

North Pacific Fishery Management Council

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Certified: _____
Date: _____

MINUTES Scientific Statistical Committee February 4-6, 2002

The Scientific Statistical Committee met February 4-6, 2002 in Anchorage, Alaska. All members were present except George Hunt, Steve Hare, Sue Hills, Ken Pitcher, and Terry Quinn.

Rich Marasco, Chair
Keith Criddle
Mark Herrmann

Jack Tagart, Vice Chair
Doug Eggers
Dan Kimura

Steve Berkeley
Jeff Hartman
Seth Macinko

B-2 AMEND THE TAC SETTING PROCESS

NMFS staff presented draft analyses on alternatives to change the annual TAC specification process in June 2000 and February 2001. The original impetus for the proposed changes was to provide a review of recommended harvest specifications and public comment. Recent court decisions have clarified the need to proceed with a change to the current specification process. NMFS has proposed two alternatives for the North Pacific groundfish annual TAC setting process that meet the objectives of the proposed FMP amendment and are practical to implement. Alternative 1 (staff's preferred alternative) maintains current resource assessment survey schedules but provides more time for developing ABC recommendations. Under Alternative 1 the current year stock assessment information would be used to develop two-year forward projections of stock biomass and harvest specifications. Alternative 2 would change the fishing year to July 1 through June 30.

The SSC notes that prior analyses of these alternatives were presented to the Council, and SSC comments were detailed in our June, 2000 and February, 2001 minutes. In addition to issues raised in our prior minutes, the EA should address the following:

- How will forecast confidence intervals change if TAC settings are not based on current year survey data?
- Are current stock assessment models superior to other types of models, e.g. time series models, if TAC settings are not based on current year survey data?
- Will increased lags between the data included in the assessment and management actions taken in response to the assessment lead to significant positive feedback and oscillatory stocks?
- Why is it necessary to focus the EIS on the specific TAC selected rather than on the properties of the process (estimator and harvest strategy) used to derive the annual TAC?

The SSC agrees with NMFS recommendation that the Council schedule an initial review of the modified analysis for revising the harvest specification at its June meeting.

B-6 CHINIAK STUDY

The SSC received a report from Chris Wilson and Anne Hollowed on the ongoing study of pollock in the Chiniak and Barnabas gullies in the GOA. This study is designed to evaluate effects of fishing on local aggregations of pollock. The study area is juxtaposed with known Steller sea lion habitat and inferences derived from this study may be relevant to evaluation of SSL/Fisheries interactions.

The researchers are on the second year of a four-year study. They have successfully assessed pollock biomass in the study area prior to and during commercial fishing. Additionally, they are developing methodologies to explore the impact of fishing on pollock school size. Size composition of pollock is similar in control (Chiniak) and treatment (Barnabas) areas; and pollock spatial distribution has remained virtually unchanged during the period surveyed. It is too early to infer effects of fishing. We commend the research team and look forward to more reports.

C-1 PSEIS

Steve Davis, NMFS, briefed a joint session of the SSC and AP regarding proposed changes to the alternatives for analysis in the draft Programmatic Supplemental Environmental Impact Statement on Alaskan groundfish fisheries. NMFS believes the changes are required to transform what were perceived as single objective alternatives to mult-objective alternatives. For most members of the SSC, this briefing was their first exposure to the proposed changes, and consequently, the SSC has had little time to evaluate them.

It is clear that there is considerable confusion among SSC members and others regarding the mandatory scope of the PSEIS alternatives. On one hand, there is a perception, supported by former NMFS advice, that these alternatives describe a range of policy directives and should exclude specific action items which would ordinarily provoke explicit rule making. On the other hand, the proposed revisions to the alternatives integrate specific action elements as well as policy directives. The proposed alternatives, therefore, give the appearance of holistic “drop in” FMP substitutes. The confusion over the mandatory scope of alternatives makes it exceedingly difficult to provide constructive advice to the Council. To help eliminate further confusion, we believe there is a need to revise the problem statement associated with this process and to succinctly list the assumptions and criteria used to build the alternatives.

With respect to alternatives as presently constructed, the proposed alternatives address a continuum of a “lightly constrained” to “highly constrained” fishery regulatory environment. The ordered sequence of alternatives generates a perception that the status quo (Alt. 2) aligns as lightly constrained, a perception we believe misrepresents the current management regime. Therefore, it would be useful to include a management regime alternative that is less constrained than status quo. For example, the Council could choose a previously adopted FMP configuration at a time certain between implementation of the initial FMPs and now; such as the FMPs as configured in 1982, or as configured when the fishery was completely Americanized (1988) or any other intermediate FMP. In so doing, the PSEIS could evaluate where we could be, had the Council remained static in their management regime, against where we are and where we’re going in an evolving management regime. We further suggest that the least constrained management option could reflect the minimum necessary management elements to satisfy the MFCMA when first adopted.

C-2 ESSENTIAL FISH HABITAT

The SSC received presentations on the following: a summary of the EFH final rule from Cindy Hartmann, the SEIS for essential fish habitat and HAPC designation from Dave Witherell, and the EFH Committee report from Cathy Coon. In addition, public testimony was given by Heather McCarty and John Gauvin (representing Groundfish Forum).

The SSC recommends that the public's role in the EFH development process be reconsidered. The SSC opposes soliciting recommendations for specific HAPC sites from the public. We believe designation of HAPC is more appropriately addressed by persons with technical expertise in habitat function.

The SSC shares the EFH committee's concern over the importance of defining critical terms used in the EFH Final rule, such as "minimal", "temporary" and "degradation". Defining these terms in a way that provides protection to essential habitat without being unnecessarily restrictive will be very difficult. For example, the final rule states that HAPCs should be identified based on one or more of four considerations, one of which is "the extent to which the habitat is sensitive to human-induced environmental degradation." The SSC notes that habitat changes may result from human activities but whether those changes constitute habitat degradation is largely a subjective determination. The SSC will provide input on these definitions and other analytical elements when more information is available.

C-5 CRAB RATIONALIZATION

Darrell Brannan (NPFMC) and Mark Fina (NPFMC) provided an overview of the Initial Council Review Draft Analysis of Bering Sea and Aleutian Island Crab Rationalization Program Alternatives. Stephen Hamilton (Central Florida University) reported on the conclusions of A Comparative Analysis of Alternative Rationalization Models for the Bering Sea/Aleutian Islands Crab Fisheries (Appendix 3-7), prepared on contract for this analysis. Michael Downs (Impact Assessment Inc.) reported on the Community Socioeconomic Profiles (Appendix 2-6) prepared on contract for this analysis. Gretchen Harrington (NMFS—Sustainable Fisheries) discussed the draft summary scoping report on the Bering Sea/Aleutian Islands King and Tanner Crab Fishery Management Plan. Public testimony was provided by Terry Leitzell (Icicle Seafoods), Scott Matulich (Washington State University), Arni Thompson (Alaska Crab Coalition), Bing Hinkle, Earl Comstock and Gordon Blue (Crab Rationalization and Buyback Group), Kevin Suydam (F/V Lady Alaska), James Mize (Blue North Fisheries), Bob Storrs (Unalaska Native Fishers Association), John Garner (North Pacific Crab Association), Steve Minor (St. Paul), David Lethin (F/V Ocean Ballad), Doug Wells (F/V Baranoff), Bob Alverson and Jack Knudson (Fishing Vessel Owners Association), Linda Kozak (Kozak and Associates), Leonard Herzog (F/V Anna Marie), and Tim Henkel (Deep Sea Fishermen's Union).

The draft analysis includes a well-balanced description of the alternatives, an excellent review of alternative institutional arrangements for rationalization, and a lucid discussion of many of the issues related to the adoption of the proposed alternatives. Nevertheless, the SSC notes that the draft document is incomplete in a number of important areas and that some sections of the draft analysis are invalid. The SSC advises that these shortcomings be addressed and that the document undergo a thorough review before the draft analysis is released for public review. The SSC emphasizes that this conclusion should not be construed as a criticism of the preparers. To the contrary, we laud staff for the quality of analysis of the complicated issues that arise in comparing the anticipated effects of alternative rationalization measures. We note that the suite of alternatives under consideration for crab rationalization is much broader than those considered

for rationalization of other North Pacific fisheries, analyses that benefitted from much longer periods for preparation of analytic documents than has been budgeted for this analysis.

General Comments

1. It would be beneficial if the Council would revisit the problem statement in an attempt to clarify the nature of the problems to be addressed through this amendment. A number of specific problems afflicting crab harvesters are articulated in the problem statement. In contrast, there is only a non-specific reference to concerns regarding processors and communities. Some of the alternatives seem designed to mitigate potential adverse impacts of open access on groups other than harvesters. It would help focus the analysis and provide a better basis for comparing the alternatives if the purpose and need statement was revised to explicitly identify problems that proposed action are intended to address.
2. The SSC is concerned that the draft analysis does not include an Environmental Assessment of the proposed actions. Although a Draft Programmatic Supplemental Environmental Impact Statement is being prepared, the schedule for its completion may preclude adequate consideration of environmental impacts during the Council's deliberation on the preferred crab fishery rationalization alternative. As noted in our December 2001 minutes, the SSC strongly recommends that the analysis be expanded to include a discussion of the likely environmental impacts.
3. The revised draft analysis should include an IRFA. The IRFA provides important information on potential impacts of the proposed alternatives on small entities, including harvesting and processing firms and small communities. The crab fisheries include a large number of small entities. It is likely that the proposed alternatives and options will have differing impacts on small entities. Description of these impacts is not well-developed in the current draft analysis or in the Social Impact Assessment (Appendix 2-6).
4. Although the draft analysis includes a well-balanced description of the alternatives and an excellent background discussion of alternative institutional arrangements for rationalization, it does not include quantitative estimates of the direction or magnitude of economic benefits associated with the alternatives. While accurate quantitative estimates of the economic consequences of the alternatives are preferable, qualitative analyses can provide an acceptable basis for judging the economic consequences of the alternatives. When it is impossible to provide even a qualitative analysis, the analyst should explain why. The Milon-Hamilton white paper included in Appendix 3-7 was intended to provide just such a qualitative assessment. However, the model is based on assumptions that do not accord with those considered appropriate for the crab industry. Consequently, it does not provide an acceptable basis for comparison of the magnitude or distribution of net benefits of the alternatives. This Appendix should be removed and treated as a stand-alone document. (Specific concerns regarding the Milon-Hamilton white paper are listed in an appendix to this section.)
5. The discussion of local and regional distributional impacts of rationalization is incomplete. Rationalization is likely to result in consolidation at both harvesting and processing levels. This issue should be discussed in greater detail in the next draft of the document.

6. The present draft does not include an analysis of how the initial allocation of harvester quota might be distributed. This analysis is important because it will provide insights into local and regional distributional impacts.
7. The draft analysis is relatively silent on the issue of preserving entry-level opportunities under rationalization in general and on differences in the availability of entry opportunities under the various rationalization alternatives. Recent analysis of the Community IFQ Purchase option suggests that entry level concerns associated with rationalization programs may be particularly acute in small communities.
8. The revised draft document should provide detail about the relative magnitude of State waters components of the crab fisheries.
9. The revised draft needs an expanded discussion of the changes in management and regulatory structures that would be necessary to implement crab rationalization. For example,
 - Section 3.2.4 The Use of GHJ or TAC for Determining Allocations under the Rationalization Program. ADFG provided an analysis on the need to switch from setting crab harvests using GHJ to TAC as the fishery moves from regulated open-access to crab rationalization. GHJ has been historically used as a tool to manage the crab fisheries because of the need, during short seasons, to use CPUE to adjust the GHJ inseason. ADFG has determined that managing harvests under GHJ is not a viable option under crab rationalization as quotas would need to be set before the fishery is prosecuted. State managers have indicated that managing crab fisheries under a TAC is no more problematic than under a GHJ, but it is unclear whether the State has authority to set TACs. This needs to be brought out more clearly in the text. Of specific concern are why some fisheries, such as the Adak red king crab fishery (p.113) are excluded from consideration of crab rationalization. For example, the rationale that the Adak red king crab fishery is excluded because “of the difficulty of establishing TAC based on current stock information” is not sufficient. The rents accruing to this fishery, when it reopens, under regulated open-access needs to be weighed against crab rationalization using a TAC even if the TAC is conservatively set.
 - Section 3.2.7 Potential Changes in Pot Limits in a Rationalized Fishery. ADFG has provided an opinion that under crab rationalization that “overly restrictive pot limits might go away”. Currently, this decision would be made by the Alaska Board of Fish. Pot limit changes could have very important effects on the magnitude and distribution of net benefits under the proposed rationalization alternatives. These effects need to be addressed in further detail. This discussion should include the history of pot limits in each crab fishery and the potential environmental and economic changes to the fisheries that could arise if pot limits are reduced or eliminated.
 - The state/federal assignment of management authorities (category 1, 2 and 3 measures) needs to be addressed in the context of those measures which need to be changed, transferred or revoked as a result of rationalization.
10. Section 2.1.5.5 Golden King Crab. The Aleutian Islands golden (brown) king crab fishery is very different from other king and Tanner crab fisheries. It has not exhibited the severe open-access

problems seen in other crab fisheries. Further discussion of this fishery needs to include specific examples of how it differs from other crab fisheries. Specifically, the benefits of having any cap on the ownership on quota (currently suggested range of 10-40%) needs to be further explored.

11. Issues unique to quotas in the crab fishery because of the extreme fluctuations in harvest levels need to be addressed. This includes an expanded discussion of potential problems in the Bering Sea snow crab harvests when harvest levels are again high. A discussion is needed on the likely structure of the market for quotas and the likelihood of acquiring affordable loans to purchase a very risky asset.
12. A critical part of the Council's ability to understand the social and economic consequences of implementation of rationalization measures is mandatory reporting of socioeconomic data. For example, harvest and production costs, expenditure patterns, vessel ownership data including identifiers (name and address files), employment, and earnings data are absolutely necessary to determine the magnitude and distribution of net benefits that arise from the granting of an entitlement to a public resource. If these data had been required as a component of the plan amendments authorizing IFQs in the halibut/sablefish fisheries and Co-Ops in the pollock fishery, analysts would be in a much better position to identify the likely economic consequences of the rationalization alternatives currently under consideration for the crab fishery. The SSC recommends that provision of the data listed above be made mandatory. This action is necessary to fulfill the Council's stated desire to have the economic performance of the rationalized crab fishery evaluated. (A detailed list of needed data was included in the October SSC minutes).
13. The revised draft analysis needs to include an expanded discussion of the bargaining procedures that are likely to be used between localities and processors under the alternative regionalization/community protection option included under some of the alternatives.

APPENDIX TO SSC COMMENTS ON BS/AI CRAB RATIONALIZATION

Comments specifically focused on the Social Impact Analysis (Appendix 2-6):

- The draft analysis provides the Council with considerable information (for example the relative contribution of crab landings to local revenues) and thoughtful discussions such as the inter-community tradeoffs confronting the Council in association with various schemes that attempt to limit shifts in processing activity (e.g., Kodiak vs. St. Paul).
- However, because the analysis relies almost exclusively on secondary data, it should not be considered a comprehensive social impact analysis. The table on page 160 reveals a lack of field interviews in some of the key study communities. This lack of fundamental data at the community level (or from a broad cross section of potentially competing perspectives and interests within communities) means that many conclusions presented in the analysis are unsupported. This does not mean that the conclusions are wrong, rather, that there is no basis presented for supporting the conclusions. The assessment of the social implications of the various alternatives in Kodiak (pp. 106,108) is a particular case in point.
- The analysis needs to be expanded to provide a discussion of likely differences, if any, in the expected social impacts of the alternatives.

- The selection of study communities does not immediately follow from the data presented in Table 1.0-1 (p. 2). The choice of study communities should be more fully explained (relative to the discussion presented in the current Section 2).
- The statement on page 54 that crab rationalization would not contribute to the softening of the housing market appears to be in error.
- The fact that crab seasons are short does not mean that participation in the crab fishery is relatively unimportant to crew any more than it is to vessel owners or processors (see page 16).

Comments specifically focused on the Milon-Hamilton model (Appendix 3-7):

- The Milon-Hamilton (M-H) model is a short-run deterministic comparative static model. Consequently, it does not represent inter-annual variations in stock abundance and permissible catches, or in capital investment-disinvestment decisions. Moreover, the model unrealistically treats cooperative quota shares and individual quota shares as single period entitlements.
- Neglect of stock dynamics (interannual harvest variability) leads to incorrect inferences about optimal investment in harvesting and processing capacity.
- The M-H analysis mistakenly asserts that ex-vessel price differentials are evidence of noncompetitive market structures. This assertion is due to neglect of variations in running costs for vessels to deliver to different processors and of transportation costs from processing facilities to product markets. The assumption of constant costs throughout the season is not essential for a competitive market structure. For example, fruit and fish markets often exhibit high prices on early deliveries and lower prices on later deliveries because consumers are willing to pay a premium.
- The M-H model does not account for risk sharing practices such as widespread pricing structures that combine guaranteed base prices with post-season adjustments related to gross wholesale revenues. This type of risk sharing is common in crab and many commodity markets.
- The model neglects cold storage holdings and the impact of such holdings on market price. Dorfman and Havenner (AJAE 73(1991): 829-840) provide an example of a dynamic optimal control strategy for inventory management of a stochastic commodity.
- The processor model ignores market power in the processed product market. This assumption is unreasonable. North Pacific crab harvests enter a market with limited substitutes during particular time periods.
- The assumption that crab harvesters behave as price takers is inconsistent with the existence of the AMA and abundant public testimony to the contrary.
- The model assumption of infinite scalability of harvesting and processing capacity is an inappropriate characterization of the crab fishery.
- The model assumes constant delivery rates ignoring important intra-seasonal variability.

Suggestions for an alternative approach to convey information about the potential economic effects of the proposed actions

In lieu of the analysis included as Appendix 3-7, the SSC encourages staff to include a general discussion of the creation and redistribution of rents that might occur under rationalization and of the factors that might influence the distribution. The discussion should draw on recent published analyses by Scott Matulich and co-authors, as well as, papers by Halvorsen et al., Wilen, Milon and Hamilton and others. Although it is not anticipated that the analysis will be able to definitively rank the proposed alternatives, this analysis will help focus attention on the key determinants of the magnitude and distribution of net economic benefits.

The change from an open access fishery to a rationalized fishery may lead to changes in the variable costs of harvesting fish, changes in the demand for processed product, and changes in the exvessel price paid by processors to harvesters. For purposes of exposition, it may be helpful to consider these effects as though they occurred in two sequential steps, beginning with a reduction in harvesting costs and an increase in wholesale demand, followed by changes in exvessel demand. Under open access, marginal harvesters earn zero economic profit while infra-marginal harvesters earn profits. Net revenues earned in the harvesting sector are the difference between total revenues (the product of the market clearing exvessel price and total landings) and total harvesting costs. Under open access, the processing sector pays a supply cost equal to the exvessel price and the cost of other variable production inputs and faces a wholesale demand that is more elastic than the exvessel demand. Because the quantity of fish harvested and the supply of fish to processors is constrained by the TAC, the wholesale price offered may exceed the cost of production even at the margin.

The magnitude of processor net revenues will depend on the extent to which they are able to exercise market power as purchasers of landed catches. Following adoption of an effective IFQ or Co-Op, it is anticipated that harvesters will alter their fishing practices and capitalization to decrease variable harvesting costs. The reduced harvesting costs lead to increased harvester profits as long as they are not offset by exvessel prices decreases. In addition, it is likely that extension of harvest seasons and changes in product mix will result in an outward shift in the demand for processed product. The increased demand for processed product will lead to an increase in processor profits as long as it is not offset by increased exvessel prices or other processing costs. Exvessel price could increase or decrease depending on the relative bargaining strength of processors and harvesters. Consequently, under IFQs or coops, the magnitude of net revenues captured by harvesters and processors will depend on their relative bargaining strength. The alternatives under consideration may affect the relative bargaining strength of harvesters and processors.

C-7 OBSERVER PROGRAM

Dan Ito and Todd Loomis of the AFSC Observer Program presented the draft EA/RIR/IRFA for the renewal and improvement of the North Pacific Groundfish Observer Program. This program will expire December 31, 2002 unless specifically extended by FMP amendment. The SSC strongly supports continuation of the Observer Program and recommends that the EA/RIR/IRFA be released for public review.

C-10 RESEARCH PRIORITY

The SSC will address research priorities at a future meeting.

D-1(c) F₄₀ INDEPENDENT REVIEW

The SSC reviewed the Terms of Reference for the requested review. It is recommended that the statement of "Charges to be Addressed" be modified as follows:

The independent scientific review shall address the following:

- a) Define and explain the harvest strategy currently used in the management of the BSAI and GOA groundfish fisheries; i.e., develop an educational primer on the Council's current procedure.
- b) Determine if the current quota setting approach (tier ABC determination, OFL derivation and TAC specification) is consistent with Magnuson-Stevens Fishery Conservation and Management Act. Determine if F₄₀ is an appropriate MSY substitute for all species? If not, what are the alternative(s) and are data available to determine the value(s) of the substitute?
- c) Is the approach considerate of ecosystem needs in the BSAI and GOA?
 - i. If not, how should it be changed?
 - ii. Are sufficient data available to allow implementation of the alternative approach?
 - iii. How would the transition from the current approach to the proposed revised one be handled?

MISCELLANEOUS SSC AGENDA ITEMS

Target/Non target Groundfish Species Management

The SSC received a report from Jane DiCosimo of council staff on a January 16, 2002 ad-hoc committee meeting to discuss management of target and non-target groundfish species that are currently managed as part of a larger species complex. The SSC agrees with the ad-hoc committee recommendation to continue working towards resolving the larger management issue i.e. determining an appropriate way to manage these non-target and other incidental species. Two SSC members, Steve Berkeley and Dan Kimura, to participate in the ad-hoc committee's discussions of means to address this problem.

Catch Estimation in the CDQ Longline Cod Fishery

The SSC received a report from Anna Furniss (Utah State University) on design considerations for a study to assess the accuracy of observer estimates in the CDQ longline cod fishery. The study design was prepared to provide a statistical basis for answering industry concerns about differences between observer estimates and estimates back calculated from processed product output using product recovery rates and

possible biases associated with these estimates. As proposed, the study will provide direct estimates of the accuracy and variability of observer estimates but will not directly assess the accuracy of PRR based catch estimates. This approach is reasonable because there is no standard protocol for estimating total catch weight in catch estimates based on PRRs. Consequently, the best way to examine potential biases in PRR based estimates is to test for biases in the observer estimates and then test for statistically significant differences between the observer estimates and corresponding PRR-base estimates.