

**NOAA
FISHERIES**

C2 Chum Salmon GSI
February 2025



Genetic stock composition of chum salmon bycatch from the 2024 BSAI pollock trawl fishery

Preliminary Results:

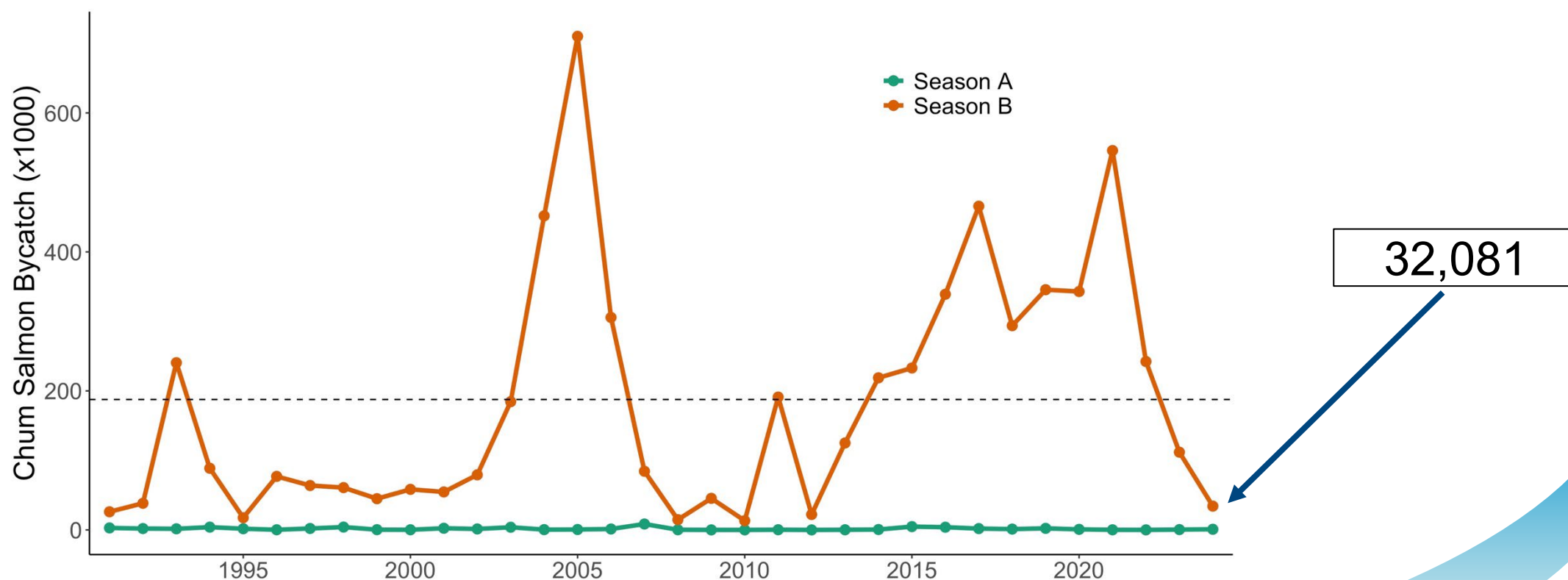
Presented to the North Pacific Fisheries Management Council February 2025

P Barry, K D'Amelio, J Whittle, J Musbach, J Cornett, J Whitney, & W Larson

Chum Salmon Prohibited Species Catch

97.4% in B-season

Avg. bycatch 1991-2023 ~ 185,998 chum salmon



32,081

Spatial distribution of the chum salmon bycatch

Largest bycatch in statistical
area 645501 ~4,132 chum
(12.9%)

655430 & 685530 similar magnitude

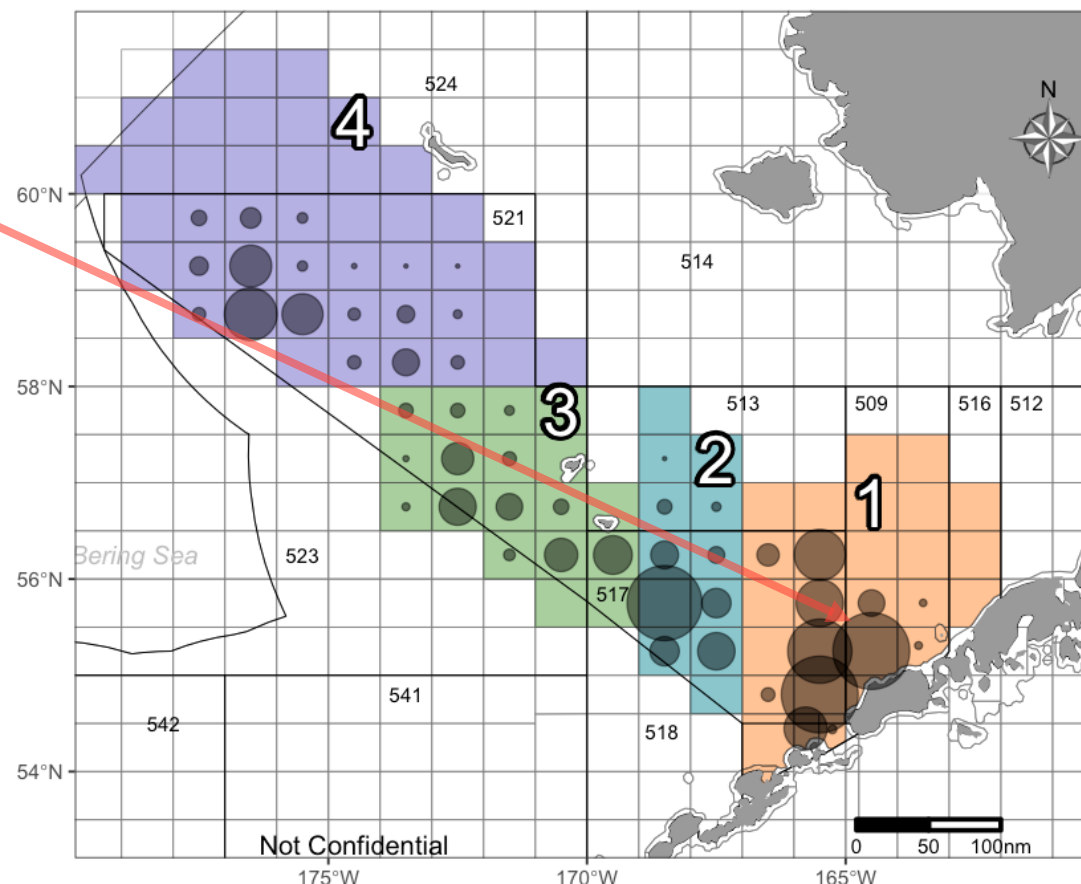
Clusters:

1 – 50.8%

2 – 20.2%

3 – 12.2%

4 – 16.8%



Bycatch Rate (Chum per mt. Pollock)

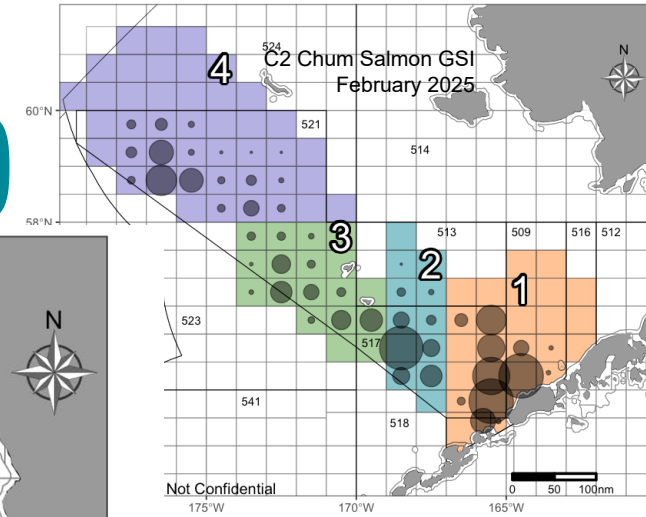
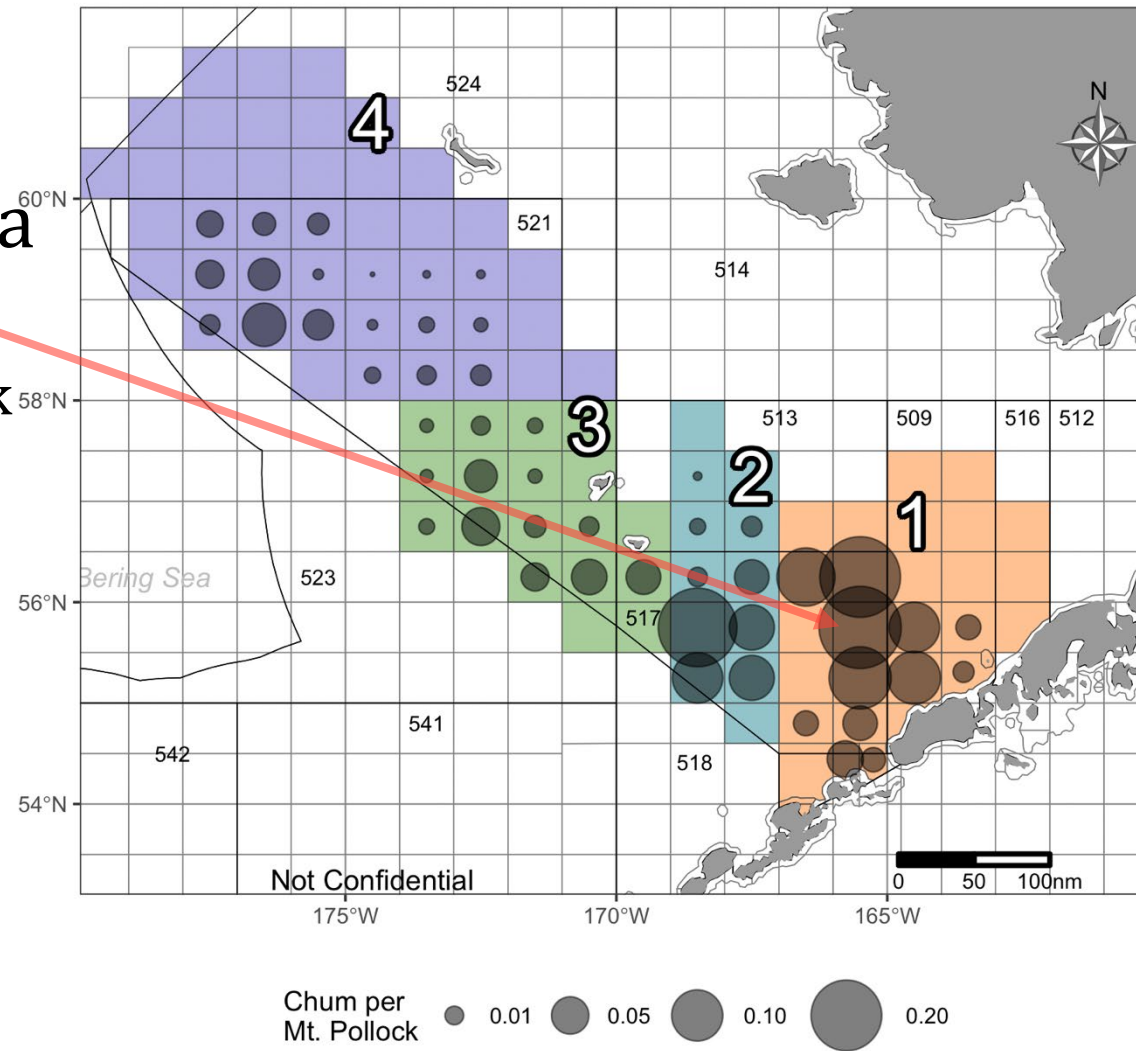
Bycatch Rates

Largest statistical area
655530

0.28 chum per mt. ton pollock

Clusters:

- 1 - 0.08
- 2 - 0.07
- 3 - 0.03
- 4 - 0.02



Chum salmon genetic baseline

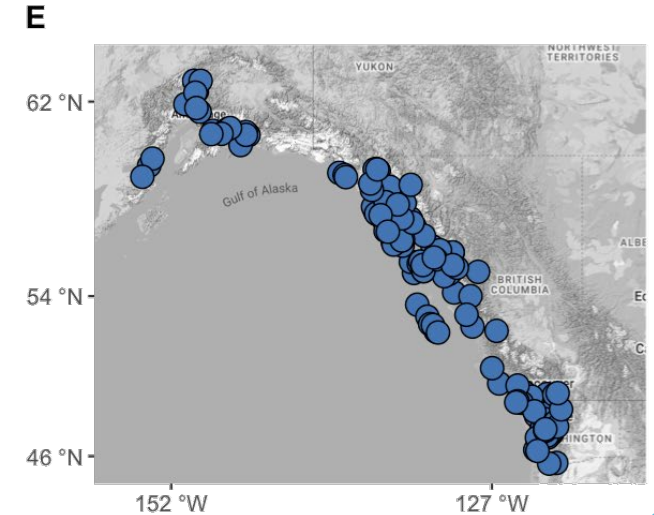
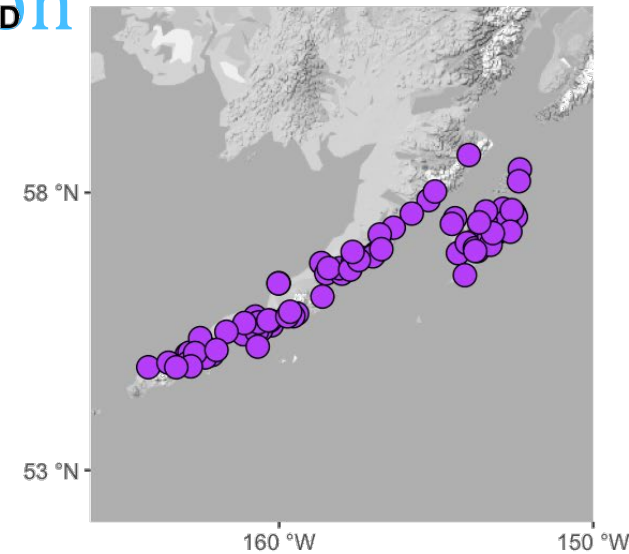
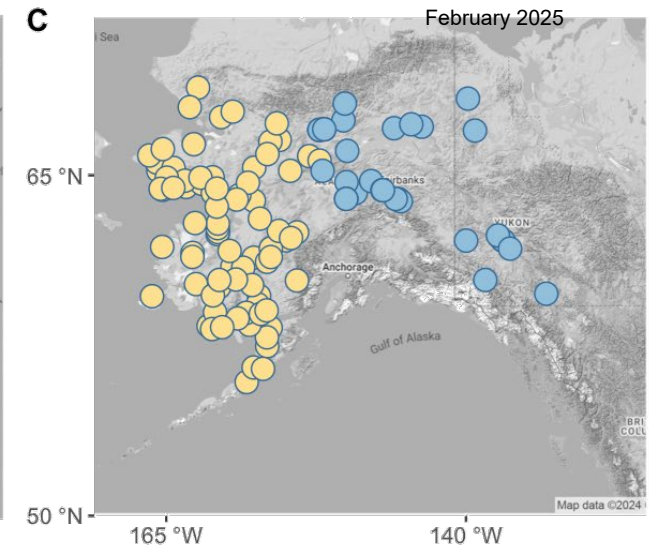
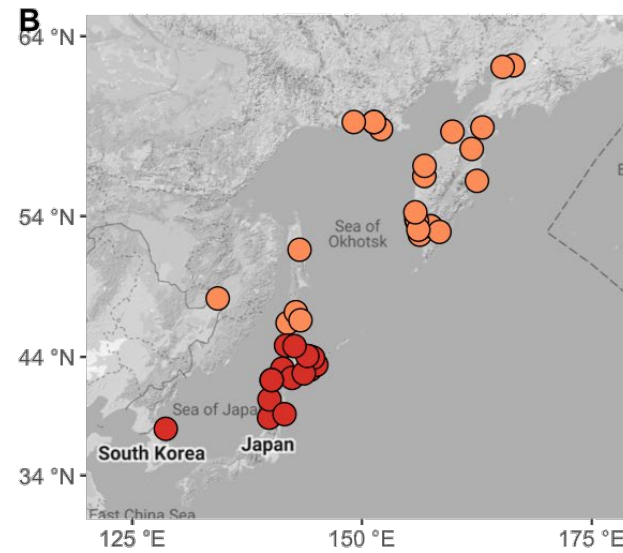
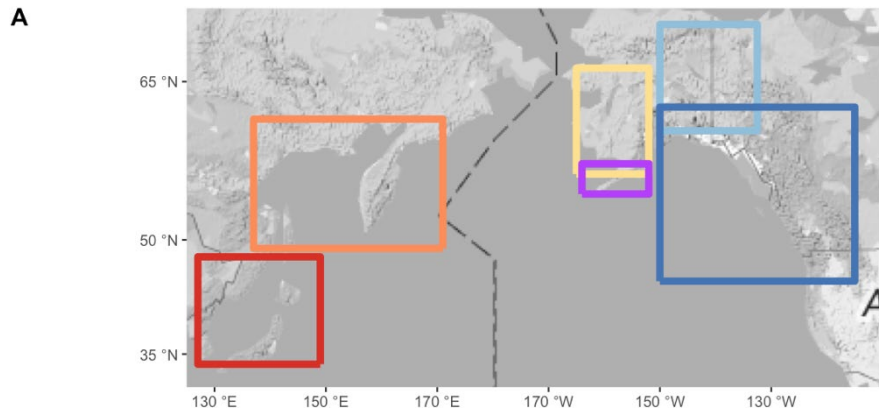
6 reporting groups:

B. NE Asia & SE Asia

C. W Alaska & Up/Mid Yukon

D. SW Alaska

E. EGOA/PNW

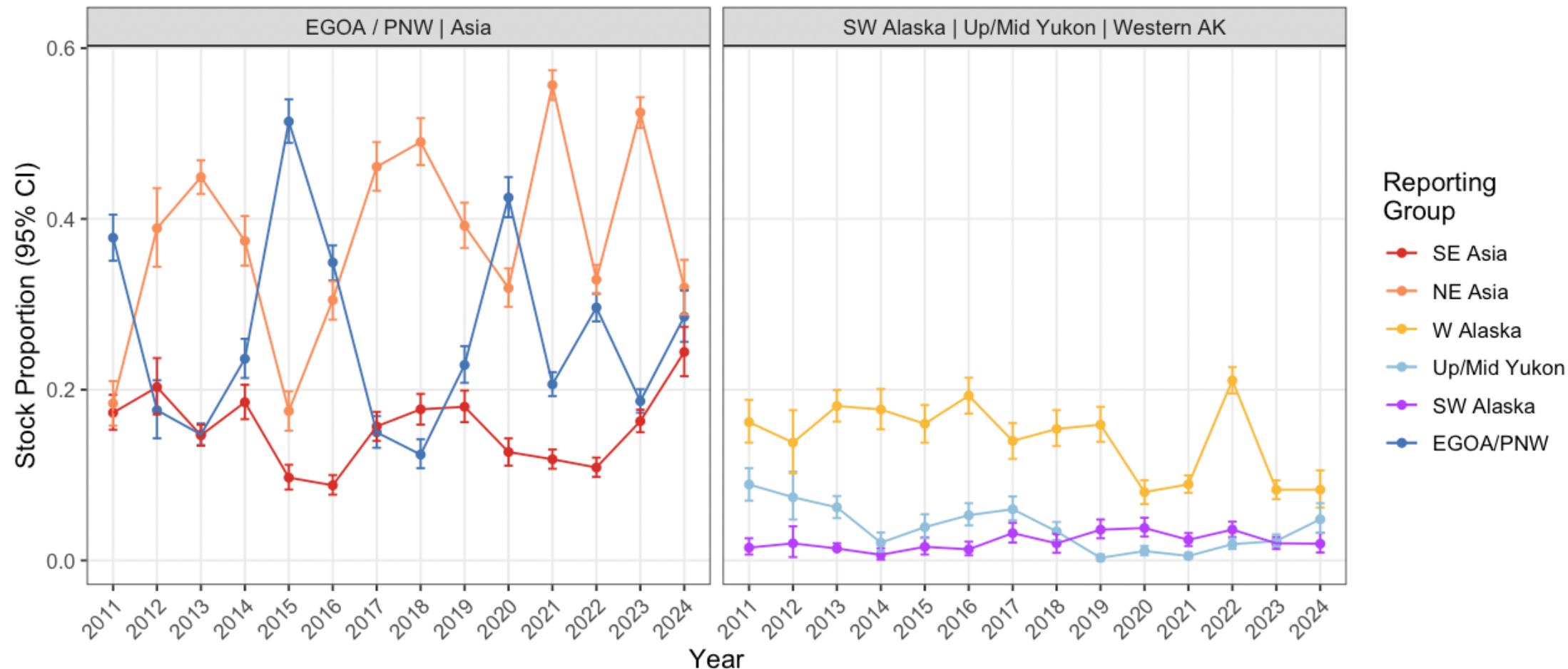


Chum salmon stock proportions: 2024 B-season

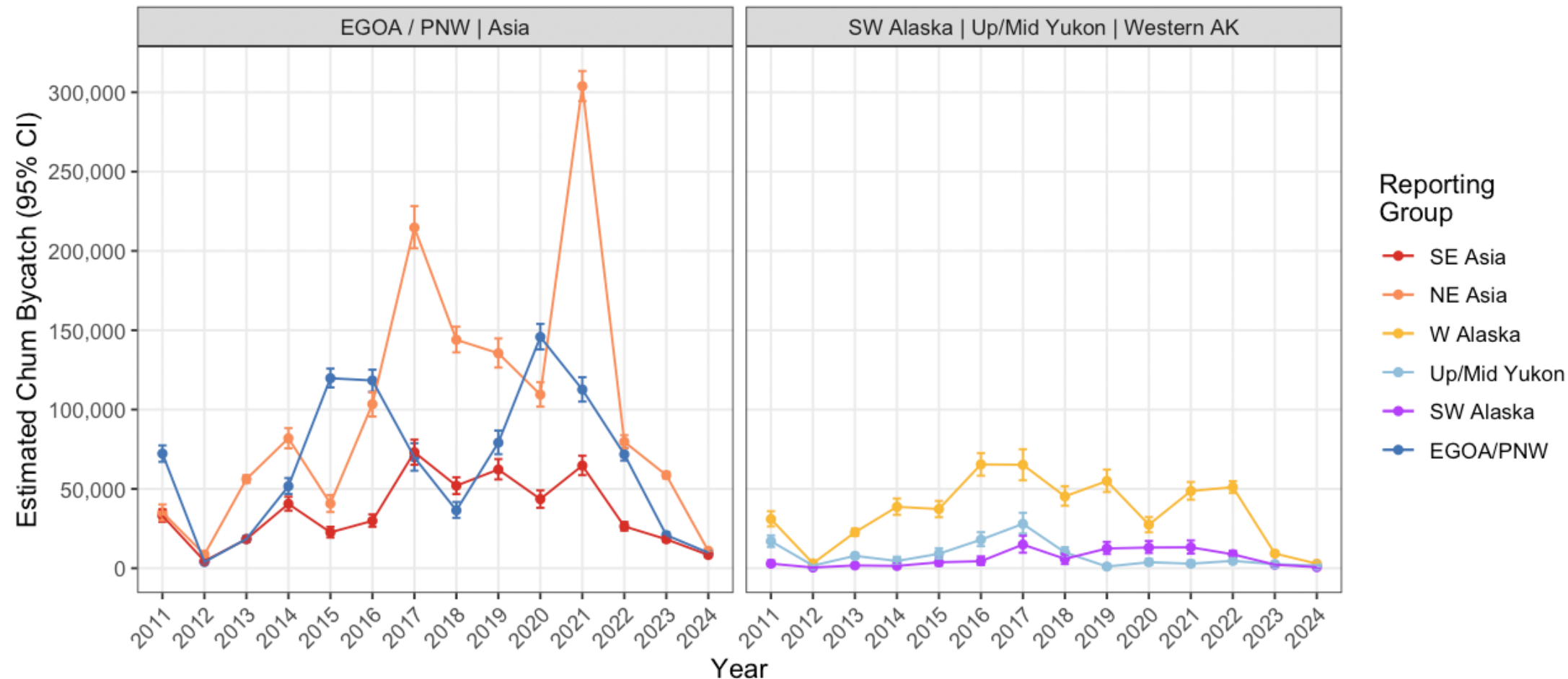
B-season (PSC = 32,081; n = 896)

Region	Est. num.	Est. CI	Mean	2.5%	97.5%
SE Asia	7,832	6,923-8,773	0.244	0.216	0.273
NE Asia	10,254	9,242-11,295	0.320	0.288	0.352
W Alaska	2,658	1,988-3,387	0.083	0.062	0.106
Up/Mid Yukon	1,547	1,042-2,150	0.048	0.032	0.067
SW Alaska	627	300-1,036	0.020	0.009	0.032
E GOA/PNW	9,161	8,213-10,142	0.286	0.256	0.316

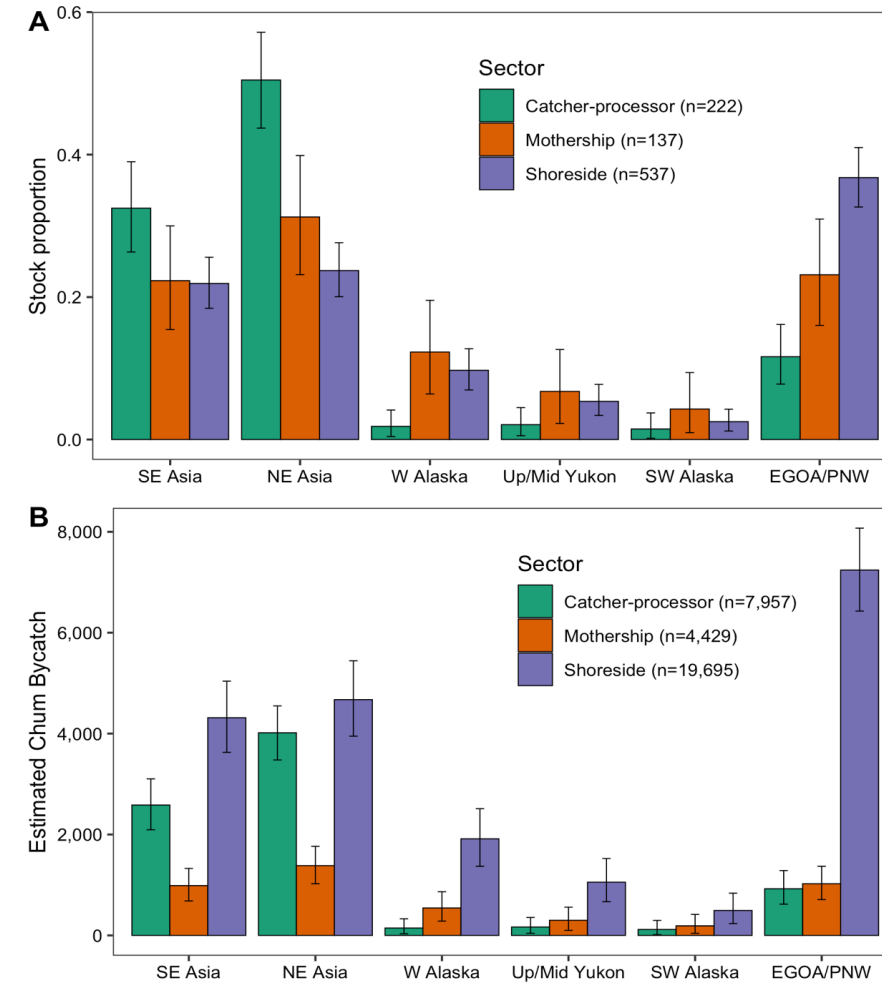
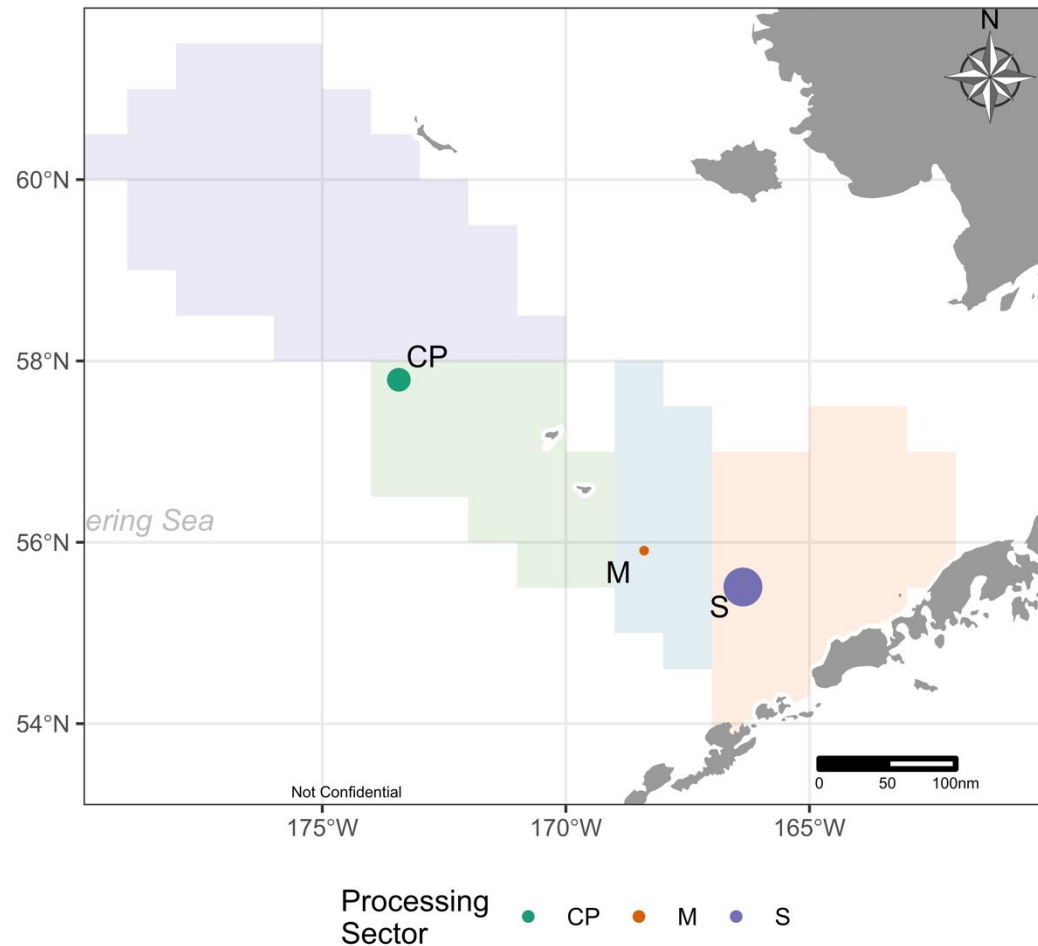
Stock proportions of chum salmon through time



Estimated number of chum salmon through time

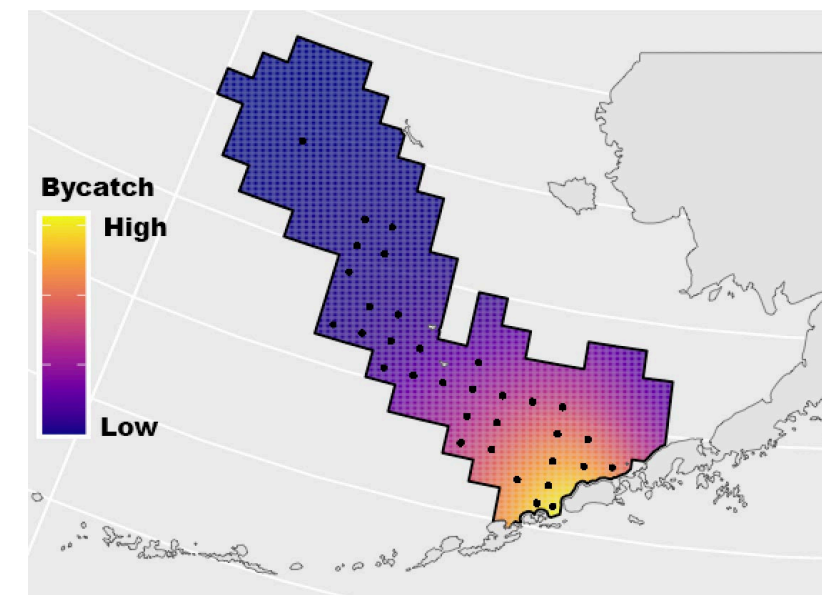
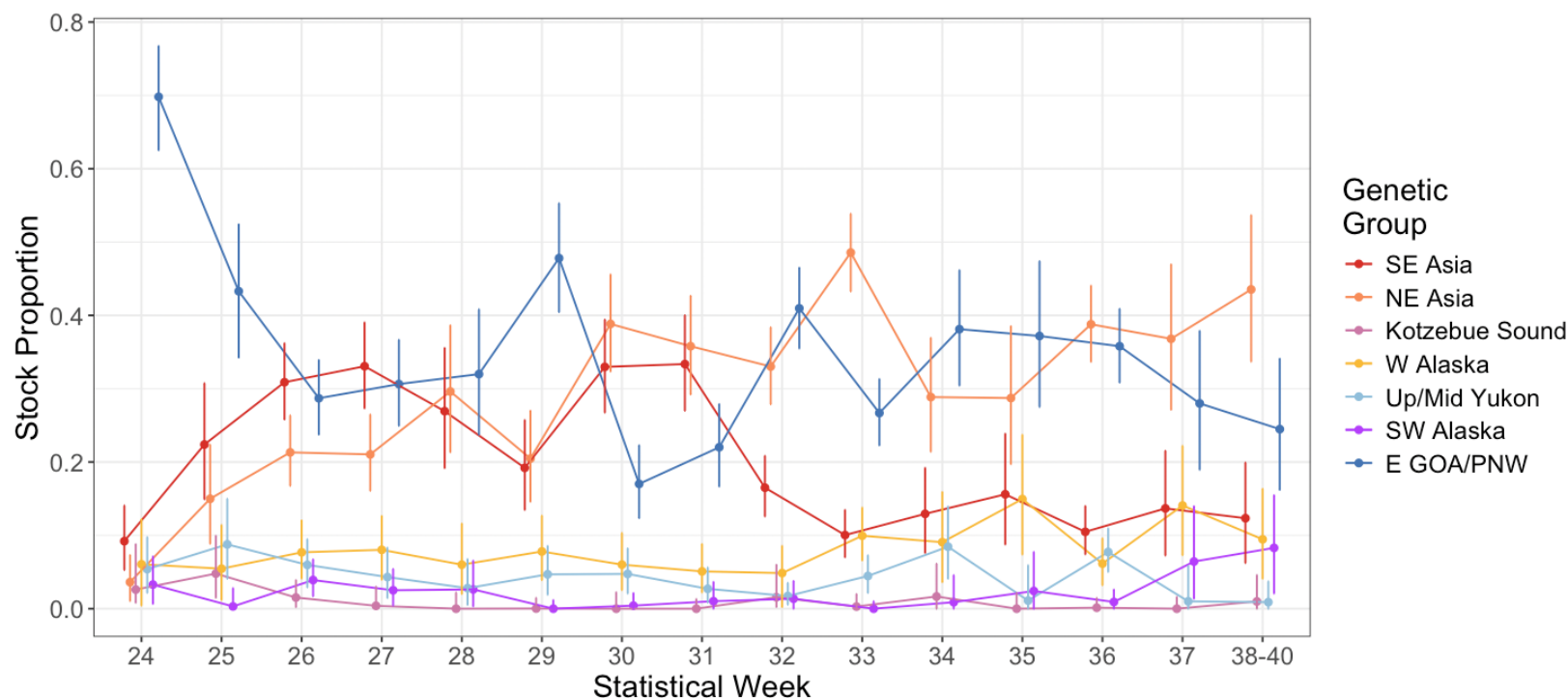
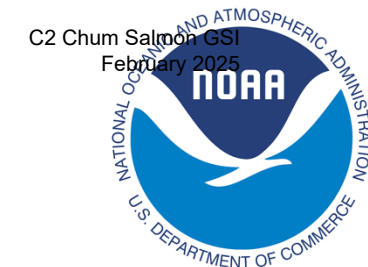


Fishing sectors - 2024 chum bycatch



Inseason GSI - Shoreside sector

Bristol Bay Science Research Institute



Egan Center, Downstairs, Room 3 (CVRF Room)
Wednesday, February 5th, 6:00PM to 7:00PM



Summary - 2024 chum salmon bycatch

- Lower number of chum bycatch.
- Lower proportion of Western Alaska chum salmon:

W Alaska + Up/Middle Yukon Reporting Groups

- **13.1%** (9.4 – 17.3% CI) of total bycatch
 - **4,205** (3,030 – 5,537 CI) chum salmon
- Consistent trend of greater proportion of W. Alaska fish in eastern-most fishing grounds
 - Shoreside fleet highest proportion of W. Alaska fish

Acknowledgements

Fisheries Observers: Over 56 observers deployed sampling over 8,500 haul/deliveries

FMA: M. Concepcion, M. Ruge, B. Mason, R. Ramirez, M. Vector, G. Campbell

AKFIN: R. Ames, C. Kohler, M. Callahan, R. Ryzner

ADF&G GCL: L. Lee, A. Barclay, S. Gilk-Baumer, K. Shedd



Questions?

Patrick Barry

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Prior Years Tech Memos:

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



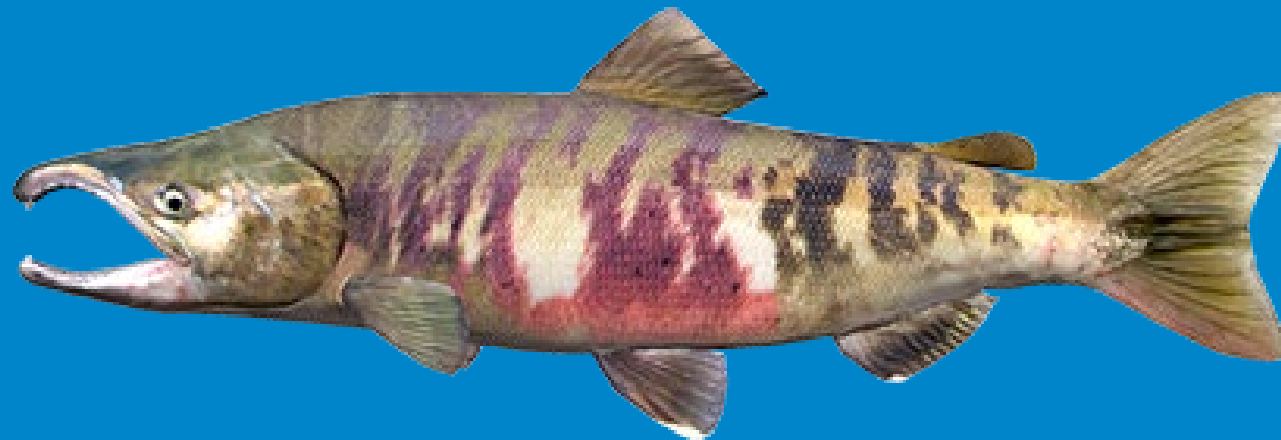
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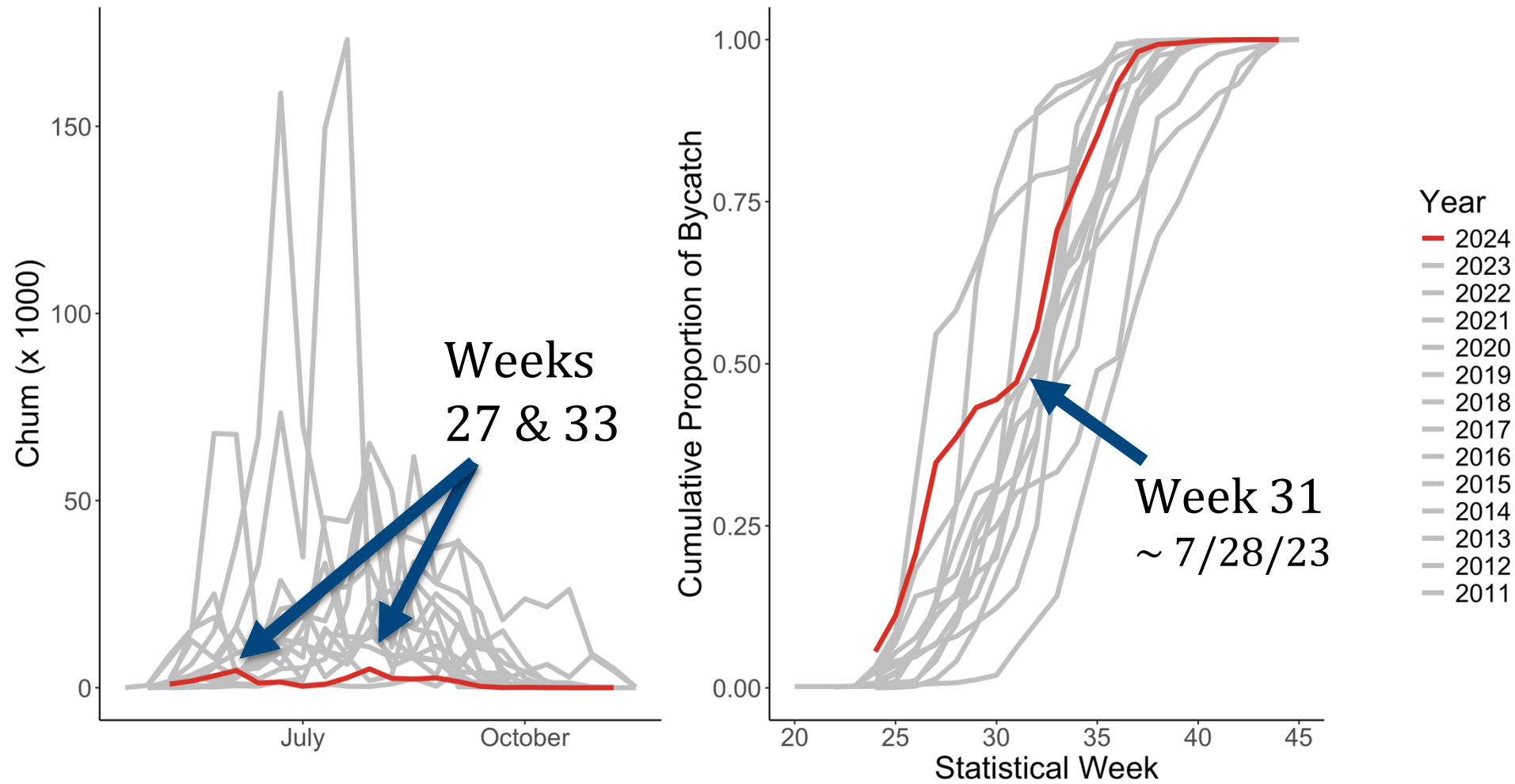
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February 2025

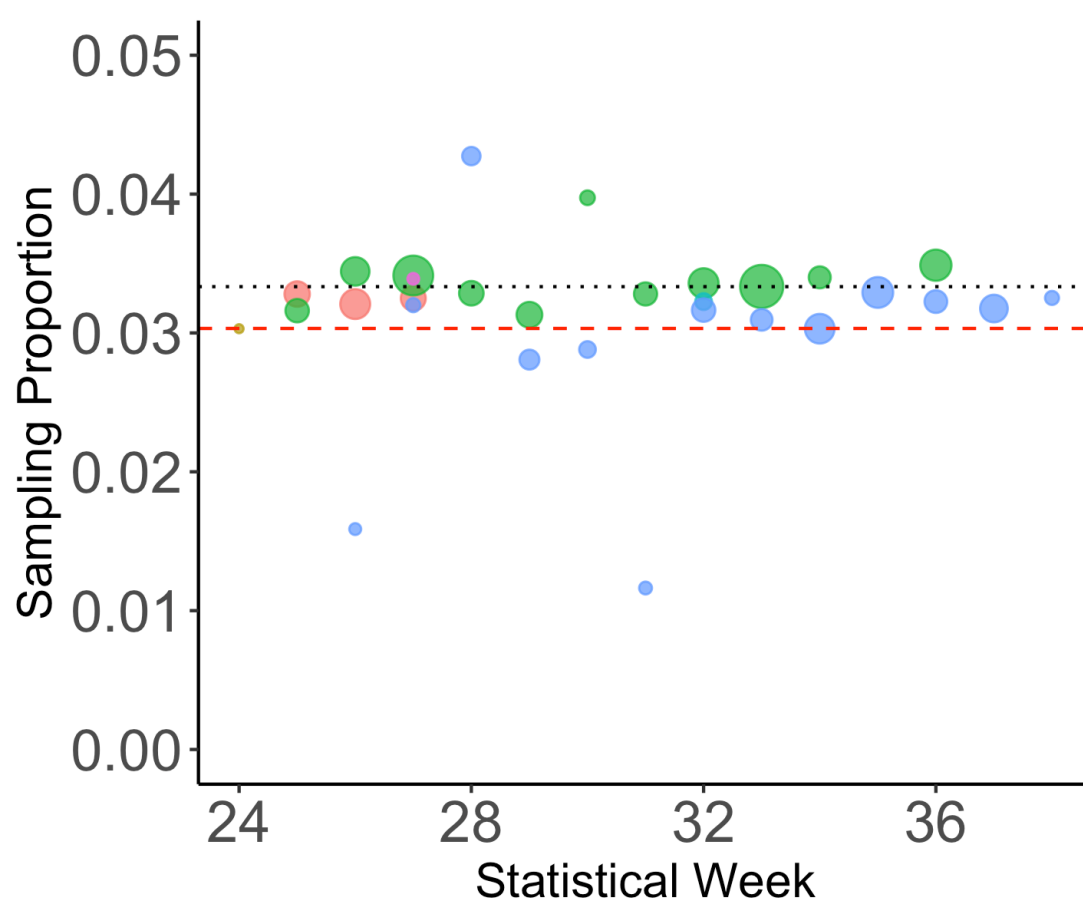
Chum salmon - Extra Slides



Timing of chum salmon bycatch - B season



Genetic sampling of chum salmon by week and NMFS area



NMFS
Area

- 509
- 513
- 517
- 519
- 521
- 523

Bycatch

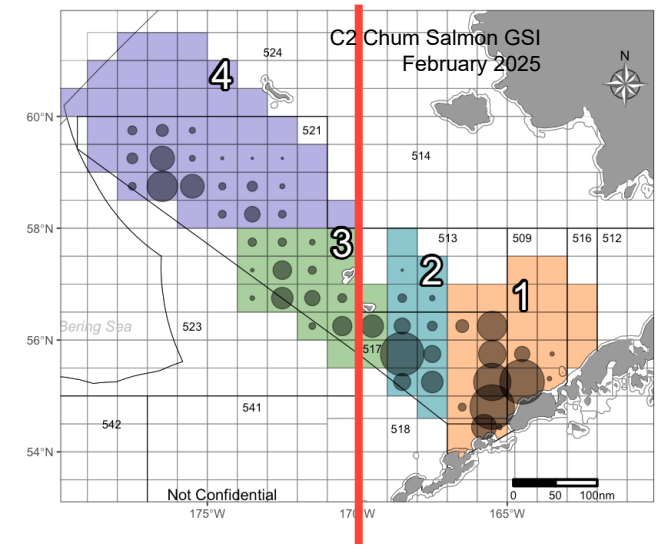
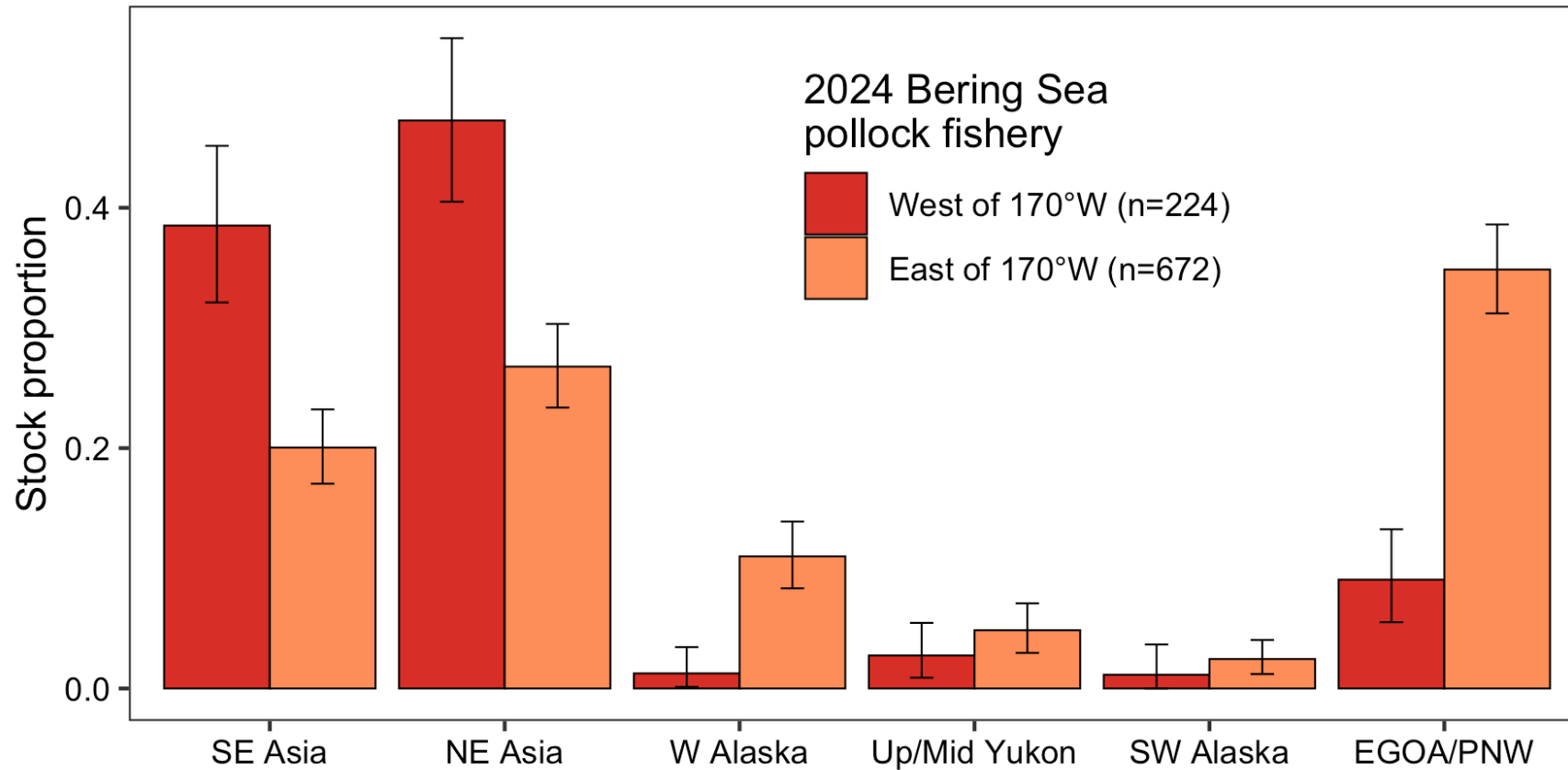
- 50
- 500
- 1000
- 4000

Black dot line = 1 in 30 goal

Red dash line ~ 1 in 33
realized average sampling

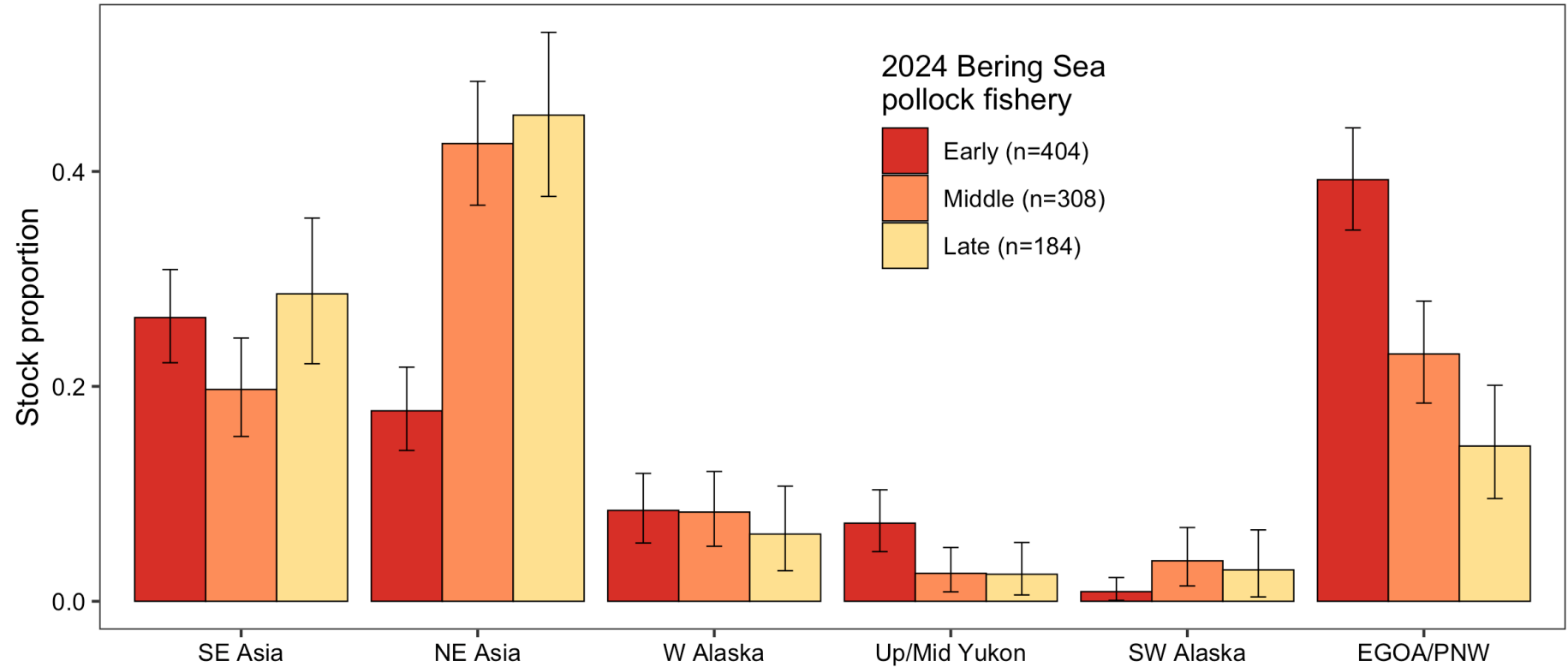
Samples recently debriefed
(n ~ 238)

West and east of 170°W – chum bycatch



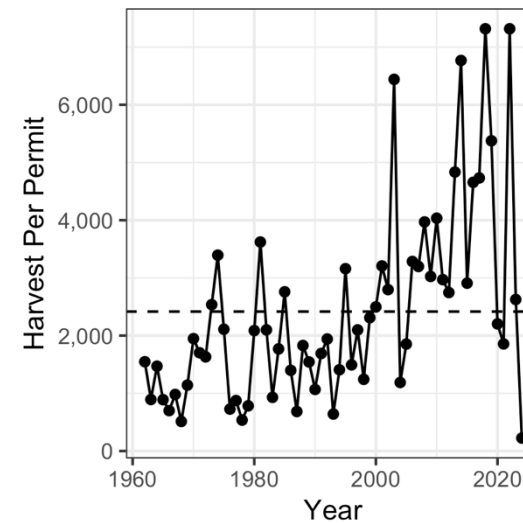
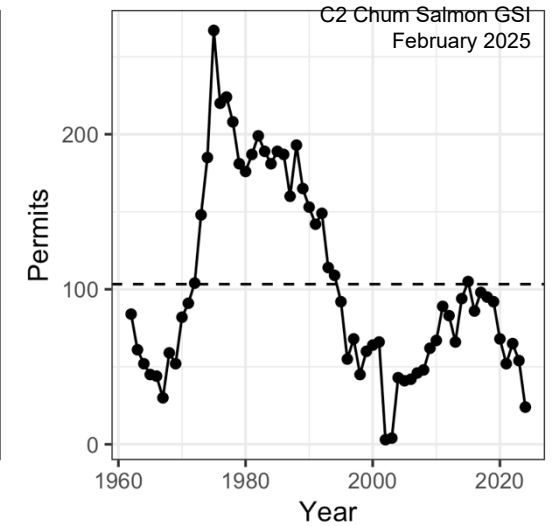
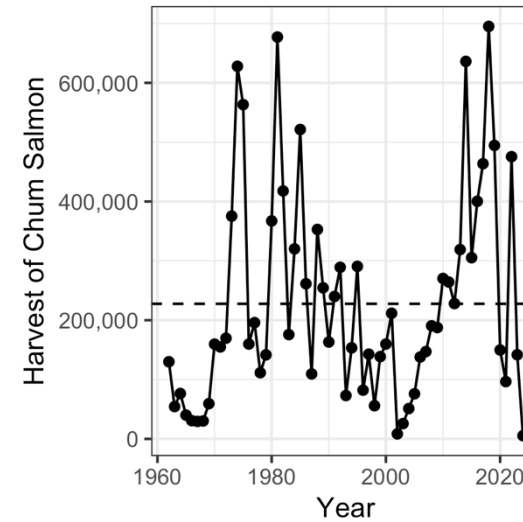
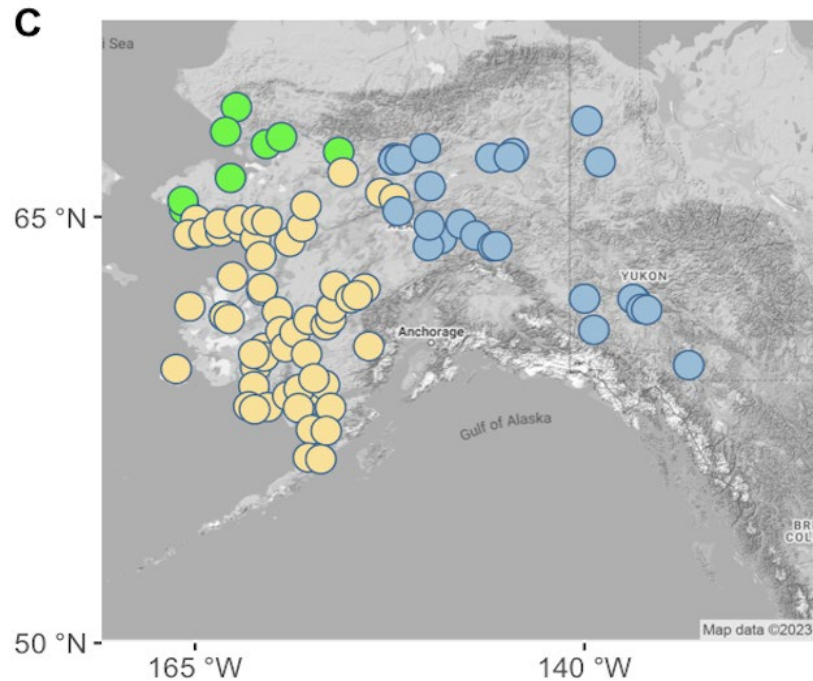
Temporal Trends

- Early
- Middle
- Late



Kotzebue Sound analysis- chum salmon

Kotzebue Sound reporting
group (*Green*):



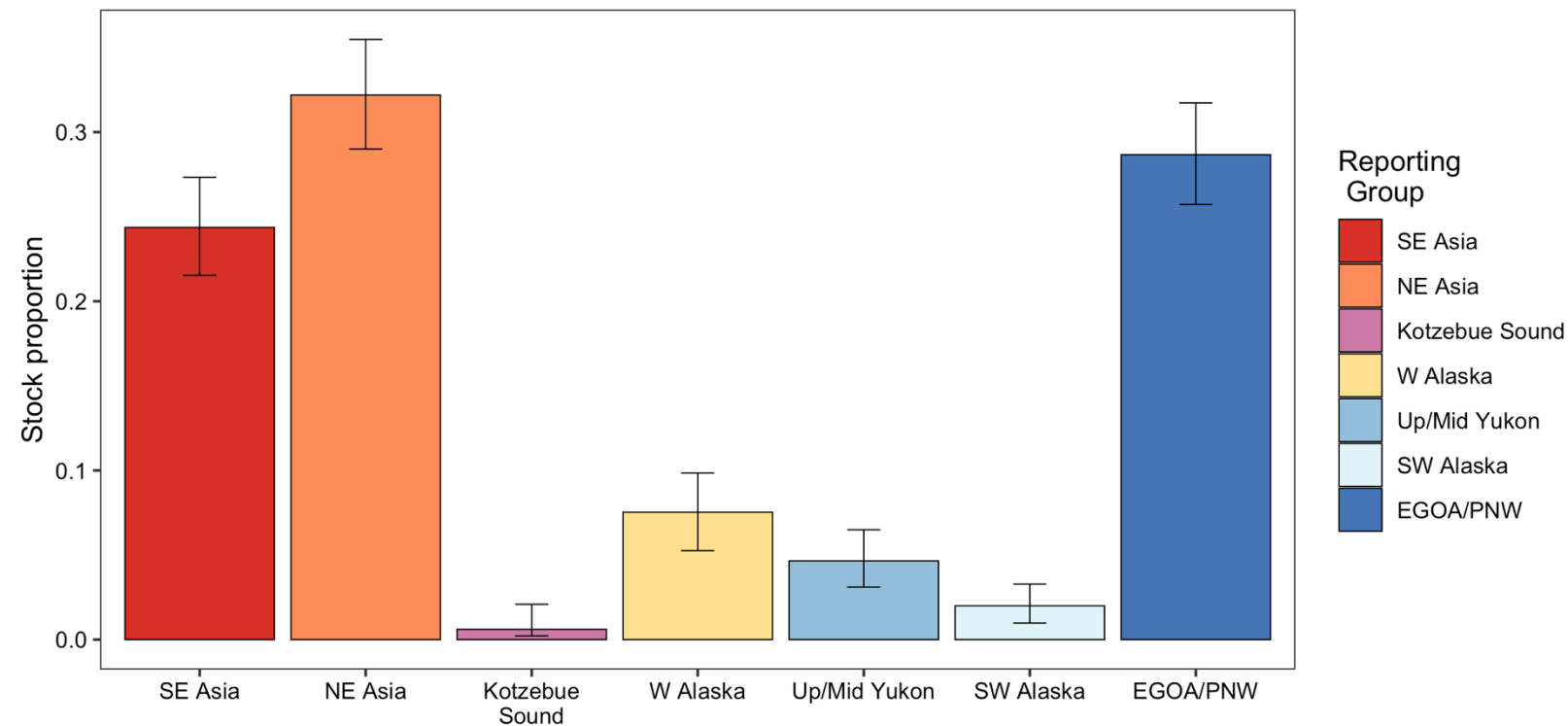
Commercial
fishing
information

2024 was the 'poorest harvest since the state
started managing the Kotzebue District'

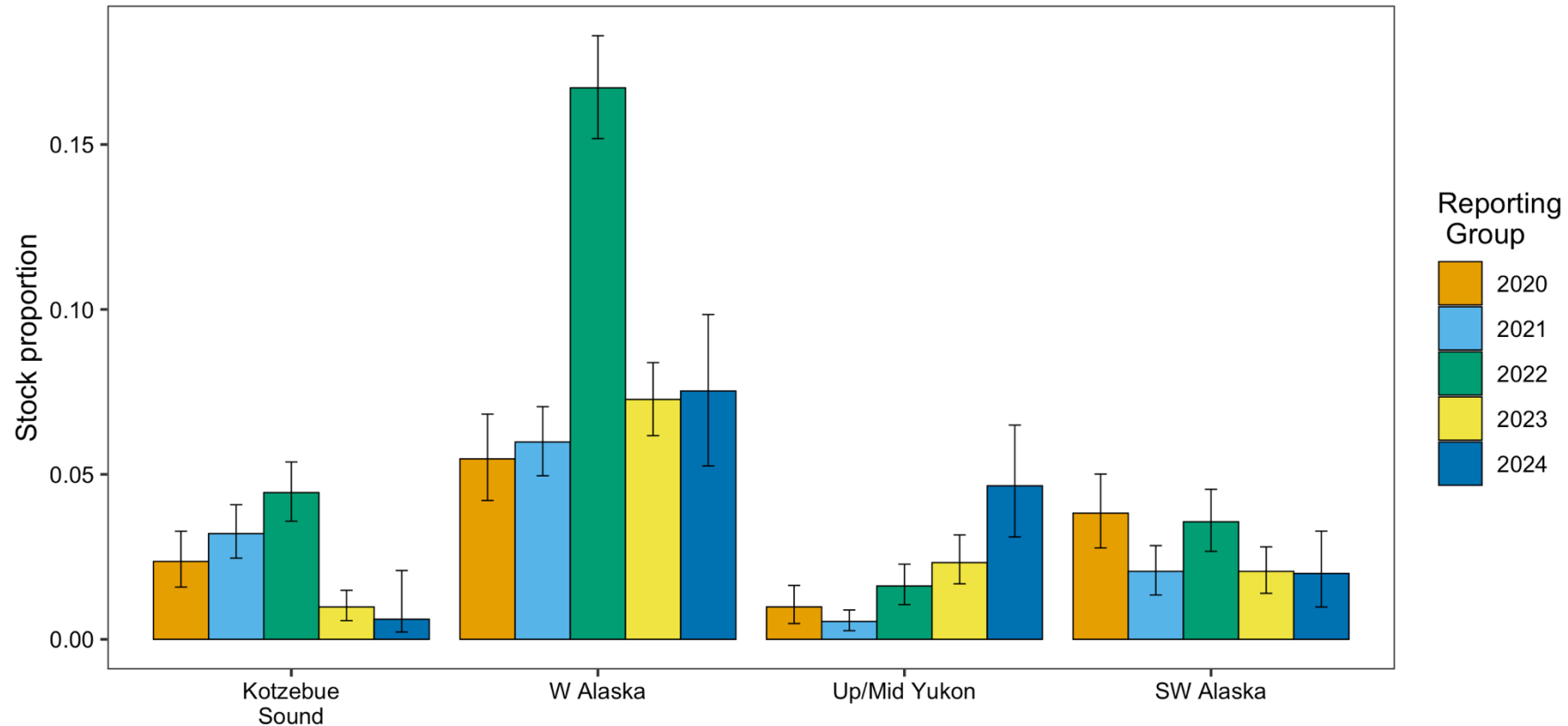
Kotzebue Sound B-season - chum bycatch

B-season (PSC = 32,081; n = 896)

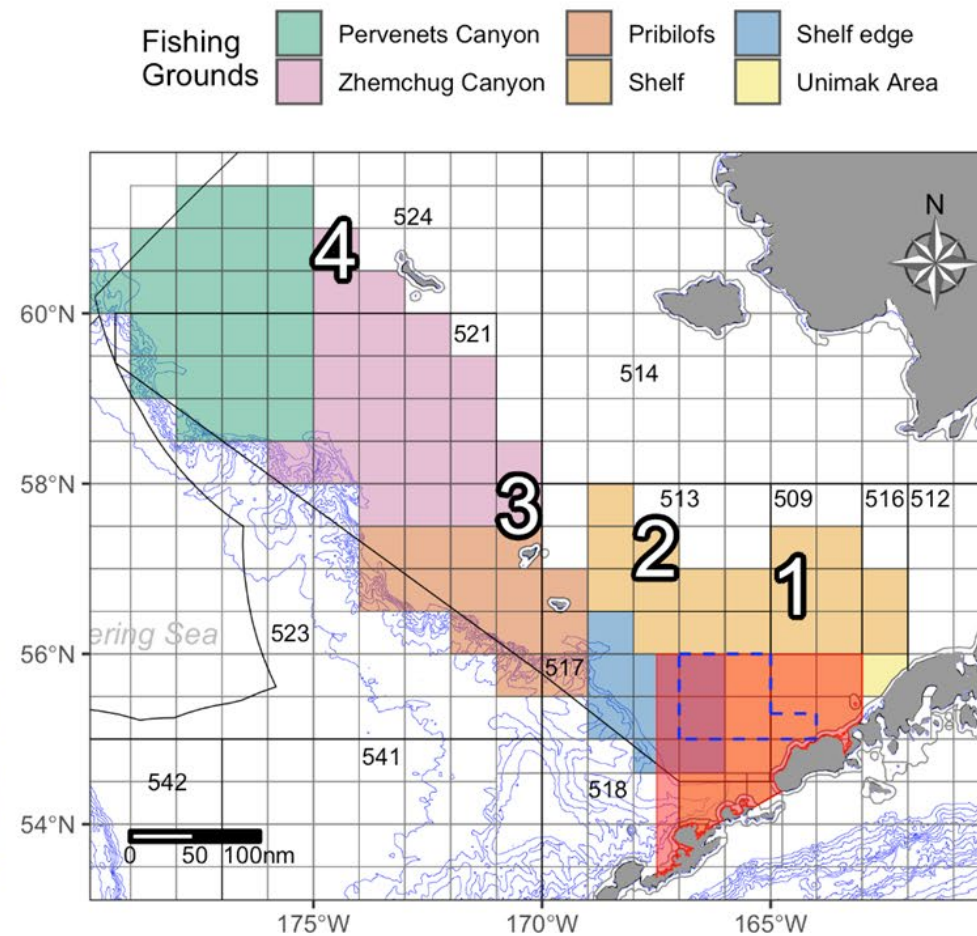
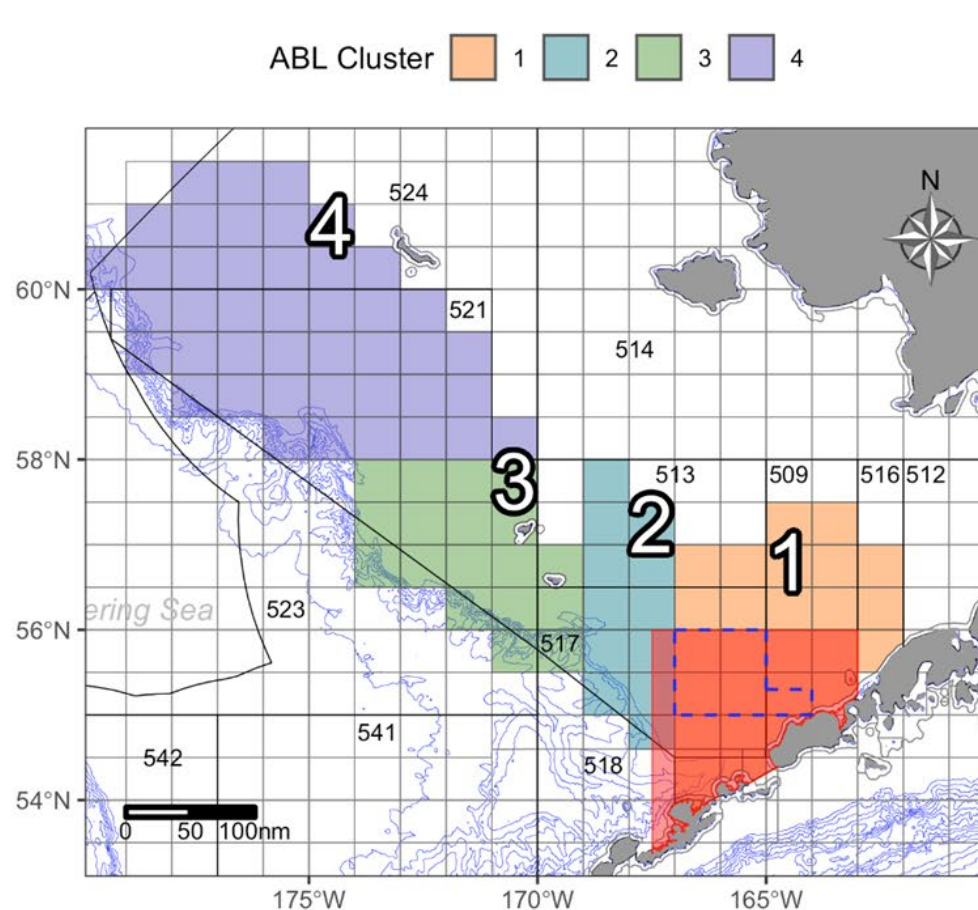
Region	Est. num.	Est. CI	C2 Chum Salmon GSI		
			Mean	2.5%	97.5%
SE Asia	7,816	6,906-8,767	0.244	0.215	0.273
NE Asia	10,326	9,301-11,381	0.322	0.290	0.355
Kotzebue Sound	195	70-669	0.006	0.002	0.021
W Alaska	2,414	1,686-3,159	0.075	0.053	0.098
Up/Mid Yukon	1,492	996-2,083	0.047	0.031	0.065
SW Alaska	640	314-1,052	0.020	0.010	0.033
EGOA/PNW	9,194	8,253-10,178	0.287	0.257	0.317



Kotzebue Sound time series 2021-2024 - chum bycatch

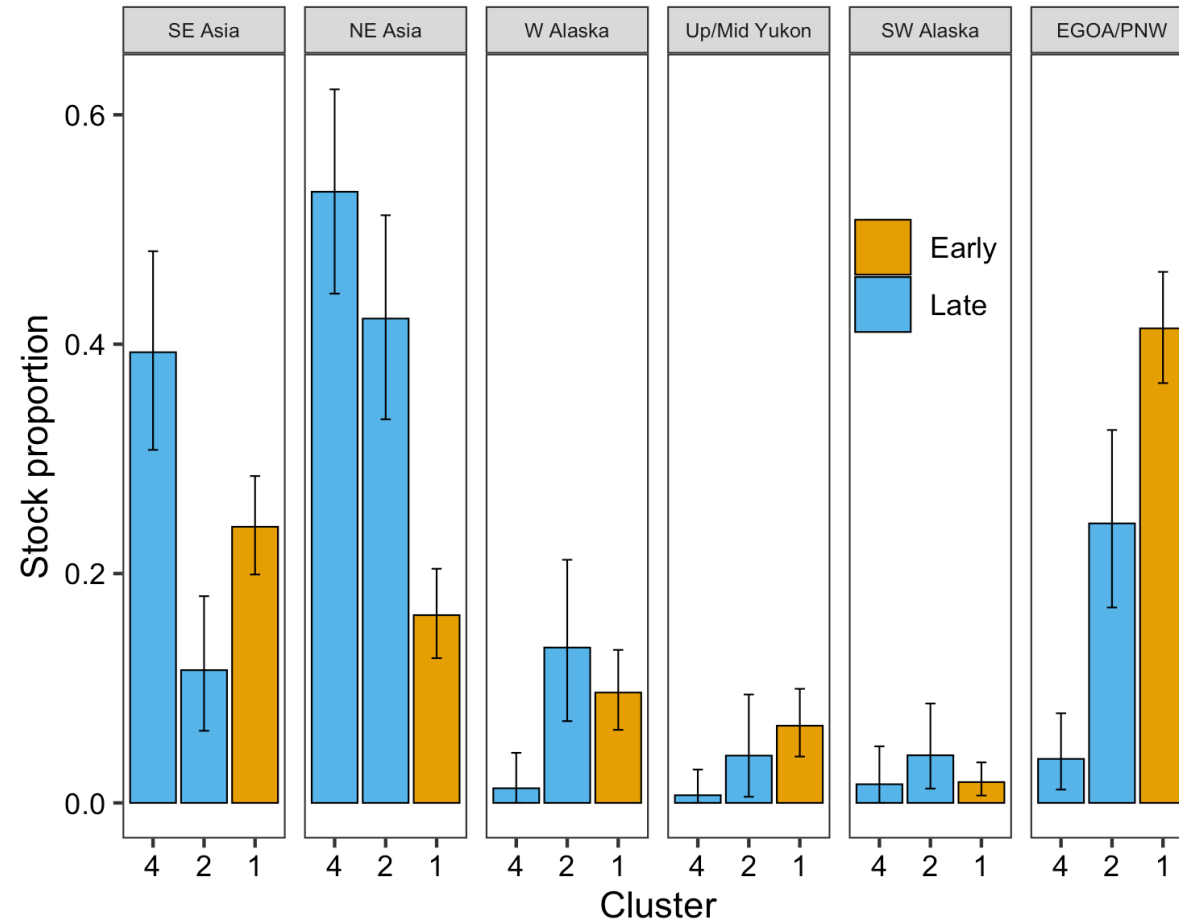


Comparison of Spatial Strata



Fishing Grounds- B season

- Low bycatch precluded analysis of all spatiotemporal strata
- Consistent with spatial trends

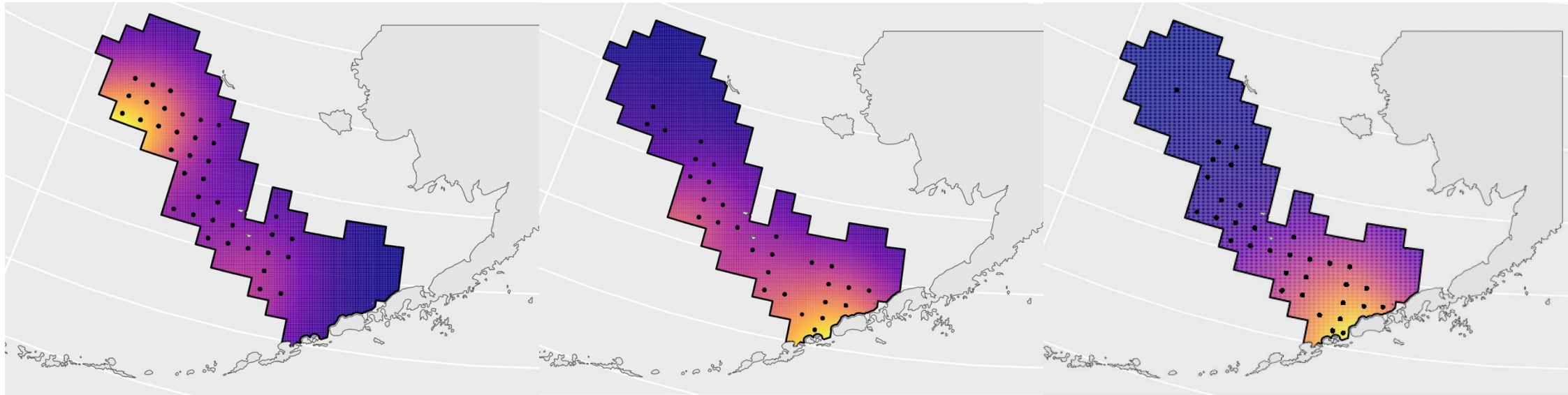


Sector specific chum bycatch densities

Catcher processor

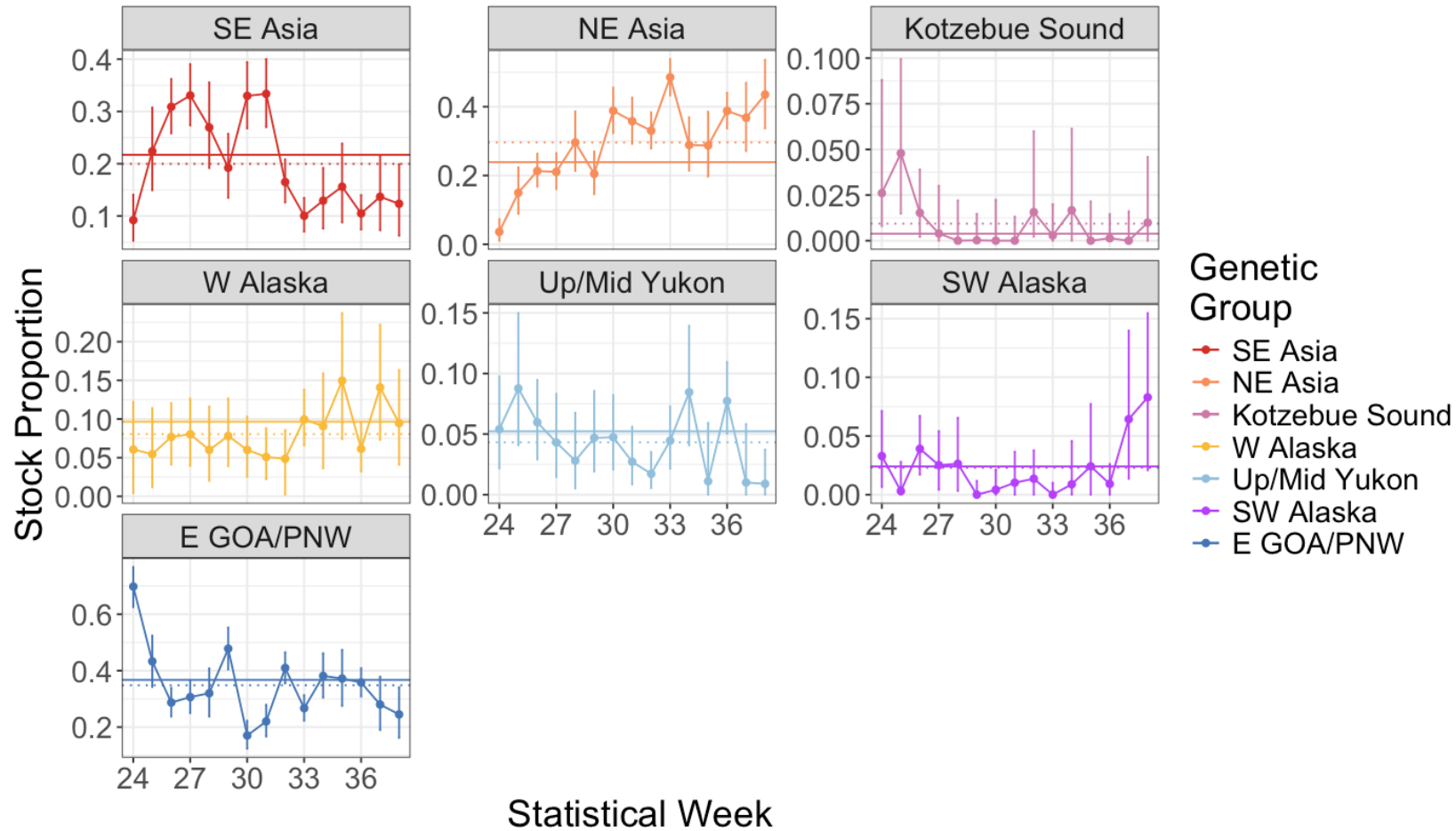
Mothership

Shoreside



Edge effects most likely present

Weekly Inseason Estimates -



Good concordance of estimates!

Solid line: Post-season mean estimate

Dotted line: Inseason weighted mean estimate

Credible intervals (not shown) overlap