

SCIENTIFIC AND STATISTICAL COMMITTEE REPORT

Meeting of April 27, 1977

RESEARCH CONTRACTS

The SSC considered the status of Council research project funding. Of the 200K originally available for this purpose, 58.7K has been allocated thru NMFS to ADF&G for coded wire tag recovery studies in SE Alaska leaving a balance of 141.3K. Only two detailed proposals for funding were present in the Council files - a Bristol Bay sockeye study for 100K to be conducted jointly by ADF&G and FRI and a Development and Enhancement of Fisheries Information Systems for ADF&G in support of Council management plan development for 159.4K.

We reviewed the salmon proposal and agreed that the work was necessary and deserving of priority funding from some source but were unable to determine its present relevance to Council management plan development. Until the Council defines its objectives for a management plan for the high seas salmon fisheries of Japan, we are unsure what part improved forecast, optimum escapement estimation and inshore management of the run will play in a management regime for this high seas fishery. We suggest delay in considering approval of this project until the Council has had a chance to define its objectives for the plan.

There is a request from the Commercial Fisheries Division of the Alaska Department of Fish & Game for the development and enhancement of their fisheries information system. The request asked for \$55.9K for one-time terminal network installation costs (acquisition of hardware) and an annual maintenance budget of \$103.5K for personal services, the development of software systems, computer time and data storage.

The SSC strongly believes that this request has considerable merit and should be funded, since the single source of primary data which provides us information about the performance of the various fishing fleets and the related fisheries in which their harvesting activities are conducted is the individual landing ticket. The current system is not timely nor can the ticket information be provided in summary formats rapidly enough to be used for management plan development.

The need for this kind of data for plan development, in-season management, and reassessments and respecification of various components of the management plan on a continuing basis is very real.

While the SSC believes this project should be funded, there is some question as to the appropriate source of those funds. This project has aspects of both development and research as it relates to the Council's management plans. We felt that the possibility of securing support for this project under plan development funding sources should be pursued. We also noted that the proposal required some re-drafting which should be accomplished by the next meeting.

During the discussion it was pointed out that proposals for port sampling of groundfish, expansion of king and tanner crab research in the Bering Sea, increased data collection on A-Y-K salmon and improved king crab and shrimp stock assessment on the Alaska peninsula have all been put forward over the past year. Details on these proposals were not available to the SSC.

In summary, we have suggested that the involved agencies bring their priority research needs relative to species under Council jurisdiction to the May meeting of the SSC at which time we will consider the whole spectrum of required work and make recommendations to the Council for funding. We have also suggested that management plan development teams be involved in the process and make their recommendations through their respective lead agencies. We feel that any allocation of the 141.3K be deferred until this type of review has been accomplished.

NEW MEMBERSHIP FOR SSC

The Scientific and Statistical Committee considered the question of a replacement for Bernard Skud on the Committee. We are pleased to unanimously recommend to the Council that Don Collinsworth be appointed to this vacancy. We noted that there had been considerable opinion voiced at the initial formation of the Committee that there be more representation in the field of socio-economics. We feel that Mr. Collinsworth's past experience on the State-Federal Dungeness crab study on the west coast, his previous position of chief of research for the Alaska Commercial Fisheries Entry Commission and his recent services on the special socio-economic study group for the SSC all demonstrate his ability to fill this need.

CODED WIRE TAG RECOVERY IN SOUTHEAST ALASKA

The SSC reviewed the status of this proposed project. We were informed that funding was assured through NMFS to the ADF&G but that administrative contractual procedures had not been finalized. We were assured that this was simply a matter of NWAFC contract officer review which could take place this week. Notification of approval could be accomplished by telephone at which time fund expenditure by ADF&G could start. ADF&G is obtaining legislative clearance for acceptance of Federal funds and has personnel, planning and logistics support ready to implement this program. A viable project will be in the field this season.

OPTIMUM YIELD WORKSHOP - TAB 19

The SSC has considered the question of representation at the National Workshop on the Concept of Optimum Yield. The Committee suggests that Don Collinworth be designated. We believe it important to send an economist since the NPFMC will be indirectly represented through the participation of a number of fisheries scientists, i.e., Drs. Alverson, Bevan and Low.

RENEGOTIATION OF INPFC

The SSC recommends to the Council that a separate working group be created to prepare a paper outlining the possible institutional aspects of INPFC renegotiation.

This work group would consist of Bevan and Miles from the SSC, Frank Fukuhara (NW&AFRC), Jack Lechner (ADF&G), a representative from the Halibut Committee, a representation from the salmon management plan committee and Warren Wooster (Univ. of WA).

This group should be asked to consider and prepare terms of reference for a new INPFC and an appropriate structure for the organization. It is our intention that questions of institutional change be handled quite separately from questions relating to salmon interceptions.

REVIEW OF SUBCOMMITTEE WORK ON SOCIO-ECONOMIC DATA INPUTS FOR MANAGEMENT PLANS

At the March meeting, the SSC had requested that a fourth part to the paper being prepared be drafted. This part would contain specific guidelines to management planning teams for identifying data and analytic procedures required for making optimum yield determinations. This draft was available shortly before the meeting along with a revised

lay up of the OREGON be postponed until the performance of charter vessels and/or replacement vessel can be calibrated against that of the OREGON.

In addition to these continuing annual surveys of eastern Bering Sea crab and groundfish and shrimp along the Alaska Peninsula, the OREGON is used for special assessments. For example in FY78:

The NWAFC has planned to use the R/V OREGON to assess the commercial availability of cod and sablefish in southeastern Alaska waters as a means of encouraging the development or expansion of U.S. fisheries on these species. Area of concentrations would be determined and fishing methods (sunken gill nets, traps) assessed for harvesting these species. The survey was planned to cover a period of 40 days in March and April.

During the past 4 years the NOAA R/V OREGON has also been used for 60-day NMFS shrimp surveys along the Alaska Peninsula, the State of Alaska's most productive commercial shrimp management areas. The survey is planned and conducted in close cooperation with ADF&G shrimp biologists who manage this shrimp resource. ADF&G biologists have repeatedly stated that the R/V OREGON survey is an essential ingredient in formulating South Peninsula shrimp management plans.

The SSC recommends that the first priority should be given to retention of the OREGON by NMFS so as to not drastically reduce their presently limited research vessel capability off Alaska.

If this cannot be accomplished then the Committee recommends that the OREGON is surplused intact as a fitted research vessel so that she could be made available for fisheries research charter.

DISCHARGE OF ORGANIC FISH WASTE

A request was made at the previous Scientific and Statistical Committee of the North Pacific Fishery Management Council for information concerning the discharge of organic fish waste into seawater. The specific interest was the consequences of these discharges in terms of altering the environment in detrimental ways. Dr. Alverson subsequently requested comments from agencies known to be currently conducting research in that area, i.e., the Northwest and Alaska Fisheries Center (NWAFC), The Fisheries Research Institute (FRI), and the University of Alaska through the Alaska Sea Grant Program. The comments received from these agencies are summarized in a draft report reviewed by the SSC at this meeting.

The report summarizes the problem, identifies the potential magnitude of discharges by time and area in Alaska, discusses the characteristics of the waste and then relates the comments received. Generally, the effects of waste discharge depended on the magnitude of the discharges and the nature of the receiving waters in terms of tidal flushing.

Specifically in the case of salmon an FRI study in Bristol Bay indicated "At none of the sites studied was there any indication of a significant detrimental effect on the ecology of marine organisms or water quality where salmon wastes were ground and discharged into marine waters below lower tide level. In fact, there is good evidence that these wastes served as an important food source to the biota during the canning season." and "The salmon waste is a natural product - it has no toxic element and does serve as a food source for desired marine organisms."

Information on the effects of shellfish waste discharge is not detailed in the report although there are references to studies which apparently could not be tracked down and summarized in the time allocated. There seems to be little or no information on the effects of groundfish waste discharge.

We feel that the report is incomplete. The salmon waste evidence seems conclusive although the SSC was not provided the backup data and reports to evaluate. More information on shellfish waste discharge may be available with further searching. NMFS plans to work on this question over the next month and resubmit a report to the SSC at its next meeting.



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest & Alaska Fisheries Center
Resource Ecology & Fisheries Management
2725 Montlake Blvd. East
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April 21, 1977

To: The North Pacific Council's Scientific and Statistical Committee
Subject: Criteria for ABC' for depressed stocks

Gentlemen:

In the SSC's list of definitions, ABC, as I understand it, is the departure from EY (or MSY) because of such things as the quality of the data base, the anticipated effects of environmental conditions, expected changes in recruitment or availability, etc. Then, socio-economic conditions are applied to ABC to determine OY.

In the progression from MSY to OY, it seems to me that one important step is missing, somewhere near ABC, that takes into account the mandated necessity for rebuilding depressed stocks and the desirability for doing so in some rational and consistent way.

In the PFMP's we were not consistent in this regard and that inconsistency has been the source of some justified criticism--e.g. POP are very depressed in both the Gulf of Alaska and in the Bering Sea; in the former, we arbitrarily set the TAC 40 percent below current EY (why 40% instead of 60 or 20?) to allow rebuilding to occur, but in the latter, the TAC was set equal to EY.

One possibility for dealing with this matter is a formula which relates current EY to the historical MSY in such a manner so as to ensure that the more depressed the population, the higher the percentage of the current EY that is protected from the fishery and allowed to accumulate (after natural mortality) to rebuild the standing stock. The resultant value from this formulation might be called ABC'. The derivation of ABC' should reflect at least broad differences in life history patterns--e.g. long-lived and stable; intermediate; short-lived and subject to natural fluctuations. Once determined, ABC' could then be modified to produce ABC, as currently defined.

The attachment is a sample of how such a scheme might be formulated. The percentages shown are only for illustration at this point. We are in the process of developing Schaefer models around the three general life history patterns to get a better feel for the "optimum" values.

As we gain sophistication, individual models might be constructed for each stock but at the moment the three (or, perhaps two or four) generic models are probably the best we can do.



There is some reason to believe that MSY's based on historical data may no longer be achievable because of changes in the ecosystem. If so, that would become apparent with time because catches based on ABC' would stop producing (or would produce much more slowly than anticipated) increases in abundance long before the abundance level necessary to produce MSY was reached. At that point, a new MSY--which reflects more recent ecosystem conditions--could be determined; the absolute value of ABC' would then change but the formula for reaching ABC' would not.

Sincerely,

Beef

H. A. Larkins, Leader
Bering Sea/Aleutian and
Gulf of Alaska Groundfish
Management Teams

Attachment

Species Type ^{1/}	EY ^{2/}	ABC ^{3/}	Example w/ MSY = 100,000	
			EY	ABC ^{3/}
I.	> 80% MSY ^{3/}	EY	90,000	90,000
	60-80% MSY	80% EY	70,000	56,000
	40-60% MSY	50% EY	50,000	25,000
	20-40% MSY	20% EY	30,000	6,000
	< 20% MSY	0	15,000	0
II.	> 70% MSY	EY	80,000	80,000
	40-70% MSY	70% EY	55,000	38,500
	10-40% MSY	40% EY	25,000	10,000
	< 10% MSY	0	8,000	0
III.	> 40% MSY	EY	60,000	60,000
	10-40% MSY	50% EY	25,000	12,500
	< 10% MSY	0	8,000	0

1/ I = Long-lived, slow-growing, generally stable population (e.g. POP, halibut);
Age_{max} > 20, Age_{mat.} > 8, M < .3

II = Intermediate-lived (e.g. pollock, hake, flounders);
Age_{max} 10-20, Age_{mat.} 4-8, M .4-.7

III= Short-lived, large variations in recruitment (cod, squid, herring)
Age_{max} < 10, Age_{mat} < 4, M > .4

2/ Under current conditions, e.g. average of last year, this year, next year

3/ Long-term average over period when stock abundance ≥ 0.6 virgin abundance