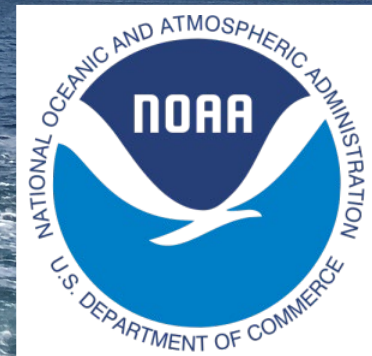




Results of the Winter 2021 Shelikof Strait/Marmot Bay

Pollock Pre-Spawning Acoustic-Trawl Surveys

Taina Honkalehto, Darin Jones, Kresimir Williams, Abigail McCarthy, Mike Levine, Denise McKelvey
& MACE Program staff



COVID-19 Precautions

Prior to boarding vessel science party sheltered in place for 14 days and took 2 rounds of COVID-19 tests

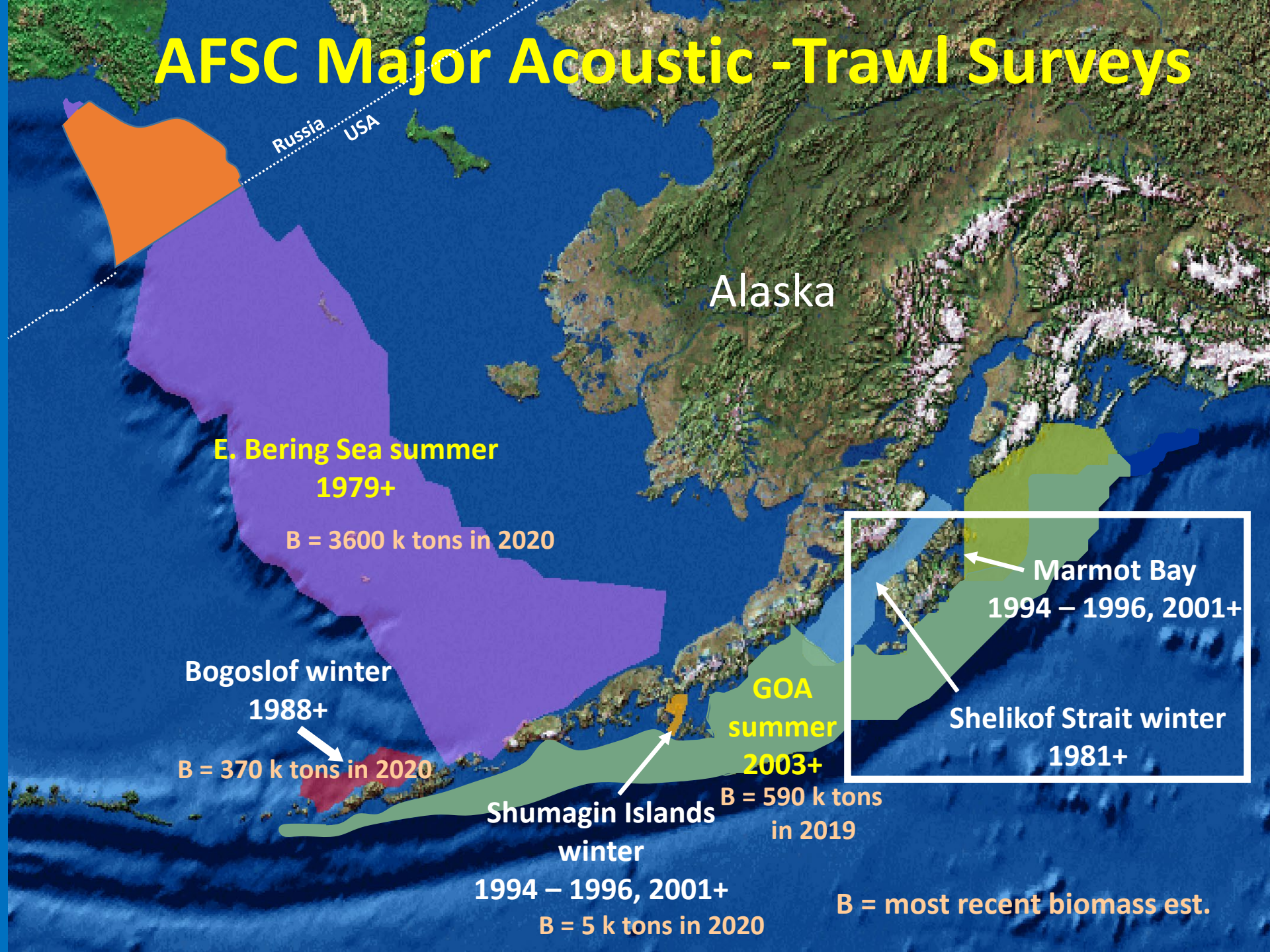
Science party boarded vessel in Seattle in mid Feb for gear trials and remained aboard for transit to Alaska

4 contract observers boarded in Kodiak following 14 day SIP and 2 rounds of testing

Ship maintained “bubble” for 35 days



AFSC Major Acoustic -Trawl Surveys



Russia USA

Alaska

E. Bering Sea summer
1979+

B = 3600 k tons in 2020

Bogoslof winter
1988+

B = 370 k tons in 2020

GOA
summer
2003+

B = 590 k tons
in 2019

Shumagin Islands
winter

1994 – 1996, 2001+

B = 5 k tons in 2020

Marmot Bay

1994 – 1996, 2001+

Shelikof Strait winter

1981+

B = most recent biomass est.

Acoustic-Trawl Survey Methods

~1,300 nmi of trackline total survey

7.5 nmi spacing Shelikof, 1-2 nmi Marmot

Survey 24 hrs/day

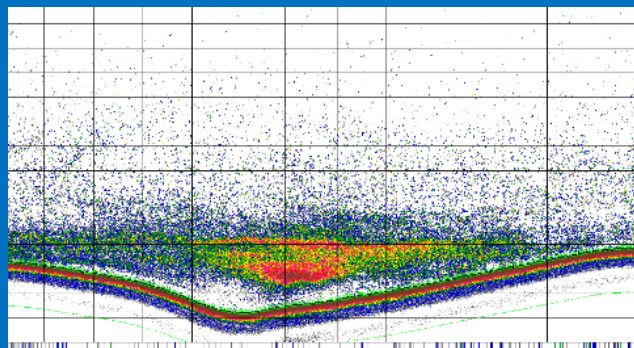
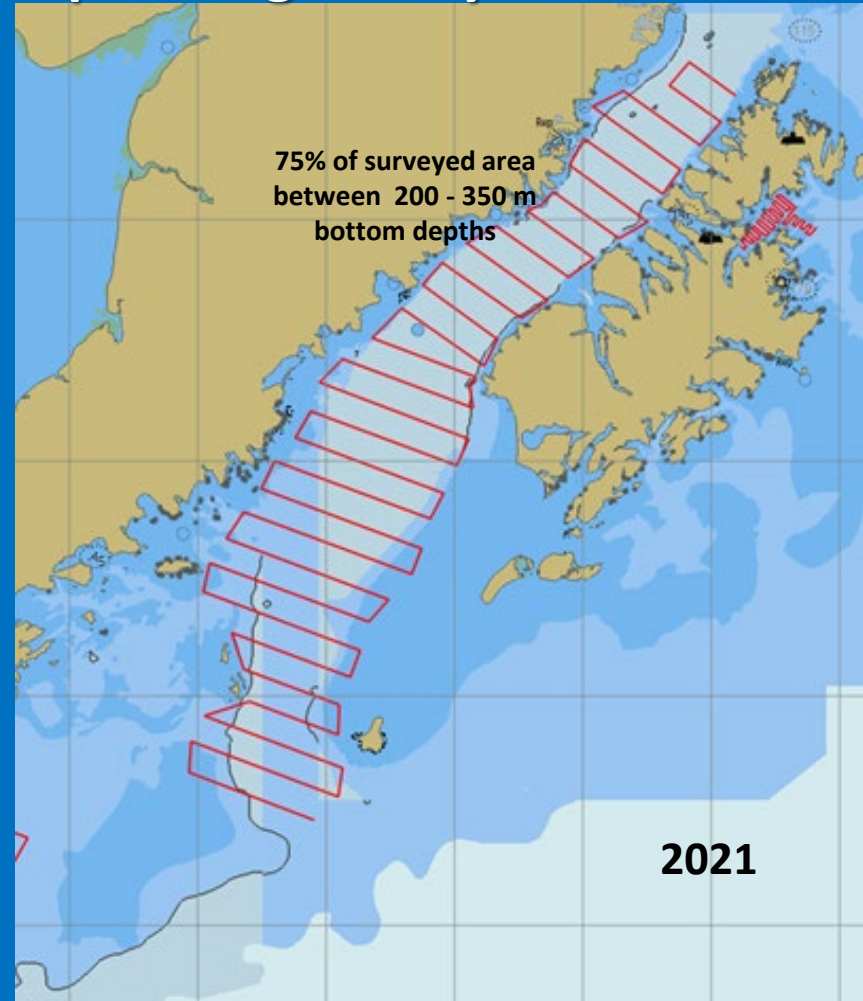
Abundance estimates use 38 kHz

acoustic data 16 m from surface to 0.5 m above seafloor

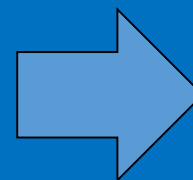
Large-trawl “targeted” hauls

Physical oceanographic data collected

Pre-Spawning Surveys – March 2-15



+

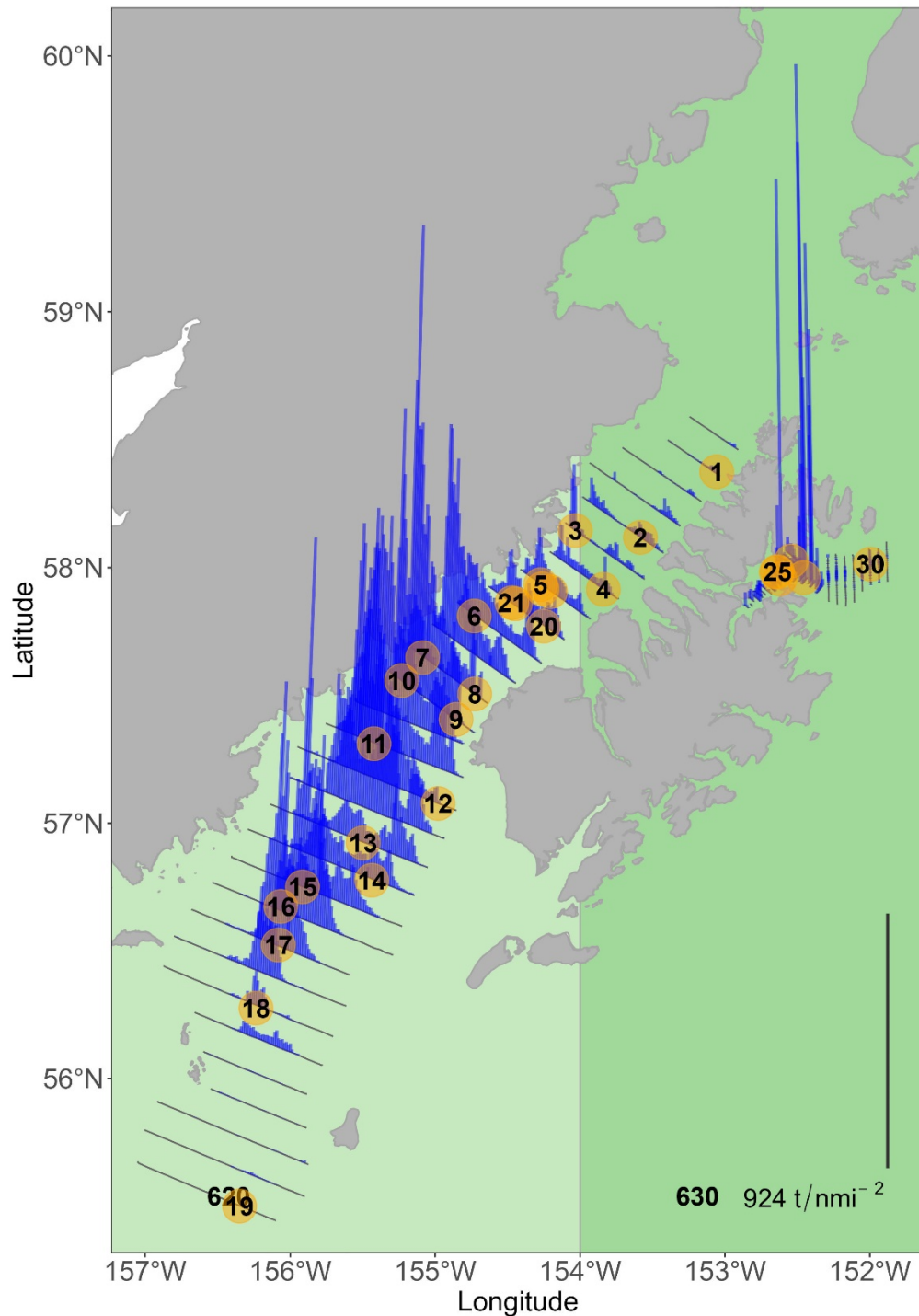


Survey Biomass estimate

Shelikof pollock biomass estimate

March 3-10

24 LFS tows
1127 nmi trackline

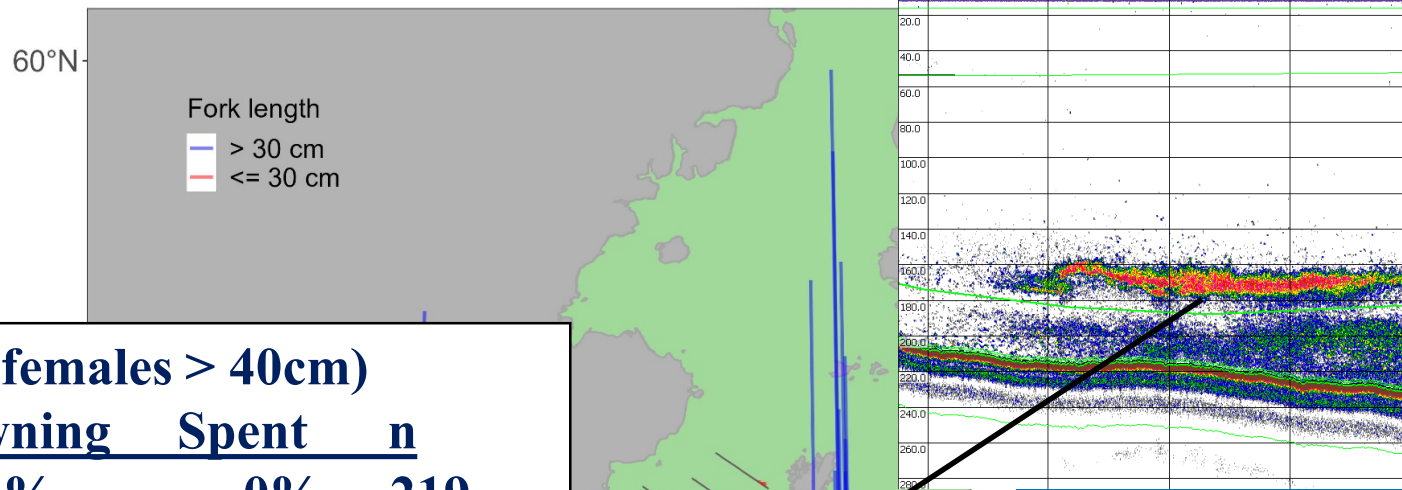


Marmot Bay

March 13-15

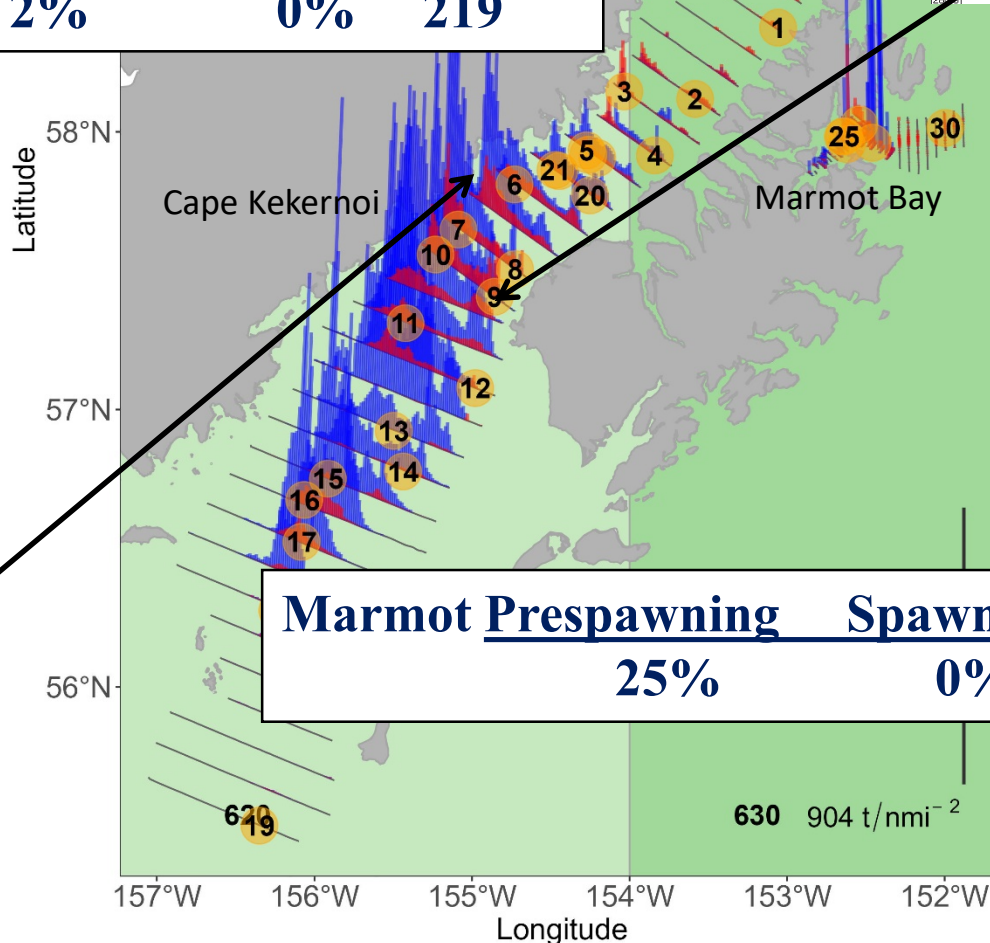
6 LFS tows
157 nmi trackline

Shelikof pollock biomass



Shelikof maturities (females > 40cm)

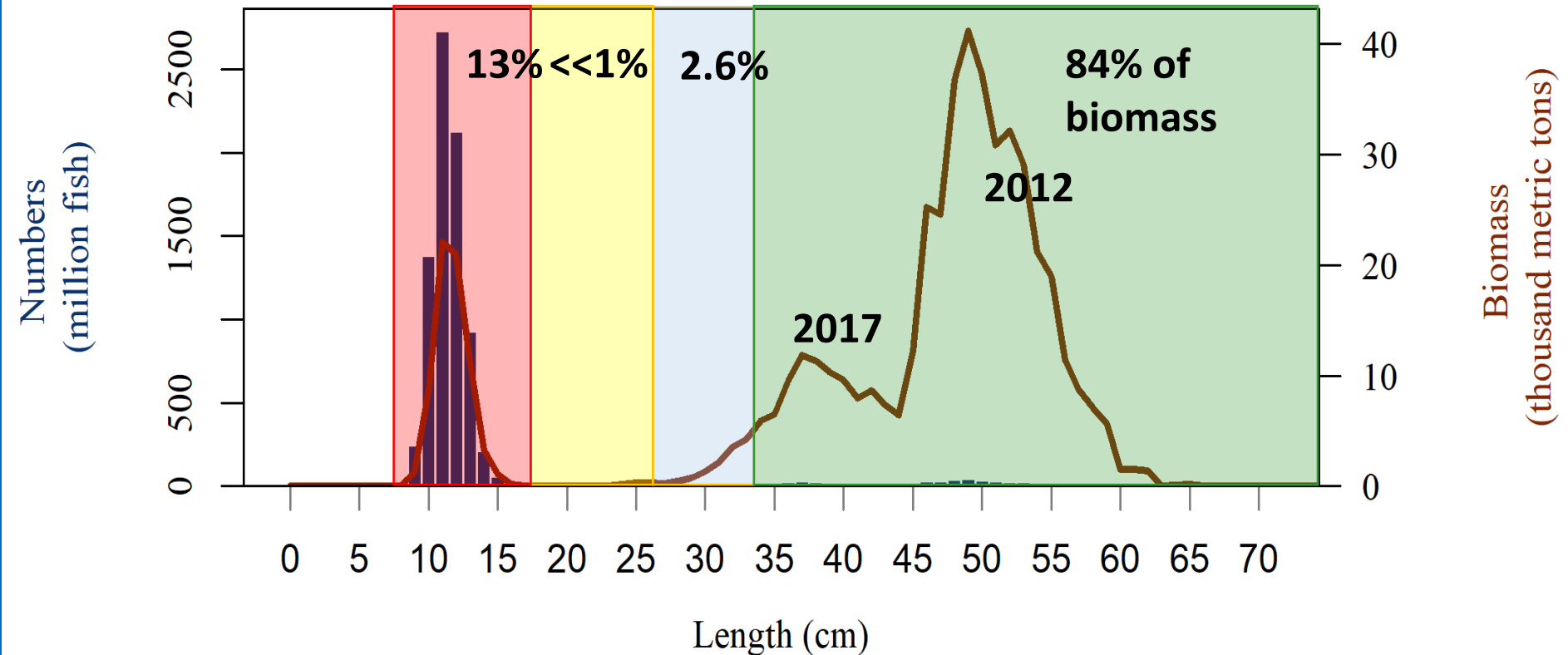
| Prespawning | Spawning | Spent | n |
|-------------|----------|-------|-----|
| 88% | 2% | 0% | 219 |



| Marmot Prespawning | Marmot Spawning | Marmot Spent | n |
|--------------------|-----------------|--------------|----|
| 25% | 0% | 1% | 19 |

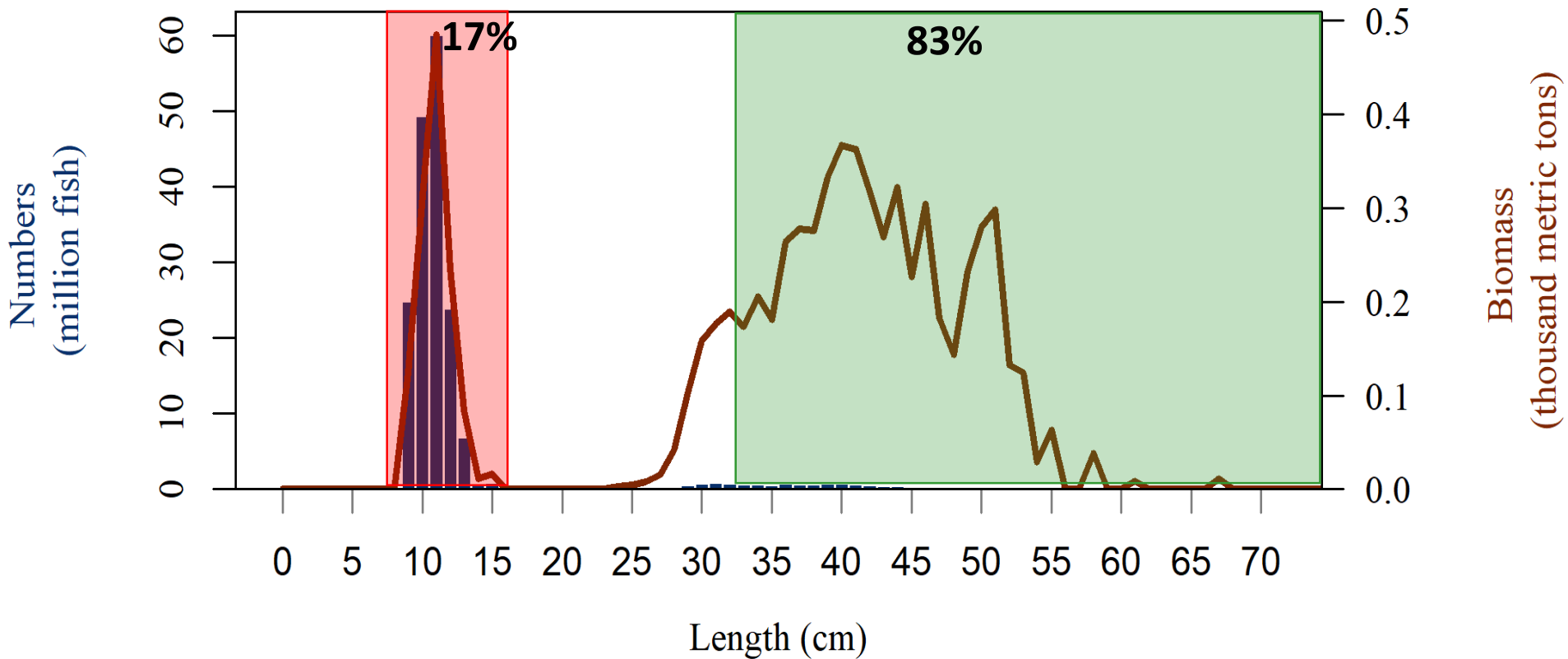
Shelikof Length Distributions

8,364.7 million fish
527.0 thousand t



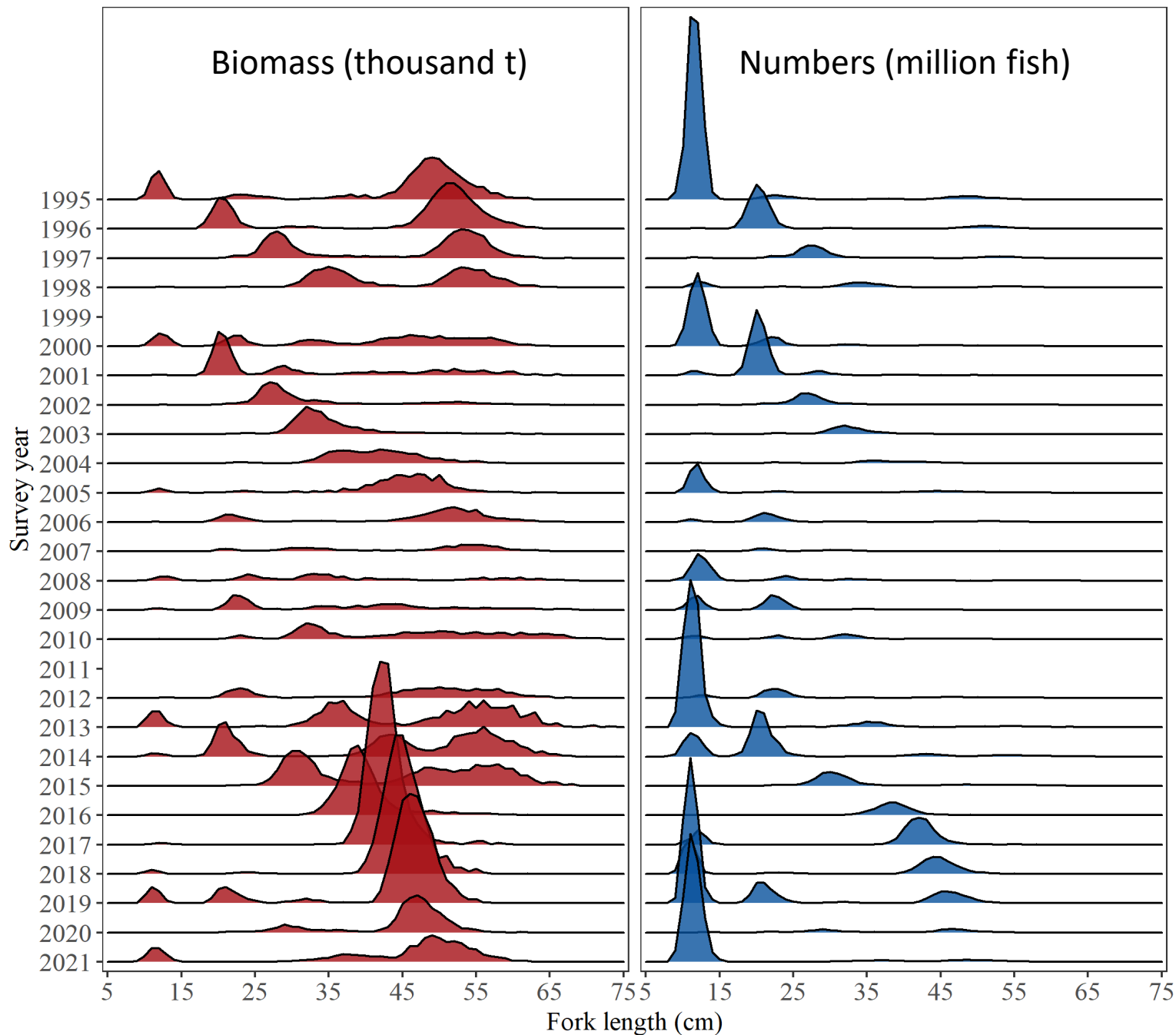
Marmot Length Distributions

180.5 million fish
7.4 thousand t



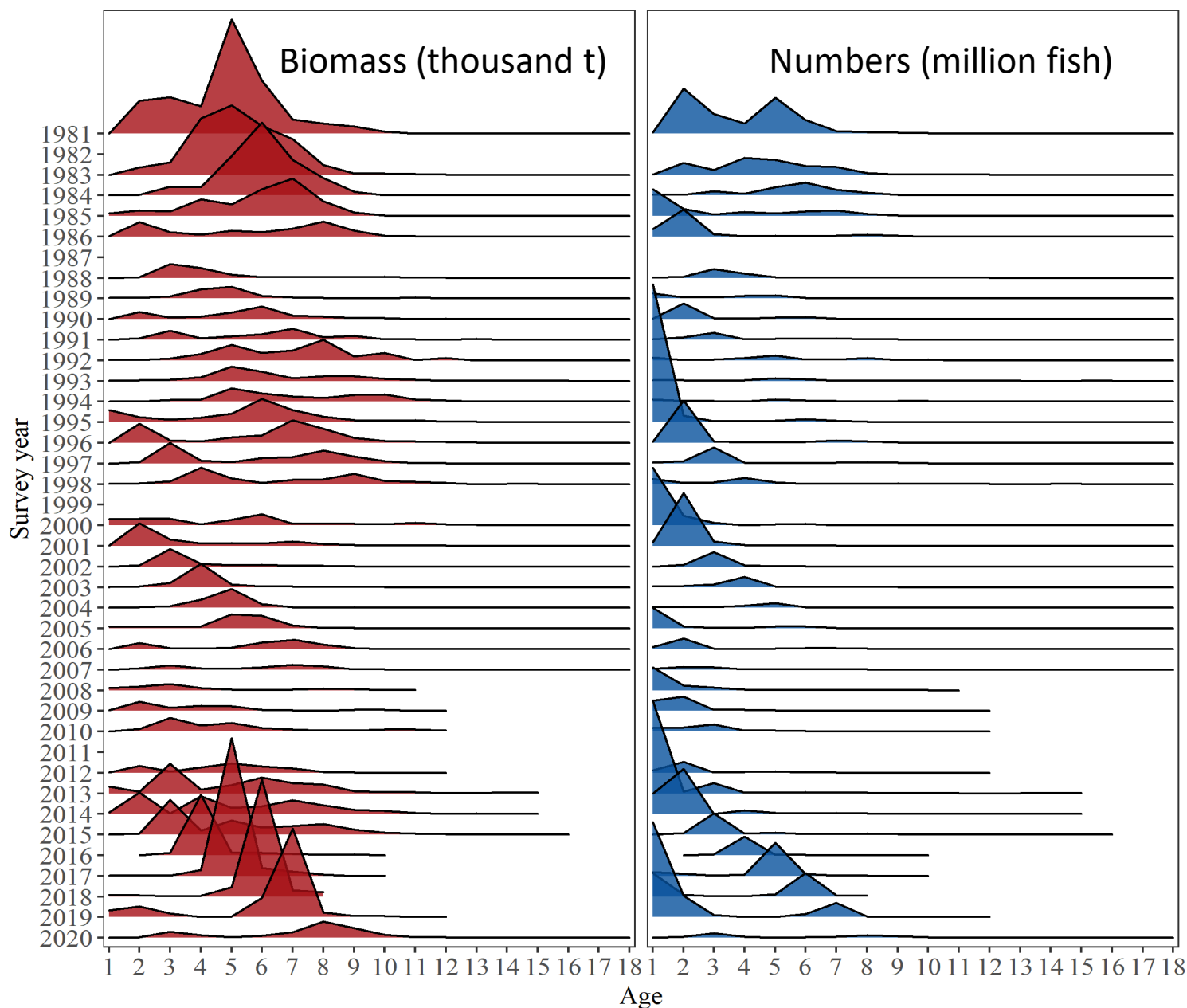
Shelikof pollock estimates at length 1995-2021

- 2008-2021 corrected for net selectivity due to juvenile escapement

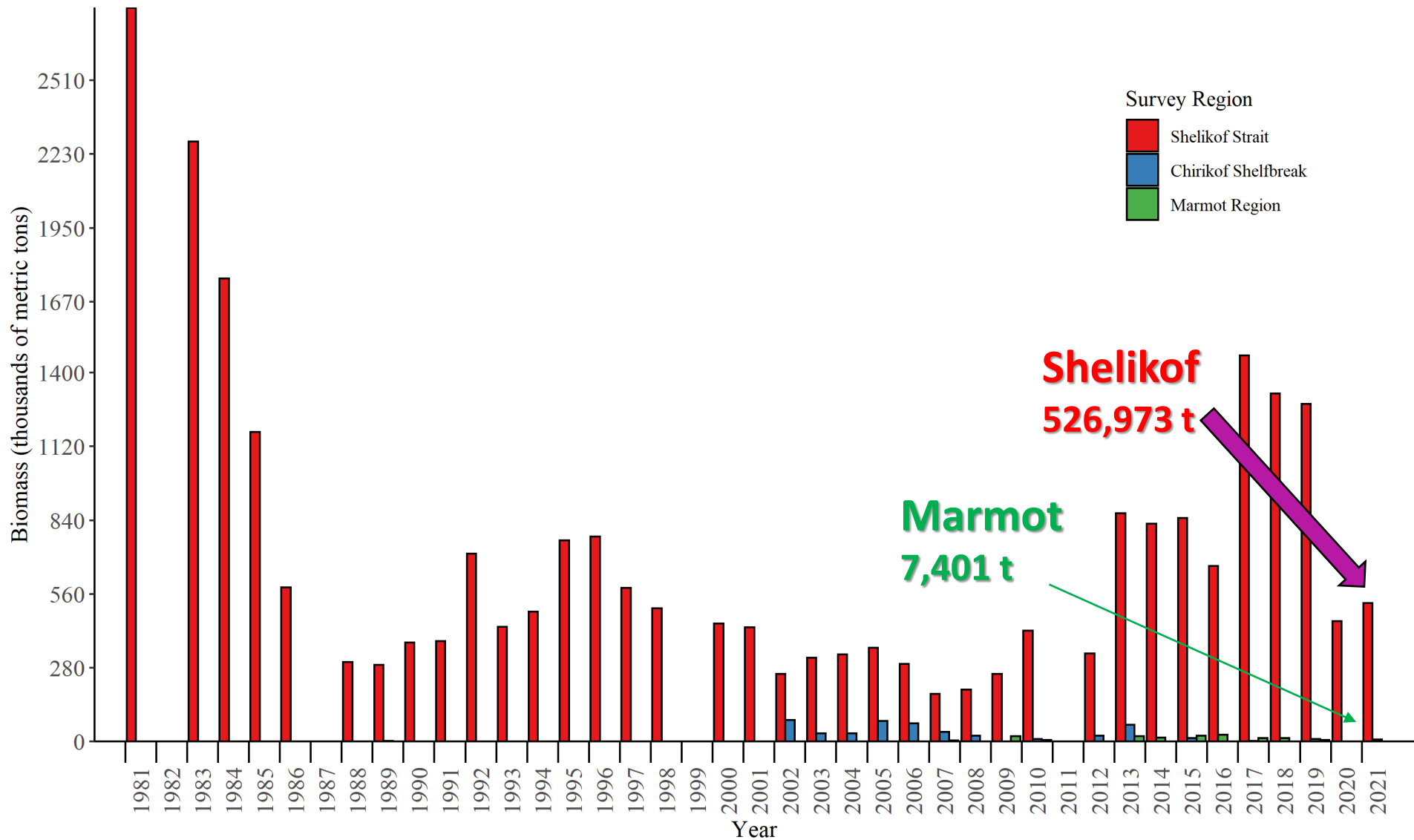


Shelikof pollock estimates at age 1981-2020

- 2008-2020 corrected for net selectivity due to juvenile escapement



Pollock Biomass Estimates: Time Series

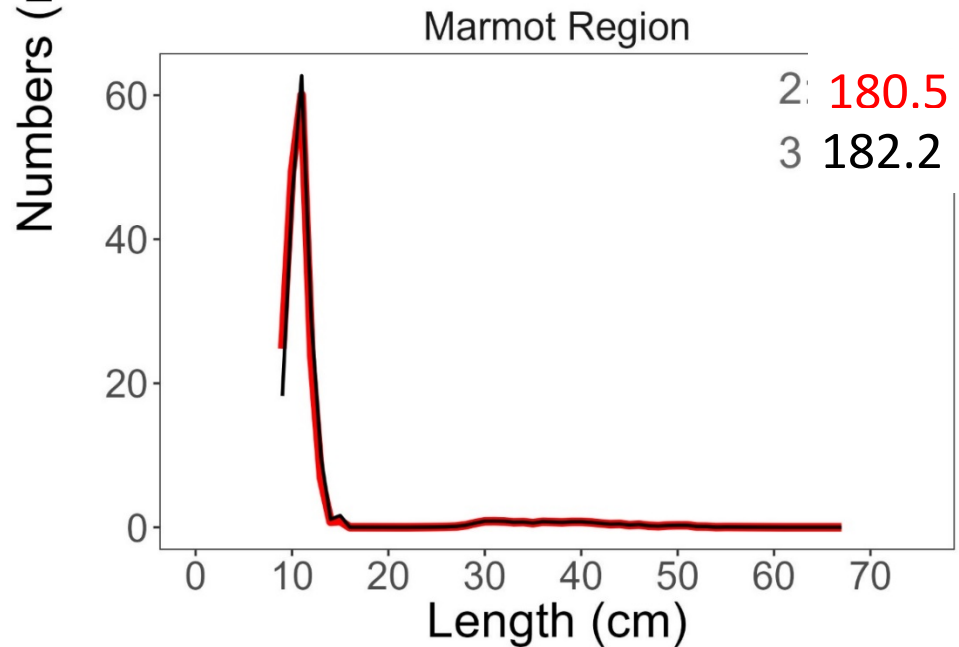
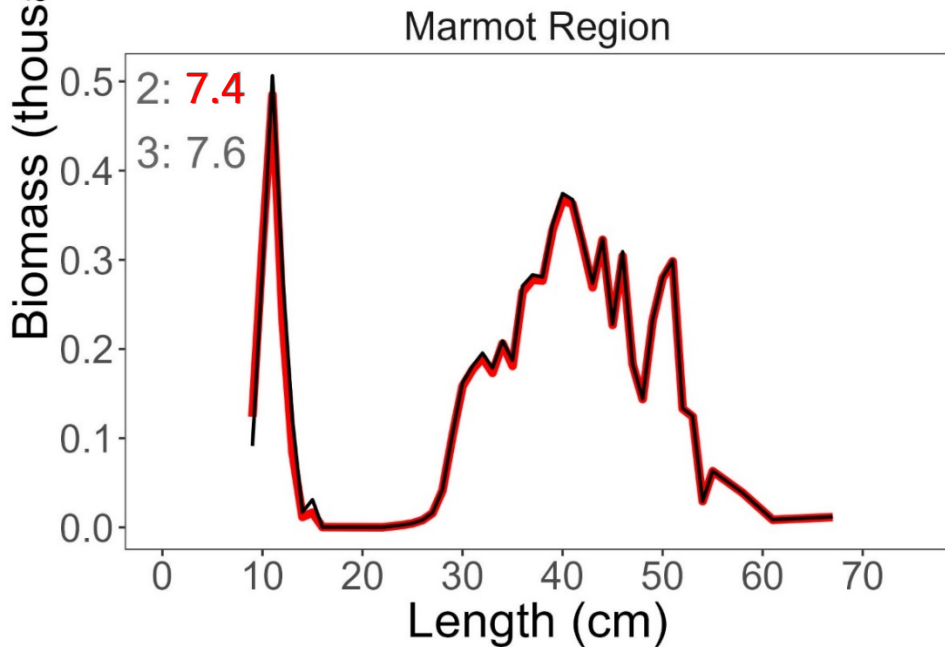
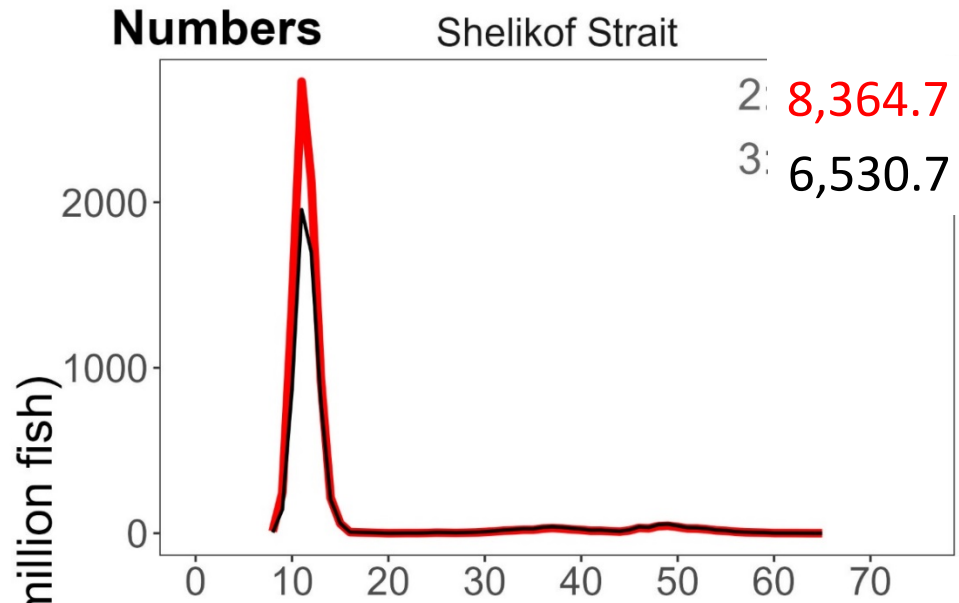
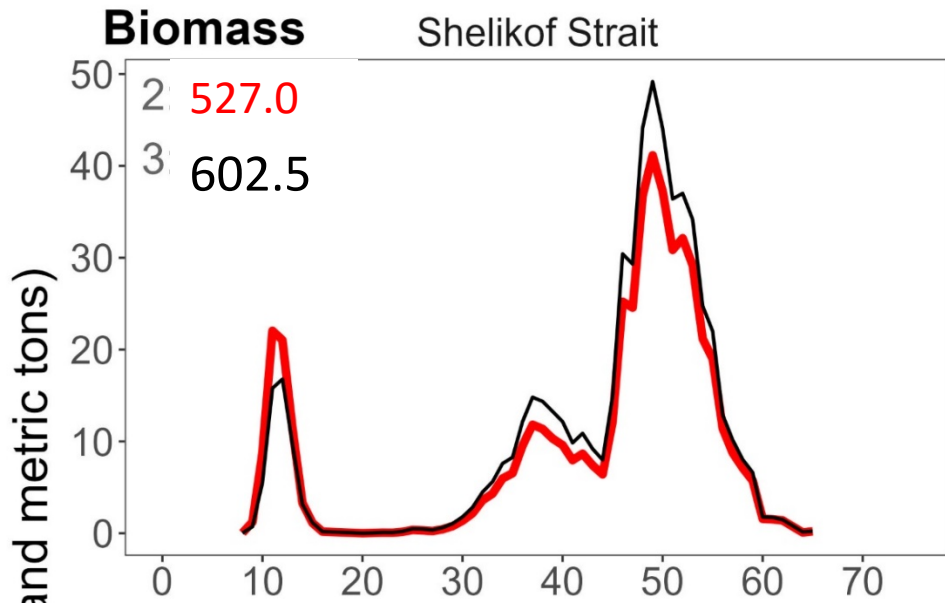




Net selectivity corrections 2021

- 2nd year with new LFS1421 midwater trawl
- Corrected all species for net selectivity based on 2020 data
- Collected more LFS & pocket net data and updated selectivity for pollock

2021 Net selectivity corrections (red) vs no selectivity (black)



Many thanks to

The field party:

Darin Jones

Denise McKelvey

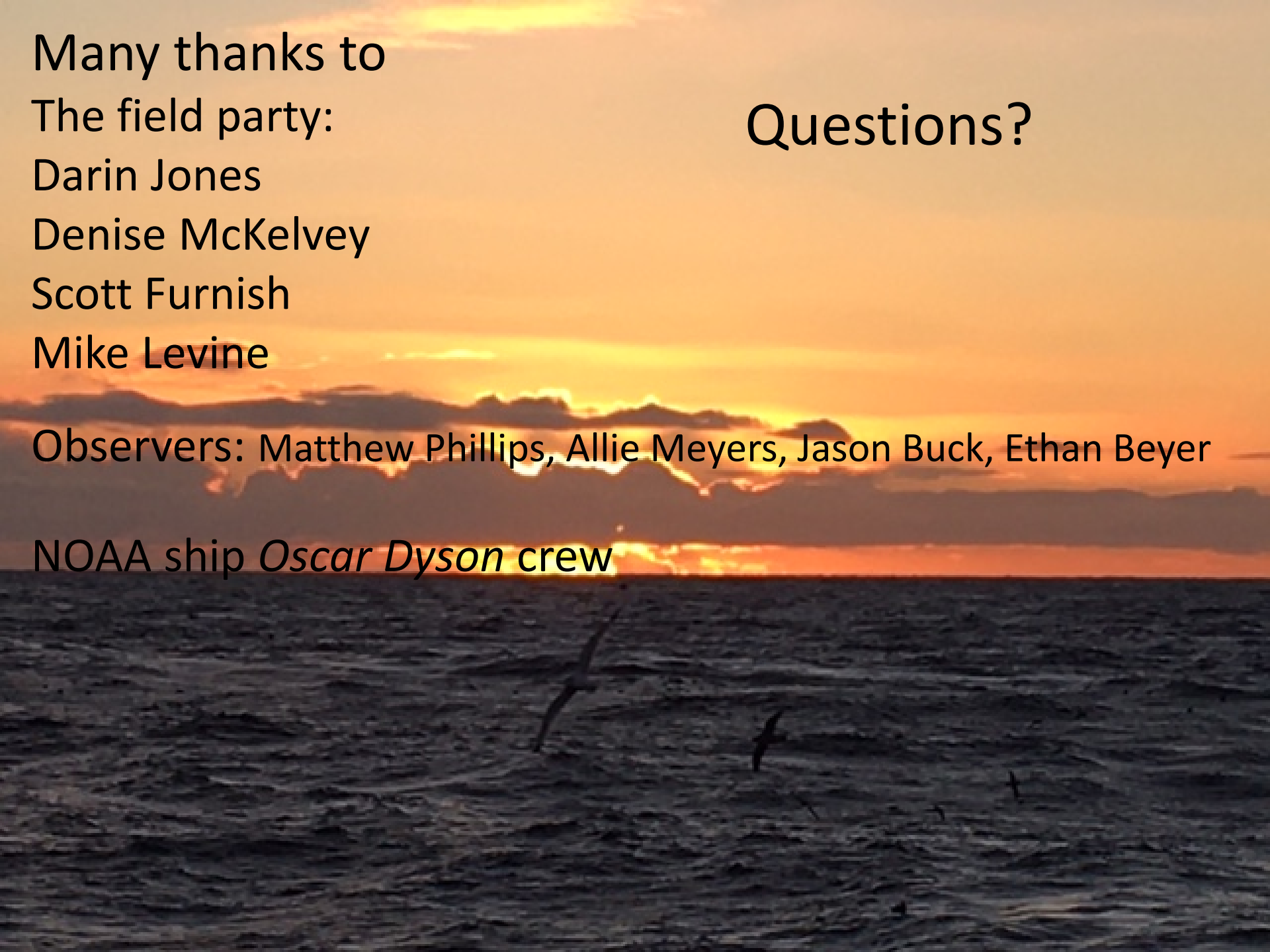
Scott Furnish

Mike Levine

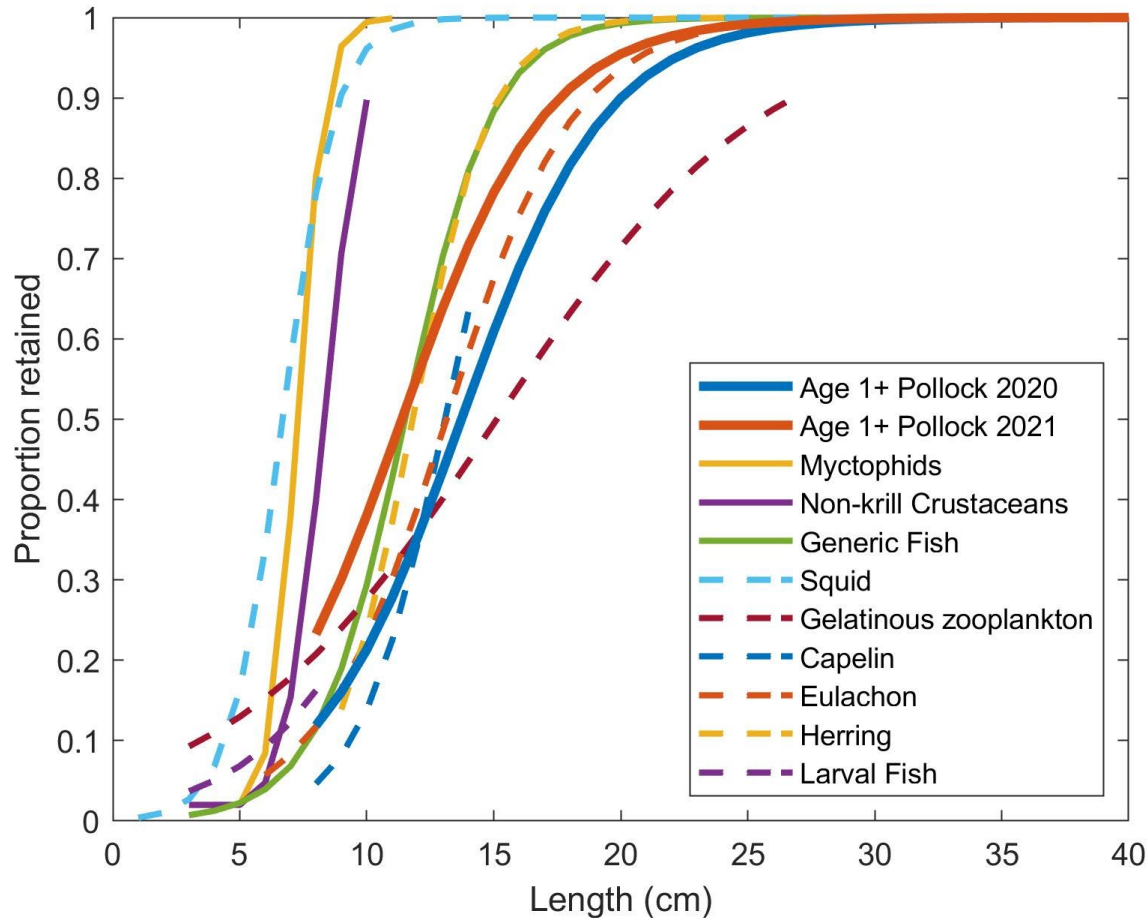
Observers: Matthew Phillips, Allie Meyers, Jason Buck, Ethan Beyer

NOAA ship *Oscar Dyson* crew

Questions?

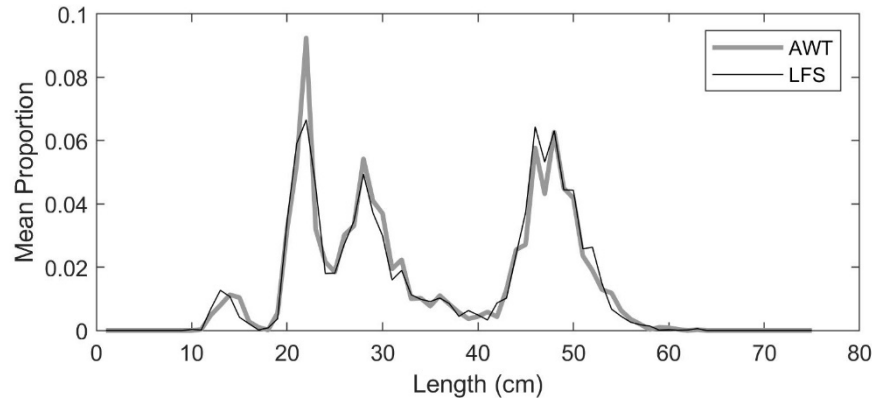


Note the difference between pollock curves for 2020 and 2021. There were very few age 1 pollock in 2020, resulting in low numbers in pocket nets, and a poor selectivity estimate. The large 2021 age 1 class resulted in a much higher signal, and a different selectivity estimate, which was used for the curve. For all other species, and groups the 2020 estimates were used.



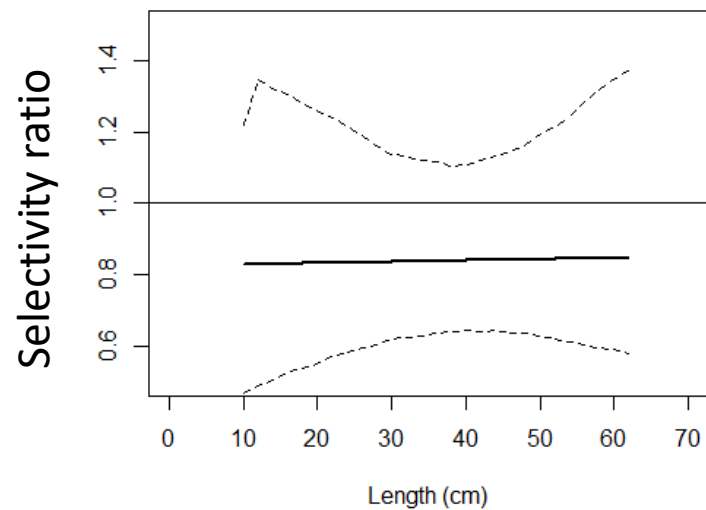
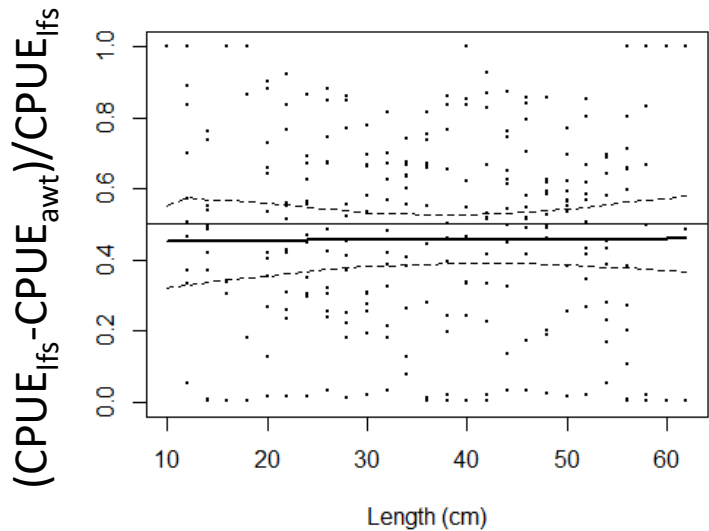
Trawl comparison experiments conducted in 2020 (12 pairs)

Average proportions for comparison trawls



Beta regression model comparing CPUE of the two trawls (AWT and LFS)

Flat lines indicate no apparent size bias in catches, although AWT had a higher CPUE





Net selectivity corrections

- Shelikof 2008-2018 corrected for pollock escapement
- Shelikof 2019 corrected eulachon & pollock
- Shelikof & Shumagins 2020 corrected for all species
- Shelikof and Marmot 2021
→ corrected for all species
→ 2021 updated selectivity for pollock