Gulf of Alaska SAFE report

Report of the
Gulf of Alaska Groundfish
Plan Team meeting
Sept12th-15th, 2017

GOA Plan Team Members

James Ianelli (chair)	AFSC/REFM
Jon Heifetz (co-chair	AFSC/ABL
James Armstrong	NPFMC
Ben Williams	**ADFG**
Nat Nichols	ADFG
Jan Rumble	ADFG
Dan Lew	AFSC/REFM
Chris Lunsford	AFSC/ABL
Sandra Lowe	AFSC/REFM
Paul Spencer	AFSC/REFM
Craig Faunce	AFSC/FMA
Obren Davis	AKRO

Stock Structure Template

- The Team recommended
  - Octopus and flathead sole for 2018
  - northern rockfish and Pacific cod for 2019, and
  - sculpins and thornyhead rockfish for 2020.

Other rockfish

- Multi-year examination of the potential to split the Demersal Shelf Rockfish (DSR) complex out of the Other Rockfish (ORX) complex GOA-wide
- Proposed due to differences in life history and availability or lack thereof, of the species to the trawl survey

Recommendations

- Move ahead with the author preferred Alternative 3a to split DSR species out of the ORX complex.
  - Need clear justification for how the Tier 6 method was selected before the November meeting.
- Redbanded rockfish should remain in the ORX complex
- Seeks clarification from the SSC and/or Council regarding whether the Council Stock Structure and Spatial Management Policy applies to the proposed changes to the other rockfish comple

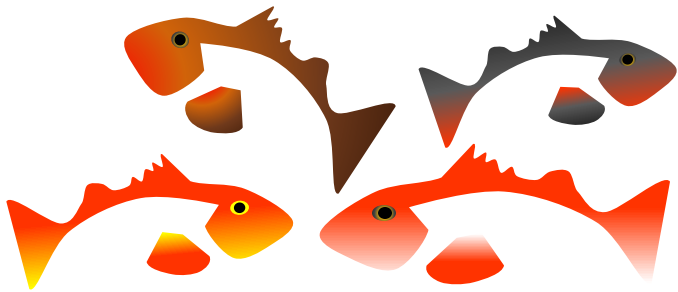
Skates

- Thomas Farrugia (PhD student) presented age-structured assessments longnose and big skates
- Tier 5 will continue to be applied for the upcoming specifications (2018 fishing year)
- Available for possible use in establishing the 2019 specifications

Pacific ocean perch

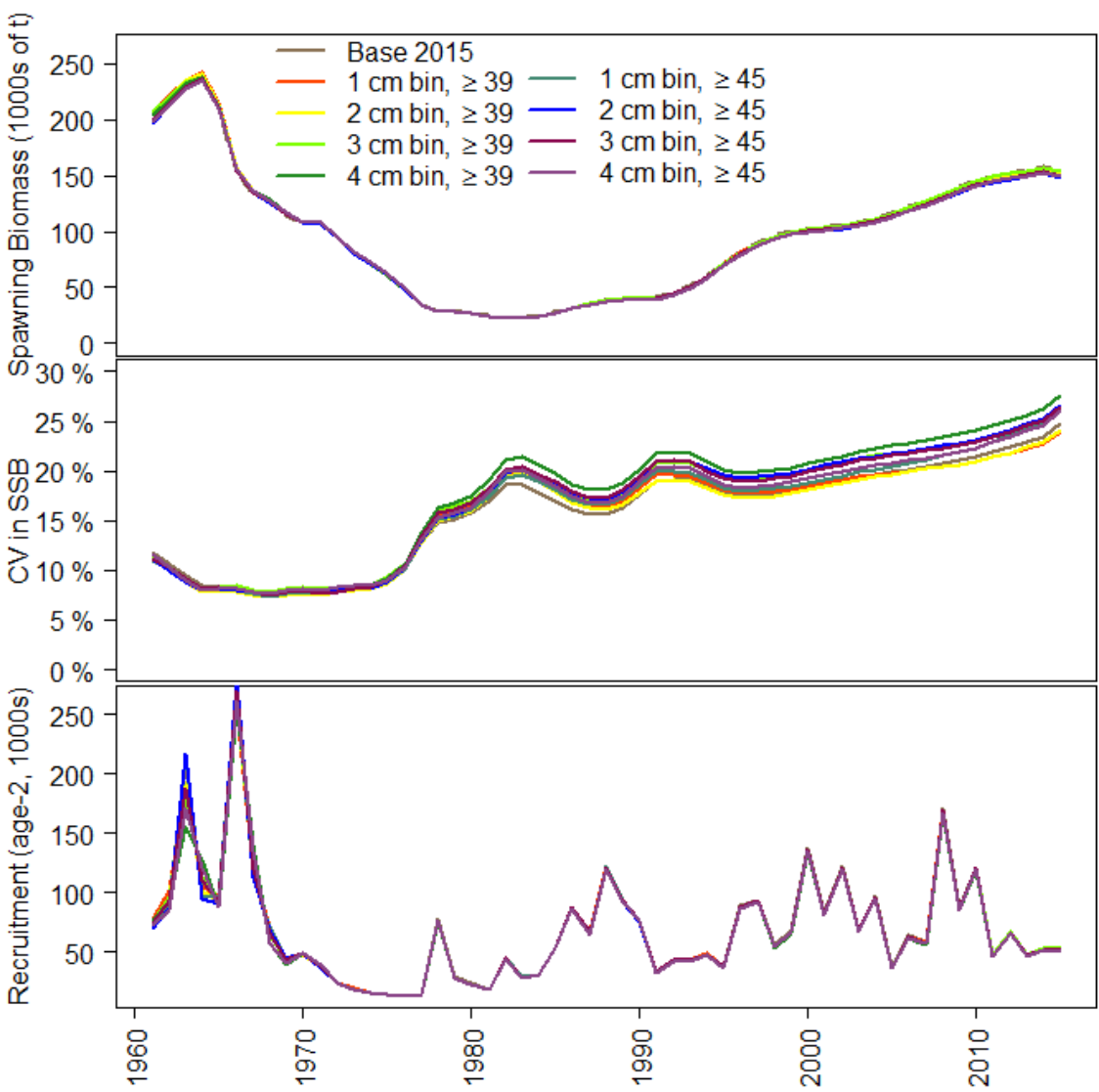
Four areas of research presented:

1. analysis of length composition data;
2. analysis of the input sample sizes used for age and length composition data;
3. analysis of fishery selectivity; and
4. analysis of a GLMM alternative to the design based estimates currently used for the bottom trawl survey index



POP: Length bin size and plus group analysis

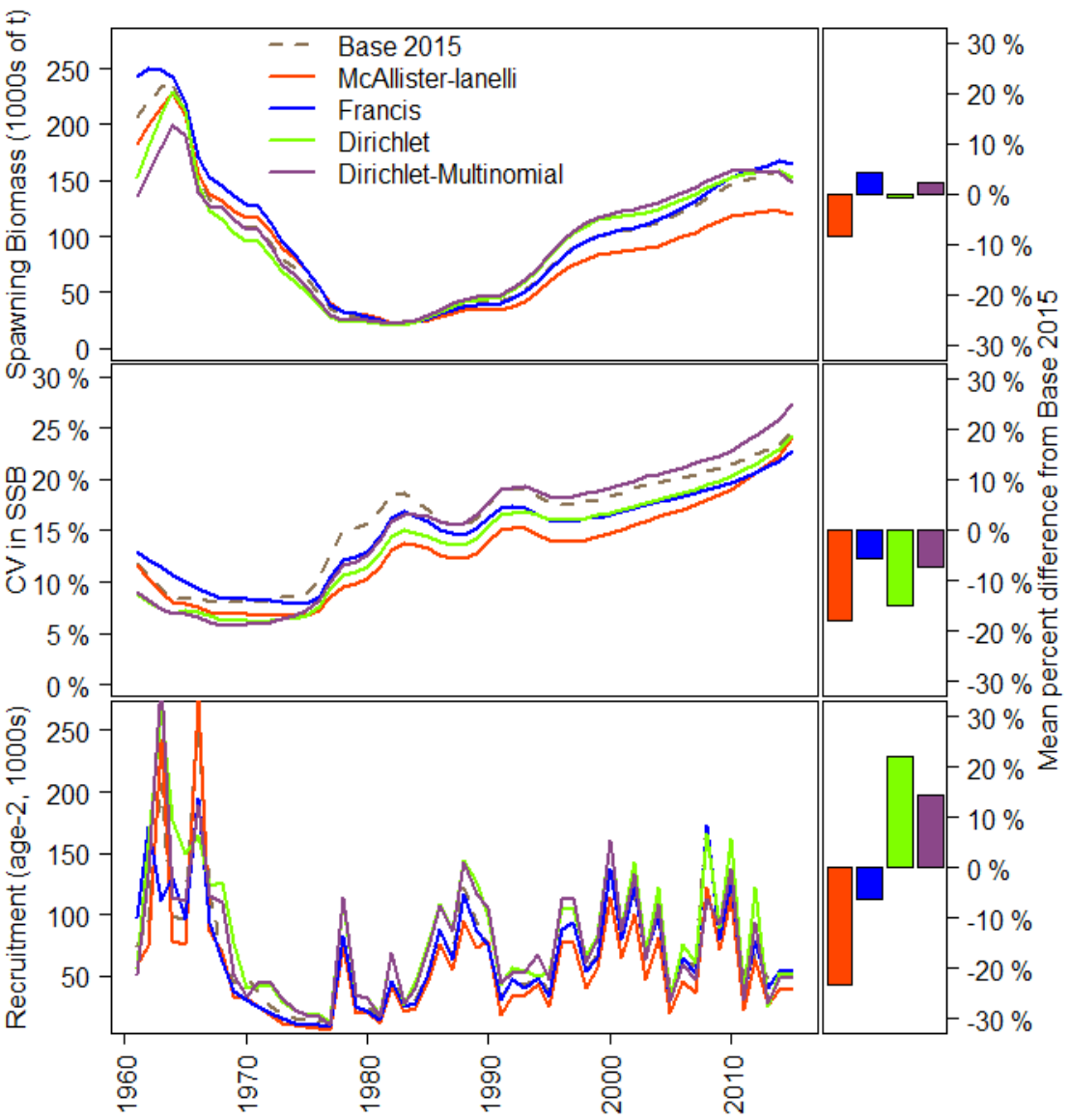
- Little biological justification to choose a specific bin interval because there were no significant effects of bin choice on the model results
- **The Team recommends 1 cm bin sizes using ≤16 cm as the starting bin and ≥45 cm as the plus length group.**



POP: Input sample sizes used for age and length composition data

Evaluating model performance statistics, the author suggested pursuing the Francis and Dirichlet-Multinomial methods for the November assessment.

The Team concurs with the author and recommends bringing forward the Francis and Dirichlet-multinomial methods for consideration in the November assessment.

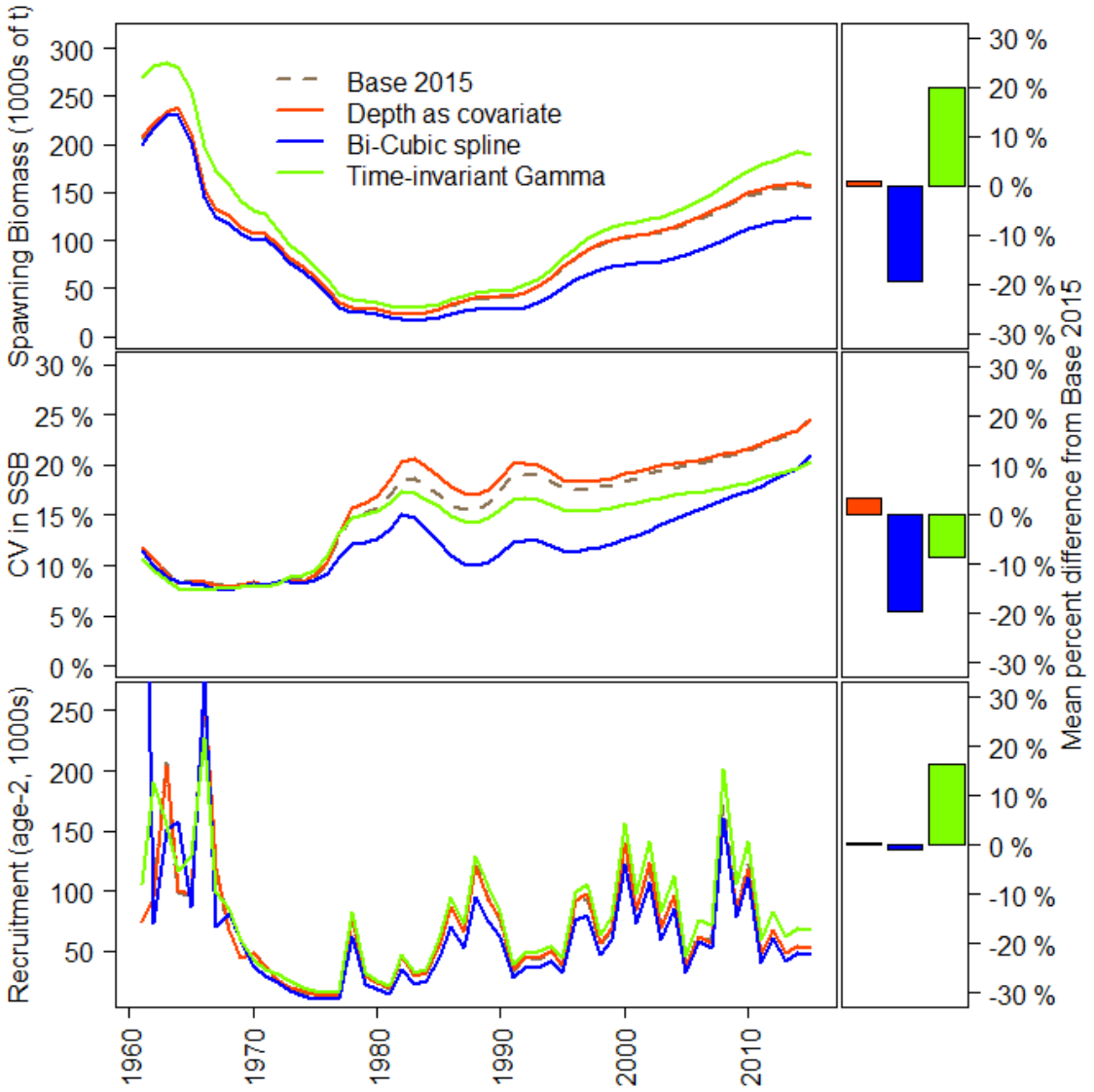


POP: Fishery selectivity

Three alternative configurations were compared:

1. A catch weighted average depth fished related as a covariate to the gamma parameter for slope,
2. A bi-cubic spline function and
3. A time-invariant gamma selectivity.

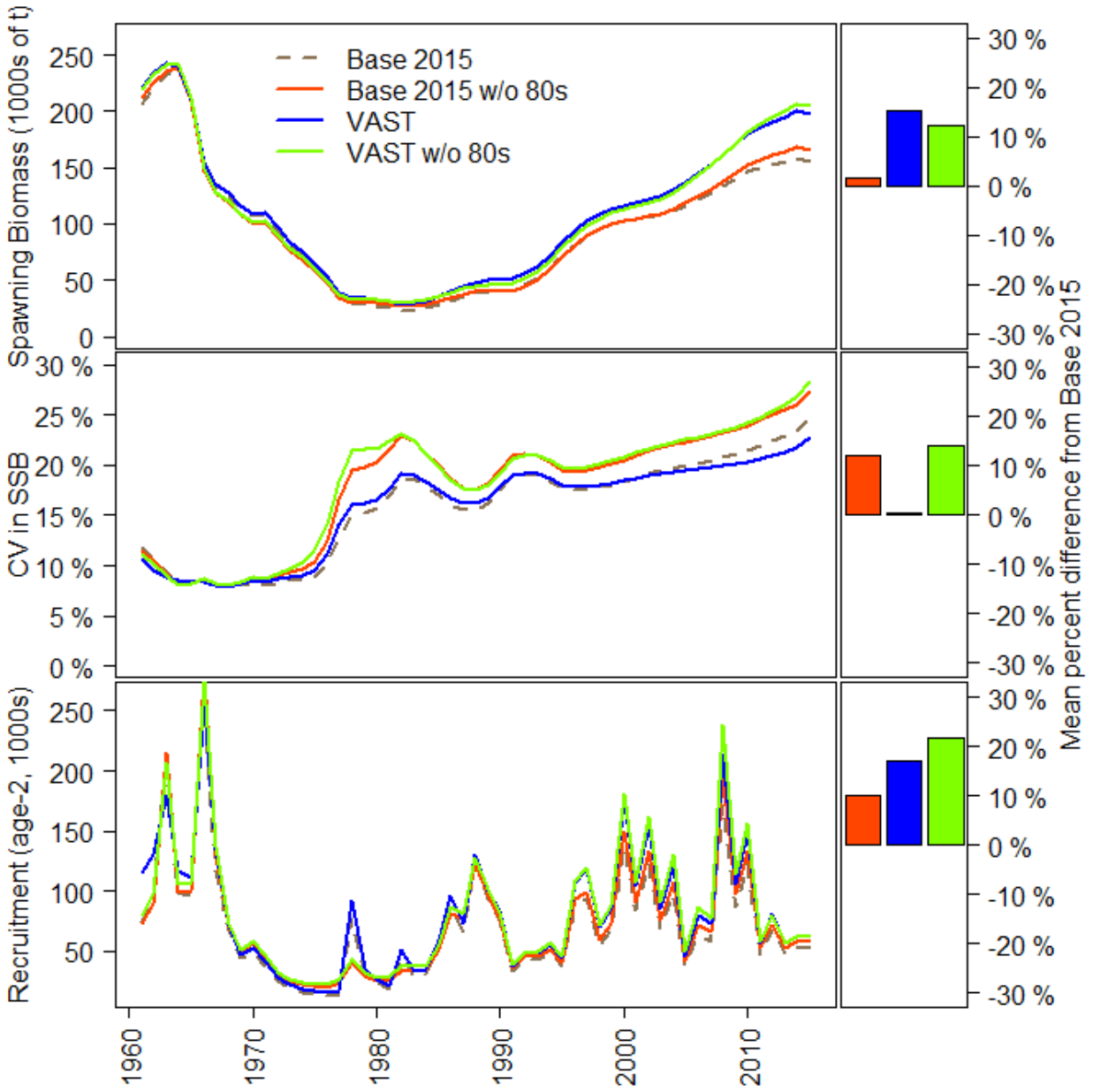
The Team concurs with the author and recommends bringing forward the gamma selectivity method for the November assessment.



POP: VAST/GLMM trawl survey index

The Team recommended continued design-based estimates for bottom trawl survey biomass

Case-by-case basis



POP: 84 and 87 surveys

- Many GOA assessments omit these surveys

- **The Team recommends bringing forward a model alternative in November that investigates dropping the 1984 and 1987 survey biomass estimates from the survey index but continuing to use the age compositions from these surveys**

DSR/yelloweye rockfish

- Density estimates for yelloweye rockfish increased in 2016 and 2017 so biomass has increased by ~50 t.

- Age-structured assessment has been delayed due to staffing changes and will be presented in 2018.

Pacific cod

Topics covered at September meeting (before survey data were available):

1. how to deal with length composition proportioning;
2. exploration of the VAST model for survey indices; and
3. an examination of temperature based catchability.

Pcod recommendations

- Work with state about linking state port sampling data with fish tickets for length compositions
- Continue with the design-based estimates
  - More work needed for VAST model
- Incorporating temperature based catchability interesting and “experimental”
  - More examination during a pending CIE review.

Rex sole

- Evaluated length data
- New data dramatically reduced F40% values from previous assessments
  - new selectivity curves closely match sexual maturity.
  - Growth estimates for this species needs updating

Rex sole

- The Team recommended to
  - include the new age data going forward based on the age-length keys specific to year, gear season.
  - Re-evaluate how growth affects model results.

Rock soles

- SS3.3 configured:
  - Sex-specific length based selectivity was estimated for the fishery and survey with a double normal patter
  - Asymptotic for both male and female.
- Corrected data being fit twice
  - 2015 model (15.1) and the modified model (15.2) had similar results
  - Suggest using the modified model for November
  - Consistent residual patterns for northern rock sole and southern rock sole for length composition data

Northern rock sole

- The Team recommends that some alternative data weighting methods be considered in addition to the current method of weighting by standard error to help alleviate the residual problems.

Southern rock sole

- The Plan Team recommends running both models 15.1 and 15.2b for the November meeting.
- The Team recommends looking at data weighting options and incorporating fishery age data as an input to the model for the future.

Arrowtooth flounder

- The Team agrees with the planned proposed work on data weighting, estimating the conversion matrix, and modeling natural mortality as a function of weight.

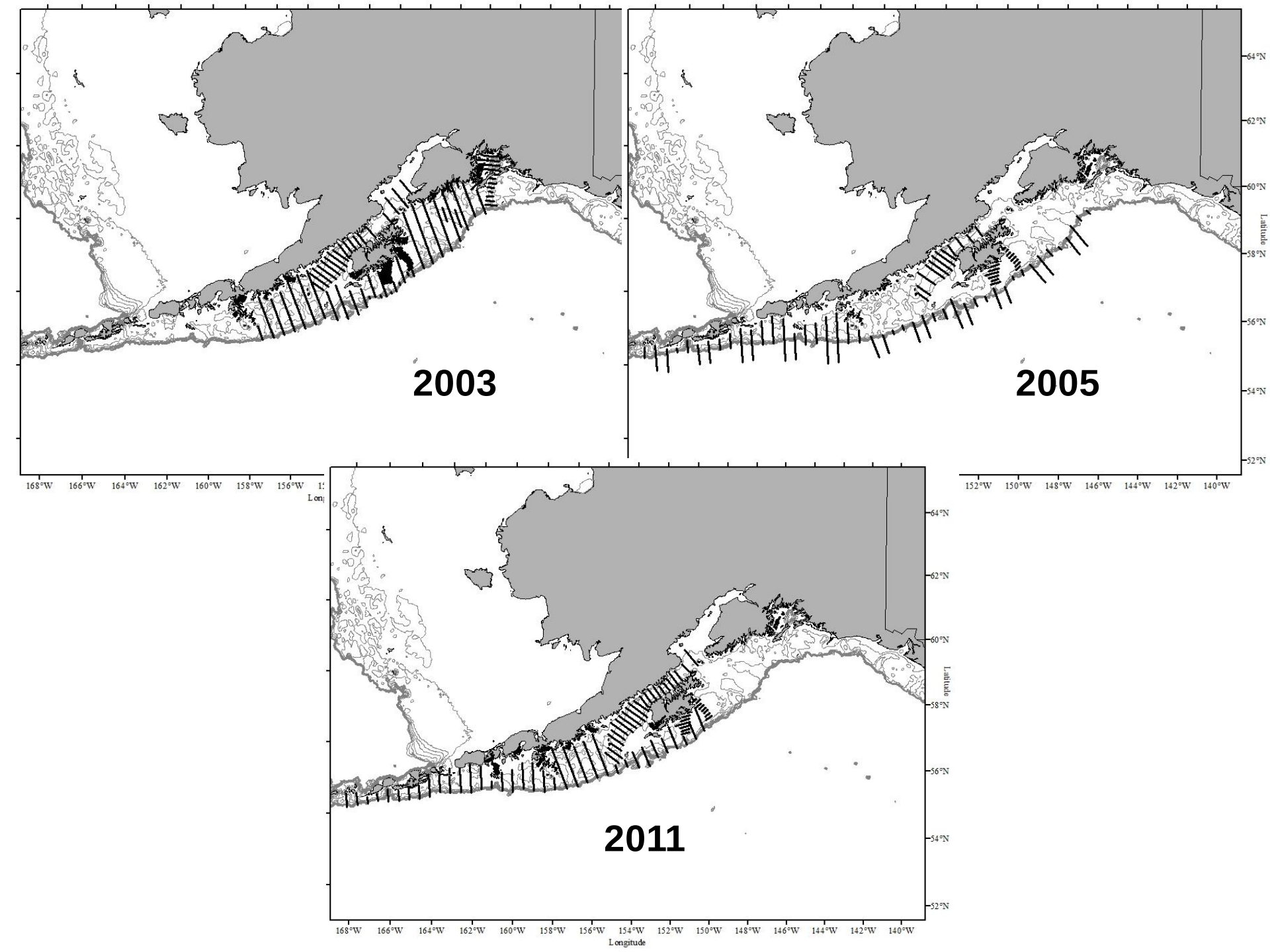
Walleye pollock

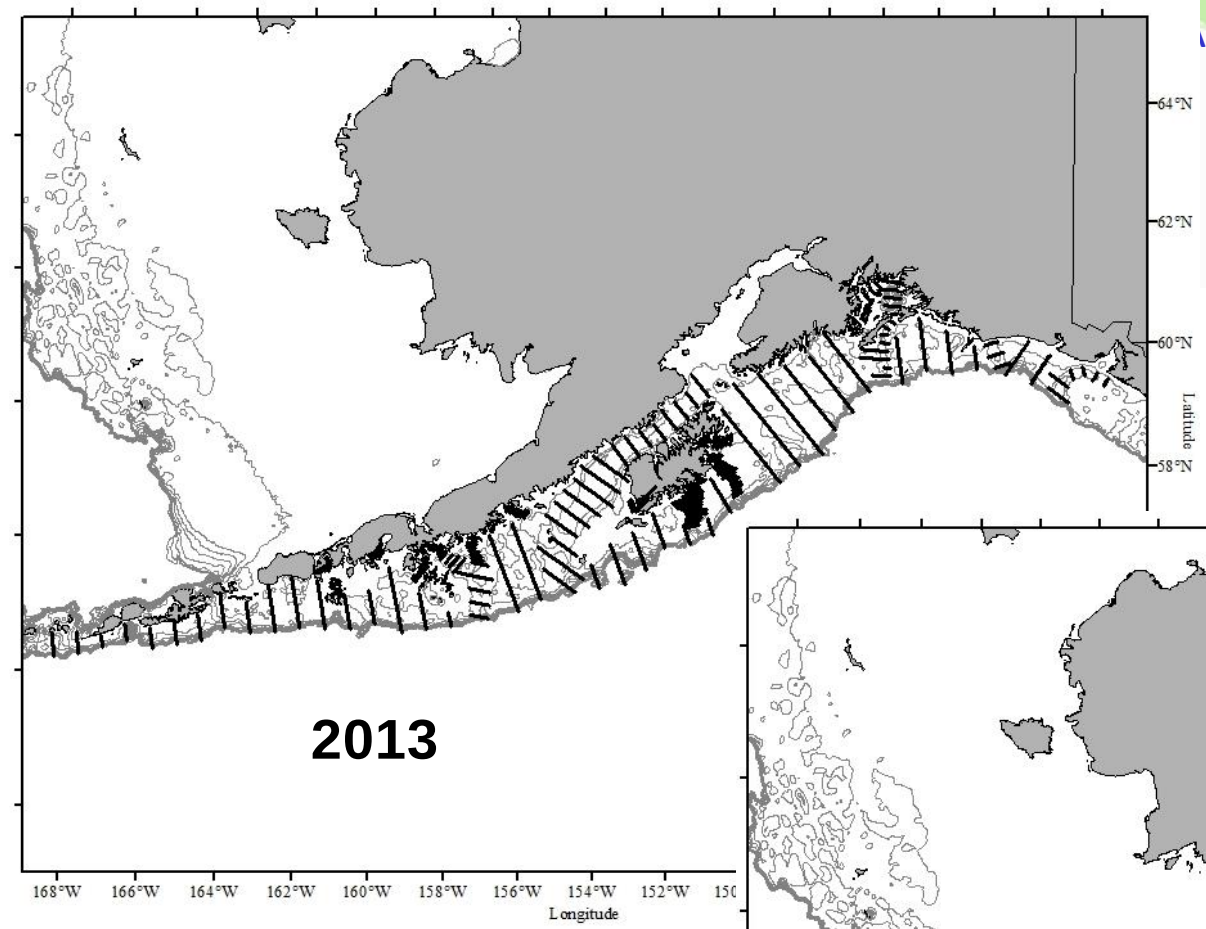
Summary of the CIE review that was conducted in May 2017

- An appendix expected in Nov describing responses
- Parallel version in Stock Synthesis
- Conflicting survey data:
  - Acoustic trawl surveys are up,
  - bottom trawl surveys down
  - Will examine survey catchability (/availability) changes

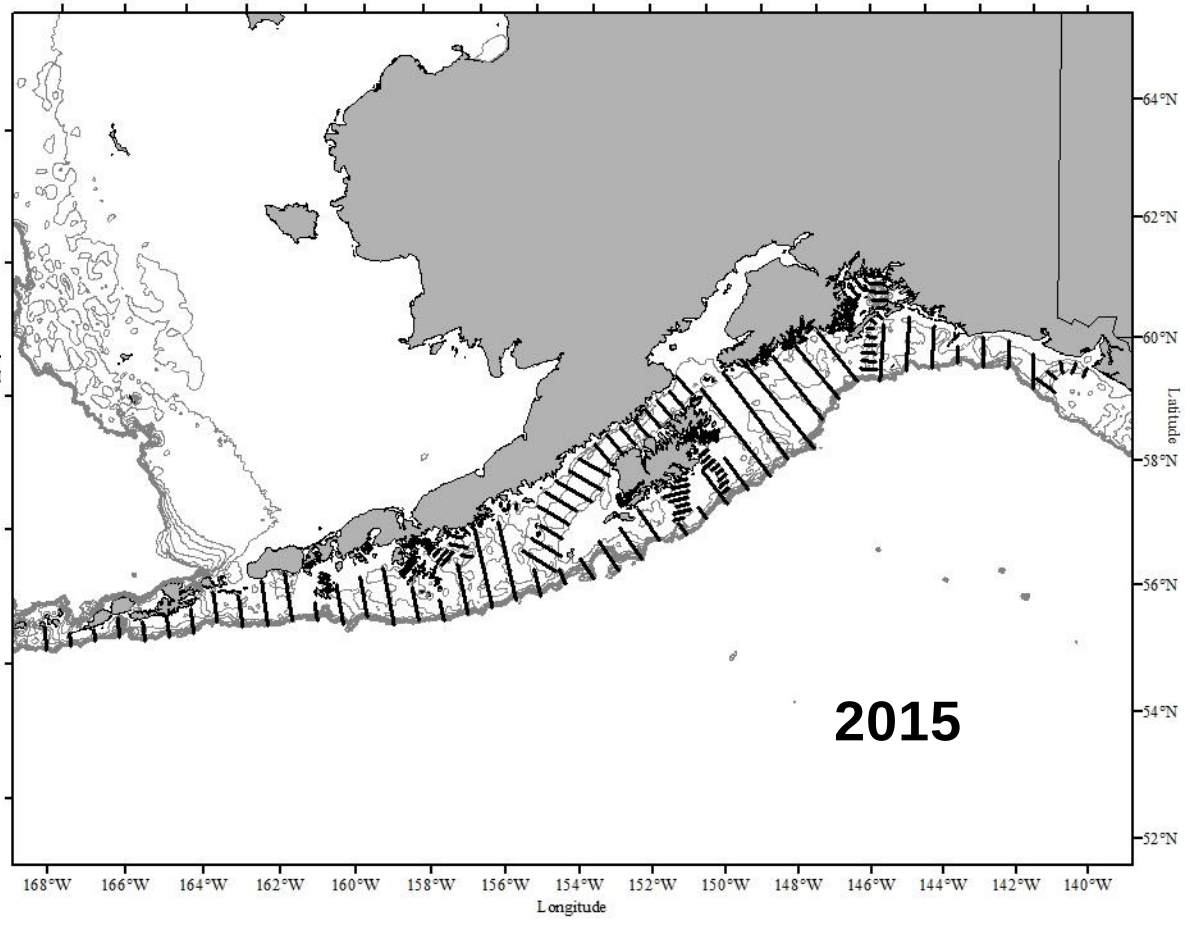
Summer surveys

- Acoustic trawls

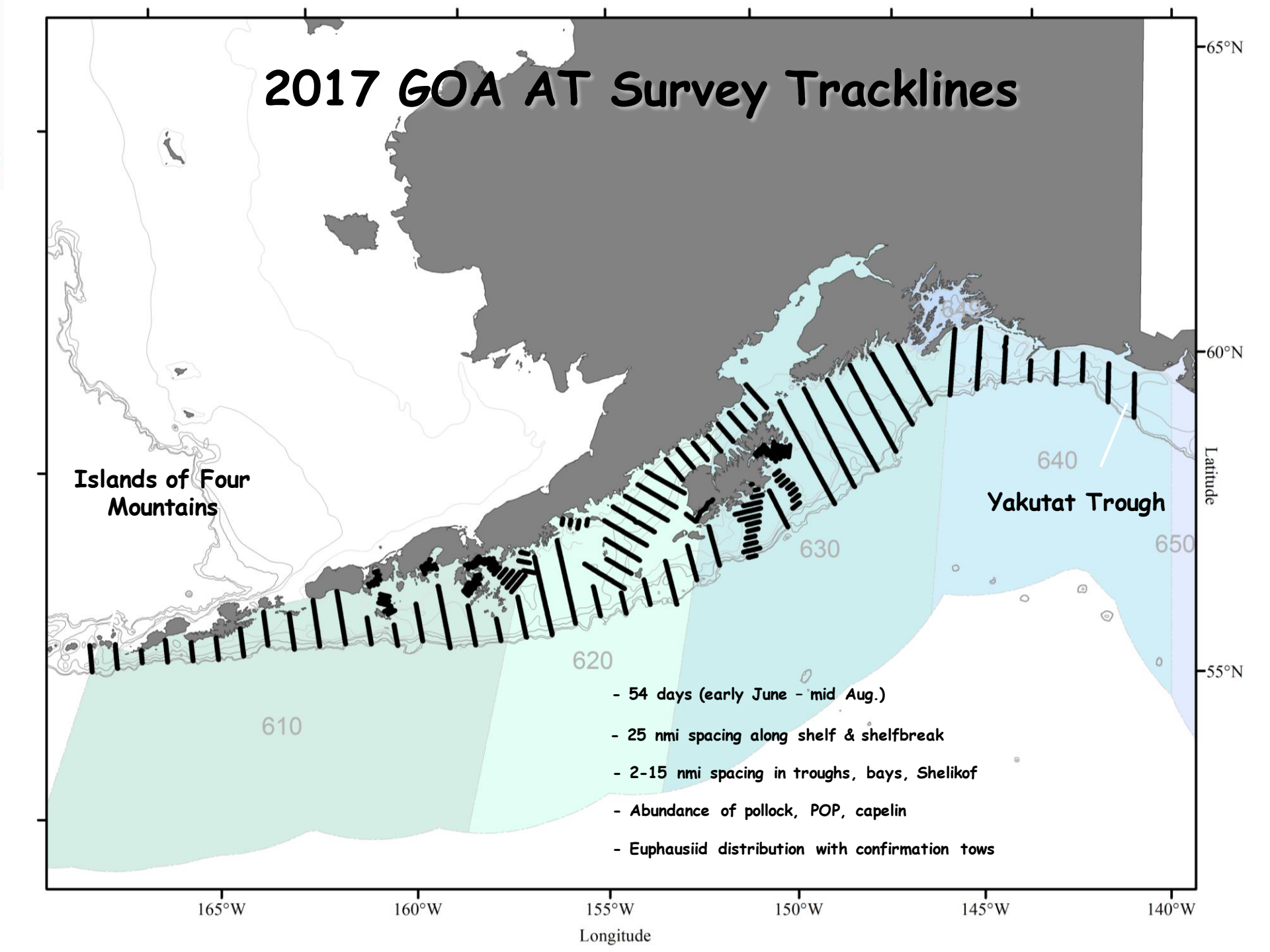

2003
2005
2011
64°N
62°N
60°N
58°N
56°N
54°N
52°N
Latitude
168°W
166°W
164°W
162°W
160°W
158°W
156°W
154°W
152°W
150°W
148°W
146°W
144°W
142°W
140°W
Longitude

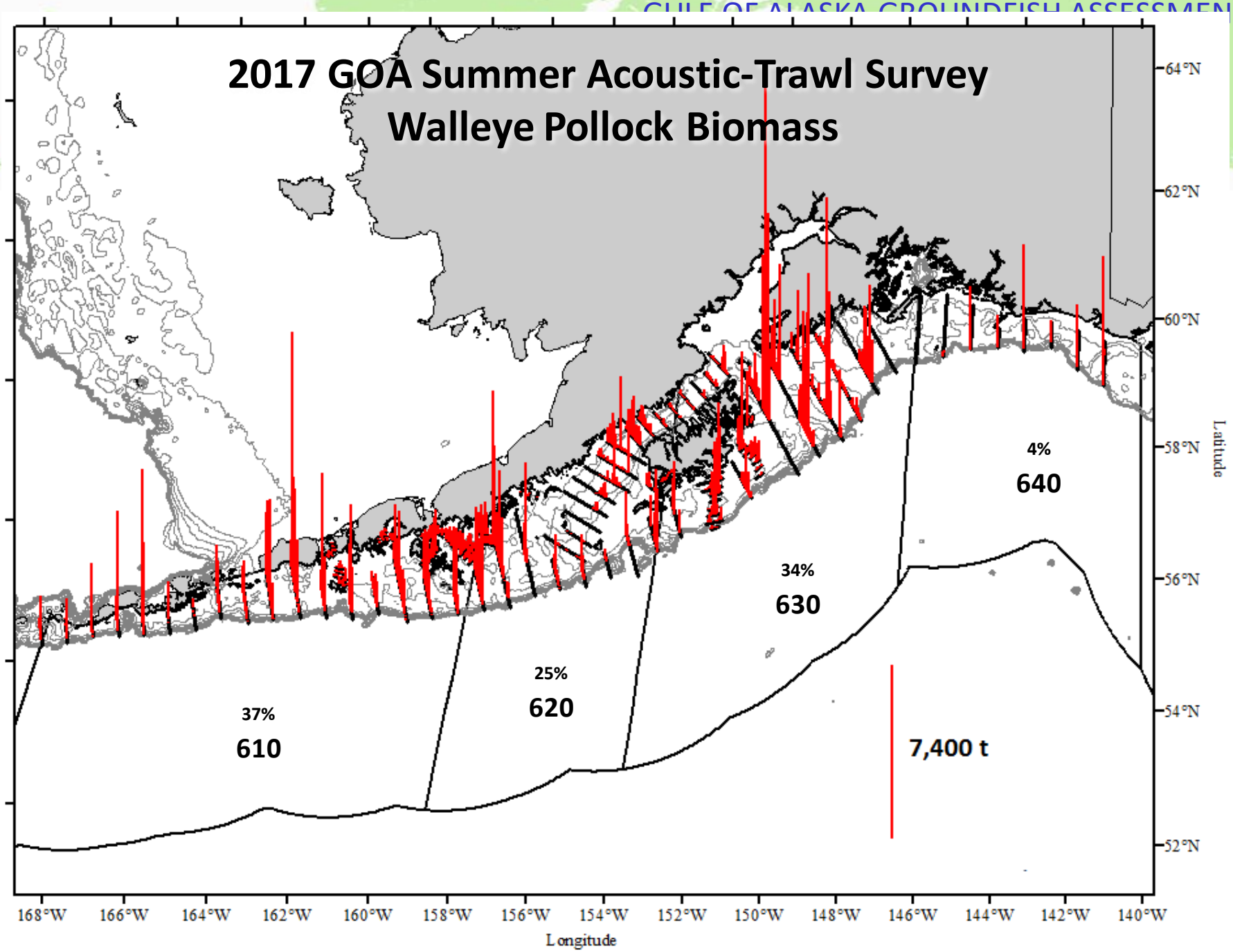

64°N
62°N
60°N
58°N
Latitude
168°W
166°W
164°W
162°W
160°W
158°W
156°W
154°W
152°W
Longitude

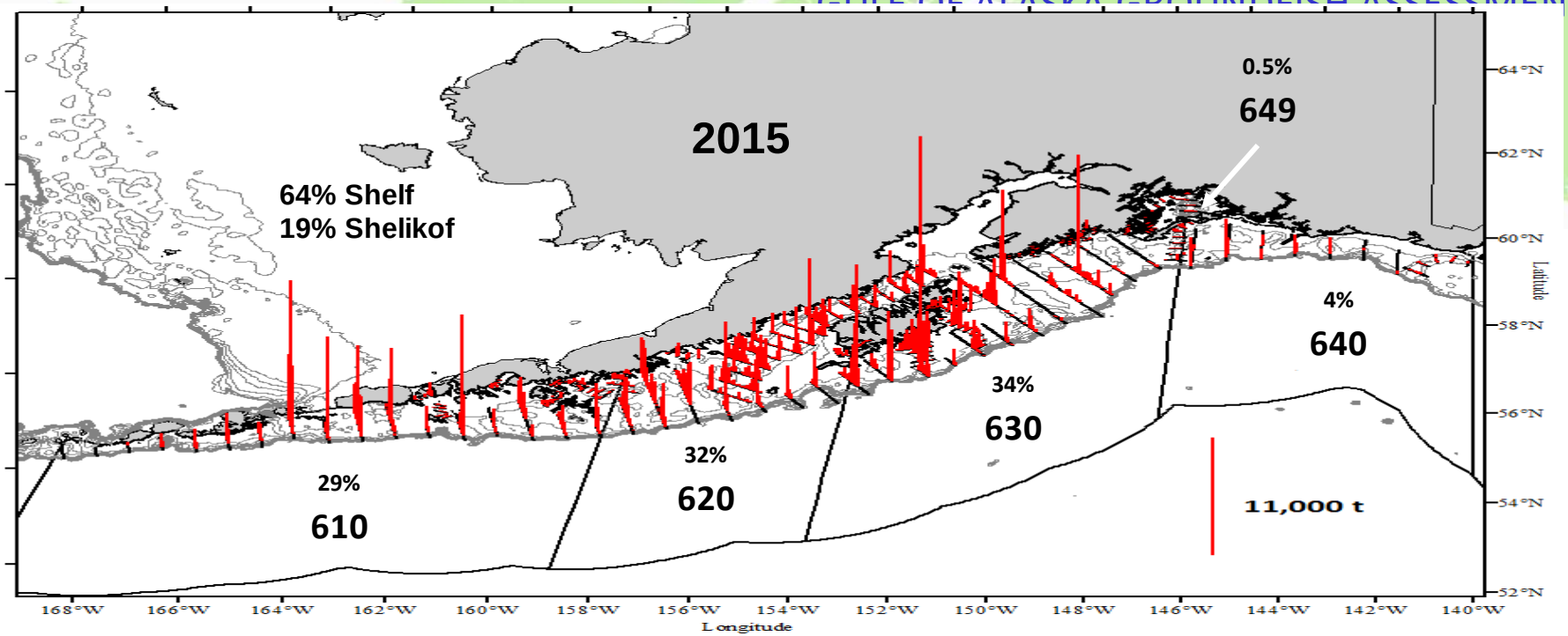
2013

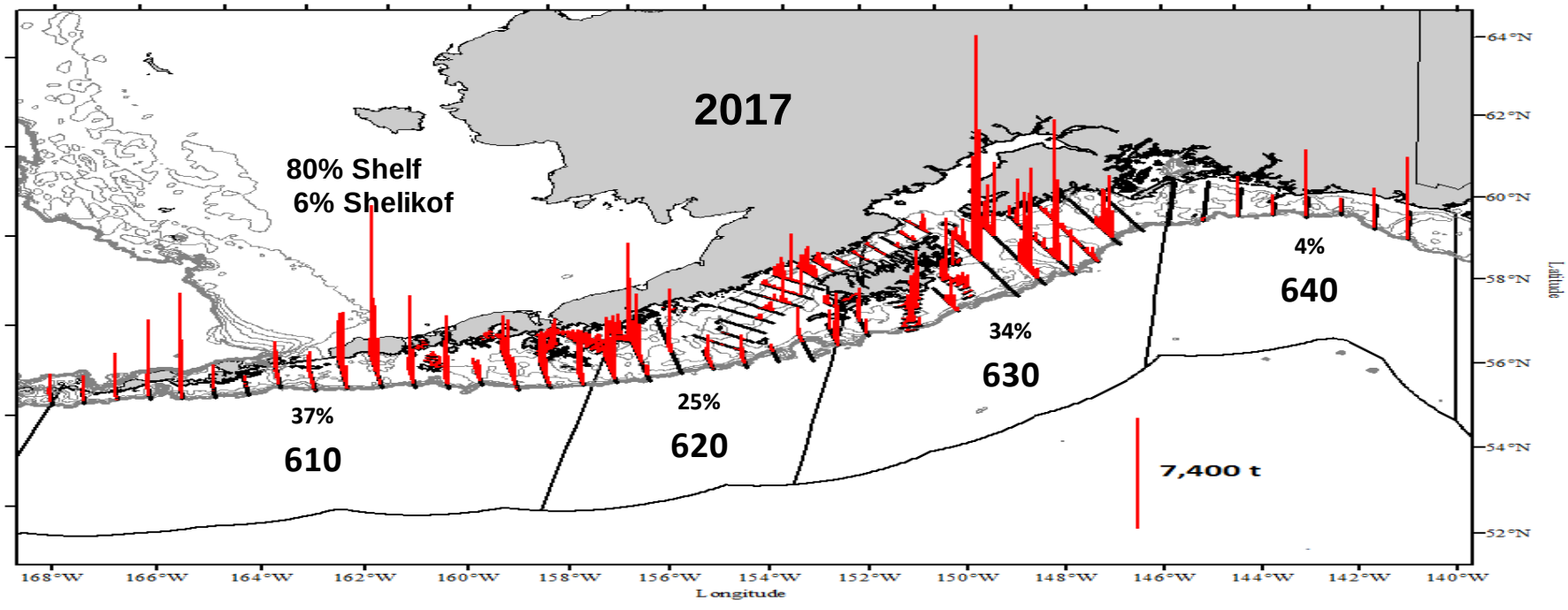

64°N
62°N
60°N
58°N
56°N
54°N
52°N
Latitude
168°W
166°W
164°W
162°W
160°W
158°W
156°W
154°W
152°W
150°W
148°W
146°W
144°W
142°W
140°W
Longitude

2015

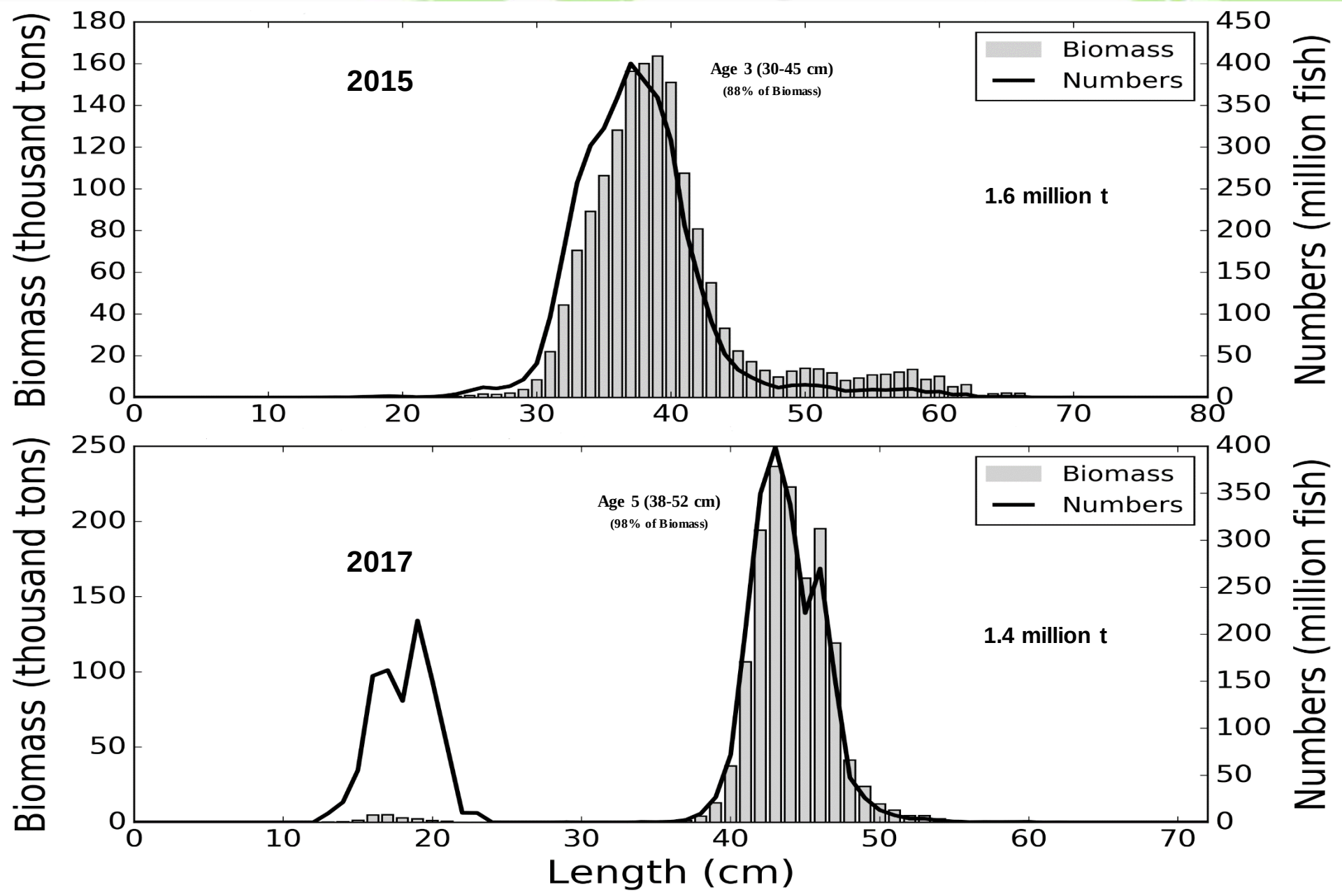

2017 GOA AT Survey Tracklines
Islands of Four Mountains
Yakutat Trough
610
620
630
640
650
- 54 days (early June – mid Aug.)
- 25 nmi spacing along shelf & shelfbreak
- 2-15 nmi spacing in troughs, bays, Shelikof
- Abundance of pollock, POP, capelin
- Euphausiid distribution with confirmation tows
65°N
60°N
55°N
Latitude
165°W
160°W
155°W
150°W
145°W
140°W
Longitude


2017 GOA Summer Acoustic-Trawl Survey
Walleye Pollock Biomass
37%
610
25%
620
34%
630
4%
640
7,400 t
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

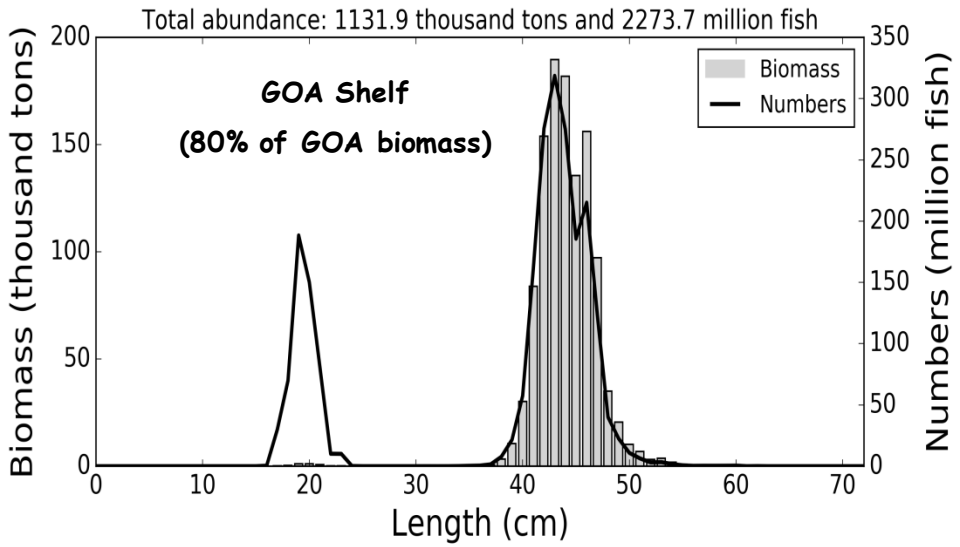

2015
64% Shelf
19% Shelikof
0.5%
649
4%
640
34%
630
32%
620
29%
610
11,000 t
64 °N
62 °N
60 °N
58 °N
56 °N
54 °N
52 °N
Latitude
168°W
166°W
164°W
162°W
160°W
158°W
156°W
154°W
152°W
150°W
148°W
146°W
144°W
142°W
140°W
Longitude

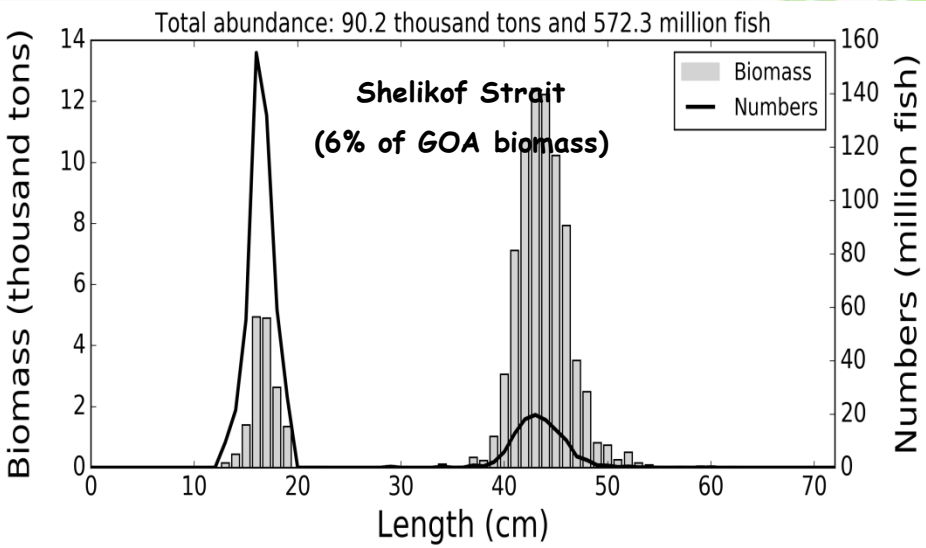

2017
80% Shelf
6% Shelikof
4%
640
34%
630
25%
620
37%
610
7,400 t
64 °N
62 °N
60 °N
58 °N
56 °N
54 °N
52 °N
Latitude
168°W
166°W
164°W
162°W
160°W
158°W
156°W
154°W
152°W
150°W
148°W
146°W
144°W
142°W
140°W
Longitude

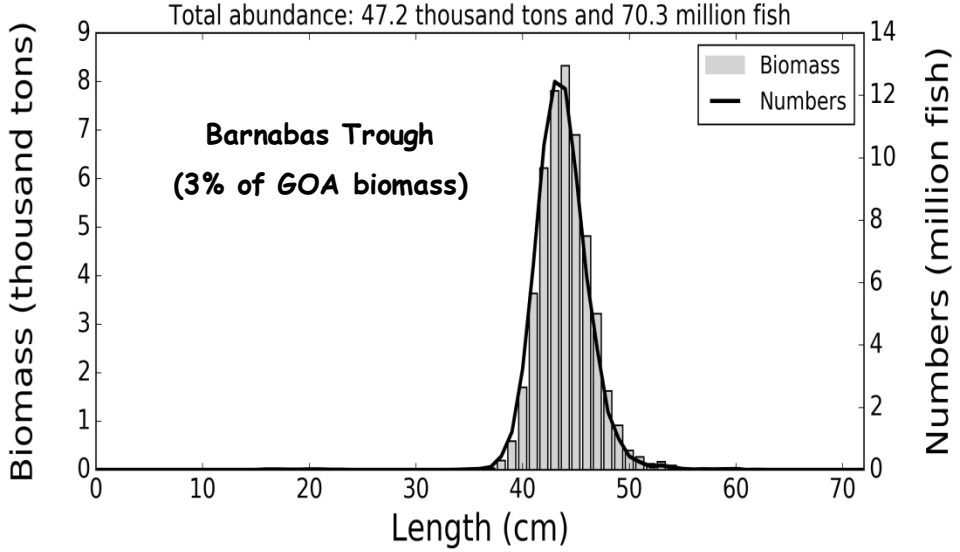
Gulf-Wide Pollock Length Distribution

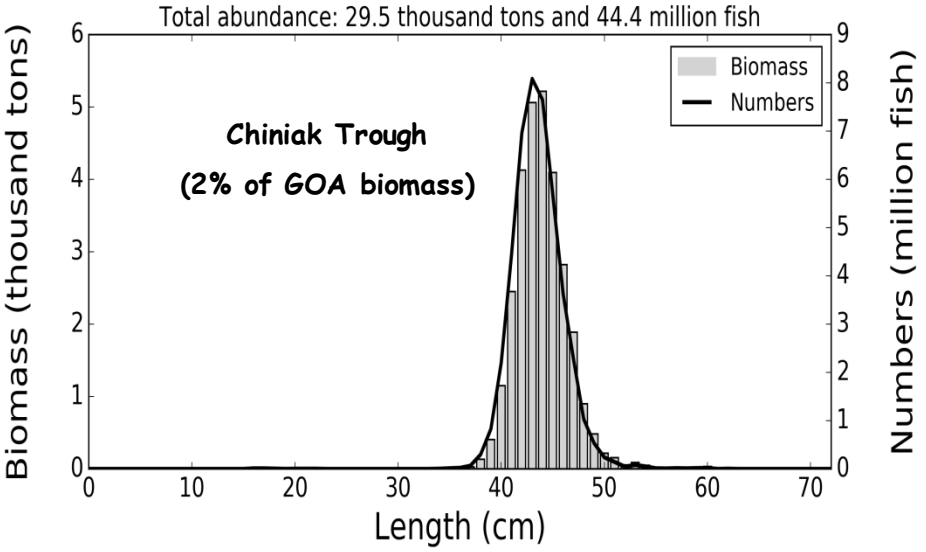


2017 Summer GOA Pollock Length Distributions

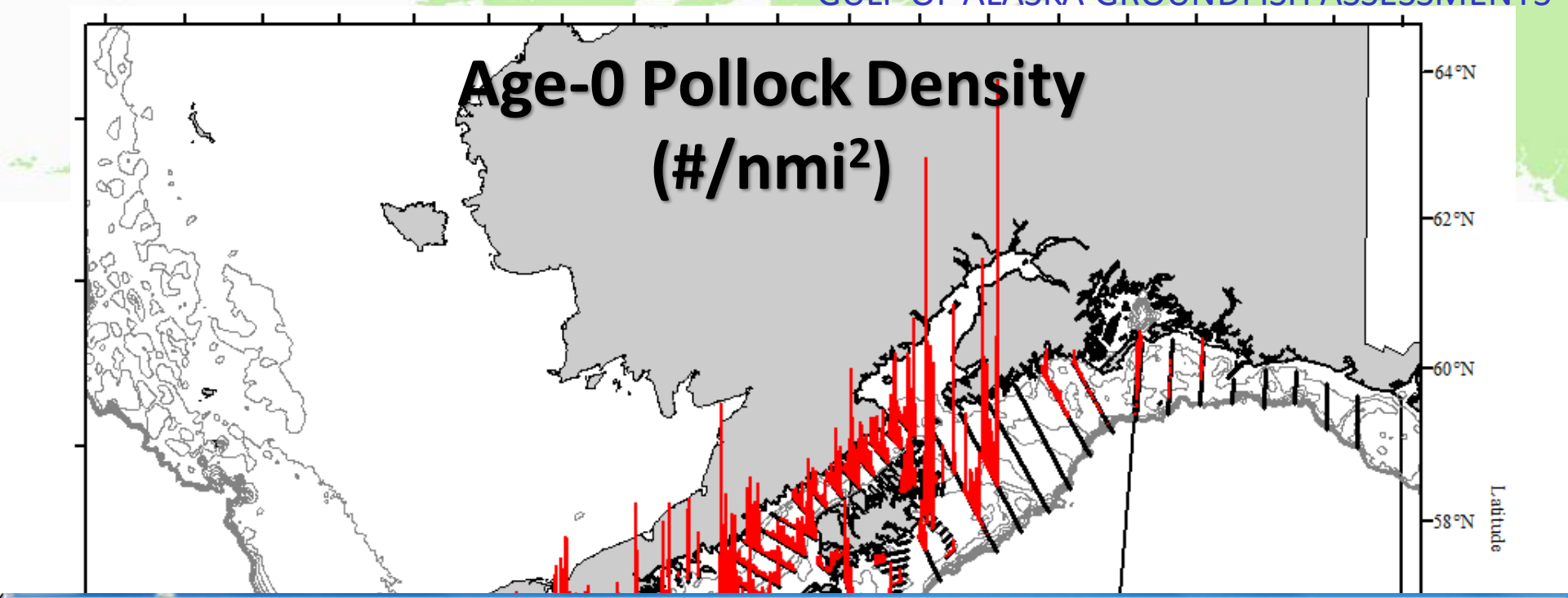


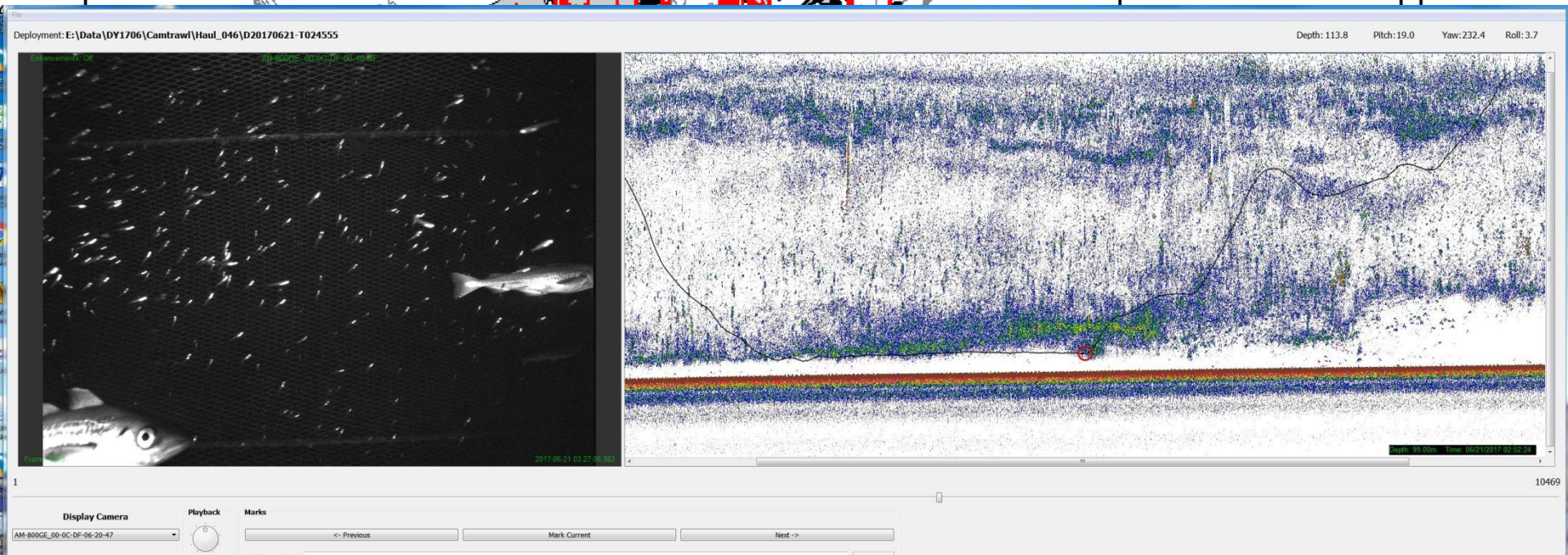




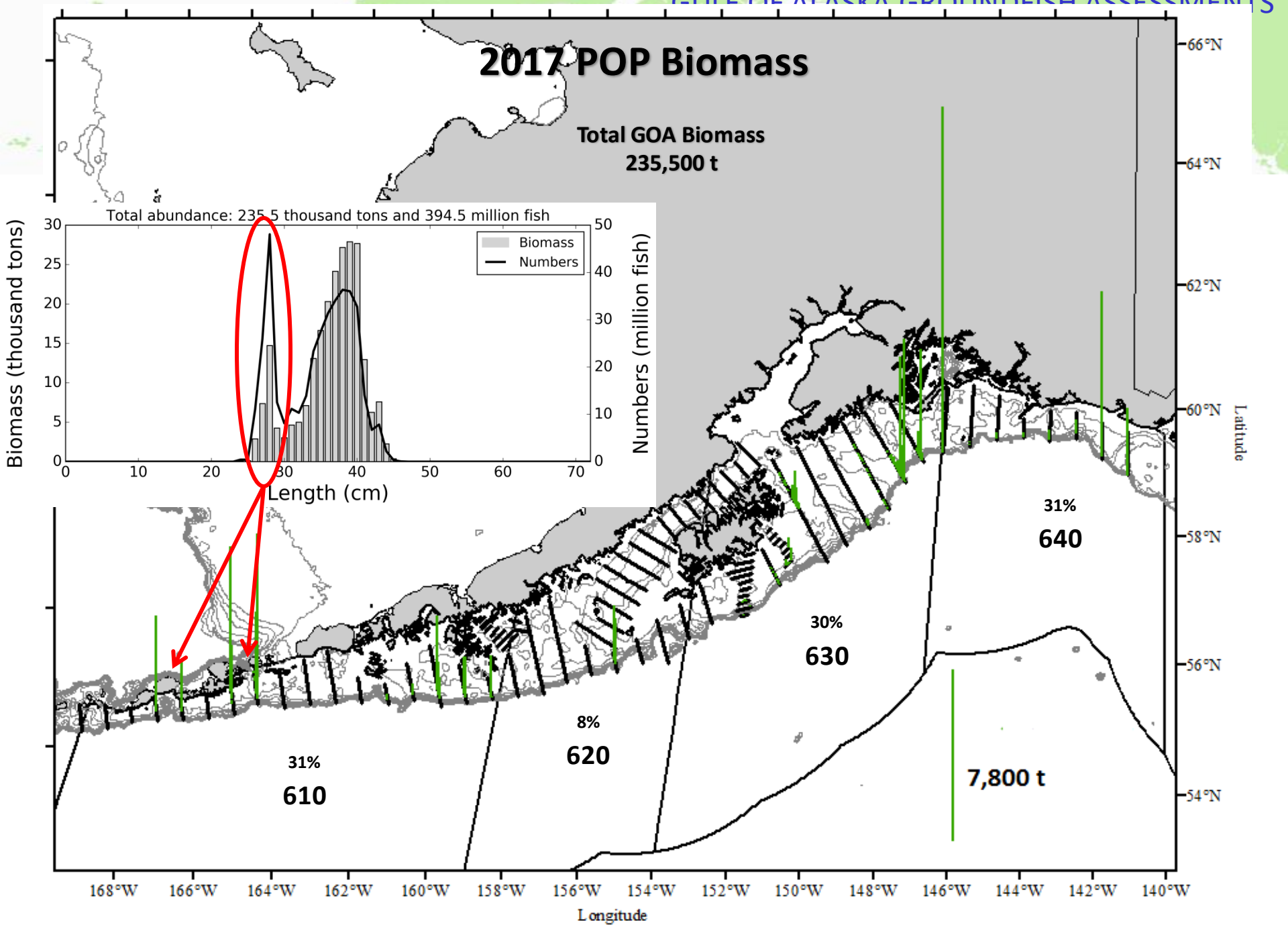


Age-0 Pollock Density (#/nmi²)





2017 POP Biomass



GOA climate science regional action plan

- Climate science Regional Action Plan (RAP) for the GOA. which is based on EBFM roadmap (HQ).
- Martin Dorn leading diverse group charged with the development of the GOA RAP

RAP Projected main changes in climate in the GOA

- Increases in temperature and ocean acidification, changes in dissolved oxygen (oxygen limitation), and changes in ocean circulation and stratification.
- Will affect the species we manage and we need to develop robust management policies

RAP activities

- The AFSC Climate Science Strategy has 4 areas of activity:
  - Long-term monitoring
  - Process studies
  - Risk assessment
  - Modeling climate impacts and management scenarios

AFSC research tends to contribute to these 4 areas.

- OY range for GOA
- Biological reference points for status determination
- Community level social and economic impacts of climate change.

Other issues

General concern about drop in survey coverage

(530 stations instead of 850)

Team vacancies

- WDFW
- Marine Mammal expert
- USFW (Seabird expert)
- IPHC and
- NMFS Headquarters

Harvest specifications for 2018/2019

- The Team recommended rolling over the 2018 GOA final harvest specifications for OFLs and ABCs (as published in the Federal Register in February 2017) for the proposed 2018 and 2019 OFLs and ABCs
  - Survey indications from 2017 were unavailable