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Alaska Fisheries  
Science Center

# Joint Groundfish Plan Team meeting report

Grant Thompson and Steve Barbeaux (BSAI co-chairs)

Steve MacLean (BSAI coordinator)

Jim Ianelli and Chris Lunsford (GOA co-chairs)

Sara Cleaver (GOA coordinator)

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# Meeting overview and agenda

- Overview
  - Date: November 12
  - Place: AFSC Seattle lab
  - Participation: 27 Team members present (plus numerous AFSC and AKRO staff and members of the public), and at least 25 people participating via WebEx
- Agenda (action items in red)
  - Administrative
  - Economic SAFE report
  - Risk table
  - Sablefish

# Economic SAFE report

- Will be taken up by the SSC in February
- The Joint Team recommended that, in the future, the revenue decompositions that are included in the BSAI and GOA Intro be presented as part of the November Economics Team presentation

# Risk table (1 of 8)

- Review of some SSC minutes related to the risk table:
  - 2/18: "The SSC recommends identification of clear and transparent rules for defining the specific criteria to be used when adjusting the recommended ABC. Stock assessment uncertainty relative to levels upon which the Tier system was constructed, atypical data availability or usage (e.g., reliance on only catch-per-unit-effort vs. a survey index), ecosystem considerations, and other factors are potential candidates."
  - 10/18: "A distribution-based approach to risk ( $P^*$ ) fundamentally relies on all sources of uncertainty (including structural) being explicitly captured in the distribution. ... The SSC supports future consideration and development of distribution-based approaches, but not as a priority for 2018."
  - (continued on next slide)

# Risk table (2 of 8)

- Review of some SSC minutes related to the risk table (continued):
  - 12/18: "The SSC requests that all authors fill out the risk table in 2019, and that the PTs provide comment on the author's results in any cases where a reduction to the ABC may be warranted (concern levels 2-4)"
  - 12/18: "The author and PT do not have to recommend a specific ABC reduction, but should provide a complete evaluation to allow for the SSC to come up with a recommendation if they should choose not to do so"
  - 12/18: "The SSC emphasizes that the table should be used to reach a decision, not to justify a decision made *a priori*"
  - 12/18: "The SSC anticipates that the use of the risk table will continue to evolve and recognizes that case-specific considerations may not lead to consistency in percentage reductions among all species within each level of concern"

# Risk table (3 of 8)

- The Teams evaluated the risk table for each full assessment and noted important concerns or issues associated with completing the table
- The Teams noted that summarizing the concerns listed in the risk table is helpful as a decision framework for potential changes to ABC
- The risk table approach fostered increased collaboration between scientists with different expertise and more formally brought ecosystem considerations into assessment deliberations
- However, several common questions were brought forward throughout the discussions regarding the individual risk tables
  - See next two slides

# Risk table (4 of 8)

- Specifically, the Teams discussed the following issues:
  - Whether an overall elevated risk level ( $>1$ ) mandates a reduction in ABC, and, more generally, the relationship of the risk level to the amount of reduction (if any)
  - How to document changes that may not warrant higher levels of precaution, specifically when an overall elevated level of risk ( $>1$ ) does not lead to a reduction in ABC (e.g., BSAI northern rockfish, GOA POP, GOA arrowtooth flounder)
  - The appropriateness of the overall level of risk being based on the maximum value across the categories, such that scores of  $\{4, 4, 4, 4\}$  would be the same as a score of  $\{1, 1, 1, 4\}$
  - Whether to state a default level of no risk ( $=1$ ) or an unknown level of risk when there is no information to evaluate the risk level for a given category (this was of particular concern for Tier 5 and 6 stocks)
  - (continued on next slide)

# Risk table (5 of 8)

- Risk table issues (continued):
  - How to determine the relative influence of stock-specific versus indirect ecosystem indicators for setting the risk level (e.g., EBS Pacific cod, BSAI northern rockfish)
  - How many direct or indirect ecosystem indicators would constitute an elevated concern
  - How evaluations of fishery performance indicators determine risk to stock productivity
  - Delineating issues that fall under more than one category
  - Whether every item, positive or negative, listed in the context of the risk table necessarily constitutes a “concern” (e.g., for Alaska sablefish, is an unusually large year class necessarily a “concern” simply because it is unusual?)



# Risk table (6 of 8)

- Risk tables and proposed ABC reductions for the 18 full assessments

Stock	Assessment-related	Population Dynamics	Environment /Ecosystem	Fishery Performance	Overall	Proposed Reduction
Sablefish	2	3	2	3	3	0.57
EBS Pollock	1	2	2	2	2	0.43
GOA Pollock	2	1	1	1	2	0.10
EBS Pacific Cod	1	1	2	1	2	*
AI Pacific Cod	1	1	2	1	2	*
GOA Pacific Cod	2	2	2	1	2	*
BSAI Northern Rockfish	2	1	2	1	2	0
GOA POP	2	2	1	1	2	0
GOA Arrowtooth	1	1	2	1	2	0
BSAI Yellowfin Sole	1	1	1	1	1	0
BSAI Alaska Plaice	1	1	1	1	1	0
BSAI Atka Mackerel	1	1	1	1	1	0
GOA RE/BS	1	1	1	1	1	0
GOA Other Rockfish	1	1	1	1	1	0
GOA Shortraker	1	1	1	1	1	0
GOA Atka Mackerel	1	Unknown	1	1	1	0
GOA Octopus	1	1	1	1	1	0
GOA Skate	1	1	1	1	1	0

- \* Authors/Team elected to accept SSC's offer to compute reduction

# Risk table (7 of 8)

- The Teams agreed, in all cases, with the authors' decisions on the designated levels for each category in the risk table
- The individual SAFE chapters contain more information regarding the risk table levels, proposed reductions, and issues identified by the authors
- Deliberations regarding the risk tables were quite time-consuming during the week, perhaps because this is still a developing process
- The Teams recognize that the risk table may benefit from additional guidance and may evolve as it is further evaluated and applied
- The Teams noted that discussions could be simplified if the process to determine levels of risk was decoupled from the decision to propose a reduction and the associated amount
- As the risk table process develops, perhaps a decision table would be useful for evaluating the potential for a reduction if there were successive designations of elevated risk levels for a given category

# Risk table (8 of 8)

- The Teams recommended that authors continue to fill out the risk tables for full assessments
- The Teams recommended that adjustment of ABC in response to levels of concern should be left to the discretion of the author, the Team(s), and/or the SSC, but should not be mandated by the inclusion of a >1 level in any particular category
- The Teams request clarification and guidance from the SSC regarding the previously noted issues associated with completing the risk table, along with any issues noted by the assessment authors
- The Teams plan to discuss the risk table process at the September meeting

# Sablefish (1 of 9)

- Switch to senior author's presentation (Team comments will follow)

# Sablefish (2 of 9)

- The Teams are concerned about the current model's persistent positive retrospective bias and poor fits to abundance indices in the model
- The Teams discussed the appropriateness of fishery CPUE as an abundance index given the size-selective nature of the fishery and the inconsistent trends between this index and the fishery-independent indices. The Teams agreed that until strong rationale for removing this index is developed, these divergent patterns do not warrant excluding it from the model
- A range of potential model developments was discussed with respect to the treatment of recruitment, including evaluating selectivity on young fish and exploring age-specific or time-varying natural mortality
- In particular, selectivity may be changing if young fish are deeper than usual; however, the authors have already conducted numerous explorations of selectivity and have yet to find a better-fitting parameterization

# Sablefish (3 of 9)

- The authors reported asynchronous recruitment between Federal waters off Alaska, off the West Coast, in British Columbia, and in Alaska state-water fisheries
- Federal assessments are reporting strong 2014 and 2016 year classes and BC and State of Alaska data show strong 2013 and 2015 year classes
- Discussions with State age readers suggest that this can be explained by otolith edge effects, and work has been ongoing to resolve this issue using Federal known-age samples
- The Teams noted the importance of resolving this issue quickly, given the age-based assumptions about weight-at-age and maturity in stock assessments

# Sablefish (4 of 9)

- Extensive discussion occurred regarding the determination of OFL by area and the relatively high bycatch of sablefish in the Bering Sea trawl fisheries in 2019
- The authors provided historical background on the evolution of OFL determinations and included the OFL options requested by the SSC
- Since 1996, sablefish have been managed Alaska-wide, with ABCs determined by sub-area and OFLs set separately for the BS, AI, and GOA since 1995
- Three options were presented: 1) status quo; 2) combine the BS and AI OFLs; 3) combine the BS, AI, and GOA OFLs
- Some options may provide management benefits or efficiencies, but the authors did not have the appropriate information or data to recommend a scientific basis or a conservation concern for one option over another

# Sablefish (5 of 9)

- The Teams discussed potential biological concerns over spatial structure including spawning aggregations, productivity, and concentrated harvest on the 2014 and 2016 year classes
- From a management perspective, sablefish are managed on an Alaska-wide stock basis and the OFL should be managed at the stock level
- Bycatch of 2014 and 2016 year classes were highlighted as a conservation concern for which the Council could consider additional bycatch controls
- Public comment indicated that trawl fleets were actively avoiding sablefish bycatch, with the caveat that they must balance this effort with avoiding bycatch of other species like salmon and halibut
- Considerable uncertainty exists as to whether this is a biological concern or allocation issue, and the Teams suggested following the Council's spatial management policy to resolve this issue



# Sablefish (6 of 9)

- The Teams agreed with the authors' recommended ABC for 2020, which is a 57% reduction from maxABC and a 25% increase from the 2019 ABC
- The Teams recommended Option 2 for the OFL specification, combining the BS and AI OFLs
- While the Teams support Option 2, they also recommended following the Council's spatial management policy, including the development of management controls to mitigate regional bycatch
- The Teams recommended that the authors examine poor fits and residual patterns in the abundance indices
- The Teams recommended that the authors continue to include retrospective recruitment plots (aka "squid plots") to determine when estimates of large recruitment events stabilize

# Sablefish (7 of 9)

- It may also be useful to create a plot with the retrospective estimates of the recruitment deviations (y-axis) for various cohorts when they were specific ages (x-axis)
  - This might help to identify if there is a consistent pattern of over- or under-estimation of the size of a cohort when the cohort is young with few inter-annual observations, and at what age the estimated deviation of the cohort begins to stabilize
- As sablefish biomass continues upward to a level that history will undoubtedly remember as the “Hanselman High,” the Teams commend the outgoing senior author for his many years of leading the assessment efforts for this stock

# Sablefish (8 of 9)

- Executive Summary table

Quantity/Status	As estimated or specified <i>last</i> year for:		As estimated or recommended <i>this</i> year for:	
	2019	2020	2020*	2021*
$M$ (natural mortality rate)	0.100	0.100	0.105	0.105
Tier	3b	3a	3a	3a
Projected total (age 2+) biomass (t)	488,273	513,502	704,683	741,029
Projected female spawning biomass (t)	96,687	129,204	113,368	156,854
$B_{100\%}$	291,845	291,845	264,940	264,940
$B_{40\%}$	116,738	116,738	105,976	105,976
$B_{35\%}$	102,146	102,146	92,729	92,729
$F_{OFL}$	0.096	0.117	0.121	0.121
$maxF_{ABC}$	0.081	0.099	0.102	0.102
$F_{ABC}$	0.044	0.051	0.044	0.051
OFL (t)	33,141	45,692	51,726	66,361
<b>OFL<sub>w</sub> (t)**</b>	32,798	<b>45,220</b>	<b>50,481</b>	<b>64,765</b>
max ABC (t)	28,171	38,916	44,065	56,589
ABC (t)	15,380	20,620	19,225	24,031
<b>ABC<sub>w</sub> (t)**</b>	15,068	20,144	<b>18,763</b>	<b>23,453</b>
Status	As determined <i>last</i> year for:		As determined <i>this</i> year for:	
	2017	2018	2018	2019
Overfishing	No	n/a	No	n/a
Overfished	n/a	No	n/a	No
Approaching overfished	n/a	No	n/a	No

# Sablefish (9 of 9)

- Area apportionments (Team recommend combining BS and AI OFLs)

Year	2019				2020		2021	
Region	OFL	ABC	TAC	Catch*	OFL	ABC**	OFL	ABC**
<b>BS</b>	3,221	1,489	1,489	2,994	4,987	1,853	6,397	2,317
<b>AI</b>	4,350	2,008	2,008	490	6,771	2,517	8,687	3,146
<b>GOA</b>	25,227	11,571	11,571	9,528	38,723	14,393	49,681	17,990
WGOA	--	1,581	1,581	1,139	--	1,942	--	2,427
CGOA	--	5,178	5,178	4,374	--	6,445	--	8,055
**WYAK	--	1,828	1,828	1,614	--	2,343	--	2,687
**EY/SEO	--	2,984	2,984	2,401	--	3,663	--	4,821
<b>Total</b>	<b>32,798</b>	<b>15,068</b>	<b>15,068</b>	<b>13,012</b>	<b>50,481</b>	<b>18,763</b>	<b>64,675</b>	<b>23,453</b>

\* As of October 1, 2019 Alaska Fisheries Information Network, ([www.akfin.org](http://www.akfin.org)). \*\* After 95:5 trawl split shown above and after whale depredation methods