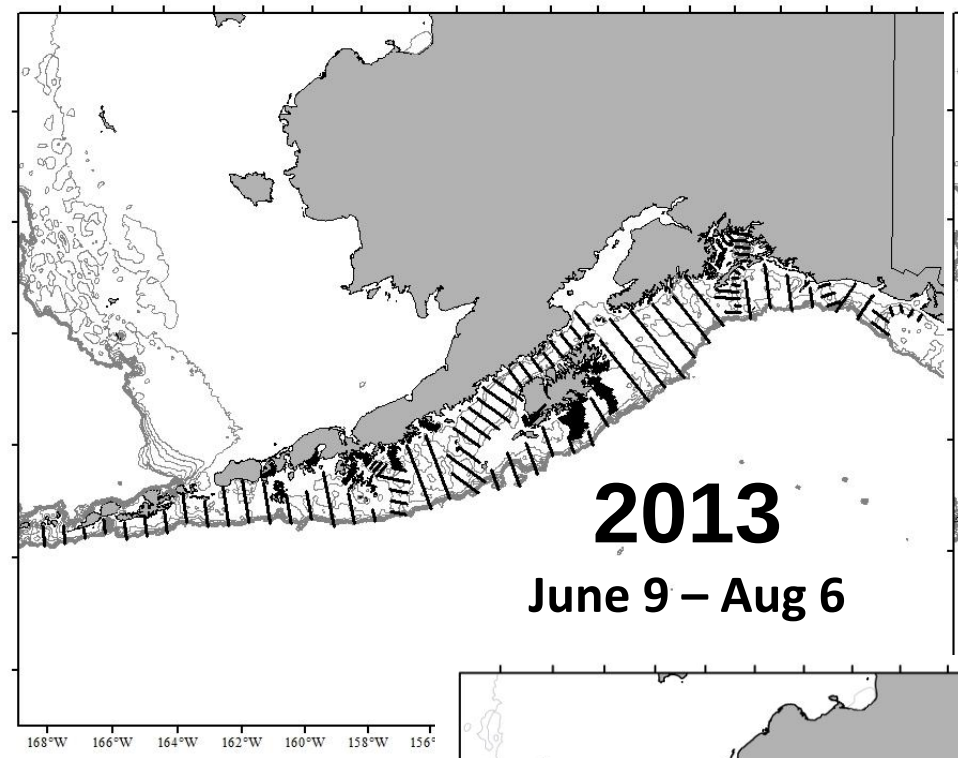
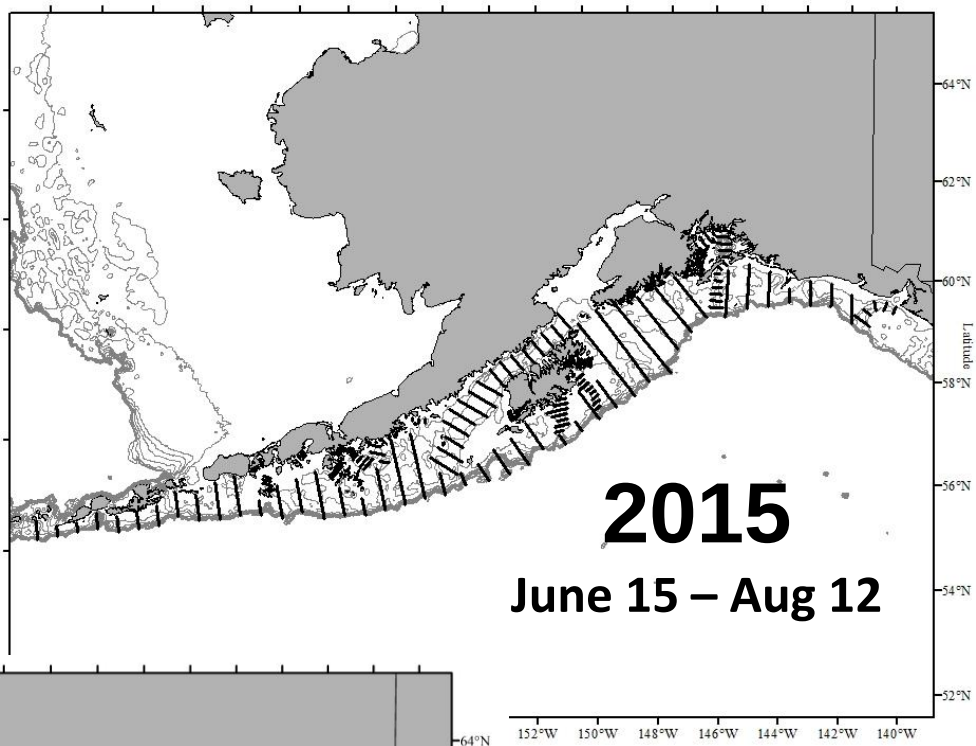
Preliminary Results of the Summer 2019 Acoustic-Trawl Survey of Walleye Pollock in the Gulf of Alaska

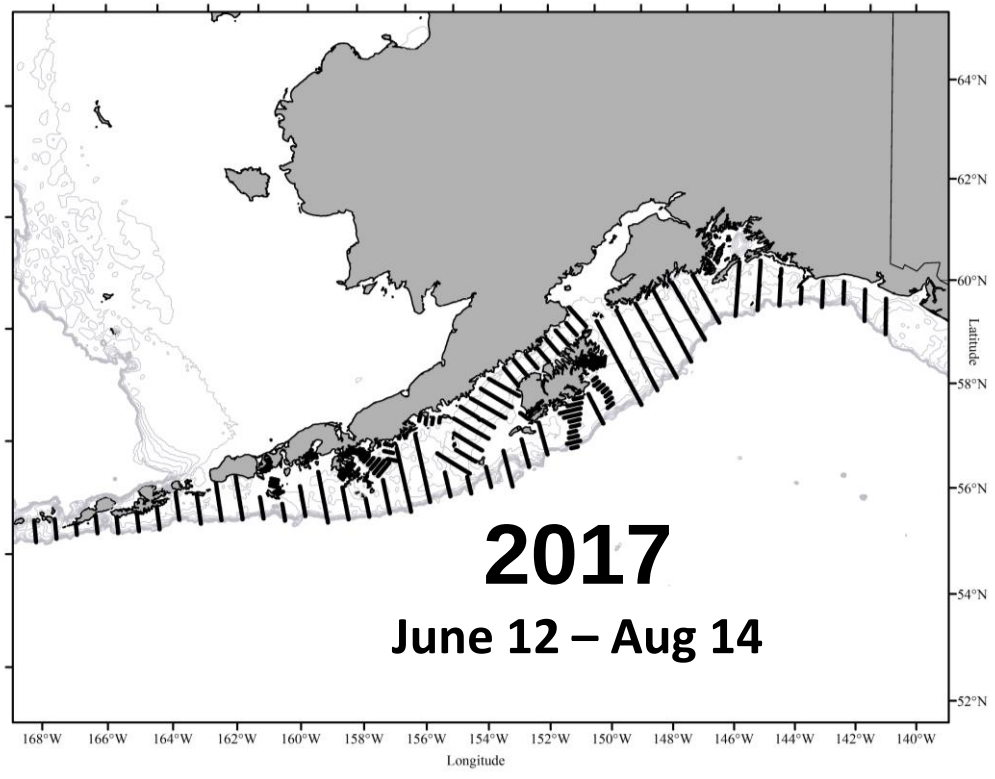
May 30 – Aug 7, 2019

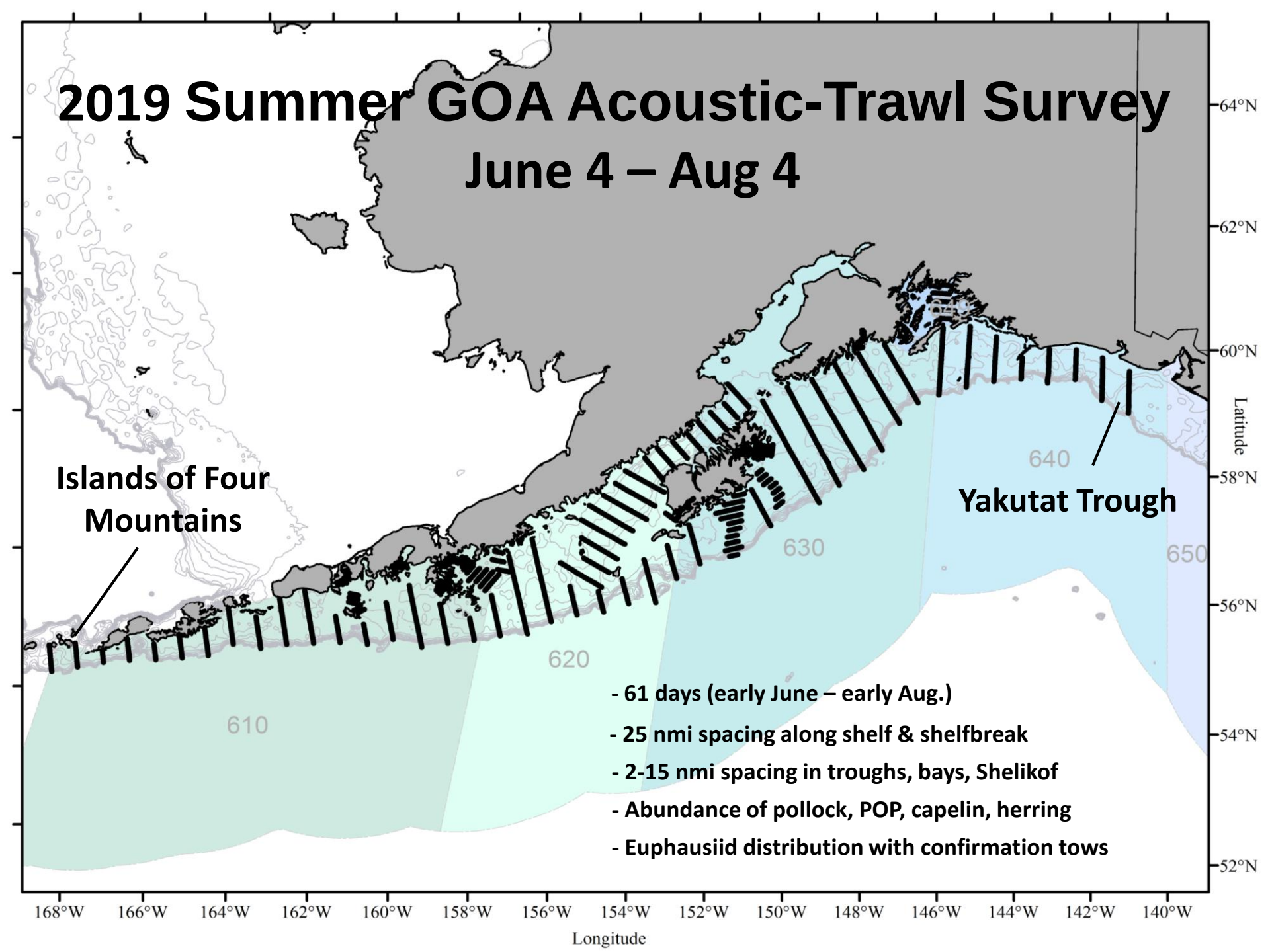
Midwater Assessment & Conservation Engineering

September 18, 2019


2013
June 9 – Aug 6
168°W
166°W
164°W
162°W
160°W
158°W


2015
June 15 – Aug 12
64°N
62°N
60°N
58°N
56°N
54°N
52°N
Latitude
152°W
150°W
148°W
146°W
144°W
142°W
140°W


2017
June 12 – Aug 14
64°N
62°N
60°N
58°N
56°N
54°N
52°N
Latitude
168°W
166°W
164°W
162°W
160°W
158°W
156°W
154°W
152°W
150°W
148°W
146°W
144°W
142°W
140°W
Longitude


2019 Summer GOA Acoustic-Trawl Survey
June 4 – Aug 4
Islands of Four Mountains
Yakutat Trough
610
620
630
640
650
- 61 days (early June – early Aug.)
- 25 nmi spacing along shelf & shelfbreak
- 2-15 nmi spacing in troughs, bays, Shelikof
- Abundance of pollock, POP, capelin, herring
- Euphausiid distribution with confirmation tows
64°N
62°N
60°N
58°N
56°N
54°N
52°N
Latitude
168°W
166°W
164°W
162°W
160°W
158°W
156°W
154°W
152°W
150°W
148°W
146°W
144°W
142°W
140°W
Longitude

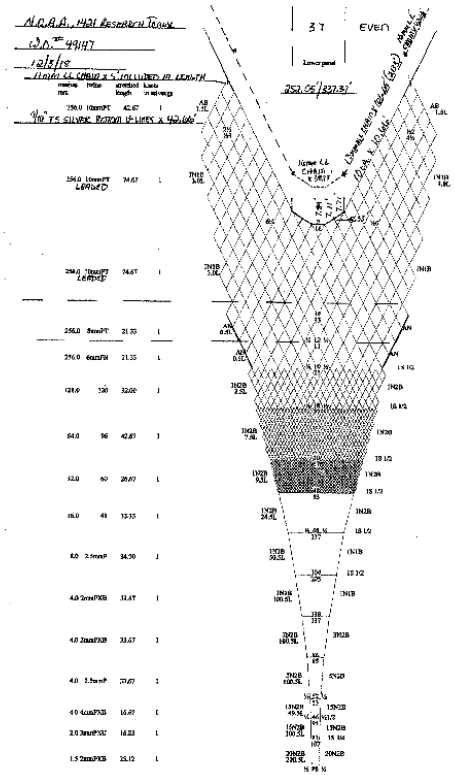
LFS1421 vs AWT

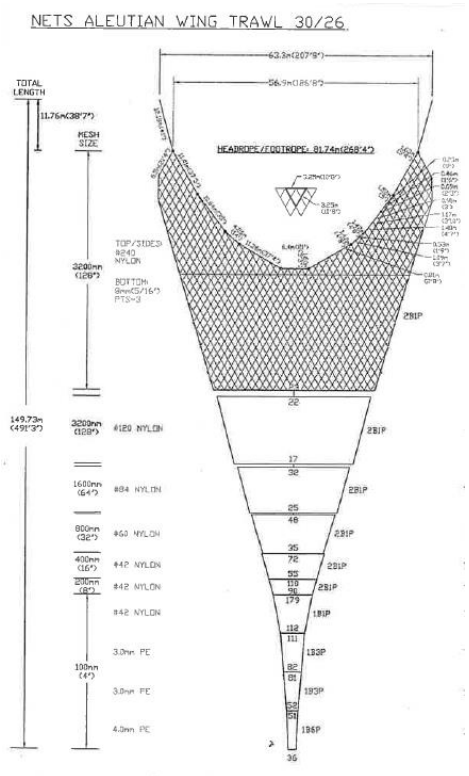
AWT nets are old and need severe overhaul so we are opting to replace them with a new smaller more agile net for AT surveys

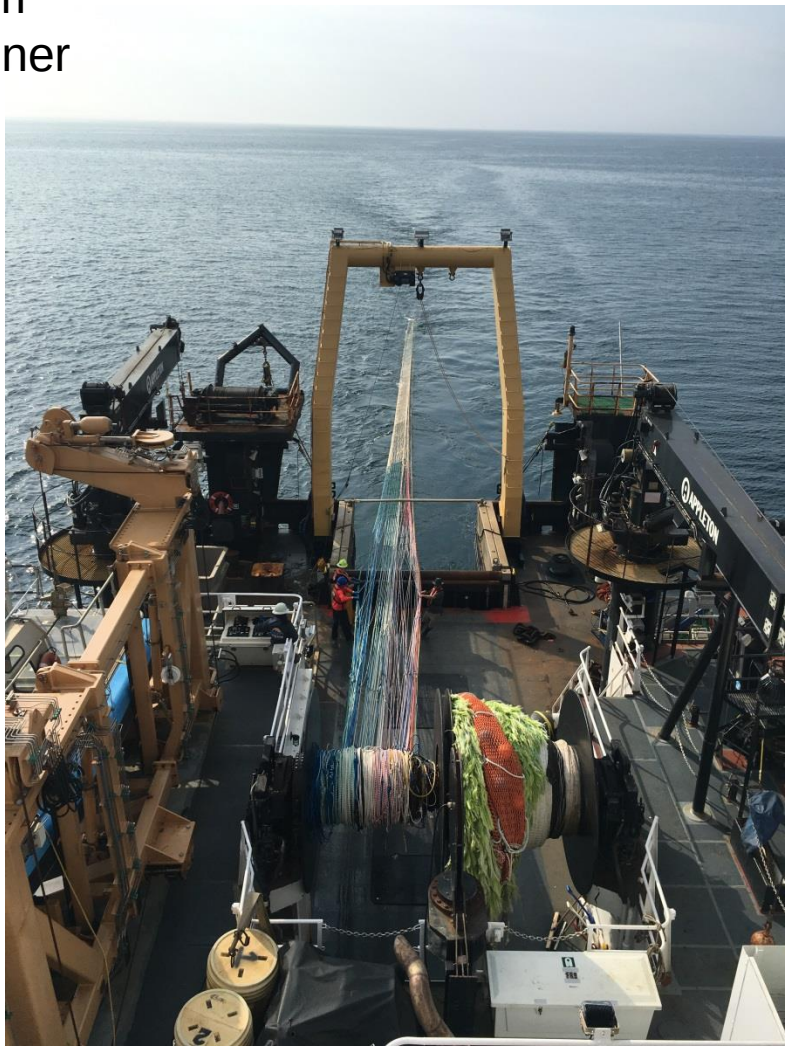
LFS1421:
17m x 39m = 660m^2
1/8” codend mesh liner

AWT:
23m x 33m = 760m^2
1/2” codend mesh liner

Quicker easier deployment
Responds quicker to wire adjustments when fishing



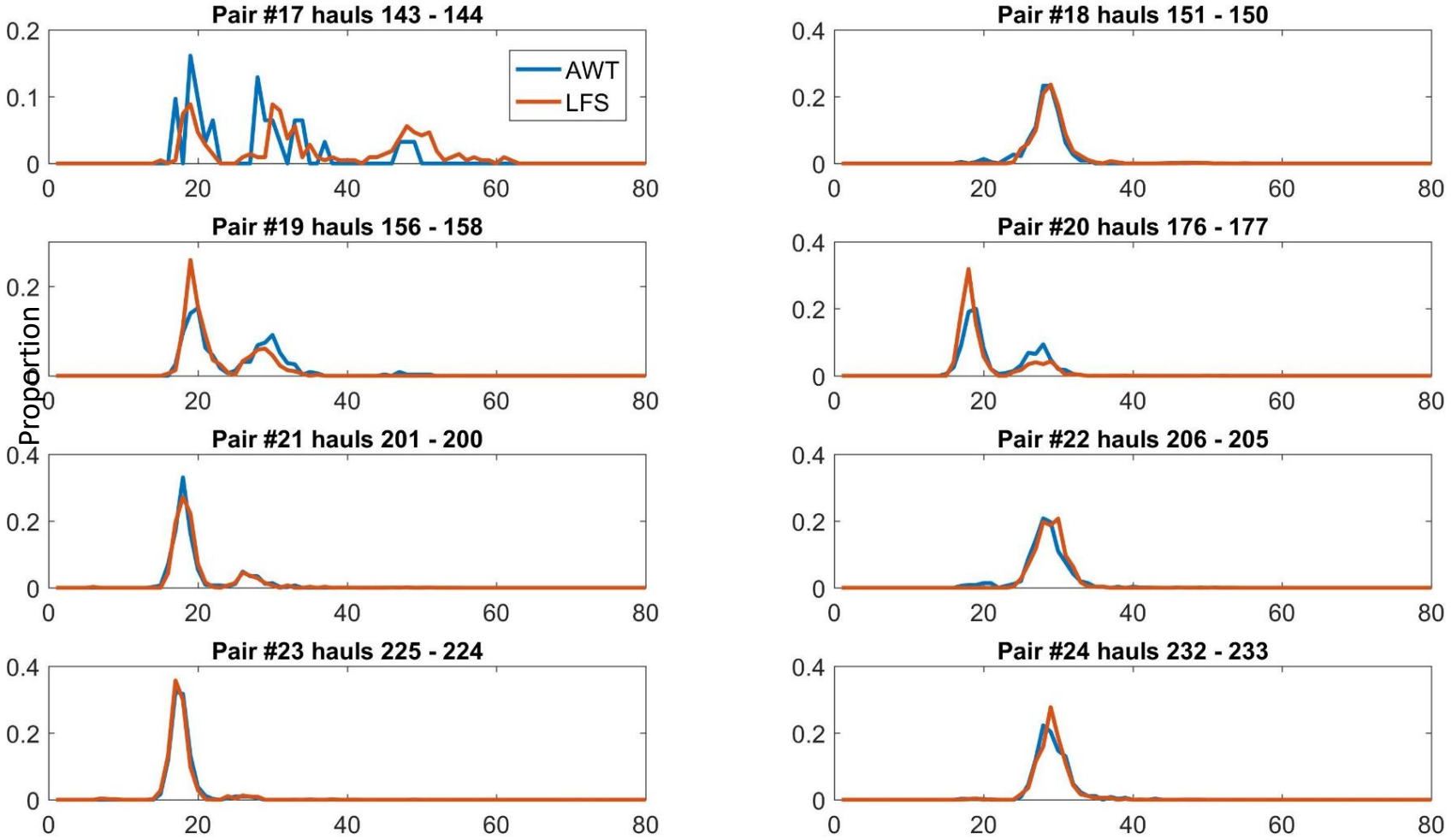




Trawl Catch Comparison

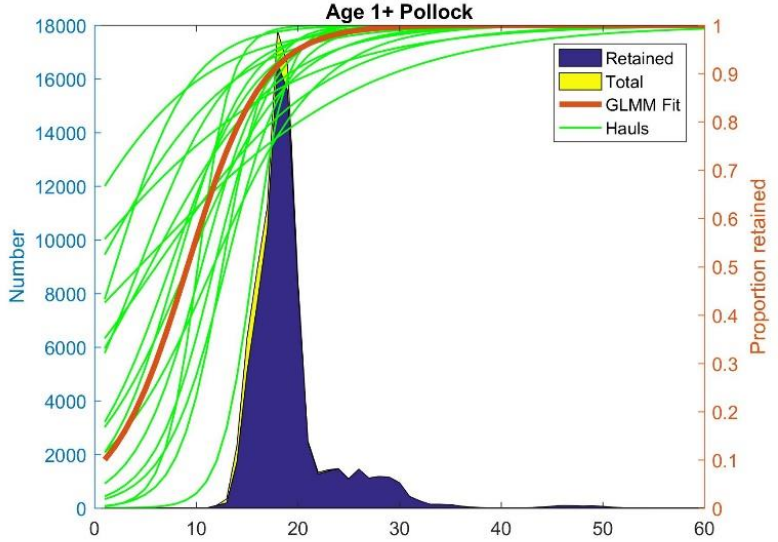
- 26 paired trawl sets: randomized order, daylight only
- Results will be used to compare AWT time series (2013-2017) to current and future LFS surveys

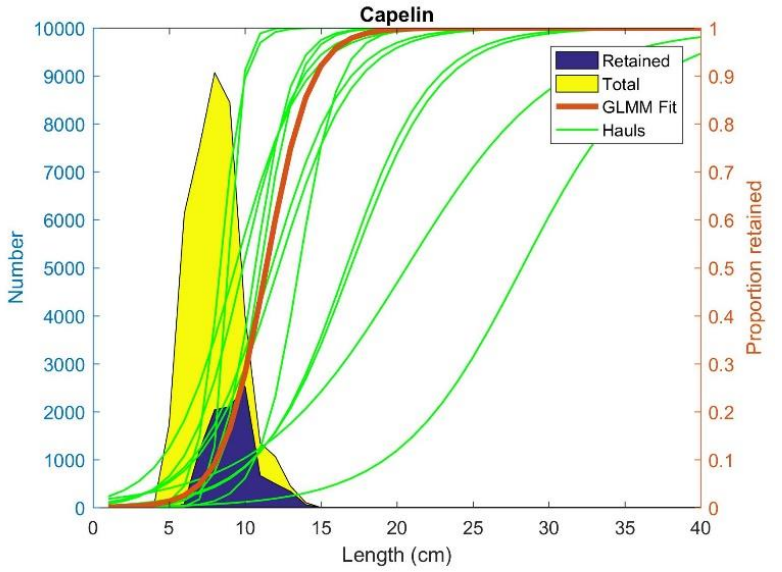
Examples of pollock length frequency in catch



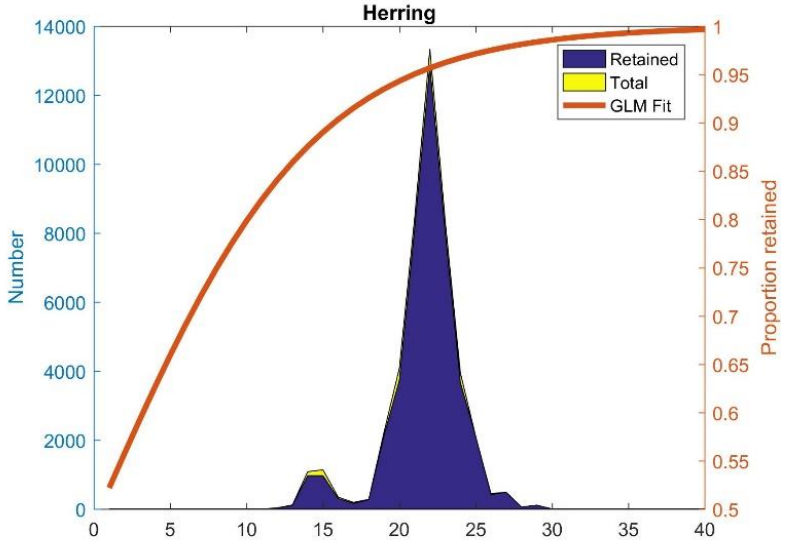
Multi-Species Trawl Selectivity Estimates for 10 groups From LFS1421 Trawl Pocket Nets (1/8” mesh size)

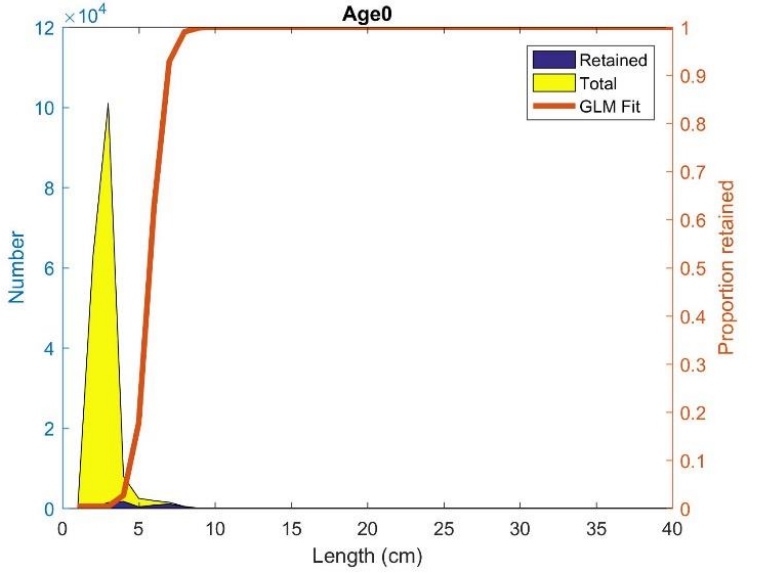
Mixed effects GLM (with haul effect)

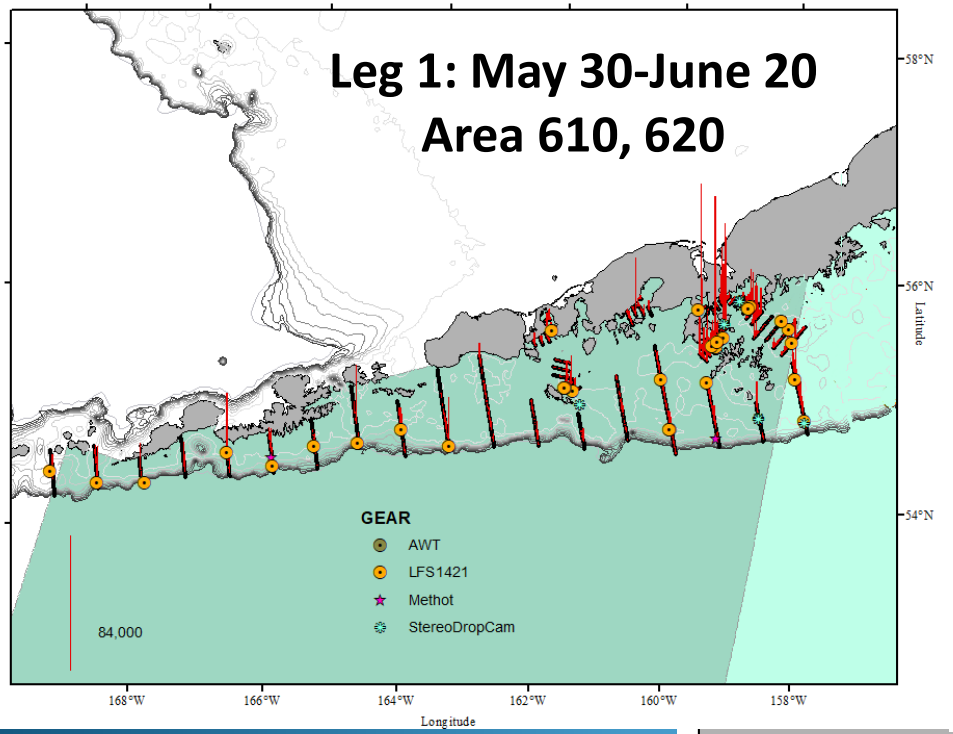


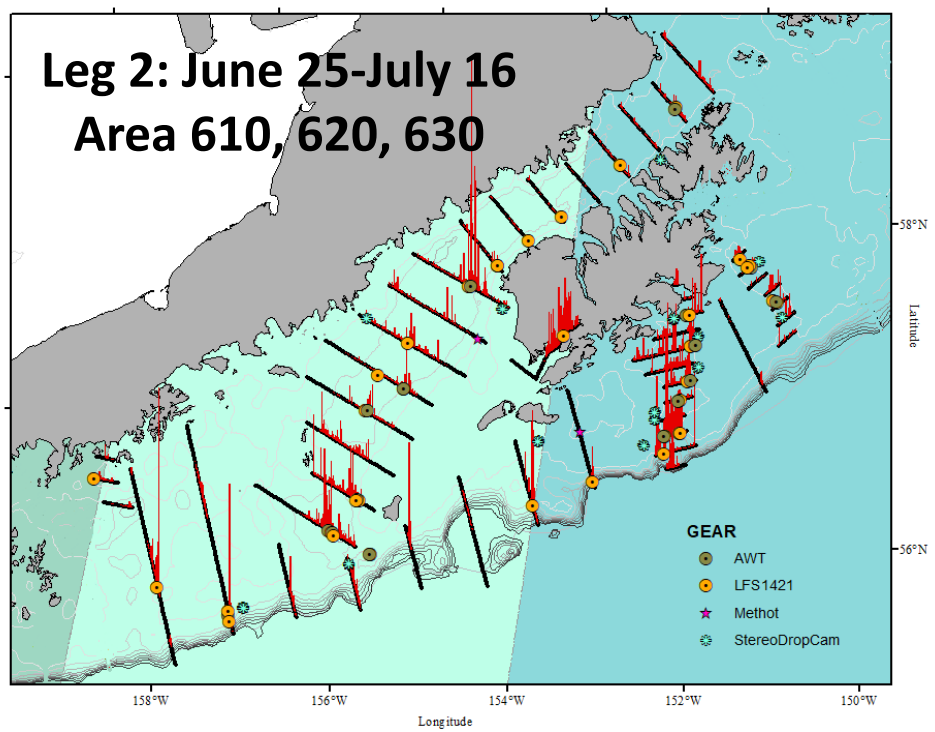


Regular binomial GLM (cumulative data)









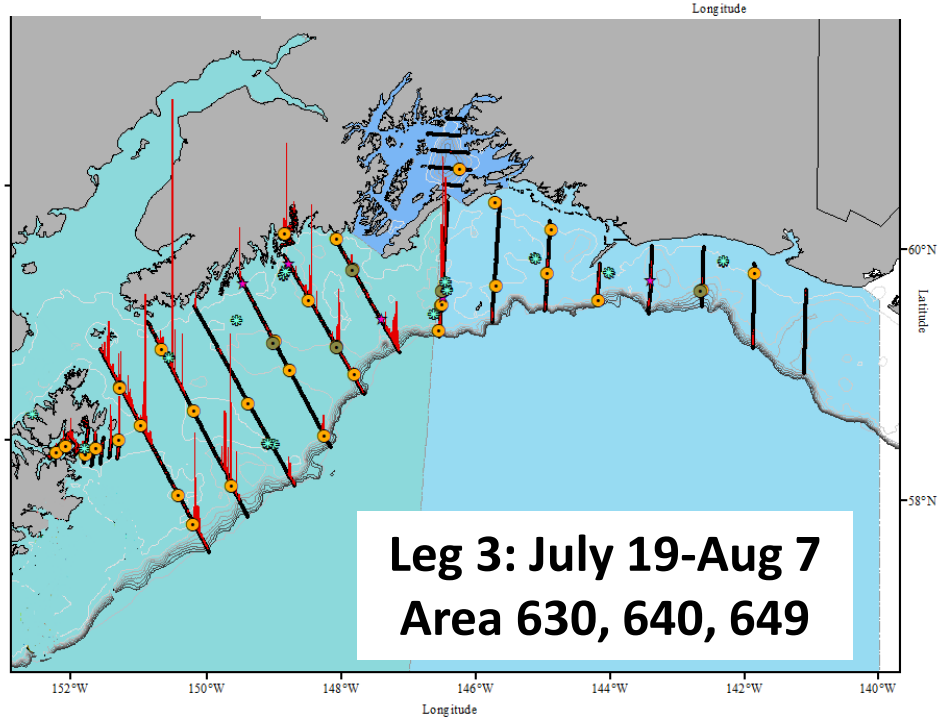
Gear Deployments

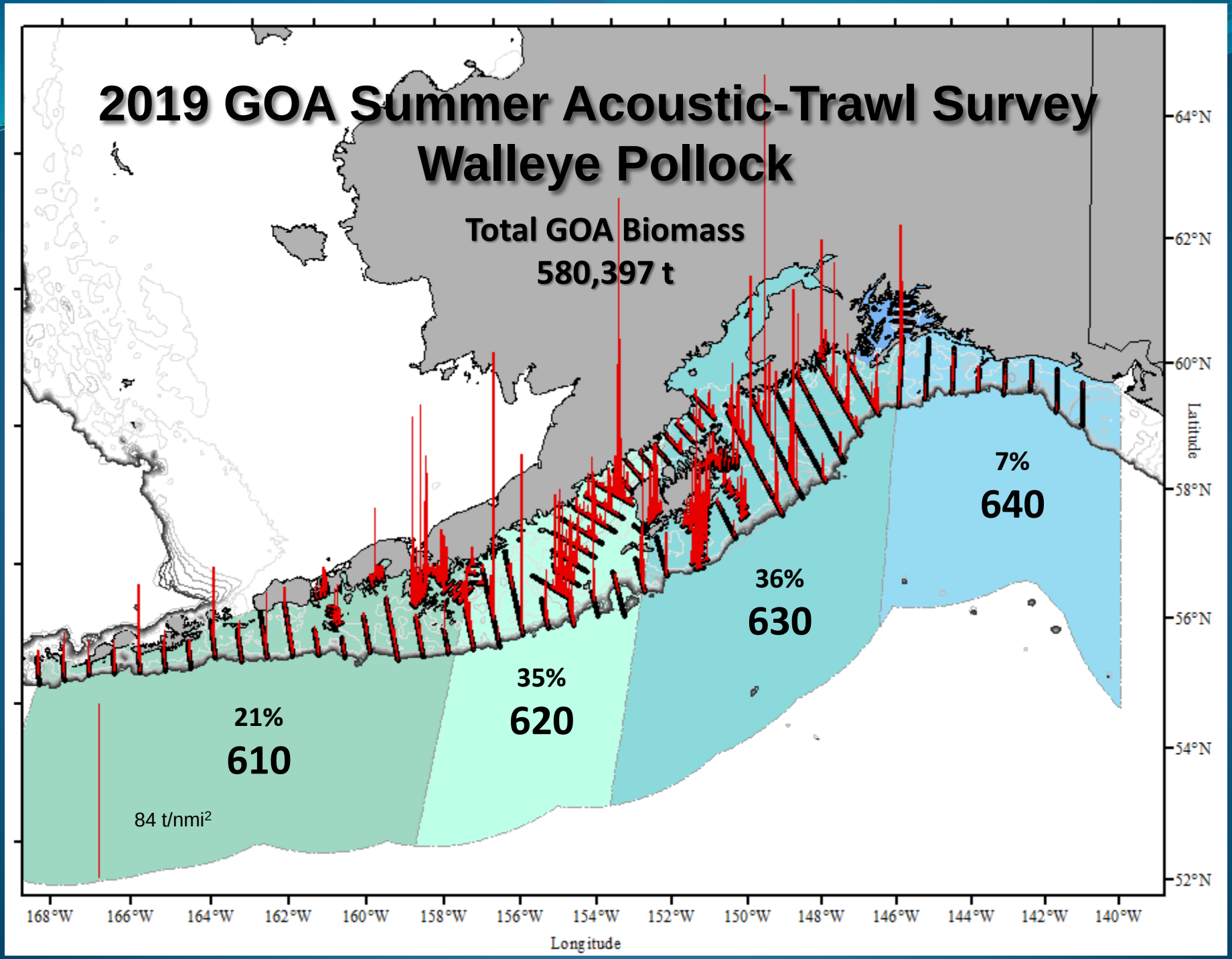
LFS1421 – 96

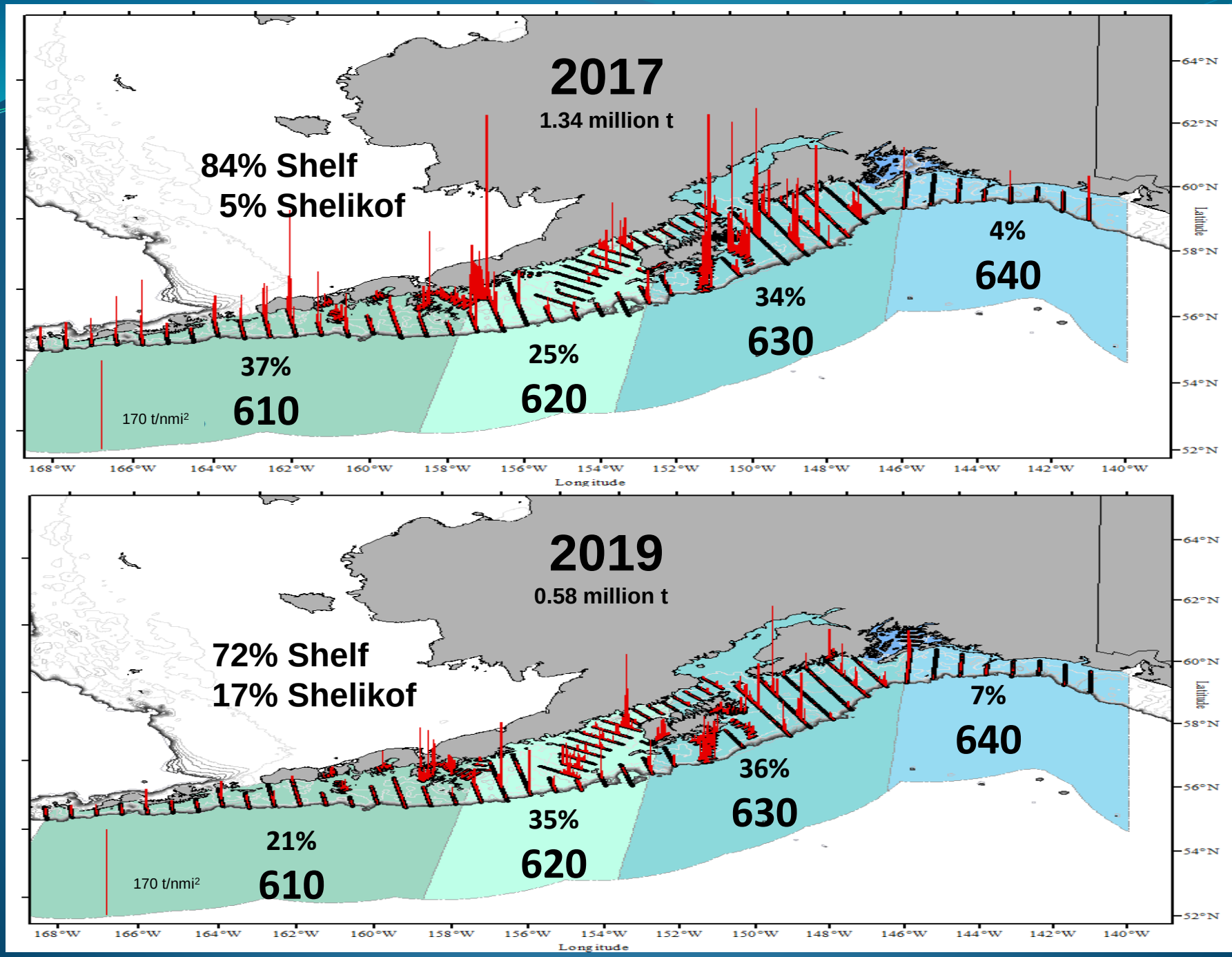
AWT – 26

Methot – 9

Stereo DropCam –
136 Deployments in 36 areas

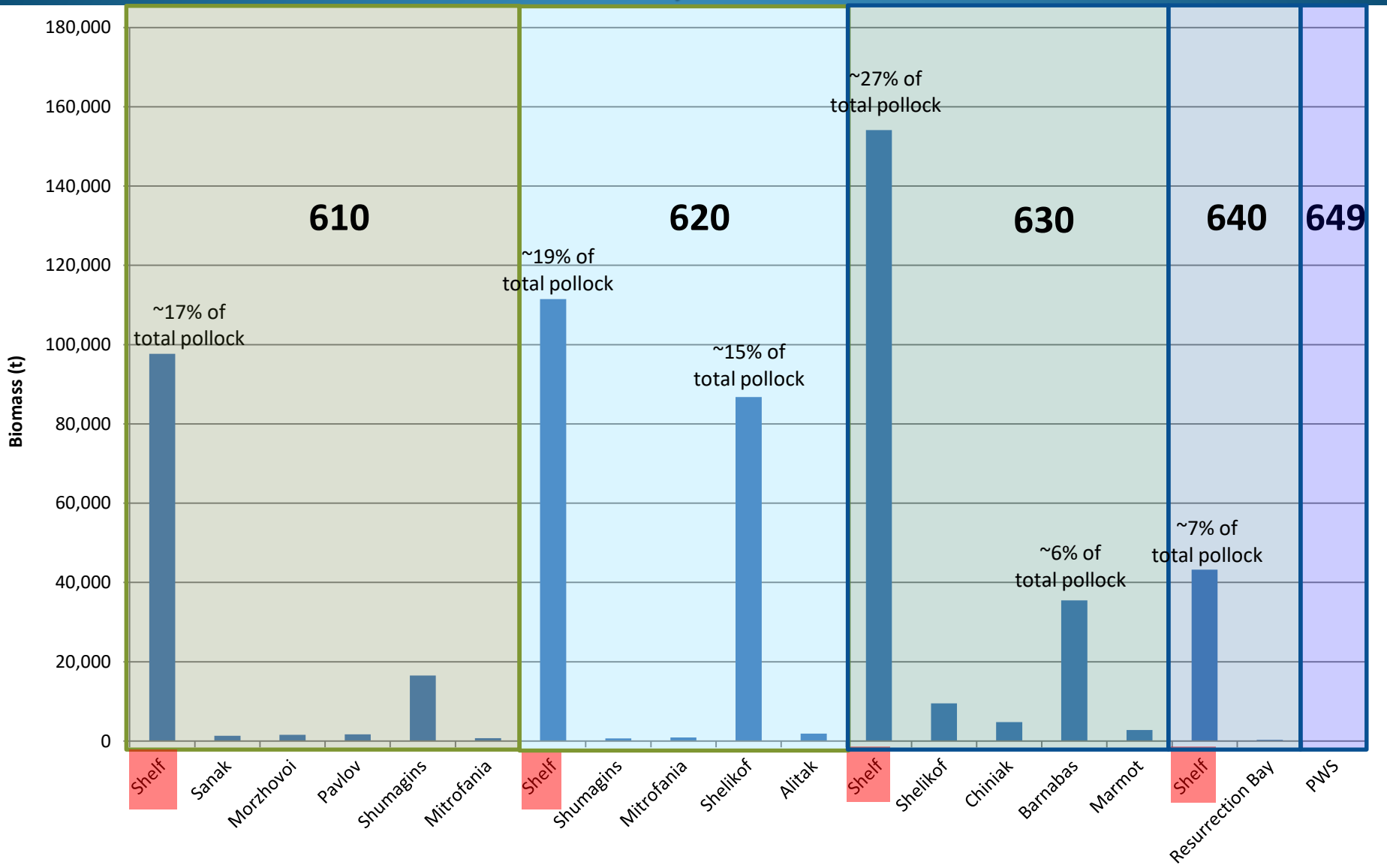



2019 GOA Summer Acoustic-Trawl Survey
Walleye Pollock
Total GOA Biomass
580,397 t
7%
640
36%
630
35%
620
21%
610
84 t/nmi²
64°N
62°N
60°N
58°N
56°N
54°N
52°N
Latitude
168°W
166°W
164°W
162°W
160°W
158°W
156°W
154°W
152°W
150°W
148°W
146°W
144°W
142°W
140°W
Longitude

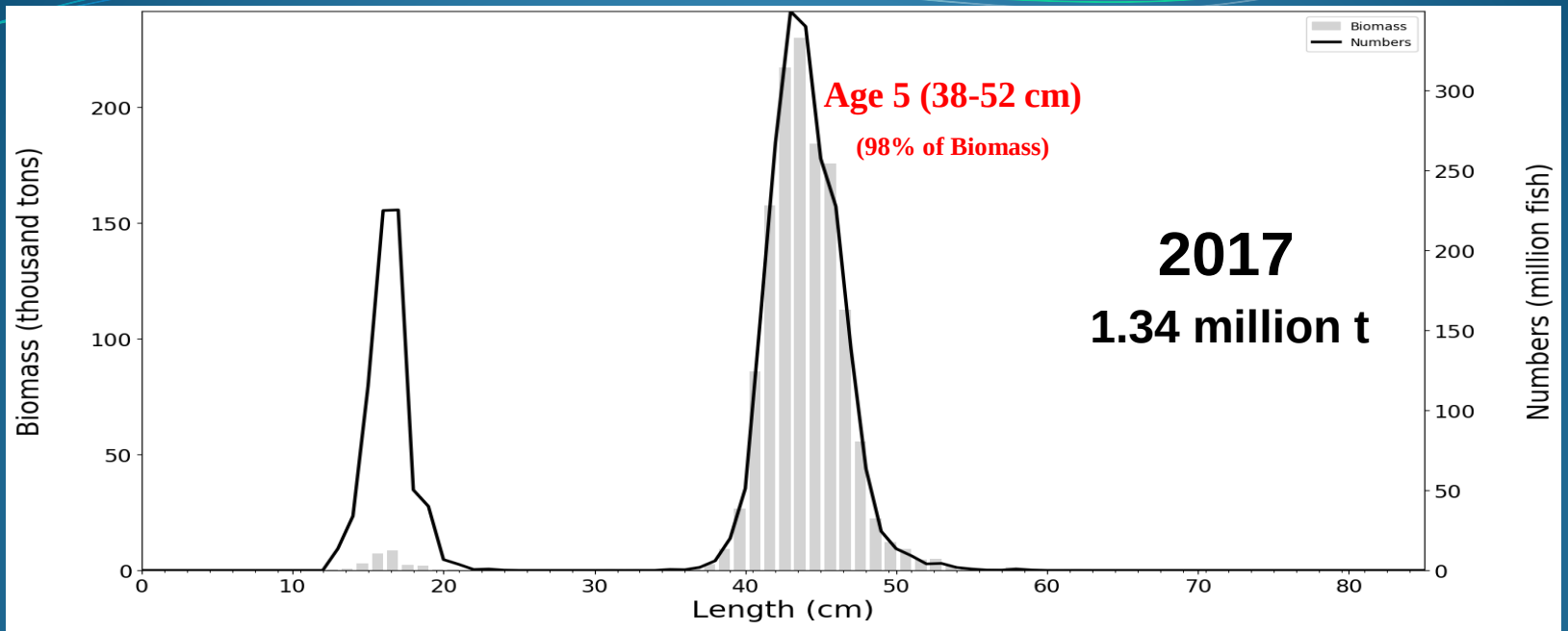

2017
1.34 million t
84% Shelf
5% Shelikof
37%
610
25%
620
34%
630
4%
640
170 t/nmi²
2019
0.58 million t
72% Shelf
17% Shelikof
21%
610
35%
620
36%
630
7%
640
170 t/nmi²
168°W 166°W 164°W 162°W 160°W 158°W 156°W 154°W 152°W 150°W 148°W 146°W 144°W 142°W 140°W
Longitude
64°N 62°N 60°N 58°N 56°N 54°N 52°N
Latitude

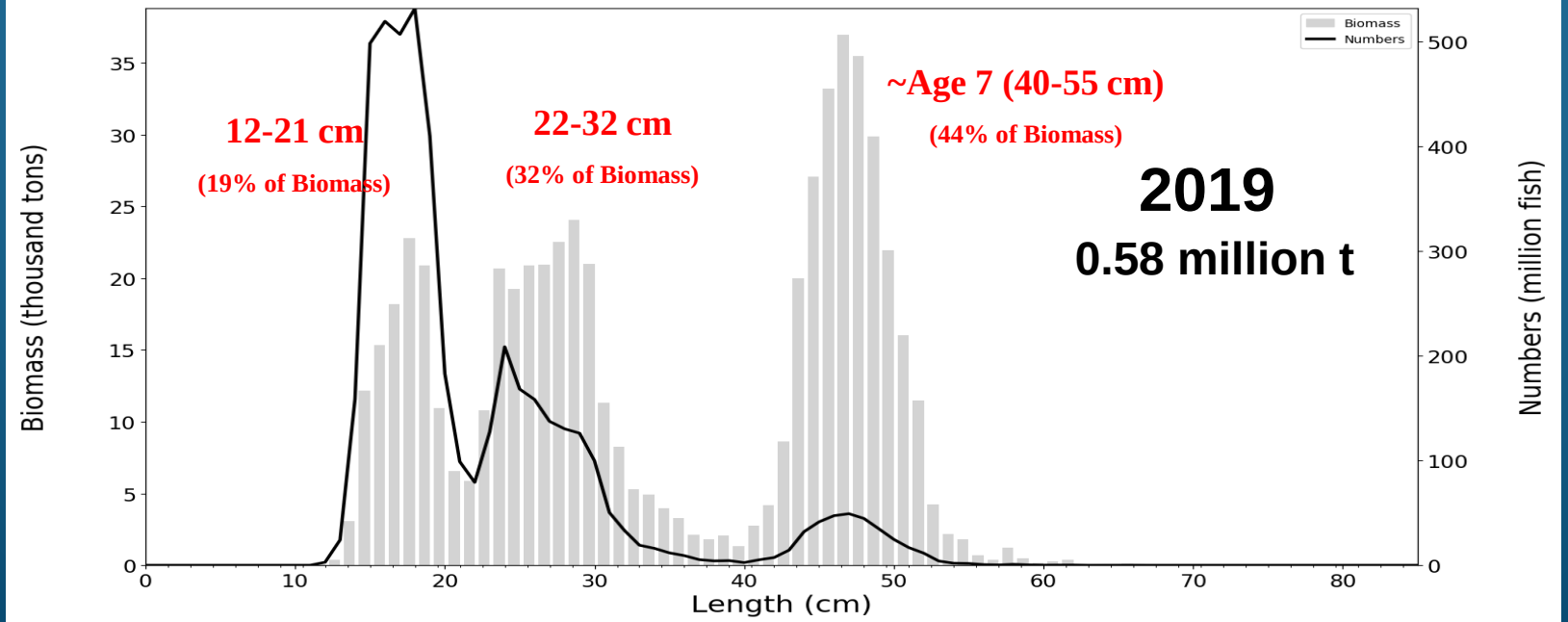
2019 GOA Biomass by Geographic Area

Total GOA Biomass
580,397 t

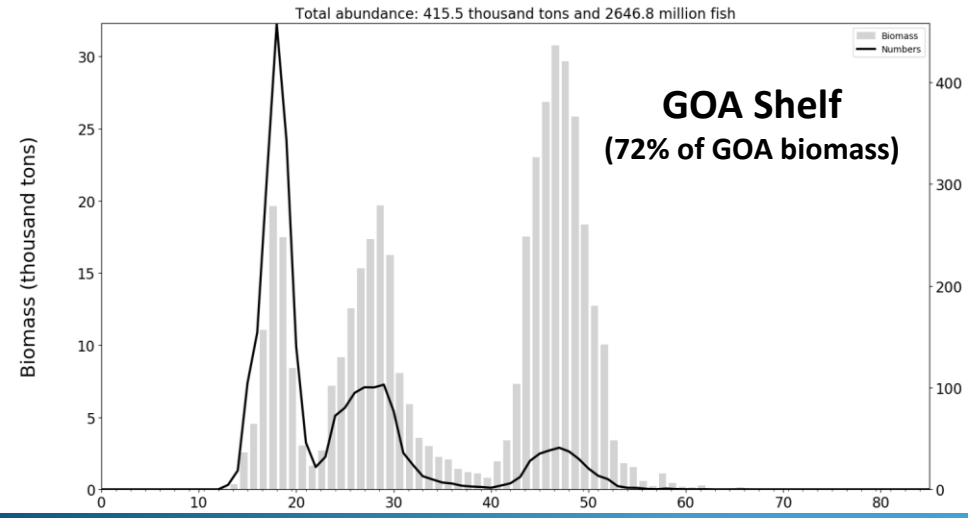


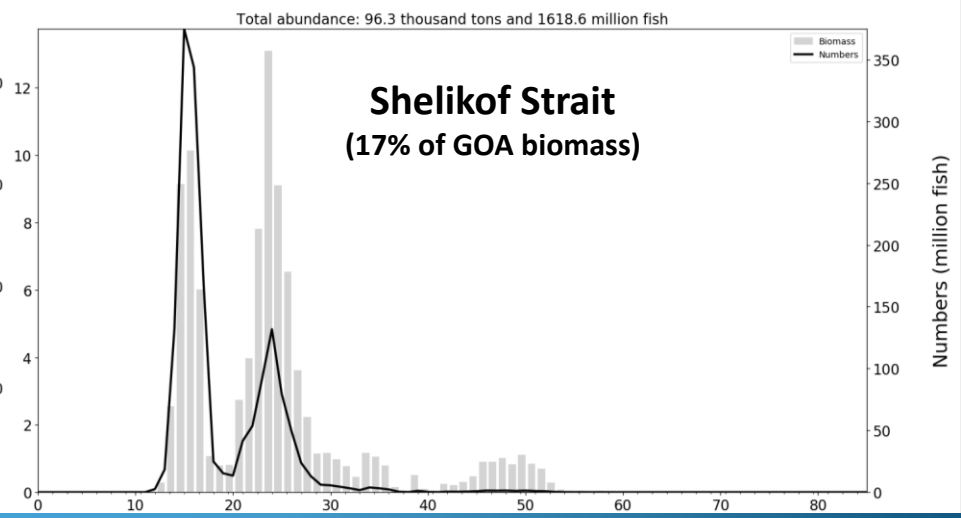
Pollock Length Distribution

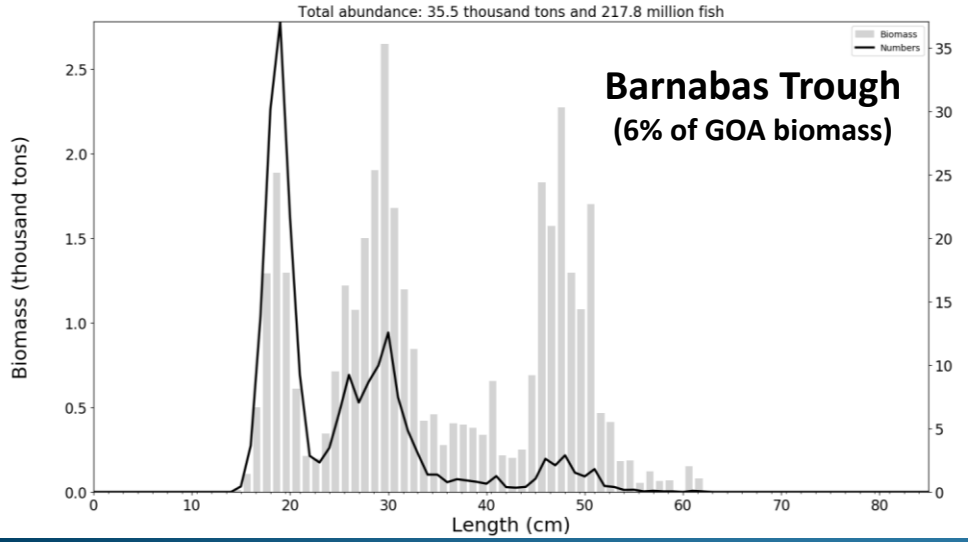


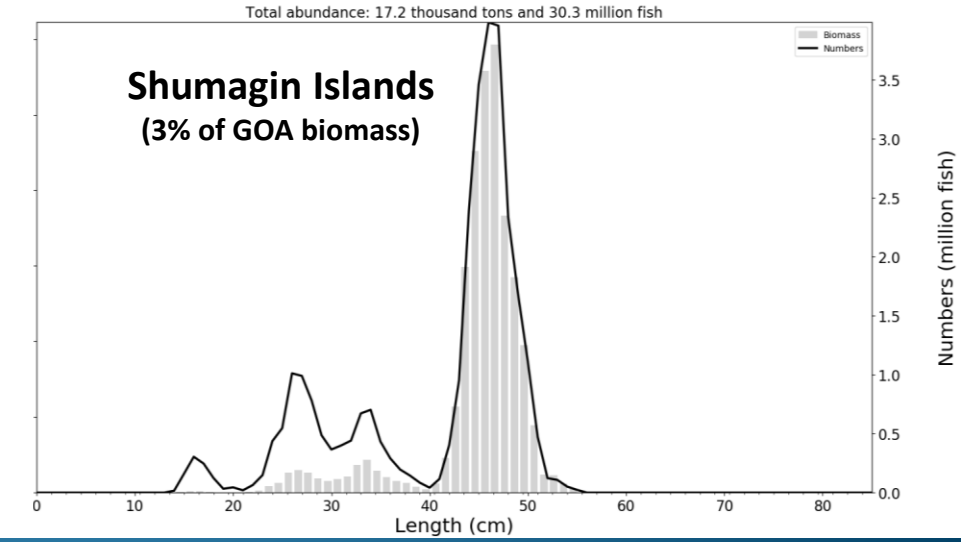


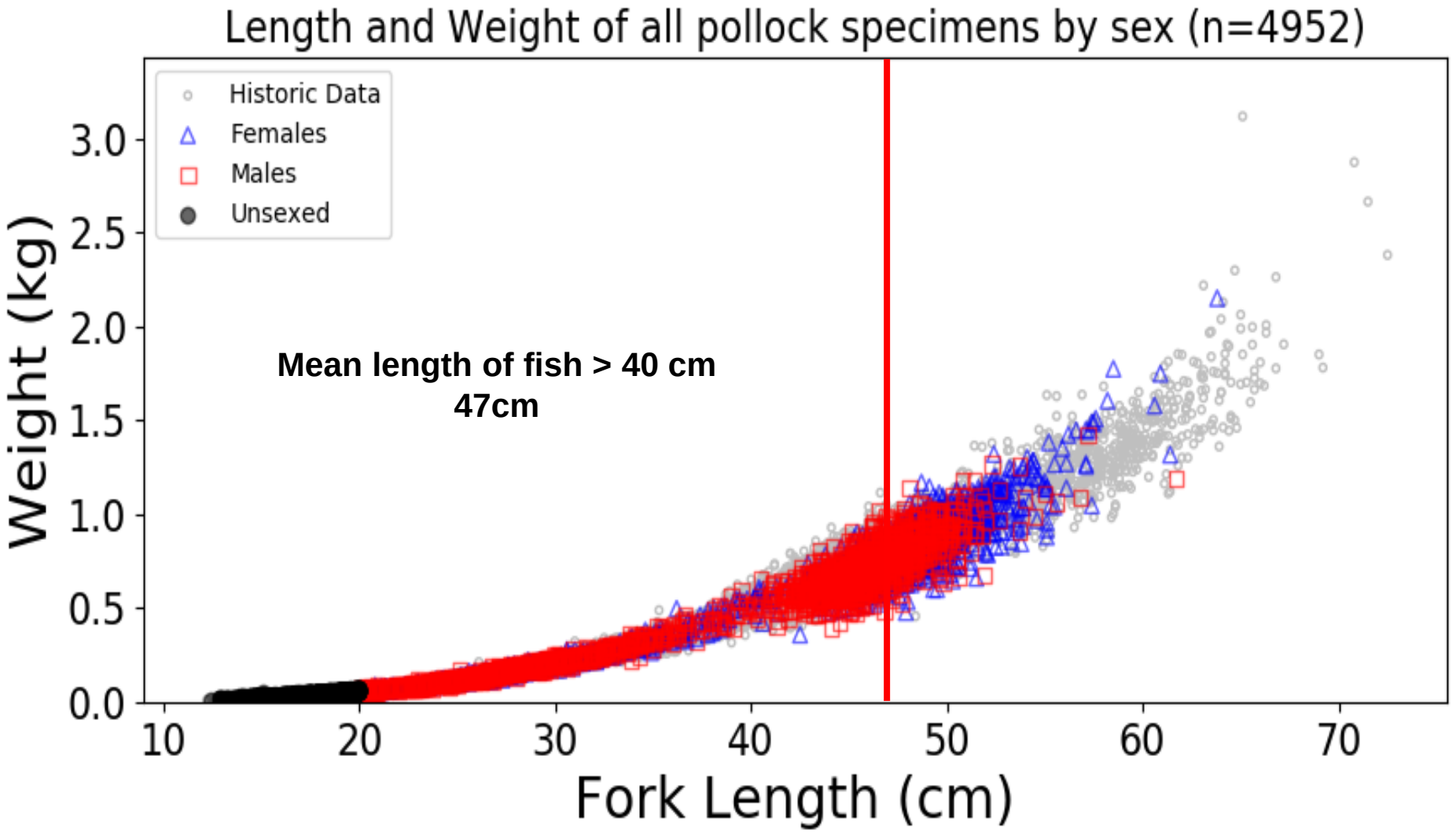
Pollock Length Distributions from Areas with Most Abundance



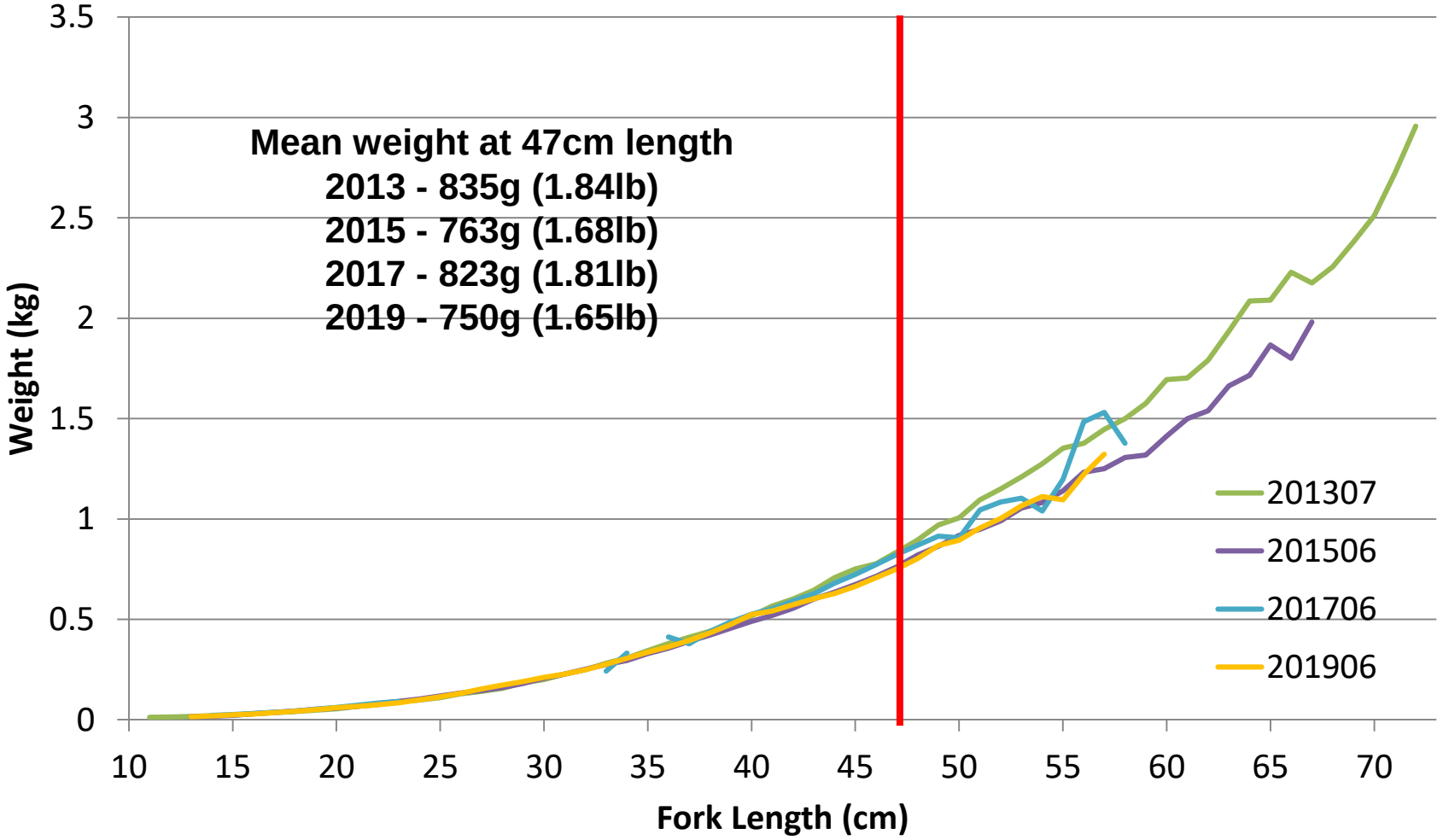







Length and Weight of all pollock specimens by sex (n=4952)
Historic Data
Females
Males
Unsexed
Mean length of fish > 40 cm
47cm
Weight (kg)
Fork Length (cm)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
10
20
30
40
50
60
70

Weight at Length



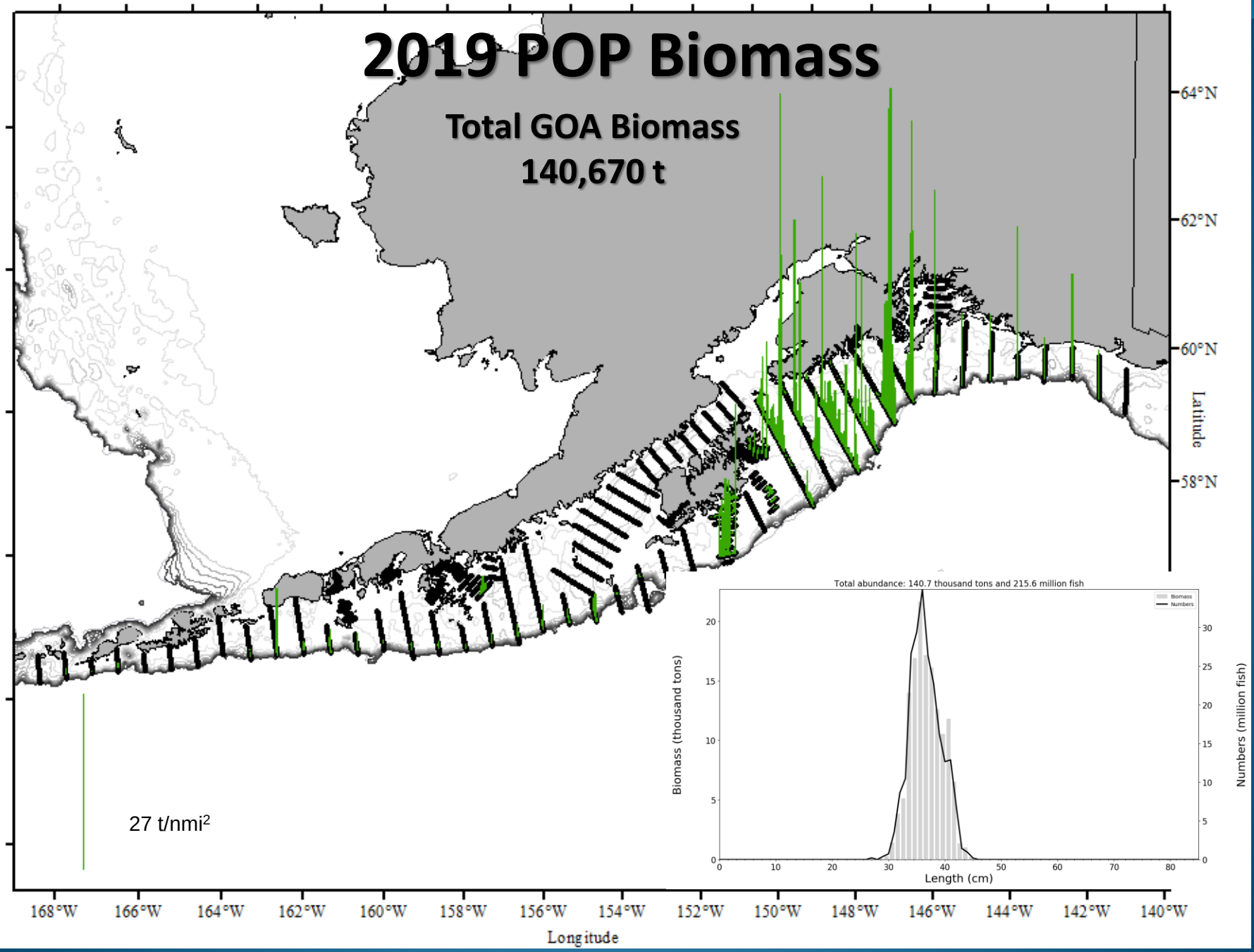
2019 Winter vs Summer

(1.2 million t vs 0.6 million t)

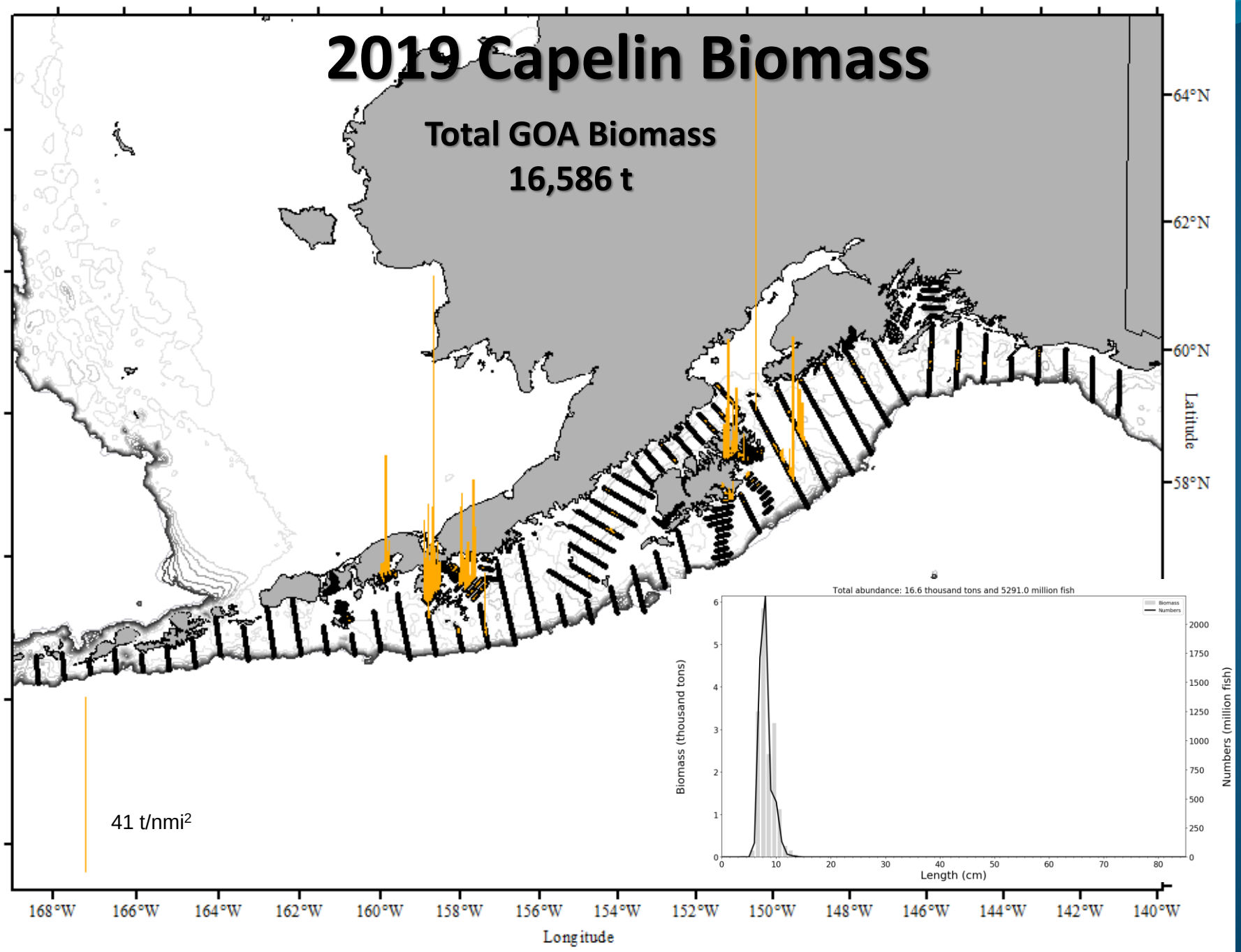
Difference unlikely to be explained by:

- Dyson vs Shimada
  - Same class of noise-quieted vessel
  - Same acoustic equipment
- Acoustic equipment calibration
- LFS vs AWT net
- Selectivity correction
- Age-0 contamination

2019 POP Biomass

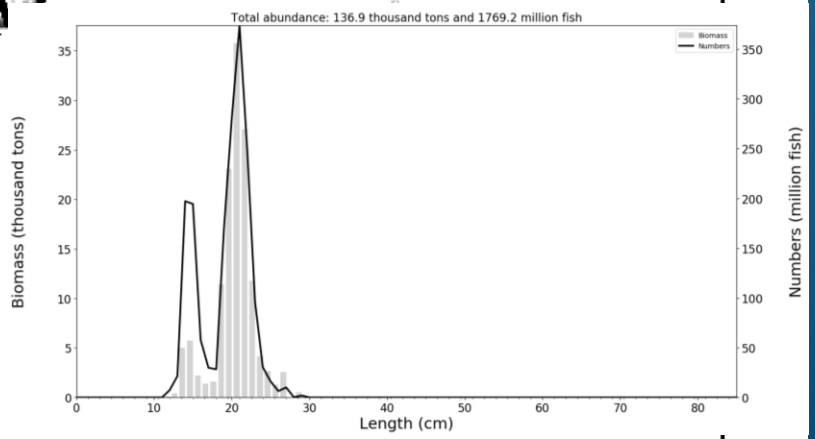


2019 Capelin Biomass



2019 Herring Biomass

Total GOA Biomass
136,909 t



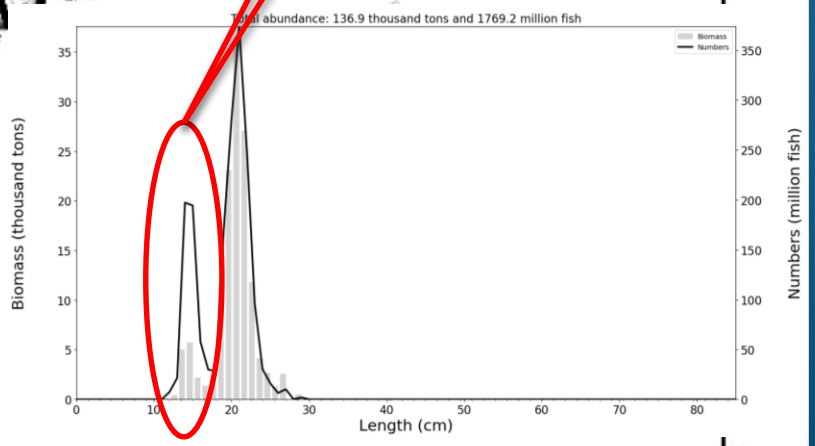
150 t/nmi^2

64°N
62°N
60°N
58°N
Latitude

168°W 166°W 164°W 162°W 160°W 158°W 156°W 154°W 152°W 150°W 148°W 146°W 144°W 142°W 140°W
Longitude

2019 Herring Biomass

Total GOA Biomass
136,909 t

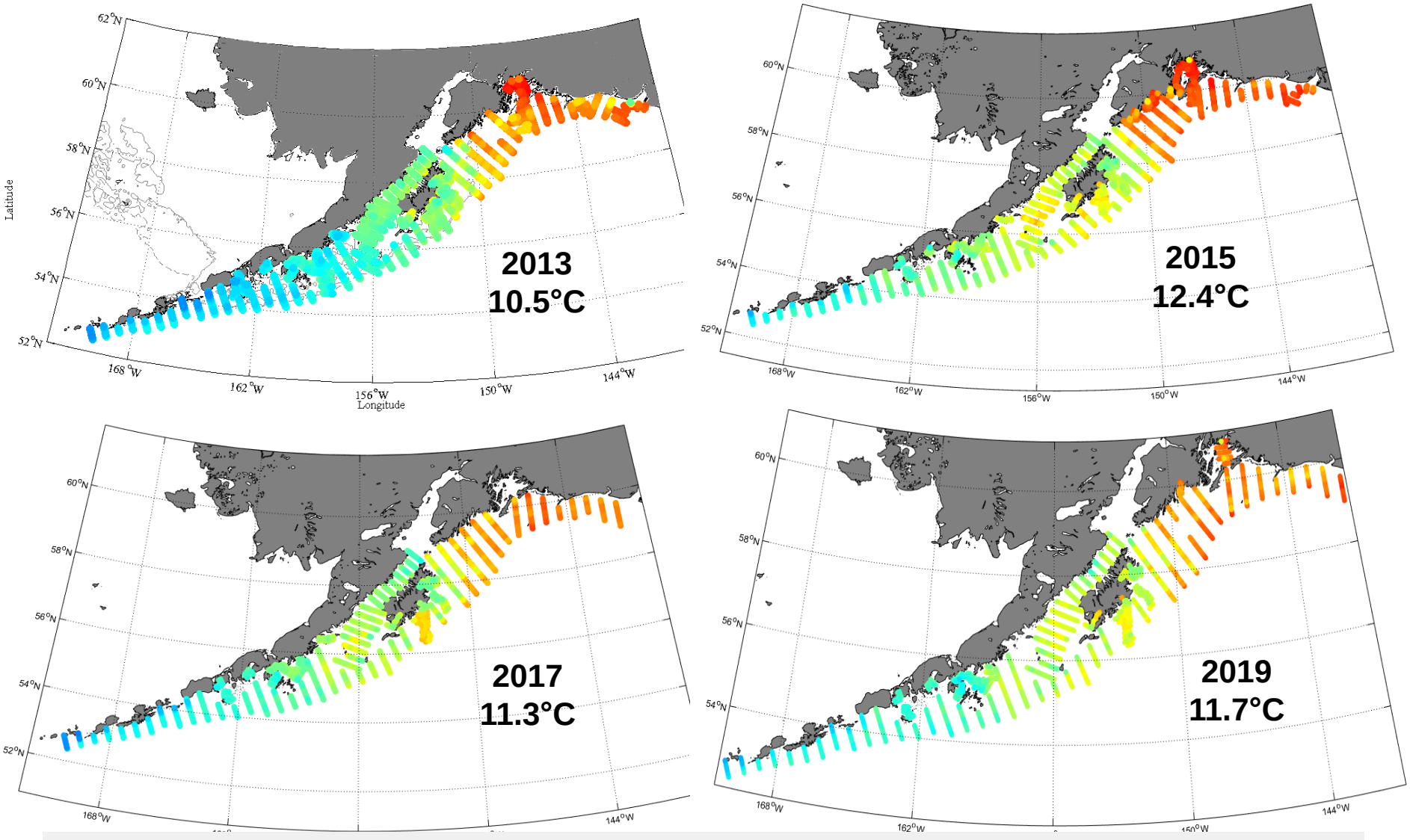


150 t/nmi^2

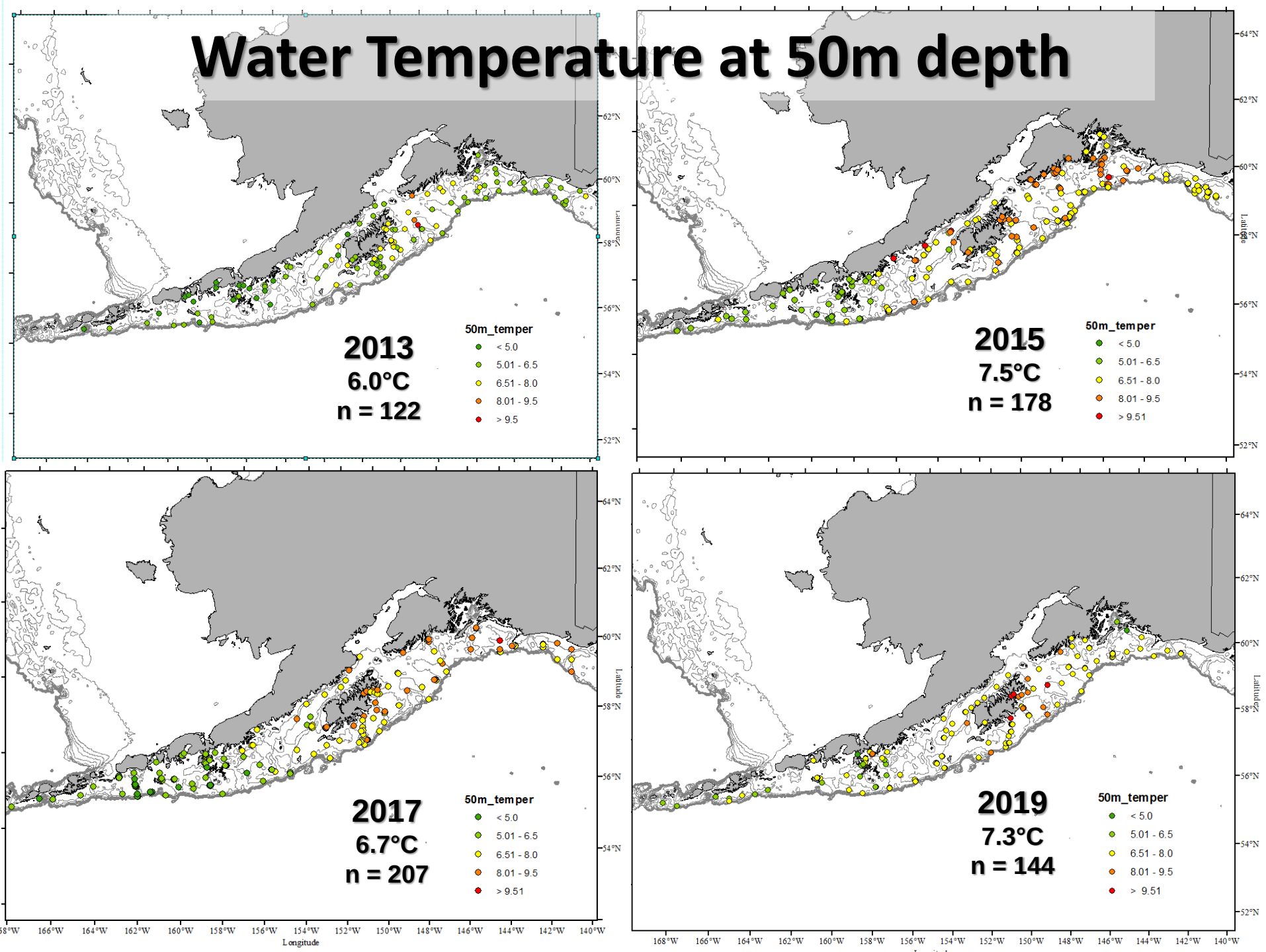
64°N
62°N
60°N
58°N
Latitude

168°W 166°W 164°W 162°W 160°W 158°W 156°W 154°W 152°W 150°W 148°W 146°W 144°W 142°W 140°W
Longitude

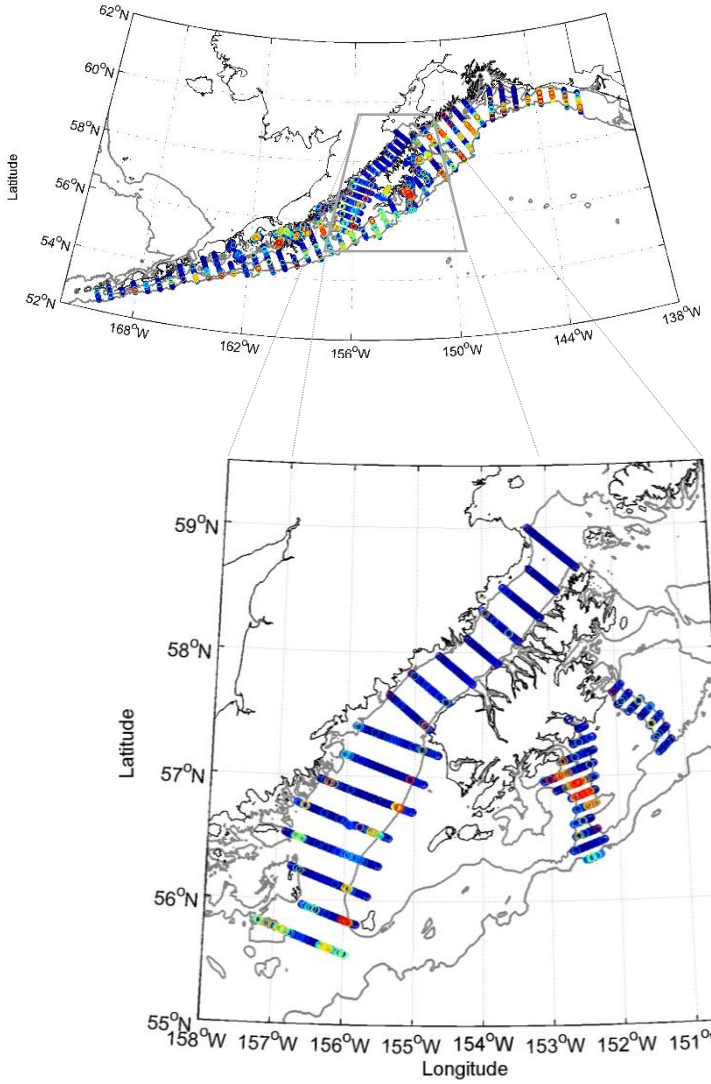
Sea Surface Temperatures

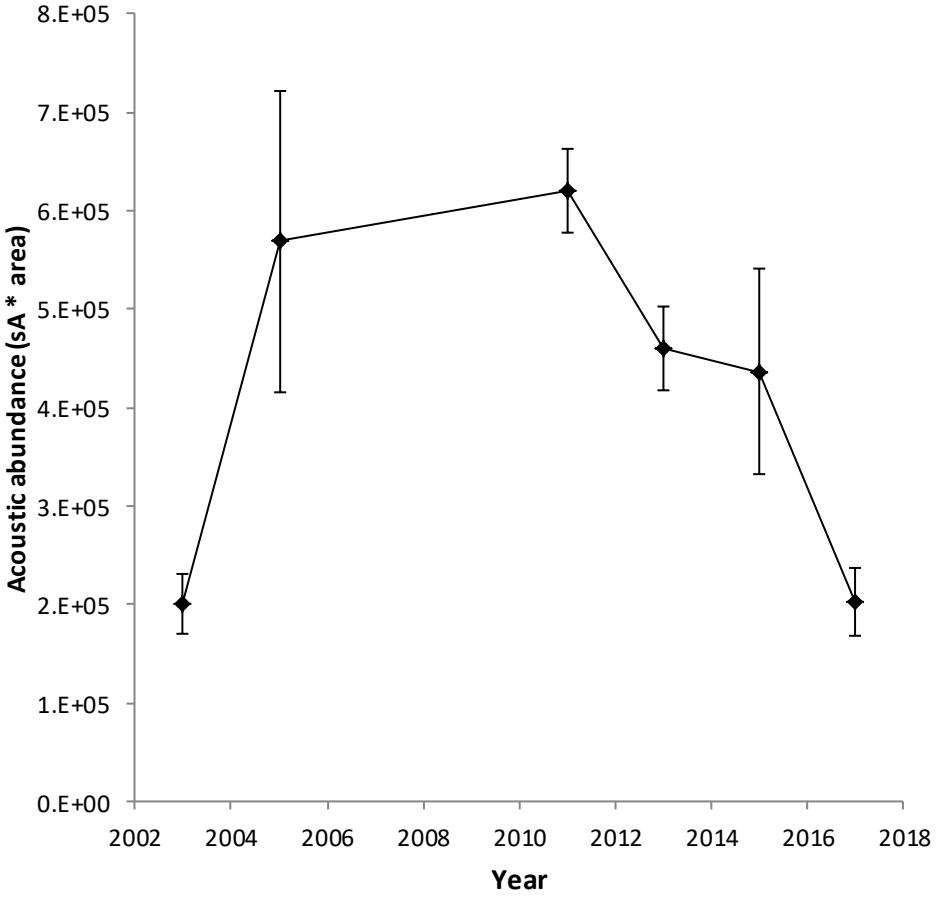


Water Temperature at 50m depth



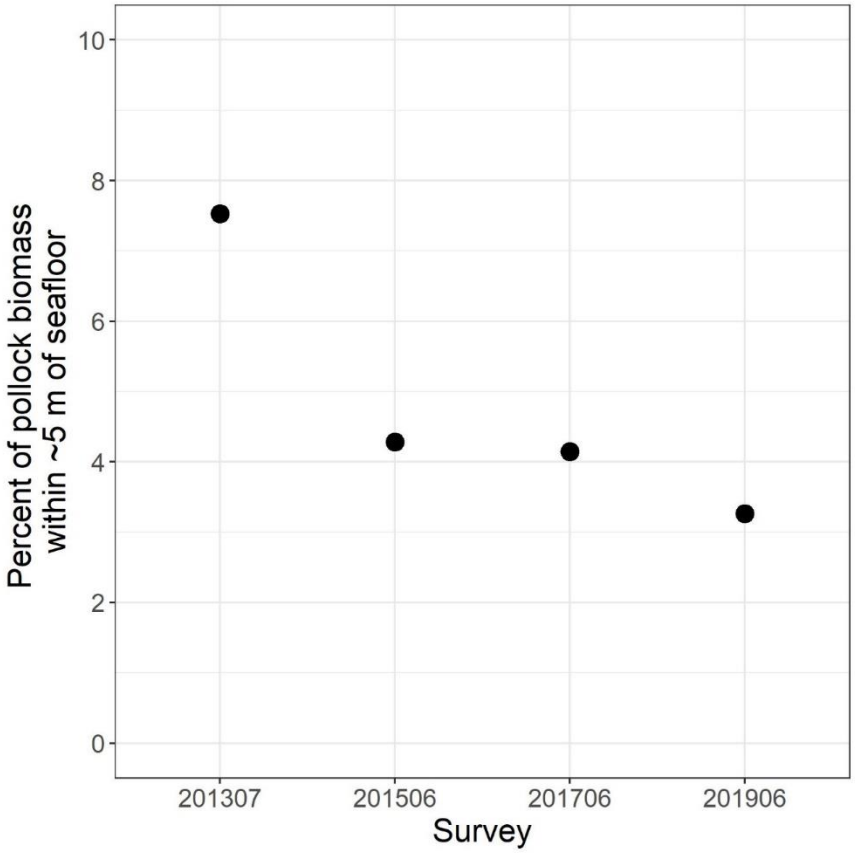
Euphausiids ('krill')





Will update for GOA in 2019

Were pollock less available to the summer GOA survey this year compared to past?



- Compared to previous GOA surveys, pollock not significantly closer to bottom
  - Proximity to the bottom does not appear much different than in past

Were pollock less available to the AT survey in 2019?

- Pollock do not appear to be moving ‘off shelf’ or inshore relative to past surveys