

SUMMARY MINUTES

Scientific and Statistical Committee

Pacific Fishery Management Council
Doubletree Hotel - Columbia River
Yakima Room
1401 North Hayden Island Drive
Portland, OR 97217
(503) 283-2111
September 13-15, 1999

Call to Order

The meeting was called to order at 8:30 A.M. by Chairman, Dr. Peter Lawson. Executive Director, Mr. Lawrence D. Six reported that the most important agenda items for Scientific and Statistical Committee (SSC) comments to the Council would be Rebuilding Plans for Lingcod, Bocaccio, and Pacific Ocean Perch (G.3.); and Preliminary Stock Assessments, Harvest Levels, and Other Specifications for 2000 (G.4.). Mr. Six also asked the SSC to consider how best the Council might plan for future stock assessments and rebuilding schedules. Mr. Six noted that a system is needed for assessing and rebuilding stocks in the face of severe quota reductions, limited funds, staff, resources, and the public's desire for answers.

Mr. Six also noted the U.S. General Accounting Office (GAO) is reviewing implementation of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) (specifically, provisions from the Sustainable Fisheries Act of 1996). GAO staff will be in attendance at the September Council meeting and are available to all interested parties. GAO is interested in receiving information about National Marine Fisheries Service (NMFS) implementation of national standards pertaining to use of best available science, consideration of fishing communities, and provisions relating to essential fish habitat.

The agenda was approved with the following changes: the lead on G.4. was changed to Ray Conser and some times were shifted around.

Minutes from April 1999 and June 1999 were approved.

Members in Attendance

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, Newport, OR
Dr. Susan Hanna, Oregon State University, Corvallis, OR
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, Tiburon, CA
Dr. Gilbert Sylvia, Hatfield Marine Science Center, Newport, OR
Ms. Cynthia Thomson, National Marine Fisheries Service, Santa Cruz, CA
Dr. Richard Young, Crescent City, CA
Dr. Shijie Zhou, Oregon Department of Fish and Wildlife, Portland, OR

Members Absent (Monday, September 13, 1999)

Dr. Robert Francis, University of Washington, Seattle, WA
Dr. Gary Stauffer, National Marine Fisheries Service, Seattle, WA

Scientific and Statistical Committee Comments to the Council

The following text contains SSC comments to the Council. (Related SSC discussion not included in written comment to the Council is provided in italicized text).

Open Discussion

Dr. Lawson introduced Mr. Dan Waldeck (who recently joined the Council staff) to the SSC. Members gave brief introductions and welcomed Mr. Waldeck.

Salmon Management

Nonretention Mortality in Ocean Salmon Fisheries

Dr. Robert Kope of the Salmon Technical Team (STT) updated the SSC on the status of the review of nonretention mortality in ocean salmon fisheries. The Ad-Hoc Salmon Nonretention Mortality Committee met on June 21, 1999 and held a teleconference call on August 20, 1999. This group has focused much of its effort on determining appropriate hook-and-release mortality rates for chinook and coho salmon in recreational ocean salmon fisheries. The results of recent (1985 and later) studies conducted in British Columbia, Washington, Oregon, and California have been quite variable. Fish size, gear used, environmental conditions, and other factors all seem to influence mortality rate. The most serious problem with past hooking mortality studies, and any studies that will be conducted in the future, is the difficulty of holding salmon for extended periods of time after capture.

The SSC recognizes the importance of hook-and-release mortality rates for fishery management, especially with selective fisheries. The rates currently used appear to be in the lower end of the range for recent studies; more conservative rates may be warranted. The SSC supports the proposal for the STT, with input from the SSC, to review current hooking mortality rates used by the Council in recreational ocean fisheries. Recommendations for interim rates to be used in the year 2000 could be presented to the Council at the November 1999 meeting. The SSC also suggests the uncertainty associated with hooking mortality rates for ocean salmon fisheries be clearly described and presented to the Council in the future. Recognizing that precise estimates of hook-and-release mortality may not be forthcoming, some discussion of ways to incorporate risk into management when using these rates is needed.

Salmon Test Fishery Protocol

The SSC discussed the proposed protocol for establishing test fisheries for collecting research data. The SSC supports the establishment of a protocol for test fisheries. However, before adopting this policy the Council should consider how it relates to the exempted fishing permits and scientific research policy of NMFS. The protocol should include a policy statement that clearly defines a test fishery. Any proposed test fisheries should address the Council's research and data needs to help focus projects on Council priorities.

All proposals would be reviewed by the SSC, STT, and Salmon Advisory Subpanel, and a written evaluation of each proposal would be provided to the Council. These evaluations would increase the work load of each committee.

Coastal Pelagic Species Management

Coastal Pelagic Species Plan Amendment to Address Disapproved Provisions of the Coastal Pelagic Species Plan

NMFS has disapproved provisions of *Amendment 8 to the Northern Anchovy Fishery Management Plan* pertaining to optimum yield (OY) specification for squid and bycatch evaluation.

NMFS' disapproval of the squid OY specification relates to the lack of an maximum sustainable yield (MSY) estimate. SSC comments regarding squid MSY estimation are as follows:

1. Market squid is very short-lived; recruitment and availability to the fishery are probably highly susceptible to environmental influences, and its spawning distribution and life history are poorly understood. One option being considered by the Coastal Pelagic Species Management Team (CPSMT) is to specify MSY on the basis of historical landings, an approach suggested by Restrepo *et al.* for situations in which biological data are lacking. The Restrepo recommendations, however, are best suited for finfish stocks with

multiple year classes and may not be appropriate for squid. Another option considered by the CPSMT is to postpone MSY estimation until the results from ongoing aging, genetic, early life history, and other studies become available. These studies have been initiated to provide a scientific basis for a state-mandated squid fishery management plan, which must be completed by April 1, 2001. Given the biology of squid, there is no guarantee that MSY can be meaningfully estimated even after the results of these studies are known. However, the SSC expects these studies to provide a more substantive basis for estimating MSY than a simplistic approach based on landings alone. Landings may be less reflective of biomass than of market conditions and technological changes in the fishery.

2. The SSC recommends the CPSMT consider allowing MSY to vary with environmental conditions rather than using a point estimate. At the same time the CPSMT deliberates on how to estimate squid MSY, it would also be desirable for the CPSMT to revisit the MSY control rule for monitored stocks ($ABC=25\%$ of MSY) as specified in amendment 8 to ensure it is appropriate for squid.

With regard to evaluation of bycatch, given the nature of purse seine operations in the coastal pelagic fishery, sorting of fish at sea is not practical. Almost all of the fish that are caught are also landed, with the possible exception of fish that are too large to pass through the intake. Although anecdotal information suggests bycatch of larger fish rarely occurs, a reporting system is needed to validate this. An issue in this regard is how to weigh the benefits of quantifying a bycatch problem that is not generally perceived as significant against the costs associated with such quantification. Most of the fish caught in the coastal pelagic fishery are landed and available for observation by port samplers. Rather than initiating potentially costly logbook or observer programs to gather information on presumably rare events in which catch is discarded at sea, another option would be for port samplers to ask each vessel returning to port about the extent of its discards. The CPSMT may be able to validate some of the discard information provided to shoreside samplers by comparison with observer data gathered on board vessels granted exempted fishing permits for anchovy reduction.

Groundfish Management

Groundfish Plan Amendment to Address Bycatch

The SSC reviewed the *Draft Groundfish Bycatch Amendment* (Supplemental Attachment G.7.a. September 1999). Mr. Jim Glock briefed the SSC on the bycatch provisions that were submitted as part of *Amendment 11 to the Groundfish Fishery Management Plan* (FMP); NMFS disapproval of those bycatch provisions (March 1999); and progress to date on a revised amendment structured to address NMFS concerns.

The Magnuson-Stevens Act requires every FMP to:

1. Assess the amount of bycatch currently occurring in the fishery.
2. Implement management measures that minimize bycatch (to the extent practicable).

In revising the amendment to satisfy NMFS concerns, the Council may be able to use the proposed observer program for West Coast groundfish to address the first of these requirements. If the Council adopts closed seasons to achieve the reduced 2000 harvest levels associated with rebuilding, bycatch may be reduced from the 1999 level. However, it appears unlikely that the various alternatives, delineated in the current *Draft Groundfish Bycatch Amendment*, will fully address the second Magnuson-Stevens Act requirement (*i.e.*, to minimize bycatch to the extent practicable).

Given the steady reductions in total allowable catches (TACs) to date and the further reductions that are likely in the future, the historical Council management practice of modifying the time period over which trip limits are applied (*e.g.*, monthly to bimonthly to quarterly) has reached a point of diminishing returns with respect to its effectiveness in minimizing bycatch. This may be an opportune time for the Council to take a broader view with regard to bycatch minimization. Such an approach would integrate proposed management measures with fleet configuration and TAC levels, while accounting for the information costs associated with any respective management measure (*e.g.*, the cost of an observer program needed in order to maintain the year-round fishery objective). Capacity reduction, abandonment of the year-round

fishery objective, and/or other innovative measures will flow naturally from a more comprehensive analysis of the bycatch issue. The Council's strategic planning process should dovetail nicely with a systems approach to bycatch minimization, and the SSC encourages the merging of these two processes.

Rebuilding Plans for Lingcod, Bocaccio, and Pacific Ocean Perch

The SSC reviewed all available documents relating to this issue (including our statements from the April and June 1999 meetings).

Dr. Ray Conser reviewed general conclusions of the August 1999 SSC Groundfish Subcommittee meeting with the rebuilding analysis authors. The major recommendation was that all rebuilding analyses include a baseline exercise that has the following elements:

A determination of B_0 (virgin biomass) as the product of SSB/R under no fishing and recruitment during the earliest part of the record for the stock. When possible this should be spawning biomass (SSB_0).

A determination of $B_{msy} = 0.4 B_0$ (based on Figures 11.2 and 11.5 in Ricker's handbook).

A forward projection using recruitment based on Monte Carlo sampling from a recent time series of recruitment estimates.

The SSC then reviewed the three current rebuilding analyses with their authors. All three of these analyses employed the methods specified above.

Lingcod (T. Jagielo) – Lingcod is a relatively productive species and should rebuild within a 10-year horizon. Depending on the expected percentage of successful rebuilding to target biomass within 10 years (ranging from 60% - 100%), Jagielo estimates the 2000 optimum yield (OY) would have to be reduced to 42% – 86% of the 1999 OY for the northern stock and 56% – 89% of the 1999 OY for the southern stock. This rebuilding assessment assumes that Canada takes the same management measures as the U.S. for the northern stock.

Bocaccio (A. MacCall) – Bocaccio clearly will take longer than 10 years to rebuild. The rebuilding target was SSB_{40} as recommended above. The major stock assessment issue was how to estimate 1999 recruitment. Early indications are that the 1999 year-class is strong. However the SSC recommends we use MacCall's "medium strength" for the 1999 R/SSB (the San Onofre impingement data argued against "low strength" and the "high strength" had a R/S higher than ever observed). Projections are based on subsampling the 1977 – 1999 R/SSB time series. In addition, the SSC recommends the target rebuilding trajectory be designed to achieve rebuilding in target years with 50% probability, or higher, as specified in the NMFS checklist for fishery management plan amendments document (3 August 1998).

Pacific Ocean Perch (POP) (A. MacCall) – The POP rebuilding analysis was similar to that for bocaccio. Clearly this stock will take more than 10 years to rebuild. The major stock assessment issue here was what recruitment time series to resample for the forward projections. The SSC recommends the "1980 – on" time series be used since it is more contemporary than the "1970 – on" time series and, if proven wrong, can be subsequently adjusted for. We also recommend target rebuilding trajectory be designed to achieve rebuilding in target years with 50% probability, or higher, as specified in the NMFS checklist for FMP amendments document (3 August 1998).

The SSC recommends rebuilding plans be updated within the stock assessment cycle (3 years).

Finally, the SSC recommends stocks should be rebuilt to conditions where the 40-10 OY policy could be applied as quickly as possible.

Preliminary Stock Assessments, Harvest Levels, and Other Specifications for 2000

The SSC reviewed the preliminary Groundfish Management Team (GMT) recommendations for 2000 acceptable biological catches (ABCs) and optimum yields (OYs). The *Sebastes* complex management

units have changed in two ways since last year, (1) the management line used to delineate the northern and southern *Sebastes* groups has been moved south to fully include the Eureka area into the northern management area, and (2) six multispecies strata have been created, dividing the complex into north/south and nearshore/shelf/slope assemblages. Survey data were used to apportion the complex into the shelf and slope categories, and catch data were used to apportion into the nearshore strata. This approach appeared to be reasonable, but the SSC notes the individual species catch data available for apportionment were poor for some strata, particularly for nearshore rockfish in California.

The SSC is particularly concerned that comprehensive, reliable recreational catch statistics are not available for groundfish stock assessment and management. Marine Recreational Fisheries Statics Survey data, in particular, are controversial and may not be suitable for generating catch distributions by area. This will be a problem of increasing concern as overfished stocks are considered with respect to recreational/commercial allocation.

With regard to the challenges of rebuilding overfished stocks in the context of multispecies management, the SSC raised the following questions:

1. Do the proposed multispecies assemblages make sense with respect to rockfish biology, fisheries, and rebuilding plans?
2. Should OYs be adjusted to reflect bycatch issues that will arise during rebuilding (for example, to account for the expected bycatch of bocaccio in directed fisheries for chilipepper rockfish)?
3. What specific mechanism(s) will be used to protect the individual overfished stocks while harvesting the *Sebastes* multispecies complex?
4. Can management measures established for the nearshore/shelf/slope assemblages be effectively enforced?
5. Are the existing data systems adequate for managing under the new system? How will total mortality be accounted for, given the occurrence of undocumented discards?
6. Are the present sorting requirements adequate to meet the new multispecies management categories?

The SSC notes that recently compiled evidence supports a revised view of West Coast groundfish productivity. The GMT proposal for modifying the F_{msy} harvest proxy by 5% in a precautionary direction for all groundfish species except whiting and flatfish in 2000 is reasonable. A comprehensive workshop is planned for next year which will provide guidance to refine this change.

Review of Harvest Policy

The SSC is moving forward on plans for a groundfish harvest rate policy workshop. The objective of the workshop will be to evaluate the Council's default F_{msy} proxy. The workshop will include an evaluation of a variety of alternative hypotheses for the apparently low productivity of some West Coast groundfish relative to other groundfish stocks worldwide. The workshop findings will be made available to the Council in time for the 2000 groundfish management cycle.

The workshop will be scheduled for one week in March 2000, and will be chaired by Steve Ralston. In addition to SSC representatives, participants will include members of the GMT and Groundfish Advisory Subpanel and two outside reviewers. Individuals who have done analyses relevant to the issue will be invited to present and discuss their findings. Travel costs may be significant. The SSC will provide the Council with terms of reference for the workshop at the upcoming November Council meeting.

Groundfish Priorities and Schedules

The SSC discussed groundfish priorities and schedules and reviewed the Council work plan for the remainder of 1999. The SSC noted most of the high priority items for 1999 will remain significant issues in 2000 and beyond. For example, the technical basis for developing default F_{msy} proxies will be under review

during most of 2000. Because of the long term nature and workload associated with many of these items, it is unclear when "lower priority" items will become "high priority" issues. In addition, many of the lower priority items could be significant elements in implementing a groundfish strategic plan. Work plans need to be developed within the framework of a three to five year strategic plan in order to establish priorities and schedules consistent with short and long run needs.

Marine Reserves

Marine Reserve Management

The SSC reviewed the report of the Ad-Hoc Marine Reserve Committee (MRC Report H. September 1999) and the Marine Reserves and Harvest Management Policy (Attachment H.1. September 1999). The report addresses general considerations related to the use of marine reserves in West Coast fishery management. The policy paper discusses the potential role of marine reserves in rebuilding overfished stocks.

During an active discussion of the issues surrounding marine reserves the SSC identified many critical questions not addressed in the report that demand further discussion and exploration.

What is the overarching goal for marine reserves? What is the primary objective for marine reserves -- what problem would they be designed to address? Stock rebuilding is one possible objective, but it is a narrow one. Broader objectives such as ensuring ecosystem function and promoting sustainable fisheries would represent a more holistic approach that would provide opportunities for experimentation and the potential for multiple benefits.

In considering the experimental value and other potential benefits of marine reserves, the question is at what scale and at what cost would these be achieved? The funding environment is now zero-sum – there are many competing uses of funds, and money that is used for one activity is not available for another activity. This indicates the need to take a strategic and systematic approach to the question of marine reserves.

A systematic evaluation should address the biological, economic, allocation, enforcement, social, and institutional questions related to the scale, design, location, and management of marine reserves. Once the overall goal is specified, alternative approaches to achieving that goal need to be assessed and compared in terms of their cost-effectiveness. The costs and benefits of marine reserves should be compared to the costs and benefits of alternative uses of funds. For example, if the goal is to reduce fishing mortality, a vessel buyback program to reduce capacity could also be considered.

There are several questions related to the design of marine reserves. Do the dynamics of West Coast fish populations lend themselves to recovery in marine reserves? How large would the reserves area have to be to achieve the desired results? What information is needed to design a system of marine reserves that would cover more than 80 groundfish species?

There are also questions related to the use of marine reserves in conjunction with other tools of fishery management. It is not clear how marine reserves would affect the amount of information needed for management. Would marine reserves decrease or increase the requirements for stock assessment? Would they simplify or complicate management outside the marine reserves?

The SSC also noted in its discussion that the consideration of marine reserves is in part an outcome of the current approach to management. Overcapacity and increasingly restrictive trip limits have pushed vessels into areas – such as rocky outcroppings and coral areas – that formerly served as natural reserves. Accordingly, consideration of the use of marine reserves should be done in concert with the entire system of management. Coastwide capacity reduction will enhance the effectiveness of other management measures.

The SSC discussed several other points to consider when developing marine reserves as fishery management tools: (1) marine reserves will result in the need to allocate resources among fishing communities; (2) submarine communication technologies may affect the development of marine reserves – submarine communication cables may act as de facto marine reserves, the process for laying these

cables is not linked to the fishery management planning process; (3) clarification of activities that will be allowed within reserves; and (4) ability to enforce boundaries and monitor activities within reserves.

The SSC looks forward to the presentation of the conceptual paper "Developing the Theory of Marine Reserves" by researchers from the National Center for Ecosystem Analysis and Synthesis at the November Council meeting and to continued involvement in the discussion of the important issues surrounding this subject.

Strategic Planning

The SSC met with Ms. Debra Nudelman, a facilitator from the Resolve Corporation, to discuss the Council's strategic planning initiative and give the SSC the opportunity to provide input to Ms. Nudelman. Ms. Nudelman related to the SSC the Ad-Hoc Groundfish Strategic Plan Development Committee was in the initial stages of the strategic planning process, (i.e., gathering information about the current state of the groundfish fishery and suggestions for ensuring a successful strategic plan). The SSC provided their input based on a series of questions put forward by Ms. Nudelman. This information will be incorporated into the draft groundfish strategic plan.

Public Comment

There was no public comment.

Adjournment

The SSC adjourned at approximately 6:30 P.M., Tuesday, September 14, 1999.

Research and Data Needs (ongoing list)

1. Systematic review of salmon run-size predictors; evaluation of forecasts through hindcasts. (Resulting from March 1997 discussion on stock abundance estimates and preseason forecasts.)
2. Localized depletion of groundfish stocks, especially Dover sole and shortspine and longspine thornyheads, may occur at low abundance levels. The SSC recommends the GMT consider using area-specific harvest guidelines for these species. (From November 1997 discussion on 1998 harvest levels.)
3. It may be possible to increase harvest levels while still meeting target mortality fishing rates such as $F_{35\%}$ by deliberately managing the range of age and lengths targeted by the fishery. For example, avoiding capture of young Dover sole who have not yet realized their entire growth by shifting fishing effort in deep water might make larger catches possible. Effects on enforcement and other species would have to be considered. (November 1997.)
4. A recruitment survey for whiting would help reduce uncertainty in the stock assessment. (The SSC agreed that a more comprehensive discussion of research needs to support groundfish stock assessments was necessary, including how to integrate social and economic analyses into the assessment and how to analyze management histories from the assessments.) (November 1997.)

PMFC
10/19/99