

C2 Snow Crab Rebuilding Plan - Initial Review

The SSC received a presentation from Sarah Rheinsmith (NPFMC), Jon McCracken (NPFMC) and Cody Szuwalski (NOAA-AFSC) on the draft initial review analysis of the rebuilding plan for Eastern Bering Sea (EBS) snow crab. The SSC thanks the authors for their work on this analysis and responsiveness to previous SSC comments. The SSC notes that the analysis has benefitted from earlier review during recent NPFMC meetings and the associated work by the analysts and Crab Plan Team (CPT).

Written public testimony was provided by Scott Goodman (Bering Sea Fisheries Research Foundation; BSFRF), Jamie Goen (Alaska Bering Sea Crabbers; ABSC), Oystein Lone and Mateo Paz-Soldan (City of St. Paul). Oral testimony was provided by Jamie Goen and Cory Lescher (ABSC), Mateo Paz-Soldan (City of St. Paul), Scott Goodman (BSFRF) and Lauren Divine (Aleut Community of St. Paul Island). The written and oral public testimony at this meeting (and provided at the October meeting) highlighted the importance of this crab stock and rebuilding plan to all those that rely on the fishery. The testimony was considered as part of the SSC's deliberations on the rebuilding analysis initial review draft. **In particular, the SSC recognizes that the overfished determination and associated rebuilding plan for this fishery, with or without a small TAC, is likely to result in extreme socio-economic hardships.**

The SSC supports the proposed rebuilding parameters of $T_{min} = 6$ and $T_{max} = 10$. However, the SSC highlights that the actual time to rebuilding may be much longer depending on ecosystem conditions and actual recruitment.

The SSC finds the draft analysis adequate to advance to final action pending some revisions and expansions of the draft document, as outlined below.

The SSC noted several improvements to the analysis since the October draft, including the use of the maximum likelihood estimate from the assessment model as the basis for rebuilding projections. The authors clarified that the closure of the snow crab fishery in 2022/23 was not included in the projections; however, they deemed this to have little impact on the rebuilding trajectory.

The SSC noted the discrepancy between the Essential Fish Habitat map and the stock definition for the snow crab assessment, which does not currently include the Northern Bering Sea (NBS). **The SSC recommended that the final draft include a calculation of habitat disturbance that attempts to exclude the area in the NBS, or at least provides an approximation of the disturbance within the assessed stock area. In addition, the SSC recommends a map or other means to evaluate the overlap between areas with identified higher abundance of the smallest snow crab size classes and habitat disturbance.** This is intended to provide insight into whether local disturbance of critical juvenile areas might be occurring at a higher level than the average across the entire stock.

The SSC supports the CPT recommendation to provide the projected catch series during the rebuilding period and to use these catches as the basis for evaluation of the potential magnitude of the fishery and potential economic effects. The SSC suggests that estimates of the total allowable catch (TAC), including information on the range of potential TACs, could be shown in a figure similar to Figure 2.2. The SSC recognizes that it may be difficult to provide a direct analog to the state harvest control rule (the currently employed $40\% \times ABC$ approximation may not be appropriate for small potential harvests under rebuilding and may therefore not be representative of current conditions) and is open to other options that could better approximate the potential TAC for assessing potential economic effects, especially in the early years of the rebuilding period. The SSC suggests it may be helpful to describe how a fishery might be structured with a very small TAC, and what benefits could be captured by catchers and processors. While the SSC acknowledges there will be considerable uncertainty in predictions of future TACs, this represents the best available science on the likelihood a fishery may occur in the medium term and the relative size of that fishery. Because the production function is close to linear, it will also give a sense of how much effort

is needed, and potential revenues and taxes. Estimates of the TAC could be compared to the 2021 TAC. It is likely that the 2021 experience can offer insight into how individual short-run adaptation strategies will lead to consolidation in the harvest and processing sectors, affect season length, and impact communities. Clearly, longer periods of low or no fishing will have long-term impacts that will be harder to forecast. To help inform potential impacts of an opening with a low TAC, public testimony suggested it would be helpful to have stakeholders together to discuss.

Relatedly, the SSC had a substantial discussion regarding the difference in reference points used by ADF&G as a basis for setting the TAC and federal analyses that serve as the basis for the OFL and ABC (e.g., B_{MSY} including males and females vs. only males). **The SSC requests additional description of the terms used, and the differences between the processes, recognizing that it is not clear how consideration of state actions fits into a federal rebuilding plan.** The SSC asks for further clarification of how crab rationalization could affect the viability of a limited fishery under rebuilding both for vessels as well as processors and those that rely on each.

The SSC acknowledges the development of a robust social impact assessment as part of this rebuilding plan, noting that this includes the first use of the Local Knowledge, Traditional Knowledge, and Subsistence (LKTKS) search engine. **The SSC requests a clarification of the next steps that would be appropriate to take when such a search does not produce any specific results in one or more of the search engine information areas.** The SSC also acknowledges the utility of the inclusion of LK information developed by industry and the innovation shown in the development of new table pairs for participating catcher vessels and processors that highlight snow crab dependency in the context of co-occurring changes in other crab fisheries and associated changes in fishery participant distribution across revenue percentile categories.

The SSC requests inclusion of additional information on the status of fishing communities, especially with regard to the 2021/22 fishing season, noting that additional economic information may now be available that was not available for earlier drafts. For example, for the communities the authors identified in the analysis, it could be helpful to provide time series as stacked bar chart figures (not tables), showing revenue by main species. This could be done for both catch and processing. This would highlight heterogeneity across communities in (1) diversification/dependence across species/fisheries, including snow crab, Bristol Bay red king crab, and other species/fisheries; and (2) the extent to which fishing or processing activity overall has decreased (or increased). Figures like this showing the overall trend in socioeconomic outcomes would complement the compelling figures shown in the first section of the report highlighting the stock collapse and the social impact assessment tables showing annual average dependency.