SCIENTIFIC AND STATISTICAL COMMITTEE DRAFT REPORT TO THE NORTH PACIFIC FISHERIES COUNCIL

B-1 PLAN TEAM NOMINATIONS

The SSC reviewed the Plan Team nominations of **Teresa A'mar** and **Nathaniel Nichols** to the GOA Groundfish Plan Team, **John Olson** and **Mike Byerly** to the Scallop Plan Team, and **Krista Milani** to the Crab Plan Team. The SSC finds all of these nominees to be well qualified, with appropriate expertise that will assist the respective Plan Teams. The SSC recommends that the Council approve these nominations

B-1 SOCIAL SCIENCE PLANNING TEAM (SSPT): PROPOSED PURPOSE AND ORGANIZATION

The proposal was developed in response to needs expressed by multiple groups.

- The SSC identified numerous gaps in social science data needed to meet statutory requirements for evaluating LAPP programs
- The Human Dimensions Workshop hosted in July 2016 by AFSC identified value in having an advisory body dedicated to longer-term strategic planning for social science.
- Council staff, NMFS AKRO, and the AFSC social scientists to coordinate research to ensure responsive and broadly applicable social science products needed for management.

B-1 SOCIAL SCIENCE PLANNING TEAM (SSPT): PROPOSED PURPOSE AND ORGANIZATION

The SSPT will improve structural support for social science, particularly in providing a venue for the types of incremental and iterative refinement that have benefitted stock assessments, while identifying ways to focus resources to meet statutory requirements.

The SSC strongly recommends establishing a Social Science Planning Team in order to support the Council in its efforts to manage fisheries under the MSA, and especially to satisfy National Standard 8. The SSC endorses the mission, scope, organization and initial membership outlined in the proposal.

B-1 SOCIAL SCIENCE PLANNING TEAM (SSPT): PROPOSED PURPOSE AND ORGANIZATION

Proposed scope of the SSPT

- Emphasizes long-term strategic initiatives that span management programs and Council actions.
- Explicitly excludes annual reports (e.g., the Crab and Groundfish Economic SAFE reports) and the regulatory review of most individual management actions.
- Serve as a resource for staff who seek advice or feedback on analytical strategies and methods during the planning stages of especially complex projects and LAPP reviews.

B-1 SOCIAL SCIENCE PLANNING TEAM (SSPT): PROPOSED PURPOSE AND ORGANIZATION

Proposed operation of the SSPT.

- Team meet in person annually
- Agenda be identified by SSPT members, representing their respective bodies (i.e., Council staff, AKRO, AFSC, and SSC). The agenda will be set by the SSPT chair, with approval by the Executive Director and Council Chair.
- Based on framing discussions, the SSC anticipates that the initial meeting will focus on identifying cross-cutting data gaps and analytical issues that arose in the wave of recent LAPP reviews, with an eye toward improving all of them in their next iteration

B-1 SOCIAL SCIENCE PLANNING TEAM (SSPT): PROPOSED PURPOSE AND ORGANIZATION

The proposal presents an excellent vision for the SSPT.

The membership, organization and operations of the SSPT will likely evolve and be refined to better fulfill its mission.

B-2 STOCK ASSESSMENT IMPROVEMENT PLAN AND BEST AVAILABLE SCIENCE

The document lays out the steps needed to produce the holistic ecosystem-linked assessments needed to implement an ecosystem approach to fisheries management. **The NPFMC's stock assessment enterprise stands at the forefront of this effort.**

- Recent release of a multi-species stock assessment (CEATTLE) as an appendix to the EBS pollock SAFE.
- The new Species Profiles and Ecosystem Considerations (SPEC) sections at the end of each NPFMC groundfish SAFE chapter
- The Alaska Climate Integrated Modeling (ACLIM) team's focus on evaluating the performance of alternative harvest strategies under changing climate
- Recent formation of the Bering Sea Fisheries Ecosystem Plan Team should deliver climate-ready Management Strategy evaluations to the NPFMC.

B-2 STOCK ASSESSMENT IMPROVEMENT PLAN AND BEST AVAILABLE SCIENCE

The SAIP is designed as a guide for each region and the SSC was assured that the NPFMC's approach to peer review was consistent with the goals of the SAIP.

It identifies opportunities for expanded use of advanced technology including innovative ways to collect data from ships of opportunity.

B-2 STOCK ASSESSMENT IMPROVEMENT PLAN AND BEST AVAILABLE SCIENCE

In summary, the SAIP outlines a national status and vision for stock assessments that align well with NPFMC regional practices and directions. Moreover, the presenters indicated that, rather than “top-down” rules, the document outlines NMFS recommendations that can be discussed and tailored to each region as required.

B-2 BEST AVAILABLE SCIENTIFIC INFORMATION

Assessment Program Lead provided an overview of the proposal for treatment of Best Scientific Information Available (BSIA).

In the NPFMC system the final review of SAFE documents and setting of biological reference points and ACLS all occur during the same meeting for relevant crab and groundfish stocks.

The SSC notes that, in general, the NPFMC's review process conforms to the proposed BSIA.

The SSC looks forward to reviewing the full BSIA report when it becomes available.

C-5 HALIBUT ABUNDANCE-BASED PSC LIMITS

A short discussion paper on halibut prohibited species catch (PSC) abundance-based management (ABM) was presented by an inter-agency workgroup.

This document to provided a **draft outline of the information to be included in a discussion paper** that will be presented at the October 2017 Council meeting and provided a preliminary **response to the Council's and SSC's request** from the April 2017 meeting for additional description of the Pacific halibut abundance indices and their properties, as well as a revised draft of performance metrics to be used to evaluate.

C-5 HALIBUT ABUNDANCE-BASED PSC LIMITS

The workgroup was specifically **seeking advice from the SSC in regards to what information should be brought forward in October 2017** to facilitate decision-making on a range of ABM alternatives.

In addition, the workgroup also r**equested suggestions of a subset of abundance indices to help draft a suite of ABM alternatives** to be considered in October, as well as feedback on the performance metrics and measurable objectives to help evaluate which indices and elements of the control rule will most likely achieve the Council's objectives.

C-5 HALIBUT ABUNDANCE-BASED PSC LIMITS

The SSC Recommends

For each index, the description should include the segment of the halibut population it is meant to represent, a discussion of the characteristics of the index, a qualitative evaluation of the index, and a recommendation for or against using the index to form ABM alternatives.

C-5 HALIBUT ABUNDANCE-BASED PSC LIMITS

The SSC Recommends

A discussion of control rules that is not limited to sloping control rules with floors and ceilings, but also considers other control rules, such as those suggested by the SSC in the October 2016 meeting:

- a decision table with low, medium, or high levels of PSC in response to low, medium, or high levels of coastwide SSB and/or EBS exploitable biomass;
- a control rule that combines multiple indices by setting PSC to the value of the abundance index that is most constraining at a given combination of index levels

C-5 HALIBUT ABUNDANCE-BASED PSC LIMITS

The SSC Recommends

A discussion of the incentives corresponding to different control rules and abundance indices. This section should include the discussion of incentives in the April 2017 document and the December 2015 discussion paper, and should be extended to discuss how options for incentivizing halibut PSC avoidance can be explicitly incorporated into ABM alternatives.

C-5 HALIBUT ABUNDANCE-BASED PSC LIMITS

The SSC Recommends

that the workgroup limit the set of abundance indices for initial development of single- and multi-dimensional ABM alternatives to those which reflect 1) halibut encountered by the groundfish fishery, and 2) halibut abundance in Area 4CDE.

C-5 HALIBUT ABUNDANCE-BASED PSC LIMITS

The SSC Recommends

The EBS Shelf trawl index in biomass is the best index for representing halibut encountered by the groundfish fishery. The SSC notes, however, that there are several reasons why observed bycatch (or even encounter rates) may not correlate to abundance due to halibut avoidance activities by the groundfish fleet.

Although the workgroup recommends that numbers, as opposed to biomass, should be used to represent this component of the population, the SSC disagrees since PSC is measured in biomass, not numbers.

C-5 HALIBUT ABUNDANCE-BASED PSC LIMITS

The SSC Recommends

Given the high correlations between the IPHC estimate of halibut spawning biomass, the coastwide setline survey biomass, and the Area 4CDE setline survey biomass, either of the survey indices would be adequate for representing halibut encountered by the directed fishery in the Bering Sea.

C-5 HALIBUT ABUNDANCE-BASED PSC LIMITS

The SSC Recommends

To date, there is no evidence that a good index exists for representing halibut recruitment. Therefore, all U12, AI, and GOA indices should not be considered in the initial development of ABM alternatives. If AI and GOA indices are included in ABM alternatives, a Random Effects model should be used to interpolate for years with missing observations.

C-5 HALIBUT ABUNDANCE-BASED PSC LIMITS

The SSC Recommends

The coastwide halibut stock status may not be appropriate for inclusion in an index for halibut abundance; however, it could be useful as a trigger or switch in the control rule to reduce PSC limits when coastwide stock status is low. The SSC notes, however, that the coastwide stock status depends on IPHC's harvest control rule, which is currently under evaluation.

The measurable objectives and performance metrics will ultimately need to be consistent with the ABM alternatives and the overall objectives of the Council. The workgroup should continue to solicit feedback from stakeholders on potential measurable objectives, particularly once the Council has settled on a set of initial ABM alternatives.

C-5 HALIBUT ABUNDANCE-BASED PSC LIMITS

The SSC Recommends

The starting point (Element 5) is fundamental to any control rule, regardless of whether it is a sloping control rule or not. It will be important at the October meeting for the Council to select a range of starting values for consideration so that the workgroup can move forward with developing a set of reasonable ABM alternatives.

If the Council does not have guidance on the range of starting values, the values listed in the current document (i.e., Element 4, Options 1-3) will likely be used to create ABM alternatives. If these values are not within the Council's preferred range, then this could significantly delay the Council process.

C-5 HALIBUT ABUNDANCE-BASED PSC LIMITS

SSC Recommends

Although adult or yield equivalents are appealing concepts for understanding how one ton of bycatch is equivalent to some fraction of directed halibut catch, including it in further investigations is challenging because the equivalency depends on the allocation among fisheries, selectivity, discard mortality rate, overall fishing rate, and biology. **The workgroup should instead use the "fishery footprint" calculation proposed in the December 2015 discussion paper.**

C-7 BSAI CRAB PLAN TEAM REPORT

SSC Recommends

Model Numbering Guidelines

Data Weighting

Years to Include in Reference Point Calculations

GMACS: a substantial amount of progress has been made toward applying this modelling platform to BBRKC, but that further work is needed.

Current BBRKC Stock Assessment Model, Snow and Tanner Crabs

C-7 BSAI CRAB PLAN TEAM REPORT

PIGKC

Given ongoing concerns about the random effects model, the author and CPT recommended retaining PIGKC in Tier 5 and using the status quo procedures to calculate OFL with a 25% buffer for ABC, which is used for other Tier 5 stocks with similar levels of concern. The SSC agrees with this recommendation. In 2016, no vessels participated in this fishery and there was no reported bycatch in other fisheries. Thus, overfishing did not occur in 2016.

C-7 BSAI CRAB PLAN TEAM REPORT

WAIGKC

The author and CPT recommended calculation of OFL under Tier 5 using status quo methods. Given the depressed stock status and the lack of need to accommodate additional surveys, this year the CPT recommended increasing the buffer for ABC calculation to 75%, as had been used before accommodation was made for a test fishery. The SSC endorses these OFL and ABC recommendations. Overfishing did not occur during 2015/16 because the estimated total catch did not exceed the Tier 5 OFL.

C-7 BSAI CRAB PLAN TEAM REPORT

AIGKC

In summary, the SSC supports the CPT's recommendation to base the $B_{MSYproxy}$ for the Tier 3 harvest control rule on the average recruitment from 1987-2012, years for which recruitment is relatively precisely estimated. For ABC determination, the SSC recommends a 25% buffer (consistent with the assessment authors) rather than the 20% buffer recommended by the CPT.

C-8 RESEARCH PRIORITIES

Jim Armstrong (NPFMC) presented the Council's current research priorities and definitions and the SSC received a white paper and a presentation from Dr. Matt Baker describing the North Pacific Research Board's (NPRB) efforts to address the NPFMC's research priorities.

The SSC recommends forming a small workgroup composed of members of the Plan Teams, SSC, NPFMC, and NPRB, plus database developers, to try to align the tracking of NPFMC's research priorities and NPRB-funded research.

The NPFMC might consider holding a workshop in association with the NPFMC meeting in February 2018 to allow input from the broader research community.

C-8 RESEARCH PRIORITIES

The SSC appreciates the careful review of research priorities by the Plan Teams. While we did not always agree, we carefully considered their input. The SSC also thanks the database developers. The improvements to the functionality of the database are most appreciated.

C-8 RESEARCH PRIORITIES

Review existing/new research priorities

Recommend priorities to Council

The SSC reviewed the NPFMC's current terms and definitions document. To heighten the distinction between "Critical Ongoing Monitoring" (COM.) and "Important", the SSC recommends that the phrase "or work that could continue indefinitely" is deleted from the definition of "Important".

CATEGORIES / DEFINITIONS

CRITICAL ONGOING MONITORING: Information provided by monitoring activities in this category (1) provide an essential management function; (2) cannot likely be acquired through other means; or (3) are required by regulation. **This is monitoring essential to maintaining our compliance with federal requirements,** including National Standards, or necessary for the ongoing management of the fishery. Postponement would have a significant and immediate impact on management.

URGENT: Research that is essential for compliance with federal requirements, including National Standards, or that has been identified by management as necessary to aid decision-making. It is expected that **a one or two year project would meet the information need. Postponement would have a significant impact on management.**

REVISED CATEGORIES / DEFINITIONS

IMPORTANT (Near Term): Obtaining a new set of data or research result that is **likely to aid in the evaluation of a near term or ongoing management goal.** The research might involve ~~be~~ a several year ~~time-limited~~ program ~~or work that could continue indefinitely~~. Postponement will not have an immediate impact on fishery management; however, the information generated will likely inform near term (e.g., <5 year) Council actions.

STRATEGIC (Future Needs): Research that is valuable but is not associated with an immediate need or near-term (e.g., <5years) Council action.

C-8 RESEARCH PRIORITIES

The SSC reviewed all cases where the SSC disagreed with the Council. In some cases the SSC adopted the Council's proposed categorization; in others they maintained their original category.

In a few cases, the SSC recommended changing the text (e.g., 533 and 556) or splitting the research description to better conform to the definitions.

Of the five new research priorities suggested by the Plan Teams, the SSC accepted 571 and 592.

We recommended merging 591 with 367; 593 with 150; and 594 with 212. The SSC also recommended several new projects. Recommended changes to the text or ranking of research priorities are provided in the edited spreadsheet.