

Plan Team Minutes EFH Excerpt REPORT

October 2022

Crab Plan Team EFH Minutes Excerpt

EFH Stock Author Report

Molly Zaleski (NMFS-AKRO) and Scott Smeltz (Alaska Pacific Univ.), with Jodie Pirtle (NMFS-AKRO) assisting, gave an update on the Council's 2022 Essential Fish Habitat (EFH) 5-Year Review, and presented the EFH Fishing Effects Evaluation Discussion Paper. Molly referred the CPT to recent presentations the EFH team gave to the CPT at the January and May meetings. The FE Evaluation process begins with FE model output, which is then analyzed for species-specific core EFH areas, stock author review of the model output and analysis, and finally plan team, SSC and Council review. In addition to the discussion paper being reviewed at this meeting, the EFH team provided supporting material, including folders containing the species-specific FE model maps, FE model output time series figures, EFH maps, and comparative maps of 50% core EFH areas (CEA) from 2017 and 2022, and two supporting discussion papers: Supplemental Analysis for the Species Distribution Model (SDM) Ensemble EFH Maps for the 2022 5-year Review (September, 2022) and Discussion Paper on Advancing EFH Descriptions and Maps for the 2022 5-year Review (reviewed by SSC January 2022, revised March 2022). Chapter 4 of the main discussion paper reports the FE analysis results by species, including estimated percent of habitat disturbed and summarized stock author (SA) responses regarding FE model concerns (Section 4.2), detailed SA responses regarding species with data limitations (including four BSAI crab species), and detailed FE assessments for species with $\geq 10\%$ CEA disturbed, which included EBS Tanner crab. Full results of the SA assessments for all species are in an appendix.

Scott provided an overview of the FE model process and results. He noted that the model was developed for the 2017 review, and is intended to assess FE over time at large spatial scales. Changes to the FE model since 2017 included a correction to an error in model code, identified after the 2017 review was completed, that transposed inputs for trawl and longline gear, additional fishing data time series through 2020, and new information on some minor categories of fishing gear, which was limited to the Gulf of Alaska and did not affect results for BSAI crab stocks. Scott briefly described the process of overlaying SDM maps (EFH Component 1) with FE maps. EFH Component 1 is required under regulation to identify EFH by species at the scale of the FMP management unit, defined as the upper 95% of predicted area occupied. As directed by the SSC, the FE assessment is limited to the Core EFH, representing the upper 50% likelihood predicted EFH, and includes both observed and unobserved fishing effects. Sixteen individual species (including EBS Tanner crab) were identified in the FE analysis as being above the threshold of 10% of CEA disturbed, compared to no species identified above the threshold in the 2017 analysis. Scott attributed the difference between the 4.7% CEA disturbance model result used in the 2017 assessment and the current results for Tanner crab mainly to the code error in the 2017 model runs, noting that the SDM model that was used in 2017 was rerun with corrected code, with results indicating that EFH disturbance was 11.1% as of November 2016 and 11.4% as of December, 2020, compared to the current ensemble SDM results of 10.6% and 10.9%, respectively.

Molly reviewed the stock author review process, which began in April, noting that authors and species experts were asked to provide an assessment under three conditions: if the stock was below the MSST, if the species was above the 10% CEA disturbance threshold, or if the author felt a qualitative assessment was warranted in addition to the model-based assessment, and complimented the crab SAs and experts for their contributions. SA assessments were provided for EBS BKC and EBS snow crab, which are both currently below MSST (with FE results of 2.3% and 3.8% CEA disturbance), and for EBS Tanner crab

(10.9% CEA disturbance). SAs for BKC did not recommend elevating for mitigation of habitat impacts, however SAs for snow crab, Tanner crab, AI GKC, EBS RKC, and AI RKC all indicated that there was insufficient information available on which to make a recommendation. Molly summarized crab FE evaluation concerns from SA reviewers, which spanned reviews submitted for most crab species. These included seasonal differences - FE model results based on summer distributions may be missing important impacts during winter distributions and/or during important life stages (e.g. molting or mating); spatial scale - EFH is based on FMP management units rather than stock sub-regions; life history – juveniles may be more susceptible to disturbance than adults, but FE model is limited to older life stages; and insufficient information – all species except BKC were identified as being too information-limited to determine if elevation for mitigation measures was warranted.

A more detailed summary of the snow crab SA assessment was presented and discussed (slides for other SA assessments for individual crab stocks were included but not presented). The snow crab SA indicated that there was insufficient information to elevate snow crab habitat mitigation, but raised concern that inclusion of Northern Bering Sea in the EFH map for snow crab may dilute meaningful fishing effects in more important snow crab areas. While no significant correlations between life history indices and CEA disturbance trends were reported in FE model results, the SA noted that a longer times series (including 1990s) would provide a better basis for correlation tests, and “where” and “when” disturbance occurs is important for the stock but was not considered. Molly noted that HAPC recommendations were included in two of the SA assessments: for Aleutian Islands RKC, Petrel Bank was recommended for consideration, and for BKC, HAPC consideration was recommended for nursery habitats around the Pribilof Islands, St. Matthew Island, and St. Lawrence Island.

Molly elicited comments from the CPT regarding guidance on evaluating FE beyond what is provided in the discussion paper and supporting documents. The CPT recognized that the EFH process as currently established does not allow FE determinations to be made on the basis of stock boundaries or smaller sub-regions, but reiterated the points made by the SAs in their assessments regarding the need to focus more specifically on fishing effects in critical habitat areas for individual crab stocks and biologically meaningful spatial and temporal scales to capture impacts on specific life-history stages. There was a discussion of how the more detailed analysis would be accomplished, whether as part of the next EFH 5-year review, or given the depressed condition of most crab stocks, in the more near-term, outside of the formal EFH process. CPT members noted that the EFH team has produced a rich base of information on which to expand the analysis in this direction (and that detailed spatio-temporal model results were provided to some crab SA’s for this assessment and could potentially be provided as a consistent part of the process in the future), but that it was unclear that individual SAs or the CPT as a whole would have adequate resources to perform this level of analysis within the EFH process as it is currently structured. It was also noted that the CPT could develop the issue as a research priority at a future meeting.

The CPT concluded with a discussion of recommendations for HAPC consideration of specific areas, in addition to those identified in the SA review (the Petrel Bank area identified for Aleutian Islands RKC, and BKC nursery habitats around the Pribilof Islands, St. Matthew Island, and St. Lawrence Island). Additional areas were identified for further evaluation by the CPT for potential formal HAPC recommendations separate from the EFH process. However, the CPT recognized the need for review of existing habitat protections and more thorough analysis, and elected not to make formal recommendations at this time. It was noted that further consideration of habitat protections is a matter of urgency given the depressed condition of most crab stocks, and the CPT identified the following as an initial list of candidate areas to revisit for the January CPT meeting:

- BBRKC habitat in southern portions of statistical areas 509 and 516. It was also noted that the CPT identified RKC habitat concerns during the 2010 EFH review, and the Council last reviewed a discussion paper on the issue in February, 2013, but ultimately took no action, and that process may warrant reconsideration.
- Near-shore areas in Norton Sound affected by mining activity with the potential to affect NSRKC.

- Critical rearing habitat for Aleutian Islands RKC on the northern side of the Alaska Peninsula, shoreward of the 50 meter isobath
- Areas of high survey abundance of female snow crab northeast of the Pribilof Islands that are also subject to high trawl activity

Joint Groundfish Plan Team EFH Minutes excerpt

Fishing Effects on Essential Fish Habitat (EFH)

Molly Zaleski and Scott Smeltz presented an overview of the Essential Fish Habitat (EFH) 5-year review with a focus on the fishing effects (FE) evaluation. Following the presentation, the Teams discussed the presented maps and noted that impact evaluation primarily focused on the adult life stage for species-specific EFH areas. Species Distribution Maps (SDMs) based on the adult life stage were endorsed by both the SSC and stock assessment authors in 2016, but a decision should be made during the next 5-year review cycle on whether to incorporate additional species-specific life stages. The Teams agreed that the 2022 FE evaluation incorporated newly available information and supported the continued conclusion that adverse effects of fishing activity on EFH are minimal and temporary in nature for all species. Questions were raised over how to evaluate FE on data limited stocks. Authors presented information for 5 GOA groundfish species where FE were unable to be determined due to insufficient data. The Teams commented that it was unclear how to proceed for stocks with little to no data informing the models and the need for an option for the stock assessment authors to note that models may not be appropriate for some data limited stocks. The Teams recommended that the SSC provide input on the process for the evaluation of FE on data limited stocks. Stock assessment authors noted that in some cases data were insufficient to provide conclusive evaluations. For species where the authors reported insufficient information, the Teams and authors recommended that the complex map be used as a proxy for the individual species EFH maps for the FE assessment.

Spiny dogfish was highlighted as one of the stocks identified as lacking data for FE evaluation. The Teams and authors recommended an evaluation of fishing effects on GOA spiny dogfish EFH using the FE model and the 50% CEA from the new EFH map and providing this analysis for the SSC meeting. The Teams discussed and emphasized the value of the longline data set. The Teams recommended incorporating survey longline (both the AFSC and IPHC longline surveys) data into SDMs where appropriate to evaluate the value of using these data for FE evaluations. The Teams recognized that substantial work went into this evaluation and noted its value to stock assessment authors.