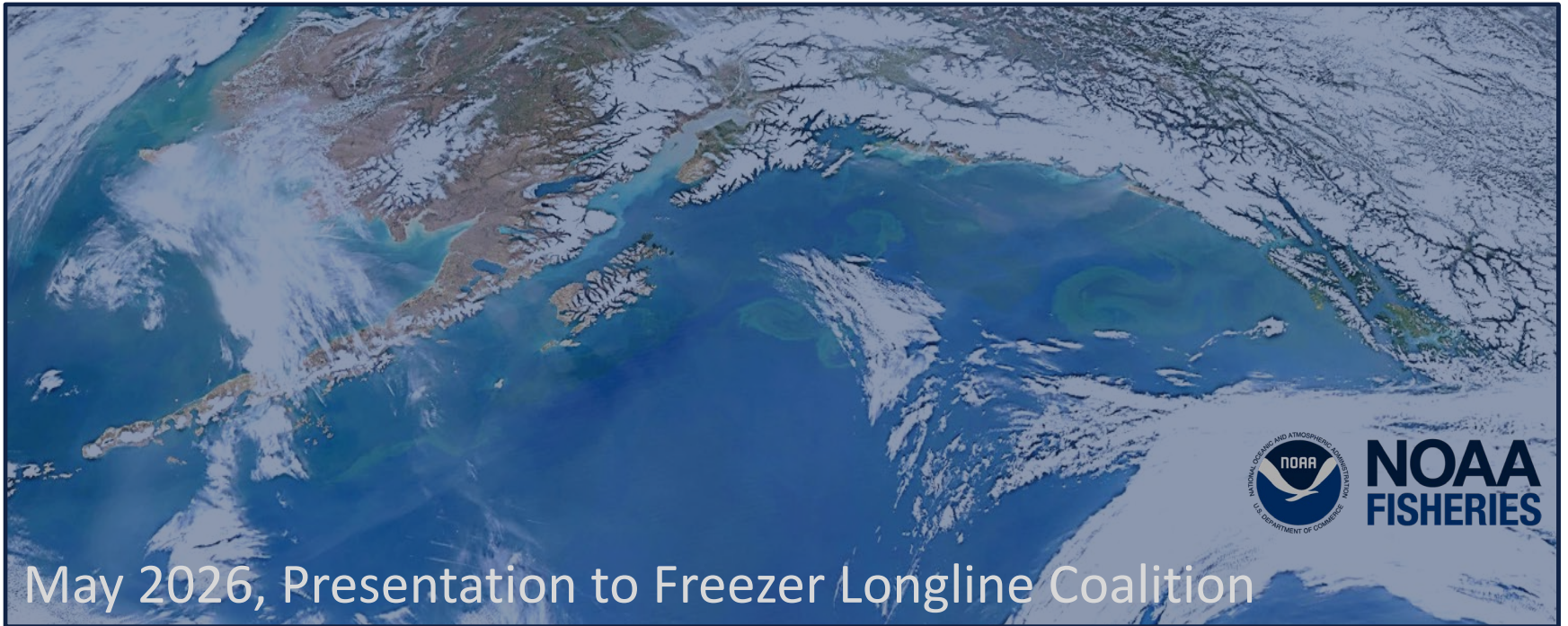


GOA PACIFIC COD

RESEARCH UPDATE



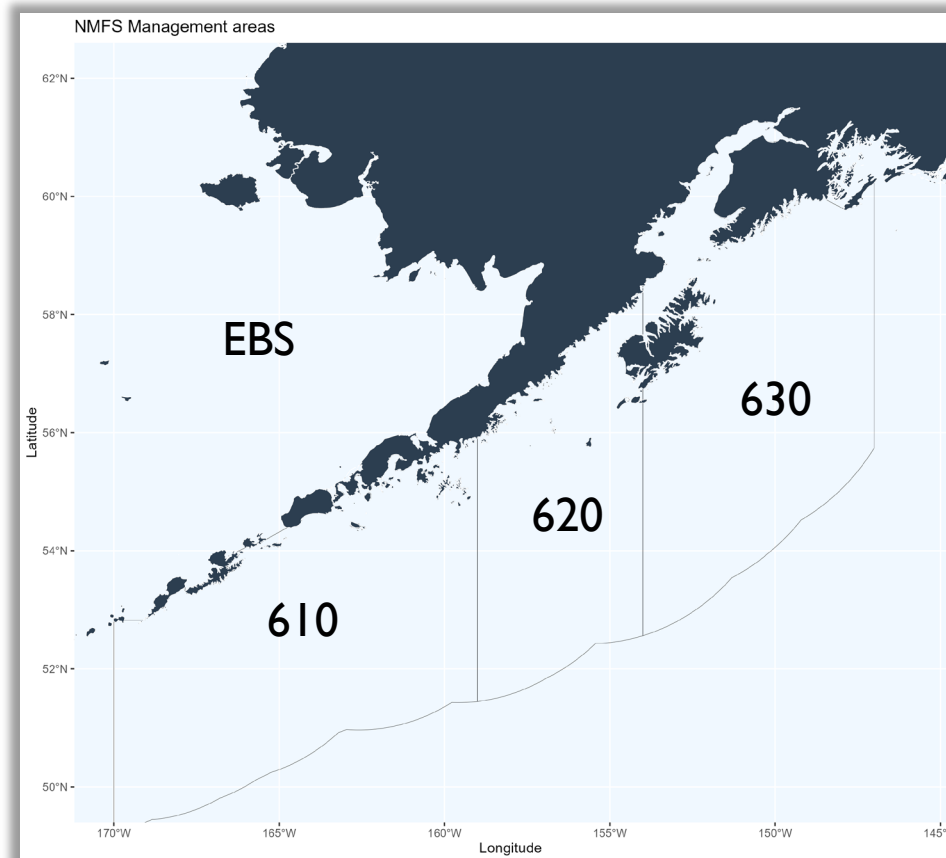
PRESENTATION OVERVIEW

- Stock assessment:
 - 2025/2026 assessment completed
 - Fall 2026 assessment planned as update assessment (no new survey data will be available, but, auxiliary data should be available)
- Research: EBS-GOA Spatial model
 - Where are the 'lines'?
 - Guiding principle: let biology and behavior of population guide the spatial model development



RESEARCH UPDATE

- EBS-GOA Spatial model:
 - For now, focusing on EBS and 610, 620, and 630 in GOA



RESEARCH UPDATE

- To guide the spatial model development focusing on the following considerations:
 1. Seasonality of movement
 2. Spatially speaking, where does the EBS-WGOA exchange stop?
 3. What is the stock structure between EBS-WGOA?
- Important to remember: as we progress in the model development, need to investigate impacts of decisions/assumptions made
 - Collate list of important model sensitivities that should be evaluated



RESEARCH UPDATE

- Seasonality of movement:

Month	EBS NBS	From EBS NBS, to...		n
		WGOA	CGOA	
1	81%	19%	0%	26
2	96%	4%	0%	1368
3	100%	0%	0%	13
4	94%	6%	0%	755
6	91%	6%	3%	80
7	97%	3%	0%	88
8	93%	7%	0%	118
9	94%	5%	1%	147
10	85%	12%	4%	26
11	90%	9%	1%	154



RESEARCH UPDATE

- Seasonality of movement:

Month	EBS NBS	From WGOA, to...		n
		WGOA	CGOA	
1	36%	64%	0%	53
3	59%	38%	3%	112
4	23%	73%	4%	26
5	0%	100%	0%	9
6	0%	100%	0%	8
7	4%	96%	0%	25
8	8%	76%	16%	50
9	0%	86%	14%	7

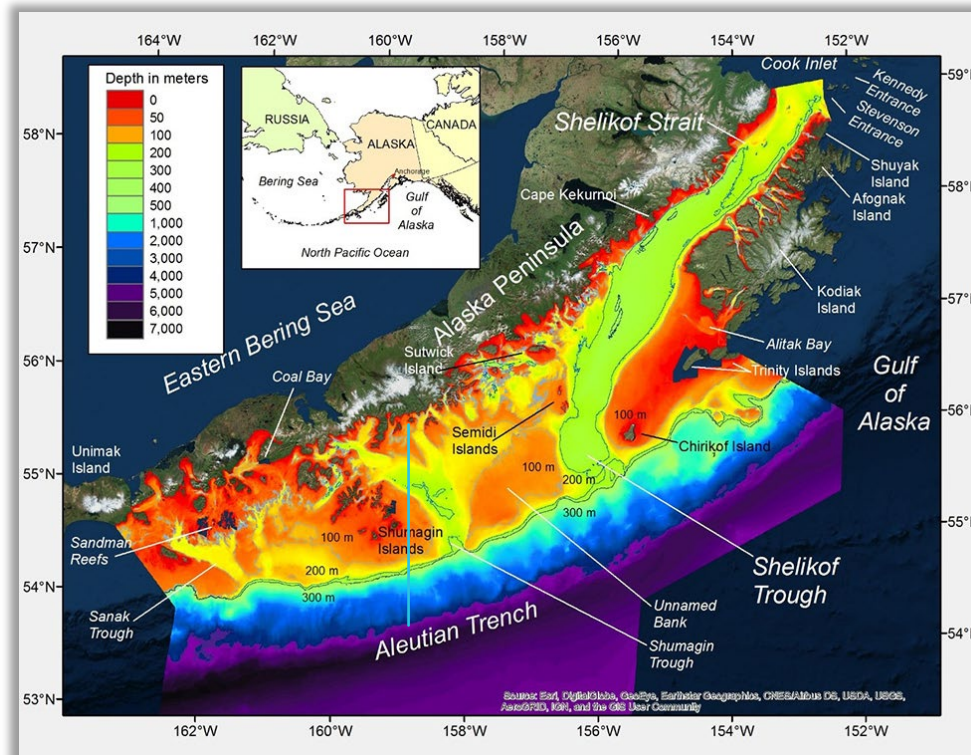
RESEARCH UPDATE

- Seasonality of movement:
 - From EBS|NBS perspective: hard to see a ‘ramp up’ of out-migration to WGOA heading into spawning season
 - *Largest movement rates from EBS|NBS to WGOA coincide with smallest sample sizes*
 - From WGOA perspective: seems to be a clear drop off in movement into the EBS after spawning season in March/April
 - Evidence to support a 2-season model: ‘Spawning’ vs ‘Other’
 - Assumption sensitivity: 1st season either through the end of March, or, the end of April



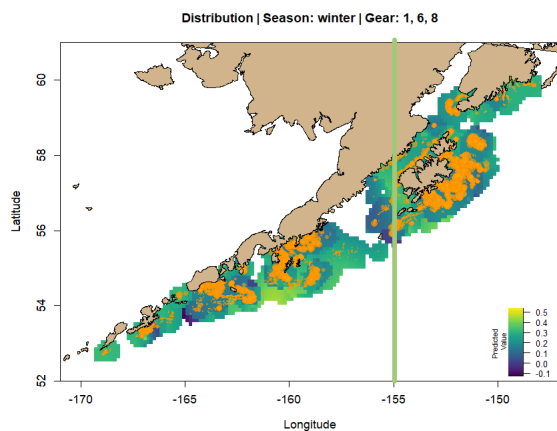
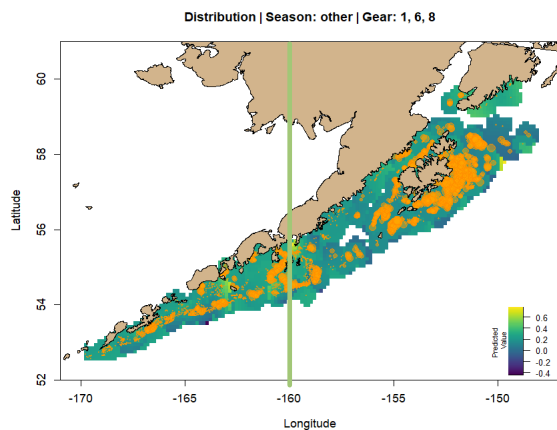
RESEARCH UPDATE

- Spatially speaking, where does the EBS-WGOA exchange stop?
- 2 sources of data to inform where to draw the 'line' between WGOA and CGOA:
 - Fishery
 - Tagging

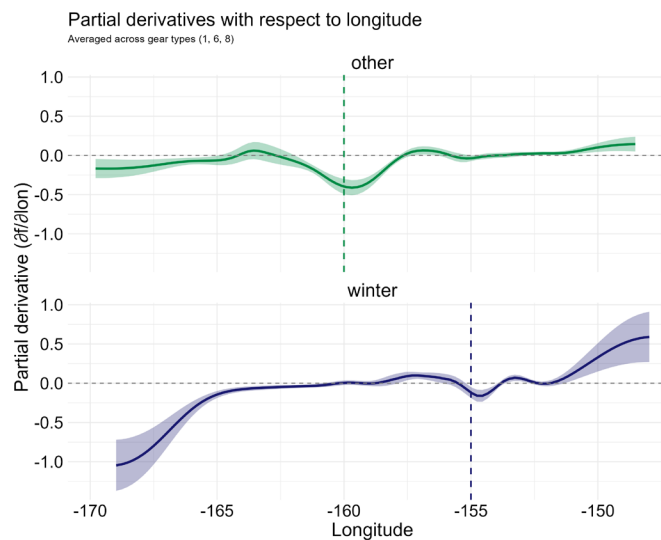


RESEARCH UPDATE

- Spatially speaking, where does the EBS-WGOA exchange stop?
- Fishery data: Rebecca Howard

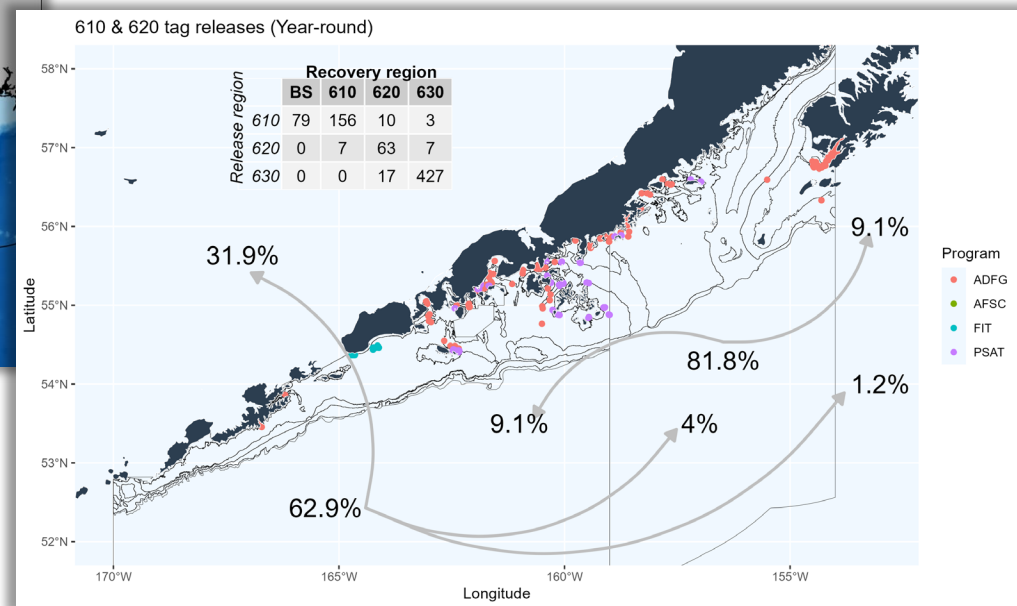
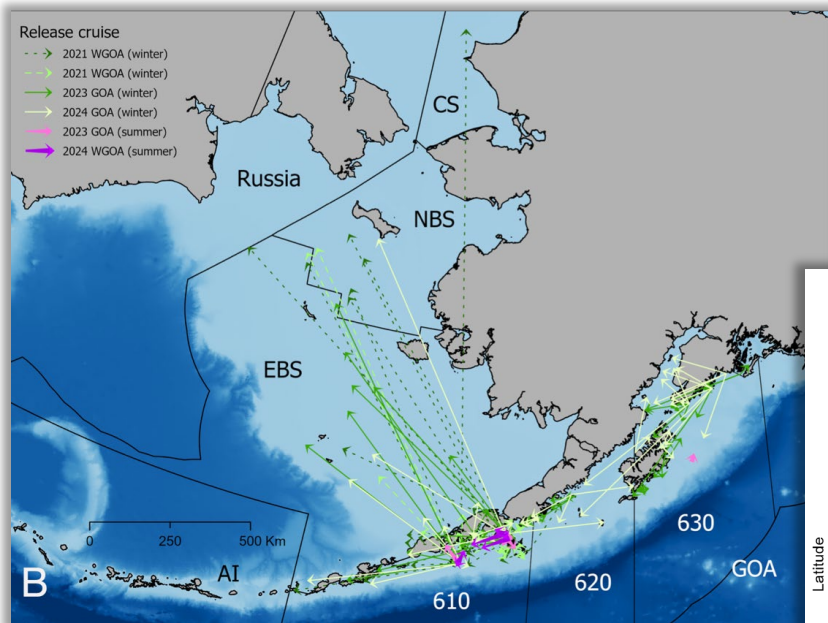


Medium Sizes (51-80)



RESEARCH UPDATE

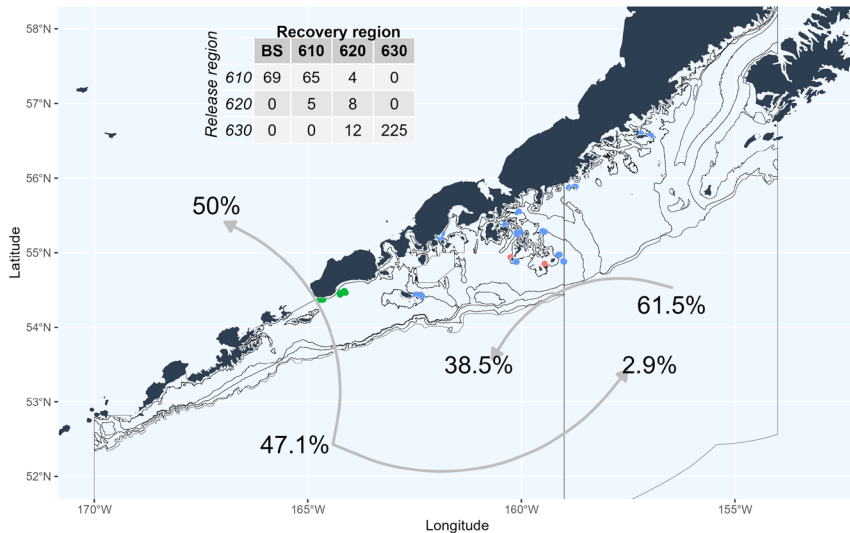
- Spatially speaking, where does the EBS-WGOA exchange stop?
- Tagging data: PACT team



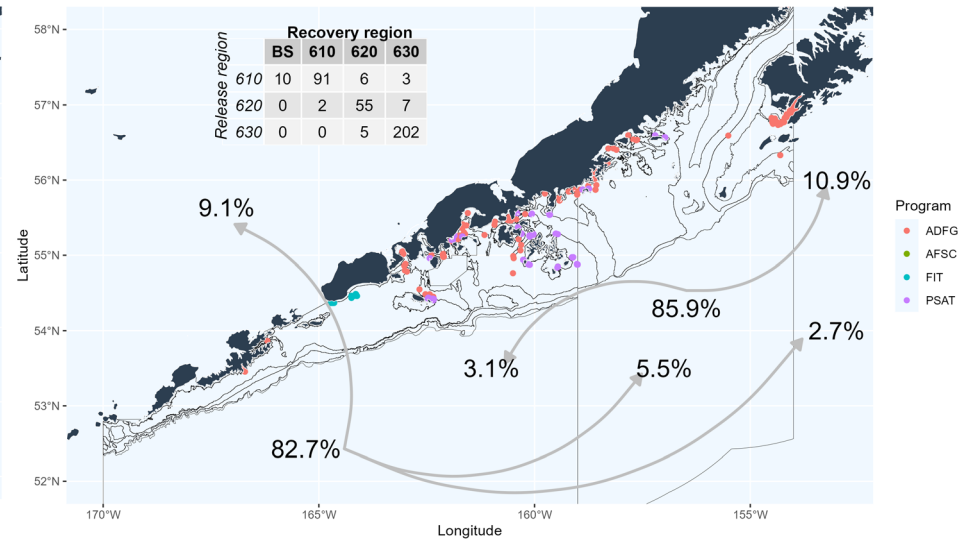
RESEARCH UPDATE

- Spatially speaking, where does the EBS-WGOA exchange stop?
- Tagging data: Focusing on 620

610 & 620 tag releases (A season)



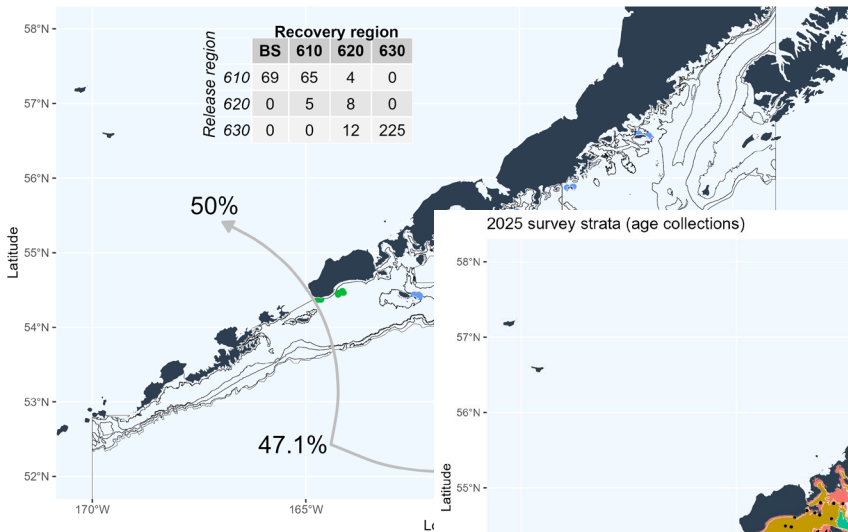
610 & 620 tag releases (B season)



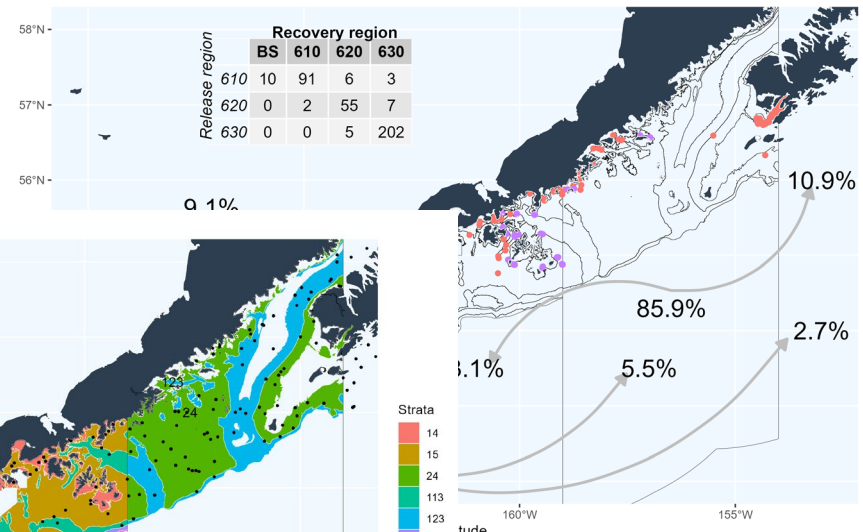
RESEARCH UPDATE

- Spatially speaking, where does the EBS-WGOA exchange stop?
- Tagging data: Focusing on 620

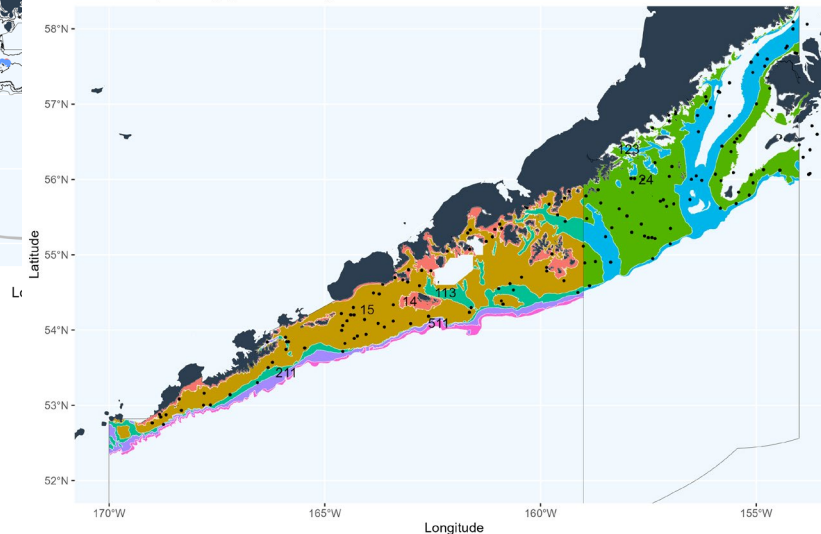
610 & 620 tag releases (A season)



610 & 620 tag releases (B season)

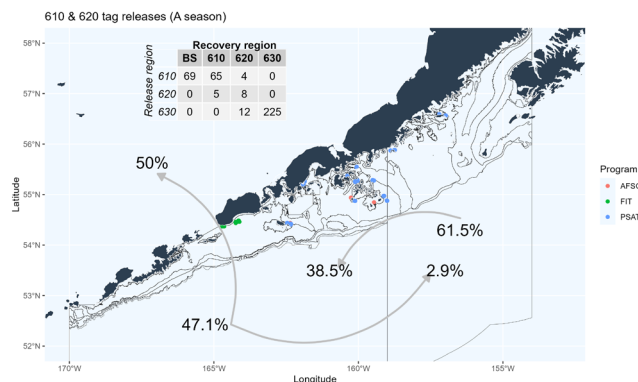


2025 survey strata (age collections)



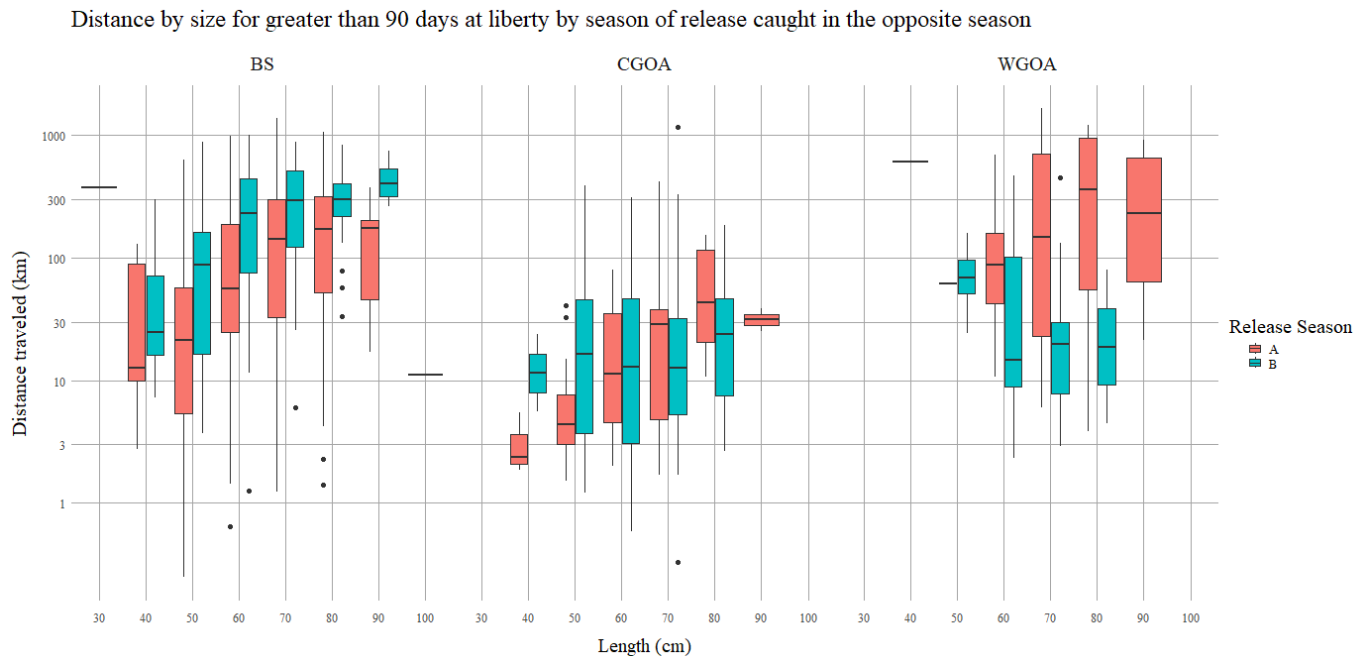
RESEARCH UPDATE

- Spatially speaking, where does the EBS-WGOA exchange stop?
- Only region from which tags moved from GOA to EBS|NBS is from 610 (WGOA). But...
 - Limited tag releases in 620 to really help inform whether Shelikof or Shumagin troughs are some sort of natural barrier/break point
- Fishery data suggests that 610-620 line not perfectly aligned with biological/behavioral break point
- Sensitivity: While continuing to work on where to split 620, examine effects of only 610, or both 610 & 620 as part of WGOA



RESEARCH UPDATE

- What is the stock structure between EBS-WGOA?
- Continuing to develop genetic methods
- A different look at tagging data:



RESEARCH UPDATE

- What is the stock structure between EBS-WGOA?
- All things considered, tagging data may indicate the presence of a resident stock in WGOA, and a migratory component that moves from EBS to WGOA to participate in spawning
 - Unknowns: does a fish 'choose' to move to EBS in one year, then stay in WGOA the next?

RESEARCH UPDATE

- Management implications:
 - Seasonality: any possible increase in WGOA TAC/ABC would need to be accrued to the A season (i.e., pre-May) when EBS fish are present
 - Management boundaries: yet to be determined. Balancing only 610 which includes fish that move to EBS with 610&620 which would include fish that don't move to EBS. Any shift in boundary not aligned with management areas is beyond stock assessment issues
 - Stock structure: risk is on the side of potential depletion. If there is a resident WGOA population, any increase in ABC/TAC not properly assigned by season and presence of migratory portion of stock runs risk of over-harvesting resident stock.

RESEARCH UPDATE

- Current work:
 - Matt has developed SPoRC spatial model with much of what was needed for application to cod (i.e., seasonality, natal homing)
 - Compiling and formatting data to be incorporated into spatial model
 - Comes with a necessary amount of exploratory data analysis
 - As soon as data ready, apply spatial model and start evaluating results/sensitivities
- Will continue to provide updates to Plan Team/SSC



QUESTIONS?

