

SUMMARY MINUTES
Scientific and Statistical Committee

Town and Country Resort and Convention Center
Garden Salon One
500 Hotel Circle North
San Diego, California 92108
(619) 291-7131

November 1-3, 2008

Call to Order and Scientific and Statistical Committee (SSC) Administrative Matters

The meeting was called to order at 1 p.m. on Sunday, November 1, 2008. Dr. Donald McIsaac briefed the SSC on priority agenda items.

The SSC discussed the departure of SSC Vice Chair, Dr. Tom Helser. The SSC appreciates the many contributions Dr. Helser made to the group. The SSC looks forward to working with Dr. Helser in his new role with the National Marine Fisheries Service and the Salmon Technical Team (STT). The SSC also discussed filling the positions previously held by Dr. Helser. Dr. Martin Dorn was elected to serve as SSC Vice Chair for the remainder of the April 2008-March 2010 term. Dr. André Punt was chosen to serve as the Coastal Pelagic Species Subcommittee Chair.

Subcommittee assignments for 2008 are detailed in the table at the end of this document.

Members in Attendance

Mr. Tom Barnes, California Department on Fish and Game, La Jolla, CA
Mr. Robert Conrad, Northwest Indian Fisheries Commission, Olympia, WA
Dr. Ramon Conser, National Marine Fisheries Service, La Jolla, CA
Dr. Martin Dorn, National Marine Fisheries Service, Seattle, WA
Dr. Owen Hamel, National Marine Fisheries Service, Seattle, WA
Dr. Selina Heppell, Oregon State University, Corvallis, OR
Dr. Peter Lawson, National Marine Fisheries Service, Newport, OR
Dr. Todd Lee, National Marine Fisheries Service, Seattle, WA
Dr. Charles Petrosky, Idaho Department of Fish and Game, Boise, Idaho
Dr. André Punt, University of Washington, Seattle, WA (Absent Monday)
Dr. Stephen Ralston, SSC Chair, National Marine Fisheries Service, Santa Cruz, CA
Dr. David Sampson, Oregon State University, Newport, OR
Ms. Cindy Thomson, National Marine Fisheries Service, Santa Cruz, CA
Dr. Theresa Tsou, Washington Department of Fish and Wildlife, Olympia, WA
Dr. Shizhen Wang, Quinault Indian Nation, Mercer Island, WA
Dr. Vidar Wespestad, Research Analysts International, Seattle, WA

Scientific and Statistical Committee Comments to the Council

The following is a compilation of November 2008 SSC reports to the Pacific Fishery Management Council (Council). (Related SSC discussion not included in written comment to the Council is provided in *italicized text*).

Salmon Management

D.1. Salmon Methodology Review

The Salmon Subcommittee of the Scientific and Statistical Committee (SSC), the STT, and the Model Evaluation Workgroup (MEW) met at the Marriott Courtyard Portland Airport on October 15, 2008, to review the three salmon methodology items identified by the Council at the September meeting:

- Development of a new stock abundance forecast for Sacramento River fall Chinook.
- Harvest forecast model for Sacramento River fall Chinook.
- Sensitivity analysis of Chinook and Coho Fishery Regulation Assessment Models to major assumptions including sensitivity to parameters related to mark-selective fisheries.

Presentations on each of the items were given to the full SSC at the November meeting.

Development of a New Stock Abundance Forecast for Sacramento River Fall Chinook

Dr. Michael O'Farrell presented a review of the updated Sacramento River fall Chinook (SRFC) abundance forecast data and methods using a new Sacramento Index (SI) methodology. The SI was initially developed for the 2008 preseason management process in response to the decline of the SRFC stock and to address management limitations of the Central Valley Index (CVI) used in previous seasons. Dr. O'Farrell noted the updated SI now includes a more complete accounting of SRFC adult ocean abundance and a straightforward accounting of river harvest and escapement of SRFC, resulting in an advance in the extent, resolution, and specificity of the SRFC assessment framework

The SSC agrees that the SI is a more appropriate index than the CVI for representing the status of the SRFC stock. The updated SI represents a substantial improvement over the CVI and the SI used in 2008. The SSC recommends that the updated SI be reported in place of the CVI in future Council salmon reports to represent the status of the SRFC stock.

Bias in the estimate of the potential escapement of SRFC is possible because of: (1) the simplifying assumptions when accounting for ocean harvest, (2) not accounting for natural mortality between the time of harvest and escapement, and (3) drop-off mortality. The SSC agrees with the working group that bias from these factors is likely small under recent Council management. A simple length cutoff for separating jacks from adults in returns to Sacramento River Basin hatcheries has probably introduced errors in jack counts and could reduce the accuracy of forecasts of SRFC adult abundance from jack returns; the SSC understands from the discussion that CWT marking has been recently initiated at these hatcheries, in part to correct this deficiency. Further work on the age composition of hatchery returns will be useful in reducing forecast error.

Comments to the authors:

1. *Ideally, the SI would reflect the projected escapement in the absence of harvest of any kind. The current SI is likely an overestimate because everything in the Arena-to-Mexico (AM) area that is not assigned to another source is assigned to the Sacramento, the harvest is likely an overestimate, and since this feeds into the value of lambda which is used for the Falcon-to-Arena (FA) area, that portion is likely an overestimate as well, despite the reductions in Appendix B.*
2. *A prediction interval along with the point estimate would be useful for management.*
3. *The effect of removing the highest point in the river run size to river exploitation rate relationship should be examined to see if removal of the point allows curvilinearity in the relationship.*

Harvest Forecast Model for Sacramento River Fall Chinook

Dr. Michael O'Farrell presented a review of the Sacramento Harvest Model (SHM). The SHM was developed in 2008 in concert with the SI in response to the need to model SRFC distinct from the Central Valley combined stocks. In particular, the SI directly accounts for harvest north of Point Arena and river harvest. Using the SHM it is now possible to evaluate the effect of variation in management measures. The SHM is not age structured, because adequate age data are not available.

The SHM considers harvest during a "biological year" (September 1 – August 31), rather than the calendar year of the CVI model. September – December harvest is estimated from fishery data using the same method used for calculating the SI. January - August harvest is projected using harvest rates predicted from expected effort by area and month using the Klamath Ocean Harvest Model and the expected numbers of adult SRFC in the ocean. River harvest is modeled as well, which was not done in the Central Valley modeling.

The SSC considers the SHM an improvement in modeling the harvest of SRFC, and endorses it for Council use. The SSC compliments the authors presenting the SI methodology and SHM for providing thorough and comprehensive documentation for review which greatly facilitated the review process.

Comments to the authors:

1. *A simulation model applied to harvest which incorporates uncertainty in harvest rate given effort by month and area (including correlations in harvest rate by month and area) would be useful in providing a predicted range of SFRC harvest impacts given a particular management scenario.*
2. *Natural mortality between harvest and return to the river, and drop-off mortality during fishing, are not included in the SHM in analyzing impacts. While they have opposite effects, an estimate of each (or incorporation of ranges of each in a simulation analysis) could improve the analysis of harvest impacts.*
3. *A decreasing in-river harvest rate with increasing run size is more likely than a constant harvest rate of 0.1449. While the non-linear relationship was not statistically significant, a non-constant relationship should still be considered because it will have an impact at low run size if management measures are not taken.*
4. *A dynamic model incorporating monthly decrements in population size should be developed and compared to the current model.*

Sensitivity Analysis of Chinook and Coho Fishery Regulation Assessment Models

Mr. Andy Rankis presented “Three tests of a potential method for development of a (Fishery Regulation Assessment Model) FRAM sensitivity analysis”. The methodology incorporates a “complete factorial design” to examine a model’s sensitivity to manipulation of selected parameters and to gage interaction among those parameters. For Chinook FRAM, the sensitivity analysis examined the model function in regard to manipulating the release mortality rates for: drop-off/out, legal size Chinook, and sub-legal size Chinook. Two Chinook analyses included the doubling of these parameters for all FRAM fisheries; the first analysis had no mark selective fisheries, the second analysis was based upon a relatively large Puget Sound sport fishery converted into a selective fishery. A third analysis tested the coho FRAM selective fishery parameters of: mark misidentification rate, unmark misidentification rate, and drop-off mortality rate. By running the model with the Council-adopted rates and double these rates they were able to characterize the relative importance of these factors and show how the factors interacted in the model.

The first Chinook analysis demonstrated that the model seems to be working correctly (for the three selected parameters) and is not overly sensitive to the key mortality rate parameters that largely determine the non-landed portion of total fishery related mortality; and in combination, the second Chinook analysis demonstrates that the model continued to function in a consistent manner when a relatively large selective fishery replaced a previously non-selective fishery. The third analysis showed that in the relatively low-intensity coho selective fisheries that were modeled, the interaction effects of the three selective fishery parameters are explainable and minor.

The SSC agrees that the proposed approach is useful and encourages the MEW to conduct a thorough sensitivity analysis with the framework that has been proposed. Because of the large number of parameters to be examined, the SSC recommends a partial factorial design instead of a full factorial for future sensitivity analyses. Also, future analyses should examine three levels of the parameters being examined: the nominal level, something less than the nominal level, and something greater than the nominal level. This will allow analysts to determine if the effects of some of the parameters are non-linear. Finally, future sensitivity analyses should define the objective of the analyses presented. For example, (1) model performance, (2) identification of key parameters that affect key model outputs used for management, and (3) how uncertainty in key model inputs affects key model outputs used for management.

Chinook Selective FRAM

At the September meeting the Council expressed renewed interest in obtaining SSC approval of Chinook selective FRAM as a management tool for use in Council fisheries.

The selective fishery version of the Chinook FRAM was first presented to the SSC in 2002. At that time the SSC could not evaluate the suitability of the model because it was poorly documented and lacked validation. Based on the complex Chinook life cycle (compared with the relatively simpler life cycle of coho salmon) and concern that errors could become very large, the SSC concluded, in part, that:

“2. ...the SSC cannot support the use of the modified Chinook FRAM to evaluate mark-selective fishery proposals in 2003.

3. If the Council chooses to use the modified Chinook FRAM to evaluate mark-selective fishery proposals in 2003, the SSC supports the STT recommendation to establish buffers for management targets to compensate for the increased bias and uncertainty of model estimates..." (Exhibit C.4.b, Supplemental SSC Report, November 2002).

Subsequently, an attempt to compare model predictions with fisheries-based field studies in 2003 - 2004 in Washington Marine Catch Areas 5 and 6 in the Strait of Juan de Fuca was reviewed by the SSC. After that review the SSC concluded:

"Overall results indicated that FRAM produced reasonably good predictions for encounter rates. However, the fisheries were too small and the data too variable to reach any firm conclusions about stock-specific predictions of impacts. Also, it is not possible to assess model predictions of non-landed mortalities with this comparison. The SSC is no closer to being able to recommend adoption of the mark-selective version of Chinook FRAM for use in evaluating Council fisheries than it was two years ago." (Agenda Item D.2.b. Supplemental SSC Report, November 2004).

As a result of SSC recommendations in 2002, the MEW was formed. The first task of the MEW was to produce documentation for the FRAM models. This task has been substantially completed and reviewed by the SSC. Documentation includes (1) an Overview, (2) a User Manual, (3) Technical Documentation, (4) a Programmers Guide, and (5,6) Base Period documentation for Chinook and Coho FRAMs. After reviewing the documentation the SSC now has a better understanding of the modeling framework in general and Chinook selective FRAM in particular.

Based upon increased understanding of Chinook selective FRAM during the last several years due to new documentation and additional analyses such as the preliminary sensitivity analysis, the SSC concluded that the Chinook selective FRAM is suitable for modeling mark-selective fisheries of low intensity, with "low intensity" provisionally defined as those fisheries with fishery-specific exploitation rates on marked stocks of less than 10 percent and overall selective fishery exploitation rates of less than 30 percent. However, the STT should further evaluate the appropriateness of the 10 percent/30 percent provisional guidelines and make recommendations to the Council.

The values of 10 percent and 30 percent are not arbitrary – they are based on precautionary application of modeling results presented by Lawson and Sampson (1996) for coho salmon. These results are based on simulations that show that selective fisheries do not harvest all stocks at an equal rate, but remove marked fish from a population more rapidly, thereby changing the stock composition and progressively increasing encounters (and consequent mortalities) on unmarked fish.

As a result, unmarked fish mortalities increase exponentially, rather than linearly with exploitation rate and the effect can be quantified. This effect is negligible at low harvest rates, which makes the current linear models adequate to model low intensity fisheries, but exploitation rates for higher intensity fisheries will be biased low.

Similar results are likely to apply to Chinook given that the same fishery dynamics apply. Chinook cohort sizes are re-estimated annually similarly to coho, so modeling errors are unlikely to propagate from year to year. Because the intensity of mark-selective fisheries on marked hatchery stocks will be used to determine if a fishery is low intensity, the exploitation rate on marked hatchery stocks will now need to be monitored during the management process.

Reference:

Lawson, Peter W. and David B. Sampson. 1996. Gear related mortality in selective fisheries for ocean salmon. *North American Journal of Fisheries Management* 16:512-520.

Groundfish Management

F.3. Fishery Management Plan Amendment 20 – Trawl Rationalization

The SSC received presentations from Mr. Jim Seger and Mr. Merrick Burden (Council Staff) regarding technical aspects of the trawl rationalization provisions for groundfish and Pacific halibut bycatch. The SSC also received a presentation from Ms. Heather Brandon (Council Staff) regarding area management provisions, and a presentation from Drs. Gil Sylvia and Michael Harte (Oregon State University) concerning an analysis they conducted of the option for a fixed-term auction of quota shares. The SSC also had discussions with Dr. Steve Freese (National Marine Fisheries Service Northwest Region) regarding the estimated costs for data collection, monitoring, enforcement and administration.

The SSC commends the Council Staff for their hard work in assembling the multitude of analyses and documentation for Amendment 20.

Adaptive Management

Under the adaptive management option up to 10 percent of quota shares would be set aside to allow the Council flexibility during implementation of the trawl rationalization program. The details of this option have not been fully developed. The SSC agrees that an adaptive management provision is a desirable design feature but is concerned that currently there is little guidance on what activities will be eligible for support from the adaptive management program or how the program would be administered. Also, there should be supporting economic analyses to evaluate the consequences of a quota set-aside, such as impacts on marginal fishing vessels.

Monitoring

The SSC notes that while the 100 percent observer coverage provision of the trawl rationalization program is crucial for complete catch accounting, achieving full observer coverage will require a large increase in the number of observers compared to the current observer program. Given that the pool of trained observers is limited, costs per observer may be higher than currently estimated. Also, 100 percent observer coverage could provide the opportunity to collect comprehensive biological data that would be valuable for improving stock assessments. Observers hired for collection of biological data (as opposed to just monitoring bycatch) may require a greater degree of training and higher salaries, however.

The costs of on-board observers will be covered by direct payments from the vessels but other costs for administering and monitoring the rationalization program may exceed the cap for cost recovery (3 percent of exvessel revenue); thus the program may not be self-financing or some provisions of the monitoring program will need to be dropped.

The current version of the Preliminary Draft Environmental Impact Statement (DEIS) does not

include any analysis of the types and levels of enforcement that will be needed to ensure an acceptable level of compliance.

The SSC supports mandatory collection of socioeconomic data to monitor and report on the effects of rationalization.

Regional Impact Model

An analysis of regional impacts was not included in the current version of the Preliminary DEIS. Council staff stated that time constraints, other priorities, and inability to quantify regional effects precluded its inclusion.

Accumulation Limits

Accumulation limits will influence the amount of consolidation in the fleet. Analyzing proposed accumulation limits relative to actual recent behavior (measured by the maximum relative landings by vessel) is a reasonable approach to this issue. The SSC endorses the Analytical Team's approach for showing the effects of accumulation limits relative to historic landings rather than the initial allocation (Agenda Item F.3.c, Additional Analysis, Figures 2-35).

Area Management

Area management could be implemented to achieve social objectives and biological conservation goals. The Preliminary DEIS includes rules that define how quota shares will be modified if an existing management unit is divided into several management units and if two or more management units are combined.

The ability to identify distinct biological stocks and detect localized depletion is poor for most of the Council's groundfish species. Identifying biologically-based area boundaries is difficult for most species. If requested, assessment authors could provide advice on how to use survey and catch-rate data to allocate optimum yields (OYs) spatially. However, the assignment of coastwide OYs to areas will not necessarily match existing removals by area. Regional landing zones that are not based on biological considerations could create mismatches between stock productivity and harvest rates, and possibly lead to localized depletion.

Fixed-Term Auctions

The SSC discussed the issue of fixed-term auctions and reviewed the associated analysis contained in Appendix F. Drs. Silvia and Harte made a presentation of their analysis to the SSC. The SSC notes that the rationale and goals of a fixed-term auction are not fully developed in the Preliminary DEIS; thus, it is difficult for the SSC to discuss the degree to which its goals would be met. Generally speaking, fixed-term auctions would capture for the public a portion of the rents generated by rationalization. Fixed-term auctions also affect the distribution of the economic benefits and may to some degree decrease the overall size of those benefits. Both of these latter effects would vary with the percentage of quota share (QS) that reverts to an auction. There are many different ways that fixed-term auctions could be implemented; the outcomes will depend on the details of the implementation.

Appendix F analyzes the potential effects of a fixed-term auction. A fixed-term auction increases the amount of uncertainty and risk associated with the holding of quota shares. This will tend to decrease the amount of investment QS holders are willing to make in the fishery, and in turn, reduce

the economic benefits of rationalization. However, the conclusions in the appendix are stated too strongly and fail to acknowledge the uncertainty involved in predicting the outcomes.

There are several factors that may mitigate reductions in investment and economic benefits. First, the length of the initial allocation of QS is 15 or 16 years. This is a rather long time horizon and much of the fleet consolidation will likely take place well in advance of the 15 or 16 years. Thus, the remaining QS holders will tend to have larger QS holdings due to consolidation, and be the most efficient, profitable, and innovative operators. Second, most businesses operate in risky and uncertain environments regarding costs of inputs, and they tend to take actions to mitigate those risks. QS holders, for instance, could engage in contracts or purchase quota in the private market in anticipation of the auction. Third, investment time horizons may be shorter than those suggested in the appendix because returns on business investments usually need to be realized more rapidly. Generally, the effects of an auction on investment and economic benefits will depend on the percentage that is auctioned. If it is 1-5 percent, there may be very small effects. If it is closer to 20 percent, the effects would be larger.

The SSC also discussed the effect of fixed-term auctions on stewardship. The appendix asserts that fixed-term auctions would have a negative effect on stewardship because the returns to stewardship would be partially dissipated by any loss of QS that is not replaced. However, it is unclear to the SSC how large the stewardship incentive associated with QS ownership would be, even if held in perpetuity. The expected number of vessels that will operate in the rationalized fishery may be so large, and the percent of the quota owned by a single operator so small (due to accumulation limits) that the private gains to stewardship may not be significant enough to change operations in a meaningful way.

The SSC notes that the analysis in Appendix F is qualitative. As such, the analysis does not support the firm conclusions regarding the magnitudes of the effects, as stated in the report and described in Table 5.1 and Figure F-1.

Coastal Pelagic Species Management

G.2. Pacific Sardine Stock Assessment and Management Measures

Dr. Kevin Hill, the lead member of the Stock Assessment Team (STAT), presented the results of the sardine stock assessment update. Dr. André Punt provided a summary of the review conducted on October 7th, 2008, by members of the SSC Coastal Pelagic Species (CPS) Subcommittee in a joint session with members of the CPS Management Team (CPSMT) and the CPS Advisory Subpanel (CPSAS). Dr. Samuel Herrick presented the viewpoint of the CPSMT.

The sardine assessment was conducted as an update to a stock assessment that had undergone a full Stock Assessment Review (STAR) in 2007. Updates are appropriate in situations where no alterations to a stock assessment model have occurred, other than to incorporate recent data from sources already used in the full assessment. In this case the newly incorporated data included: (1) 2007-08 catches from the Pacific Northwest (PNW), California, and northern Baja fisheries, (2) 2007-08 compositional information (lengths and age-at-length data) from the PNW and California fisheries, and (3) a daily egg production method (DEPM) estimate of spawning biomass from a survey conducted during the spring of 2008. In addition the STAT made minor corrections to the

2006-07 catch statistics.

As specified in the “Terms of Reference for Coastal Pelagic Species Stock Assessment Review Process,” the review focused on two central questions: (1) did the update maintain complete fidelity to the last full stock assessment and (2) are the new input data and model results sufficiently consistent with previous data and results that the updated assessment can form the basis for Council decision-making. Although the update closely followed the exact structure of the 2007 model, results from the update were inconsistent with those from the previous assessment. For example, the peak biomass in the update model was only 59 percent of that in the 2007 model. This volatility in reconstruction of past dynamics affects interpretation of stock status and is unexpected for an assessment update. Due to these factors, the update assessment failed to meet the acceptance criteria specified in the terms of reference.

The subcommittee, and subsequently the SSC, considered a number of ways of proceeding, including: (a) accepting the substantial change in results and recommending that the update assessment represents the best available science, (b) requesting that a new full assessment be conducted and reviewed prior to setting the sardine harvest guideline, (c) developing a model that incorporates only a portion of the new data, and (d) using the accepted 2007 assessment model and projecting this forward using only the updated catch information. In addition, the SSC also considered not recommending any of the assessment models.

After lengthy discussion the SSC concluded that it was not possible to identify a single model representing the “best available science”, although two results were identified that the Council could consider as reasonable scientific representations of Pacific sardine stock status. A selection between these choices, however, is viewed by the SSC as a policy, not scientific, decision.

- (1) If it is the intention of the Council to adhere as closely as possible to the Terms of Reference (TOR), the SSC agrees with the subcommittee that the most appropriate course of action is option (d), i.e., a run that used the 2007-STAR approved model without any model tuning or variance adjustments but with a simple update of the 2006-08 catches. The results from this run are virtually identical to those from the 2007 base model (as expected). In particular, this model estimates 586,369 mt of age-1+ biomass in 2008, which results in a harvest guideline of 56,946 mt when the control rule for Pacific sardine is applied. However, the SSC could not strictly endorse this option as best available science, due to an absence of specificity in the TOR about what to do when an update failed to meet the acceptance criteria.
- (2) If the Council wishes to incorporate all of the new data collected in the preceding year in making their decision it should use the results of the strict update, i.e., option (a). In particular, that model estimates 662,886 mt of age-1+ biomass in 2008, which results in a harvest guideline of 66,932 mt when the control rule for Pacific sardine is applied. However, the SSC could not strictly endorse this option as best available science because of substantial changes in the model output that could not be thoroughly reviewed in the available time.

Regardless of which option the Council elects, the CPS TOR should be updated to clarify the appropriate course of action in situations where an update fails to meet the existing acceptance criteria.

It should also be noted that the DEPM, the only index of abundance for sardine, was quite low in 2008. However, the index DEPM is influenced by environmental factors as well as abundance.

Given that a formal “update” could not be completed, the SSC recommends that the sardine assessment model be evaluated by a full STAR Panel in September 2009. The new assessment should explore the possibility of cohort targeting in the Pacific Northwest fishery, as well as consider using the results of the Pacific Northwest Sardine Survey. However, use of the survey results can only occur if the methodology on which it is based has been previously reviewed, for example during the Pacific mackerel STAR Panel scheduled for May 2009. The SSC further recommends that a spatial model with separate areas off of California and the Northwest be developed.

The SSC emphasizes that the considerable sensitivity of the model to what should be minor changes in the data inputs underscores the substantial uncertainty regarding sardine stock status and relative recruitment across years. The development of new indices of abundance would likely help to reduce this uncertainty, while the development of spatial models might resolve the apparent conflict in data between the southern and northern portions of the stock. In any case, full assessments should be conducted more frequently than the current three year timeframe until there is improvement in these issues.

The SSC would like to compliment Dr. Hill for his thorough documentation and his willingness to conduct supplemental analyses during the review meeting.

There was a suggestion that the northern portion of the stock is partially or primarily the offshore stock migrating to the coast, and that the portion of that stock migrating is variable from year to year.

There is some concern that the DEPM survey may miss egg production south of the border with Mexico, although generally the peak density is further north.

Selectivity changes between the two models and/or the Ricker curve with high steepness may have influenced the changes in recruitment and scale.

Coastal Pelagic Species Management, continued

G.1. Stock Assessment Review (STAR) Panel Terms of Reference for 2009

Dr. Ray Conser discussed a proposed schedule for CPS stock assessments in 2009. Full stock assessments are scheduled for Pacific sardine and Pacific mackerel. In addition, a review of Pacific sardine survey methods is planned. The latter review would evaluate current and proposed surveys to assess Pacific sardine, including the pilot aerial/acoustic survey conducted in 2008. Two STAR Panels are planned, with tentative dates as follows: (1) a May 4-8, 2009 STAR Panel to review the Pacific mackerel assessment and Pacific sardine surveys and (2) a September 21-25, 2009 STAR Panel to review the Pacific sardine assessment. There will be no CPS update assessments in 2009. This schedule reflects an increased priority to conduct full CPS assessments. The Scientific and Statistical Committee (SSC) noted the May 2009 STAR Panel that reviews the Pacific mackerel assessment and the Pacific sardine surveys will need to include reviewers with both stock assessment

and survey expertise and one or more additional reviewers may be needed.

The SSC also reviewed the draft TOR for review of CPS stock assessments. Dr. Sam Herrick presented Agenda Item G.1.c, CPSMT Report on the 2009 TOR. The SSC focused on the review process for stock assessment updates and considered whether modifications to the TOR are warranted in light of difficulties encountered during the review of the sardine assessment update this year. The draft TOR stipulate that a crucial question for determining whether an assessment qualifies as an update is whether the new input data and model results are sufficiently consistent with previous data and results to form the basis of Council decision-making.

The TOR for CPS were closely patterned after the TOR for groundfish stock assessments. If it is determined that a groundfish assessment does not qualify as an update, a STAR Panel can be scheduled later in the year to conduct a full review, as was done for cowcod in 2007. This option is not available for CPS assessments, due to the timing of the fisheries, and the TOR are unclear about how to develop management advice when an update fails to meet specified criteria. The approach taken by the SSC CPS Subcommittee was to revert to a projection based on the previously accepted model. This was an attempt to be as consistent as possible with the TOR, although other possibilities exist. Specific guidance on the appropriate course of action should be made explicit in the TOR.

Since the CPS TOR are not scheduled for final adoption until March 2009, the SSC CPS Subcommittee will revise the TOR and provide a revised draft for review. The SSC discussed three alternatives that would reduce the likelihood that similar problems with assessment updates will be encountered in the future, although there may be others:

- 1) Dispense with updates altogether and do full annual assessments in every year for stocks that are expected to severely impact and/or constrain fisheries.
- 2) Delay the fishing year to allow a mop-up panel to be scheduled (e.g., by three months). This may require a fishery management plan amendment.
- 3) The TOR for stock assessment updates could be modified to allow limited consideration of changes to input data and model configuration in assessment updates.

With regard to the last of these options, potential changes could be limited to the following: a) analytical methods used to summarize data prior to input to the model, such as improved weighting of compositional data, b) alternative treatment of selectivity patterns, such as alternative time periods for blocking selectivity, and c) changes in the procedure for weighting the various data components. Normally these changes would only be considered if there are unexpected results in the assessment, as defined in the current TOR. To qualify as an update, a stock assessment would still carry forward its fundamental structure from a model that was previously reviewed and endorsed by a STAR Panel, including the software used in programming the assessment, the assumptions and structure of the population dynamics model underlying the stock assessment, and the statistical framework for fitting the model to the data and determining goodness of fit. To allow for a more thorough review of these potential changes, at least two days should be scheduled for review of CPS assessment updates.

Groundfish Management, continued

F.2. NMFS Report

At its September meeting, the Council dropped one of the STAR Panels that had been planned for 2009. The April STAR Panel that had been scheduled to review stock assessments of spiny dogfish and either bronzespotted rockfish or greenspotted rockfish was cancelled due to concerns about data availability and Council workload. The SSC's statement on this agenda item recommended that greenspotted rockfish was more likely to produce results useful to Council decision-making than bronzespotted rockfish.

At the start of its November meeting, the SSC was briefed by Dr. Donald McIsaac about these events and a discussion ensued among members of the SSC, who felt it important to comment on the situation. The SSC learned that the National Marine Fisheries Service is likely to pursue work on some or all of these stocks, even if they are not reviewed by one of the STAR Panels sponsored by the Council next year (Agenda Item F.2.b, Supplemental NMFS Report). Notably, greenspotted rockfish seems to be a good candidate for developing an analytical approach for data-poor species and significant time has already been devoted to that effort. Members of the SSC also noted that a considerable amount of data is available for a spiny dogfish assessment.

The accumulation of more and better information about groundfish stock status is desirable and would be beneficial to Council management. In particular, the SSC supports assessing new species, especially data-poor stocks, as a priority activity and encourages efforts to assess the stocks that were dropped. Moreover, the SSC is capable and prepared to assist in reviewing any results that may develop. Such a review could potentially occur in at least two different ways: by assignment to an SSC Groundfish Subcommittee meeting (e.g., the update or mop-up panels) or by a process akin to that which transpired for shortbelly rockfish, whereby a review that strictly adhered to the groundfish terms of reference was conducted by a panel external to the Council.

Adjournment: The SSC adjourned at approximately 12:00 p.m., Monday November 3, 2008.

SSC Subcommittee Assignments, November 2008

Salmon	Groundfish	CPS	HMS	Economic	Ecosystem- Based Management
Pete Lawson	Owen Hamel	André Punt	Ray Conser	Cindy Thomson	Selina Heppell
Robert Conrad	Ray Conser	Tom Barnes	Tom Barnes	Todd Lee	Tom Barnes
Owen Hamel	Martin Dorn	Ray Conser	Robert Conrad	David Sampson	Martin Dorn
Charlie Petrosky	André Punt	Steve Ralston	Selina Heppell		Pete Lawson
David Sampson	Steve Ralston		André Punt		Todd Lee
Shizhen Wang	David Sampson		Vidar Wespestad		André Punt
	Theresa Tsou				Steve Ralston
	Vidar Wespestad				Cindy Thomson
					Theresa Tsou

Bold denotes Subcommittee Chairperson

PFMC
02/19/09