



## **Meeting of the Gulf of Alaska Groundfish Plan Team**

### **Plan Team Report**

September 17-18, 2025

#### **GOA Groundfish Plan Team Members:**

Jim Ianelli	AFSC REFM (co-chair)	Pete Hulson	AFSC ABL
Chris Lunsford	AFSC ABL (co-chair)	Nat Nichols	ADF&G
Sara Cleaver	NPFMC (coordinator)	Jan Rumble	ADF&G
Meaghan Bryan	AFSC REFM	Paul Spencer	AFSC REFM
Abby Jahn	NMFS AKRO	James Thorson	AFSC REFM
Craig Faunce	AFSC FMA	Sophia Wassermann	AFSC RACE
Lisa Hillier	WDFW	Ben Williams	AFSC ABL

#### **Introduction**

The Gulf of Alaska (GOA) Groundfish Plan Team (Team) meeting was held virtually on September 17 and 18, 2025. Over 70 people attended the meeting. All documents and presentations were posted to the Team's [electronic agenda](#). All presentations are also linked in the header for each agenda item in this report.

The September Groundfish Plan Team meeting is when proposed models for full operational assessments are presented by assessment authors and when harvest projections are reviewed. Update operational assessments will be reviewed in November.

#### **GOA PT General Comments**

The Team appreciates the greater use of Input Sample Size (ISS) for age and length composition data from surveys. The Team also recommended that authors continue to work with other research partners to develop methods and software to develop an ISS for fishery age and length composition samples.

Multiple GOA assessments may use, or could potentially use, water temperature covariates, and the Team recommended that authors continue to collaborate across assessments to develop a temperature product using spatial delta correction that calibrates numerical models (e.g., HYCOM) and in situ measurements.

The Team noted the constraints of reviewing proposed models in a virtual environment with limited time, particularly when there are large changes to data collection.

#### **GOA Bottom Trawl Survey**

Zack Oyafuso presented a summary of the 2025 Gulf of Alaska Bottom Trawl Survey. The survey consisted of 437 stations, a slight reduction in effort from previous years. Sampling occurred down to 700m, following a stratified random sampling design, as in previous years. This was the first year following a restratification to align with the NMFS areas instead of the INPFC areas. The presentation included trends in temperature, biomass, and occurrence of species in the hauls. In general, relatively

large changes (i.e.,  $\pm 30\%$ ) occurred in the biomass estimates of some species groups, as several flatfish and roundfish species showed increases, while several rockfish species showed large decreases.

The Team appreciated the detailed presentation of trends and suggested the survey team consider looking at non-parametric bootstrap approaches to producing error estimates to account for high variability in tow size (see [Monnahan et al 2025](#)). Additionally, the Team suggested the GAP Team to consider showing stack barplots of biomass by GOA region, as this can help visualize changes in species distribution.

### Deepwater flatfish (DWF) Harvest Projection

Chris Lunsford presented the harvest projection for Deepwater flatfish. There were no other harvest projections for 2025.

**The Team appreciated the information compiled and recommended that authors include the new terminology, “biologically-informed recommended distribution” for sub-area apportionments instead of ABC in the Deepwater flatfish harvest projection for the November meeting.**

### Acoustic surveys

Darin Jones with the AFSC Midwater Assessment and Conservation Engineering (MACE) Program presented the work done during [winter 2025 on the acoustic-trawl surveys](#). The Shumagins, Shelikof, and Kenai Peninsula areas were all scheduled to be surveyed in the winter of 2025, but due to vessel mechanical issues only Shelikof area was surveyed. The Shelikof survey was conducted a week later than scheduled but based on the low percentage of spawning/post-spawn female pollock observed (7%), MACE staff are confident that the survey timing was still appropriate (target is  $\leq 10\%$  spawning/post-spawn females). The Shumagin and Shelikof areas are scheduled to be surveyed in the winter of 2026.

Dave McGowan with AFSC MACE Program presented ongoing work to reanalyze historical (2008–2021) [winter and summer GOA pollock acoustic trawl survey](#) data to account for changes in vessels, gear, and data analysis methodology over the years. This effort has resulted in minimal changes to age-3+ pollock biomass estimates ( $<5\%$  in all years except 2018). The Team tabled further discussion on this topic until Cole Monnahan’s GOA pollock assessment update presentation.

The Team was grateful for the thorough presentations and the work done to conduct the survey despite the challenges of the 2025 season. **The Team recommended that future presentations include a table to show which areas had been surveyed in different years.**

### GOA pollock

Cole Monnahan provided updates to the Gulf of Alaska pollock assessment. A number of small changes to the model and data inputs were proposed in response to recent research and Plan Team and SSC requests.

The author explored removing age-3 observations from the Shelikof survey age composition (ages 1 and 2 were removed in the last full assessment). Results for the model with age-3 fish removed failed to substantively improve the fits to the age composition data and some residuals degraded. The Team agreed with the author to retain that age group for this survey. They suggested that alternative selectivity forms could be evaluated in the future, possibly with some timing aspects introduced (similar to the covariate used for the mature stock that affects survey availability). The Team noted that this type of investigation might also warrant re-introducing the age 1 and 2 data from this survey. After discussions on dome-shaped selectivity for Shelikof survey selectivity during the first day, Cole ran a test and presented

it the next morning. This led to a fair amount of discussion resulting in retaining this as a future research topic.

Cole slightly modified how the initial numbers at age were estimated. Namely, he disassociated the age composition so that the recruitment (age 1) in that initial year could be treated the same way as the recruitment for the entire assessment period (i.e., allowing for a consistent application of “sigmaR”). The Team agreed that this would be a more statistically defensible approach. The Team also suggested that extending the deviations to apply to all initial ages (properly back-calculated for scale) might be worthwhile and could provide better estimate of uncertainties in the initial biomass estimates. The Team agreed that the changes are an improvement even though they make only minor differences in the results.

Additionally, Cole recommended some refinements of prior assumptions for some parameters (e.g., logit\_rho for AR(1) process for Shelikof survey selectivity) that helped model stabilization but had no impact on stock trend and scale. He noted, and the Team supported, incorporating updates due to the reanalysis of historical acoustic survey data (both summer and winter).

The Team thanked the author for being responsive during the week and engaged in all discussions in general. **The Team concurred with Cole and recommended bringing forward model 23e, as well as the previously accepted model 23d, in November.**

A number of research topics were presented and discussion focused on compositional data fits. It was recommended that it may be valuable to report the theta parameter or a comparison between input sample size and effective sample size from Dirichlet-multinomial estimates in the presentation. In terms of future research, the Team agreed that the author continues to investigate vertical integration, which is related to availability of pollock to the bottom trawl survey - which may be a driver of catchability, and whether it varies within and across years. There was also discussion on exploring time-varying age-based survey selectivity and bringing in other small areas that have been surveyed into population index data. It was noted that this could be explored in a DSEM context and the Team encourages the author to examine these topics as time permits.

### Pacific cod temperature data

Krista Oke presented an analysis of temperature data to be used as a covariate for longline survey catchability in the GOA Pacific cod model. This covariate is necessary to account for movement of Pacific cod to deeper waters in warm conditions. Currently, temperatures from the Climate Forecast System Reanalysis (CFSR) model from June at 50 m depth are used in the assessment but will no longer be available. Alternative field-based and model-based time series of temperature data were evaluated.. The authors will be replacing the CFSR time series with May temperatures at 150m from the Hybrid Coordinate Ocean Model (HYCOM). These changes result in data that is accessible, verified with in-situ measurements, and occur at a depth and time-frame that is more appropriate for application to the longline survey catchability. The Team acknowledges its use in the next assessment and encourages additional evaluations of calibration in the future.

### Arrowtooth & ESP

Kalei Shotwell presented an operational full assessment for GOA arrowtooth flounder which is assessed on a four-year schedule (last in 2021). A bridging exercise between ADMB and TMB in Rceattle was presented and approved by the Team and the SSC for this stock in September, 2024. Two models were presented for consideration in November:

- Model 25.0 - The 2024 accepted single species model bridged in TMB (in Rceattle)
- Model 25.1 - Model 25.0 but estimates sex-specific M instead of fixing M

For this September, data improvements were made to update fishery and survey inputs, removed survey data from non-standardized surveys (pre-1992), removed fishery length compositions prior to the establishment of the Observer Program (pre-1991), updated length at age transition matrices and growth curves, and updated the weight at age and ageing error matrix. A stepwise comparison of adding these improvements was provided and Model 25.0 provides similar trends over time as the base model used in 2023.

Kalei also plans to bring forward an alternative model (25.1) that estimates a sex-specific natural mortality instead of fixing M as is done in Model 25.0.

Kalei also presented some insight into a research assessment model using Rceattle. Using this framework allows tracking time-varying natural mortality resulting from cannibalism. However, this model is not being put forward as an alternative model for November.

**The Team agreed with the author's recommendation to bring forward two models (Model 25.0 and 25.1) for November.**

Kalei also presented a new arrowtooth flounder ESP. It included 17 ecological indicators (4 predictive, 10 contextual, 3 monitoring) and 8 socio-economic indicators. The Team appreciates the progress and work involved, and commended the ESP authors. The Team endorses the DSEM modeling and causal diagram work to help integrate ESP information but acknowledges the level of expert information needed to develop and interpret the DAGs and is unsure if the Team can provide a reasonable level of review. Some ideas for helping address this included providing information on how many estimates are consistent with *a priori* expectations, and whether to include Bayesian priors or apply model selection in cases when they do not. Much of this information is likely best recommended by the AFSC expert group working on causal models.

**The Team recommended the AFSC expert group develop proposed guidance for how to evaluate DSEM fits in the context of interpreting ESPs and also provide some guidance on a framework of how this effort can best be used in a management context.**

### **Rougheye/blackspotted rockfish**

The GOA Rougheye Blackspotted (REBS) rockfish complex is scheduled for a full operational model in 2025. Jane Sullivan provided Tier 4 and Tier 5 model alternatives in place of the previously accepted Tier 3 statistical catch-at-age (SCAA) model. The 2023 assessment highlighted major concerns with the SCAA that led to a risk table reduction below maxABC based on assessment and population dynamics concerns. Tier 4 methods allow species-specific differences in maturity and growth be considered in a yield per recruit and spawning biomass per recruit (YPR/SBPR) context. Additionally, recent research has shown that skipped spawning is prevalent in these species. Consequently, two alternative models based on “biological” versus “functional” (biologically mature versus actively spawning) maturity were explored.

Three alternative models were brought forward for consideration in addition to the base SCAA model (23.1b) used in 2023:

- Model 23.1b – Base SCAA model using the same data as the 2023 assessment
- Model 25.1a – Tier 4 model that uses species-specific biological-based maturity estimates
- Model 25.1b – Tier 4 model that uses species-specific functional maturity estimates
- Model 25.2 – Tier 5 calculations based on trawl survey biomass for the combined complex

A complex-level F rate was used based on blackspotted rockfish. Blackspotted rockfish have the lower, and hence, more conservative reference fishing mortality rate of the two species based on the spawning

biomass-per-recruit (SPR) target. The Team agreed with this approach and noted both surveys have shown long-term declines for the complex. This raised the concern that one species could be more at risk than the other. The Team also agreed with using age at full selection for fishery selectivity from the last SCAA accepted model. The Team agreed with Jane that the functional maturity estimates likely characterize the population better than biological maturity estimates and are most appropriate for SPR calculations.

Jane recommended moving this complex to a Tier 4 YPR/SBPR framework rather than using the SCAA model from previous years. **The Team agreed with moving the REBS complex to Tier 4 and supported Jane's recommendation to bring forward all four models in November.**

### Pacific ocean perch

Ben Williams presented a full assessment for Pacific ocean perch as part of the normal biennial cycle. The Team appreciated the author taking on this assessment at a late stage due to staffing reductions. Despite the shortened timing for the work, Ben presented several model updates including: the previous assessment model (20.1) with updated 2023 data, a bridging exercise from ADMB to RTMB with external estimates of maturity, a reformulation of the negative log likelihood (25.1), and using the gamma function to model selectivity in the second time-block rather than the average of the first and third time-block functions (25.2).

He applied the Francis reweighting (for composition data) to each of these model alternatives (Model 25.Xa). The Team thus had an in-depth discussion about input sample size and iterative reweighting and how it has been implemented in the POP assessment. The Team agreed with the authors and **recommended bringing forward the base model along with Model 25.2a in November with updated survey input sample size (ISS) using the bootstrap estimator in the surveyISS R package.**

Two further recommendations in line with this update were made: **The Team recommended that the authors:**

- **provide a table of ISS for all fleets and the final adjusted sample sizes after reweighting, and**
- **evaluate the ratios of effective sample size (ESS) to ISS and provide interpretations of results, particularly when ESS/ISS is greater than 1.0.**

It was noted that the base POP model is fit to the design-based survey biomass estimates. The authors presented a comparison of the design-based and model-based survey biomass estimates during the Plan Team meeting. The Team expressed concern about the differences in the coefficients of variation estimates between the 2023 and 2025 model-based indices. **The Team recommended that this difference should be investigated.** The Team suggested the authors bring forward a model run using the model-based index, if time permits.

### Rex sole

Sandra Lowe presented the GOA rex sole assessment on behalf of the author, Carey McGilliard. This assessment was reviewed (virtually–desk review) by a CIE panel earlier this year. The reports from the review affirmed that the assessment was well done and satisfied application for management and status determinations. Carey bridged the base model with several housekeeping items including using an alternative method for calculating fishery age composition data that has been approved and used in other assessments, corrected survey biomass time series estimates, and updated new input data since the model was last run. The Team accepted this bridging analysis of the 2021 model to Model 25.0; thus Model 25.0 is the “updated base model”. The Team noted that this bridging exercise is described in Appendix 6a of the document and that for November, the September document could be provided as an annex to the main

document. In addition to the updated base model (25.0), Carey plans to bring forward an alternative model that incorporates an updated ageing error matrix (25.1).

**The Team supported Carey’s recommendation to bring forward Models 25.0 and 25.1 in November for management quantities.**

### Shallow water flatfish (Northern/Southern rock sole)

Meaghan Bryan presented updates and recommended alternatives for the Gulf of Alaska Southern and Northern rock sole assessment models.

In response to PT and SSC requests, the author explored and presented a method to partition historical catch between southern and northern rock sole through the use of observer data, following the method currently used for BSAI arrowtooth and Kamchatka flounder. For years without observer data (pre-1997) the average of the first 5 years of available observer data was used to partition catch.

Meaghan conducted a spatial analysis of length-at-age data to explore differences in growth that could inform spatial assessment model structure. This analysis included fitting spatially explicit growth curves with alternatives that included sharing parameters across regions, as well as using the “growthbreaks” R package. From this analysis, the author recommended that a 2-area growth morph model as reasonable for northern rock sole. However, a single area model for southern rock sole was deemed more appropriate than the 2-region model employed in the previous assessment.

She evaluated and presented several model alternatives for both southern and northern rock sole. For the northern rock sole model, these included revising the length-weight relationship, revising the catch time series, revising the input sample size for length composition, and applying the Francis reweighting approach. For the southern rock sole model these included converting to a single area model, revisiting the catch time series, estimating the length-at-age uncertainty (CVs), updating survey length composition input sample size, and fixing female peak selectivity.

For northern rock sole, the author recommended Model 21.2c, which included revisions to the length-weight relationship, updates on catch, and revisions to input sample sizes (ISS). Consistent with other concerns about understanding ISS values used, and the resulting final sample sizes applied, **the Team agreed with the author’s recommended model (21.2c) along with the previous base model, and requests describing how, and if any, reweighting approach was applied.**

For southern rock sole, the author recommended bringing Models 25.1c and 25.1d forward, which are single area models with several cumulative changes to the base model. **The Team supported this along with the base model for November.** The Team noted that the explorations on selectivity may provide insight on improvements to the model. They also noted that in future analyses, exploration of the observed inconsistencies in the survey length compositions be pursued in collaboration with the survey teams. Specifically, in several years there are bands of length frequencies that are consistently high (near 40cm) and in most years the proportions-at-length are much smoother. Also, exploring the possibility of including age in the models was encouraged.

### Proposed Harvest Specifications

Abby Jahn provided the proposed harvest specifications for 2026/2027 which are the same as recommended by the Council and published in the Federal Register in March, 2025.

Abby highlighted that shortraker rockfish catch in 2025 has exceeded the CGOA TAC and there is a chance it may hit the Gulf-wide ABC. The Team was reminded that for the last full assessment (2023) for shortraker, the author and Team recommended using the two-survey random effects (REMA) model for

determining apportionment. The same method was approved for GOA REBS, but the SSC did not approve the change for shortraker due to concerns related to apportionment and the Spatial Management Policy. For November, the authors are planning to again recommend using the two-survey REMA model, and the Team notes both surveys trended down this year for shortraker. In light of spatial apportionment discussions at this meeting, the Team flagged this stock for the Council.

There was a question about the newly established directed octopus fishery in Prince William Sound and how the harvest specifications account for directed fishing removals of 35,000 lbs/16 mt in the federal TAC.

**The Team recommended the OFLs and ABCs as provided in Table 1 on the eAgenda. The Team also recommended the 2026 and 2027 halibut DMRs as presented by the Halibut DMR Working Group, to be included in the proposed specifications.**