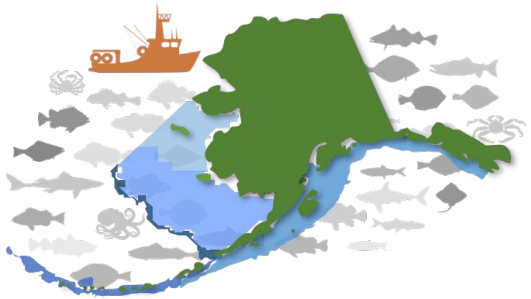
Results of the 2025 Eastern and Northern Bering Sea Bottom Trawl Survey

Groundfish Plan Team Meeting September 17, 2025
with appended updated NBS slides 11/19/2025

Emily Markowitz, Sean Rohan, Nicole Charriere, Chris Anderson, Sophia Wassermann, and Duane Stevenson

Supervisory Research Fisheries Biologist
NOAA Fisheries
Alaska Fisheries Science Center
duane.stevenson@noaa.gov



A Few of the Survey Team Members!

NOAA FISHERIES

Additional Staffing Support

MACE - Midwater Assessment and Conservation Engineering

FMA - Fisheries Monitoring and Assessment Division

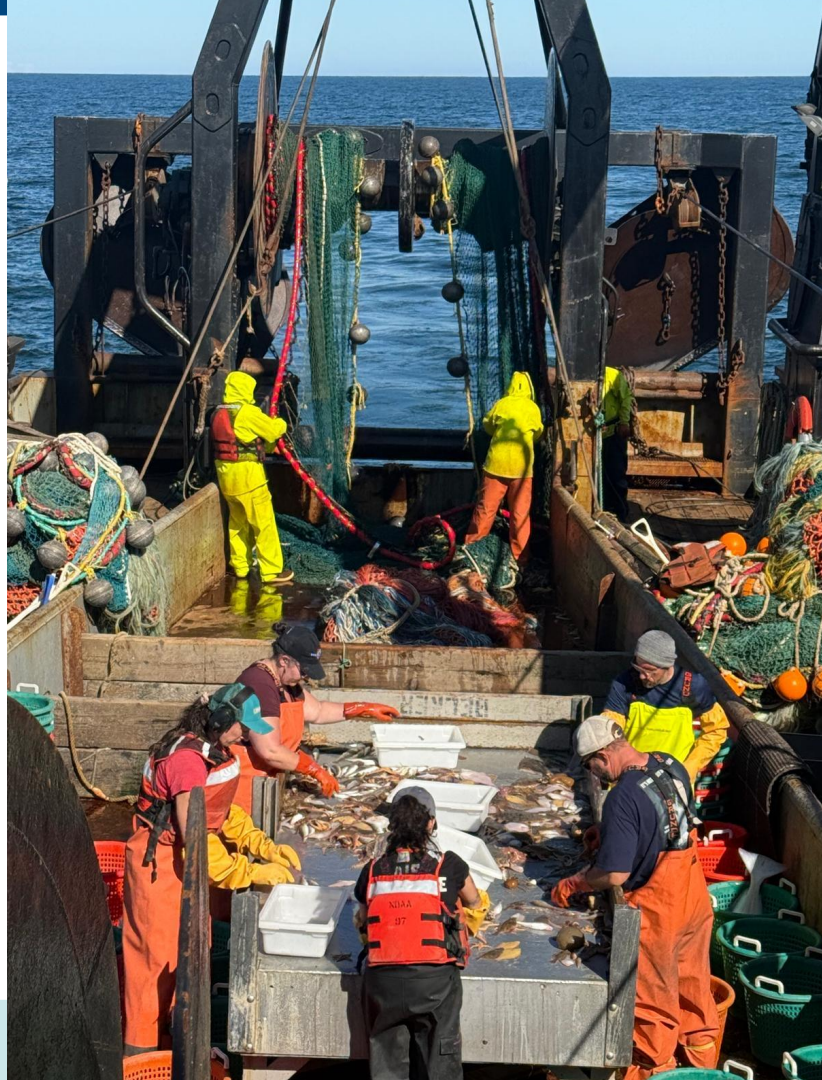
SSMA - Status of Stocks and Multispecies Assessment

EcoFOCI - Ecosystems & Fisheries-Oceanography Coordinated Investigations

Alaska Regional Office

Outline

- Survey overview
- Environmental data
- Fish biomass data
- Additional research



Survey Charter Vessels

FV *Alaska Knight*

2010 - present

15th year

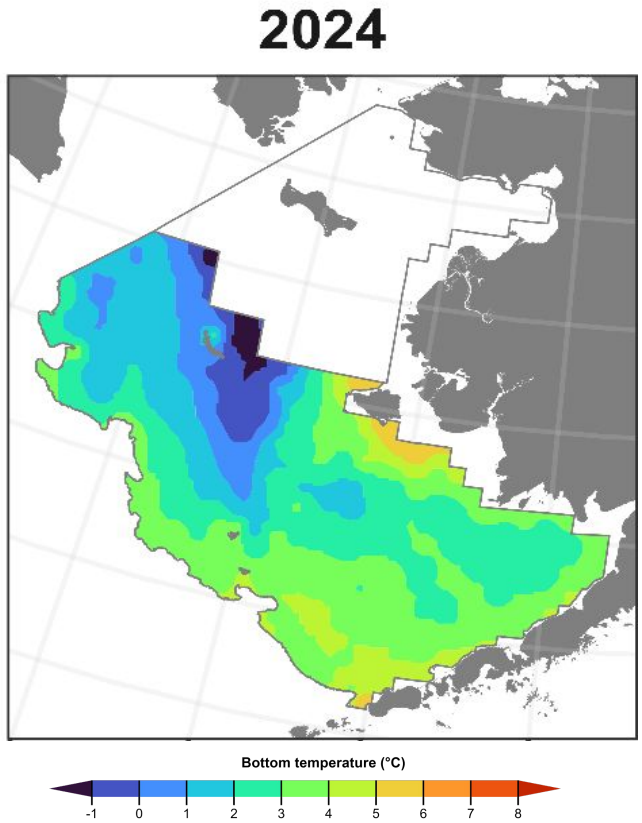
FV *Northwest Explorer*

2023 - present

3rd year

Recap of the 2024 survey year

- Bottom temperatures were near average and slightly warmer than 2023
- Survey temps indicate cold pool extent was near time series average and 12.7% smaller than 2023
- Fish biomass in EBS increased from 2023 for most species, especially that of walleye pollock (+74%), Bering flounder (+52%), arrowtooth flounder (+26%), flathead sole (+22%), and Kamchatka flounder (+14%)
- No scheduled NBS survey (allowed for survey modernization studies)



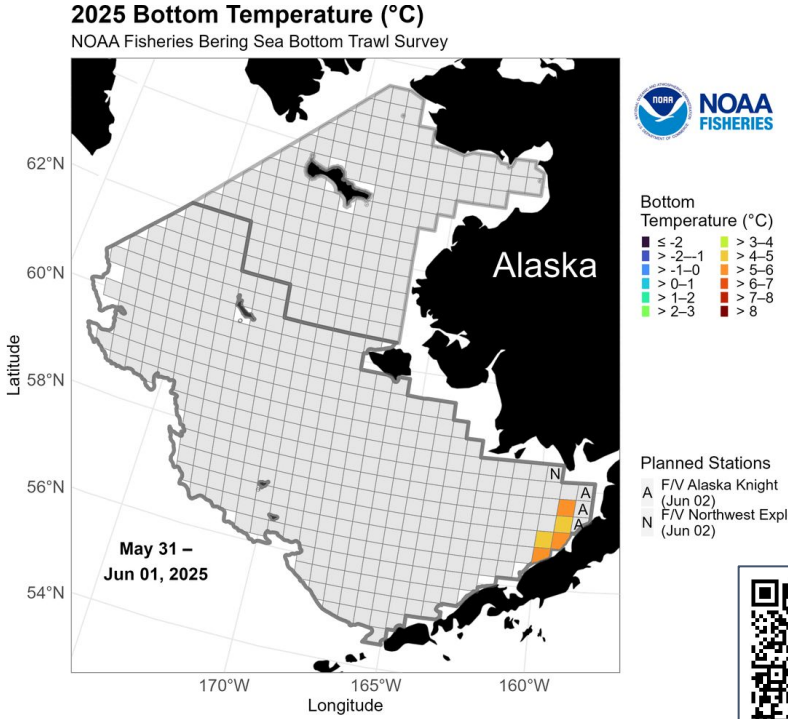
2025 Bering Sea Survey Season

Eastern Bering Sea (EBS):

- 43rd year of survey
  1982-2025
- May 31 - July 26, 2025
- 350/350 stations sampled

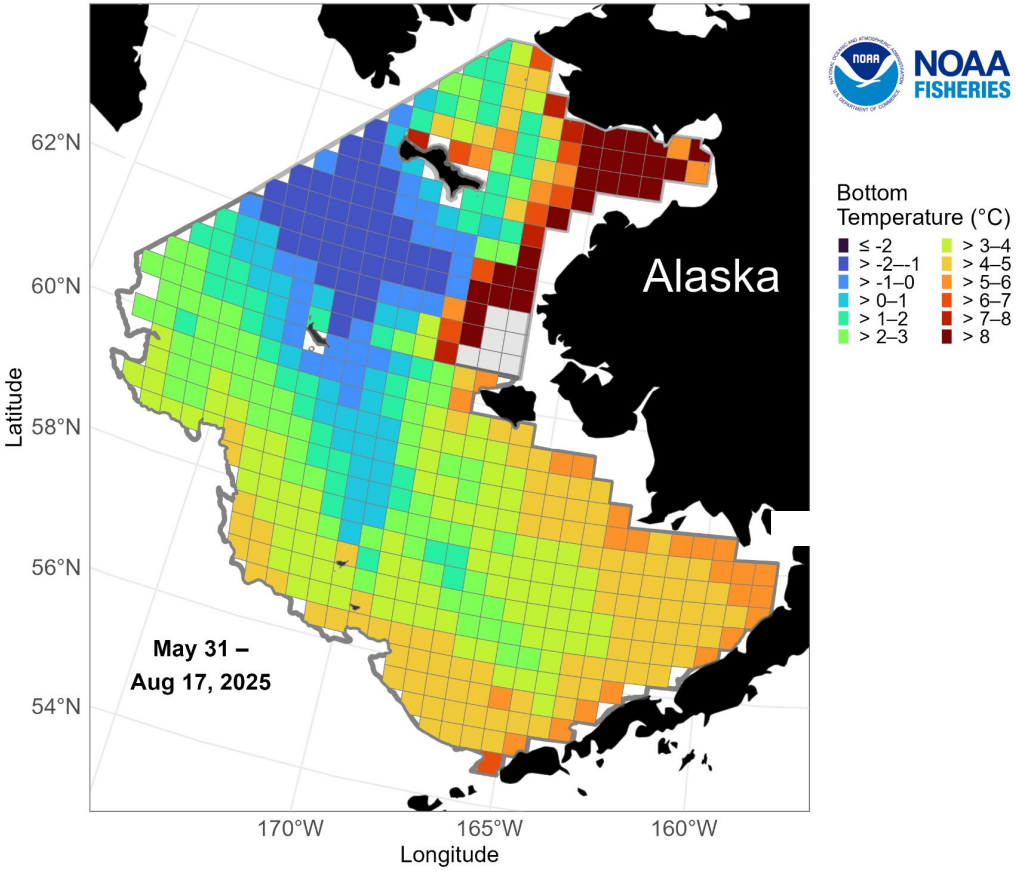
Northern Bering Sea (NBS):

- 7 years
  2010, 2017, 2019, 2021, 2022, 2023, and 2025
- July 27 - Aug 17, 2025
- 137/144 stations sampled



2025 Bottom Temperature (°C)

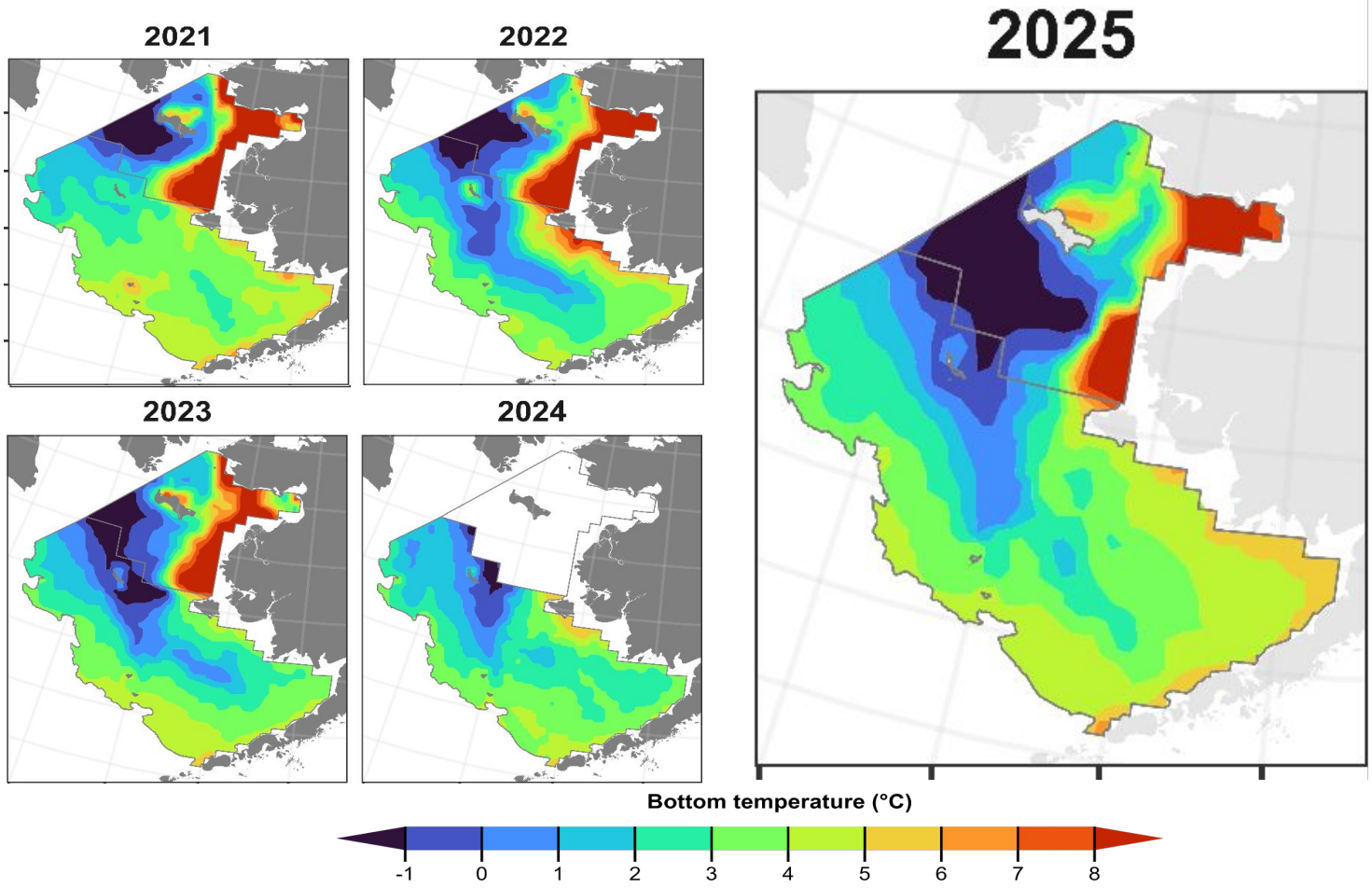
NOAA Fisheries Bering Sea Bottom Trawl Survey



NOAA FISHERIES

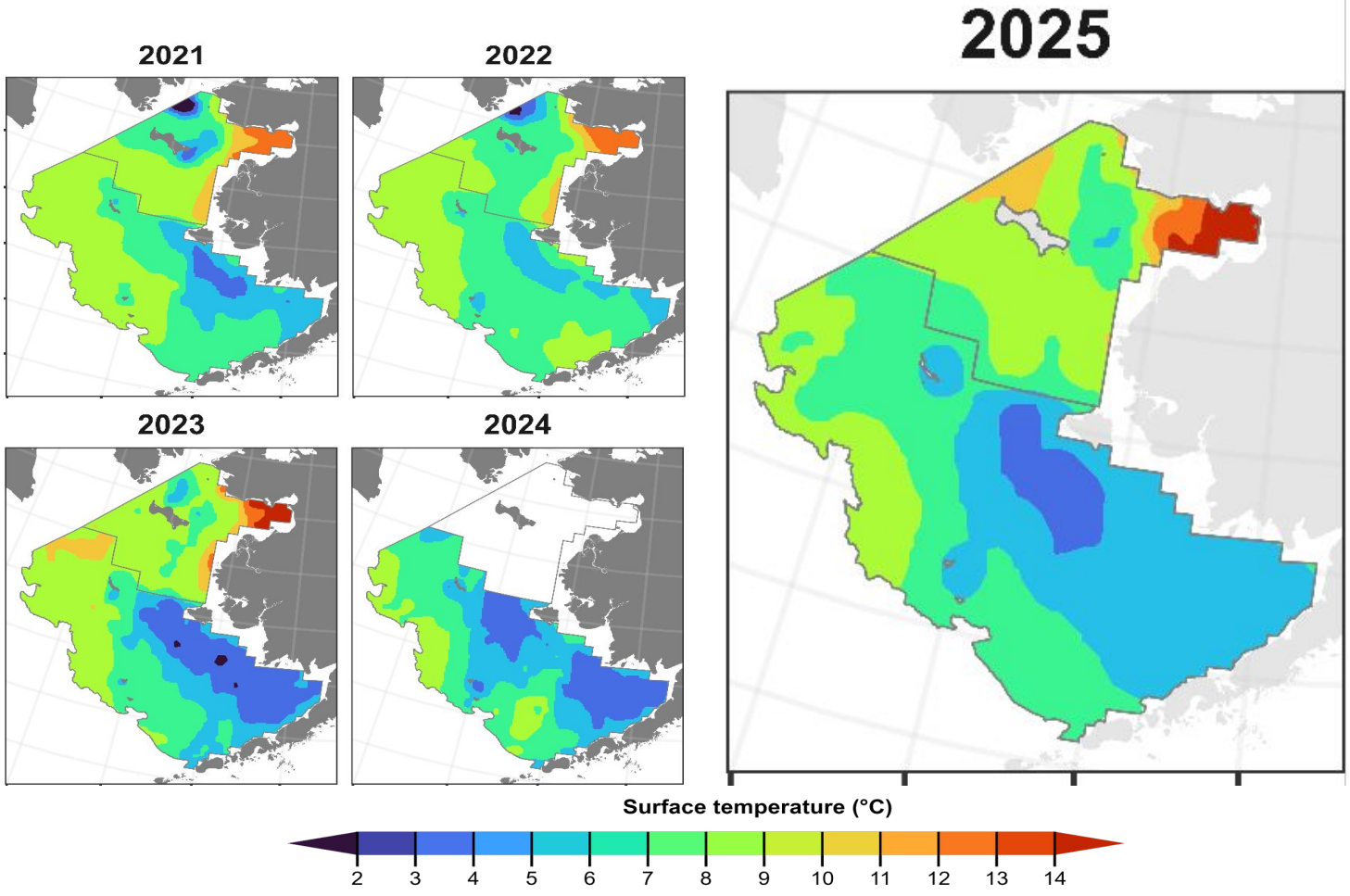
NOAA FISHERIES

Bottom Temperatures



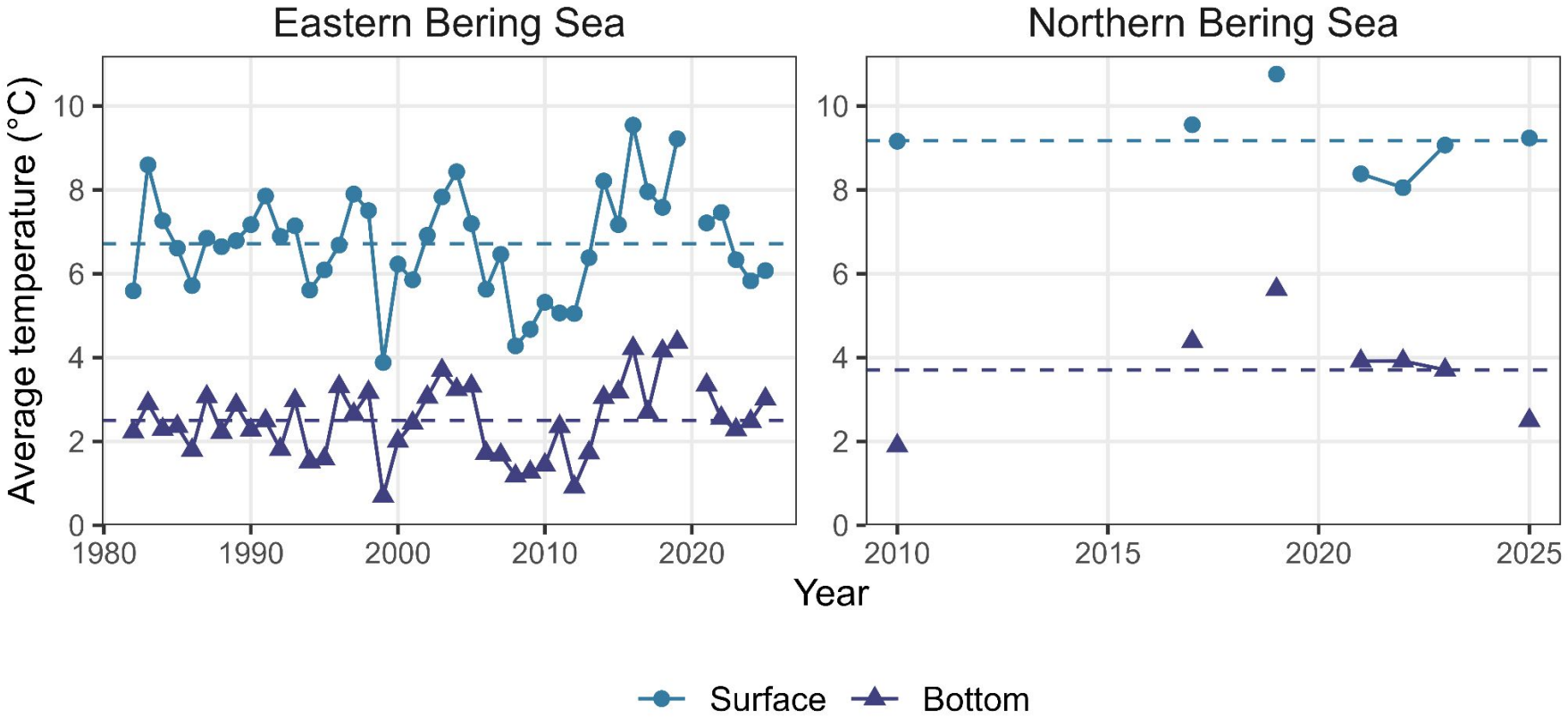
Temperature data products: https://github.com/afsc-gap-products/coldpool

Surface Temperatures



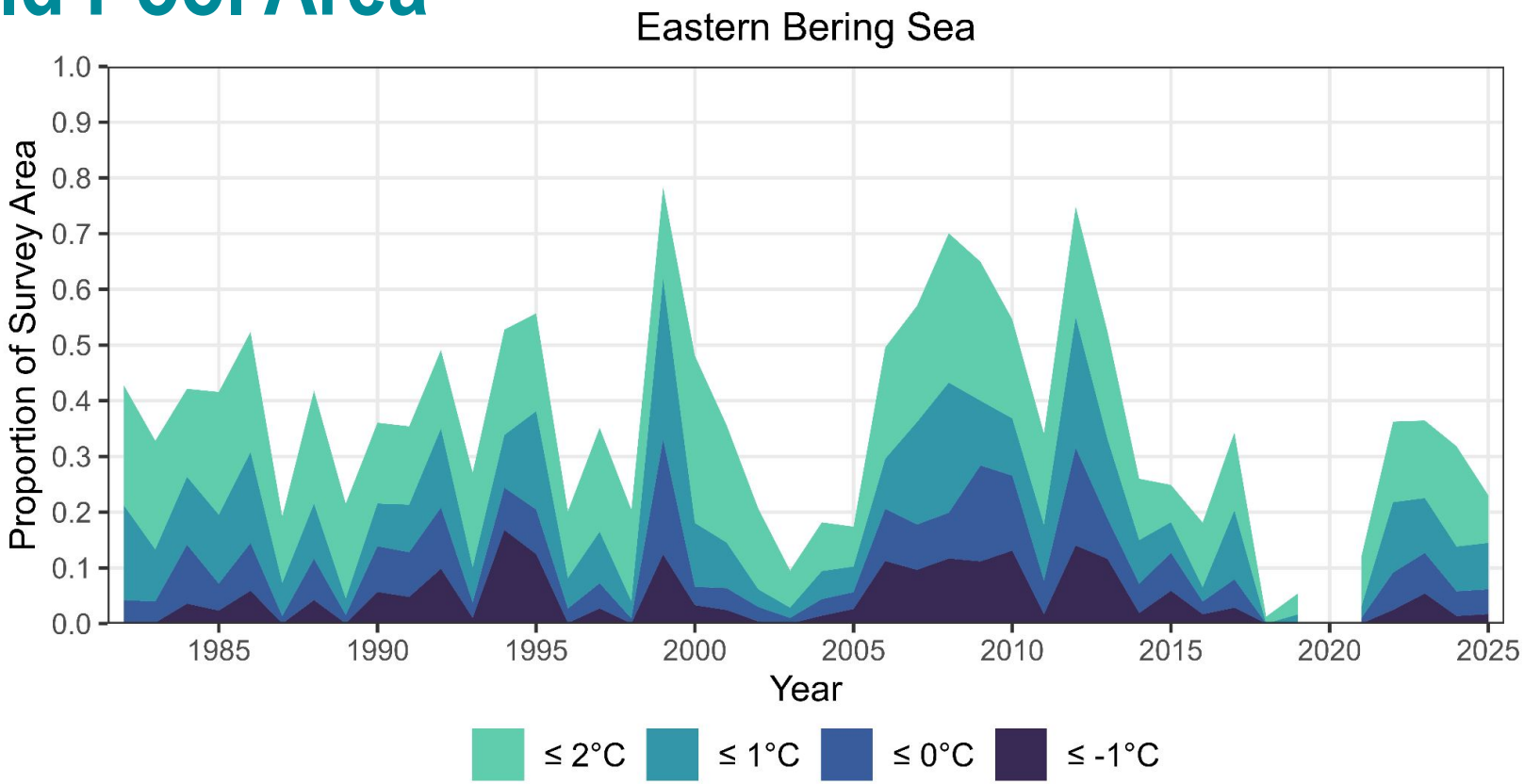
Temperature data products: https://github.com/afsc-gap-products/coldpool

Annual Mean Temperature



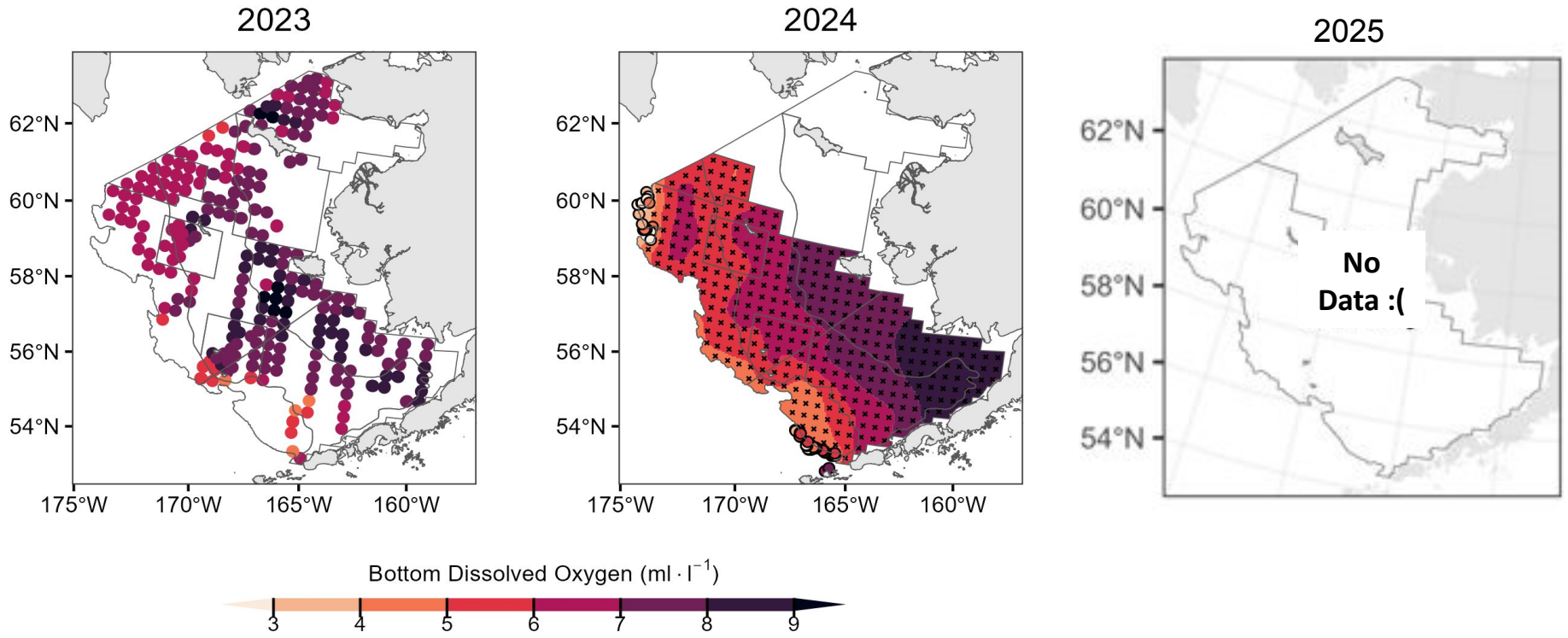
Temperature data products: https://github.com/afsc-gap-products/coldpool

Cold Pool Area



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

No CTD or Dissolved Oxygen data for 2025



CTD data products: https://github.com/afsc-gap-products/gapctd

Length Measurement Samples

Common name	EBS	NBS
Alaska plaice	7,592	6,646
Alaska skate	3,427	381
Arrowtooth flounder	7,460	-
Bering flounder	1,871	2,591
Flathead sole	14,530	4
Kamchatka flounder	1,384	-
Northern rock sole	19,270	1,815
Pacific cod	11,249	1,265
Pacific halibut	2,505	233
Plain sculpin	2,515	1,240
Saffron cod	130	2,281
Sakhalin sole	16	1,176
Walleye pollock	30,862	8,311
Yellowfin sole	16,068	9,306
Other taxa* (N_{EBS}: 33, N_{NBS}: 10)	5,291	1,989
TOTAL	**124,170**	**37,237**

**All species with more than 1,000 count lengths are shown.*

2025 Age Structures and Stomach Samples

Common name*	EBS	NBS
Alaska plaice	370	201
Arrowtooth flounder	440	-
Flathead sole	647	2
Greenland turbot	43	-
Kamchatka flounder	594	-
Northern rock sole	833	-
Pacific cod	1,403	319
Yellowfin sole	563	374
Walleye pollock	1,639	452
TOTAL	**6,532**	**1,348**

**These values represent the number of otoliths collected by GAP and do not include the number of Pacific halibut otoliths collected by IPHC secretariats.*

Common name	EBS	NBS
Arctic cod	4	52
Arrowtooth flounder	509	-
Flathead sole	656	-
Great sculpin	241	81
Kamchatka flounder	102	-
Pacific cod	1,047	292
Pacific halibut*	446	77
Saffron cod	11	186
Walleye pollock	1,392	573
TOTAL	**4,408**	**1,261**

**Stomachs were only collected from IPHC sampled fish aboard the F/V Alaska Knight.*

2025 Bering Sea Scientific Projects

Food Webs

- Lamprey movements and trophic ecology
- Prowfish stomach scans
- Stable Isoscapes mapping

Environmental Monitoring

- ES80 and wire marking training
- Harmful algal blooms

Observer

- Crab bycatch study
- Observer crab specimens
- Observer fish specimens

Operational

- IPHC collection
- Voucher Collection
- Outreach collections

Species Distribution

- Red king crab tagging
- Eider benthic grab samples
- Mollusk distribution and taxonomy

Organism Condition

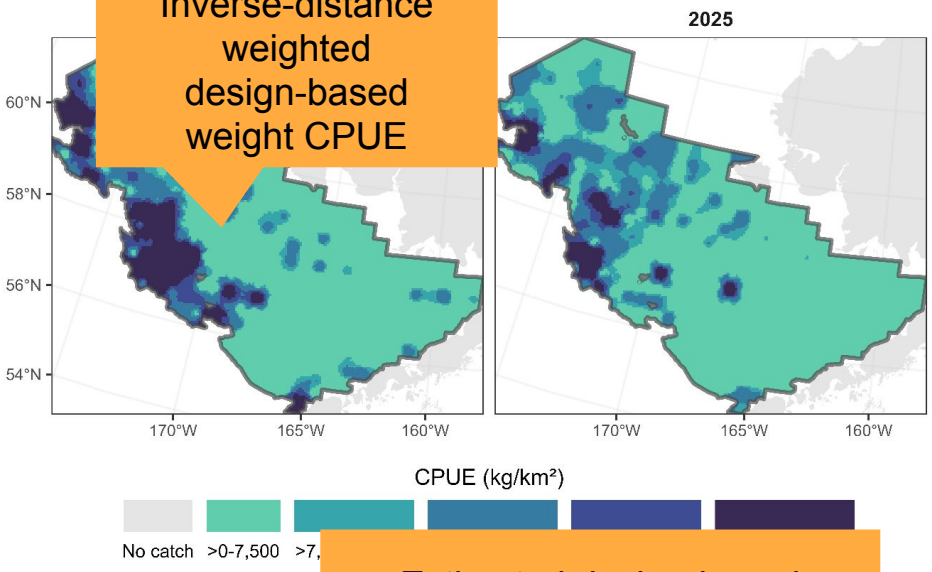
- Crab ocean acidification collection
- Yellowfin sole EFH
- Snow crab condition
- Arctic and saffron cod age and growth
- Juvenile Pacific cod condition
- Visual maturity
- Snow crab bitter crab sampling

Genetics

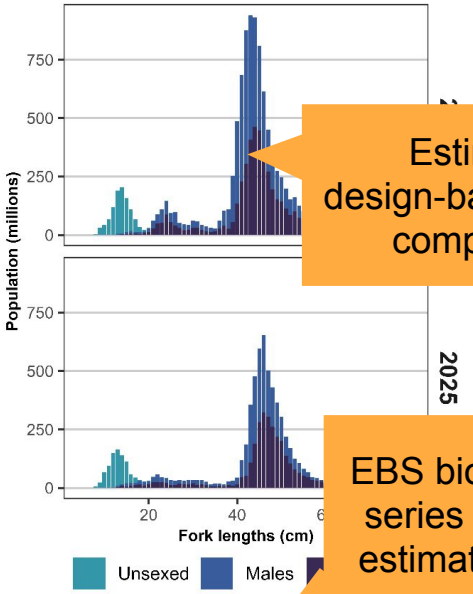
- Shark genetics and age structure sampling
- Pacific sand lance genomics
- Genetic sampling of EBS king crab
- US EEZ Fish DNA Library
- Molecular ecology DNA collection

A Species of Interest

Inverse-distance weighted design-based weight CPUE

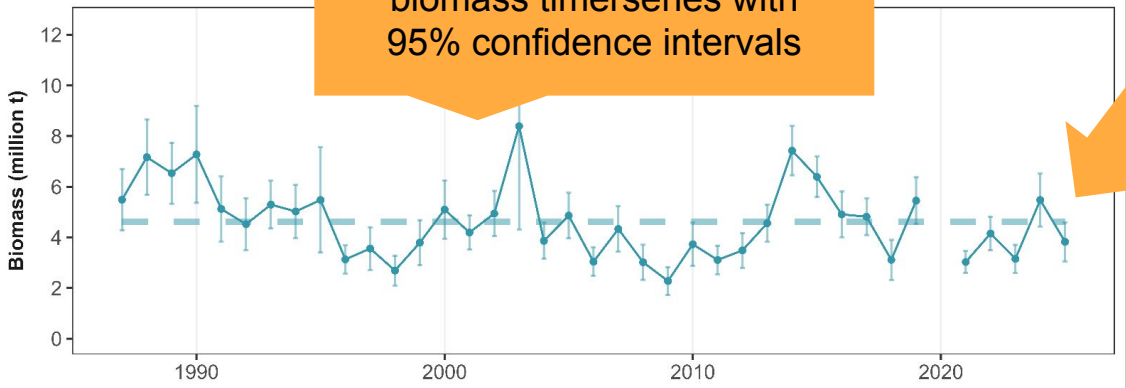


Estimated design-based length composition



EBS biomass time series mean and estimate for 2025

Estimated design-based biomass timerseries with 95% confidence intervals



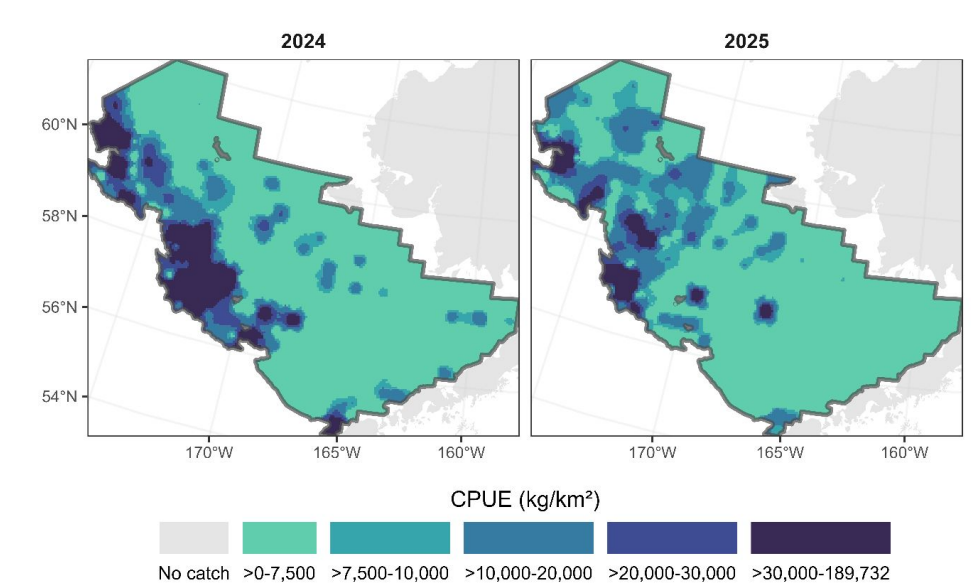
EBS Biomass

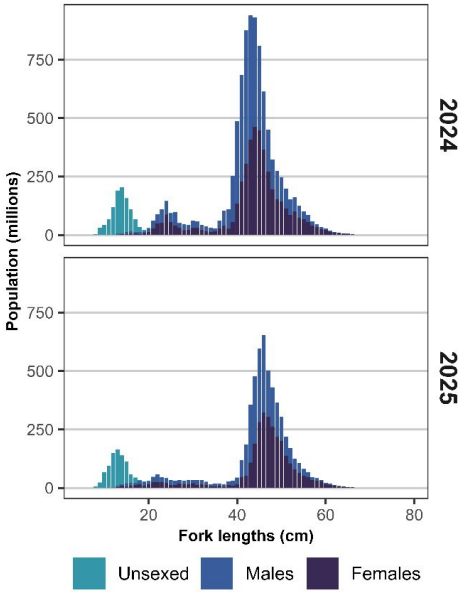
Mean: 4.6 M

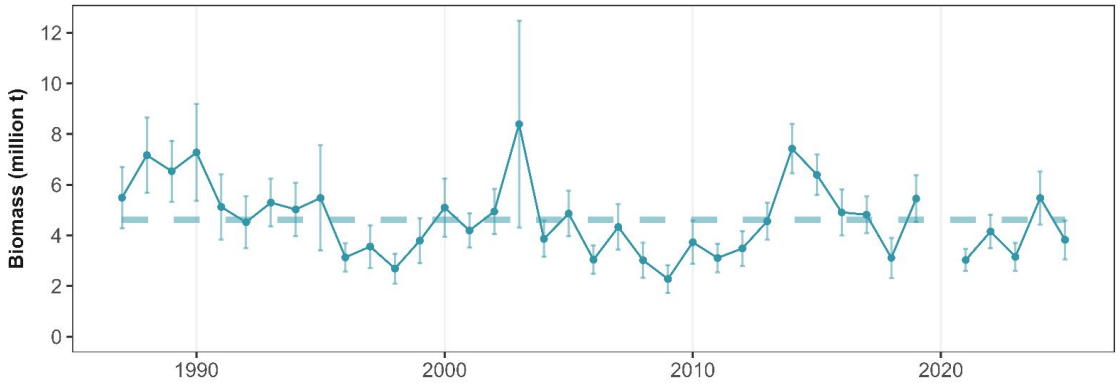
2025: 3.8 M (-30%)

Comparison to 2024

Walleye Pollock





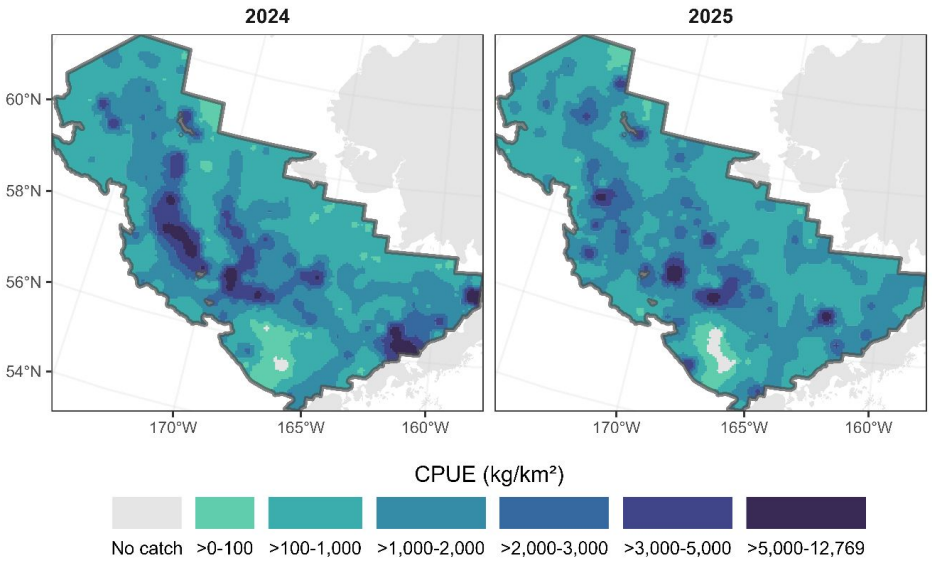


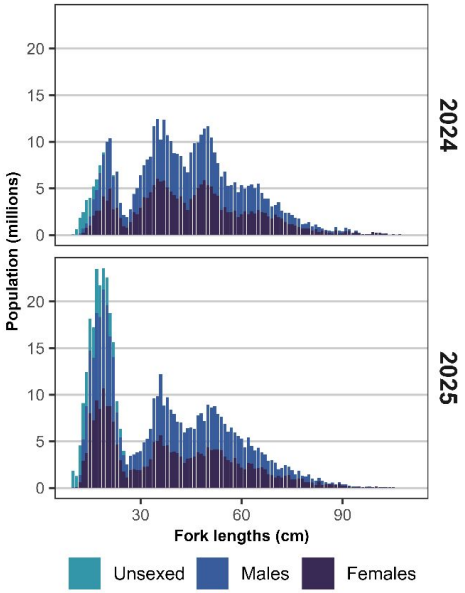
EBS Biomass

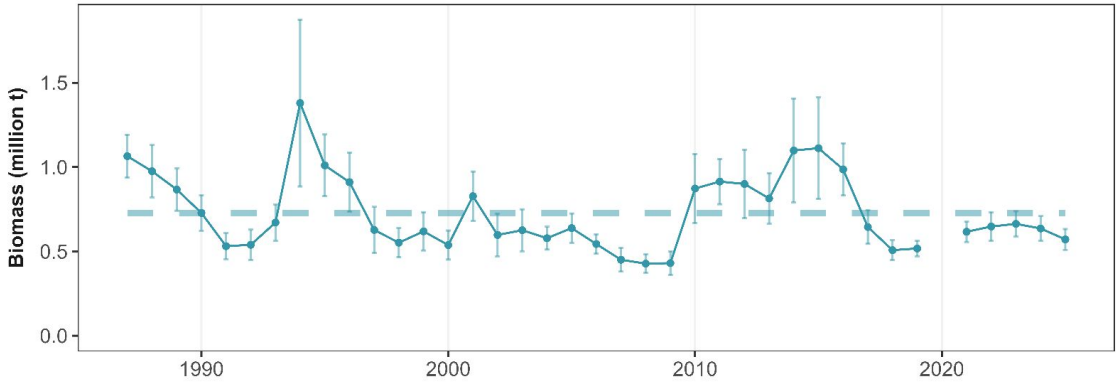
Mean: 4.6 M

2025: 3.8 M (-30%)

Pacific Cod





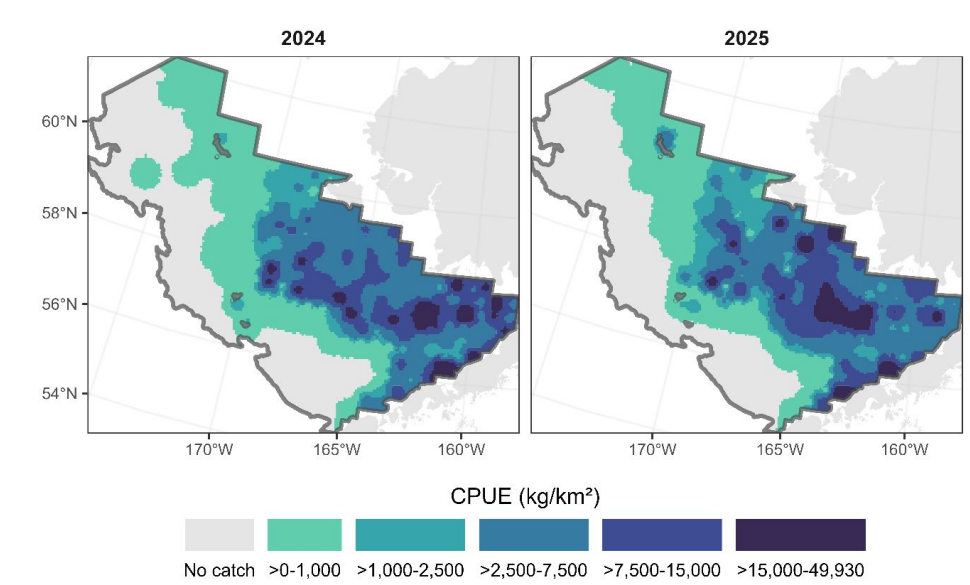


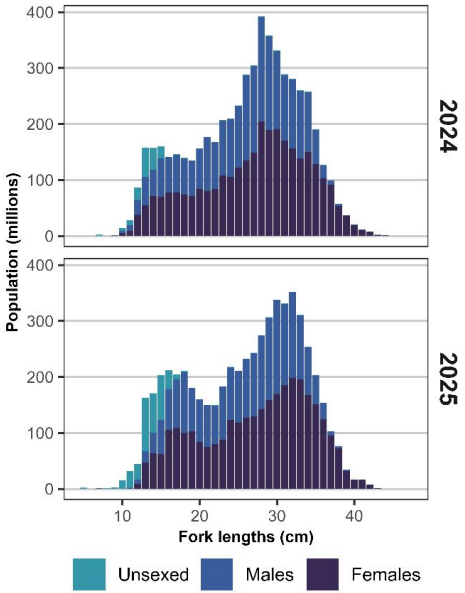
EBS Biomass

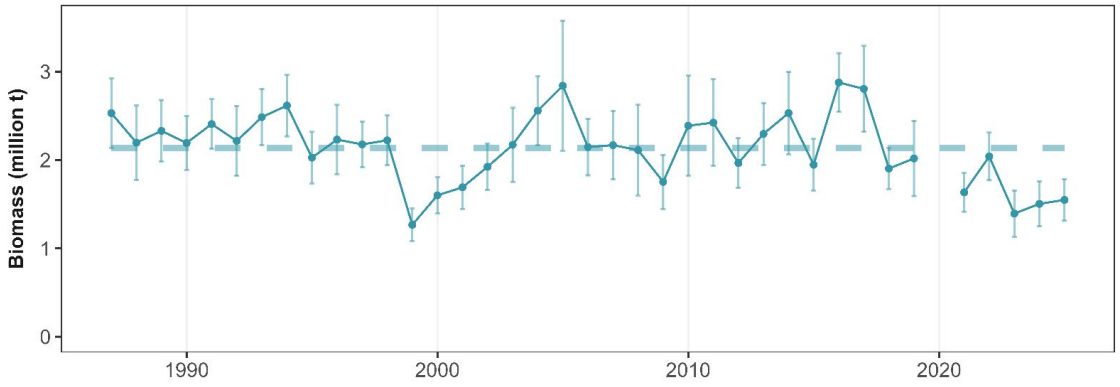
Mean: 700 K

2025: 570 K (-10%)

Yellowfin Sole





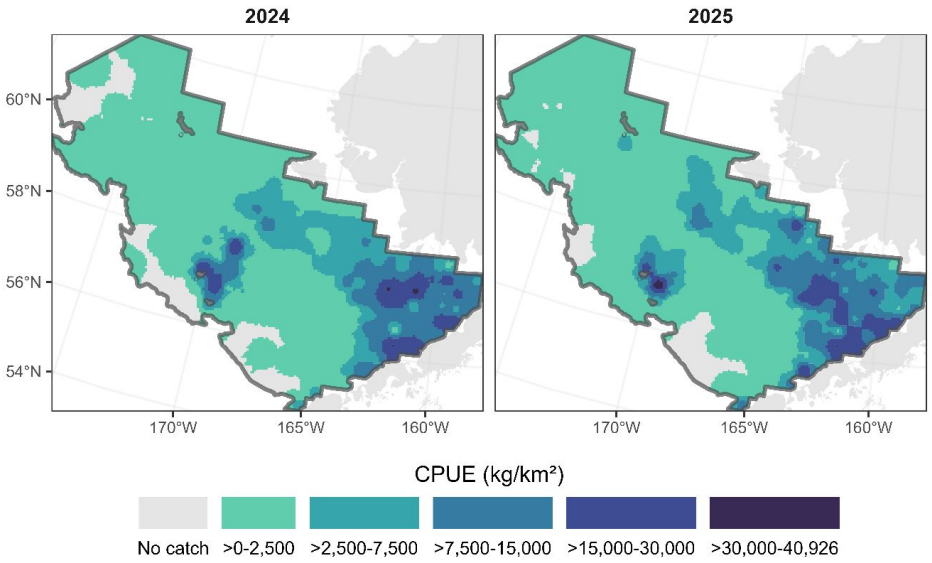


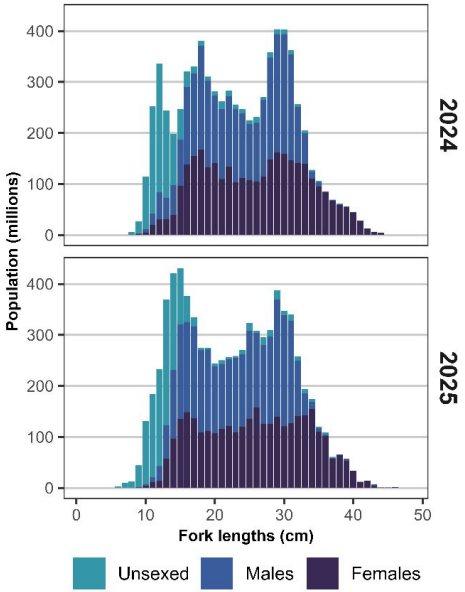
EBS Biomass

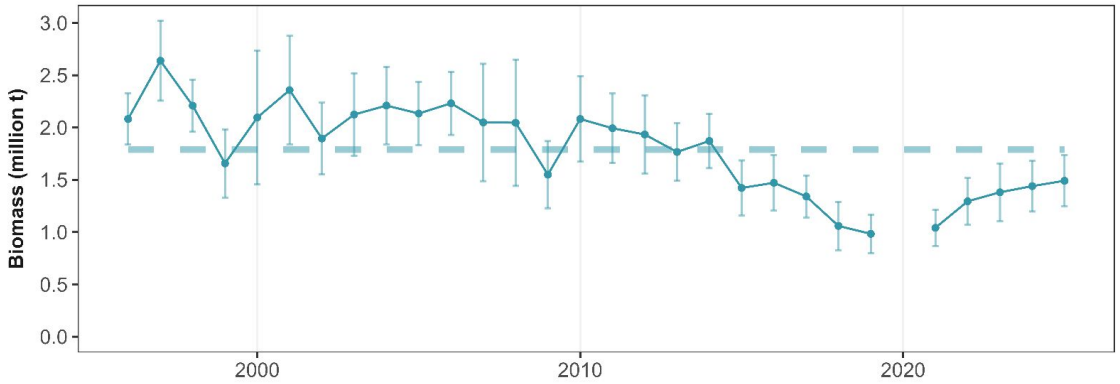
Mean: 2.1 M

2025: 1.5 M (+3%)

Northern Rock Sole





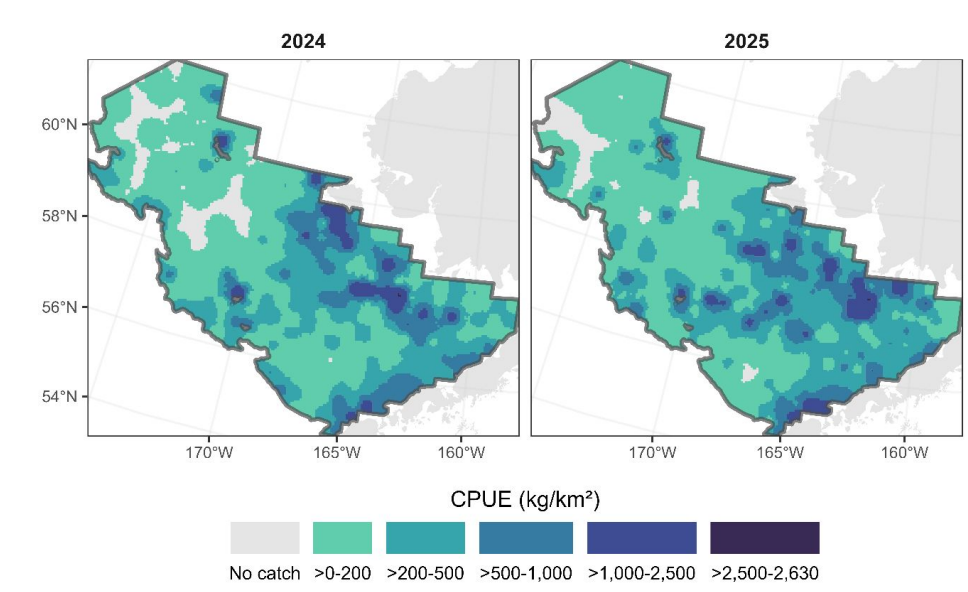


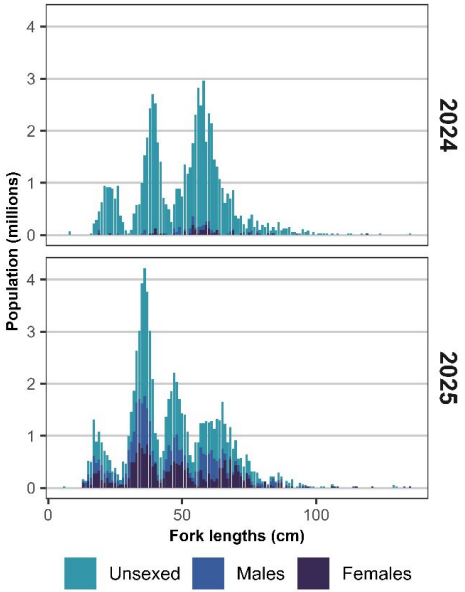
EBS Biomass

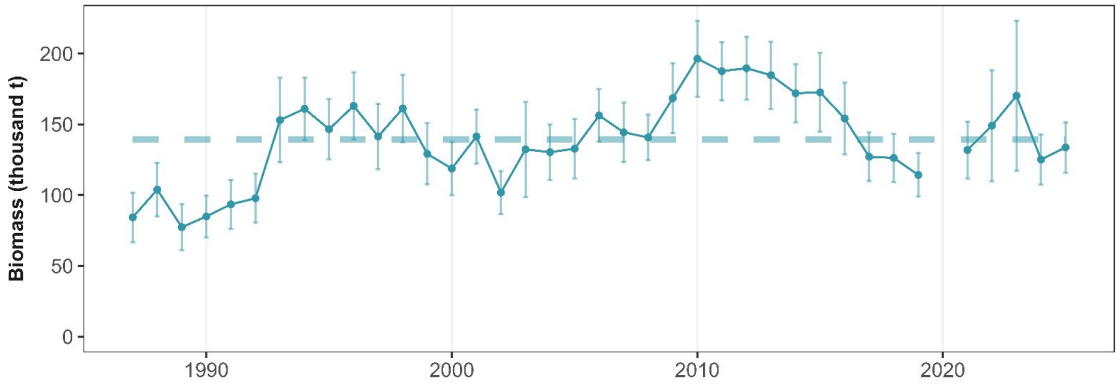
Mean: 1.8 M

2025: 1.5 M (+4%)

Pacific Halibut





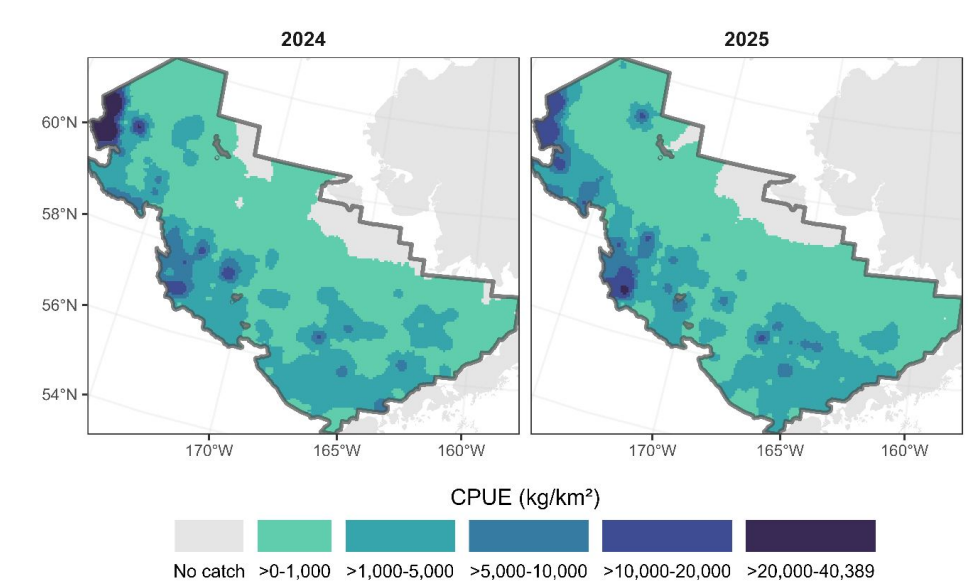


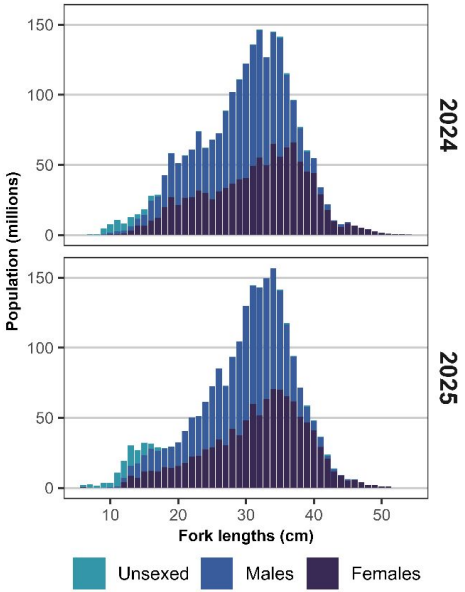
EBS Biomass

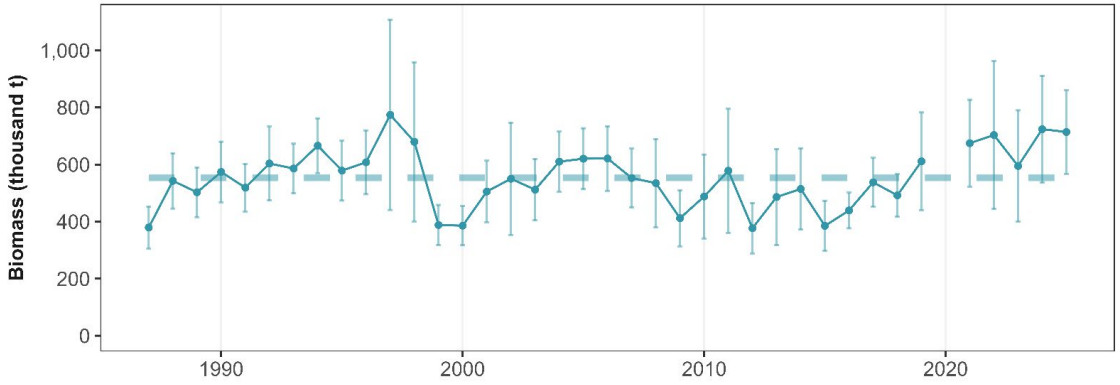
Mean: 139.5 K

2025: 134 K (+7%)

Flathead Sole



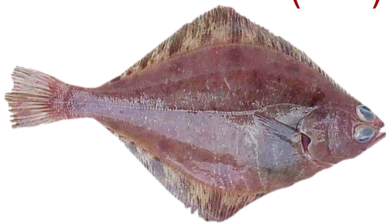




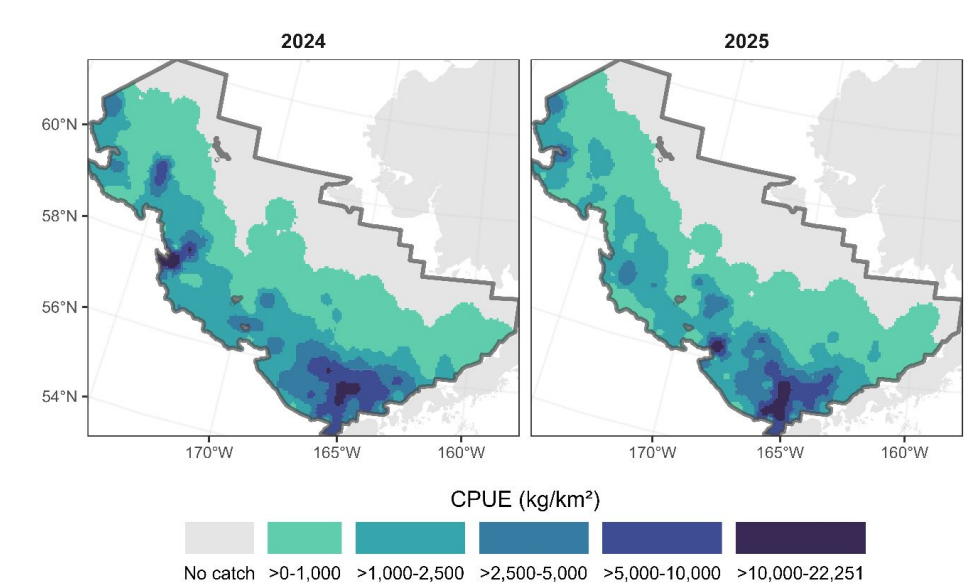
EBS Biomass

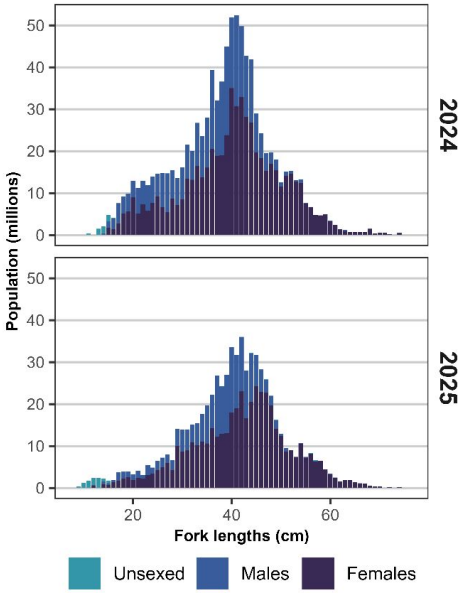
Mean: 553 K

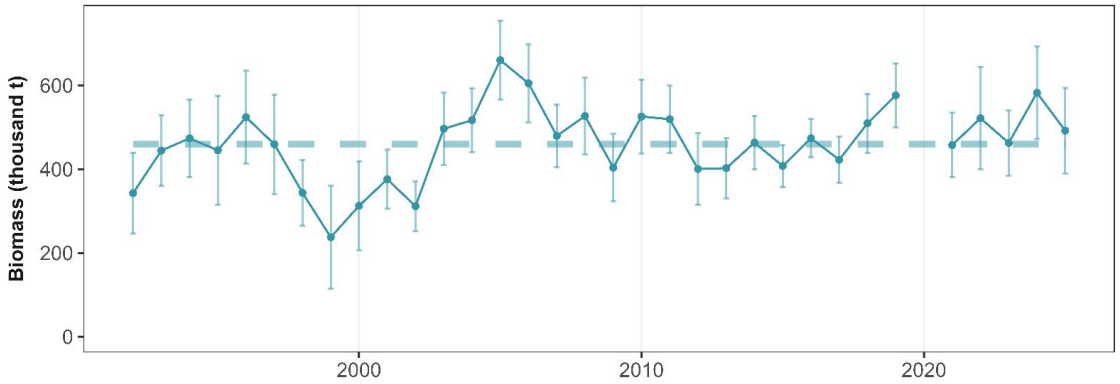
2025: 714 K (-1%)



Arrowtooth Flounder





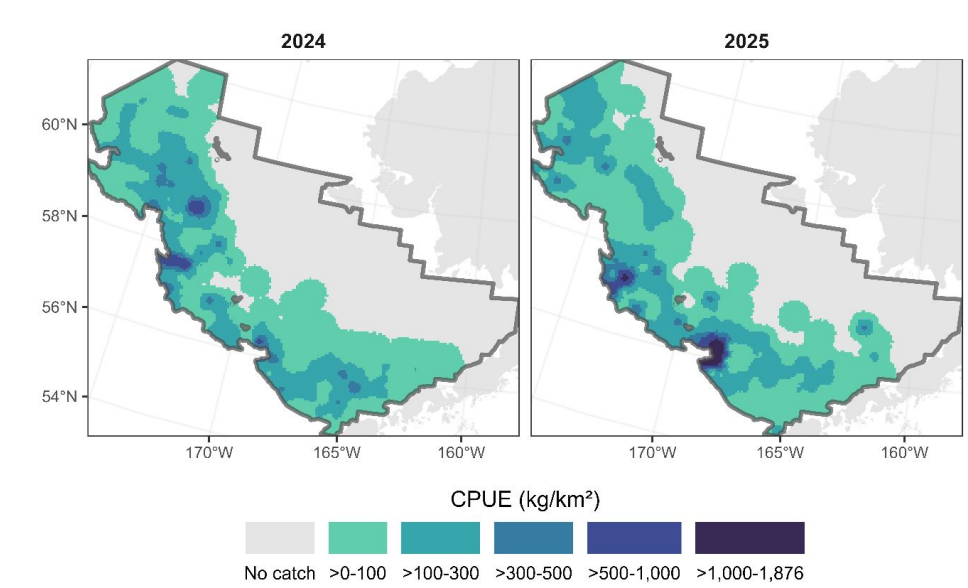


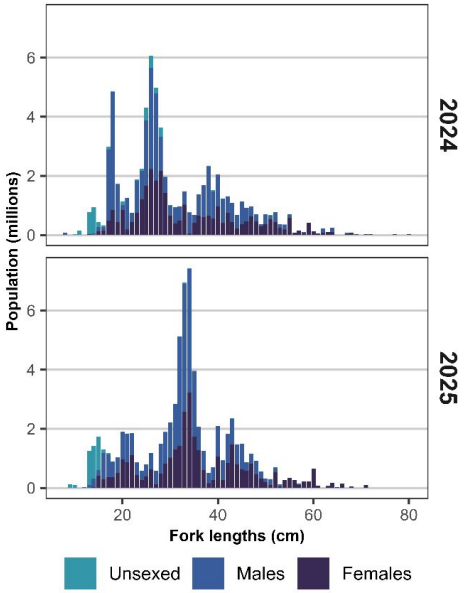
EBS Biomass

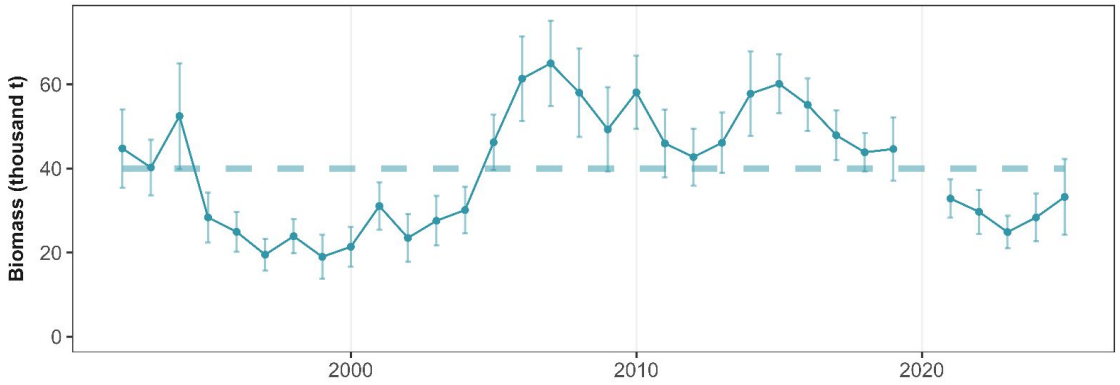
Mean: 460 K

2025: 492 K (-16%)

Kamchatka Flounder





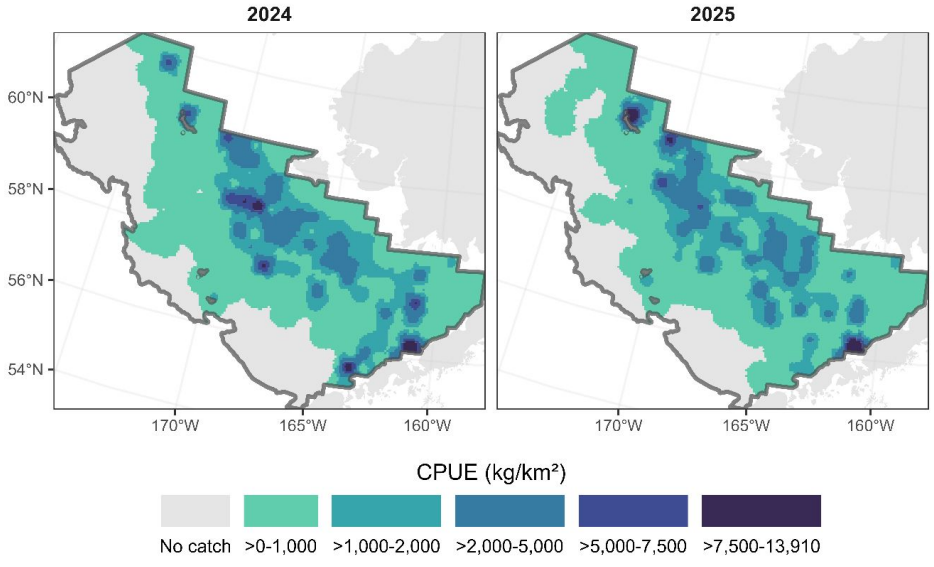


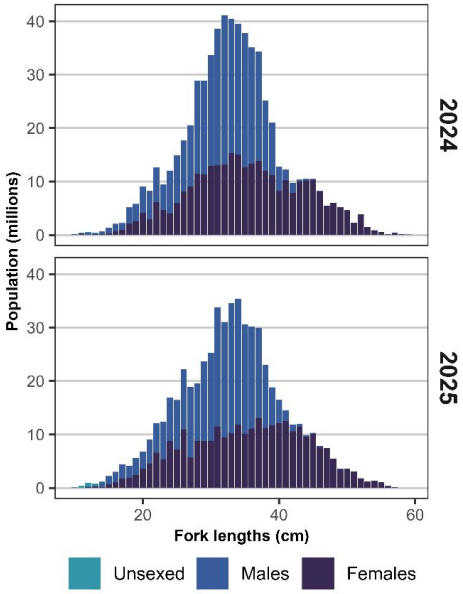
EBS Biomass

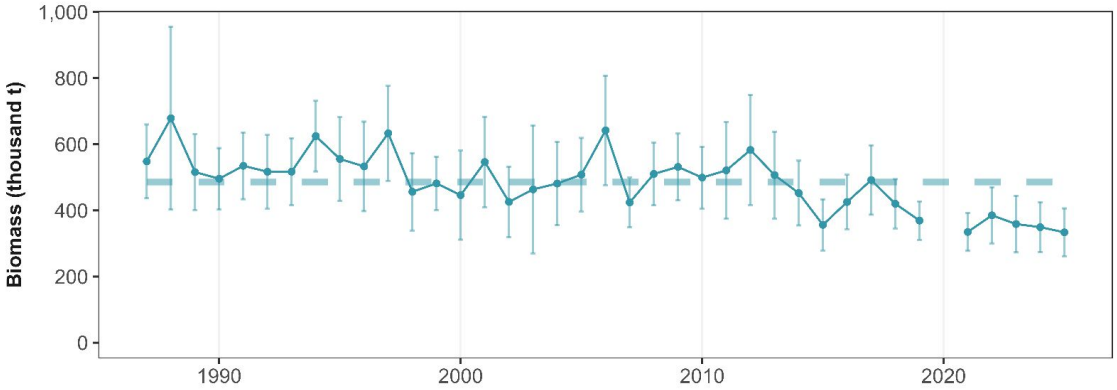
Mean: 40 K

2025: 33.2 K (+17%)

Alaska Plaice





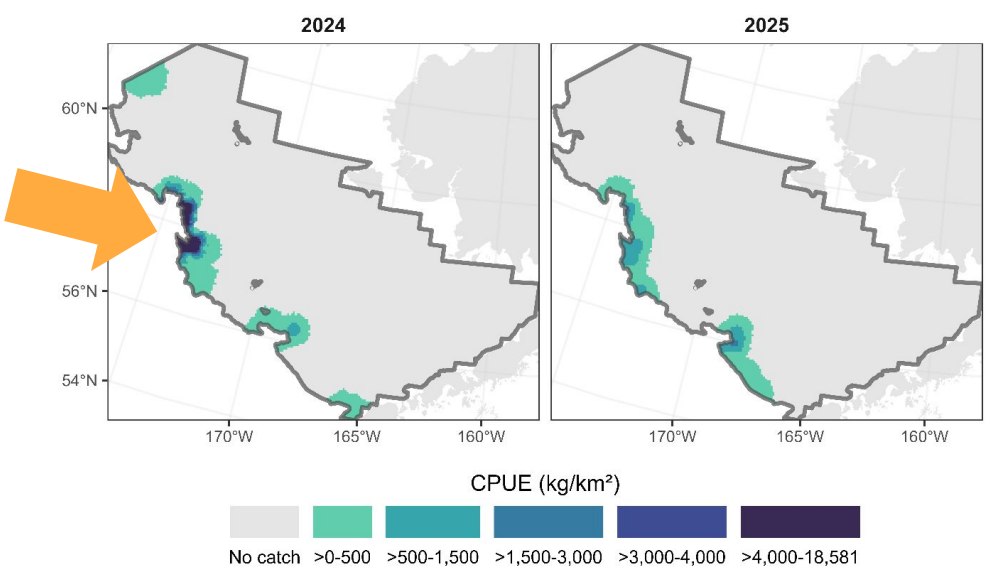


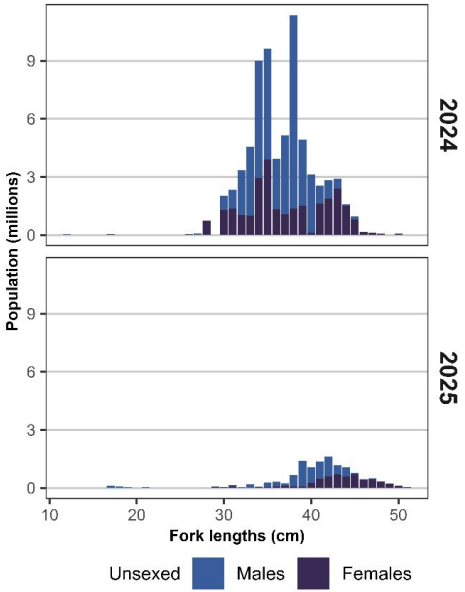
EBS Biomass

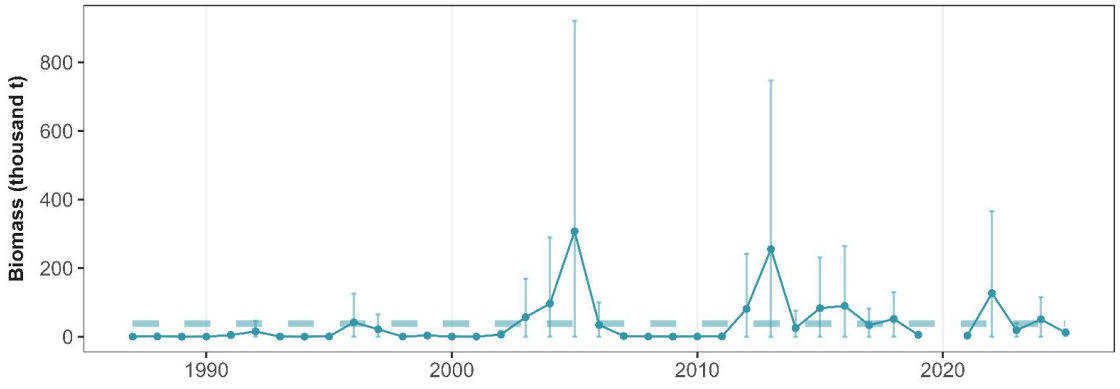
Mean: 486 K

2025: 334 K (-5%)

Pacific Ocean Perch





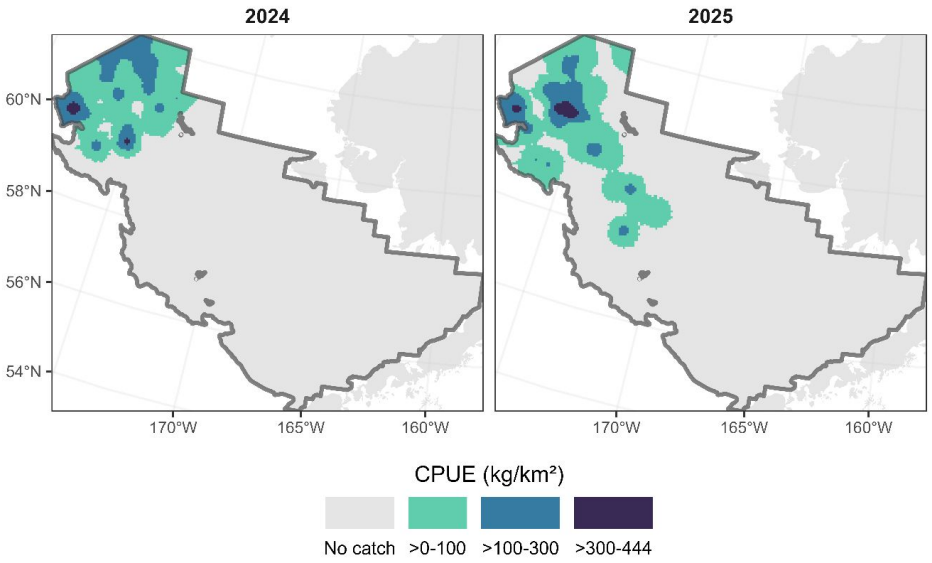


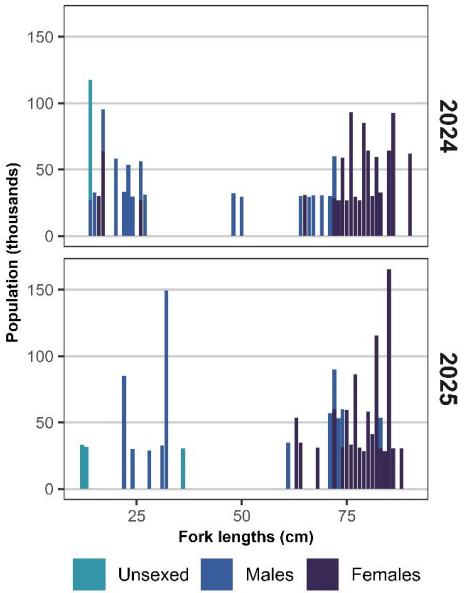
EBS Biomass

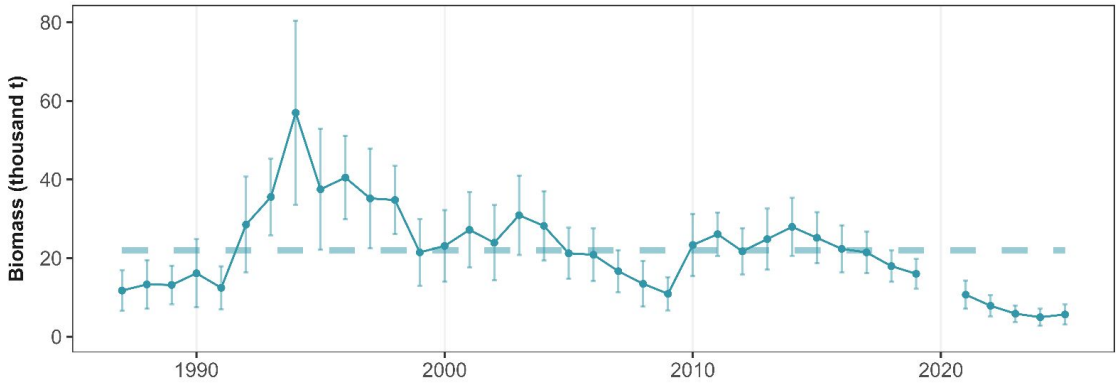
Mean: 37.6 K

2025: 11.7 K (-77%)

Greenland Turbot





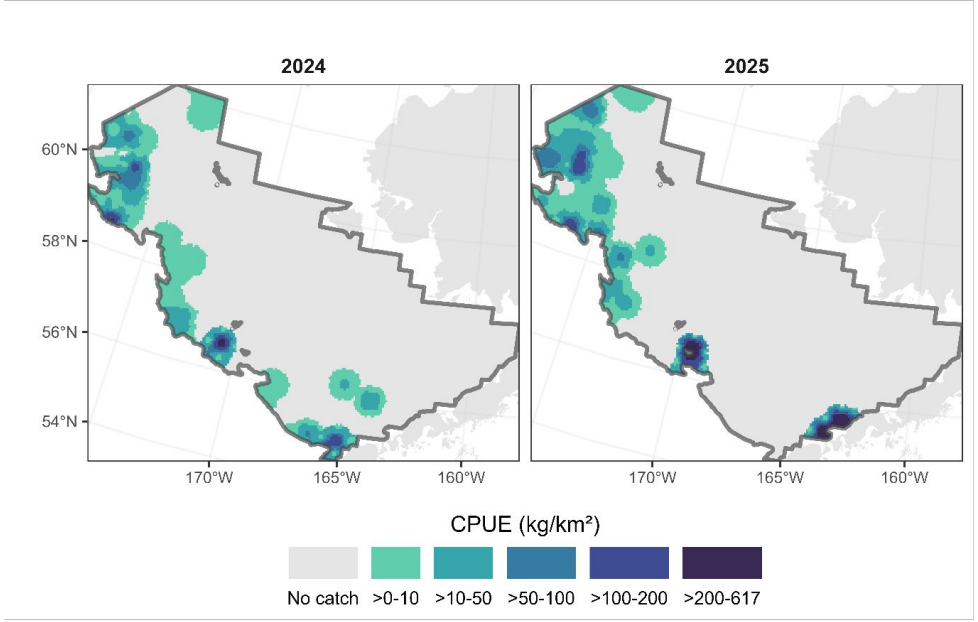


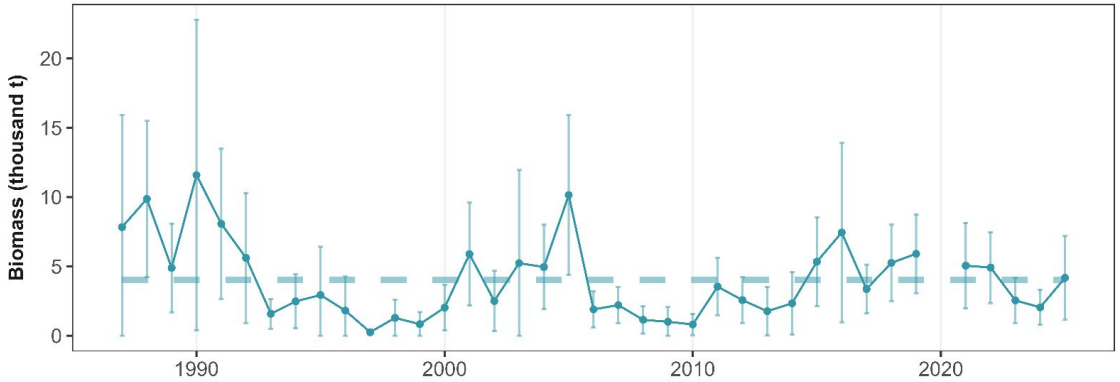
EBS Biomass

Mean: 22 K

2025: 5.7 K (+14%)

Octopuses





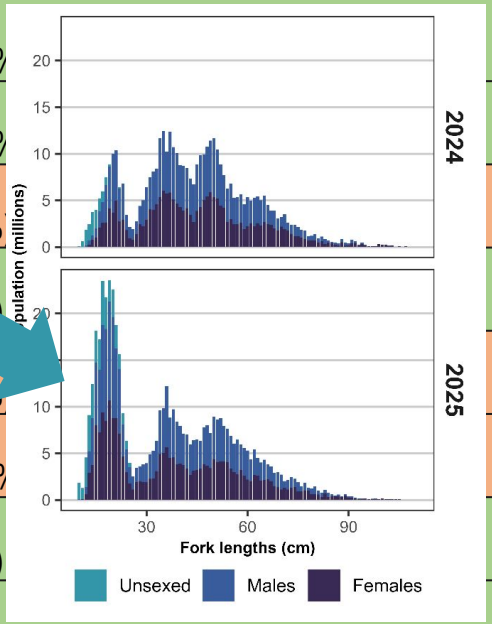
EBS Biomass

Mean: 4 K

2025: 4.2 K (+104%; 71 to 121 individ.)

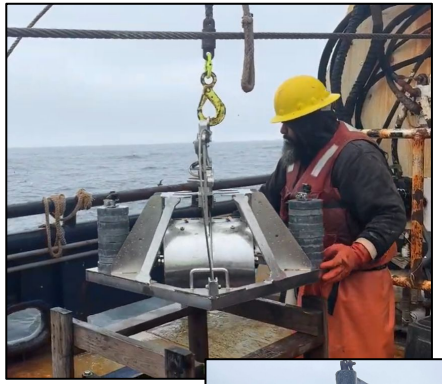
2024 vs 2025 Observed Trends

Common name	Year	Biomass (mt)	Population (x1,000)
walleye pollock	2024	5,476,067	10,307,932
	2025	3,825,362 (-30%)	6,575,619 (-36%)
Pacific cod	2024	635,840	436,530
	2025	570,986 (-10%)	516,669 (18%)
yellowfin sole	2024	1,503,618	
	2025	1,548,142 (3%	
northern rock sole	2024	1,439,739	
	2025	1,490,955 (4%	
flathead sole	2024	723,996	
	2025	714,106 (-1%	
Bering flounder	2024		
	2025	12,3	
Alaska plaice	2024	349,579	
	2025	333,810 (-5%	
arrowtooth flounder	2024	582,469	
	2025	491,918 (-16%	
Kamchatka flounder	2024	28,362	
	2025	33,231 (17%)	
Pacific halibut	2024	125,145	
	2025	133,705 (7%)	80,524 (24%)
Alaska skate	2024	407,133	102,931
	2025	399,887 (-2%)	113,374 (10%)
Pacific ocean perch	2024	50,664	71,612
	2025	11,741 (-77%)	12,420 (-83%)

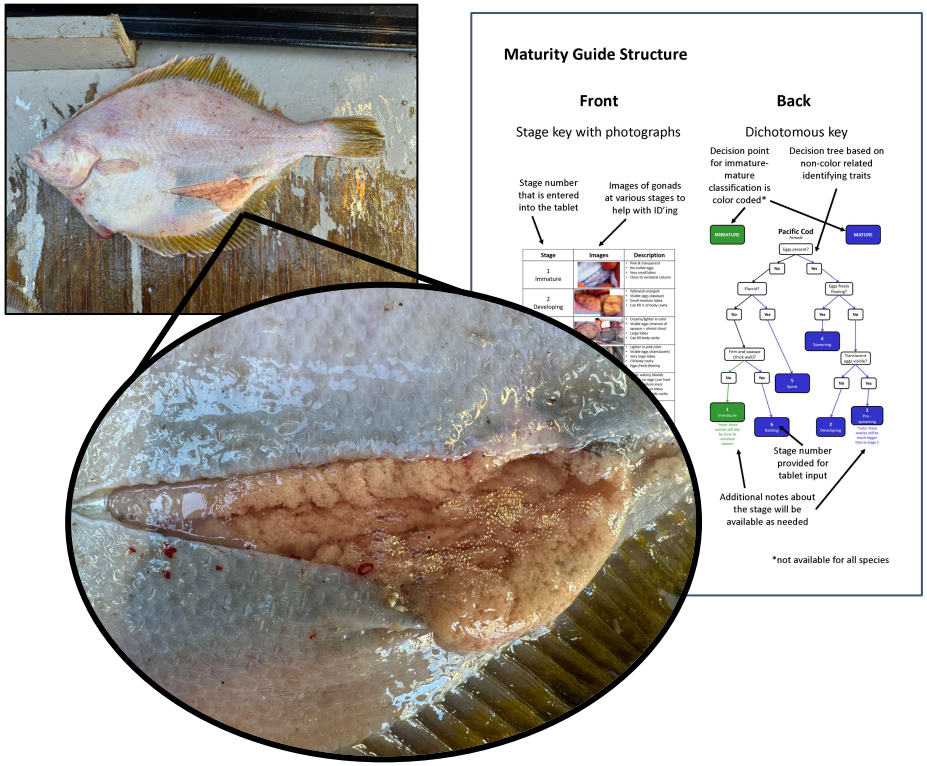


Scientific Collections: Benthic Grabs

- NBS study, requested by USFWS, to assess benthic marine invertebrate community
- Region of interest overlaps spectacled eider wintering critical habitat area
- Location: South of St. Lawrence Island
- 10 stations (4 grabs at each)



Scientific Collections: Fish Maturity

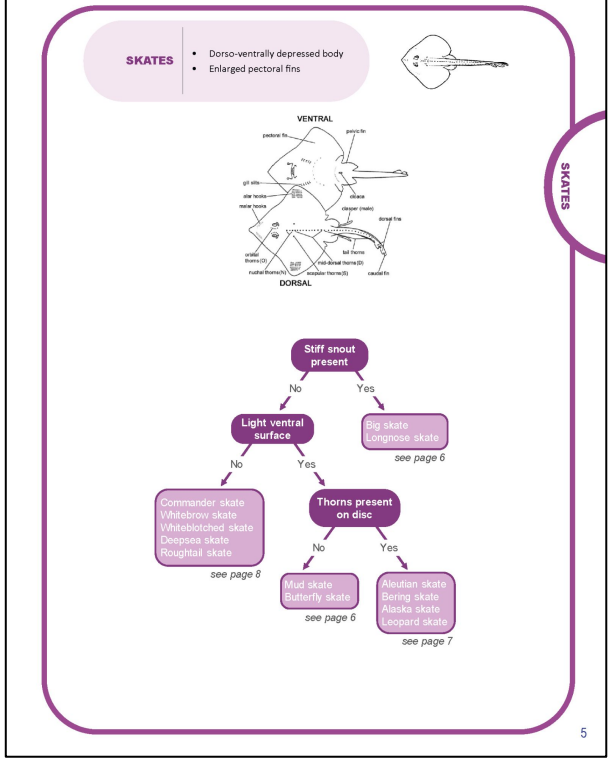


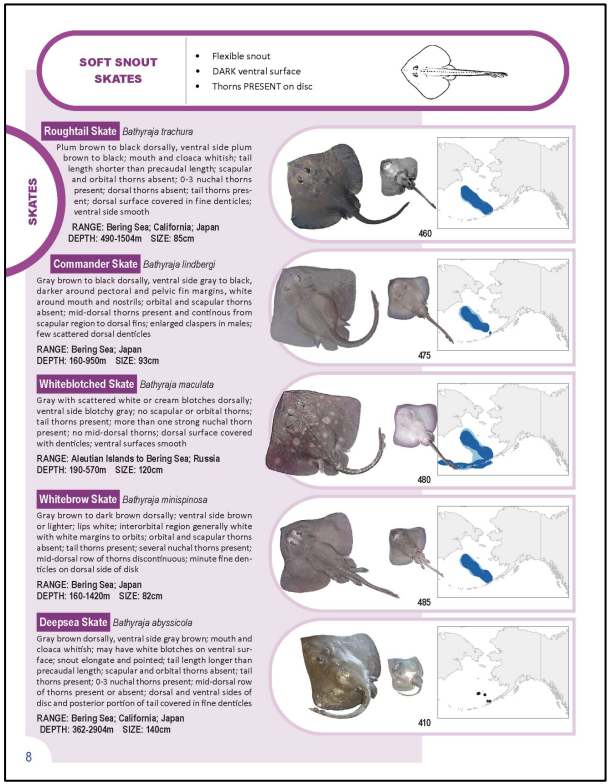
Female yellowfin sole with hydrated eggs

- Study to help establish a procedure for collecting visual maturity observations of select species during survey operations
- Target species in Bering Sea were Pacific cod, walleye pollock, and yellowfin sole
- EBS = 2482 maturities collected
  NBS = 593 maturities collected

Contact: Emily Slesinger, Susanne McDermott

Updated Identification Tools





Contact: Sarah Friedman, Thaddaeus Buser

What's life like at sea?

An official website of the United States government Here's how you know

NOAA FISHERIES

Search NOAA Fisheries

Find A Species | Fishing & Seafood | Protecting Marine Life | Environment | Regions | Resources & Services | About Us

NEWS

Life at Sea on a Fisheries Survey with Chris Anderson

July 30, 2025

NOAA fishery biologists provide critical support for sustainable fisheries and science from deck to desk.

Feature Story | Alaska

On deck of the F/ Northwest Explorer during the annual Groundfish Bottom Trawl Survey, Chris Anderson holds up a walleye pollock and a Pacific cod, which represent two of Alaska's largest fisheries. Credit: NOAA Fisheries

A Career Anchored in Science

Chris Anderson is no stranger to the open ocean. His journey with NOAA Fisheries Alaska Fisheries Science Center began 15 years ago as a North Pacific fisheries observer, providing fisheries-dependent data from commercial catches. Today, he is a fishery biologist conducting

More Information

- Bottom Trawl Survey Temperature and Progress Maps
- 2025 Alaska Fisheries Science Center Field Season and Program Updates
- Groundfish Assessment Program
- Alaska Fish Research Surveys

Recent News

FEATURE STORY
Workshop Targets High-Tech Ways to Assess Endangered Whale Health
Alaska, New England/Mid-Atlantic, Southeast, West Coast

FEATURE STORY
2022 and 2023 Combined Report of Marine Mammal Strandings in the United States
Alaska, New England/Mid-Atlantic, Pacific Islands, Southeast, West Coast, National

FEATURE STORY
NOAA Announces Confirmed

NOAA FISHERIES https://www.fisheries.noaa.gov/feature-story/life-sea-fisheries-survey-chris-anderson

Survey Modernization

An official website of the United States government Here's how you know

NOAA FISHERIES

Search NOAA Fisheries

Find A Species | Fishing & Seafood | Protecting Marine Life | Environment | Regions | Resources & Services | About Us

NEWS

Modernizing Fisheries Survey Science: Advancing NOAA's Fisheries-Independent Data Collection

Feature Story | Alaska

More Information

- Bottom Trawl Survey Temperature and Progress Maps
- 2025 Alaska Fisheries Science Center Field Season and Program Updates
- Groundfish Assessment Program
- Alaska Fish Research Surveys

Recent News

FEATURE STORY

Workshop Targets High-Tech Ways to Assess Endangered Whale Health

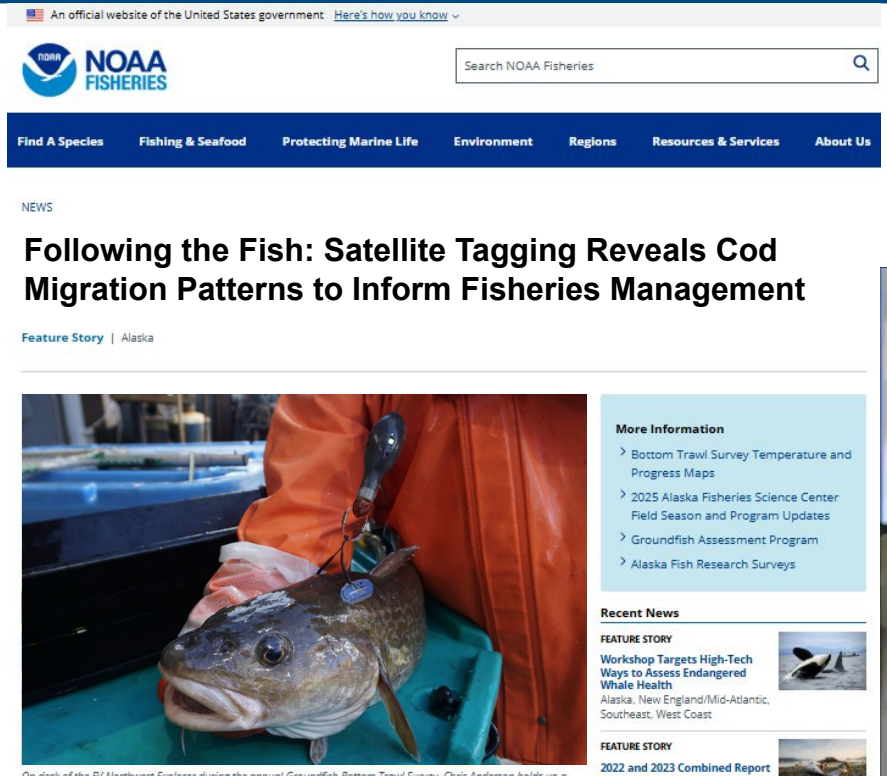
Alaska, New England/Mid-Atlantic, Southeast, West Coast

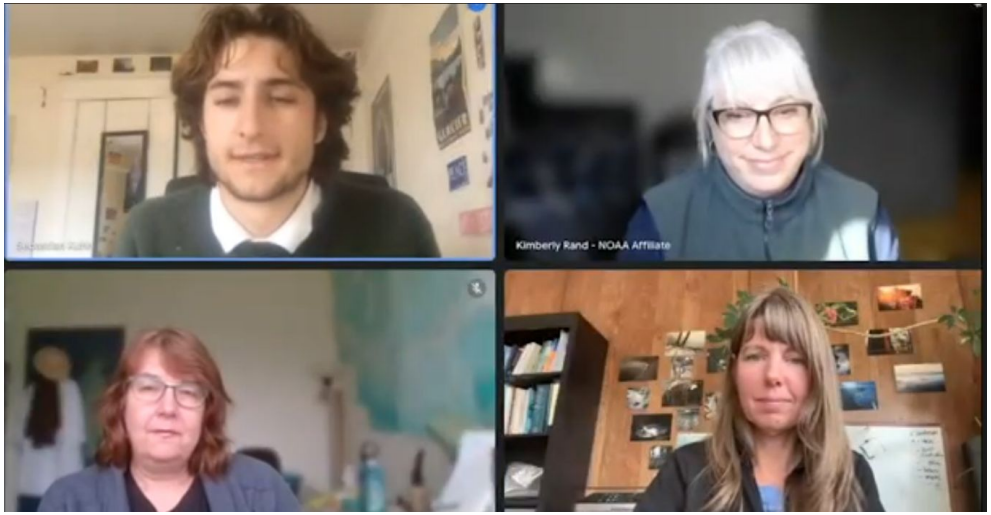
FEATURE STORY

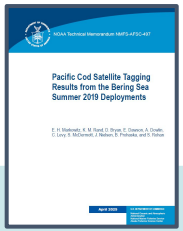
2022 and 2023 Combined Report

NOAA FISHERIES https://www.fisheries.noaa.gov/feature-story/modernizing-fisheries-survey-science-advancing-noaas-fisheries-independent-data

Pacific Cod Tagging
Coming soon!







NOAA FISHERIES

Link coming soon! Latest data report here.

2025 Summary

- Water temps slightly warmer than 2024, cold pool smaller
- Environmental data limited for 2025
- Biomass estimates for most fish species similar to last year for EBS
- Cod: overall biomass estimate lower, but a lot of small fish
- Crab biomass estimates all higher than 2024
- EBS data accessible in GAP_PRODUCTS tables and AKFIN; NBS data should be finalized very soon

Thank you!

Data Products

GAP Website

Questions?

duane.stevenson@noaa.gov

afsc.gap.metadata@noaa.gov

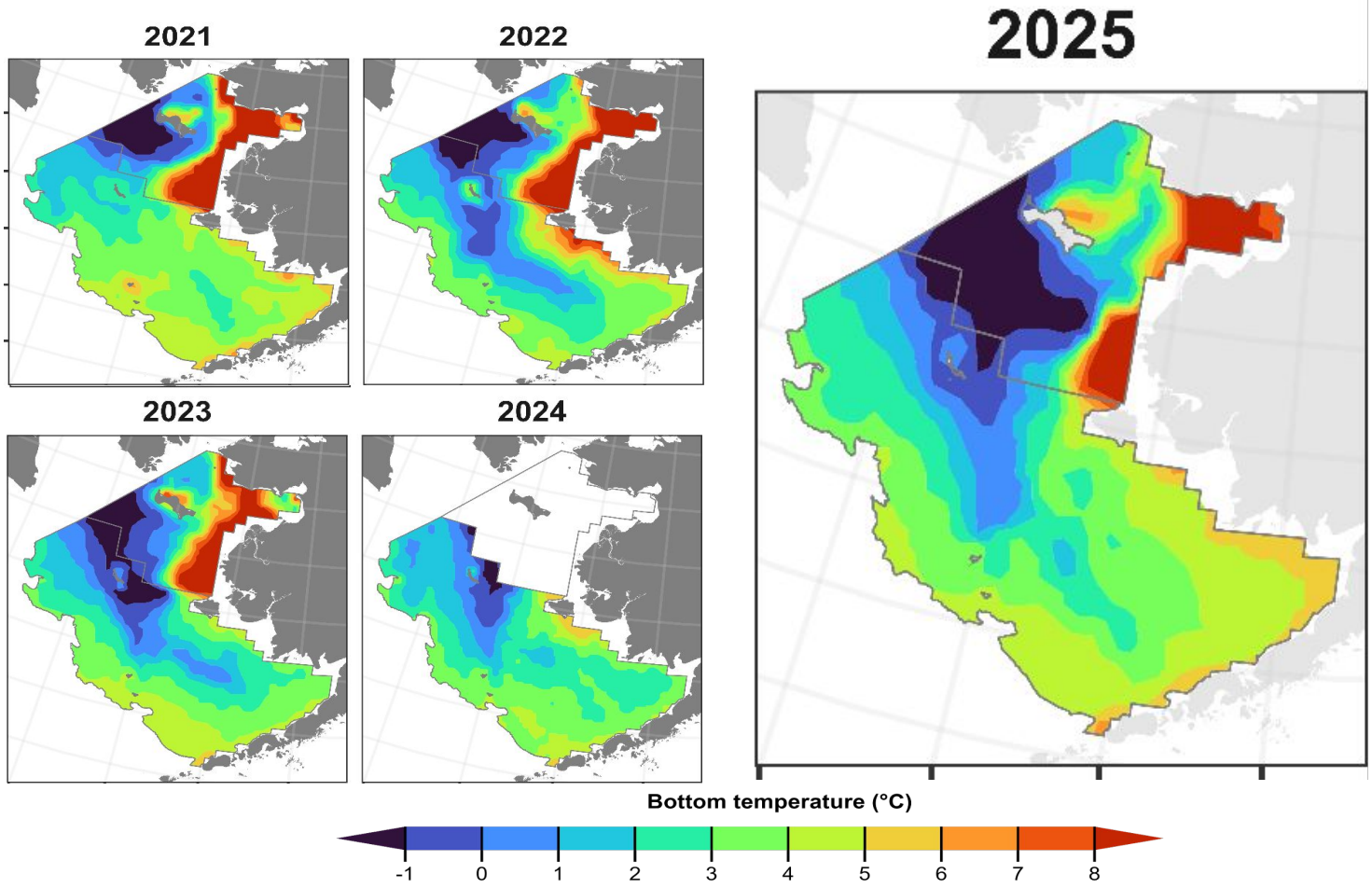
Brief Graphical Summary of Results for 2025 EBS/NBS Bottom Trawl Surveys

(temperatures, spatial catch distribution, length frequency distribution, and biomass estimates)

Prepared 19 Nov 2025 by AFSC Groundfish Assessment Program staff

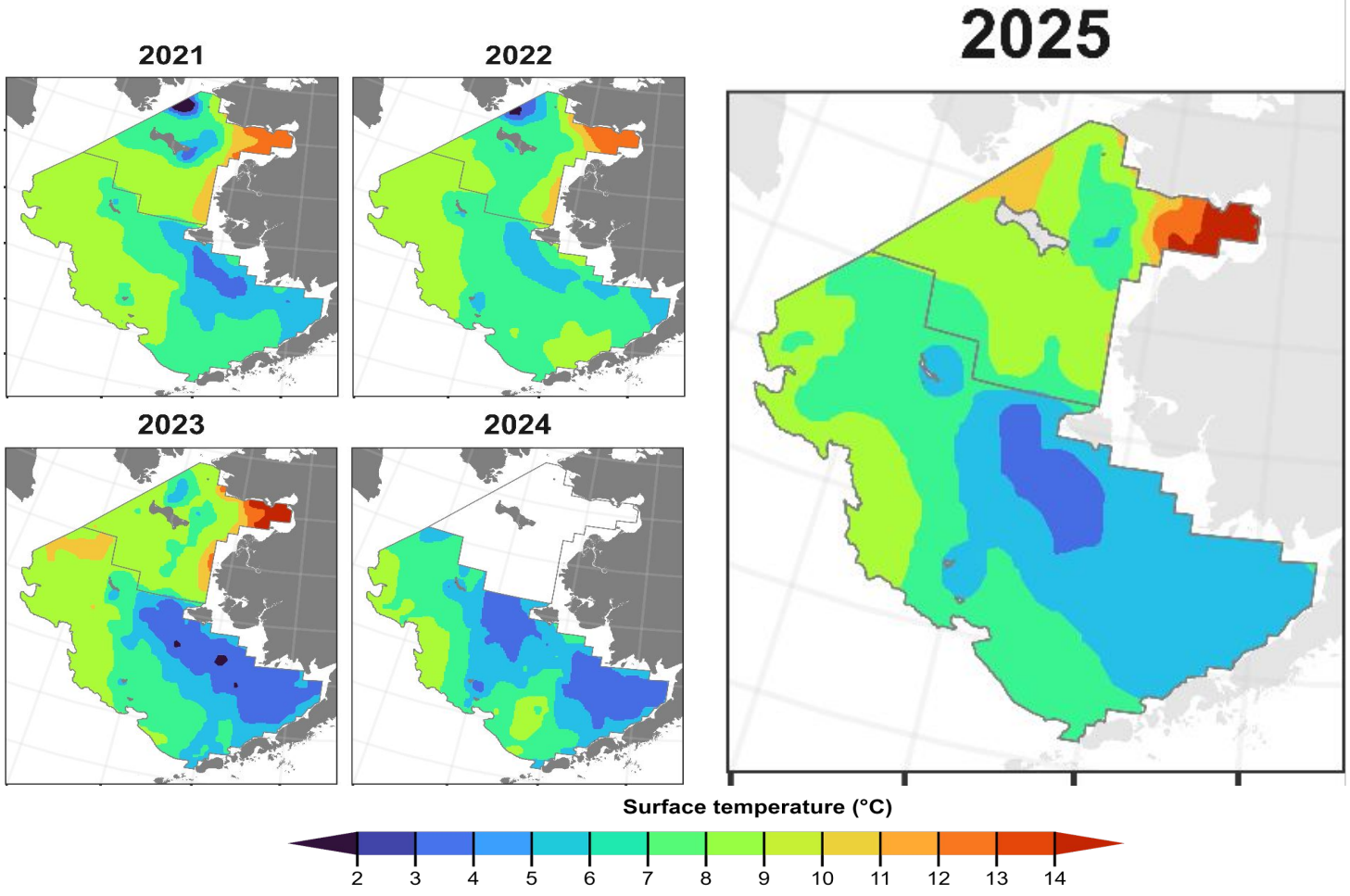
Temperatures

Bottom Temperatures



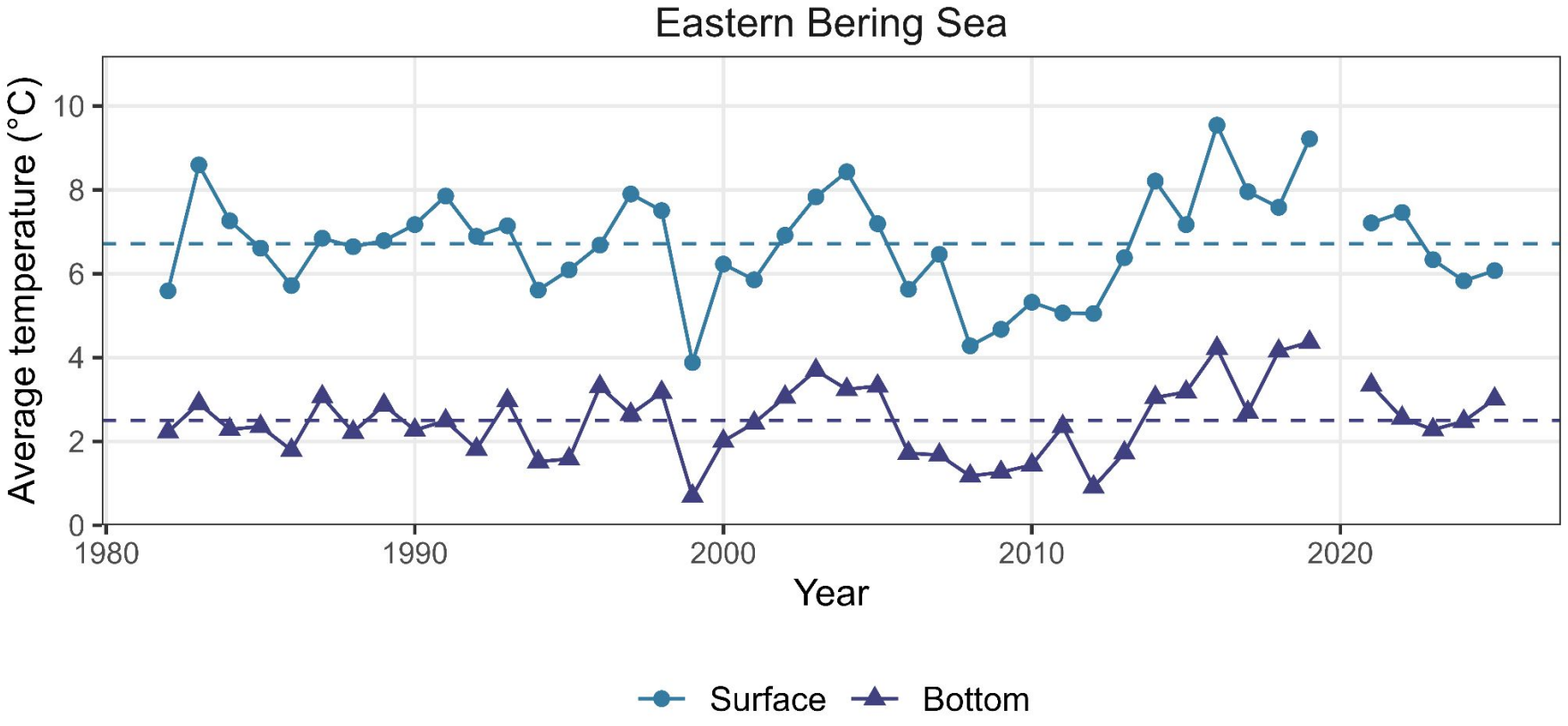
Temperature data products: https://github.com/afsc-gap-products/coldpool

Surface Temperatures



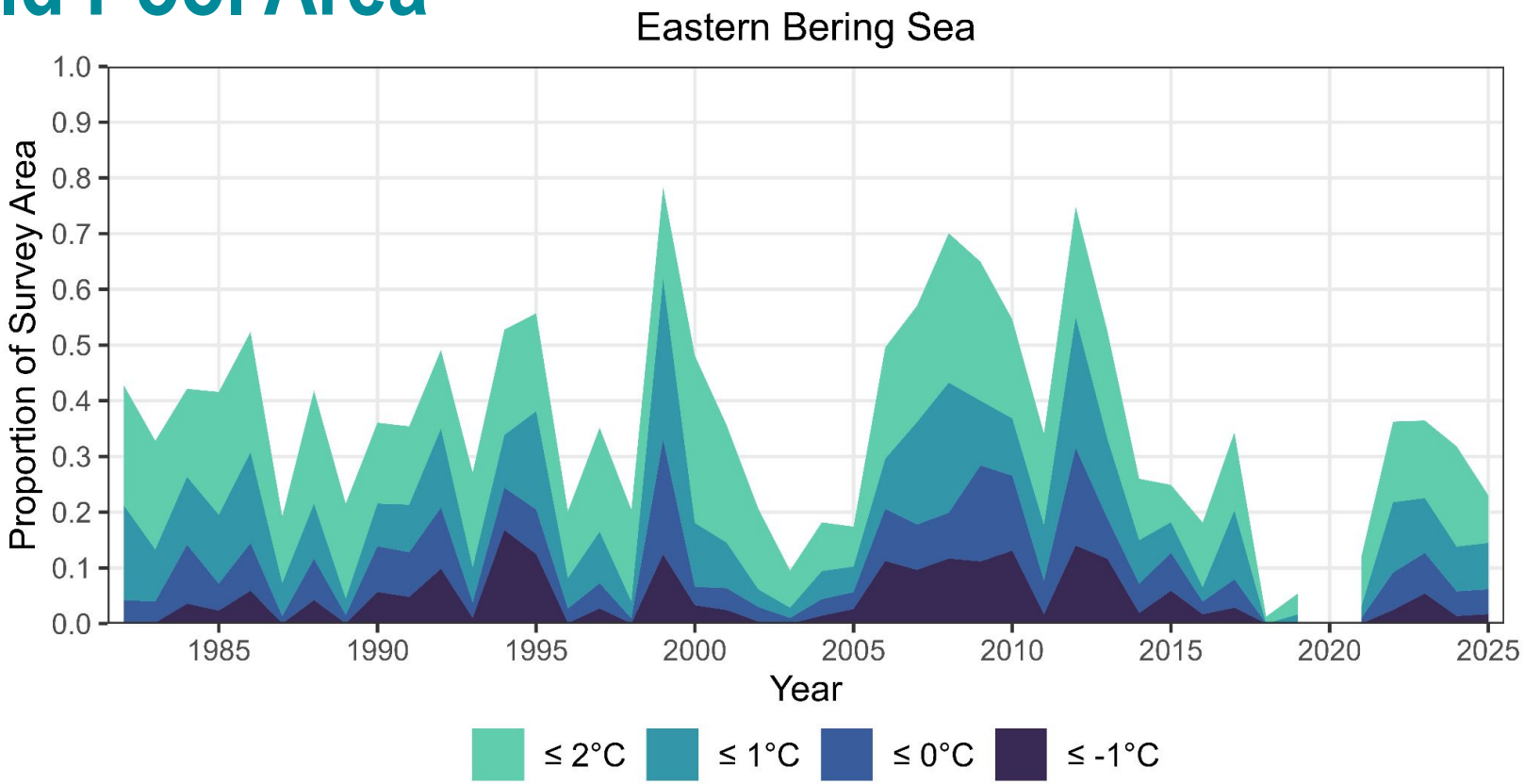
Temperature data products: https://github.com/afsc-gap-products/coldpool

Annual Mean Temperature



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

Cold Pool Area

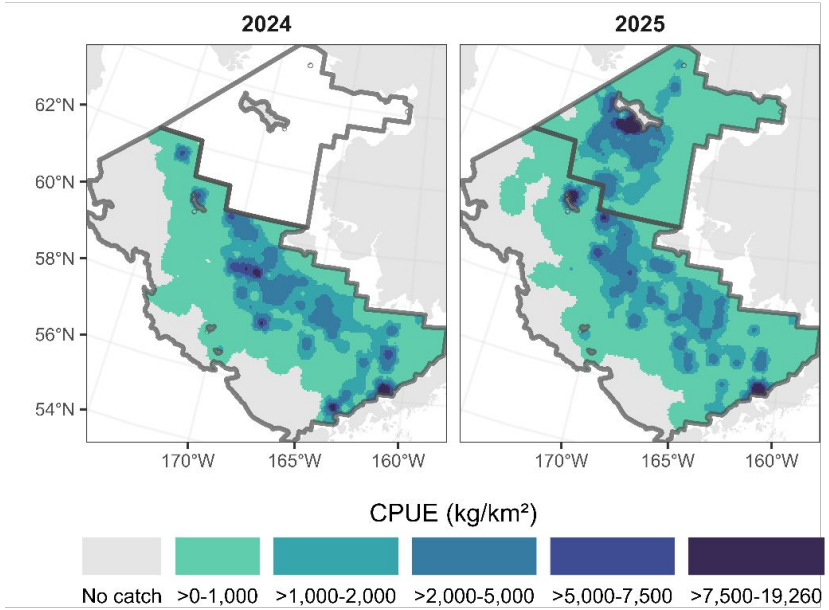


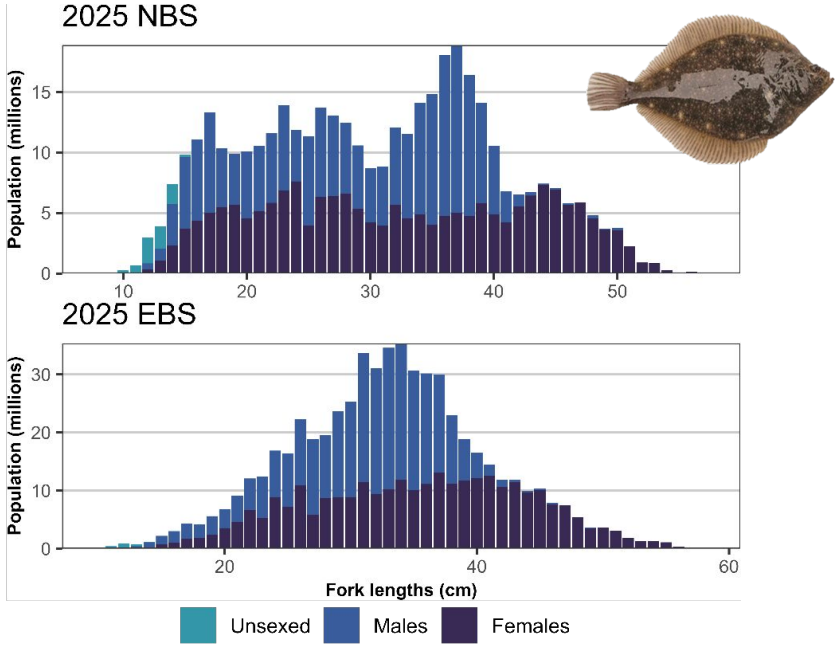
Temperature data products: https://github.com/afsc-gap-products/coldpool

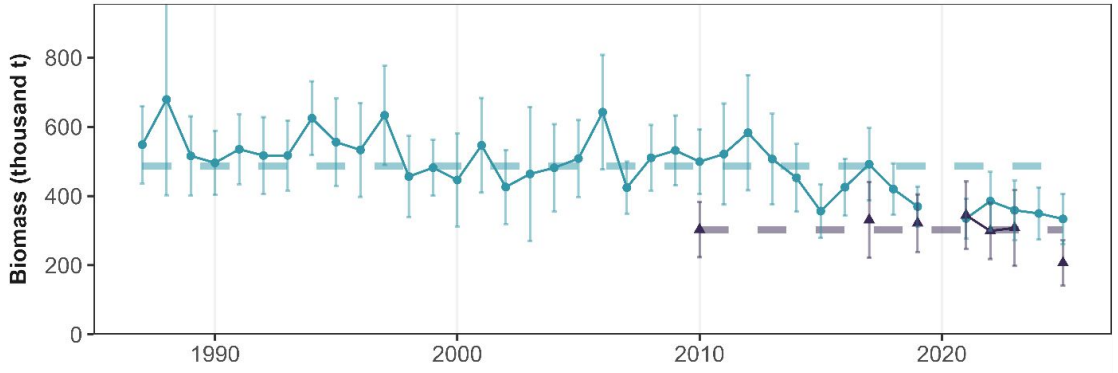
Fishes

(arranged alphabetically by common name)

Alaska Plaice



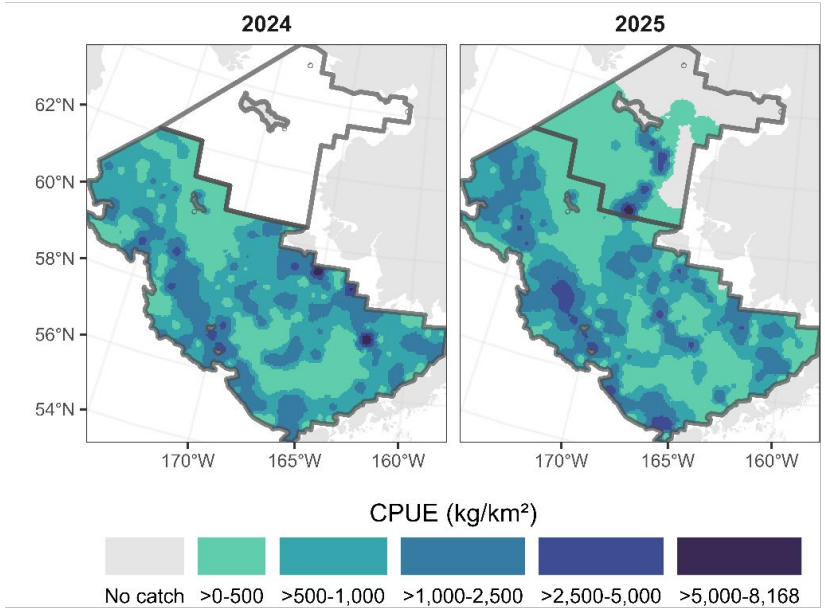


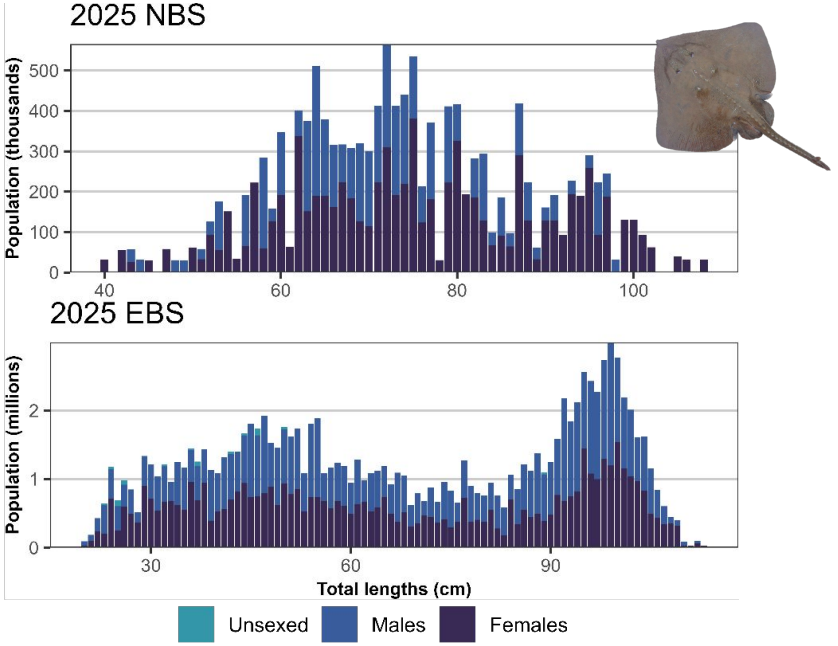


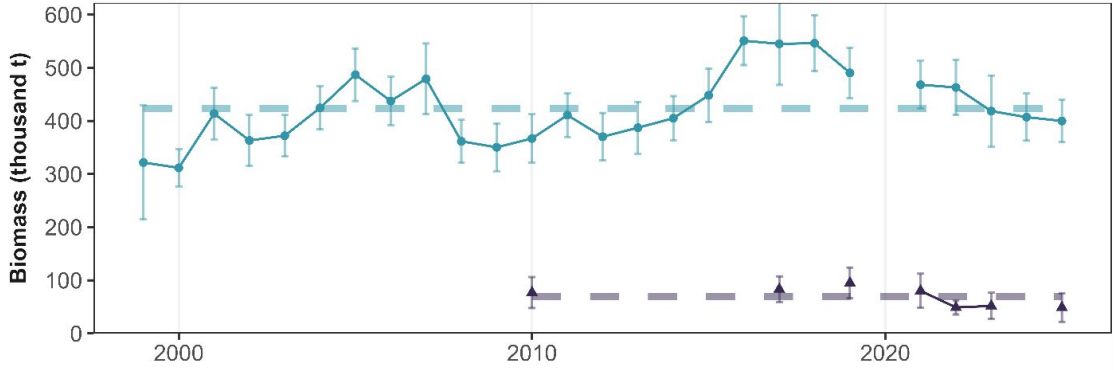
EBS Biomass
Mean: 486 K
2025: 334 K (-5% from 2024)

NBS Biomass
Mean: 302 K
2025: 207 K (-33% from 2023)

Alaska Skate



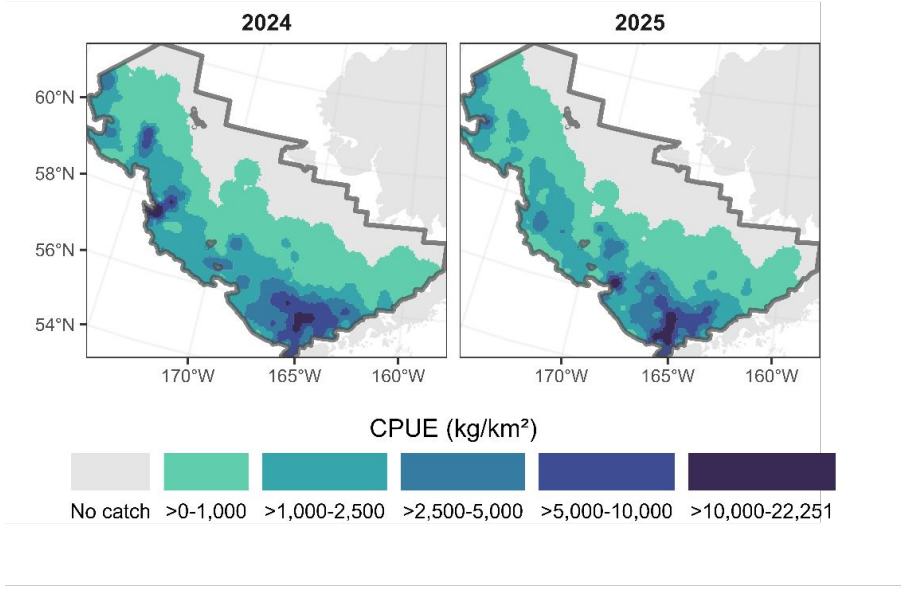


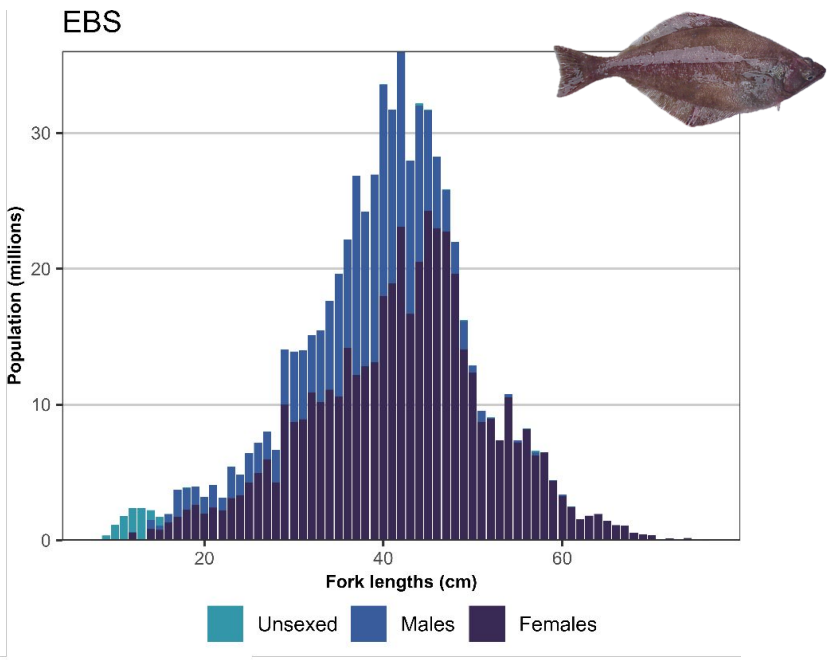


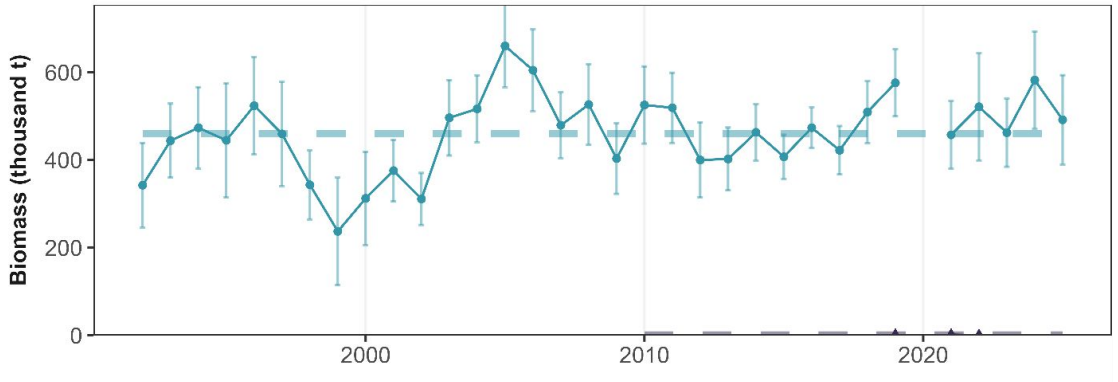
EBS Biomass
Mean: 423 K
2025: 400 K (-2% from 2024)

NBS Biomass
Mean: 69 K
2025: 49 K (-6% from 2023)

Arrowtooth Flounder



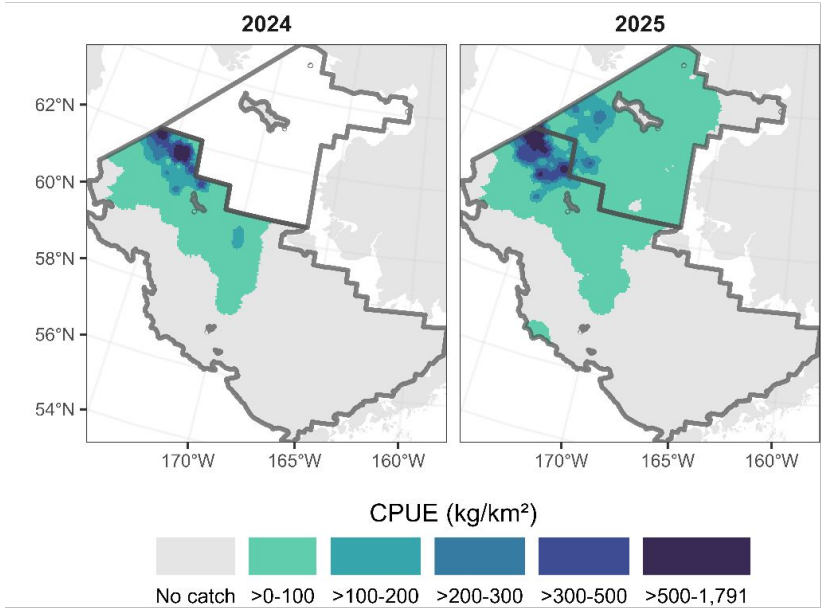


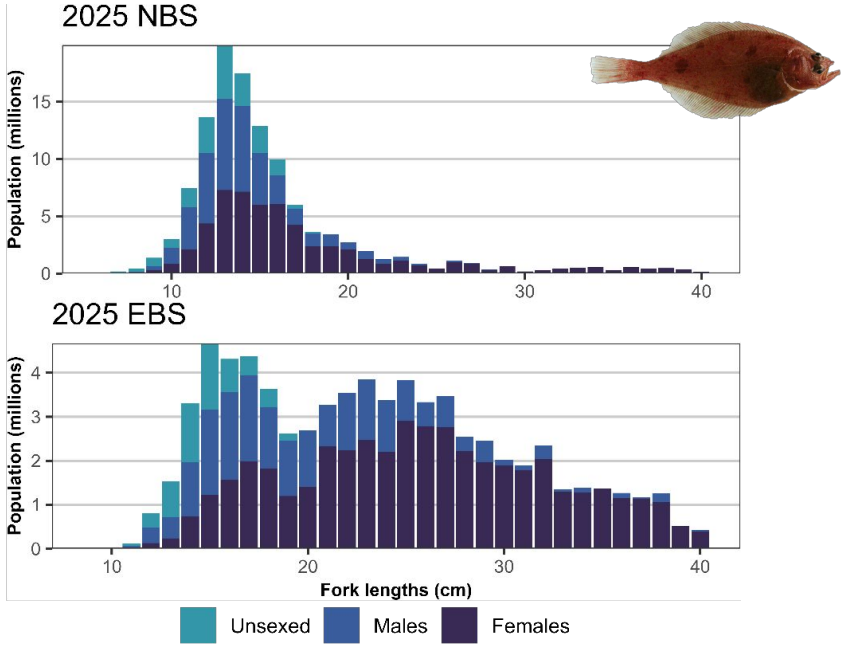


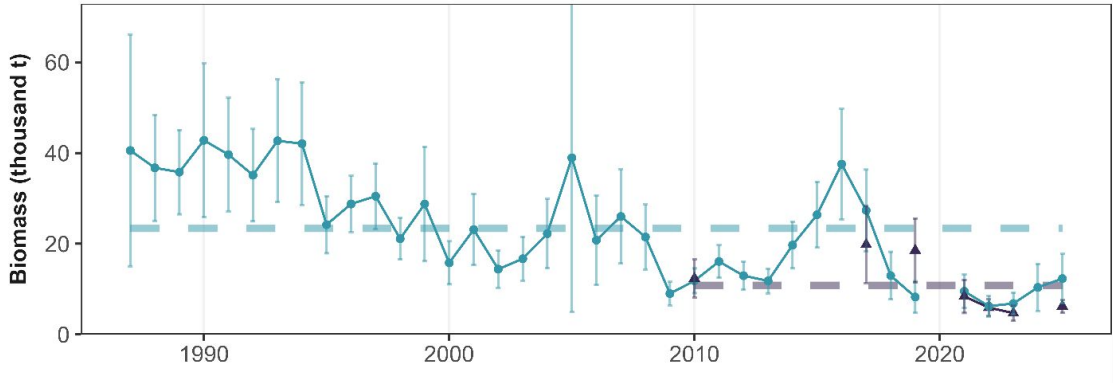
EBS Biomass
Mean: 460 K
2025: 492 K (-16% from 2024)

NBS Biomass
Mean: 1 K
2025: None caught

Bering Flounder



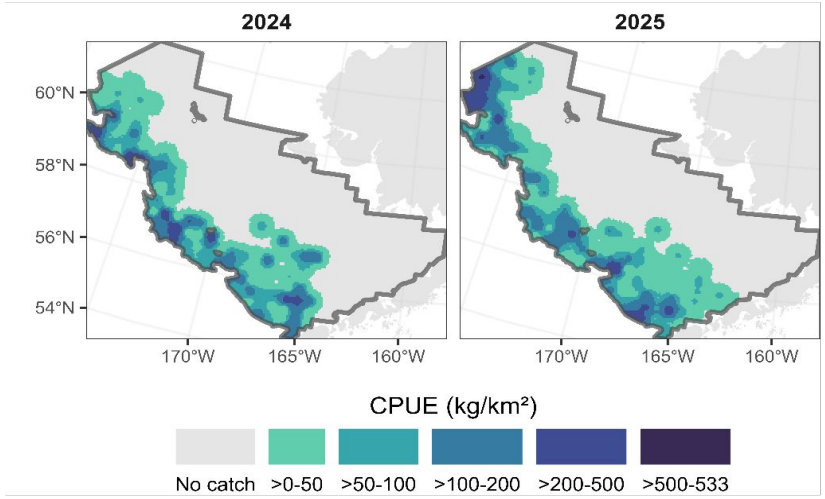


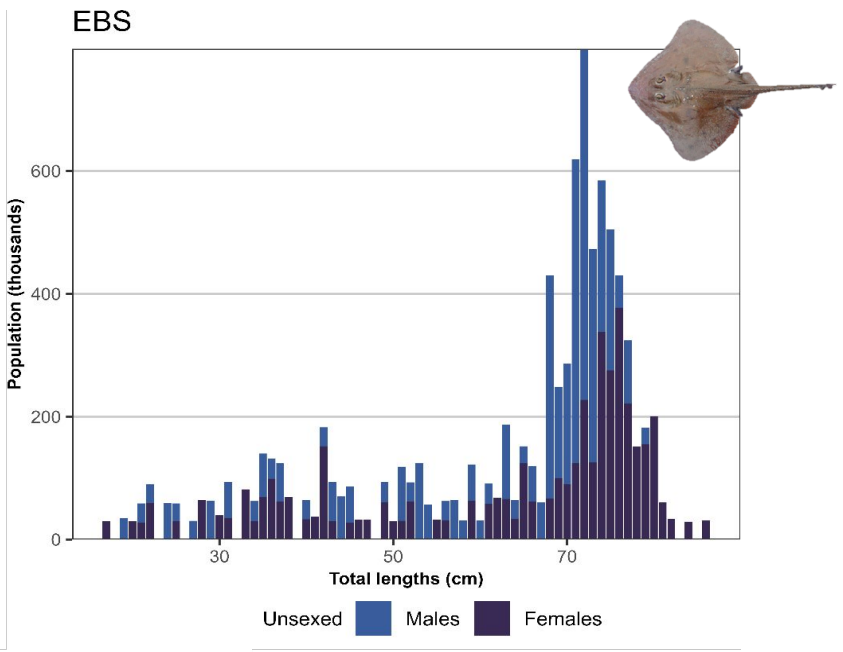


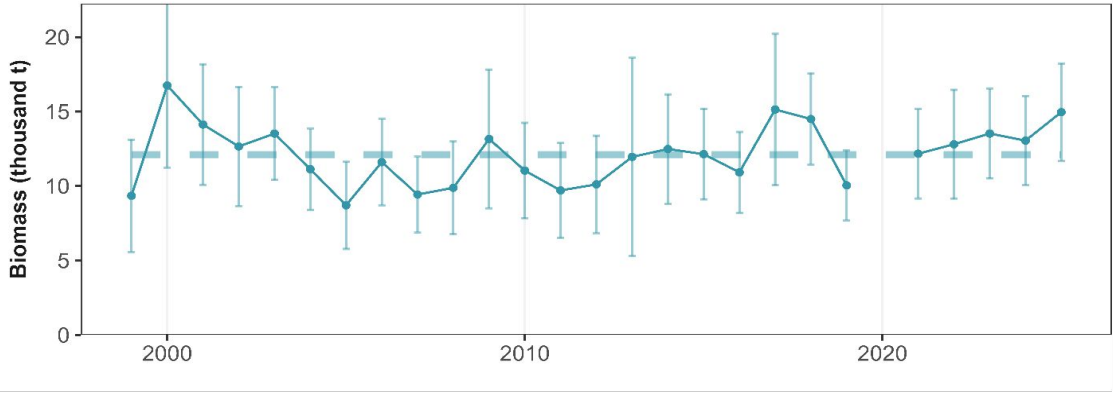
EBS Biomass
Mean: 23 K
2025: 12 K (+19% from 2024)

NBS Biomass
Mean: 11 K
2025: 6 K (+32% from 2023)

Bering Skate







EBS Biomass

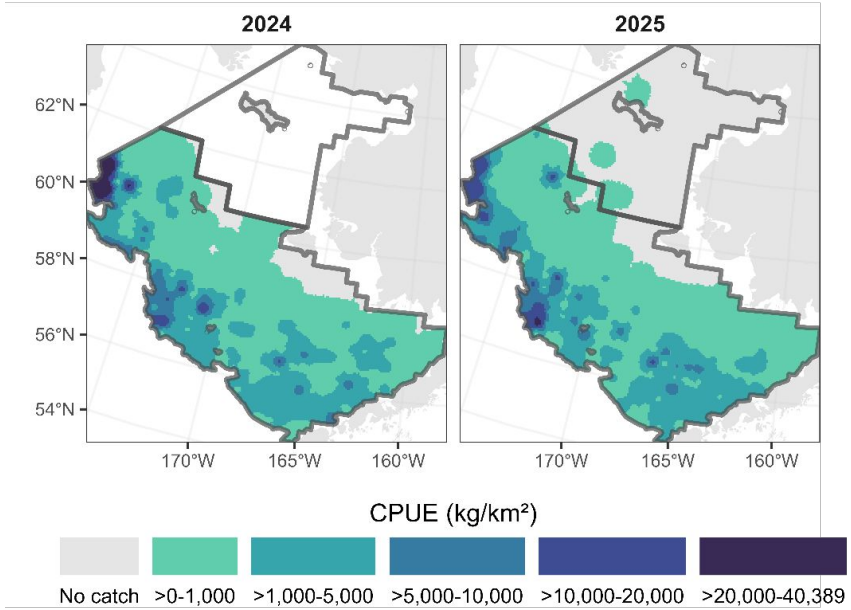
Mean: 12 K

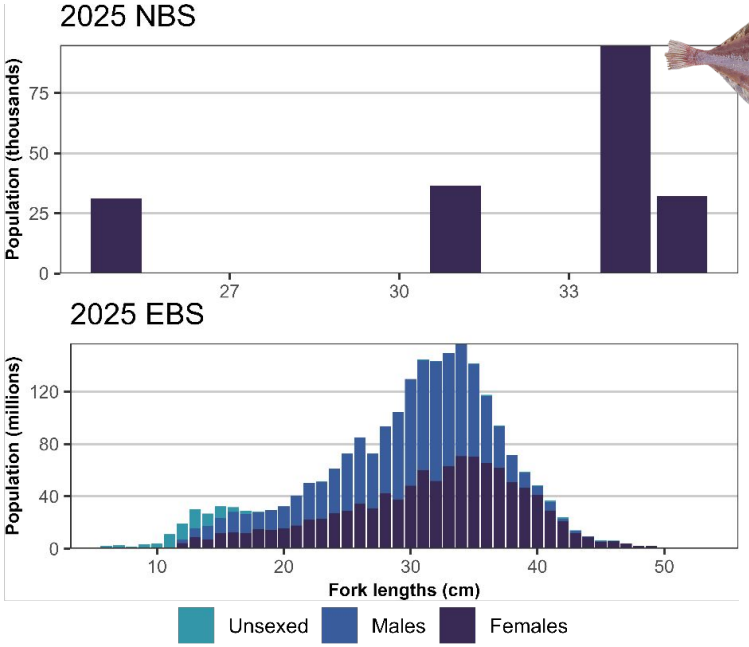
2025: 15 K (+15% from 2023)

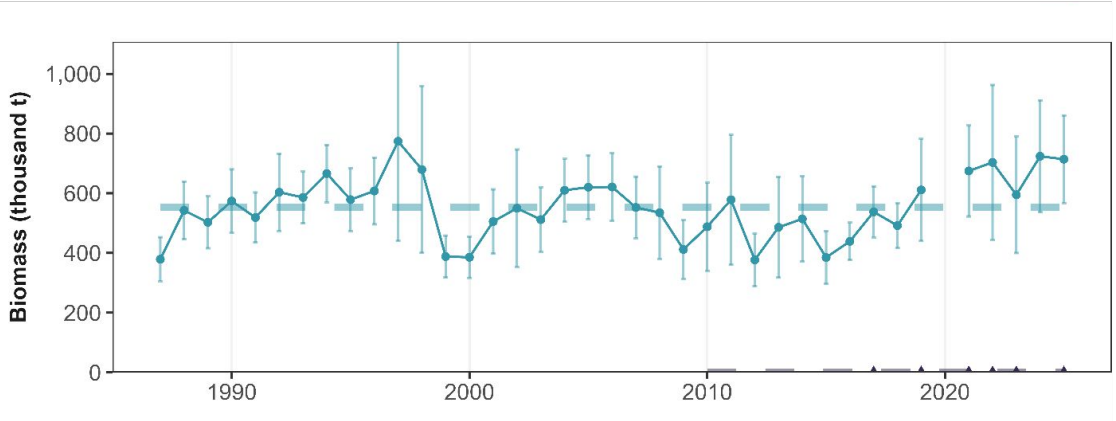
NBS Biomass

2025: None caught

Flathead Sole



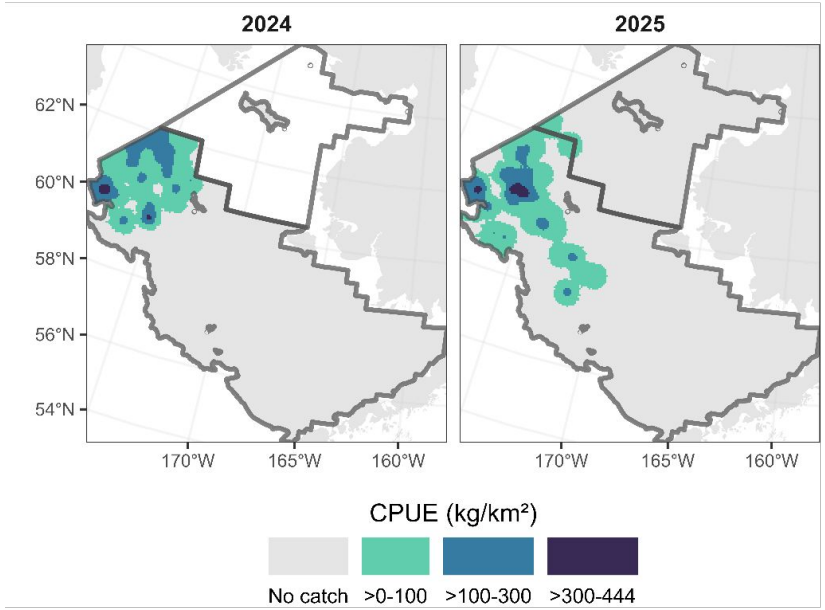




EBS Biomass
Mean: 553 K
2025: 714 K (-1% from 2024)

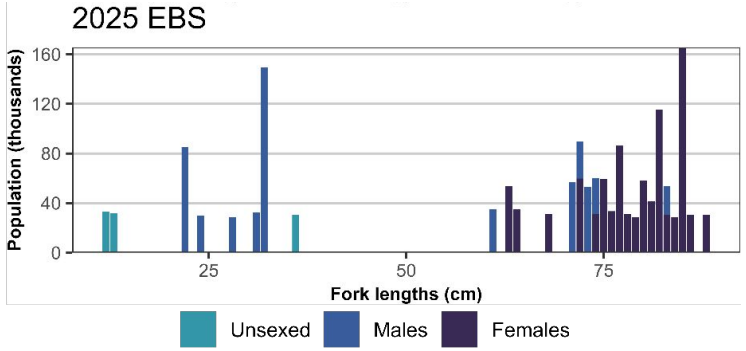
NBS Biomass
Mean: 200 K
2025: 66 (+48% from 2023)

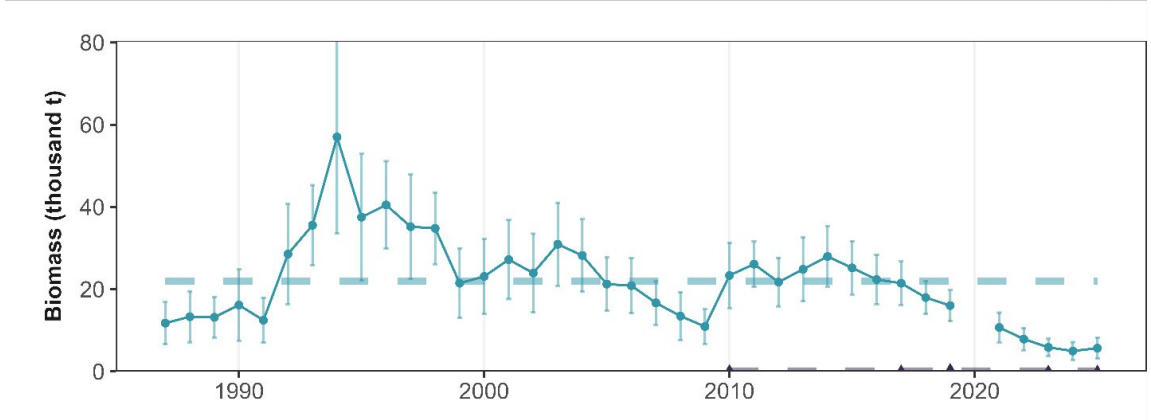
Greenland Turbot



2025 NBS

Only 1 individual caught





EBS Biomass

Mean: 22 K

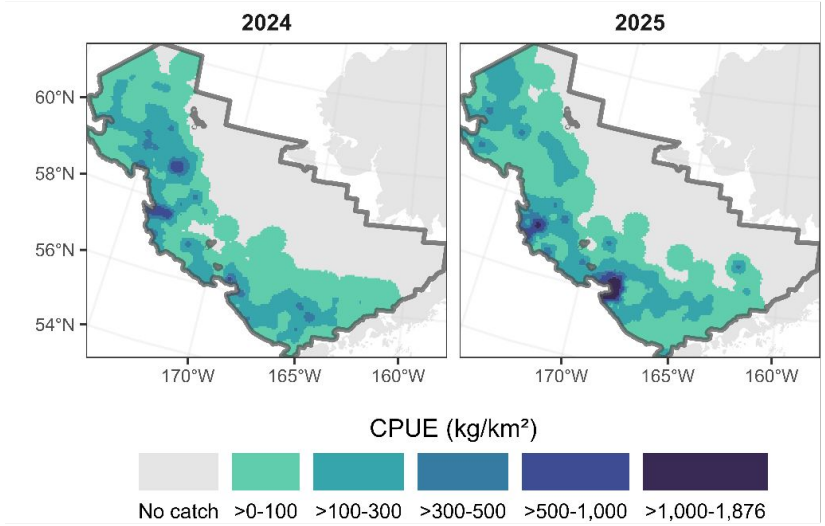
2025: 6 K (+14% from 2024)

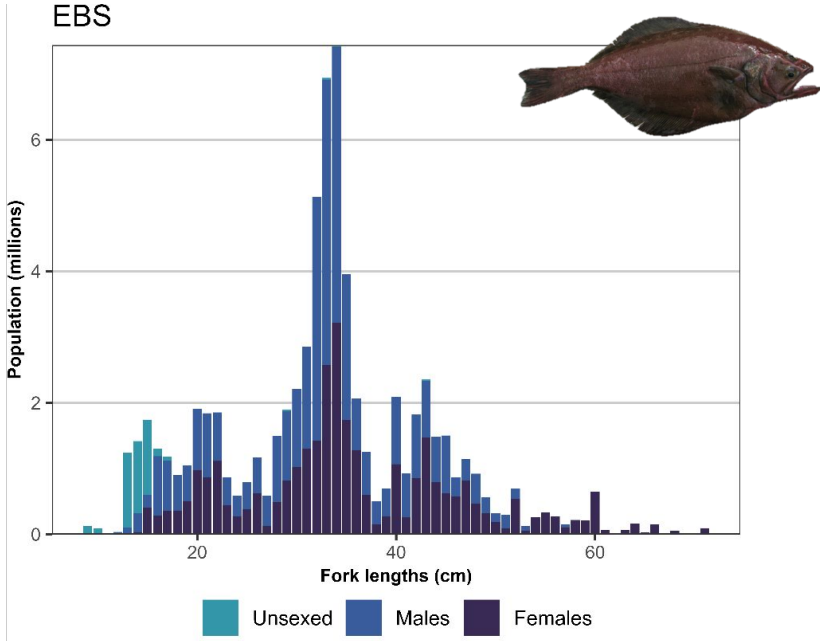
NBS Biomass

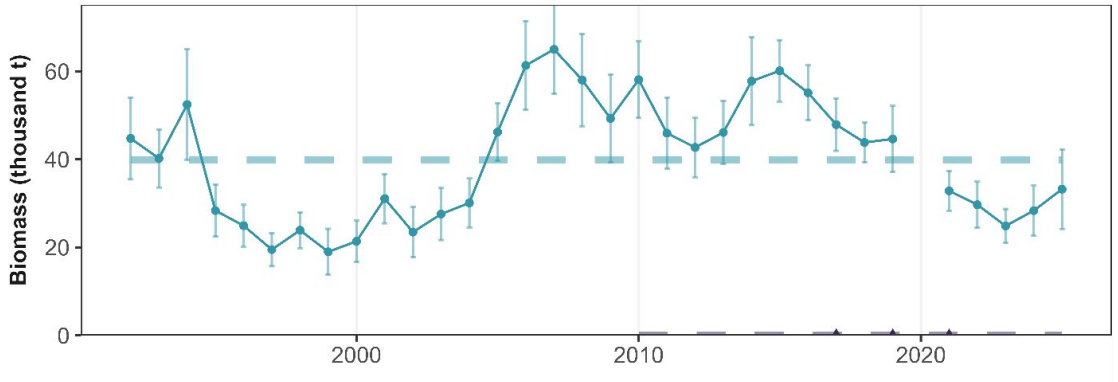
Mean: 0.1 K

2025: ~0 (-76% from 2023)

Kamchatka Flounder



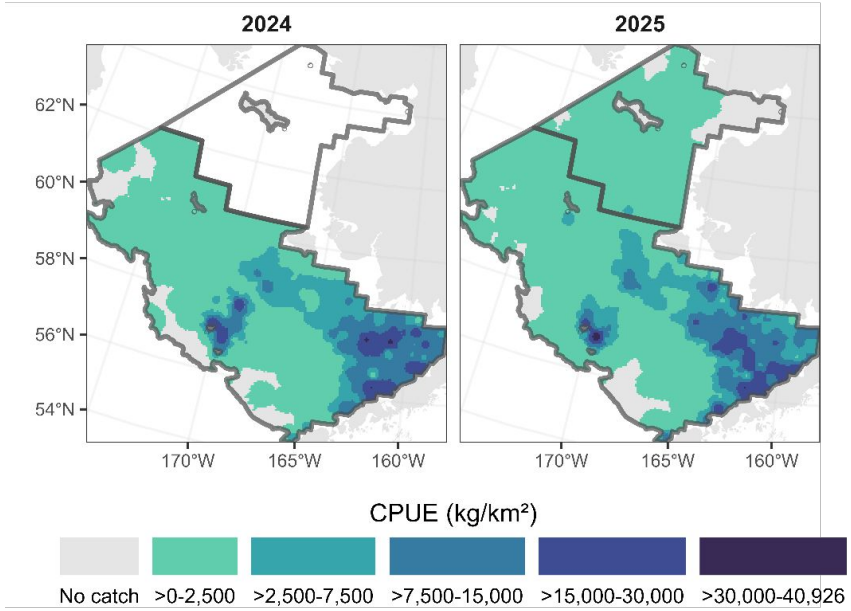


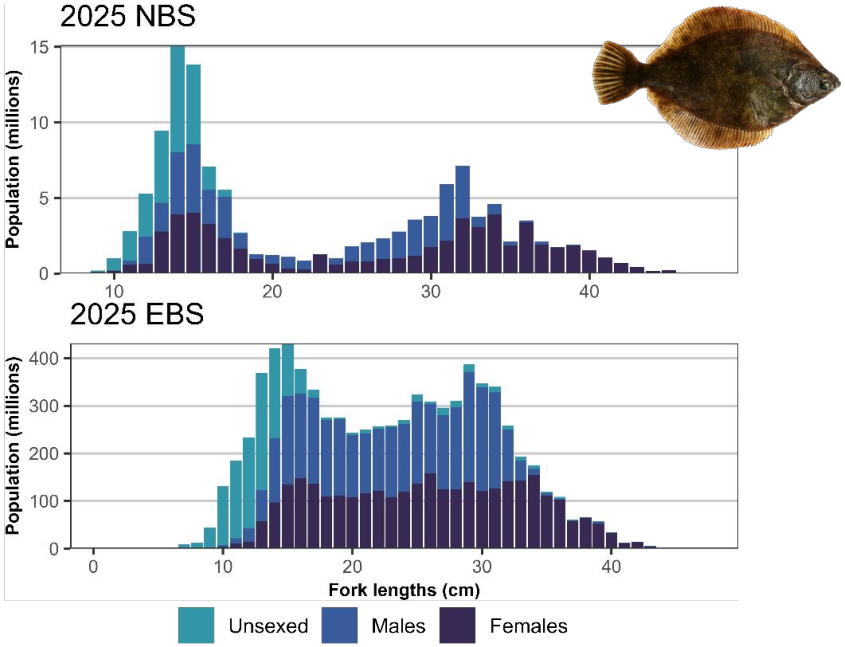


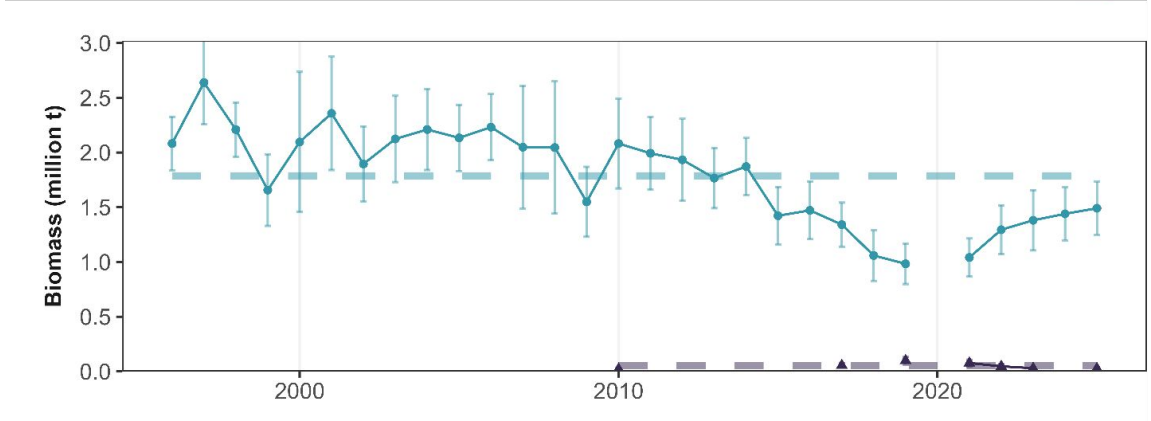
EBS Biomass
Mean: 40 K
2025: 33 K (+17% from 2024)

NBS Biomass
Mean: 0.1 K
2025: None caught

Northern Rock Sole



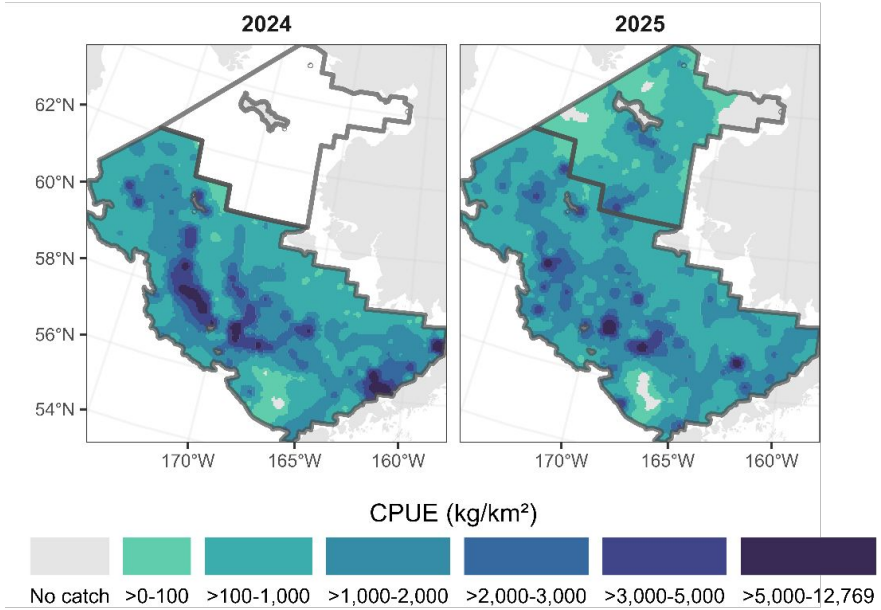


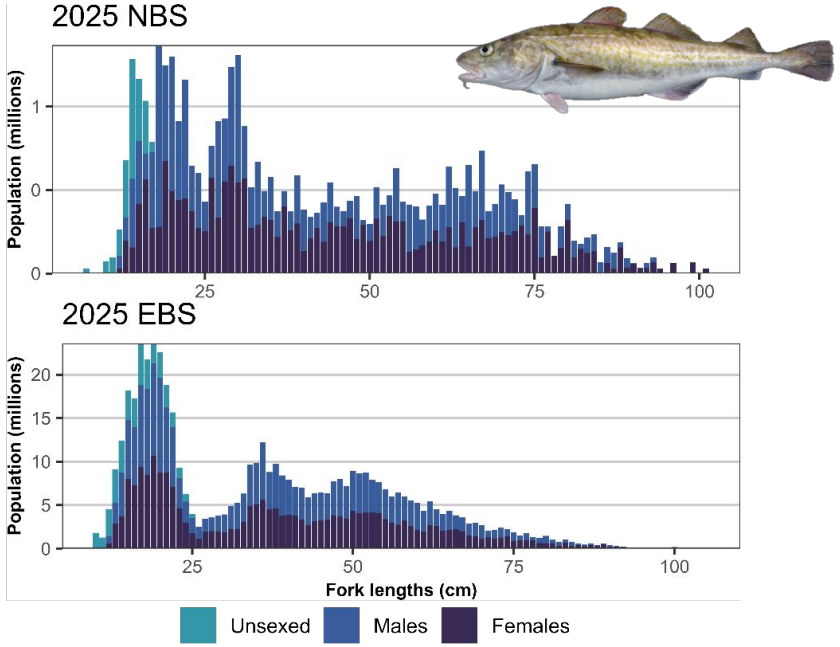


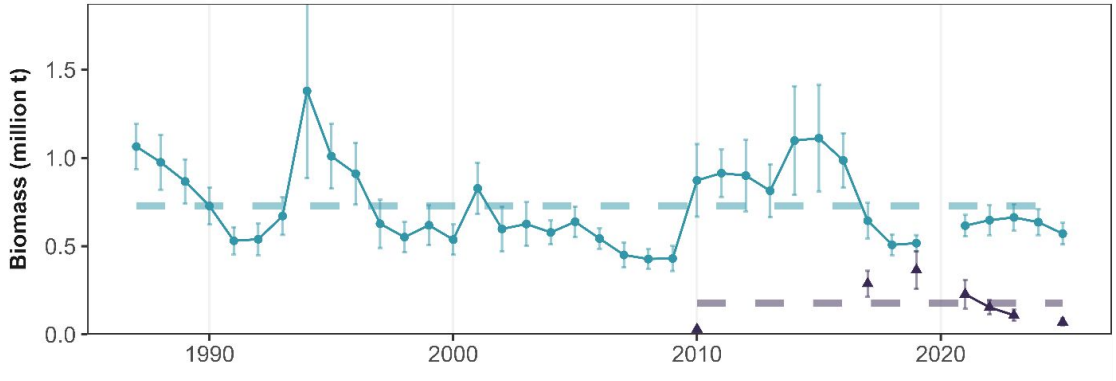
EBS Biomass
Mean: 1.8 M
2025: 1.5 M (+4% from 2024)

NBS Biomass
Mean: 100 K
2025: 27 K (-8% from 2023)

Pacific Cod



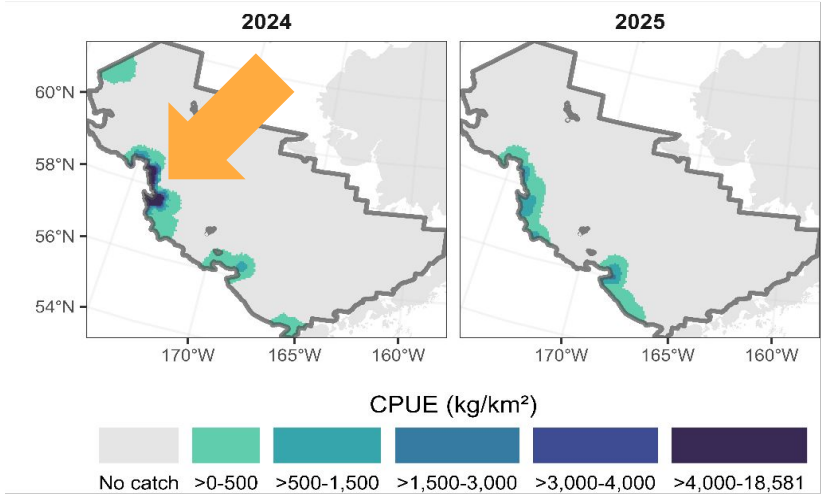


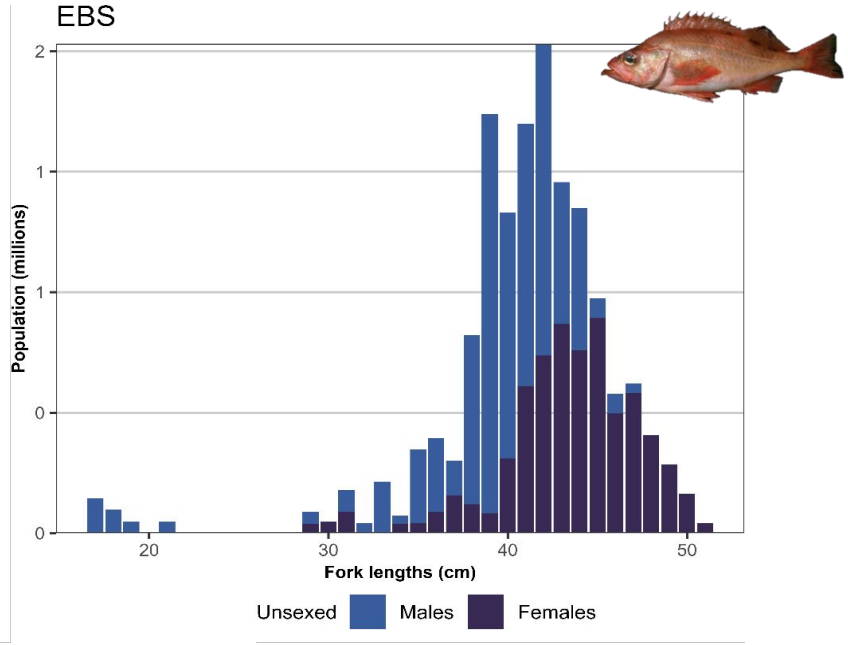


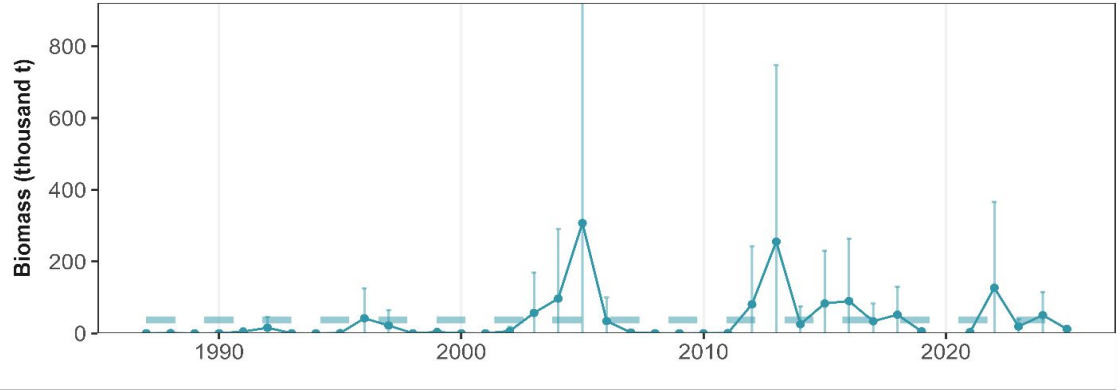
EBS Biomass
Mean: 700 K
2025: 571 K (-10% from 2024)

NBS Biomass
Mean: 200 K
2025: 69 K (-36% from 2023)

Pacific Ocean Perch



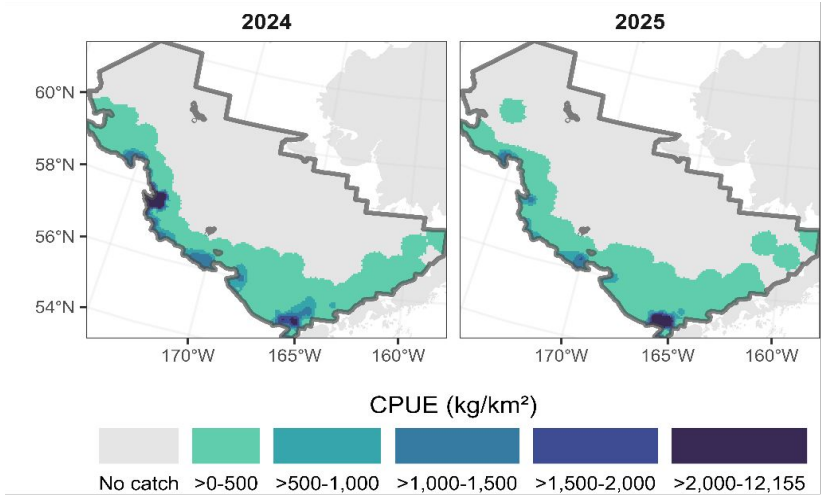


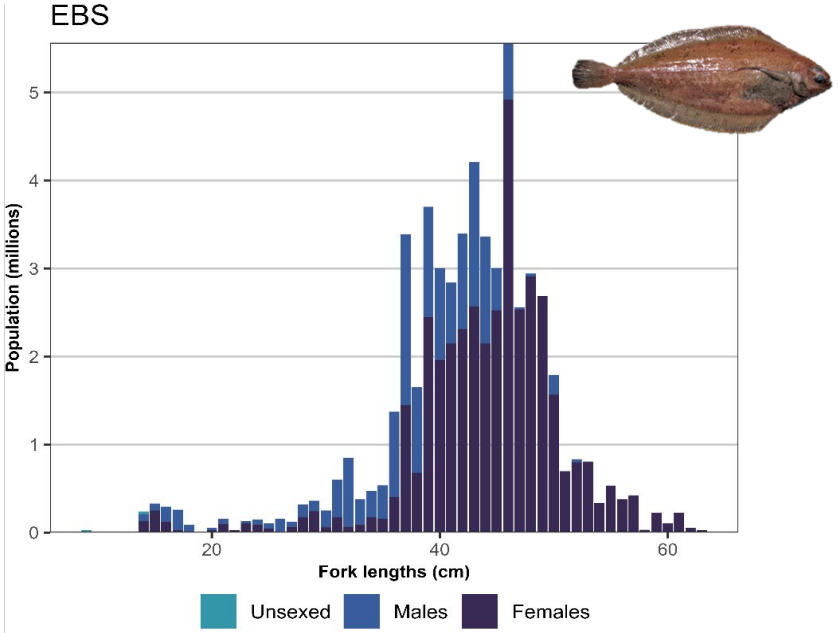


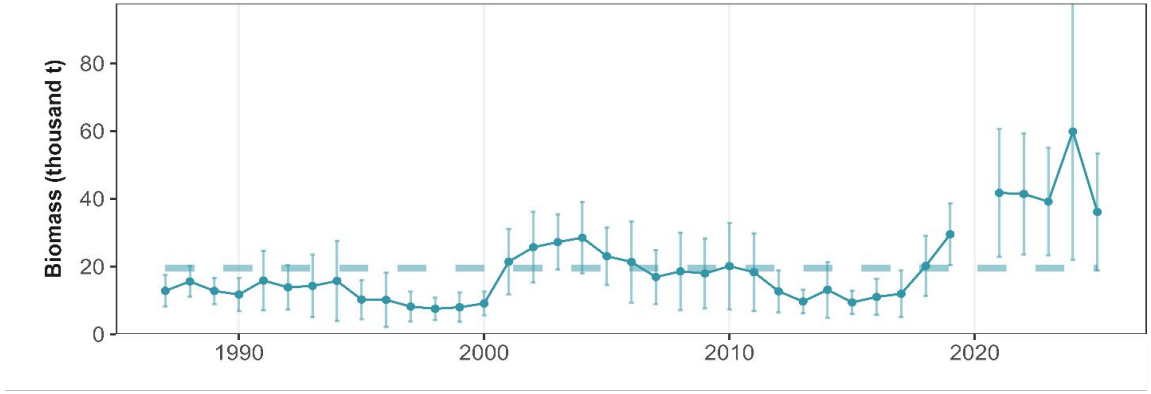
EBS Biomass
Mean: 38 K
2025: 12 K (-77% from 2024)

NBS Biomass
None caught

Rex Sole



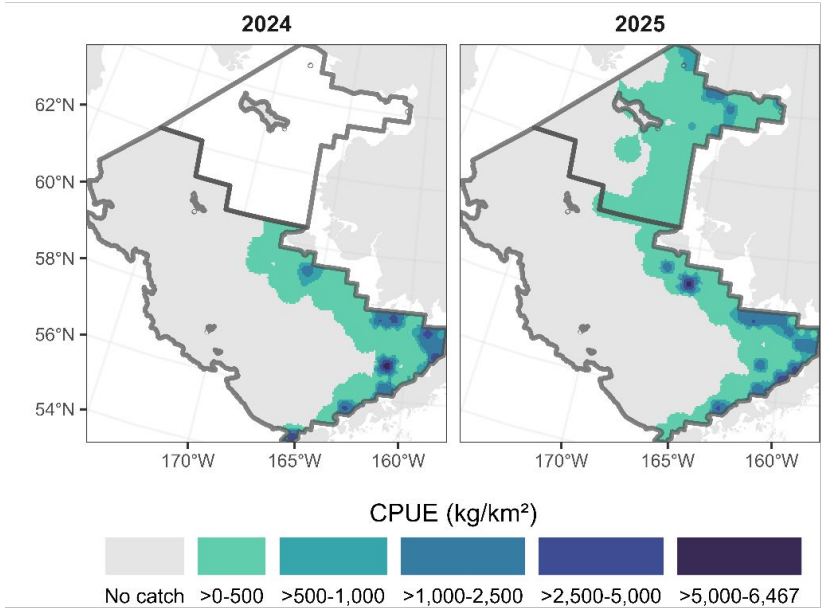


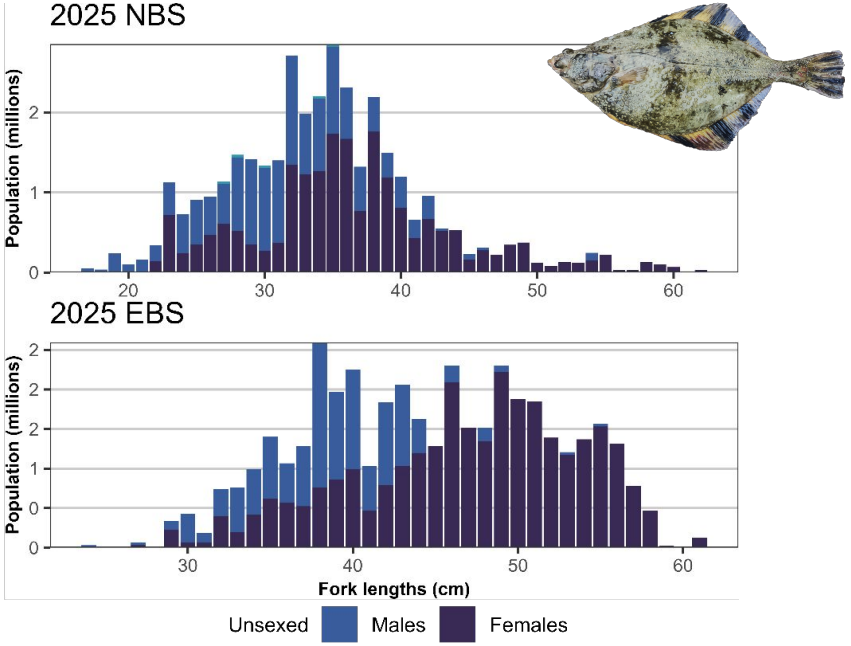


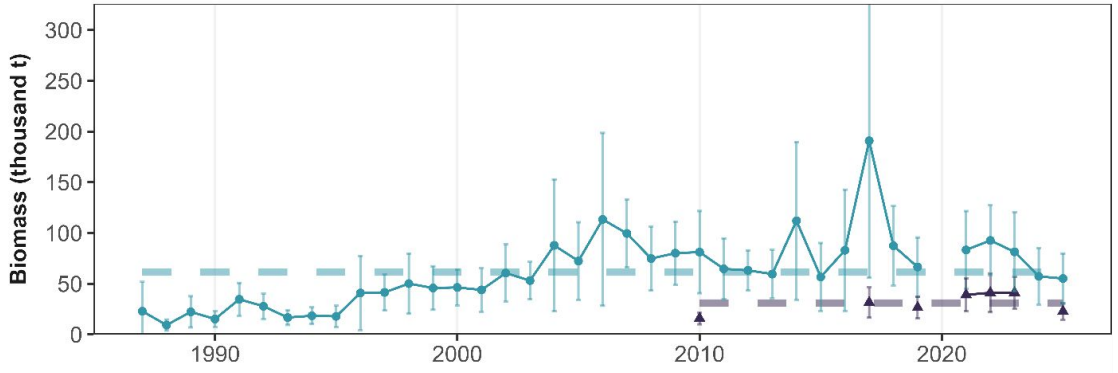
EBS Biomass
Mean: 20 K
2025: 36 K (-40%)

NBS Biomass
2025: Not caught

Starry Flounder







EBS Biomass

Mean: 61 K

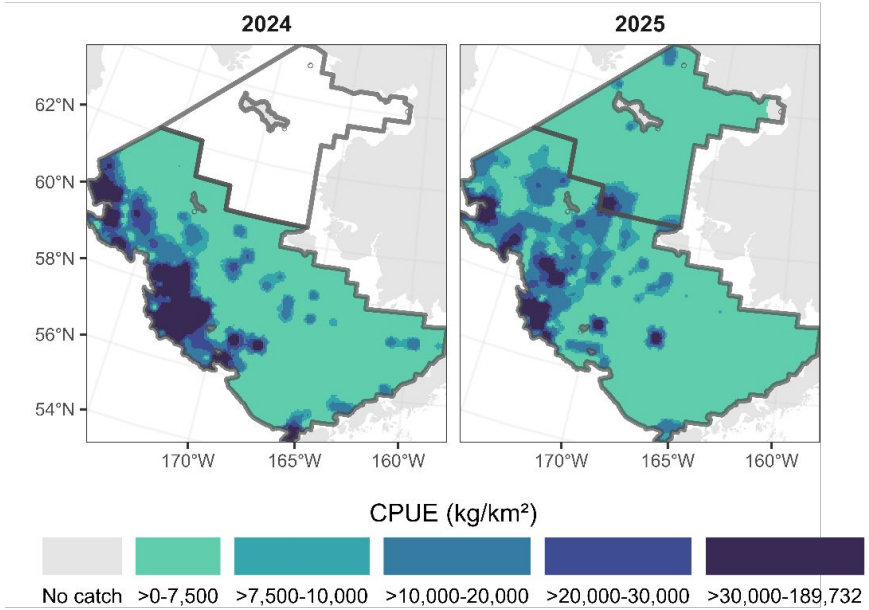
2025: 55 K (-4% from 2024)

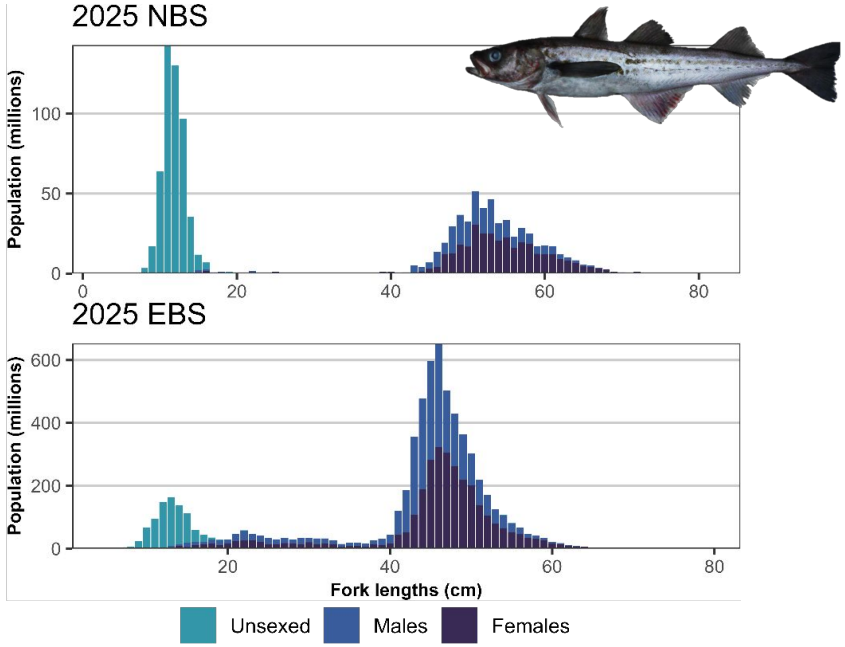
NBS Biomass

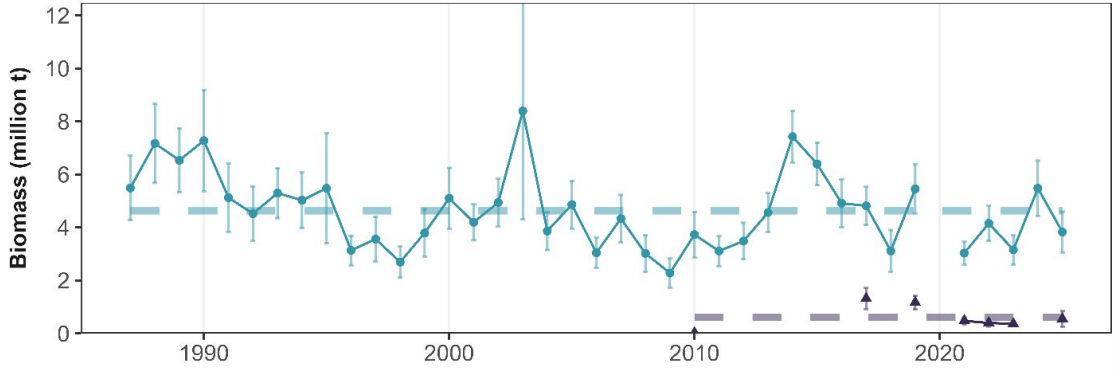
Mean: 31 K

2025: 23 K (-45% from 2023)

Walleye Pollock



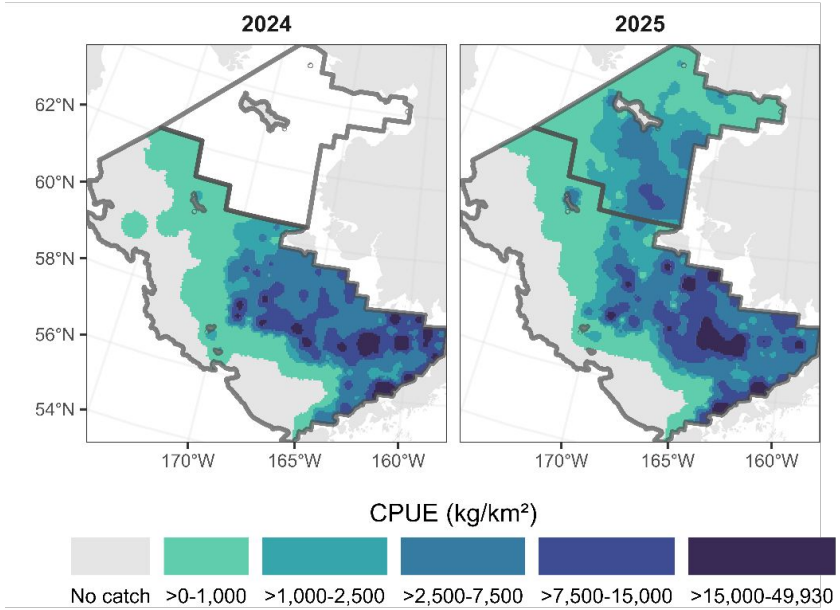


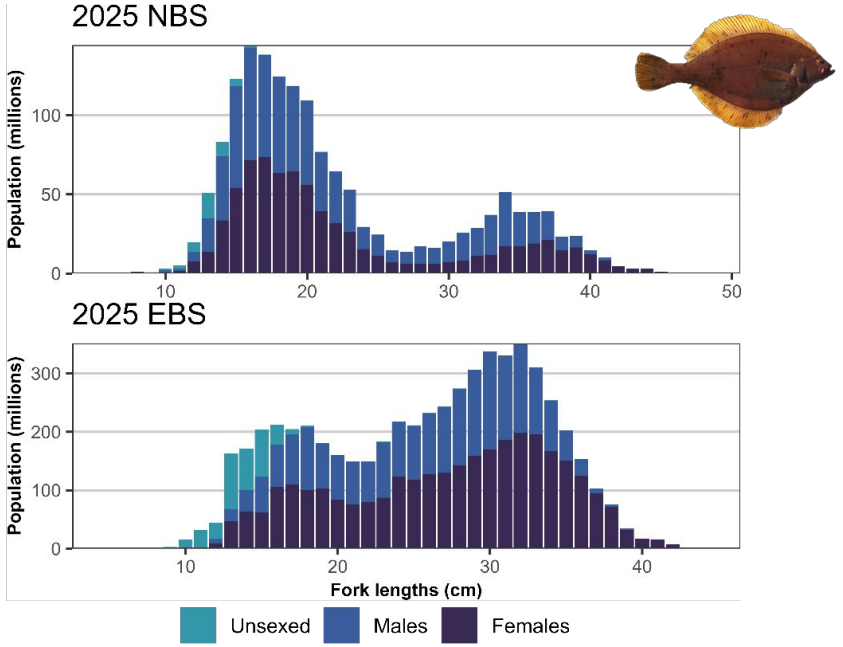


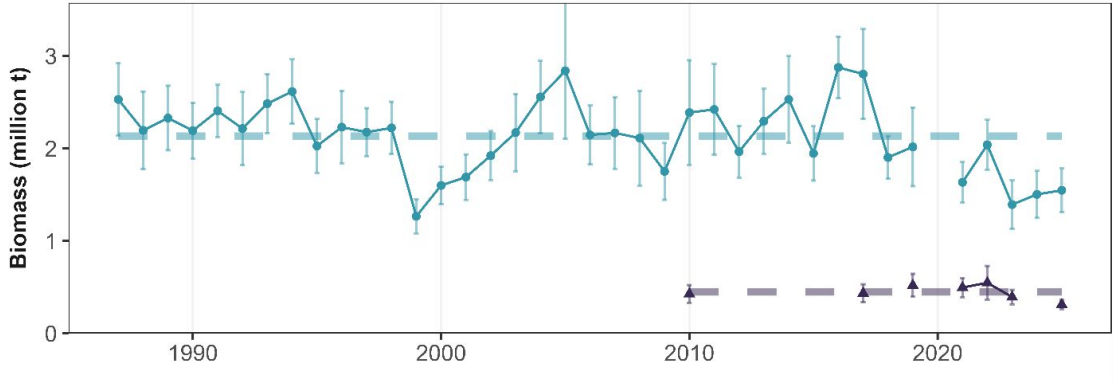
EBS Biomass
Mean: 4.6 M
2025: 3.8 M (-30% from 2024)

NBS Biomass
Mean: 600 K
2025: 548 K (+51% from 2023)

Yellowfin Sole







EBS Biomass
Mean: 2.1 M
2025: 1.5 M (+3% from 2024)

NBS Biomass
Mean: 400 K
2025: 312 K (-21% from 2023)