North Pacific Fishery Management Council

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MINUTES Scientific & Statistical Committee September 20-22, 1993

The Scientific and Statistical Committee of the North Pacific Fishery Management Council met September 20-22, 1993 at the Hilton Hotel in Anchorage. All members were present except for F. H. Bud Fay and Marc Miller:

Terrance Quinn, Chair William Clark, Co-chair William Aron Keith Criddle

Doug Eggers
Dan Huppert
Richard Marasco
Phil Rigby

Jack Tagart Harold Weeks

B-5 BERING SEA ECOSYSTEM RESEARCH

The SSC received a report from Dr. David Policansky of the National Research Council on the Bering Sea Ecosystem study being initiated at the request of the U.S. Department of State. The Department of State has expressed several concerns regarding the health of the Bering Sea ecosystem, as indicated by the declines in some marine mammal, marine bird, and fish populations. These have an important bearing on international marine resource policy issues, especially with the Russian Confederation and Japan.

Dr. Policansky reviewed the composition of the study committee and outlined its task statement. The Committee is to review and synthesize existing information on the Bering Sea ecosystem, and address whether conclusions can be drawn regarding the structure and function of the ecosystem, the declines of certain components, and whether our understanding recommends alternative management and research approaches.

The Committee is meeting in Anchorage on September 22 - 24 and in Seattle on December 1 - 3. The Committee's report is expected in fall 1994.

The SSC is willing to assist the Committee in the accomplishment of its task.

B-6 STELLER SEA LIONS

Richard Merrick, NMML, AFSC reported on the status of the recovery plan (published December 1992) and the designation of critical habitats for sea lions.

Merrick reported on late winter and spring surveys for sea lions from the Eastern Gulf to the Western Aleutians. Distributions from this survey show differences with previous summer surveys in that the Central GOA and Eastern Aleutian Islands have shown a disproportionate decrease, while surrounding areas have increased proportionately. Pup surveys for the area from SE Alaska to the Eastern Aleutians for 1990-91 and 1992-93 were compared. A 20% decline of pup production was reported ranging from 0.0% in the Eastern Gulf to a 32.6% decline in the Central Gulf. Big declines may reflect disappearance of the 1987-1988 year class of females: only 15 of 414 female pups were observed to return to Marmot Island during 1991-93 breeding seasons.

Merrick also reported on his and Anne York's viability analysis modeling for sea lions. Depending on a variety of key assumptions, the analysis suggests rookeries will begin to disappear in some areas in about 20 years and extinction for the population as a whole could occur in 100-160 years, if trends continue.

Merrick also reported on recent studies, included in the SAFE document, showing importance of pollock as a dominant food item for sea lions in the 1970s-1980s in all areas, apart from Kodiak in the 1970s when capelin were about equal importance to pollock. Prime prey are 1-3 year old pollock. Scat samples in Aleutians show importance of Atka mackerel with importance increasing from east to west.

C-4 SABLEFISH AND HALIBUT IFQs

Alaska Commercial Fishery Entry Commission staff summarized the analyses of the "Sitka Block" and "Full Partial Block". During the presentation it was indicated that administration costs could either increase or decrease, transaction costs would increase, monitoring/enforcement costs would increase, and the costs of harvesting fish would likely be higher. The SSC agrees with these conclusions.

Restrictions on transferability of quota share, such as the block proposals, are sure to entail some costs even if they cannot be estimated. As indicated in our June minutes:

"Whenever the government limits the choices of vessel operators, the most efficient choices are ruled out for some operators. It is not possible to say who will be hurt, small operators or large, but there are sure to be some adverse effects because some operators will not be able to adjust their holdings of quota share quickly and easily to match the needs of there operations."

Adoption of either of these proposals will reduce the economic benefits that will accrue from ITQ's, but the actual magnitude of the reduction cannot be quantified at present. Further, while the proposals do restrict the maximum potential consolidation of the fleets, it is not known whether or not social gains are large enough to compensate for the reduction.

C-6 SCALLOP MANAGEMENT

The SSC reviewed the revised analysis of management alternatives, which contained additional information on scallops and the fishery as the Committee had requested in June. Public testimony was received from both the Wanchese Fish Company and the Kodiak Fish Company in support of a moratorium, the inclusion of scallops under an FMP under Alternative 2 or 3, and other measures to limit and rationalize the fishery.

While the total potential of scallops in the Council area is not well known, the SSC believes that the estimate of about 1 million pounds per year given in Appendix B of the document is correct, given the available information. In other words, an ABC set by the Council would probably be about 1 million pounds. This yield could be taken by a small number of scallop vessels.

The primary reason for placing scallops under an FMP is to allow for a moratorium and eventually a form of limited access. While this requires Council management, the SSC believes that the nature of the fishery makes it desirable that the State continue to perform management functions, including special permits and in-season management. The Committee therefore recommends shared Federal-State management akin to the crab FMP.

Preparing a separate FMP for scallops would be simpler than amending the groundfish FMP's to cover scallops. In addition to a moratorium, or in place of one, a scallop FMP could include limited access from the outset. The SSC recommends consideration of an IQ scheme at the earliest opportunity.

C-7 COMPREHENSIVE PLANNING

Council staff presented a review of progress on the analysis of groundfish and limited access systems. The presentation and our comments are divided into (1) Data Base Compilation, (2) Economic Models, and (3) the Request for Proposals (RFP) for social impact assessment.

Data Base Compilation

Council staff described a very ambitious effort to compile and utilize data from many sources concerning the fishing industry, harvesting activities, and processing activities. The SSC has not yet reviewed the actual data bases and cannot yet assess their completeness or accuracy.

We had concerns about the proposal procedure for establishing cost estimates for the 24 classes of vessels and processors. We understand that the "focus group" consensus estimates may avoid difficulties associated with much-criticized "OMB Survey" used for the onshore/offshore analysis. However, this method of estimation does not yield data subject to standard scientific assessment of accuracy and precision. The use of "typical" cost information will limit the utility of the models. We suspect that the models using this data will be adequate for a relatively rough assessment of net economic benefits from an ITQ system. Because that data will not support more sophisticated predictions of changing production and cost relationships, it is unlikely that they will provide adequate information to assess the relative merits (in terms of net economic benefits) of alterative ITQ options that the Council may consider.

Models

The SSC has not yet had an opportunity to review completed descriptions of: (1) the linear programming model; (2) the economic base model; or (3) the fisheries economic assessment model. Although we have received various preliminary and incomplete documentations, the basic concerns that we expressed in our June minutes have not been addressed. We repeat that statement:

The SSC feels it is necessary to obtain more explicit documentation of the model, including the logical foundations for the model structure, a concise mathematical description of the model, the sources and magnitudes of key model parameters, and explanation of plans for addressing management issues with the model.

Although the above statement specifically addressed the lack of documentation of the linear programming model, it is equally valid with respect to the economic base model and the fisheries economic assessment model. We find it difficult to address the scientific merit of these models without adequate documentation.

For the economic base models we require a detailed description of the variables to be considered for inclusion in the regression model along with discussion of model specification tests to be used in refining the model and a description of tests that will be used to validate the model.

A subcommittee of the SSC met in July with Council staff and with Matt Berman to discuss progress towards the development of the linear programming model. The subcommittee reviewed a prototype of the linear programming model specification and draft documentation of the model. SSC members expressed some concerns over the structure of the LP model. We have not received a revised description of the linear programming model.

In addition to our concerns about progress in the theoretical development of the models, the SSC is concerned about how the output of these models will be interpreted. In particular, the linear programming model, as presently contemplated, is suitable for demonstrating the correct order of magnitude of overall long-run benefit to the nation that can be expected to result from an QS program. However, the models as currently envisioned are not sufficiently detailed to permit meaningful comparisons of the relative benefits of alternative QS allocation schemes. Moreover, because the organization of production will change once a QS program is implemented, the character of the fishery will differ from the predictions of the linear programming model, even in the long run. In the short run, vessels will economize individually and there may be little or no change in the number of vessels active in the fishery.

RFP for Social Impacts

The SSC notes that the current version of the RFP contains a logical conundrum: It asks the contractor to assess the Council's preferred alternative, while the Council presumably wants to use the resulting assessment to select a preferred alternative. The language of the RFP should be amended to eliminate this problem.

Specifications of "Baseline Profiles" is more detailed than is specification of the "impact assessment". The RFP clearly states (p.4) that the contractor is to assess potential changes in social-cultural patterns resulting from changes in employment. The SSC suggests that a clearer definition of sociocultural variables be provided; which specific impacts is the Council most concerned with?

The RFP calls for assembling information into twelve industry sectors rather than into geographic regions and communities. We suggest that the data collection be structured so that Council staff and other users can determine how these twelve sectors are distributed among regions and communities with varying levels of dependence on the fishery.

The SSC is unsure that the study can be completed within budget, administrative, and time constraints. Delays in completion of this work may impinge upon the Council's time schedule for comprehensive planning, since analysis of specific Council options must await delivery of this contract report. The SSC suggests that the RFP specifically require that the contractor present the results before the AP, SSC and Council.

D-1 CRAB MANAGEMENT

The SSC received comments by the Alaska Crab Coalition expressing their concern about actions of the State of Alaska regarding Bering Sea Aleutian Islands crab management, including GHL's, pot limits and annual reviews of scientific data. The SSC is willing to review GHL's if the Council so desires. The SSC notes that these management measures are delegated to the State of Alaska and that a formal annual review of the State's actions by the Council would require a plan amendment. The SSC notes the Team's ranking of plan amendment proposals #3 (establish a super exclusive registration area for the Norton Sound crab fishery) and proposal #9 (review and clarify framework-type management measures outlined in category 2) as high priority. The SSC heard a report of the PAAG Committee's review of amendment proposals and agrees with the PAAG Committee's recommendation that the Council consider measures other than a plan amendment to address these concerns. These measures may include memorandum of understanding between agencies and/or an annual meeting between Council and Board of Fisheries to review actions taken under the plan.

D-2(a) PACIFIC OCEAN PERCH (POP) REBUILDING

The SSC received presentations on POP rebuilding analysis from Jim Ianelli, a plan team report from Anne Hollowed, and a discussion of management implications by Jesse Gharrett. Public testimony was provided by Mike Syzmanski with particular reference to the benefits of rapid versus slower rebuilding alternatives, the ability to measure changes in POP stock status, and the need to consider displacement of vessel components prior to council action. Ms. Gharrett informed the SSC that the Central Gulf of Alaska ABC for POP had been exceeded by the end of the third quarter because of bycatch in the deep-water flatfish and rockfish fisheries. A further complication which will impact the council's ability to rebuild POP stocks is that NMFS cannot close those fisheries with POP bycatch until the Gulf wide overfishing level (presently 3378 mt) is projected to be exceeded. Such unrestricted take would reduce savings expected under a rebuilding plan. Greater discard of POP would be expected under the more restrictive rebuilding alternatives.

The May 20, 1993 EA/RIR for POP rebuilding had only minor changes from the rebuilding document reviewed by the SSC in April. Reiterating from the April minutes, the SSC endorsed the procedure of fitting a stochastic spawner-recruit relationship as a means of choosing an optimal exploitation rate and for forecasting the effect of alternative rebuilding strategies. Although the spawner recruit data were highly variable, the data set was large and well distributed over a wide range of spawning stock sizes. Since the pattern of points was not sensitive to the tuning of the synthesis model used to reconstruct stock history, the SSC agreed that the data provided an accurate reflection of reproductive potential. The spawner-recruit analysis in the rebuilding EA/RIR includes an estimate of F_{msy} (0.08). F_{msy} adjusted by the ratio of the current spawner biomass to the target biomass, this exploitation rate was used by the council to determine the 1993 ABC for POP of 3,378 mt. Note, this procedure represents status quo (Policy Alternative 2).

The economic analysis only estimates gross revenue for each of the four rebuilding policy options. Average wholesale price by size was applied to the estimated annual catches. Because fishing cost data are unavailable, net revenue and profitability of individual operations cannot be calculated. Net revenue differences among policy options would be less than indicated by gross revenue calculations. Possible impacts on other groundfish fisheries, reduced costs from increased abundance, and non-market benefits are other socio-economic factors which could not be determined.

Alternative Policy 1 consists of an adjusted $F_{35\%}$ (fully selected F = 0.11) exploitation rate. The analysts noted that this option has the least near-term loss in gross earnings. Estimated time required

to reach the target spawning biomass (based on median value of simulations) is greater than 30 years. This is no longer an option because it exceeds the overfishing definition.

Alternative Policy 2 is based on an adjusted optimal harvest rate (F_{msy}). The fully selected F=0.08 adjusted to 0.036. As the status quo, projected rebuilding time is 26 years.

Alternative Policy 4 is an adjusted fishing rate based on the estimated unavoidable bycatch for 1992 (initially F = 0.023). Alternative Policy 3 is an intermediate exploitation rate between Policies 2 and 4. Both Policies 3 and 4 have similar projected rebuilding periods of 19 and 16 years, respectively.

The SSC has no preferred alternatives among Alternatives 2, 3, and 4; the rebuilding rate is basically a Council choice on how fast it wishes to rebuild the POP resource.

The SSC is concerned about the increased bycatch of POP in the Central Gulf of Alaska and its potential effects on rebuilding. The Council should consider options to prevent POP catch from exceeding ABC in the Central Gulf. At present, bycatch of POP in Central Gulf fisheries exceeds ABC. This has resulted in wastage, and it will prevent rebuilding at the rates implicit in any of the Alternatives 2-4. The Council could consider one of three actions to solve this problem:

- (i) TAC's in the bycatch fisheries or allowable bycatch rates could be reduced, other management measures such as time-area closures could be investigated, or the overfishing limit could be applied on an area basis.
- (ii) The Council's overfishing definition could be liberalized to provide a buffer between ABC and the overfishing limit. The stock will rebuild to B_{msy} at any fishing mortality rate up to F_{msy}, so that increasing the overfishing limit need not prevent rebuilding. This would require a plan amendment, and it would not achieve the rebuilding rate implicit in Alternative 2, but would reduce waste.
- (iii) The Council could choose to treat POP as a minor species in the Central Gulf and let it be overfished as bycatch. This would require formal and compelling justification, as specified in the section 602 guidelines.

D-2(c) PRIBILOF ISLAND TRAWL CLOSURE

The SSC received a report from David Ackley of ADF&G on the revised analysis of Amendment 21a for a trawl closure around the Pribilof Islands. The analysis presents a new alternative (#8) which would protect the core distribution of blue king crab and essential habitat for juvenile crab of cobble and shell hash between the 20 and 30 m depth contours. The proposed closure area would also provide protection to hair crab in the vicinity of the Pribilof Islands, as well as to some nesting and foraging seabirds.

Mr. Ackley reported that the Advisory Panel has proposed an additional alternative which would permit trawling within the protection area, until a king crab bycatch cap of 1% of the blue king crab population is attained - at which time the protection area would be closed to further trawling.

The SSC feels that the revised analysis meets its recommendation made at the December 1992 meeting for a protection area based on blue king crab distribution and habitat requirements. The Committee recommends that the analysis be released for public review with the incorporation of (1) the Advisory Panel suggestion and (2) a time series of blue king crab population numbers and bycatch

in the proposed protection area. With the incorporation of the AP's suggestion, the new alternative could provide substantial protection to blue king crab and other marine resources while minimizing costs imposed on the groundfish fishery.

If the Council wishes to discontinue consideration of the original suite of alternatives (#2 - #7) at this time, the SSC recommends that the new analysis be edited to read as a stand-alone document. If original alternatives 2 through 7 are to be retained for consideration, the EA/RIR's should be merged before release to the public.

D-3 GROUNDFISH SPECIFICATIONS

The SSC reviewed the preliminary GOA and BS/AI SAFE reports. For most stocks the assessment methods will not change, and the revised ABC and overfishing determinations will not be done until the November Team meetings. For those stocks, the preliminary specifications are last year's values. Stocks for which revised assessments were available at this meeting are discussed below.

The SSC and Team chairs consulted briefly on the outline of SAFE chapter, which had been the subject of correspondence during the year. Some, but not all, chapters followed the SSC recommendations. The SSC requested that the Teams discuss the SAFE chapter guidelines at their November meetings and the SSC guidelines on the basis of this year's experience. The aim is to achieve standard usage and provide adequate information, whether by the SSC guidelines or some alternative.

Gulf of Alaska - Pollock

The SSC reviewed an updated stock assessment for GOA pollock. New information provided in this analysis include (1) egg-production estimates of spawning biomass, (2) 1993 Shelikof Strait hydroacoustic survey biomass estimate, (3) length frequency data from the 1992-93 acoustic surveys, (4) length frequency data from the 1992 and last quarter 1993 fisheries, (5) catch-at-age from the 1992 fisheries, and (6) updated catch and discard.

The analysis used 3 model scenarios, with the preferred scenario being Model C. This model incorporates the egg-production biomass estimates as a new likelihood component and reduces the number of years for which year specific fishery selectivity parameters are estimated. The latter adjustment addresses the SSC's previous concern for excessive parameterization of the model by reducing the number of model parameters. The SSC concurred with the authors and Plan Team that Model C was the preferred model.

Projected stock biomass in 1994 is 726,000 mt and regarded as healthy. The 1994 spawning biomass is 719,000 mt, a level of biomass which has produced strong recruitment in the past. The Plan Team has recommended an optimal fishing mortality rate, F=0.36, based on a simulation of projected stock size derived from a probabilistic recruitment model with low probability (0.20) of strong recruitment, and an optimization function evaluating yield against the risk of spawning biomass falling below a designated threshold (386,000 mt). The SSC notes that the Plan Team's recommended optimal fishing mortality rate is a conservative rate, being less than either $F_{0.1}$ or $F_{35\%}$.

The Plan Team's recommended ABC for the Central and Western Gulf was 172,000 mt. However the Plan Team was concerned about a number of factors which they felt should be considered for TAC's. The SSC is similarly concerned, but prefers to reflect these concerns as ABC considerations.

The SSC notes that stock biomass continues a declining trend which began in 1983. Although 1994 spawning biomass is regarded as healthy, spawning biomass is projected to approach historic lows by 1995 and may fall below threshold by 1996 if harvested at F_{opt}. Moreover, the current fishery is largely supported by a single dominant 1988 year class with no signs of incoming strong year classes in the immediate future. In light of these trends, and overall concerns for the GOA ecosystem, the SSC can find no compelling reason to increase the ABC above the value obtained at the historic 10% rate of exploitation or 78,000 mt for the Western/Central Gulf. The SSC acknowledges that its recommended ABC results in foregone catch and revenue when compared to the Plan Team's ABC. The value of the foregone catch is something less than the estimated potential revenues from that catch.

The SSC concurs with the Plan Team's recommendation that the ABC be partitioned between Western and Central Gulf management areas (Western 16,930 mt, Central: (62) 18,250 mt (63) 42,820 mt), and with the scaling of the Eastern Gulf ABC proportionate to the W/C Gulf (5,550 mt). The overfishing for a total of 83,550 mt level is taken from the Team's report and is calculated from the $F_{300\%}$ exploitable rate.

Gulf of Alaska - Pacific Cod

The SSC concurs with the Team's recommendations, based on a straightforward update of last year's SRA. The assessment also includes a preliminary report of a length-based stock synthesis estimate of stock size, which is expected to replace the SRA next year.

Gulf of Alaska - Flatfish

No new analyses were presented. The Plan Team presented ABC's unchanged from the prior year, except that for the deepwater flatfish complex a separate ABC for rex sole was calculated. This separation provides for greater flexibility in managing the bycatch of rockfish within the Dover and rex sole fisheries. The SSC concurred with the Team's recommendations.

Gulf of Alaska - Slope Rockfish

POP

The SSC concurs with the Plan Team's recommended ABC (3,380 mt) and the proposed regional allocation: Western (760 mt), Central (950 mt), and Eastern (1,670 mt). The SSC recommends that the overfishing level (3,380 mt) be determined by reducing F_{msy} (0.08) by the ratio of current female biomass (70,800 mt) to the optimum female biomass (150,000 mt). It is noted that ABC = overfishing level. The SSC also agreed with the Team majority that the overfishing definition remain a Gulf-wide limit, because there is not sufficient information currently available to conclude that different stocks exist in the different areas. However, since rockfish are known to have small home ranges, localized depletions of the rockfish resource could occur if ABC is exceeded in an area.

Gulf of Alaska - Pelagic Shelf Rockfish

The SSC concurs with the Team's ABC and overfishing level recommendations and notes that they are consistent with our December values. In 1993 the Plan Team recommended separating black rockfish from the pelagic shelf complex because of indications that a target fishery had developed for that species. The SSC recommended against this action pending improved biomass estimates and catch data. As of late August a fishery has not materialized and the Team recommends leaving black rockfish in this complex for 1994. The SSC continues to support the inclusion of this species in the complex.

Gulf of Alaska - Demersal Shelf Rockfish

The SSC agrees with the Team's recommended ABC for this complex, 968 mt. This value was obtained by applying F=M=0.02, the natural mortality for yelloweye rockfish, to the lower 90% confidence limit for the yelloweye biomass estimate from line transect data for the Southeast Outside District. The result obtained was adjusted upward by 15% (the ratio of yelloweye to other DSR in the catch) to get the ABC. This modification was made to account for other species included in this complex. Overfishing (1,683 mt) is defined as $F_{30\%}=0.04$ applied the yelloweye biomass estimate.

Bering Sea Aleutian Islands - Pollock

The SSC agrees with the Plan Team's recommendation of 1,340,000 mt for the Eastern Bering Sea Shelf and 58,700 mt for the Aleutian Islands. New data from 1992 commercial catch-at-age will result in updated estimates in December.

In the Bogoslof area, new survey information suggests a 1993 biomass of 600,000 mt. Uncomfortable with the Team's assumption of recruitment balancing mortality, the SSC assumed that no recruitment will occur between 1993 and 1994. The projected biomass in 1994 using M=0.2 is then 491,000 mt. As it has done in the past, the SSC then calculated the $F_{35\%}$ exploitation rate of 0.26 and adjusted this rate downward by the factor 1/4 to reflect the ratio of current biomass to optimal biomass. Multiplying this result (0.065) by 1994 projected biomass results in an ABC of 32,000 mt. This ABC is also the overfishing limit. This approach has been accepted by the Council in the past.

Bering Sea Aleutian Islands - Pacific Cod

The biomass estimate is now derived from the length-based stock synthesis fit that appeared earlier this year in the Pacific cod allocation analysis. Owing to uncertainty about the maturity schedule, the exploitation strategy is F=M rather than $F_{35\%}$.

The SSC accepts the preliminary ABC from the stock assessment, but requests further clarification of a few points:

- (i) Why were the specific emphasis factors chosen, particularly the high values for survey size composition and biomass?
- (ii) How was the value of M estimated (.35 vs. .29 before)?
- (iii) Why are the exploitable biomass figures on pp. 2-11 and 2-15 different?

Bering Sea Aleutian Islands - Flatfish

Except for one species, no new analyses were presented for Bering Sea flatfish. Excepting Greenland turbot, the SSC agrees with the Plan Team's ABC's which were unchanged from the prior year. A new synthesis model was presented for Greenland turbot which replaced the stock reduction analysis (SRA) previously presented. The new analysis, which incorporates new information, provides for an increased ABC estimate of 18,000 mt. The SSC agrees with the use of the synthesis approach. However, continued poor recruitment and stock abundance lead the SSC to recommend a continuation of the present 7,000 mt ABC for this species. This conservatism was shared by the Team which recommended a reduction in TAC to 7,000 mt rather than a reduced ABC. Some members of the SSC felt that the new ABC based on $F_{35\%}$ and the new biomass estimate from the

synthesis model was appropriate. Yet, because this was the first use of this model for Greenland turbot, the full SSC agreed to retain the present ABC unless new information from the 1993 survey provides more optimistic recruitment information.

Bering Sea Aleutian Islands - Atka Mackerel

The SSC accepts the Team's determination that the best estimate of ABC given information now available is 245,000 mt. While accepting the Team's ABC determination, the SSC is concerned that the series of trawl surveys is short and inconsistent in their extent of coverage. We are also in apprehensive about the possible environmental problems that may result from an increased catch of the magnitude implied by the Team's ABC estimate. Atka mackerel is a prey species of northern fur seals and steller sea lions. During their-migrations, northern fur seals (a depleted species) feed heavily on Atka mackerel as they move through the Aleutian passes.

Continuing the approach accepted in the past, the SSC recommends continuing to phase in the new higher ABC over a six-year period, adopting the current biomass estimates and raising the exploitation rate in steps from M/6 in 1992, M/3 in 1993, M/2 in 1994, to M in 1997. According to the schedule, the recommended ABC for 1994 is (0.30/2)* 816,000 mt = 122,500 mt. A new survey estimate will be available next year, which will allow evaluation of this phase-in policy.

D-3(b) EXCLUSIVE AREA REGISTRATION PROPOSAL

The SSC reviewed the exclusive area registration proposal and heard public testimony from Chris Blackburn and Paul MacGregor. The analysis has not changed materially from that presented for our review in December 1992. We reaffirm our assessment of the methodology reported in the SSC minutes. Paraphrasing those minutes, we were pleased with the performance of the choice model used to forecast changes in the distribution of fishing effort. However, we were and continue to be dissatisfied with the documentation and performance of the fisheries economic assessment model.

There are two principal areas of concern to the SSC: (1) The data used to formulate the choice model are out of date. Although the model is based on 1991 data, we anticipate that the qualitative predictions would be conserved even if more recent data were used. (2) The circumstances of the fishery have changed since the EA/RIR/IRFA was completed. The analysis does not consider measures such as PSC allocations that might solve current problems at a lower cost to industry. Furthermore, the re-released amendment proposal does not recognize the current problem as presented by industry.

D-5(a) SALMON VIP

The SSC heard a report from Sue Salveson on discussion and development of salmon bycatch management measures for the BS/AI trawl fisheries. The agency has taken action to make retention of salmon bycatch mandatory and to publish the bycatch rates of trawl vessels. However, the agency does not believe that a rate-based or number-based VIP program is feasible.

D-5(b) TRAWL MESH

The SSC reviewed a discussion paper on a proposed requirement for 8" mesh in trawling for Pacific cod. The SSC agrees that lacking data on mesh selectivity and escapement mortality in the North Pacific operations, there is no way to assess the utility of a mesh regulation. The SSC supports mesh selection studies.

D-6(a) 1993 GROUNDFISH PROPOSALS - PAAG REPORT

The SSC received a report summarizing results of the meeting of the PAAG Committee. It supports the categorization and rankings developed by the PAAG. Overcapitalization continues to be a serious issue confronting fisheries under the Council's jurisdiction. Many issues addressed in proposals submitted are the result of too many vessels pursuing too few fish. The SSC recommends that top priority continue to be assigned to development of the Comprehensive Rationalization Plan. Proposal #1, "Require actual weighing of all harvested levels, is considered to be of highest priority of the proposals submitted, followed by #8. These proposals complement the CRP.

If a decision is made to fully develop the season change proposal, it is recommended that consideration be given to the modification of the TAC specification cycle as an alternative. Initial review of the SAFE would take place during the June meeting with final TAC specifications set during the September meeting. This approach would facilitate the publication of groundfish ABC and TAC specifications and the processing of scientific information.

The SSC learned that interest was expressed in the PAAG meeting in changing the overfishing definition, an issue last considered by the SSC in January of 1993.

Since a national committee on overfishing is planning to issue a report on this topic in early 1994, the SSC recommends deferring this issue until the report is received.