North Pacific Fishery Management Council

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DATE: 3/23/09

SCIENTIFIC AND STATISTICAL COMMITTEE
to the
NORTH PACIFIC FISHERY MANAGEMENT COUNCIL
February 2-4, 2009

The SSC met during February 2-4, 2009 at the Renaissance Hotel, Seattle, Washington. Members present were:

Pat Livingston, Chair
NOAA Fisheries—AFSC
Robert Clark
Alaska Department of Fish and Game
Kathy Kuletz
US Fish and Wildlife Service
Lew Queirolo
NMFS—Alaska Region
Ray Webster
International Pacific Halibut Commission
Keith Criddle, Vice Chair
University of Alaska Fairbanks
Anne Hollowed
NOAA Fisheries—AFSC
Seth Macinko
University of Rhode Island
Terry Quinn II
University of Alaska Fairbanks
Doug Woodby
Alaska Department of Fish and Game
Troy Buell
Oregon Department of Fish and Wildlife
George Hunt
University of Washington
Franz Mueter
University of Alaska Fairbanks
Farron Wallace
Washington Dept of Fish and Wildlife

Members absent were:

Sue Hills
University of Alaska Fairbanks
Gordon Kruse
University of Alaska Fairbanks

C-2 Arctic FMP

Bill Wilson (NPFMC) presented a report on the Arctic Fishery Management Plan and the accompanying EA/RIR/IRFA, which is scheduled for Final Action at this meeting. Supporting presentations were received from Libby Logerwell (AFSC) on the 2008 Alaska Fisheries Science Center trawl survey in the Beaufort Sea, Olav Ormseth (AFSC) on the data sources that were used in developing the Arctic FMP, Grant Thompson (AFSC) on Option 1, Martin Dorn (AFSC) on Option 2, and Melanie Brown (NMFS-AKR) on Option 3. Clayton Jernigan (NOAA GC) reported that options 1 and 3 appear to be legal under the MSA but that there are reservations about option 2. Public testimony was received from Chris Krenz and Mike Levine (Oceana), Charles Lean (self), and Arni Thomson (Alaska Crab Coalition).

The SSC reviewed and commented on the Arctic FMP in October and December 2008, and recommended the release of the EA/RIR/IRFA in December 2008, subject to a number of changes. The SSC appreciates the responsiveness of staff to all of our suggestions and the clear documentation of where changes were made.

The SSC previously commented on the alternatives in December 2008. We continue to believe that specifically exempting a potential commercial fishery from the FMP would set a poor precedent for future actions and is inconsistent with the intent of this FMP. We re-iterate our comments from December:

> *"The SSC notes that the proposed handling of the Kotzebue Sound red king crab fishery in Alternatives 3 and 4 is inconsistent with the FMP's objectives for protection of the sensitive marine environment and prevention of unregulated fishing, and the careful listing of requirements for opening a new commercial fishery. In addition, the selection of the 1000 lbs. cap is arbitrary and without a scientific basis. Although, strictly speaking, it is not a new fishery, very few data exist on the fishery or stock size and these are of poor quality and insufficient to establish the level of past fishery catches. On the other hand, other crab fisheries outside the Arctic have been similarly deferred to State management (e.g., hair crabs) and do not require all of the data listed in the Arctic FMP for new fisheries. The SSC notes that a subsistence harvest of that magnitude would be allowed and would still allow for cash exchange at some level."*

Under Alternatives 2 through 4, one of three options would be chosen to determine appropriate conservation and management measures. These options are summarized in Table 2-2 (p. 44) of the EA. Briefly, Option 1 identifies three target species (Arctic cod, saffron cod, snow crab) that have some non-negligible probability of developing a significant commercial fishery in the foreseeable future. The option contains a formula for setting MSY, specifies MSY for each of the target species, then goes on to make a reasonable case for reducing OY to only allow a *de minimis* catch to cover bycatch in subsistence fisheries. Option 2 establishes 4 categories of FMP species, but places all species in the Ecosystem Component category at this time. This option includes a framework for moving species from the Ecosystem Component category to the target species category. Because no fishery is identified under this option, MSY and OY specifications are not necessary, but would be developed when a species is moved to the target species category. Option 2 further prescribes a tier system for groundfish and crab similar to the framework in the current groundfish and crab FMPs. Because of previous concerns over option 2, which would set up a management framework without a fishery to manage, option 3 was developed as a blend of elements from the other options. Like option 1, it uses an algorithm to define the same 3 target species, but also establishes an Ecosystem Component category. Option 3 also includes a process for moving species from the Ecosystem Component category into the target species category. In addition, the tier system is prescribed as that discussed under option 2. There are additional differences in the specification of status determination criteria and of target and limit reference points under options 1 and 3. While option 1 outlines an approach to specifying MFMT, MSST, OFL, ACL, ABC, and ACT based on the revised NS1 guidelines, option 3 follows the current groundfish FMP for specifying OFL, ABC, and TAC.

The SSC recommends option 3 for the following reasons:

1. Among the three options, the SSC finds option 3 to be most fully developed, in terms of a framework for implementation, should a target fishery develop in the Arctic Management Area.
2. The SSC previously questioned whether it was sensible and legal to develop an FMP without specifying a fishery to manage, as under option 2. There are still lingering concerns over its legality, thus, only options 1 and 3 provide a clear framework for identifying species that have the potential to become target species in the foreseeable future.
3. Unlike option 1, option 3 includes an Ecosystem Component category, which provides the Council with the ability to prohibit unregulated fishing on FMP species listed in either the target or Ecosystem Component categories. It is our understanding that option 1 would essentially imply status quo management for species not specifically included as a target species. Therefore, option 3 takes a more pro-active approach that is consistent with the Council's intent to prevent unregulated fishing and promote ecosystem monitoring. We note that determining the likelihood of a fishery developing on any given species is highly speculative. While the three species identified under

option 1 appear to be the only realistic candidates for a target fishery, based on our current knowledge of fish populations in the Arctic and of current market conditions, there is a non-negligible probability that these populations and conditions may change in unforeseen ways and that fisheries may develop for other target species.

4. The tier system for groundfish and crab that is included under option 3 provides a well-established framework for status determination and for specifying reference points for any future fisheries.

Although the SSC approved the EA/RIR/IRFA in December 2008 with a number of requested changes, we noted a number of inconsistencies between the Draft FMP and the corresponding sections in the EA/RIR/IRFA. The analysts should carefully check both documents for consistency. Specifically, the description of the options in Table 2-2 and in the text should be clarified to accurately reflect the essential differences between options. For example, the description of OY under option 3 should include the same text regarding *de minimis* catch, as under option 1. The description of ACL specification under option 1 is inconsistent with the text in section 4.7.2.5. Table 4-10 in the EA states that the ecosystem component species for option 3 were taken from section 4.7.3.1. This section identifies a number of Ecosystem Component species in Table 4-5, while Table 4-11 under option 3 in the EA and the corresponding table in the draft FMP (Table 3.4) contain a much broader definition of Ecosystem Component species that would be included under this option. We note that restricting the list of species to those in Table 4-5 would be more consistent with the existing groundfish and crab FMP, which were used as a basis for many other elements of option 3. The FMP text should also clarify that, if the FMP is amended to allow a target fishery, the dynamic pool estimates of B_{msy} and F_{msy} used to evaluate the initial viability of a proposed fishery (as described in option 1) may not be recommended by the SSC when selecting an appropriate tier for estimating ABC and OFL.

Finally, we recommend that a clear statement be included in the FMP regarding the development of an initial Arctic SAFE document. The SSC recommends that an initial SAFE be developed once a comprehensive survey of the Chukchi and Beaufort Sea regions has been completed or when sufficient smaller-scale surveys have been completed to provide a comprehensive picture of contemporary fish populations in these areas.

C-3 Salmon Bycatch

Diana Stram (NPFMC) provided a review of the timetable for analysis and decision-making for the proposed FMP amendment to reduce salmon bycatch. The draft EIS/RIR/IRFA specifies four alternatives: Alternative 1—Status Quo; Alternative 2—Hard Cap; Alternative 3—Triggered Closures; and, Alternative 4—the Preliminary Preferred Alternative (PPA). At this meeting, the SSC was asked to review and comment on two inter-cooperative agreement (ICA) strategies that are asserted to reduce salmon bycatch in a manner that is consistent with requirements of the PPA[1]. John Gruver (United Catcher Boats) and Hao Ye (Scripps Institute of Oceanography) described the "Legacy" (a.k.a., Individual Transferable Encounter Credit—ITEC) strategy. Stephanie Madsen (APA) and Ed Richardson (APA) described the "Financial Incentive Program (FIP)" (a.k.a., Undercatch Incentive Program—UIP) strategy. Joe Plesha (Trident) provided an overview of initial analyses and reviews of the "FIP" strategy. Sally Bibb (NMFS-AKR) responded to SSC questions about the draft EIS/RIR/IRFA. Public testimony was provided by Julie Raymond-Yakoubian (Kawerak Inc. and on behalf of the Stebbins Traditional Council), Michael Sloan (Kawerak Inc.), Paul Peyton (Bristol Bay Economic Development Corporation), Becca Robbins-Gisclair (Yukon River Drainage Fisheries Association), and Jon Warrenchuk (Oceana).

[1] The PPA specifies a lower cap of 47,591 Chinook, but allows for a cap of 68,392 Chinook, if the AFA-qualified entities can devise an inter-cooperative agreement that can be expected to achieve certain performance criteria that include incentives to avoid bycatch under all levels of pollock and salmon abundance.

The SSC commends the industry groups that developed the FIP and Legacy strategies, evaluations, and background documentation; these are interesting proposals that appear to conform with ICA requirements specified in the PPA. However, these strategies are works in progress that can be expected to continue to evolve significantly between now and when they are presented to the Council in April and could continue to change even after final action by the Council. The fluid nature of the ICA strategies precluded the SSC from evaluating the efficacy of the proposals relative to one another, and in relation to the lower hard cap in the PPA. The lack of clearly defined proposals also makes it difficult for the public to evaluate the merits of the PPA relative to the alternatives. Specifically, the SSC is concerned that the draft EIS/RIR/IRFA does not describe the alternative ICA strategies, the likelihood that they will be efficacious or the likely magnitude and distribution of associated social and economic impacts. The social and economic impacts of salmon bycatch measures will depend on the magnitude of the hard cap **and** on the means used to stay within the hard cap. For example, strategies with mid-year modification to the bycatch allowances could disadvantage companies that have organized their operational plans around a late B-season fishery. **If the Council wishes to move forward with consideration of the PPA, instead of one of the other alternatives, the SSC recommends that the alternative ICA strategies be formally defined and clearly articulated and that their efficacy, efficiency, and distributional impacts be evaluated and characterized in a revised draft EIS/RIR/IRFA to be released for public comment.**

If the Council chooses to pursue the PPA, a revised draft EIS/RIR/IRFA should clearly describe the extent to which the effectiveness of the alternative ICA strategies can be monitored and enforced, the likely amount of bycatch that will occur under a variety of different levels of pollock and Chinook abundance, and the magnitude and distribution of impacts on pollock and salmon dependent firms, and upon communities and CDQ entities. It is not clear to the SSC how ICA's will be treated (i.e., monitored, correctly attributed) when CDQ hauls are interspersed with commercial hauls, particularly if one or the other entity exercises the action's provision to "opt-out" of the ICA. Bycatch strategy and accounting among all sectors needs to be clearly and more fully specified, because these influence the overall bycatch accounting and performance of the ICA. The revised draft EIS/RIR/IRFA should also include a discussion of alternative ICA strategies not evaluated, such as, individual bycatch quotas, cap-and-trade programs with permanent transfers, cash-based cap-and-trade programs with a broad range of opportunities for interested parties to bid for bycatch allowances, full or partial allocation of transferable bycatch allowances to terminal users[2], and bycatch auctions[3]. The presentation of these alternative strategies does not need to be detailed, but should include a brief explanation for why they are less suitable than the strategies that are being considered.

If the Council selects the PPA, annual ICA reports should be structured to provide data that will allow independent assessment of performance with respect to the ICA requirements specified in the PPA.

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[2] For example, allocate 47,591 Chinook to AFA-qualified vessels or firms and 20,801 Chinook to ANCSA Regional Corporations or the State of Alaska (as trustee for terminal users) and allow annual or permanent transfers for cash or ownership interests.

[3] For example, provide a base allocation is 47,591 Chinook to AFA-qualified vessels or firms and allow any interested party to bid for an additional 20,801 Chinook. The auction could be structured to generate revenue or it could be structured as a zero-revenue auction. See for example,

Hausker, K. 1990. Coping with the cap: How auctions can help the allowance market work. *Public Utilities Fortnightly* 125:28-34.

Hausker, K. 1992. The politics and economics of auction design in the market for sulfur dioxide pollution. *Journal of Policy Analysis and Management* 11(4):553-572.

NRC. 1999. *Sharing the Fish: Toward a National Policy on Individual Fishing Quotas*, National Research Council, National Academy Press. Washington DC. (Box 5.1, page 112.)

C-4 Amendment 80 Cooperative Formation Criteria

The SSC received a presentation of the initial review draft RIR/EA/IRFA from Glenn Merrill (NMFS). Public testimony was received from Mike Szymanski (Fishing Company of Alaska).

The SSC recommends releasing the draft analysis for public review. The proposed action would relax the qualifying criteria for forming a cooperative under Amendment 80. The SSC cautions that the analysis may overstate the ability of a cooperative structure to induce behavior that will result in lower bycatch on the part of all members of a cooperative, especially as the minimum number of vessels required to form a cooperative is decreased. Indeed, as the minimum number of vessels required to form a cooperative is reduced, there is reduced peer pressure to constrain bycatch.

The analysis hints at potential contradictions between the proposed action and the Council's problem statement. For example, it is possible that some of the optional configurations for co-op formation may result in a relative disadvantage to smaller firms, which would, in effect, compound the ostensible problem being addressed. Similarly, the potential changes envisioned make real the possibility of a "one member" co-op that would not be fully consistent with the Council's purpose and need statement in the original Amendment 80 cooperative formation provisions. The draft analysis would benefit from a review of alternative cooperative formation criteria (e.g., AFA, Crab Rationalization) that may be less onerous than those described in the draft.

C-5 BSAI Fixed Gear

The SSC received a presentation of an initial draft RIR/EA/IRFA on this proposed action from Jeannie Heltzel (NPFMC). The SSC did not receive public testimony on this agenda item.

The SSC recommends release of the RIR/EA/IRFA for public review, with the expectation that some of the readily correctable deficiencies, highlighted below, would be addressed, to the extent practicable, before release. The SSC finds that the RIR reasonably describes the Purpose and Need identified by the Council, provides sufficient background to understand the context within which the action is proposed, and treats the economic tradeoffs which may reasonably be anticipated to accrue from among the competing alternatives.

The IRFA is incomplete, but this is to be expected at this stage of development. It will be necessary to substantially revise and extend the RFAA upon the Council's selection of a Preferred Alternative.

The Environmental Assessment needs to be more fully developed, as it does not adequately address protected species in the AI, other than the Steller sea lion. The EA notes that under all alternatives, fishing will still be restricted to areas outside the Steller sea lion protection areas. While this reduces disturbance to sea lions, it may not speak to potential effects on prey availability throughout the region, particularly for other predators. In the RIR (p. 16), the authors note that splitting the TAC for Pacific cod in the BSAI has the potential for impacting Steller sea lions, but a more definitive analysis will require review of the new Biological Opinion; this appears to acknowledge a potential effect on upper trophic level predators in the AI.

Sensitive species in the AI region include, among others, the short-tailed albatross and the sea otter, a species for which the U.S. Fish and Wildlife Service will be defining critical habitat. The region supports millions of breeding seabirds and high densities of non-breeding birds, such as albatrosses and shearwaters. Under Alternative 1 (status quo), there is potential for the proportion of the BSAI Pacific cod TAC harvested in the AI to increase, due to increased participation in the parallel waters fishery. In terms

of prey availability for protected species, it is therefore not clear how Alternative 1 is equal to the other alternatives.

The EA did not identify any significant individual effects, but the combination of individual effects may be greater than their separate effects. Would greater removal of Pacific cod affect other forage fish on which mammals or birds depend? At the very least, the alternatives beyond the status quo should result in enhanced catch reporting, which could improve ecosystem management. The SSC recommends that the authors provide a more complete summary of potential ecosystem effects.

C-6(b) GOA Pacific Cod Sideboards for Crab Vessels

The SSC received a presentation of the initial review draft RIR/IRFA from Jon McCracken (NPFMC). There was no public testimony.

The SSC recommends that the draft analysis be released for public review after minor edits. The SSC calls the Council's attention to the discussion in the draft analysis regarding the interplay between the proposed action and several other pending and newly implemented Council actions. The SSC believes it will be impossible to fully consider the effects of the proposed action without knowing the outcome of these other actions. The SSC also notes that the selection of "thresholds" presented in the analysis (i.e., points that would trigger the contemplated exemptions) is purely subjective on the part of the analyst and should be regarded as "for illustrative purposes" only.

C-7(a) BSAI Crab Regional Delivery Relief

The SSC received a presentation of the initial RIR/EA/IRFA pertaining to the Emergency Exemption from Regional Landing Requirement, from Mark Fina (NPFMC). Public comment was received from Heather McCarty (CBSFA and St. George), Steve Minor (North Pacific Crab Assoc.), and Arni Thomson (Alaska Crab Coalition).

The SSC recommends releasing the draft analysis for public review after completing the missing sections of the EA. The analytical presentation in the RIR is well designed and conveys the important economic and operational implications associated with the suite of alternatives and options. The SSC commented on the numerous subsections, particularly in the draft EA, that were incomplete. We were given assurance these would be completed prior to release for public review. Likewise, the draft IRFA is insufficient and clearly requires substantial additional work. However, until the Council identifies its preferred alternative for this action, the SSC acknowledges that the IRFA cannot be completed.

C-7(b-d) Misc Crab Reports

The SSC received an informational update from Mark Fina (NPFMC) on a range of crab related issues. There was no public testimony. The SSC expressed its appreciation for the update, but had no other comments.

D-1(b) Halibut Catch Sharing Plan Discussion Papers

Jane DiCosimo (NPFMC), Jonathan King (Northern Economics), and Scott Meyer (ADF&G) presented a pair of discussion papers on estimation and projection problems related to implementation of the halibut catch sharing plan. Public testimony was provided by Tory O'Connell (Halibut Coalition).

(i) Maximum Size Limit Analysis

The main issue here is the difficulty in predicting the average weight of halibut caught under different bag limits and/or maximum size limits. In Method A, the analyst assumed no change in average weight to calculate the charter harvest. This would tend to underestimate harvest if highgrading occurs. The document provides some evidence that this might occur when a maximum size limit is put in place. In Method B, the analyst assumed that all guided anglers would highgrade to the largest permissible size halibut. This assumption would overestimate harvest, because not all anglers would be able to do so. Thus, the range of values presented in the tables, in effect, brackets the worst and best anticipated cases. However, as explained in part (ii) below, there are myriad other factors that could also affect average weight (and number of fish harvested), so it should be expected that large deviations from the desired charter harvest will occur. This is not surprising: It is well known in recreational fisheries management that the suite of management measures used (e.g., size limits, bag limits, seasons, closed areas) constitute an imperfect and inaccurate instrument to attain a specific harvest limit. To achieve high levels of accuracy in attaining harvest levels, the Council would have to move to (1) an in-season management approach with closure of the charter industry when the harvest limit is surpassed, or (2) an individual-vessel allocation system.

The decision about which maximum size limit (Lmax) to use (between the limits of Methods A or B) is essentially a policy call. Method A (with an estimated Lmax of about 38 to 40 inches) would be expected to produce the largest overage in harvest, the least impact on the charter industry, but the most impact on the resource. (Because the overage is not subtracted from the CEY in this new plan, the overage is essentially deducted from the resource itself.) In contrast, method B (with an estimated Lmax of about 30 inches) would be expected to restrict harvest to less than desired catch levels, creating an undesirable economic loss to the charter industry and a loss of opportunity to interested anglers. The Council may wish to choose an intermediate value, between these two methods, as a first step in an iterative process. The Council may also wish to install a buffer between the default charter harvest limit and the one actually recommended, to account for uncertainty. It may be useful to present projections for the maximum size limit that would result from buffers of 5% to 25 %, for example.

The SSC believes that the choice of maximum size limit should be an iterative process for a few years. There is, and will continue to be, insufficient information to accurately predict fishing behavior until regulations have stabilized and additional studies have been completed, so that the process must be adaptive to new information and conditions. The SSC also suggests that the analyst compare average weight in two successive years, one in which a maximum size limit was not in place and the next in which it was. In conjunction with the halibut stock assessment information (such as size selectivity) and other studies, it might be possible to obtain a preliminary estimate of how much high-grading may occur with a maximum size limit.

(ii) ADFG Charter Halibut Harvest Projection Methodology

Projecting charter halibut harvests is difficult, because it requires predictions or assumptions about how the consumer demand for charter trips will change through time, predictions or assumptions about how people will respond to regulatory change, as well as changes in the abundance, distribution, and size composition of halibut stocks. The limited time series data available for use in estimation severely constrains model complexity. The discussion paper effectively describes these limitations and how they affect forecast accuracy. It also describes asymmetries in risk and the distribution of risk that arises from under- and over-estimating catch. **The forecast methods used in the discussion paper are suitable,**

given current data limitations. While the resulting forecasts have had large errors, errors of this magnitude are not surprising given the uncertainties in the data, variability in the processes affecting the halibut stock and its fisheries, and the shortness of the time series. **Consequently, the SSC believes that the magnitude and range of uncertainties will prevent the forecast accuracy to be anywhere near the plus or minus 3.5% allowed in the charter range allocation of the preferred alternative.**

While the SSC believes that the current projections are appropriate, given current information, there are some avenues of research that warrant further investigation. A contingent behavior model estimated on survey data might provide improved estimates of changes in the demand for charter trips. Incorporating halibut stock dynamics into the projection model could provide improved estimates of catch rates and sizes. Logbook data that are currently being collected should provide the most promising source of timely estimates of current year catch that will be useful for updating catch projections. **The SSC recommends that data from logbooks be brought into the catch projection methodology, as soon as they can be properly validated.**

D-2(a) Comprehensive Data Collection

Mark Fina (NPFMC) provided an update on progress towards development of a comprehensive program for collecting economic data. The SSC was encouraged to learn that the committee has issued specific assignments to its members. The committee also plans more frequent meetings, employing conference calls and video conferencing opportunities. Regrettably, the presentation did not include examples of the data collection tables or summaries of the data that have been collected and organized. The intent of the Comprehensive Data Collection program is to provide information that is essential to improving the rigor of analyses of the likely social and economic consequences of proposed management actions. The SSC requests a more detailed presentation for the April or June meeting. There was no public testimony.

D-2(b) Halibut PSC Discard EFP

The SSC received a presentation by Todd Loomis and Gary Stauffer (North Pacific Fisheries Foundation) describing proposed research to estimate halibut discard mortality in bottom trawl fisheries targeting flatfish in the Bering Sea. The proposed research requires an Experimental Fishing Permit (EFP), because it entails holding 100 halibut, without immediate release, during a commercial flatfish fishery. Public testimony was presented by Bob Alverson and Jack Knutsen (Fishing Vessels Owners Association), and by Gregg Williams (IPHC).

The EFP proposal is to develop a reflex action mortality predictor (RAMP) curve for predicting delayed mortality of halibut during a 3 day holding period onboard a catcher-processor trawl vessel conducting commercial flatfish fishing operations. The experiment will not result in additional target or non-target mortality; all halibut captured in this experiment will be released or discarded. Also, all discards will be evaluated under current IPHC protocol for estimating discard mortality and counted against the sector PSC. The proposers have worked with scientists from the Fisheries Behavioral Ecology Program of the AFSC lab in Newport, Oregon, the IPHC, and the observer program of the AFSC in Seattle, Washington. The SSC notes, as explained in a January 23, 2009 letter to the Council from the IPHC, that the estimates of mortality rates are likely to be downwardly biased, because the research does not attempt to estimate long-term mortality rates, which would include mortality occurring after discard regardless of the holding period. Nevertheless, the **SSC recommends approval of the EFP** with the understanding that this particular research project is not designed to estimate discard mortality rates that will supersede those of the IPHC. Instead, the SSC understands that the proposed research may allow development of a RAMP curve under field conditions that can be compared to a RAMP curve previously developed in a laboratory setting. The proposed research may also allow future experimental efforts using a RAMP curve and reflex

observations to identify factors onboard fishing vessels that can be modified to improve survival rates. If the EFP proposal is approved and the study moves forward, the SSC also looks forward to seeing published results of this work.

D-2(d) Bering Sea Bottom Trawl Sweeps

The SSC received a presentation from Diana Evans (NPFMC) and Craig Rose (NMFS-AFSC). A discussion paper (Item D-2(d)(1)) was provided. Jon Warrenchuk (Oceana) provided public testimony.

The SSC received a discussion paper on proposed changes to the Bering Sea habitat conservation measures. The paper addresses a proposal that would allow non-pelagic trawling in a roughly triangular-shaped area west of St Matthew (often referred to as the "wedge"). Although this area was closed to non-pelagic trawl fishing as part of the Northern Bering Sea Research Area (NBSRA) under BSAI Amendment 89, the Council indicated that this area may be re-opened, if the FMP is amended to require gear modifications for non-pelagic (flatfish) fisheries. The discussion paper includes new information that supplements previous work on the efficacy of gear modifications as a technique for mitigating trawl impacts on the benthic species (e.g., sea pens and crab). The SSC notes that the proposed amendment will be presented to the SSC for initial review at the April 2009 meeting. Therefore, the SSC limited their comments to issues concerning the gear modification experiments.

The SSC noted that the information provided in the discussion paper summarized the methods and results of NMFS experiments. **The SSC requests an opportunity to review the manuscripts documenting the gear modification experiments as they become available.** Given that manuscripts are still under development, the SSC requests inclusion of the following information in the amendment package:

1. A comparison of flatfish target species CPUE, size selectivity, and sex ratio for trawls conducted using conventional and modified sweeps.
2. Statistical comparisons between the control, conventional sweep, and modified sweep, with p-values reported for experiments on sea whips and crab mortality.
3. Sample sizes for all experiments.
4. To the extent possible, mortality estimates for crab should be extended to assess impacts by size and sex.
5. Potential impacts on other benthic species, such as scallops and sponges.
6. Statistical tests of day, month, and year effects within the control, modified sweep, and conventional sweep experiments.

The SSC encourages continued research on the trawl sweep modifications, especially increasing geographic coverage to other regions of the northern Bering Sea.

If the Council selects option 2, the SSC notes that species other than flatfish could be targeted in the wedge area. **If option 2 is selected, then experiments on the implications of trawl modifications on Pacific cod CPUE, size selectivity, and sex ratio may be needed.**

OTHER MISCELLANEOUS ISSUES:

BSIERP- MSE Presentation

Jim Ianelli (NMFS-AFSC) briefed the SSC on a project being done under the North Pacific Research Board's Bering Sea Integrated Research Project (NPRB's BSIERP) to perform a management strategy evaluation for the Bering Sea groundfish fisheries. The purpose of this presentation was to give an

overview of the project, so that the SSC will have early, continual, and meaningful input into this project. This project seeks to integrate results from other components of BSIERP to show how changes in these components (e.g., oceanography, plankton, lower trophic levels) could affect commercial fish populations and upper trophic levels. As this project is just getting started, the SSC asked several questions and had some general suggestions, but no major recommendations at this point. The SSC looks forward to receiving updates, and will be pleased to provide future input.

SSC Stock Structure Workshop

In recent years, the SSC has been presented a number of stock delineation issues that have brought into question the ABC/OFL setting process for several species. In an effort to assist the SSC in reviewing future actions on these topics, a workshop related to delineating stock structure relative to fishery management options was held.

Presenters included Paul Spencer (AFSC), Andre Punt (UW SAFS), Robin Waples (NWFSC), Lorenz Hauser (UW SAFS), Michael Canino (AFSC), Katie Palof (UAF), Tony Gharrett (UAF), Lisa Seeb (UW SAFS), and Jason Cope (NWFSC). The SSC is grateful to all of the presenters for their work and high quality presentations. Presentations reviewed some of the latest research and ideas on stock delineation based on a diverse set of approaches. The workshop provided a good overview of new and recent advances in methods and techniques, as well as application across a broad group of species. Presenters noted that there are several different definitions of what constitutes a "stock." In the case of fisheries management, selection of the appropriate definition of stock may depend on the objectives defined by managers. In cases where the objective is to evaluate the potential impact of fishing on genetic diversity and persistence, it appears that simulation modeling may be needed.

The SSC recommends the formation of a scientific workgroup comprised of SSC and Plan team members to further explore ways to improve our understanding of our current hypotheses on stock structure for GOA and BSAI species and how well these fit into our current management structure in the North Pacific. We hope that this will enhance our ability and understanding of how to more fully integrate genetic considerations into fishery management.

Election of SSC Officers

Pat Livingston was re-elected to chair the SSC. Keith Criddle was re-elected as vice-chair.

Plan Team Recommendations

The SSC recommended approval of Mr. Ryan Burt and Mr. Rich Gustafson as members of the Scallop Plan Team.

SSC Policy on Public Testimony

SSC policies on public testimony were reviewed and revised to read:

The usual practice is for the SSC to call for public comment immediately following the staff presentation on each agenda item. The Committee will discourage testimony that does not directly address the scientific and technical issues of concern to the SSC. **Presentations lasting more than five minutes will require prior approval from the Chair.**