



Meeting of the Gulf of Alaska Groundfish Plan Team

Plan Team Report

November 14-17, 2023

Members:

Jim Ianelli	AFSC REFM (co-chair)	Abby Jahn	NMFS AKRO
Chris Lunsford	AFSC ABL (co-chair)	Sandra Lowe	AFSC REFM
Sara Cleaver	NPFMC (coordinator)	Nat Nichols	ADF&G
Kristan Blackhart	NMFS OS&T	Cecilia O’Leary	AFSC RACE
Craig Faunce	AFSC FMA	Jan Rumble	ADF&G
Lisa Hillier	WDFW	Paul Spencer	AFSC REFM
Pete Hulson	AFSC ABL	Ben Williams	AFSC ABL

Introduction

The Gulf of Alaska (GOA) Groundfish Plan Team meeting began on Monday, November 13, 2023 at 1:00 PM PST at the Alaska Fisheries Science Center (AFSC). Roughly 30 people attended the meeting in person, with many more signed in remotely through Zoom, but attendance varied throughout the meeting. Documents and presentations were posted to the Team’s [electronic agenda](#). All presentations are also linked in each agenda item in this report.

Gulf of Alaska Ecosystem Status Report (ESR)

Bridget Ferriss [presented](#) the GOA ESR, which continues to be synthesized in terms of combining indicators from various ecosystem components. These indicators, which range from physical oceanography to biological observations and human dimensions, reflect the current status and trends of these components.

A reduction in primary productivity with a low phytoplankton biomass and a late bloom in the GOA was observed in 2023. The presented theory is that a deeper mixed layer traps nutrients away from the surface and sunlight. A reduction of zooplankton productivity was observed, but copepod community size remained elevated. Capelin are returning to their core habitats.

Bridget showed an analysis that indicated the survivability of age-0 and age-1 Pacific cod are influenced by environmental conditions. The Team noted that the data were from the beach seine survey and may have limited representativeness of survivability beyond age-1. However, the 2020 and 2022 Pacific cod year-class strength appeared to be good and surviving well.

The report noted predictions for 2024 as the thermal environment shifts from La Niña conditions to those associated with the coming El Niño. Some species may benefit from El Niño, while others may be more vulnerable. Vulnerable species such as Pacific cod remain at risk level 1 as an average El Niño may not inhibit adult survival. However, warmer conditions may reduce physical condition. The Team discussed the expanding and contracting warm “blob” and the probability of a marine heatwave as seen in 2016 and noted that should it become significant, the Council may benefit by being apprised during 2024.

Bridget noted that each species with an operational full or operational update stock assessment was scored risk level 1 (no concerns) for environmental/ecosystem considerations. The Team inquired about the asterisks next to some species on the risk table. She noted that the species with asterisks had no active monitoring or not enough information to elevate the risk level; the default is risk level 1 and a risk level cannot be increased to level 2 without identifying indicators.

The Team discussed the importance of consistency using the risk table across stocks and across GOA and BSAI Teams. The Team suggested that if indicators do not reach to a level of concern for a specific stock, or they cannot be supported by data, then this information should be captured in the ESR, and not repeated in the risk tables. **The Team noted the need for a broader conversation between the Teams and the ESR (and ESP) staff about the goals and objectives of ESRs. Specifically, how the ESRs should affect specifications within risk tables effectively.** A linkage between the LME-wide information within the ESR should feed into the assessment document with rationale for whatever conclusion is drawn from within the individual stock assessment. **The Teams also highlighted the need to continue to work with the SSC to clarify best practices for risk table development.**

GOA Pollock ESP report card

Kalei Shotwell provided a [presentation](#) on the pollock ESP report card for 2023. The Team discussed predation and inclusion of mortality trends through the current method and the potential for inclusion of mortality trends through the CEATTLE model. The author clarified that mortality trends were included in the ESP beginning last year but could be expanded for future years. The author highlighted that it is a challenge to get ESPs to authors prior to finalizing stock assessments. In the future, the author hopes that this process will have a faster turnaround and still include all contributions. Team members are encouraged that workshops are going to happen prior to the next assessment cycles and that the ESP team is going to work with assessment groups for better collaboration in the future.

GOA Pollock (Operational Update/Full)

Cole Monnahan [presented](#) the GOA pollock assessment. This year's assessment maintained the existing model structure, but transferred it to a new modeling platform (Template Model Builder, TMB) that was presented in September and given a new model number to note this change (Model 23.0). The author noted that there are data conflicts in the index trends from the various surveys integrated into the assessment; both the AFSC summer acoustic survey and the AFSC bottom trawl survey increased, while the Shelikof winter acoustic survey and ADF&G trawl survey decreased. The author noted that the model fits these surveys poorly, particularly in the recent time series, with the exception of the AFSC summer acoustic survey. It was noted that there have been survey conflicts in the past and the Team raised the question of whether there was also a mismatch in age and/or length composition fits for the same years across these surveys. The author responded that there were no alarming mismatches in the fit to compositional data observed. The author noted that the large changes in biomass estimates from the model were the result of new data inputs.

The author and Team discussed several aspects of the assessment that could be explored with greater efficiency and statistical rigor by transferring the assessment into the TMB platform. These aspects include modeling weight-at-age, selectivity, and maturity-at-age. It was noted that by switching the model to a TMB platform, fishery weight-at-age can be integrated into the model, and the Team encouraged exploration of this evaluation as it may be possible to refine some of the observation error in the inputs (particularly, relating the input variances to sampling rates) and also because the current model uses a constant weight-at-age. Current research into the best methods for incorporating time-dependent selectivity within projections were presented to the Team for feedback on how to structure future experiments to evaluate projections. The Team appreciated the update but noted that since these items were not being presented as options in the assessment being reviewed that they are best presented at the

September meetings. The Team encouraged the author to proceed with these investigations. The author changed the calculation of Mohn's rho in the assessment to be based upon 7 years instead of 10 years based on standard practice at the Northeast Fisheries Science Center, and upon further investigation, use of 7 years provided a larger retrospective pattern (relative to 10 years). The Team suggested switching back to 10 retrospective peels, as is currently standard practice for AFSC assessments. GOA pollock is scheduled for a CIE review in spring 2024 and the focus of this review will be on data weighting and compositional input sample sizes.

A member of the public indicated that the full 2023 TAC has not been taken and that this is due to the market limiting the fishing, not fish availability. The market conditions are very poor and it could take 2-3 years for the markets to adjust. The catch of Pacific ocean perch in the GOA pollock fishery has been substantial, which has been affecting deliveries and is also reflected in an increase in rockfish in the incidental catch report.

The author did not recommend a reduction from maxABC as determined by model 23.0. **The Team agreed with the author's recommended model, ABC, OFL, and apportionment.**

Pacific cod ESP report card

Kalei Shotwell [presented](#) the Pacific cod ESP report card for 2023. The full ESP is scheduled for 2025. The Team held a brief discussion on the inclusion of the CEATTLE model and indicator analysis outputs in the ESP. The Team requested clarification on including this model in the Pacific cod ESP since pollock and Pacific cod vary with predation. The author clarified that the CEATTLE model will include more stocks and more predators in the future.

Pacific cod (Operational Update/Full)

Pete Hulson [presented](#) the assessment of Pacific cod in the Gulf of Alaska. Last year's model (19.1a) was updated to adjust the conditional age-at-length minimum sample size from 1 to 0.001 and is denoted Model 19.1b. The biological samples from the pot fishery appear to be low relative to the proportion of catch from that fishery. For example, the 2022 length frequency data appears to be from relatively few samples. The Team discussed the new design for the IPHC survey and that a spatio-temporal model might improve the use of this data for species other than Pacific halibut.

Team discussion focused on the population dynamics for this stock. Projections of spawning stock biomass suggest a near-term decline through 2025 followed by an increase (assuming mean recruitment). However, this stock appears to be very susceptible to warming temperatures, and we may have already entered a new warm "regime" that could impact expectations on future recruitment. The survey data show signs of improved recruitment, however, the model is fitting the survey data poorly. It was noted that due to the partitioning of the TAC in areas and seasons, the total catch is less than the TAC. Also, being in Tier 3b means that the ABC is "on the ramp" of the harvest control rule to be precautionary. Therefore, an ABC reduction from the maximum permissible under the FMP was unnecessary. The Team agreed with this determination and resulting apportionment among spatial areas.

A discussion of the potential future state of the population raised the issue that there are many maturity samples remaining to be processed. **The Team recommended that sufficient samples be processed and analyzed so that the resulting data can be used in the assessment.**

The Team noted the work that was devoted to developing estimates of the posterior distribution using MCMC. They encouraged authors to continue this type of work to help identify issues where parameters may be confounded or poorly estimated.

The Team agreed with the authors' recommended model, 19.1b, and the authors' recommended OFL and ABCs, with no reduction from the maximum permissible ABC.

Deepwater flatfish (Operational Update)

Carey McGilliard [presented](#) the update assessment for the deepwater flatfish stock complex in the Gulf of Alaska. This stock is assessed on a four-year cycle, and the last full assessment was in 2019. The following data were updated in the assessment model:

1. Updated 2019 fishery catch and length composition and 2020-2023 fishery catches and length compositions
2. 2021 and 2023 AFSC trawl survey biomass and length composition,
3. 2019 and 2021 AFSC bottom trawl survey conditional age-at-length,
4. Logspace standard error for missing bottom trawl survey biomass strata, and
5. Francis weights for the relative weighting of data sources

There were no changes to the model structure since the 2019 assessment (accepted model number 19.3.1). The author made several small changes to Model 19.3 for 2023 assessment which culminated in the author's recommended model 19.3.1. These changes included: (1) adjusting the variance estimates used to fit the bottom trawl survey biomass for years in which the REMA model was used to fill in missing strata (in particular, the 700-1,000 m strata), and (2) using Francis reweighting where the shallow trawl survey coverage composition data relative weight was set equal to the full trawl survey coverage relative weights.

The Team discussed the need to incorporate REMA variance with trawl survey estimated variance was unique to this assessment because it is Tier 3 and uses REMA outputs as inputs to the assessment. The Team discussed how to better address this, as it was noted that it is unlikely that the 700-1,000m depth strata will be sampled in the future by the trawl survey and the increase in uncertainty from this unsampled strata should be taken into account. The Team encourages the author to further investigate the most appropriate manner in which to account for the variance from unsampled survey strata. The Team noted that the GAP group has been working on a restratification of the GOA trawl survey for 2025 and recommended that the author evaluate how these new survey strata will affect this assessment. The author also noted that the historical catchability coefficient that is fixed in the model was estimated with a model that included bottom trawl survey biomass in the years after the apparent shift in catchability. The author suggested that this be re-evaluated with a model that only includes data through 2013 to obtain a catchability estimate that is more representative of the historical trawl surveys. **The Team supports this analysis and recommends that the author bring forward a model for the next assessment cycle that updates the historical catchability parameter as an alternative for consideration.**

The author noted that, in collaboration with Alaska Regional Office staff, the catch history of Kamchatka flounder was included in this assessment. Prior to this year, the catch of this species was based on a ratio estimate of this species within the complex. This involved using the Kamchatka flounder catch data from the AKROs' Catch Accounting System that were made available from 2011-2023. For the average catch calculation, the Team noted that it was important to set this value to a static time range for future assessments. The Team discussed the most appropriate method with a comparison to the time frames for which other Tier 6 rockfish catches are calculated. The Team recommended that the author use the time period from 2011-2023 to determine average catch of Kamchatka flounder to determine OFL and ABC in future assessments.

The author recommended Model 19.3.1 with ABC set equal to the maxABC. The Team agreed with the author's recommendations.

Pacific Ocean Perch (Operational Update)

Maia Kapur [presented](#) the 2023 operational update assessment for GOA POP which is a Tier 3a stock. The assessment methodology was unchanged from previous years (i.e., Hulson et al., 2021) beyond the standard updates to size-age matrices. The Team noted and appreciated the improvements made to streamline developing and producing this stock assessment. Specific data updates included adding survey biomass estimates for 2023, survey age compositions for 2021, fishery age compositions for 2022, final catch for 2021 and 2022, and projected catch for 2023-2025. The authors noted that survey data for 2023 was highly uncertain for POP due to the presence of several very large hauls. Catches of POP remain low relative to historic highs but are increasing.

For the 2024 fishery, the previously accepted model (Model 20.1) resulted in a slight ABC increase over 2023 values, corresponding to recent large survey values and an increase in survey biomass in 2023 relative to 2021. The stock is not subject to overfishing, not currently overfished, and not approaching an overfished condition.

In the risk table, the author classified the assessment and population dynamic as “major concerns” due to the presence of strong, negative retrospective bias and ongoing issues with underfits to survey data. However, the authors recommended the maximum permissible ABC because of the robust patterns indicating stock increases and conditions being well above $B_{40\%}$.

The author noted that future assessments may apply the Stock Synthesis platform for investigations in alternative model specifications.

The Team agreed with all author-recommended assessment updates. The Team recommended specifying OFL at the Gulf-wide level to be consistent with stock status determination criteria. The Team’s rationale included 1) there is no longer a biological basis for partitioning OFL, and 2) there is no basis available at this time to support separating SEO as a separate management stock. The OFL partitioning was initially implemented when the stock was in poor condition; however, the stock is now well above $B_{40\%}$. Apportionment of the ABC is deemed adequate for current management of the population.

Shortraker rockfish (Operational Full)

Katy Echave [presented](#) the Tier 5 shortraker assessment. Two models were evaluated. Model 19.2a is a configuration of the last assessment but updated to correct a coding error. This model had a parameter for process error and three area-specific scaling coefficients and a longline survey weight of 0.5. The other model (Model 23.3) differed only in the relative weights between surveys was equal, and an additional observation error term for the longline survey was estimated.

Kevin Siwicke presented these assessment changes and apportionments at the September 2023 Groundfish Plan Team meetings. Overall, biomass and ABC are decreasing slightly from 2023. The authors also recommended an alternative method for apportionment that uses predicted biomass and predicted longline survey relative population weight (RPW) by area. The author and Team noted that the two surveys show divergent trends across subareas. The longline survey has higher biomass in the eastern and western GOA and catches larger fish than the bottom trawl survey. The bottom trawl survey shows higher biomass in the central GOA, although biomass is declining this year. The new apportionment methodology effectively uses information from both surveys. In 2023, both surveys experienced a large decrease in the Central GOA biomass and RPW estimates, which has large effects on the new model results that drops the Central GOA apportionment percentage to 20.7% of the GOA total.

The Team discussed the regional sub-area ABC overages, particularly in the CGOA. This year, the CGOA ABC decreased with the authors' proposed apportionment method. The Team discussed whether this method will increase (or lower) the risk of localized depletion. The Team noted that this is a non-target species and the current methods of sampling likely do not represent the population well. Also, genetic evidence suggests little area specific stock structure. Finally, catch is low/stable and discarding continues to decrease due to increasing use of pot gear in the sablefish fishery. The Team therefore agreed with the authors that there appears to be no conservation concerns at this time. However, the Team was concerned about the large difference between the previous apportionment method and the proposed method for this year's apportionment. **The Team encouraged the author to evaluate area-specific exploitation rates and update the stock structure template.**

The Team also noted that the genetic stock structure results cited in SAFE presentations this week pertain to evolutionary time scales and should be interpreted with caution with respect to their application to stock structure assumptions within assessments and risk tables. A finding of no spatial stock structure does not imply a lack of spatial demographic structure, which is the ecological scale of concern for population dynamics and fisheries management.

The Team agreed with the authors' recommendations for the new model M23.3 and with the authors' recommended ABC being set to the maximum permissible ABC under the FMP. However, for apportionment, the Team deviated from the assessment and recommended averaging between the two apportionment methods (Biomass and Biomass + RPW) as an incremental approach for changing to a new method. This was because of the large decrease in the ABC apportioned to the central Gulf and the lack of concern regarding local depletion and stock structure.

The Team noted that there are considerations outside of the purview of the Team that should be taken into account when considering the shortraker apportionment framework. The Team acknowledged that consolidation of regions for apportionment could have substantial impacts on fisheries that occur in the Central GOA, such as those in the Central GOA Rockfish Program. They also noted that the fishing distribution in some areas straddles the Central area and that of West Yakutat. **The Team encourages the Council to engage in the Spatial Management Policy for this stock to fully consider the economic and management-related impacts of alternative spatial allocations of ABC, as well the risks of localized depletion.**

Rougeye/blackspotted rockfish (Operational Full)

Jane Sullivan provided a [presentation](#) on the rougeye-blackspotted stock complex. Key issues noted were that the longline survey index was lowest on record (34% below the mean), while the 2023 bottom trawl survey increased 27% from the 2021 survey which was the lowest biomass on record. However, the 2023 biomass was still estimated to be 28% below the time series mean. At the September Team meeting, the application of the REMA model to both longline and bottom trawl survey was accepted for apportionment. Other assessment changes (also presented and supported in September) included a revised treatment of natural mortality, and removal of the 1980s survey data.

Models 23.1a and 23.1b were presented in September to address concerns about patterns in both abundance indices as they appeared to result in poor retrospective patterns (Mohn's $\rho=1.05$) and poor fits to the data. Model 23.1a constrained the priors on both catchability parameters and adjusted the variance term on recruitment variability. Model 23.1b was configured to fix natural mortality to the estimated "prior mean". This meant that the main population scaling parameter was mean recruitment. This model improved the retrospective bias and had results consistent with historical assessments (in terms of population scale), it failed to fit the apparent recent declines in both survey indices.

Due to major concerns in the assessment and population dynamics categories of the risk table, the author recommended a reduction from maximum permissible ABC. To achieve this, the author split the difference between the 2024 ABC specified in last year's model (15.4) and the 2024 maxABC estimated in this year's author's recommended model (23.1b). The same logic was applied to obtain the reduction for 2025, splitting the difference between the 2024 ABC specified last year and the projected 2025 maximum ABC estimated this year. The rationale for the magnitude of reduction from the maximum permissible ABC was noted as consistent with past adjustments applied by the SSC and was warranted due to the assessment concerns expressed in the risk table.

The Team discussed a number of issues about this complex noting the long period of having stable biomass estimates until recent years. They considered alternative recommendations such as placing the stock in Tier 4 or 5 calculations but concluded that the model provides reasonable advice for this stock to evaluate OFL and status determination (which would be lost at the lower tiers).

The Team agreed with the authors' recommended model (23.1b), resulting OFLs, and the author's recommended reduction from maxABC.

Other rockfish (Operational Full)

Kristen Omori [presented this full assessment](#). The species included in the Other Rockfish complex are different among the sub areas. Demersal shelf rockfish (DSR, all Tier 6) will be moved for the future assessments into its own GOA-wide complex. This was recommended by the Council at the October meeting for implementation in 2025. Kristen examined the Tier assignments of the species in the complex noting that from previous analyses the Plan Team and SSC recommended 12 species be moved from Tier 5 to 6 due to unreliable biomass estimates. This change was incorporated in the assessment. As presented and approved in September, Kristen noted the following: use of the REMA model, extension of maximum catch time series for Tier 6 species to 2013-2022, and an alternative weighted M approach. Relative to the September presentations, the updated 2023 catches and 2023 bottom trawl survey results were included.

Rockfish catch is lower than ABC for total GOA; 77% of the harvest of Other Rockfish is from the trawl sector. Forty-five percent of the harvest is harlequin and 17% is yelloweye, now in the separated DSR complex (does not include SE because it is managed by the SOA in Southeast). As of November 13, the ABC was exceeded for Other Rockfish in WGOA/CGOA.

There were two different methodologies to estimate M : status quo and another using a biomass-weighted average M . The latter approach applied the REMA model biomass estimates from 2019-2023. Results from these two approaches were similar.

For the Tier 6 components of this complex, the OFL increased because more species were included.

At the stock complex level, summing the components resulted in the ABC being down by 7% and the OFL down by 6% relative to the previous year. The impact on apportionment changed where the ABC for WGOA/CGOA decreased while WYAK and SE increased. It was noted that based on survey data, a majority of the Other Rockfish biomass is found in Southeast.

Catch surpassed the ABC in WGOA/CGOA but not in the other areas and this is most likely to continue. In the WGOA/CGOA, harlequin rockfish are a large proportion of the fishery catch but are not caught in high numbers in the survey. There were questions about harlequin size composition and indicators of stock health. There has been no decrease in average length of the species. Typically, they are smaller than most of the species with a patchy distribution. There was discussion about the 3 consecutive years of surpassing the ABC, this needs to be examined more closely since this complex is not targeted.

Apportionment was a topic that the Team took up at length. There is already precedent for other apportionment methods, there have been combining of CGOA and WGOA for DSR. It was noted that the ability to reliably manage rarer species at smaller spatial scales given highly uncertain survey data is problematic.

The Team discussed the likelihood that these non-targeted species are underestimated and noted that new research is being conducted with the drop cameras and other methods. Indications are that these species are present but fail to be proportionally caught in the trawl survey. For Other Rockfish, evidence of any species-specific localized depletion or targeting is lacking. The author and the Team discussed how these species are poorly represented in the survey data.

For 2024, the Team agreed with the author and recommended that the sub-area ABCs remain. However, the Team recommended that in 2025, the W/C/WYAK sub-area ABCs be combined, which would be consistent with the recent changes to DSR. The Team recommended that the Council engage in the Spatial Management Policy for this stock. The Team noted the next assessment is scheduled for 2025.

The Team listened to Madison Hall's presentation on industry research on rockfish, trawlable/untrawlable habitat. The author and Team look forward to the continuation of untrawlable habitat research and noted the benefits of such collaborations with industry.

Skates (Operational Update)

Lee Cronin-Fine [presented](#) the skate stock complex update. Catch has been below ABC and OFL for the complex since 2005, but the catch for longnose skates exceeded the ABC after July 11, 2023 in the CGOA, following which retention was prohibited. The catch and survey biomass estimates were updated and no alternative models were considered as this was an update assessment. The author transitioned to a REMA model for this assessment. 'Other' skates are assessed together gulfwide, big skate and longnose skates are assessed separately with apportionments based on the REMA model.

Overall, the estimated biomass of all skates is at the lowest level since 1996; EGOA biomass is at its lowest since 1990, but big skate biomass in WGOA and CGOA has remained steady. For longnose skate, most of the biomass is in CGOA and estimates in all areas are stable. The exploitation rate was higher for 'other skates' compared to big and longnose skates. Big skate exploitation rates in the EGOA are increasing; longnose exploitation rates are highest in EGOA. Reductions from maxABC were not supported by the risk table and were not recommended.

There were questions about retention rates in the fisheries that catch skates and how that is related to the catch. It is unclear what proportion of the reported catch is retained or released. There were also questions about why the ABC was exceeded, but no clear explanations were brought forward.

There was discussion about observer data with respect to there being an increasing catch trend but biomass was stable. It was suggested that there may be more information about catch from the fixed gear fishery, and that fishing behavior may change with EM aboard. The longline fishery in the EGOA catches the largest amount of skates. The sablefish fishery is experiencing high harvest levels, which means that there are more hooks in the water which can potentially increase catch of skate. There is likely to be high uncertainty around the retention rate.

The Team supported the authors' recommendations for OFLs and ABCs. The Team recommended that the author look at the bycatch rates of skates in the fisheries in which they are caught (e.g., what is the ton of skates caught per ton of target species across different fisheries) and present this data in the next assessment.

Harvest Projections (7 stocks)

Chris Lunsford [presented](#) harvest projections for shallow water flatfish including northern & southern rock sole, rex sole, arrowtooth flounder, flathead sole, northern rockfish, and dusky rockfish. Harvest projections were presented to the Team in one presentation using a consistent template of information for each stock or stock complex.

The Team supported the authors' recommended 2024 and 2025 ABCs and OFLs, as well as current apportionments, for all GOA harvest projections.

Sculpins (Ecosystem report)

Ingrid Spies presented an updated review of sculpin trends, biomass, and incidental catch in the BSAI and GOA. In 2020, sculpins were reclassified as an ecosystem component category. There is currently no directed harvest and incidental harvest remains low. For reference, the author provided the OFL and ABC values based on the previous Tier 5 assessment methods, but these are for reference only (not used to determine harvest recommendations or overfishing status as these are not required for ecosystem component species). The author showed that the current catch rates are an order of magnitude lower than the reference OFL. The author finds no concern with the harvest rates for sculpin and the Teams agreed. There was some discussion regarding trends over time and that no apparent climate or long-term trend has emerged, although some biomass of some species is increasing while others are decreasing slightly. The Teams appreciated the information on the reference ABC and OFL for context. **The Team recommended that future presentation of these reference values be in a format that helps clarify that the numbers are for reference and not management action.**

Approve Final Harvest Specifications

The Team noted the compilation of the 2024 and 2025 harvest specifications and recommended their adoption by the SSC.