

Patterns and consequences of widespread declines in Alaska salmon body size

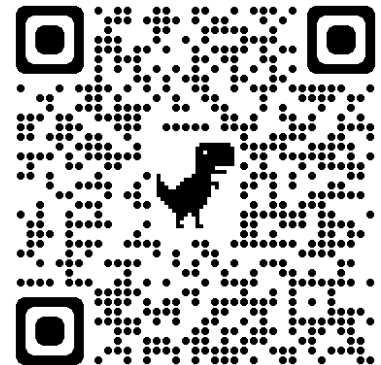


Presented by Krista Oke
June 28th, 2023
krista.oke@noaa.gov



SASAP
State of Alaska's Salmon and People

Oke *et al*, 2020
Nature Communications



Eric Palkovacs UC Santa Cruz

Peter Westley UAF

Bert Lewis ADFG

Marissa Baskett UC Davis

Stephanie Carlson UC Berkeley

Andrew Hendry McGill Uni.

Holly Kindsvater VA Tech

John Reynolds Simon Fraser Uni.

Neala Kendall WDFW

Steve Munch NOAA SWFSC

Curry Cunningham APU

Katie Kobayashi UC Santa Cruz

Gale Vick Tanana Chiefs Conference

Madeline Jovanovich UAF

Vadim Karatayev UC Davis

Jeanette Clark NCEAS

Jared Kibele NCEAS

Jorge Cornejo-Donoso NCEAS

Working group





Acknowledgements

SASAP
State of Alaska's Salmon and People



**NAUTILUS
IMPACT
INVESTING**

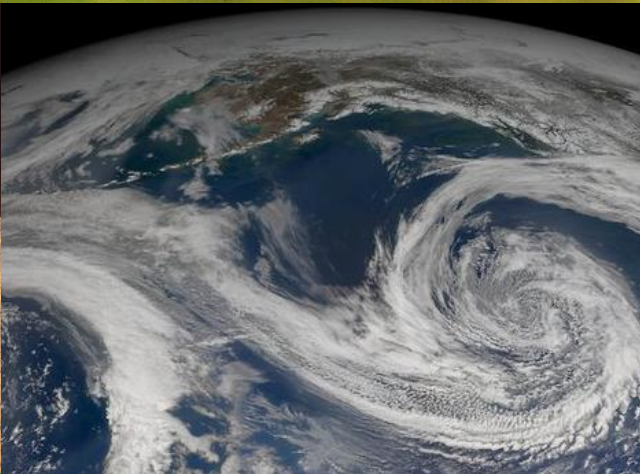
GORDON AND BETTY
MOORE
FOUNDATION



UNIVERSITY OF CALIFORNIA
SANTA CRUZ





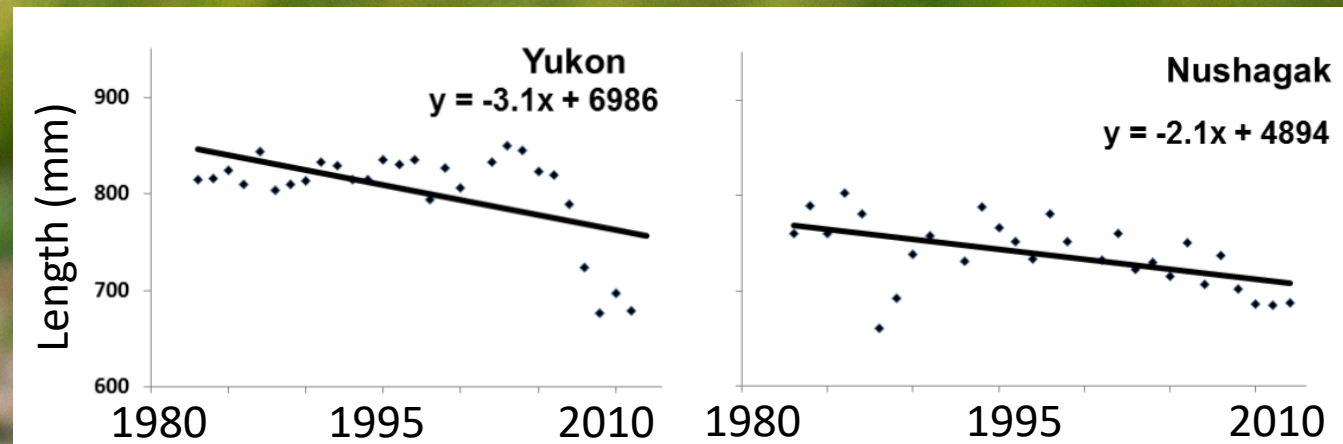


Photos: Alaska Sea Grant; Norman Kuring, NOAA; ADF&G; Paul Souders, Corbis; Andrew Hendry

2015

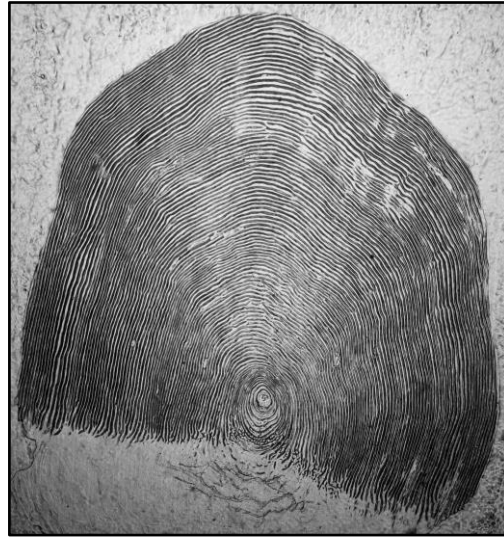
Changes in Size and Age of Chinook Salmon *Oncorhynchus tshawytscha* Returning to Alaska

Bert Lewis^{1*}, W. Stewart Grant¹, Richard E. Brenner², Toshihide Hamazaki¹





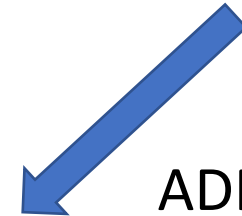
Field collection of
length data



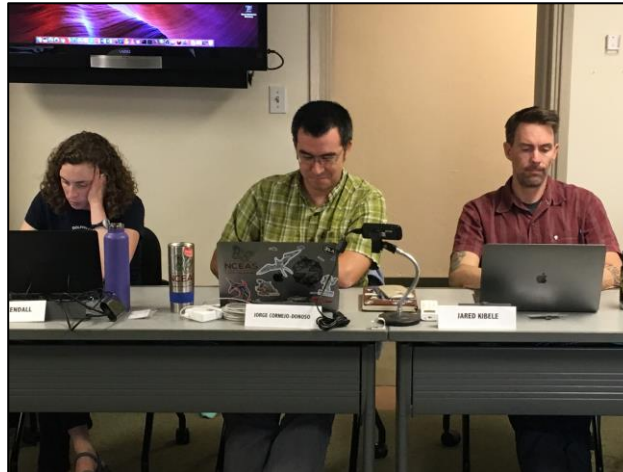
Age determined
from scales



Data compiled in
ADFG datasets



ADFG share
measurements on
over 14 million
salmon



Datasets synthesized and analyses conducted

• Data Sites

Escapement ASL Records

25k

50k

75k

> 100k

Regions

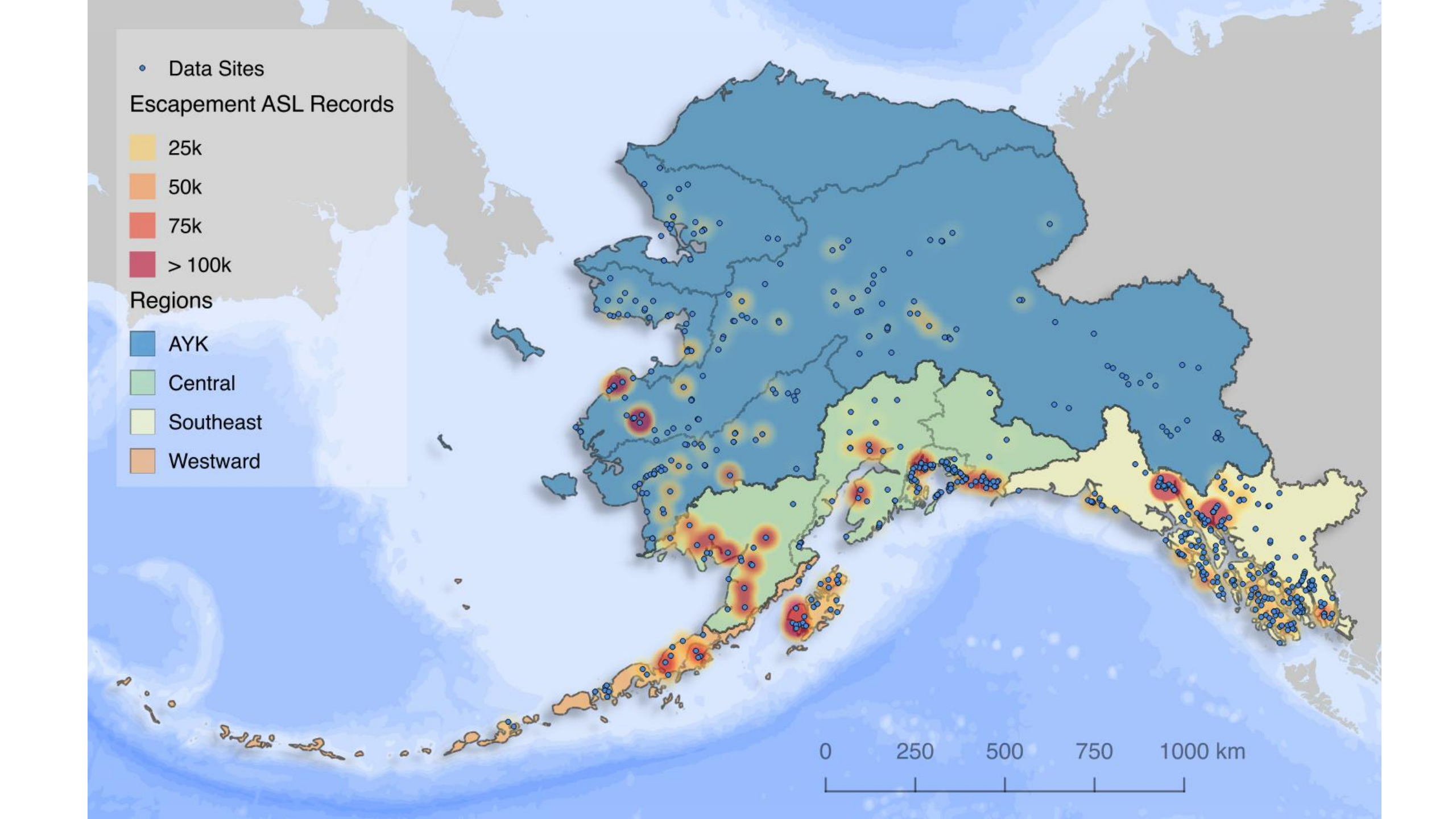
AYK

Central

Southeast

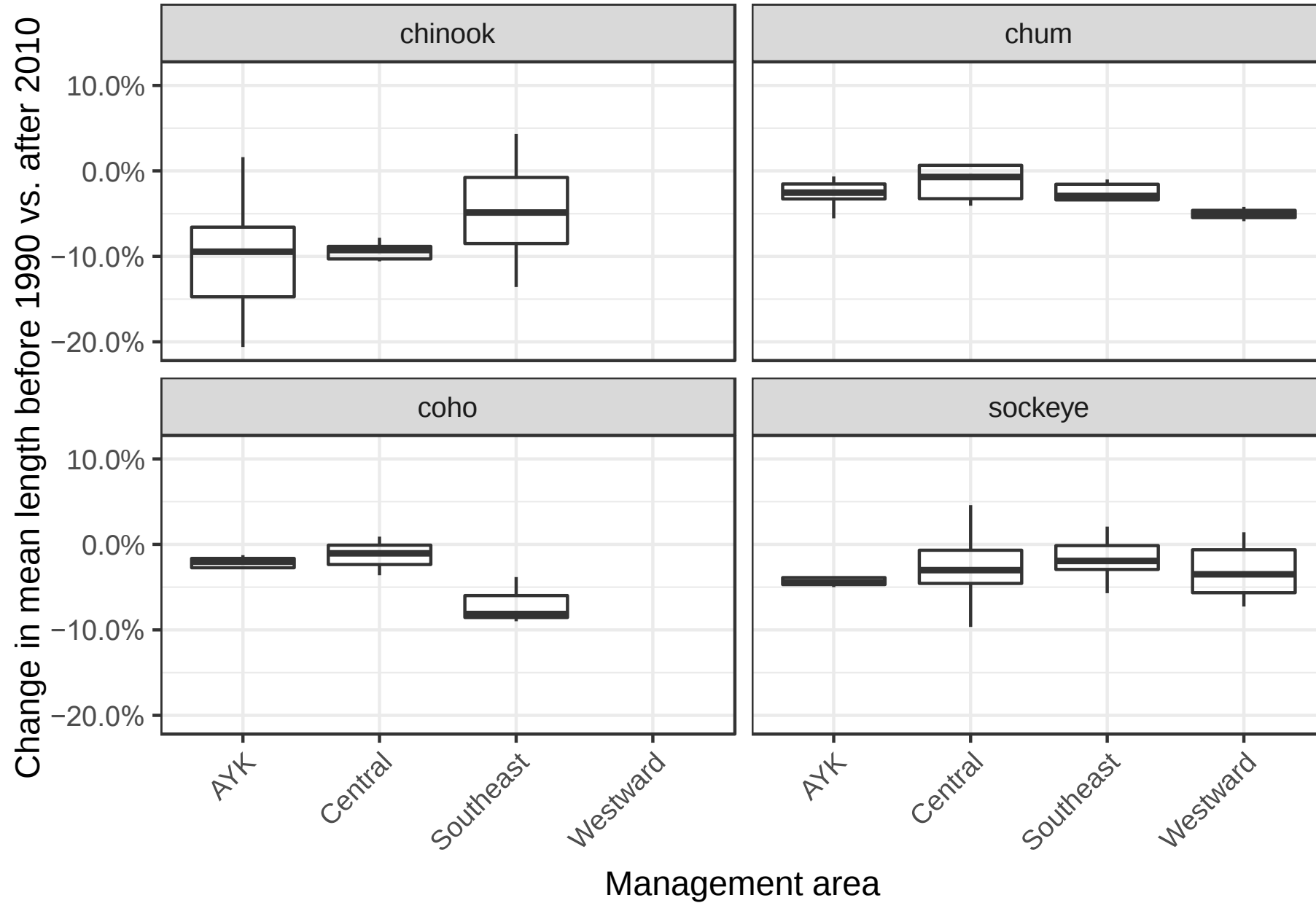
Westward

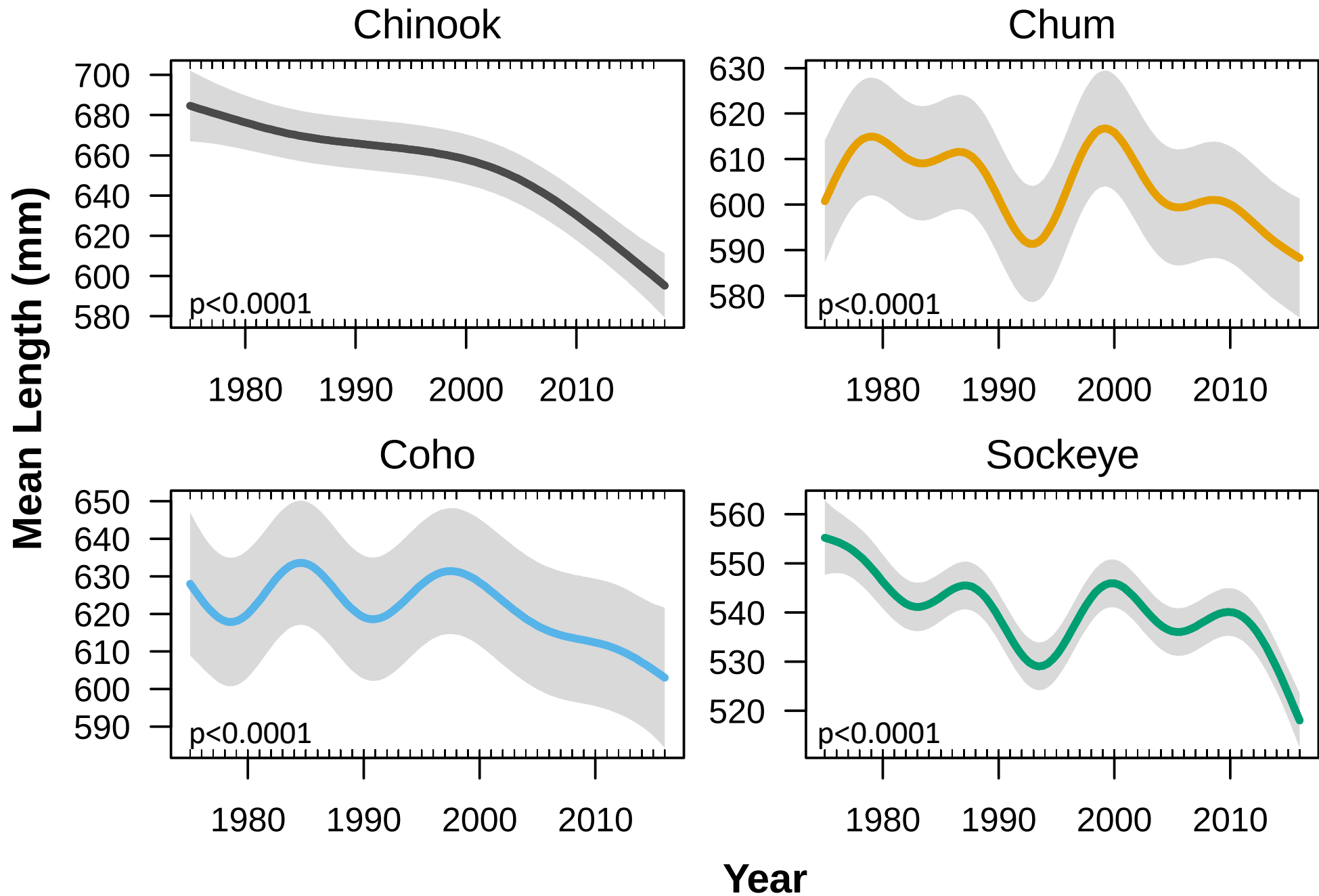
0 250 500 750 1000 km



This map of Alaska displays escapement ASL (Average Sustainable Limit) records across four regions: AYK (blue), Central (green), Southeast (yellow), and Westward (orange). The map uses a color gradient to represent the number of ASL records, with a legend indicating four categories: 25k (lightest), 50k, 75k, and > 100k (darkest). Numerous blue dots represent individual data sites. The map includes a scale bar from 0 to 1000 km and a legend in the top left corner.

Has length changed over time?



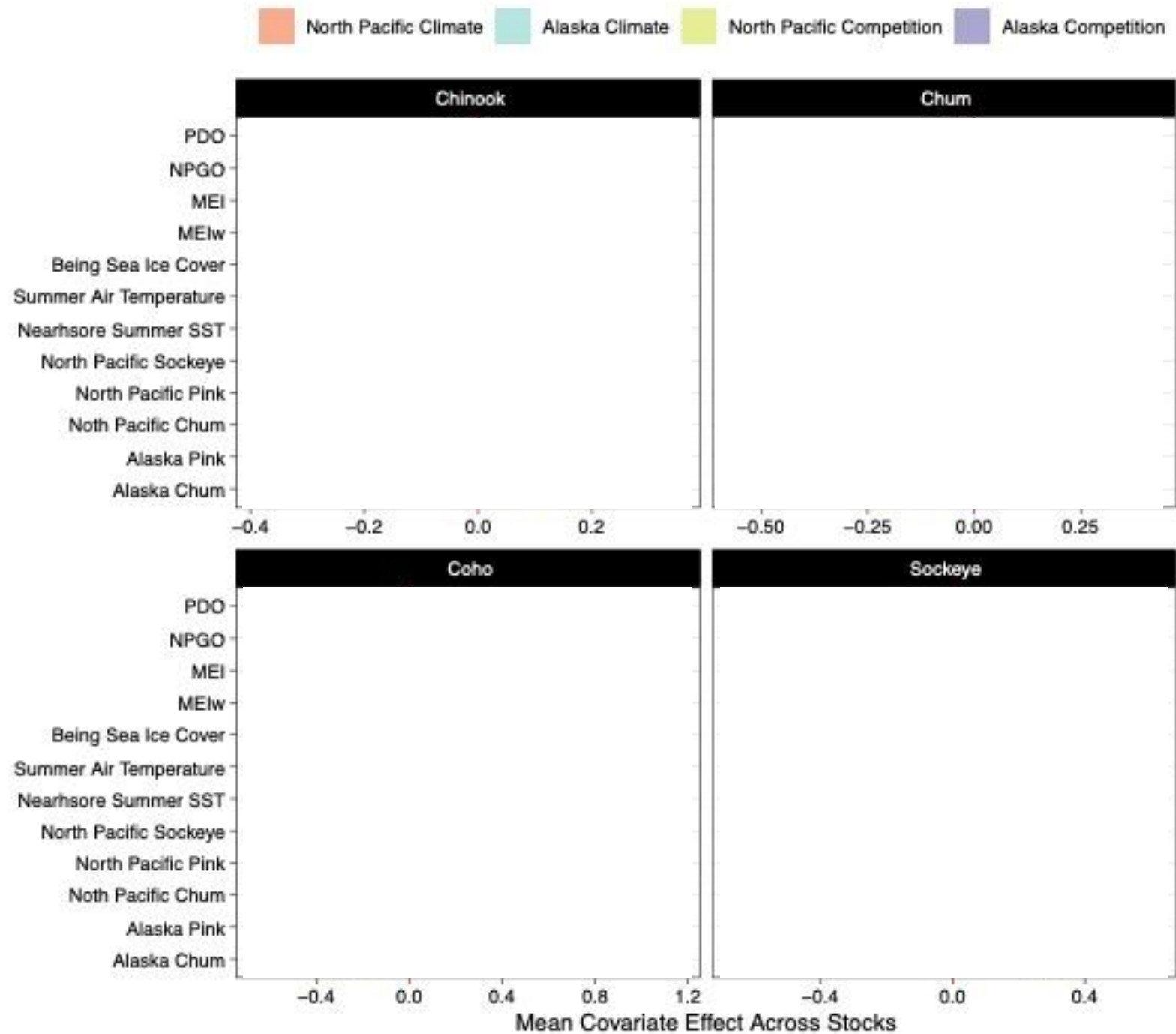


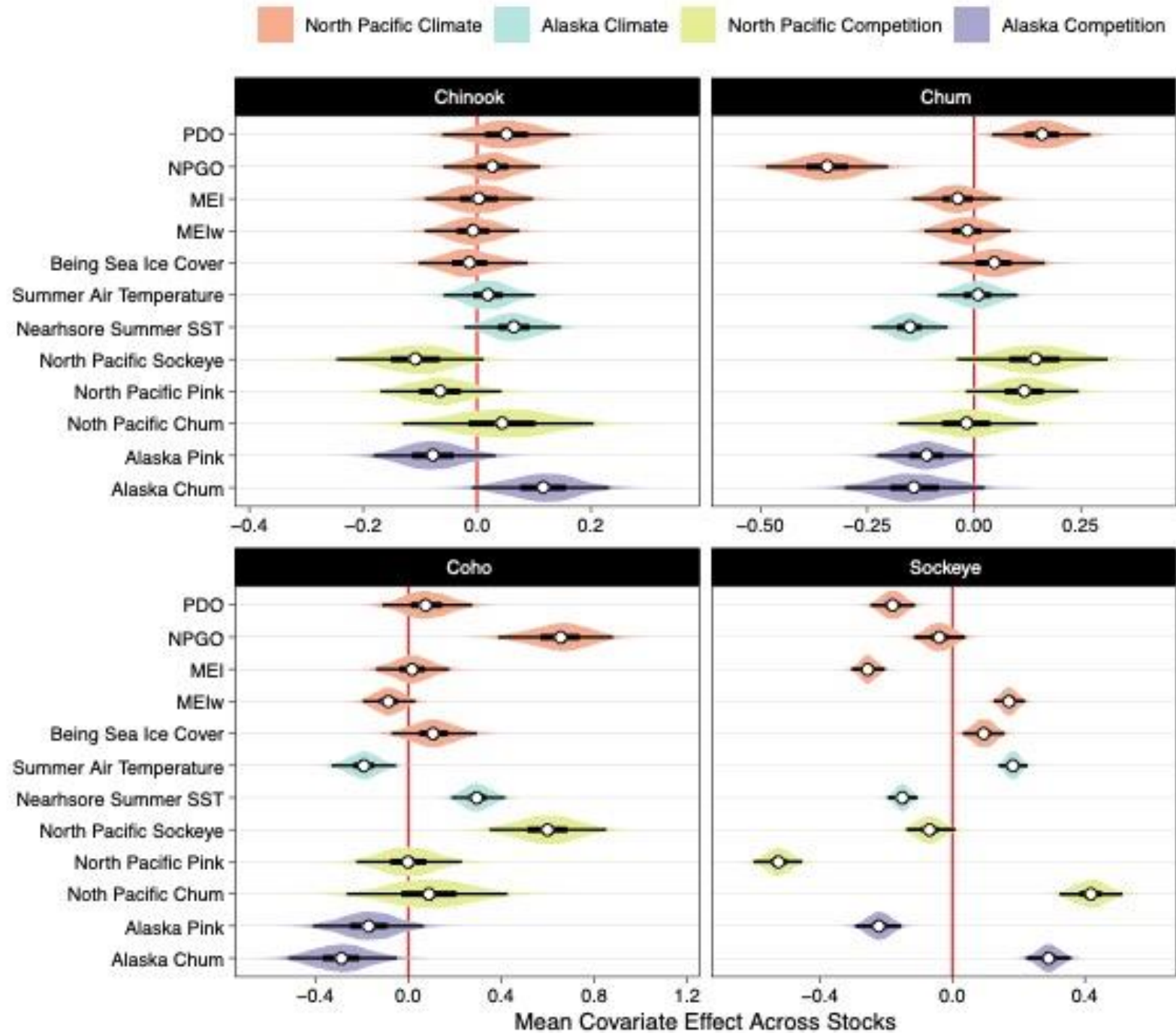
What are the causes?

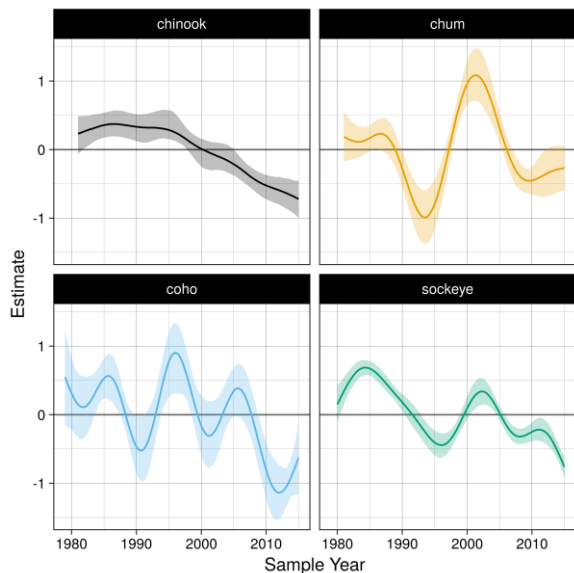


What are the causes?

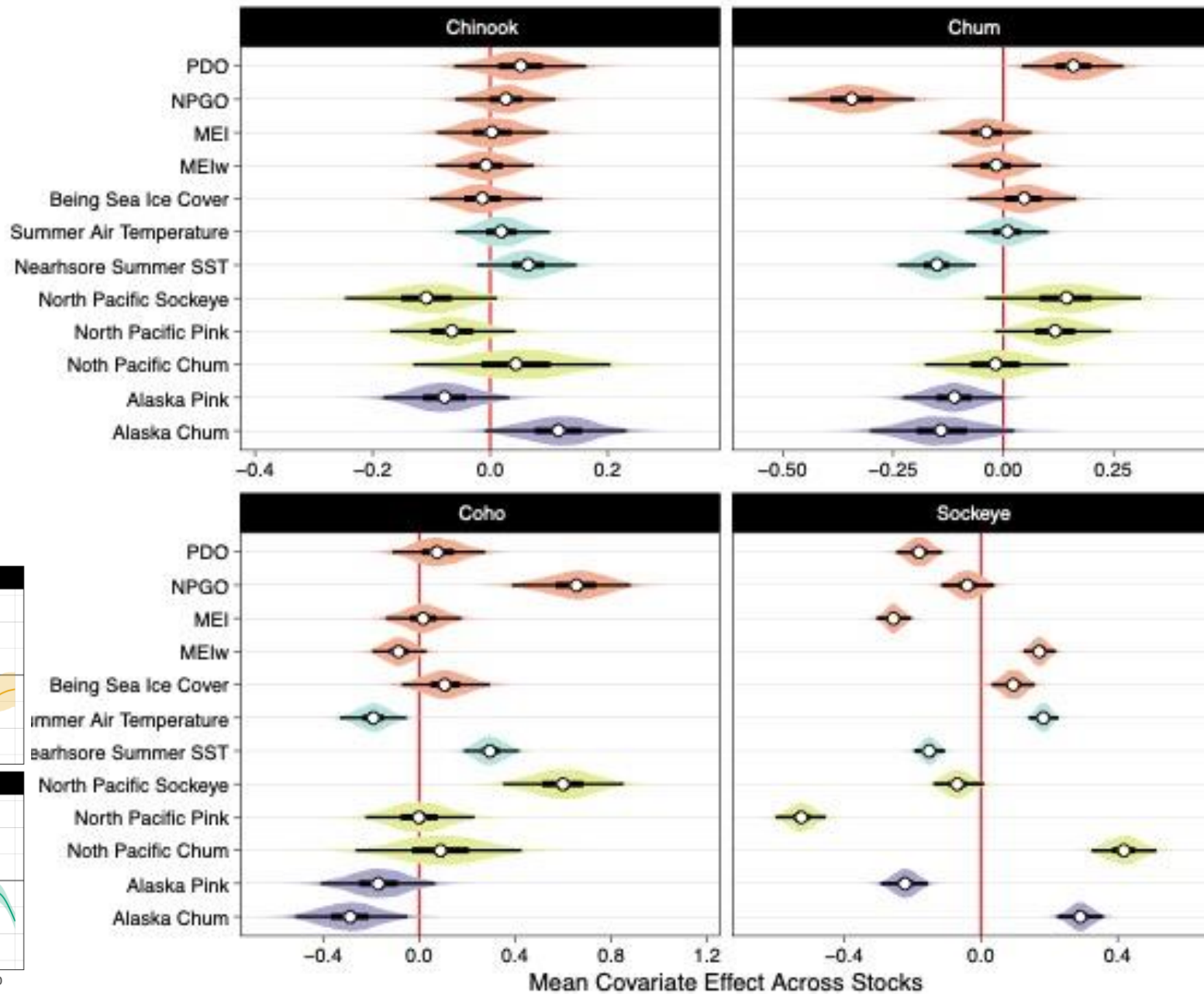


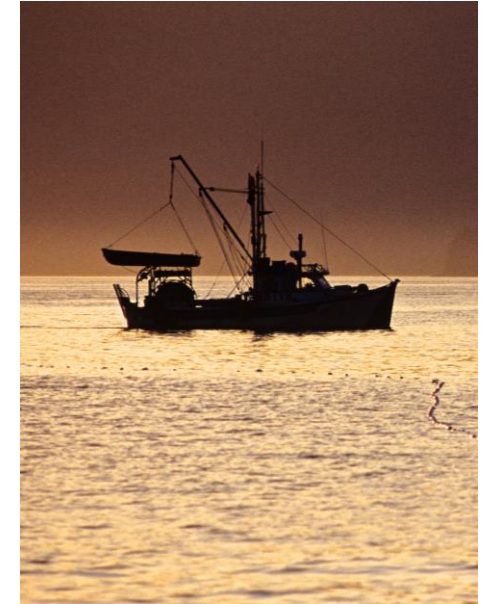
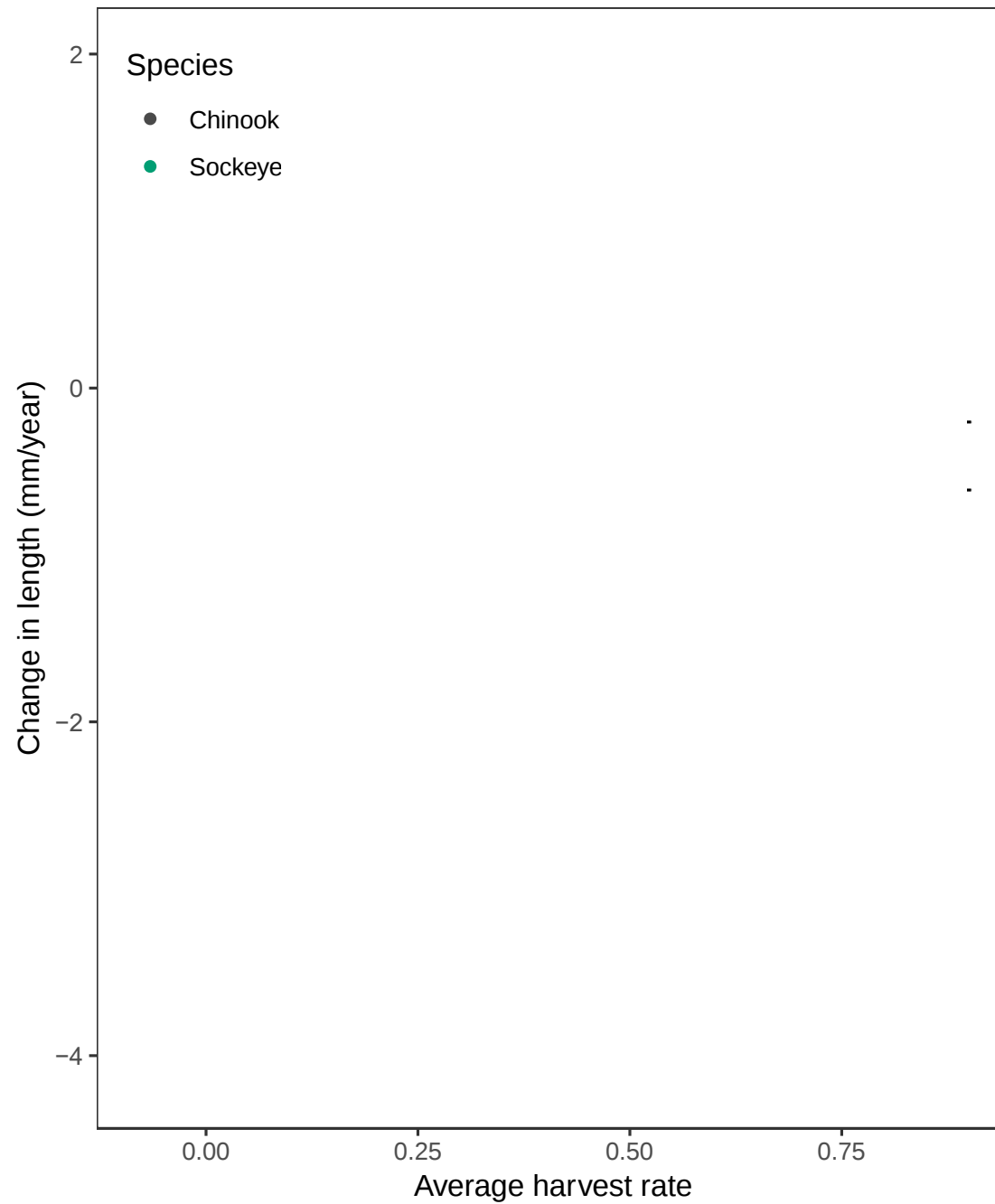




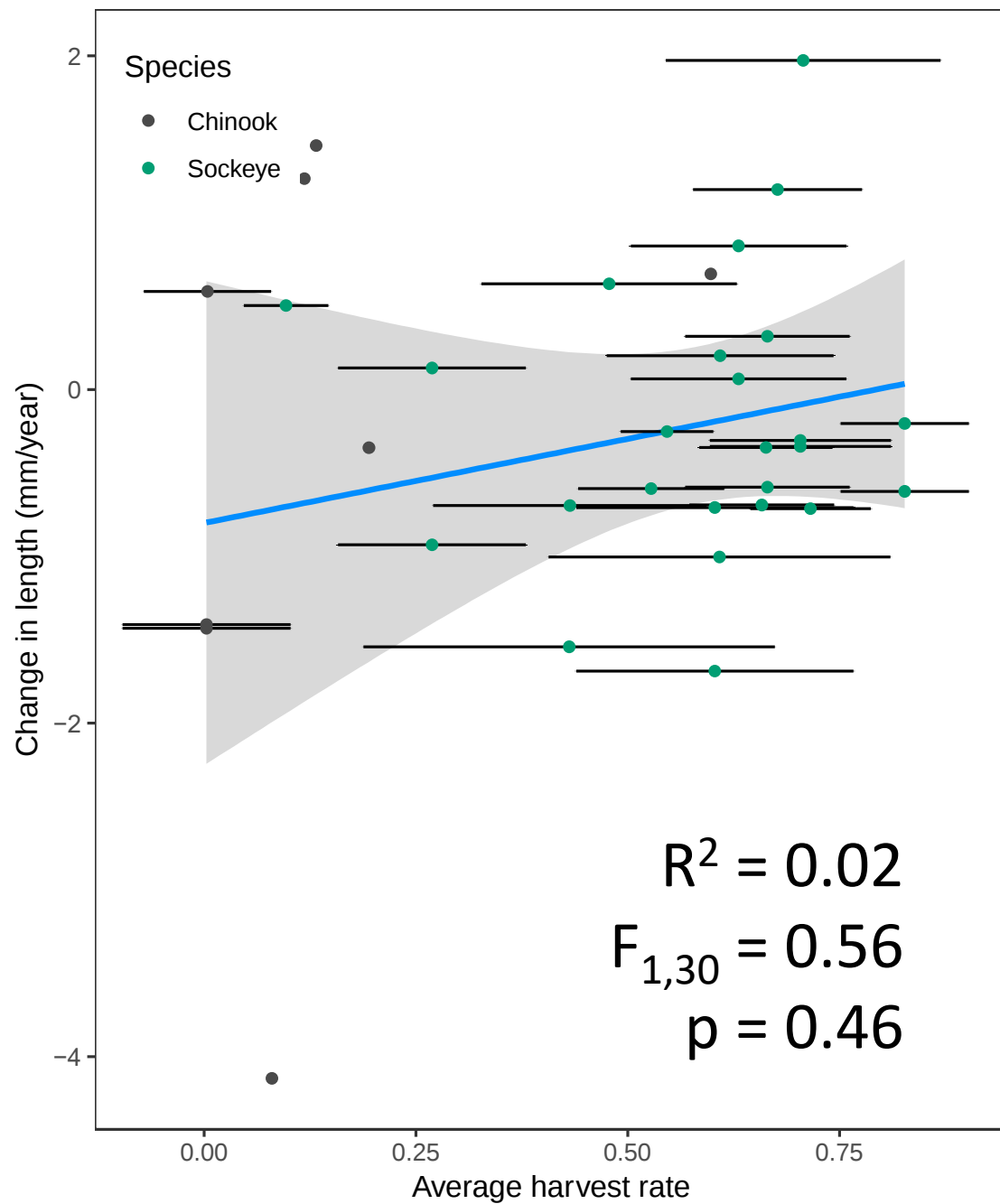


North Pacific Climate Alaska Climate North Pacific Competition Alaska Competition





N = 25 sockeye populations
N = 8 Chinook populations



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N = 8 Chinook populations

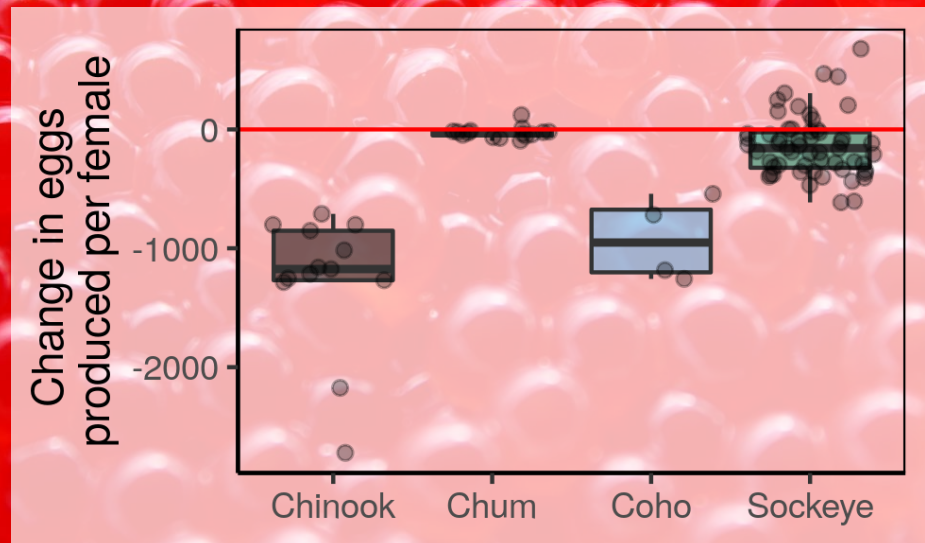


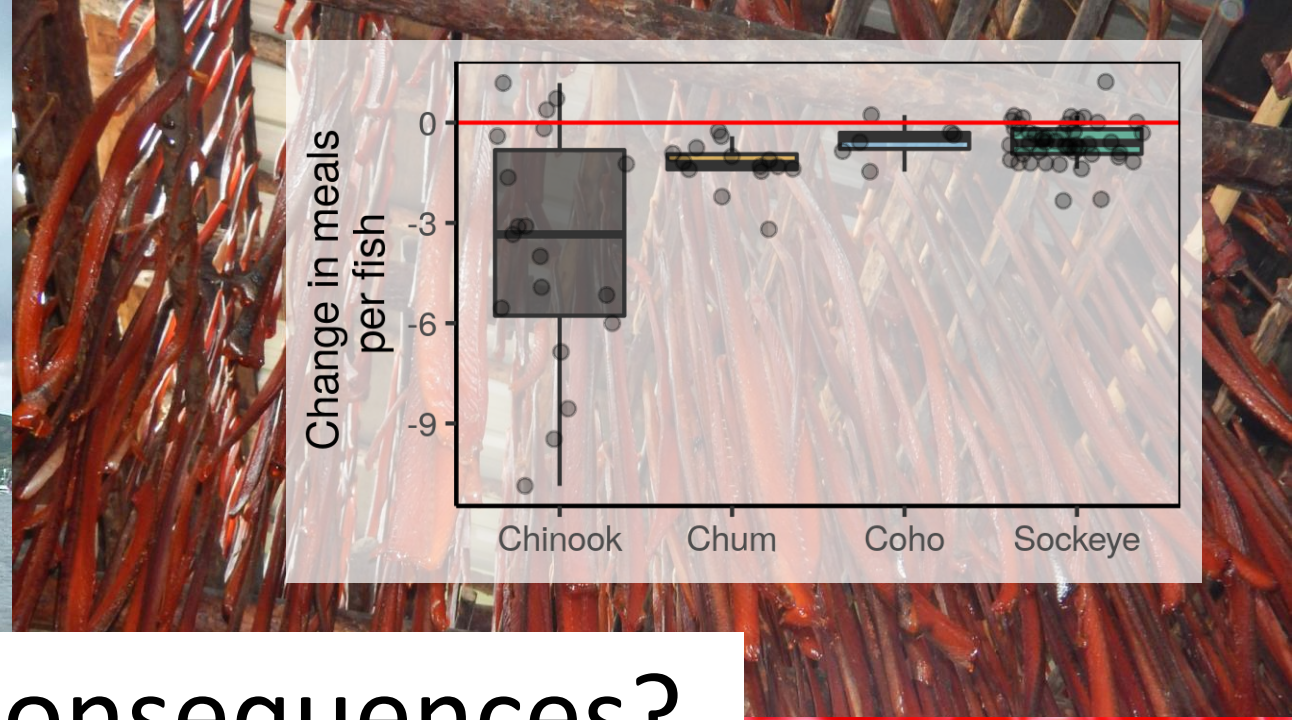
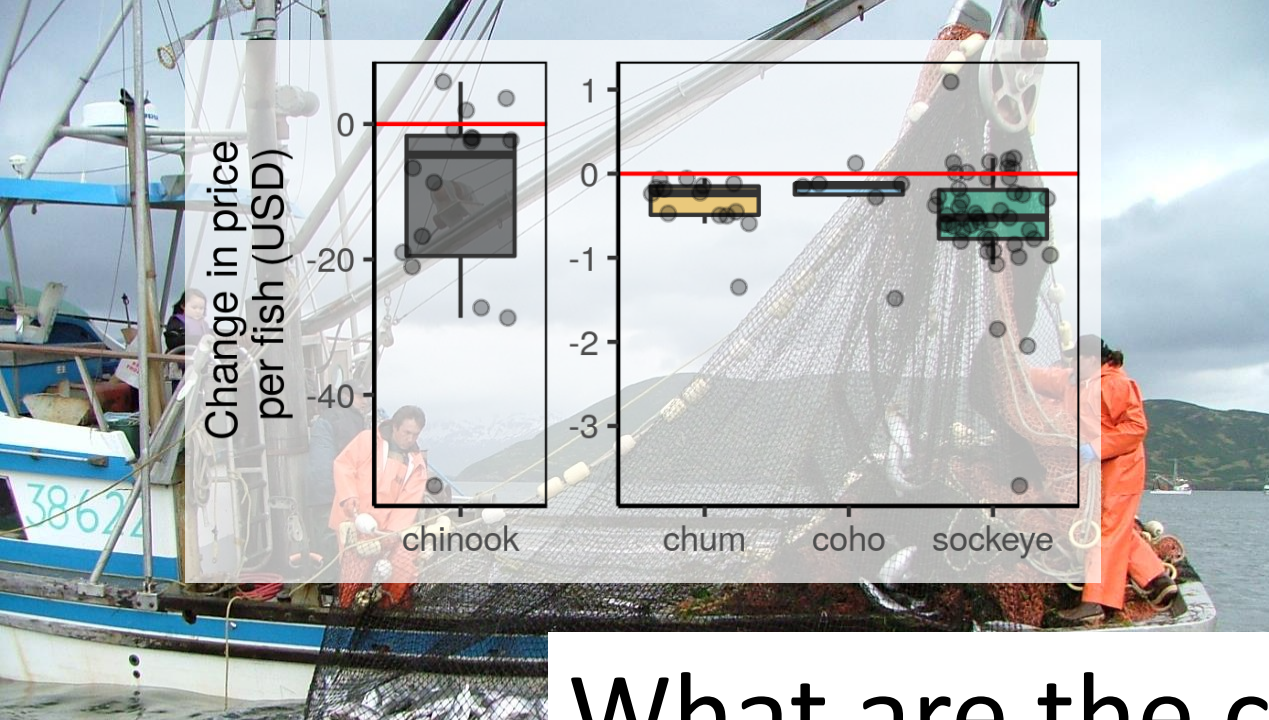
What are the consequences?



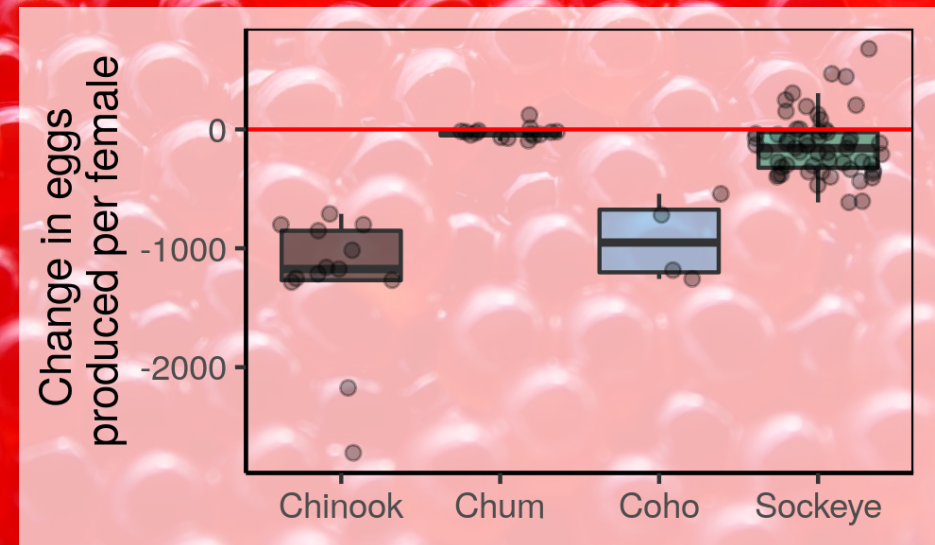
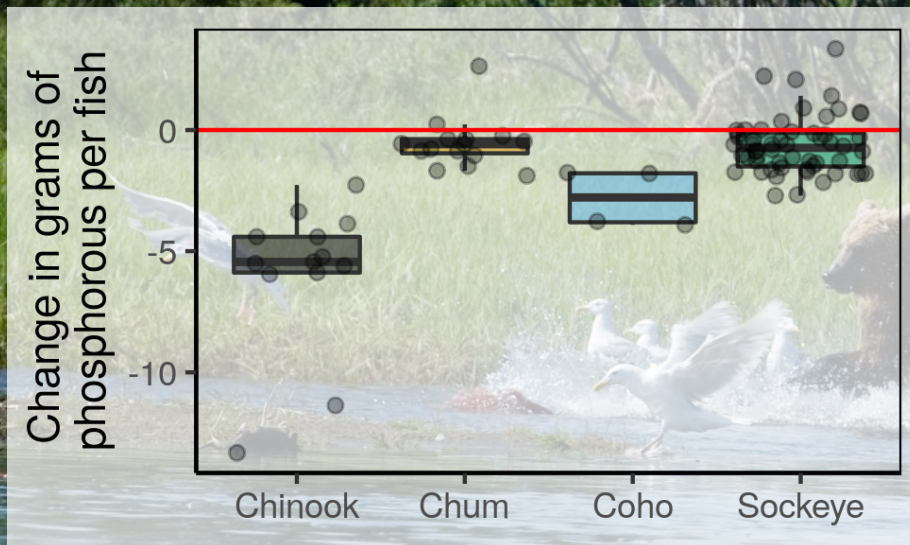


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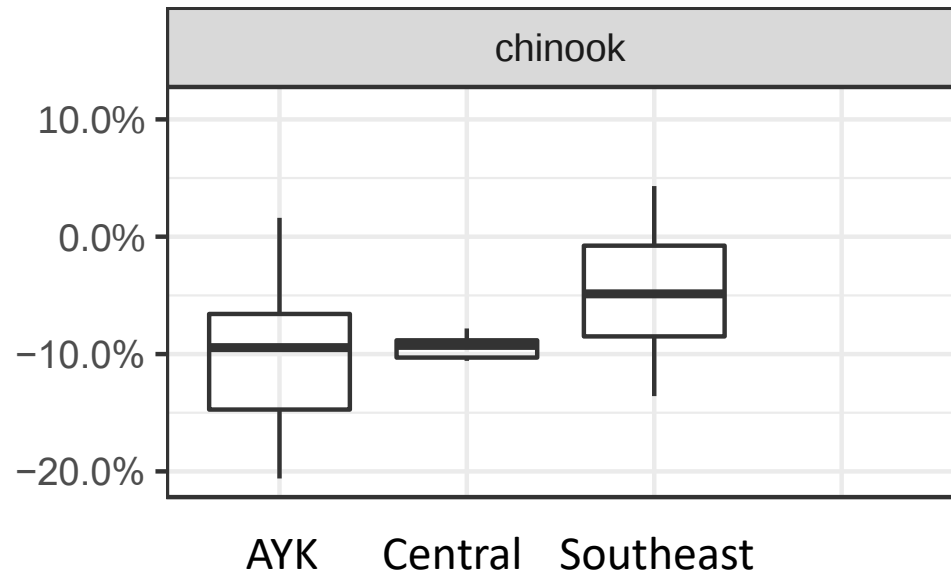


What are the consequences?



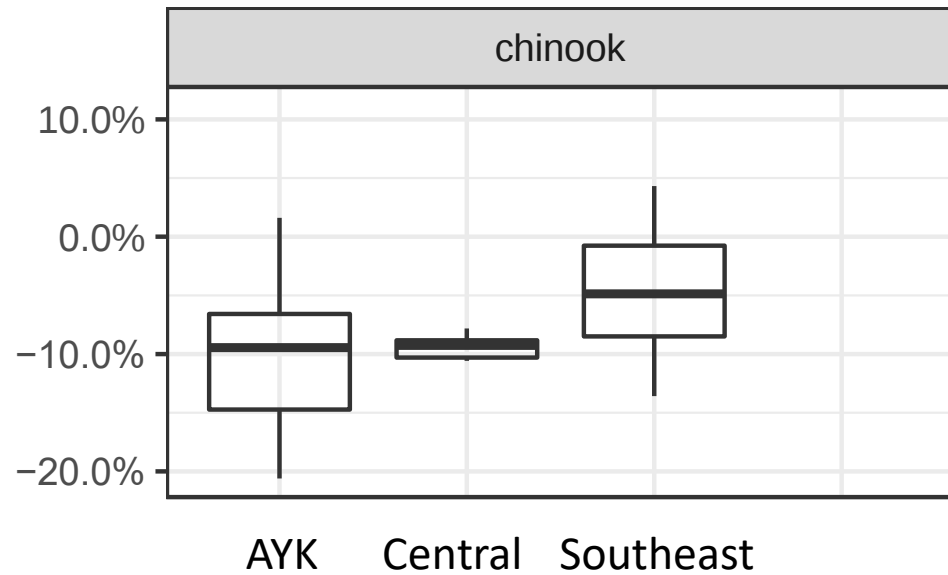
Take home messages

AK salmon are
getting smaller



Take home messages

AK salmon are
getting smaller

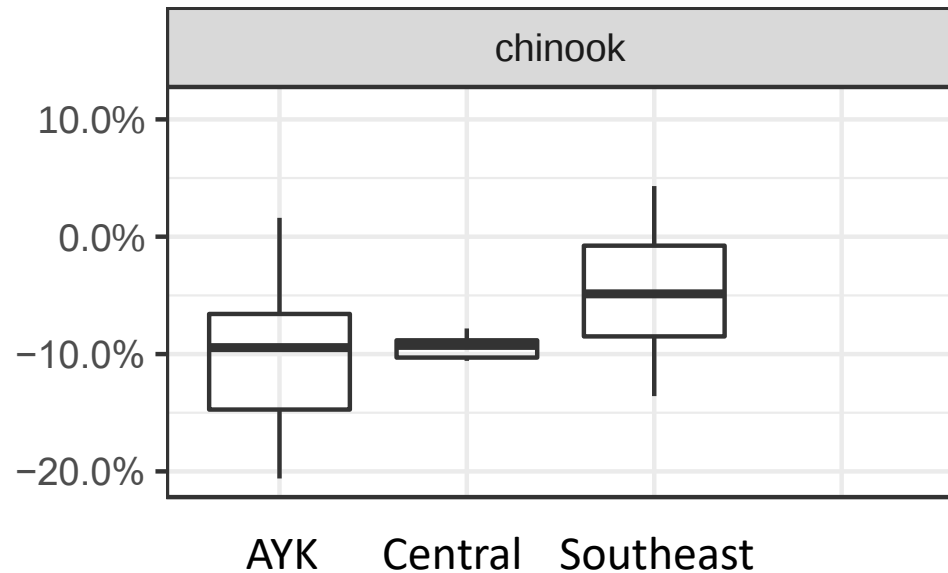


Climate and
competition
contribute

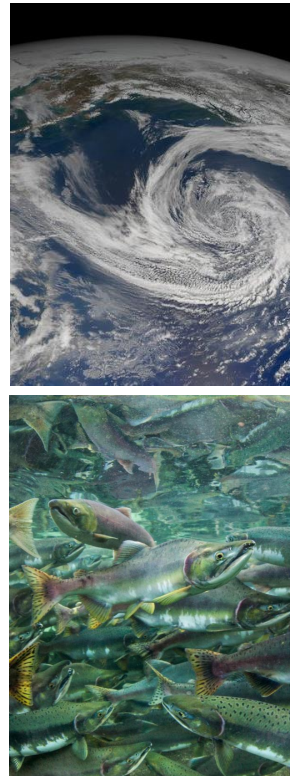


Take home messages

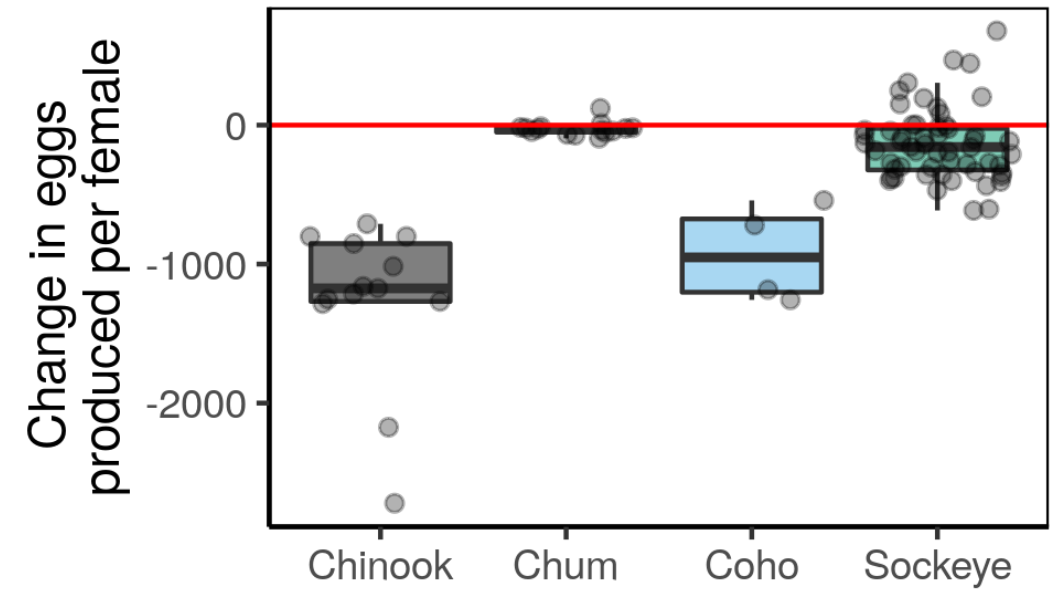
AK salmon are getting smaller



Climate and competition contribute

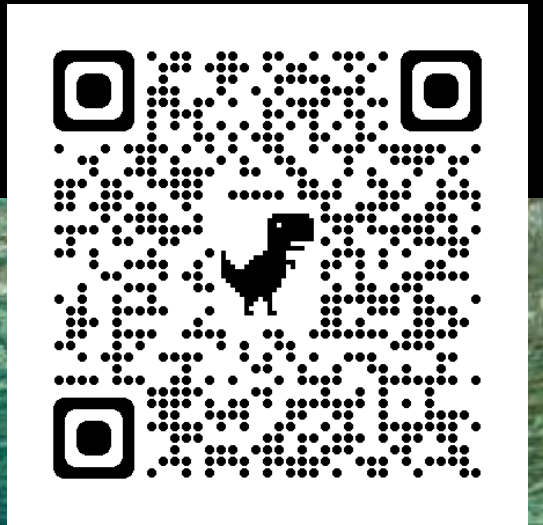


With real-world consequences



Thank you

Scan for paper:



Feel free to email questions: kristaoke@gmail.com

Photo: Jason Ching