

North Pacific Fishery Management Council

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MINUTES Scientific Statistical Committee April 10-12, 2000

The Scientific Statistical Committee met April 10-12, 2000 at the Hilton Hotel in Anchorage, Alaska. All members were present except Doug Larson:

Richard Marasco, Chair
Steve Hare
Terry Quinn
Sue Hills

Jack Tagart, Vice Chair
Dan Kimura
Al Tyler
Doug Eggers

Keith Criddle
Seth Macinko
Jeff Hartman

C-2 OBSERVER PROGRAM

Chris Oliver provided the SSC with a report on the March 20-21 Observer Committee meeting held in Seattle; Dan Ito and Shannon Fitzgerald reviewed the NMFS/AFSC Observer Program organizational structure, goals and current projects; and Bridgette Mansfield led the SSC through the initial review of an RIR for a proposed rule to amend regulations for observer coverage for vessels and shoreside processors.

Historically, the SSC has been a strong advocate for an effective and comprehensive observer program. For the SSC these terms imply that the observer program should representatively gather biological data from each of the fisheries engaged in harvest while simultaneously providing data for unbiased estimates of total catch. Secondly, to the extent practicable, the Observer Program should provide requisite data on compliance with the many regulatory requirements imposed on the fisheries. While the Council and SSC are in general agreement on the objectives of the Observer Program, explicit clarification and prioritization by the Council of observer requirements will facilitate improvements in all areas of the program.

C-2(a) Observer Committee Report

The Council's reconstitution of the Observer Committee follows concern over the ability of the Observer Program to meet the combined objectives of biological data gathering, catch and compliance monitoring. The Council seeks advice from the Observer Committee on means to improve the Observer Program. Concurrently, NMFS/AFSC is already engaged in a contracted independent review (MRAG) of Observer Program administrative procedures, sampling and estimation methodologies. Among specific recurring themes in the review of the Observer Program are the availability, training and retention of qualified observers, cost of observer coverage, observer logistics including deployment flexibility and work environment, elimination of

perceived conflicts of interest and clarification of discrepancies between vessel records and NMFS estimates of total catch.

Dr. Ito reported that the first MRAG report on Observer procedures is expected in April. The SSC requests that the report be made available to its members soon after it is received by NMFS. MRAG's follow-up report on sampling methodologies and catch estimation is due in November 2001. Additionally, the NMFS has begun an aggressive outreach program to improve agency communications with industry, as well as active observers. To accomplish this outreach, NMFS has formed an Observer Cadre of government hired former observers who will be deployed throughout the region. The SSC believes this is a promising initiative on the part of NMFS.

The SSC is concerned that data quality and quantity may be adversely affected by observer availability. Consequently, we would like to see an evaluation of the current retention rates for observers, including an objective appraisal of the reasons observers leave the program. We believe such a review could help identify the types of changes necessary for the program to attract and retain more qualified observers. At a minimum this review may help the Council understand and appreciate the real logistical limits for observer coverage.

C-2(b) Regulatory Amendment

With respect to the initial review of the RIR for the proposed rule to amend observer regulations the SSC believes the rule can be sent out for public review. Issue number 4, which deals with regulations to eliminate deliberate bias introduced by manipulation of observer coverage in the pot fisheries, was discussed at length by the SSC. At issue was whether procedures to assure representative observation of pot fishing effort should be extended to other gears. The SSC suggests that the Council consider multiple requirements to limit the opportunity to subvert representative sampling. These might include a requirement, for example, to monitor at least 30% of all pot lifts and at least 30 percent of all pot fishing days and at least 30% of the total pot catch within each regulated monitoring stratum. If there are demonstrated efforts to subvert sampling in other fisheries, similar requirements should be extended to those fisheries.

C-2(c) Report on Experimental Fishing Permit on Observer Sampling

John Gauvin (Groundfish Forum) and Sarah Gaichas (NMFS/AFSC) presented an overview of the experimental design and analysis of results from experiments to evaluate efficacy of observer sampling procedures. Focus of their efforts was on accuracy of species composition sampling, variability in catch estimates, and comparison of whole-haul versus basket sampling in a flatfish fishery. Analysis of results is preliminary and the SSC expects to have an opportunity to review a more comprehensive treatment in a report available in September 2000.

The SSC commends the Groundfish Forum, NMFS, and the owners and crew of the F/V American #1 for the significant efforts to gather this important data. We believe that research of this type is essential to help develop credible policies for fisheries catch monitoring.

C-4 PACIFIC COD LICENSE LIMITATION PROGRAM (LLP)

Council staff (Darrell Brannan and Nicole Kimball) described changes to the draft EA/RIR pursuant to recommendations provided in our February 2000 minutes. Public testimony was provided by Paula Brogden (Fishermen of Alaska), Glen Merrill (Aleutian East Borough) and Joe Sullivan (Horizon Fisheries).

The draft EA/RIR addresses, most of, the short comings that were identified in February. Potential spillover from federal fisheries into State waters are discussed in qualitative terms. The text includes a brief discussion of national and international experience suggesting that while some LLP Programs may provide some stability in the number of participants, they are ineffectual in controlling the escalation of effort or in preventing the dissipation of economic value. The revised draft EA/RIR also includes expanded discussions of the dynamic nature of the status quo and the concentration of catch history. The distributional consequences of the LLP remain poorly characterized in the draft.

C-7 HABITAT AREA OF PARTICULAR CONCERN (HAPC)

The SSC received staff report from Dave Witherell and Cathy Coon. Public testimony came from Dorothy Childers and Karen Wood DiBari of AMCC.

Pending two clarifications, the SSC believes that the analysis in the document are sufficient to support final Council action. The two issues are:

- (1) clarify jurisdictional issues involved in HAPC
- (2) how would the action affect vessels transiting Federal waters with biota that is permitted to be retained in State waters, but not in Federal waters?

D-1 SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT (SEIS)

The SSC received an update on the SEIS scoping process from Steve Davis (NMFS). The SSC is concerned that the range of alternatives presented (see Table 3) is too narrow. Alternative 6, in particular, is problematic. There are several fishing rights structures discussed in the fishery literature. Theoretical and empirical evidence suggests that each alternative could produce a long term increase in net economic benefits relative to the status quo, although they differ in the potential magnitude and distribution of benefits. Alternative rights based structures include community fishing allocations, various transferable and non-transferable directed fishery quotas, bycatch quotas, forms of local area management planning and cooperative management, more exclusive time/area access rights (e.g., transferable use rights), and auction systems. Also, it is possible to improve long term benefits to fishers, processors, and communities through improvements in market chains, product quality, and changes in product form/ processing level. Instead of considering this broader suite of economic enhancements, the scoping summary report focuses exclusively on one particular rights based option, (AFA styled fishery cooperatives). While this is a potentially viable option in some fisheries, we presently know less about this alternative than some other rights based models. Consequently, it seems premature to direct attention only to fishing cooperatives at this point.

The SSC is also concerned that the SEIS focuses on communities of interest rather than geographic communities. While both concepts are valid conceptualizations of "community", the National Standard guidelines emphasize the geographic concept, and it seems unusual to narrow the analysis to one perspective at this time.

The 2nd, 3rd, and 4th alternatives presented on Table 3 appear to be achieved by a few “management tools” listed under each of the alternatives. The “management tools”, however, appear to be easily substituted into any of the 3 alternatives. Also, the 2nd, 3rd, 4th, 5th, and 6th alternatives are not mutually exclusive. Various combinations of these could be formed to achieve a given objective. It is not clear how this framework will result in a set of explicit alternatives, comparable with the status quo case, that can be evaluated under NEPA with the methods available to social scientists.

D – 1(b) TAC – SETTING PROCESS

The SSC reviewed a discussion paper: Alternatives for a proposed revision of the annual groundfish harvest specification process. The discussion paper outlined NMFS view that the TAC specification process must be revised to respond more effectively to the following objectives: (1) Manage fisheries based on the best available scientific information; (2) Make adjustments to TAC amounts to respond to new information or conservation concerns; (3) Comply with NEPA, ESA, APA, and FRA provisions while minimizing unnecessary disruption to fisheries; (4) Provide adequate opportunity for public review and comment on new information leading to annual TAC recommendations; and (5) Promote administrative efficiency while minimizing public confusion regarding proposed and interim specifications.

The principal problem with the current specification process is the Council must adopt proposed and interim specifications before the current years’ stock assessment and analysis work is completed. This result in the proposed TAC’s, in many instances, being outdated at the time of publication.

The discussion paper proposes several alternatives, but alternative 4 was offered as the best hope of addressing the objectives laid out for the revised specification process. The specification process laid out in alternative 4 was to publish proposed specifications based on those adopted by the Council in December. Interim specifications would be issued by inseason notice following the December Council meeting based on a non-discretionary adjustment of the prior year TAC’s by the ratio of the present year ABC to the prior year ABC. Final specifications for the fishing year would be published by May 1. These would respond to public comments received on Council recommended specifications. NMFS intent is to manage the first quarter fishery based on the interim TAC’s.

The SSC believes the proposal has merits and should be developed as a full amendment package. There is a potential that the interim TAC’s by which the first quarter fisheries are managed would differ greatly from the final TAC’s. To evaluate this potential the SSC suggests that the analysis review, in a retrospective manner, the relationship between the proposed and interim TAC’s based on the non-discretionary adjustment.

The SSC also notes that the proposed non-discretionary procedure for determining interim TAC’s depends on the ABC set at the December Council meeting, may not satisfy APA standards for public review and input.

The SSC recommends that an additional alternative be added to the analysis. In order to avoid interim rules and meet all administrative procedures, the Council’s ABC and TAC setting process would have to occur earlier in the year based on the previous years’ stock assessment data. The SSC believes that an alternative, which presents such a process, is required. The SSC notes, that an earlier ABC/TAC setting process would have several drawbacks, among them would be utilization of dated survey and biological information.

D-1(c) EXPERIMENTAL FISHING PERMIT (EFP) FOR HALIBUT EXCLUDERS

The SSC received a presentation from John Gauvin (Groundfish Forum) and Trevor McCabe (At-Sea Processors) regarding their application to NMFS for an experimental fishing permit to test halibut excluder device for use in BSAI and GOA cod trawl fisheries.

In general, the SSC is supportive of industry/science partnerships that attempt to lower halibut bycatch mortality rates. The SSC recommends that the Council support the application for an EFP.

D-2 CRAB MANAGEMENT

Blue King Crab (*P. Platypus*) and Snow Crab (*C. opilio*) Rebuilding Plans

Jie Zheng and Doug Pengilly presented the rebuilding plan for blue king crab and snow crab, respectively. Public testimony was given by Ray Hilborn (UW) and Arni Thompson (ACC). The 1999 NMFS Bering Sea survey indicates that the St. Matthew blue king crab stock and Bering Sea snow crab (*C. opilio*) stock have fallen below their respective minimum stock size thresholds (MSST). Pursuant to the Magnuson-Stevens Act Guidelines, a rebuilding plan for these stocks must be developed within one year from September 9, 2001. The mature biomass of both stocks is at near historic low levels. The Alaska Board of Fish has developed new harvest policies and other management measures in response to these declines. Under deferred management, the SSC believes that the issue before the Council is to determine whether the rebuilding plans meet Federal requirements.

The SSC believes these rebuilding plans meet the technical requirement of NMFS guidelines. Under the assumptions concerning recruitment, rebuilding is projected to occur within 10 years. Therefore, the SSC believes that these rebuilding plans are ready for Public review.

Analysis of the potential economic consequences of alternative rebuilding strategies is not well developed in the draft EA/RIR. In addition to providing an estimate of the expected net present value of rebuilding under the alternative strategies, the draft EA/RIR could benefit from a discussion of the distribution of economic impacts across fishery communities.

The SSC also notes that PSC caps for *C. Opilio* are very low (~0.113%). While these caps have not been binding in recent years, there would be a significant cost to groundfish fisheries if the cap were to become binding. The risk of fishery closure could be increased if the current strategy setting the bycatch cap were revised to be proportional to stock size even at low biomass levels.

Rebuilding simulations indicate that under the new Board of Fish precautionary harvest strategy, rebuilding will occur 6 years earlier for blue king crab than under the status quo harvest strategy at a long-term average cost of 0.469×10^6 pounds of annual foregone harvest. For snow crab, however, simulations indicate that rebuilding will occur only a year earlier despite the new precautionary harvest strategy, at a long-term average cost of 16.4×10^6 pounds of foregone annual harvest.

The SSC wished to convey the great uncertainty in our knowledge of crab biology on which the rebuilding simulations are based. Furthermore, the current biomass of snow crab is now at near historic low levels. Sampling variability of surveys is large, and crab availability to surveys appear highly variable. Large declines in abundance appear triggered by surges in mortality that remain unexplained. Recruitment appears to be linked to environmental factors rather than biomass, so trends in recruitment are difficult to predict. Rebuilding simulations simply assume that future recruitment will be similar to what we have observed in the past: highly variable. Rebuilding times can vary over an order of magnitude depending on the particular set of assumptions

adopted. It should be emphasized therefore, that these rebuilding scenarios are highly uncertain and are not robust to mis-specification of recruitment variability. The exact functional form and parameters of the recruitment relationship are unknown. Density-dependent effects at low population levels may actually occur, but we do not have information to establish that conclusion. Therefore, precautionary management should factor in uncertainties such as these, which led to the Board of Fish actions.

An exhaustive statistical study of C. bairdi showed that most of the change in recruitment could be explained by physical oceanographic factors (Rosenkrantz 1999). In particular year-class strength is related to wind-driven currents, and bottom temperatures of the Bering Sea "cold pool". An effect of stock size on year-class strength could not be found. That is, even if the spawning stock size was reduced by the fishery, the effort was not severe enough to leave behind statistical evidence of a relationship between reduced stock size and year-class strength. C. opilio crabs are closely related to C. bairdi and are also likely to be strongly influenced by oceanographic processes. Research to look for these relationships has not yet begun.

The SSC recommends that the Crab Plan Team reconsider its definitions for "overfishing" and "overfished" to be more in line with the biology and ecology of crab species. During the development of overfishing definitions required for the Sustainable Fisheries Act, the SSC commented that fixed values for MSY and MSST were incompatible with species with highly variable recruitment. This recommendation was not followed, and as a result, St. Matthew blue king crab and C. opilio are now classified by NMFS as being "overfished". In reality, fishing has probably had little influence on recent declines of these populations. Rather, a massive natural mortality event between 1998 and 1999 was the most likely explanation given to the SSC for the decline in St. Matthews blue king crab. A period of low recruitment is thought to be the reason for the decline in C. opilio. These events are quite possibly triggered by corresponding events in the physical environment, such as the regime shift and warm Bering Sea conditions in 1997 and 1998. Furthermore, it was suggested that the reproductive capacity of these populations is related to the abundance or biomass of mature females, which are not affected to any great extent by the crab and groundfish fisheries. Only if the fertilization of females was compromised by the low abundance of mature males would the fishery be involved as a contributing factor. Unfortunately, the current state of knowledge precludes precise determination of reproductive capacity of these crab populations. The SSC envisions that the pathway to rational exploitation strategies based on reproductive capacity involves the collection of necessary life history information combined with length-based modeling of assessment data. The SSC notes that this development is underway and expects that the issue of biologically realistic rebuilding strategies can be revisited in 2002.

The SSC further encourages greater consistency among the various crab rebuilding plans in terms of the reference points in the rebuilding plan and the adjustments in exploitation rate. For example, the C. opilio plan has different adjustments at biomass reference levels $MSST/2$, $MSST$, and the surrogate level for B_{MSY} than does the St. Matthew blue king crab plan.

In addition, further modeling efforts are warranted. This effort should examine the differences in the rebuilding rate of blue king crab and snow crab and determine whether some of these differences are artifacts of the modeling approaches being used.

Finally, the SSC noted in several previous minutes several problems with the current NMFS overfishing guidelines. Consequently, the SSC has prepared a draft letter to NMFS from NPFMC explaining the problems with the current NMFS guidelines and requesting greater flexibility in the development of overfishing definitions and status determination criteria. The letter also calls for NMFS to convene a workshop comprised of SSC and assessment scientists from around the country to craft a better set of procedures that have scientific credibility. If NMFS does not change its current guidelines, the SSC believes that (1) the perception will be created that NPFMC and Board of Fish management practices led to the decline of certain NPFMC populations because NMFS determined they were "overfished", even though fishing had no demonstrable effect, (2) the deserved reputation of the NPFMC for its conservative management practices will be damaged, and (3) much

time and energy of NPFMC members, staff, advisory bodies, and agency personnel will be spent on overfishing compliance activities, which would be better spent on improved science and management.

X.(a) Report on PFMC West Coast Groundfish Harvest Rate Policy Workshop

Terry Quinn served on a panel that examined biological reference points used in the harvest management of West Coast groundfish managed by PFMC. The workshop has convened by the PFMC SSC and the panel consisted of representatives of the PFMC SSC and outside experts. Several new papers presented at the workshop suggested the productivity of West Coast groundfish may be lower than in other places at the current time and that recommended fishing mortality levels may be lower than the current defaults.

The reason for having the NPFMC SSC members was in part to promote closer communication between the two SSC's and to share information. It is interesting that there are major similarities in harvest policy between the two Councils. For example, both Councils have biomass-based policies in which fishing mortality decreases at lower population levels. There are also some interesting differences in policy and implementation between the two Councils. Continuing with previous example, the NPFMC reduces fishing mortality linearly as a function of biomass, while PFMC reduces catch linearly.

At the NPFMC Council develops revisions to its current overfishing definitions, it would be beneficial to hold a joint meeting between the two SSC's to brainstorm alternatives and compare approaches. There is a commonality of philosophy and approach between the two Councils, so it would be beneficial to have greater information exchange.

X.(b) Economic Guidelines

The SSC will review and provide comments to the Council staff on the draft National Standard Guidelines on Economic Analysis by April 18, 2000.