

Science, Service, Stewardship



Overview of the 2014 BSAI Groundfish SAFE Report

BSAI Groundfish Plan Team

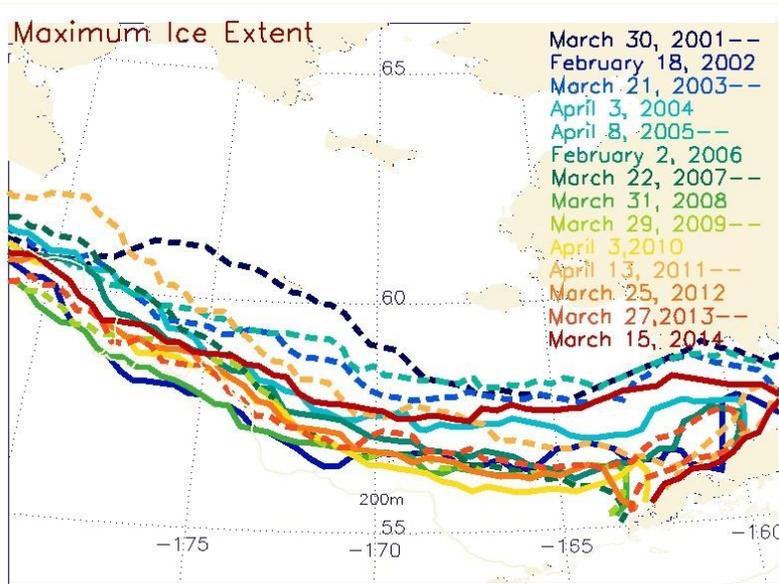
- Mike Sigler, co-chair
- Grant Thompson, co-chair
- Diana Stram, coordinator

**NOAA
FISHERIES
SERVICE**

NOAA

Ecosystem and Economic Information

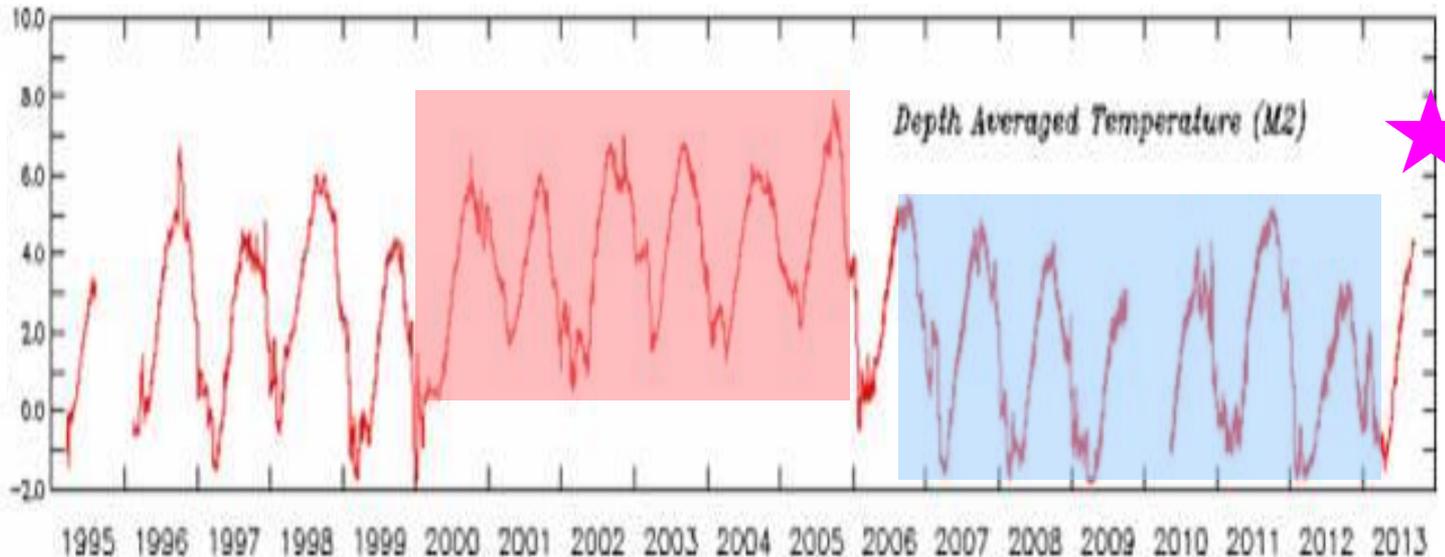
Eastern Bering Sea Climate – FOCI (Overland et al.)



- 2014: very warm
- Early ice retreat
- Warmer ocean heat storage will persist into fall

Late Aug M2 temp was 7°C

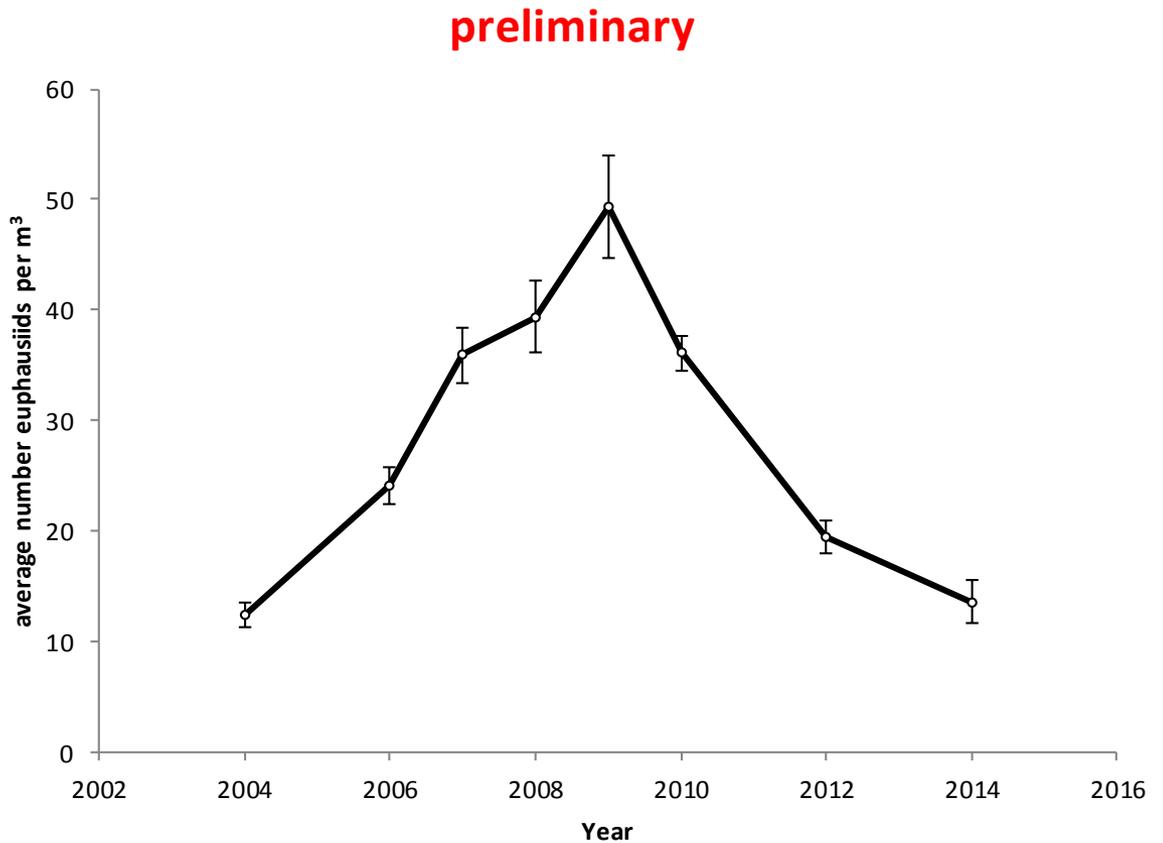
Depth averaged temperature – M2



Euphausiids (Ressler)

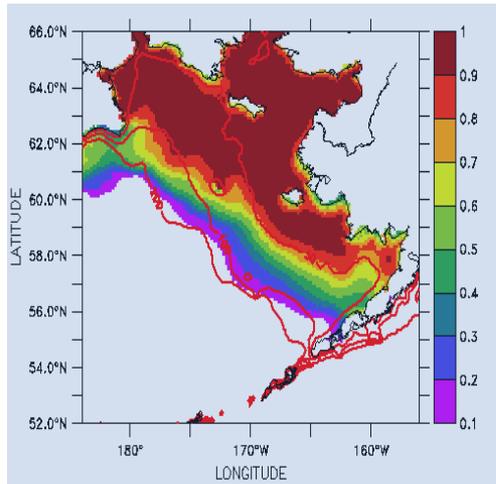


- Acoustically determined

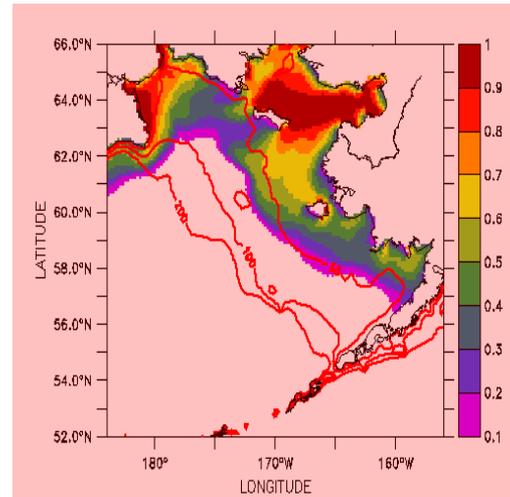


Nine-month model-based forecast of Bering Ocean conditions

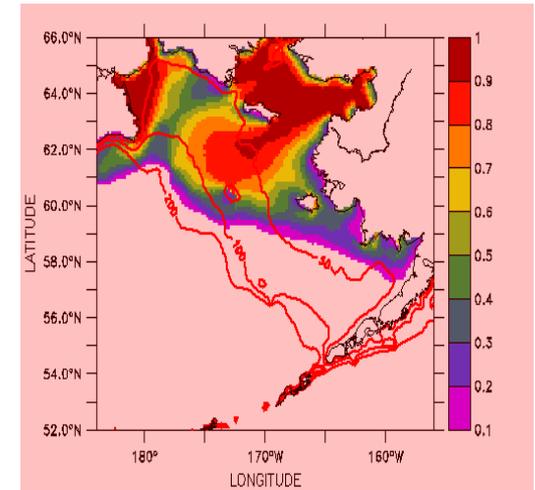
PREDICTED



2012

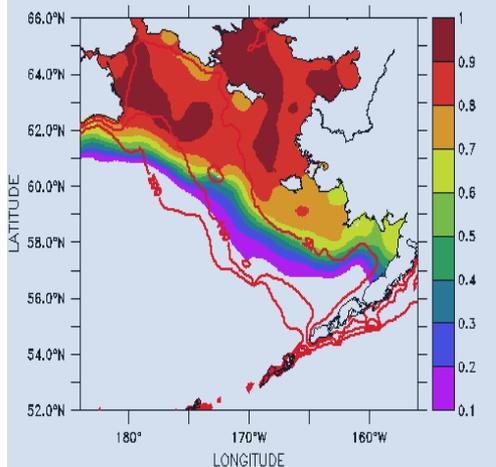


2014

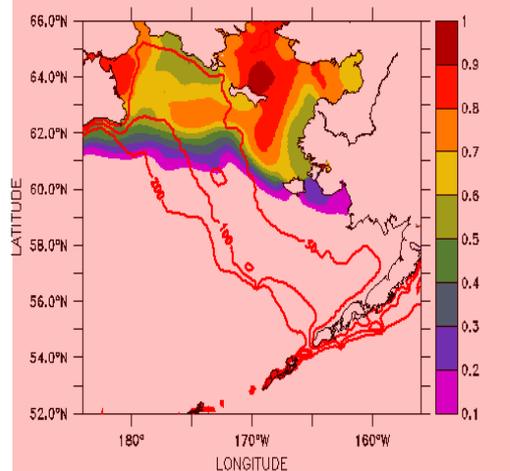


2015

OBSERVED

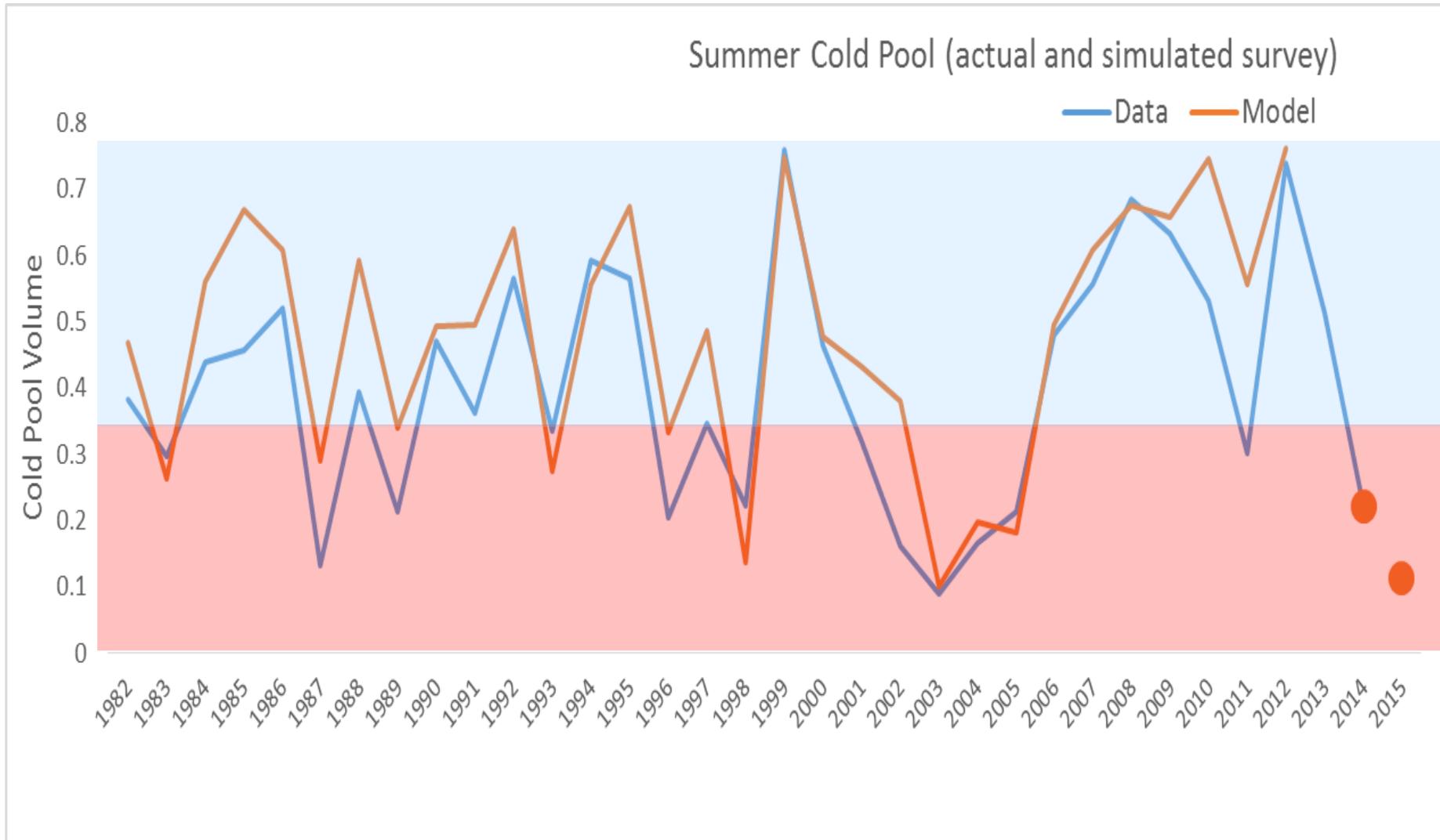


observed Jan 2012

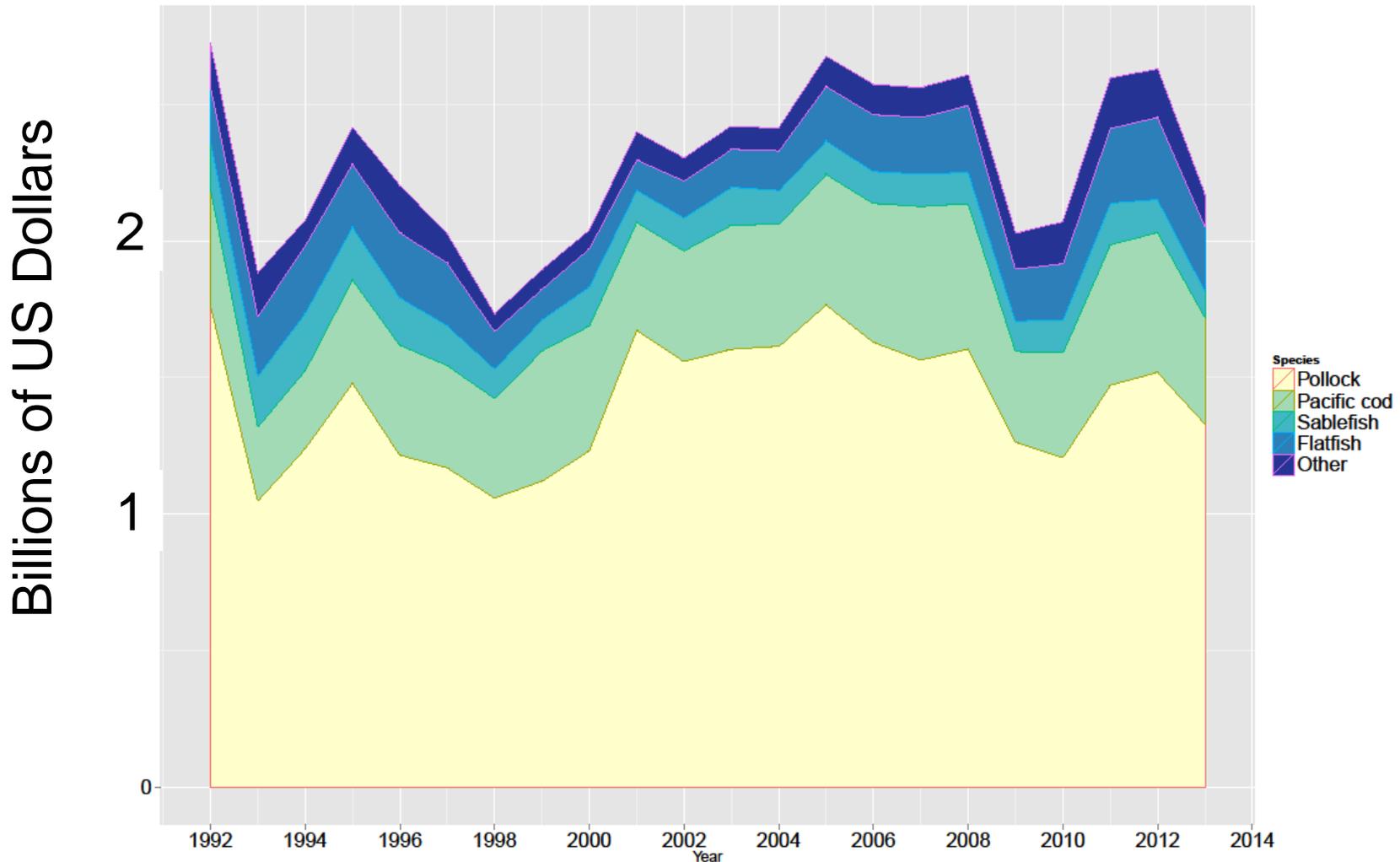


observed Jan 2014

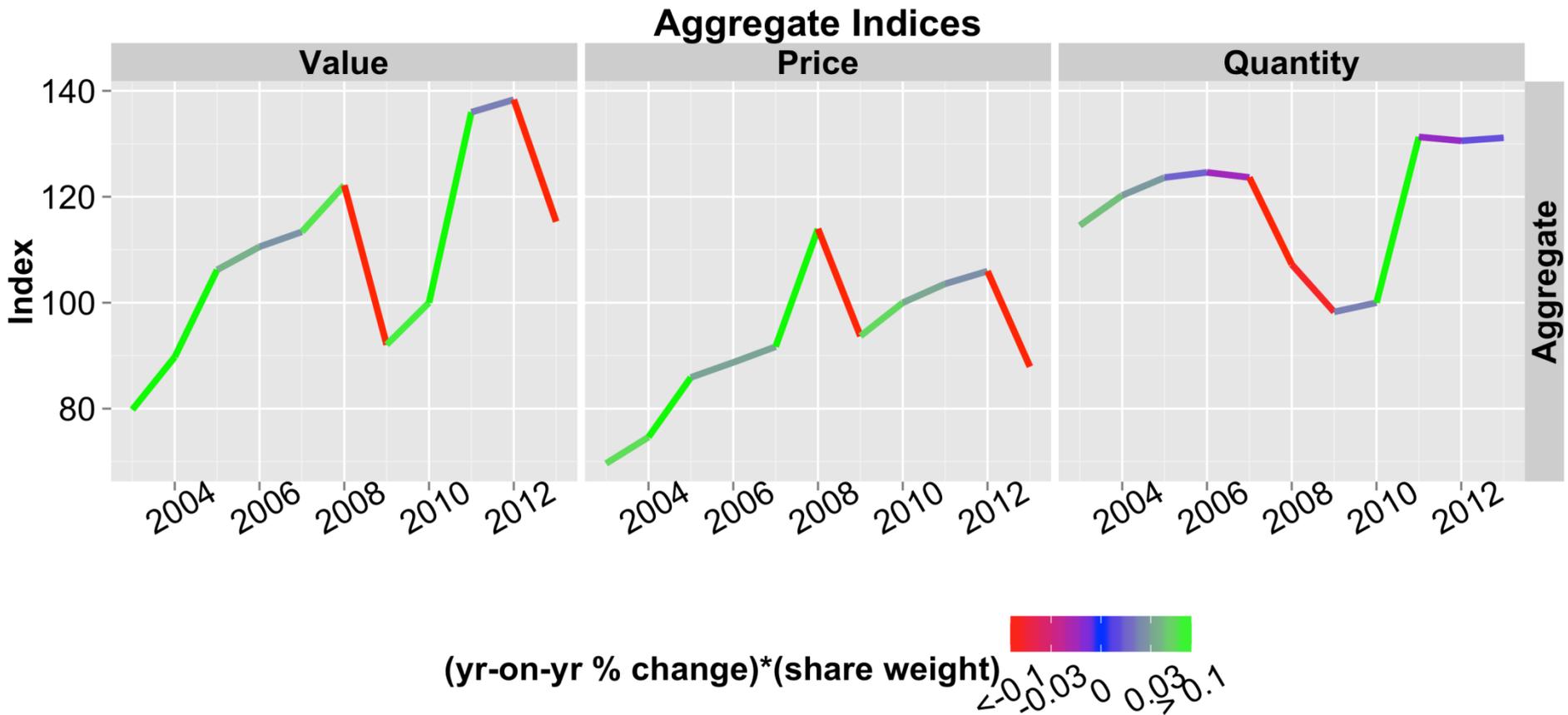
Summer Cold Pool



First-Wholesale Market Value

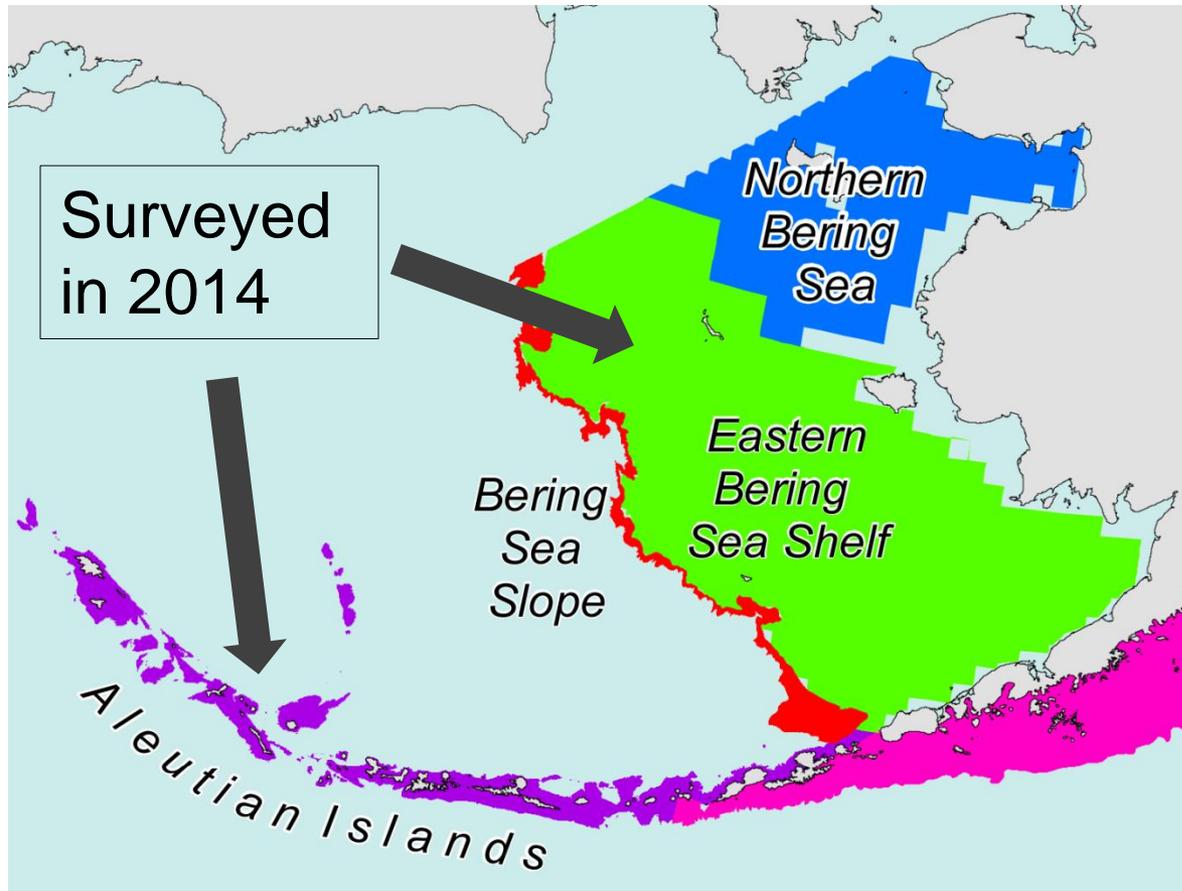


BSAI At-Sea Wholesale Market: Aggregate Economic Indices



Stock Assessments

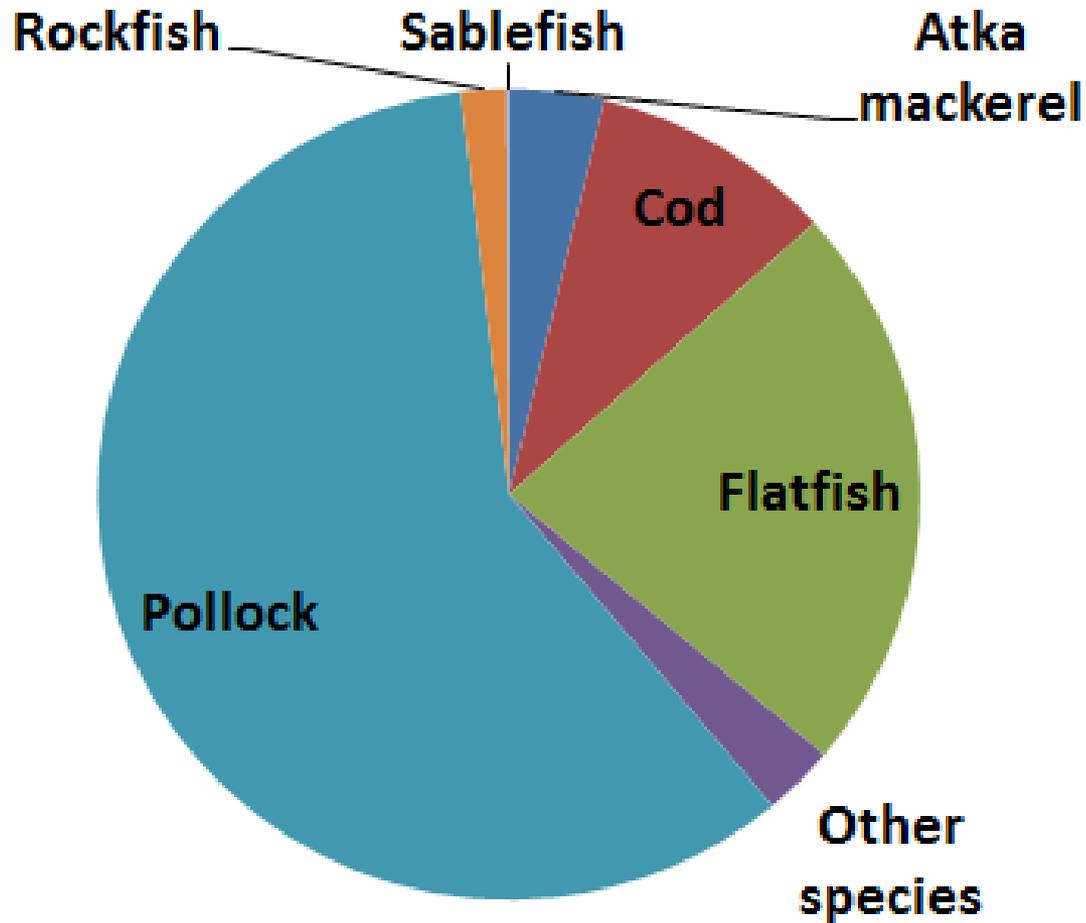
Bottom trawl survey areas



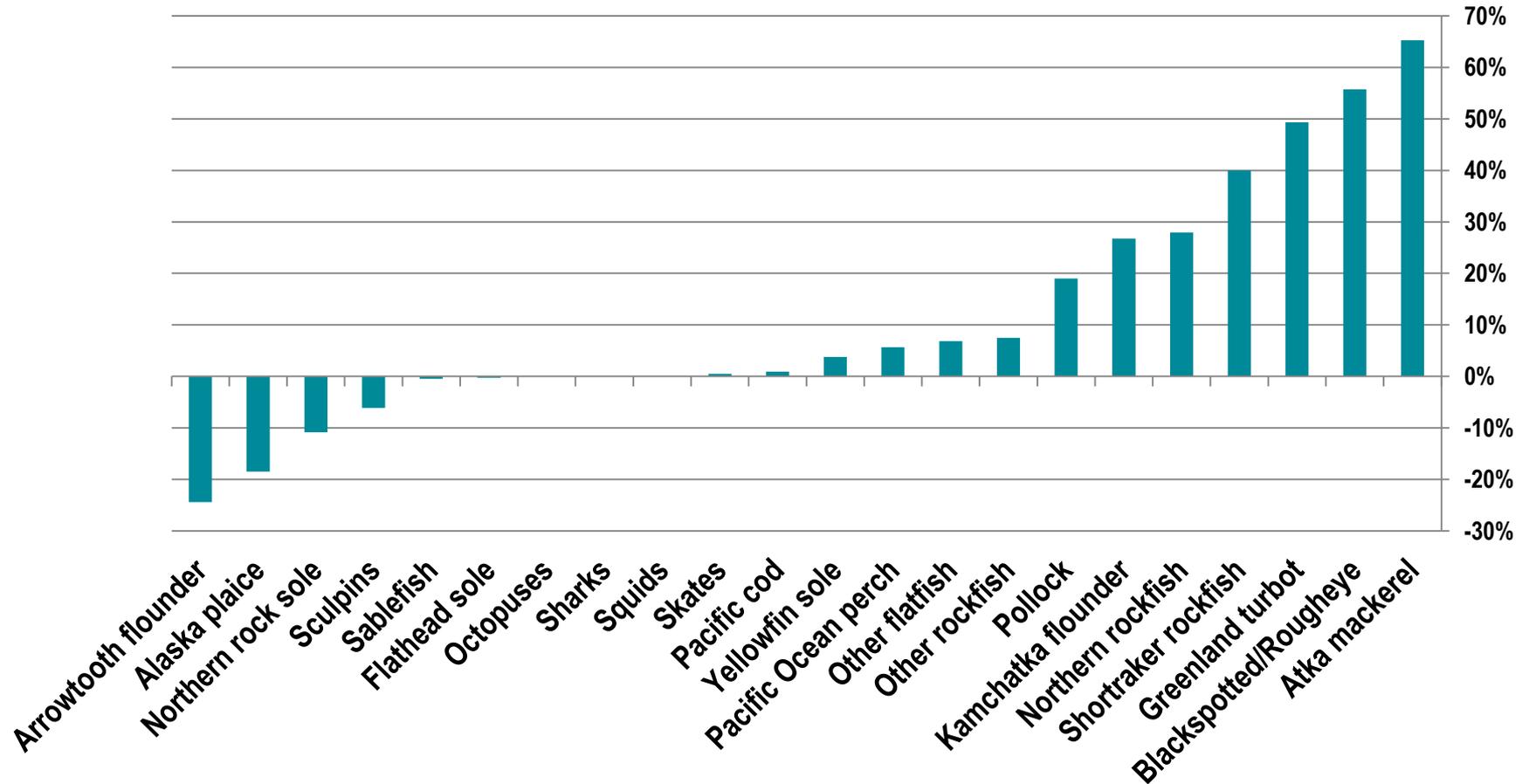
Overall picture

- Of the 16 stocks/complexes in Tiers 1-3, none are in Tier 1b and only three (AI pollock, sablefish, and Greenland turbot) are in Tier 3b
- No stocks/complexes were subjected to overfishing in 2013, and no stocks/complexes are overfished or approaching a condition of being overfished as of 2014
 - However, Greenland turbot is projected to be at $B_{24\%}$ in 2015
- After the 2013 furlough letdown, BSAI SAFE Report is back up to 2,000 pages

Recommended 2015 ABC

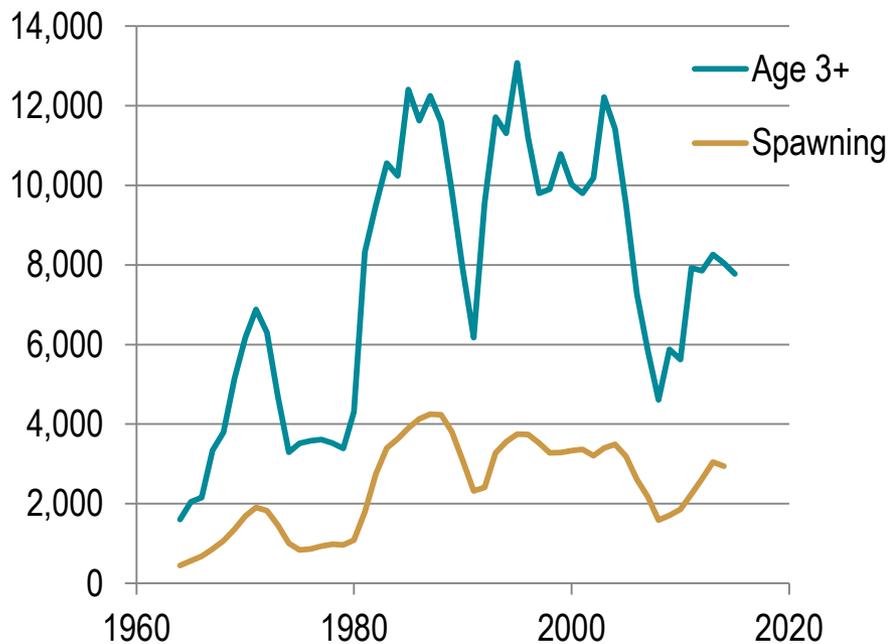


Change in ABC from 2014 to 2015

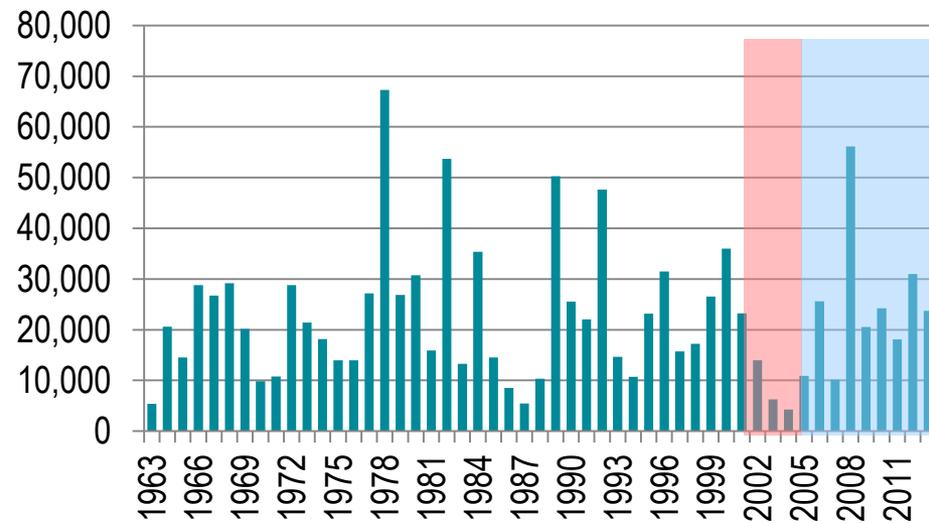


EBS walleye pollock

Biomass (thousands t)



Recruitment



EBS walleye pollock, continued

- The maximum permissible ABC for 2015 is 2.9 million t based on a Tier 1 strategy.
- The Team agreed with the authors three reasons for setting ABCs well below the maximum permissible levels:
 - A single year class (2008) accounts for more than half of the spawning biomass
 - In 2014, the fleet achieved good catch rates and low salmon bycatch with an ABC far below the maximum permissible level
 - Current low roe recovery rates may be indicative of reduced reproductive potential.

EBS walleye pollock, continued

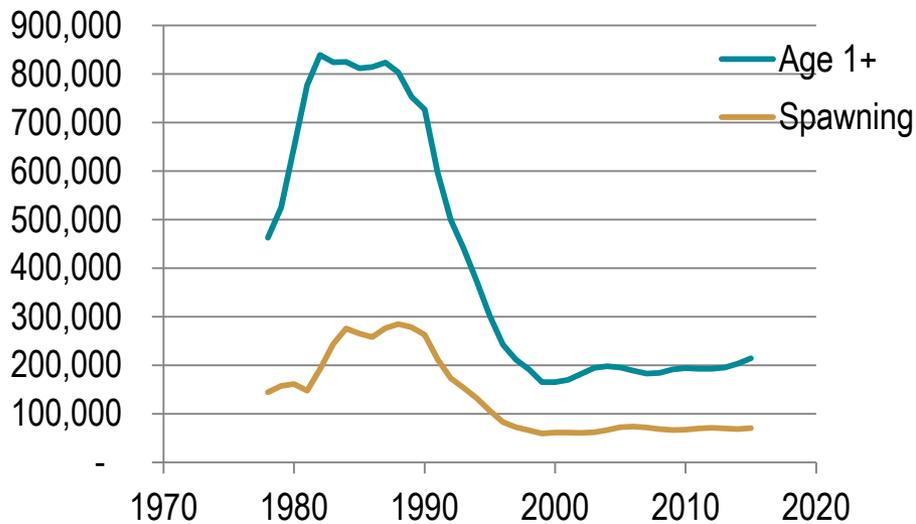
- During 2010-2013, the Team and SSC based ABC recommendations on the most recent 5-year average fishing mortality rate, which would give a 2015 ABC of 1.409 million t.
- This year, the Team based their 2015 and 2016 ABC recommendations on a Tier 3 strategy, giving values of 1.637 million t and 1.554 million t, respectively.
- The Team agrees with the assessment authors that an ABC well below the maximum permissible value continues to be appropriate, but felt that stock conditions had improved sufficiently that an increase in the ABC harvest rate was appropriate.

EBS walleye pollock, concluded

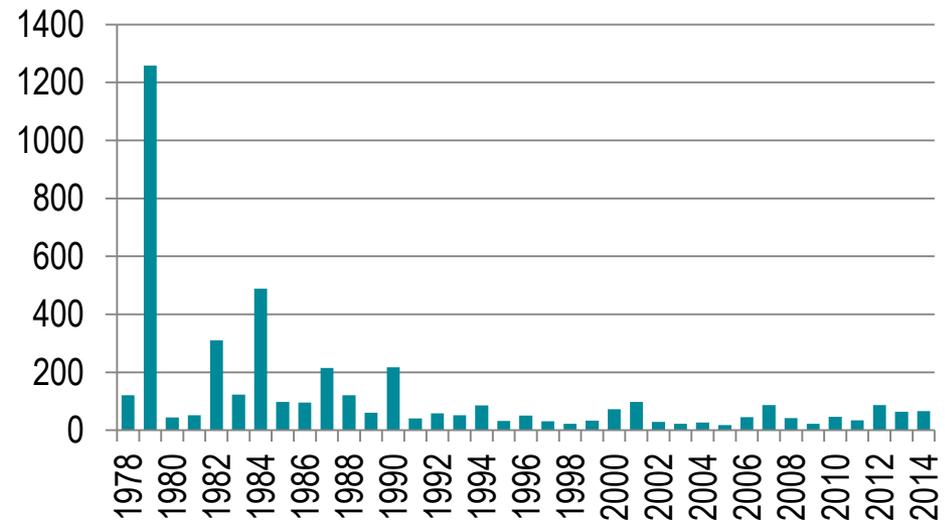
Area	Year	Biomass	OFL	ABC	TAC	Catch
Eastern Bering Sea	2013	8,140,000	2,550,000	1,375,000	1,247,000	1,270,723
	2014	8,045,000	2,795,000	1,369,000	1,267,000	1,294,703
	2015	9,203,000	3,330,000	1,637,000	n/a	n/a
	2016	9,063,000	3,319,000	1,554,000	n/a	n/a

AI walleye pollock

Biomass (t)



Recruitment

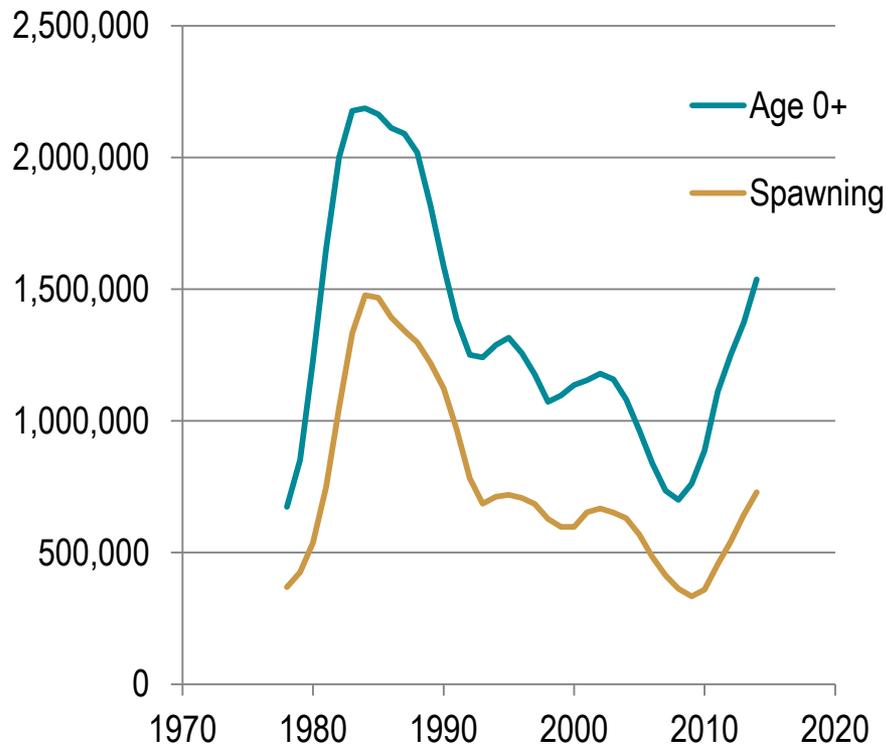


AI walleye pollock, concluded

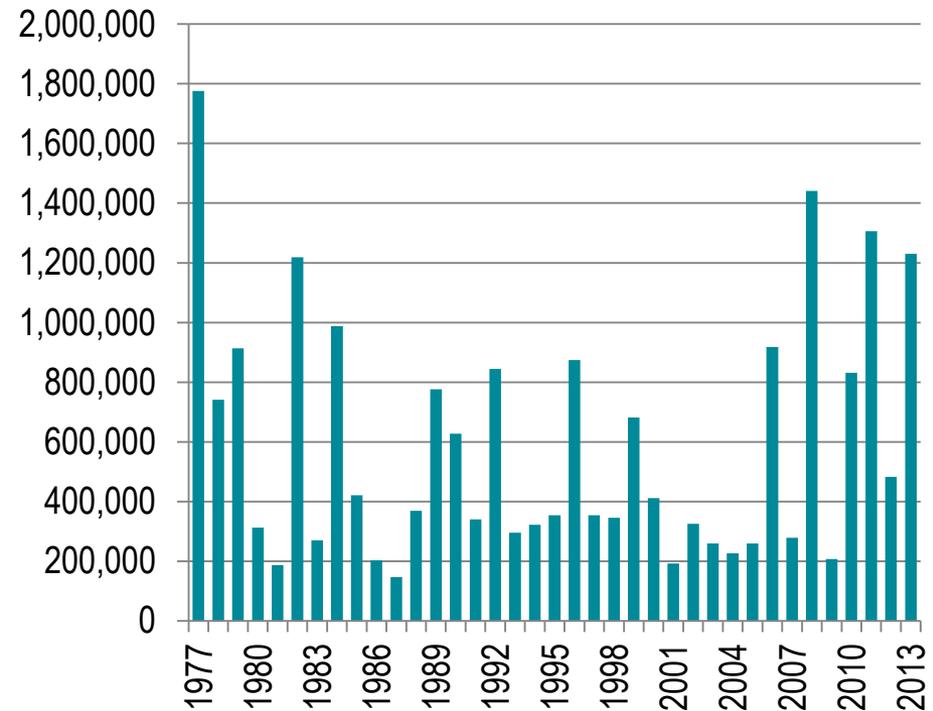
Area	Year	Biomass	OFL	ABC	TAC	Catch
Aleutian Islands	2013	266,000	45,600	37,300	19,000	2,964
	2014	259,525	42,811	35,048	19,000	2,375
	2015	228,102	36,005	29,659	n/a	n/a
	2016	249,523	38,699	31,900	n/a	n/a

EBS Pacific cod

Biomass (t)

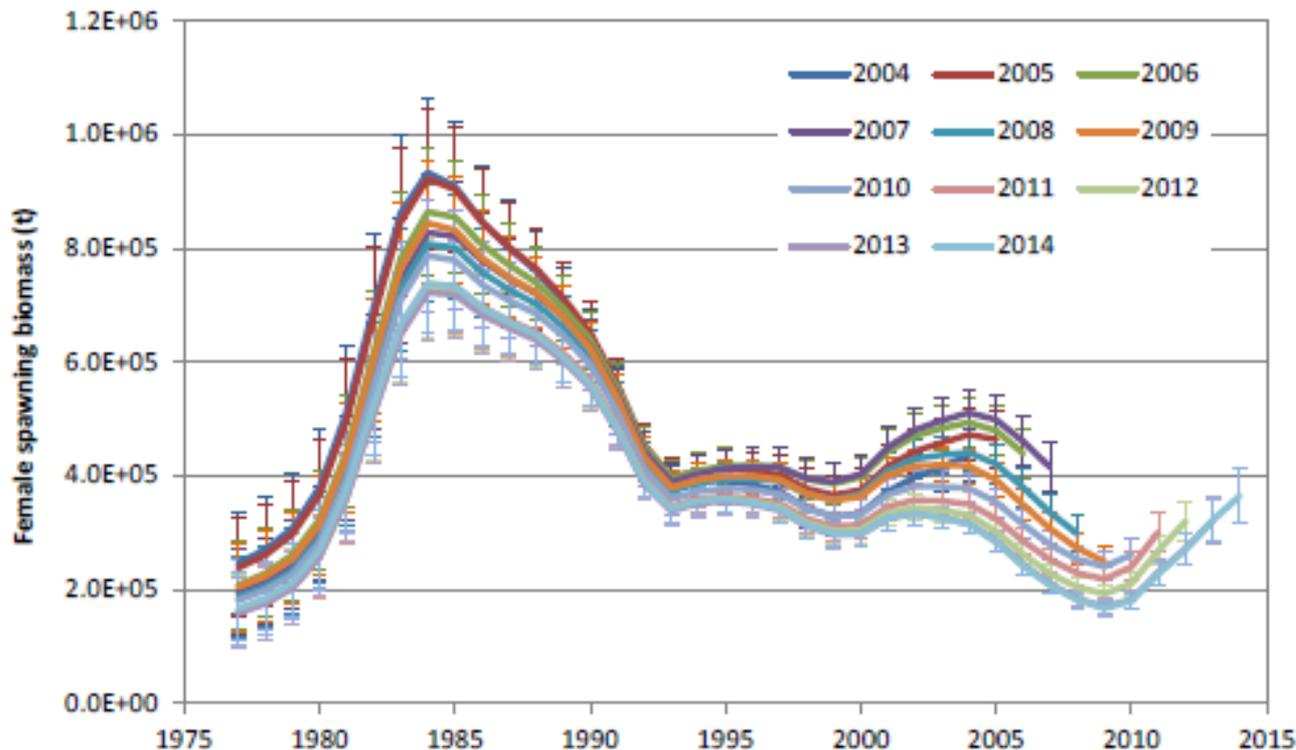


Recruitment



EBS Pacific cod, continued

The 2015 specifications were based on the same model used in 2011-2013, but the Team expressed serious reservations about this model's poor retrospective performance and continued reliance on a fixed value of survey catchability that is no longer very credible.



EBS Pacific cod, continued

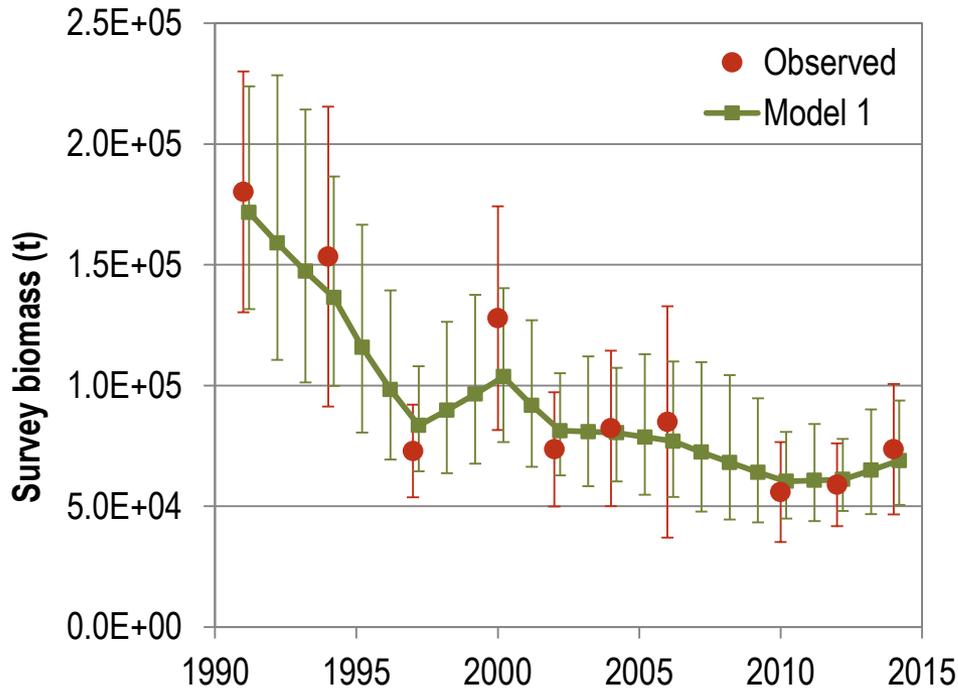
- The maximum 2015 ABC in this tier is 295,000 t, but the author and Team recommend that ABC be held at the 2014 level of 255,000 t to compensate for the poor retrospective behavior of the standard model. The Team recommends the same value for the preliminary 2016 ABC.
- A different model was requested for next year (i.e., bring Model 2 back next year as the presumptive reference model for 2016).

EBS Pacific cod, concluded

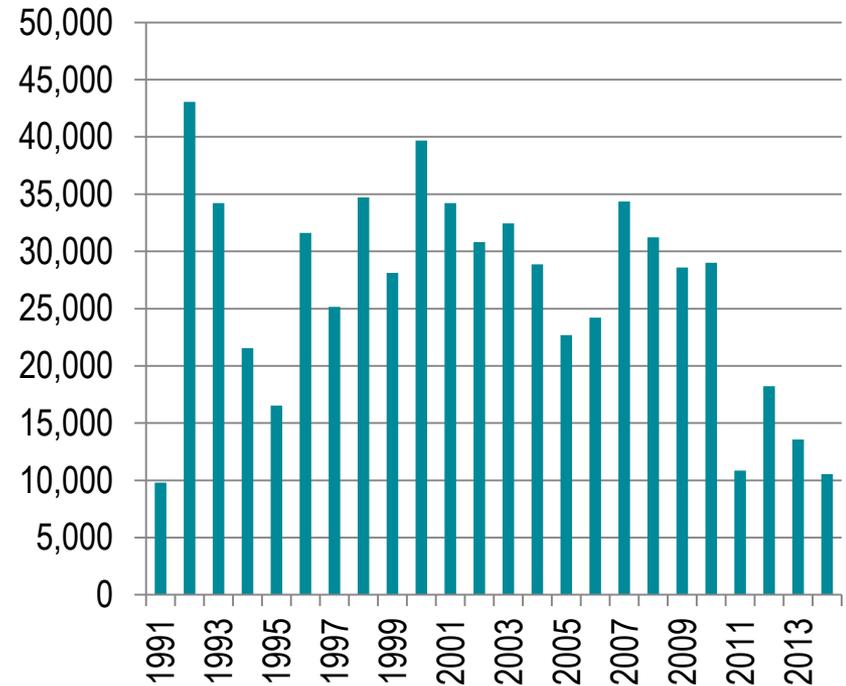
Area	Year	Age 3+ biomass	OFL	ABC	TAC*	Catch
BS/AI	2013	1,510,000	359,000	307,000	260,000	221,396
EBS	2014	1,570,000	299,000	255,000	246,897	208,053
	2015	1,680,000	346,000	255,000	n/a	n/a
	2016	1,770,000	389,000	255,000	n/a	n/a

AI Pacific cod

Survey biomass (t)



Catch



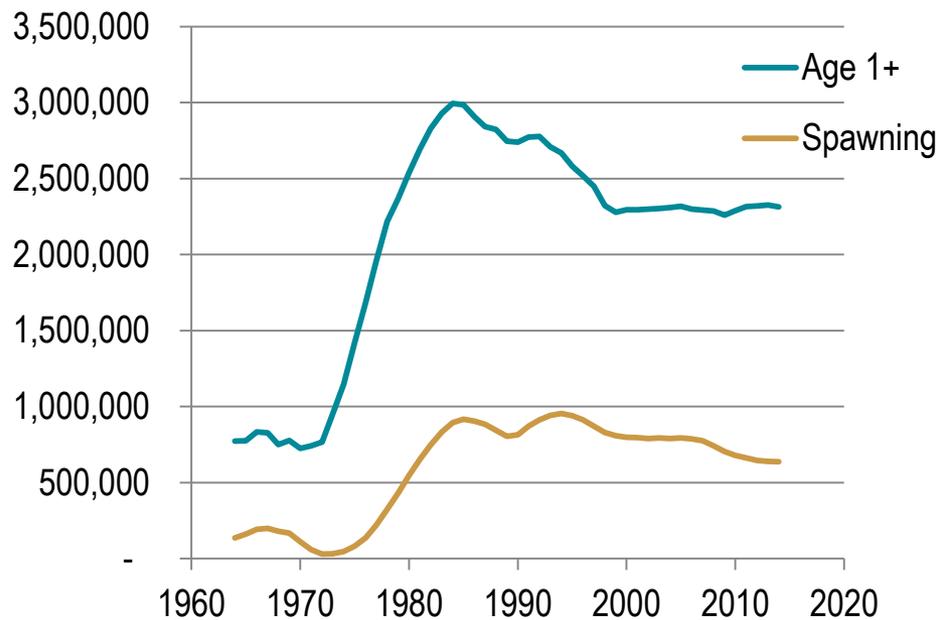
AI Pacific cod, concluded

Area	Year	Age 3+ biomass	OFL	ABC	TAC*	Catch
BS/AI	2013	1,510,000	359,000	307,000	260,000	221,396
AI	2014	59,000**	20,100	15,100	6,997	6,145
	2015	68,900**	23,400	17,600	n/a	n/a
	2016	68,900**	23,400	17,600	n/a	n/a

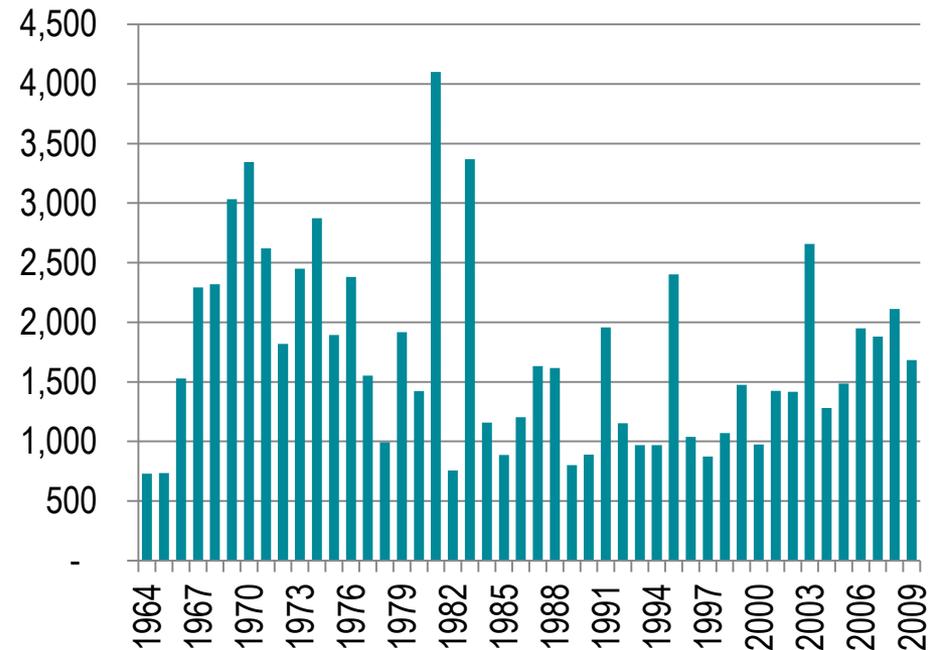
**Biomass shown for AI cod is survey biomass (Tier 5) not Age 3+ biomass.

Yellowfin sole

Biomass (t)



Recruitment

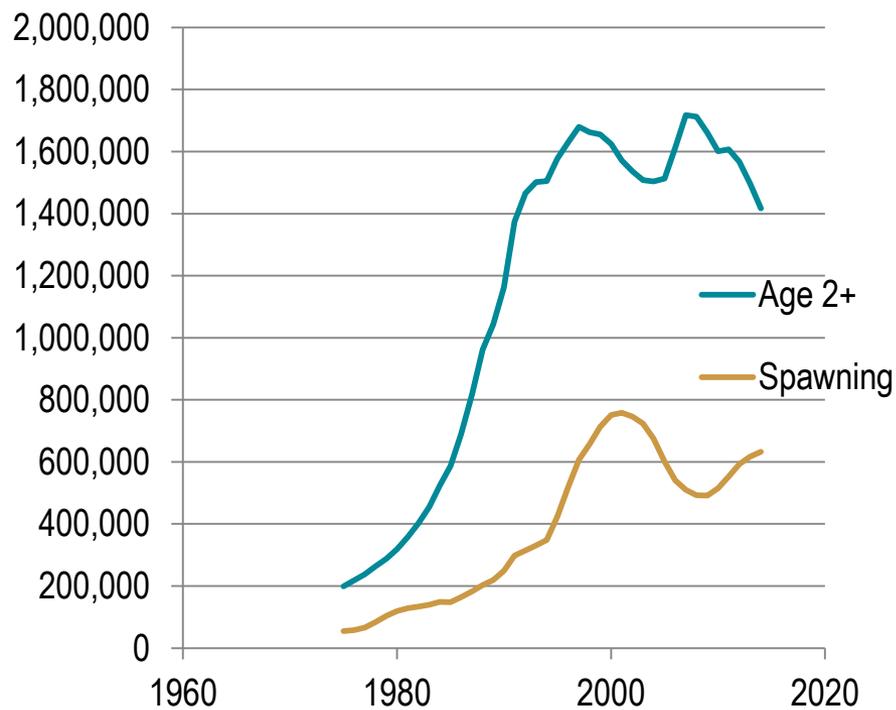


Yellowfin sole, concluded

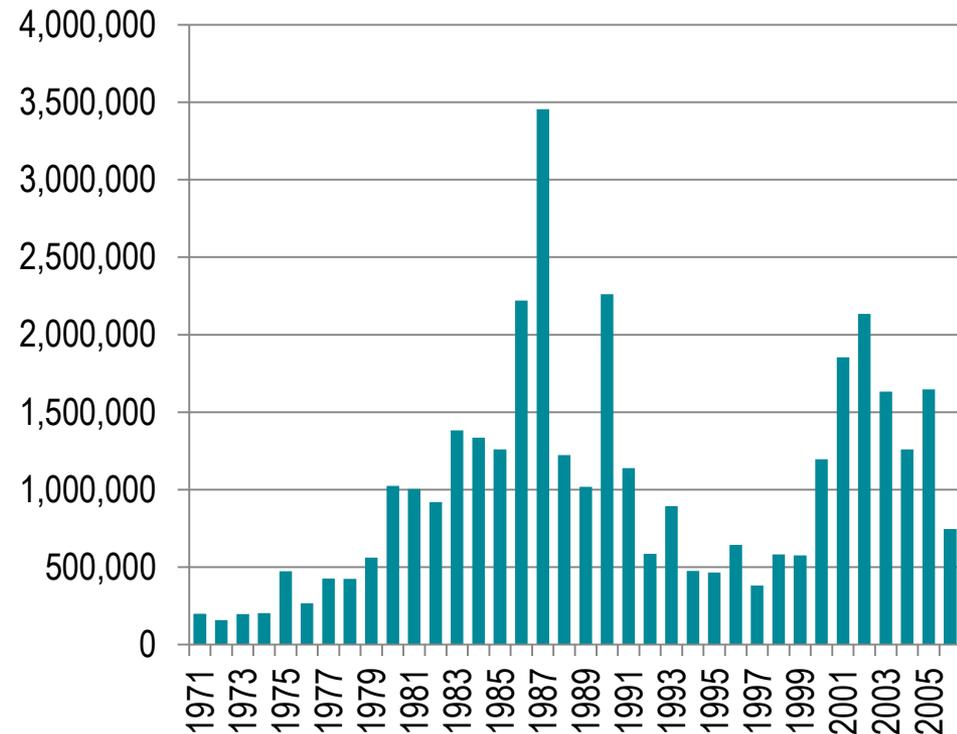
Area	Year	Age 6+ Biomass	OFL	ABC	TAC	Catch
BSAI	2013	1,960,000	220,000	206,000	198,000	164,943
	2014	2,113,000	259,700	239,800	184,000	143,805
	2015	2,127,800	266,400	248,800	n/a	n/a
	2016	2,100,000	262,900	245,500	n/a	n/a

Northern rock sole

Biomass (t)



Recruitment

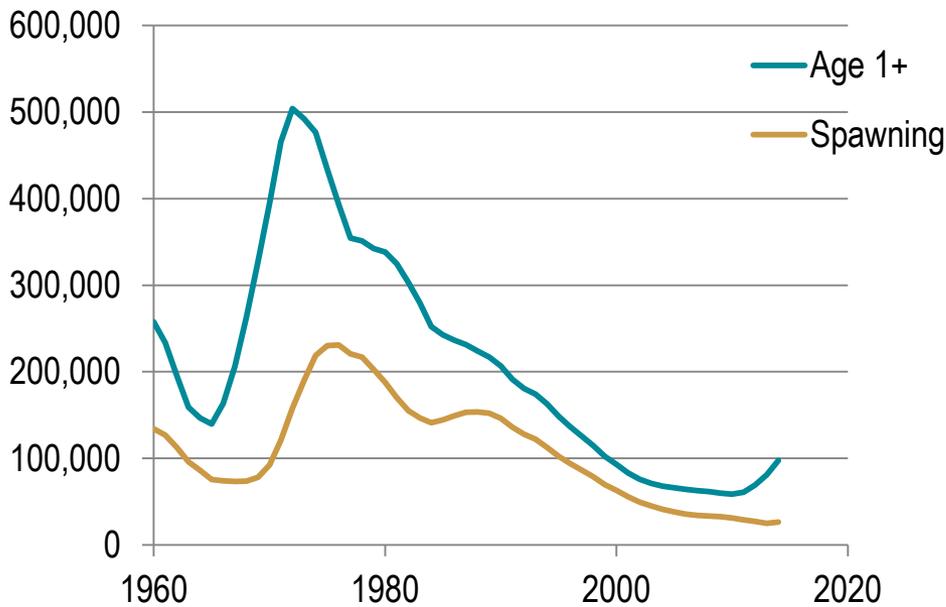


Northern rock sole, concluded

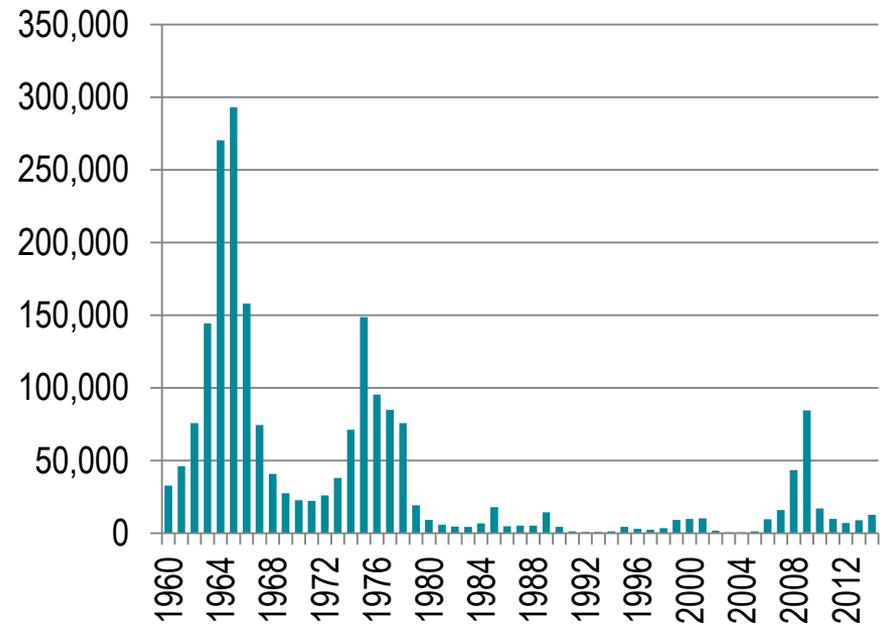
Area	Year	Age 6+ Bio.	OFL	ABC	TAC	Catch
BSAI	2013	1,470,000	241,000	214,000	92,380	59,806
	2014	1,393,200	228,700	203,800	85,000	51,549
	2015	1,233,400	187,600	181,700	n/a	n/a
	2016	1,118,700	170,100	164,800	n/a	n/a

Greenland turbot

Biomass (t)



Recruitment

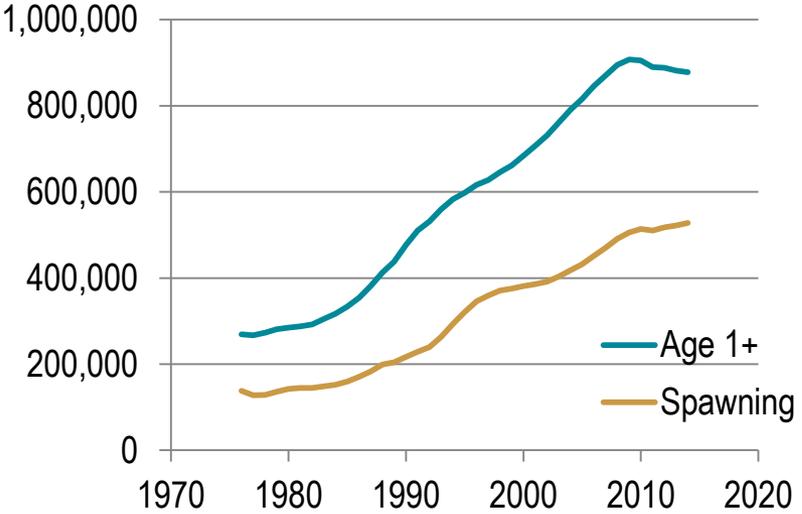


2015 spawning biomass is 24% of $B_{100\%}$

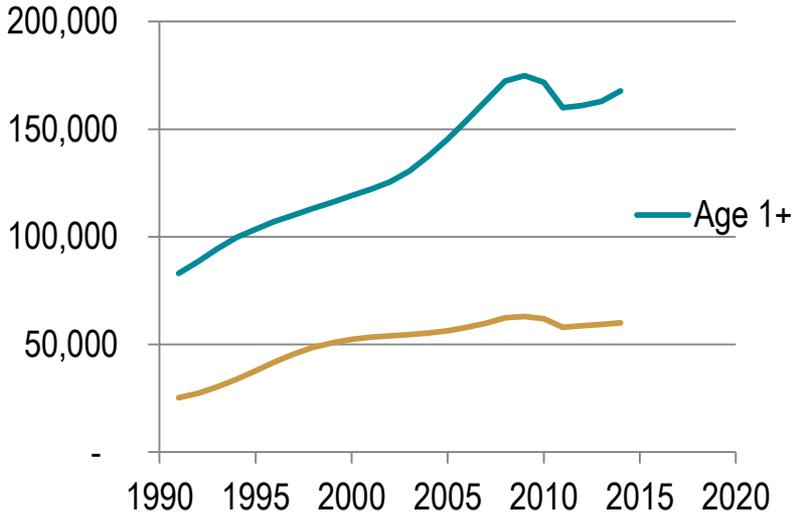
Greenland turbot, concluded

Area	Year	Age 1+ Biomass	OFL	ABC	TAC	Catch
BSAI	2013	81,000	2,540	2,060	2,060	1,746
	2014	84,546	2,647	2,124	2,124	1,653
	2015	122,298	3,903	3,172	n/a	n/a
	2016	132,666	6,453	5,248	n/a	n/a

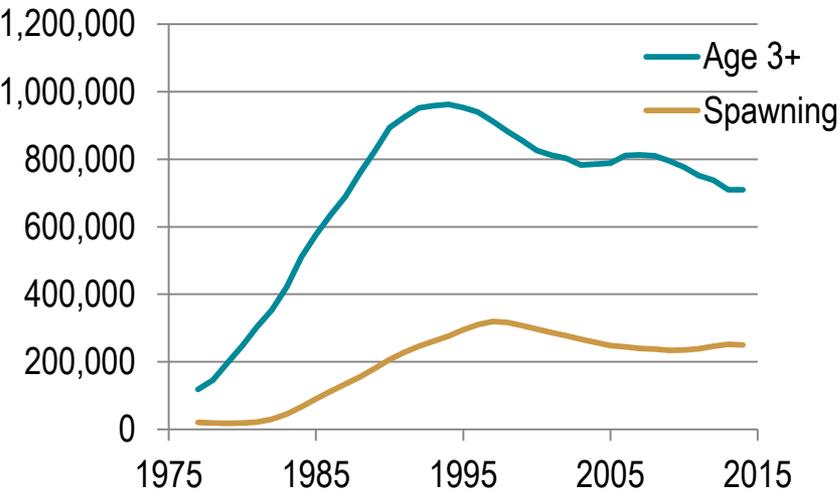
Arrowtooth flounder biomass (t)



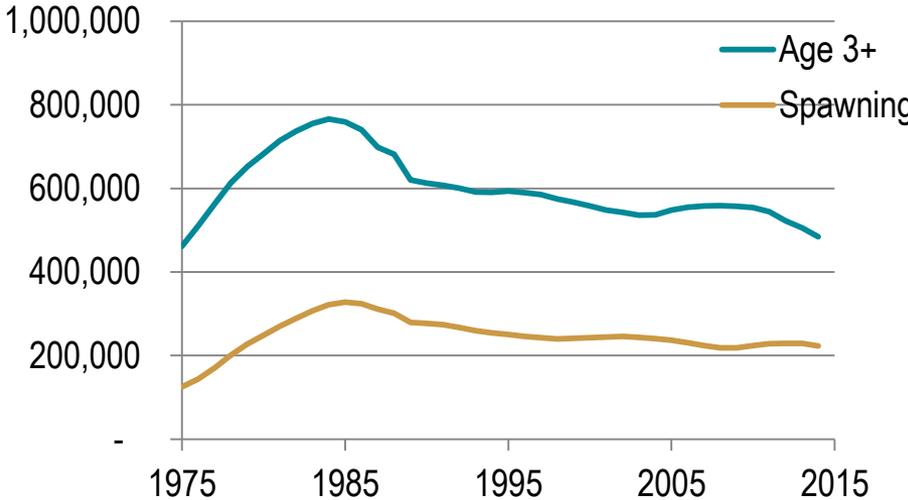
Kamchatka flounder biomass (t)



Flathead sole biomass (t)

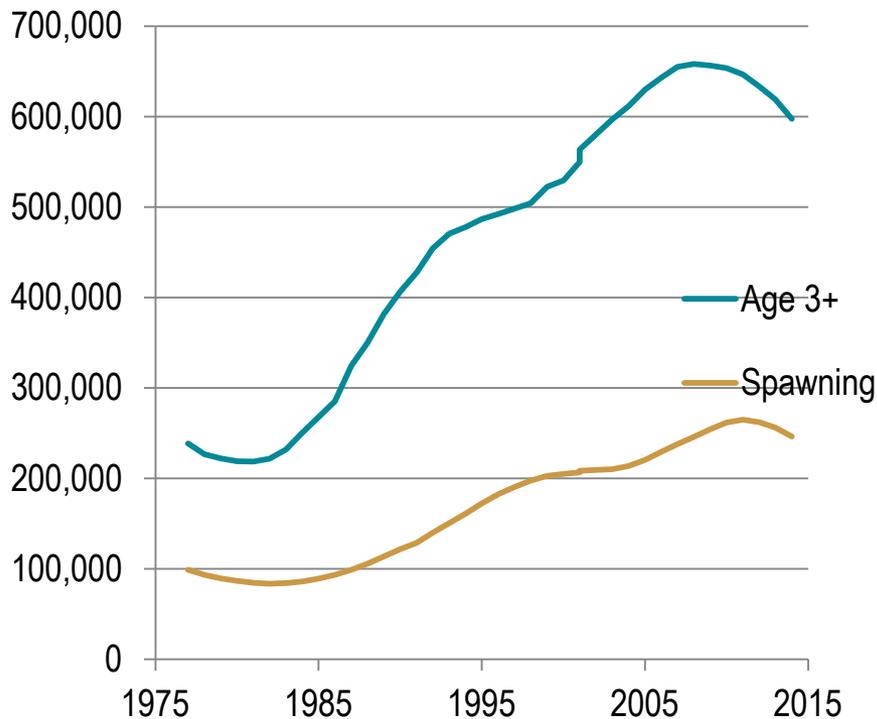


Alaska plaice biomass (t)

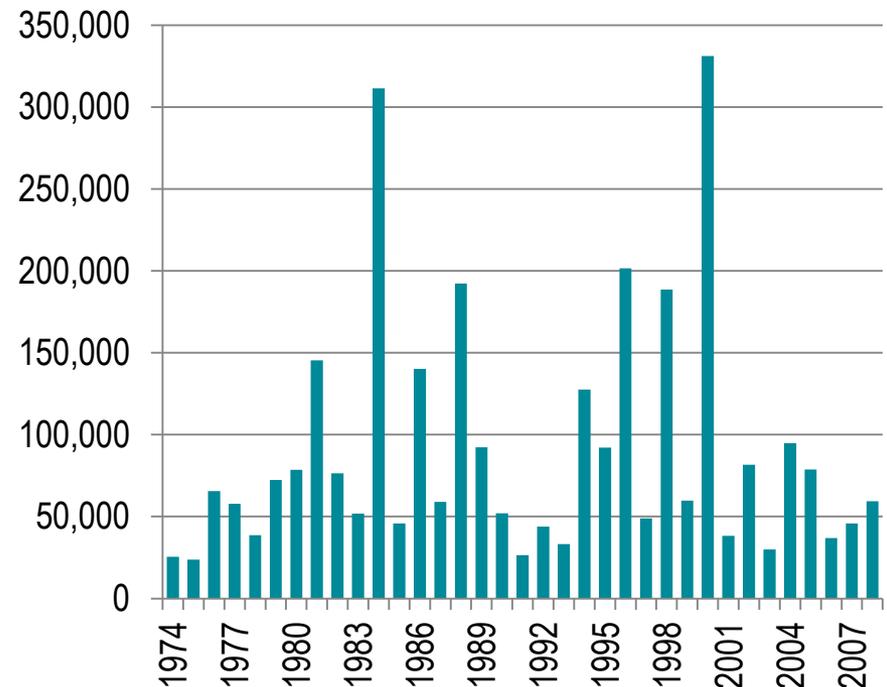


Pacific ocean perch

Biomass (thousands t)



Recruitment

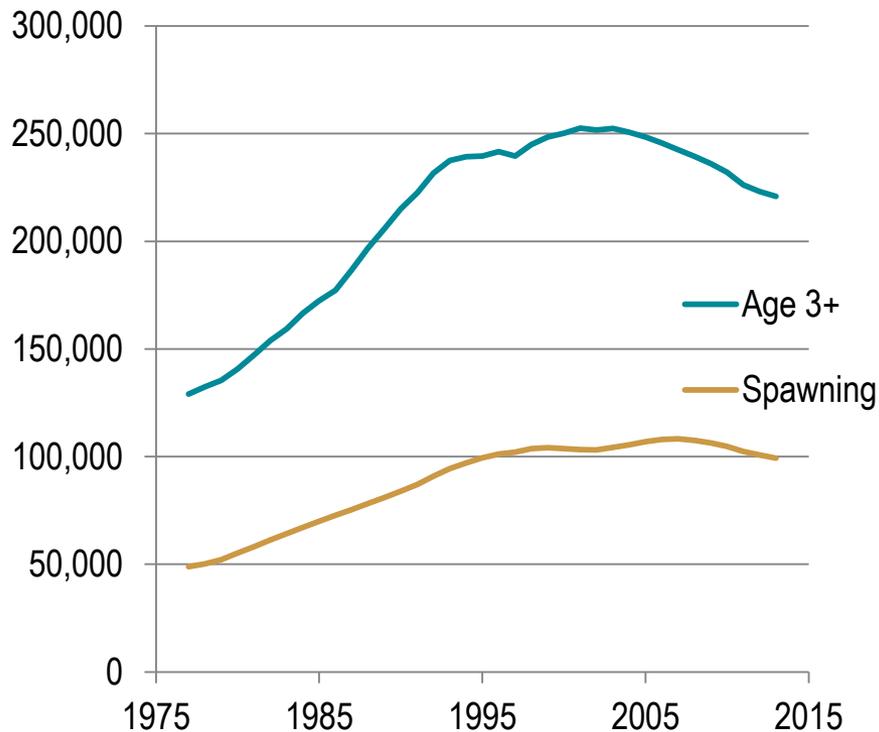


Pacific ocean perch, concluded

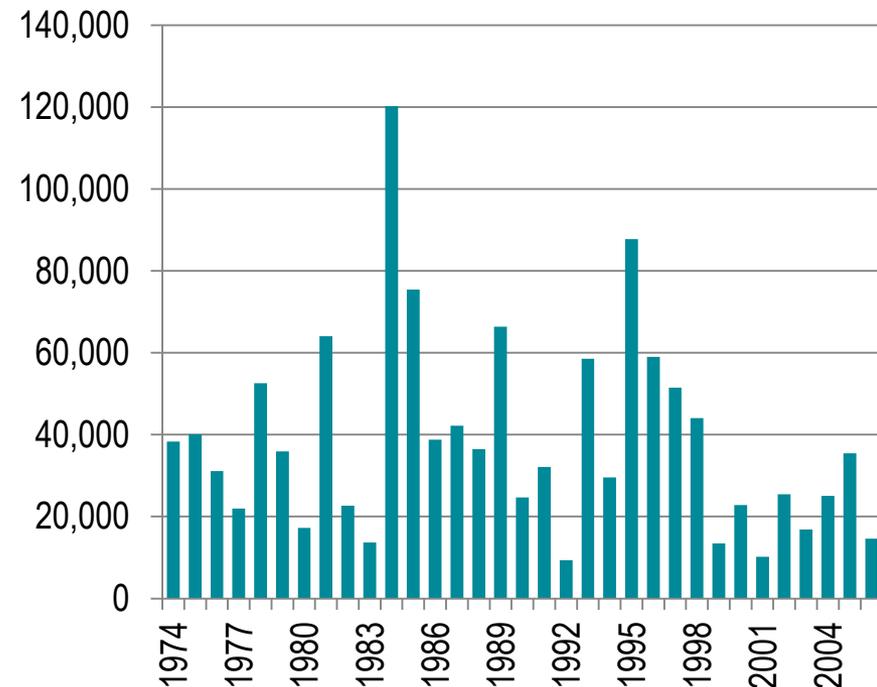
Area	Year	Age 3+ Bio.	OFL	ABC	TAC	Catch
BSAI	2013	663,000	41,900	35,100	35,100	28,049
	2014	639,505	39,585	33,122	33,122	32,373
	2015	577,967	42,558	34,988	n/a	n/a
	2016	561,090	40,809	33,550	n/a	n/a

Northern rockfish

Biomass (thousands t)



Recruitment

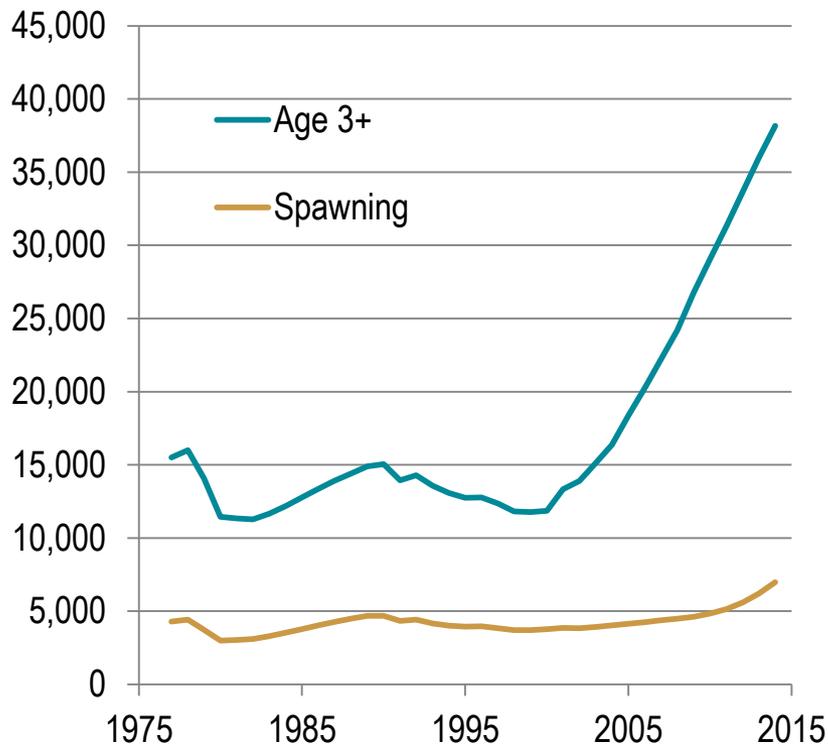


Northern rockfish, concluded

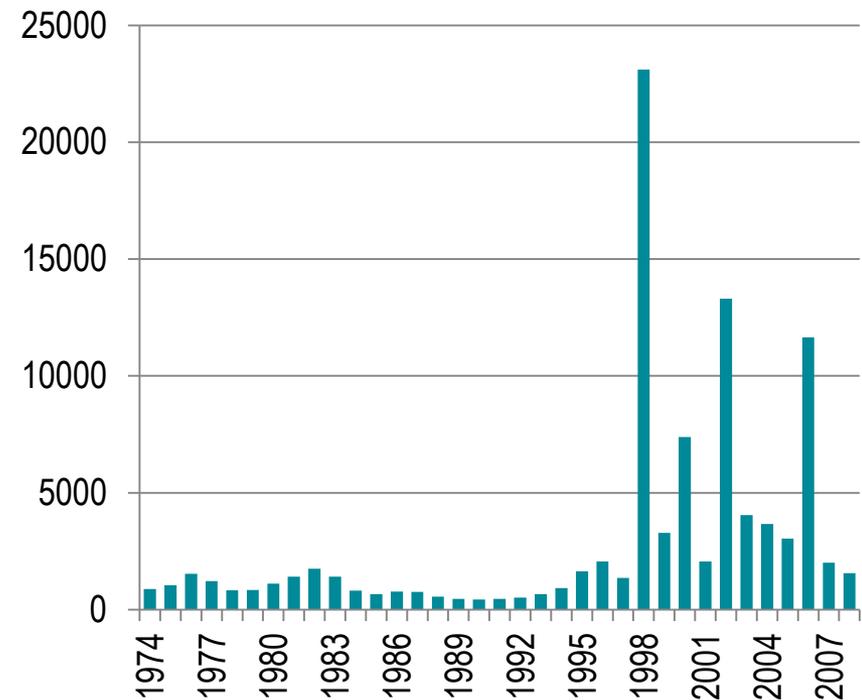
Area	Year	Age 3+ Bio.	OFL	ABC	TAC	Catch
BSAI	2013	195,000	12,200	9,850	3,000	2,038
	2014	197,541	12,077	9,761	2,594	2,339
	2015	218,901	15,337	12,488	n/a	n/a
	2016	218,898	15,100	12,295	n/a	n/a

Blackspotted and rougheye rockfish

Biomass (t)

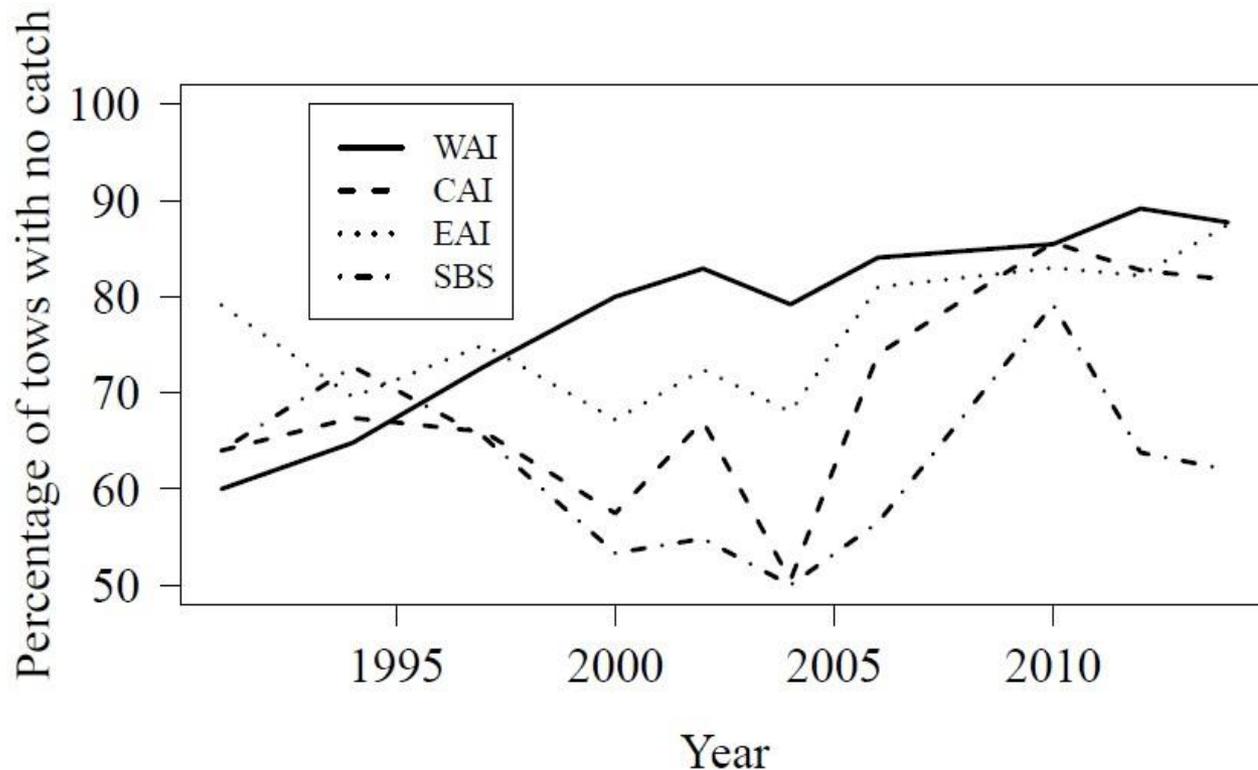


Recruitment

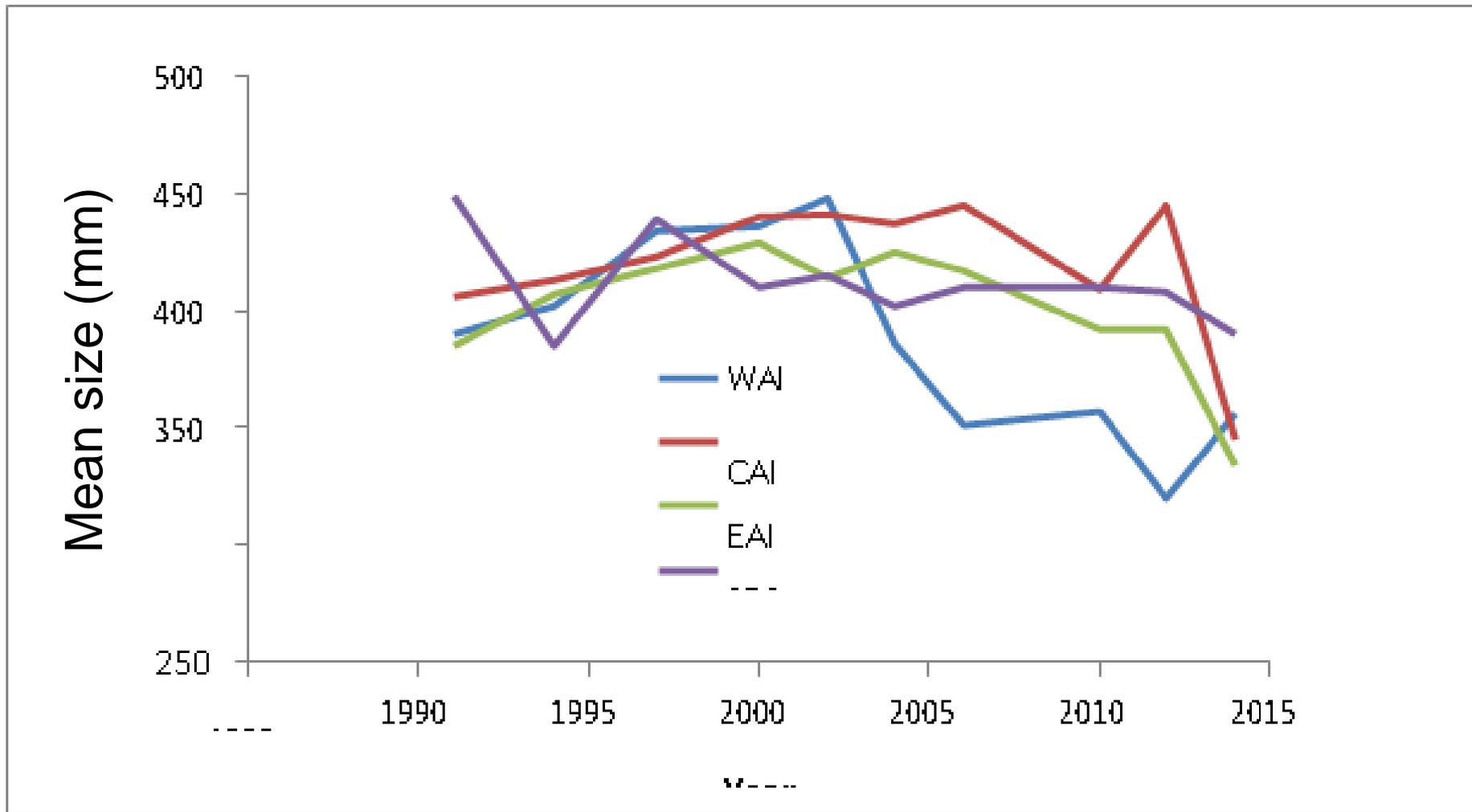


Percentage of survey tows in which blackspotted/rougheye rockfish were *not* caught

(i.e., the "skunk" index)



Changes in mean size by subarea



Blackspotted and rougheye rockfish, continued

- With cooperation from industry, catch in the Western AI was close to the target exploitation rate this year.
- Maximum area-specific catch levels within the WAI/CAI are provided in the SAFE.
- The Team recommends continued attention to the exploitation rate in the WAI and ... will review the WAI stock status again and evaluate the effect of any management response in 2015.

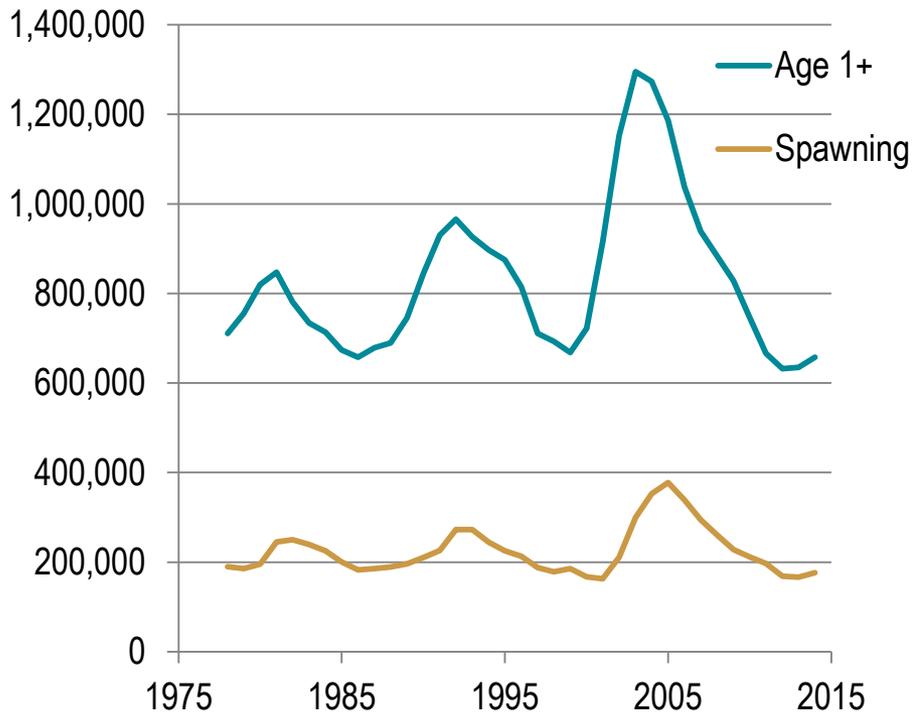
Blackspotted and rougheye rockfish, concluded

Area/sub area	Year	Total Bio ¹ .	OFL	ABC	TAC	Catch
BSAI	2013	29,800	462	378	378	341
	2014	30,400	505	416	416	196
	2015	41,666	799	648	n/a	n/a
	2016	43,633	865	702	n/a	n/a

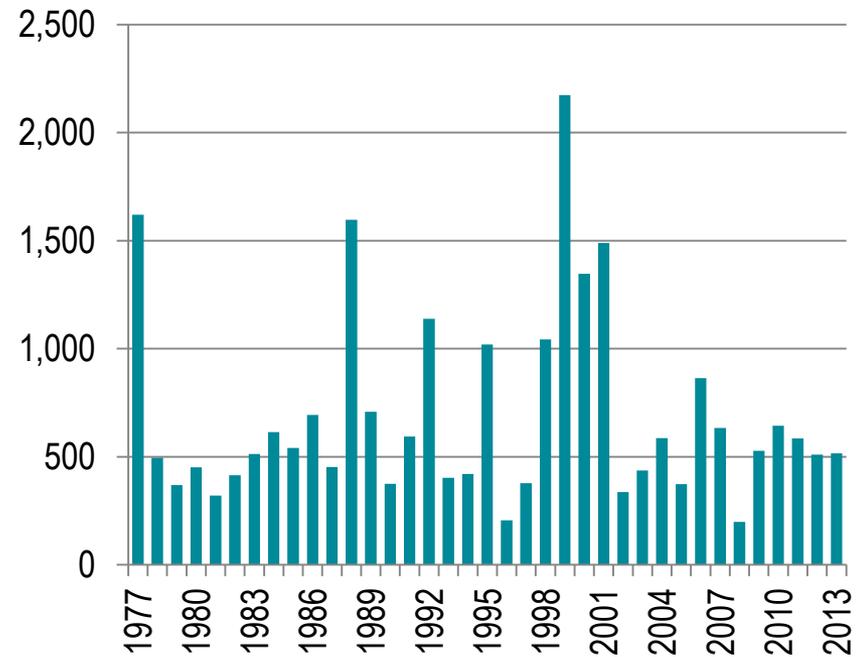
¹ Total biomass from AI age-structured projection model and survey biomass estimates from EBS.

Atka mackerel

Biomass (thousands t)



Recruitment



Atka mackerel, continued

- The Team approved the assessment and agreed with the author's recommendation for Tier 3a ABC, but had the following concerns:
 - First, the 2012 survey biomass estimate may be an underestimate, yet it has a low CV, and the 2014 estimate is considerably higher (161% increase). The model does not fit either of these survey estimates very well.
 - Second, the recommended ABC for 2015 is 65% greater than in 2014, yet there is only 1 year class in the last 12 that is estimated to be above average in size. The last time an ABC > 100,000 mt was recommended was in 2005 and 2006, and this was supported by 4 above average year classes spawned in successive years, and three of these (1999-2001) were the among the largest ever estimated.

Atka mackerel, continued

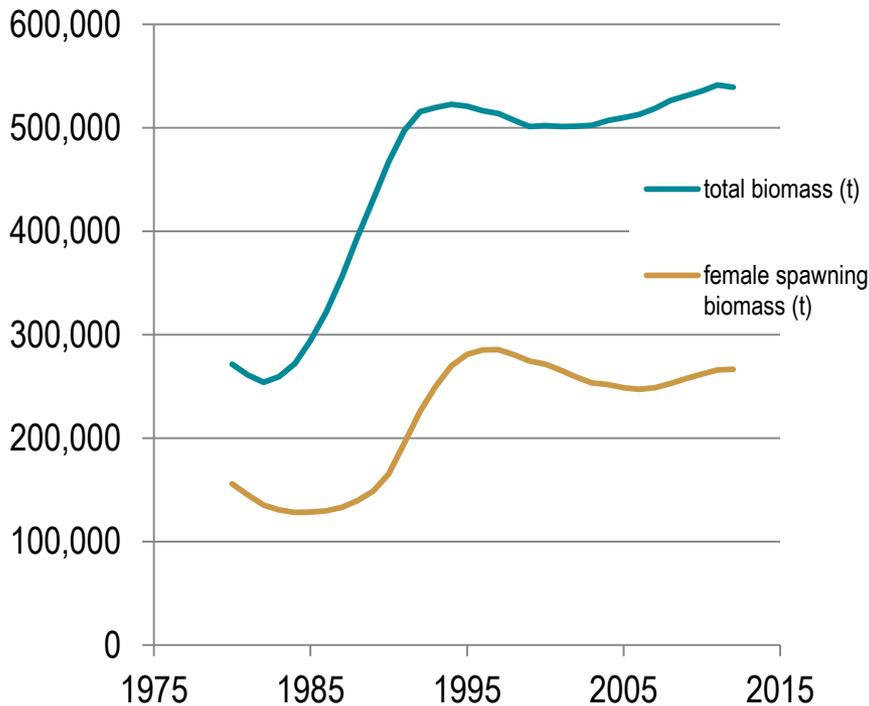
- The Team discussed the new fishing regulations that are proposed for 2015 that will re-open parts of area 543 to Atka mackerel directed fishing (TAC will be a maximum of 65% of the 543 ABC), as well as relax restrictions that were in place in areas 541 and 542.
- The new regulations and the significantly larger ABC could result in catch in area 543 increasing substantially (from an estimated 302 t in 2014 to as much as 22,360 t in 2015).

Atka mackerel, concluded

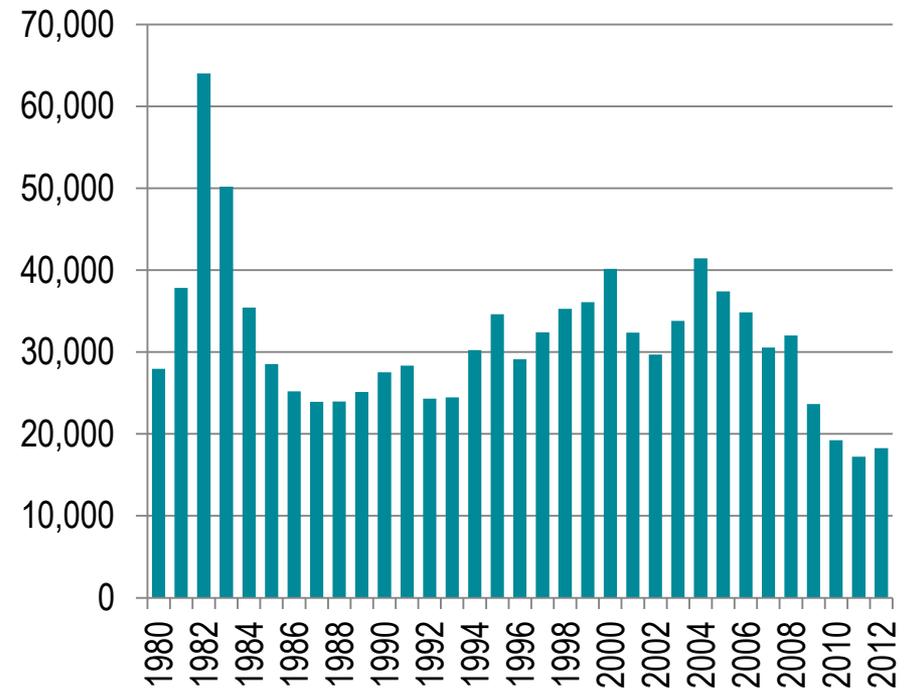
Area	Year	Age 1+ Biomass	OFL	ABC	TAC	Catch
BSAI	2013	447,189	57,700	50,000	25,920	23,180
	2014	456,620	74,492	64,131	32,222	30,947
	2015	694,421	125,297	106,000	n/a	n/a
	2016	673,327	115,908	98,137	n/a	n/a

Alaska skate

Biomass (t)



Recruitment



Alaska skate, concluded

Area	Year	Age 0+ Biomass	OFL	ABC	TAC	Catch
BSAI	2013	745,000	45,800	38,800	24,000	27,038
	2014	726,561	41,849	35,383	26,000	24,695
	2015	625,314	49,575	35,551	n/a	n/a
	2016	595,880	47,035	35,551	n/a	n/a

Species	Year	Biomass	OFL	ABC	TAC	Catch
Sculpins	2014	215,713	56,424	42,318	5,750	4,570
	2015 and 2016	180,570	52,365	39,725	n/a	n/a
Sharks	2014	n/a	1,363	1,022	125	122
	2015 and 2016	n/a	1,363	1,022	n/a	n/a
Squid	2014	n/a	2,624	1,970	310	1,678
	2015 and 2016	n/a	2,624	1,970	n/a	n/a
Octopus	2014	n/a	3,450	2,590	225	351
	2015 and 2016	n/a	3,452	2,589	n/a	n/a