SUMMARY MINUTES
Scientific and Statistical Committee

Pacific Fishery Management Council
Seattle Marriott Hotel Sea-Tac
Seattle Ballroom 2 and 3
3201 South 176th Street
Seattle, Washington 98188

April 2-3, 2007

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

The meeting was called to order at 8 a.m. Dr. Donald McIsaac briefed the SSC on priority agenda items.

Subcommittee assignments for 2007 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. Steve Berkeley, University of California, Santa Cruz, CA (April 3 only)
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. Tom Helser, National Marine Fisheries Service, Seattle, WA
Mr. Tom Jagielo, Washington Department of Fish and Wildlife, Olympia, WA
Dr. Peter Lawson, National Marine Fisheries Service, Newport, OR
Dr. Todd Lee, National Marine Fisheries Service, Seattle, WA
Mr. Lyman McDonald, West Incorporated, Laramie, WY
Dr. André Punt, University of Washington, Seattle, WA
Dr. Stephen Ralston, 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

Scientific and Statistical Committee Comments to the Council

The following is a compilation of April 2007 SSC reports to the Council. (Related SSC discussion not included in written comment to the Council is provided in *italicized text*).

Council Administrative Matters

C.2. Magnuson-Stevens Act Reauthorization Implementation

The Scientific and Statistical Committee (SSC) discussed issues pertaining to Magnuson-Stevens Act (MSA) reauthorization implementation as they relate to the role of the SSC in the Council process. The SSC also discussed particular issues regarding the implementation of annual catch limits (ACLs) and accountability measures (AMs).

The SSC's March 2007 report to the Council on this topic is still relevant. As such, it is attached to this report.

From the SSC's point of view, the stocks currently managed under Council fishery management plans (FMPs) that have biologically-based control rules governing harvest (e.g., the principal groundfish stocks and sardine) may already have sufficient precautionary characteristics to meet the reauthorized MSA requirements, such as ACLs, AMs, and buffers. However, many Council stocks are managed through control rules that are not biologically based (e.g., minor rockfish species). While it may be desirable to manage all species with control rules, the large number of stocks involved and the data-poor nature of the assessments make this impractical for all stocks. Furthermore, salmon are generally managed for escapement, rather than using explicit catch accounting control rules. Managing for spawning biomass is generally appropriate, and is arguably closer to the management goal.

Even with substantial additional funding, it is unlikely explicit catch accounting control rules can be developed for all stocks managed under Council FMPs. The SSC suggests it may be prudent for NMFS to fully consider these factors when creating the National Standards needed to implement the reauthorized MSA.

March 2007 SSC statement

The Scientific and Statistical Committee (SSC) discussed new provisions of the 2006 Magnuson-Stevens Conservation and Management Reauthorization Act (MSRA) as they relate to the role of the SSC in the Council process. The SSC has a number of questions regarding these provisions:

Provision: "The Council shall establish annual catch limits for each managed fishery that may not exceed the fishing level recommendations of its SSC" (MSA 302(h)(6), p. 51)

> The Pacific Council has maintained a clear distinction between scientific analysis and advice and policy decisions, with the SSC taking the lead on the science. With regard to coastal pelagic and groundfish catch limits, the SSC's role has been to review the harvest control

rule and the stock assessments that are fed into the control rule. The Council's role has been to establish annual catch limits, which (for groundfish) involves taking into consideration the decision table showing harvest levels associated with high, medium, and low levels of risk to the stock. While not mandated by the SSC, it has generally been Council practice not to exceed the risk-neutral level of harvest indicated by the control rule.

If the "fishing level recommendations" that the SSC is expected to provide under the MSRA are intended to be numeric catch limits, this will be a major deviation from Council practice, as it will require the SSC to make policy decisions. This raises several issues: (1) Is the SSC supposed to establish catch limits strictly on the basis of biological considerations? If so, this will be tantamount to an implicit policy decision to disregard ecosystem and socioeconomic issues in setting catch limits. (2) What types of information would the SSC be required to consider in establishing catch limits? For instance, would the SSC consider results of a regulatory analysis and take input from advisory bodies and the public? If so, then what is the role of the Council with regard to setting catch limits? If not, does this leave the Council and NOAA Fisheries Service vulnerable to claims of procedural violations under the National Environmental Policy Act (NEPA) and the MSA?

Provision: "The SSC shall provide recommendations for acceptable biological catch, preventing overfishing, maximum sustainable yield and achieving rebuilding targets, and reports on stock status and health, bycatch, habitat status, socioeconomic impacts of management measures, sustainability of fishing practices (MSA 302(g), pp 49-50).

Clarification is needed with regard to SSC responsibilities entailed by this provision. For instance, does this responsibility pertain to all species (including salmon and highly migratory species)? In terms of "preventing overfishing" and "achieving rebuilding targets", is the SSC supposed to set numeric bycatch levels associated with rebuilding? If so, then the same issues raised above with regard to the SSC setting of catch limits would apply here as well.

Does the requirement that the SSC "provide" reports on stock and habitat status, bycatch, socioeconomic impacts of management measures and the like mean the SSC will "produce" these reports. If so, given the Council's practice of separating analysis from review, who will review the SSC's production of these reports?

The SSC also discussed pending efforts by NOAA Fisheries Service to integrate NEPA requirements with fishery regulatory requirements in such a way as to streamline the management process. Given that rationale for the biennial groundfish management and assessment cycle was the cumbersome nature of the regulatory process, would such streamlining reduce the time lag between groundfish management actions and the stock assessments on which they are based?

SSC Notes

The SSC makes the following comments on the Agenda Item C.2.a. Attachment 2, "Managing Yields in a Groundfish Management Regime of Individual Fishing Quotas, Intersector Allocations, and Stringent Rebuilding Requirements."

1. *The necessity of explicitly representing sectors in stock assessments should be considered in more detail. For stocks that exhibit significant heterogeneous selectivity across sectors, the "fisheries" in the assessment would need to closely correspond to the sectors so that overages can be properly accounted for. This should be recognized in the document.*

2. *Page 3, paragraph 2 contains a sentence that states "It is also possible that the demand for quota pounds of the most constraining stocks may drive the price of this quota up to a point where it is not economically feasible to continue fishing." The SSC notes that under a limited access program (LAP) system with traded quota shares, the prices would be set by supply and demand. While the number of fishermen willing to purchase quota share declines at higher prices, a high price would only exist if someone found it economically feasible to continue fishing at that price. High quota share prices for a particular species send a signal to fisherman that that species is scarce and should be avoided if one does not wish to pay a relatively high cost to acquire its quota.*

3. *Additional clarification is needed on how ACLs could be implemented with multiyear OY's to simplify the management process. Also, the biological risks associated with multiyear OY's would require analysis.*

Salmon Management

G.3. Methodology Review Process and Preliminary Topic Selection for 2007

The Scientific and Statistical Committee (SSC) met with members of the Salmon Technical Team (STT) to identify and discuss methodology reviews for 2007. Four items were identified for potential SSC review this fall.

1. Chinook and Coho Fishery Regulation Assessment Model (FRAM). The Model Evaluation Workgroup (MEW) has completed work on draft documentation of the Fishery Regulation Assessment Model (FRAM). Coded wire tag (CWT) surrogates are needed for certain lower Columbia River wild coho and wild Chinook stocks. Criteria for selection and evaluation of surrogates for use in the FRAM are issues for review.

2. Coho FRAM. Two preliminary reports have been prepared: a report on base period development for input into the Coho FRAM, and a report on selection of years for base period averaging. The SSC plans to provide review comments to the authors at the June Council meeting.

3. Chinook and Coho FRAM. With completion of draft documentation for the FRAMs, the MEW

should conduct sensitivity analyses of the models to major assumptions, including sensitivity to parameters related to mark-selective fisheries such as drop-off rates, drop-off mortality rates, release mortality rates, and mark misidentification. The SSC will review results of these analyses, when complete.

4. Genetic Stock Identification (GSI). Study designs for the ongoing and proposed statistical sampling of ocean salmon harvest for GSI should be reviewed.

Two issues identified by the Council relative to Klamath River fall Chinook will not be reviewed, because apparently new data or analyses are not available. These issues deal with the contact rate and catch projection portions of the Klamath Ocean Harvest Model and the assumed September 1 maturity date for Klamath River fall Chinook. If new information becomes available, the SSC can review the issues at a later time.

Further, the SSC recommends that all current FRAM documentation be made available on the Council's FTP or World Wide Web site. In addition, a central location of documentation is needed for the methods and data used in the annual pre-season abundance forecasts and post-season estimates for Chinook and Coho salmon. Currently, it is difficult to review these forecasts and estimates as documentation of methods needed for critical review is not readily available.

Notes for the SSC.

Multiyear Chinook selective fisheries model. There is apparently a multiyear Chinook selective fisheries model being used in Puget Sound that might be reviewed by the SSC for our education. If mark selective Chinook fisheries are proposed for Council waters this model should be reviewed by the SSC.

FRAM. We envision an intensive evaluation of the FRAM against simulated data that would evaluate the model's methods for approximating competing sources of mortality. Also, the current FRAM does not consider the gauntlet nature of salmon fisheries.

Stock assessment methodology for salmon stocks. There is a need to know who does what, and if anything, where is the documentation for ~165 meta-population/ESU stocks of salmon. There is a 1995 review of stock assessment methodology for salmon stocks in Puget Sound. The SSC should consider review of the document for our education. Pete provided a copy of the 1995 SSC review to Lyman. Copies could be made available to the entire salmon subcommittee.

Council requests relative to the Klamath Ocean Harvest Model. Contact rate and catch projection portions of the Klamath Ocean Harvest Model have been questioned. The Salmon Technical Team (STT) made a presentation to the SSC and provided documentation concerning the Klamath Ocean Harvest Model. In the view of the SSC, the modeled effects of the parameters on harvest rate forecasts are appropriate and have been adequately addressed by the STT. The SSC is willing to review new data and information concerning the effect of the assumed September 1 maturity date for Klamath River fall Chinook on evaluation of the natural portion of the run.

Groundfish Management

E.1. NMFS Report

The Scientific and Statistical Committee reviewed the reports of three of the four off-year workshops held during 2006. The report of the harvest policy workshop was reviewed by the SSC during the March Council meeting. The SSC notes that the off-year workshops provide a means for developing a common approach to dealing with specific assessment-related problems and that the benefits of these workshops will be maximized if their recommendations are provided to all assessment authors and STAR Panel participants

The SSC notes that a committee of independent expert's reviewer attended the bottom trawl survey workshop. However, the report from this reviewer was not available to the SSC.

The NWFSC Bottom Trawl Survey workshop considered how best to use the results from the "expanded" shelf-slope survey during the 2007 round of stock assessments. The SSC endorses the recommendation from the workshop that the "expanded" shelf-slope survey should either be treated as a new index or used to extend the current slope survey index. The SSC notes that the data from the triennial and "expanded" surveys can be combined, but this would requite adequate support from the analyses. The SSC also agreed with the workshop recommendation that assessment updates should not use the data from the "expanded" survey if they are to be reviewed as assessment updates. However, this means that there will be no new information on trends in abundance for widow rockfish and English sole.

The SSC supports the recommendation from the Data/Modeling workshop that the approach used to represent stock status in assessment reports should be modified, and members of the SSC Groundfish Subcommittee will work with the developer of SS2 to implement this. The SSC notes that although it was anticipated that deadlines would be set for when data are to be received for the 2007 stock assessments, no actual dates have been set; such dates should be set for the 2009 round of groundfish assessments. Finally, the SSC supports the recommendation from the Data/Modeling workshop that a single "best" catch series by species and state should be constructed. This is particularly important for rockfish species.

The SSC endorses the conclusion of the Pre-Recruit Survey workshop that it is possible to combine the data from 2001-06 from the RV David Starr Jordan and the FV Excalibur, and that the earlier SWFSC data should not be used in stock assessments, except in those for species found predominantly in the "core" area surveyed by the SWFSC. The SSC supports assessment authors critically evaluating alternative assumptions for how pre-recruit data should be included in stock assessments, but notes that only a few assessments will be able to make use of pre-recruit data for the 2007 round of stock assessments.

Notes

1. *Although, the participants at the bottom trawl survey workshop preferred a GLMM approach for constructing survey biomass indices, the SSC is not convinced that sufficient analyses have been*

conducted to draw definitive conclusions in this regard. The SSC recommends that analysts should not be precluded from using design-based estimates of abundance if appropriate justification is provided. In addition, the SSC supports the recommendations of the Data/Modeling workshop that simulations of GLMM vs. swept area biomass estimates be conducted as this should help resolve the choice among methods for determining biomass indices for use in assessments.

2. *The time-series of the ratio of the annual exploitation rates to the target exploitation rates should be computed as follows:*
    a. *Calculate the total catch / summary biomass for each year.*
    b. *Find the yield-per-recruit under the fishing mortality corresponding to an SPR of 0.4 for each year based on each year's exploitation pattern.*
    c. *Find the summary biomass-per-recruit under the fishing mortality corresponding to an SPR of 0.4 for each year based on each year's exploitation pattern.*
    d. *Divide the time-series from (a) by the time-series obtained by dividing the outcomes from (b) by those from (c).*
3. *Given concerns regarding the spatial coverage of the pre-recruit surveys, the widow assessment update should include a sensitivity testing which the pre-recruit data are ignored.*

SSC Administrative Matters

A.5. Northwest Fisheries Science Center's Commercial Fisheries Cost-Earnings Data Collection Program: Update and Future Plans

Dr. Carl Lian gave a briefing to the SSC on the NWFSC cost-earnings survey of West Coast commercial fisheries. The survey is designed as a census of entire fishery sectors, and consists of a short (~1 hr) in-person interview to collect annual cost and earning data. Surveys of limited entry trawl and limited entry fixed gear fleets have recently been completed. Coastwide response rates were 77% for the limited entry trawl fleet and 55% for the limit entry fixed gear fleet, which are excellent response rates for a voluntary survey. Comparisons between responders and non-responders indicated broadly similar vessel characteristics and landings composition, but a tendency for higher overall landings by those that responded to survey. A charter boat operator survey is currently being fielded in Washington and Oregon, and there are firm plans to survey the open access groundfish and salmon fleets, followed by a repeat survey of limited entry trawl and fixed gear fleets. A survey of processors is being planned but a timetable for fielding the survey has not yet been established.

The SSC encourages a robust follow-up to the survey to acknowledge the strong good-faith response. Some of the ideas discussed included providing each responder with a comparison between their economic data and the fleet as a whole, demonstration of the utility of the survey data in analysis of TIQ alternatives, and posting survey results on a suitable web site. Preparation of a report suitable for a non-technical audience may also be useful.

Purchase of long-lived assets, such as a new engine, could magnify costs for certain responders. While these major purchases should average out across a fishery sector, the distribution of net earnings, which may be important for some analyses, would be inaccurate. Since information on

major purchases is recorded by the survey, consideration should be given to how to amortize these costs.

While annual cost and earnings surveys provide critical information, economic data needs do not stop there. For example, economic information on the trip level, such as days at sea, crew size and fuel costs, would be useful for assessing economic responses to current and proposed management measures. Although some of this trip-level information is being collected by the observers, the potential utility of logbooks is not being fully realized. Fields already exist in logbooks for much of this information, but typically are not filled out by fishermen, who recognize that the information is not used. Perhaps a different kind of survey, with fewer participants, but with a full seasonal reconstruction of cost and earnings using logbooks, should also be considered.

Council Administrative Matters, continued

C.5. Ecosystem Fishery Management Plan

The Scientific and Statistical Committee (SSC) discussed the concept of ecosystem-based fishery management, and how it may move forward for Council-managed fisheries. A clear link between current fishery management practices and developing explicit ecosystem considerations is provided by the Magnuson-Stevens Fishery Conservation and Management Act definition of optimum yield that states: "optimum yield … takes into account the protection of marine ecosystems."

The SSC found the "Staff White Paper – Development of an Ecosystem Fishery Management Plan" to provide a useful framework for beginning the process of developing an Ecosystem Fishery Management Plan (EFMP). In particular, the SSC concurs that a Plan Development Team (Team) should be established for this purpose, as is proposed in the white paper. However, the white paper focuses primarily on the process and does not specify the rationale or specific elements that should be included in an EFMP. Since many of the fundamental issues have not been resolved concerning how ecosystem considerations could work in fishery management, the SSC suggests that the initial charge for the Team be to define the objectives of an EFMP, and how those objectives could be translated into policy.

The SSC notes that existing control rules for Council-managed species provide only limited ecosystem considerations. Consequently, it would be useful to have a summary of the degree to which these considerations are currently being addressed, and an explanation of how existing Council management practices may be inadequate in this regard.

Key issues that should be addressed at the outset of the EFMP process are to define the ecosystem(s) being managed, and to establish the scope of ecosystem impacts that would ideally be addressed under the proposed EFMP. Also, it is important early in the process to consider the data and scientific requirements for providing practical ecosystem advice to the Council.

Highly Migratory Species Management

J.6. Council Recommendations on Conservation Measures to be Considered by the Inter-American Tropical Tuna Commission (IATTC)

No scientific information or background material was presented relative to regulations that the PFMC should consider to address Yellowfin tuna overfishing. If the SSC is to evaluate management regulations such as closed areas/seasons then appropriate technical documentation is needed.

It may be desirable for a member of the SSC to participate in RFMO (IATTC, WCPFC) activities and assessment/review processes to clarify TOR, management goals and conservation criteria. The IATTC 8th Working Group of Stock Assessments is scheduled for May 7-11, 2007. This may afford an opportunity for SSC participation.

J.2. Exempted Fishing Permit (EFP) for Longline Fishing in the West Coast Exclusive Economic Zone

The Scientific and Statistical Committee (SSC) reviewed the Draft EA regarding issuance of an EFP to fish with longline gear in the West Coast Exclusive Economic Zone (EEZ).

The SSC notes that the proposed EFP pertains to operation of a single vessel which would be fishing with longline gear in an area without corresponding drift gillnet fishing for comparison of finfish and prohibited species bycatch between the two gear types. Few constraints are imposed to limit where the vessel will operate, and no experimental design is proposed to test the hypothesis that longline gear would offer an improvement in bycatch rates over drift gillnet fishing gear. Average bycatch values are inadequate to evaluate bycatch impacts. Bycatch events are typically rare and spatially correlated. As such, the problem is one of estimating the statistical probability of a rare event (i.e., a longline set with large bycatch). Data collected from a single vessel operating under an EFP would not be adequate for this purpose.

The SSC did not find adequate information in the Environmental Assessment to evaluate the biological risks of the proposed EFP. For example, the values presented in Table 4 (page 80) are projected bycatch rates based on average bycatch information from Hawaii. Bycatch rates for Hawaii cannot be assumed to be representative of the area to be evaluated under the EFP. The most feasible way to constrain the biological risks of fishing with longline gear in the West Coast EEZ would be to operate a fishery with full observer coverage and to impose hard bycatch caps.

J.3. Albacore Fishing Effort Characterization

The Scientific and Statistical Committee (SSC) discussed the Highly Migratory Species Management Team (HMSMT) document "Estimating recent effort for the U.S. fisheries landing albacore," agenda item J.3.b, and the Highly Migratory Species Advisory Subpanel (HMSAS) report, agenda item J.3.c. The requirement was to demonstrate that U.S. fishing effort for albacore tuna is not increasing. Neither method was satisfactory to the SSC. The SSC considers that, for this application, effort is

being used as a surrogate for fishing mortality.
The HMSAS proposal provides a raw measure of effort that could not be used to demonstrate trends in fishing mortality.

Problems with the HMSMT document are more complex. The HMSMT attempted to account for all U.S. effort from nine separate fisheries. The single fishery with the most landings (79.1%) was the Troll/Baitboat fishery. This was used as the standard of comparison for other fisheries. For fisheries with effort data, effort was scaled based on the ratio of catch per unit of effort (CPUE). Fisheries without effort data were assumed to have CPUE equivalent to the Troll/Bailboat fishery. Effort was then summed across all fisheries. The major problem with this approach is the difficulty of comparing CPUE across widely differing fisheries especially in light of the high year-to-year variability in the CPUE data.

The SSC suggests an alternative procedure. First, fishing mortality for the U.S. fisheries (U.S. partial F) should be partitioned out of the overall international fishery mortality. If the U.S. partial F is stable or decreasing then the criterion of no increasing fishing mortality is satisfied. If the U.S. partial F is increasing, the segment of the fishery that is responsible can be identified by analyzing trends in fishing mortality by gear type.

SSC Notes

Effort of various fisheries standardized to troll/baitboat (79.1% of landings) based on CPUE. Troll/baitboat have logbooks. Validity? Common currency?

Other contributors:
Sport charter = 9.6%
sport private = 3.7%
longline = 5.5%

Tuna commission has not historically considered recreational fisheries.

2 ways of expressing uncertainty –95% CI, range

Want to cap effective F (rather than effort). Rather that aggregate index look at individual segments.

There may be more rigorous ways of summarizing the information. For example:

1. *Standardize the effort data.*
2. *Calculate partial Fs. Can you then estimate q from noisy data?*
3. *First test to see if U.S. Fs are stable (linear regression)*
4. *If <= stable then done, else look for relationships between fleet-specific partial Fs and effort.*

Public Comment

Ms. Jennifer Bloesser, Science Director for the Pacific Marine Conservation Council, provided a brief overview of a groundfish spatial management project PMCC has initiated. The project includes a pilot program to develop a marine stewardship area in Port Orford, Oregon. Several PMCC members, including Dr. Robert Francis, are working on the project and may be consulting with SSC members in the near future. Ms. Bloesser encouraged interested SSC member interested in the project to consider attending a meeting regarding the Port Orford stewardship area in early May. Additionally, PMCC is interested in area or spatially based approaches under the Council's efforts to establish a trawl rationalization program and may have some funding available to facilitate meetings or workshops.

Adjournment: The SSC adjourned at approximately 5 p.m., Tuesday, April 3, 2007.

PFMC
05/29/07

SSC Subcommittee Assignments for 2007

Salmon	Groundfish	CPS	HMS	Economic	Ecosystem-Based Management
Pete Lawson	**Martin Dorn**	**Steve Ralston**	**Ray Conser**	**Cindy Thomson**	**Steve Berkeley**
Robert Conrad	Steve Berkeley	Tom Barnes	Tom Barnes	Todd Lee	Tom Barnes
Owen Hamel	Ray Conser	Ray Conser	Steve Berkeley	David Sampson	Martin Dorn
Lyman McDonald	Owen Hamel	Tom Jagielo	Robert Conrad		Tom Jagielo
David Sampson	Tom Helser	Tom Helser	André Punt		Pete Lawson
	Tom Jagielo	André Punt			Todd Lee
	André Punt				André Punt
	Steve Ralston				Steve Ralston
	David Sampson				Cindy Thomson

Bold denotes Subcommittee Chairperson