

Draft SSC Report February 2021



Balance of SSC Report

SSC Election of Officers

- The SSC ***re-elected*** Anne Hollowed (NOAA-AFSC) and Sherri Dressel (ADF&G) to continue as co-chairs.
- The SSC ***re-elected*** Alison Whitman (ODFW) as vice chair.



SSC General Comments

- The SSC **welcomes** new members Dr. Patrick Sullivan and Dr. Chris Siddon and returning member Dr. Milo Adkison.
- The Council appointment of these members with a strong stock assessment backgrounds is greatly appreciated by the SSC.
- The SSC **congratulates** Dr. James Ianelli upon receipt of the Terry Quinn II Distinguished Scientist award and Chris Oliver who received the Bob Mace award.



SSC Administrative Discussion

- The SSC **reviewed** proposed changes to the SSC handbook.
- Substantial changes included:
 - Multiple additions and clarifications on virtual meeting protocol,
 - Updates to the Council's travel compensation policy,
 - Additional text describing the six FMPs and a typical annual management cycle, among others.
- The SSC **supports** the proposed changes to the SSC handbook and **appreciates** the work Council staff does to regularly update and review this information.



SSC Administrative Discussion

- The SSC further **suggests**:
 - Regarding a description of desired SSC membership, the SSC suggests changing the term “sociology” to “anthropology/sociology” to the Council’s SOPPs
 - A generalization of the research priorities cycle description, as this is currently in flux



SSC prioritization and planning

- The SSC discussed future scheduling, subject matter expertise on SSC, key topics for review and time management.
- Council considering 4-day SSC meeting starting Tuesday June 1st
 - The SSC **recognizes** that the agenda for the 4-day meeting will need to be shortened in response to the shift from a 5-day meeting.
 - Moving the SSC meeting to June 1st works for SSC membership
- The SSC **recommends** that for future SSC appointments the Council consider another social scientist with a background in anthropology, sociology, human geography or a related field.

The SSC **recommends** a white paper and workshop to support steps 2 & 3 of the NPFMC spatial management policy for BSAI blackspotted/rougheye rockfish



SSC prioritization and planning

- The SSC **requests** an update on the plans for completion of the fishing effects analysis of the EFH 5-year review.
- The SSC **requests** an update on how biological sampling plans have performed in fisheries where electronic monitoring has been adopted.
- The SSC **requests** a briefing on the emerging risks of climate change and marine heatwaves for sustainable management of marine resources off Alaska.



SSC prioritization and planning

- The SSC **acknowledged** that workshops for scenario planning to identify climate-informed adaptation strategies and changes to harvest control rules will occur in 2021 and **noted** that some SSC participation will be needed for these workshops.
- The SSC **requests** an informational update on seabird status.
- The SSC **requests** that during times of virtual meetings, that informational updates on emerging science focus on the most pressing scientific issues.

The SSC **highlights** that sufficient time to review documents is essential for the SSC to provide the Council thorough review.

The SSC **requests** presentations be posted a few days before given



C-5 BSAI Crab

Norton Sound Red King Crab

- The SSC **supports** the CPTs recommended base model 19.0
- The SSC **supports** the using total catch in the Tier 4a calculation:
 - **Total catch OFL = 0.628 million lbs (0.29 thousand t)**
- The CPT recommended retaining a buffer between OFL and ABC of 30% because new concerns about cohort progression, growth estimation, and uncertainty in discard estimation
- However, **the SSC recommends a more conservative 40% buffer resulting in an ABC of 0.377 million lbs (0.17 thousand t) for 2021**

Overfishing is not occurring and NSRKC is not overfished



C-5 BSAI Crab cont.

Norton Sound Red King Crab cont.

SSC Justification for 40% buffer:

1. The ADF&G survey abundance is much lower in 2020 than 2019, and the model is not fitting this new observation well.
2. The retrospective bias of 0.26 in the recent 5-year peel presented in the document is positive (overestimated MMB by 26% each year on average). The overestimation of growth may be contributing to this retrospective pattern.
3. Survey selectivity is poorly estimated.



C-5 BSAI Crab cont.

Norton Sound Red King Crab cont.

SSC Justification for 40% buffer (cont.):

4. The recommended ABC is increasing when the only available 2020 survey estimate is low, and fishery CPUE has steeply declined. The fit to recent low commercial CPUE observations is poor, similar to the trawl survey. There also were no NMFS trawl survey data to evaluate.
5. While an improvement, total catch OFL further emphasizes the uncertainty in the estimation of discards.
6. The high recruitment discussed last year was supported by a high survey biomass estimate. The low biomass estimate in 2020 lowers confidence in the magnitude of this recruitment pulse. This potential large recruitment is still mostly below the preferred commercial size.



C-5 BSAI Crab cont.

Norton Sound Red King Crab cont.

- The SSC *provides* recommendations to the authors on the following topics: (1) total catch OFL and ABC, (2) discards, (3) pot loss, (4) incorporation of LK and TK, (5) natural mortality, (6) data weighting, and (7) CPUE standardization



C-5 Crab Plan Team Report

AIGKC Model Runs

- The SSC reviewed CPT proposed assessment models for Aleutian Islands golden king crab, for the May 2021 CPT meeting
- The SSC **endorses** the four CPT recommended models
 - Model 19.1 – Prior model with updated data
 - Model 21.1a – Same as M19.1, but with time period for specifying mean recruitment as 1987-2017
 - Model 21.1b – Same as M21.1a, but with three selectivity time blocks (1960-2004, 2005-2015, and 2016+)
 - Model 21.1c – Same as M21.1a, but with observer CPUE standardization including the Year:Area interaction



C5 – Crab Plan Team Report cont.

AIGKC Model Runs

- The SSC ***supports*** the CPT recommendation to include two additional models as an appendix to AIGKC SAFE
 - GMACS model under parallel development
 - Exploratory version of M21.1a that ignores 2015 observer CPUE, but incorporates from EAG cooperative survey
- The SSC ***reiterates*** two previous suggestions:
 - Exploration of a single-area model, or possibly a two-area model with larval connectivity
 - Evaluation of whether NMFS AI trawl survey could be used as an additional index of abundance for this stock



C5 – Crab Plan Team Report cont.

Crab survey planning

- The SSC **concurrs** with the CPT recommendation to prioritize survey stations based on their influence on the resulting abundance indices and their uncertainty
- The SSC **recommends** retrospective simulations be conducted wherein indices are recalculated with and without candidate stations to identify stations of lowest priority in the event a reduction in effort is necessary.



C-5 Crab Plan Team Report cont.

Risk Tables/Industry Questionnaire

- The SSC **endorses** development of risk tables for BSAI crab stocks, and is pleased that authors of snow crab and SMBKC have volunteered to prepare risk tables for review in May
 - The SSC **suggests** that NSRKC may be a good candidate for risk table development
- The SSC **concurrs** with the CPT that the Alaska Bering Sea Crabbers (ABSC) industry survey provides a beneficial opportunity to gather useful information from fishery participants
 - May inform risk tables and ESPs associated with SAFE chapters
 - SSC **notes** that consulting with the Local Knowledge, Traditional Knowledge, and Subsistence task force may be helpful



C-5 Crab Plan Team Report cont.

Climate Change/VAST models

- The SSC received a presentation on AFSC research quantifying past responses by crab stocks to climate variability, and exploring dynamic reference points for BSAI crab stocks
 - The SSC **highlights** that climate-driven changes in crab production dynamics and species distribution, and climate-adaptive management strategies are important areas of further research
- The SSC reviewed an update on ongoing AFSC exploration of VAST models for BSAI crab stocks
 - The SSC **highlights** past recommendation for groundfish authors to develop standard formatting requirements for documenting VAST model specification, visualizing outputs, and describing model fit diagnostics



C-5 Crab Plan Team Report cont.

Updating TORs

- The SSC *supports* CPT proposed changes to the terms of reference for BSAI crab SAFE chapters
 - Including changes providing greater consistency with groundfish SAFE chapters, revision to tables to match SSC and Council needs, and improving documentation of maxABC calculations
 - The SSC looks forward to reviewing the updated TOR following the May 2021 CPT meeting



C-5 Crab Plan Team Report cont.

Stock Assessment Frequency

- The SSC ***supports*** the CPT-recommended updates to the BSAI crab assessment priority schedule
 - Changing St. Matthew Island blue king crab from annual to biennial
 - Changing Pribilof Islands red king crab from biennial to triennial
 - SSC ***encourages*** CPT to consider additional assessments that might benefit from a reduction in the frequency of full assessment



C-5 Crab Plan Team Report cont.

Modeling workshop

- The SSC ***commends*** participats on the stepwise transition analyses from status quo models to GMAC and the assistance from experienced users to stock assessment authors
- The SSC ***supports*** future workshops



D-2 Report on AI Pollock EFP trials

- Three vessels participated in an experiment to determine what factors were associated with POP bycatch in pollock trawling. No strong predictors were identified, although captains did seem to have some ability to predict POP bycatch.
- The SSC *supports* the conclusions reached and appreciates the effort involved in the experiment.
- The SSC *suggests* that a multivariate investigation of the results has some chance of finding conditions affecting POP bycatch.
- Future work might focus on identifying captains' ability to predict POP bycatch



D-3 Bering Sea Fishery Ecosystem Plan

- The SSC received a presentation from the BS FEP Team
- The SSC **noted** concern that the changes to the language of the objectives for the LKTKS Taskforce's may be perceived by those who harvest, share, and use subsistence resources as an indication that the Council is not sensitive to the vulnerability of subsistence-dependent communities to climate change.
- The SSC **suggests** that it may be appropriate for the BS FEP Team and associated Taskforces to explore ways in which their interactions with subsistence communities can be mutually beneficial.



D-3 Bering Sea Fishery Ecosystem Plan cont.

Ecosystem Health Report Card

- The FEP Team presented updated information on the progress towards developing an Ecosystem Health Report Card (EHRC) which would fill current information gap by providing longer-term indicators of change in ecosystems, and would include hindcasts and forecasts (stemming from the Climate change Taskforce) that currently are not captured in the ESR or ESP products.
- The SSC **supports** the development of this product and **encourages** the Team's continued coordinating across ESR, ESP and EHRC groups to avoid unnecessarily duplicative efforts.



D-3 Bering Sea Fishery Ecosystem Plan cont.

Ecosystem Health Report Card cont.

- The SSC ***recommends*** that future iterations consider removing the word “health” from the name.
- The SSC ***suggests*** that in addition to the excellent outreach products being developed by the BS FEP Team, the Team consider tracking the use and reach of these efforts to determine how successful they are in reaching the public.



D-3 BS FEP - Climate Change Task Force

- The SSC reviewed the CCTF 5-year work plan.
- The SSC ***finds*** the plan lays out an important and ambitious suite of activities that will effectively build bridges between the science of the FEP (action informing) and FMP (actionable decision support).
- The planned contributions to tactical management are well aligned with existing information delivery products used by the NPFMC (e.g., the ESPs and ESRs).
- The SSC ***suggests*** that the primary contributions of the CCTF will be in advancing strategic planning with a focus on the delivery of social-ecological decision-informing information.
 - The SSC ***notes*** that the NPFMC will need to establish a rigorous scientific review of climate informing products from the CCTF.



D-3 BS FEP - Climate Change Task Force cont.

- The SSC **recommends** that CCTF products are regularly reviewed and approved for use by the SSC to ensure that they utilize the best available scientific information and that the models provide a reliable scientific basis for informing the NPFMC.
- The SSC **anticipates** that SSC members will participate in workshops seeking input for scenario planning.
- The SSC **recommends** that the scenarios for possible changes to existing time-area management, allocation (including bycatch management) and harvest control rules are developed with close collaboration with stock assessment scientists, plan teams, SSC, AP and the NPFMC.
 - The CCTF will aid the NPFMC in planning for urgent climate related issues.



D-3 BS FEP – LK/TK/Subsistence Taskforce

- The SSC reviewed the LKTKS action module workplan to develop protocols for incorporating and considering LK, TK, and subsistence information in the Council’s decision-making process.
- The SSC **notes** that the progress made on the development of work streams and products has been consistent with the Council’s February 2020 action on work product tasking.
- The SSC **commends** the taskforce on the progress that has been made on consideration of “on-ramps” for accessing LKTKS in the Council’s process.



D-3 BS FEP – LK/TK/Subsistence Taskforce cont.

- The SSC **recommends** the LKTKS taskforce closely coordinate with the Climate Change Taskforce, which has identified on-ramps for TKLKS information in the regular development/update workflow of ESPs, ESRs, and SAFEs.
- The SSC is encouraged by progress on protocol development, which the SSC recognizes as a critical element in bringing LK, TK, and subsistence information into the Council process.
- The SSC **notes** that the 12 initial, high level guidelines included in the draft protocol represent a solid foundation for what is recognized as an ongoing protocol development process.



D-3 BS FEP – LK/TK/Subsistence Taskforce cont.

- The SSC *recognizes* the importance of the progress that has been made on the development of a catalog of sources and an accompanying search engine for identifying and soliciting LKTKS information.
- The SSC also *recognizes* the importance of the LKTKS taskforce work on a conceptual model for Tribal engagement, given that LK and TK are living sources of knowledge that reside in individuals and communities and that building relationships are key to fully bringing LKTKS into the Council process.



D-4 Economic SAFEs

- The SSC ***found*** the overview of different sources of human dimensions data for groundfish, crab and other species, and where summaries and descriptions of these data are located (ESPs, ESRs, SAFEs, Econ SAFEs, and ACEPO), very useful for clarity and consistency in addressing obligations under NS2 and NS8
- The SSC ***finds*** the Groundfish Economic SAFE to be a useful reference on the economic status of fisheries, and has become more useful, organized, and accessible to the public over time.



D-4 Economic SAFEs

- The SSC ***recommends*** the development of a report card for the Crab Economic SAFE that reflects the needs and opportunities in the fisheries.
- SSC ***notes*** that the rationalized crab fisheries offer a unique opportunity to track the economic health of the fisheries thanks to the comprehensive economic data collected under the crab EDR program.



D-5 Marine Mammal Status Report

- The SSC received a presentation on the status of marine mammals
- Due to COVID-19: there were limited 2020 updates for population trends. Fieldwork is anticipated to resume in summer 2021 for a number of species.
- The SSC ***recommends*** the integration of relevant marine mammal time-series datasets into the ESRs when possible.



D-5 Marine Mammal Status Report cont.

- A spatially explicit northern fur seal bio-energetics model is being combined with outputs from the end-to-end ecosystem (FEAST) and multispecies stock assessment (CEATTLE) models, and several other projects are seeking to improve knowledge of the numerical and functional relationships between marine mammals, fisheries, fish resources, and/or the physical environment.
- The SSC **encourages** continued efforts to collect diet data, as this is essential for integrating marine mammals into ecosystem models.



D-5 Marine Mammal Status Report cont.

- Several presentations noted changes in the distribution, timing of migration, or body condition of marine mammals in the Bering Sea.
- The SSC **encourages** continued efforts to monitor marine mammal populations in the Eastern and Northern Bering Sea, including east-west as well as north-south changes in distributions where possible.



D-5 Marine Mammal Status Report cont.

- This was the first year the SSC received information from a marine mammal Co-management organization (Aleut Community of St. Paul Island, Ecosystem Conservation Office) on the synergistic projects for research and management being conducted locally.
- The SSC *recognizes* the valuable information on marine mammals and fisheries interactions that is available from this, and other co-management groups, communities, and local communities.
- The SSC *supports* the efforts of the BS FEP LKTKS Taskforce in identifying on-ramps for this information in the future.



SSC Risk Table Workshop

- The SSC convened a workshop on Risk Tables for ABC advice to the Council.
- The workshop was motivated by feedback from stock assessment authors and Plan Teams and as well as the SSC's plan to assess Risk Table performance after they had been filled out and presented for groundfish.
- The primary goals of the workshop were to:
 - Evaluate how the risk table process is working,
 - Address consistency issues with the risk tables as identified by the Groundfish Plan Teams, assessment authors, and SSC,
 - Provide guidance for moving forward through an open discussion between stock assessment authors, Plan Teams and SSC members.



SSC Risk Table Workshop cont.

- The SSC *thanks* the workshop session leads for their excellent presentations and the participants for contributing to the thoughtful discussions.
- The workshop highlighted the value of the risk tables in:
 - Fostering increased transparency and communication between ecosystem/process researchers and stock assessment scientists,
 - Providing a venue for authors to capture concerns about whether additional precaution is necessary with respect to ABC, and a space to articulate concerns and areas for additional consideration.



SSC Risk Table Workshop cont.

- The workshop also showed that there is a mix of opinions amongst participants regarding the purpose of the risk tables and the definition of risk.
- There were productive but not conclusive discussions about whether and how to develop risk tables for non-target species or Tier 5/6 species and whether the tables should continue to be implemented on a qualitative case-by-case basis or be transitioned to support a more prescriptive quantitative approach for ABC reduction.
- The SSC ***recommends*** the workshop proceedings be captured in a written report and offered a listed of suggested topics and questions, for consideration in the report.



SSC Risk Table Workshop cont.

- Key suggested topics/questions (see SSC report for full list)
 - Clearly define the objective of the Risk Tables.
 - Develop a working definition of “risk” that is appropriate to the risk table exercise.
 - Decide whether to use a qualitative or quantitative method for defining ABC reductions once table scores are assigned, including a review of the benefits and drawback of each.
 - Are assessments of risk across species, with differing fisheries and connections to the broader ecosystem, sufficiently comparable to fit within a common framework recommending ABC reductions?



SSC Risk Table Workshop cont.

- Key suggested topics/questions continued (see SSC report for full list)
 - Potential revisions to the categories: from the existing four (normal, increased, major, extreme) to a new four (unknown, normal, increased, extreme).
 - Which species to include? For example, should species with catch levels much lower than ABC be excluded?
 - Should the relationship between catch and ABC be a consideration in the assignment of risk level?
 - Consideration of when and how TK/LK can help with data lags and/or missing survey observations within the context of risk tables.
 - Address the trade-off between transparency and complexity.

