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FISHERIES**

2024 Bottom Trawl Survey: What Did They Find?

FLC Symposium – May 5, 2025

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Presentation Outline

- Survey overview and area
 - updated station total
- Charter vessels
- Survey gear
- Results
 - Temperatures/Cold pool
 - Distribution, abundance, and sizes (select species)
 - Special projects



Bering Sea Bottom Trawl Surveys

How often?

- **UPDATE** 350 stations
 - 26 crab hotspot stations removed
- No NBS survey in 2024

Timing

- EBS: Late May - late July
- NBS: August - early September

Goals

Ecosystem monitoring

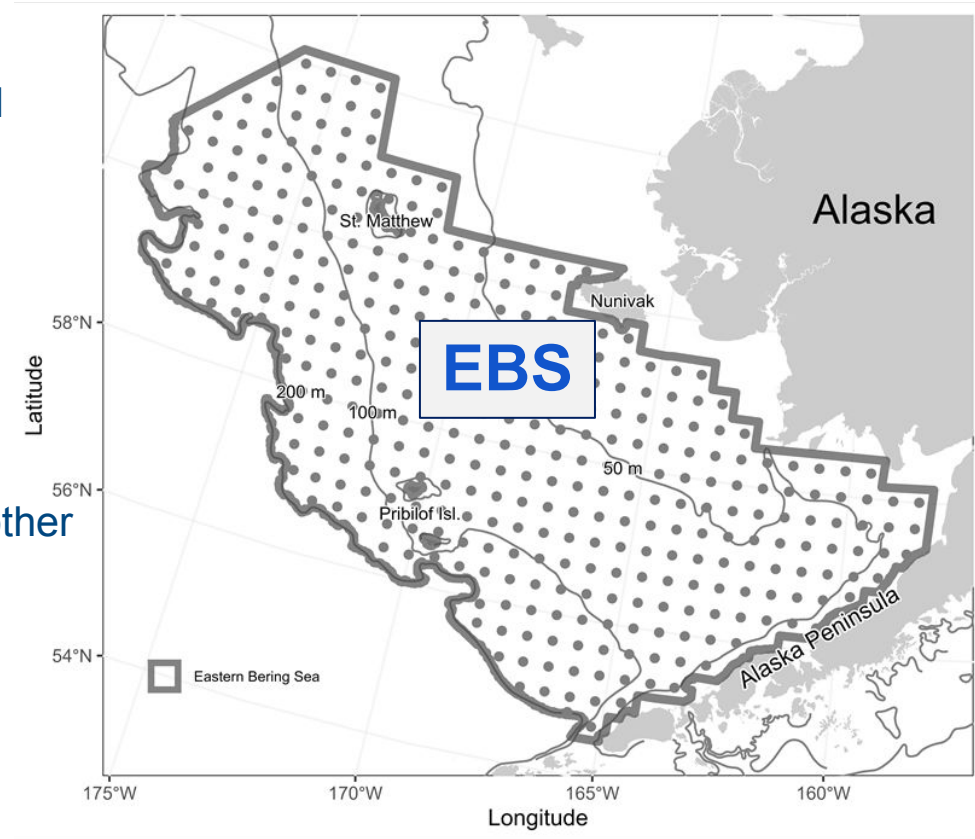
- Movement of fishes, crabs, and other seafloor invertebrates
- Changes in food web

Stock assessment

- Population size, age structure, genetics, of important species

Environmental monitoring

- Water temp, salinity, light, etc.
- Changes associated with loss of seasonal sea ice



Survey Charter Vessels

EBS: May 24 to August 20, 2024



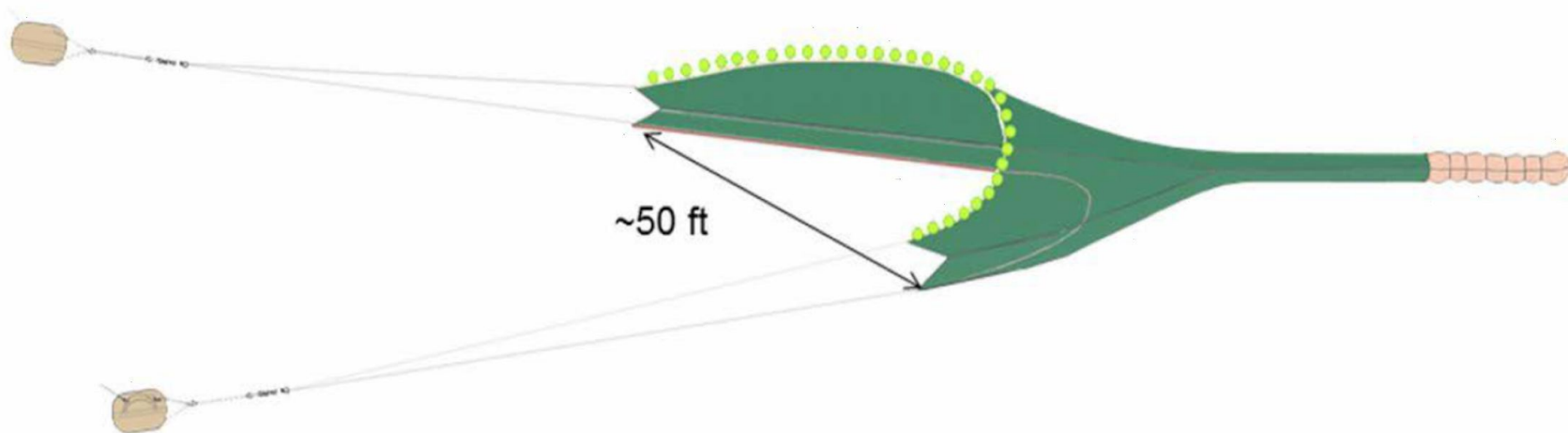
F/V Northwest Explorer
2023- present
2nd Year



F/V Alaska Knight
2010 - Present
14th year

Bering Sea Shelf Research Bottom Trawl

83-112 Eastern

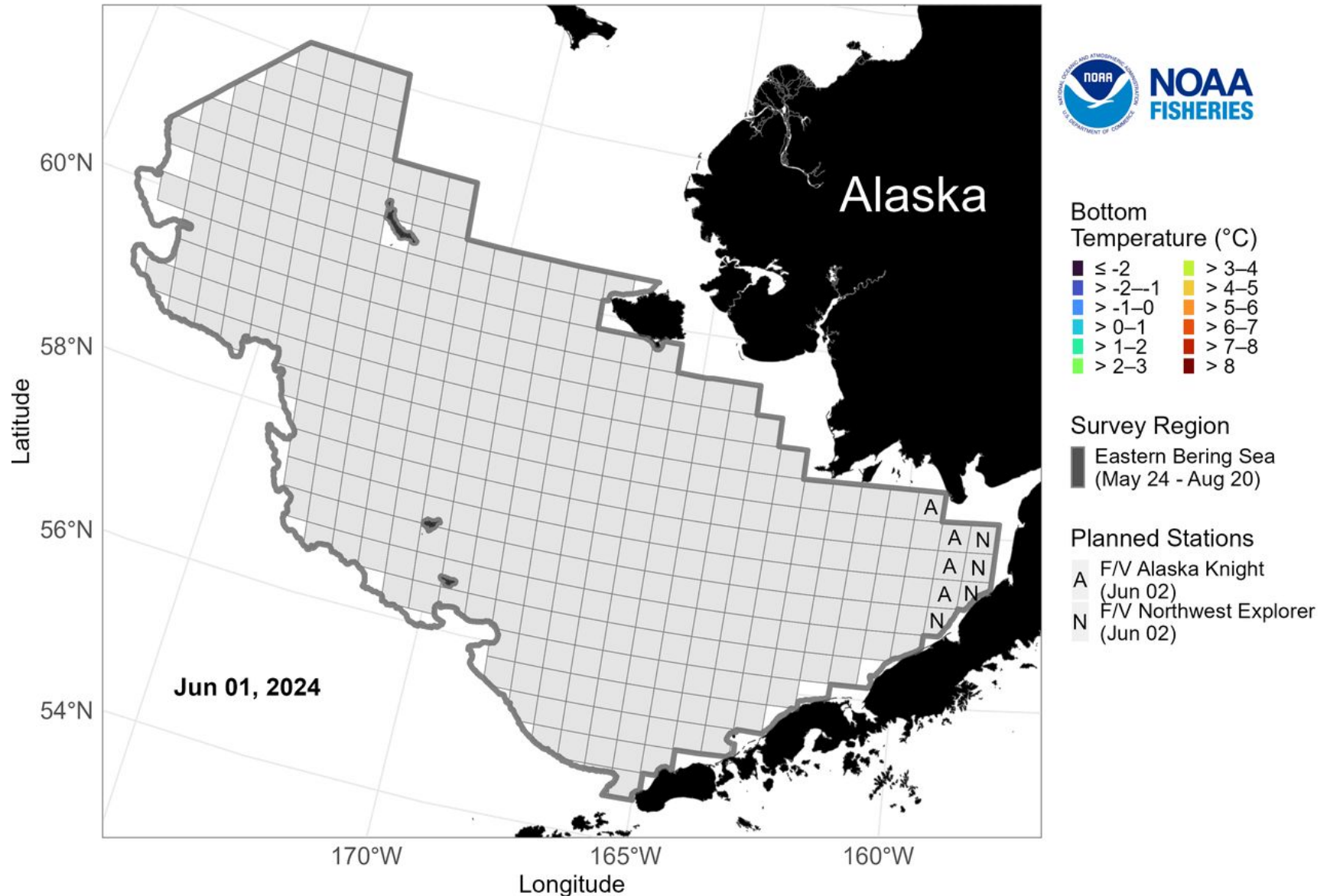


Characteristics

- Similar size and type used for Norton Sound red king crab survey
- Designed for being towed on smooth bottom
- Light footrope and bare wires with no ground gear - skims across bottom
- 6' X 9' doors for spreading trawl
- 0.75" braided nylon with 4" mesh body, 3.5" intermediate and 1.25" codend liner
- 83 ft headrope and 112 ft footrope
- Towed 30 minutes at 3 knots
- Area swept = net width (~50') X distance fished (~1.5 nm)

2024 Bottom Temperature (°C)

NOAA Fisheries Eastern Bering Sea Bottom Trawl Survey

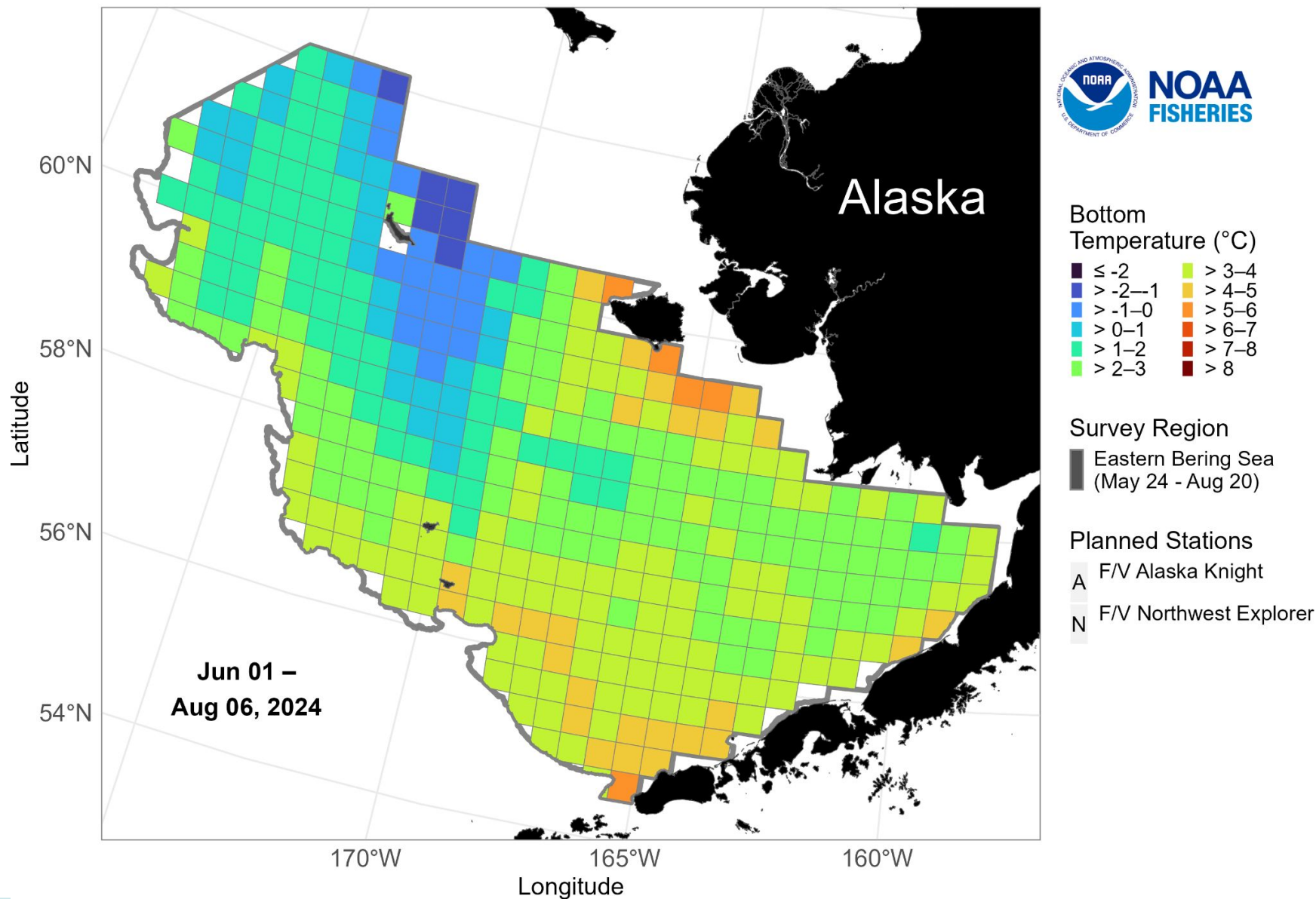


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<https://www.fisheries.noaa.gov/alaska/science-data/near-real-time-temperatures-eastern-bering-sea-bottom-trawl-survey-2024>

2024 Bottom Temperature (°C)

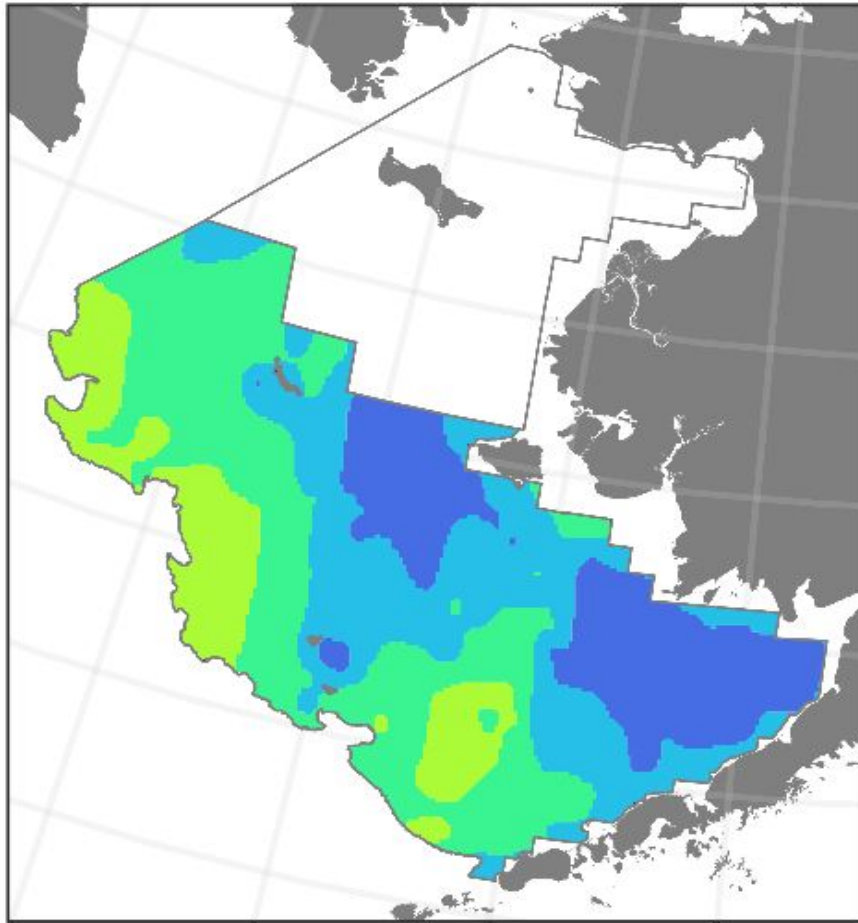
NOAA Fisheries Eastern Bering Sea Bottom Trawl Survey



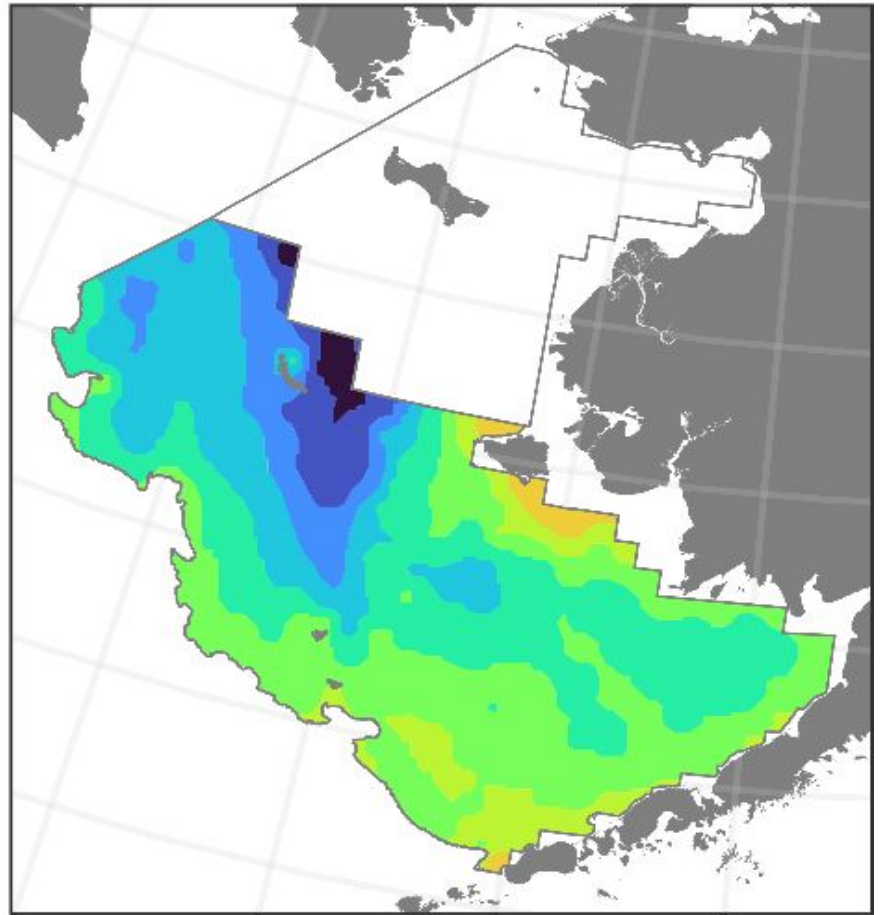
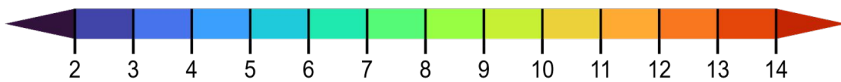
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<https://www.fisheries.noaa.gov/alaska/science-data/year-time-temperatures-eastern-bering-sea-bottom-trawl-survey-2024>

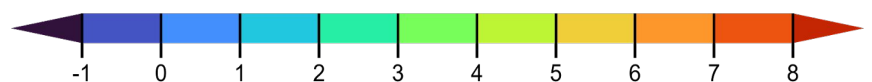
2024 Surface & Bottom Temperature



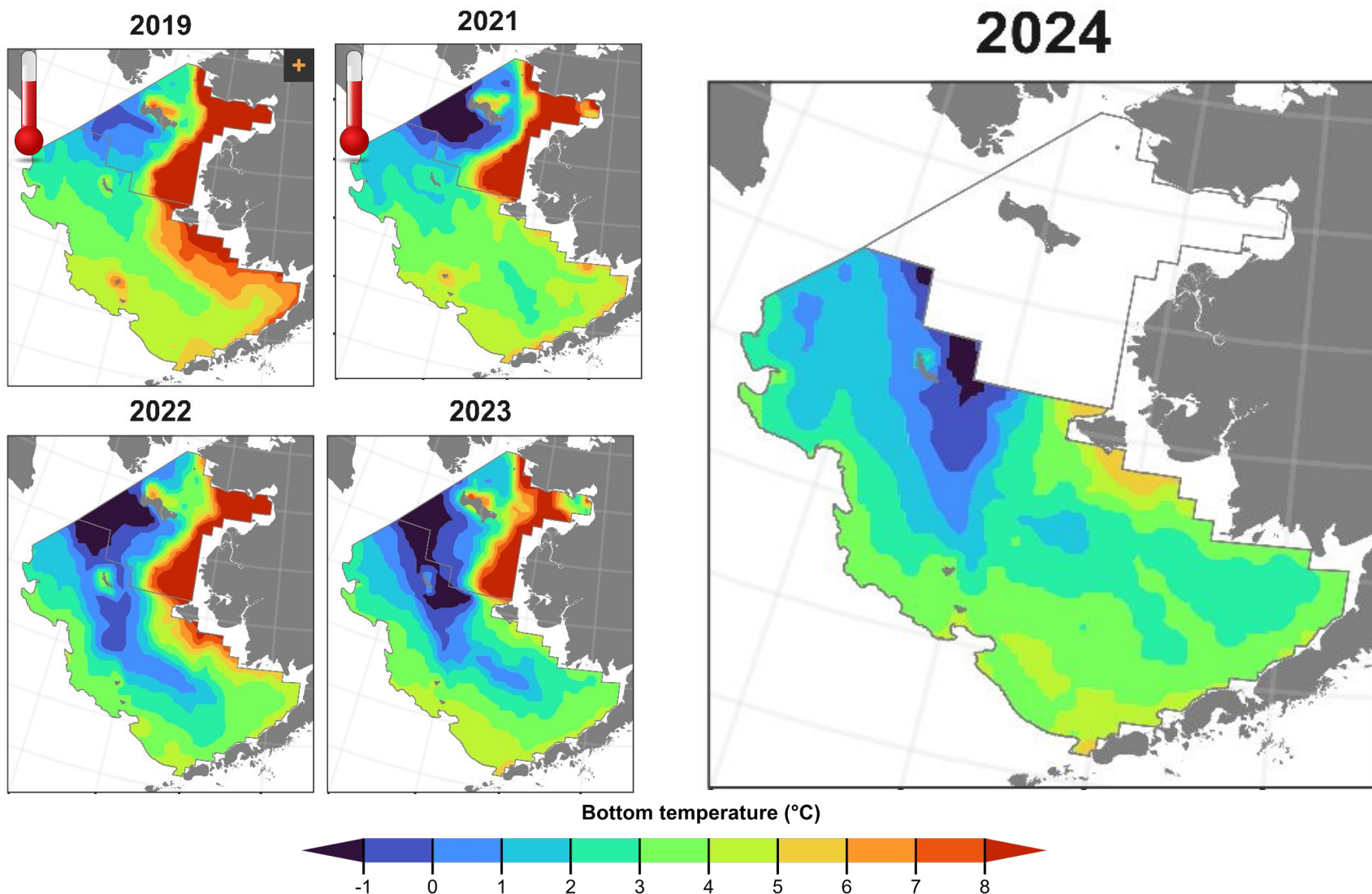
Surface temperature (°C)



Bottom temperature (°C)

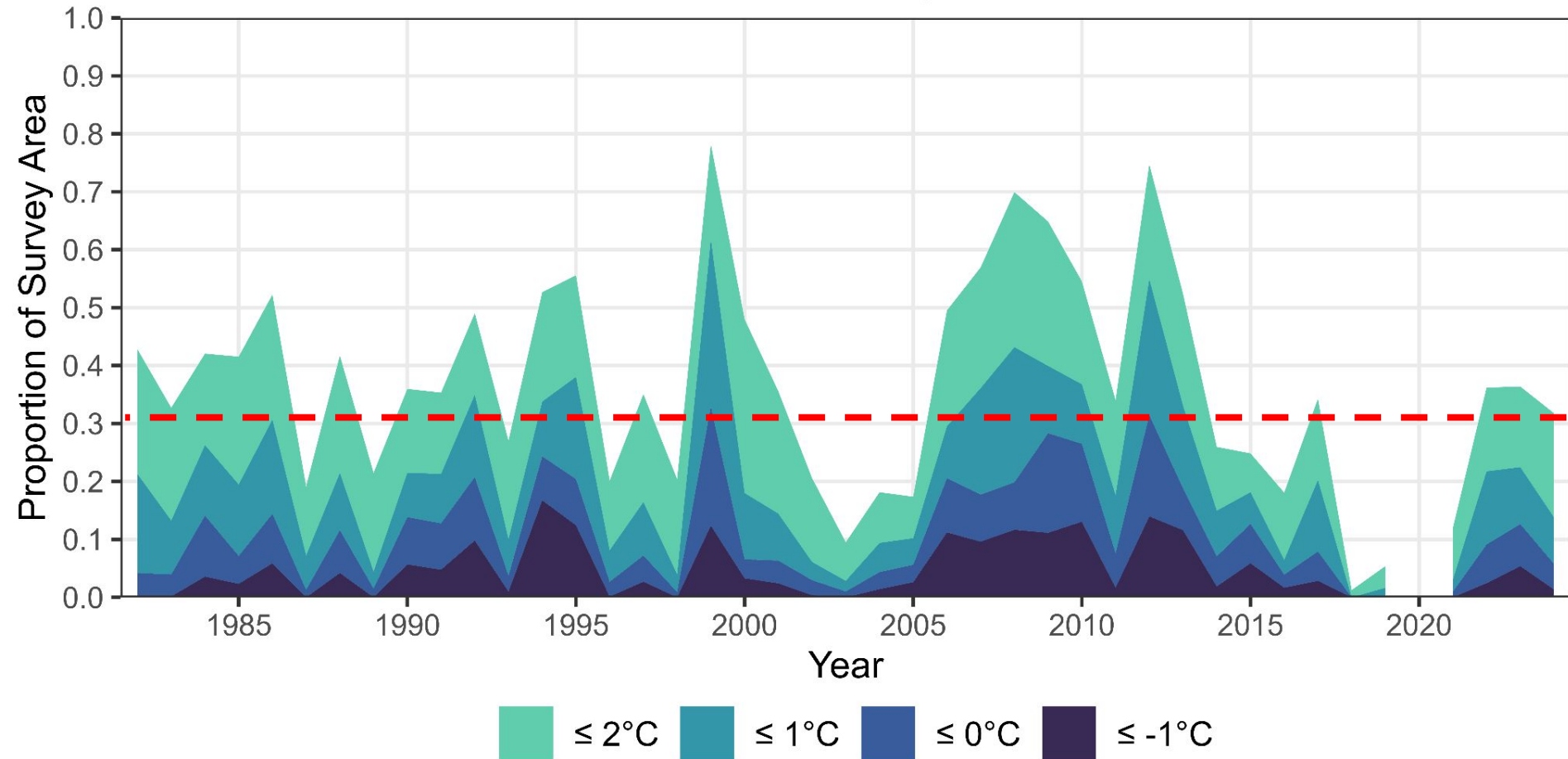


Survey Bottom Water Temperatures



Cold Pool Area

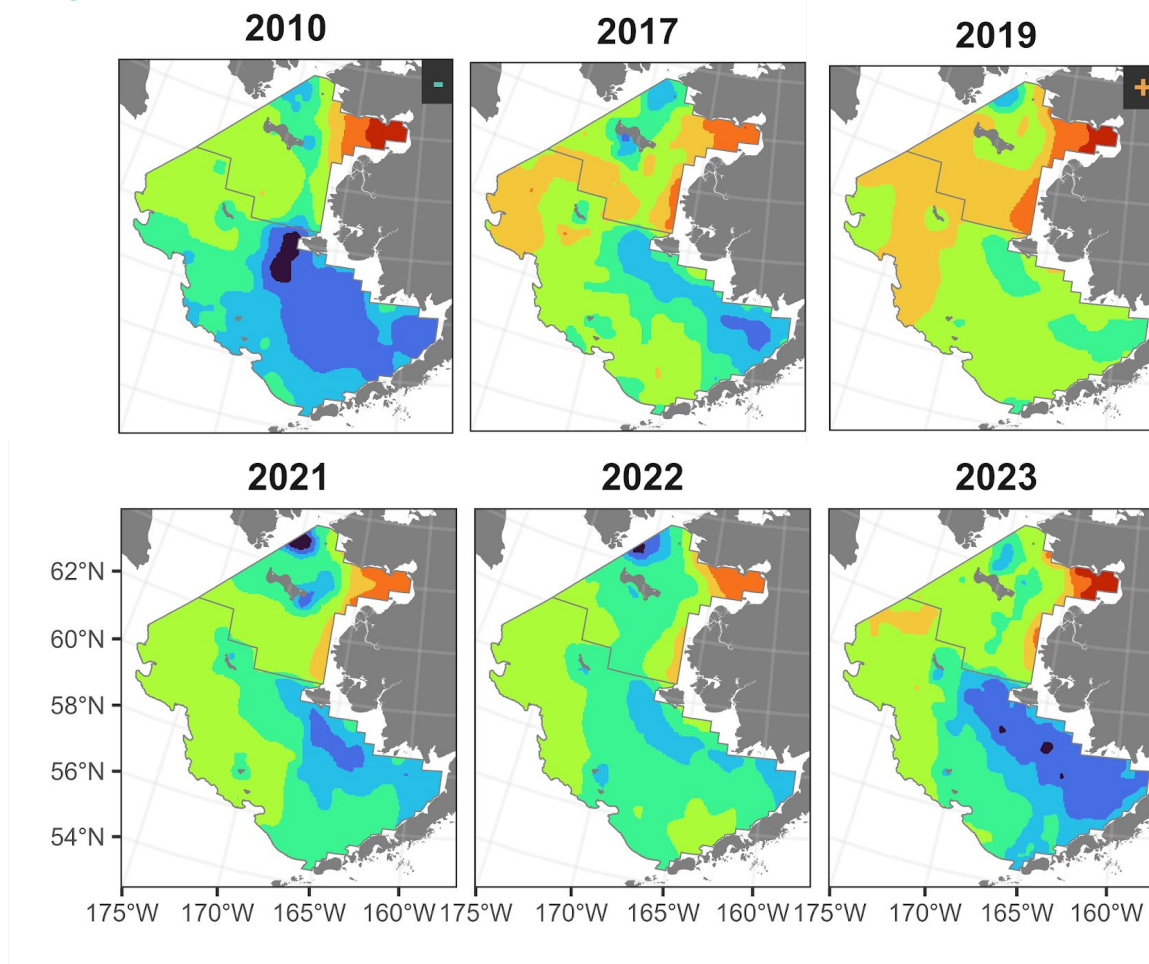
Eastern Bering Sea



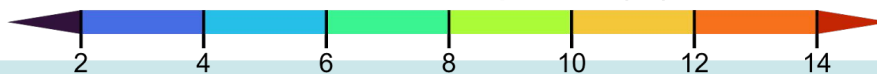
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Temperature data products: <https://github.com/afsc-gap-products/coldpool>

Survey Surface Water Temperatures



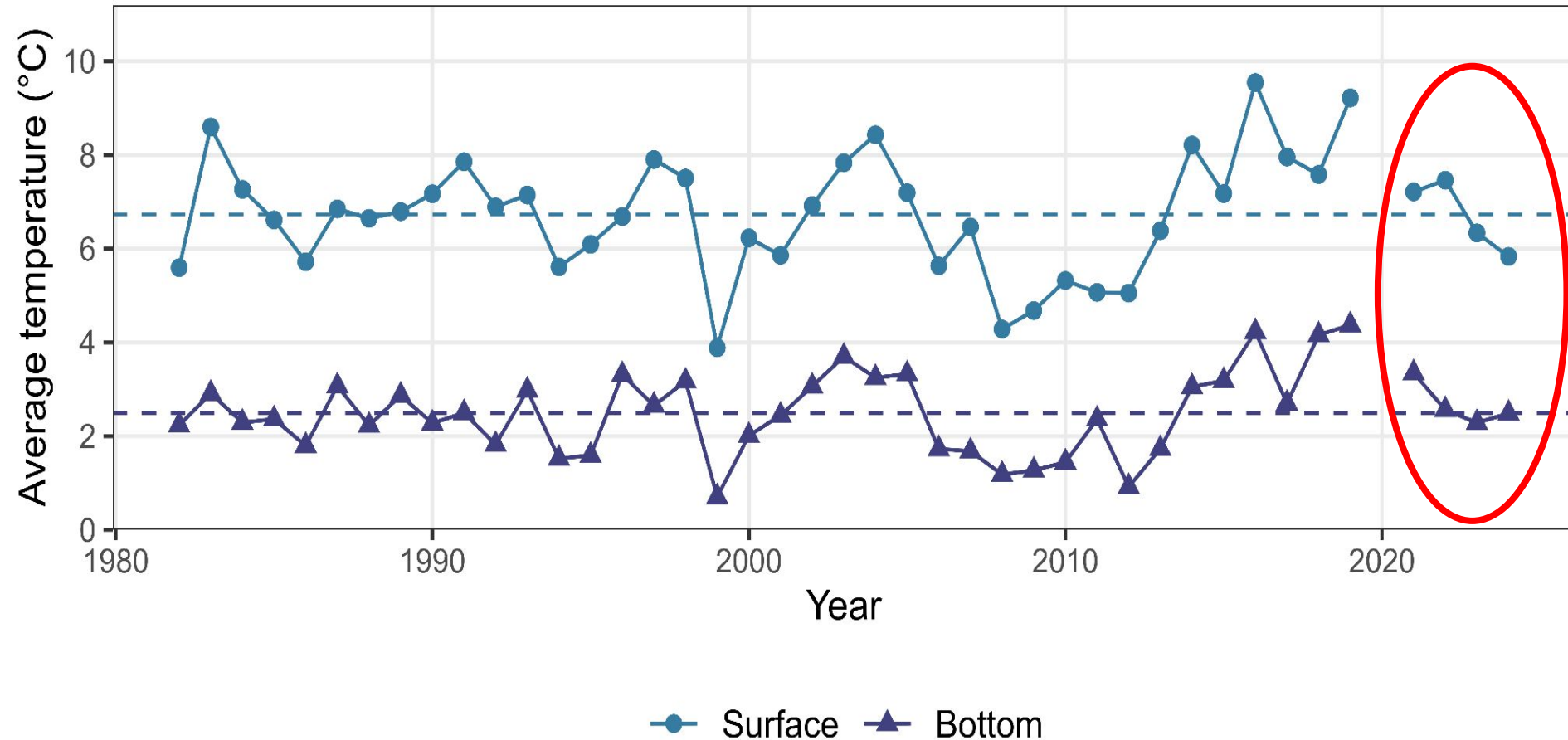
Surface temperature (°C)



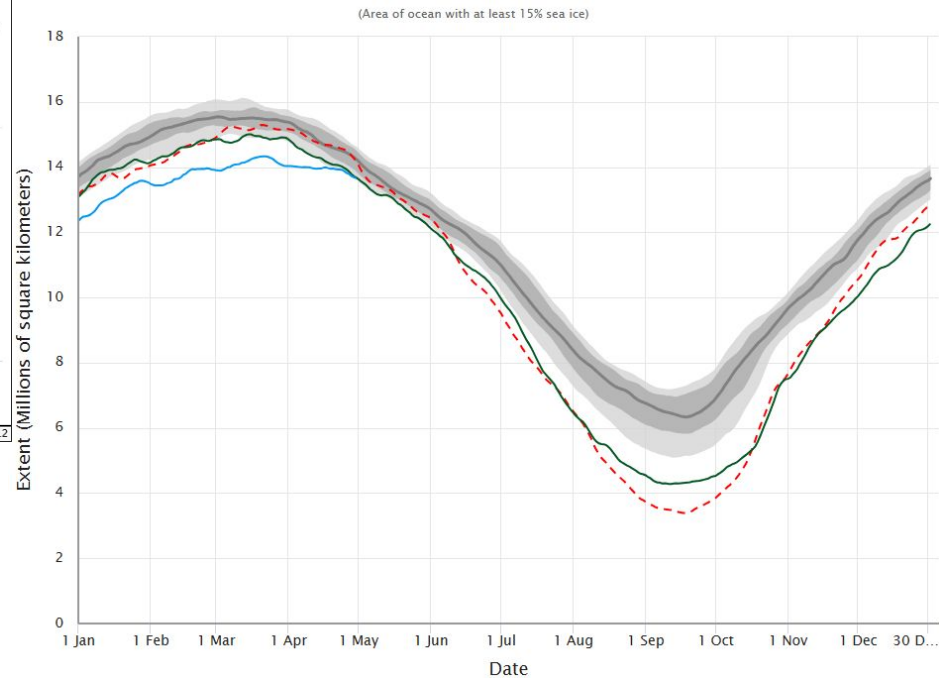
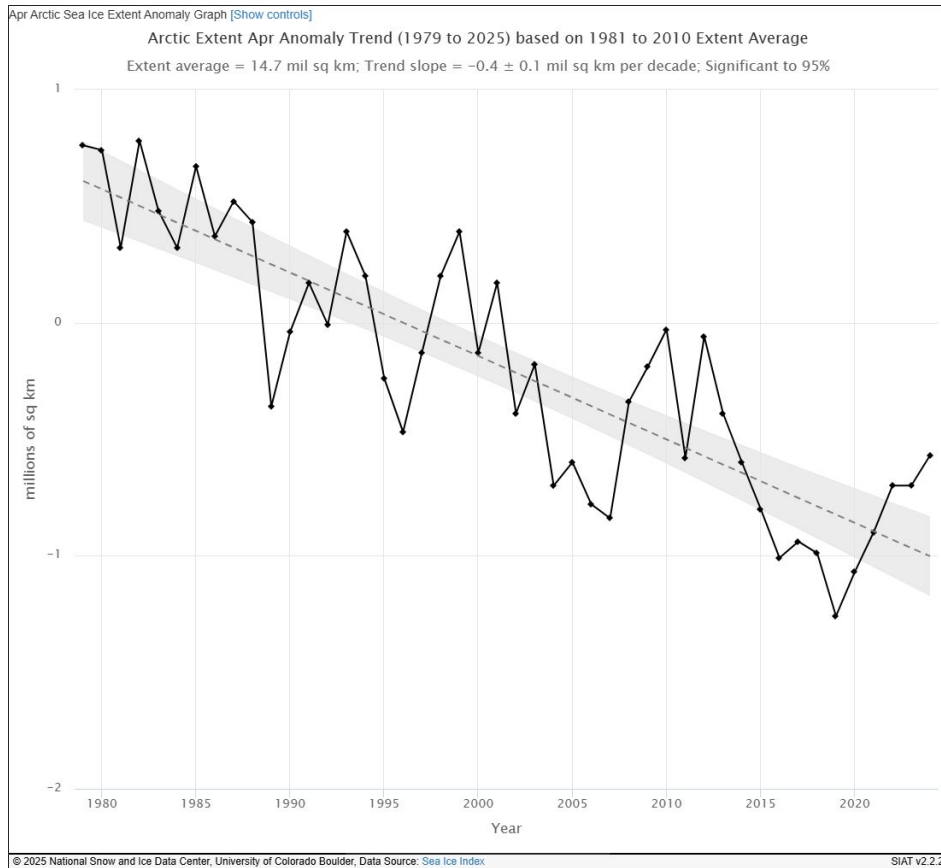
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Average Bering Sea Temperatures

Eastern Bering Sea



Arctic Sea Ice



Summary of EBS Results by the Numbers

- EBS: 350 Stations Sampled
 - crab “hot-spot” stations (corner stations near the Pribis and St. Matthew Island removed from sampling grid).
- 125,265 total lengths collected from 43 species of fish
- 6,070 otolith (ear bones) collected from 11 species of fish - aging
- 4,917 Stomachs from 5 species of fish - diet

Length measurements

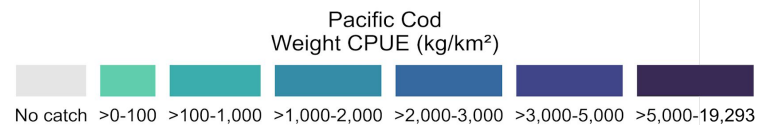
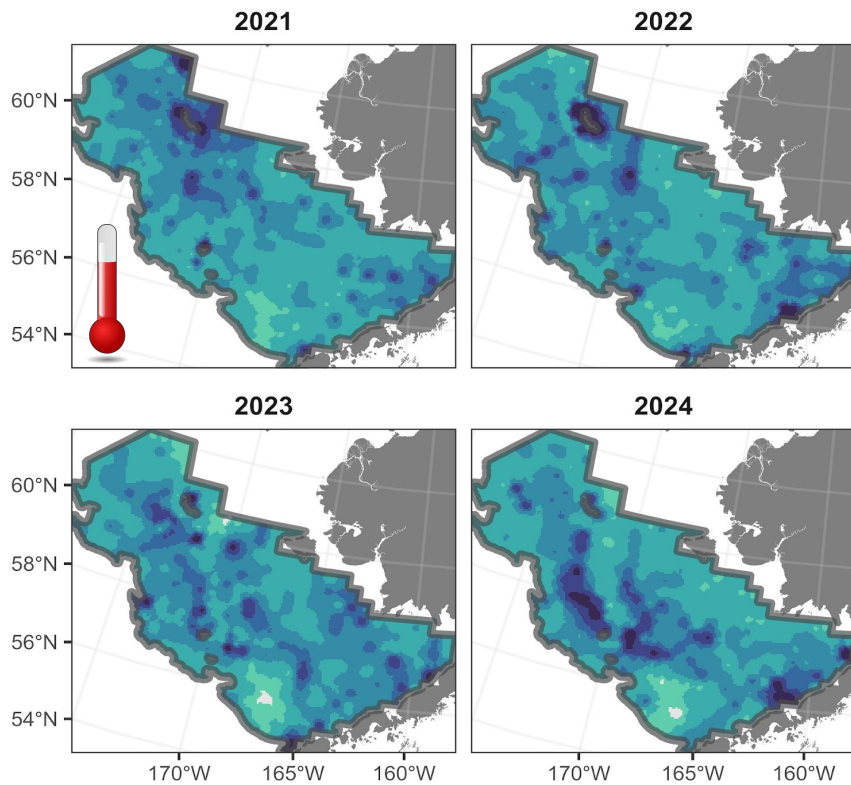
Common name	EBS
walleye pollock	38,618
Pacific cod	11,106
Pacific halibut	2,086
Greenland turbot	53

Age structures

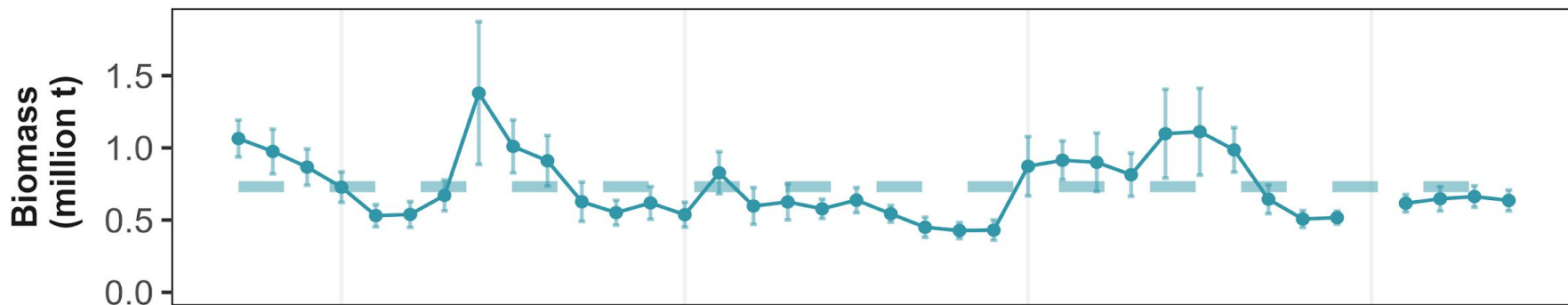
Common name	EBS
walleye pollock	1,530
Pacific cod	1,320
Greenland turbot	70



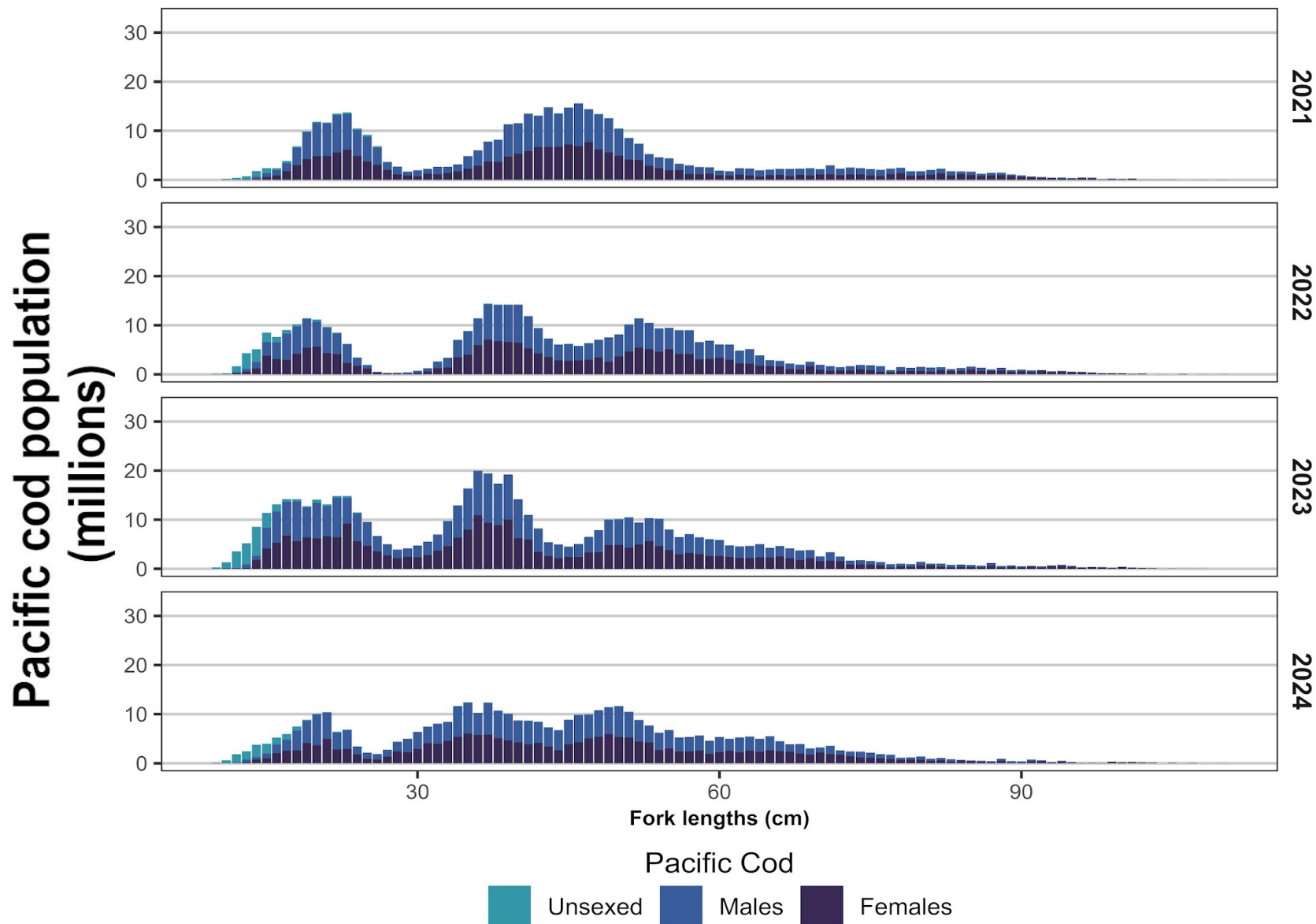
Pacific Cod Distribution and Biomass Changes



EBS Biomass
Mean: 731.2 K mt
2024: 635.8 K mt (-4.2%)



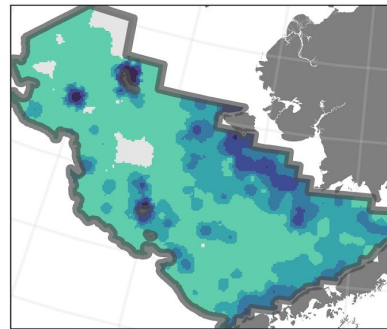
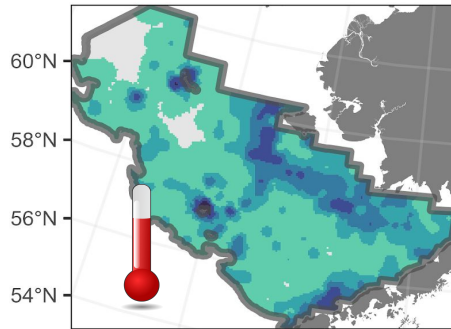
Pacific Cod Size Composition



Pacific Halibut Distribution and Biomass Changes

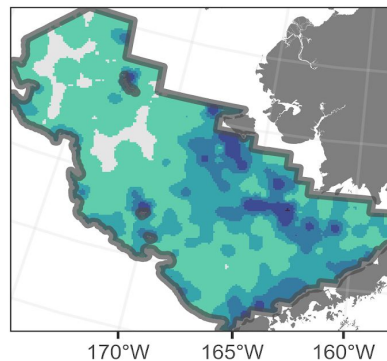
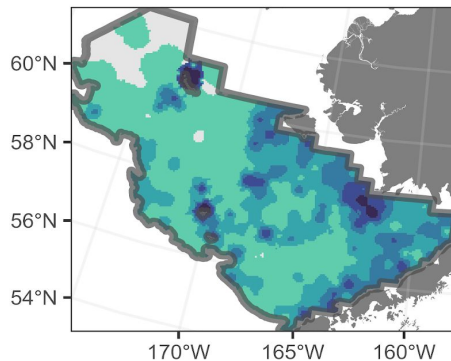
2021

2022

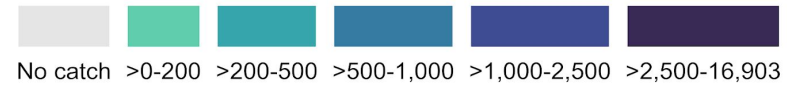


2023

2024



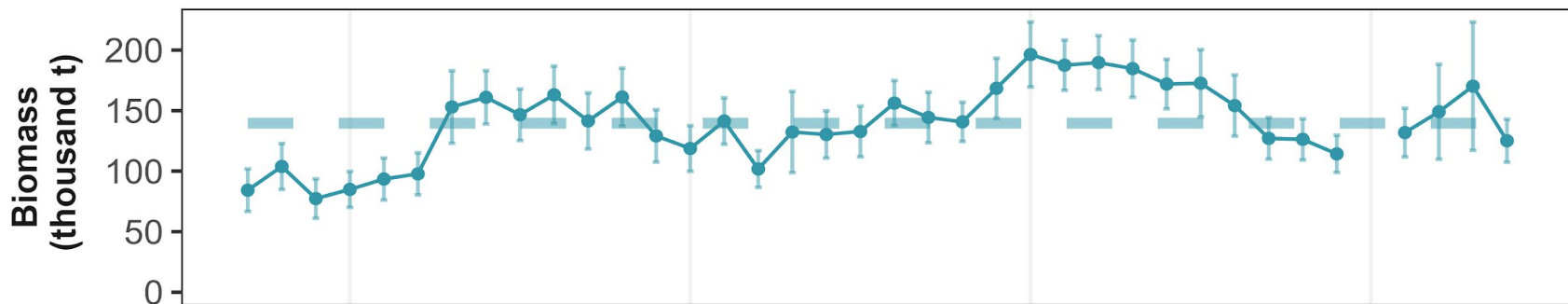
Pacific Halibut
Weight CPUE (kg/km²)



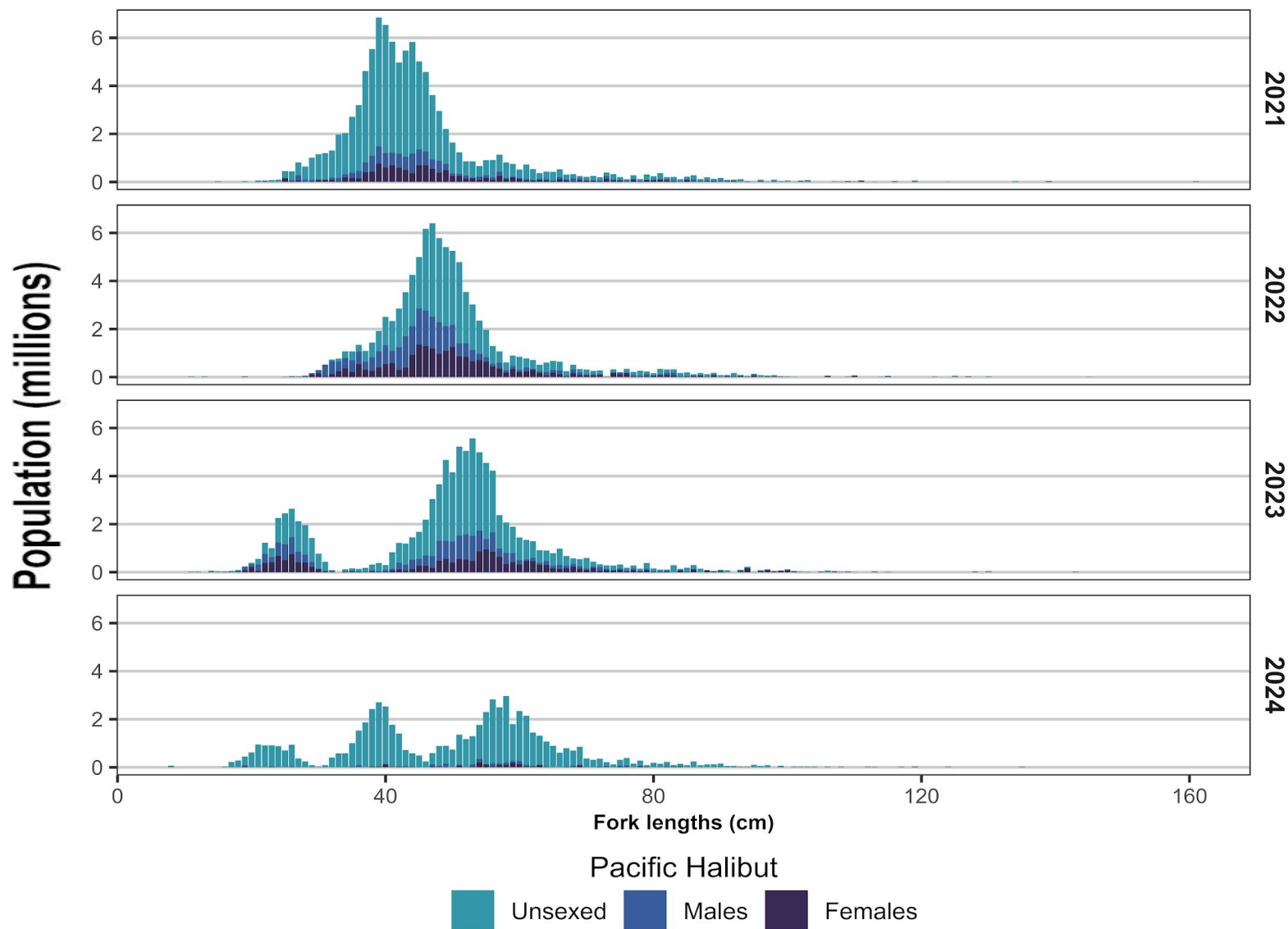
EBS Biomass

Mean: 139.6 K mt

2024: 125.1 K mt (-26%)



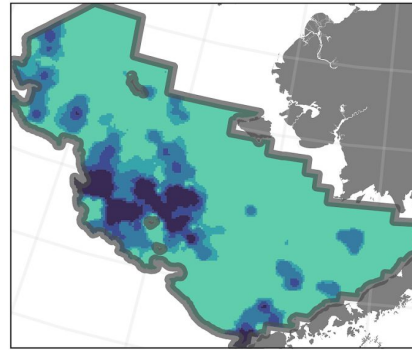
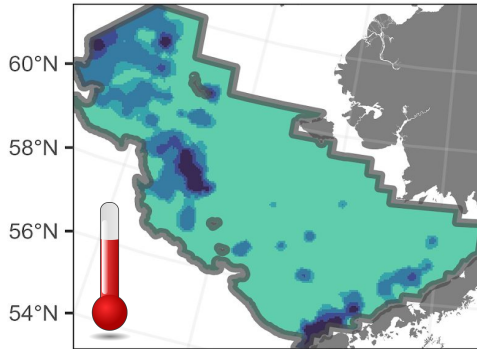
Pacific Halibut Size Composition



Walleye Pollock Distribution and Biomass Changes

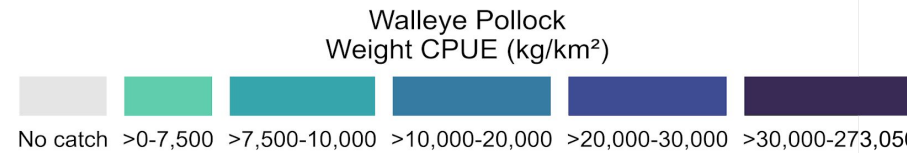
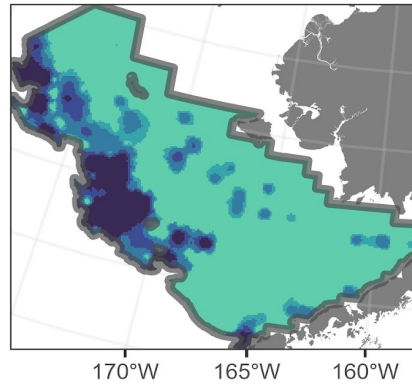
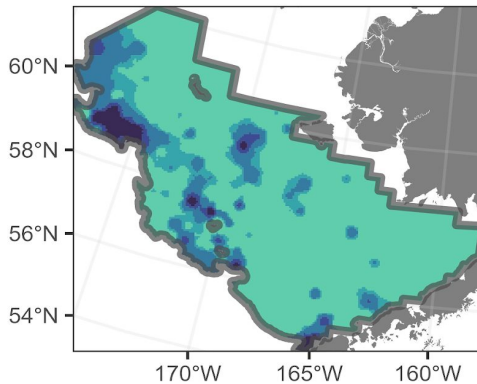
2021

2022



2023

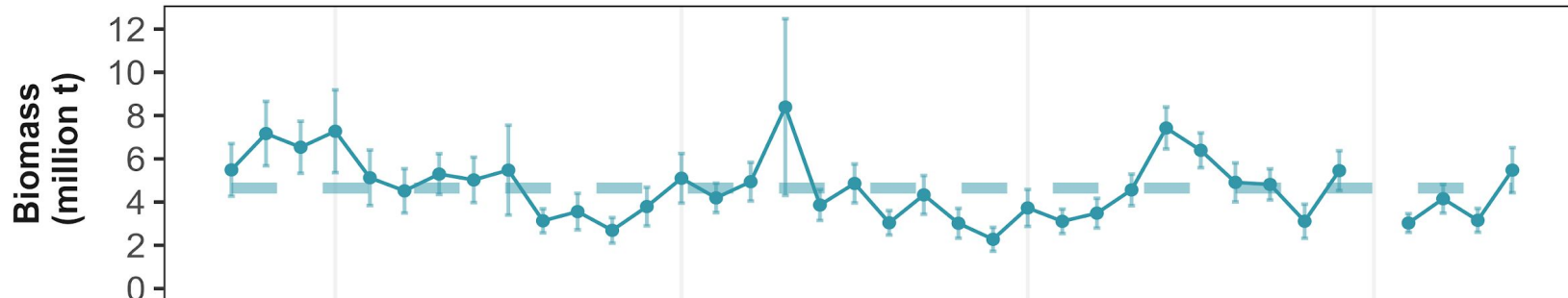
2024



EBS Biomass

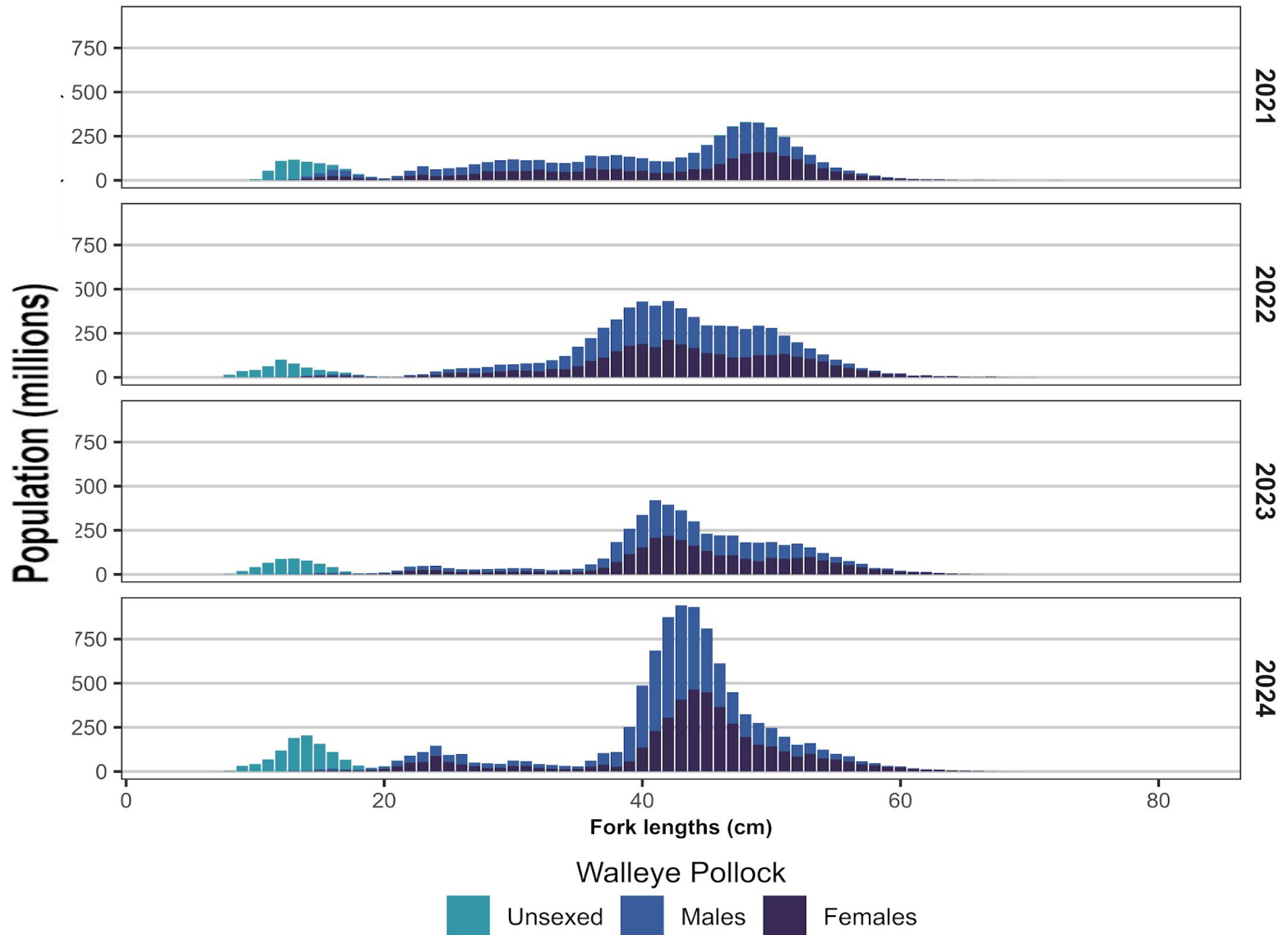
Mean: 4.6 M mt

2024: 5.5 M mt (74%)

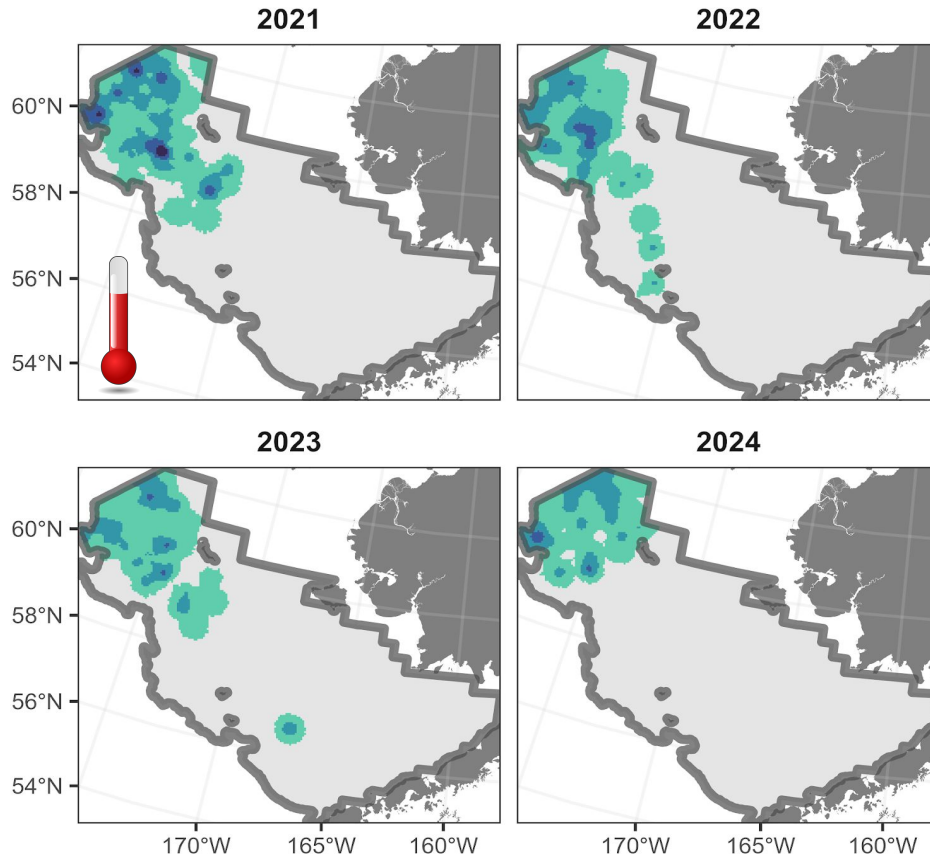


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Walleye Pollock Size Composition



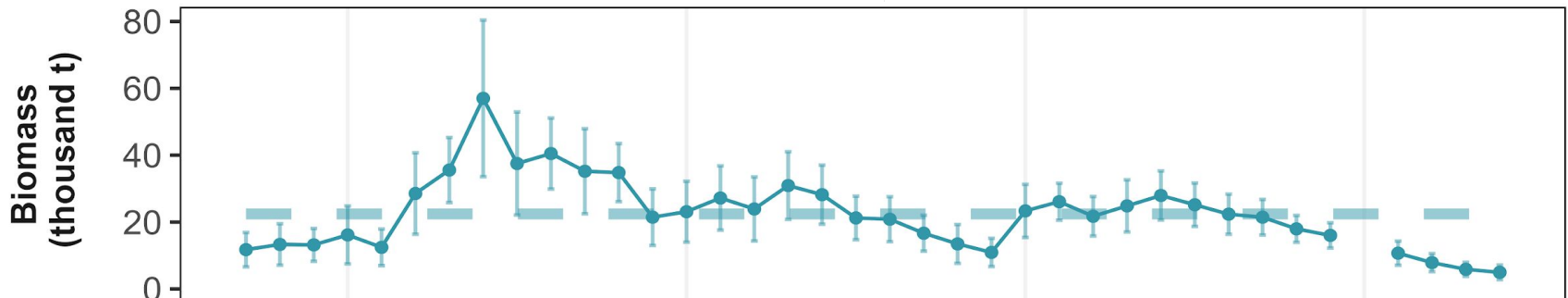
Greenland Turbot Distribution and Biomass Changes



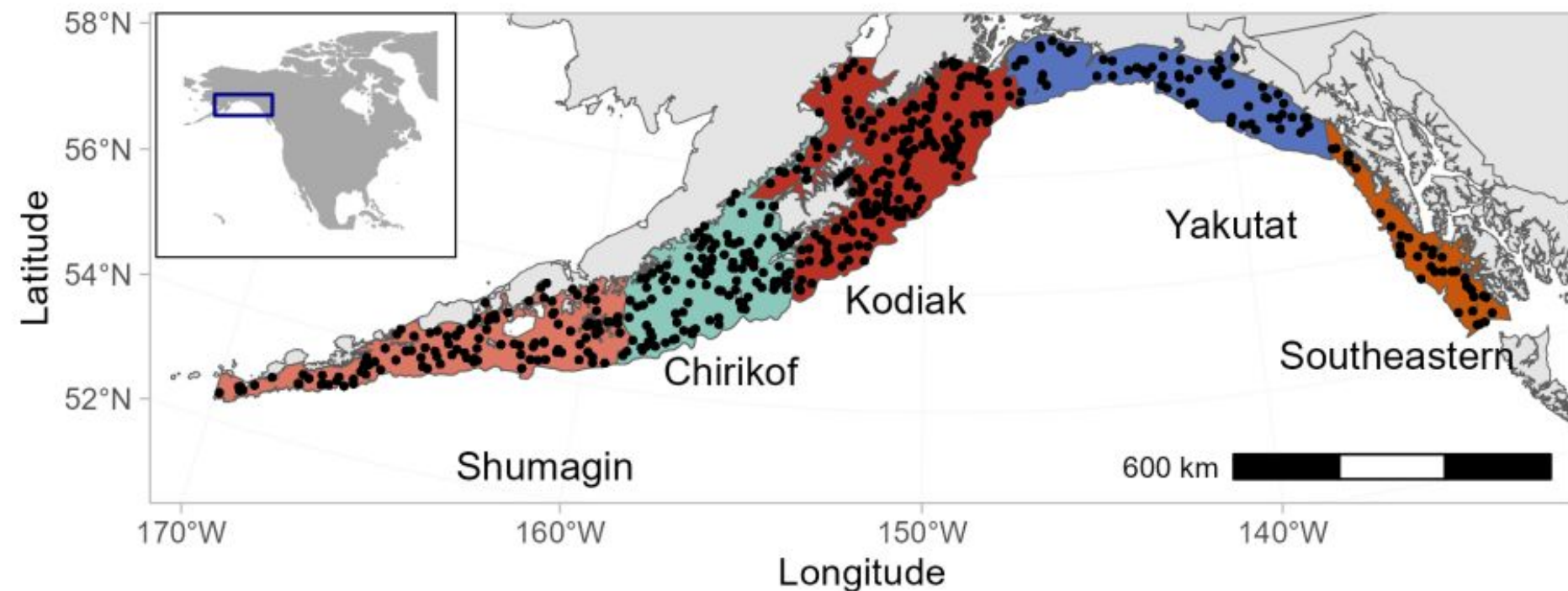
Greenland Turbot
Weight CPUE (kg/km²)

Color	CPUE Range (kg/km ²)
Light Gray	No catch
Light Green	>0-100
Medium Green	>100-300
Dark Green	>300-500
Dark Purple	>500-960

EBS Biomass
Mean: 2,2436 mt
2024: 4,959.4 mt (26%)



2023 Gulf of Alaska



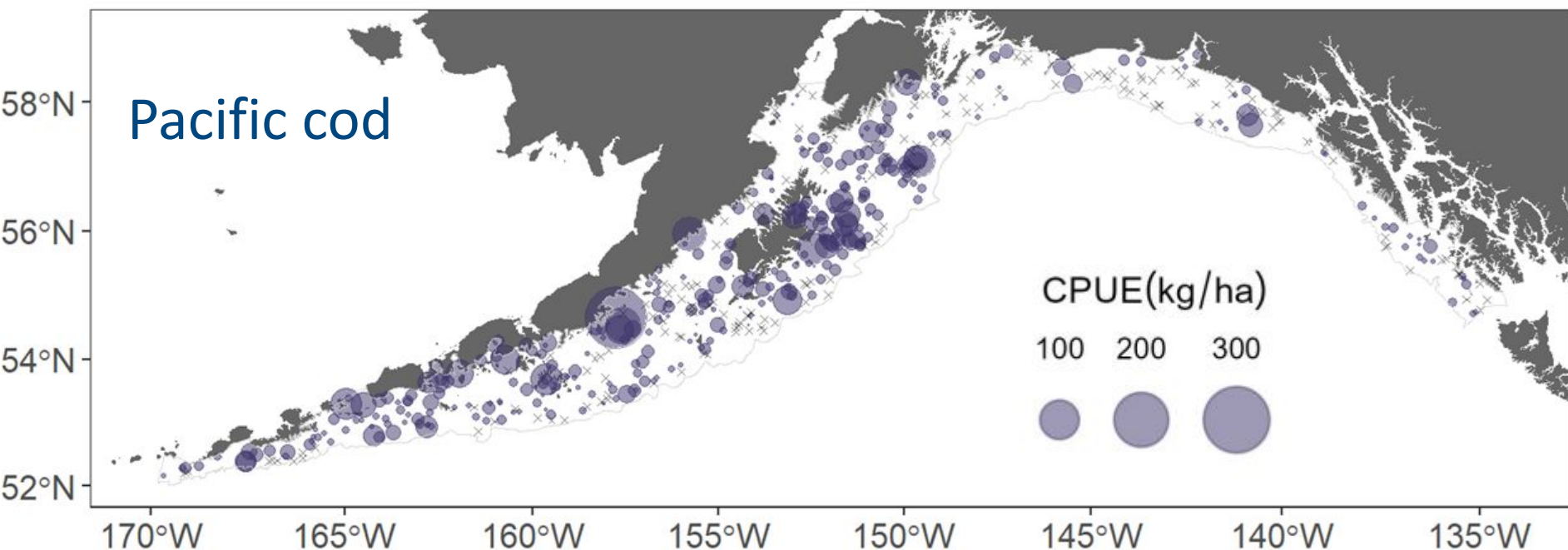
Siple, M. C., von Szalay, P. G., Raring, N. W., Dowlin, A. N., and Riggle, B. C. 2024. Data Report: 2023 Gulf of Alaska bottom trawl survey. AFSC Processed Rep. 2024-09, 145 p. Alaska Fish. Sci. Cent., NOAA, Natl. Mar. Fish. Serv., 7600 Sand Point Way NE, Seattle WA 98115.



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Data Report: <https://repository.library.noaa.gov/view/noaa/61491>

Gulf of Alaska 2023 Pacific cod



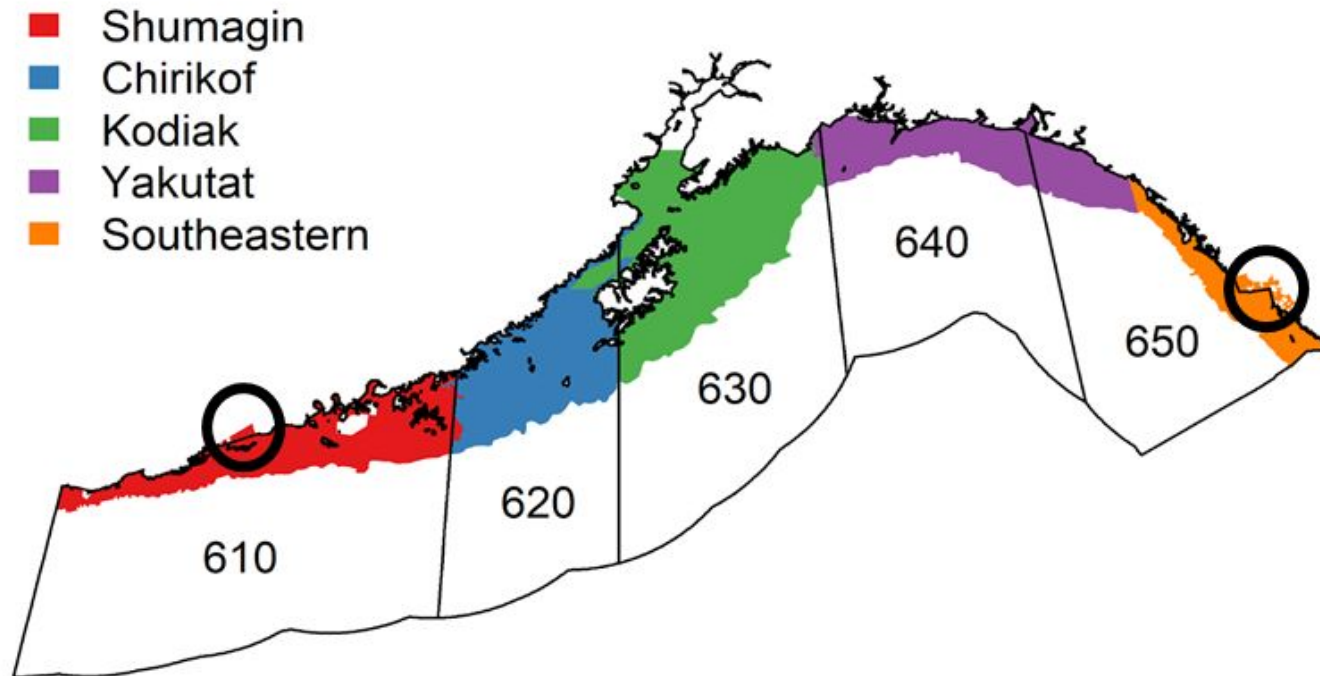
2023 % change
 from 2021

Pacific cod	~231,000	+32.5
Walleye Pollock	~922,000	+74.3
Black cod	~130,000	-39.8

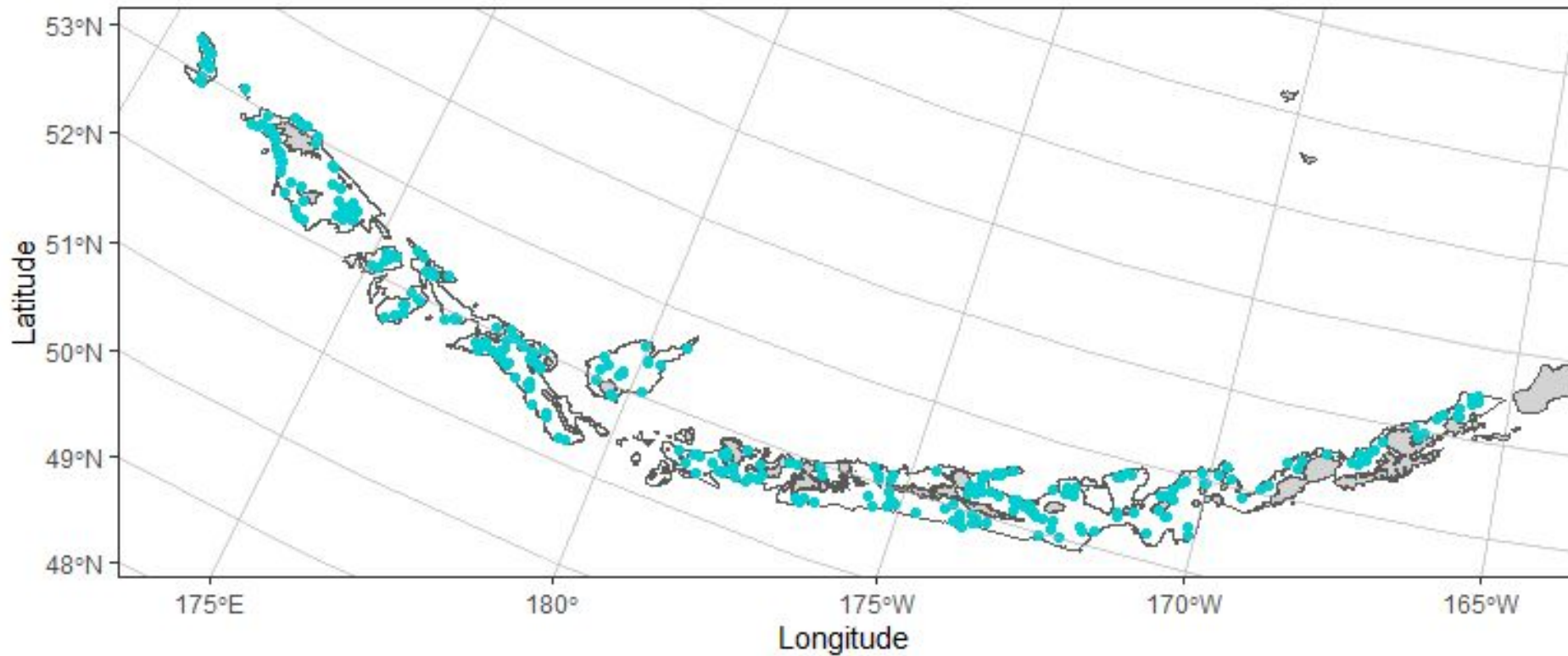


GOA 2025 updates

- Historical GOA strata were aligned with INPFC Districts (colored shapes)
- The new GOA strata are aligned with NMFS Sampling Districts (numbered polygons)
- The historic INPFC survey footprint is not completely aligned with established NMFS Sampling Districts

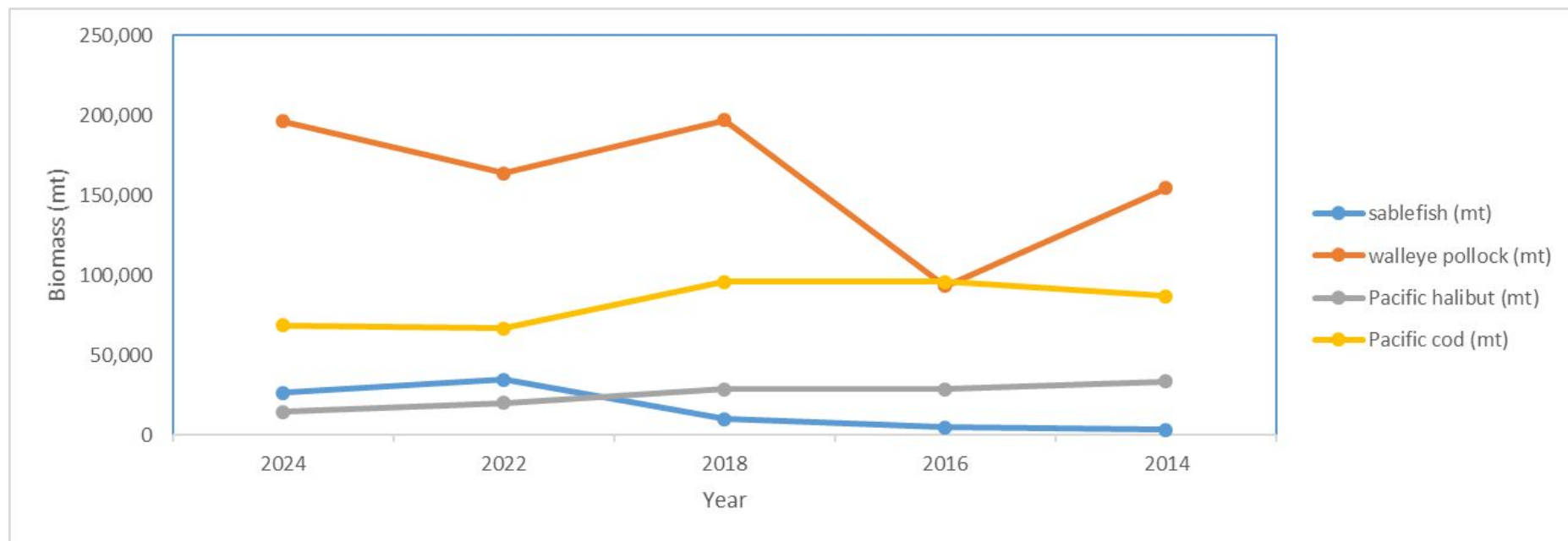


2024 Aleutian Islands Survey



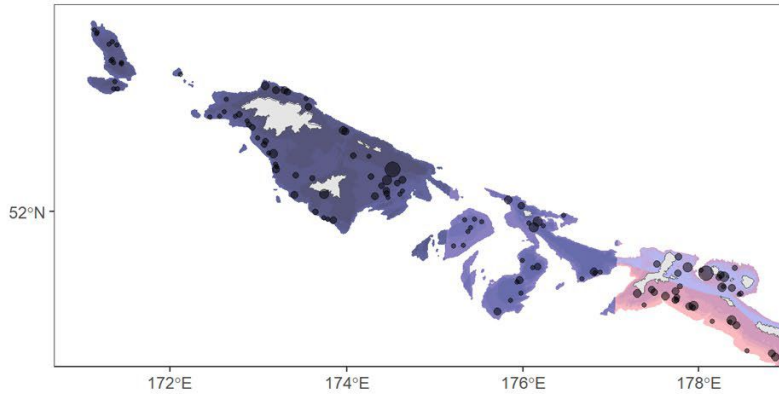
Aleutian Islands 2024 biomass

	2024	2022	2018	2016	2014	% Change (2024, 2022)
sablefish (mt)	26,433	34,436	10,075	4,882	3,325	-23.3
walleye pollock (mt)	196,440	163,806	197,182	93,117	154,484	19.8
Pacific halibut (mt)	14,437	19,988	28,564	28,534	33,379	-27.8
Pacific cod (mt)	68,482	66,907	95,905	95,735	86,791	2.3

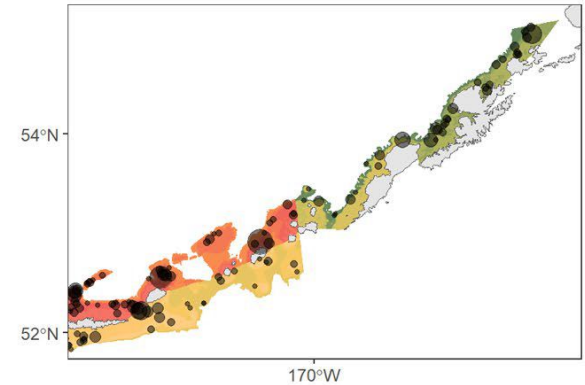


Aleutian Islands 2024 Pacific cod

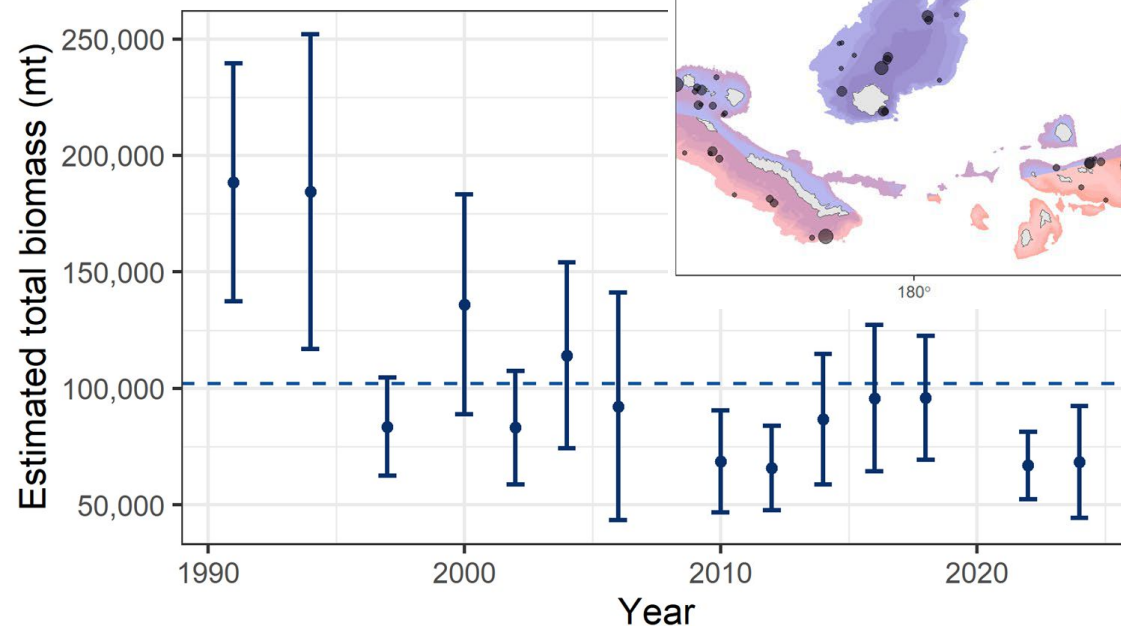
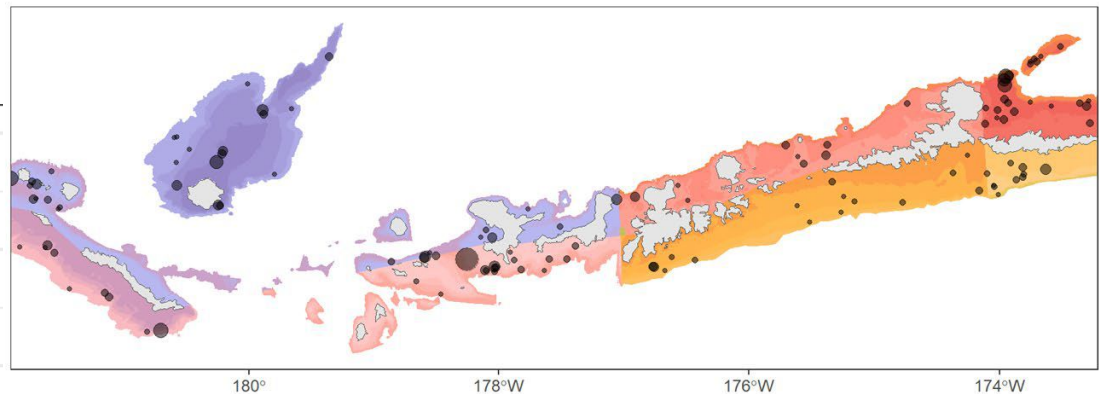
Pacific cod - Western Aleutians - 2024



Eastern Aleutians
and Southern Bering Sea



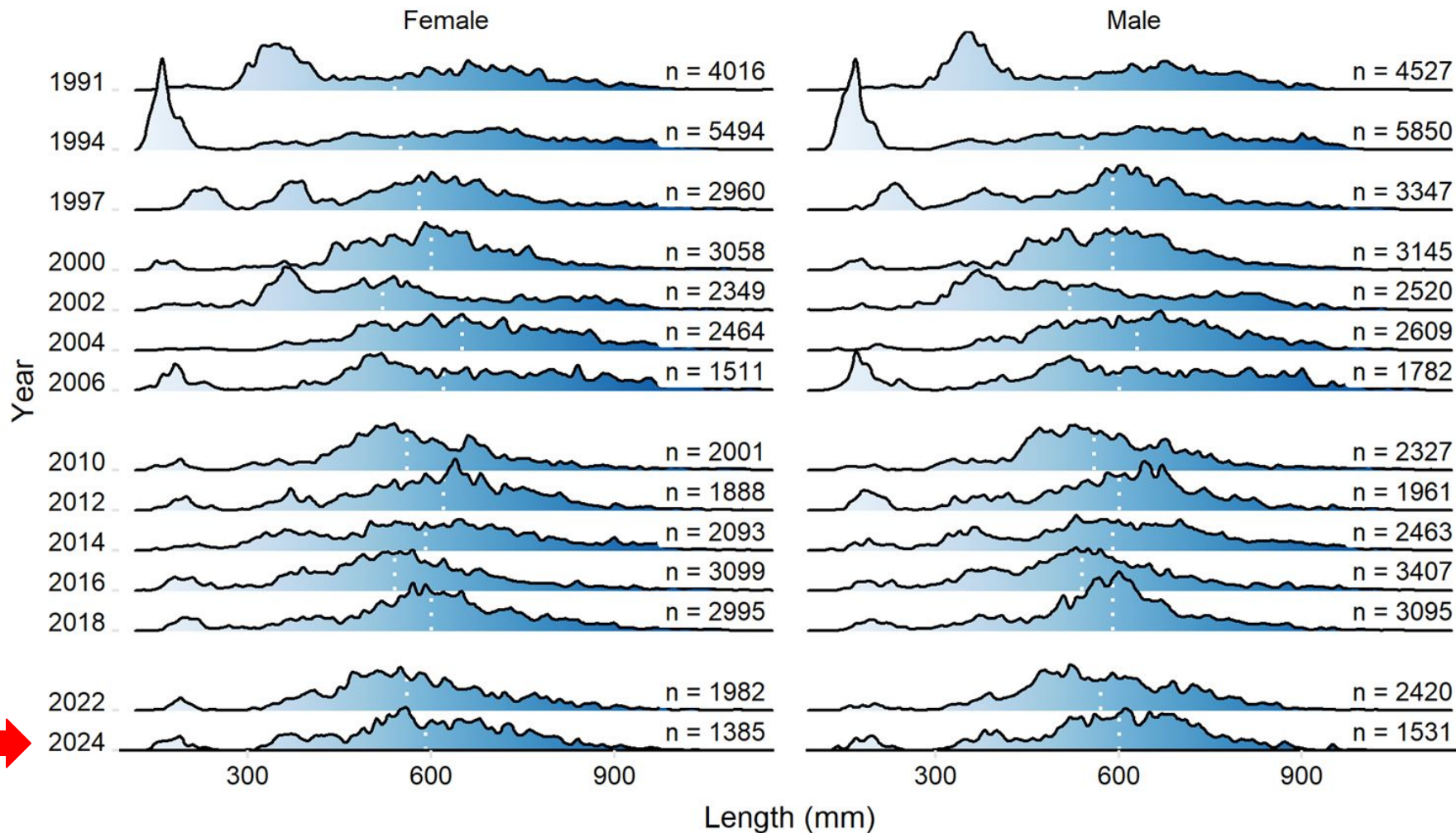
Central Aleutians



AI Biomass
Mean: ~100 K mt
2024: 68.5 K mt (2.3%)



Aleutian Islands 2024 Pacific cod



Pacific cod scientific collections in 2024

2024

- eye and muscle tissue
 - for isotopic niche analysis

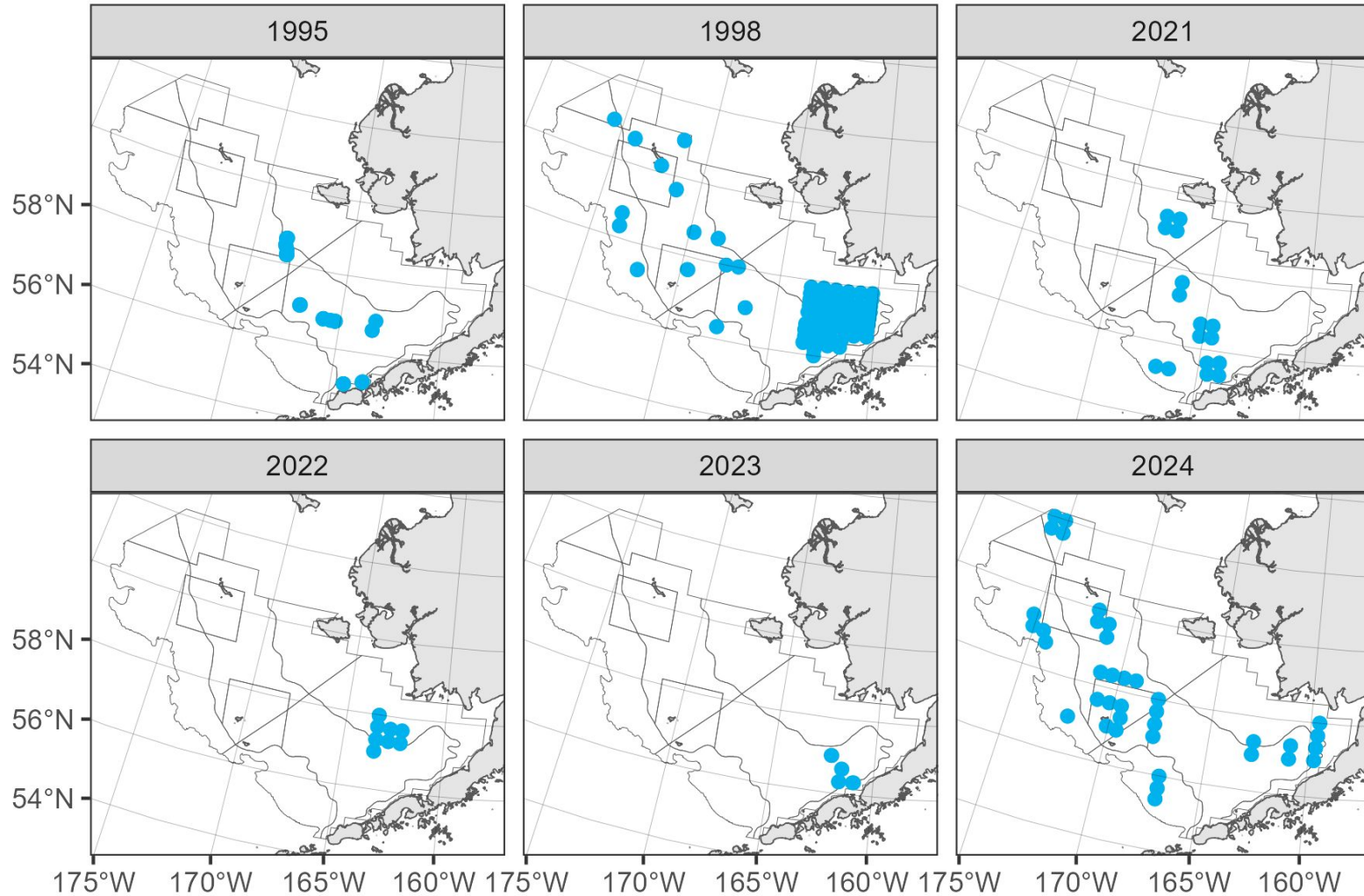
2024 & 2025

- genetics
 - evaluate the genetic stock of origin
- fish condition
 - establish an environmental informed growth curve and link environmental datasets with growth, mortality, and recruitment
- visual maturity



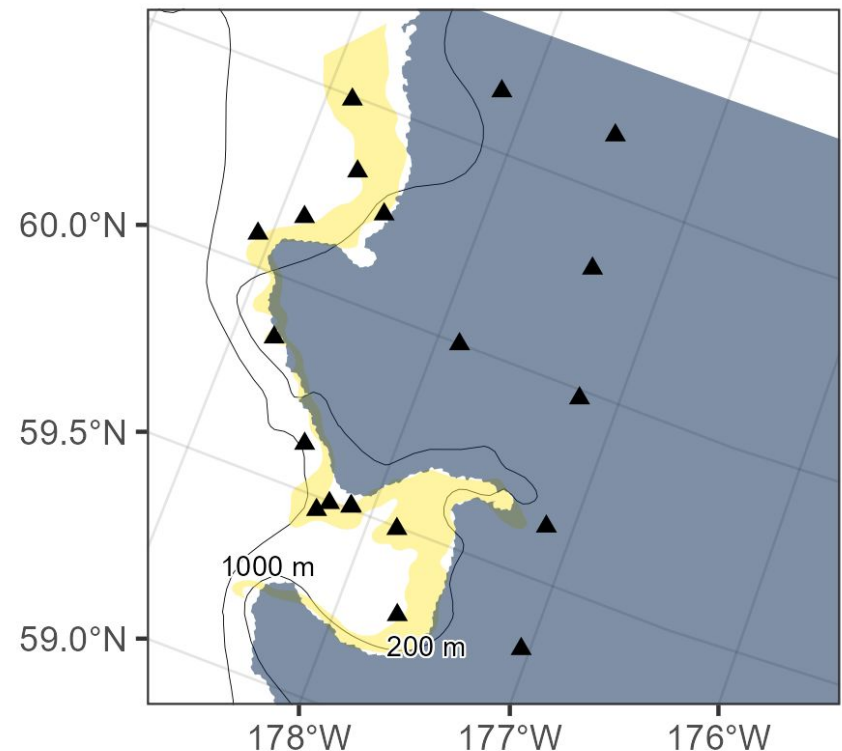
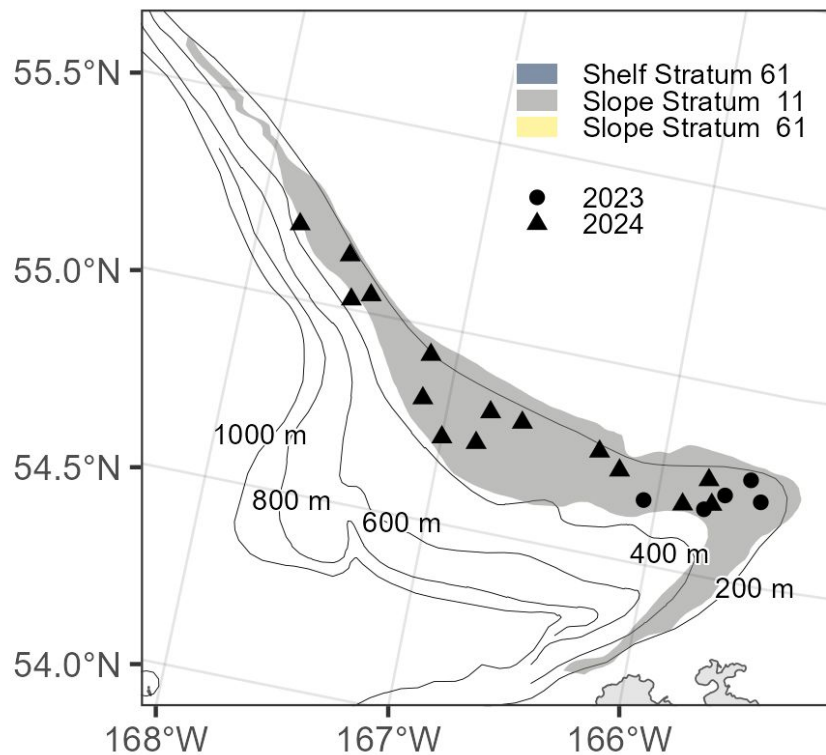
15/30 Minute tow project 2024

Year	Tow Pairs
1995	25
1998	70
2021	16
2022	8
2023	4
2024	38
Total	161



Slope-shelf tow project 2024

- Completed 35 tow pairs in 2024 (5 in 2023)



2025

- Repeat EBS & NBS survey
F/V Alaska Knight
F/V Northwest Explorer
- Gulf of Alaska Survey
F/V Alaska Provider
F/V Ocean Explorer
- Full public access to our survey data:
<https://www.fisheries.noaa.gov/foss/f?p=215:28>





Questions?



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