North Pacific Fishery Management Council

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MINUTES
Scientific and Statistical Committee
January 29 - 31, 1996

The Scientific and Statistical Committee of the North Pacific Fishery Management Council met January 29 - 31, 1996 at the Hilton Hotel in Anchorage. All members were present except Sue Hills:

Terrance Quinn II
Seth Macinko (Alt.)
Rich Marasco
Farron Wallace (Alt.)
Phil Rigby
Marc Miller
Keith Criddle, Chair
Al Tyler
Harold Weeks
Jim Balsiger
Doug Larson

Election of Officers

Dr. Keith Criddle was elected to his 1st term as Chair, and Dr. Jack Tagart was elected to his 1st term as Vice-Chair.

Plan Team Nominations

The SSC endorses the nomination of Dr. Michael Sigler of the Auke Bay Lab, AFSC to the BS/AI Plan Team. His quantitative expertise in stock assessment makes him an excellent addition to the Team.

C-1 BS/AI Pacific Cod Allocation

The SSC heard staff presentations from Darrell Brannan and Marcus Hartley, and public testimony from John Gauvin of Alaska Factory Trawlers Association and Laura Jansen of Tyson Seafoods.

The SSC notes a conflict between the problem statement for the original BS/AI Pacific cod gear allocation in Amendment 24 and the range of allocation alternatives to be considered in the present proposed action. One of the objectives of Amendment 24 was to provide a measure of stability to the Pacific cod fishery by fixing gear allocations at the same split observed in 1992. However some of the current alternatives would potentially change the allocation splits in significant ways. As a result, the Council should update the problem statement.

Staff oral presentation and the written documents indicate that one area of concern is the ability of different gear groups to take the Pacific cod TAC within existing PSC limits and in catch retention rates. Since PSC limits have effectively determined the actual split between fixed and mobile gear, the analysis should consider the potential effects of a range of PSC limits.

In its December 1995 meeting, the SSC indicated its belief that due to time and data limitations, a qualitative assessment would be adequate for analysis of a simple rollover. We further noted that:

> "Deviations from the current allocation are likely to generate significant economic and social impacts. Data limitations and analysis complexity would make it extremely difficult to characterize the nature and magnitude of the impacts given time constraints imposed on the analysis."

However, there is no clear evidence that the current allocation between gear types for Pacific cod is optimal from the standpoint of national net benefits.

The SSC commends the staff for developing a detailed and rigorous outline of the proposed analysis. However, it is ambitious. The SSC continues to believe that only a qualitative assessment of the net economic benefits of the alternatives is possible given the time constraints. The main limitation, adequacy of economic cost data, has not been addressed and cannot be addressed in the short term. The action memo dated 1/24/96 indicates concern about changes that have taken place in the Pacific cod fishery since January 1, 1994, while the most recent economic cost data are from the early 1990s. Treatment of community impacts will also need to be limited to a qualitative analysis.

A sustained commitment of resources over time must be made to improve the quality of economic performance data which are needed regularly to help evaluate and justify the Council's decisions.

C-2 Sablefish and Halibut IFQs

The SSC heard public testimony from Ron Hegge regarding a request to use longline pot gear for sablefish in the Bering Sea. Recent experience in the longline fishery and survey suggests that the incidence of gear stripping by orca is increasing. Intuitively, use of pot gear could reduce gear stripping and the probability of incidental takes of short-tail albatross. However, there has been no analysis of these impacts or of any potential distributional effect.

C-3 Crab Management Issues

Tanner Crab Flexibility

Ron Berg (NMFS) and Dave Witherell (NPFMC) provided a summary of an EA/RIR to enhance management flexibility of C. bairdi Tanner crab bycatch limits for Bering Sea Zones 1 and 2. Public testimony was received from Brent Paine (United Catcher Boats), Gary Stewart, Gordon Blue and Lisa Polito (Kodiak Vessel Owners Association). Ken Griffin (ADF&G) summarized the Crab Team's recommendations. Peggy Murphy (ADF&G) reviewed recent changes in Bering crab management as implemented by the Alaska Board of Fish (BOF).

The SSC concluded that the text should be revised before it is released for public review. It was noted that the stock size of C. bairdi has decreased to the point that there may be no fishery in 1996. Accordingly the document should discuss whether any increase in bycatch is advisable, and whether the increase proposed under the flexibility measure is significant. The bycatch cap of four million crabs was set when the stock composition was different from today. In particular the juvenile component was high when the caps were originally established. The SSC suggests that the issue of changing the bycatch caps as stock composition and size vary be examined.

It is noted that enumeration of discarded crabs by age or size, and sex is needed for stock assessments and for understanding the impact of bycatch on the directed fishery.

In addition a draft for public review should also include the following:

- An examination of the cost of increasing trawl bycatch of C. bairdi to the directed fishery.
- A detailed explanation of the methodology (referred to as the bairdi crab bycatch model) used to project changes in bycatch and directed harvest under alternatives 2, 3, and 4.
- A discussion of possible reallocation of the present caps among the various groundfish trawl fisheries. Several trawl fisheries have not been restricted under the current bairdi bycatch allocation.
- A qualitative discussion of trawling impacts on the benthic habitat.
- An expanded explanation of the projected changes in halibut and bairdi bycatch in Zone 1 with increases in Zone 1 caps.

Other Crab Rebuilding and Management Analytical Outlines

Dave Witherell provided a review of the work of the Crab Rebuilding Committee, which is composed of the BS/AI groundfish and crab Plan Teams and is chaired by Dr. Fluharty. Public testimony was also received on crab rebuilding and management, and its relationship to bycatch restrictions of the trawl fishery. Attention is focused currently on (1) a proposed trawl closure area in the nearshore waters of Bristol Bay and (2) management of red king crab, Tanner crab, and snow crab bycatch in the Bering Sea trawl fisheries. Although the analytical outlines presented by staff appear complete, they are Tables of Contents for the proposed EA/RIR rather than descriptions of methods used. The SSC is skeptical that these issues can be rigorously analyzed by the April Council meeting, given time and data limitations.

General Comments

The three proposed management measures discussed above are features of the Council's current bycatch management system. While they are being presented for independent consideration, the SSC believes that there may be value in considering them simultaneously. In addition, the SSC encourages the Bering Sea crab and groundfish teams to meet together to jointly discuss the proposed bycatch alternatives.

The SSC requests that the Crab Plan Team and agency staff provide presentations on the new models for crab assessment and rebuilding, and a review of the related crab actions by the BOF. These presentations could occur at the April meeting.

C-7 Research Priorities

The SSC reviewed Plan Team recommendations for additional research and updated the January 1995 SSC research recommendations. The SSC emphasizes that this list is not inclusive of all needed research nor is it prioritized; rather it represents a compilation of research ideas recognized by the SSC as deserving attention by NMFS, ADF&G, IPHC, other agencies, and institutions of higher learning. The SSC chair will provide the executive director with a list of appropriate institutions. We request that this portion of the minutes be distributed appropriately. Finally, it would also be helpful if the Council solicited from these institutions a list of ongoing research activities which may be related to groundfish and crab management. In this way, these institutions and the Council can become aware of ongoing research as well as mutual interests and needs.

A. Critical Assessment Problems

1. Rockfish: There is a general need for better assessment data, particularly investigation of stock structure and biological variables. These activities are included in the AFSC Rockfish Research Plan. In particular there is a need for improved surveys and assessment of nearshore pelagic rockfish.

2. Walleye pollock: There is a continuing need for research on stock structure as it relates to assessment. There is a critical need for a tagging study to focus on stock interactions. We continue to emphasize the need for age-structured assessments of recognized stock units. In particular, an age-structured analysis of the Aleutian Island and eastern Bering Sea stock should be done in 1996.

   The SSC believes that immediate research should be undertaken to determine the magnitude of the catch, size and age structure of the EBS stock harvested in the Russian zone in the vicinity of the transboundary area. It may be necessary to consider fishing removals from the Russian zone and their impact on EBS pollock mortality in the estimates of ABC and TAC.

   Assessment of the status of the Gulf of Alaska resource is critically dependent upon results of resource surveys. Currently, these surveys are conducted every three years. Various ways of supplementing the triennial survey data should be evaluated. The relationship between fish in Prince William Sound to those in the Gulf of Alaska needs to be elucidated.

3. Crab research: Research should be expanded on handling mortality, stock structure and life history parameters.

4. Age- and length-structured assessments: These assessments integrate several data sources using some weighting scheme. Little research has gone into evaluation of different weighting schemes, although the weight can have a large effect on the assessment results. Research is needed on which weighting schemes are robust to uncertainties among the different data sources. Age structured assessments are incumbent upon age determination techniques, and ongoing age validation is needed. The Lowell-Wakefield Symposium in October 1997 will address the implementation and improvement of age-structured models.

5. There is incomplete life history information, e.g., growth and maturity data, for a number of stocks. This information is essential for determination of ABC, OFL and preferred fishing mortality rates. Maturity data are lacking on the following: Pacific cod, Dover sole, other flatfish, sablefish, and many species of rockfish. Life history and distributional patterns of Greenland turbot are lacking and require additional research. To better understand sablefish recruitment variability, additional information on the geographical distributional and movement of juvenile sablefish is needed.

6. Identification of the origin of chum and chinook salmon stocks captured incidentally in the groundfish fisheries is needed. The chum salmon stocks in particular are recognized as a mixture of Asian and North American origin. Resolution of stock origin is important in the consideration of bycatch management.

7. There is need for information about stock structure and movement of walleye pollock, Atka mackerel, Pacific cod, POP, and other rockfish. With such information, a combined BSAI/GOA assessment might provide better information, especially for Atka mackerel and Pacific cod.

B. Stock survey concerns

1. The SSC was told that the NOAA Corps is in the process of being disbanded. This action has given rise to questions about what will happen to the NOAA fleet. One vessel in this fleet, the R/V Miller Freeman, is critical to the assessment of Gulf of Alaska and Bering Sea pollock stocks. The hydroacoustic equipment on this vessel cannot be easily transferred to a commercial fishing vessel. Major modifications to the vessel and extensive calibration would be necessary. The importance of the hydroacoustic survey to the assessment of pollock requires careful monitoring of actions being contemplated for this vessel.

2. Explore ways for improving surveys to assess rockfish, pollock, and Atka mackerel.

3. Expand bottom trawl surveys in the Gulf of Alaska and Bering Sea to encompass the population range of Greenland turbot, rockfish, thornyheads, and sablefish.

4. Conduct surveys of the Aleutian Islands management area to assist in the assessment of groundfish stocks found in this region.

5. Develop new trawl surveys for Bering Sea crab complimentary to the existing Bering Sea crab/groundfish survey (e.g. Norton Sound, Pribilof Islands, St. Matthew Island, and Bristol Bay).

6. Direct observation (e.g. submersible and dive surveys) offers unique opportunities to directly examine gear performance, fish behavior in the proximity of gear, as well as gear related habitat impacts.

7. There is a continuing need to perform gear calibration and fish observation studies to validate indices of abundance (e.g. fishing longline and trawl gear side-by-side, and fishing different baits on longline gear over the same stations).

8. Within the EEZ are seamounts which are unsampled for groundfish, halibut, and crab abundance. Surveys which sample these seamounts may improve estimates of total abundance in the EEZ, particularly for sablefish and rockfish stocks.

C. Expanded Ecosystem Studies

1. Because of the importance of marine mammal and seabird considerations in fisheries management, further studies are needed on interactions among fisheries, marine mammals, and seabird populations. In particular relationships should be explored between oceanographic conditions and feeding conditions in relation to animal condition and health. Research should be done on age-specific mortality.

2. Effort is needed on status of stocks and distribution of forage fishes, such as capelin, eulachon, and sand lance. Forage fish are an important part of the ecosystem , yet little is known about these stocks. The Lowell-Wakefield Symposium (fall 1996) will examine current research on forage fishes.

3. Studies of the effects of harvesting and processing activities on the ecosystem should be instituted.

4. Trophic dynamics research should be undertaken on the relationships among critical species, e.g., Pacific cod and its prey (including shrimp and crabs).

5. Groups of species in the rockfish and flatfish families are now managed as "species complexes." Research should be expanded on the question of biological linkages among the components of "species complexes" that justify this management approach. Further, are there other, unidentified groups of species that are ecologically related and could be managed as a unit? Assemblage management has to be evaluated to determine its ecological validity.

6. Studies are needed to identify critical habitat for groundfish and forage fish species in the Gulf of Alaska and Bering Sea.

D. Socioeconomic research

1. There is a critical need for the development and continued maintenance of basic economic information databases on the fisheries of GOA and BS/AI. This information is required for establishing a baseline to be used in the evaluation of the impacts of alternative management measures. At a minimum there is a need for reliable information on:

   (a) the cost and revenues of fishing operations,

   (b) the nature, magnitude and location of where goods and services are purchased,

   (c) the nature of markets for various fish products,

   (d) ownership of fishing and processing operations,

   (e) the nature of relationships between harvesting and processing sectors,

   (f) unemployment rates by community over time, and labor wage rates in alternative occupations (to fishing) by community over time,

   (g) research to examine the cumulative efficiency and equity consequences of management actions that apply time/area closures,

   (h) research summarizing the transfer of halibut and sablefish IQ's (transactions price, volume, changes in distribution of ownership, etc.),

   (i) restructure the Bering Sea bycatch allocation model to provide better predictions of how fishing effort will shift in response to time/area closures,

   (j) research to identify a comprehensive method for managing catch and bycatch,

   (k) assessment of the net economic benefits of commercial and recreational harvests of halibut,

   (l) assessment of the opportunity costs of labor,

   (m) identification of the sources of variability in actual and estimated bycatch rates.

2. Research pertinent to assessment of the social impacts of actions contemplated by the Council include:

   (a) Social Assessments: Selected community and industry assessments should be conducted to establish baseline conditions underlying social problems identified by the Council and the Advisory Panel. As appropriate, these projects can be extended to generate time series information.

   (b) Social Impacts: Social impact and policy research should be conducted regarding the identification and potential effects of alternative management actions.

   (c) Develop better methods for determining the social costs and benefits of management actions (e.g. through the use of non-market valuation techniques).

E. Bycatch problems

1. Gear research should be expanded on methods of reducing bycatch and fishing gear design that would make fishing methods more selective. Trawl mesh experiments are one area of promise, but gear design work should also be investigated.

2. A better quantification of discard mortality rates is needed, especially for halibut and crab.

3. Fisheries catch and effort data should be reviewed to determine the effectiveness of single and multiple time/area closures in reducing bycatch.

4. An age/size class structured bycatch model is needed to appraise the level of crab bycatch relative to stock condition. Data on size/age and sex of bycatch is needed to assess the level of bycatch within and across fisheries.

5. Develop methods for performing comprehensive evaluations of bycatch management measures.

6. Develop better methods for assessing the social costs of bycatch.

F. Alaska Fishery Monitoring

1. An analysis of the utility of fishery logbook information should be conducted.

2. Observer data would be more credible in stock assessments if NMFS were authorized to specify the dates and localities for observer coverage of vessels in the 30% coverage category.

3. Development of catch and bycatch sampling procedures for individual vessel accountability programs.

D-1(a) Overfishing Definitions

Grant Thompson, AFSC, who is preparing the EA/RIR for this SSC-sponsored amendment, briefed the SSC on the progress he has made. While the draft EA/RIR is not yet available, Dr. Thompson has formulated an alternative to the status quo which addresses concerns of the SSC and NMFS's Overfishing Definitions Review Panel. He has also given a rationale for the formulation, explored the effects of the alternative on the current system of specifying ABC's and OFL's, and put together an analytical outline. It should be possible to have the draft EA/RIR ready for the April meeting, which could lead to a decision in June and implementation in this year's stock assessment cycle.

The SSC commends Grant for his work and generally agrees with the approach. The SSC suggests that the following considerations be taken into account in preparation of the EA/RIR.

(1) An additional tier is needed between Tiers 3 and 4 to cover the situation where $B_{40\%}$ is not available. In this case, $F_{OFL} = F_{30\%}$ and $F_{ABC} \leq F_{40\%}$.

(2) It may be beneficial to have substitutions for the normal $F_{30\%}$ and $F_{40\%}$ levels for some species/area groups. These substitutions could be based on taxonomic group (e.g. flatfish, groundfish, rockfish) or on the amount of recruitment variability. The EA/RIR should mention this point and indicate that such modifications might be considered.

(3) The Plan Teams need to be involved in the deliberations for this amendment. The SSC Chair will send a copy of Dr. Thompson's work to date to the Plan Team Chairs, along with a letter inviting the Teams' participation in commenting on the amendment package.

D-1(b) Halibut Grid Sorting

Bob Trumble (IPHC) reported on the changes made to the EA/RIR following the December 1995 meeting primarily adding a "bycatch window" option to Alternative 2. Under this option, halibut bycatch sorted and returned to the ocean in a 20 minute window would not be counted toward halibut PSC mortality caps. Adoption of a grid sorting requirement in the groundfish bottom trawl fisheries would lower halibut discard mortality, thereby benefitting both bottom trawl and directed halibut fisheries. Unfortunately, the provisions to rapidly return bycaught halibut to the ocean would compromise essential data collection on halibut bycatch and bottom trawl catch composition, and would also interfere with the VIP program. The SSC considers accurate documentation of fisheries removals to be essential. The SSC cannot support adoption of the amendment because of concerns over potential data degradation. However, we also encourage the Council, the IPHC and the Observer Program to continue to pursue techniques which will reduce halibut bycatch and discard mortality rates while maintaining the integrity of data collections efforts.

D-1(c) GOA Pollock Trimester Allocations

Kent Lind (NMFS) provided a summary of a draft EA/RIR to combine the third and fourth quarter pollock allocations in the Western/Central regulatory area of the GOA. Public testimony was received from Chris Blackburn (Alaska Groundfish Data Bank).

The analysis presented in the draft EA/RIR is qualitative. The analysis suggests that moving to a trimester allocation scheme may offer a range of benefits including industry cost savings, more manageable harvest targets, and chum salmon bycatch reductions. While likely, none of these benefits are quantified. The shift to a trimester allocation scheme has obvious distributional implications between vessels currently participating in both BS/AI

and GOA pollock fisheries and those vessels exclusively fishing pollock in the GOA. The draft EA/RIR did not address the proposal for a trigger mechanism to revert back to a quarterly allocation based upon pollock TACs.

The proposal contains several options for the date on which the combined third/fourth quarter allocation would be released. The SSC notes that the earlier this release date is set, the less likely it is there will be adverse impacts on Steller sea lion populations.

Additional Items

Observer Program Evaluation

The SSC received a presentation by Jon Volstad who has been contracted to evaluate sampling procedures of the groundfish observer program. Bill Karp (NMFS) also responded to SSC questions. Besides reviewing the program's sampling methods, data from two fisheries, Bering Sea pollock and Gulf of Alaska flatfish, will be used to determine the variance of catch estimates for total catch and by species for the fleet and individual vessels. The initial work suggests that fishery level catch and bycatch statistics are precise. For example, the BS pollock fishery estimates have a coefficient of variation on the order of 0.5%. Because the variance of individual vessels is greater than that of fleet, results of the evaluation may have implications for the feasibility of individual vessel management programs. In addition, the SSC requested that the sampling properties of combining vessels into bycatch pools be evaluated.

Summarizing Uncertainty in Stock Assessments

Al Tyler presented notes on comparative measurement, (scoring), of uncertainty in stock assessments. The proposal was stimulated by a table given in the Status of the Fisheries Resources of the Northeastern United States for 1994, January 1995, NOAA Technical Memo - NMFS - NE - 108. Dr Tyler adopted the method to North Pacific stock assessments by changing the scoring scale. Modified also was the list of factors that would enter the separate assessments on various stocks. The SSC considered the approach to be of possible utility, and proposed that the Plan Teams discuss its applicability in future assessment efforts.