

EXECUTIVE DIRECTOR'S REPORT

As you're well aware from the great amounts of reading materials you've received lately, the staff, with greatly appreciated help from other agencies, has been very busy preparing the amendment packages for the Gulf of Alaska and the Bering Sea and Aleutians groundfish plans. Though there are some rough edges, I hope you will find them sufficiently complete to go out for public review. I'd particularly like to thank the Minerals Management Service and the Fish and Wildlife Service for their staff's contributions to the Bering Sea SEIS, and of course, the job could have never been done without the help on which we've come to rely from the shops of Bob McVey, Bill Aron, and Don Collinsworth.

On the crab front, there seems to be an industry consensus building on a new version of the draft crab FMP. The Crab Management Committee has worked hard at ironing out differences between the earlier version of the plan and the desires of crab industry representatives from the Pacific Northwest. As chairman of the committee, Larry Cotter has taken the lead on these negotiations and will report to the Council when we get to Agenda Item D-2.

Chairman Jim Campbell led a U.S. industry delegation to the Soviet Union which was very successful in coming to agreement on various trade opportunities. He will report on that trip under B-6. Ed Wolfe, Deputy Assistant Secretary for Oceans and Fisheries Affairs for the State Department is also with us to report on his activities not only on reciprocal access with the Soviets, but also management initiatives for the Donut area and other international issues. He will brief the Council in closed session at noon today and then report more generally in open session after lunch.

Tonight at 7 p.m., John Harville will report on the five sablefish workshops held this past month. The Advisory Panel has been invited to attend this working session which will probably last a good two hours if not more. The Council will take sablefish management up again on Friday to give direction for further development of alternative management approaches. I did receive a request from Representative Adelheid Herrmann and Senator Fred Zharoff to give similar workshops throughout Western Alaska. Ron Miller has volunteered to go to Dillingham this coming Saturday to give a presentation at the Bristol Bay Fisheries Conference which should catch many people coming in from all over the area.

Funding Problems

Workshops and committee meetings, though extremely important, cost money. The Council is going to take a substantial cut in its operating budget between now and the end of September. I will be going through the budget with the Finance Committee on Thursday morning with suggestions of where to cut the least painfully. Needless to say, we will have to watch very closely the number of committees that are established and their meeting schedule. I think the trend will be for committees to be self-funding as much as possible.

The Council of course is not alone in taking budget cuts. As shown in item B-1(a), the FY89 budget submitted by the administration for NOAA has a 43% decrease in overall funding for fisheries activities, cut from \$162 million in 1988 to \$97 million. The Councils are expected to operate with \$3.77 million, down from \$7.7 million. I've asked Bob McVey to give us an overview of the budget impacts on his agency's operations if the details can be released yet.

#### Council Meeting Schedule for 1989

Based on the same weeks used in 1988, the following schedule is proposed for next year, all in Anchorage:

January 20/6  
April 10  
June 19  
September 25  
December 4

For the coming June Council meeting, we'll be sending out reservations card in the next two weeks. Please return them promptly as we need to block rooms before the tourists take them all. It's very unlikely we will be able to find last minute accommodations at that time of year.

#### Chairmen's Meeting

Speaking of meetings and such, Jim Branson did one last favor for me before leaving office. Thinking we might not have anything to keep us busy this summer, he signed us up to host a Council Chairmen's meeting on July 25 in Alaska. We're looking around the Homer area for accommodations for about 50 people from the eight councils. I've asked Jim and Betty if they were willing to provide Bed'n Breakfast for the group but, strangely, they haven't been returning my calls.

#### Ecosystems Meeting

Jim Branson, Terry Quinn and Denby Lloyd attended NOAA's Ecosystem Workshop in Orlando in late March. All found it very informative and I understand that a side trip to Disneyworld and Epcot Center was equally exciting. A copy of a presentation made at the conference on behalf of the Councils is under item B-1(b).

#### Fingerprints and Photos

We need to have the Council family fingerprinted for security clearance updates. The Coast Guard has offered to do the job. We'll also be having the annual photo session of the Council, AP, SSC, and staff, so prepare your smiles. It'll be at 1:30 p.m. on Monday for the AP and SSC and at that time on Wednesday for the Council and staff.

#### Japan Certified

The Department of Commerce announced late Thursday last week that Japan has been certified for whaling violations [item B-1(c)]. This bars Japan from any directed allocations until they conform with the conservation programs of the International Whaling Commission.

**Nautilus**  
1201 National Press Building  
Washington, D. C. 20045



# Marine Fish

Editors: John R. Botzum

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## Management

**U.S.S.R. AND U.S. FISHING INTERESTS WILL MEET IN NAKHODKA SIBERIA** next month (7Mar) to work out the details for allowing U.S. fishing vessels to operate inside the exclusive economic zone of the U.S.S.R. on the same basis which Soviet fishermen work in the U.S. EEZ. A bilateral fishing agreement was worked out 26-28Jan88 in Moscow between delegations headed by V.K. Zilanov, U.S.S.R. Ministry of Fisheries, and Edward E. Wolfe, U.S. State Dept.'s deputy asst. secretary for oceans. The delegations agreed to form a U.S.-U.S.S.R. Working Group on Fisheries of the Bering Sea to develop recommendations for dealing with increased fishing. The Nakhodka discussions are expected to involve commercial joint ventures, and will address other scientific issues.

Since the first of the year a dozen large Soviet freezer trawlers and the Sulak floating fish plant have been working in the U.S. sector of the Bering Sea, receiving cod, plaice and pollock for processing from the American fishermen. According to the U.S.S.R. Ministry of Fisheries, the January output of frozen fish blocks decreased because of difficult fishing conditions, but the situation has improved in February. There is just one "Soviet-American Society" for fishing, processing and sale of fish products, Sovam, in operation so far.

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**SALTWATER SPORTFISHING LICENSE WAS LEFT OUT OF REAGAN'S NEWEST BUDGET** request, but administration officials indicate that the controversial proposal is far from dead. In submitting the President's fiscal year 1989 budget to Congress this month (18Feb), the Office of Management & Budget announced plans to transmit separately a legislative initiative providing for a federal tax on marine fishing. Unlike last year, however, there is no assumption that revenues would be used to restore a portion of the Natl. Marine Fisheries Service budget in FY89. Instead, the administration is contemplating a delay in the implementation of the tax until fiscal year 1990.

As usual, the administration struck at the heart of federal fisheries programs in its budget request for the next fiscal year, which

**INSIDE THIS ISSUE:** NMFS FY89 budget is squeezed again, while FWS programs remain relatively stable (pp. 1-5)...House merchant marine committee approves new fishing vessel safety measures, but delays consideration of liability standards (p. 5)...Fish trade sanctions imposed against Japan (p. 6).. Congress moves to implement Pacific tuna pact (pp. 6-7)... Governors' nominations for fish councils sought (p. 8)...Degradable plastic for fishing gear under development (p. 8).. TED regs move to gulf (p. 8)...Boating safety funds (p. 8)

MARINE FISH MANAGEMENT

February 1988

begins 10Oct88. The budget proposes a 43% decrease in overall funding for fisheries activities at the Natl. Oceanic & Atmospheric Administration, from \$162 million in 1988 to a proposed level of \$97 million in FY89. In contrast, other portions of the NOAA budget, which requests \$1.153 billion in new budget authority, call for a 3% decrease at the Natl. Weather Service and a 35% increase for the Natl. Environmental Satellite, Data & Information Service. The NOAA budget assumes the transfer of some \$56.3 million in Saltonstall-Kennedy funds.

Generally speaking, the latest attempt to reduce NOAA's fisheries budget repeats most of the previous proposals of the Reagan Administration. However, as usual, the administration claims that the new budget will meet those industry needs which government should provide. The FY89 budget for the Natl. Marine Fisheries Service proposes funding for work associated with the collection and analysis of scientific information to: (1) support fishery management plans; (2) address critical habitat issues; (3) enforce fishery laws and regulations; and (4) meet responsibilities under the Marine Mammal Protection and Endangered Species Acts.

Hardly a program or project at NMFS is not affected by the cuts. The biggest loser among the \$69 million in fisheries cuts would be habitat research, which is to be reduced by \$4.8 million. Other proposed decreases in NMFS' information collection and analysis account, which is down \$38.1 million, include (dollars in thousands):

* Assessing and monitoring fisheries stocks.....	\$1,015
* Fish oceanography and survey technology.....	- 868
* Stock assessment and disease research.....	3,858
* West coast groundfish research.....	941
* Protected species research.....	1,200
* Marine mammal research.....	1,506
* Salmon treaty research.....	4,708
* SEAMAP.....	942
* Antarctic research.....	1,883
* Habitat evaluation methodology.....	471
* Chesapeake Bay studies.....	1,600
* Sub-Arctic bottomfish research.....	753
* MARFIN.....	3,295
* Right whale research.....	235
* Hawaii fishery management plan development.....	471
* Gear entanglement studies.....	706
* Alaska salmon enhancement activities.....	3,766
* Limnological Research.....	282
* Yukon River chinook study.....	235
* Japanese salmon interceptions.....	141
* New England stock depletion studies.....	612
* Economic and commercial fish statistics.....	2,919
* Nearshore fisheries research.....	695
* Data analysis.....	222

Decreases for NMFS' conservation and management operations total \$14.2 million in FY89. According to NOAA, the cuts are for activities

that are not required to meet highest priority management needs for FY89 and service special interests. Proposed decreases are as follows:

* Regional fishery management councils.....	3,766
* Columbia River program.....	7,771
* Vessel safety.....	38
* Manage Georges Bank fisheries.....	471
* Endangered species recovery plans.....	235
* Harbor seals and sea lions.....	36
* Habitat conservation.....	1,883

Reductions proposed in state and industry assistance programs amount to \$16.9 million, including:

* Interjurisdictional fisheries grants.....	3,766
* Disaster assistance grants.....	1,883
* Anadromous fisheries grants.....	2,354
* Striped bass research.....	471
* Interstate fisheries commissions.....	330
* Fisheries trade activities.....	1,412
* Product, quality and safety research.....	4,143
* Fish oil research.....	942
* Menhaden/surimi research and development.....	942
* Mahi mahi export strategies.....	376
* Model seafood inspection program.....	330
* Seafood research institute feasibility study.....	14

The FY89 budget also represents serious cutbacks for fishermen with zero requests for Saltonstall-Kennedy grants and the newly-created Fisheries Promotional Fund. The FPF provides funding for the Natl. Fish & Seafood Promotional Council, which is charged with marketing seafood products and fostering their sales nationally. No funding for the FPF has been proposed for FY89; the administration argues the activities should be supported by the fishing industry.

Other fisheries funds would drop off tremendously, meeting only claim and administrative expenses: the Fishing Vessel & Gear Damage Compensation Fund, which compensates for damage caused by foreign fishing vessels, would receive \$500,000; and the Fishermen's Contingency Fund, which compensates for the loss of gear due to oil and gas exploration, would get \$750,000. The Foreign Fishing Observer Fund will receive \$2 million. The program would be supplemented by having foreign fishermen continue to contract directly with observers to maintain 100% observer coverage in the U.S. exclusive economic zone.

The NMFS budget was promptly rejected by members of Congress as totally inadequate. The House fisheries subcommittee, chaired by Rep. Gerry Studds (D-MA), met 25Feb to review the proposal. Studds spoke out in strong opposition to the NMFS request, labelling it "another unacceptable spending plan." The Massachusetts legislator added: "Perhaps most typical and distressing about the budget proposal for the fisheries service is the fact that it represents a major retreat from the federal government's responsibilities to conserve, manage and pro-

tect our ocean and coastal resources. Each year the administration has proposed budgets that would cripple (NMFS)," he said, "while other components of NOAA flourish." Studds noted that in just two years, if the President had his way, the NMFS budget would have been reduced from 26% to less than 15% of the NOAA budget. "It has been, and continues to be, unacceptable," the chairman charged.

**THE FY89 BUDGET FOR U.S. FISH & WILDLIFE SERVICE WAS MORE APPEALING** to Chairman Studds, although the congressman was concerned that no appropriations were requested for land acquisition -- "a vital component of wildlife management." The President's FY89 request of \$702 million for FWS is approximately \$41 million below the current fiscal year of \$743 million. FWS programs that rely on annual appropriations, such as endangered species, wildlife research and Land & Water Conservation Fund, would be reduced by \$78 million -- the bulk of which comes from land acquisition and construction programs, as was the case last year.

The request for resource management, FWS' principal operating account is \$331.9 million. That represents a \$10.7 million reduction from the FY88 enacted level. The request provides level funding for most ongoing FWS activities while decreasing lower priority or one-time efforts. National wildlife refuges, fish hatcheries and research centers will receive \$36.2 million for maintenance and rehabilitation requirements in 1989, including increases of \$1.2 million for hatchery maintenance and \$500,000 for research centers. Law enforcement operations and cooperative research units also retain approximately the same level of funding, \$21 million and \$5.8 million, respectively.

Within the resource management account, fish and wildlife enhancement activities are budgeted at \$44.3 million. Total funding for endangered species will be \$25.9 million, compared to \$30.8 million in 1988. A reduction of \$4.3 million is the result of the proposed termination of the state grant program. Under the request, a total of \$23.9 million is provided for contaminant assessment, monitoring, analysis and remedial action on FWS lands.

The total FY89 funding request for the fisheries activity is \$40.1 million. This includes an increase of \$1 million to initiate development of a multi-agency restoration program with the Bureau of Reclamation and the Bureau of Indian Affairs for the anadromous fishery resources of the Klamath and Trinity Rivers. The new estimate also proposes that \$1.3 million for the operation of fish hatcheries and fishery assistance offices on Indian tribal lands, which were transferred to FWS in the 1988 appropriations act, be returned to the budget of the Bureau of Indian Affairs in FY89.

The FWS budget also includes an increase of \$250,000 for enhanced production of Great Lakes trout, and a reduction of \$165,000, based on the completion of nutritional studies, for optimal trout and salmon survival at Hagerman Field Station. The request for research and development totals \$55.3 million -- a decrease of \$3.9 million from the current fiscal year. According to FWS, research on wildlife and fisheries would be reduced, while research on contaminants and endangered



species would increase slightly. An increase of \$500,000 is requested to enhance research efforts related to acid precipitation.

The 1989 estimate for construction totals \$7.6 million -- a sharp reduction of \$15.5 million from the 1988 level. It would substantially reduce funding for construction on wildlife refuges and would eliminate funds for fish hatcheries and wildlife research facilities. In addition, the request calls for the termination of anadromous fish grants to states.

FY89 sport fishing restoration funds for states would increase by \$33.7 million, to a record \$194.8 million. Referred to as the Wallop-Breaux fund, the program provides funding for states to carry out sport fish restoration and enhancement projects. It is funded by an excise tax on fishing tackle, a portion of the tax on motorboat fuels, and import duties on fishing tackle and recreational boats. In the three years since creation of the fund, over \$400 million has been distributed to the states.

Commenting that the new FWS budget looks much like last year's, Studds said it represents a "modest improvement..." The fisheries chairman was pleased to note that "several" of the funding directives Congress made last year appear in this year's request. This sets a "startling new precedent," quipped Studds at the 25Feb hearing.

As to the fate of the new Reagan fisheries budget in Congress, the chairman was somewhat skeptical: "Last year this subcommittee fought to restore funding for some of the most deserving programs" within FWS and NMFS and "we were successful in maintaining level funding for many of them." This year, however, "with our convictions strengthened and our resources diminished," Studds said, "we will certainly face a more difficult time of it."

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HOUSE MERCHANT MARINE COMMITTEE APPROVED NEW FISHING VESSEL SAFETY measures, but delayed for future consideration additional provisions dealing with liability and injury compensation standards. Together, the safety and liability provisions make up H.R. 1841, the Commercial Fishing Industry Safety & Compensation Act, introduced by Rep. Gerry Studds (D-MA). The bill is the product of three years of hearings on the insurance crisis that continues to sweep through the U.S. fishing industry. It is intended as a "voluntary alternative" to the more traditional approaches under Admiralty Law.

The Merchant Marine & Fisheries Committee decided to proceed with the 24Feb markup of just the safety provisions (Title II) for two reasons, said Chairman Walter B. Jones (D-NC). The committee wanted to go on record that safety legislation will be enacted this session. However, he noted, "there is still no consensus as to how to write" the Title I liability provisions. Jones indicated that a new draft of Title I is being circulated for comment and that he intends to complete consideration and report a bill shortly.

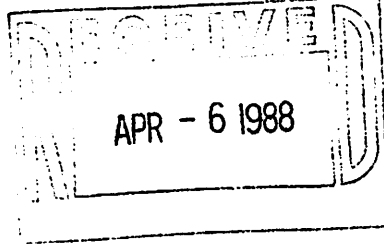
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**NEW ENGLAND FISHERY MANAGEMENT COUNCIL**

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March 30	Staff Asst. 2	1988
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Jim H. Branson, Executive Director  
North Pacific Fishery Management Council  
Suite 2C  
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P.O. Box 203136  
Anchorage, AK 99510

Dear Jim:

I have enclosed a copy of the presentation that I gave on behalf of all of the Councils at the NMFS National Ecosystems Conference in Orlando. I hope you will find that I have represented your Council's views accurately, albeit briefly.

I did think that the material presented at the Conference was interesting; although, it is not at all clear to me whether we are now or will be in the foreseeable future any closer to incorporating ecosystem data/information into our management planning. My impression is that the actual orientation of the NMFS research program can be expected to change very little as a consequence of the ecosystems initiative.

Again, I want to thank you for your assistance in helping me put the presentation together. I look forward to seeing just how the NMFS ecosystem program will develop and where it will take us.

Sincerely,

*Guy*  
Guy Marchesseault, Ph.D.  
Deputy Executive Director

Enclosure

*Jim:*  
*Please extend my thanks to Denby. His letter was very helpful.*

*GM.*



NATIONAL ECOSYSTEM CONFERENCE

MARCH 22-23, 1988

ORLANDO, FLORIDA

What Does Management Need?

Presentation Text By

Guy Marchesseault

New England Fishery Management Council

I. Introduction:

When I was asked to present the Councils' perspective on what management needs in the way of ecosystem oriented data and analysis, my first instinct was to talk enthusiastically about the body of ecological research that has contributed to an emerging understanding that it is important, if not essential, to incorporate a knowledge of ecological processes into the traditional fishery science methods that form the scientific basis of our management programs. But it became clear to me that this conference is not intended to be a symposium on the science of marine ecosystems, for such a meeting was recently held in Boston, but rather the conference is intended, at least in part, to match an ecosystem research program within NMFS to the practical needs of the Councils as they are manifest today and as they may develop over the next several years.

In order to represent the needs of all the Councils, I contacted them individually to find out what analytical or methodological approaches they are currently using to prepare their fishery management programs, what their current data and information needs are, and how they might make use of more ecosystem-oriented data if they were available. At the outset, it is important to emphasize that the fishery management plans in existence today are largely an expression of the conventional wisdom that has emerged from the practice of fishery science over many decades, with respect to what should be the scientific guidance offered to fishery management decision makers. This wisdom is manifest in methods that were developed and honed in the management arenas of ICNAF, ICES, and the international conventions governing the tunas and halibut. These methods became so well accepted that they were conceptually embraced in the Magnuson Act and assimilated into the guidelines for how management plans should be constructed. In practical terms, the Councils' management plans generally represent the clinical phase in the application of standard methods to the management of indigenous fishery resources.

## II. Overview of Analytical Approaches:

In general, it is fair to say that the Councils' management programs are no more or less sensitive to ecological data and information than are the analytical methods upon which they are based. It is not surprising, then, that the Councils have an

**TYPE 1.**  
**ANNUALIZED SYSTEM**

**EQUILIBRIUM MODELS:**

$F_{OPT}$

MSY

YIELD (SURPLUS PRODUCTION)

**ANNUAL ASSESSMENT:**

ABC

**COMMERCIAL TIME-SERIES DATA:**

$F + \text{EFFORT} \longrightarrow E_{OPT}$

**ECOLOGICAL IMPLICATIONS**

AVAILABILITY/DISTRIBUTION

RECRUITMENT (LONG-TERM)

**TYPE 2.**  
**MULTIPLE-YEAR SYSTEM**

**AGE-STRUCTURED MODELS:**

TIMESTREAMS OF EXPECTED  
CATCHES & STOCK SIZES

**PERIODIC ASSESSMENT:**

TRENDS IN AGE AT FIRST CAPTURE

RECENT FISHING MORTALITY

**COMMERCIAL TIME-SERIES DATA:**

CATCH & EFFORT BY AREA

**ECOLOGICAL IMPLICATIONS**

AVAILABILITY/DISTRIBUTION

PREDICTABILITY OF RECRUITMENT

TROPHIC DYNAMICS

easier time specifying their catch, effort, and stock assessment requirements than they have specifying their ecosystem data requirements. Nevertheless, depending upon the kind of analytical approach the Councils have taken in managing their fisheries, certain classes of ecologically based data do begin to emerge as having direct utility to the management process. I'd like to begin a description of the Councils' needs with a summary of the scientific approaches that the Councils have adopted in developing their FMPs. Although the fishery and species data available for input into management or assessment models vary greatly, plans are typically structure around two alternative analytical frameworks.

Type 1. The Type 1 analytical framework focuses on a system for determining annual values for key management parameters. This framework characteristically uses equilibrium yield models, which are of the surplus production or yield-per-recruit types, and equilibrium stock and recruitment models to generate values for MSY,  $F_{max}$ ,  $F_{0.1}$ ,  $F_{msy}$  and surplus yield. In combination with current stock assessment data, annual values of ABC can be derived, which are consistent with target F values, and empirically-derived relationships between nominal effort and fishing mortality can be used to establish acceptable levels of effort. This framework has its greatest utility for single species fisheries, but may be problematic when applied to a mixed species fishery.

The Type 1 framework primarily requires data on the commercial and recreational components of the fishery, as well as annual estimates (absolute or relative) of stock size; however, ecologically based information on resource availability/distribution and long-term prospects for recruitment would be beneficial in establishing reasonable expectations for long-term resource productivity, for evaluating fishery performance relative to ABC, and for tuning management measures.

Type 2. The Type 2 analytical framework uses age structured population models to investigate the time-path of expected catch and stock size events that may be associated with various scenarios of management control over fishing mortality and/or age-at-entry. In this case, it is the trend in stock size and catch that is important, and here short-term cost may be directly compared with long-term benefits. This framework utilizes periodic assessment information to reveal trends in age at first capture and recent fishing mortality, both of which are used to subsequently tune the management system. Commercial time-series data on catch and effort assist in the specification of management measures directed at overall fishing mortality.

The Type 2 framework is less dependent upon the exact evaluation of current fishery or resource assessment data in the specification of its management parameters; however, a

continuing series of catch-at-age and/or survey abundance data, used to monitor stock trends and exploitation characteristics, are key to its successful implementation. This type of analytical framework is particularly suited to ecologically based information in the areas of recruitment prediction; species interactions or environmental perturbations that may lead to changes in the assumptions for natural mortality, growth or maturity; and information on the distribution and availability of stocks.

### III. Overview of Ecological Data Needs:

Expanding upon the general needs for ecological data and information that are implied by the existing analytical frameworks, I believe that the ecosystem data and information that may be useful to fishery managers in the near term generally falls into four categories:

- 1) biological and physical factors affecting reproductive success and early life history survivorship, and hence, subsequent recruitment;
- 2) physical and biological factors affecting the temporal, geographical and vertical distribution of stocks, and hence, their availability to the fishery;

# OVERVIEW OF ECOLOGICAL DATA NEEDS

1. EARLY LIFE HISTORY PROCESSES, BIOLOGICAL AND ENVIRONMENTAL
  - RECRUITMENT
  - REPRODUCTIVE THRESHOLDS
  
2. SPACIAL & TEMPORAL DISTRIBUTION
  
3. TROPHIC DYNAMICS
  - NATURAL MORTALITY
  - GROWTH RATE
  - MATURITY/FECUNDITY
  - RANGE EXTENSION/CONTRACTION
  
4. ECOLOGICAL SPECIES PROFILES
  - ROLE IN THE SYSTEM
  - RESPONSE TO PERTURBATIONS

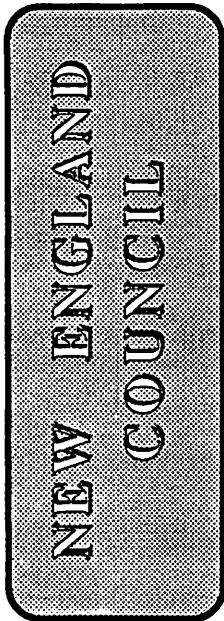


- 3) trophic dynamics of the ecosystem, with particular reference to predator-prey relationships and competition among fish species, leading to better expectations for long-term average yield, variation in abundance, and the interspecific consequences of fishing (or management) strategies; and
- 4) the inherent capability of stocks to recover from conditions of severe exploitation, with particular reference to their reproductive strategy, their intrinsic rate of growth, and their competitive position in relation to shared, limited resources.

#### IV. Council Specified Needs:

I asked the Councils to provide specific information on what kinds of ecological information they are currently using in their management programs and what their immediate needs are. The responses of the responding Councils are summarized below:

New England Council: The New England Council presently uses age structured models to evaluate management alternatives over multiple year planning horizons. Typically, the management measures are primarily focused on age-at-entry strategies and secondarily focused on direct and indirect effort control. Currently, the management analysis attempts to

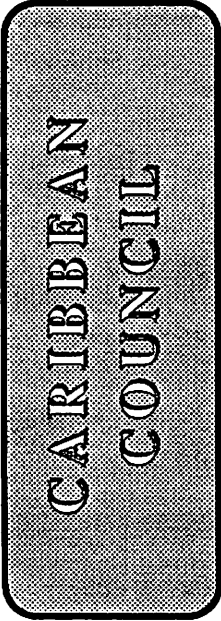


**CURRENT ECOLOGICAL DATA NEEDS**

- RECRUITMENT
- STOCK-RECRUITMENT RELATIONSHIPS
- SPACIAL & TEMPORAL DISTRIBUTION
- AVAILABILITY

**ANTICIPATED ECOLOGICAL DATA NEEDS**

- ECOLOGICAL SPECIES PROFILES
- PRE-RECRUIT SURVIVORSHIP



**CURRENT ECOLOGICAL DATA NEEDS**

*CURRENT NEEDS NOT DEFINED*

**ANTICIPATED ECOLOGICAL DATA NEEDS**

- ECOSYSTEM PRODUCTIVITY
- HABITAT RELATIONSHIPS
- SPECIES INTERACTIONS
- PREDICTABILITY

incorporate the best information available on recruitment, focusing primarily on an analysis of empirical stock and recruitment data. Although basic research has been completed for some species, which links larval survivorship to prey density and links recruitment to temperature, the algorithms that would permit their incorporation into the age structured simulation models have not been developed. Because the Northwest Atlantic ecosystem is characteristically predator driven, the impacts of post-larval predation on recruitment need to be incorporated into the simulation of stock dynamics, and the analytical structure will have to be extended to evaluate stock interactions through simultaneous, linked simulations of several species.

Information on the distribution and availability of species is also critical to the management of the New England finfish stocks, because closed areas and seasons are designed to have a calculable effect on fishing mortality. The physical oceanographic factors that affect distribution need to be illuminated in order to perfect the implementation of these indirect effort control measures. In addition, the impact of physical oceanographic phenomena such as gyres and rings on the distribution of larvae may be necessary to help explain and account for recruitment variability in the simulation models.

Caribbean Council: The Caribbean Council indicated that a concerted effort has been made to develop a framework in which

fishery management decisions could be made with reference to the overall ecosystem. Although data and information limitations have made this a formidable task, a study of all available information on the Puerto Rican and Virgin Islands Insular Shelf ecosystem has been prepared at the request of the Council by Jacobsen and Browder at the Southeast Fisheries Center. The Council anticipates that this study will help define a research plan that will ultimately provide essential management information on resource productivity, key habitat relationships, species interactions at all life history stages, and resource predictability.

Gulf Council: The Gulf Council made reference principally to the management plan for shrimp, and indicated that the management strategy for that fishery is to optimize yield through the use of areal and seasonal closures to protect juveniles. The Council pointed to the obvious need to relate the management measures to the predicted abundance and distribution of juveniles in order to make the management system as cost-effective as possible. In this regard, the Council has an immediate need for more information on the relationship between the physical processes in the Gulf, including storm events, and recruitment to the shrimp fishery. The Council's concerns for better information on the predictability of recruitment extends to all fisheries under management.

**GULF  
COUNCIL**

**CURRENT ECOLOGICAL DATA NEEDS**

- ABUNDANCE & DISTRIBUTION
- RECRUITMENT-ENVIRONMENT INTERACTIONS

**ANTICIPATED ECOLOGICAL DATA NEEDS**

- PREDICTION OF FUTURE RECRUITMENT

**PACIFIC  
COUNCIL**

**CURRENT ECOLOGICAL DATA NEEDS**

- SPECIES-ASSEMBLAGE DISTRIBUTIONS

**ANTICIPATED ECOLOGICAL DATA NEEDS**

- OCEANOGRAPHIC DATA
- ECOLOGICAL CARRYING CAPACITY
- MIXED-SPECIES PRODUCTIVITY

Pacific Council: The Pacific Council generally structures its management programs around a Type 1 analytical framework. Their management programs, however, benefit from information on the distribution of species and the co-ocurrence of species (species assemblages). The Council made specific reference to the need for oceanographic (upwelling) information that would assist them in assessing the growth characteristics, abundance and distribution of coho salmon, as well as ecological information, including life history information, that would generally provide a better understanding of the carrying capacity of the environment with specific reference to the abundance and productivity of the mixed species groundfish resource.

North Pacific Council: The North Pacific Council has adopted an analytical framework for its management plans that uses age-structured models to evaluate harvest scenarios and establish annual TACs. The Council has made use of the Northwest and Alaska Fisheries Center's DYNUMES ecosystem model to corroborate their estimates of the overall surplus production from the fishery complex. The Council has an immediate need for an improved basis for predicting recruitment as an input parameter to their age-structured population models. The Council currently relies on spawner/recruit models, tuned by survey abundance indices, to predict recruitment, but has only limited information for dealing with rapidly growing species. The Council is looking for reliable

# **NORTH PACIFIC COUNCIL**

## **CURRENT ECOLOGICAL DATA NEEDS**

- RECRUITMENT PREDICTION
- RECRUITMENT-ENVIRONMENT INTERACTIONS
- DISTRIBUTION & AVAILABILITY
- SPECIES INTERACTIONS
- FOOD HABITS

## **ANTICIPATED ECOLOGICAL DATA NEEDS**

- RECOVERING CAPACITY FOR DEPLETED STOCKS



indices of physical or biological factors to assist in the prediction of recruitment and is hopeful that investigations such as FOCI at the Northwest and Alaska Center will begin to provide quantified environment/recruitment relationships. The Council views the recruitment prediction problem as a limitation on their ability to concentrate on economic issues.

The North Pacific Council has utilized ecological information to distinguish the distribution and availability of stocks. For example, information on the vertical and areal distribution of sablefish has resulted in an efficient TAC management system that minimizes the risk of overharvesting, because the TACs are based upon abundance estimates from within commercial fishing depths. Species distribution information is used to stratify survey abundance estimates for some species, as well as to identify geographically identifiable species assemblages for management as a unit.

The North Pacific Council has not yet utilized information on species interactions to formally augment its ability to predict resource events using its age-structured simulation models. However, the Council has been able to use food habits data to generally explain changes in some predator stocks in relation to the availability of their prey species. This has been the case with Pacific cod and two crab species, and with the cannibalistic relationship between adult and juvenile walleye pollock.

With respect to the ecological profile of managed species, the Council has acquired important practical information on the capacity of certain stocks to recover from severe depletion, particularly Pacific ocean perch and yellowfin sole, and will factor this information into the future specification of management measures.

#### V. Conclusions for Ecosystem Research:

From the responses of the individual Councils, it is clear that they are highly receptive to the possibility that the ecosystems orientation of the NMFS research program will begin to provide answers and solutions to the needs that I have summarized on their behalf. It is also clear, however, that a tension exists in the minds of several Council respondents between the need to provide terms of reference for focused, resource-specific research, and the need to provide a mandate for NMFS to develop new models or methods that will eventually lead to management decision making on a more holistic level. Presently, the Councils are practically bound by the limitations of the analytical methods that are accepted and available for use.

The dilemma is akin to the chicken and egg problem. If the focus of agency research is only on addressing the problems inherent in developing better inputs to existing analytical structures, it is doubtful that the program will fulfill its

expectations, as I understand them, to ultimately provide a fully integrated framework in which resource management decisions can be made. If, on the other hand, the program focuses exclusively on describing and modeling the dynamics of the overall system, the specific needs of the Council decision makers will not likely be met in the near term, and the ecosystems program will not appear responsive.

In my view, the agency's ecosystem program must focus concurrently on investigating and quantifying the key ecosystem/species interactions that are most critical to the decision frameworks that are currently incorporated within existing management programs, as well as on the development of decision models that are holistic in their scope and yet well enough focused so as to provide a framework for investigating alternative management scenarios in the context of fisheries that are already under management or systems of fisheries that should be managed in close coordination.

It would not be fair to end this presentation without conveying the concerns that many Councils feel for the more pressing and practical problems associated with fishery management. These include the design and implementation of effective management measures, the problem of coordinating the management of interjurisdictional fisheries, the problem of unregulated sources of fishing mortality, the problem of habitat degradation, and the problem of not being able to

systematically collect even basic fishery or assessment data. In the opinion of several Council respondents, the development of solutions to these problems should take precedence over research on the more esoteric problems of ecosystem oriented fishery management.

Notwithstanding this view, it can be concluded that well defined areas of need already exist for empirical or process-oriented studies that will help describe causal relationships within the ecosystem that affect the productivity and long-term dynamics of fishery resources. The need also exists for the development of new management models that are holistic in design and that will allow for both the straightforward integration of ecosystem data and the efficient allocation of research dollars. Clearly a commitment to research in both areas is most likely to meet the needs of the Councils and facilitate the rapid evolution of ecologically based fishery management programs in the United States.



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U.S. Withholds Fishing  
Privileges From Japan

FOR IMMEDIATE RELEASE

The President today reported to Congress his actions to encourage all nations to adhere to the conservation programs of the International Whaling Commission (IWC).

Among those actions, the United States toughened its constraints against Japan for that country's whaling activities by withholding 100 percent of the directed fishing privileges that would otherwise be available to Japan in the U.S. Exclusive Economic Zone.

Last February, following confirmation that Japanese were killing minke whales in the Antarctic under a contested research whaling plan, Commerce Secretary C. William Verity notified the president -- in a process called "certification" -- that Japan's whaling was "diminishing the effectiveness" of the IWC's conservation program.

Today's action, the strongest permitted by the Packwood-Magnuson Amendment to a federal fishing law, denies Japan's request to harvest 3,000 metric tons of sea snails and 5,000 metric tons of Pacific whiting. In addition, Japan will be barred from any future allocations of any other fish, including Pacific cod, until the secretary of commerce determines the situation has been corrected.

Under a companion federal law, the Pelly Amendment, the president could have embargoed up to 100 percent of Japan's fishery products entering the United States. Instead, he asked the secretary of commerce and the secretary of state to monitor Japan's whaling practices and report to him by Dec. 1, saying that a total withholding of Japan's directed fisheries allocation, coupled with a presidential review, is the best means of encouraging Japan to conform with the IWC's conservation program.

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4/6/88