DRAFT SUMMARY MINUTES
Scientific and Statistical Committee

Pacific Fishery Management Council
Double Tree Hotel - Columbia River
Umatilla Room
1401 N Hayden Island Drive
Portland, OR 97217
(503) 283-2111
September 10-11, 2001

Call to Order

The meeting was called to order at 8 a.m. by Chair Cynthia Thomson. Dr. Donald McIsaac, Executive Director, provided opening comments and discussed the priority of items on the Scientific and Statistical Committee (SSC) agenda. The agenda was approved.

Members in Attendance

Dr. Brian Allee, Columbia Basin Fish and Wildlife Authority, Portland, OR
Mr. Alan Byrne, Idaho Department of Fish and Game, Nampa, ID
Mr. Robert Conrad, Northwest Indian Fisheries Commission, Olympia, WA
Dr. Ramon Conser, National Marine Fisheries Service, La Jolla, CA
Dr. Michael Dalton, California State University, Monterey Bay, CA
Dr. Robert Francis, University of Washington, Seattle, WA
Dr. Kevin Hill, California Department of Fish and Game, La Jolla, CA
Mr. Tom Jagielo, Washington Department of Fish and Wildlife, Olympia, WA
Dr. Peter Lawson, National Marine Fisheries Service, Newport, OR
Dr. Stephen Ralston, National Marine Fisheries Service, Santa Cruz, CA
Dr. Gary Stauffer, National Marine Fisheries Service, Seattle, WA
Ms. Cynthia Thomson, National Marine Fisheries Service, Santa Cruz, CA
Dr. Shijie Zhou, Oregon Department of Fish and Wildlife, Portland, OR

Members Absent

Dr. Andre Punt, University of Washington, Seattle, WA

SSC Reports to the Council

Pacific Halibut

STATUS OF BYCATCH ESTIMATE

Dr. Rick Methot gave a brief summary to the SSC on the National Marine Fisheries Service (NMFS) document entitled "Estimates of Pacific Halibut Bycatch and Mortality of International Pacific Halibut Commission (IPHC) Area 2A in 2000." Even though the document was not distributed to the majority of the SSC members until the meeting, the SSC provides the following comments. These latest estimates are based on a new method using the data from Enhanced Data Collection Program (EDCP). This method was reviewed in detail by the SSC in 2000. For this latest estimate, the authors used the same stratification for bycatch rates and proportion of legal-size halibut as last year, but updated the bottom trawl effort for years 1999 and 2000. These updates were summarized from the PacFIN logbook data base rather than from state logbook data sets as in the past. A comparison of the two methods for deriving effort gave nearly identical results (two estimates were within 1% of each other). This confirms that the PacFIN logbook data base summary can be used in future years, which will expedite the process of updating mortality estimates. The 2000 estimate was not adjusted by any change in halibut abundance

in Area 2A nor by the change in proportion of the stock that is longer than 81 cm, the current minimum size limit. Given the high percentage of sub-legal halibut in the size composition observed in the 1995-1999 EDCP sampling, one would expect a high proportion of the halibut in Area 2A to have grown to legal size by 2000. Assuming the same proportion of legal-size halibut, the 2000 legal bycatch mortality estimate is 222,000 pounds net weight out of a 663,000 pound estimate for all sizes. If growth of the abundant sub-legal fish has increased the number of the legal fish, then biomass mortality estimate would increase dramatically, and could far out weigh the reduction attributed to the decline in 2000 trawl fishing effort, which accounts for a reduction of 47,000 pounds. Results from the new observer program will be very valuable in updating the bycatch rates and the proportion of legal adults. With these comments in mind, we recommend the authors proceed to finalize the report and transmit the report to IPHC.

Groundfish

MARINE RECREATIONAL FISHERIES STATISTICS SURVEY UPDATE

Mr. Russell Porter of the Pacific States Marine Fisheries Commission (PSMFC) and Dr. Dave Van Voorhees of the National Marine Fisheries Service, Fishery Statistics Division briefed the SSC regarding current and potential future efforts to improve estimates of recreational harvest and effort on the West Coast.

The Marine Recreational Fishery Statistics Survey (MRFSS) customarily utilizes a random digit dialing (RDD) procedure to estimate recreational fishing effort. Because of the low prevalence of households that fish in party/charter (PC) mode, the RDD methodology tends to produce very imprecise and perhaps biased estimates of PC effort. This imprecision is accentuated during the winter months, when fishing activity tends to be low anyway. While effort and harvest estimates for Oregon and Washington are based largely on ocean boat sampling programs designed and administered by those states, estimates for California are based largely on the MRFSS.

In an attempt to improve PC effort estimates for California, a weekly effort survey was initiated in that state in March 2001 based on a sampling frame of PC vessels that fish in marine waters. The protocol for this new survey involves drawing a random sample of PC operators each week from the sampling frame, sending these operators a letter requesting that they keep a written log of their effort in a subsequent week, and contacting them at the end of that week to collect their log information. Although this sampling protocol has been used successfully in the southeastern U.S., it is new to the West Coast and work remains to be done with regard to refining the sampling frame and expansion methods and validating the survey against logbook data collected by the California Department of Fish and Game (CDFG). The weekly effort survey holds much promise as a method of providing more precise effort estimates than the MRFSS RDD methodology.

Although the MRFSS is based on a temporal stratification of the year into six two-month sampling periods, the MRFSS is not designed as a tool for inseason monitoring. However, lack of other options has prompted the Council to utilize the MRFSS to serve that function for groundfish. Specifically, two estimates of bocaccio harvest during waves 1-3 of 2001 have been produced from MRFSS data: (1) a 51 mt estimate, based on a two-way stratification of the California fishery, and (2) a 37 mt estimate, based on a five-way stratification of the fishery. The 37 mt estimate is an improvement over the 51 mt estimate, in that it does a better job of ensuring that localized differences in catch-per-unit-effort are reflected in the population estimate.

In addition to the MRFSS-based bocaccio harvest estimates, additional bocaccio estimates based on effort expansions from the PC weekly effort survey for waves 2-3 of 2001 will be made available in October to CDFG for possible consideration by the California Fish and Game Commission. The SSC notes that these effort estimates will represent the first tentative results from a new survey and should therefore be considered preliminary.

The Council is interested in developing a program that would provide inseason estimates of recreational harvest and effort. The SSC recommends that the RecFIN Committee be considered as an appropriate venue for developing such a program. The RecFIN Committee includes representatives from the three

states, Pacific States Marine Fisheries Commission, NMFS, and the Council. RecFIN Committee members have expertise in recreational survey methodologies, as well as specific knowledge and experience regarding the MRFSS and state recreational sampling programs. The RecFIN Statistical Subcommittee – which includes statisticians from NMFS and the three states – should also be actively involved, given the technical contributions they could make to the development of an inseason monitoring program.

Should the RecFIN Committee become involved in assisting the Council in developing a monitoring program, close and regular interaction between the Council and RecFIN Committee will be needed to ensure that the program meets Council needs. This will require that the Council develop program objectives in terms of the fishing modes and species that will need to be covered and the target level of precision for the harvest and effort estimates. The program should be geared to providing such estimates according to the time intervals at which the Council expects to consider inseason adjustments; the time intervals needed by the Council will not necessarily be consistent with the two-month intervals used for the MRFSS. From a statistical standpoint,

it is important to note that the target level of precision identified by the Council should pertain to the cumulative harvest and effort estimates from the beginning of the season up to each point of inseason adjustment, as well as to the end-of-season estimates.

Development of an inseason monitoring program will be a major undertaking that will require considerable commitment of time and resources of those involved. The current sense of urgency regarding such a program must be maintained if it is to be developed in a timely manner. The SSC is willing to assist the Council in identifying program objectives and reviewing program elements as they are being developed.

PRELIMINARY HARVEST LEVELS AND OTHER SPECIFICATIONS FOR 2002

Dr. Jim Hastie presented an overview of the Groundfish Management Team (GMT) preliminary acceptable biological catch (ABC) and optimum yield (OY) determinations for 2002 (Exhibit C.3, Attachment 1). We wish to highlight that the new EDCP model-based estimates of discard rates (reviewed by the SSC in Sept 2000) were used to estimate total catch of sablefish, Dover sole, shortspine, and longspine thornyhead. This is a major improvement over the standard Pikitch *et al.* (1988) adjustments which are calculated as a fraction of the landed catch of the species being estimated. All rockfish discard adjustments (16% of landed catch) continue to come from Pikitch *et al.* (1988).

Based on Dr. Hastie's presentation, the Scientific and Statistical Committee (SSC) notes:

Lingcod - The OY is based on a rebuilding analysis and will incorporate a 20% discard rate landing adjustment.

Pacific Whiting - There will be a new stock assessment in winter 2002.

Sablefish - This was a 2001 Stock Assessment Review (STAR) Panel species. Uncertainties in the assessment pivot on density dependent versus environmentally driven recruitment, estimates of current relative to virgin biomass, and the level of F_{MSY}. The bottom line is that the levels of recruitment observed in the 1990s cannot sustain very high harvests. Three OY options were presented. The SSC notes that the low option (3,200 mt) is estimated to prevent the population from falling below the $B_{25\%}$ rebuilding trigger for the next 5 years under 3 out of 4 of the scenarios evaluated. For this reason, the SSC supports this option. In addition, given the low recruitments in the 1990s, it seems prudent to consider moving to a more conservative $F_{50\%}$ harvest strategy. The discard rate landing adjustment was approximately 13% overall based on the EDCP trawl rate of 20%.

Dover Sole - The GMT had the same concerns about Dover sole recruitment as sablefish – that recruitment levels observed in the 1990s cannot sustain high harvest levels. The GMT estimates a downward biomass trajectory in the absence of substantial boosts in recruitment. The discard adjustment was estimated based on EDCP data (~5%).

Shortspine Thornyhead - The discard adjustment was 20% based on EDCP. The ABC/OY has increased marginally from last year.

Longspine Thornyhead - There was no new assessment. The discard adjustment was 17% based on EDCP.

Widow Rockfish - The GMT presented a range of OYs based on 60%, 70%, 80% likelihood of recovery in the allotted time. Dr. Hastie pointed out that a major drop in widow OY could impact yellowtail rockfish management, particularly as regards bycatch rates in the midwater trawl fishery.

Pacific Ocean Perch (POP) - OY estimates are based on a new rebuilding analysis. Concerns were expressed over the magnitudes of recent year classes as well as anticipated downward adjustments of historical foreign POP catches. The latter should reduce estimates of historic biomass and current estimates of OY. The SSC thus recommends adopting the lower OY associated with a higher likelihood (80%) of recovery in the allotted time.

Yellowtail Rockfish - Once again, Dr. Hastie expressed concern about the yellowtail/widow catch ratios in the midwater trawl fishery and how these might affect the yellowtail rockfish fishery.

Chilipepper Rockfish - Recent harvests have been below OY, because of bocaccio bycatch.

Bocaccio - Dr. Hastie expressed concern that the bocaccio harvest may have exceeded the 3 year 100 mt OY due to uncertainties in the recreational catch data. As a result, OY may need to be adjusted downward.

Yelloweye Rockfish - This is a new stock assessment. Dr. Hastie said that the recreational fishery may need additional regulation to protect both bocaccio and yelloweye rebuilding.

Black Rockfish - This was a STAR Panel species. However the Oregon/Northern California assessment had to be retracted after the STAR Panel met, because errors were discovered in the input data provided to the STAR Panel process. The SSC suggests that in the future individuals responsible for the input data to a stock assessment be fully integrated into Stock Assessment Team (STAT) Team activities. If this is not possible, then the raw data and documentation should be supplied to the STAT Team.

Dr. Hastie then presented an overview of his *Sebastes* discard paper (Exhibit C.3, Attachment 4). He pointed out a number of problems associated with using the Pikitch *et al.* (1988) study as a discard baseline.

1) The gear has changed substantially since the study was done.

2) Stock biomasses have changed substantially since the study was done. For example based on the NMFS survey, the ratios of widow, canary, and yellowtail rockfish to flatfish are much lower now than they were at the time of the study.

3) Trip limits today are substantially lower than they were in the late 1980s.

Dr. Mark Powell (The Ocean Conservancy) presented an overview of his groundfish bycatch and discard assessment (Exhibit C.3.e, Public Comment). His major recommendation is that "bycatch must be recognized as resulting from fishing activities that target other species, and bycatch estimates should link bycatch to the level of catch of the target species." He recommends that this be done by using the NMFS triennial survey to estimate species co-occurrence ratios as a baseline. However no explicit estimation algorithm or method is proposed to estimate bycatch and, subsequently, discard. The SSC agrees with his basic premise – that bycatch and discard should be estimated from specific targeted fishing activities and not from landings of the species being estimated. However the estimation process is much more complicated than Dr. Powell suggests and will require a major long-term research effort in order to develop (see item 2 below).

The SSC discussed the whole issue of bycatch and discard estimation and has the following recommendations:

1) The SSC groundfish subcommittee will work closely with the GMT in developing and refining short-term discard estimates to be presented at the November 2001 meeting. In addition, the SSC will carefully examine any changes in discard estimates which the GMT presents in November based on their upcoming re-analysis. The GMT will be using Pikitch et al. (1988), EDCP, logbook and the current Washington exempted fishing permit program to attempt to identify discard rates by target fishery, trying to make adjustments for changes in trip limits and stock biomass levels between the time the data were collected and the present. The SSC looks forward to seeing the results of this analysis.

2) In our view, simple analyses of co-occurrence (essentially catch ratios) in the NMFS survey will not provide a better discard estimation procedure than that currently used by the GMT. However, over the longer term, this type of analysis – coupled with the more comprehensive development of a multi-species model which incorporates fishery, observer, and survey data – should be encouraged. In order to come to fruition, this process needs to be initiated as soon as possible.

3) The SSC expects the new observer data will be used to estimate discards for the 2003 cycle. In addition, as this data set matures we anticipate that it will be used as an aid to inseason management.

REBUILDING PLANS

The SSC reviewed the canary rockfish rebuilding plan and recently completed rebuilding analyses for lingcod, Pacific ocean perch, and darkblotched rockfish.

Mr. John Devore briefed the SSC on the status of the canary rockfish rebuilding plan (Exhibit C.5, Attachment 2). He noted that at the Council's June meeting, adoption of the plan was delayed pending incorporation of new material regarding canary rockfish habitat requirements and estimation of total catch (i.e., landings plus discard). Also, since the SSC had not provided comment on the plan in June, the Council asked the SSC to examine the revised document in its entirety. The SSC reviewed the plan largely with respect to its content, as the format of the document is expected to change if any fishery management plan amendment or regulation is required for adoption.

The canary rebuilding plan is intended to serve as a template for rebuilding plans for other species. SSC comments regarding the plan are as follows:

· The canary plan accurately reflects the technical content of the canary rebuilding analysis. With respect to format, the SSC recommends key results of the rebuilding analysis, with pertinent tables and figures, appear in the main body of the plan, and that the entire rebuilding analysis, including all technical details, be consolidated into a single addendum.

· Section 4.2.2.6 of the plan ("Monitoring Fishing Mortality and Discard Assumptions" - p. 26) does a good job of documenting measures being taken to estimate and reduce canary discards and the rationale for such measures.

· Several important aspects of the plan – including the rebuilding period (p. 31), harvest limits during the rebuilding period (p. 32) and bycatch control strategies (p. 33) – were affected by consideration of impacts on fishing communities. However, other than a reference to the existence of demographic information on the Council's website (p. 19), very little information regarding coastal communities is provided in the plan. The SSC recommends that potential impacts on coastal communities be documented in the plan itself.

· Further work on the rebuilding plan in terms of regulatory analysis of options will be required if the Council intends to submit the plan as an FMP amendment or regulation. Section 3 describes the commercial and recreational fisheries for canary rockfish and documents the effect of regulatory restrictions on those fisheries in recent years. Such information can provide a useful starting point for addressing Regulatory Flexibility Act and other requirements for socioeconomic analysis of rebuilding options.

- While a regulatory analysis of the canary rebuilding plan would pertain only to canary, the number of groundfish stocks in need of rebuilding has a cumulative effect on the industry that would not be reflected in any single rebuilding plan. Mr. Devore indicated the possibility of a "bridging document" that would describe such cumulative effects. The SSC supports preparation of such a document.

- Generally speaking, the resources required to prepare regulatory analyses for all rebuilding plans will make it difficult to complete rebuilding plans for overfished stocks within the required one year time frame.

The SSC also reviewed new rebuilding analyses for lingcod, Pacific ocean perch and darkblotched rockfish, and makes the following observations concerning each:

- Lingcod - Mr. Tom Jagielo presented an updated rebuilding analysis based on the most recent 2000 coastwide stock assessment, which utilized the rebuilding software developed by Dr. Andre Punt (Exhibit C.5, Attachment 6). That computer program was created to standardize rebuilding calculations and to ensure stock projections conform to the SSC's guidelines for conducting rebuilding analyses. The new lingcod analysis used recruitments from all years to establish the rebuilding biomass target, consistent with B_0 depending on environmental conditions, and recent recruitments for projecting the population forward; both decisions are supported by the SSC. This work represents an update to a pre-existing rebuilding analysis, although the rebuilding time horizon remains unchanged. The stock is expected to rebuild to the target biomass level ($B_{40\%}$) within the remaining allowable time period (7 years). The GMT's 2002 total catch optimum yield (OY) recommendation (577 mt) is based on a 60% probability of stock rebuilding by the year 2009.

- Pacific ocean perch - Dr. Richard Methot presented results of an updated rebuilding analysis by Drs. Andre Punt and Jim Ianelli (Exhibit C.5, Attachment 5) that is based on the 2000 stock assessment completed by Ianelli et al. As with lingcod, this analysis utilizes the Punt rebuilding software and is framed to ensure that rebuilding is completed within the original time frame allotted (i.e., 2042). The SSC notes that in this instance the rebuilding target ($B_{40\%}$) is based upon spawner-recruit parameter estimates from the assessment model, rather than a time series of recruitments, although recruitments from the period 1965-1998 were used to project the population forward; both decisions are supported by the SSC. The range of 2002 total catch OY recommendations presented by the GMT (290 mt, 350 mt, and 410 mt) is based on probabilities of stock recovery equal to 80%, 70% and 60%, respectively. However, there is concern that revisions to foreign catch estimates of Pacific ocean perch, which should soon be available, will reduce the estimate of stock size and, consequently, the above OY values.

- Darkblotched rockfish - Dr. Richard Methot presented results of a new rebuilding analysis for this species (Exhibit C.5, Attachment 8) that is based on an update of the 2000 stock assessment conducted by Dr. Jean Rogers. At the June 2001 meeting, the SSC recommended the 2000 slope survey data be included in the darkblotched model to incorporate the best available scientific information in the rebuilding analysis of this stock. The new analysis, which did not involve changes to the model's structure, indicates the stock is more depleted than originally estimated (i.e., 14% of unfished biomass) and that recruitment in recent years has been markedly less than in the 1970s. Like lingcod, the preferred rebuilding analysis utilized all recruitments for establishing the rebuilding target but used recent recruitments for projection purposes. Likewise, all computations were completed using the Punt software package. The range of 2002 total catch OY recommendations presented by the GMT (157 mt, 168 mt, and 181 mt) is based on probabilities of stock recovery equal to 80%, 70%, and 60%, respectively.

The SSC concludes that each of the three rebuilding analyses is technically sound and captures the range of yields that are likely under the various rebuilding scenarios examined.

Marine Reserves

MARINE RESERVE PROPOSALS FOR CHANNEL ISLAND NATIONAL MARINE SANCTUARY

The SSC was briefed by Mr. Sean Hastings, Channel Island National Marine Sanctuary (CINMS), and Ms. Patty Wolf, CDFG, on the current status of the process to develop a network of marine reserves within the Sanctuary's boundaries. The California Fish and Game Commission is currently considering a number of options for the size and placement of reserves at CINMS. They may select an option as early as February 2002. This is ahead of the time frame in which the Council is likely to come to its own conclusions. The process through which consistent state and federal fishery regulations will be developed is not clear.

It will be important that there be close coordination between CINMS and the Council. In accordance with National Environmental Policy Act (NEPA) requirements, it will also be important that the Council receive a full regulatory analysis of reserve size and location alternatives considered by the CINMS. These documents should include a socioeconomic as well as an ecological comparison of options. These analyses are necessary to inform Council deliberations on this issue, and the Council should not be expected to take action without these analyses. The SSC looks forward to reviewing these documents when they become available.

The SSC Ad Hoc Marine Reserves Subcommittee will be meeting with the CINMS Science Panel on October 1 and 2, 2001 in Santa Barbara, California to discuss the Science Panel's findings and recommendations. This meeting will focus on the Science Panel's recommended reserve size and how they determined the potential fishery benefits that would result from a marine reserve network in the CINMS. The SSC will present a statement to the Council at the November meeting on the results of this meeting.

Coastal Pelagic Species

MARKET SQUID MAXIMUM SUSTAINABLE YIELD METHODOLOGY WORKSHOP

At the Council's request, the SSC, in conjunction with the CDFG and the National Marine Fisheries Service (NMFS), held a market squid maximum sustainable yield (MSY) methodology workshop in May of 2001. Dr. Paul Crone of the Coastal Pelagic Species Management Team (CPSMT) presented an overview of the various modeling approaches, and provided considerable detail on the egg escapement approach to assessing the market squid resource. SSC member Dr. Raymond Conser, co-chair of the squid STAR Panel, briefed the SSC on the panel's report.

The squid MSY workshop was a highly successful collaboration among CDFG, NMFS, and the SSC. This collaboration was essential to the assembly and analysis of all available biological and fishery data. The panel provided a thorough review of the data and alternative approaches to the squid MSY problem. All of these efforts resulted in productive and timely completion of the review.

The STAT Team and STAR Panel worked together in refining a yield-per-recruit approach based on egg escapement, and both groups recommend this policy for monitoring status of the squid stocks. There are two parts to the egg escapement approach, 1) eggs produced per female in the catch, and 2) recruitment to the spawning grounds. Squid recruitment is highly variable and probably environmentally driven. The egg escapement approach requires an estimate of remaining eggs per female at the time of capture by the fishery. CDFG port samplers are collecting the specimens needed to make this estimate on a seasonal basis. It will be important to provide continuing support for this sampling and for the laboratory work needed to count the eggs.

The egg escapement approach developed by the STAT Team and further refined during the STAR Panel process provides a sound basis for developing a harvest control rule that is based on biological principles. However, there is a continuing need to address uncertainties in the science that were identified during the workshop. To this end, the SSC supports the idea of a STAR Panel review in 2004. It will also be important that the CPSMT develop precautionary management options that reflect uncertainties in the science. The SSC looks forward to reviewing this work as it is incorporated into Amendment 10 of the Coastal Pelagic Species Fishery Management Plan.

Salmon

UPDATE ON SCIENTIFIC AND STATISTICAL COMMITTEE METHODOLOGY REVIEW

The SSC Salmon Subcommittee and the Salmon Technical Team will hold a joint meeting on October 23 and 24, 2001 to review the Klamath Ocean Harvest Model (KOHM) and the coho Fishery Regulation Assessment Model (FRAM) re-calibrated with data from the coho cohort analysis project. We will not review the chinook FRAM, because no changes were submitted. The SSC requests that authors preparing the KOHM and coho cohort analysis provide all documentation to the Council and directly to the reviewers by October 9, 2001.

The re-calibrated coho FRAM and revised KOHM may be ready for use to set the 2002 seasons. If these models are used in 2002, they must be approved at the November 2001 Council meeting.

Public Comment

There was no formal public comment.

Adjournment

The SSC adjourned at approximately 6 p.m., Tuesday, September 11, 2001.

PFMC
09/22/01