Genetic stock composition of chum salmon bycatch from the 2022 BSAI pollock trawl fishery

Preliminary Results:
Presented to the Salmon Bycatch Committee - 3/20/2023

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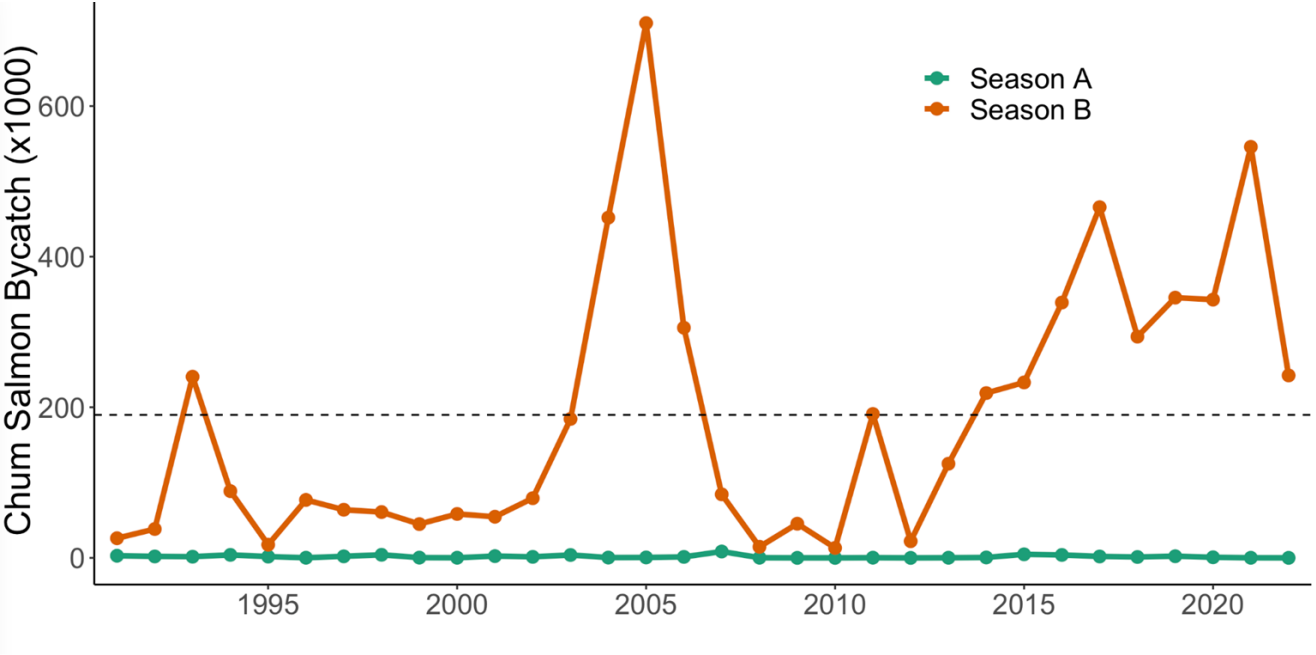
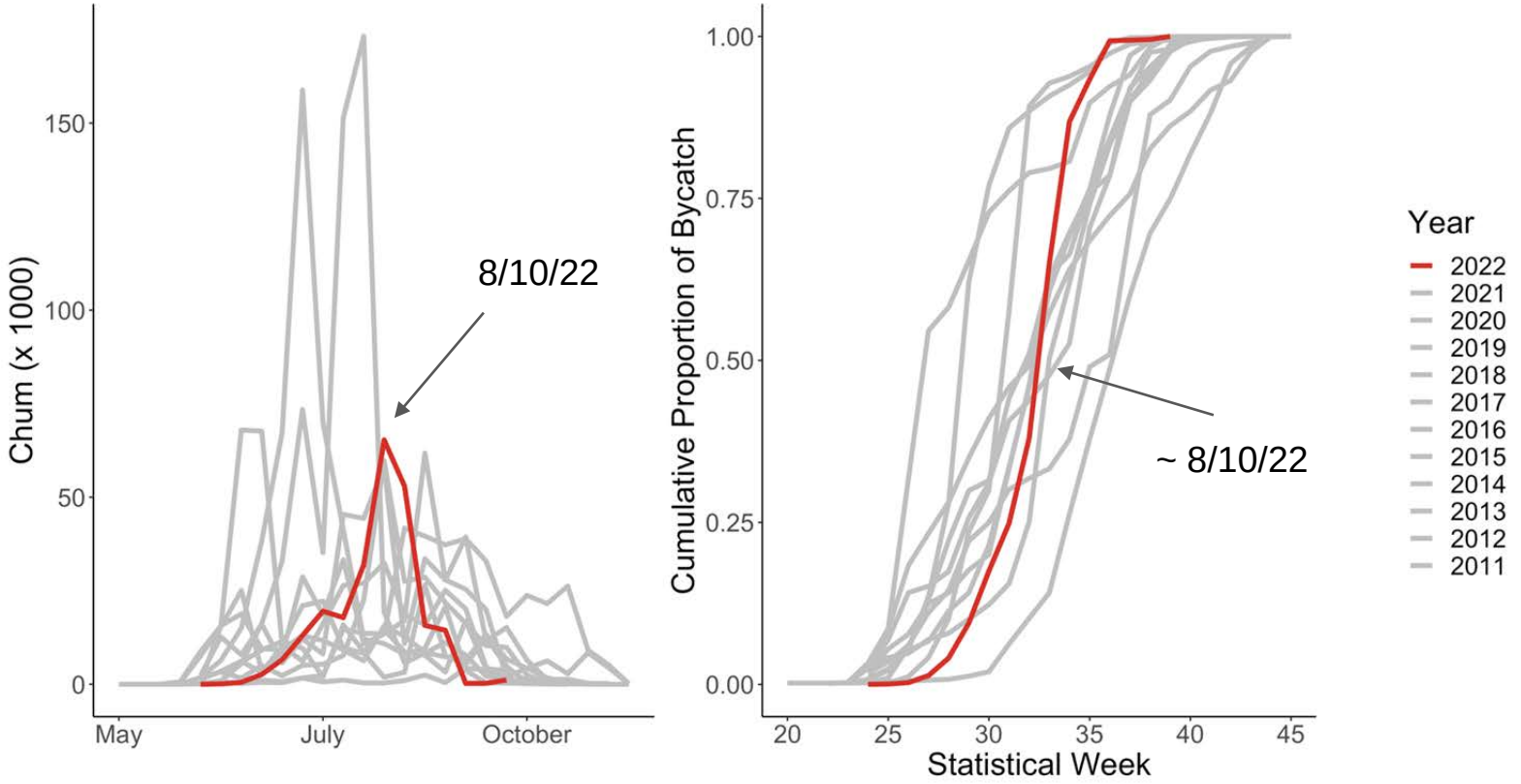
Chum Salmon Prohibited Species Catch

98% in B season

Avg. bycatch 1991-2021 ~ 188,000 chum salmon



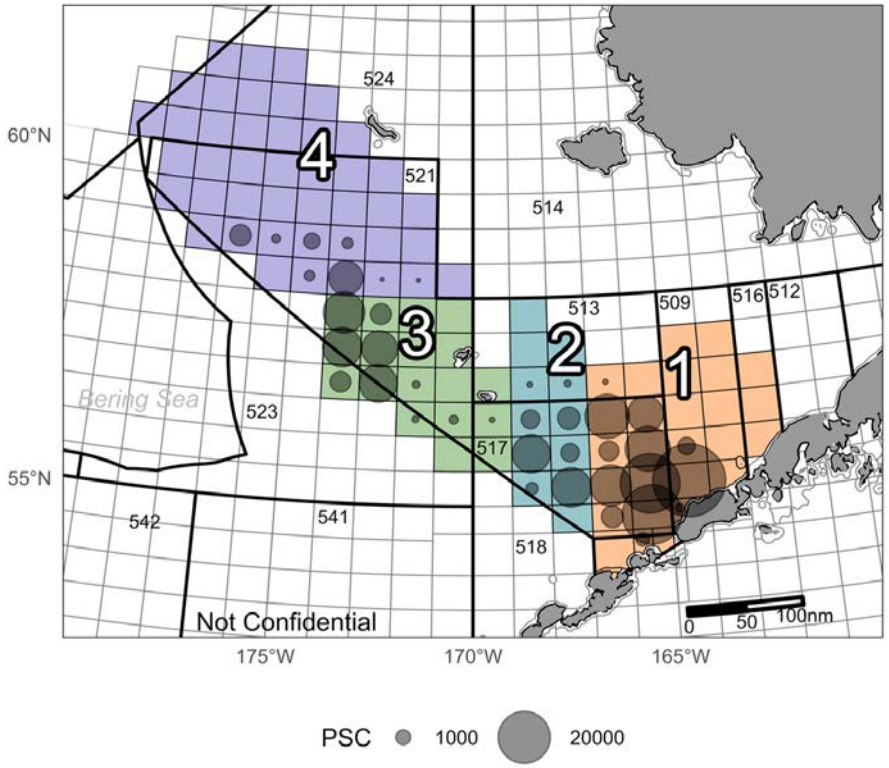
Timing of bycatch



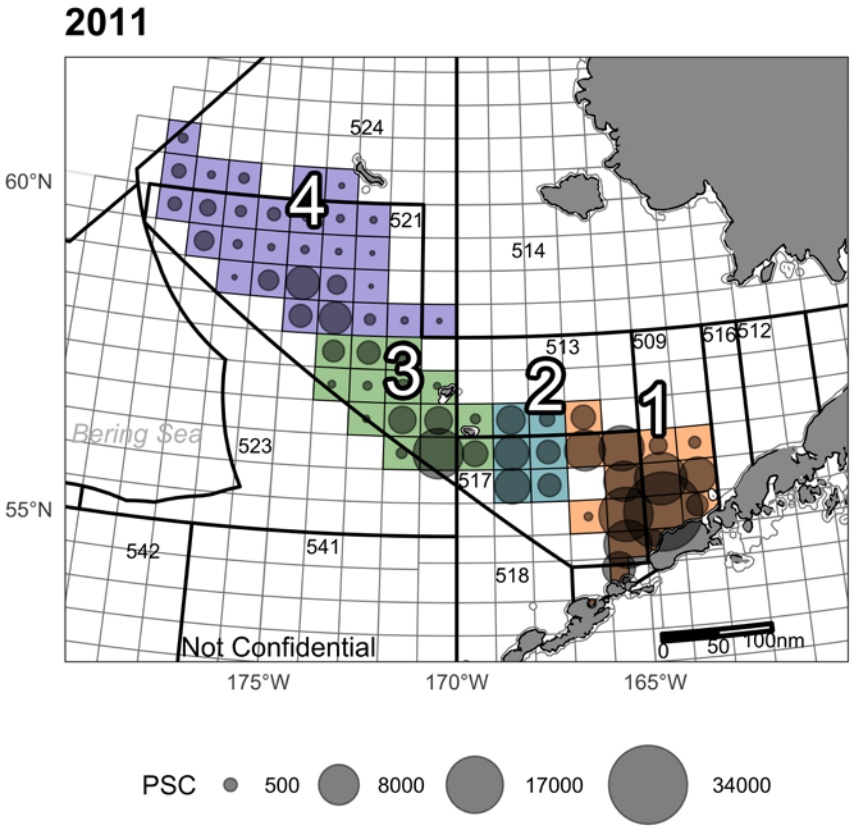
Spatial Distribution of the bycatch

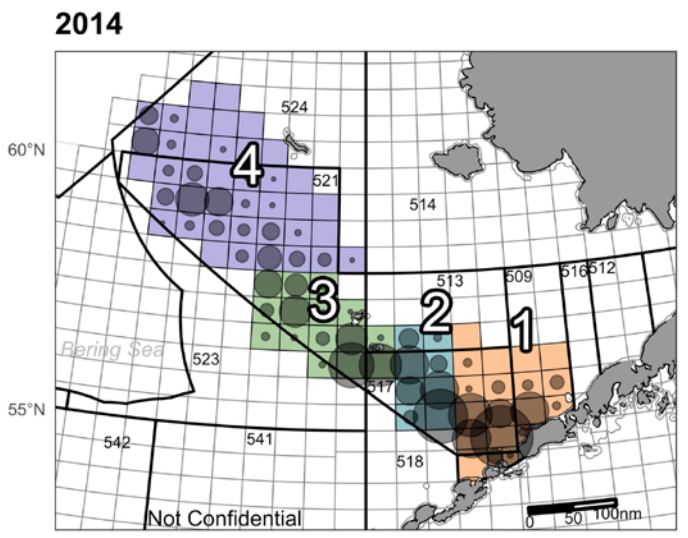
- 56% from NMFS 517
- 24% from NMFS 521

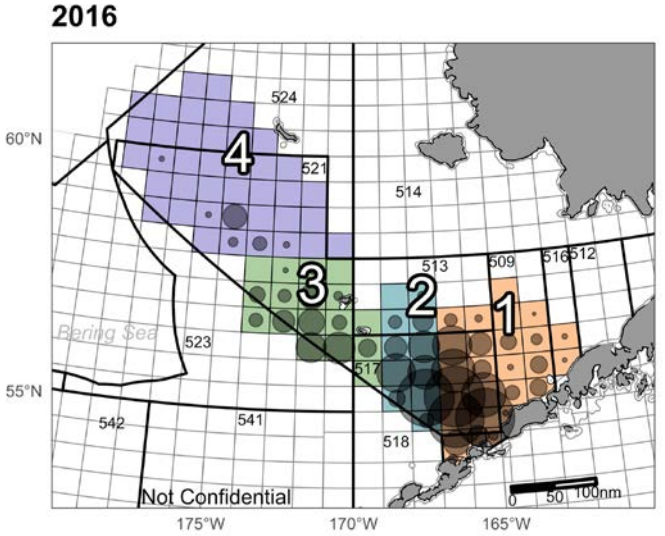
- Little fishing effort in Cluster 4



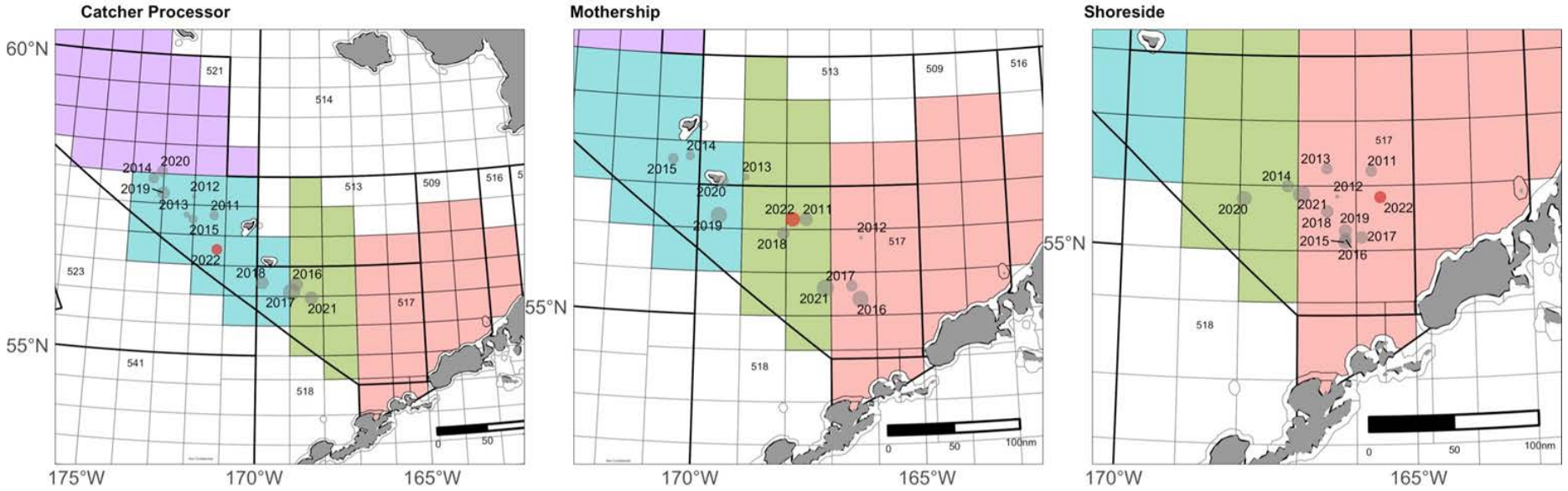
How has it changed over time?



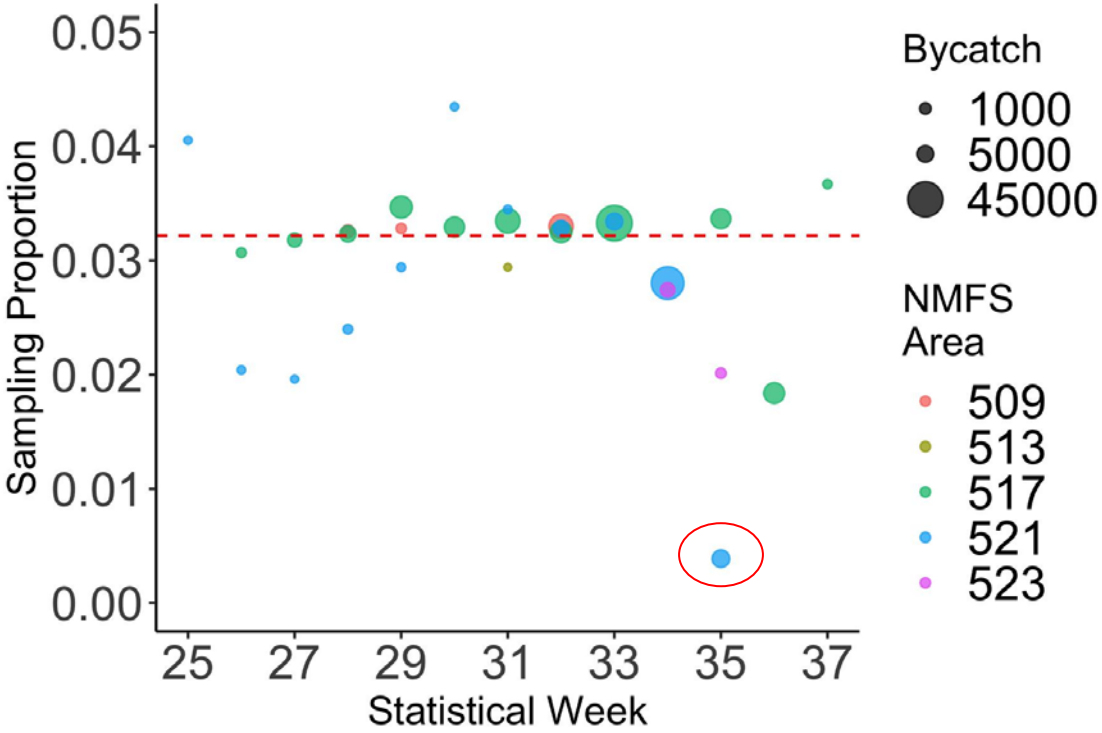




Changes in spatial distribution by sector



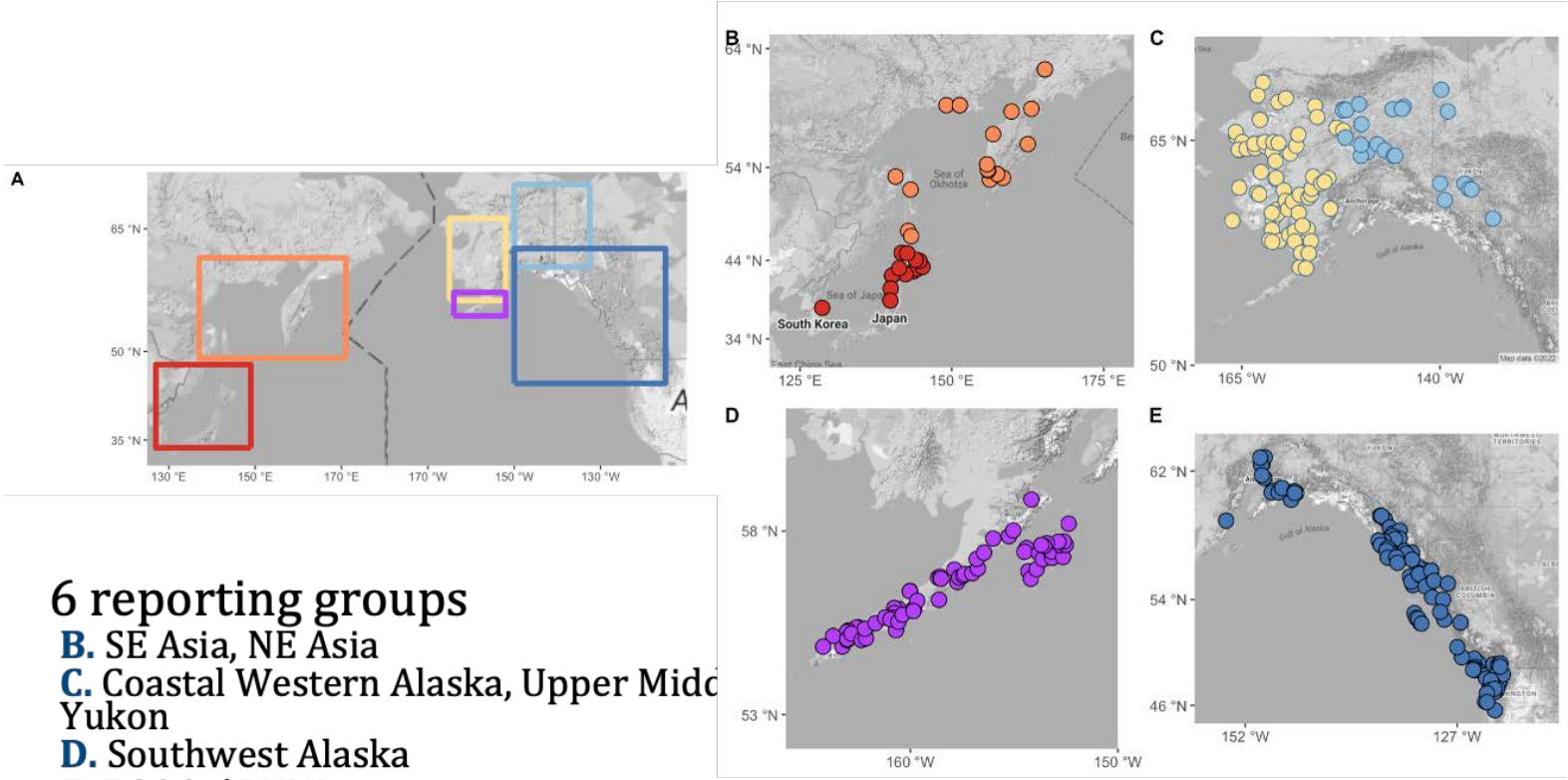
Genetic Sampling by week and area



Observer on catcher processor ran out of envelopes

Undersampled by ~70 samples after 1 in 2 subsampling in lab

Genetic baseline



6 reporting groups

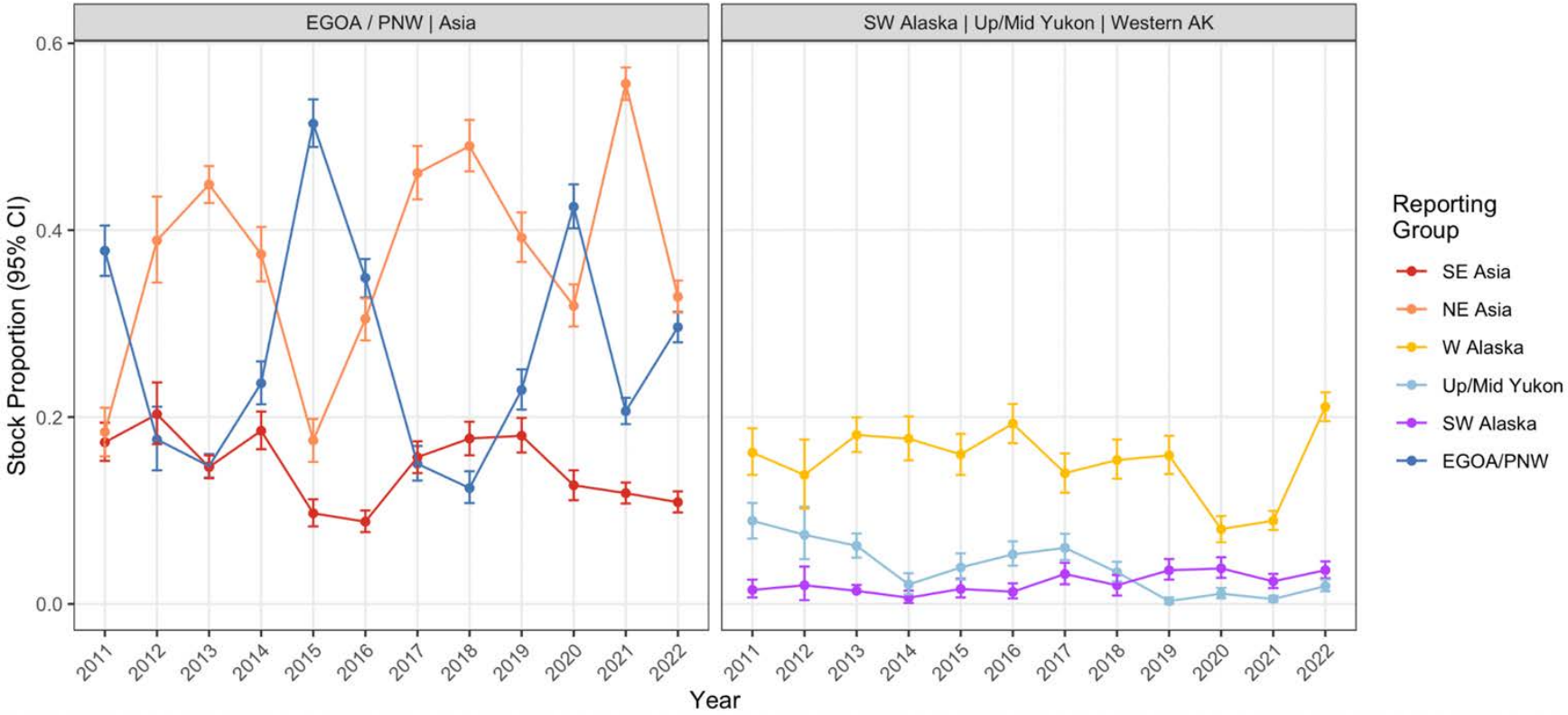
B. SE Asia, NE Asia
C. Coastal Western Alaska, Upper Midd
Yukon
D. Southwest Alaska
E. EGOA / PNW

Chum Salmon stock proportions: 2022 B-season

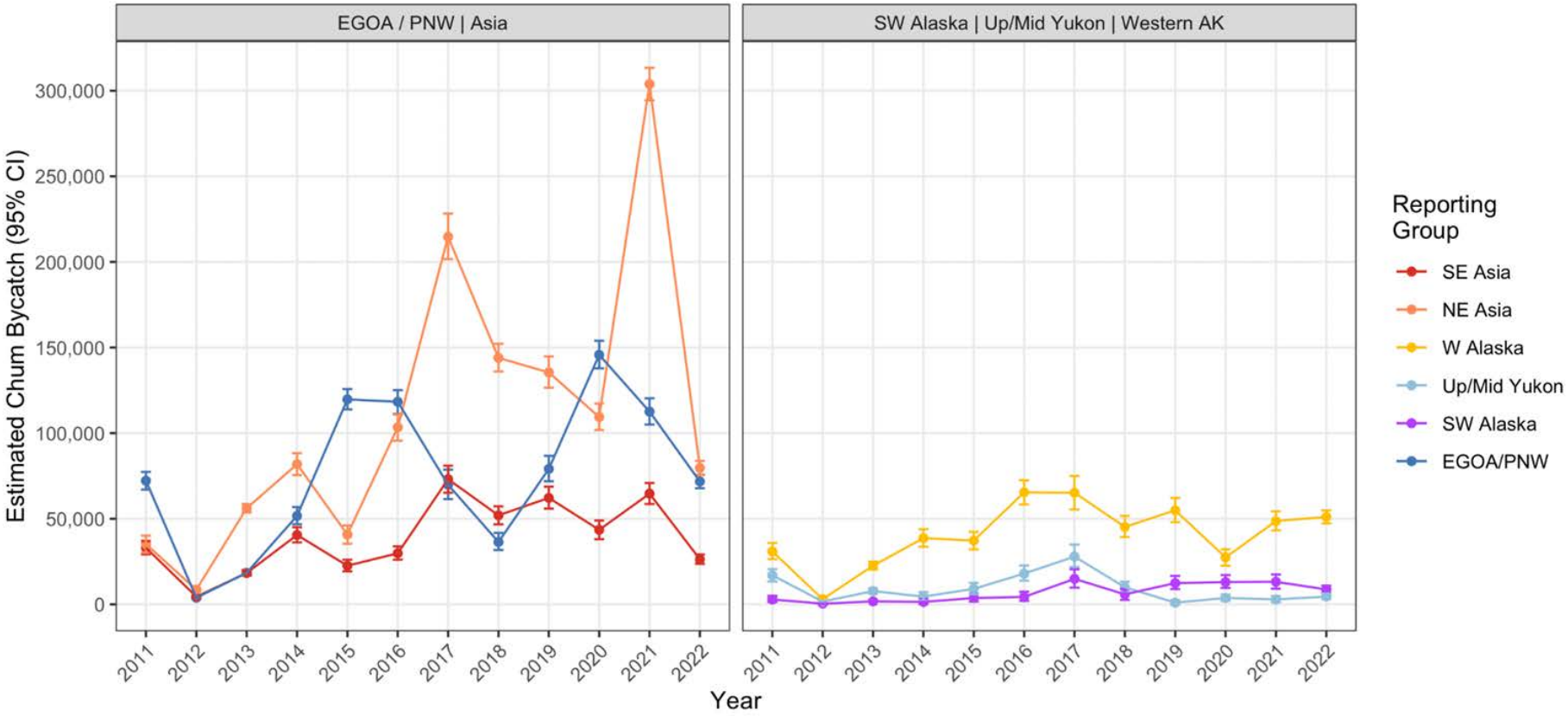
B-season (PSC = 242,244; n = 3260)

Region	Est. num.	Est. CI	Mean	2.5%	97.5%	P=0	SF
SE Asia	27,048	24,319-29,883	0.112	0.100	0.123	0.00	1.00
NE Asia	80,824	76,609-85,092	0.334	0.316	0.351	0.00	1.00
W Alaska	50,527	46,817-54,336	0.209	0.193	0.224	0.00	1.00
Up/Mid Yukon	4,665	3,293-6,296	0.019	0.014	0.026	0.00	1.00
SW Alaska	8,948	6,811-11,238	0.037	0.028	0.046	0.00	1.00
E GOA/PNW	70,230	66,268-74,262	0.290	0.274	0.307	0.00	1.00

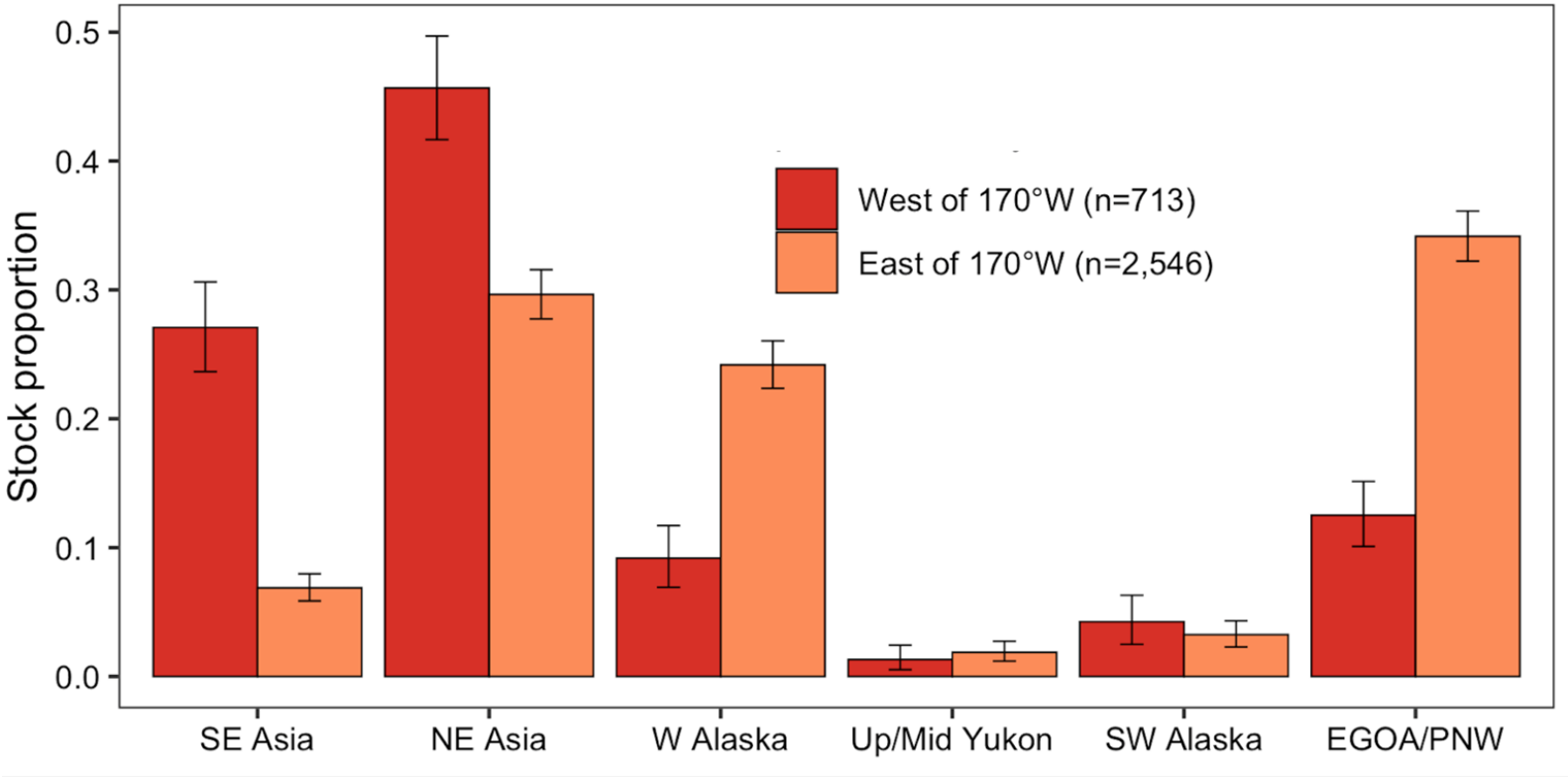
Stock proportions through time



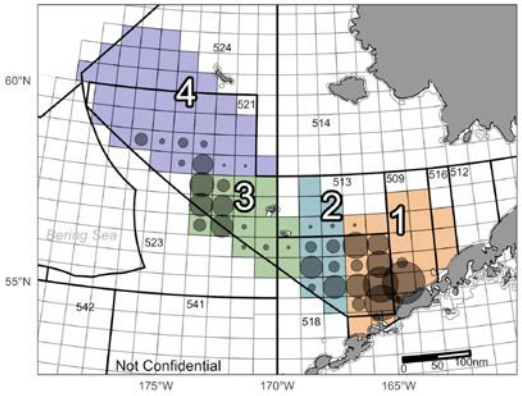
Numbers through time



West and East of 170



Spatiotemporal variation

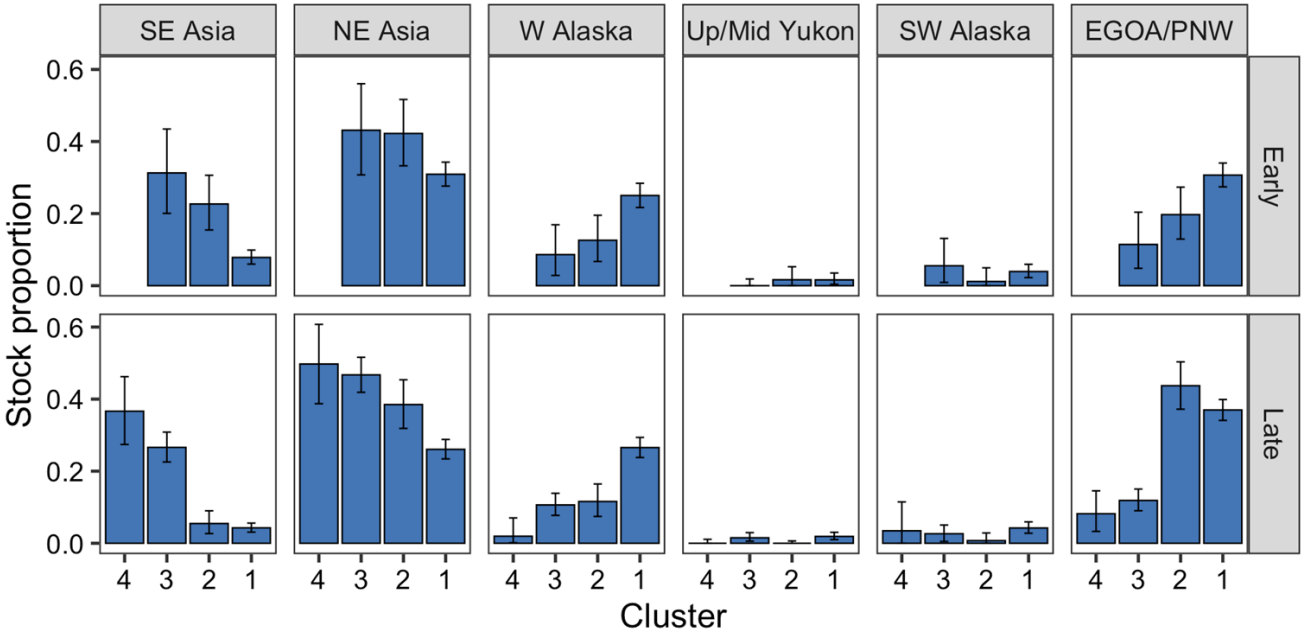


W Alaska

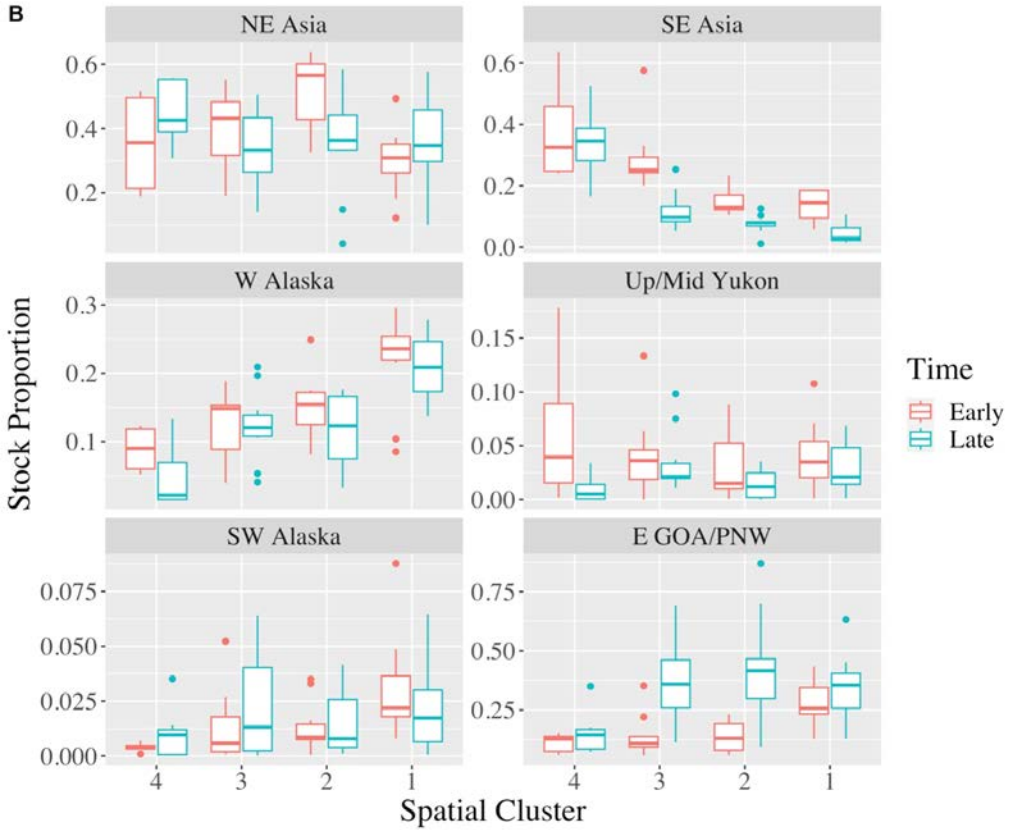
- East to West
- Early to Late

SW Alaska & Yukon

- East to West
- Early to Late



Spatiotemporal variation (2011-2022)



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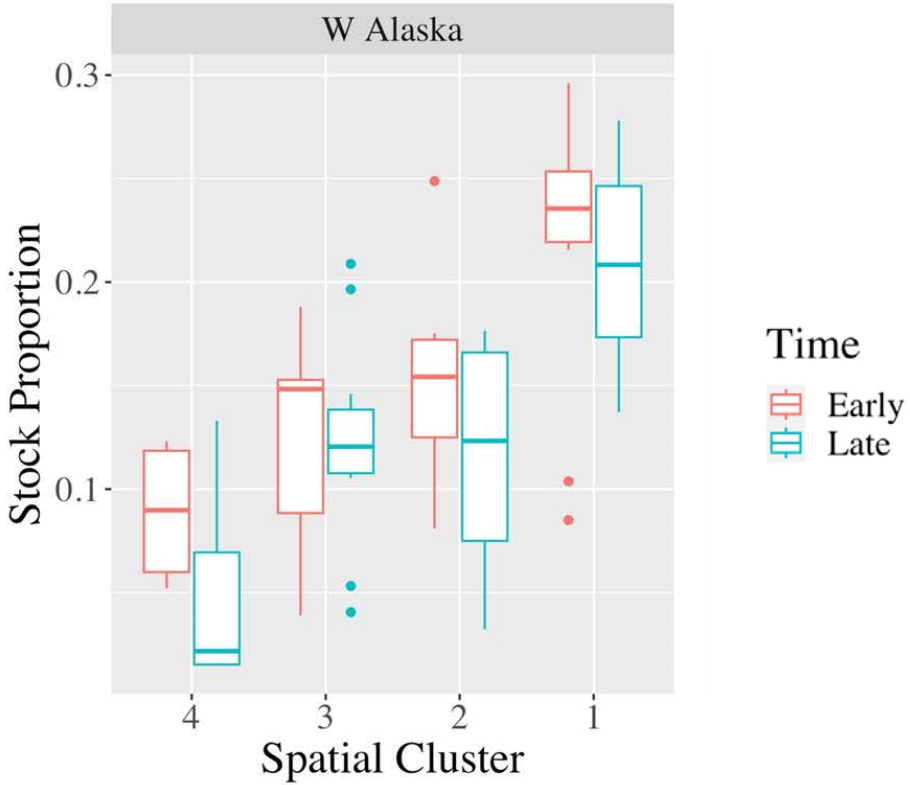

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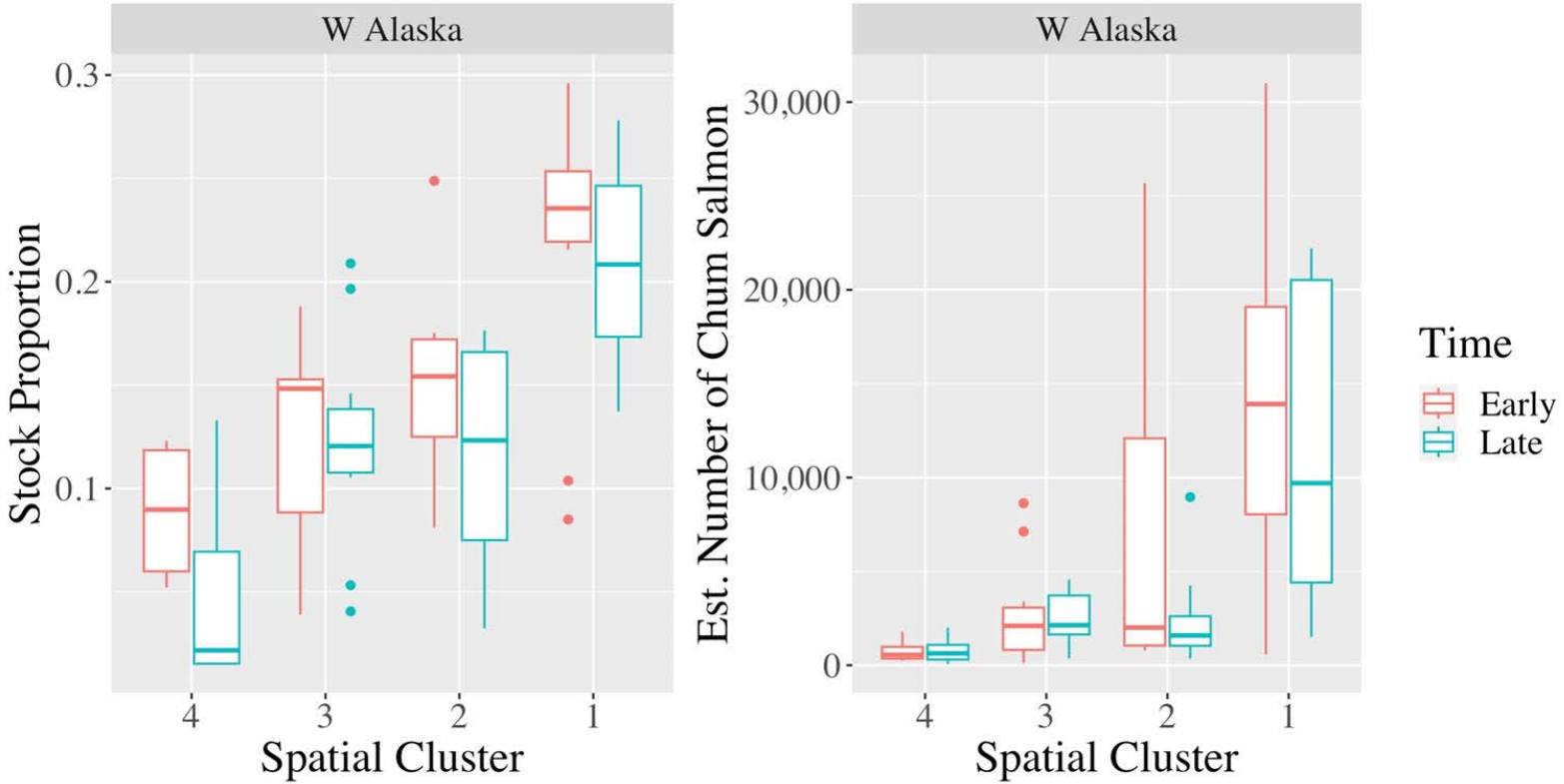
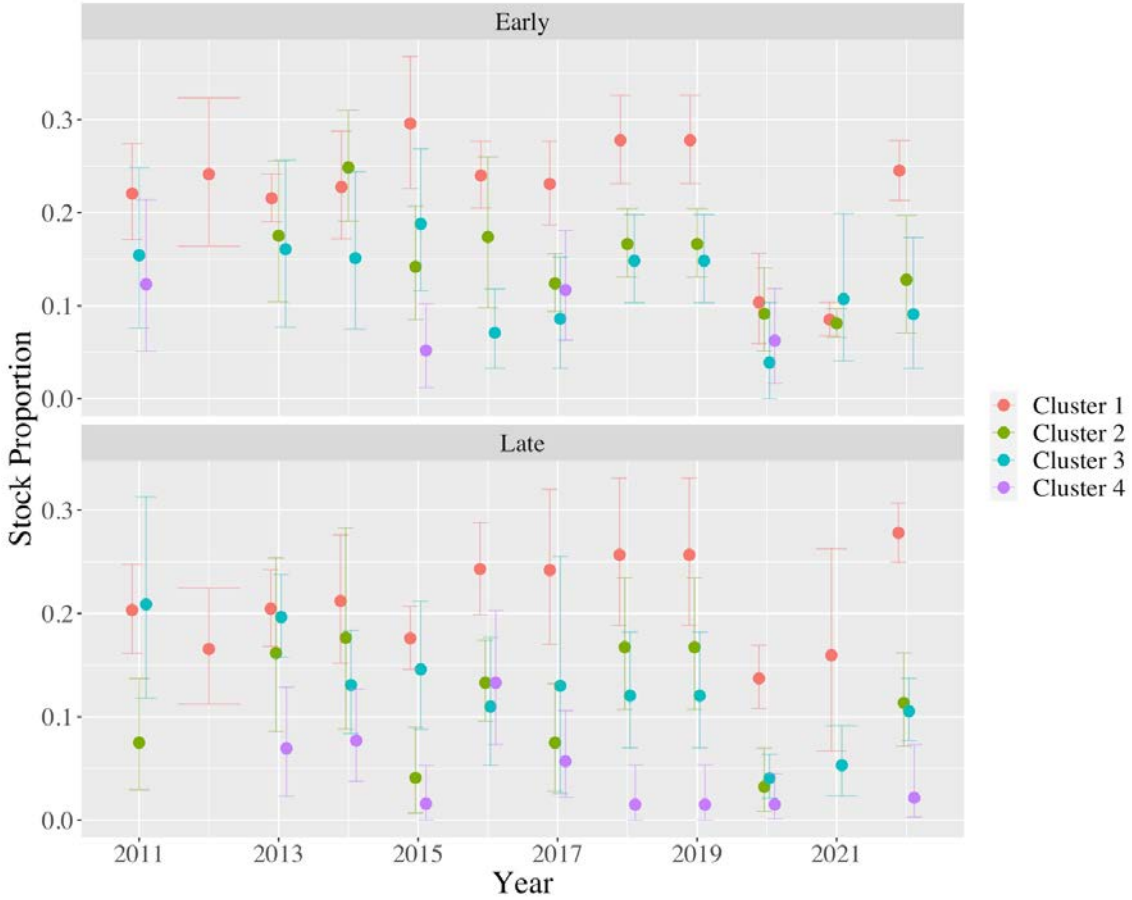
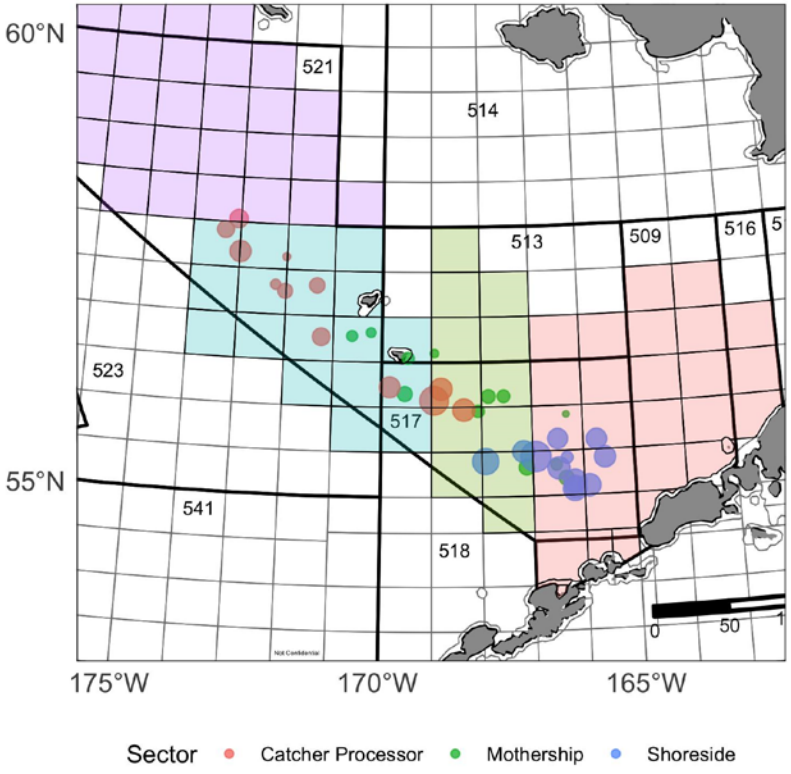
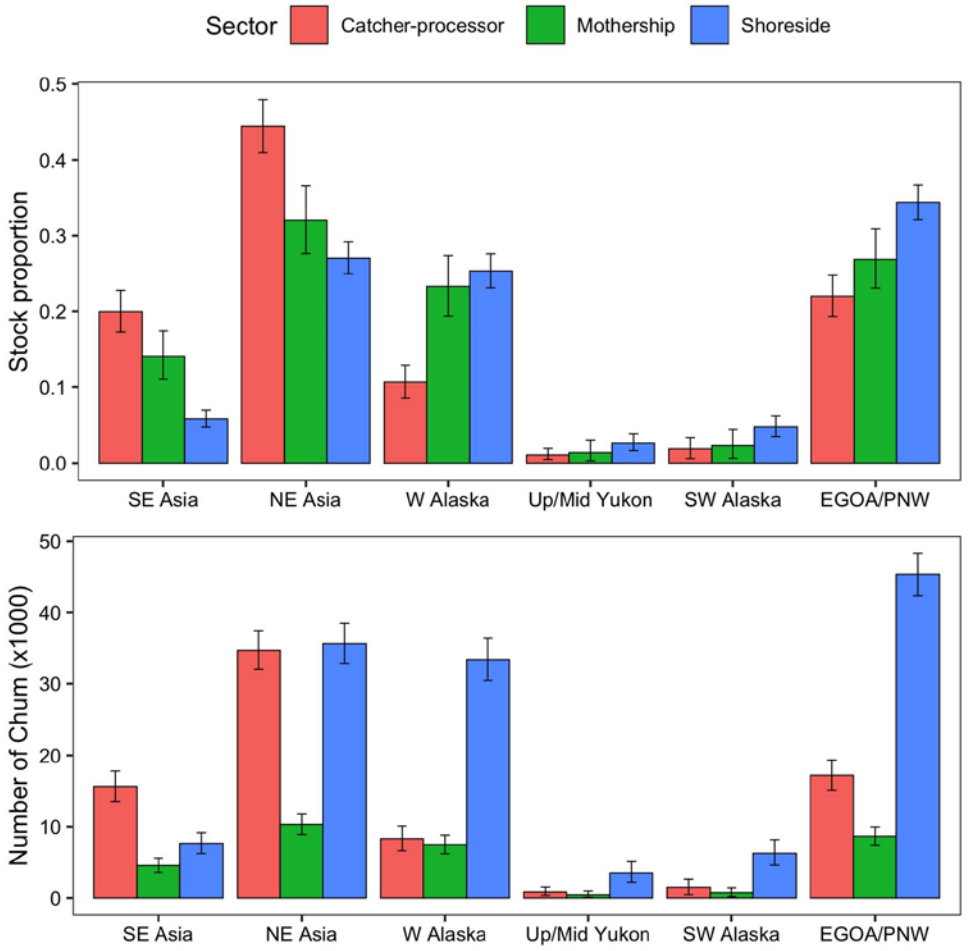


Spatiotemporal variation W Alaska Early (2011-2022)



Fishing sectors





Kotzebue Sound Analysis

Kotzebue Sound reporting group:

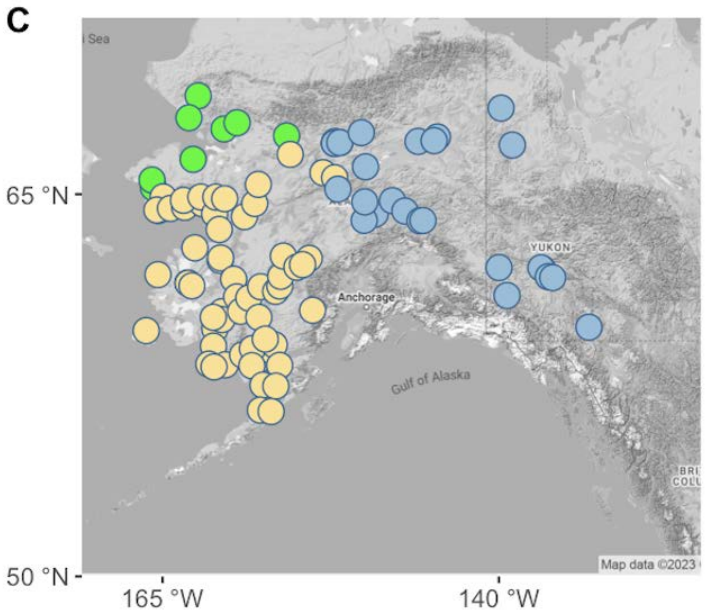
8 populations

2022 Commercial Summary

‘daily catch per unit of effort (CPUE) was the highest since the record run of 2014’

‘8th highest harvest in the 61-year history of the fishery’

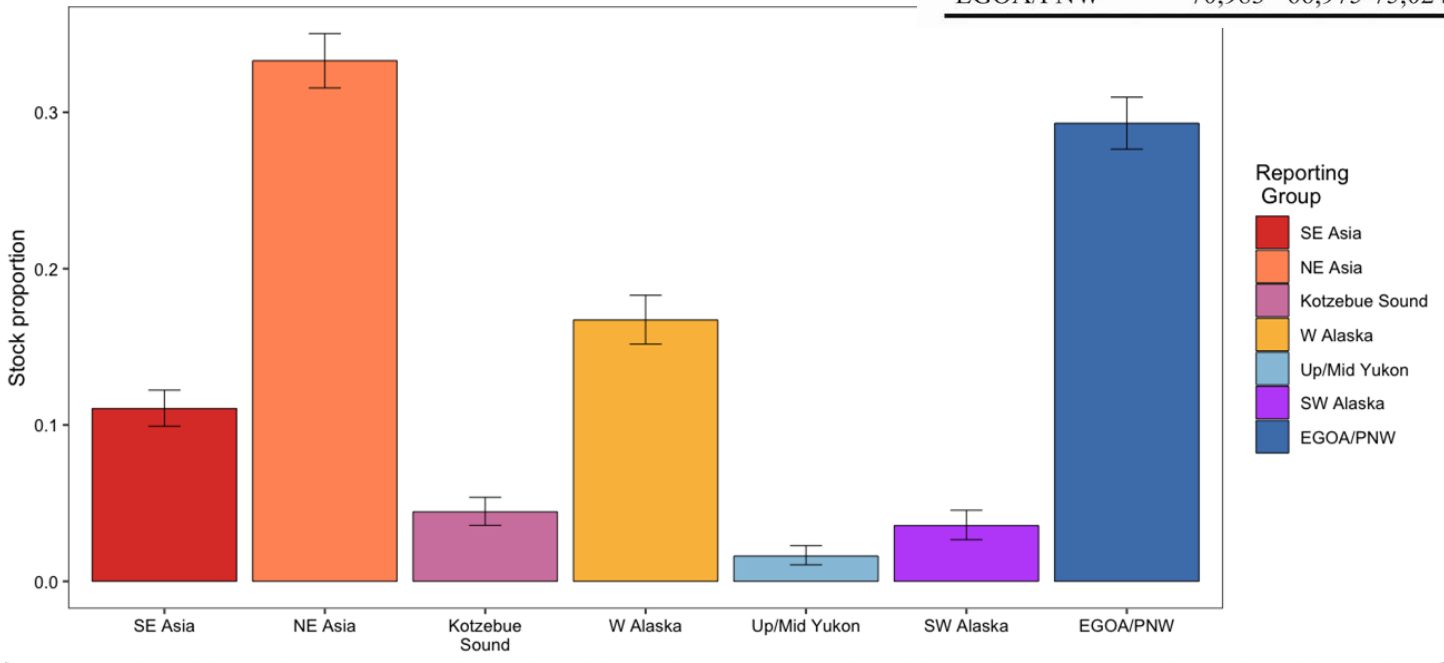
‘average weight of 7.6 pounds’ - small



Kotzebue Sound B season

B-season (PSC = 242,244; n = 3,260)

Region	Est. num.	Est. CI	Mean	2.5%	97.5%	P=0
SE Asia	26,776	24,038-29,623	0.111	0.099	0.122	0.00
NE Asia	80,669	76,465-84,888	0.333	0.316	0.350	0.00
Kotzebue Sound	10,772	8,671-13,023	0.044	0.036	0.054	0.00
W Alaska	40,493	36,768-44,324	0.167	0.152	0.183	0.00
Up/Mid Yukon	3,917	2,548-5,516	0.016	0.011	0.023	0.00
SW Alaska	8,630	6,460-11,012	0.036	0.027	0.045	0.00
EGOA/PNW	70,983	66,975-75,024	0.293	0.276	0.310	0.00



Summary

Western Alaska

- 21% of the bycatch (17% excluding Kotzebue Sound)
- 50,000 chum salmon (40,500 excluding Kotzebue Sound)

Age specific analyses will shed light on cohort effects

Questions?

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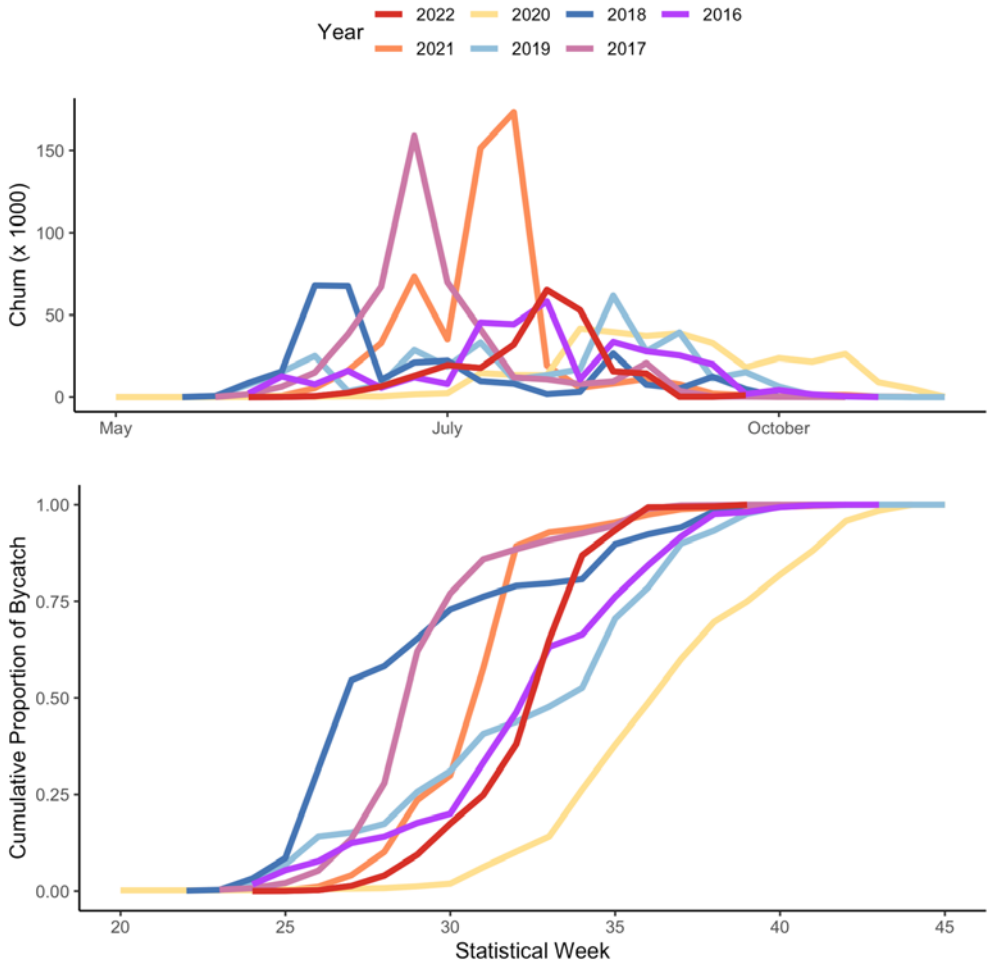
Prior Years Tech Memos:

https://www.fisheries.noaa.gov/alaska/science-data/genetics-research-alaska-fisheries-science-center

Years Colored

2017 & 2018 early large spikes

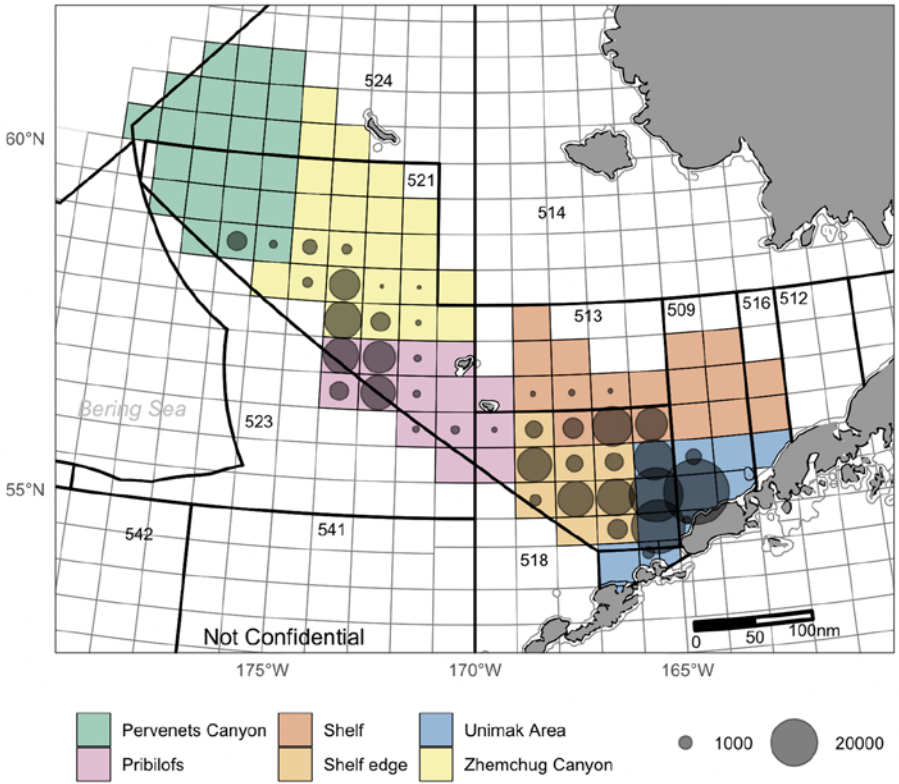
2020 long continuous bycatch after week 32



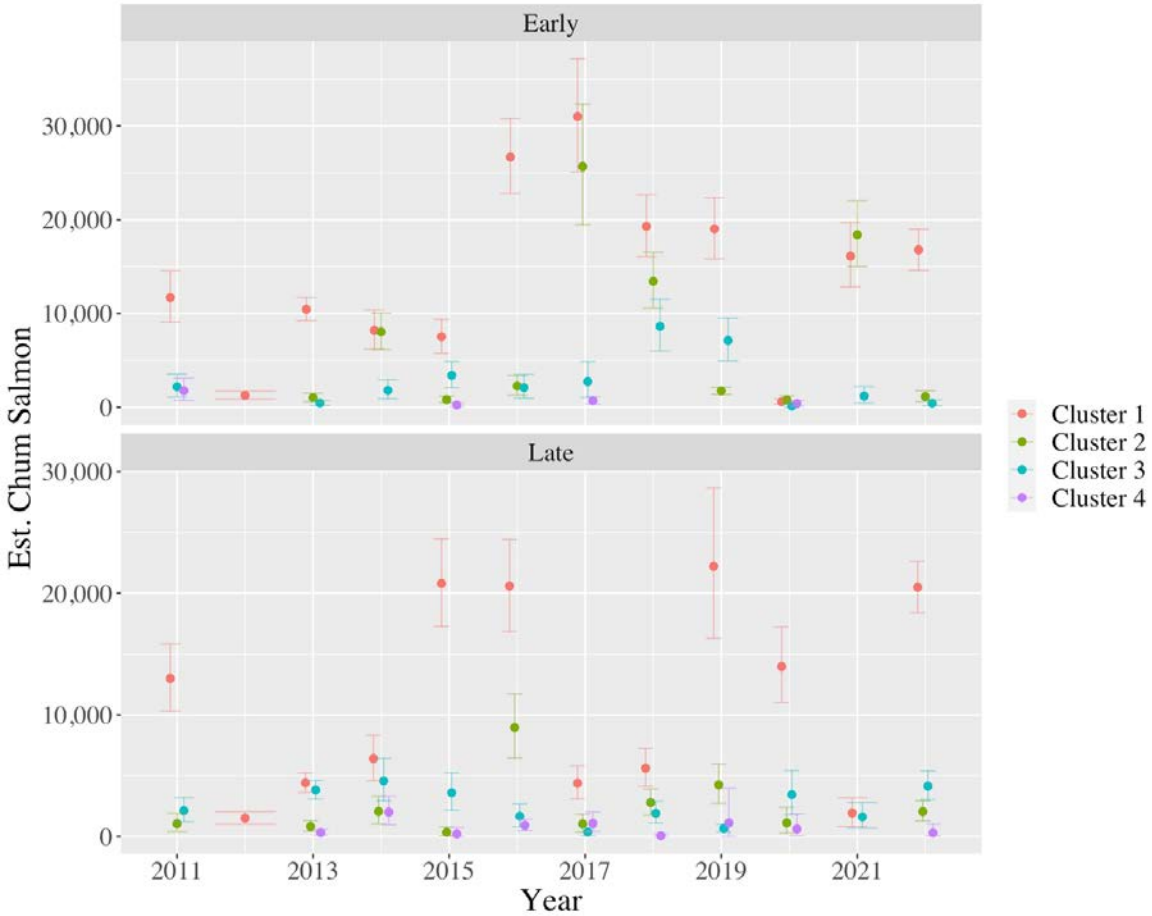
Fishing Grounds Analyses

Defined by SeaState

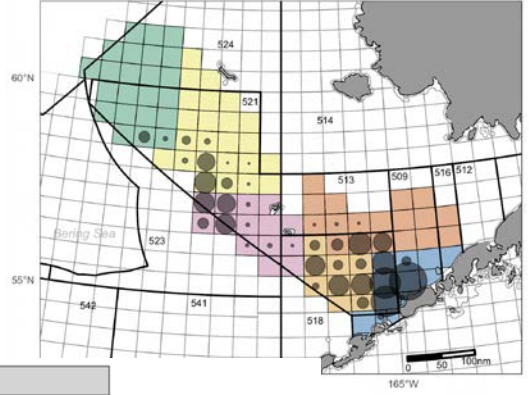
Reflects fishing grounds

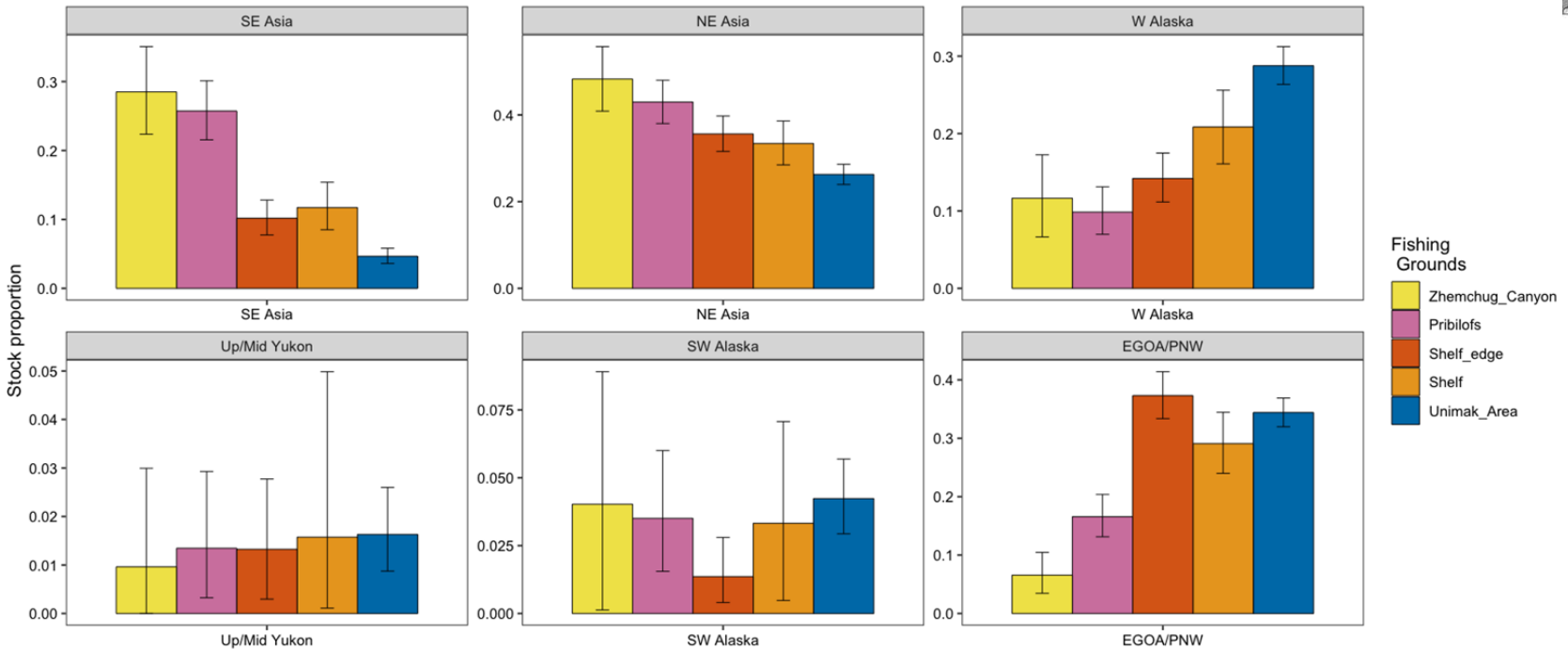


Spatiotemporal Western Alaska Numbers



Fishing Grounds





Kotzebue Sound Analysis

Kotzebue Sound is biased low

CWAK absorbs the misassigned KS fish

Breaking it out we will unlikely overestimate its contribution