SUMMARY MINUTES
Scientific and Statistical Committee

Pacific Fishery Management Council
Crowne Plaza Hotel
Syracuse Room
1221 Chess Drive
Foster City, CA 94404
(650) 570-5700
June 16 - 18, 2002

Call to Order

The meeting was called to order at 8 a.m. Dr. Donald McIsaac briefed the Scientific and Statistical Committee (SSC) on priority agenda items. He noted SSC review of California's proposal for marine reserves in the Channel Islands National Marine Sanctuary would be of high interest to the Pacific Fishery Management Council (Council). The highest priority groundfish-related items would be the new stock assessments and new rebuilding analyses, including the rebuilding analysis model developed by Dr. André Punt.

Dr. Martin Dorn was introduced to the SSC. Dr. Dorn is the new National Marine Fisheries Service-Alaska Fisheries Science Center representative on the SSC. He replaces Dr. Gary Stauffer.

After discussing the need to be flexible on the timing of certain items, the agenda was approved. After review, the April 2002 meeting summary was approved.

Members in Attendance

Dr. Brian Allee, Northwest Power Planning Council, Portland, OR
Mr. Alan Byrne, Idaho Department of Fish and Game, Nampa, ID
Mr. Robert Conrad, Northwest Indian Fisheries Commission, Olympia, WA
Dr. Michael Dalton, California State University, Monterey Bay, CA
Dr. Martin Dorn, National Marine Fisheries Service, Seattle, WA
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. Stephen Ralston, National Marine Fisheries Service, Santa Cruz, CA
Dr. André Punt, University of Washington, 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. Ramon Conser, National Marine Fisheries Service, La Jolla, CA
Dr. Peter Lawson, National Marine Fisheries Service, Newport, OR

Scientific and Statistical Committee Comments to the Council

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

Marine Reserves

Report on Review of Proposal for Marine Reserves in State Waters
of the Channel Islands National Marine Sanctuary

Background

At the April 2002 Council meeting, the State of California requested the Council review a draft environmental document (DED) being prepared by the California Department of Fish and Game (CDFG) to evaluate eight alternatives for the establishment of marine protected areas (MPAs) at the Channel Islands National Marine Sanctuary (CINMS). The SSC offered to have its Ad Hoc Marine Reserve Subcommittee provide a technical review of the document. Because the SSC is accustomed to conducting reviews in the context of federal regulatory requirements and the DED was intended to meet requirements of the California Environmental Quality Act (CEQA), the SSC requested guidance from the Council regarding the criteria that should be considered in reviewing the DED. The SSC was instructed to conduct a general technical review of the DED, keeping in mind any distinctions between the requirements of CEQA and the National Environmental Policy Act (NEPA).

In late May, the SSC received the DED, which was prepared by Messrs. John Ugoretz and David Parker of the CDFG and entitled "Draft Environmental Document - Marine Protected Areas in NOAA's Channel Islands National Marine Sanctuary," dated May 2002. The SSC also received a CD-ROM copy of an untitled, undated document co-authored by Dr. Vernon Leeworthy and Mr. Peter Wiley (NOS) that provided a socioeconomic analysis of MPA alternatives at CINMS. Information from the socioeconomic document was referenced extensively in the DED, and having the original socioeconomic analysis was helpful to the SSC.

The SSC Ad Hoc Marine Reserves Subcommittee met on June 10-11, 2002 in Portland, Oregon to review the DED. Mr. John Ugoretz (CDFG), Dr. Satie Airame (CINMS), Mr. Peter Wiley (NOS), Dr. Steve Gaines (University of California, Santa Barbara) and Mr. Jim Seger (Council staff) also participated in the meeting. Several other people participated or observed by speaker phone, including Mr. L.B. Boydstun (CDFG), Ms. Rene Hawkins (CDFG General Counsel), and Ms. Stephanie Campbell (NOAA General Counsel). The SSC appreciates the contributions of all participants to the meeting discussions.

At the meeting, Ms. Rene Hawkins provided the Subcommittee with a useful table (pages 10 through 12) that compared CEQA and NEPA in terms of their respective informational, analytical, and procedural requirements. As indicated in the table, one notable difference between CEQA and NEPA is that CEQA "does not require any consideration of social or economic effects, except where any such impact has a direct or indirect effect on the environment." While a socioeconomic analysis is not strictly required under CEQA, the DED includes extensive socioeconomic content and is apparently intended to do more than meet CEQA requirements. As stated in the DED, "The DED evaluates the important social, economic and environmental effects that may result from the proposed action" (p. 2-15). With regard to the rationale for going beyond CEQA requirements, the DED states, "... in the forum of the PFMC, socioeconomic constraints would be considered along with scientific recommendations. This mirrors the process that occurred within the Department in developing the proposed project and is demonstrated through the socioeconomic analysis in Chapter 5.4" (p. 5-17). The SSC reviewed the DED in its entirety, including analyses pertaining to both environmental and socioeconomic effects.

Management Alternatives

Eight management options are discussed in the DED. The preferred alternative (referred to as the "proposed project") and alternatives 1-5 represent alternative MPA configurations at CINMS. Alternative 6 is to defer the decision to establish MPAs at CINMS to the Marine Life Protection Act (MLPA). Alternative 7 is the "no action" alternative.

Proposed project and alternatives 1-5: The ecological characteristics and socioeconomic effects of the proposed project are discussed in Chapter 5 of the DED, and alternatives 1-5 are discussed in similar fashion in Chapter 6. To facilitate its discussion of the six MPA alternatives, the SSC constructed several tables to facilitate side-by-side evaluation of all alternatives. The tables (labeled SSC-1 through SSC-3)

are attached to this statement.

The DED characterizes CINMS as consisting of three major biogeographical regions (Oregonian bioregion, Californian bioregion, and a transition zone where the two bioregions converge) and various habitat types (sandy and rocky coast, soft and hard sediment, emergent rocks, submarine canyons, kelp forest, eelgrass, surfgrass). Representation of the three biogeographic regions under the preferred project is described in Table 5-3 (p. 5-2) for state waters and in Table 5-4 (p. 5-34) for state and federal waters combined. Similar tables are not included in the DED for alternatives 1-5. However, the DED does include separate tables for each of the six MPA alternatives that describe the extent to which representative and unique/vulnerable habitats are represented under each alternative. Table SSC-1 (attached) provides a side-by-side comparison of the alternatives in terms of habitat representation. The column totals in the table represent the total number of square nautical miles and the total percentage of CINMS waters set aside in no-take reserves under each alternative. In terms of the MPA alternatives for state waters, the area held in reserves ranges from 68.7 to 136.6 square nautical miles (nm2), comprising 6% to 12% of CINMS waters. In terms of state and federal waters combined, the area held in reserves ranges from 140.8 to 390.2 nm2, comprising 12% to 34% of total CINMS waters. The proposed project covers 279.0 nm2 or 25% of CINMS waters (114.4 nm2 in state waters, 164.6 nm2 in federal waters).

Alternative 6 (defer to MLPA): Alternative 6 is briefly discussed in the Executive Summary of the DED.

Alternative 7 ("no action" alternative): The "no action" alternative is described in Chapter 4 in terms of characteristics of the physical, biological and human environment.. The biological environment is described largely in terms of habitat types and species of interest. The human environment is described largely in terms of commercial fishing and consumptive and non-consumptive recreational activities.

Effectiveness of the Draft Environmental Document in Addressing CEQA Requirements

The SSC has the following comments regarding the DED as it relates to CEQA requirements:

1. CEQA requires that a baseline description be provided of the physical environment in the vicinity of the proposed project. Chapter 4 of the DED provides such a description.

2. CEQA requires preparation of an Environmental Impact Report which considers a range of reasonable alternatives that achieve the objectives of the project; the range of alternatives must include the "no project" alternative. The SSC notes the following regarding the alternatives:

a. The DED evaluates the proposed project and five other MPA alternatives relative to the "no project" alternative (i.e., status quo). However, the DED provides little if any information regarding the effect of the status quo relative to the goal of the project (i.e., what would happen if the project did not occur). If the intent of the proposed project is simply to establish marine reserves, then the DED should state that the status quo is by definition inconsistent with that goal. If the goal is something else, then a more extensive discussion is required to establish the inadequacy of the status quo for achieving the goal.

b. The DED rejects alternative 6 on the following basis: "The Department feels that deferring a decision would not change the proposed project and there is a potential to underestimate local economic and environmental impacts by combining them with those of the entire State....a timely decision would provide needed insight and experience in the implementation of reserves before the MLPA suggests MPAs for the entire State. Furthermore, biological and economic monitoring will contribute more information to the biological and fishery effects of reserves thus helping to refine future MPA decisions like the MLPA" (pp. E-3 and E-4). The rationale for rejecting this alternative is not clear to the SSC. Given that one of the MLPA goals is "to ensure that the state's MPAs are designed and managed, to the extent possible, as a network" (p. A1-5), it is possible that deferring the establishment of reserves at CINMS to the MLPA process could cause the proposed project to change when viewed in the context of a statewide network of reserves. It is also not clear why local impacts would be "underestimated" if combined with the MLPA.

3. CEQA requires that the proposed project be evaluated in terms of potentially adverse effects on the environment - including direct, indirect and cumulative effects - and that feasible mitigation measures be

adopted to address significant adverse effects. A relevant issue in this regard is whether effort displacement from reserve areas causes adverse environmental effects outside reserves. Specifically, to what extent would effort displacement adversely affect the physical and natural habitat by intensifying the effects of fishing operations outside reserves? To what extent would effort displacement exacerbate existing pressure on fishery resources outside reserves?

The DED does not consider the possibility of habitat effects associated with effort displacement to outside areas. Moreover, the DED refers only in positive terms to effort that might be attracted to the vicinity of the reserves after their establishment. Specifically, the DED cites behavior such as "fishing the line" as "compelling evidence" of fishery benefits associated with spillover of adult fish from reserves into open areas (p. 1-9) but does not consider the possibility of negative impacts on the physical habitat associated with "fishing the line."

With regard to the effects of effort displacement on fishery resources outside reserves, the DED acknowledges that "this displacement could cause congestion of effort and a potential negative environmental impact outside MPAs" (p- 5-1). However, in terms of the need for measures to mitigate adverse environmental impacts, the DED is ambiguous. On the one hand, the DED concludes that "Because no significant adverse environmental impacts would result from the proposed project, no measures to mitigate impacts are proposed" (p. 5-57). However, other language in the DED suggests a need for mitigation. For instance, the DED notes that "The proposed project attempts to limit this potential [for adverse environmental impacts] by specific area choices limiting the direct impacts to fishing activities. Potential displacement of effort may also be offset by the potential beneficial effects caused by increased production and spillover from the proposed MPAs. In addition, existing harvest controls (e.g., size limits, bag limits, seasons) will continue to control take outside MPAs and other regulatory processes limiting total effort of fisheries in the area are underway" (p. 5-1). The DED also cites the Nearshore Fishery Management Plan (FMP), the Squid FMP and effort reduction in the spot prawn trap fishery as examples of long term management plans that are expected to reduce effort or fleet size, and concludes that "the net effect of reducing effort, while closing some areas to fishing, should limit the possibility for congestion outside MPAs" (p. 5-18).

With regard to references in the DED to existing harvest controls and pending management plans for the nearshore, squid and spot prawn fisheries, the SSC notes that these management actions are being developed independently of whatever happens at CINMS. Existing and pending programs are part of baseline conditions and provide a context within which potential mitigation measures for displacement from CINMS should be considered. Baseline conditions may affect the nature and severity of mitigation measures required. For instance, effort displaced to depleted stocks would need to be dealt with more restrictively than effort displaced to less than fully utilized stocks. However, the baseline conditions themselves cannot be claimed as mitigative measures unless they are modified to deal specifically with CINMS displacement.

The SSC realizes that an evaluation of the effects of effort displacement on the physical and natural habitat outside reserves is not possible; however, it is important that the potential for such effects be at least acknowledged in the DED. With regard to the effects of effort displacement on fishery resources outside reserves, the SSC notes that the DED provides some information regarding the extent of effort displacement among consumptive recreational users. For instance, 63,322 person days of consumptive recreation would be displaced from reserve areas under the proposed project and an additional 14,586 days would be displaced in the federal phase of the project (Table 5-10, p. 5-50). Total state-federal displacement under the proposed project comprises 18% of the 437,908 person days of such activity that occur with the CINMS (Table 4-30, p. 4-163).

Displacement of commercial fisheries is expressed in the DED in terms of ex-vessel revenues, not fishing effort. Specifically, $3.3 million in harvest would be displaced from reserve areas under the proposed project and an additional $200,000 in the federal phase of the project (Table 5-5, p. 5-45). Total state-federal displacement would account for 16% of the $22.4 million in revenues generated by commercial fishing activities in CINMS (Table 4-20, p. 4-147). While the revenue estimates are categorized by species, the SSC notes that revenues are not necessarily indicative of the amount of effort displaced, as average revenue per unit effort can vary widely among fisheries. While it is not possible to predict precisely what would happen to displaced effort, fishticket data could be used to

obtain approximate estimates of the number of trips displaced and the specific CINMS fisheries from which they would be displaced. Such information can provide policy makers with a starting point from which to evaluate potential effects on fisheries outside reserves and to anticipate what types of specific management actions (if any) might be required to mitigate the effects of displacement. Lack of such information precludes a substantive discussion of this issue.

4. CEQA requires that agencies determine whether the proposed project has potentially adverse significant effects on the environment according to locally adopted "thresholds of significance." The DED provides an explicit ranking system for evaluating how well a habitat is represented in reserves. According to the system, the inclusion of 30% plus of a habitat in MPAs is characterized as "well represented," 20% to 29% as "adequately represented," 10% to 19% as "inadequately represented" and 0% to 9% as "poorly represented" (p. 5-12). The DED characterizes most habitats to be "adequately represented" by the proposed project, which incorporates at least 20% representation for most (12 of 17) habitats (see Table 5-3, p. 5-20). Thus 20% habitat representation appears to be the threshold of significance in the DED. The SSC notes that the DED's threshold is lower than the SAP's reserve size recommendation of 30% to 50%, suggesting that factors other than those considered by the SAP are reflected in the threshold. While CEQA gives agencies broad latitude in defining the threshold of significance, it would be helpful if the criteria underlying the threshold were documented in the DED.

Effectiveness of the Draft Environmental Document in Evaluating Non-CEQA Related Effects of MPA Alternatives

While CEQA requires that significant adverse environmental effects of the proposed project be identified and mitigated, it does not require an evaluation of the environmental benefits or socioeconomic effects of the proposed project or other alternatives. Thus, the SSC's comments regarding those aspects of the DED are provided here separately from the comments pertaining to CEQA requirements.

Biodiversity Benefits Within Reserves

Based on the extent of habitat representation and other ecological criteria, the DED concludes that "Protecting the MPAs in the proposed project could contribute to increasing biomass, individual size, and reproductive potential of organisms within the reserve areas, particularly for species with low dispersal and high reproduction. The proposed project would likely achieve the goal for conservation of ecosystem biodiversity established by the Marine Resources Working Group (MRWG), because the reserve areas include all habitat types in all bioregions, encompassing at least some portion of the ranges of most species of interest" (p. 5-32). The SSC considers the choice of reserve size to be a policy decision. However, beyond the issue of size, the SSC notes that habitat representation is a fundamentally sound approach to determining which areas to place in reserves to protect biodiversity.

Fisheries Benefits Outside Reserves

The DED provides a graph (Figure 6-1, p. 6-68) that attempts to show how biodiversity conservation and fisheries benefits change with reserve size. According to the DED, "Localized fisheries benefits are not expected unless MPAs are large enough to contribute to productivity in fished areas through export of larvae and spillover of adults. The maximum fisheries benefits are likely to occur when 40 percent of the suitable habitat or the fished population are protected in reserve areas" (p. 6-67).

The SSC notes that, due to the relatively small scale of the CINMS relative to the full distribution of the most of the fishery resources that inhabit CINMS, substantial fisheries benefits on a stock-wide scale are unlikely to result under any of the MPA alternatives at CINMS. More specifically, the SSC notes that the arguments for expected fisheries benefits (pp. 6-66, 6-67, and Figure 6-1) are technically weak and not compelling.

Socioeconomic Effects

The DED includes an extensive discussion of socioeconomic effects of the MPA alternatives. The approach to the socioeconomic analysis, the comparison of alternatives and the conclusions regarding socioeconomic effects contained in the DED are largely taken from the Socioeconomic Analysis (SEA).

The socioeconomic analysis covers both economic impacts and economic value. Economic impacts (as reflected in estimates of income and employment impacts) pertain to effects of MPAs on local (i.e., county) economies. Economic value estimates (as reflected in estimates of consumer and producer surplus) pertain to values held by consumptive and non-consumptive users of CINMS, as well as non-use value (i.e., the value that the public attaches to reserves at CINMS, regardless of whether they ever utilize or even see any of the amenities at CINMS). While economic impact analysis sheds light on the distributional effects of MPAs, it is the economic value estimates that comprise the elements of cost-benefit analysis. The SSC notes that the socioeconomic analysis does a commendable job of making the appropriate conceptual distinction between economic impacts and economic value.

For purposes of the economic analysis, the baseline against which the MPA alternatives were compared was the 1999 level of activity for recreational activities and the average annual level of activity during 1996-1999 for commercial fishing activities. The reason for using a multi-year average for commercial fisheries is to ensure a more representative level of fishing activity than 1999, which was a record year for squid landings (p. 5-39). The SSC agrees that 1996-1999 is a reasonable baseline period for commercial fisheries.

According to Table 4-18, the baseline level of commercial and recreational activities in CINMS generates $172 million in income impacts (Table 4-18, p. 4-138) and 4,888 jobs (Table 4-19, p. 4-138) within the designated southern California seven-county area. As noted in the DED, CINMS activities account for less than 1% of total income and employment in those counties (p. 4-137). The SSC agrees with this assessment and notes that - given the large size and diversity of the local economies within the seven-county area - the relative contribution of CINMS to local economies is not likely to change much from the status quo regardless of how much area is set aside in marine reserves.

The analytical approach used to evaluate socioeconomic effects involved consideration of so-called "Step 1" and "Step 2" effects (p. 5-36). The Step 1 analysis involved quantitative estimation of consumptive activities that would be displaced from reserve areas. For commercial fisheries, Step 1 provides estimates of exvessel value and income and employment impacts. For consumptive recreational activities, Step 1 provides estimates of person days; direct sales, wages/salaries, and employment; income and employment impacts; and consumer surplus and profits. While these quantitative estimates are characterized as "maximum potential losses," the DED also notes that "In cases where congestion effects occur due to displacement and relocation of fishing effort, actual losses could exceed estimates of maximum potential loss or losses may be overestimated where offsetting factors such as effort reduction are instituted" (p. 5-36).

As part of the Step 1 analysis, three socioeconomic surveys of commercial and recreational use at CINMS were conducted specifically for the purpose of evaluating MPA alternatives at CINMS. The surveys provided valuable information regarding the spatial distribution of commercial and recreational activity and contributed significantly to the evaluation of alternatives. The spatial distribution information for party/charter and for-hire recreational operations is likely quite reliable, as it is based on a census of operators in CINMS. Given the reluctance of the industry to provide precise location of catch information, the commercial fisheries data are less precise; nevertheless the analysis does a commendable job of making use of the available data in a reasonable way. The estimates of private boat consumptive recreation are subject to fairly serious data limitations and based on a number of unsubstantiated assumptions regarding similarities between party/charter and private boat recreational activities; those estimates are subject to considerable uncertainty. As indicated in the DED, data on private boat non-consumptive activity are not available at all, resulting in underestimation of total non-consumptive recreation at CINMS.

For the consumptive recreational sector, aggregate consumer surplus is estimated by multiplying the number of person days by a value of $11.58 per person day. The consumer surplus estimates were based on results from Wegge (1986) and Rowe (1985). Wegge and Rowe provides a range of consumer surplus estimates derived from various model specifications. The SSC recognizes the challenges associated with translating estimates derived from different models under different assumptions into a single estimate of consumer surplus per person day and requests that documentation be added to the DED (or at least the SEA) regarding how this was done.

The Step 2 analysis focused on potential benefits of MPAs to consumptive and non-consumptive users and to the public in the form of non-use value. The estimates of potential losses to consumptive users and potential gains to non-consumptive recreation are summarized for each alternative in Tables SSC-2 and SSC-3 respectively. The SSC has the following comments regarding the Step 2 analysis:

1. Estimates of profits for the party/charter and for-hire recreational sector were based on data collected from a census of operators in CINMS and used as a proxy for producer surplus. The SSC considers these estimates to be quite reliable.

2. Given the lack of available information on consumer and producer surplus for commercial fisheries in CINMS, the DED assumes a value of $8 million per year - based on estimates of consumer and producer surplus for commercial fisheries at the Tortugas Ecological Reserve in the Florida Keys National Marine Sanctuary. It is not clear to the SSC why the value of fisheries at Tortugas should be a reasonable proxy for the value of fisheries at CINMS.

3. The estimates of benefits to non-consumptive users are based on assumptions regarding increases in "quality" (10%, 50%, 100%) that are likely to occur as a result of reserves, where "quality" is defined as "a composite attribute that takes into consideration the range of benefits that would have an impact on the non-consumptive recreation experience. This includes such attributes as diversity of wildlife, abundance of fish and invertebrates, the decrease in the density of users, and the increase in water quality" (p. 5-54). A parameter referred to as the "value elasticity of quality" (defined as the percentage increase in consumer surplus associated with a 1% increase in quality) was used to link hypothesized changes in quality to subsequent changes in value. Alternative assumptions regarding quality changes (10%, 50%, 100%), combined with alternative estimates of the value elasticity of demand (0.04, 1.0 and 4.5) were then used to provide a range of estimates for the increase in non-consumptive recreation associated with each alternative. Table SSC-3 summarizes the changes associated with the various combinations of quality changes and value elasticities under each MPA alternative.

   As indicated in Table SSC-3 - as well as Table 6-59 of the DED (p. 6-71) - the change in consumer surplus associated with the proposed project can range anywhere from $332 to $372,969; similar thousand-fold differences between low and high estimates were also indicated for the other MPA alternatives. The SSC considers the underlying basis of these estimates to be questionable. The increases in non-consumptive recreational quality (10%, 50%, and 100%) included in the analysis are assumed and not substantiated. The SEA indicates that the value elasticities (0.04, 1.0, and 4.5) are based on results of a meta-analysis of recreational travel cost models conducted by Smith and Kaoru (1990). The SSC notes that the Smith/Kaoru paper focuses on an entirely different parameter - the price elasticity of demand. In order to apply the Smith/Kaoru results to the analysis of MPA alternatives at CINMS, it is necessary to assume that the value elasticity of quality for CINMS is similar in value (though necessarily opposite in sign) to Smith/Kaoru's price elasticity estimates - a significant assumption that is not substantiated in the DED or the SEA.

4. The non-use values cited in the DED for marine reserves at CINMS are based on the assumption that 1% of U.S. households have positive non-use value for marine reserves at CINMS, and that the value per household ranges from $3 to $5 to $10 per year. The basis for these assumptions is described in the DED and in greater detail in the SEA as follows:

   a. According to national surveys conducted in the late 1980s and early 1990s regarding attitudes toward the environment and more recent national and California surveys regarding attitudes toward ocean health and marine sanctuaries, a high percentage of respondents express positive attitudes toward environmental protection. Based on the results of these surveys and a poll indicating that 8% of U.S. households contributed to environmental organizations in 1990, it was deemed reasonable to assume that 1% of U.S. households are willing to pay some positive amount of money for establishment of MPAs in CINMS. This 1% was characterized as a "conservative lower bound estimate" (SEA, p. 103).

   b. Nineteen studies were conducted in the 1980s and early 1990s that included estimates of non-use value. The studies estimate the public's willingness-to-pay for a wide variety of environmental goods - including whooping cranes, bald eagles, striped shiners, grizzly bears, bighorn sheep and

Atlantic salmon; visibility at the Grand Canyon; nature preserves in Australia, Illinois, and Colorado; potable groundwater supplies in Cape Cod, Massachusetts; water quality in specific river basins in Colorado, Pennsylvania, and Montana; water quality in all rivers and lakes in the U.S.; and prevention of future oil spills off the Washington/British Columbia coast and Prince William Sound in Alaska. Given that willingness-to-pay for environmental goods was higher than $10 per household in almost all these studies, values of $3, $5, and $10 per household per year were assumed to represent a "probable lower bound set of estimates" for willingness-to-pay for MPAs at CINMS (SEA, p. 102).

The SSC has the following reservations regarding the estimation of non-use values at CINMS: The connection between the percentage of respondents who express positive attitudes about environmental protection and the percentage of households who would be willing to pay for marine reserves at CINMS is tenuous. The survey research literature indicates that attitudinal surveys are not a reliable indicator of willingness to pay. With regard to the assumption that 1% of U.S. households are willing to pay for reserves at CINMS, that percentage could just as well be 0.1% or 2% (or any number of other percentages). While the differences among 0.1%, 1%, and 2% may appear quite small, the effect of choosing a particular percentage is magnified by the fact that the percentage is multiplied by the total number of U.S. households. The assumption that $3, $5, and $10 represent a “probable lower bound” on the public’s willingness-to-pay is arbitrary as well.

The DED repeatedly notes the uncertainties in the cost-benefit analysis. For instance:

"Overall, the socioeconomic analysis is not a comparison of potential costs and benefits because there are limited data and scientific studies related to consumptive and non-consumptive values of the project area" (p. 5-35).

"It is important to note that the Socioeconomic Panel did not conduct a comprehensive comparison of all potential costs and benefits that may be associated with the establishment of MPAs with project area. As a consequence, the socioeconomic analysis is limited by a degree of uncertainty with respect to the potential social and economic costs and benefits of MPAs" (p. 5-35).

"All the benefits and costs of MPAs cannot be quantified, and so a formal benefit-cost analysis was not conducted" (p. 5-36).

The DED further characterizes the evaluation of non-use benefits at CINMS as a "general qualitative overview on potential benefits to non-use or passive use values" (p. 5-36).

Despite these caveats, the DED goes on to provide quantitative estimates of benefits and costs - including estimates of non-use benefits. While these non-use benefits were initially characterized as a "qualitative overview," they were in fact quantified and were pivotal to the conclusion of the analysis. Specifically, based on the size of the non-use benefit estimates, the DED concludes that "..one can conclude that there would be net national benefits from adopting any of the marine reserve alternatives for the Sanctuary, even when estimates for consumptive users are biased upwards and we compare then with the lowest potential non-use or passive use economic values" (p. 6-77). While the SSC considers non-use value to be an essential component of cost-benefit analysis of MPAs at CINMS, the estimates in the DED are ad-hoc and not properly validated and should not be treated as quantitative estimates.

In terms of making the cost-benefit analysis more complete, the SSC notes that the analysis should acknowledge the potential benefits that monitoring and scientific research may provide over the long term. The analysis should also reflect the costs associated with biological and economic monitoring, enforcement of reserve boundaries and any incremental management responsibilities that may be associated with mitigating effects of effort displacement outside the reserves. While some of these elements are difficult (perhaps impossible) to measure, it is important that all relevant cost and benefits be at least acknowledged in the DED.

The SSC also notes that the cost-benefit analysis provided in the DED is a static analysis and does not consider how costs and benefits might change over time. The choice of a time frame, the temporal distribution of costs and benefits and the assumed discount rate can have a significant effect on the conclusions of a cost-benefit analysis. Given existing uncertainties regarding the likelihood and timing of

potential benefits and costs (e.g., benefits to non-consumptive users within reserves, benefits to fisheries outside reserves, changes in non-use values over time), it is understandable why a dynamic analysis was not attempted . However, static analysis provides too incomplete a picture to be useful for policy decisions. Given its reservations regarding the derivation of the cost and benefit estimates, the SSC concludes that it is not possible to draw any conclusions regarding the relative costs and benefits of marine reserves at CINMS.

Summary of SSC Conclusions Regarding the Draft Environmental Document

The DED is intended to address the CEQA requirement to identify and mitigate significant adverse environmental impacts associated with the proposed project. While CEQA does not require that alternatives be evaluated in terms of their environmental benefits or socioeconomic effects, the DED also provides an analysis of such effects. The SSC reviewed the DED in all its aspects.

In terms of addressing CEQA requirements, the DED does not demonstrate whether or not the proposed project would have significant adverse effects on the physical and natural habitat or on fishery resources outside the reserve. The SSC realizes that a definitive evaluation of adverse environmental impacts is not feasible. However, the possibility of habitat impacts should at least be acknowledged in the DED. Further evaluation of the extent of effort displacement and its potential affect on outside fisheries should be done. While the DED provides some estimates of effort displacement for recreational consumptive activities, similar information is also needed for commercial fisheries.

The issue of effort displacement is critical to evaluating the effects of reserve size. While larger reserves provide greater opportunity to enhance biodiversity inside the closed area, they are generally accompanied by increases in the amount of effort displaced from reserves. In considering what happens to this displaced effort, it is important to recognize the trade-off between short-term economic losses borne by those displaced from reserves and the potential for adverse environmental effects in the open area. Minimal short-term losses imply the existence of opportunities for displaced fishermen to offset their losses in outside areas, but also require consideration of the effects of displaced effort on habitats and fishery resources in those outside areas and management measures to mitigate habitat effects and prevent localized depletion of fishery resources. Conversely, maximum short term economic losses imply few offsetting opportunities, and therefore, little need to consider adverse environmental effects outside reserves.

Given the small scale of reserves at CINMS and the fact that most of the 119 species of concern identified by the MRWG have distributions that extend well outside CINMS boundaries, the SSC considered habitat representation to be an appropriate way to designate areas for inclusion in reserves at CINMS. Given this approach to reserve design, biodiversity benefits may accrue in reserve areas. The small scale of reserves at CINMS is not expected to yield stock-wide benefits. As indicated above, the trade-off between benefits inside reserves and potentially adverse environmental and socioeconomic effects associated with effort displacement outside reserves is an important factor to consider in policy deliberations regarding reserve size.

The socioeconomic evaluation of alternatives involved "Step 1" and "Step 2" analyses. The Step 1 analysis (quantification of existing commercial and recreational activity in proposed reserve areas) was generally well done, given the limitations of the data. However, the Step 2 analysis (predicting costs and benefits associated with the MPA alternatives) draws quantitative conclusions that cannot be substantiated. Given the deficiencies in some of the data and analysis and uncertainties regarding the effects of reserves at CINMS, it is not possible to determine whether economic benefits associated with establishment of reserves outweigh the costs.

Other SSC Comments

SSC comments regarding the DED are generally applicable to MPA alternatives at CINMS, regardless of whether the alternatives pertain to state or federal waters. However, this SSC statement does not address all federal regulatory requirements. Evaluation of MPA alternatives in federal waters at CINMS will require consideration not only of NEPA but other regulatory requirements (e.g., the Regulatory Flexibility Act) that were not considered in this review.

The SSC offers the following caveats regarding the potential applicability of the approach to MPA design used at CINMS to large-scale MPAs:

1. The methodology used to design MPAs at CINMS required a relatively rich set of habitat maps. The SSC notes that habitat maps at the CINMS level of detail will likely not be available for most areas of the West Coast. Thus the habitat-based MPA siting algorithm used at CINMS may not be as feasible for other areas.

2. MPAs at CINMS were designed to ensure approximately equal representation of each habitat type. While equal habitat representation may be reasonable for MPAs on the scale of those at CINMS, the SSC recognizes that all habitat types are not equal with respect to their importance to marine organisms. A more detailed approach to evaluating species-specific interactions between organisms and habitat may be applicable in cases where larger scale MPAs are considered.

3. For Council-managed species, whatever is done at CINMS is likely to have negligible stock-wide impacts. The situation may be quite different for large scale reserves. Large scale reserves may also require reconsideration of how stock assessments are done.

Groundfish Management

Report on Stock Assessments for Bocaccio, Canary Rockfish, and Sablefish

The SSC was briefed by Drs. Alec MacCall, Rick Methot, and Steve Ralston on bocaccio, canary rockfish and sablefish (respectively) assessments, Stock Assessment Review (STAR) Panel results, and rebuilding updates (where appropriate). The SSC endorses all three stock assessments as being the best available science.

Dr. MacCall reviewed Exhibit C.2, Attachment 1 (Status of Bocaccio off California in 2002), Exhibit C.3 (Bocaccio Rebuilding Analysis for 2002) and Exhibit C.2, Attachment 2 (Bocaccio STAR Panel Report). The SSC would like to emphasize several points:

- Although separate assessments were done for central and southern California bocaccio, the STAR Panel recommended a single California assessment.

- The data used in the current assessment are much improved over those used in the 1999 assessment. A number of new data sets were used, and some of the old data sets were extended back in time.

- The only major change from the previous assessment is the estimate of recruitment of the 1999 year-class (Figure 19, stock assessment). The previous assessment set 1999 year-class strength equal to that of the 1988 year-class, since there were preliminary indications that it might be fairly strong. As a result of new data, the current assessment predicts a much lower 1999 year-class recruitment. This represents the best current estimate of the 1999 year-class strength. However, this estimate is still imprecise and should improve in the next several years as new data become available.

- The change in 1999 year-class recruitment extends the rebuilding time to 106 years. Dr. MacCall points out that this should not be a surprise in that this outcome was presented to the Council 3 years ago under a "low 99 recruitment" scenario.

Dr. Methot then reviewed Exhibit C.2, Attachment 3 (Status of the Canary Rockfish Resource off California, Oregon and Washington in 2001), Exhibit C.2, Attachment 4 (Canary Rockfish STAR Panel Meeting Report) and Exhibit C.3, Supplemental Attachment 4 (Rebuilding Analysis for Canary Rockfish: Update to Incorporate Results of Coastwide Assessment in 2002). The SSC notes that in this new stock assessment, natural mortality for female canary is allowed to increase with age and is tied to maturity (Fig. 25, stock assessment). In addition, selectivity is dome-shaped and fishery- specific. We note that although progress has been made in modeling selectivity and natural mortality, future analysis of historical unprocessed data may help provide further resolution of this issue.

Dr. Ralston then reviewed the abbreviated sablefish assessment - Exhibit C.2, Attachment 5 (Status of the Sablefish Resource off the Continental U.S. Pacific Coast in 2002) and Exhibit C.2, Attachment 6 (Review of the Updated 2002 Sablefish Stock Assessment). This is the first of the expedited stock assessment updates. It serves to update the last full sablefish assessment conducted in 2001. The terms of reference (SSC Minutes, April 2002) specify that an expedited stock assessment update should "carry forward its fundamental structure from a model that was previously reviewed and endorsed by a full STAR Panel." The SSC discussed this issue at length, in that estimates of the selectivities and catchability (Q) of the slope trawl survey changed markedly from the previous assessment. This was due primarily to the fact the 1999 year-class provides the first real opportunity to estimate age selectivity of the slope survey. When this is done, selectivity of young sablefish is estimated to be low to the slope survey (Fig. 23, Stock Assessment), and survey catchability declines from 0.6 to 0.46. This causes a marked increase in estimated stock biomass (Fig. 21, Stock Assessment). The SSC would like to emphasize that this estimate of Q and the implied estimate of sablefish optimum yield, remain highly uncertain, and this should be taken into account when management decisions are made.

Report on Rebuilding Analyses for Bocaccio, Canary Rockfish,
Yelloweye Rockfish, Widow Rockfish, and Whiting

The SSC reviewed the documentation for the rebuilding software written by Dr. André Punt. This computer program was developed to implement the guidelines for rebuilding analyses developed by the SSC (SSC Terms of Reference for Groundfish Rebuilding Analyses, April 2001). It provides a default framework within which to evaluate rebuilding strategies, although individual assessment authors should continue to apply innovative approaches to evaluating rebuilding strategies. The software allows future recruitment to be generated from a density-dependent stock-recruitment relationship or by resampling recruitments or recruits/spawning output ratios from the historical estimates.

The software has been validated by comparing its results with those from computer programs developed by Drs. Alec MacCall, Rick Methot and Mr. Tom Jagielo. The SSC endorses the use of the software developed by Dr. Punt and notes that the application of the 40-10 rule in this software alters fishing mortality rather than catch. It recommends that the software be modified to correct this. This change to software would not impact any of the rebuilding analyses, except for Pacific whiting.

The SSC reviewed the rebuilding analyses for bocaccio, canary rockfish, yelloweye rockfish, widow rockfish, and Pacific whiting. The SSC agrees these rebuilding analyses are based on the assessments selected through the STAR process and conform to its guidelines and endorses them for use by the Council. Table 1 lists the years on which the calculation of B_0 and future recruitment are based. It also lists the first year in which rebuilding could have been initiated. The SSC recommends that, in the future, authors of rebuilding analyses document how T_{MIN}, the minimum possible recovery time, is calculated more clearly, including specifying the first year in which rebuilding could have been initiated. The SSC requests assessment authors to provide T_{MIN} and T_{MAX} (the maximum allowable recovery period) in actual years and well as in terms of the number of years from the year in which rebuilding could have been initiated.

The SSC notes that the basis for the choice of years on which B_0 and the future recruitment are based were not fully documented in the rebuilding analysis documents and recommends that rebuilding analyses address this issue prior to their incorporation in any rebuilding plans. The SSC identified an internal inconsistency in the rebuilding analyses for bocaccio and yelloweye rockfish. The SSC consequently recommends that future rebuilding analyses based on the density-dependent recruitment assumption compute B_0 using recruitments from early in the time-series and base generation of future recruitment on more recent years. The years used to define B_0 and to generate future recruitment should be non-overlapping.
Decisions regarding rebuilding plans are based on the Council selecting a T_{TARGET} between T_{MIN} and T_{MAX}. The SSC recommends, therefore, that figures along the lines of Fig. 4 of the canary rockfish rebuilding analysis be included routinely in future rebuilding analyses.

The SSC has the follow specific comments.

Widow Rockfish. The rebuilding analysis includes eight cases. The SSC recommends that the cases based on the revised catches and a catch of 856 tons for 2002 form the basis for the selection of a rebuilding strategy and a 2002 OY.

Yelloweye Rockfish. The rebuilding analysis for the Oregon/Washington area is based on extending the Oregon assessment by including the catches off Washington. No assessment for this combined area was presented to the 2001 Yelloweye STAR Panel. The SSC notes that it is necessary to account for Washington to conduct a rebuilding analysis for yelloweye and support the approach taken in the yelloweye rebuilding analysis. The SSC was informed by the assessment author that alternative approaches exist for incorporating Washington in the assessment and encourage him to pursue this soon.

The SSC requests that, for consistency, the rebuilding analysis define B_0 for the regime-shift hypothesis (scenario 2) on recruitments for the years 1967-1993 and project future recruitment for the density-dependence hypothesis (scenario 1) on recruits/spawning output ratios for the years 1983-1993. The assessment author provided the SSC with revised rebuilding analysis results.

The SSC has no clear basis to choose between the two scenarios for yelloweye. These scenarios bound the range of possibilities. However, the SSC notes that the Terms of Reference for Groundfish Rebuilding Analysis (April 2001) suggest that the density-dependent scenario should be the default case, because stocks that have declined into an overfished condition are more likely to be unproductive (e.g., low spawner-recruit steepness).

The SSC notes that the catch of yelloweye off British Columbia appears to substantially exceed the levels of catch indicated by the either of the scenarios considered in the rebuilding analysis and suggests that the impact of this be examined, possibly by means of a joint assessment.

Bocaccio. The rebuilding analysis for bocaccio considers a number of scenarios based on alternative assessment assumptions. The SSC notes that the probability of recovery by T_{MAX} does not exceed 60% for any of these options even in the absence of catches. As noted in C.2, the SSC supports the approach used to estimate the 1999 year-class. The SSC notes that the choice of periods for defining B_0 and future recruitment are inconsistent for the reason noted above. Removing this inconsistency by basing B_0 on early recruitments would lead to lower OY values.

Canary rockfish. The rebuilding analysis for canary rockfish is based on the use of a stock-recruitment relationship to define B_0 and future recruitment. The SSC endorses the use of a stock-recruitment relationship in this instance because it provides a better fit to the recruitment and spawning output data (Fig. 3 of the canary rockfish rebuilding analysis). The estimate of F_{MSY} for canary rockfish takes account of the impact of reductions of spawning output on recruitment. This estimate corresponds to $F_{73\%}$, i.e., substantially lower than the current default F_{MSY} proxy for rockfish of $F_{50\%}$.

Pacific whiting. The rebuilding analysis for Pacific whiting follows the guidelines established by the SSC. However, this is a particularly complicated case owing to the highly variable nature of whiting recruitment and the short lifespan of Pacific whiting. This leads to a short rebuild period even if catches remain high, although, given recruitment variability, the probability of the resource dropping below the overfishing threshold following recovery is high. The predicted rapid recovery of the Pacific whiting spawning output in the rebuilding analysis is due to the presence in the population already of the above-average 1999 year-class. The rebuilding analysis contrasts the $F_{40\%}$, $F_{45\%}$, and $F_{50\%}$ F_{MSY} proxies in terms of the probability of the population becoming overfished following recovery. While the SSC considers the issue of reviewing the correct F_{MSY} proxy for whiting to be important, it did not have time to discuss the merits of moving from $F_{40\%}$ to another F_{MSY} proxy at this meeting.

The SSC recognizes that a rebuilding plan for Pacific whiting is mandated owing to its overfished status. However, it is important to note that unlike bocaccio, yelloweye rockfish, canary rockfish and widow rockfish, application of the 40-10 rule is adequate to achieve recovery to 0.4 B_0 within 10 years. The SSC recommends that any 40-10 rule OY values be based on the results of the assessment conducted in 2002 rather than the rebuilding software, because the 2002 assessment model includes multiple fisheries and time-varying weight-at-age. The 2002 Whiting STAR panel concluded that "given concerns with the current formulation of the stock reconstruction model and the dependence of yield options beyond 2002 on continued recruitment of the 1999 year-class and recruitment from year-classes not actually observed, the Panel recommends against adopting 2003 projections until another assessment is conducted." The SSC again strongly supports this recommendation.

TABLE 1. Summary of the selections on which the rebuilding analyses are based. The range of recruitments on which B_0 and future recruitment are based are expressed in terms of brood year.

Species	B_0	Future recruitment	R/S or R	T_{INIT}
Widow	1965-1979	1983-1996	R/S	2001
Yelloweye (scenario 1)	1967-1982	1967-1993	R/S	2003
Yelloweye (scenario 2)	1967-1997	1967-1993	R	2003
Bocaccio	1952-1997	1952-1998	R/S	1999
Canary	S-R	S-R	S-R	2001
Pacific whiting	1970-1999	1970-1999	R	2003

1. T_{INIT}: First year in which rebuilding could have been initiated.
2. R/S: Projection based on resampling recruits/spawning output.
3. R: Projections based on resampling recruitments.
4. S-R: Projections and B_0 based on inferences from a stock-recruitment relationship estimated by fitting a stock-recruitment model to the recruitment and spawner output data for the entire period of the assessment.

Report on Preliminary Harvest Levels and Other Specifications for 2003

Dr. Jim Hastie presented an overview of the Groundfish Management Team (GMT) preliminary acceptable biological catch (ABC) and optimum yield (OY) determinations for 2003 (Exhibit C.4, Attachment 1). The SSC comments on ABC and OY determinations for Pacific whiting, sablefish, and yelloweye rockfish as follows:

Pacific whiting - Pacific whiting was declared overfished because of a recently completed assessment that estimated spawning biomass to be 20% of an unfished stock in 2001. The rebuilding analysis for whiting indicates that the 40-10 rule is adequate to achieve recovery to $B_{40\%}$ within 10 years. The potential rapid recovery of whiting is due to an above-average (but still uncertain) 1999 year-class that would increase spawning stock biomass as it becomes mature and due to the relatively high growth rate of whiting. The SSC recommends that any 40-10 rule OY values be based on the results of the assessment conducted in 2002 rather than the rebuilding software, because the 2002 assessment model includes multiple fisheries and time-varying weight-at-age. The 2002 Whiting STAR Panel concluded that "given concerns with the current formulation of the stock reconstruction model and the dependence of yield options beyond 2002 on continued recruitment of the 1999 year-class and recruitment from year-classes not actually observed, the Panel recommends against adopting 2003 projections until another assessment is conducted." The SSC again strongly supports this recommendation.

Sablefish - An updated assessment for sablefish was completed in 2002 and reviewed under the terms of reference for an expedited stock assessment update. Sablefish was considered for an expedited review, because of 2001 shelf survey results that suggested strong sablefish recruitment (primarily the 1999 year class) that was not included in the previous assessment. Contrast in the relative abundance of young fish in the shelf and slope surveys in 2001 resulted in a relatively large decrease in the slope survey catchability (Q), which translates into a substantial increase in the sablefish OY. The SSC cautions that the estimate of Q, and the implied estimate of sablefish OY remain highly uncertain. Management decisions should be made with the expectation that future sablefish assessments will result in similarly large swings in Q and the implied sablefish OY (both upwards and downwards).

Exhibit C.4, Attachment 1 show three alternatives for 2003 OY: a density-dependent recruitment scenario (alternative 2), a regime-shift scenario (alternative 3), and an F60% density-dependent scenario that was developed by the Groundfish Management Team (GMT) to stabilize the spawning stock biomass (currently estimated to be 31% of unfished). Given the potential for an OY based on an imprecise stock assessment to reduce spawning stock biomass to a level approaching the overfished threshold, the SSC

considers that

a precautionary adjustment to the OY is warranted. This could be accomplished by setting the sablefish OY less than Alternative 2 of Exhibit C.4, Attachment 1, while Alternative 1 might usefully be considered as a lower bound to the sablefish OY.

Yelloweye rockfish - The yelloweye rockfish OY is based on a rebuilding analysis that considers two cases: a density-dependent hypothesis (scenario 1), and regime-shift hypothesis (scenario 2).

The SSC requests that, for consistency, the rebuilding analysis define B_0 for the regime-shift hypothesis (scenario 2) on recruitments for the years 1967-1993 and project future recruitment for the density-dependence hypothesis (scenario 1) on recruits/spawning output ratios for the years 1983-1993. The assessment author provided the SSC with revised rebuilding analysis results.

The SSC has no clear basis to choose between the two scenarios for yelloweye. These scenarios bound the range of possibilities. However, the SSC notes that the Terms of Reference for Groundfish Rebuilding Analysis (April 2001) suggest that the density-dependent scenario should be the default case, because stocks that have declined into an overfished condition are more likely to be unproductive (e.g., low spawner-recruit steepness).

Report on Adoption of Draft Rebuilding Plans for Public Review for
Pacific Ocean Perch, Lingcod, Cowcod, Widow Rockfish, and Darkblotched Rockfish

Mr. Jim Seger briefly reviewed the draft document, "Process and Standards for Rebuilding Plans, Part A" (Exhibit C.5, Attachment 2) for the SSC and highlighted sections that he considered important for the SSC to review.

The SSC would like to make the following observations:

Amendment Issue 1: Form and Required Elements of Species Rebuilding Plans - As emphasized in the SSC's March 2002 and April 2002 statements, the Council should expect numeric details of rebuilding plans (e.g., B_{MSY} in mt) to change over time – whether due to improved estimates of these parameters from updated stock assessments or due to technical errors that were not discovered in the previous stock assessment review. The use of hard numbers in the rebuilding amendment should be minimized in order to avoid the need to repeatedly amend the fishery management plan (FMP) with each stock assessment cycle. A case in point is the updated sablefish assessment conducted this year which resulted in a profound change to estimated biomass.

Amendment Issue 3: Mandated Revisions of Harvest Strategy - Option 3b under Adequacy of Progress (Standard Based on Negative Deviations) is not a sound scientific approach and should not be considered. This approach is biased, because it only considers stock projections below the rebuilding level and will result in a change in the probability of recovery. However, the SSC recommends an option be considered that re-estimates the target rebuilding exploitation rate while keeping T_{MAX} and the probability of recovery constant from the previous rebuilding analysis.

The SSC recognizes the importance of this amendment and the long-term impact it will have on future groundfish management. Given the amount of material necessary to review and the time constraints for the current meeting, a thorough review of the draft document and associated species rebuilding plans was not possible at this meeting. If requested by the Council, the Groundfish Subcommittee of the SSC would conduct a more detailed review of the documents and provide comments to the amendment authors before the September meeting.

Report on Draft Amendment 17 (Multi-Year) Management

Ms. Yvonne de Reynier reviewed the five management alternatives included in draft Amendment 17 that is scheduled for adoption as a public review draft. Alternative 1 is the status quo and the other four options revise the groundfish specifications and management process. By September 2002, the SSC requested she include information for each alternative to determine if recreational and commercial fishery data will be available at the appropriate spatial and temporal resolution for the stock assessments. The SSC favors alternatives 4 and 5, because these use the most current data for management decisions.

The SSC re-emphasizes the issues it addressed in our April 2002 statement regarding multi-year groundfish management:

- Using standardized models would simplify the review of stock assessments.

- There is a need for standardized databases and contact between data support staff and assessment authors to ensure that assessments consider uncertainties related to the data.

- A two-year assessment cycle is consistent with the schedule for updating rebuilding analyses.

- There is a need to develop a process for selecting the assessments to be conducted during an "on" year and how each assessment will be reviewed.

Report on Groundfish Stock Assessment Priorities for 2003

Dr. Elizabeth Clarke of the National Marine Fisheries Services presented a prioritized list to the SSC of species that are proposed for stock assessments in 2003 (Exhibit C.10, Supplemental Attachment 1). Because of workload concerns, the SSC recommends conducting expedited assessments when possible for species on the draft list:

1. Pacific whiting will require a full assessment.
2. Lingcod may be eligible for an expedited assessment.
3. Pacific ocean perch may be eligible for an expedited assessment.
4. Darkblotched rockfish may be eligible for an expedited assessment.
5. Bocaccio would likely require a full assessment to include discard information that will become available this year.
6. Widow rockfish may be eligible for an expedited assessment.
7. Cabezon would be a new assessment.
8. Yellowtail rockfish may be eligible for an expedited assessment.
9. Yelloweye rockfish will have new data, from submersibles and other sources, available in 2003 with a full assessment planned for 2004.

In addition, the SSC recommends that cowcod rockfish be considered for an assessment in 2003. The SSC suggests that as soon as possible:

- the most recent assessments for the stocks listed above be reviewed,
- stock assessment authors for 2003 be identified,
- decisions be made whether each stock is eligible for an expedited or full review, and
- the number of STAR Panels required during 2003 be determined.

The SSC notes that groundfish STAR Panels will need to be coordinated with those for coastal pelagic species. The SSC also notes a review of the 2002 STAR process has not been conducted, but anticipates there may be an opportunity for this review in November 2002.

Coastal Pelagic Species

Report on Pacific Mackerel Stock Assessment and Harvest Guideline

Dr. Kevin Hill discussed the 2002-2003 Pacific mackerel harvest guideline (HG) with the Scientific and Statistical Committee (SSC). The recommended HG is 12,456 mt based on the maximum sustainable yield control rule in Amendment 8 to the coastal pelagic species (CPS) plan. The SSC notes the HG is based on the same stock assessment methodology and harvest control rule used in 2001, with the addition of one additional year's data. Compared with the 2001 assessment, the biomass time series for the 2002 assessment is 14% lower over the last decade, and the July 1, 2001 biomass, a projection in the 2001 assessment, 30% lower. Dr Hill outlined some planned modifications to the assessment and potential new data sources. The methodology on which this assessment is based is not fully documented in the Stock Assessment and Fishery Evaluation (SAFE) report precluding a detailed review by the SSC

at this time. The SSC recommends the methodology be reviewed in detail by a stock assessment review panel in 2003. The CPS subcommittee of the SSC will develop Terms of Reference for such a review if it is supported and funded. The timing of any review needs to be coordinated with the timing of the groundfish STAR Panels for 2003.

Other Matters

The SSC was also briefed on development of California's Nearshore Fishery Management Plan (FMP) and proposal for delegation of management authority for several species currently managed under the federal groundfish FMP. These presentations were the same as given to the Council on Friday, June 21, 2002 and are available as part of the Council's administrative record. The SSC did not have substantive comments regarding these matters.

Public Comment

None.

Adjournment

The SSC adjourned at approximately 4:30 P.M., Tuesday, June 18, 2002.

Research and Data Needs

From March 2002 –

Coho Fishery Regulation and Assessment Model needs documentation, postseason review, evaluation and validation. It might be useful to establish model evaluation committees. Need estimates of abundance in addition to pre-season forecasts.

SSC may need to further define the requirements for model "validation."

Need review of coded-wire tag data.

Research recommendations from the market squid STAR Panel should be incorporated into Research and Data Needs document. Note recommendation for 2004 squid STAR Panel.

PFMC
09/23/02