SCIENTIFIC AND STATISTICAL COMMITTEE
FINAL REPORT TO THE
NORTH PACIFIC FISHERY MANAGEMENT COUNCIL
October 5 – 7th, 2026

The SSC met from October 5 – 7th, 2026 in Anchorage, AK. Members present were:

Ian Stewart – Co-Chair *Intl. Pacific Halibut Commission*	Sherri Dressel, Co-Chair *Alaska Dept. of Fish and Game*	Jason Gasper – Co-chair *NOAA Fisheries—AKRO*
Alison Whitman, Vice Chair *Oregon Dept. of Fish and Wildlife*	Chris Anderson *University of Washington*	Fabio Caltabellotta *Washington Dept. of Fish and Wildlife*
Martin Dorn *University of Washington*	Curry Cunningham *University of Alaska Fairbanks*	Dana Hanselman *NOAA Fisheries—AFSC*
Brad Harris *Alaska Pacific University*	Kailin Kroetz *Arizona State University*	Andrew Munro *Alaska Dept. of Fish and Game*
Franz Mueter *University of Alaska Fairbanks*	Chris Siddon *Alaska Dept. of Fish and Game*	Robert Suryan *NOAA Fisheries—AFSC*

Members that attended virtually include:

Jennifer Burns *Texas Tech University*	Sarah Wise *NOAA Fisheries—AFSC*

SSC Administrative Discussion

The SSC received an update on planning for SCS9, scheduled for November 2027. Planning remains in the early stages, and the organizers are seeking input on potential socioeconomic speakers and topics. The SSC indicated that it would forward any suggestions identified by SSC members to the SCS9 planning committee.

The SSC notes the departure of Dr. Robert Foy from the SSC and expresses its appreciation for his many contributions to the Committee during his six-year tenure.

B1 Plan Team Nominations

The SSC received nominations for Andrew Olson and Dr. Andrew Whetten to the Bering Sea Aleutian Islands (BSAI) Groundfish Plan Team (GPT), Aaron Lambert to the Gulf of Alaska (GOA) GPT, and Dr. Lee Cronin-Fine to the Crab Plan Team (CPT). The SSC finds these nominees to be well-qualified and recommends the Council approve their nominations. The SSC appreciates the contributions made by departing members Steve Whitney (BSAI GPT) and Dr. Sophia Wassermann (GOA PT).

C2 BSAI Crab

The SSC received a report on the September 2026 Crab Plan Team (CPT) meeting from Anita Kroska (NPFMC) and Katie Palof (ADF&G, CPT chair). The SSC appreciates the CPT's efforts to streamline their presentation to the SSC. Not all CPT agenda items were presented to the SSC, though they were detailed in the CPT report. Items on which the SSC provided comments are below.

General Crab Comments

The SSC supports the expansion of technical expertise on the CPT and, in particular, the addition of a second CPT co-chair to help address overall capacity constraints.

The SSC highlights its continued support for research to better understand both density-dependent and environmental impacts on recruitment processes for BSAI crab. Even for stocks that are not under a rebuilding plan, the assumptions for recruitment are critical for determining appropriate biological reference points.

Noting the continued modifications necessary for the EBS snow crab assessment and with support from the Tanner crab CIE review, the SSC continues to recommend that the harvest control rules (HCRs) for crab be re-evaluated in the near future.

Chionoecetes Hybrid Crab

During its October 2025 meeting, the SSC noted the unprecedented increase in *Chionoecetes* hybrid crab in the trawl survey. In 2026, survey abundance for *Chionoecetes* crab declined across most size-sex categories, with the notable exception being industry-preferred males, which continued to increase 12% beyond the record-highs noted last year. The CPT noted that there were still many hybrid crab present in the system. The relative abundance of snow and hybrid males greater than 101mm was similar to last year (14% snow and 15% hybrid). ADF&G added a 1-million lbs hybrid quota to the snow crab TAC in 2025 with estimated hybrid crab catch (landed as snow crab) at 0.68 million lbs. The CPT noted there were challenges associated with estimating landings of hybrid crab. The SSC recognizes the industry concerns regarding hybrids being both a potential conservation concern due to their unknown interactions with snow crab and that there is a significant potential for utilizing this resource.

Both the CPT and the SSC have noted the need to understand more about hybrid biology, genetics and population dynamics. This year, the survey team was able to collect hybrid weights, which should improve hybrid-specific catch estimation in the future.

This marked increase in the occurrence of hybrids spurred numerous discussions at the CPT and SSC over the last year. In October 2025, the SSC agreed with the CPT that hybrid crab not be included in the assessments for snow and Tanner crab and noted an existing mechanism to continue to track abundance of hybrids through the bottom trawl survey. A number of hybrid identification and catch accounting questions were raised, and many of these topics were the subject of discussion at the May 2026 CPT meeting. The SSC notes that historically hybrid abundance has not been an issue given their low abundance.

As noted previously by the SSC in June 2026, if hybrid abundance continues to be elevated, the approach to monitoring and assessment may need to be re-evaluated. **In agreement with the CPT, the SSC strongly supports further efforts to collect data on hybrids in survey samples, as capacity allows. Additionally, the SSC requests further clarification on the catch accounting methodology and treatment of hybrids for the catch that is included in assessment models and the catch that accrues toward the ABC and OFL.**

Additionally, under the SSC snow crab assessment comments, the CPT noted that it would be useful to have more information on the policy and regulatory pathways to potentially allow for future harvest and management of *Chionoecetes* hybrids. Public testimony under the Tanner and snow crab assessments strongly supported a process with the end goal of harvesting hybrid crab when available but in a manner that doesn't risk overharvesting snow crab. A workshop that included managers, industry and scientists was proposed in public testimony to initiate this process.

The SSC had a wide-ranging discussion regarding hybrid crab, their presence in certain data streams, and the potential impact on assessment models as they persist in the Bering Sea. The SSC focused discussion on impacts of hybrids on the snow and Tanner stock assessments and specifications because the question of whether hybrid crab require conservation and management appears to have not been evaluated. Historically, hybrid crab have been of low abundance, so it is likely this has not become an important issue until recently. The SSC suggests that, should the Council choose to move forward with a workshop or other action, a number of questions could be considered when framing the goals of the workshop, particularly in the context of criteria associated with whether hybrids require conservation and management:

- What biological, genetic, or demographic information might be required to inform the placement of hybrids in either the snow or Tanner crab assessment models?

- What additional clarifications or changes in data collection protocols might be needed to further standardize the appropriate accounting of hybrid crab in catch, observer, and assessment data streams?

- What socioeconomic information might be needed to evaluate the viability of hybrid harvest?

The SSC would be willing to participate in a workshop to further discuss accounting for hybrid crab appropriately in various data streams or assessments.

Ecosystem Status Report Preview

Elizabeth Siddon (NOAA-AFSC) provided the SSC with a clear summary of the Ecosystem Status Report (ESR) for Alaska's three large marine ecosystems (LMEs), with a focus on 2025/2026 conditions of most relevance to crab stocks in the Bering Sea, and forecasts for 2026/2027. The presentation was an update of that provided to the Joint Groundfish Plan Team (JGPT) in September 2026, with recent updates to climate conditions as available, and which also informs C3 BSAI and GOA Groundfish harvest specifications and GPT reports. The report, links, and summarized metrics were very helpful, and the SSC particularly appreciates the ongoing development of tailorable, regionally specific climate indices. The SSC hopes to see the extensions of similar tools for biological features.

Overall, the key 2026 environmental indicators were encouraging, as conditions trended towards normal or cool. A weak Aleutian low and cooler arctic air promoted a brief period of more extensive spring sea ice and a larger cold bottom water pool in the Northern and Eastern Bering Sea. There was no indication of marine heatwave conditions, and while the coming El Nino Southern Oscillation (ENSO) event has the potential to negatively impact the region, current conditions appear poised to provide some buffer. The impact of the coming ENSO event will depend somewhat on whether it manifests as a "central" or "eastern" Pacific event, which should be more evident later this year. It is currently trending towards Central-Eastern ENSO, with impact first to be felt in the GOA region, and then into the BSAI region, where current cool conditions are likely to moderate impacts.

In the meantime, the presence of cool, or more normal sea surface temperature conditions are predicted to result in ecosystem structure that can support growing crab stocks and healthy groundfish. Specifically, the

report provided a suite of relevant ecosystem and crab prey indicators, including favorable zooplankton/copepod abundance, increased energy storage and better fish condition, and shorter fur seal foraging trip durations. All are suggestive of conditions conducive to pelagic and benthic crab population health, leading to ecosystem considerations for all crab stocks to be set to risk level 1. More nuanced discussion/presentation of the impact of ecosystem indicators on specific stocks were presented in the individual crab stock specifications. The SSC notes that while it is nice to see some favorable conditions, changes were primarily evident in the fall, and the pattern may be better characterized as 'different' rather than a return towards historic norms.

Trawl Survey Updates

The SSC received a presentation on the 2026 EBS bottom trawl survey results relevant to BSAI crab from Emily Ryznar (NOAA-AFSC). There was no public testimony on the trawl survey results; however, there was public testimony on the presence of hybrid crab in the BSAI trawl survey, which is covered under C2 General Crab comments.

The SSC commends the survey team and the crab assessment authors for providing survey data and updating model runs and assessment documents on the short timeframe necessitated by the timing of the survey and management.

Survey results for BSAI crab stocks were generally positive in 2026, with the exception being EBS snow crab. The SSC highlighted several survey results in their discussion. **While there are positive signs for most stocks, the SSC continues to express general concern over the low stock status of many of the BSAI crab stocks**.

There were positive trends in Bristol Bay red king crab (BBRKC), with increases observed in most size/sex categories and notable increases in immature crab, though these immature crab were primarily observed at a single station. BBRKC in the northern district continues to be at elevated levels, though the magnitude of abundance is much smaller. There was no resampling conducted, though 56% of females had not completed their mate/molt phase. State and federal biologists and the assessment authors determined that resampling would not substantially affect the survey or assessment results. The BBRKC assessment authors are planning a retrospective analysis to better evaluate the effects of resampling on size composition and abundance estimates at the January 2027 CPT meeting. **The SSC supports this effort.**

Tanner crab abundance increased in the eastern area in most size-sex categories, with the largest increases in legal and industry-preferred sizes. Immature crab in the eastern area remains low in recent years. Tanner abundance in the western management area also continues to increase, as a recruitment pulse observed several years ago is now propagating through the population. This year's Tanner crab abundance in the western area was the highest on record for legal and industry-preferred categories.

Despite positive signs in 2025 for EBS snow crab, this year, the SSC notes the decline in survey abundance across all size-sex categories, including a 28% decrease in industry-preferred males. Only mature female abundance increased relative to 2025. The center of distribution for mature females was more westward than typical; whereas the center of large and industry preferred males is near the long-term average, though they continue to be widely distributed even at these low densities. The CPT noted the size frequency survey data indicate low recruitment in both 2025 and 2026.

Other king crab stocks increased or were stable in 2026. St. Matthew Blue King Crab had record high abundances in immature crab, though mature male abundance remains low and stable. Pribilof Island Red King Crab saw a large increase in abundance from 2025, but remains low overall. Similarly, Pribilof Island

Blue King Crab survey abundance was the highest observed in recent years, but this was driven by a few stations and abundance remains low.

Finally, the SSC supports the CPT recommendation that survey data with the updated net spread values be incorporated into all crab assessments as soon as possible.

BSAI Crab Harvest Specifications and SAFEs

Table 1 includes the stock status determination criteria and Table 2 includes the October 2026 SSC recommendations. The SSC endorsed the OFL and ABC recommendations of the CPT, with the exception of EBS snow crab (Table 2).

Table 1. Stock status in relation to status determination criteria for 2025/2026 as estimated by the most recent assessment. Hatched areas indicate parameters not applicable for that tier. Values are in thousands of metric tons (kt). Status determination recommendations made by the SSC are based on the best scientific information available and final status determination will be made by NMFS Headquarters following SAFE review.

Ch.	Stock	Tier	MSST[1]	B_{MSY} or B_{MSY} proxy	2025/26[2] MMB	2025/26 MMB/ MMB_{MSY}	2025/26 OFL	2025/26 Total Catch	Status[3]
1	EBS snow crab	4	73.14	142.8	105.21[4]	0.74	20.11	5.31	
2	BB red king crab	3	9.61	18.52	22.60	1.22	5.85	1.48	
3	EBS Tanner crab	3	21.33	43.22	116.89	2.70	51.02	5.7	
4	Pribilof Islands red king crab	4	0.64	1.283	2.59	2.02	0.4899	< 0.001	
5	Pribilof Islands blue king crab	4	2.07	4.15	0.162	0.039	0.00116	< 0.001	overfished
6	St. Matthew Island blue king crab	4	2.25	4.54	2.33	0.513	0.129	0.002	
7	Norton Sound red king crab	4	0.98	1.96[5]	2.15	1.10	0.284	0.17	
8	AI golden king crab	3	5.579	11.264	10.86	0.96	3.166	2.04	
9	Pribilof Islands golden king crab[6]	5					0.113	Conf.	
10	Western AI red king crab	5					0.056	0	

[1] MSST is estimated from the current year's model, while B_{MSY} is from the previous year (t-1) model at the time when the OFL was established.
[2] MMB on 2/1/2025 for Norton Sound red king crab as estimated in the 2025 assessment and on 2/15/2026 for all other Tier 1-4 stocks using the 2026 assessments.
[3] Stocks under a rebuilding plan include snow crab, Pribilof Islands blue king crab, and St. Matthew Island blue king crab.
[4] Snow crab MMB represents an estimate at the time of the survey, not at the time of mating
[5] B_{MSY} proxy basis years for NSRKC are 1980 - 2025.
[6] PIGKC specifications are set on a calendar year basis.

Table 2. SSC recommendations for Eastern Bering Sea crab stocks. Stocks for which specifications are rolled over between assessments (Pribilof Island red king crab, Pribilof Islands blue king crab, and Western Aleutian Islands red king crab) are also included. Biomass values are in thousand metric tons (kt). Tier designations in this table are based on the projected stock status in 2026/2027. Stocks for which the SSC recommended different harvest specifications from the CPT are bolded. Harvest specifications for SAFE Chapters 1 – 6 are set in October and Chapters 8 – 10 are set in June, in the year according to the assessment frequency cycle (see current SAFE Introduction for assessment cycle). Chapter 7 was set in December 2025.

Ch.	Stock	Tier	F_{OFL}	B_{MSY} or B_{MSY} proxy	B_{MSY} basis years[1]	2026/27[2] MMB	2026/27 MMB / B_{MSY}	Natural Mortality (M)	2026/27 OFL	2026/27 ABC	ABC Buffer
1	E. Bering Sea snow crab	4b	0.19	146.29	1982-2026	109.3[3]	0.75	0.27[4]	21.22	**12.73**	**40%**
2	Bristol Bay red king crab	3b	0.40	19.23	1984-2025	18.77	0.98	0.23	7.13	5.70	20%
3	E. Bering Sea Tanner crab	3a	1.42	42.66	1982-2025	97.85	2.29	0.32[4]	67.39	53.91	20%
4	Pribilof Is. red king crab	4a	0.21	1.283	2000-2024	2.586	2.02	0.21	0.4899	0.3674	25%
5	Pribilof Is. blue king crab[5]	4c	0	4.15	1980/81-1984/85; 1990/91-1997/98	0.162	0.04	0.18	0.00116	0.00087	25%
6	St. Matthew blue king crab	4b	0.10	4.5	1978-2025	2.12	0.47	0.23	0.182	0.136	25%
7	Norton Sound red king crab	4b	0.17	2.00	1980-2025	1.56	0.78	0.23	0.193	0.135	30%
8	Aleutian Is. golden king crab[6]	3b	0.49	11.157	1987-2022	10.67	0.96	0.22	3.493	2.620	25%
9	Pribilof Is. golden king crab	5[7]	-	-	2000-2016	-	-	-	0.113	0.0788	30%
10	W. Aleutian Is. red king crab		-	-	1995/96 - 2007/08	-	-	-	0.056	0.014	75%

[1] For Tiers 3, 4 where BMSY proxy is estimable, the years refer to the time period over which the estimate is made. For Tier 5 stocks, it is the years from which the catch average for OFL is estimated.

[2] MMB is estimated on 2/1/2026 for Norton Sound red king crab and on 2/15/2027 for all other Tier 1-4 stocks, using the current assessments.

[3] Snow crab MMB represents an estimate at the time of the survey, not at the time of mating.

[4] *Chionoecetes* natural mortality is for mature males.

[5] The F_{OFL} of 0 for PIBKC is indicative of a closed directed fishery due to stock status per the crab FMP guidelines.

[6] AIGKC MMB and B_{MSY} are calculated by combining two separate assessment models for the EAG and WAG, as presented in the current assessment. Specifications are determined using the combined MMB and status resulting in a single OFL.

[7] PIGKC uses a groundfish tier 5 style assessment in which the OFL is based on average MMB for a set of survey years and natural mortality. PIGKC specifications are set on a calendar year basis.

EBS Snow Crab

The SSC received a presentation on the 2026 stock assessment for the snow crab stock in the Bering Sea. The SSC thanks the new assessment author and the CPT for their ongoing efforts with this challenging assessment.

Written public testimony was provided by Jaime Goen (Alaska Bering Sea Crabbers - ABSC) and Scott Goodman (Bering Sea Fisheries Research Foundation - BSFRF) and oral testimony was given by Scott Goodman (BSFRF) and Cory Lescher (ABSC). The majority of testimony focused on the overarching concern on how to best deal with a second year with a relatively high abundance of hybrids. Public comment recognized the potential for an increased conservation concern for continued snow crab rebuilding. Mr. Goodman also expressed continued concern and frustration with the many years of recommendations for improving model complexity, transparency, and stability without much progress.

Over the past six years, snow crab has been at historic lows following the catastrophic crash in 2019-2020. Further declines occurred this year especially for large (>95mm) and preferred (>101mm) male snow crab, 28% and 29%, respectively, while mature males declined by approximately 3%. The biomass of preferred males (15.88kt) was the 4th lowest in the 44-year time series.

In agreement with the author and the CPT**, the SSC recommends the REMA/Tier 4 approach.**

The SSC reviewed the ABC buffers from 2021 - 2025 (25%, 50%, and 65%, respectively) along with corresponding rationales. For 2026, the CPT recommended a 50% buffer based on the following criteria:

1) only 3.5% of terminally molting males molted into the industry-preferred size range in 2026

2) recruitment appears to be very low

3) the female:male sex ratio is highly skewed toward females

4) morphometrically mature male biomass is used to calculate the OFL rather than biomass of males ≥ 95

5) the 'fallback' F_{OFL} * B method for calculating OFL produces a biased result.

The SSC discussed all this rationale in the context of previous buffers. **The SSC feels a number of the current year's criteria, particularly those associated with male maturity, were sufficiently captured in previous years' buffers and recommends a 40% buffer be applied again this year to the REMA/Tier 4 OFL to calculate the corresponding ABC.** The SSC also notes the risk table scores were all Level 1, except for Population Dynamics, which was a Level 2. The Level 2 score was unchanged from the last assessment and was due to the 4th lowest biomass of preferred size male crab in the 44-year time series, a highly skewed female to male sex ratio (85:1), and a downward shift of male size at maturity. The SSC discussed the highly skewed sex ratio but did not believe the single-year anomaly warranted an additional buffer for this year, and will continue to monitor the situation.

Based on the recommended model, overfishing is not occurring for snow crab. Based on the REMA/Tier 4 assessment, the stock status in 2025/2026 is estimated to be 75% of the B_{MSY}, above the Minimum Stock Size Threshold (MSST) and not overfished. Snow crab will remain under a rebuilding plan until it has rebuilt to the B_{MSY} level.

While the SSC has considered the REMA/Tier 4 approach a "fallback" method, this is the second year in a row this has been the accepted model. Thus, **the SSC recommends this be designated Model 25.0 as it was first accepted last year and will be considered the base model during the next assessment cycle.**

The SSC was encouraged by the author's attempt to simplify the size-structured model by truncating the time series and excluding females, and looks forward to seeing results from further simplifications to the model complexity in hopes for increased stability in near future. **The SSC recommends that the author review all pertinent CPT/SSC minutes (and the 2023 crab modeling working group notes) for the January 2026 crab modeling workshop and the May 2026 CPT**.

The SSC stresses the importance of developing a functional and stable size-structured model for this assessment. If any assessment changes are recommended in the future to better capture hybrid biomass and population dynamics, a simple and functional snow crab model will most likely be required.

The SSC also recognized and discussed that the REMA/Tier 4 approach does not technically fall under Tier 4 definition within the FMP and also does not account for natural mortality, growth, and molting between the time of the survey and the fishery. This could be further explored under the re-evaluation of crab harvest control rules, as mentioned in the General Crab Comments section. However, the SSC reiterates its intention that the REMA/Tier 4 approach should only be used as a "fall back" approach, and therefore does not recommend the OFL calculations take natural mortality, growth, and maturity into account in order to keep the method as simple as possible. Additionally, although the CPT highlighted that the years used for the calculation of B_msy proxy across all Tier 4 stocks were inconsistent, the SSC did not recommend any changes for the REMA/Tier 4 approach.

Tanner Crab

The SSC received a presentation on the 2026 assessment for the EBS Tanner crab stock and a summary of outcomes from a recent Center for Independent Experts (CIE) review. While there was no public testimony specific to the Tanner Crab assessment or harvest specifications, both written comments (Scott Goodman, BSFRF; Jamie Goen, ABSC) and oral testimony (Cory Lescher, ABSC; Edward Poulsen, self) highlighted the need to consider how snow crab-Tanner crab hybrids fit within the management process given increasing abundance in recent years. Comments highlighted the timely nature of this issue since the 2026 NMFS survey abundance of industry-preferred size male hybrids exceeds the abundance of industry-preferred size male snow crab. Public testimony from Mr. Goodman further highlighted concerns about the upcoming changes in NMFS EBS BTS gear and design as part of the modernization effort, and implications for crab assessment.

The Tanner crab stock has been in Tier 3 since the 2012/13 assessment cycle, given the informative nature of fishery, survey, and life history information for this stock. This stock has been assessed with a bespoke ADMB model framework (TCSAM02) since 2017. The SSC highlights its appreciation for Table 1 in the Stock Assessment and Fishery Evaluation (SAFE) document that provides a clear chronology of model development, including the model number, issue addressed, and evaluation result.

In June of 2026, a CIE review for the Tanner crab stock was completed. The CIE review focused primarily on the transition to GMACS, the optimal use of side-by-side survey data collected by BSFRF, the appropriateness of Tier 3 reference points for this stock, the necessity of considering spatial structure within this assessment, and the treatment of *Chionoecetes* hybrids. The CIE reviewers generally supported the transition to GMACS but highlighted the need for objective criteria for demonstrating the parallel nature of alternative model structure. In using BSFRF side-by-side observations to inform NMFS Bottom Trawl Survey (BTS) selectivity, the reviewers suggested using this information as priors for parametric survey selectivity curves estimated within the assessment, as opposed to external estimation and fixing within the assessment. Regarding Federal reference points (e.g., $F_{35\%}$ and $B_{35\%}$), the reviewers highlighted that these are likely inappropriate for crab life histories and fisheries that remove only large males. On the question of whether a spatially-explicit assessment modeling approach was necessary, given the high likelihood that EBS Tanner crab likely represent a metapopulation with mixing, rather than separate populations, the reviewers highlighted that an aggregate non-spatial stock assessment, combined with the use of spatial

survey information to guide harvest recommendations, was sufficient. Regarding hybrids, the reviewers highlighted that there is likely no immediate need to consider hybrids with the Tanner crab assessment. **The SSC appreciates and concurs with the CIE recommendations as presented.**

Survey and fishery data continue to provide positive signals for this stock, as the 2023 cohort propagates into larger size classes. The NMFS BTS observed an increasing abundance of mature female crab during each of the last three years in the area west of 166W, and large year-over-year percentage increases in industry-preferred (>125mm) male crab.

For the 2026 assessment cycle, the author brought forward three alternative models:

- **22.03d5 (TCSAM02)** - The existing model framework that has been used since 2017, updated with new 2026 survey biomass estimates and size compositions, new model-based (annual) maturity ogive, directed and bycatch fishery removals.
- **22.03d5 (GMACS)** – A parallel implementation of the existing model, with minor differences in parameterization, including log-scale parameter estimation, prior and penalty parameterization, and recruitment deviation structure during the pre-1973 'spin-up' period.
- **26.2 (GMACS)** – Estimation of parameters that were previously fixed and incorporation of annually-varying molt-to-maturity ogives.

The SSC thanks the author for the extensive set of bridging analyses to explore the influence of adding new data to the base TCSAM02 model structure, and demonstrate the equivalence of the TCSAM02 and parallel GMACS (22.03d5) model implementations. The addition of new data through 2026 to the base (22.03d5 TCSAM02) model resulted in only minor differences in past parameter estimates, aside from the fully-selected fishing mortality for several years in the mid 1970's.

The equivalence of parallel TCSAM02 and GMACS model structures was examined in two ways. First, by specifying all parameter values, running the model for a single iteration, and comparing predictions, management quantities, and likelihoods. This comparison showed that model-predicted quantities were within 1%, and likelihoods were very close between TCSAM02 and GMACS models. Second, each model variant was fit to the same data. While estimates differed during the pre-1973 'spin-up' period, more recent estimates were similar across platforms, with differences of about 10% for recent mature male biomass and 5-10% for biomass and fishery reference points.

Despite the bridging analyses demonstrating exact equivalency in likelihood components and model predictions, and close equivalency in estimated parameters, when confronted with data through 2026, large-scale differences in convergence between the bespoke TCSAM02 and GMACS models were observed. Model fits to data were very similar, as were estimates of biomass and recruitment aside from the pre-1973 spin-up period, however, the maximum gradient for the two GMACS models were each above 0.05, and few jitter runs converged to the MLE. The failed jitter analysis, combined with a strong positive retrospective pattern, led the author and CPT to not recommend either GMACS model for harvest specifications and instead recommend model 22.03d5 (TCSAM02). **The SSC supports the use of 22.03d5 (TCSAM02) for 2026/27 harvest specification.** Based on this model, the projected 2026/27 MMB/B_{MSY} = 2.29, placing the stock in Tier 3a. **Overfishing did not occur in 2025/26, and the stock is not overfished.**

The risk table for the Tanner crab stock identified Level 1 (normal) under the population dynamics, environmental/ecosystem, and fishery performance categories. Level 2 (increased) was identified for assessment-related considerations, primarily based on the inability of the model to represent past variation in NMFS BTS data. **The SSC supports the author-recommended and CPT-endorsed 20% buffer for this stock, equal to recent years.** The SSC highlights their appreciation for Table A.1 in the SAFE that

describes the recent history of buffers recommended by the author, the rationale for the buffer, and what the CPT and SSC recommended.

The SSC highlights that both bespoke TCSAM02 and GMACS model versions exhibit persistent challenges in data fits that should guide future research and model development. These include difficulty in fitting NMFS BTS biomass, specifically underestimation of high-abundance periods (late 1980s to early 1990s, late 2000s and 2011-2014), and overestimation of crab in the largest model size bin. The overestimation of large-sized crab may relate to assumptions about the natural mortality of mature individuals, as highlighted in the CPT discussion, and the SSC supports research exploring alternative mortality parameterizations.

The SSC offers the following additional recommendations:

- Revisit the necessity or benefit of using the 'spin-up' approach representing the initial population dynamics in the pre-1973 period, relative to a simpler approach that estimates initial numbers at size.
- Given the uncertainty about the appropriateness of current Federal reference points, the SSC recommends a yield-per-recruit analysis to identify alternative proxies for maximum sustainable yield based on the spawning potential ratio, including the $F_{0.1}$ reference point.
- The SSC supports the CPT recommendation to prioritize the transition to GMACS at the January modeling meeting and the April CPT meeting.

Bristol Bay Red King Crab

The SSC received a presentation on the Bristol Bay red king crab (BBRKC) assessment from the author and Plan Team chair. The SSC thanks the authors, the Ecosystem and Socioeconomic Profile (ESP) team and risk table contributors for thoroughly addressing past SSC comments. Public testimony was received from Cory Lescher (ABSC) to clarify deliverables from the Skipper Surveys and to characterize the sampling frame across the different crab fisheries.

Following fishery closures in 2021/22 and 2022/23, the stock continues a modest upward trend. Fishery CPUE is stable or possibly increasing according to the skipper survey.

The 2026 NMFS bottom trawl survey showed a cool thermal regime, with summer bottom temperatures being the fourth coldest in the survey time series. Due to this cold pool, many mature females had not completed their molt-mate cycle at the time of sampling in June, and no resampling was conducted. Even if the assessment transitions to a streamlined male-only model, continued monitoring of female molt timing and clutch fullness may be important for the ESP and Risk Table to verify that male harvest controls maintain high fertilization success, as well as for state TAC considerations. The 2026 survey also observed a large increase in immature crab abundance, but most of this catch occurred at a single station, so additional observations are needed for confirmation.

Model Evaluation and SSC Recommendations

Two Tier 3 GMACS model options were evaluated in the 2026 SAFE, including:

- **Model 24.0c.2:** The accepted 2025 base model rolled forward with updated 2025/26 fishery/bycatch data and 2026 trawl survey data.

- **Model 26.0 (Author and CPT Recommended):** Identical to Model 24.0c.2, but expanding male size classes from 20 to 23 bins (65–180 mm CL) and female size classes from 15 to 18 bins (65–145 mm CL).

The expansion of length classes in Model 26.0 was an improvement that successfully resolved tail compression in upper size classes and significantly improved likelihood fits to size compositions across all fleets without degrading survey biomass fits and did not appreciably change terminal stock scale. Jittering analysis (100+ runs) confirmed strong numerical stability and convergence to the global minimum log-likelihood. Following the expansion of size classes in Model 26.0, the SSC recommends re-evaluating and updating the growth transition matrices and growth increment data for the upper male and female length classes rather than assuming uniform growth across the newly created bins.

The SSC concurs with the CPT and assessment author in recommending Model 26.0 for setting 2026/27 harvest specifications.

With MMB well above the MSST, the stock is not overfished but remains in Tier 3b because MMB is still slightly below B_{MSY}. Total 2025/26 catch was below the OFL; therefore, **overfishing is not occurring**. **The SSC concurs with the CPT recommendation to maintain a 20% ABC buffer.** This buffer appropriately accounts for unmodeled assessment uncertainty, particularly the persistent retrospective pattern in MMB.

SSC Recommendations for Future Assessments

The SSC highlights the following research priorities:

1. The SSC agrees with the author that developing model-based substitutes for temperature-driven female molt delays is a research priority if analyses show that modeling females is important for management or assessment results. **The SSC recommends exploring environmental covariates such as cold-pool effects on survey catchability q or selectivity, or applying spatiotemporal standardization, to accommodate thermal delays without relying on re-tows.**

2. The SSC notes that stock assessment authors are working on a streamlined BBRKC model for harvest strategy MSEs and that female data have little effect on assessment results. **The SSC requests that the author bring forward a male-only model configuration (eliminating female population arrays entirely) for the April 2027 CPT meeting.**

3. The recruitment sex-ratio parameter may act as an artificial "alias" for sex-specific survey noise or other processes given it is estimated at 82% males in Model 26.0. The SSC is not aware of any evidence to suggest skewed sex ratio at recruitment biologically, so **the SSC requests evaluating a model with a 50:50 Fixed Recruitment Sex Ratio.**

4. **The SSC recommends evaluating a candidate sensitivity model starting in 1985 following the stabilization of the early 1980s collapse.** This start date more closely aligns the model to the recruitment time series for MSY and eliminates the need to estimate the artificial 1980–1984 natural mortality spike.

5. The SSC supports continued tracking of Northern District red king crab survey data outside the traditional Bristol Bay boundary and requests continued development of sdmTMB spatiotemporal models to evaluate stock connectivity prior to any boundary expansion proposals.

BBRKC Ecosystem and Socioeconomic Profile (ESP)

The 2026 BBRKC ESP report card provides useful ecosystem, spatial, fishery, and socioeconomic context. The summer bottom temperature was the fourth coldest in the 47-year survey series; the female molt-mate cycle was delayed; and fewer than 1% of females that had completed molt and mating had empty clutches. Distribution indicators remain generally consistent with continued occupancy of core Bristol Bay habitat. The near-average spring pH index should be interpreted alongside its longer-term decline, and fishery indicators remain useful context for local availability, fleet behavior, and potential spatial aggregation.

The current Bayesian adaptive-sampling analysis did not identify an ecosystem indicator with adequate predictive support for pre-recruit abundance. Wind stress and pH had the greatest relative support, but their model-averaged effect intervals overlapped zero, and overall fit was poor. The indicator suite therefore provides contextual and monitoring information for the risk table, research priorities, and future assessment development.

The SSC appreciates the ESP authors' continued development of the BBRKC report card and their clear presentation of current ecosystem, spatial, fishery, and socioeconomic information. The ESP is a useful companion to the assessment and risk table because it organizes evidence, identifies plausible mechanisms and emerging concerns, and helps direct research and communication.

The CPT recommended evaluating a smaller male size class as the response variable for future indicator analysis and calculating fishery long-term means over the rationalized period while retaining the full pre- and post-rationalization series for transparency.

The SSC concurs and offers the following additional ESP recommendations:

- Reconcile the closure-area indicator and annual incidental-catch status across the ESP, report card, CPT summary, and presentation. For each indicator, state the numerator, denominator, data year, reference period, traffic-light rule, intended decision use, and key limitation.
- For the planned transition from Bayesian adaptive sampling (BAS) to dynamic structural equation modeling (DSEM), the SSC requests that the analysts identify the decision or predictive question, response variable, candidate indicators and lags, data revisions, diagnostics, and hindcast or out-of-sample evaluation. Retain results as contextual unless a reproducible and biologically defensible predictive relationship is demonstrated.
- The SSC appreciates the insights provided by the ABSC skipper survey and requests that analysts work with ABSC staff to provide sample frame information, including response count, response rate, and representativeness, while retaining skipper observations as fishery-informed context.

St. Matthew Blue King Crab

The SSC received a presentation on the 2026 Saint Matthew Island Blue King Crab (SMBKC) stock assessment. The SSC thanks the authors for their substantial effort in developing the spatiotemporal model-based EBS trawl survey biomass index and the model-based EBS trawl survey size-composition estimates. The SSC also appreciates the response to previous CPT and SSC recommendations. There was no public testimony.

SMBKC is a Tier 4 stock that has been under a rebuilding plan since June 2020, and the directed fishery has been closed since the 2016/2017 season. The assessment was updated to GMACS version 2.20.44, and the bridging analysis between Models 26.1 and 26.1a resulted in similar model fits, with the overall negative log-likelihood remaining unchanged. The three models presented were:

- **Model 26.1b:** the new base model, which is Model 26.1a updated with 2026 EBS trawl survey biomass and size-composition data and updated groundfish bycatch data;

- **Model 26.2:** Model 26.1b with a spatiotemporal model-based EBS trawl survey biomass index; and

- **Model 26.2a:** Model 26.2 with model-based EBS trawl survey size compositions. Model 26.2a is a research model and was not recommended as a candidate for harvest specifications.

The model-based EBS trawl survey biomass index accounts for differences in sampled stations across years and provides a consistent time series that includes both years with and without the higher-density corner stations. The SSC considers this a valuable improvement for maintaining the continuity of the biomass index under the revised survey design. The SSC supports using only year as a fixed effect, given the limited depth contrast available to support depth as an explanatory variable, while continued evaluation of model fit, residual variability, and potential spatial covariates is warranted.

Models 26.1b and 26.2 produced similar temporal patterns in recruitment and mature male biomass, but Model 26.2 resulted in a substantially higher biomass scale. In 2026, MMB increased from 1,528 tons under model 26.1b to 2,116 tons (38.5%) under model 26.2, while B/BMSY decreased from 0.53 to 0.47, respectively. Although relative depletion trajectories were similar, the difference in biomass scale is important because the survey index directly influences estimated recruitment, MMB, and management quantities.

The SMBKC is a Tier 4 stock under a rebuilding plan following its 2018 overfished designation, and the directed fishery has been closed since the 2016/17 crab season. **The stock is not overfished, and overfishing is not occurring.** The stock was above MSST in 2025/26, but both harvest-specification models project a decline in MMB in 2026/27, and Model 26.2 estimates B/BMSY below 0.5. Given the projected decline in MMB and the stock's continued low biomass relative to BMSY, rebuilding will depend strongly on successful recruitment. Projections indicate that, under recent recruitment conditions, the stock is unlikely to reach MSST by 2031, even without directed fishing mortality.

The SSC supports the author's and CPT's recommendation to use Model 26.2 for status determination and harvest specifications including the OFL and ABC with a 25% buffer, unchanged from the previous year. Although the retrospective pattern has improved and the model-based index has been developed, substantial uncertainty remains regarding life-history parameters, survey catchability and selectivity, recruitment, and rebuilding. **The SSC supports retaining the 25% buffer given these remaining uncertainties, the continued low stock size relative to BMSY, and concerns regarding projected warmer winter temperatures.**

The SSC supports retaining the biennial assessment cycle through the 2028 assessment, allowing time to further develop the model-based size compositions and approaches for integrating the EBS trawl and ADF&G pot survey indices before the next full assessment.

In addition, the SSC recommends the following prioritized research and modeling developments:

1. Continue the development of an integrated model-based index incorporating the EBS trawl and ADF&G pot surveys and evaluate alternative approaches for integrating information from the two surveys.

2. Continue the evaluation of the model-based index for the EBS trawl survey, including model fit and residual variability, survey catchability, and selectivity parameterization.

3. Continue development of the model-based EBS trawl survey size compositions expansion using abundance rather than biomass and evaluate correlation among size-specific spatial fields before incorporating these estimates into the assessment.

4. Develop a risk-table framework to provide a more systematic and transparent basis for evaluating the ABC buffer.

5. Evaluate whether expanding the modeled size range to include smaller crabs, potentially down to 50 mm CL (carapace length), would provide useful information on the pre-recruit portion of the population and the transition into the 90–104 mm in carapace length (size class 1).

6. Continue research on life-history and population processes important to rebuilding, including growth and molting, natural mortality, spatial distribution, and recruitment.

Western Aleutians Red King Crab

Western Aleutian Islands Red King Crab (WAIRKC) is a Tier 5 stock assessed on a triennial cycle. There was no public testimony. The previous assessment for WAIRKC was completed in 2023, but the CPT recommended rolling over specifications for the 2026/2027 season due to capacity constraints. The SSC agreed with this approach in June and looks forward to a full SAFE report planned for April 2027. The WAIRKC directed fishery was closed in 2025/2026, and there was no bycatch in other non-directed fisheries, therefore **overfishing did not occur for WAIRKC**. As a tier 5 stock, an overfished status was unable to be determined.

Overfishing Status Updates

The SSC received overfishing status updates for four stocks in off-years for full assessment reviews, including Pribilof Island Red King Crab, Pribilof Island Blue King Crab, Pribilof Island Golden King Crab, and Aleutian Islands Golden King Crab (AIGKC). **Total catch mortality for each of these stocks was below the OFL, so overfishing did not occur in 2025/2026**. Directed fishing for AIGKC was incomplete at the time of the assessment and bycatch from the groundfish fisheries was still ongoing in June, so an overfishing determination for AIGKC based on a final total catch was made at this October meeting.

SAFE Guidelines

The SSC appreciates the efforts to streamline and standardize the BSAI crab SAFE reports and other associated documentation to the extent practicable.

Risk Tables

The SSC appreciates the draft risk tables provided by crab assessment authors and looks forward to their work next April when the CPT reviews risk tables for consistency. The SSC recommends that the CPT include a discussion of how to name “levels” in the two-tier risk table and ensure that the levels included in the table reflect the overall buffer. For example, in the BBRKC SAFE the authors included levels only for the current year, resulting in all Level 1 rankings, which does not explain the 20% overall buffer. The SSC notes that the method used by the Tanner crab authors is promising, where Levels for the historical level represent the historical buffer and the “change/no change” notation for the current year considerations clarify that there is no change to the historical buffer in the current year. This approach also has the benefit that if the uncertainty decreases in the current year (e.g. retrospective pattern is resolved), there can be a decrease in the overall buffer. Current year changes can result in increases or decreases relative to the historical buffer.

C3 BSAI/GOA Groundfish Specifications

The SSC received a series of presentations from Kalei Shotwell (NOAA-AFSC, BSAI GPT co-chair), Chris Lunsford (NOAA-AFSC, GOA GPT co-chair), Diana Stram (NPFMC), and Sara Cleaver (NPFMC) that included items from the September 2026 JGPT, BSAI GPT, and GOA GPT meetings.

The SSC reviewed the SAFE report chapters with respect to status determinations for BSAI Bogoslof pollock, GOA arrowtooth flounder, GOA rex sole and GOA skates. In addition, harvest projections were reviewed for multiple stocks in both the BSAI and GOA. For those stocks for which final specifications are being set, **the SSC-approved models indicated that no stocks were subject to overfishing in 2025. In reviewing the status of stocks with reliable biomass reference points (all Tier 1–3 stocks), the SSC concurs that these stocks are not overfished or approaching an overfished condition in 2026.** Status determination recommendations made by the SSC are based on the best scientific information available and final status determination will be made by NMFS Headquarters following SAFE review. The SSC reviewed final harvest specifications for GOA Pacific cod in February 2026.

To streamline and simplify the SSC report, recommended ABCs, OFLs and area apportionments are summarized exclusively in Table 3 (BSAI) and Table 4 (GOA). Recommendations that differ from those of the GPTs are marked in **bold**.

Table 3. SSC OFL, ABC, and BRD recommendations (metric tons) for BSAI Groundfish stocks reviewed in October 2026 for final harvest specifications for 2027/2028.

Species	Area	2026 OFL	2026 ABC	2026 TAC	Catch as of 9/8/2026	SSC Recommended 2027 OFL	SSC Recommended 2027 ABC	SSC Recommended 2027 BRD	SSC Recommended 2028 OFL	SSC Recommended 2028 ABC	SSC Recommended 2028 BRD
	AI	56,231	46,437	19,000	2,478	59,090	48,763		62,952	51,917	
Pollock	Bogoslof	77,354	58,015	250	165	77,354	58,015		77,354	58,015	
Arrowtooth flounder	BSAI	102,472	87,035	14,000	4,820	98,654	83,787		95,130	80,799	
Kamchatka flounder	BSAI	7,790	6,606	6,606	1,953	7,988	6,770		7,630	6,466	
Northern rock sole	BSAI	166,220	158,225	75,000	35,917	160,588	152,865		161,774	153,993	
Flathead sole	BSAI	106,283	87,700	36,000	16,216	108,596	89,655		111,401	92,006	
Alaska plaice	BSAI	33,965	28,230	15,682	4,143	39,724	33,021		38,264	32,522	
Northern rockfish	BSAI	22,284	18,232	12,000	8,389	21,739	17,784		21,463	17,558	

Beginning in 2026, the Groundfish Plan Teams and Council bodies will use new terminology for groundfish harvest specifications. The purpose of this endeavor is to make the following distinction: the ABC (ACL) is specified at the stock or stock complex level, and the overall TAC for a stock or stock complex cannot be set above ABC. ABC is tied to MSA requirements and accountability measures (AMs). Spatial apportionments are based on survey data, fishery data, or a combination of the two data types, and are meant to inform distribution of the TAC across areas. These spatial apportionments will be referred to as Biologically-informed Recommended Distributions (BRD).

OFL = Overfishing Limit
ABC = Acceptable Biological Catch
BRD = Biologically-informed Recommended Distribution
TAC = Total Allowable Catch
Source: 2025 and 2026 Final BSAI Harvest Specifications; Catch Accounting System. BSAI catch (not AK wide catch) for sablefish included in catch total.

Table 4. SSC OFL, ABC, and BRD recommendations (metric tons) for GOA Groundfish stocks reviewed in October 2026 for final harvest specifications for 2027/2028.

		2026			Catch	SSC Recommended 2027			SSC Recommended 2028		
Stock	Area	OFL	ABC	TAC	9/8/2026	OFL	ABC	BRD	OFL	ABC	BRD
Shallow-Water Flatfish	W	n/a	23,902	13,250	44	n/a		23,738	n/a		23,619
	C	n/a	28,455	28,455	1,523	n/a		28,259	n/a		28,118
	WYAK	n/a	2,846	2,846	3	n/a		2,826	n/a		2,812
	SEO	n/a	1,707	1,707	-	n/a		1,696	n/a		1,687
	Total	69,277	56,910	46,258	1,570	69,206	56,519		68,867	56,236	
Deep-Water Flatfish	W	n/a	231	231	2	n/a		228	n/a		224
	C	n/a	2,570	2,570	111	n/a		2,519	n/a		2,464
	WYAK	n/a	1,796	1,796	3	n/a		1,760	n/a		1,721
	SEO	n/a	2,239	2,239	1	n/a		2,195	n/a		2,146
	Total	8,118	6,836	6,836	117	7,959	6,702		7,784	6,555	
Rex Sole	W		3,353	3,353	15	n/a		2,786	n/a		2,669
	C		13,582	13,582	1,139	n/a		10,053	n/a		9,631
	WYAK		1,413	1,413	-	n/a		1,532	n/a		1,457
	SEO		2,825	2,825	-	n/a		1,706	n/a		1,624
	Total	25,743	21,173	21,173	1,154	19,523	16,077		18,683	15,381	
Arrowtooth Flounder	W		33,716	14,500	84	n/a		25,572	n/a		25,537
	C		68,511	68,511	16,872	n/a		80,318	n/a		80,209
	WYAK		6,719	6,719	26	n/a		9,692	n/a		9,679
	SEO		11,039	11,039	15	n/a		18,501	n/a		18,476
	Total	143,347	119,985	100,769	16,997	157,261	134,083		157,060	133,091	
Flathead Sole	W		13,757	8,650	21	n/a		13,208	n/a		13,103
	C		22,083	22,083	900	n/a		21,421	n/a		21,250
	WYAK		4,018	4,018	-	n/a		4,807	n/a		4,768
	SEO		2,122	2,122	-	n/a		2,539	n/a		2,518
	Total	51,176	41,980	36,873	921	51,152	41,975		50,740	41,639	
Dusky Rockfish	W		199	199	38	n/a		188	n/a		178
	C		5,527	5,527	3,091	n/a		5,225	n/a		4,967
	WYAK		204	204	40	n/a		193	n/a		184
	SEO		91	91	-	n/a		87	n/a		82
	Total	7,319	6,021	6,021	3,169	6,920	5,693		6,577	5,411	
Big Skate	W		745	745	72	n/a		567	n/a		567
	C		1,749	1,749	654	n/a		1,796	n/a		1,796
	E		341	341	129	n/a		428	n/a		428
	Total	3,780	2,835	2,835	855	3,721	2,791		3,721	2,791	
Longnose Skate	W		104	104	41	n/a		55	n/a		55
	C		1,894	1,894	527	n/a		2,021	n/a		2,021
	E		538	538	380	n/a		602	n/a		602
	Total	3,380	2,536	2,536	948	3,572	2,678		3,572	2,678	
Other Skates	GOA-wide	887	665	665	369	1,111	833		1,111	833	

Beginning in 2026, the Groundfish Plan Teams and Council bodies will use new terminology for groundfish harvest specifications. The purpose of this endeavor is to make the following distinction: the ABC (ACL) is specified at the stock or stock complex level, and the overall TAC for a stock or stock complex cannot be set above ABC. ABC is tied to MSA requirements and accountability measures (AMs). Spatial apportionments are based on survey data, fishery data, or a combination of the two data types, and are meant to inform distribution of the TAC across areas. These spatial apportionments will be referred to as Biologically-informed Recommended Distributions (BRD).

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General Groundfish Comments

The SSC highlights the continuing limitations in the Age and Growth Program capacity at the AFSC. The SSC concurs with the BSAI GPT in emphasizing the importance of age data to age-structured assessment models. This concern was also expressed in written and oral public testimony. The SSC was encouraged to hear that the Age and Growth Program, through prioritization and newer efficient ageing methods, such as Fourier Transform Near-Infrared Spectroscopy (FT-NIRS), is catching up on the backlog of samples to age. The SSC suggests that the Age and Growth program explore (if they have not already) the potential for collaborating across agencies with capacity and expertise to assist with further alleviating the backlog.

The SSC recognizes the effects of limited capacity more broadly including those associated with the Council process (e.g. the ESP Team). The SSC commends the ongoing work to streamline work flow, conduct additional training, and collaborate across agencies to meet necessary deadlines. The SSC supports continued efforts that encourage collaboration and training that build capacity. The SSC noted that it is important to communicate where capacity is limiting, and the potential effects on team and/or delivered products. The SSC encourages continued efforts to explore ways to address capacity issues.

The SSC notes that various projection scenarios are used by assessment authors. The SSC supports authors moving toward using a standardized approach to harvest projections. This would still allow sufficient flexibility to use a different approach if there is reason to do so due to specific circumstances.

The SSC appreciates the efforts to date that have been made by authors to standardize the harvest projection reports to the extent practical and responses to past SSC recommendations and support continued progress in this area.

The SSC notes that while the requested five-year projections were included in both the GOA rex sole and GOA arrowtooth flounder assessments, inconsistent catch projection assumptions were applied (e.g., projected catches larger than ABC in GOA rex sole). To maintain standardization across the upcoming Tier 1-3 stock assessments in November, the SSC recommends all authors to adopt consistent average F methodologies for years 3-5 when producing these five-year projection scenarios. The SSC supports the GOA-GPT recommendation to streamline the projection scenarios table to only the scenarios that are needed for management.

When REMA models are used to estimate the BRDs for tier 3 assessments, the SSC requests that basic documentation be routinely provided, including model configuration, convergence status, parameter estimates and plots showing fits to survey observations.

General Comments on BRD flexibility

Given the federal government shutdown last fall, this is the first groundfish stock assessment cycle to utilize the biologically-informed recommended distributions (BRDs) terminology and for advisory bodies, such as the SSC and GPTs, to inform the Council of potential flexibility in spatial apportionments. The Council motion in October 2025 requested SSC advice, for specific stocks, on whether using the previous year's apportionment or small deviations from the current year's apportionment would impact a stock from a biological perspective. **The SSC strongly emphasizes that this is the first application of the process and anticipates further development and standardization as additional iterations progress.** Given limited time to develop the process, **the SSC framed its discussion of flexibility in BRDs around the relative risk of exceeding any single BRD in a single year (rather than multiple years for species assessed on multiyear cycles). The SSC's approach to evaluating risk and providing advice may evolve or change with different stocks or over time.**

The SSC strongly supports the development of quantitative approaches or explorations to inform discussions of flexibility in BRDs. In October 2025, the SSC requested that survey coverage, representativeness and uncertainty be explicitly communicated in apportionment recommendations. Using the uncertainty in survey biomass estimates to bound regional apportionments, as suggested by the GOA GPT, would be a valuable piece of information rooted in the spatial distribution of the stock and scientific uncertainty. However, it will be less informative for species for which surveys do not sample well or infrequently. The SSC notes that this is only one factor that might inform a thorough discussion of the risk of exceeding any particular BRD. Additional considerations, as included in the SSC comments for GOA skate-specific BRDs, might include the availability of stock structure information, movement rates, or fishery data, such as retention and discard survival rates. Data or literature from other sources outside of Alaska might be considered for species also present in Canada or the West coast. Additionally, the SSC suggests that there is inherent uncertainty in the selection of apportionment boundaries where the spatial relevance of the boundary is unknown, which could also be considered.

The SSC notes that the GOA GPT asked two process questions directed to the Council in their report (pg. 5 of GOA GPT report):

- *Once the Council identifies a stock for Plan Team and SSC advice, should the Team reevaluate that stock's BRDs and associated TAC flexibility every year?*
- *Does any flexibility for an area TAC to deviate from a BRD expire if the Council does not request advice again the following year?*

Given the critical importance of survey information to these discussions, the SSC notes that advice to the Council may not change substantially in between assessment cycles, when assessment cycles are tied to the survey schedules.

The SSC notes that existing data in groundfish assessments could also be organized differently to better track trends in BRDs and subsequent subarea TACs over time. All BRD related tables, figures, text should be updated to ensure that "ABC", "sub-area ABC" (or similar) text is revised to "BRD" unless it is explicitly in relation to the stock-wide ABC. **Specifically, for the stocks where the Council requests information related to flexibility in spatial apportionments, either identified by the Council in October 2025 or if the Council identifies additional stocks at this October 2026 meeting, the SSC requests that assessment authors include in December 2026**:

1. A table showing BRDs (from 2026) and subarea ABCs (from 2025 and earlier) for the last 10 years, their associated CV if available, and the catch within each region.
2. State whether a stock structure template has been completed for the stock, and, if so, a link to the document.
3. Describe other factors relevant to spatial allocation, such as longevity, movement rates, natural mortality, discard mortality, etc.

Along with the GPTs and assessment authors, the SSC intends to further develop the process through which flexibility in spatial apportionment is communicated to the Council, specifically to refine factors or approaches that might provide meaningful advice to the Council on assessing the risk of exceeding a BRD. **However, the SSC reiterates that changes from the BRDs should be a rare event, as the spatial distribution of the stock is still best represented by the estimates developed from the large-scale fishery-independent surveys and persistent or long-term deviations from this may negatively impact the stock.**

Joint Groundfish Plan Team Report

The SSC received a presentation from Kalei Shotwell (NOAA-AFSC, BSAI GPT co-chair) on the September 2026 JGPT meeting. Daniel Goethel (NOAA-AFSC) and Matt Cheng (University of Alaska Fairbanks) provided a presentation on sablefish proposed model runs. Public testimony on JPGT agenda items are noted in individual sections.

Harvest Control Rules (HCRs)

The SSC received a presentation from Diana Stram (NPFMC) and Kirstin Holsman (NOAA-AFSC) on ongoing Harvest Control Rule (HCR) discussions, summarizing the update given to the JGPT. The SSC also received JGPT recommendations from Kalei Shotwell (NOAA-AFSC). The presentation received by the SSC at this meeting included a concise list of past SSC requests and timeline for further work in 2026-2027. The SSC thanks the presenters, the ACLIM and GOA CLIM teams and the many groups that have provided input over the years on this issue. Public testimony was provided by Glenn Merrill (Glacier Fish Company), and Jim Armstrong (Freezer Longline Coalition).

The HCR research effort is intended to describe trade-offs among alternative HCR parameterizations relative to the status quo and their resilience to future climate and or ecosystem change. Council action in June approved the following next steps for the HCR work: (1) Include the SSC recommendations as possible, (2) use the objectives provided by staff in June 2026 for purposes of the synthesis and initial review of performance metrics. The Council will refine objectives based upon preliminary stock specific results as alternatives are being developed, (3) conduct evaluations for pollock and Pacific cod (BSAI and GOA) and Alaska sablefish and, for Alaska sablefish, recommend further development of the hybrid harvest control rule, (4) develop plain language materials related to the Council's climate resilience work as part of the Engagement and Communication Strategy, (5) outline the scalability of this work under varying budget scenarios, which includes survey data streams that are in flux due to budgets, and (6) finalize results from the sablefish management strategies evaluation, including single area and spatial breakouts, and preliminary findings from Bering Sea HCR evaluations of pollock and Pacific cod and present to the JGPT in fall 2026.

The SSC appreciates the substantial progress in moving the HCR discussion from broad concerns about whether the existing system is robust to non-stationarity (rapid change or long-term trends) in a changing climate toward quantitative evaluation of alternative management strategies - specifically HCRs - and their performance relative to the status quo. The SSC considers the sablefish MSE and ongoing pollock and Pacific cod simulations important case studies for developing a general framework for evaluating future HCR modifications. **The SSC supports the HCR team's approach of focusing on communicating what is robust about current HCRs and addressing individual stock changes. The SSC notes that, as specific HCRs for selected stocks are undergoing testing, it may be timely to consider how the proposed new HCRs would be integrated within our current or a revised tier structure.** The HCRs and the tier system are part of an integrated management system, and potentially interact, especially under the ecosystem cap and in a multispecies modeling context. The SSC encourages broader discussions of both the groundfish and crab tier system beyond HCR modifications by the Plan Teams and in other appropriate fora. **For the May meeting, the SSC suggests analysts include a description for how we can move from MSEs to management for sablefish as a case study under the current tier system. The SSC recommends using the sablefish MSE to help establish a general protocol for moving an alternative HCR from research to operational consideration, including specification of objectives, operating-model uncertainties, performance criteria, stakeholder engagement, robustness testing, and criteria for determining whether an alternative provides a meaningful improvement over status quo.**

An integral part of the HCR work is to determine whether there is contrast across different sets of analyses and modeling approaches. **The SSC suggests developing a discussion of how to reconcile different sets of analyses and modeling approaches that lead to different conclusions, how to better understand how differences may arise, and how the results can be integrated to select the "best-performing" HCRs.**

With respect to the different HCR options, the SSC suggests separating HCRs intended to be robust to climate shocks and surprises (HCR 5/10) from climate-adaptive HCRs (HCR 7). For most stocks, informative links between productivity and climate are not currently known and may never be. In those cases, it seems most important to develop a general, static HCR that is robust to environmental variability, climate shocks, and other uncertainties. These rules, such as HCR 5 and HCR 10 would be modifications of our current HCRs to make them more robust, but they would not be responsive to different environmental conditions. In cases where we do have informative climate links, rules like HCR7 that adjust the elements of the HCR (e.g. max F_{ABC} or $B_{40\%}$) may be effective. These climate-adaptive rules could be applied to either the current shape of the HCR, as in the ongoing analyses for pollock, or to HCRs, such as HCR 5 or HCR 10, by linking the parameters of the respective HCRs to temperatures or other variables. **Additionally, the SSC recommends evaluating whether the SSP5-8.5 scenario is still a plausible bookend for future climate scenarios or something like the new CMIP7 "High" scenario similar to SSP3-7.0 would be more appropriate.**

With regard to objectives, **the SSC suggests that the Council may want to develop a small set of prioritized objectives for evaluating the tradeoffs among HCRs**. This would aid in the selection of appropriate metrics and how to best weigh them for comparisons among HCRs. **The SSC also suggests adding an objective related to the time and effort required to implement potentially more complex HCRs and to support the required data streams as needed.**

With regard to performance metrics, the June 2026 HCR paper organizes proposed performance metrics related to the objectives into stock status, yield, biological stability, societal and ecosystem categories. **The SSC suggests adding a category and related metrics to evaluate transparency and simplicity of the proposed HCRs to address the relevant objective regarding transparency of the management process.**

The SSC re-iterates its previous recommendations to focus on a small set of performance metrics for communicating results. Options for how to organize performance metrics may include selecting one or more key metrics for each category/objective for presenting and communicating results or combining multiple metrics in each category into a single (unweighted or weighted) mean to present a small set of aggregated metrics. The SSC supports the GPT recommendation to consider additional types of performance metrics focused on the frequency of collapses, time to rebuilding, and the frequency of catch (or ABC) falling below a defined threshold. The SSC appreciates the continued work on economic and community metrics and indices.

The SSC recommends using the current HCR plus risk-table process as an explicit benchmark in all evaluations. A central question should be whether alternative HCRs provide demonstrably better and more consistent performance across different climate scenarios than the flexibility already available through assessment updates, the existing HCR, and risk-table adjustments. However, the SSC recognizes the challenge of simulating the inherently qualitative approach to determining buffers, hence evaluating performance against status quo may itself involve qualitative considerations around the use of the risk table.

The SSC continues to support a retrospective comparison of marine heatwave (MHW) impacts on GOA Pacific cod, as also suggested by the GPT and public testimony. A retrospective analysis could provide a clear and tangible example of the impacts of alternative HCRs, which could potentially be more readily understood by a broader audience than future simulations. However, the SSC recognizes the challenges of a full retrospective analysis and supports the HCR team simulating how HCRs would perform under MHW conditions and including a simple retrospective analysis as noted in a previous SSC report, or a more developed retrospective as practicable.

Regarding timing, the SSC appreciates the extensive coordination required to carry out the HCR work and the efforts by the HCR team to be responsive to the Council, SSC, Plan Teams, and stakeholders. The SSC appreciated hearing that it would have the opportunity to review the experimental design in May. In

response to questions from presenters, SSC supports reviewing Modular Ocean Model (v.6) (MOM6) validations and forecasts, and reviewing modeling platforms or approaches in May, as long as there is time for analysts to respond to SSC recommendations in their timeline. When available, the SSC supports authors sharing conclusions from stakeholder input with both the GPT and SSC and sharing the HCR team's response, or planned response, to the Council motion asking for what the scalability of this work would be under varying budget scenarios. When asked about the timeline for crab, the presenters described time limitations for the HCR team and their understanding of reduced time and lower prioritization by the CPT. **The SSC continues to strongly support including crab stocks in the HCR work, requests including timelines for crab, along with groundfish, in the HCR schedule going forward.** The SSC recommends continued conversation with the CPT on HCR work.

Sablefish Models

The SSC received a presentation on proposed model runs for 2027 sablefish harvest specifications. The draft sablefish assessment was comprehensive, and the SSC appreciated efforts by the assessment authors that went into developing alternative modeling approaches, including the numerous sensitivity runs.

There were nine oral public comments and fifteen written comments on this agenda item. Oral public testimony was provided by Robert Alverson (Fishing Vessel Owners Association), Linda Behnken (Alaska Longline Fishermen's Association), Bernie Burkholder (self), Lauren Howard (self), Dr. Alexander Stubbs (self), Nels Evans (Petersburg Vessel Owners Association), Glenn Merrill (Glacier Fish Company), Jim Armstong (Freezer Longline Coalition), and Paul Clampitt (Sablefish and Halibut Pot Association).

In October 2025, the SSC supported bringing forward Model 25.12 for management. This model was implemented in the Stochastic Population Over Regional Components model (SPoRC), a new software package, and provided a bridge that emulated the previous sablefish assessment model and had the additional capacity to fit spatial models. This model was not used for harvest specifications in 2025 due to the federal government shutdown. A number of refinements were made to Model 25.12 to transition to Model 26.1_1Reg. For Model 26.1_1Reg, there was improved treatment of selectivity, a lower survey CV, rescaled input sample sizes, and a change to logistic selectivity for the trawl fishery. For sablefish biology, there were updated length and weight parameters, and estimation of sex-specific natural mortality in the model. Concerning data usage, the fishery CPUE index was dropped, fixed gear and longline survey lengths were dropped, and an early fishery time block was removed. A carryover approach was implemented to construct a complete longline survey index. This was done by using the most recent survey for an area when it was not surveyed. Finally, extrapolated western Aleutian stations were dropped. Overall, these changes represent fairly significant modifications to the input data and model that streamline and modernize the modeling approach. The changes had relatively minor effect on the population trend, and are thoroughly documented in bridging analyses.

In addition to Model 26.1_1Reg, two other new models are available for consideration, a fleets-as-areas model, Model 26.2_FAA, and a true spatial Model 26.3_5reg. In June 2026, a CIE review was convened to review these new modeling approaches for sablefish. CIE reviewers endorsed the FAA model as the best scientific information available (BSIA) and the JGPT agreed with this recommendation. Although this was a request in the terms of reference for the CIE reviewers, the SSC notes that BSIA has a rather precise definition in the context of federal fisheries management of groundfish in the North Pacific. BSIA relies on the full review process, including Plan Team and SSC, followed by NOAA determination that BSIA was used. Consequently, the SSC approached its review of potential sablefish models as usual, taking the CIE review under consideration, but not being bound by it.

The fleets as areas (FAA) approach is commonly used in West Coast assessments and elsewhere in which spatial components of fisheries (most commonly) or surveys are modeled separately in a model without any explicit spatial structure. For sablefish, the separate areas that were modeled were the Gulf of Alaska, the Bering Sea, and the Aleutian Islands. Several model configurations were considered that varied in the

number of areas modeled by the fishery and survey, and whether selectivity was domed-shaped or asymptotic.

One advantage of the FAA approach is that it can incorporate information from the current survey design without needing to interpolate or carry over survey estimates. The SSC has some concern that using this modeling approach would reinforce the current survey schedule, which has to be considered suboptimal from an assessment perspective. Since the model is not spatial, each survey is interpreted by the model as an indicator of overall stock abundance (through the lens of selectivity and catchability). This assumption may be a concern for sablefish, since trends at the edges of the stock, such as Aleutian Islands and the Bering Sea, may differ from the core of the stock due to density dependence or range extension. This issue was not evaluated by the assessment authors, nor did the simulation framework consider this possibility. A second issue for the FAA approach is that selectivity for fisheries modeled this way often show domed-shaped selectivity patterns due to spatial differences in a fishing mortality, recruitment, and migration (Waterhouse et al. 2014[1]).

A cross-testing simulation and estimation exercise using the 5-region spatial operating model evaluated various FAA model configurations and found that the model with the smallest median spawning stock biomass (SSB) bias included three regional longline fleets and a trawl fishery fleet, coupled with fishery and survey selectivity modeled as dome-shaped in the Bering Sea but logistic elsewhere for both surveys and fisheries. Due to the difficulty in fitting dome-shaped selectivities with limited age data in the BS and AI, the model recommended by the CIE reviewers, JGPT and the assessment author was a simpler model that modeled one longline fleet and one trawl fleet with both fisheries and survey assumed to be asymptotic. This model also had a small median bias. However, the SSC notes that FAA models with this fishery structure with asymptotic fisheries tended to be consistently biased high and those with asymptotic surveys were consistently biased low, suggesting that the good performance of the recommended model was due to cancelling biases rather than an appropriate set of assumptions.

The SSC supports bringing forward the JGPT's proposed models for December, including Model 25.12, the continuity model, Model 26.1_1Reg, and Model 26.2_FAA. The SSC agrees with the assessment author that the explicit spatial Model 26.3_5reg is not mature enough for use in management. While the SSC appreciates the assessment author's goal of model parsimony, FAA models introduce complexity that needs to be addressed. The SSC requests further evaluation of FAA models that include dome-shaped selectivity for Bering Sea fisheries and surveys, noting that the cross-testing simulations with this model configuration show good model performance, and dome-shaped selectivity is an expected outcome of the fleets as areas model. Recommendations for this evaluation include:

- Domed-shaped selectivity should be evaluated using more flexible curves such as the double normal that are already implemented in SPoRC. The gamma function is not often used for modeling selectivity because the ascending and descending portions of the curve are linked.
- **The SSC requests that an additional FAA model be provided for the final assessment in December that allows for selectivity for Bering Sea fisheries and surveys to be dome-shaped.**
- Use the 5-region operating model to evaluate emergent empirical selectivities for regional fisheries and surveys by comparing survey and fishery age composition sampled regionally with abundance at the population level.

The SSC requests that full model diagnostics be provided for Models 26.1_1Reg, 26.2_FAA, and the SSC's proposed additional model with dome-shaped selectivity.

[1] Waterhouse, Lynn., David B. Sampson, Mark Maunder, Brice X. Semmens. 2014. Using areas-as-fleets selectivity to model spatial fishing: Asymptotic curves are unlikely under equilibrium conditions. Fisheries Research 158:15–25.

Additional recommendations

The SSC requests that a sensitivity model run be done where the natural mortality estimated in Model 26.1_1Reg is included as fixed values in Model 26.2_FAA to evaluate the impact of the re-estimated natural mortality values in Model 26.2_FAA on model results.

If the FAA approach becomes the preferred approach for sablefish, the SSC recommends that process error in survey catchability be evaluated to account for density dependence and range expansion.

The SSC recommends evaluation of spatial-temporal models for the longline surveys that deal appropriately with missing regional surveys to develop an overall estimate of abundance. In addition, the SSC supports the JGPT's recommendation to explore REMA models to estimate biomass distribution.

The SSC notes that assessments are only as good as the data going into it. Reductions in survey extent and the number of aged samples have a detrimental impact on the assessment, particularly when regional selectivity and recruitment are being estimated. **Therefore, the SSC recommends that the longline survey and number of aged samples be maintained or expanded if possible.**

Continued development of the fully spatial model, Model 26.3, should be a priority for sablefish. Both Models 26.1 and 26.2 depend on approximations that would not be necessary in a fully spatial model.

The assessment authors developed a wide range of proposed allocations using the carryover approach to infer biomass distribution. Use of this approach with Model 26.2_FAA results in an inconsistent mix of methods, since Model 26.2_FAA was developed to avoid using the carryover method. Nevertheless, **the SSC supports carrying forward the full range of apportionment options into the final assessment. In addition, the SSC recommends use of REMA models with the longline survey data to estimate regional biomass distribution.** These methods are well established and widely used and would not need to use the carryover method in the missing years for the five-year average.

The SSC shares the concern expressed in public testimony about the loss of the longline fishery logbook data stream. Fishery catch per unit effort (CPUE) had been used in the assessment model for many years and was also used for apportionment calculations. Aside from its use in the assessment, CPUE is a useful indicator of fisheries performance, both in risk tables and in a socioeconomic context for ESPs.

The SSC recommends the development of socioeconomic indicators for the sablefish MSE. These indicators should be considered a tool to evaluate socioeconomic impacts of harvest control rule alternatives rather than be used to identify a preferred approach.

ESP-DSEM

The SSC supports the expanding analytical capabilities in using DSEM within ESPs. Key improvements include the ability to capture non-linear, threshold, and non-stationary relationships, as well as the broader integration of ecosystem and climate data into assessments. The SSC supports the JGPT's recommendation to develop standardized workflows and to document the evidence for linkages among variables. The SSC supports efforts to establish methods that accommodate multiple models and hypotheses while seeking input from users, managers, and stakeholders. Model selection should align with specific goals while balancing performance. The SSC supports evaluating competing models using a suite of performance metrics with the author justifying final model selection for their specific purpose.

Implementation timing and evaluation cycles should rely on the expertise of ESP teams. The SSC supports the recommendation to maintain stability by avoiding annual changes to approved Directed Acyclic Graphs (DAGs), whereas the relative contribution of including a causal mechanism in the model could be evaluated annually along with other metrics of model fit. Timing of re-evaluating the DAGs might depend on a decline in the variance explained or predictive skill, or if the ESP team for a particular stock identifies other mechanisms and datasets that could improve the overall model. The SSC also looks forward to future

updates and reports outlining the formal process for deeper socioeconomic integration into the DSEM framework. The SSC acknowledges that dedicated analytical staff other than assessment authors are needed to expand efforts to the levels requested, but also note that someone needs to be the ESP/DSEM lead for each stock, and in many cases the assessment author is best positioned to do so.

Longline Survey Results

The longline survey update noted that the survey now alternates between the GOA in odd years and the BSAI in even years. Extrapolations into unsampled regions and the historical extrapolated relative population numbers (RPN) for the western Aleutian Islands have both been discontinued. Sablefish RPN increased by 26% in the AI to near historical highs, but dropped 14% in the BS. Overall abundance remains well above the long-term average. Pacific Cod RPN rose by 33% in the BS, but dropped 22% in the AI. Greenland turbot continued a downward trend, with RPN falling 58% in the AI and 41% in the BS. Shortraker rockfish RPN increased in both regions; Rougheye/blackspotted rockfish increased in the AI but fell in the BS. Temperatures at ~250m depth in the BS/AI are near average.

Pacific Cod Research Updates

An update on Pacific cod research by assessment authors focused on stock structure, movement of cod between the WGOA and BS, and modeling platforms to best accommodate the spatial structure and movement. While genetic structure exists within the GOA, within the BS, and with the AI, there is currently no identifiable genetic structure among the central GOA, western GOA, and eastern BS. Tagging data supports this by documenting significant movement in particular between the western GOA and eastern BS. This exchange is not reflected in the current regional FMP assessments. This is particularly problematic because the fishery in the western GOA primarily occurs in winter when the exchange between regions is most prevalent. The authors tested an exploratory 2-area stock synthesis (SS3) model for the eastern BS and western GOA using both SS3 and SPoRC models. While both models provided similar results, the SS3 approach was more challenging in attempts to understand spatial dynamics. The SSC supports the authors and JGPT recommendation to continue efforts with the SPoRC model. The SSC further supports the continued GOA spatial modeling effort using SPoRC that will be included in a CIE review in spring 2028 and presented to the JGPT in fall 2028, with the subsequent goal of using the spatial assessment in a management strategy evaluation to evaluate the consequences of status quo ABC/TAC or alternative apportionment across seasons or between the EBS and western GOA.

Inseason Management Updates

The inseason management update noted that the Amendment 80 fleet has decreased from 20 to 14 vessels post-pandemic and that overall BSAI catch through September 1 was comparable to 2025 despite lower fleet utilization. Colder conditions influenced variable flathead and rock sole catches. For the GOA, pollock in area 620 was fully utilized in the A season, whereas Area 610 was underutilized due to low participation and processing shifts. For Pacific cod, higher prices are expected to drive full utilization for central GOA fixed gear. The western GOA A-season was underutilized, but B-season effort in the pot fishery is expected to increase as vessels shift from the Bering Sea. For rockfish and skates, no target stocks had hit their TAC at the time of the meeting, though some may before year-end. Historically, CGOA shortraker reached TAC in 2022 and 2025, CGOA big skate in 2025, and WGOA longnose skate in 2023. Thornyhead and rougheye/blackspotted rockfish have stayed under TAC for the last five years. Voluntary industry cooperation remains essential for avoiding hitting limits of choke species.

Halibut Discard Mortality Rates (DMRs)

The primary change in methods for halibut DMRs was removal of the Gulf of Alaska Rockfish catcher-vessel operational group as a separate DMR category due to lack of support for prior concerns. These observations will be incorporated into the broader non-pelagic trawl catcher-vessel operational group. Most

other DMRs changed little. **The SSC supports the GPT's recommendation to approve the Halibut DMR Working Group recommendation for GOA and BSAI proposed halibut DMRs for 2027/2028.**

BSAI Groundfish Plan Team Report

The SSC received a presentation from Kalei Shotwell (NOAA-AFSC, BSAI GPT co-chair) and Diana Stram (NPFMC) on the September 2026 BSAI GPT meeting. Jim Ianelli (NOAA-AFSC) presented proposed model runs for EBS pollock and Meaghan Bryan (NOAA-AFSC) presented model runs for greenland turbot. Public testimony on BSAI GPT items and harvest specifications is noted under individual agenda items.

Bogoslof Pollock

Bogoslof pollock is assessed every two years. The last full assessment was in 2024. This year an operational update assessment was presented. There was no public testimony.

The Bogoslof pollock assessment is managed under Tier 5 and is based on the *REMA* model fit to acoustic survey trends. The NMFS acoustic trawl survey is conducted every four years with the last survey taking place in 2024. Ship time for the 2028 survey has been requested. The 2024 acoustic trawl survey estimate was 245 kt, a 31% decrease from the 2020 estimate. This area has been closed to directed pollock fishing since 1992. Bycatch, primarily in the non-pelagic trawl arrowtooth flounder, has been low in recent years. The 2026 catch to date is 89 t, which is near the 5-year average of 95 t.

The SSC agrees w/ith the BSAI GPTs and the author's recommendations for the 2027 and 2028 OFL and ABC for this stock. There were no elevated risk table scores for this stock and the SSC agrees with the author and GPT recommendation for no reduction from the maximum permissible ABC. The OFL and ABC for 2027 is the same as 2026.

The BSAI GPT received a presentation of ongoing research efforts, which included exploration of size-based spawn timing and the survey timing. They discussed how the potential for changes in the sex-ratio on the spawning grounds, due to the potential size-based spawn timing, may impact the sex ratio observed by the survey. The SSC looks forward to future updates on this topic.

Harvest Projection – Aleutian Islands Pollock

Aleutian Islands pollock is typically assessed every two years. The last full assessment was in 2024. Due to staffing and reviewer capacity resulting from the 2025 government shutdown the full assessment was postponed. This year, a harvest projection was presented. There was no public testimony.

Aleutian Islands pollock is assessed using the Assessment Model for Alaska and is managed in Tier 3a. The standard projection model was updated with the final 2024 and 2025 catch and estimated 2026–2028 catches. The 2027 total biomass is an 11% increase from the 2026 total biomass.

The SSC concurs with the BSAI GPT and author recommended ABC and OFL for the BSAI Aleutian Islands pollock for 2027 and 2028, with no reduction from maxABC.

Harvest Projections – Arrowtooth flounder

BSAI arrowtooth flounder is assessed every four years. The last full assessment was in 2022. This year, a harvest projection was presented. A full assessment is scheduled for 2027. There was no public testimony.

Arrowtooth flounder is assessed using a statistical age-structured model and is managed in Tier 3a. The standard projection model was updated with the final 2024 and 2025 catch and estimated 2026–2028 catches. The 2027 total biomass is a 1% decrease from the 2026 total biomass.

The SSC concurs with the BSAI GPT and author recommended ABC and OFL for the BSAI arrowtooth flounder for 2027 and 2028, with no reduction from maxABC.

Harvest Projections – Kamchatka flounder

BSAI Kamchatka flounder is typically assessed every two years. The last full assessment was in 2024. Due to staffing and reviewer capacity resulting from the 2025 government shutdown the full assessment was postponed. This year, a harvest projection was presented. A full assessment is scheduled for 2027. There was no public testimony.

Kamchatka flounder is assessed using a statistical age-structured model and is managed in Tier 3a. The standard projection model was updated with the final 2024 and 2025 catch and estimated 2026–2028 catches. The 2027 total biomass is a 2% increase from the 2026 total biomass.

The SSC concurs with the BSAI GPT and the author recommended ABC and OFL for the BSAI Kamchatka flounder for 2027 and 2028, with no reduction from maxABC.

Harvest Projection – Northern rock sole

BSAI northern rock sole is typically assessed every two years. The last full assessment was in 2024. Due to changes in stock assessment prioritization the full assessment was postponed. This year, a harvest projection was presented. A full assessment is scheduled for 2027. There was no public testimony.

Northern rock sole is assessed using a statistical age-structured model and is managed in Tier 1a. The standard projection model was updated with the final 2024 and 2025 catch and estimated 2026–2028 catches. The 2027 total biomass is a 3% decrease from the 2026 total biomass.

The SSC concurs with the BSAI GPT and author recommended ABC and OFL for the BSAI northern rock sole for 2027 and 2028, with no reduction from maxABC.

Harvest Projections – Flathead sole

BSAI flathead sole represents a two-species complex consisting of true flathead sole and its morphologically similar congener Bering flounder. This stock is assessed every four years. The last full assessment was in 2024. This year, a harvest projection was presented. A full assessment is scheduled for 2028. There was no public testimony.

Flathead sole is assessed using a statistical age-structured model and is managed in Tier 3a. The standard projection model was updated with the final 2025 catch and estimated 2026–2028 catches. The 2027 total biomass is a 5% increase from the 2026 total biomass.

The SSC concurs with the BSAI GPT and author recommended ABC and OFL for the BSAI flathead sole for 2027 and 2028, with no reduction from maxABC.

Harvest Projections – Alaska plaice

BSAI Alaska plaice is assessed every four years. The last full assessment was in 2024. This year, a harvest projection was presented. A full assessment is scheduled for 2028. There was no public testimony.

Alaska plaice is assessed using a statistical age-structured model and is managed in Tier 3a. The standard projection model was updated with the final 2025 catch and estimated 2026–2031 catches. The 2027 total biomass is a 10% increase from the 2026 total biomass.

The SSC concurs with the BSAI GPT and author recommended ABC and OFL for the BSAI Alaska plaice for 2027 and 2028, with no reduction from maxABC.

Harvest Projections – Northern rockfish

BSAI northern rockfish is assessed every two years. The last full assessment was in 2023. This year, a harvest projection was presented. The full assessment scheduled for 2025 was not conducted due to the 2025 government shutdown. A full assessment is scheduled for 2027. There was no public testimony.

Northern rockfish is assessed using an age-structured model and is managed in Tier 3a. The standard projection model was updated with the final 2023–2025 catches and estimated 2026–2031 catches. The 2027 total biomass is a 1% decrease from the 2026 total biomass.

The SSC concurs with the BSAI GPT and author recommended ABC and OFL for the BSAI northern rockfish for 2027 and 2028, with no reduction from maxABC.

EBS Pollock Models

The SSC received a presentation from Jim Ianelli (NOAA-AFSC) on the initial model runs for the 2026 assessment of walleye pollock in the EBS. There was no public testimony. The EBS pollock assessment is a Tier 3 stock as of 2024 and is assessed annually.

The main update to the EBS polock assessment was the transition from ADMB to Rceattle. The bridging analyses between last year's base model (23.0) and the Rceattle model (26.0) were considered thorough and resulting population dynamics were very similar. As with a number of stocks transitioning to Rceattle, the SSC is encouraged by the continued development of this new platform and its efficiency and support for state-space methods.

The SSC agrees with the BSAI GPT and recommends that models 23.0 and 26.0 be brought forward for management use in November/December.

With the transition to Rceattle, there is an opportunity to use the process error modeling capacity to evaluate alternatives to the status quo approach of modeling time-varying selectivity. **The SSC recommends this be considered a priority for future assessments.**

Additionally, **the SSC recommends the author improve the presentation clarity of figures regarding the transition from the ADMB model (23.0) to the Rceattle model (26.0)**. For example, development lines that dead ends are not needed.

The SSC supports all the BSAI GPT recommendations regarding the strong retrospective pattern, the need for further evaluation of data weighting for age-composition data, and for continued development of an EBS pollock ESP in the near future.

Yellowfin Sole Models

The SSC reviewed proposed models for the BSAI yellowfin sole assessment. There was no public testimony specific to this stock. The last full assessment was completed in 2024 using Model 23.0. This is a sex-structured, age-structured model and the stock was managed under Tier 1. Substantial model development has occurred since 2024. In September 2025, the authors presented a bridge from Model 23.0 to SS3, together with a proposed transition from Tier 1 to Tier 3. In October 2025, the SSC supported the transition to Tier 3, but due to the government shutdown the Tier 3 approach was not implemented. The stock has since undergone a CIE review with two reviewers recommending a move to Tier 3, while one reviewer suggested considering the Tier 1 results alongside Tier 3 results. Consistent with its October 2025 report,

the SSC continues to support use of Tier 3 reference points for the 2026 assessment. The transition removes reliance on a poorly informed stock-recruitment relationship for estimation of B_{MSY} and F_{MSY} while retaining the considerable information on population dynamics contained in this unusually long and data-rich assessment.

The SSC and three CIE reviewers also supported the transition to SS3 for this assessment. The authors and Plan Team proposed three SS3 models for consideration this year. Model 25.0 is the updated SS3 base model and uses survey start-date anomaly as the environmental covariate on survey catchability. Model 25.0a additionally uses the sampleISS approach to determine input sample sizes for survey age compositions and was supported by the SSC in October 2025. Model 25.0b replaces survey start date with mean EBS bottom-temperature anomaly as the environmental covariate on survey catchability. **The SSC supports bringing forward models 25.0, 25.0a and 25.0b for consideration in December.**

The reconsideration of bottom temperature as a catchability covariate responds in part to the CIE review. Although temperature is also included in the spatiotemporal standardization of the survey index, the CIE review concluded that this does not necessarily constitute double counting of the same environmental effect because temperature enters the survey standardization as a density covariate rather than as a catchability covariate. SS3 currently allows only one environmental covariate on catchability, precluding direct replication of the temperature, start-date, and interaction formulation used in Model 23.0. **Therefore, the SSC supports bringing forward Model 25.0b with the use of the temperature covariate for consideration in December.**

The improved survey fit under Model 25.0b provides support for a temperature effect on catchability. The Plan Team also discussed evaluating cold-pool extent as an alternative environmental covariate and the broader question of how environmental information enters both survey standardization and assessment catchability. **The SSC agrees that these are useful future model-development questions rather than additional model configurations for the current assessment cycle**.

The SSC continues to support evaluation of the sampleISS approach used in Models 25.0a and 25.0b. Diagnostics for initial model runs indicate that effective and observed sample sizes differ substantially and survey age-composition residuals show some evidence of misspecification. Therefore, the SSC recommends clearly documenting the input sample sizes and effective sample sizes for the survey age compositions and providing sufficient diagnostics to determine whether the compositions are appropriately weighted or whether the low survey-index SDNR and discrepancies between observed and effective composition sample sizes indicate excessive weighting of survey information.

One CIE reviewer questioned the use of empirical weight-at-age rather than explicitly modeling growth. The assessment authors noted, and the SSC agrees, that empirical weight-at-age is widely used and can reduce estimation bias when growth varies through time. The Plan Team also discussed the recent increase in weight-at-age at older ages and noted that relatively few observations may be available for the oldest fish. **The SSC supports investigation of growth as a function of temperature in the future, while recognizing that empirical annual weight-at-age may already capture much of this temporal variation.**

The SSC requests that the assessment include standard SS3 convergence and identifiability diagnostics for the candidate models, consistent with the CIE recommendations, including maximum gradients, Hessian status and key parameter correlations.

Finally, the SSC reiterates its October 2025 recommendation to investigate the long-term decline in yellowfin sole and persistently weak recruitment in the context of ecosystem changes in the Bristol Bay region. This work may be most appropriately developed through a future ESP, but potentially relevant environmental mechanisms could also be considered in future assessment development.

Greenland Turbot Models

The SSC reviewed proposed model development for the BSAI Greenland turbot assessment and thanks the authors for their extensive model explorations. Written and oral public testimony was received from Jim Armstrong (FLC). This stock is assessed on a biennial basis and the last accepted assessment, Model 16.4c, was used for the 2024 specifications. The model is a sex-structured model implemented in SS3 with two fisheries (trawl and fixed gear) and three fishery-independent data sources: the EBS shelf bottom trawl survey, EBS slope bottom trawl survey, and AFSC longline survey. The model uses a Beverton-Holt stock-recruitment relationship with fixed steepness of 0.79 and $\sigma_R = 0.6$ and estimates autocorrelated recruitment deviations extending back to 1945. Catchability for the shelf and slope surveys is fixed at values estimated in a 2015 model, while longline-survey catchability is estimated.

The 2024 assessment retained Model 16.4c because other models considered had greater instability and stronger retrospective patterns. The accepted model estimated 2024 female spawning biomass above $B_{40\%}$, placing the stock in Tier 3a. However, the SSC identified extreme assessment concerns associated with uncertainty in initial stock size, the loss of the EBS slope survey, cancellation of the 2024 longline survey, retrospective bias, and generally poor model fit, and applied a 25% reduction from maximum ABC.

The SSC appreciates the authors' considerable efforts focused on rebuilding the model from the ground up, simplifying the assessment, and identifying sources of model instability and data conflict. This work confirmed substantial tension between the survey biomass indices and survey length compositions, as well as tension among some of the surveys as the deep-water surveys imply substantially higher historical biomass than the shelf survey. The analysis builds sequentially from Model 16.4c. Among the important changes are fixing recruitment autocorrelation at 0.437, estimating survey catchability rather than fixing shelf and slope q at historical values, applying updated composition weighting, simplifying slope-survey selectivity, and considering a 1977 rather than 1945 start year. The SSC also appreciates the inclusion of likelihood profiles for R0, which reinforce concerns about appropriate weighting of composition data. The SSC recommends expanding the R0 likelihood profiles to better characterize the impacts of all data sources and priors/penalties on the likelihood over a sufficiently wide range of plausible R0 values.

The author and BSAI GPT recommended bringing forward models 25.0, 25.3a, and 25.4a in December. Model 25.0 is a minor modification of Model 16.4c that incorporates the SSC-recommended interpolation method for the AFSC longline RPN series, which had little impact. **The SSC supports bringing forward this model as the new base model.** Models 25.3a and 25.4a incorporate the cumulative changes judged to represent assessment best practices, including estimated survey catchability and objective Francis composition weighting; Model 25.4a additionally simplifies slope-survey selectivity by removing the last time block, which has only two years of survey data. Thus the only difference between models 25.3a and 25.4a is in the selectivity time blocks, and the models had otherwise similar fits.

The SSC is concerned that the long-standing survey selectivity blocks are poorly justified and may partially compensate for data conflicts rather than reflecting true changes in selectivity or availability to the survey. It also appears that the 25.3 series of models had convergence issues (only 60 of 100 models for 25.3a converged), while Model 25.4a, which removed the last time block, had better convergence. This may at least in part be related to the high uncertainty in selectivity during the most recent time block in 25.3a, which includes only two years of survey data. Model 25.4a also had a less extreme retrospective pattern. **Therefore, the SSC suggests dropping Model 25.3a and bringing forward Model 25.4a, along with its counterpart, Model 26.3, which uses the 1977 model start date.** The later start date was recommended previously by both the BSAI GPT and SSC to provide an alternative for determining the stock's initial condition. Models starting in 1977 generally estimated lower recruitment, higher Fs, and substantially lower SSB.

The SSC also requests, to the extent possible, a leave-one-survey-out analysis to assess the impacts of the different surveys on model fits.

The SSC agrees with the BSAI GPT to bring forward a Tier 5 model in December for potential use as an interim model if no satisfactory Tier 3 model is available or to deal with data gaps, in particular the lack of a slope survey and inadequate age data. The SSC requests that the authors clarify how the scaling was done and what the estimated Tier 5 biomass represents.

The SSC notes that it supported the REMA approach for spatial apportionments presented last year and continues to support the approach for this year.

Finally, the SSC highlights the crucial importance of sampling slope stations, as well as better age data, to inform this stock assessment.

EBS Pacific Cod Models

The SSC received a presentation on eastern Bering Sea Pacific cod model explorations and recommendations for the 2026 assessment cycle. Written and oral public testimony was provided by Jim Armstrong (FLC). During the current assessment cycle, the stock assessment authors explored two aspects of model design, including alternative definitions for the model plus-group age and the sex structure. The decision to explore alternative plus-group definitions was based on the observation that following the update to aging methodology, no Pacific cod older than age 14 have been encountered, while the decision to explore a split-sex model was based on the observation of moderate sexual dimorphism and skewed sex ratios for larger size bins.

The authors explored sequential reductions in the plus group definition from the age 20+ definition in the base assessment model (Model 24.1) down to age 10+, using the base model (24.1) with updated data (Model 26.1 variants). Reductions in the plus-group resulted in lower estimates of mean recruitment and higher estimates of survey catchability, thus lowering the scale of recruitment and biomass. However, changing the plus-group from 20 to 14 successfully removed poorly informed older age classes, with minimal impacts on demographic quantities, reference points, and data likelihoods.

Due to the lack of available model-based survey age compositions by sex, the authors compared models fit to design-based survey age compositions by sex, specifically comparing:

- **Model 26.2** – single sex model (26.1), with design-based age.
- **Model 26.3** – Model 26.2, with split sex composition data, and sex-specific growth and selectivity parameters.

Comparison of sex-aggregated and split-sex model predictions indicated very similar biomass and recruitment trajectories, and estimates of unfished spawning stock biomass. Model fits to data were also found to be similar between models, with slightly better fits to the survey index and age compositions, and slightly worse fits to survey and fishery length compositions. Given that the split-sex model estimated commensurate increases in both terminal and unfished female spawning biomass relative to the single-sex model, resulting harvest recommendations for 2026 were very similar (within 2.5%), but uncertainty in estimated fishing mortality reference points increased.

The SSC thanks the author for the thorough review and comparison of the aggregated and split-sex models and concurs with the author and Plan Team that the increase in model complexity is not warranted, given the similarities in model fit, model predictions, and status of the stock. SSC highlights its appreciation for clear documentation of the model comparisons, including links to the repository containing model files and standard SS3 diagnostic figures.

The SSC concurs with the BSAI GPT and assessment authors that Model 26.1 (age 14 plus-group) and the base model (24.1, age 20 plus-group) be brought forward for consideration in November.

The SSC encourages continued exploration of seasonal sex composition and sex-specific movement, including the hypothesis that males may arrive at spawning aggregations before females and be more vulnerable to the winter trawl fishery early in the season. The SSC recommends evaluating this hypothesis as additional data become available.

The SSC emphasizes the importance of maintaining Pacific cod ageing capacity and age-data collection and recommends maintaining ageing capacity and, where feasible, augmenting age information, particularly for older Pacific cod.

The SSC further supports GPT recommendation for future research to explore evidence for age-varying natural mortality, and if present, its potential inclusion within the stock assessment.

BSAI Survey Results

The SSC received a summary of the 2026 EBS bottom trawl survey, AI bottom trawl survey, EBS acoustic-trawl survey (ATS) and the acoustic vessel-of-opportunity (AVO) index. There was no public testimony on the survey results; however, there was public testimony related to the lack of deepwater sampling in recent years.

EBS Bottom Trawl Survey

The 2026 EBS bottom trawl survey included EBS shelf only and all 350 stations were completed. Surface and bottom temperatures were the coldest since 2013 and the cold pool was the largest since 2012 – extending into Bristol Bay and the Alaska Peninsula. Biomass indices remained stable or increased for major species in 2026. Alaska skate was the exception, and the BSAI GPT noted the continued decline as potentially concerning. Also of note was the 50% increase from 2025 of the pollock biomass index. The BSAI GPT discussed the volatility of this index and whether it is related to horizontal or vertical availability rather than changes in total population biomass. In relation to the recalculation of trawl effort for 2024 and 2025 that resulted in a 3 to 4% change in biomass indices, the SSC concurs with BSAI GPT in the importance of assessment authors obtaining updated time series of survey data rather than appending recent years to previously downloaded data. The SSC noted the updated target date for implementation of the survey modernization and the intent for the redesign to include sampling that extends to at least 400 m to include the upper continental shelf and test tows as deep as 600 m to assess feasibility of including deeper tows.

AI Bottom Trawl Survey

The 2026 AI bottom trawl survey completed 83% of the 447 stations attempted. Biomass indices for sablefish and rockfish were above average, flatfish were below average, while gadid indices were mixed, and the biomass index for skates was low. Surface temperatures during the survey were cooler than 20-year average, while bottom temperatures increased to near average. In the western Aleutians, distinct warming of the water and localized hypoxia was observed. The BSAI GPT discussed the new dissolved oxygen information and whether hypoxic conditions affect species distributions or survey catches. The SSC supports exploration of this question and looks forward to future updates as they become available.

EBS Acoustic Surveys

The EBS acoustic trawl survey (ATS) is conducted biennially, and the 2026 results are still preliminary. The acoustic vessel-of-opportunity (AVO) index provides an annual index of midwater pollock backscatter from the bottom-trawl survey providing information on off-years for the ATS. The 2026 ATS detected more juvenile pollock than in recent survey years and the presumed age-2 component was the largest observed since the 2012 year class. There were relatively few pollock observed in the northern extension of the survey. The AVO and ATS spatial patterns were similar in 2026 and the relationship between AVO observations and ATS biomass did not appreciably change with addition of 2026 data. The BSAI GPT

noted that although the ATS and AVO occur over the same period (late May through Aug), they do not progress together, so they do not sample the same area simultaneously. However, the overlap in 2026 provides an opportunity to compare the two observations directly.

The SSC commends the survey teams and assessment authors for providing survey data and updating model runs and assessment documents on the short timeframe necessitated by the timing of the survey and analyses.

BSAI Preliminary Groundfish Harvest Specifications

The SSC recommends approval of the preliminary 2027/2028 BSAI groundfish specifications and apportionments as provided by the BSAI GPT.

GOA Groundfish Plan Team Report

The SSC received a presentation from Chris Lunsford (NOAA-AFSC, GOA GPT co-chair) and Sara Cleaver (NPFMC) at the September 2026 GOA GPT meeting. Aaron Lambert (ADF&G) presented model runs for Demersal Shelf Rockfish (DSR) and Cole Monahann (NOAA-AFSC) presented model runs for GOA pollock. The SSC received oral public testimony from Ben Ley (self) and Kiley Thompson (self). Additional public testimony on GOA GPT items and harvest specifications is noted under individual agenda items.

Arrowtooth Flounder

The SSC received a presentation on the 2026 GOA arrowtooth flounder stock assessment and the first full arrowtooth flounder ESP. The SSC thanks the authors for their substantial effort in updating the assessment and developing the new ESP. This is an operational full assessment conducted on a four-year cycle. The previous full assessment was conducted in 2021, and the SSC reviewed the proposed models in September 2025. The SSC appreciates the response to previous SSC and GOA GPT recommendations. There was no public testimony.

The 2026 assessment incorporates updated fishery and survey data, revised length-at-age and weight-at-age information, an updated ageing-error matrix, and the transition from ADMB to TMB within the Rceattle framework.

Two models were presented:

- **Model 25.0**, the TMB based Rceattle model with fixed sex-specific M of 0.20 for females and 0.35 for males; and
- **Model 25.1**, which estimates sex-specific M.

The SSC agrees with the GOA GPT and the authors that Model 25.0 should be brought forward for management advice. Although the models have similar overall trends, Model 25.1 produces substantially higher M, nearly three times higher mean recruitment, changes in selectivity, and a substantially different population scale. These results indicate strong confounding among M, selectivity, recruitment, and survey catchability.

The SSC emphasizes that the stability of Model 25.0 does not resolve this structural uncertainty. Evidence from the adult catch-curve and multispecies analyses indicating higher mortality among younger arrowtooth, together with differences between Models 25.0 and 25.1, highlights the need to further evaluate the M–selectivity–recruitment relationship.

The SSC considers survey catchability an important source of uncertainty in population scale. The potential influence of bottom temperature and the 2003 survey observation warrants further evaluation. The differing recent trajectories of the ADF&G large-mesh and AFSC longline surveys also provide an opportunity to evaluate whether these surveys can provide complementary information on abundance and selectivity.

Regarding the new ESP, the SSC supports the DSEM approach for investigating recruitment variability but recommends treating the current estimates of ecosystem relationships as research results rather than established causal relationships for management advice, until additional indicator refinement, model validation, and updated recruitment estimates are incorporated. The DSEM identified relationships involving spring sea-surface temperature, spring arrowtooth larvae, summer/fall euphausiids, and arrowtooth biomass consumed, but some estimated relationships have signs that differ from the hypothesized mechanisms.

The SSC also carries forward concerns identified during the 2025 ESP review regarding indicator availability, model complexity, and unexpected relationships. These issues underscore the importance of evaluating alternative indicator definitions, lag structures, spatial matching, prey and predator indices, and alternative causal model structures within a transparent framework.

The SSC supports using the 2000 year class as an important test of the DSEM's predictive and biological value. The SSC also supports continued development toward the eventual integration of DSEM information into Rceattle and potentially off-cycle projections. The SSC supports continued development of socioeconomic indicators in the ESP and clearer consideration of how such information may inform TAC decisions.

The projected 2027 female spawning biomass of 874,501 t is approximately twice $B_{40\%}$ (429,548 t), placing the stock in Tier 3a. **The stock is not overfished, and overfishing is not occurring**. The most recent complete-year catch was substantially below the OFL, and projected female spawning biomass remains well above $B_{35\%}$.

The SSC supports the authors' and GOA GPT's recommendations for 2027 OFL, ABC, and the proposed BRDs. The SSC notes the authors' recommendation of Level 1 scores in all four risk table categories.

In addition, the SSC recommends the following priorities for future assessment and ESP development:

1. Continue investigation of M–selectivity–recruitment confounding, including evaluation of age-varying M and alternative selectivity formulations, with emphasis on sensitivity of population scale and management quantities.

2. Evaluate alternative treatment and weighting of composition data, including fishery composition data and the survey age-composition weighting, and assess their effects on selectivity, recruitment, population scale, and management quantities.

3. Investigate survey catchability and complementary survey information, including potential temperature effects, influential survey observations such as 2003, and the complementary roles of the ADF&G large-mesh and AFSC longline surveys.

4. Continue DSEM validation and robustness testing, including evaluation of the 2000 year class, indicator availability, alternative indicator definitions and lag structures, alternative causal structures, and predictive performance.

5. Develop a framework for eventual integration of DSEM information into Rceattle and potentially off-cycle projections, to evaluate whether ecosystem information improves recruitment estimation or reduces recruitment uncertainty.

6. Continue development of socioeconomic indicators and clarify their potential application to ABC versus TAC decisions.

Rex Sole

This is a final assessment that follows from an initial review of a draft assessment and proposed model runs in October 2025. There was also a CIE review of rex sole in June 2025 that suggested improvements to the assessment. A final assessment could not be completed in 2025 due to the federal government shutdown. The assessment is a Tier 3 two-area (eastern and western-central) age-structured model with a fixed proportion of recruitment in each area, and with different growth patterns by area. Selectivity to the fishery and the survey are modeled as asymptotic using the double-normal selectivity option in SS3. The SSC notes that there is a good balance between model complexity and data availability in the models presented.

Two models were recommended in October 2025 for the final assessment, models 25.0 and 25.1. The models differed only in the incorporation of an aging error matrix in Model 25.1. Differences between the two models are relatively minor, though overall model fits were slightly worse with the inclusion of the ageing error matrix, but this is not unusual. Adding an ageing error matrix was a request of the SSC in 2017, so the SSC is pleased with this addition. The SSC notes this was the only model change between 25.0 and 25.1, but there were no details on how the ageing error matrix was calculated. **The SSC requests that the next SAFE include a brief technical summary showing the otolith double-read sample sizes, model used, and smoothing methods used to build the matrix, and a figure of the matrix.** The author noted an increased risk level for assessment-related considerations due to similarity of the maturity and selectivity curves, which produces sensitivity in reference points calculations, poor fit to the 2025 survey biomass, and variability in the fits to the conditional age at length data. There were no other elevated risk scores.

The plan team recommended model 25.1 for harvest specification. The SSC supports this recommendation. The SSC also endorsed the BRDs calculated using the *REMA* model. Rex sole is not overfished and overfishing is not occurring.

New figures were added to the assessment showing the rex sole food web relationships for eastern and western populations, as well as figures showing rex sole diet and predation mortality. The SSC found that these were valuable additions to the assessment.

At the June 2026 meeting, the SSC requested that assessment authors for deepwater GOA species examine and describe how the historical survey estimation methodology and estimates compare with those under the new survey design and highlight impacts to the assessment. This request was not completed for this assessment, so the SSC recommends that this request be addressed in a future assessment. The assessment does indicate that the fraction of the rex sole stock occurring deeper than 500 m is typically small, and that survey estimates for rex sole have not been corrected for missing depth strata, so this concern may be minimal for rex sole.

The assessment author also included a bridging analysis between models 25.0 and 25.1 and comparable models using SPoRC, an assessment program using RTMB. While not under consideration for this assessment cycle, the author wanted to make this transition now, since the next rex sole assessment is in four years, and SS3 is no longer being actively supported. SPoRC was considered a suitable replacement because of its ability to model multiple areas. A comparison between an unfitted SPoRC model using parameters estimated using SS3 showed identical model output. Comparison of fitted SPoRC models and their SS3 equivalent showed slight differences. Those differences were considered to be a result of differences in how recruitment deviates were modeled (constrained to sum to zero in SS3 and independent

in SPoRC). In addition, the seasonal timing of the survey biomass in SS3 had been misspecified. The SSC considered the bridging analysis to provide a sufficient basis to transition to the SPoRC model for the next assessment model.

The SSC recommends exploration of RTMB's tools for modeling process error to evaluate potential time-variation in biological processes, with growth being a priority. Temporal variation could also be evaluated for natural mortality, selectivity, and catchability. However, it is unclear whether there are sufficient data to support additional model complexity for rex sole, so these evaluations should proceed cautiously.

There was a large increase in the rex sole survey biomass in the eastern GOA. **The SSC requests an evaluation of this increase to see if it was due to only one or two tows, or if it could represent a broad based eastward movement, effect of the survey redesign, or high regional recruitment**.

GOA Skates

The SSC thanks the assessment author and the GOA GPT for their work and comments for this operational update assessment. The GOA skate complex is assessed on a two-year cycle, with the previous assessment in 2023. A catch report is currently scheduled for GOA skates in 2027. There was no public testimony.

The GOA skates complex consists of three components, big skate, longnose skate, and other skates, which comprises a group of 13 other species. All components of this complex are assessed in Tier 5, which uses survey biomass and a natural mortality rate estimate to determine harvest specifications. Big and longnose skates have a GOA-wide OFL and ABC, which is then apportioned into three regional BRDs for the western, central and eastern GOA, whereas the OFL and ABC for other skates are GOA-wide.

No changes were made to the assessment methodology. Two REMA models are fit for each of big and longnose skates, one to the GOA-wide survey biomass estimates to determine an OFL and ABC, and a second REMA model to region-specific biomass estimates to determine the proportion of biomass in that region. The regional survey biomass estimates are the product of those proportions and the GOA-wide biomass estimate to get the BRDs. For other skates, a single REMA model is fit to the GOA wide survey biomass estimates to determine the OFL and ABC. Natural mortality for all three components is assumed to be 0.10. The OFL is determined by multiplying the natural mortality rate by the GOA-wide biomass estimate, and the maxABC is 75% of the OFL.

Updated data included 2025 and 2026 catches (through August 2026) and new biomass estimates from the 2025 GOA bottom trawl survey. Survey data indicate that in general, Gulf-wide biomass trends for big and longnose skates have been stable in recent years, though there are some relevant deviations at the regional scale. Notably, the 2025 big skate estimate in the EGOA increased by 92% from 2023, and the WGOA estimate for longnose skate continues a recent multi-year decline, although this region has consistently lower estimates than the CGOA and EGOA and higher variability over time. GOA-wide survey biomass estimates for other skates increased by 29% in 2025, though still remain at low levels following a decline in the mid-2010s. All risk tables scores were Level 1, indicating no elevated concerns for this data-limited complex.

The SSC concurs with the GOA GPT and the author's recommendations for OFL, the ABC for the GOA skate complex with no reduction from maxABC, as well as the BRDs for the big and longnose skates components of the complex. None of the three stock components were experiencing overfishing in 2025 and being in Tier 5, an overfished determination cannot be made.

The SSC supports the GOA GPT's suggestions for analytical improvements to the assessment, including checking the design-based standard errors for other skates and using the additional error option in REMA. The SSC reiterates its 2023 comments related to the need to re-evaluate the natural mortality assumption for this assessment. Analytical methods to estimate natural mortality have greatly improved since the value

used in this assessment was set in 2003. The SSC highlights that this review of skate natural mortality should consider literature on maximum age and age at maturity from Alaska sources where possible, but if necessary, consider British Columbia and West coast examples as well. A recent West coast assessment for big skate (Taylor et al. 2019[2]) estimated a higher natural mortality than used in this assessment but the SSC notes that maximum age increases latitudinally, which will impact any Alaska-specific estimate of natural mortality. For example, a 2015 assessment for big skate in British Columbia estimated M=0.172 based on an observed maximum age of 26 years (King et al. 2015[3]).

In its review of the 2023 assessment, the SSC recommended the GOA and BSAI authors coordinate to update the stock structure template for GOA skates. **The SSC recommends an updated stock structure template be highly prioritized.**

GOA Skates BRD flexibility

In October 2025, the Council requested SSC advice regarding flexibility in spatial apportionment for big and longnose skates. As noted in its general comments on BRDs, the SSC strongly emphasizes that this is the first time through the iterative process of considering flexibility in BRDs. Specifically, the Council requested SSC advice on whether using last year's BRDs or small deviations from the current recommended 2027 BRDs would be likely to result in biological impacts. The SSC reviewed the current available information for GOA skates, including a discussion at the GOA-GPT on this topic, the 2026 GOA skates SAFE, and a limited literature review. Highlights of information considered in the SSC discussion on BRD flexibility for GOA skates included the following:

- Skates are generally well-sampled in the bottom trawl survey.
- There is a lack of information on potential movement and population connectivity across regions for all skate species, though tagging research in British Columbia indicates limited movement (tens of kilometers) for big skate (King and McFarlane 2010[4]). A more recent review of electronic and conventional tagging studies highlights that the maximum distance moved by skates is highly variable across studies (Siskey et al. 2018[5]).
- A stock structure template has not been developed for GOA skates.
- Retention of longnose skate in fisheries is relatively low, particularly in recent years, as indicated by Table 18-2 in the assessment.
- Discard mortality of skates may be considerably less than 100%.
- Exceeding the BRDs appears to be an infrequent event for both species over the previous decade.
- Risk table scores in the GOA skates assessment are all Level 1, indicating no substantial additional uncertainty external to the stock assessment model and harvest control rule.

[2] Taylor, I. G., Gertseva, V., Stephens, A., & Bizzarro, J. (2019). *Status of Big Skate (Beringraja binoculata) Off the U.S. Pacific Coast in 2019*. Pacific Fishery Management Council

[3] King, J.R., Surry, A.M., Garcia, S., and Starr, P.J. 2015. Big Skate (*Raja binoculata*) and Longnose Skate (*R. rhina*) stock assessments for British Columbia. *DFO Can. Sci. Advis. Sec. Res. Doc.* 2015/070. ix + 329 p

[4] King, J.R. and McFarlane, G.A. 2010. Movement patterns and growth estimates of big skate (Raja binoculata) based on tag-recapture data. Fisheries Research 101: 50-59.

[5] Siskey, M. R., O. N. Shipley, and M. G. Frisk. 2018. Skating on thin ice: Identifying the need for species-specific data and defined migration ecology of Rajidae spp. Fish and Fisheries 20:286–302.

- GOA-wide biomass estimates in 2025 were increasing for all skate complex components relative to 2023.
- Survey biomass estimates by subregion were stable or increasing for both species in most regions, with the notable exception of longnose skate in the WGOA, which the GOA GPT noted were the lowest since the 1990s.
- There was a 50% drop in WGOA longnose skate survey biomass from 2023 to 2025, which could be the result of survey variability.
    - WGOA is at the extent of the range of longnose skate and survey sampling at the edge of the range of a species is often more variable than within the core of the population.
    - There was also a concurrent increase in the CGOA and the EGOA survey biomass for longnose skate.,
    - If the observed decrease is representative of a biological change in the population, then for a long lived, slow growing species, overharvest in one area could be a biological concern.
- The GOA GPT was concerned that excessive catch in the WGOA could result in localized depletion, but also noted that disproportionate harvest in the WGOA would not be expected to affect the core of the population particularly given that the catch as been only half of the TAC in the neighboring CGOA during recent years.
- The GPT GPT noted that individuals at the extent of a population's range could be unique in terms of growth, movement behavior, or other life-history characteristics.

In response to the Council's request for quantitative or qualitative input from the SSC to inform possible deviations from BRDs when setting TACs, the SSC discussed whether the previous year's BRDs or small changes from the current year BRDs would likely result in biological impacts to the stock complex. The SSC did not have the time to explicitly define or evaluate specific small changes from the recommended BRDs.

The SSC had an extensive discussion regarding what level of flexibility in the spatial apportionment for GOA skates would maintain low risk. While there was general agreement that there is flexibility in BRDs for skates, the focus of the discussion was on the WGOA BRD for longnose skate, which was perceived as the most potential limiting. **There was mixed concern whether setting the longnose skate WGOA subarea TAC equal to the 2026 BRD or greater than the 2027 WGOA BRD by a small amount would cause a biological impact to the stock.** Some SSC members thought flexibility should be restricted to less than using the 2026 BRD. The SSC recognized that the 2026 BRD for the WGOA was approximately twice that of 2027, while not a large change in absolute tonnage.

The SSC generally concurred with the GOA GPT recommendation to exercise caution for longnose skate in the WGOA and suggests the risk of exceeding the 2027 BRD in the WGOA for longnose is higher than in other regions for Longnose or overall for big skate.

Considering all these factors, the SSC recommends that the risk of biological impact to these skate species is low if the Council chooses to use the previous (2026) BRDs or a small deviation from the 2027 BRDs. This relative risk was defined in SSC discussion specifically as exceeding one BRD in a single year.

Further, the SSC also suggests that if the Council does choose to deviate from the BRDs, that the risk of future flexibility in BRDs would be re-evaluated with new GOA survey data in 2027 and the SSC would then request that GOA skates be prioritized for an operational assessment in 2027.

Harvest Projections – Dusky rockfish

Dusky Rockfish is a Tier 3a stock on a two-year assessment schedule. The last full stock assessment was conducted in 2024 and the next assessment will be in 2027. There was no public testimony.

The projection model for specifications was run using updated catches. The spawning biomass trend is stable. Catches were higher than past 2 years, but still under ABC. The stock is not being subjected to overfishing, is not currently overfished, nor is it approaching an overfished condition. **The SSC supports the Team and authors' recommendation of OFLs, ABCs, and apportionment for this stock.**

Harvest Projections – Flathead sole

Flathead Sole is a Tier 3a stock with the last assessment in 2022 and the next assessment will be in 2027. There was no public testimony. The projection model was run using updated catches, which resulted in a small reduction in ABC. Catch is low relative to TAC and similar to previous years. This stock is not being subjected to overfishing and is neither overfished nor approaching an overfished condition. **The SSC supports the GOA-GPT's and authors' recommendation of OFLs, ABCs, and apportionment for this stock**.

Harvest Projections – Shallow-water Flatfish

Shallow-water flatfish are assessed on a 4-year assessment schedule with the last assessment in 2021. The SSC supports the Plan Teams recommendation for an operational assessment in 2027. There was no public testimony.

Northern and southern rock sole are assessed separately as Tier 3A with the remaining species as Tier 5. Catch for this complex remains below the TAC and below levels where overfishing would be a concern. Information was insufficient to determine stock status relative to overfished criteria for the complex. For the rock soles, the projection model indicates that they are not overfished nor are they approaching an overfished condition. **The SSC supports the GOA GPT's and authors' recommendation of OFLs and ABCs for this complex.**

Harvest Projections – Deepwater Flatfish

Deep-water flatfish are assessed on a 4-year assessment cycle with the last full assessment conducted in 2023 and the next assessment is scheduled for 2027. There was no public testimony.

The deepwater flatfish complex is managed as Tier 3a for Dover sole and Tier 6 for the remaining species in the complex. Specifications for Dover sole in 2027 are similar to previous estimates with a minor decrease for 2028. There is no change in 2027/2028 specifications for the Tier 6 species. Catch is considerably below TAC. The Gulf of Alaska Dover sole stock is not being subjected to overfishing and is neither overfished nor approaching an overfished condition. There is insufficient information to determine stock status relative to overfished criteria for Greenland turbot, Kamchatka flounder, and deepsea sole. **The SSC supports the GOA-GPT's and authors' recommendation of OFLs and ABCs.**

GOA Pollock Models

The SSC received a presentation on proposed model runs for the GOA pollock stock assessment. There was no public testimony specific to this stock. GOA pollock is a Tier 3 assessment on an annual schedule.

The SSC appreciates the thorough documentation and clear presentation of proposed models for this assessment cycle. The last full assessment for GOA walleye pollock was completed in 2024 (Model 23d). A modified version of the 2024 accepted model (Model 23e) was endorsed by the SSC in October 2025, but the assessment was not completed because of the federal government shutdown.

The main structural change proposed for 2026 is a transition from the bespoke TMB model to Rceattle, a general age-structured state-space assessment framework also implemented in TMB. A bridging analysis first modified Model 23e to Model 23f to accommodate several small differences in model implementation between platforms. The corresponding Rceattle model (renamed model 26) reproduced Model 23f essentially to machine precision, suggesting that the transition does not materially affect assessment results. The SSC notes that Model 26a is several steps removed from the 2024 accepted "base model" and appreciates the careful stepwise bridging analysis to a new modeling platform. **The SSC supports the use of the new model platform for the 2026 assessment** as Rceattle allows more rapid and flexible exploration of new features, including the integration of environmental covariates in a structured framework.

The author and GOA GPT propose two model variants for this assessment cycle: Model 26a estimates recruitment as random effects, which resulted in some shrinkage of recruitment estimates towards the mean, as expected, with minimal impacts on SSB estimates. This removes the model one more step from the previously accepted base model, but **the SSC accepts Model 26a as the new base model for this assessment cycle**.

A second proposed model, 26b, extends Model 26a by incorporating a DSEM linking recruitment to a set of ESP variables based on a published "moderate causal" DAG. The SSC appreciates the authors' thoughtful approach to considering the use of environmental drivers of recruitment in the assessment, as supported by Champagnat et al. (2026[6]).

The SSC agrees with the author and GOA GPT to bring forward models 26a and 26b in December for evaluation for final catch specifications.

The SSC shares concerns about the persistent poor fit to the NMFS bottom trawl survey, which now extends across five biennial surveys beginning in 2017, with the 2025 survey producing the highest biomass estimate in the time series while the other assessment surveys did not show a comparable increase. This issue is particularly important because the informative prior on bottom-trawl survey catchability is critical to determining the absolute scale of the estimated stock. **The SSC considers work on resolving the discrepancy between recent survey estimates and model predictions to be the highest priority for this stock**. The SSC appreciates the authors' consideration of alternative hypotheses for what may cause this discrepancy, and looks forward to further evaluations of the biological hypotheses regarding vertical availability of walleye pollock to the bottom trawl survey and pollock migrations between the Bering Sea and western GOA. The SSC suggests examining the fit to the bottom trawl data with and without the data around the Alaska Peninsula as an additional way to examine the influence of potential movement of pollock into and out of the Bering Sea across years.

The SSC supports the continued development of the DSEM approach and considers integration of ecosystem information directly into the assessment a promising avenue for improving recruitment estimation and prediction for this stock. While the DSEM substantially reduces unexplained recruitment variability and has been documented to produce better short-term recruitment projections, there may be some operational constraints on incorporating dynamic recruitment projections into management advice at this time. **Therefore, the SSC agrees with the use of average recruitment in projections for this assessment cycle**. However, the SSC requests that the authors and Plan Team provide a brief description

[6] Champagnat, J., C. C. Monnahan, J. Y. Sullivan, J. T. Thorson, S. K. Shotwell, L. Rogers, and A. E. Punt. 2026. Causal Models as a Scientific Framework for Next-Generation Ecosystem and ClimateLinked Stock Assessments. Fish and Fisheries 27:942-959

this November of the requirements and steps needed for using the DSEM projections of future recruits for calculating OFL/ABC in the future.

The SSC also supports the GOA GPT request for additional evaluation of the DSEM before December, including retrospective estimates of DAG parameters, sensitivities to removal of individual data streams, evaluation of predictive skill for terminal recruitment, and quantification of the contribution of terminal recruitment to projected biomass and spawning biomass. The SSC considers stability of the estimated relationships and sensitivity to individual ESP data streams important considerations before adopting the DSEM operationally.

The GOA GPT also discussed the need to consider multiple plausible DAGs and competing ecological hypotheses rather than treating a single selected causal structure as known. The SSC notes that, for this assessment, the authors replicated the analysis of Champagnat et al (2026[4]) in Rceattle to compare and evaluate a range of approaches for including environmental covariates in the assessment. The results were consistent with the published analysis, suggesting that the 'moderate causal' model provides a suitable basis for evaluation in this year's assessment.

The SSC also re-iterates that any risks associated with environmental conditions that are incorporated into the assessment model should no longer be considered in the risk table, unless they capture risks that are independent of the mechanisms in the model (e.g. effects on growth when only effects on recruitment are considered in the model)

GOA Thornyheads Models

GOA thornyheads, including shortspine thornyhead and longspine thornyhead, are managed as a complex, but only shortspine thornyhead are assessed. The last assessment was in 2024. GOA thornyheads are assessed on a two-year cycle. Thornyheads are a Tier 5 stock and are assessed using the REMA model package.

In previous thornyhead assessments, REMA models were conducted by three depth-strata (0-500 m, 500-700 m, and 700-1000 m) for each management area in the GOA (WGOA, CGOA, and EGOA). This approach was adopted due to the need to form consistent time series from the bottom trawl survey data, which surveyed to different depths in different years. This approach could not be utilized this year because the redesigned survey in 2025 no longer includes a 500-700 m depth strata. To accommodate the survey change, a new approach utilizing two depth strata (0-700 m, and 700-1000 m) was evaluated. Various alternatives of treating the historical 500-700 m depth strata were explored, including interpolation, disregarding, and dropping the surveys that did not survey this depth stratum. Since these surveys occurred early in the survey time series (1990, 1993, 1996, and 2001), dropping them did not affect current trends or management advice. **This model, Model 24.2f, was recommended by the author and the GOA GPT to carry forward as the final assessment model. The SSC agrees with this recommendation.** To reduce confusion, the SSC recommends that models with the new two-stratum structure be renumbered to 26.x.

For a continuity model, the SSC recommends using only Model 24.2a, which updates the previously accepted model to the latest version of the REMA model, but does not incorporate the 2025 survey data. This differs from the GOA GPT recommendation, which included all models 24.2a-f.

The SSC notes that the 700-1000 m depth stratum REMA model is based on the five surveys that surveyed these depths, and the last survey was in 2015. There are no plans to survey this depth stratum in the future, so consequently the biomass estimates for this depth stratum will become increasingly uncertain.

Longspine thornyheads are considered much less abundant than shortspine thornyhead in Alaskan waters, but this is not well documented in the assessment. The SSC requests that the relative abundance of longspine and shortspine thornyheads be reported for the bottom trawl survey and from observer catch sampling.

Demersal Shelf Rockfish Models

The SSC received a presentation on proposed models for the 2026 stock assessment for the Demersal Shelf Rockfish (DSR) complex. The SSC thanks the new assessment author for the excellent presentation.

The DSR complex includes yelloweye, canary, China, quillback, copper, rosethorn, and tiger rockfish. The DSR complex in the Central GOA, Western GOA, and West Yakutat is assessed under Tier 6, as are all DSR species in the Southeast Outside (SEO) area except yelloweye rockfish. Yelloweye rockfish in the SEO area is assessed under Tier 5 which, under the approved assessment in December 2024, used a spatially stratified, two-survey REMA model fit to ADF&G ROV survey biomass estimates and a GAM model fit to CPUE estimates of yelloweye rockfish from the IPHC longline survey, with additional observation error.

The SSC appreciates the authors' substantial work to address previous SSC comments and evaluate additional data inputs. Changes included removing 13 IPHC survey stations outside the management area, updating SEO fishery average weights, expressing IPHC CPUE as weight per hook rather than number per hook, incorporating a hook-adjustment factor to account for hook competition, and updating catch information through October 2026.

The authors evaluated new spatiotemporal standardizations of the IPHC survey data. Spatial correlation among survey stations was modeled and included blocking for land to avoid correlation across land. The authors evaluated seven candidate models with a Tweedie error distribution, and compared AR1 and *iid* spatiotemporal structures, with one model with no spatiotemporal component, and they explored different combinations of depth and/or soak time (or neither). The SSC appreciates the thorough evaluation, stepwise addition of potential covariates, spatial correlation, and performance measures. The proposed methodology implements the SSC's recommendation to standardize IPHC CPUE using a spatiotemporal model in sdmTMB and compare the results with the previously specified Generalized Additive Model (GAM).

The SSC notes that the IPHC survey has limitations because it is designed primarily for halibut and the sampling protocol for the first 20 hooks is not ideal for a species such as yelloweye rockfish. However, the SSC noted that the IPHC survey provides the most up-to-date available information on yelloweye rockfish abundance for this assessment. The SSC also noted that the IPHC survey has been incorporated into the West Coast yelloweye rockfish assessment, providing additional evidence that the survey can provide useful information on yelloweye rockfish abundance. However, the West Coast assessment is an integrated assessment that incorporates compositional and selectivity information from fishery and survey data that is currently unavailable in Alaska.

Overall, the Coefficient of Variations (CVs) associated with the spatiotemporally standardized IPHC index are smaller than those produced by previous approaches (bootstrap and GAM). The author explored a range of CVs to evaluate the sensitivity of model fits. The authors noted that above-average recent CPUE in CSEO and SSEO contributed to the increase in estimated biomass, while the smaller CVs assigned greater relative weight to the IPHC index in the REMA model, potentially amplifying the influence of the recent IPHC survey CPUE observations on the estimated biomass. The SSC highlights that the GOA Plan Team had extensive discussion regarding the appropriate CV and recommended bringing forward the previously implemented bootstrap approach for comparison with the model-based CV. The SSC concurs with this approach and notes that the issue is particularly important for areas with lower sampling effort, where greater observation error increases the importance of appropriately specifying the CVs. The SSC also

recommends that the authors describe how the area level uncertainty is propagated into REMA and, for the next assessment cycle, consider methods to improve how the REMA incorporates this uncertainty.

In summary, the SSC agrees with the GOA GPT recommendation to bring forward: (1) the previously accepted base model for all stocks (December 2024 base model 22.2); (2) the author-recommended sdmTMB model for Tier 5 yelloweye (model M2); and (3) the sdmTMB model M2 for Tier 5 yelloweye, but with bootstrapped IPHC CVs as inputs to the REMA model. The SSC does not recommend bringing forward a Tier 6 assessment for this assessment cycle. However, a Tier 6 assessment may be required in the future if the IPHC survey continues to be sampled at low levels, resulting in multiple-year gaps in information.

The SSC remains concerned about the lack of information for this stock and hopes that the ROV survey can occur in the future. The SSC also notes that the number of IPHC stations sampled declined in 2024 and 2025, with no sampling conducted in the EYKT and NSEO areas. The SSC appreciated the authors' response to its 2024 recommendation to consider combining the small NSEO area with the larger CSEO area for purposes of standardizing the IPHC indices. The SSC considers the authors' current approach of modeling spatial and temporal correlation to be more analytically appropriate than simply combining areas and the author noted the current model structure does not accommodate combining the management areas.

Finally, the SSC notes that the author included specification recommendations in the assessment (i.e., ABC/OFL recommendations). However, the SSC highlights that these are not final recommendations, and the SSC recommends that the authors consult the SAFE guidelines regarding what should be reported in draft SAFE documents versus final documents in the future.

Acoustic Trawl Survey

The SSC received a report on the results from the winter 2026 winter acoustic-trawl survey. Surveys began in the Shumagin, Pavlof, Morzhovoi, and Sanak areas in February, followed by Shumagin and Shelikof areas in March. The temperatures were generally colder and biomass trends varied from previous years, with differences in trends depending on subarea. The survey observed few age-1 pollock, some age-2 pollock during the Shumagin and Shelikof surveys, and generally fewer age-3 pollock. The survey timing appeared adequate given that no female pollock longer than 40 cm were found in spawning or spent condition. The survey experienced weather delays leaving 11 transects in the southern Shelikof Strait unsurveyed. Adult biomass in the unsurveyed area was estimated using the historical proportion of adult biomass (age 3+) in the northern section during 2018–2025 (88%). The GOA GPT will revisit the missing Shelikof data and methods for estimating biomass in the unsurveyed area in November, when model fits are available.

GOA Preliminary Groundfish Harvest Specifications

The SSC recommends approval of the preliminary 2027/2028 GOA groundfish specifications and apportionments as provided by the GOA GPT. The 2026 GOA Pacific cod assessment was reviewed by the SSC in February 2026.

SSC Member Associations

At the beginning of each meeting, members of the SSC publicly acknowledge any direct associations with SSC agenda items. If an SSC member has a financial conflict of interest (defined in the 2003 Policy of the National Academies and discussed in Section 3) with an SSC agenda item, the member should recuse themselves from participating in SSC discussions on that subject, and such recusal should be documented in the SSC report. In cases where an SSC member is an author or coauthor of a report considered by the SSC, that individual should recuse themselves from discussion about SSC recommendations on that agenda

item. However, that SSC member may provide clarifications about the report to the SSC as necessary. If, on the other hand, a report is prepared by individuals under the immediate line of supervision by an SSC member, then that member should recuse themselves from leading the SSC recommendations for that agenda item, though they may otherwise participate fully in the SSC discussion after disclosing their associations with the authors. The SSC notes that there are no financial conflicts of interest between any SSC members and items on this meeting's agenda.

At this October 2026 meeting, a number of SSC members acknowledged associations with specific agenda items under SSC review. Dana Hanselman is a co-author of the GOA ATF assessment and the first or second level supervisor of Elizabeth Siddon, Dan Goethel, Pete Hulson, Rob Suryan, Cindy Tribuzio, and Chris Lunsford (Gulf of Alaska GPT co-chair). Dr. Hanselman is married to Kalei Shotwell, who is the BSAI GPT co-chair, a first author of GOA ATF, and primary author or co-author on multiple ESPs. Ian Stewart and Jason Gasper are members of the Halibut DMR working group report (C3 Groundfish). Dr. Gasper is also married to Cindy Tribuzio (BSAI skates assessment author and BSAI GPT member). Chris Siddon is the supervisor of Katie Palof (CPT chair, BBRKC assessment author) and Caitlin Stern (NSRKC assessment author), the second level supervisor of Tyler Jackson (AIGKC assessment author), third level supervisor of Aaron Lambert, and is married to Elizabeth Siddon (ESR co-author). Sherri Dressel is the second level supervisor of Aaron Lambert (GOA DSR co-author). Curry Cunningham supervises postdoctoral research Dr. Matt Cheng (Sablefish proposed models) and post-graduate researcher Joshua Zahner (contributions to alternative HCRs).