federal

Alaska Sablefish

DANA HANSELMAN
CHRIS LUNSFORD
CARA RODGVELLER
MEGAN PETERSON

Outline

- Frequently asked questions
- Whale depredation
- Stock status
- Tag report
- Pots
- Logbooks
- Questions

Shameless plug

Black Cod Almanac

MESA Program, Auke Bay Laboratories, NMFS, Juneau, AK January 2017

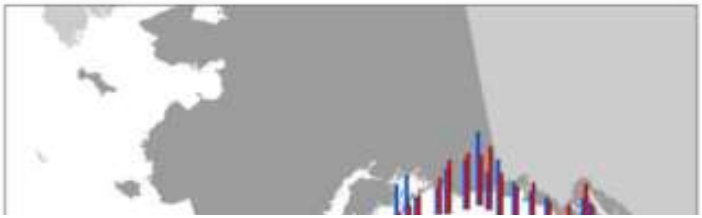
Greetings!

We hope this New Year finds you in good health and thinking about the upcoming fishing season. This is the 4th installment of the Black Cod Almanac which we started to improve communication and increase dialogue between scientists and members of the industry. The intent is to provide updates on relevant research, summarized highlights of both Groundfish Plan Team and the North Pacific Fishery Management Council meetings, and news that may be of interest to those involved with the federal sablefish fishery. Please feel free to pass on, or send us email addresses of others who may appreciate receiving these newsletters.

2016 NMFS Longline Survey

The 2016 NMFS longline survey sampled waters throughout the entire Gulf of Alaska (GOA) and in the Eastern Aleutian Islands, from June 2016 – August 2016. During the survey catch is recorded, a subset of sablefish otoliths is collected for age reading, sablefish are lengthed, and a subset of sablefish are tagged for movement research. The results of this survey are the most influential data source used in the sablefish assessment model, which estimates spawning biomass and is used to set harvest limits.

- LL Survey Relative Population Numbers (RPNs; area weighted measures of the numbers of fish) were up from 2015 in the western GOA and the Aleutian Islands combined (by 75%), and in the central GOA (by 6%). The eastern GOA was down (5%).



Frequently asked questions

- Quota is UP?? Is there really some good recruitment coming?
- What about pots?
- How did you make the whale corrections this year?
- We're glad you are accounting for whales but it's not high enough.
- What is with the fixed apportionment?

Sablefish CIE 2016

- Independent review of the assessment
- May 10 – 12, Auke Bay Labs, Juneau
- May 27: Consensus recommendations
- July 27: Individual CIE reports
- September Plan Team: Responses to consensus recommendations, some preliminary model responses
- November Plan Team: Presented 8 new models that addressed the major recommendations of the CIE

CIE Results

- *"The outstanding negative feature of the model is that it provides unrealistically precise estimates of stock biomass…"*
- "*Of the many stock assessments that I have reviewed this was arguably the most comprehensive, supported by excellent data and subject to careful consideration of alternative modelling assumptions."*
- Endorsed our methods for accounting for whale depredation
- Considered apportionment unlikely to be biologically important, but recommended continued research into spatial models to test strategies.

Whale depredation and the sablefish stock assessment (Models 16.1 – 16.5)

Sperm whale and killer whale depredation

Visser 2000

SEASWAP

Outline

Model 16.1:

Longline survey abundance index

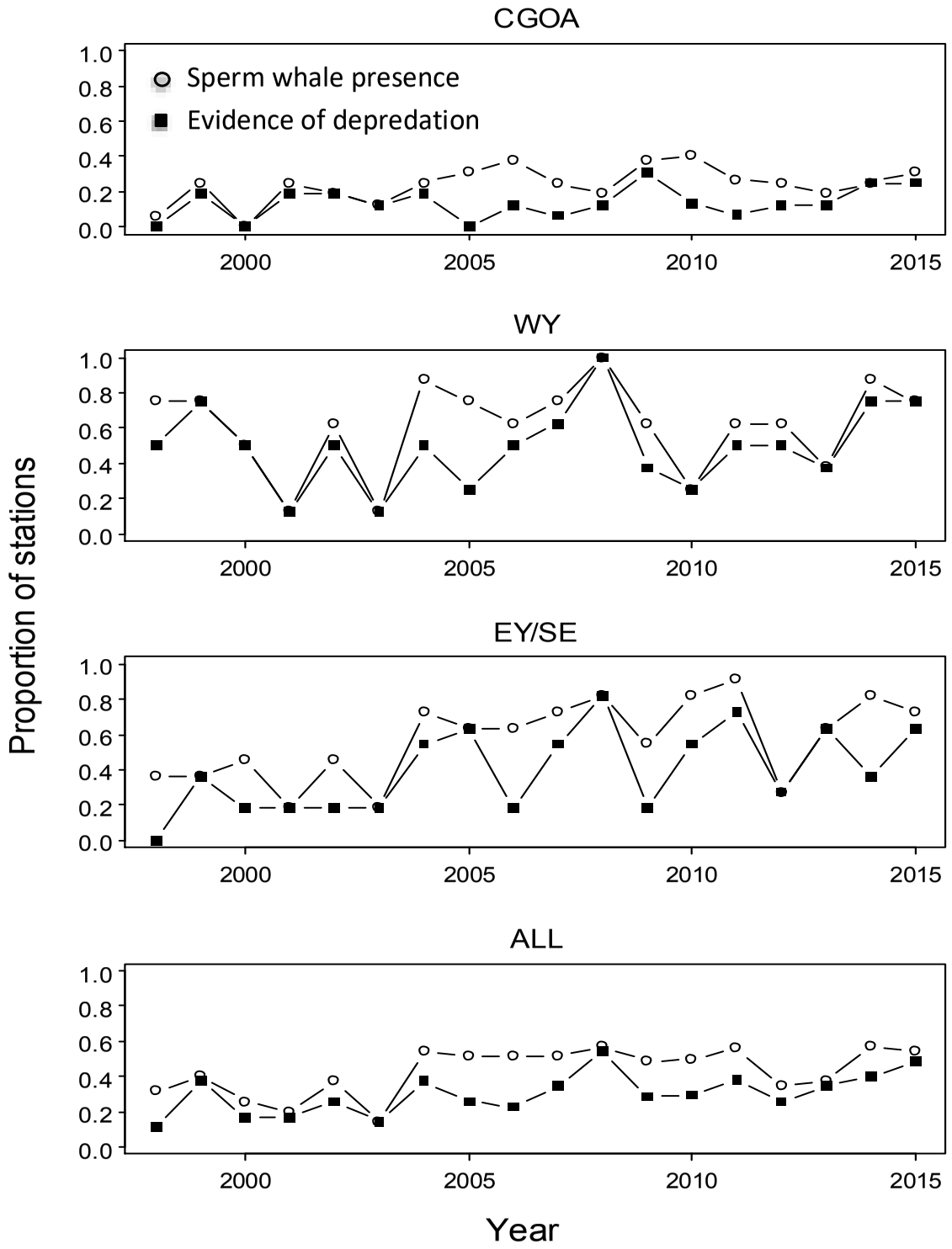
Model 16.2:

Commercial fishery depredation

Model 16.3:

Both corrections applied

Model 16.1: Longline survey abundance index



Increasing trend presence

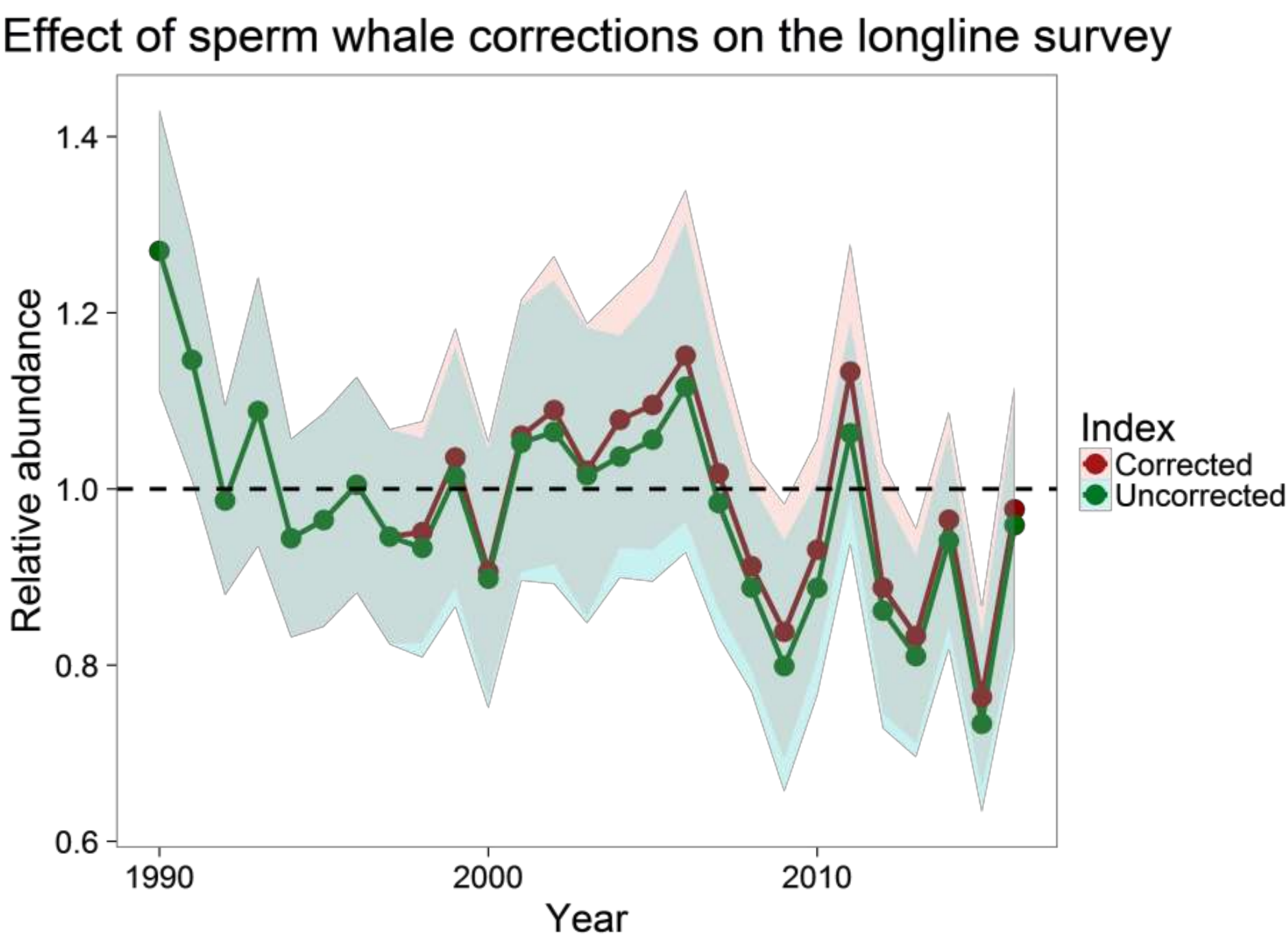
Increasing trend presence & evidence

Increasing trend presence & evidence

Results con't….

- 12% CPUE reduction across areas (95% CI: 6% - 18%) at stations where there was evidence of depredation

*Evidence flag desirable but presence still a useful/practical proxy for depredation


Effect of sperm whale corrections on the longline survey
Relative abundance
1.4
1.2
1.0
0.8
0.6
1990
2000
2010
Year
Index
Corrected
Uncorrected

Model 16.2: Commercial fishery depredation

(Peterson and Hanselman 2017)

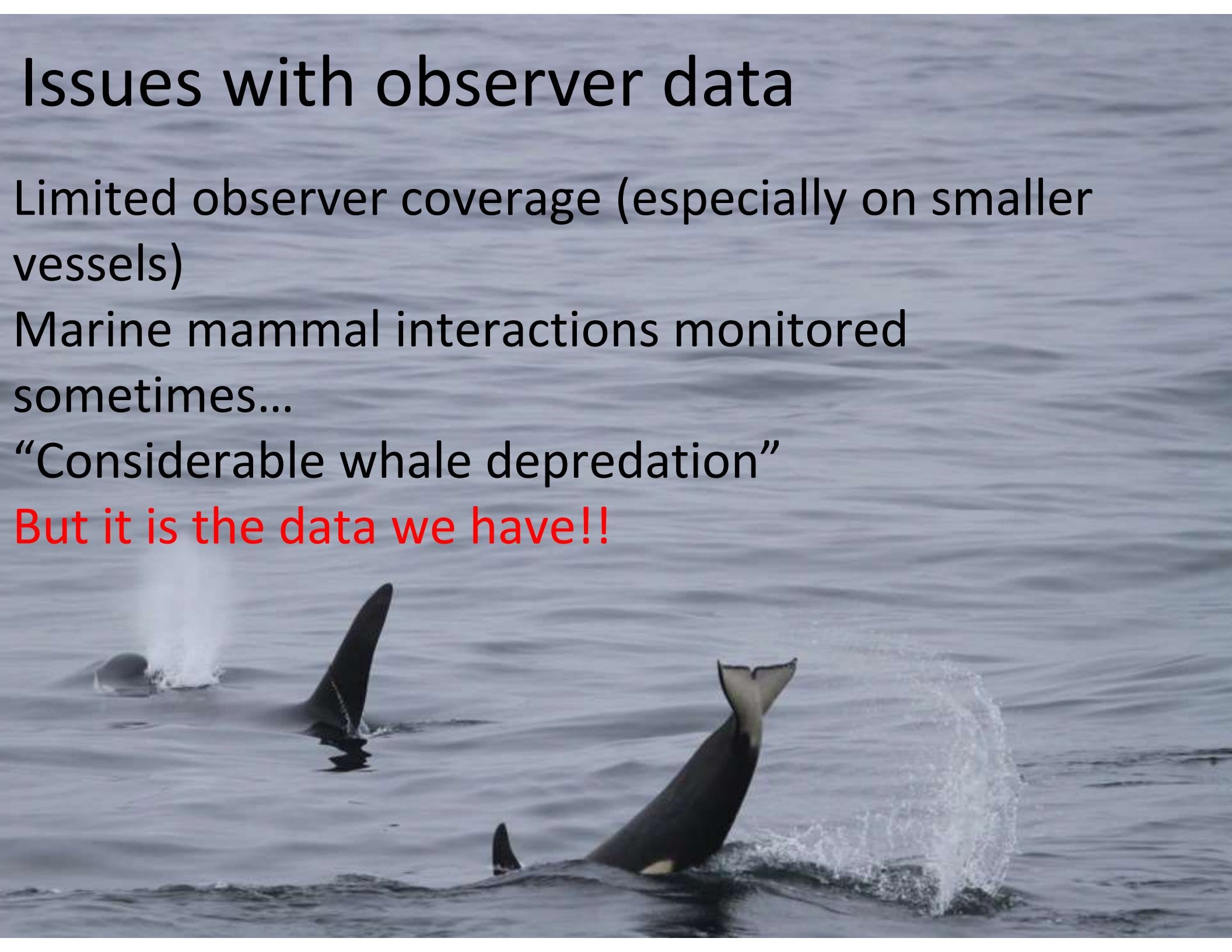
Issues with observer data

Limited observer coverage (especially on smaller vessels)

Marine mammal interactions monitored sometimes…

“Considerable whale depredation”

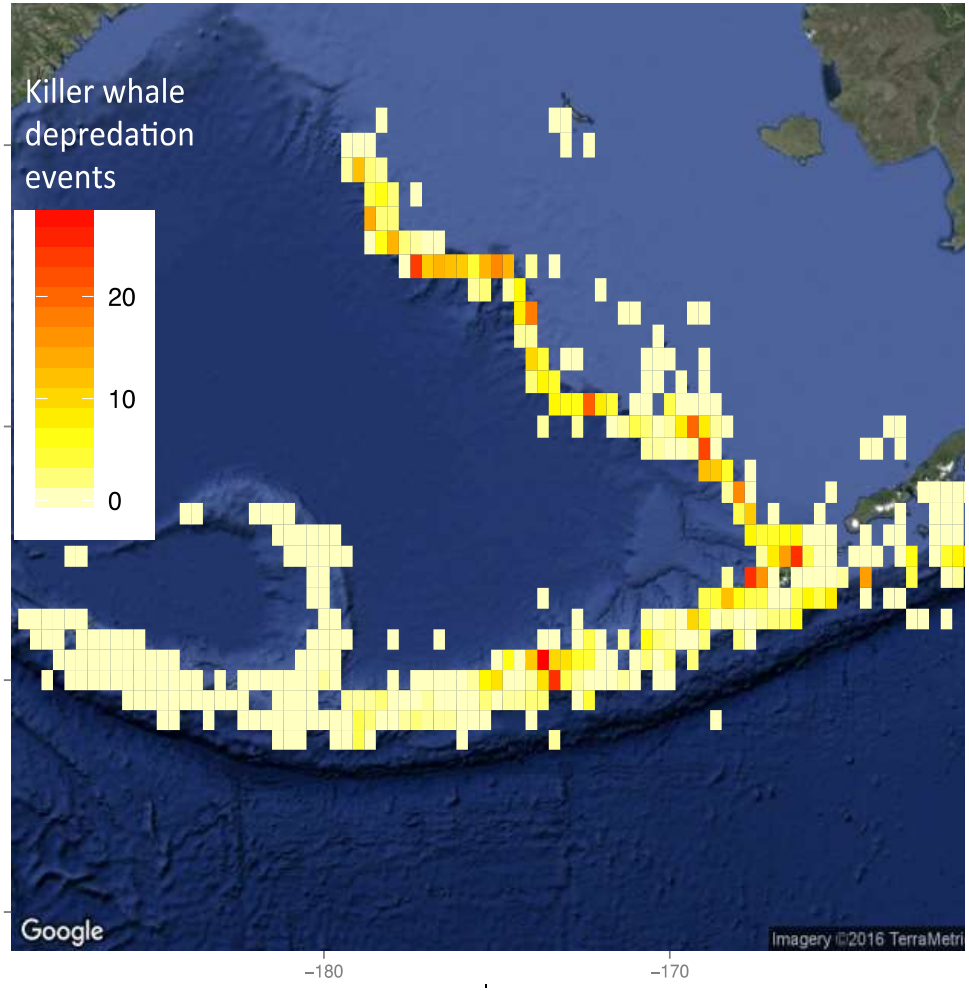
But it is the data we have!!

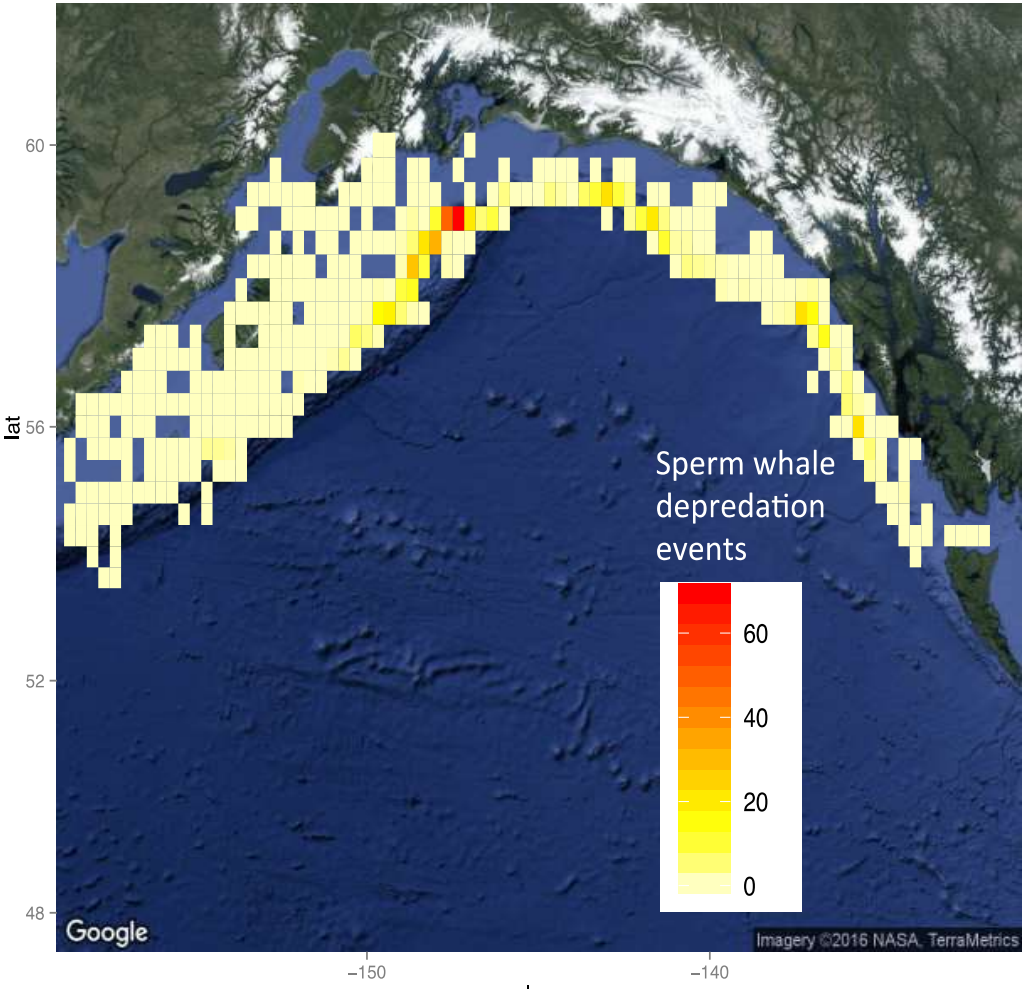


Commercial sablefish fishery observed sets 1995-2015

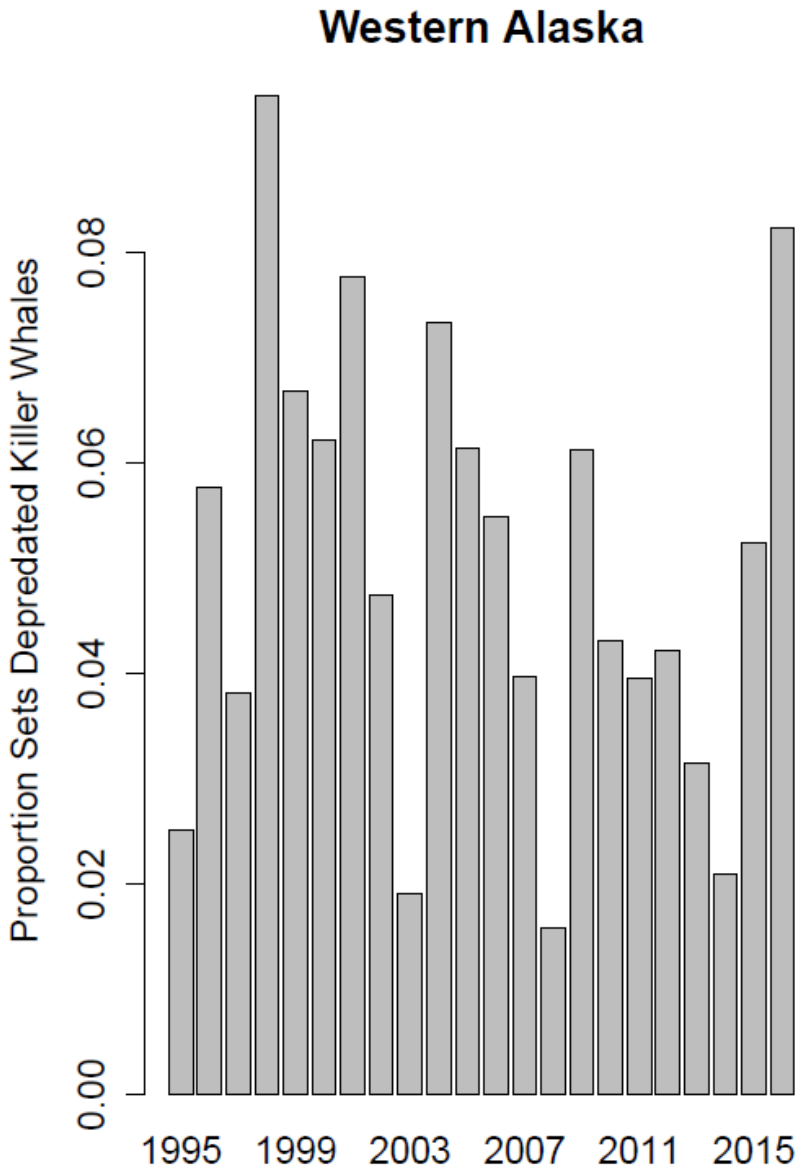
Western Alaska (n=19,921 sets)

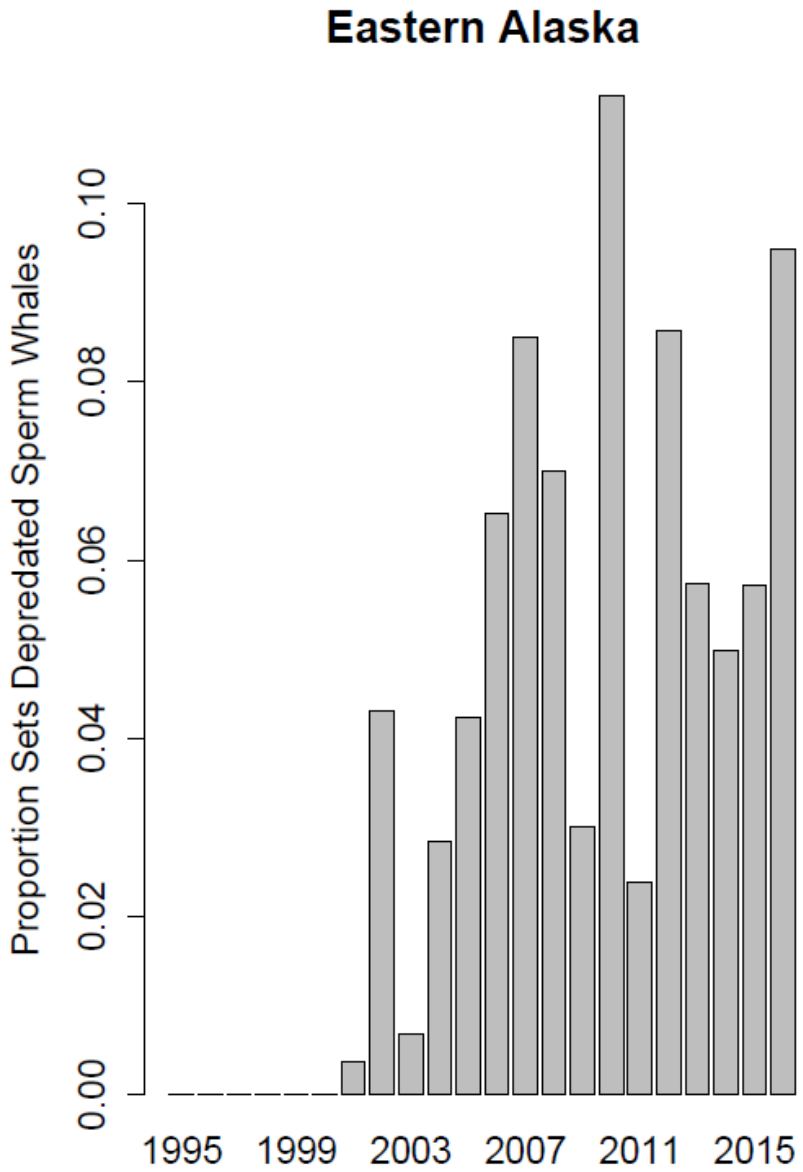
Gulf of Alaska (n=16,443 sets)





Proportion of sets impacted by whales





$$Log(sable\_CPUE) = \beta_0 + whale\_dep + depth + year + jul\_day + (lat,long) + vessel + gren\_CPUE + hal\_CPUE + \varepsilon$$

Area	Depredation coefficient (% CPUE reduced)	95% Confidence Interval	n	% dev explain
Bering Sea	45.7%	40.2% - 51.2%	4339	49.7%
Aleutians	57.7%	50.1% - 65.2%	6744	37.2%
Western Gulf of Alaska	69.4%	63.0% - 75.9%	5950	31.0%
Central Gulf of Alaska	23.8%	19.4% - 28.1%	8218	46.4%
West Yakutat	26.3%	21.5% - 31.1%	3919	52.7%
Southeast	29.4%	22.6% - 36.2%	2865	43.5%

Estimating sablefish removals due to whales

- Data gridded into 1/3° by 1/3° (approx 36 km by 25 km)
- Zero Inflated Poisson (ziP) distribution GAM to model # sets depredated per grid…
- Zero – inflation is a modeling technique to try to capture the reason for excess zeros in data (such as observers below deck during whale activities)
- We end up with an estimate of depredated sets/grid cell

  - Landings per grid from Catch-in-Areas database based on Catch Accounting and VMS data (pers .comm. Steve Lewis – AKRO)

Annual depredation mortality

Estimated depredation in the fishery is then:

The proportion of depredated sets/grid cell

multiplied by

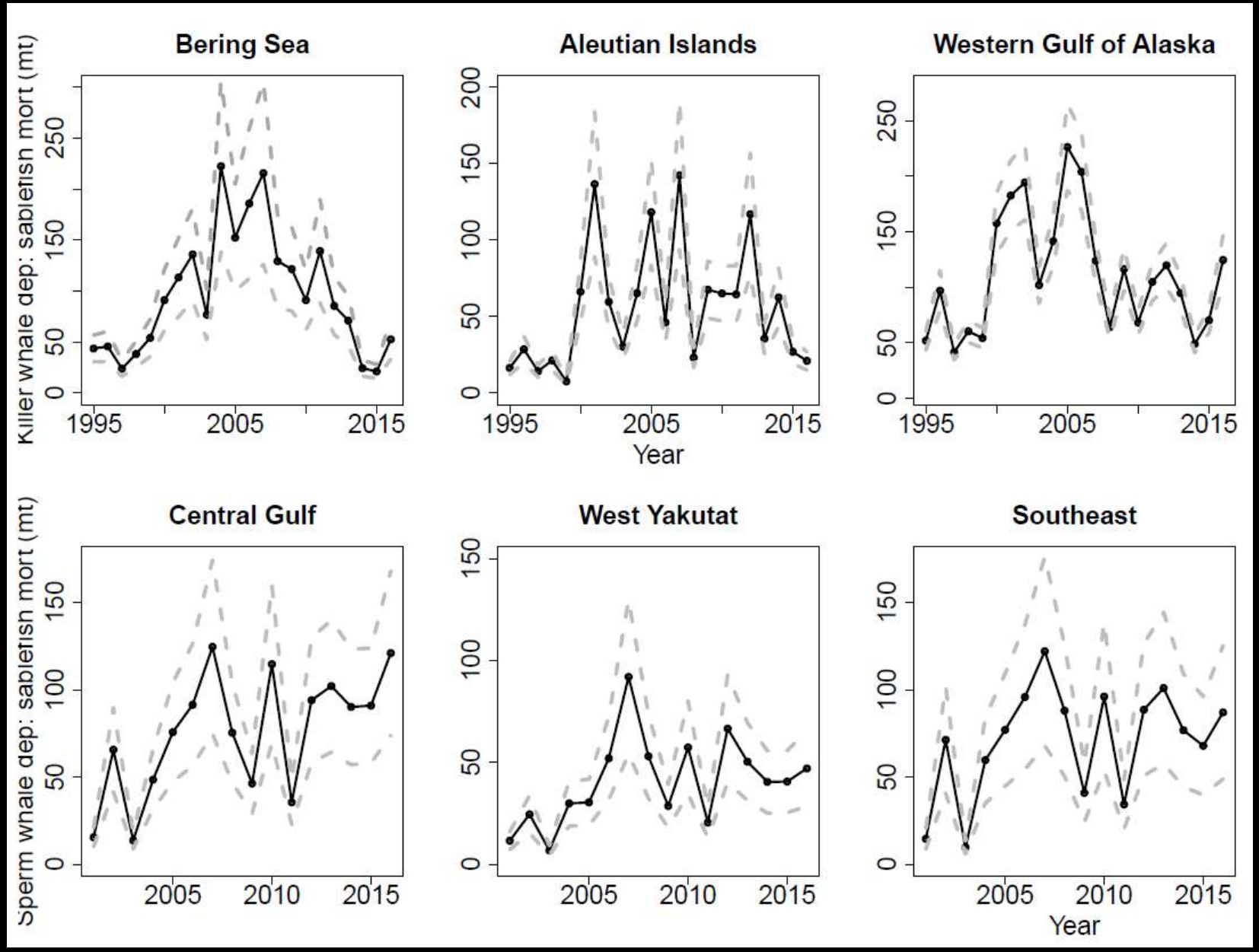
the catch in that cell

multiplied by

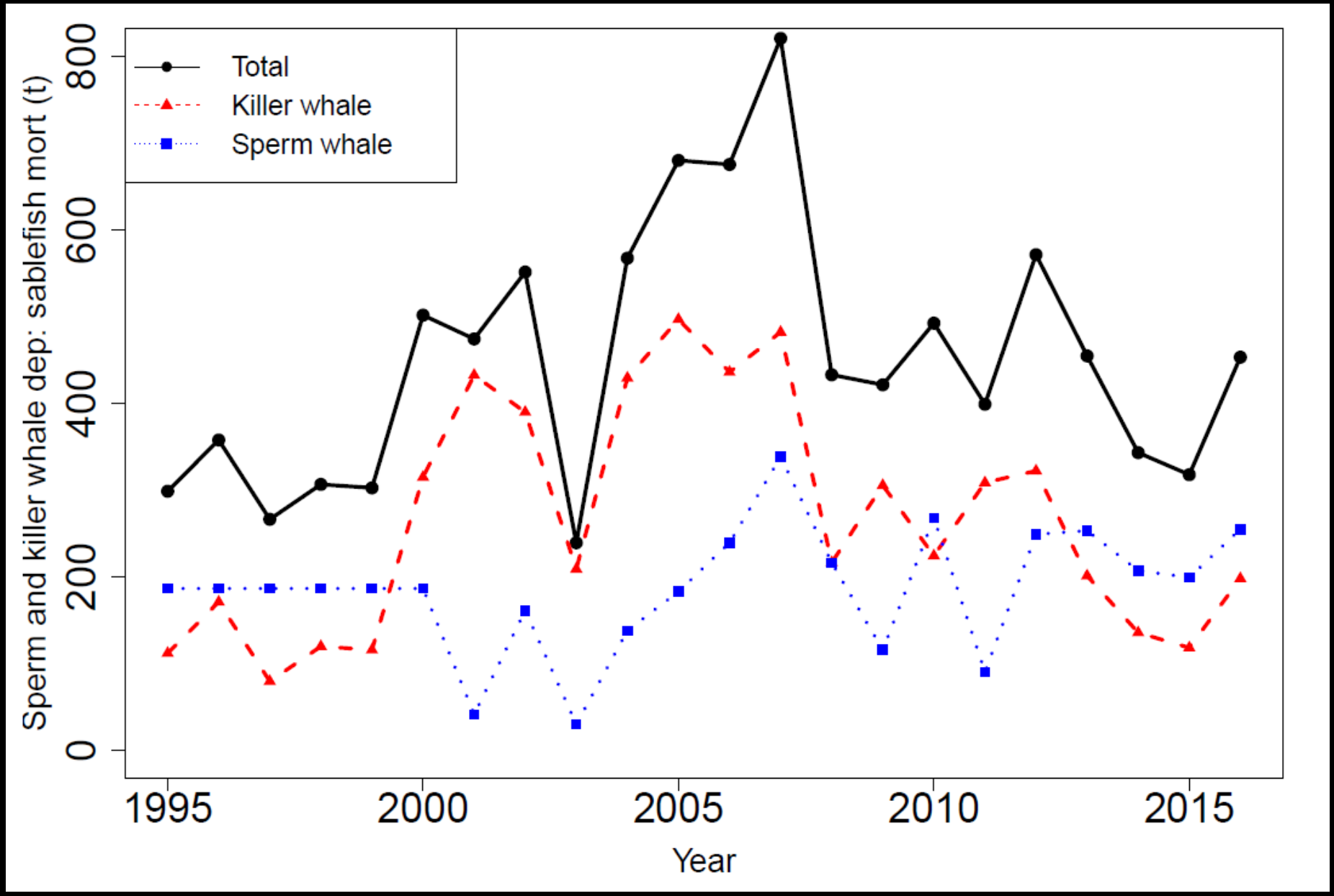
the estimate of CPUE reduction

for that area.

Depredation by Area



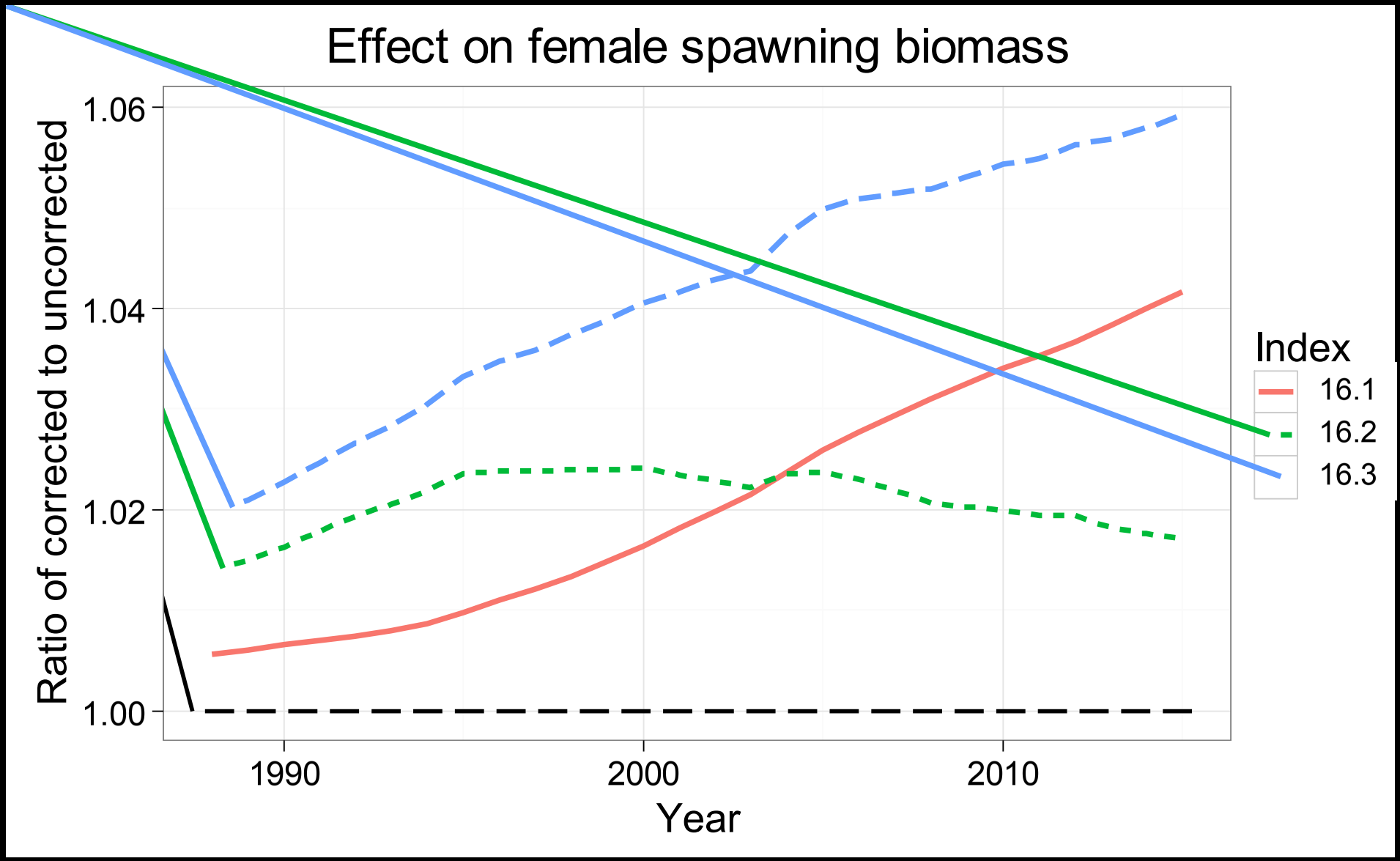
All area whale depredation in fishery



16.3: Putting them together

Incorporating Depredation

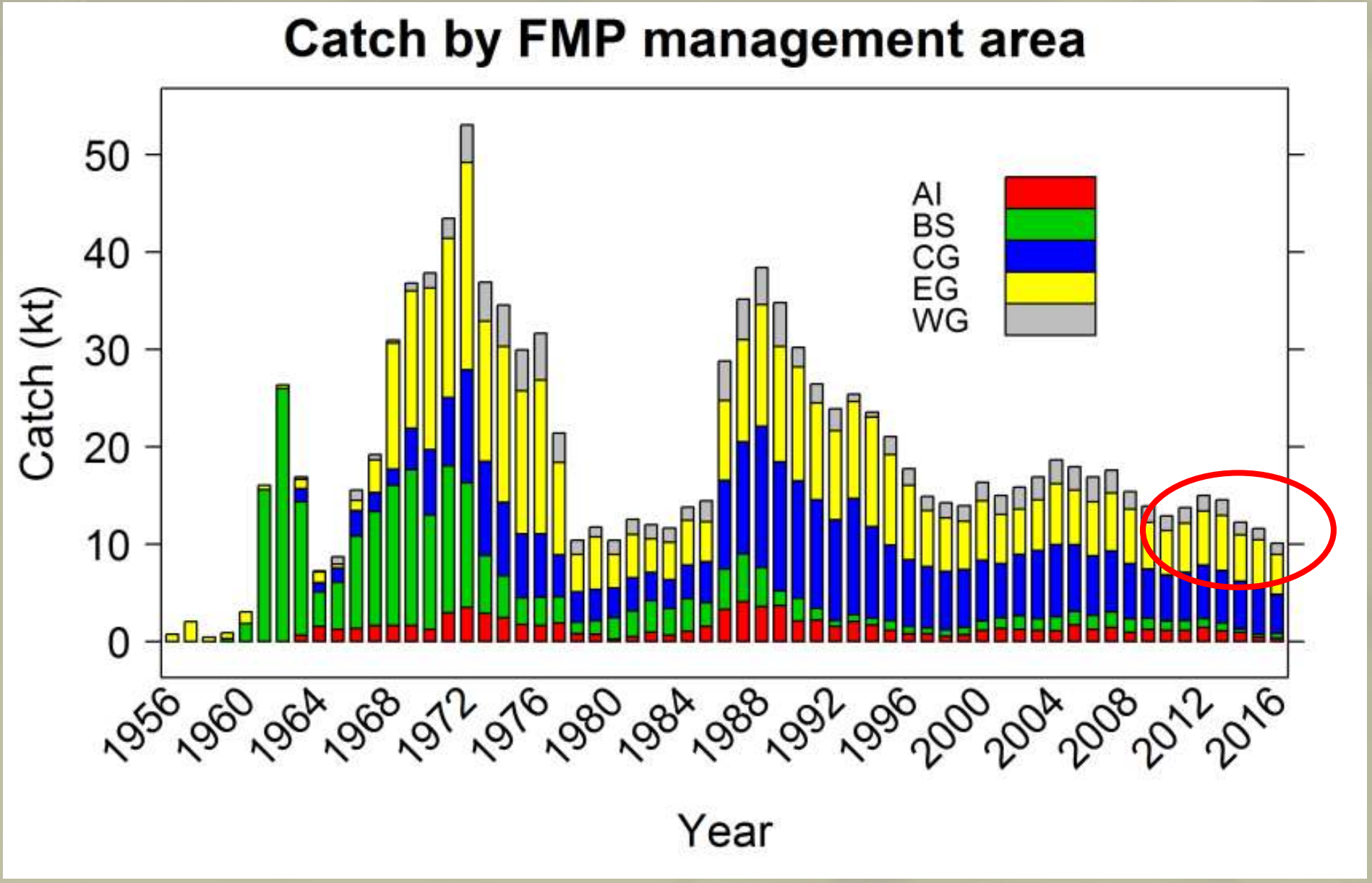
- Comparing to Model 10.3b presented earlier that uses new area sizes and variance estimates
- 16.1 – correct for sperm whales in survey
- 16.2 – add additional catch in the fishery
- 16.3 – do both


Effect on female spawning biomass
Ratio of corrected to uncorrected
1.06
1.04
1.02
1.00
1990
2000
2010
Year
Index
16.1
16.2
16.3

Stock status: New data

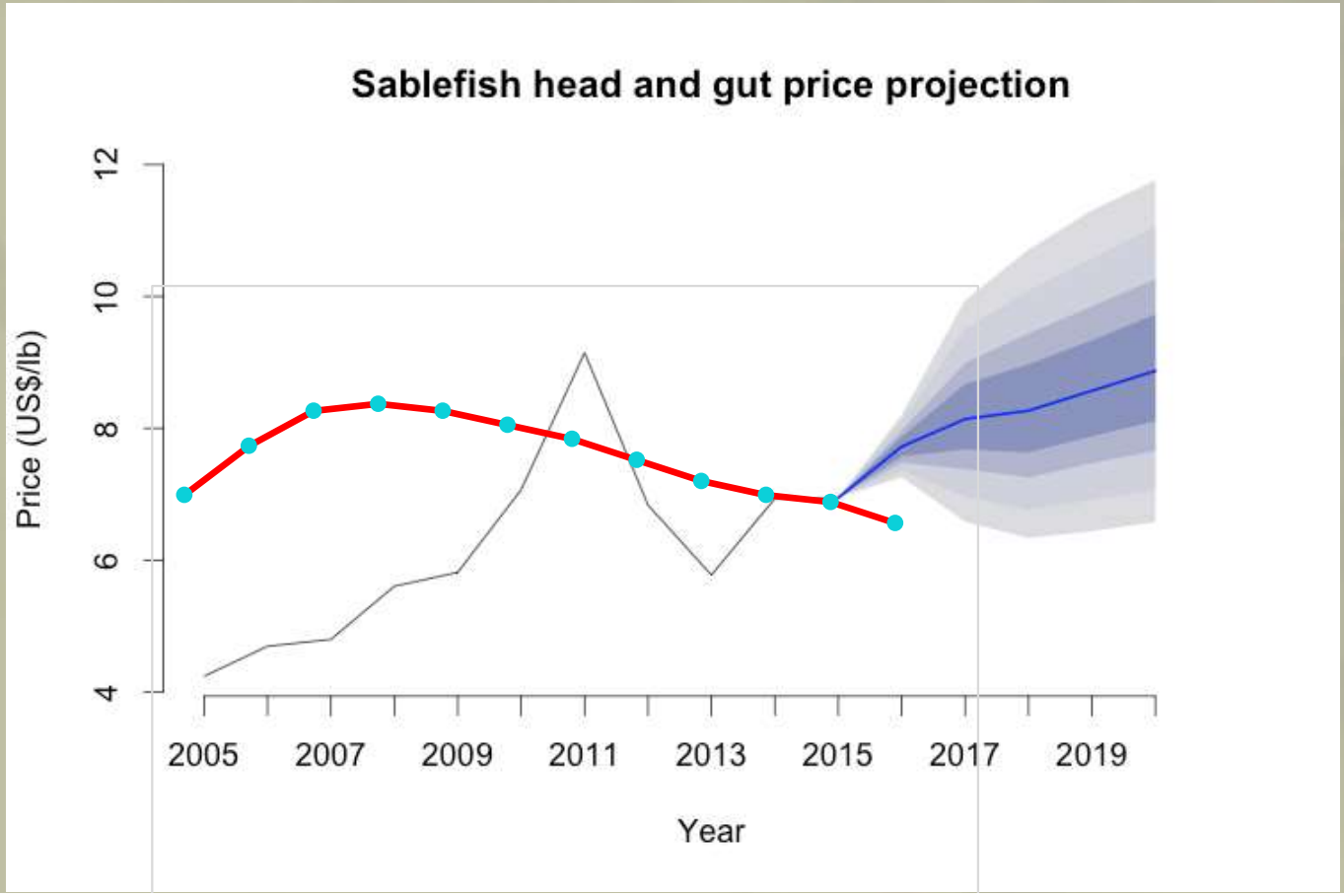
- Relative abundance: 2016 Longline survey, 2015 Longline fishery
- Ages: 2015 Longline survey, 2015 fixed gear fishery
- Lengths: 2016 Longline survey, 2015 fixed gear fishery, and 2015 trawl fishery
- ALSO: New economic performance report in Appendix

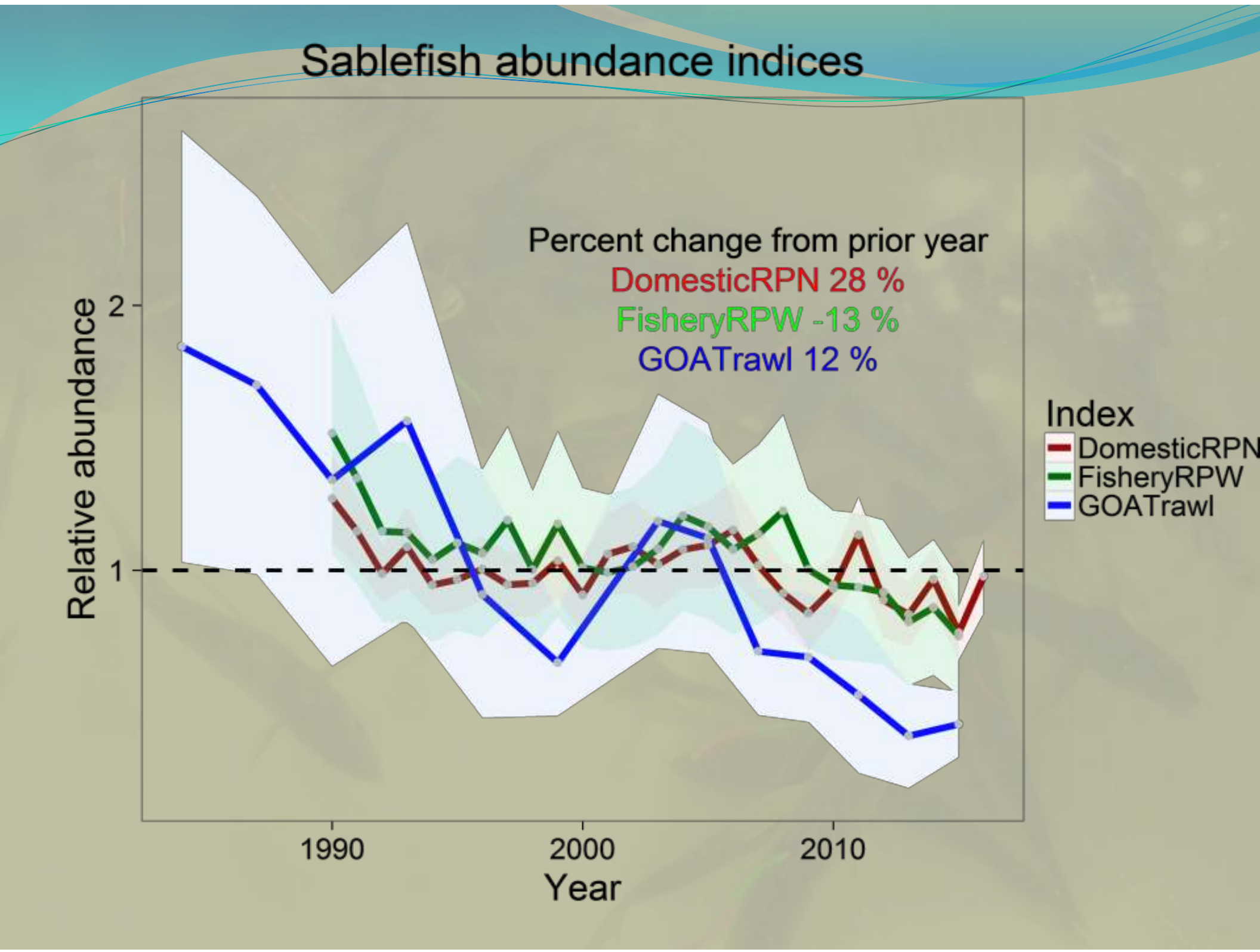
Catch


Catch by FMP management area
Catch (kt)
0
10
20
30
40
50
AI
BS
CG
EG
WG
1956
1960
1964
1968
1972
1976
1980
1984
1988
1992
1996
2000
2004
2008
2012
2016
Year

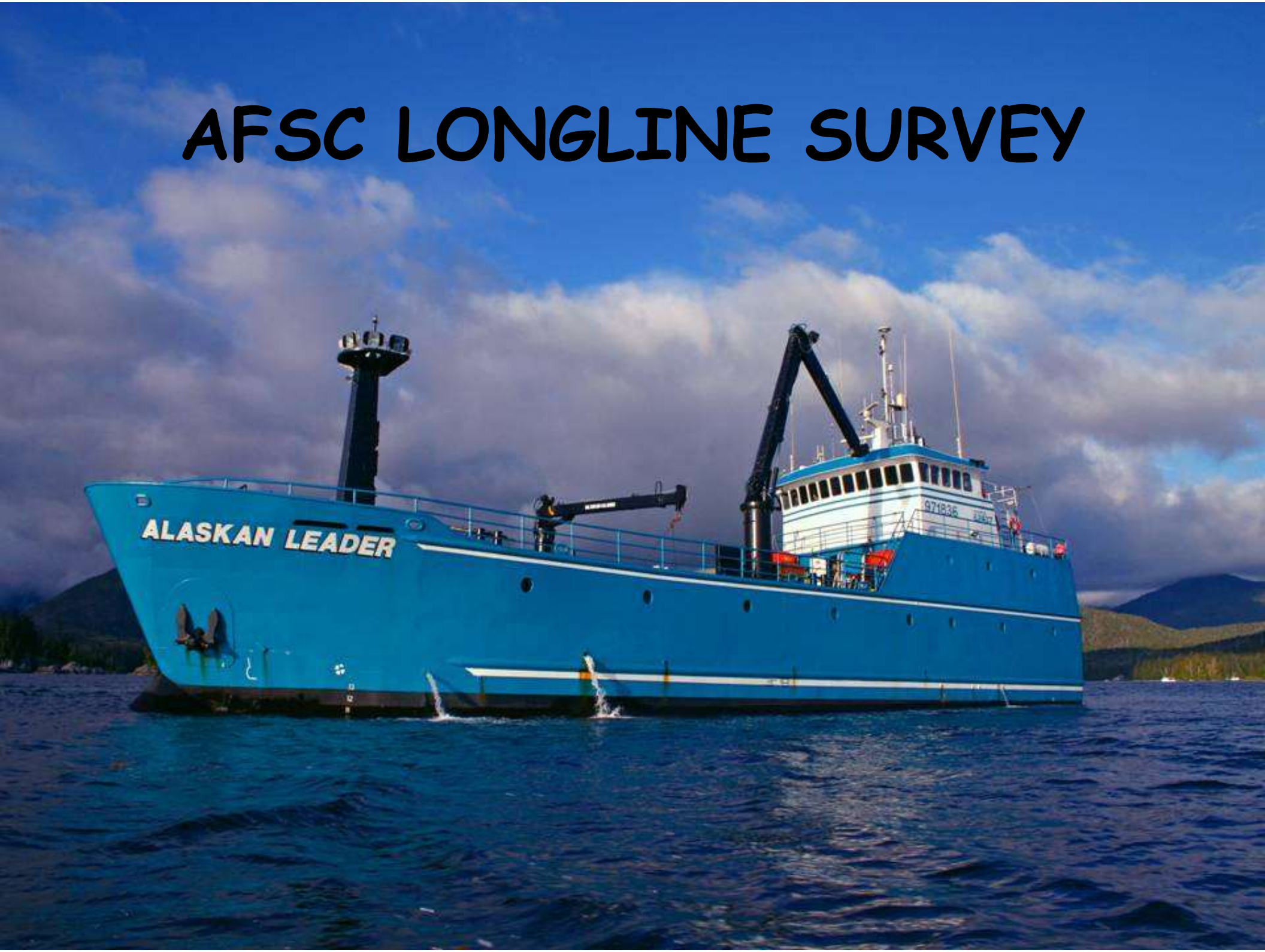
Economic Performance

- Similar price/lb in 2015 as 2014
- $91 million in ex-vessel value 2015
- Export $/lb look to be increasing in 2016

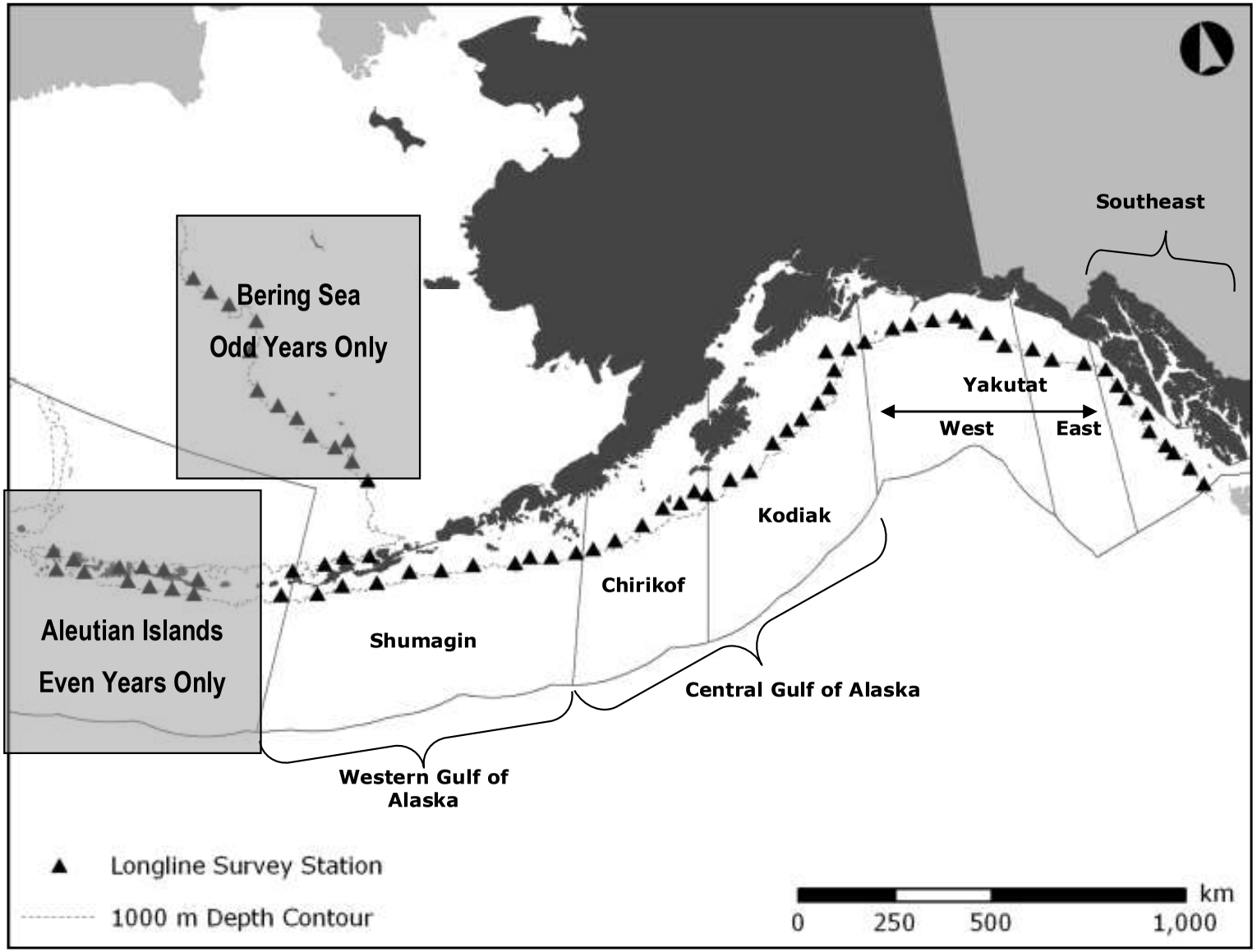


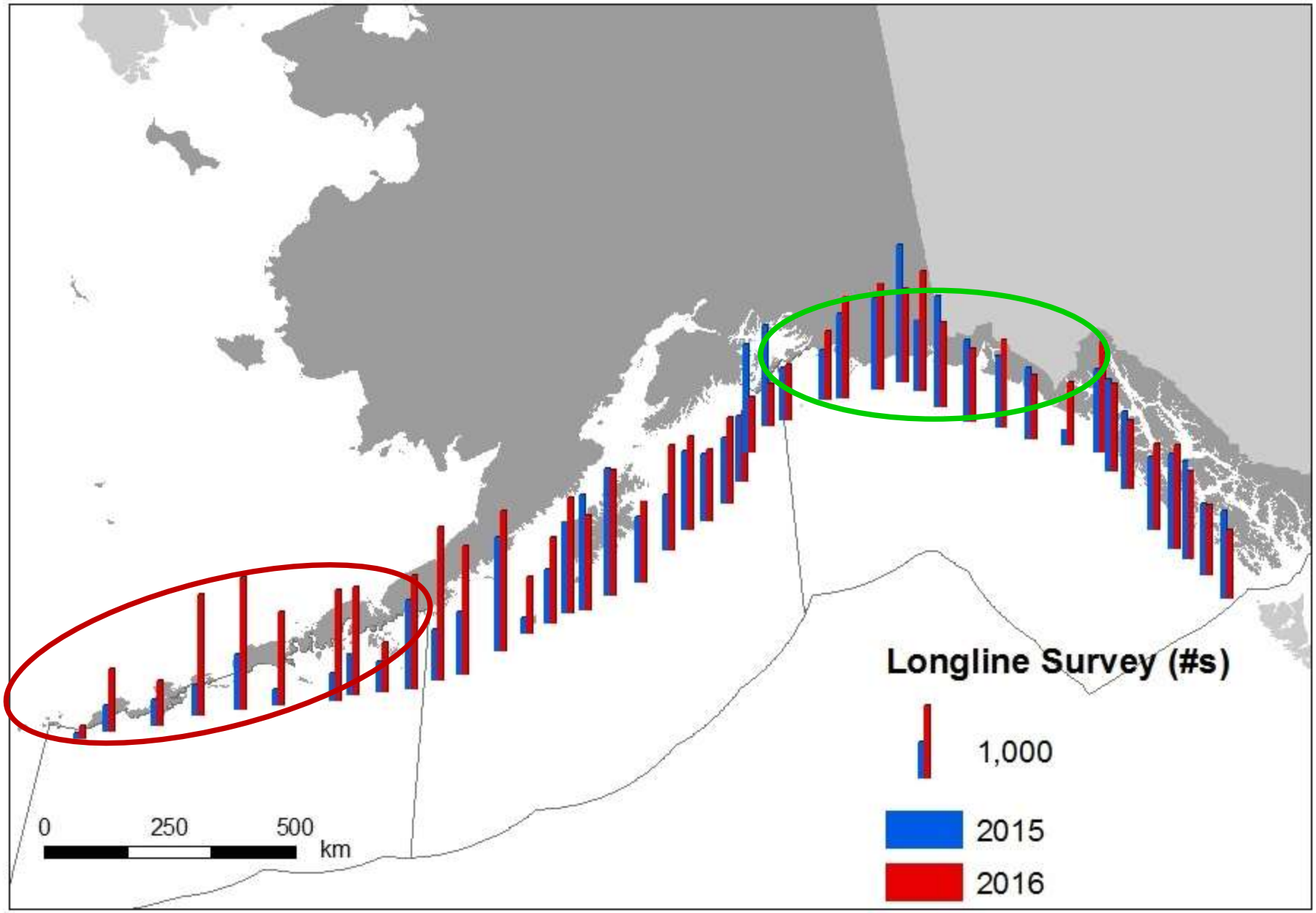

Sablefish abundance indices
Percent change from prior year
DomesticRPN 28 %
FisheryRPW -13 %
GOATrawl 12 %
Relative abundance
2
1
1990
2000
2010
Year
Index
DomesticRPN
FisheryRPW
GOATrawl

AFSC LONGLINE SURVEY



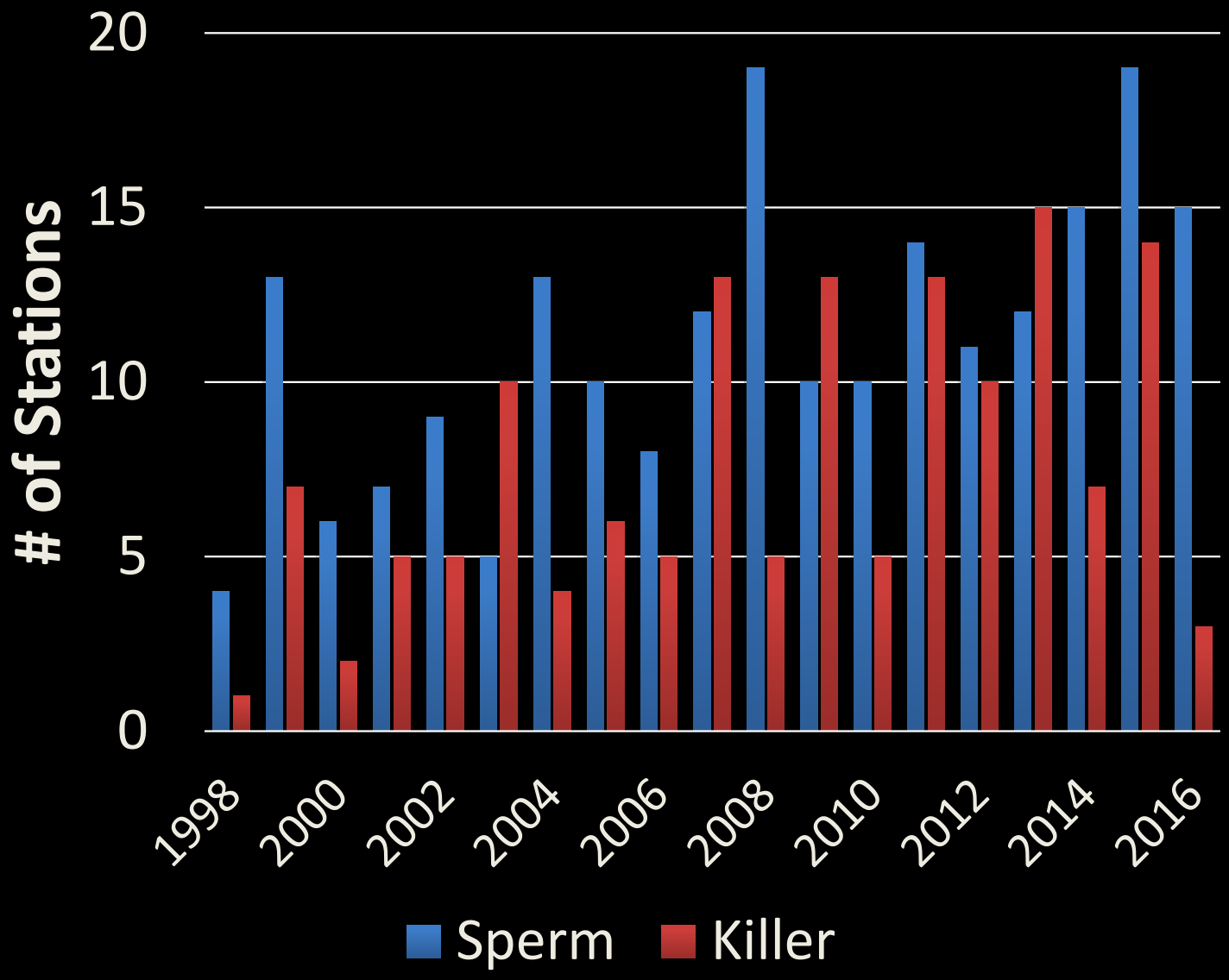
Domestic survey coverage



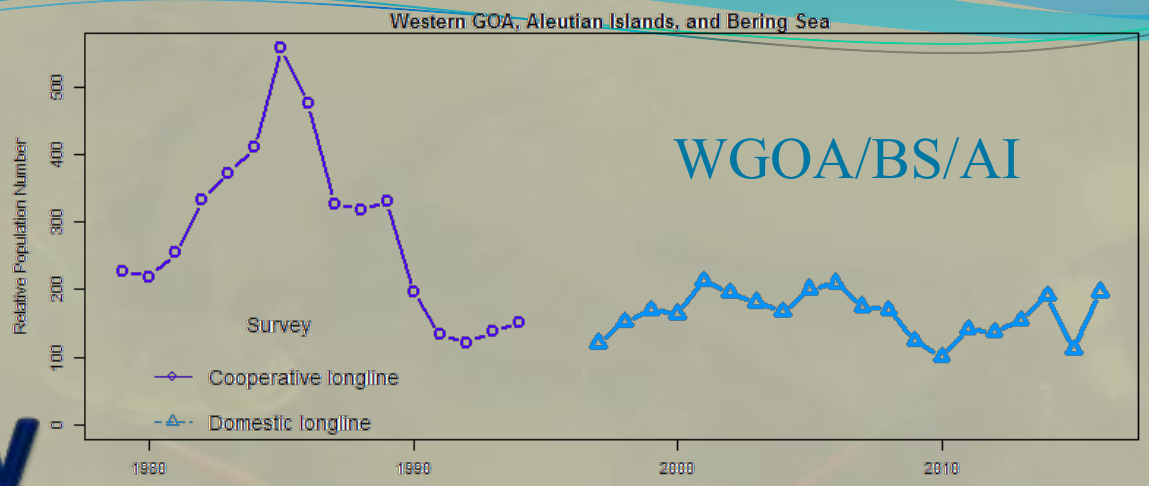


Gulf of Alaska LL Survey

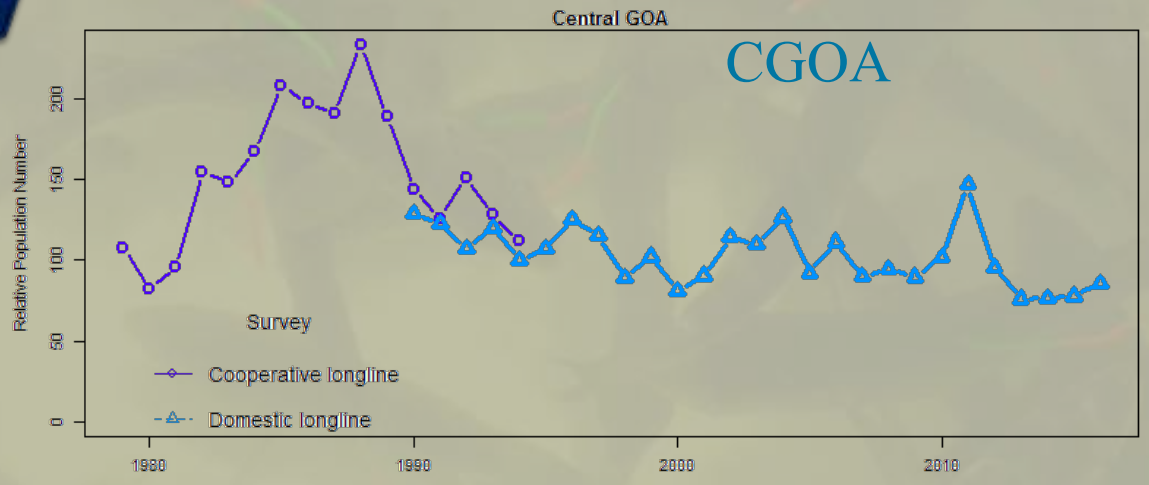
Longline survey depredation



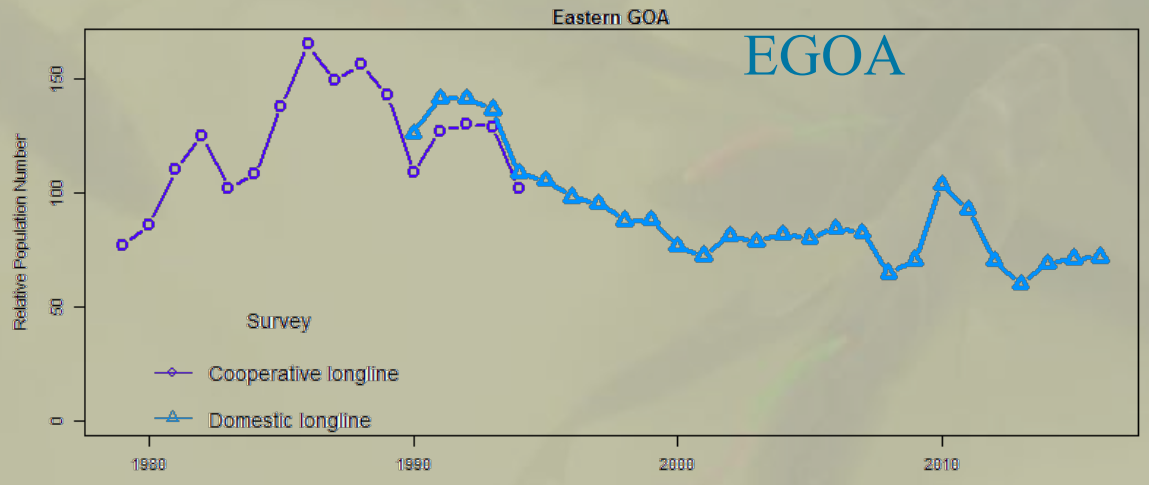
LL Survey RPNs



WGOA/BS/AI



CGOA

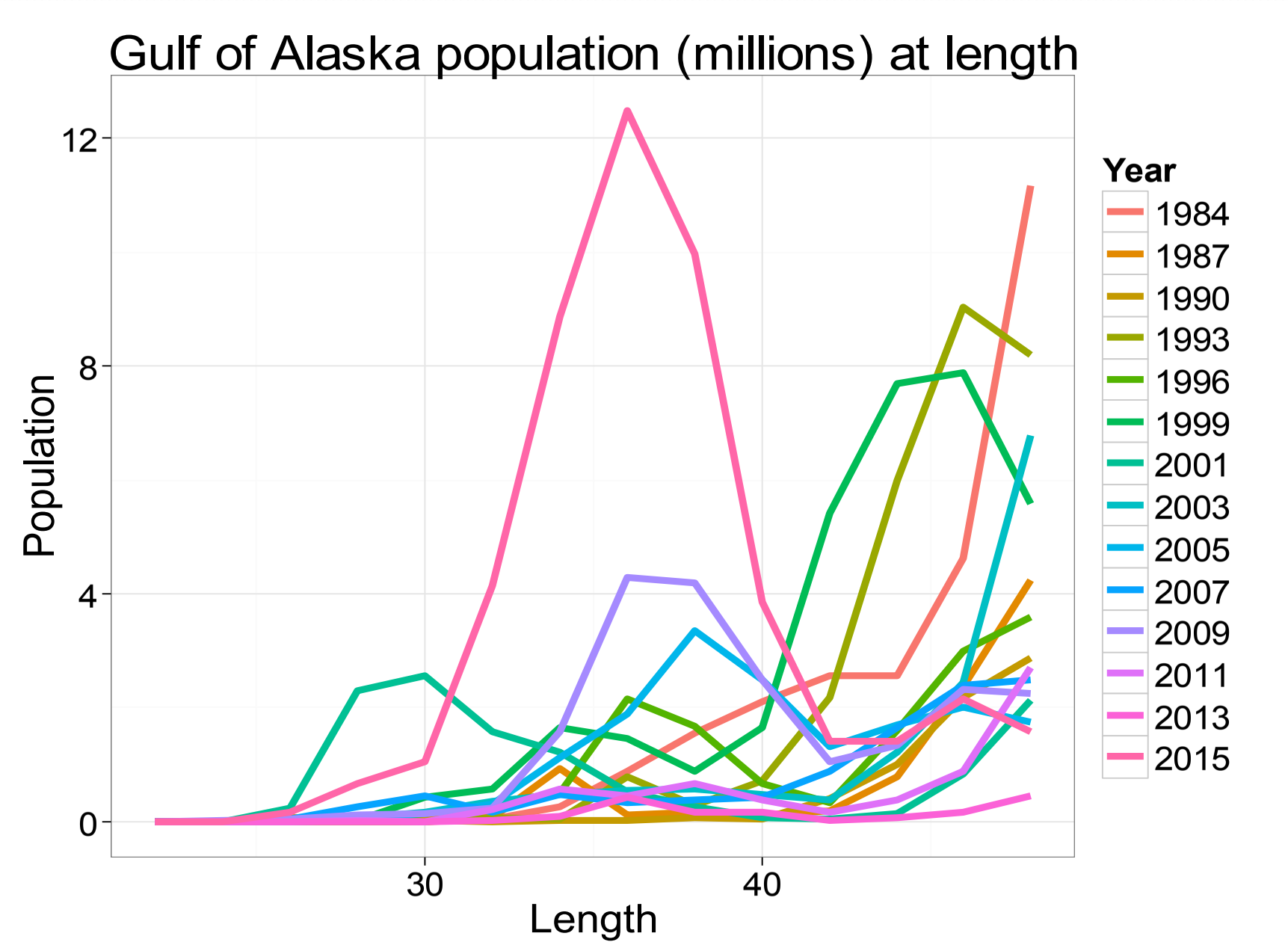


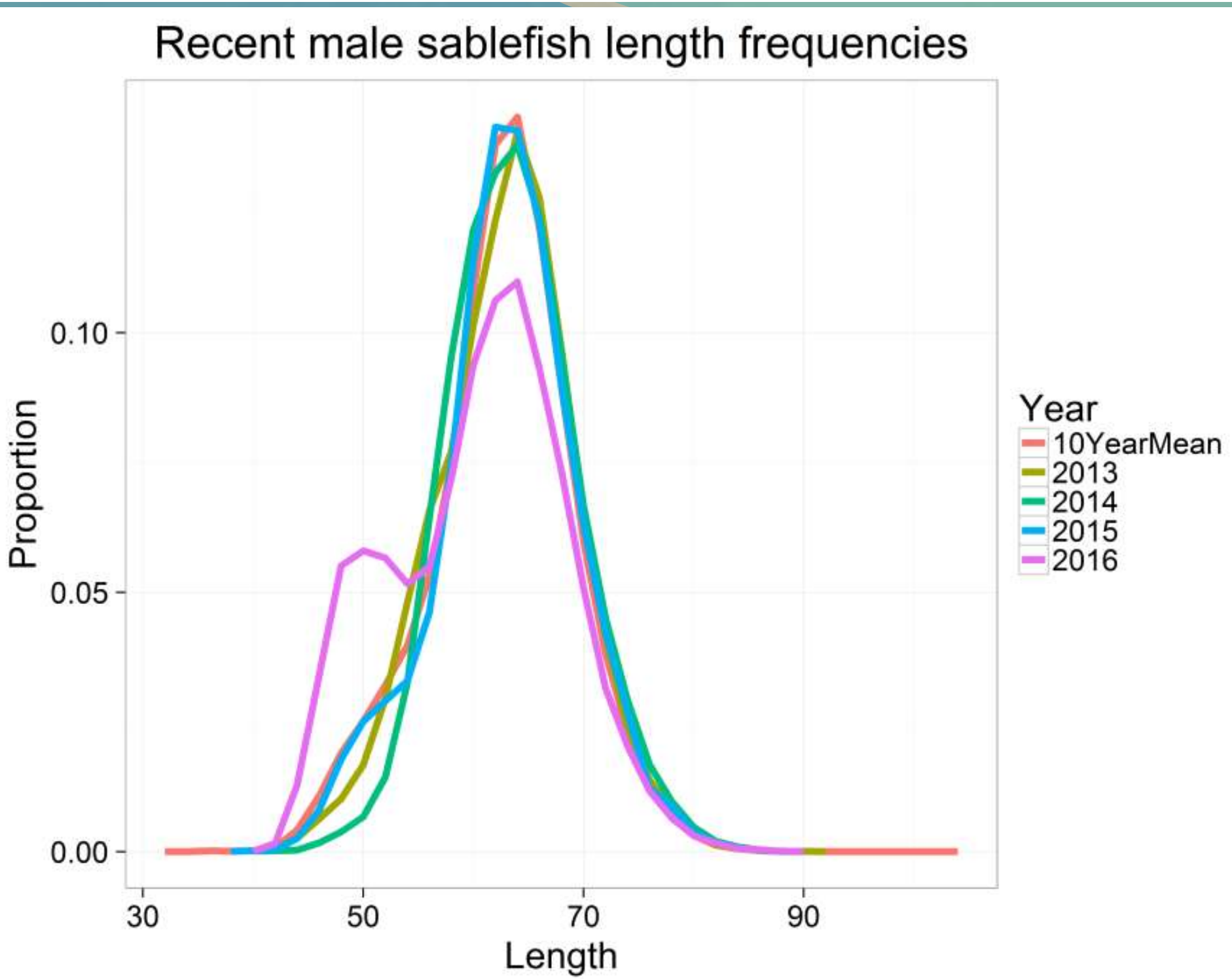
EGOA

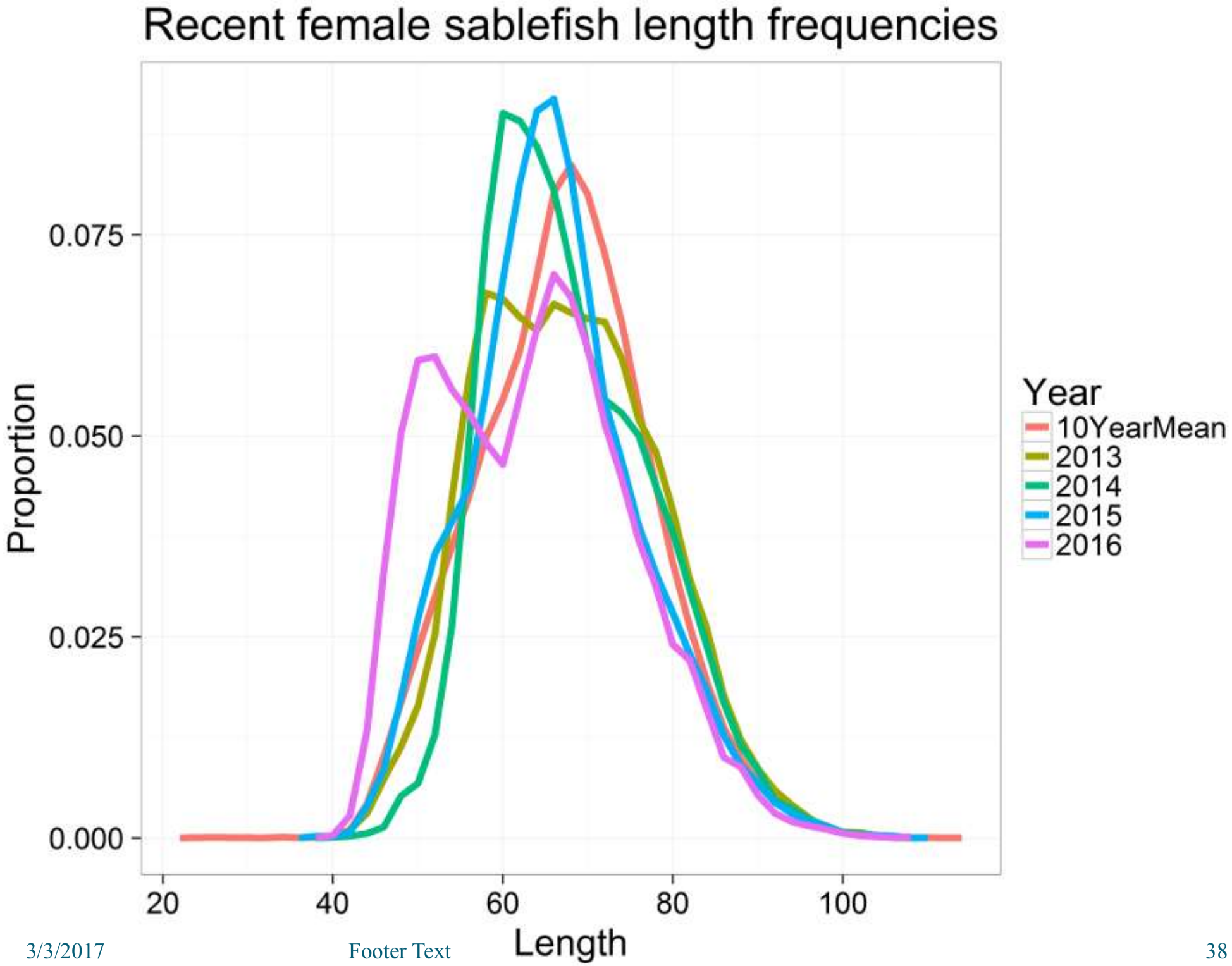
Bring on the blob?

- 2014:
  - Lots of YOYs caught in surface trawl surveys
  - Lots of fishermen reports of YOY in coho bellies
- 2015:
  - One year olds reported all over by sport fishermen
  - YOYs found in coho and pomfret stomachs on GOA project survey
  - More fisherman reporting YOY in coho stomachs
- 2016:
  - Many YOY caught in new surface trawl experiment EGOA
  - More fisherman reporting YOY in coho stomachs

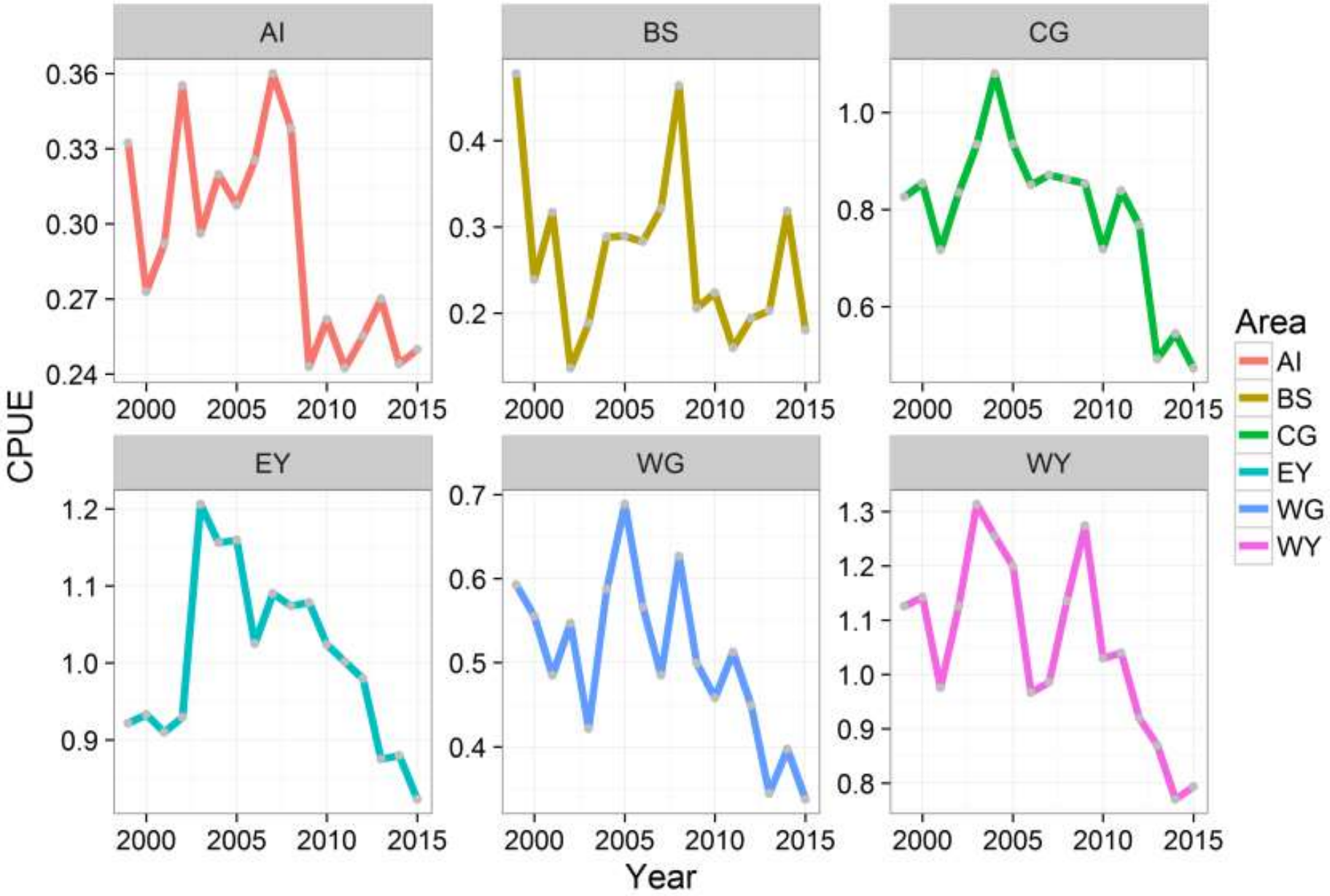
Signs of hope




Recent male sablefish length frequencies
Proportion
0.10
0.05
0.00
30
50
70
90
Length
Year
10YearMean
2013
2014
2015
2016

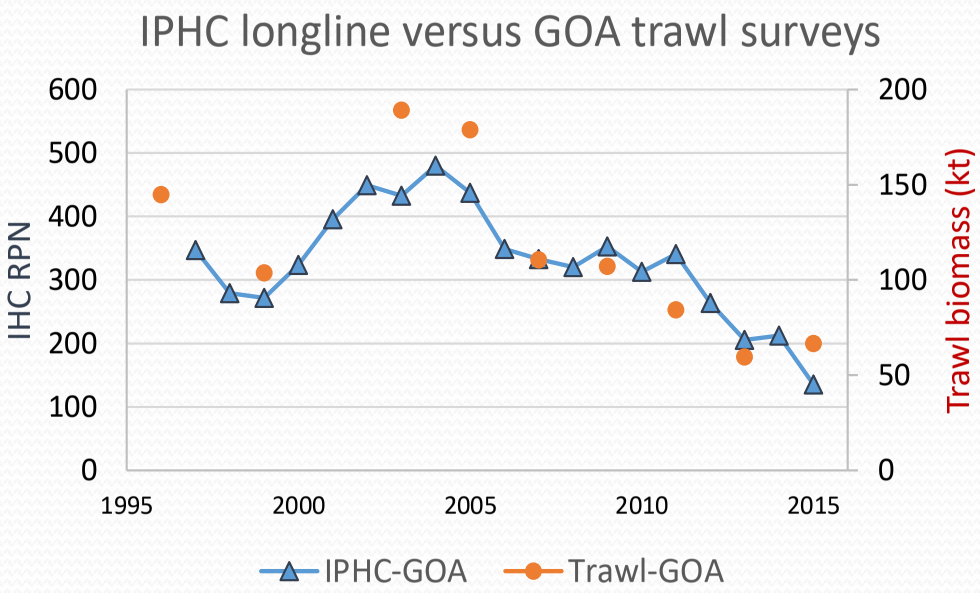

Recent female sablefish length frequencies
Proportion
0.075
0.050
0.025
0.000
20
40
60
80
100
Length
Year
10YearMean
2013
2014
2015
2016

Fishery CPUE by area

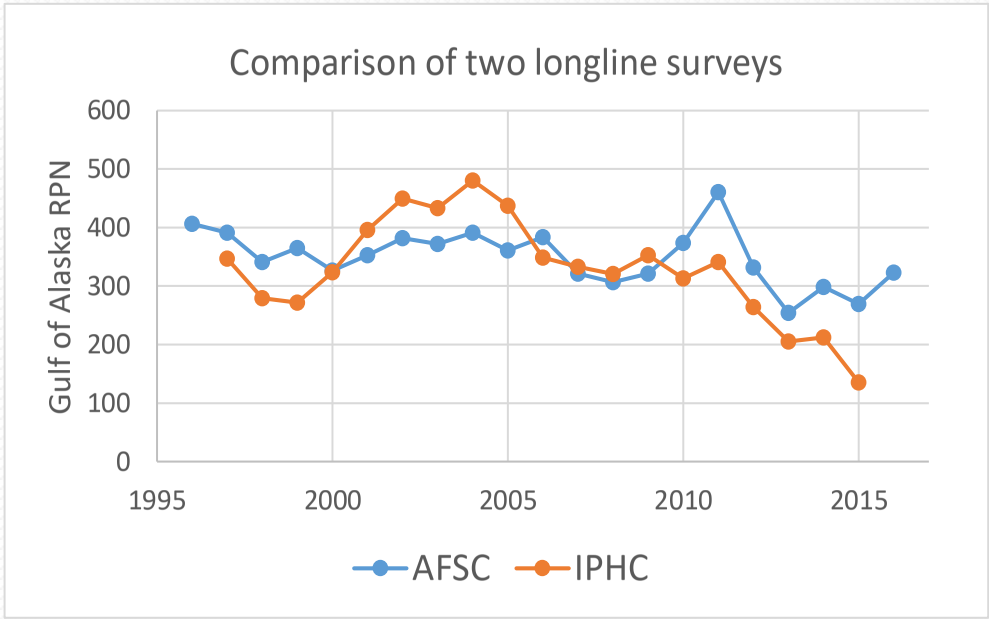


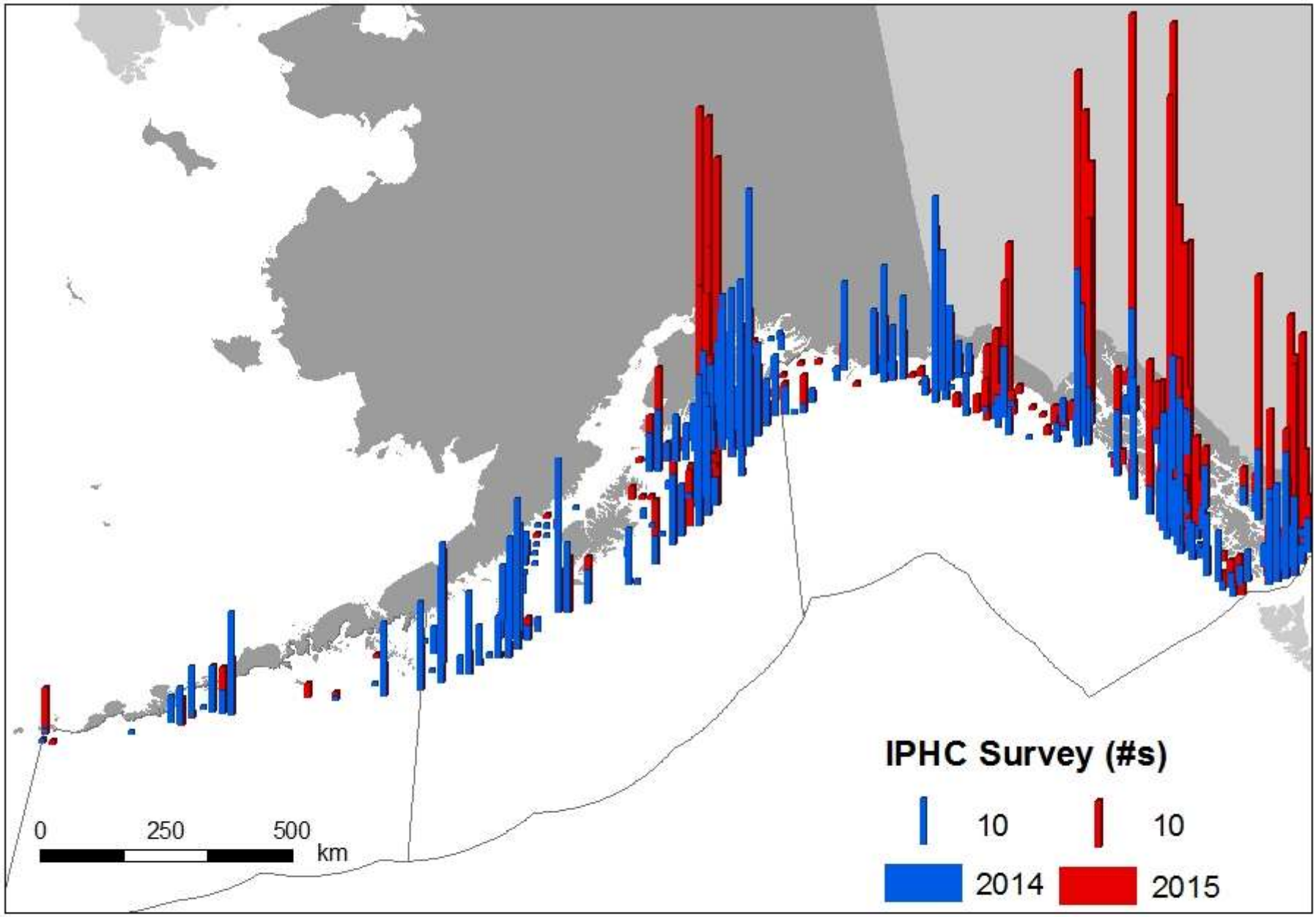
IPHC Survey

Gulf of Alaska



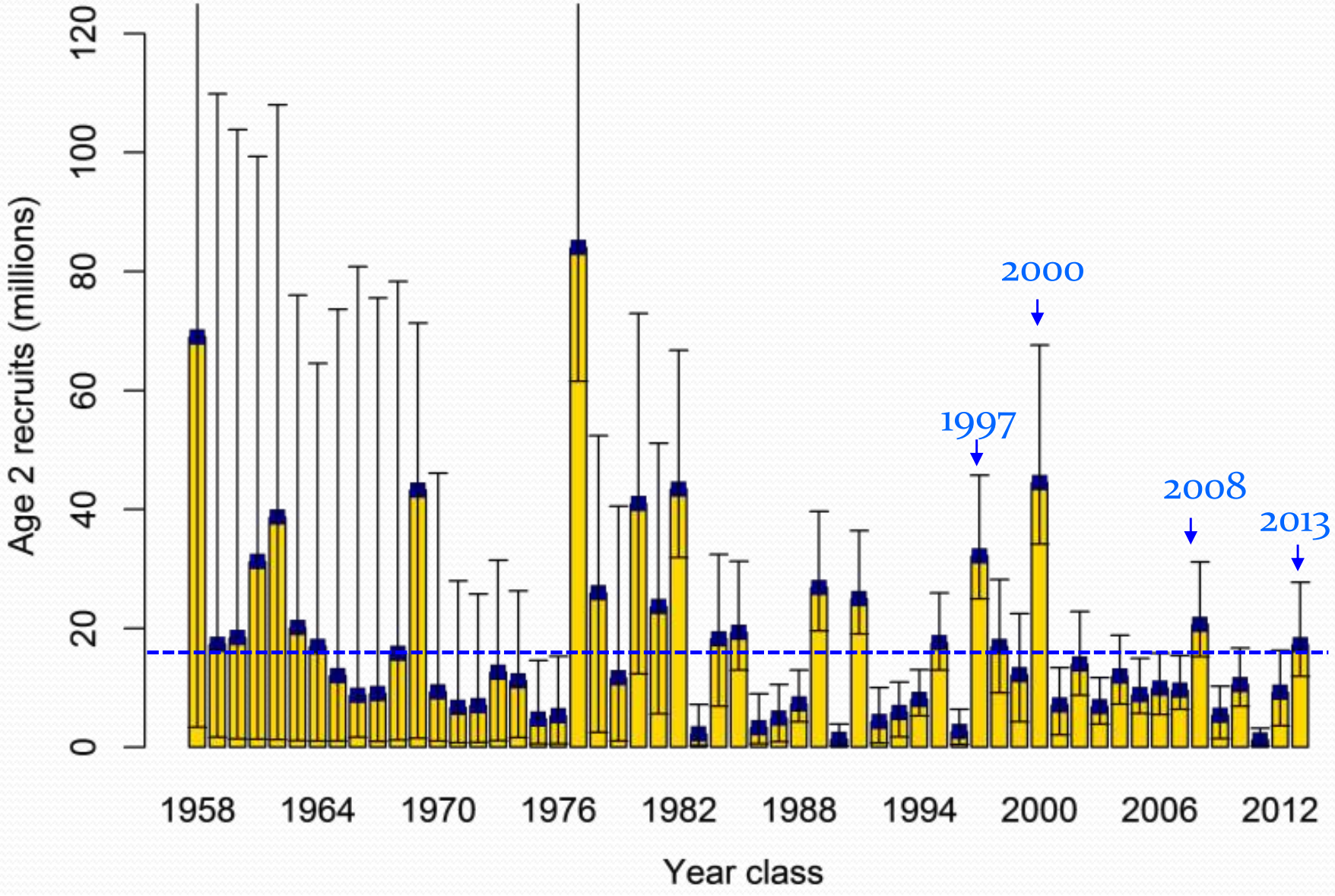
- Showed some uptick in 2011 (possibly also 2008 year class)
- AFSC shows stabilizing in GOA, IPHC sees decline
- Closely correlated to GOA trawl survey

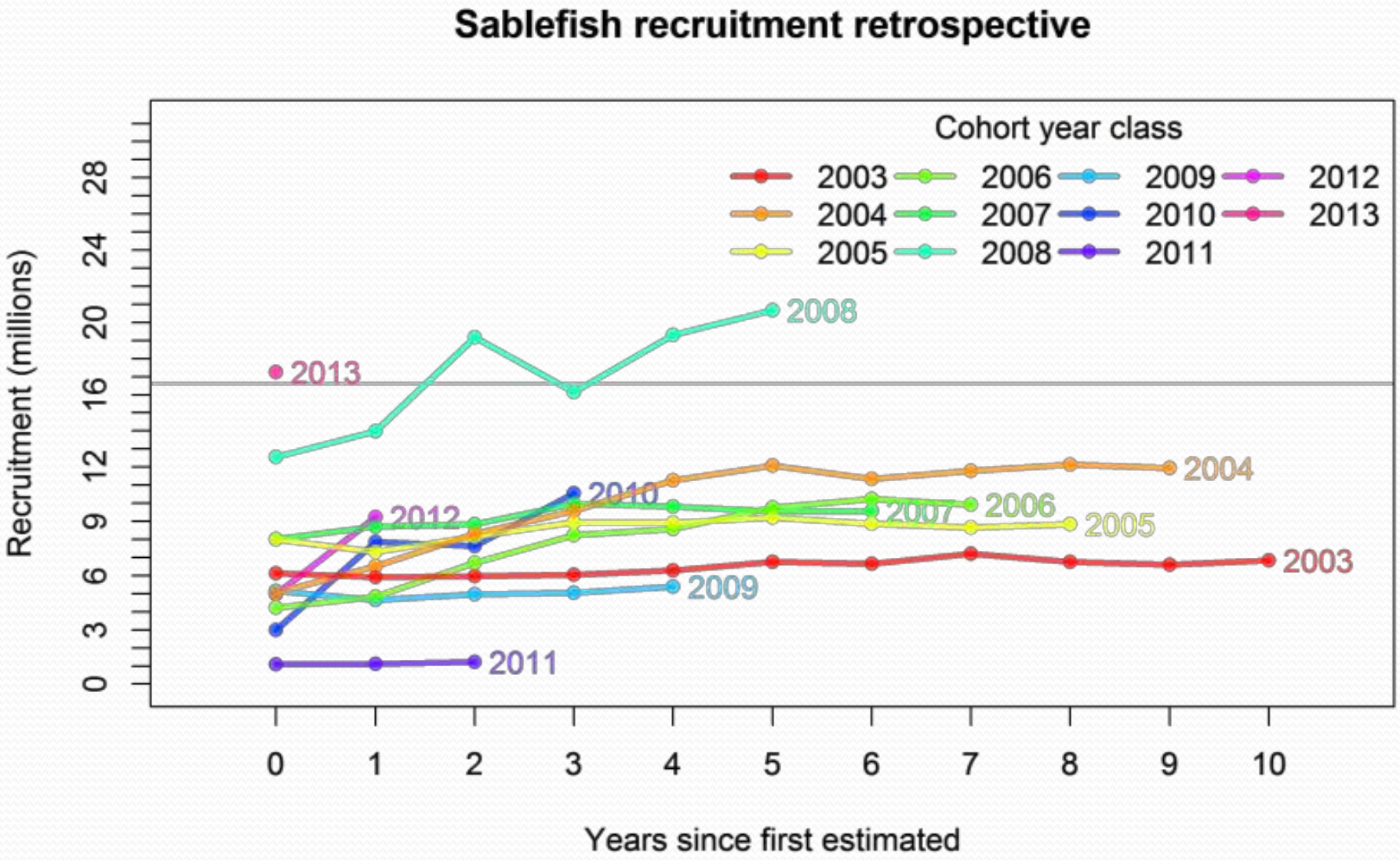




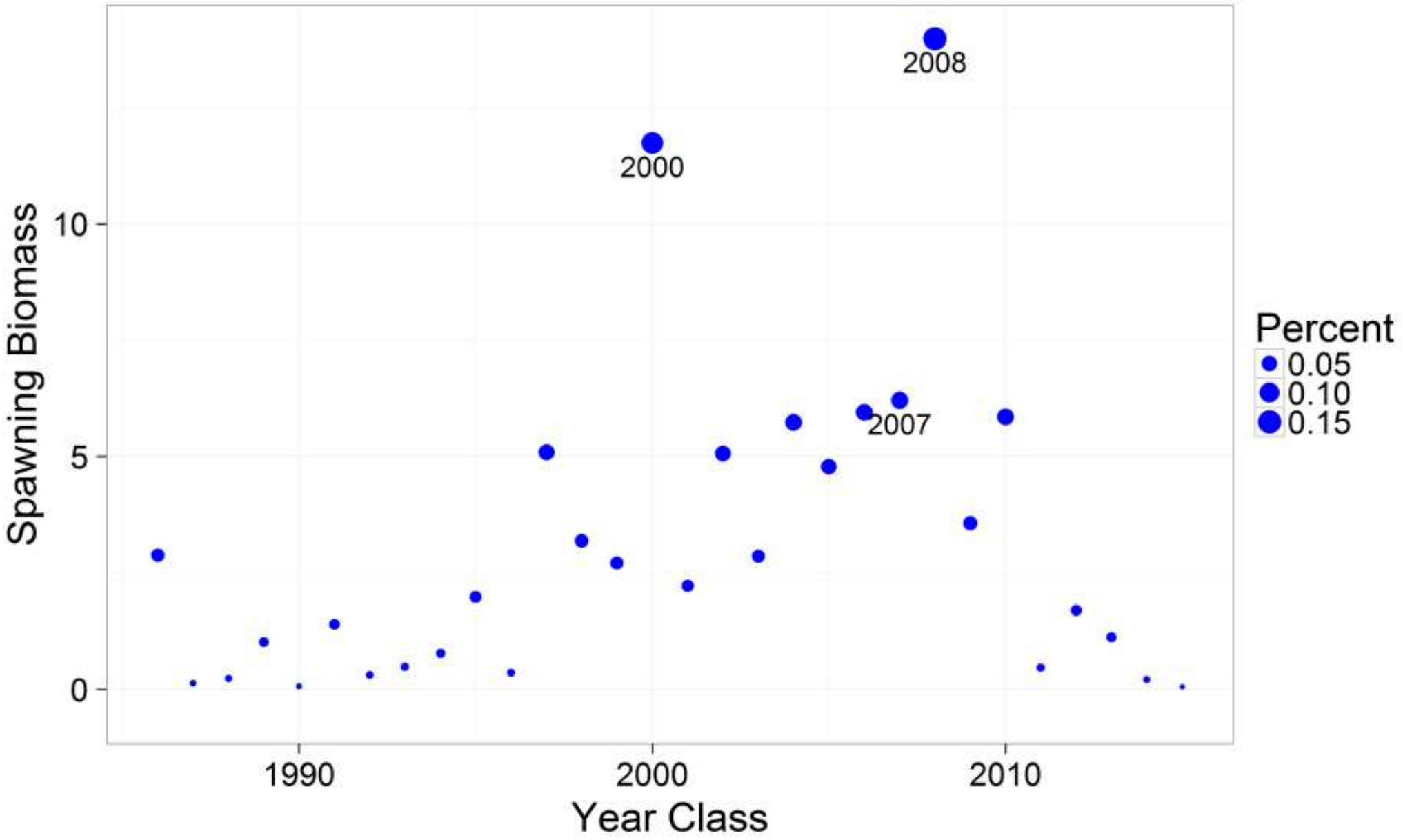
Gulf of Alaska IPHC Survey

Recruitment

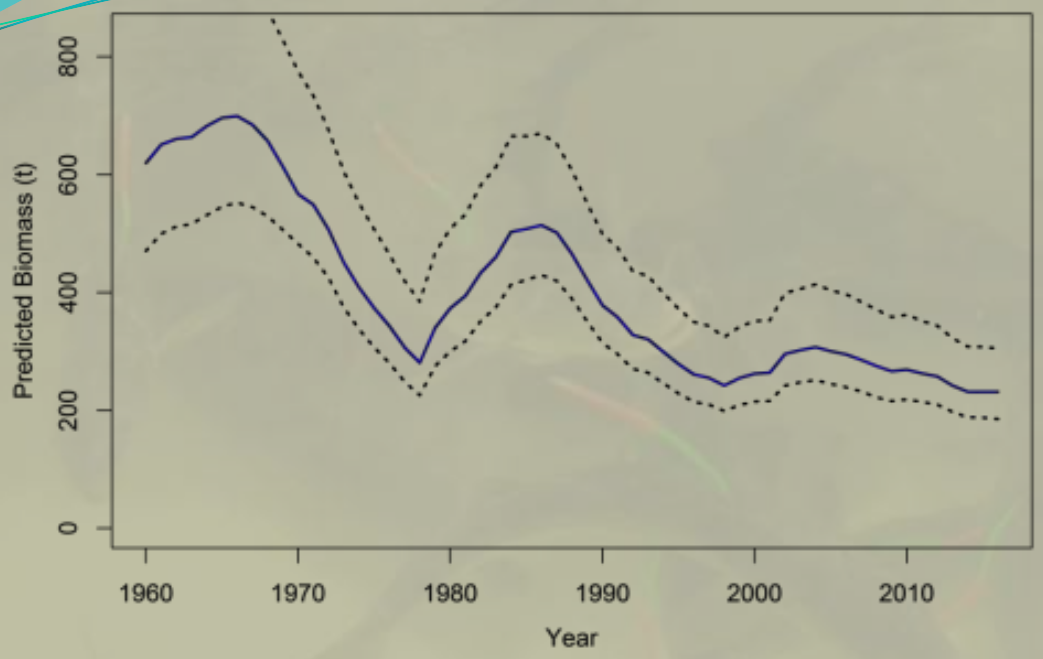



Sablefish recruitment retrospective
Cohort year class
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
Recruitment (millions)
0
3
6
9
12
16
20
24
28
0
1
2
3
4
5
6
7
8
9
10
Years since first estimated

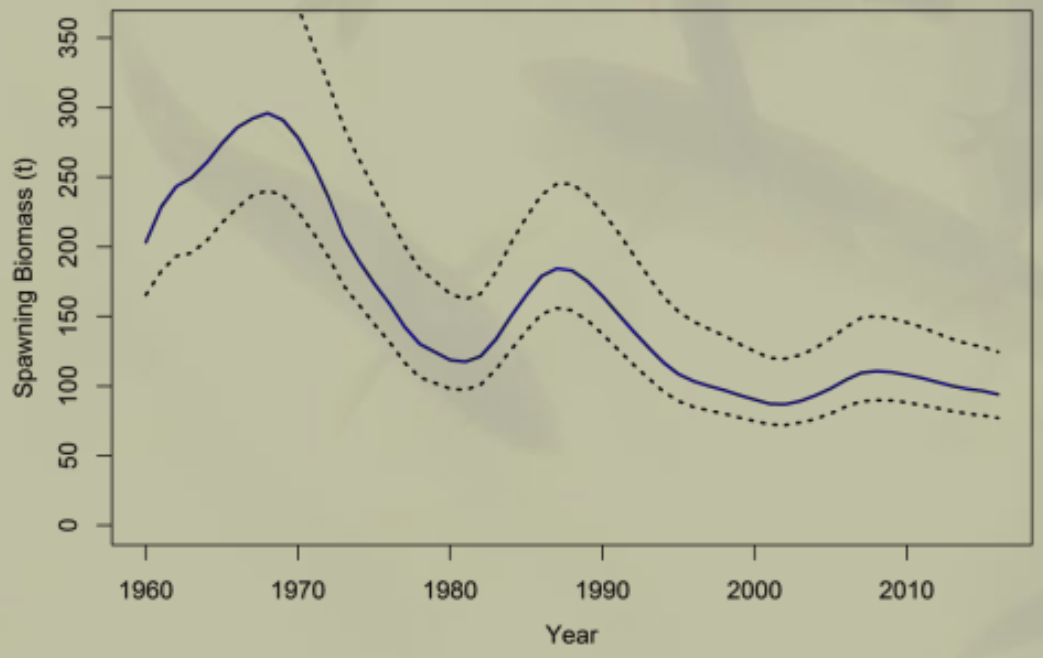
2017 spawners by year class



Trends

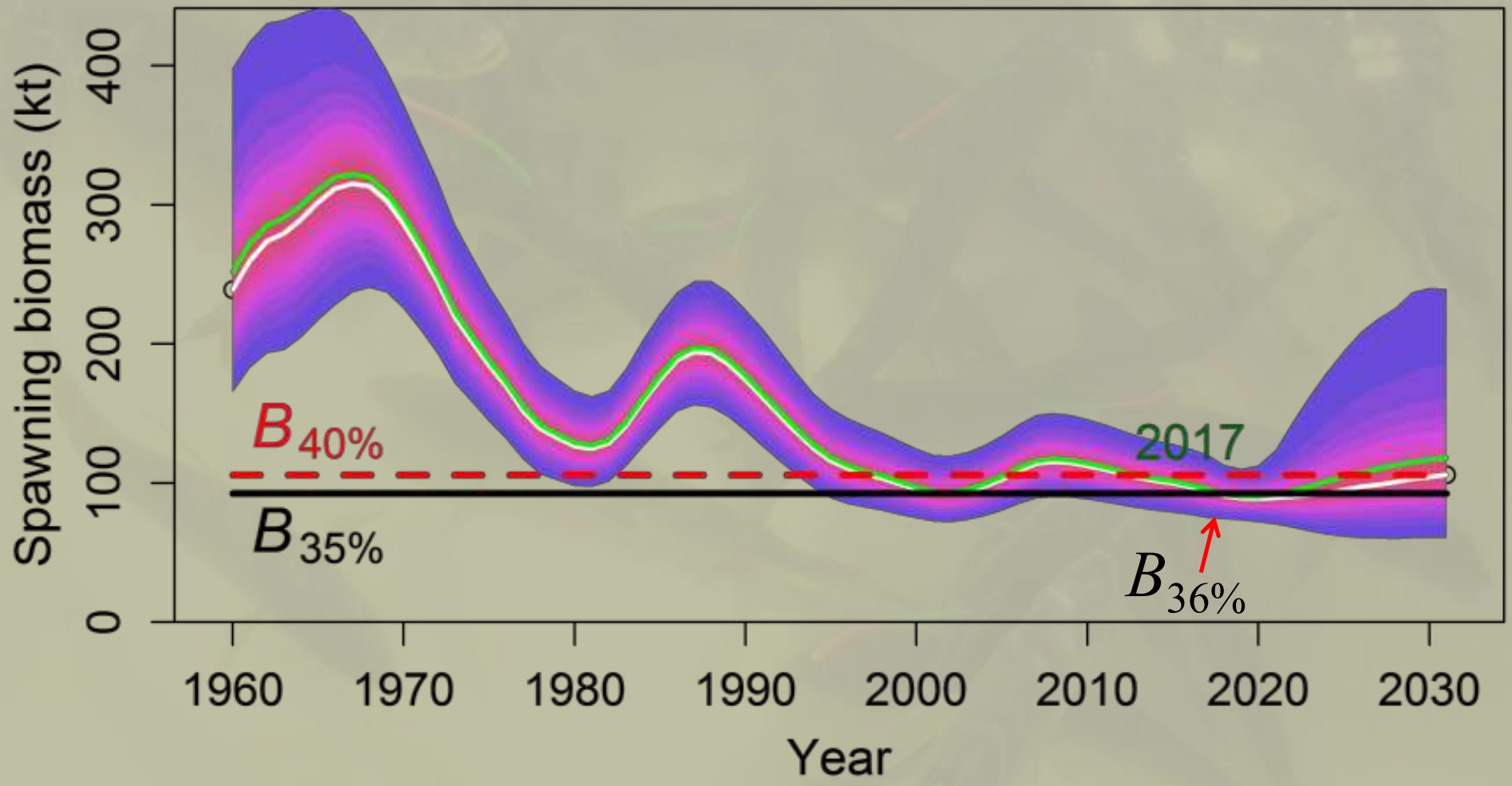


- Total biomass has been slowly decreasing since 2003



- Spawning biomass leveled and trending slightly down

Projection


Spawning biomass (kt)
0
100
200
300
400
1960
1970
1980
1990
2000
2010
2020
2030
Year
$B_{40\%}$
$B_{35\%}$
2017
$B_{36\%}$

ABC summary

- LL survey up substantially from low in 2015
- Fishery CPUE index at time series low in 2015, like longline survey
- 36% unfished spawning biomass
- ABC 2016: 11,795 t
- ABC 2017 (Max): 13,509 t (vs. 10,782 t projected)
  - 14.5 % increase from 2016 (versus -9% projected)
- Future: Projection is stable for several years
- Author recommended ABC 13,083 (+11%)

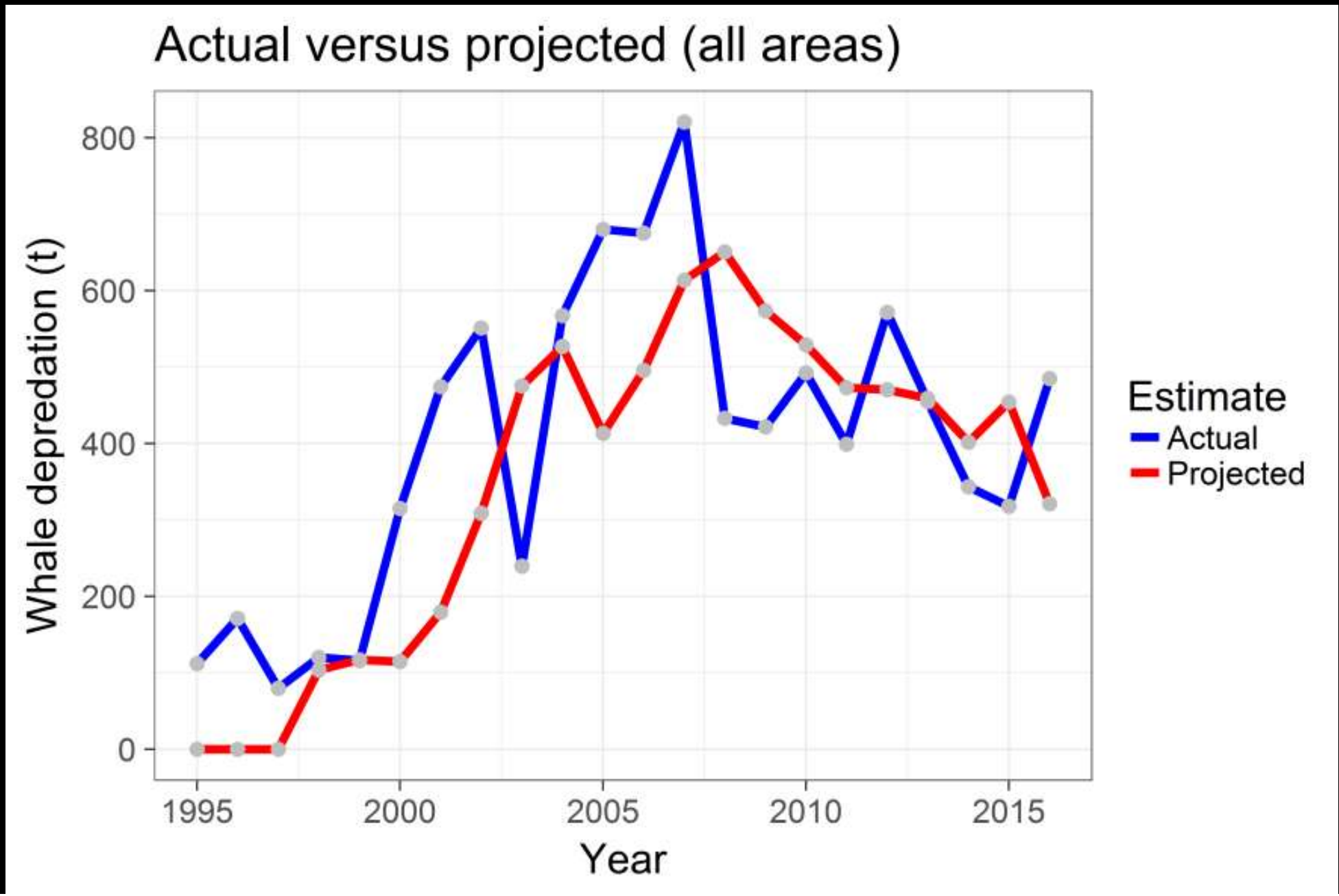
Apportionment

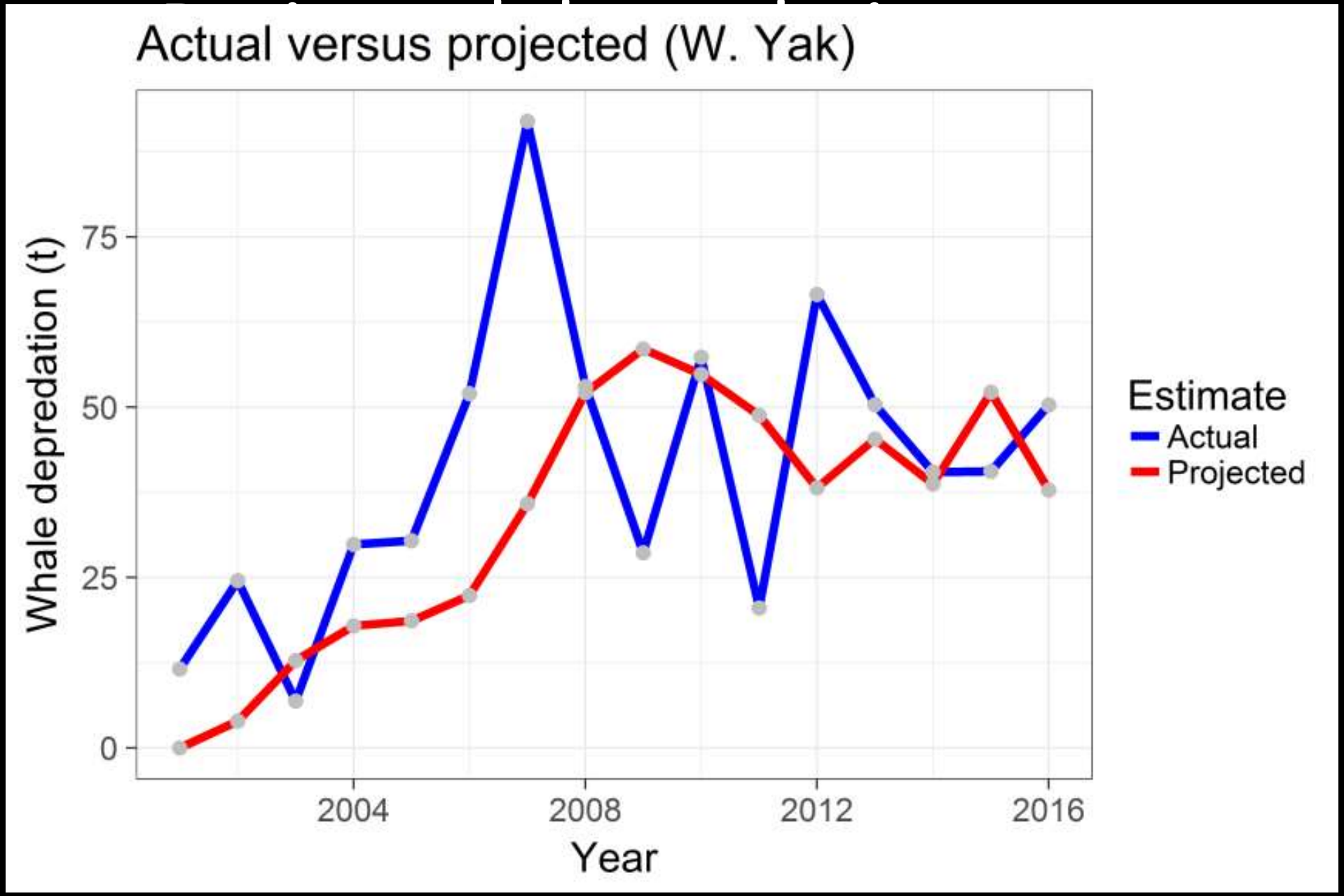
- CIE recommends seeking further input on objectives
- CIE not concerned with static apportionment
- We believe it is best to stay put (and we have no new alternatives prepared)
- MSEs and spatial work continue (and we have a new hire)
- SSC agreed at October meeting
- A workshop/WebEx might be good later

2017 ABC Corrected For Depredation

Area	AI	BS	WG	CG	WY*	EY*	Total
2016 ABC	1,557	1,151	1,272	4,023	1,353	2,438	11,795
2017 ABC	1,783	1,318	1,457	4,608	1,550	2,793	13,509
Run with whale corrections for survey and fishery							
3 year average depredation	-42	-39	-94	-82	-71	-44	-372
Ratio of 2017 ABC/2016 ABC = 1.145							
Deduct 3 year average * 1.145							
Deduct 3 year adjusted average	-48	-44	-108	-94	-82	-50	-426
2017 ABC_{WC}	**1,735**	**1,274**	**1,349**	**4,514**	**1,468**	**2,743**	**13,083**
Change from 2016	11%	11%	6%	12%	9%	12%	11%

Projected depredation error

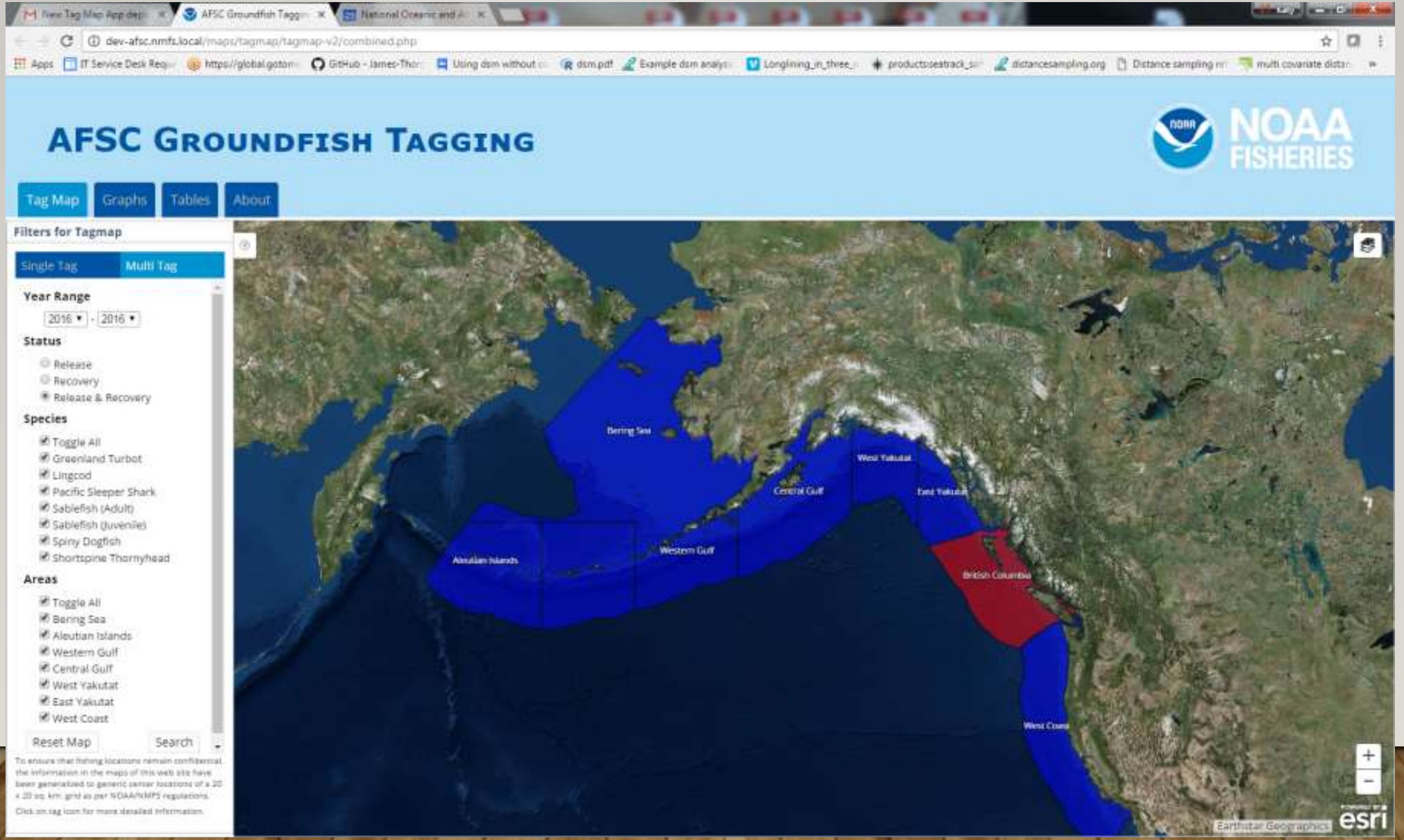


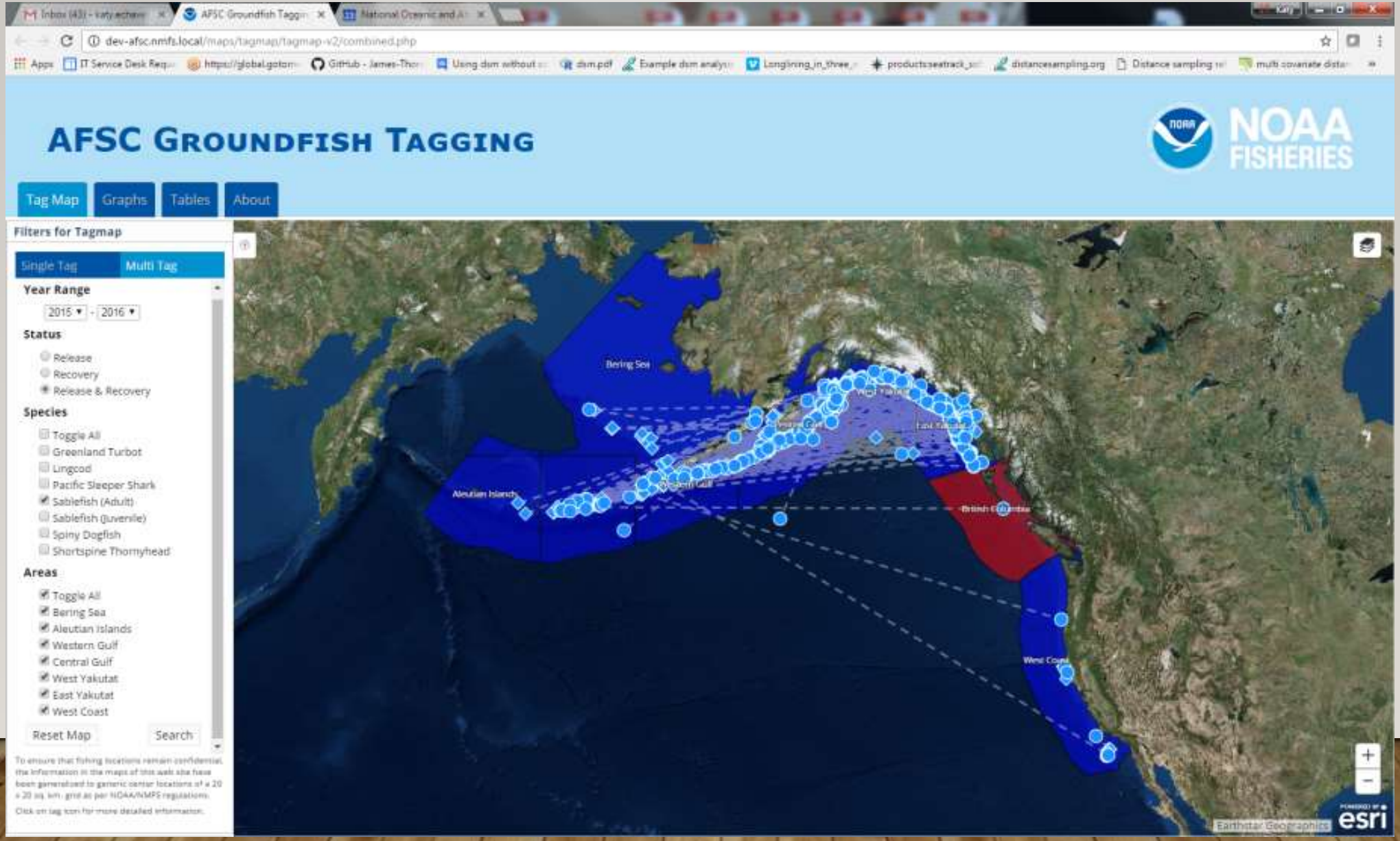

Actual versus projected (W. Yak)
Whale depredation (t)
75
50
25
0
2004
2008
2012
2016
Year
Estimate
Actual
Projected

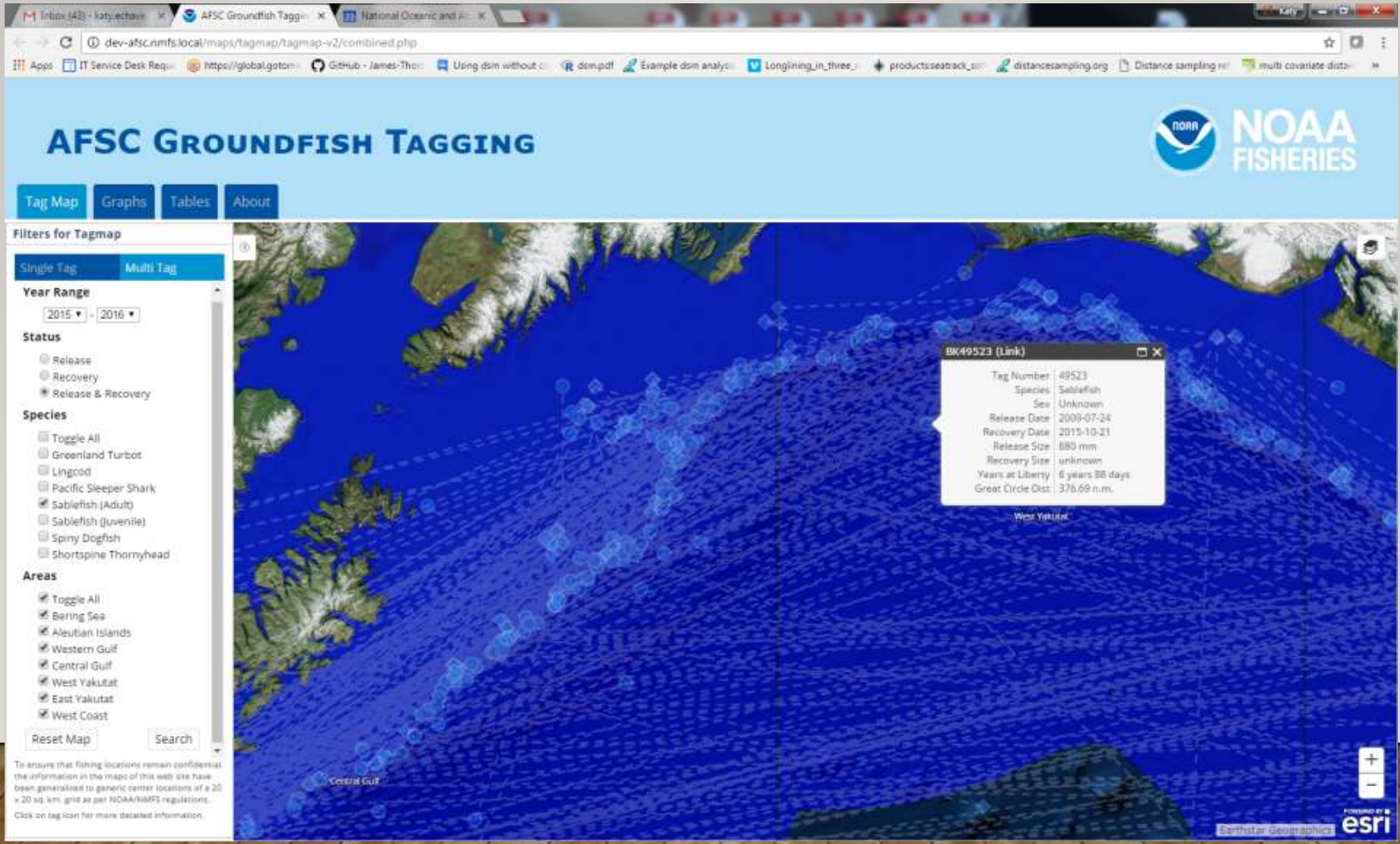
Research – Movement/tagging

- THANKS FOR TURNING IN YOUR TAGS!!

- :Ongoing
  - Archival tag analysis
  - Annual covariates affecting movement
  - Including BC and WC tags (and possibly PWS)
  - Juvenile tagging in Sitka (Saint John Baptist Bay)
  - Satellite tagging for spawning locations
  - **Tag website**


AFSC Groundfish Tagging
dev-afsc.nmfs.local/maps/tagmap/tagmap-v2/combined.php
AFSC GROUNDFISH TAGGING
NOAA FISHERIES
Tag Map
Graphs
Tables
About
Filters for Tagmap
Single Tag
Multi Tag
Year Range
2016 - 2016
Status
Release
Recovery
Release & Recovery
Species
Toggle All
Greenland Turbot
Lingcod
Pacific Sleeper Shark
Sablefish (Adult)
Sablefish (Juvenile)
Spiny Dogfish
Shortspine Thornyhead
Areas
Toggle All
Bering Sea
Aleutian Islands
Western Gulf
Central Gulf
West Yakutat
East Yakutat
West Coast
Reset Map
Search
To ensure that fishing locations remain confidential, the information in the maps of this web site have been generalized to generic center locations of a 20 x 20 sq. km. grid as per NOAA/NMFS regulations.
Click on tag icon for more detailed information.
Bering Sea
West Yakutat
Central Gulf
East Yakutat
Western Gulf
Aleutian Islands
British Columbia
West Coast
Earthstar Geographics
esri


AFSC Groundfish Tagg
dev-afsc.nmfs.local/maps/tagmap/tagmap-v2/combined.php
AFSC GROUNDFISH TAGGING
NOAA FISHERIES
Tag Map
Graphs
Tables
About
Filters for Tagmap
Single Tag
Multi Tag
Year Range
2015 - 2016
Status
Release
Recovery
Release & Recovery
Species
Toggle All
Greenland Turbot
Lingcod
Pacific Sleeper Shark
Sablefish (Adult)
Sablefish (Juvenile)
Spiny Dogfish
Shortspine Thornyhead
Areas
Toggle All
Bering Sea
Aleutian Islands
Western Gulf
Central Gulf
West Yakutat
East Yakutat
West Coast
Reset Map
Search
Bering Sea
Aleutian Islands
British Columbia
West Coast
Earthstar Geographics
esri


AFSC Groundfish Tagging
dev-afsc.nmfs.local/maps/tagmap/tagmap-v2/combined.php
AFSC GROUNDFISH TAGGING
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Greenland Turbot
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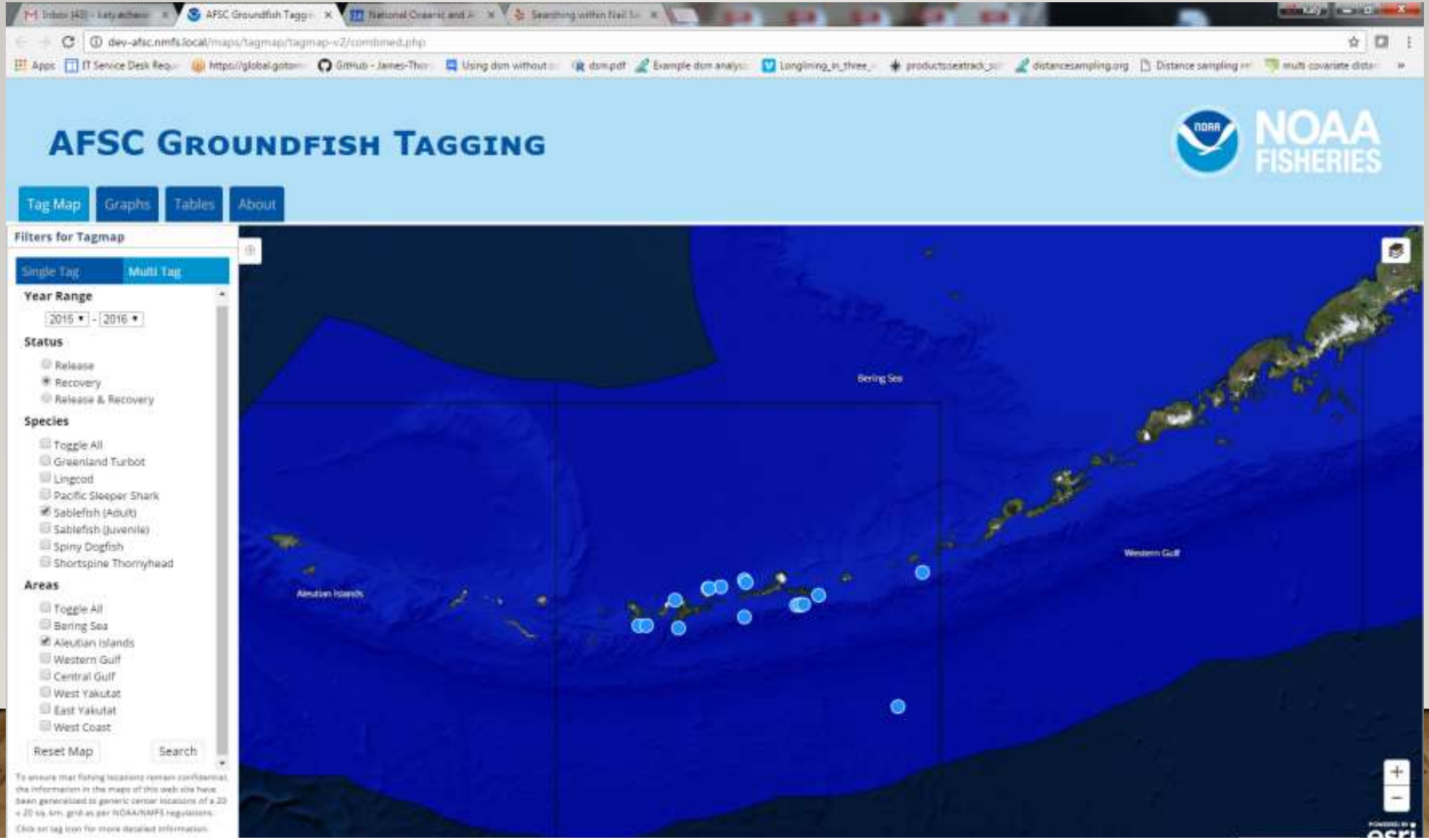
Pacific Sleeper Shark
Sablefish (Adult)
Sablefish (Juvenile)
Spiny Dogfish
Shortspine Thornyhead
Areas
Toggle All
Bering Sea
Aleutian Islands
Western Gulf
Central Gulf
West Yakutat
East Yakutat
West Coast
Reset Map
Search
To ensure that fishing locations remain confidential, the information in the maps of this web site have been generalized to generic center locations of a 20 x 20 sq. km. grid as per NOAA/NMFS regulations.
Click on tag icon for more detailed information.
BK49523 (Link)
Tag Number 49523
Species Sablefish
Sex Unknown
Release Date 2009-07-24
Recovery Date 2015-10-21
Release Size 680 mm
Recovery Size unknown
Years at Liberty 6 years 88 days
Great Circle Dist 376.69 n.m.
West Yakutat
Central Gulf
Earthstar Geographics
esri

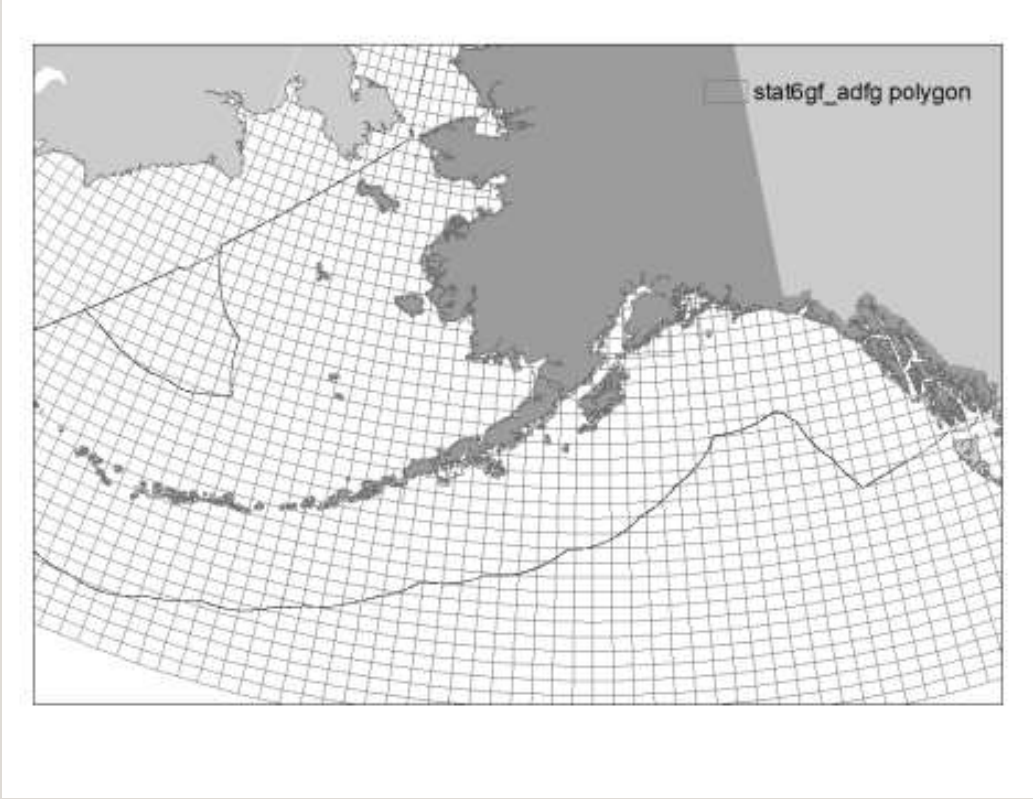
RESOLUTION OF INFORMATION:

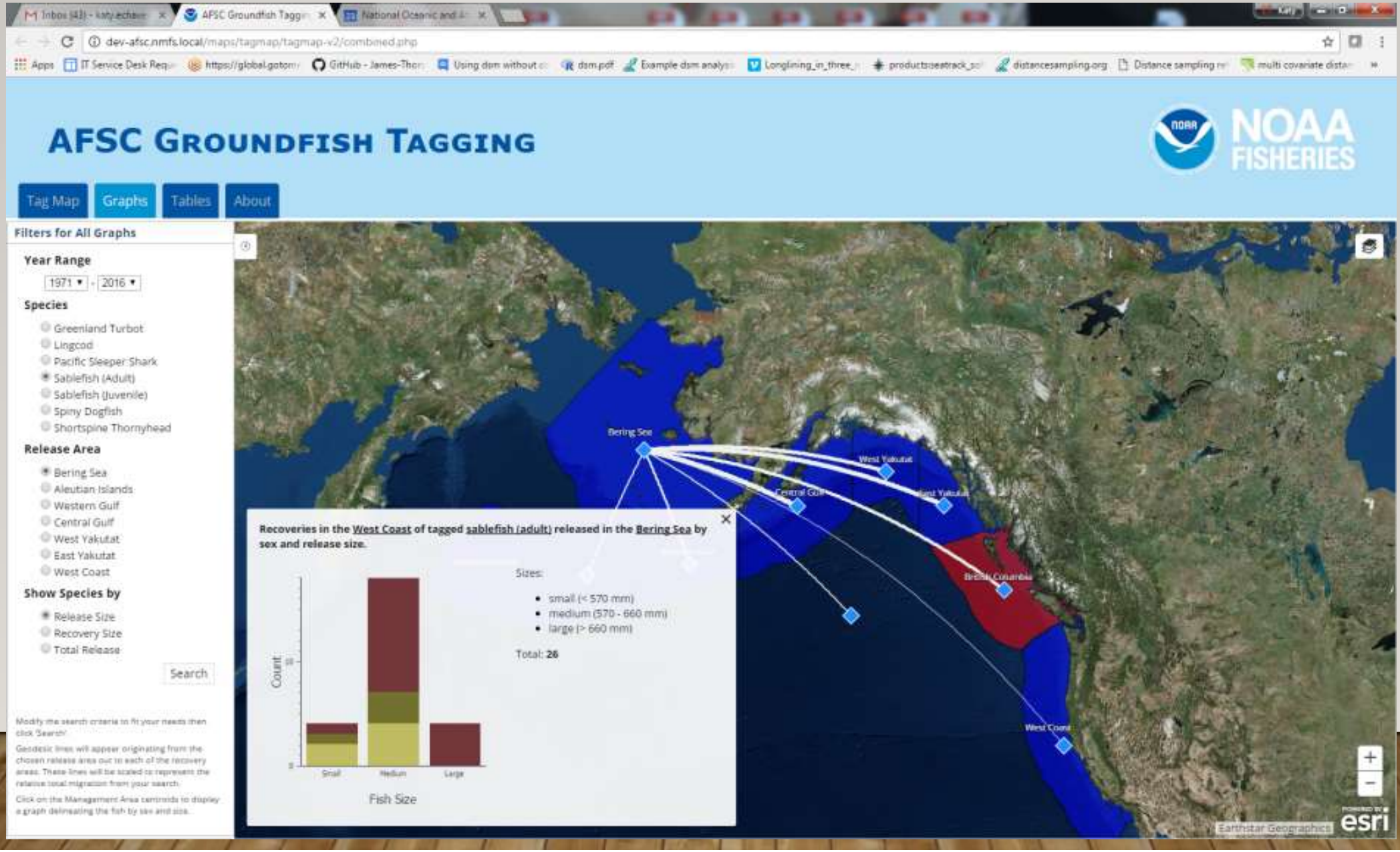
WE ARE USING A 20 X 20 SQ KM GRID, WHICH SATISFIES NOAA REGULATIONS, BUT IS IT STILL TO SPECIFIC?

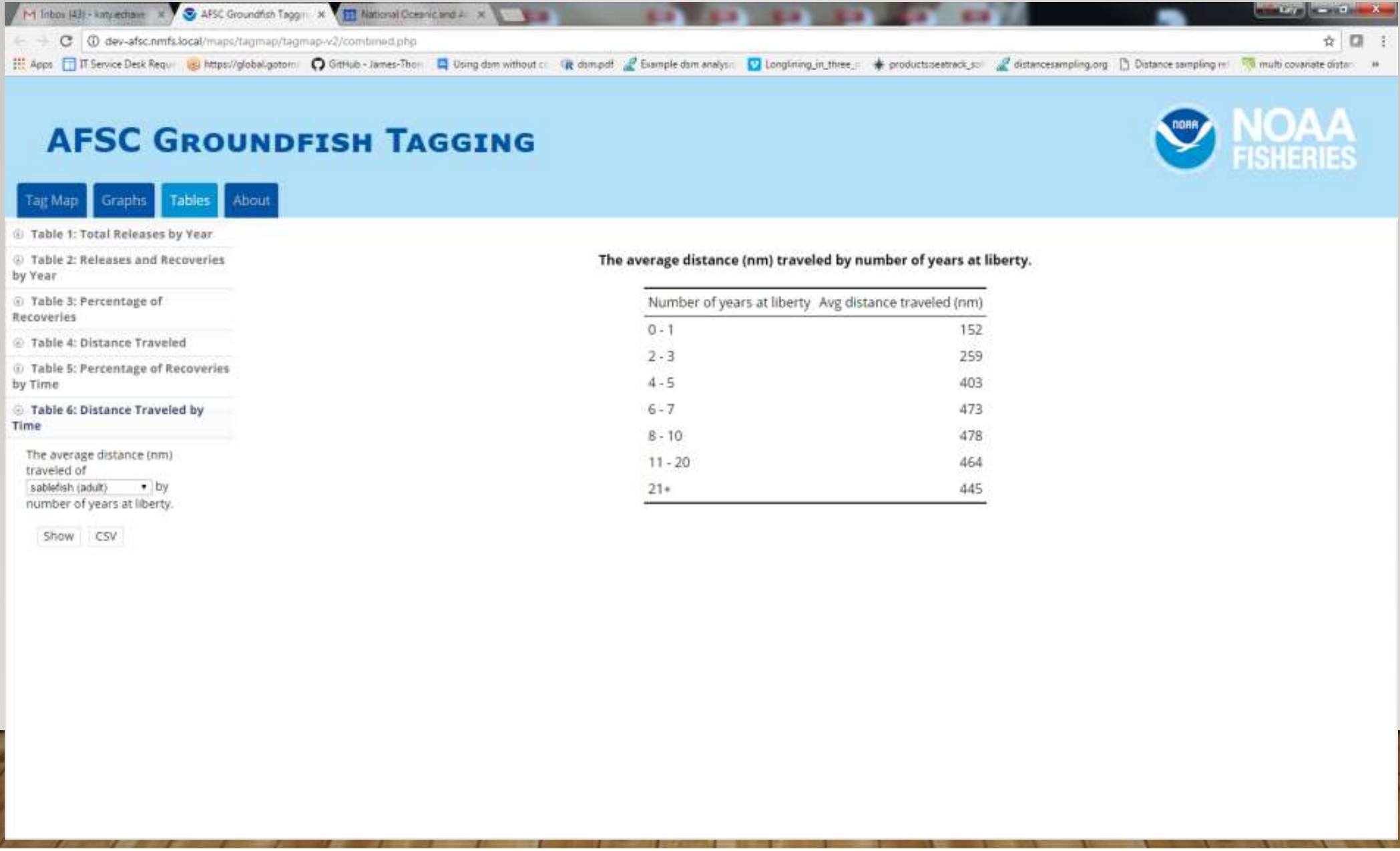


MAP SHOWING ADFG STAT AREA GRID

Would this resolution be better?




AFSC Groundfish Tagging
dev-afsc.nmfs.local/maps/tagmap/tagmap-v2/combined.php
NOAA FISHERIES
Tag Map
Graphs
Tables
About
Filters for All Graphs
Year Range
1971 - 2016
Species
Greenland Turbot
Lingcod
Pacific Sleeper Shark
Sablefish (Adult)
Sablefish (Juvenile)
Spiny Dogfish
Shortspine Thornyhead
Release Area
Bering Sea
Aleutian Islands
Western Gulf
Central Gulf
West Yakutat
East Yakutat
West Coast
Show Species by
Release Size
Recovery Size
Total Release
Search
Modify the search criteria to fit your needs then click 'Search'.
Geodesic lines will appear originating from the chosen release area out to each of the recovery areas. These lines will be scaled to represent the relative total migration from your search.
Click on the Management Area centroids to display a graph delineating the fish by sex and size.
Bering Sea
West Yakutat
Central Gulf
East Yakutat
Recoveries in the West Coast of tagged sablefish (adult) released in the Bering Sea by sex and release size.
Sizes:
small (< 570 mm)
medium (570 - 660 mm)
large (> 660 mm)
Total: 26
Count
Small
Medium
Large
Fish Size
West Coast
Earthstar Geographics
esri


AFSC Groundfish Tagging
NOAA FISHERIES
Tag Map
Graphs
Tables
About
Table 1: Total Releases by Year
Table 2: Releases and Recoveries by Year
Table 3: Percentage of Recoveries
Table 4: Distance Traveled
Table 5: Percentage of Recoveries by Time
Table 6: Distance Traveled by Time
The average distance (nm) traveled of
sablefish (adult)
by number of years at liberty.
Show
CSV
The average distance (nm) traveled by number of years at liberty.
Number of years at liberty | Avg distance traveled (nm)
0 - 1 | 152
2 - 3 | 259
4 - 5 | 403
6 - 7 | 473
8 - 10 | 478
11 - 20 | 464
21+ | 445

SITKA FACTOIDS

- #1 Tag Reporting City in 2016!
- 120 TAG RECOVERIES WITH A SITKA HOME TOWN ADDRESS IN 2016 (OUT OF 742 TOTAL, ~16%). Second highest was Seward with 57. Kodiak 3rd.
- Furthest traveled tag of Sitka recoveries- 1455 nmi
- Oldest tag of Sitka recoveries – 13,568 days (~37 yrs)
- Largest recovered tagged fish from Sitka port? 40 in. This is the largest tag recovery in 2016!

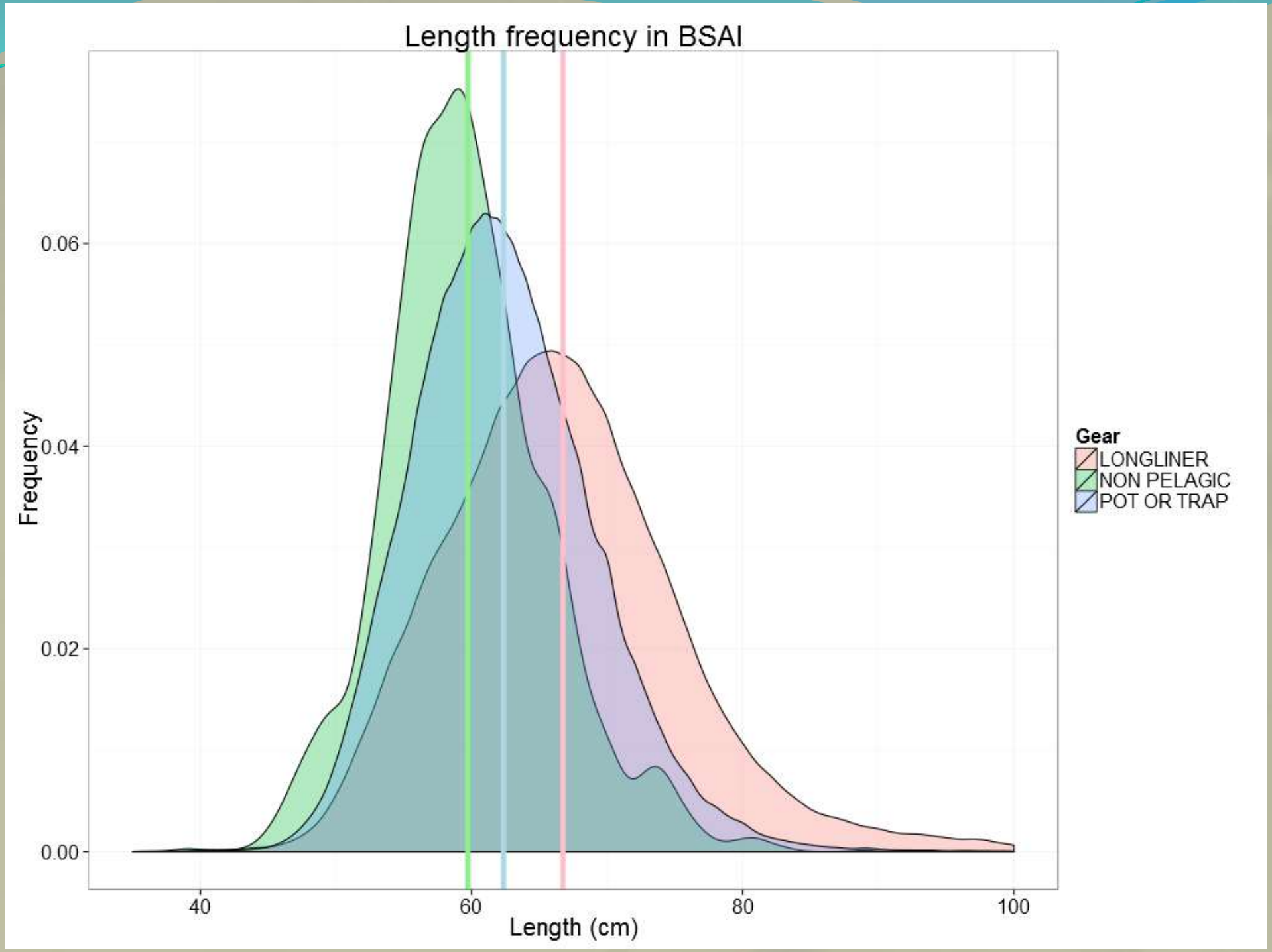
WHAT ABOUT POT LEGALIZATION?

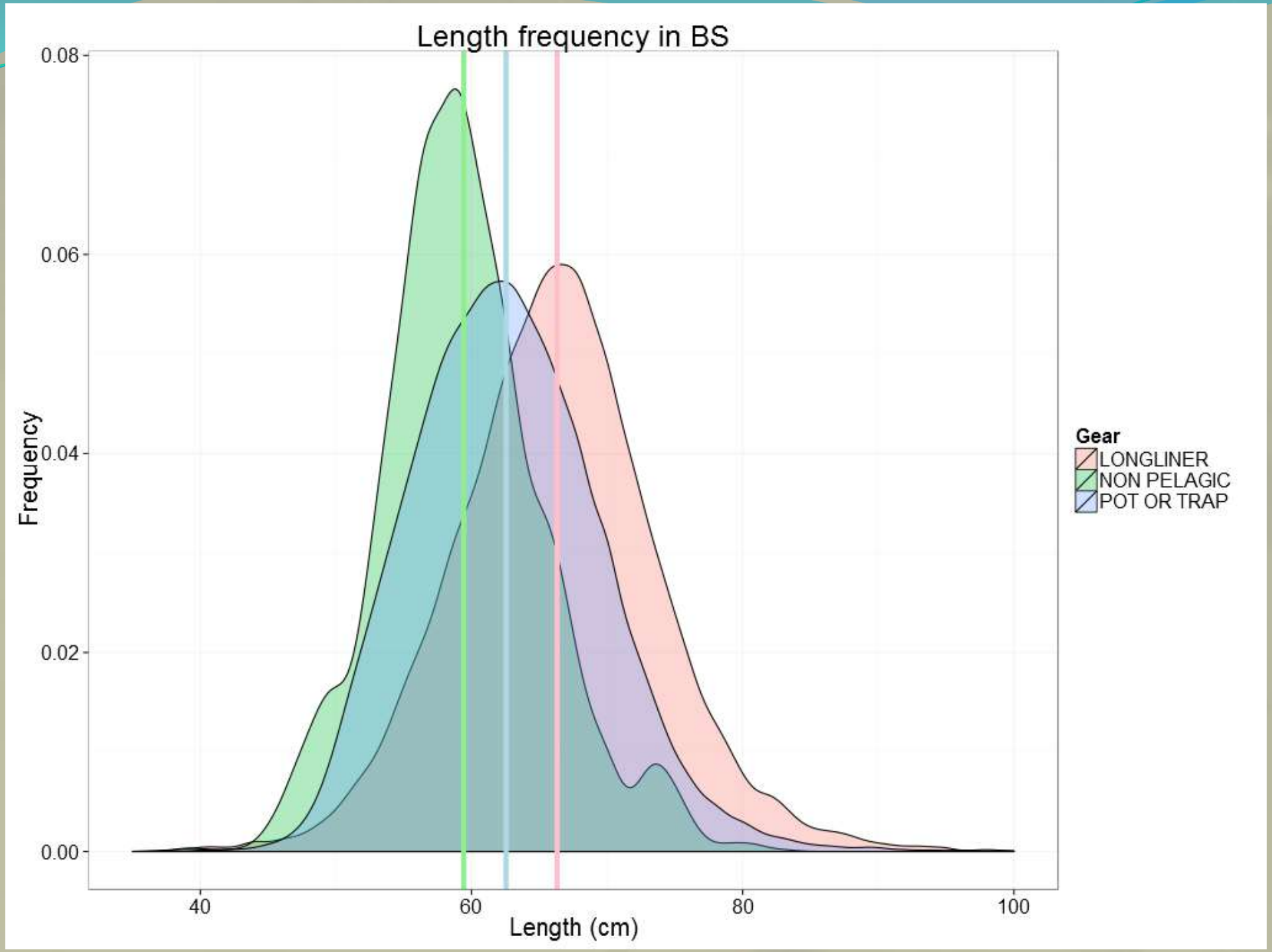
- Pot gear has been in the BS/AI for long time
- Was becoming dominant gear type until about 2007 to avoid killer whales
  - AI has moved back toward longline gear (and to the west)
  - Still main gear in EBS, but total catch is way down
- Pots in the Gulf of Alaska (b/c of sperm whales)
  - New effective date: March 11, 2017
  - Expecting some pot effort this year

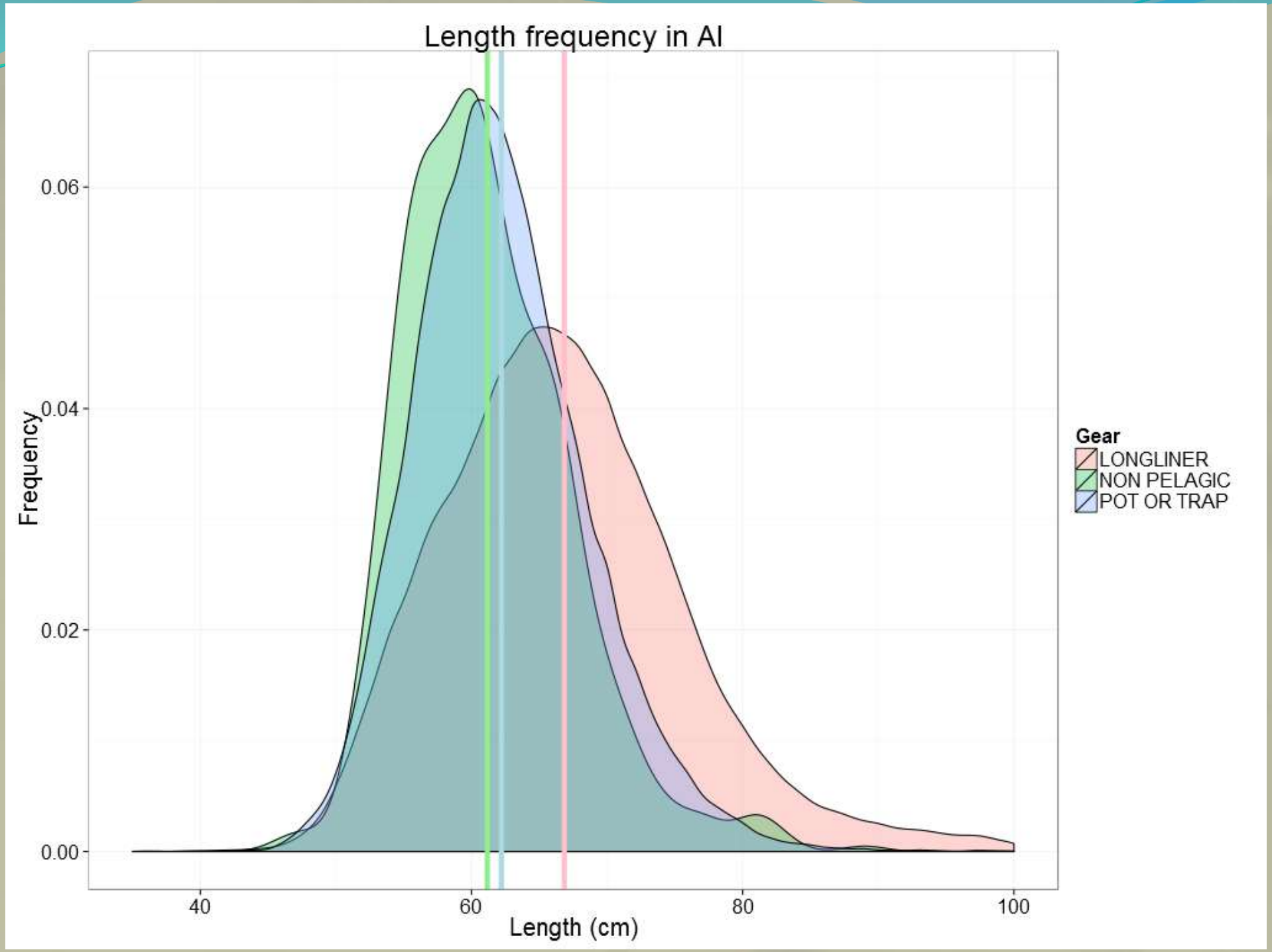
https://alaskafisheries.noaa.gov/sites/default/files/pottag_faq.pdf

What do pots catch?

- Pot versus longline lengths
- All years
  - LL mean = 26.3 inches
  - Pot mean = 24.6 inches
- Recent 5 (2010-2014)
  - LL mean = 27.6 inches
  - Pot mean = 23.8 inches
- Bigger difference in AI


Length frequency in BSAI
Frequency
0.06
0.04
0.02
0.00
40
60
80
100
Length (cm)
Gear
LONGLINER
NON PELAGIC
POT OR TRAP


Length frequency in BS
0.08
0.06
0.04
0.02
0.00
Frequency
40
60
80
100
Length (cm)
Gear
LONGLINER
NON PELAGIC
POT OR TRAP


Length frequency in AI
Frequency
0.06
0.04
0.02
0.00
40
60
80
100
Length (cm)
Gear
LONGLINER
NON PELAGIC
POT OR TRAP

Pot summary

Due to recent vote, recommend using "trap"

- Pots recently are catching smaller fish than LL gear
- Differences in catch appear to be more spatial than depth – related
- Differences also likely gear related
- Bottom line:
  - Pots fished in the same areas will probably catch the full range of lengths
  - LL gear will catch larger fish on average

2017 logbooks

OMB Control No.0648-0213
Expiration Date: 03/31/2018

Revised: 11/12/2015 **COPY DISTRIBUTION: WHITE** *Vessel Copy: Keep in Logbook* • **GREEN** *IFQ Distribution* • **GOLDENROD** *Observer copy* • **BLUE** *Discard Report Submit to Processor* • *YELLOW NMFS Copy: Remit*

CATCHER VESSEL DFL LONGLINE AND POT GEAR

VESSEL NAME	FEDERAL CRAB VESSEL PERMIT NO.	IPHC USE ONLY	PAGE
OPERATOR NAME AND SIGNATURE		ADF&G VESSEL NO.	
		FEDERAL FISHERIES PERMIT NO.	

IDENTIFICATION

INACTIVE		START	END	REASON	FEDERAL REPORTING AREA	

IFQ		CDQ
Operator IFQ Permit #	IFQ Permit #	CDQ Group #
IFQ Permit #	IFQ Permit #	Halibut CDQ Permit #
IFQ Permit #	IFQ Permit #	

MANAGEMENT PROGRAM (Check if applicable and enter number) ☐ CDQ ☐ Exempted ☐ Research ☐ AIP No. ______

OBSERVER INFORMATION
NO. OF OBSERVERS ONBOARD
OBSERVER NAME & CRUISE #
OBSERVER NAME & CRUISE #

CREW SIZE

If same as previous page check ☐

GEAR TYPE (check one)
☐ Pot is longline pot? ☐ YES ☐ NO ☐ Jig ☐ Troll ☐ Handline ☐ Hook & Line ☐ Other
If hook & line or longline pot, complete applicable boxes below.

GEAR ID	FIXED HOOK CONV	FIXED HOOK TUB	AUTOLINE	SNAP	Length of skate (hook&line) or set (pot) (ft)	Size, hook or pot	Spacing, hook or pot	No. hooks per Skate
A								
B								
C								
D								

Complete these boxes once per delivery

CATCH BY SET

SET #	DATE & TIME SET	DATE & TIME HAULED	Buoy or Bag #	BEGIN POSITION LATITUDE LONGITUDE	Buoy or Bag #	END POSITION LATITUDE LONGITUDE	BEGIN & END DEPTH (Fath.)	GEAR ID	NUMBER OF SKATES OR POTS Set	NUMBER OF SKATES OR POTS Lost	TARGET SPECIES CODE	CDQ/IFQ HALIBUT (Pounds)	IFQ SABL (Pounds) RD Round wt. WC Western cut EC Eastern cut	CR CRAB	HAIL WEIGHT (lbs. or mt.)	BIRD AVOID GEAR	Mammals (No.) sighted while hauling	Number damaged
													Wt. / No.	Wt. / No.			Sperm ___ Orca ___ Other ___	Sablefish ___ Halibut ___ Other fish ___ Hooks ___
													Wt. / No.	Wt. / No.			Sperm ___ Orca ___ Other ___	Sablefish ___ Halibut ___ Other fish ___ Hooks ___
													Wt. / No.	Wt. / No.			Sperm ___ Orca ___ Other ___	Sablefish ___ Halibut ___ Other fish ___ Hooks ___
													Wt. / No.	Wt. / No.			Sperm ___ Orca ___ Other ___	Sablefish ___ Halibut ___ Other fish ___ Hooks ___
													Wt. / No.	Wt. / No.			Sperm ___ Orca ___ Other ___	Sablefish ___ Halibut ___ Other fish ___ Hooks ___
													Wt. / No.	Wt. / No.			Sperm ___ Orca ___ Other ___	Sablefish ___ Halibut ___ Other fish ___ Hooks ___
													Wt. / No.	Wt. / No.			Sperm ___ Orca ___ Other ___	Sablefish ___ Halibut ___ Other fish ___ Hooks ___

DISCARD/DISPOSITION

For groundfish and Pacific herring, circle: lbs. or nearest 0.001 mt. For Pacific halibut, Pacific salmon, king crab, and Tanner crab, record in numbers

DATE	
SPECIES CODE	
PRODUCT CODE	
BALANCE FORWARD	
DAILY TOTAL	
CUMULATIVE TOTAL SINCE LAST DELIVERY	

COMMENTS:

DELIVERY

DATE	ADF&G FISH TICKET NO.	RECIPIENT'S NAME or IFQ REGISTERED BUYER	UNLOADING PORT

2017 logbooks

Pots

GEAR TYPE (check one)

☐ Pot is longline pot? ☐ YES ☐ NO ☐ Jig ☐ Troll ☐ Handline ☐ Hook & Line ☐ Other

If hook & line or longline pot, complete applicable boxes below.

GEAR ID	HOOK & LINE OR LONGLINE POT							
	FIXED HOOK		AUTOLINE	SNAP	Length of skate (hook&line) or set (pot) (ft)	Size, hook or pot	Spacing, hook or pot	No. hooks per Skate
	CONV	TUB						
A								
B								
C								
D								

Complete these boxes once per delivery

Whales

B	HAIL WEIGHT (lbs. or mt.)	BIRD AVOID GEAR	Mammals (No.) sighted while hauling	Number damaged
No.			Sperm _____ Orca _____ Other _____	Sablefish _____ Halibut _____ Other fish _____ Hooks _____
No.			Sperm _____ Orca _____ Other _____	Sablefish _____ Halibut _____ Other fish _____ Hooks _____
No.			Sperm _____ Orca _____ Other _____	Sablefish _____ Halibut _____ Other fish _____ Hooks _____

2017 logbooks

Gear type	If Hook & Line **or Longline Pot**, complete **applicable boxes**		
	Hook-and-line or Pot **(includes pot-and-line and longline pot)**	fixed hook (conventional or tub)	***optional***, but may be required by IPHC (see §§ 300.60 through 300.65)
		autoline	
		Snap	
		length of skate (hook and line) or longline pot set (to the nearest foot)	***optional, but may be required by IPHC (see §§ 300.60 through 300.65)***
		size of hook or pot in inches (width by length by height or diameter)	
		spacing of hook or pot (to the nearest foot)	
		Number of hooks per skate	***optional, but may be required by IPHC (see §§ 300.60 through 300.65)***
		number of pots set the number of pots lost	

	0.001 mt.	
Bird avoid gear	Seabird avoidance gear code(s) (see § 679.24(e) and Table 19 to this part)	
Mammals (Number) sighted while hauling	**Name of mammals seen: Sperm, Orca, or Other**	***optional, but may be required by IPHC (see §§ 300.60 through 300.65)***
Number damaged	**Sablefish, Halibut, Other fish, Hooks**	***optional, but may be required by IPHC (see §§ 300.60 through 300.65)***

Questions