

North Pacific Fishery Management Council

Dan Hull, Chairman
Chris Oliver, Executive Director

Telephone (907) 271-2809



605 W. 4th Avenue, Suite 306
Anchorage, AK 99501-2252

Fax (907) 271-2817

Visit our website: <http://www.npfmc.org>

Certified: Ken Burdick
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FINAL REPORT
SCIENTIFIC AND STATISTICAL COMMITTEE
to the
NORTH PACIFIC FISHERY MANAGEMENT COUNCIL
April 6th – 8th, 2015

The SSC met from April 6th through 8th at the Hilton Hotel, Anchorage, AK.

Members present were:

Farron Wallace, Chair
NOAA Fisheries—AFSC

Chris Anderson
University of Washington

George Hunt
University of Washington

Matt Reimer
University of Alaska Anchorage

Robert Clark, Vice Chair
Alaska Department of Fish and Game

Brad Harris
Alaska Pacific University

Steve Martell
Intl. Pacific Halibut Commission

Milo Adkison
University of Alaska Fairbanks

Anne Hollowed
NOAA Fisheries—AFSC

Terry Quinn
University of Alaska Fairbanks

Members absent were:

Jennifer Burns
University of Alaska Anchorage

Seth Macinko
University of Rhode Island

Alison Dauble
Oregon Dept. of Fish and Wildlife

Lew Queirolo
NOAA Fisheries—Alaska Region

Sherri Dressel
Alaska Department of Fish and Game

Kate Reedy
Idaho State University Pocatello

B-1 Plan Team Nominations

The SSC reviewed the plan team nominations of Sarah Webster to the Scallop Plan Team and Cindy Tribuzio to the BSAI Groundfish Plan Team. The SSC finds them both to be well qualified, with appropriate expertise that will assist each of their respective plan teams. The SSC recommends that the Council approve both of these nominations.

C-2 GOA and BSAI Salmon Bycatch Genetics

Jeff Guyon (NMFS-AFSC) presented four NOAA Technical Memoranda on estimating the stock composition of Chinook and chum salmon PSC in trawl fisheries in the BSAI and GOA. These reports update a developing stock contribution time series by adding data from 2013. Public testimony was provided by Julie Bonney (Alaska Groundfish Data Bank).

The reports provide estimates of the spatial and temporal (seasonal and annual) composition of salmon PSC. The SSC commends the authors on the quality of the work and the quantity of samples analyzed. The analysis was enhanced by the improved discussion of the BAYES and SPAM results, use of proportional systematic sampling, and the support of industry sample collections in the GOA. Further, we acknowledge the efforts made to achieve more efficient sample collection and processing.

The technical approach to genotyping and stock identification is sound and commensurate with the level of data. The SSC also noted that:

- The Genetics Lab continues to achieve high levels of positive genotyping (e.g. 42+ loci out of 43 Chinook SNP markers, and very low error rates for chum microsatellite analyses).
- A systematic random sampling protocol was used to assess the salmon PSC composition in the Bering Sea pollock trawl fishery.
 - o One in 10 Chinook and one in 30 chum caught were sampled for genetic information.
 - Coastal Western Alaska Chinook stocks dominated the sample set (50%) with smaller contributions from British Columbia (16%), North Alaska Peninsula (14%), and West Coast U.S. (OR/CA/WA) (7%) stocks.
 - Chum salmon PSC was dominated by stocks from Northeast Asia (45%), with smaller contributions from Southeast Asia (15%), Eastern Gulf of Alaska (GOA)/Pacific Northwest (PNW) (15%), Western Alaska (18%), Upper/Middle Yukon River (6%) and Southwest Alaska (1%) stocks.
- Partial observer coverage may limit the characterization of Chinook salmon PSC composition in the GOA Pollock trawl fishery.
 - o Until a sampling design that incorporates spatial and temporal variables is developed and implemented, questions will remain about potential biases in the stock composition. The authors attempted to address potential biases by weighting the composition by overall bycatch.
 - This was done for NMFS statistical areas 620, 630, and 640 (84% of the 2013 bycatch) resulting in a 2013 Chinook PSC dominated by fish from British Columbia (43%) and U.S. West Coast (42%), with smaller contributions from coastal Southeast Alaska (11%) and Northwest GOA (3%). No stock composition estimates were provided for statistical areas 610 or 649 due to the small sample sizes. Although there were gaps in observer coverage because of logistical constraints, the SSC considers this weighting method to be appropriate since the results do not statistically differ from the un-weighted approach.

Jeff Guyon indicated that the number of samples processed in this past year was at or above the capacity of the lab, and he is searching for ways to increase efficiency in obtaining estimates of stock composition with fewer samples while maintaining a sufficient precision. The original determinations of accuracy were based on obtaining an accuracy of 5% for the stock compositions. In practice, this has led to a goal of obtaining roughly 400 samples when estimating stock compositions. Estimates of the 95% credibility interval increase proportionally when dividing the data by 1/2, 1/4, and 1/8, as expected by statistical theory. The probability of detecting a rare event becomes more difficult when the data are stratified by area and season, and would call for additional sampling to ensure that the estimates of precision are the

same when determining the stock composition in smaller spatial or temporal strata. Ideally, the level of desired spatiotemporal precision should be specified *a priori* along with the probability of detecting a rare event for stocks that have a conservation concern. This should be used to dictate the frequency of sampling over space and time. **The SSC requests a formal evaluation and documentation of sample size determination with respect to these spatiotemporal concerns. This documentation should include a description of the sampling design and its historical evolution (similar to that described above) along with an evaluation of possible sources of bias and uncertainty not accounted for using basic sampling methodology (non-response bias, non-sampling or process errors in sampling terminology).**

The SSC has the following suggestions to the authors:

- Use the term PSC, rather than bycatch, to describe these catches of salmon. Bycatch of Pacific salmon is designated as PSC in a NPFMC groundfish management context; the SSC uses PSC in its reports to differentiate it from incidental removals and discards of other fish species (i.e., bycatch).
- We recommend a standardized format for PSC stock composition reports including sections on:
 - Sample consistency (sampling fraction),
 - Summaries of PSC totals by time and area,
 - Proportions of origin over all,
 - Proportions of origin by time and area,
 - Comparison of PSC by the finest scale of resolution possible (area of origin) against that river's total run and harvest, using the expected return year back calculations (this will be possible only for the previous years' data because we cannot forecast future harvest and run size).
- While the specific stock composition documents are useful, they ultimately are raw-data reports of stock composition in the PSC. Chum and Chinook PSC are not mutually exclusive fishery management problems and it's difficult to move between the separate documents to understand how chum vs. Chinook PSC is distributed by time x area x stock x species. An additional summary document that discusses the results in the context of management as described below would be useful.
- Coded wire tag (CWT) recoveries are a source of data for determining stock composition of PSC. Genetic PSC sampling designs could be augmented with sampling to scan for CWT recoveries (i.e., complete counts of adipose-clipped fish and a minimum 20% sample of heads from these fish) so that contributions from tagged stocks can be estimated. As described in public testimony, such a dataset is available from the GOA rockfish fishery.
- Provide plots of PSC sampling fractions.
- Exercise caution when interpreting inter-annual spatial/temporal patterns in PSC proportions as these are subject to methodology changes.
- Explicitly compare across years and species to explore whether there are consistencies in the spatial and temporal distribution of salmon in the ocean during groundfish fishing to the extent practical. Identify opportunities for areas to avoid—or lack thereof—in which case we might do better to look harder at technical solutions (e.g. excluders). Having this section front and center may also expose data gaps.

- Examine PSC data in light of regulations and fleet behavior to avoid PSC—just having this section and being able to say “we know things changed this year in the fleet, but with the way the data come in, we have no way of identifying whether the changes implemented by X segment of the fleet during Y time of the season changed PSC rates”, would be informative, exposing the potential need to implement experiments to observe the effects of management or fleet-based change to avoid PSC.

The SSC recognized that a set of PSC management objectives would provide guidance for refinement of the genetics work. For example, is the objective to reduce PSC catch on specific US stocks (e.g., Yukon, ESA-listed stock), or the US stock complex as a whole, or on a given salmon species regardless of origin? Further clarification of specific management objectives will allow the analysts to characterize the logistic constraints (sample collection, processing time, and costs) relative to specific outcomes, and allow the SSC to determine if sampling fractions are appropriate to the objectives.

C-5 Scallop SAFE and Plan Team Report

A presentation of the Scallop SAFE and Feb. 2015 Scallop Plan Team (SPT) Report was given by Quinn Smith (ADF&G, SPT Chair). He was accompanied by Jim Armstrong (NPFMC, SPT Vice-Chair). There was no public comment.

The majority of scallop GHs are based on fishery-dependent observer data. Therefore, validation of fishery-dependent CPUE as an index of local abundance is important. The SSC thought that calculating CPUE in units of shucked meats might introduce more variability than a CPUE based on the number of scallops. The SSC also noted that fluctuations in meat weights and condition might be a good area of research to identify environmental conditions in addition to its application to scallop management. **The SSC recommends that analysts review the processes that may influence fishery CPUE and compare CPUE based on shucked meats versus number of scallops per hour of dredging during the workshop planned for 2015/16.** However, we recognize that a reliable index of abundance may not be available from observer data alone.

The SPT recommended setting the 2015/16 scallop ACL equal to an ABC of 1.161 million pounds of shucked meats and OFL equal to 1.29 million pounds. The ACL is estimated using the maxABC control rule of 90% of the OFL, which includes discards. **The SSC recommends adopting the Plan Team’s OFL and ABC recommendations for 2015/2016.**

The SSC was concerned about the potential loss of fishery-independent surveys (e.g. Kamishak Bay and Kayak Island), staff positions, and expertise due to state budget problems. Although the current wholesale value of \$4.5 million dollars in the scallop fishery precludes large expenditures for monitoring and providing management advice, the SSC thought several factors should be taken into consideration in determining the appropriate level of research expenditures. The current lack of fishery-independent data has likely kept harvests well below sustainable levels. Better data would lead to more confidence in the assessments and likely increase GHs. Consequently, the loss of survey data from the Central Region will necessarily result in a more conservative approach to management of these stocks, reducing future permissible GHs in some areas.

The SSC notes that survey results from the Central Region provide a baseline to assess the quality of indices of abundance derived from observer CPUE and evidence for demographic isolation of adjacent scallop beds from the observed lack of correlation in recruitment. Because of the critical nature of this survey, the SSC suggests alternative means of continuing surveys be investigated, such as a cost-recovery model to fund fishing vessels for the survey (e.g. a research set-aside approach has been successful in the Northeast). The SSC also strongly supports further development and potential implementation of the CamSled technology as a potentially cost-efficient survey methodology.

The SSC considers continued development of the age-structured assessment approach as an urgent priority for the Council. Because of differences in growth among regions, location-specific survey data might be required to apply the model outside of the Kamishak and Kayak Island regions. There are several lines of evidence that suggest that the stock is composed of regional meta-populations including: (a) regional differences in growth rate, age composition (possibly an indicator of regional differences in recruitment or mortality), and morphology; (b) weak evidence of genetic partitioning between the Bering Sea and GOA populations; and c) age samples show uncorrelated recruitment in adjacent scallop beds.

The SSC recommends that alternative management methods suited to a metapopulation structure, such as rotating harvest among scallop beds, be considered during the planned workshop in 2015/16.

C-8 Observer coverage on small CPs

The SSC received a presentation by Ben Muse (NMFS-AKRO) of the RIR/IRFA for placing certain small catcher/processors in partial observer coverage. Public comment was provided by Andy Richards (F/V Cerulean).

The SSC acknowledges and commends the efforts of the analytical team tasked with preparing this RIR/IRFA package. The initial draft is an impressive summary of all the elements needed for the Council's consideration in this action. **The SSC recommends that the document be released for public review with minor edits as described below.**

The SSC appreciated the analysts' discussion of the potential impacts of this action on data collected by the observer program, the attempt to quantify the indirect effects of reducing the number of days available for the partial observer program, and the acknowledgement of the many uncertainties involved with this analysis. The analysts were unable to provide a quantitative assessment of all the potential benefits and costs for each option under consideration, since valuing the action's effects on the information collected by the observer program is not feasible. Instead, the document qualitatively examines the potential impacts of the action on the collection of fishery-dependent data, relative to the net benefits from reducing observer-related costs associated with full observer coverage.

The SSC recommends that the following edits be made to the document:

1. The analysts should explore using "pseudo-thresholds" (p. 73, Table 12) that lend themselves to economic interpretation, as opposed to using a rather arbitrary value of +25% of the production thresholds under consideration. In particular, it seems possible using the data already employed in the analysis to approximate the maximum value of production that a catcher processor would be willing to forgo in order to switch from full observer coverage to partial observer coverage.

Doing so will allow the analysts to comment on the likelihood of vessels changing their behavior to qualify for partial observer coverage under the considered action.

2. The use of kernel densities to determine the “High” production thresholds under the alternative action seems unnecessarily complicated and may mislead the reader to believe that the production thresholds were chosen using a formal statistical model. The analysts should downplay the use of the kernel densities in their methodology and focus instead on describing how the production thresholds were manually chosen to separate low production catcher/processors from high production catcher/processors.
3. The discussion on pages 61-64 should more clearly differentiate between partial observer costs incurred by the vessel (i.e. the assessment cost) and total cost of employing observers on partially covered vessels.
4. The document would benefit from a more comprehensive discussion of how catch will be estimated for the vessels that fall into the new partial observer coverage category. For instance, what rate of observer coverage will apply to this group? Will this group of vessels be a separate stratum?

D-1 BSAI Crab 10-year review

The SSC received a presentation from Sarah Merrinan (NPFMC), Amber Himes-Cornell (AFSC), and Brian Garber-Yonts (AFSC) on the work plan for the Crab LAPP ten-year review. Public testimony was received from Mark Gleason (Bering Sea Crabbers), and Joe Sullivan and Jake Jacobson (Intercooperative Exchange).

The proposed work plan is for a descriptive report that will summarize quantitative data where possible but not conduct extensive hypothesis testing with model-based analysis. During the five-year review, the SSC noted that “it is regrettable that the [five-year] review and appendices lack formal analysis of specific hypotheses...there is no formal modeling of the relative influence of these changes on revenues to vessels, employment, compensation to crew, the regional distribution of these impacts or net benefits to the nation.” We note that it is straightforward to conduct hypothesis tests of whether a change in an extant variable occurred around the time of rationalization, but it is substantially more difficult to develop appropriate controls to identify that a statistically significant change is solely associated with the particular policy action. **The SSC recommends a process wherein a draft analysis is developed and presented to the SSC, so that major impacts can then be identified for more rigorous model-based analysis.**

The analysts sought guidance from the SSC on how best to approach several elements of the planned review. The SSC recommends:

- Describing participation by quota shareholders in multiple ways, including whether they are engaged as owners of active vessels, and whether they are directly engaged in the operation of that vessel.
- Assessing captain and crew impacts at levels of employment and compensation. Efforts should be made to present trends in workers’ daily pay, in addition to aggregate annual pay (cf. Abbott, Garber-Yonts, and Wilen, 2010, *Marine Resource Economics*).

- Evaluating fleet efficiency as a metric of capacity reduction (cf. Schnier and Felthoven, 2013, *Land Economics*).
- Investigating heterogeneity and the distribution of outcomes for vessels and processors.
- Measuring sectoral equity in the fishery based on the historic distribution of rents using indexed net revenues.

The analysts also sought guidance from the SSC on the possible role of two current AFSC studies for the ten-year review. First, AFSC conducted semi-structured interviews with crab fishery participants to gauge their perceptions of performance of the program. The survey had remarkably high participation from industry, including 70% of vessel owners, 42% of shareholders and 47% of skippers; crew was about 10% and represented 31% of vessels; overall 90% of vessels were represented. Key results are that quota shares are perceived to be expensive and not widely available in desirable size blocks; persons with a role on active vessels want to see active requirements, while those who are passive owners do not; lessors are unclear on the role of the voluntary lease caps. In general, the SSC views this study as an important step forward in incorporating stakeholder views into the fisheries management process and supports further efforts by AFSC in this endeavor. In terms of its role in the ten-year review, the SSC views this study as an important complement to EDRs, involving stakeholders in identifying claims or hypotheses to be developed and tested, and provide narratives to help analysts understand the operation of program elements.

However, the SSC expresses the concern that semi-structured interviews cannot record views of people who do not raise topics that were raised by others, making the survey results difficult to interpret. For example, the study points out that “if 82% of respondents expressed a given opinion, it cannot be inferred that the other 18% hold the opposite opinion; those 18% simply did not discuss their views on that issue.” Further, the study puts equal weight on the views of people who are peripheral to certain activities—such as the perceptions of quota leasing from individuals who are not in the market to lease quota—as those who are more knowledgeable about those topics. **Therefore, the SSC recommends that the hypotheses and narratives emerging from AFSC’s stakeholder perceptions survey be tested or supported by data from other sources**, including structured surveys, EDRs, and state and federal data sources.

Second, AFSC has constructed indices of community-level vulnerability and resilience using data on demographics, labor, and fishing activity from their Community Profiles database. The demonstrated approach was based on seven social and seven fisheries-based indices. Each index was constructed by grouping multiple available outcome measures within an index and conducting a principal components analysis to identify a unidimensional weighting of multiple factors. Outliers on index values were then coded, and communities that were outliers on multiple indices were identified as being particularly vulnerable or resilient. The analysts explained that they could follow a similar approach for the ten-year review to identify whether communities that were involved in the crab fishery have, as a group, experienced systematic increases or decreases on these indices. **The SSC recommends that a multivariate analysis of community well-being be included in the ten-year review**, with the following caveats:

1. The SSC is not persuaded that counting the number of indices in which a community is an outlier provides meaningful insight, and encourages the analysts to develop alternative approaches for summarizing multiple indices.
2. The SSC recommends that community-level indices for the ten-year review incorporate information from all fisheries—not just crab—in order to capture any effects of spillovers into other fisheries that may have occurred with rationalization.

The SSC is also supportive of using a difference-in-differences identification strategy to test hypotheses related to the impact of crab rationalization, as long as there is sufficient data to construct a persuasive synthetic control sample.

The work plan proposes to assess issues of access and entry in the fishery. The AFSC semi-structured survey reveals that many people, especially crew, are not buying quota shares because prices are too high. Therefore, the SSC discussed how to identify whether quota prices are too high, as opposed to simply being competitive equilibrium prices in a well functioning program. The SSC proposes assessing whether the barriers to entry into the quota market are too high by gauging whether participants are able to move through the career path of the fishery—from crew to senior crew, to skipper to capital owner—in similar proportions and over the same timelines as before rationalization. For example, one could measure whether crew with ten years of experience in 2005 are today: 1) out of the fishery; 2) still crew; or 3) skippers and/or capital (boat and/or quota) owners; and compare this to the advancement through the fishery over a similar pre-rationalization time period.

Second, the work plan will evaluate changes in the processing sector, but the low number of participants in the processing sector means the Council policy of grouping five entities (to preserve confidentiality of EDR data) inhibits assessing changes within the industry. This affects analysis of key objectives of the rationalization program, such as geographical shifts in processing activity, and key current issues relating to custom processing practices. Since ownership of processing capital can more clearly and reliably be resolved than that of vessels, **the SSC recommends that the Council modify confidentiality guidance to allow application of the standard rule of three for processor data in the ten-year review.**

D-2 NS 1 Guidelines

Wes Patrick (NMFS, Office of Sustainable Fisheries) presented the proposed rule for changes to the National Standard Guidelines for implementation of the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Jim Armstrong (NPFMC staff), Ben Fissel (AFSC), and Grant Thompson (AFSC) presented the findings of a special workgroup established to review the proposed rule (see below). Jon Warrenchuck (Oceana) gave public testimony.

In preparation for the SSC review at this meeting, the Council created a Council NS1 workgroup. Members of this workgroup were Grant Thompson (AFSC, BSAI Groundfish Plan Team), Jim Armstrong (NPFMC, GOA Groundfish and Scallop plan teams), and Gretchen Harrington (AKRO). The Council workgroup developed a report for the April meeting. The SSC appreciates the report provided by the Council's NS1 workgroup and emphasizes that this report will expedite the SSC's review of the proposed changes to NS1 guidelines. In particular, Table 1 provides a useful assessment of the responsiveness of the Proposed Rule (PR) to previous SSC comments. As has been done in the past, the SSC has decided to form a workgroup to develop detailed comments on the PR in time for the June Council meeting.

Members of this SSC NS1 workgroup are: Anne Hollowed, Terry Quinn, and Chris Anderson. Members of the Council's NS1 workgroup agreed to work with the SSC workgroup to finalize comments for the June meeting. The findings of the SSC workgroup will be circulated to the full SSC. Thus, the SSC will reserve its final recommendations on the PR until the June meeting, which is appropriate for the PR deadline for comments by June 30.

Most of the proposed changes provide flexibility for the Council to adopt fishery conservation and management protocols that will align with regional specific needs and concerns. However, the SSC identified several issues that will likely require comments, some of which we highlight below:

1. The PR allows for a "phase-in" period for adoption of updated Status Determination Criteria (SDC). The SSC notes that the use of this option should be accompanied with an evaluation of the implications of delayed action on the status of the stock. Furthermore, the SSC and Council have used a "stair-step" approach in some situations in which a new stock assessment shows a large increase in ABC and there is high uncertainty in the determination, but rarely use this approach in situations in which the new stock assessment shows a large decrease in ABC.
2. The PR allows two new approaches for calculating the time to rebuild. The PR should clarify which of the three approaches should be chosen in situations for which 2 or 3 of the approaches can be calculated.
3. The PR allows for carry-over of TAC to the next year if it does not result in catch exceeding ABC. This raises a fundamental concern when annual assessments are done, because new ABCs and OFLs would be calculated, and the TACs derived following the normal Council process. It seems that this process automatically adjusts for any changes to stock condition resulting from the previous catch being lower than the previous TAC.
4. The PR allows for a distinction between "Depleted" and "Overfished" depictions of stocks that have fallen below the MSST. In our region, attempting to clearly distinguish environmental impacts from fishery-induced impacts would be a complex undertaking. Unless there is a clear reason why the actions of the Council would differ under these two definitions, it is not clear why the change in the nomenclature is needed. Previous comments by various SSCs and Councils have suggested the replacement of "overfished" with "depleted", because "overfished" gets used for stocks for which no overfishing ever took place. Given the difficulty of separating environmental effects from fishing effects on the status of the stock, the PR's attempt to tie the term "depleted" to stocks that meet stringent conditions that tie the low stock condition to environmental effects only effectively creates the addition of the new term "depleted" that has no role in the process of setting ABCs and OFLs and of any fisheries management measures.
5. The PR requires that the Councils routinely review the objectives of their FMPs. The SSC anticipates that this activity could be merged with tasking associated with updating and renewing the PSEIS. As noted in the workgroup report, the MSA doesn't require the inclusion of

objectives in FMPs and thus reassessing them is not formally required. If this provision is retained in the final rule, the SSC agrees with the workgroup that a focus on management objectives rather than fishery objectives would be more accurate.

6. The SSC is pleased to see that the PR included options for the use of a decision theoretic approach to uncertainty.
7. The PR provides an additional requirement that each Council “*documents how the OY will produce the greatest benefits to the nation and prevent overfishing.*” The SSC agrees with the workgroup that this will be a difficult task to complete and would like additional clarification in the guidelines about how this can be done.

D-3 Research Priorities

Jim Armstrong (NPFMC) gave the presentation on this topic, with assistance from Diana Evans (NPFMC) and Michael Fey (PSMFC). He traced the historical evolution of the process and prioritization of research priorities to the current plan of constructing a searchable database that can be easily updated. The main need at this meeting was for the SSC and Council to make a final decision about nomenclature for research categorization and prioritization, which is scheduled to be undertaken at the June 2015 meeting. After a similar presentation in February 2015, the SSC recommended that a subgroup of the SSC and Council meet to discuss this topic. This subgroup recommended that the four previous categories (Critical Ongoing Monitoring, Urgent, Important, Useful) be changed to [Critical Ongoing Monitoring, Urgent, Important (Near-term), and Strategic (Future Needs)]. They also provided concise and clear definitions of each category. **The SSC agrees that these changes are helpful.**

The SSC had much discussion about whether this categorization is sufficient to indicate priorities; **within each category it may still be desirable to identify which projects are more important than others by using high, medium, and low designators.**

The SSC recommends that the current Council/SSC prioritization categories (high, medium, and low designators) be retained and accessible for comparison with the new categories during this transition. In addition we recommend that the priorities generated by each of the Plan Teams be accessible for each project. After querying Mr. Fey, the SSC learned that building this functionality into the database web application might take several months and not be available for the June 2015 meeting. However, the SSC will be able to access this information via exported database products (spreadsheets) that can easily be manipulated to add or delete columns. **A subgroup of the SSC (Hollowed (chair), Dressel, Hunt, and Quinn) will work with Council staff to implement the spreadsheet construction to add the research categories above and suggest a category for each of the proposed research projects for evaluation by the SSC in June 2015.**

D-4 Ecosystem Committee Report on Bering Sea FEP

Diana Evans (NPFMC) summarized the outcome of the NPFMC Ecosystem Committee workshop held March 17-18, 2015, in Seattle, WA. The workshop was an initial scoping for a future Bering Sea Fishery Ecosystem Plan (FEP) that will be developed over the summer and presented to the Council this fall. Jackie Dragon (Greenpeace) and Henry Huntington (Pew Charitable Trust) gave public testimony.

The SSC appreciated the chance to review the outcome of the workshop and the opportunity to provide comments and suggestions regarding the future scope for the Bering Sea FEP. The SSC acknowledges that the goal statement developed by the NPFMC through the PSEIS process includes provisions for the implementation of an Ecosystem Approach to Fisheries Management (http://www.npfmc.org/wp-content/PDFdocuments/meetings/Management_FMP.pdf). The proposed goals for the FEP provided to the SSC can easily be mapped into the existing goals of the NPFMC. **The SSC recommends using the existing goal statements rather than developing a second suite of very similar goals for the FEP.**

Ms. Evans informed the SSC that the Ecosystem Committee is striving to create an actionable document that would provide a process for incorporating ecosystem considerations into the fishery management process. Recognizing that the NPFMC has already adopted numerous provisions to address ecosystem considerations, the SSC supported an incremental approach designed to address key gaps in the existing approach rather than an attempt to overhaul the existing management approach. Furthermore, **the SSC recommends that, as new analysis tools become available to inform the Council's management decisions, these tools continue to be fully vetted through the existing Plan Teams and SSC rather than creating a separate Ecosystem Review panel.**

If the Ecosystem Committee wishes to develop an actionable FEP, the SSC acknowledges that a necessary first step will be to advance from the current practice of describing the status of the ecosystem to one that defines thresholds for Council action. In addition, **as next generation assessment approaches become available, the SSC recommends that they be brought forward for annual review to establish a baseline for considering scientific uncertainty in the new assessments.**