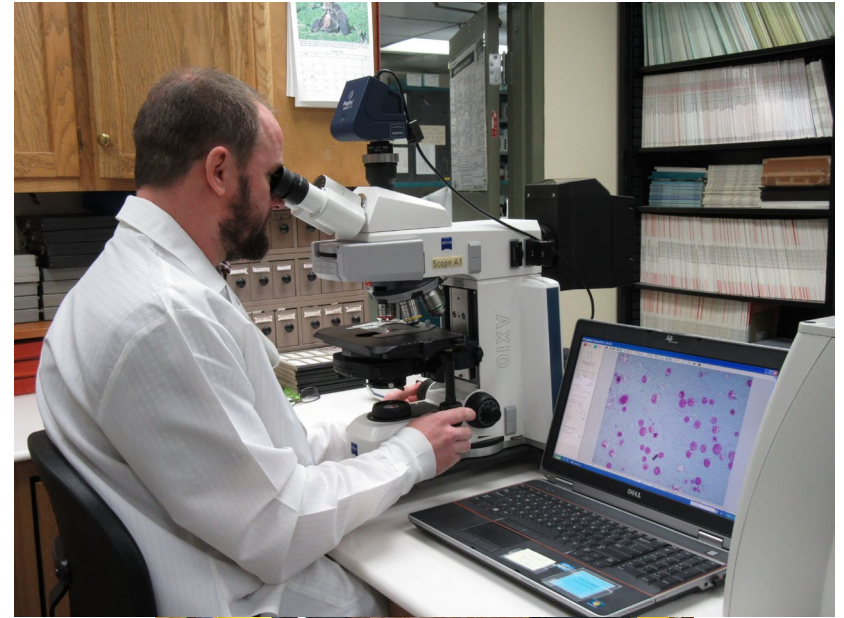


	2023	2003-2023 average	2022 compared to average
Chinook	113	238	↓
Chum	1,031	2,117	↓
Coho	18	105	↓
Pink	1,112	2,708	↓
Sockeye	13	330	↓

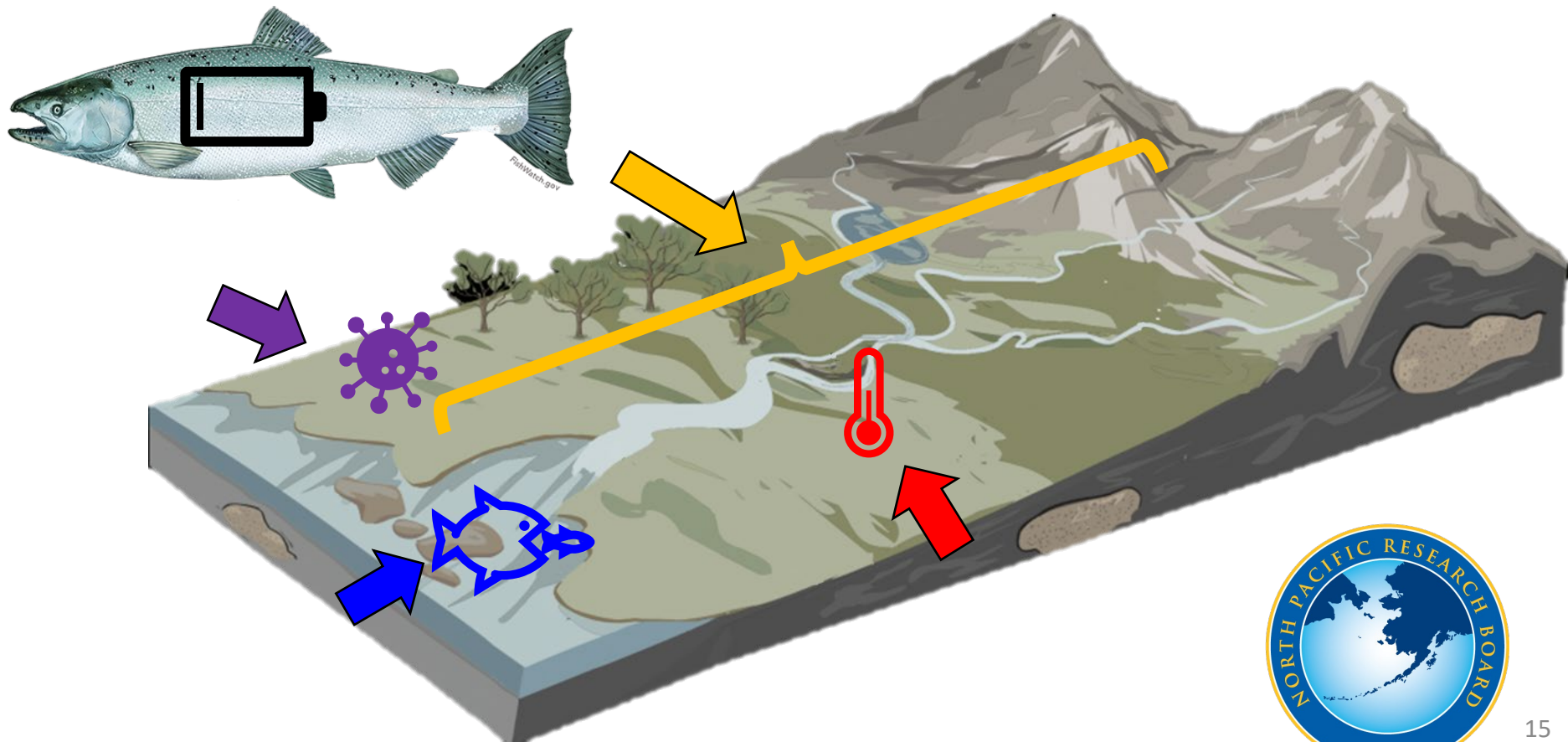


# Marine *Ichthyophonus* sampling

- Juvenile and immature Chinook sampled for *Ichthyophonus* in 2021, 2022, and 2023 NBS surveys
- No juvenile Chinook were infected, but immature were infected
  - 47% in 2021
  - 60% in 2022
- Suggests infection is occurring during their later, offshore marine life stage
- Prey species were sampled in 2022 and will be in 2023



# What is driving record poor Yukon River Chinook salmon runs?



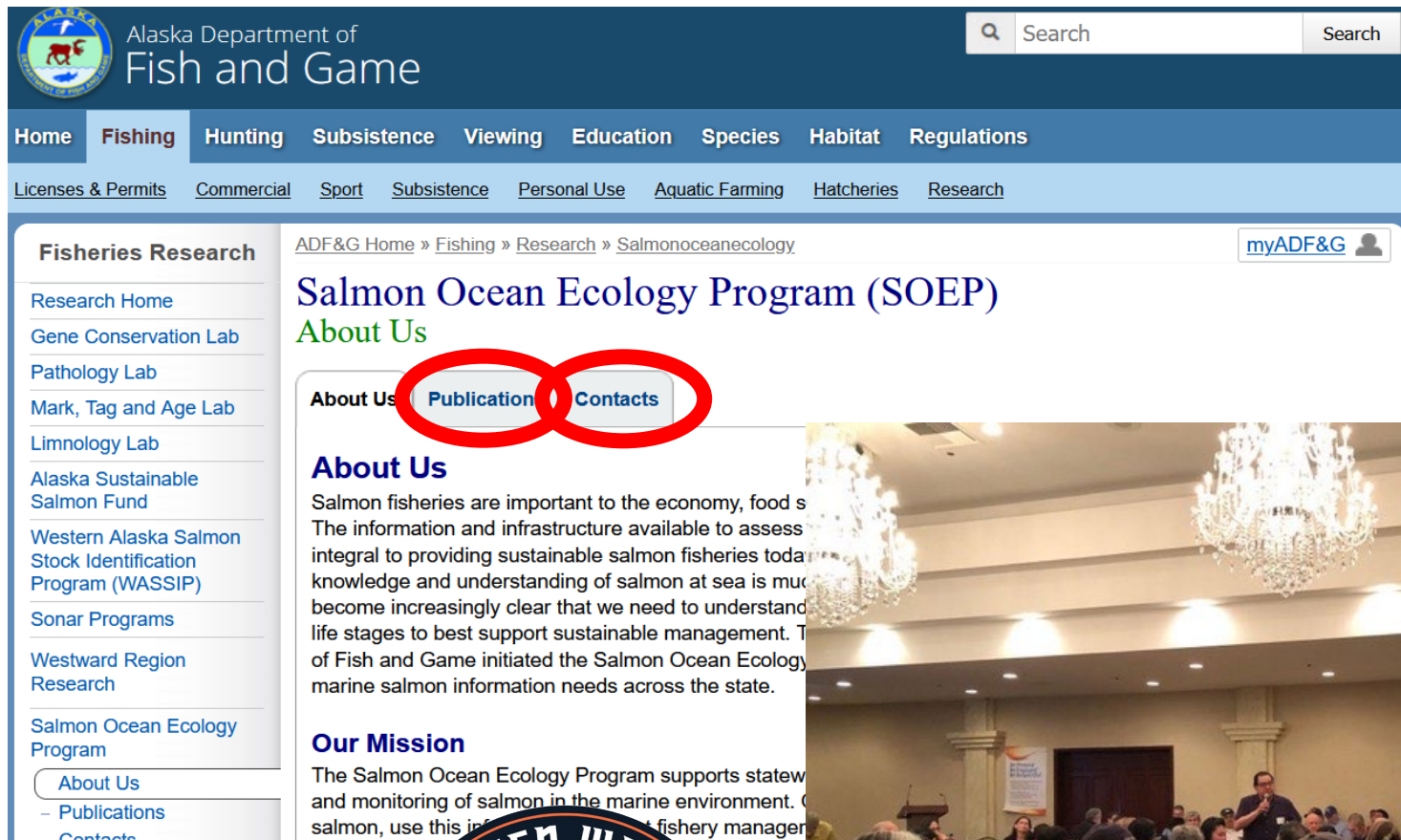
15



Thank you to YRDFA  
and the fishers!

# Communications and Outreach

<https://www.adfg.alaska.gov/index.cfm?adfg=salmonoceanecology.main>



Alaska Department of Fish and Game

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Licenses & Permits Commercial Sport Subsistence Personal Use Aquatic Farming Hatcheries Research

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- Western Alaska Salmon Stock Identification Program (WASSIP)
- Sonar Programs
- Westward Region Research
- Salmon Ocean Ecology Program
  - About Us
    - Publications
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## Salmon Ocean Ecology Program (SOEP)

### About Us

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#### About Us

Salmon fisheries are important to the economy, food s... The information and infrastructure available to assess... integral to providing sustainable salmon fisheries toda... knowledge and understanding of salmon at sea is muc... become increasingly clear that we need to understand... life stages to best support sustainable management. T... of Fish and Game initiated the Salmon Ocean Ecology... marine salmon information needs across the state.

#### Our Mission

The Salmon Ocean Ecology Program supports statew... and monitoring of salmon in the marine environment. C... salmon, use this inf... fishery manager



# Thank you!

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