

30th Annual Report of the

**PACIFIC MARINE
FISHERIES COMMISSION**

FOR THE YEAR 1977

TO THE CONGRESS OF THE UNITED STATES AND
TO THE GOVERNORS AND LEGISLATURES OF
WASHINGTON, OREGON, CALIFORNIA, IDAHO,
AND ALASKA

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PACIFIC MARINE FISHERIES COMMISSION

FOR THE YEAR 1977

To the Congress of the United States and the Governors and Legislatures of the Five compacting States, Washington, Oregon, California, Idaho and Alaska, by the Commissioners of the Pacific Marine Fisheries Commission in Compliance with the State Enabling Acts Creating the Commission and Public Laws 232; 776; and 315 of the 80th; 87th; and 91st Congresses of the United States Assenting Thereto.

Respectfully submitted,
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September 1978

US ISSN 0078-7574

PREFACE

The Pacific Marine Fisheries Commission was created in 1947 with the consent of Congress. The Commission serves five member States: Alaska, California, Idaho, Oregon and Washington. The Commission's goals are to promote the wise management, development and utilization of marine, shell and anadromous fisheries which are of mutual concern, and to develop a joint program of protection, enhancement and prevention of physical waste of such fisheries. 1977 marks the 30th year of effort by the Pacific Marine Fisheries Commission and its member States toward these goals.

The Fishery Conservation and Management Act (FCMA) made 1977 a year of dramatic change for the fisheries of the United States. The FCMA created the Fishery Conservation Zone (FCZ) between three and two hundred nautical miles off our coasts, established eight Regional Fishery Management Councils with authority to formulate management plans for fisheries resources within the FCZ, and granted the Secretary of Commerce the power to regulate both domestic and foreign fishing fleets within the FCZ. With these three actions, the FCMA greatly modified the fisheries management role of the United States at the inter-state as well as State-Federal and international levels.

The operational role of the Pacific Marine Fisheries Commission has changed somewhat due to the FCMA. Many fisheries-related functions are now closely related to actions of the Pacific and North Pacific Fishery Management Councils, as will be apparent in this Annual Report in the section entitled "Committee Reports on PMFC Activities", p.26. Other services, particularly those related to implementation of resolutions and advocacy of PMFC positions on legislative issues, are unrelated to Council affairs. These services are outlined in the Executive Director's Report and in the review of actions taken on resolutions and on special directives to the Executive Director.

One change mirrored in this year's Annual Report is not a result of FCMA: the retirement of Leon A. Verhoeven in December 1977 as Editor of the Annual Report and other PMFC publications, and as Special Assistant to the Executive Director. The 16th to 29th Annual Reports are tributes to the editorial skills and fisheries knowledge of Leon. While he will continue to be available for special assignments, PMFC will miss his scholarly impact on its publications, and the staff will miss his expertise, his patient kindness, and his presence.

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30th Annual Report - 1977

ADMINISTRATIVE REPORTS

Report of the Executive Director

Probably no 12 months in this century equal 1977 for changes, challenges, and problems in marine fisheries conservation and management. In 1977, the United States established jurisdiction over fisheries resources throughout some two million square miles of ocean — the 197-mile Fishery Conservation Zone created by the Fishery Conservation and Management Act of 1976 (FCMA) plus the already existing 3-mile territorial sea. In 1977, the 8 Regional Fishery Management Councils became fully operational, and began to address aggressively the multidisciplinary problems of developing fishing management plans. These efforts required orders of magnitude expansion of management concepts and approaches since the FCMA specifies that management plans must be consistent with new national goals and standards which extend far beyond traditional objectives of fishery management.

For these reasons, 1977 was a year of greatly expanded responsibilities for the Pacific Marine Fisheries Commission and for its member States, for the first time demanding full participation in the new Regional Councils and in the multitude of support programs and functions those Councils have required. At the same time, PMFC and its member States have needed to sustain their traditional programs and activities, many of them in areas entirely unrelated to the Councils.

Because of these unique developments in 1977, this report begins with a review of major impacts on fisheries management brought about by the FCMA. Section A, *Fisheries Management in Transition — 1977 and the FCMA*, highlights the changes induced by extended jurisdiction, by advent of the Regional Councils, and by application of new guidelines for fisheries management under the National Standards mandated by FCMA. Subsequent sections summarize PMFC's activities during 1977. Section B, *Activities of PMFC Secretariat — Areas of Emphasis in 1977*, reviews basic responsibilities of the Secretariat, outlines functions relating to the Regional Fishery Management Councils, and reports functions essentially separate from Council concerns. Section C, *PMFC Projects and Their Support, 1977-78*, summarizes PMFC activities by project and by sources and levels of funding.

A. Fisheries Management in Transition—1977 and the FCMA

1977 marked the beginning of a new era in marine fisheries management — the year of transition to full-scale operations under the Fishery Conservation and Management Act of 1976. Three major developments mandated by that Act constitute quantum changes in the geographic scope of management, the

agencies responsible, and the terms of reference for that management.

First, FCMA extended U.S. jurisdiction over marine fisheries resources 197 miles beyond the 3-mile territorial sea or seaward boundary of each coastal State. Enforcement in the 197-mile Fishery Conservation Zone was vested in the federal government. Additionally, the Act established preferential rights for U.S. fishermen to harvest the rich fisheries resources out to 200 miles offshore.

Second, to assure development of truly regional management plans for these new resources brought under U.S. jurisdiction, FCMA assigned that planning authority to eight newly created Regional Fishery Management Councils. Further, FCMA mandated direct public participation in all operations of those Regional Councils, from initial definition of management units through the successive stages of management planning to final approval of those plans.

Third, FCMA specified that in addition to conforming to other federal laws, management plans developed by the Regional Councils must be consistent with seven National Standards. While four of those Standards are reaffirmations of well-established goals for fisheries management, three constitute quantum expansions of the management purview to encompass ecological and socioeconomic areas previously either generally ignored or considered external to management responsibilities.

Because these developments relate so closely to the purposes for which the Pacific Marine Fisheries Commission was created, it seems useful to review them briefly, recognizing also the implications for a resultant evolution in PMFC's services to its States, its fishery user groups, and the public.

1. EXTENDED JURISDICTION & U.S. CONTROL OF FISHERIES

The seeds for extended jurisdiction legislation were sown on the Pacific Coast in the mid-1960s when foreign fishing armadas began systematic harvest of ocean resources off our shores. These foreign fleets rapidly decimated fishery stocks and through superior size and numbers, crowded U.S. fishermen off their traditional fishing grounds. For the decade 1963-1973, the U.S. groundfish catch off the Pacific Coast remained essentially constant and at a low level while foreign trawlers quadrupled their harvest. Moreover, this massive foreign fishery resulted in catastrophic stock depletion of such valuable species as Pacific Ocean perch. While these rockfish were not prime targets of the fishery, they were taken in such large numbers as an incidental catch that population levels were driven dangerously low.

At the national level, the decline of U.S. fishing capacity had alarming effects in terms of growing U.S. dependence on foreign fishermen and processors for fishery products. For example, from 1945 to 1975, a steady decline in U.S. landings was paralleled by a doubling in total U.S. consumption of edible fish. That difference between domestic production and domestic demand was satisfied through imports, with a resultant net dollar drain in foreign balance of payments approaching \$2 billion a year.

The Fishery Conservation and Management Act of 1976 struck squarely at these problems by establishing U.S. jurisdiction over ocean fisheries within 200 miles of our shores. On the basis of best information available, and with priority consideration for conservation of stocks, U.S. fishery managers now decide the total allowable catch for each major fishery. U.S. fishermen have prior rights to that harvest, and only the fraction which is surplus to U.S. needs is available for allocation among the foreign fleets.

Moreover, foreign ships now must fish according to U.S. rules within the 200-mile Conservation Zone. Those rules may specify dates and areas where fishing is permitted in order to maintain closed areas to protect depleted stocks or spawning populations, or to avoid gear conflicts with U.S. fishermen. Rules also may govern the type of gear permitted, and the manner in which it is fished. Each foreign ship must obtain a U.S. permit and pay a fee to operate within our 200-mile zone. Foreign fishing vessels must log into and out of our Conservation Zone and are subject to boarding and inspection by Coast Guard and National Marine Fisheries Service Officers. They must be willing to carry U.S. observers to monitor their fishing operations, and must pay the costs of those observers. In addition they must provide us with accurate statistics on their total catch, amount of effort, and other information required for fishery management purposes.

Happily, foreign governments have generally accepted our right to exert these controls, and are cooperating effectively, particularly off California, Oregon, Washington, and Alaska. Foreign violations have been few in number, and most have been of a technical nature reflecting the newness of the regulations imposed. Despite the limited resources available to them, the Coast Guard and National Marine Fisheries Service have been able to maintain an effective surveillance and enforcement presence in the Fishery Conservation Zone.

Progress has been significant during 1977 toward reduction of impacts by foreign fleets on fisheries stocks and U.S. fishermen. Fishing pressure has been reduced by controlling the number of vessels fishing, by restricting fishing areas, and by shortening fishing seasons.¹

Total number of foreign ships operating off our coast has dropped materially, from an estimated 2700 in 1975 to less than 800 in 1977. The monthly average of foreign vessels in 1977 dropped about one-third from the number sighted each month in 1976. Along the Pacific coast, foreign trawlers harvesting groundfish dropped from some 134 in 1976 to less than 60 in 1977, a more than 50% reduction which clearly benefits

¹For further details on 1977 progress under FCMA, cf. Hill, Gerald D. Jr., "Restoring America's Fisheries: First Year Report." *NOAA Magazine* 8(2) April, 1978. 8p.

American trawlers fishing the same grounds.

As consequence of these restrictions on foreign fishing effort, overall foreign catch declined from an estimated 2.6 million metric tons in 1976 to approximately 1.7 million in 1977. Perhaps of even greater importance, specific conservation measures drastically reduced foreign harvests of Pacific Ocean perch, other rockfish, and sablefish off California, Oregon and Washington; and rockfish, sablefish, and herring off Alaska. U.S. harvest of species controlled under FCMA management plans increased slightly in 1976-1977.

Thus in 1977 the United States assumed effective control of fishing operations in some two million square miles of ocean which are estimated to contain about 12% of the world's supply of fishery products. Planning for management of those valuable strategic resources was the major responsibility of the new Regional Councils established under FCMA.

2. THE REGIONAL FISHERY MANAGEMENT COUNCILS

The eight Regional Fishery Management Councils created by FCMA held organizational meetings in late 1976 and became fully operational during 1977. PMFC's member States actively participated in this evolution of a new level of governance in fisheries affairs through active membership on the Councils, Scientific and Statistical Committees, and Management Plan Development Teams for the Pacific and North Pacific Fishery Management Councils. Fisheries directors for California, Idaho, Oregon, and Washington are voting members on the Pacific Council, and fisheries directors for Alaska, Oregon, and Washington are voting members on the North Pacific Council. Alaska also has non-voting membership on the Pacific Council. PMFC's Executive Director is a non-voting member on both Pacific and North Pacific Fishery Management Councils.

Special note should be taken of the high degree of public participation in Regional Council affairs, from first stages of the management planning process through final decision and implementation of each plan. Each Council is itself a mix of public members and fisheries agency leaders. On the Pacific Council, for example, 5 of the 13 voting members are fishery agency directors representing the 4 participating States (California, Idaho, Oregon, and Washington) and the Federal Government (NMFS-NOAA-Department of Commerce). Thus active participation is assured by the agencies directly concerned with implementation of fishery management plans. Eight of the thirteen voting members are appointed to represent users of fishery resources and the general public. These members are named by the Secretary of Commerce from slates of nominees selected by the Governors of the States. Thus the voice of the public is assured in Pacific Council deliberations, and with an 8-5 voting majority. Essentially for liaison purposes, each regional Council also includes non-voting members representing the U.S. Coast Guard, Department of State, Fish and Wildlife Service, the interstate marine fisheries commission serving the region, and on the Pacific Council the State of Alaska.

Public participation extends throughout the process of developing management plans. For each fishery designated for Council attention, the Regional Council names a Management Plan Development Team comprised of the most knowledgeable

managers and scientists available from fisheries agencies and other sources. That Team coordinates the plan development process, which requires continuing interactions with a Scientific and Statistical Committee—a top-level professional body advisory to the Council—and with an Advisory Panel drawn from fisheries interests concerned and from the general public. Management plans usually evolve through at least three drafts, with these interactions taking place for each draft. The second draft normally is subjected to formal review through public hearings. On the basis of feedback from those hearings, the Council makes its decisions concerning management strategies and necessary regulations and forwards a final draft to the Secretary of Commerce for implementation in the form of regulations controlling fishing in the 3-to 200-mile Fishery Conservation Zone. It is anticipated that the States will enact parallel regulations governing those fisheries in the Territorial Sea within the 3-mile limit of State jurisdiction.

Because fisheries leaders long active in PMFC affairs have contributed extensively to organization and development of the Pacific and North Pacific Fishery Management Councils, and since continued operations of those Councils closely parallel many of the objectives of PMFC, Appendix 5 to this Annual Report provides a listing of 1 977 membership on those Councils and on their Scientific and Statistical Committees, the Management Plan Development Teams, and Advisory Panels. For details of Council operations, interested readers are referred to the monthly Newsletters circulated by each Council and the monthly *Council Memorandum* published by NMFS.

The primary function of the Regional Councils is development of fishery management plans for fisheries harvested in the Fishery Conservation Zone. During 1 976-77, the Pacific Council initiated management plans for salmon, anchovy, groundfish, Dungeness crab, pink shrimp, and squid? the North Pacific Council undertook plans for Gulf of Alaska groundfish, Bering sea groundfish, salmon, tanner crab, Dungeness crab and king crab. For all of these plans, the new National Standards demanded greatly expanded horizons for the planning process.

3. NATIONAL STANDARDS-NEW DIMENSIONS FOR FISHERIES MANAGEMENT

The Fishery Conservation and Management Act of 1976 extended U.S. fisheries jurisdiction, 200 miles seaward and established a new level of regional government to manage those fisheries resources. Additionally FCMA mandated seven National Standards which must be satisfied by Council management plans. These new Standards broaden management goals well beyond traditional preoccupation with resource protection and maximum physical yield, to consider in addition relevant ecological and socioeconomic values and benefits.

Four of those Standards reaffirm well-established goals: prevention of overfishing, use of the best scientific information available, non-discrimination among citizens, and general efficiency of operation. However, three Standards introduce major >new dimensions into the fishery management process, requiring that where practicable, Councils promote economic efficiency (which carries obvious connotations with respect to limiting entry); that to the extent practicable Councils manage stocks

of fish as units throughout their range; and that Councils manage for optimum yield. Optimum yield is defined as the amount of fish which will provide the greatest overall benefit to the nation, with particular reference to food production and recreational opportunities, taking into account relevant economic, social, and ecological factors.

These three new Standards—management for optimum yield, for economic efficiency, and as a unit throughout the range of the stocks—constitute a challenging but enormously difficult advance in fisheries management. State and federal fisheries agencies are struggling with this task, particularly with the need to develop interdisciplinary teams and approaches to management planning, and to expand the data base for fisheries management to include socioeconomic factors—in many cases with little or no data available. Despite these problems, important progress has been made in 1977, and prospects for public benefits are bright in terms of the relevance and importance of these new management goals.

B. Activities of PMFC Secretariat—Areas of Emphasis in 1977

1. CONTINUING BASIC RESPONSIBILITIES OF PMFC SECRETARIAT

Certain basic services and functions of PMFC's secretariat are of an on-going general nature, and provide the support base for the special activities outlined in later sections. These include the following:

a. Maintenance of the Commission headquarters office (in Portland, Oregon) as clearing house for Commission operations and services. These relate particularly to the fisheries agencies of the Member States and to PMFC Commissioners and Advisors, but extend also to Federal and other State agencies and to the general public.

b. Administration of Commission projects and programs, including management of external contracts—from generation of proposals and funding, through supervision of activities, to presentation of reports and conclusions.

c. Coordination and support of PMFC's working committees, in many cases (e.g., albacore, salmon) in conjunction with contract-funded projects. For certain fisheries in 1977, these functions related closely to support of management plan development by the Regional Councils.

- d. Production of regular publications and reports, including
- Newsletters (as needed)
 - Annual Report
 - Salmonid marking and tagging reports
 - Groundfish and crab/shrimp data series.

e. Organization of PMFC Annual Meeting as major forum for review of timely fisheries issues and problems, and development of procedures for implementation of Resolutions and Commission positions developed.

f. Overall direction and execution of PMFC services to its Compact States, consistent with the original purpose of the Compact as re-stated in 1970.² During PMFC's 1976 Annual

²Cf. *23rd Annual Report of the Pacific Marine Fisheries Commission for the Year 1970*. Pacific Marine Fisheries Commission, Portland, Oregon, May 1972. p. 9.

Meeting at Renton, Washington, the role of the Commission was reviewed and evaluated in the context of interactions with the newly established Fishery Management Councils. There was clear consensus that a portion of PMFC's functions related closely to the role of the new Councils as established by the Fishery Conservation and Management Act of 1976. In that context, many PMFC activities in support of its Objectives II and IV provide appropriate PMFC support also to the Councils.

Those Objectives are:

II. Coordinate research and management projects relating to fisheries of concern to two or more States.

IV. Propose compatible fishery regulations based on scientific evidence and with full consideration of ecological, biological, recreational, aesthetic, social, economic, and political matters.

Other aspects of PMFC functions are relatively distinct from the purposes of the Regional Councils, and specifically serve PMFC Objectives I and III.

I. Provide energetic leadership in recognizing and resolving fishery problems.

III. Develop PMFC positions and communicate them to the legislatures of the respective States, the Congress, the concerned agencies of federal, State, or local government, and to the private sector.

In view of these dual aspects of Council-related and non-related functions, PMFC's secretariat was directed to pursue both categories of activities with all possible vigor. The following sections accordingly divide PMFC activities into those supportive of goals shared with the Councils, and those not related to Council goals and functions.

2. ACTIVITIES DIRECTLY SUPPORTIVE OF GOALS SHARED WITH THE REGIONAL FISHERY MANAGEMENT COUNCILS.

a. Active participation in deliberations of the Pacific and North Pacific Fishery Management Councils: By legislative mandate under FCMA, PMFC's Executive Director is a non-voting member of the two Regional Councils having jurisdiction within the area served by PMFC. Under operating procedures instituted by both Councils, non-voting members are full participants in all Council affairs except voting, holding office, and conducting hearings. Membership on the Pacific and North Pacific Fishery Management Councils and their supportive committees and panels is summarized in Appendix 5 which also lists the fisheries designated for management plan development in 1977.

To meet his varied responsibilities to these two Regional Fishery Management Councils, PMFC's Executive Director must commit approximately 50% of his time and energies. Each Council holds 10-12 meetings per year, plus hearings on an as-needed basis to consider public comment on draft management plans. Other support responsibilities include membership on Council subcommittees and special task groups, and extensive preparation for review and comment on draft management plans.

Early in 1977 it became apparent that PMFC would

require financial assistance to meet these new obligations to the Regional Fishery Management Councils and at the same time carryforward other regional responsibilities mandated under PMFC's Goal and Objectives. Accordingly PMFC proposed that NMFS/NOAA provide contract support at a level which would permit hiring of an Assistant to the Executive Director. NMFS/NOAA approved that request and provided contract funds of \$5,000 for the quarter July-September 1977, and \$20,000 for the fiscal year October 1977 through September 1978.

b. Special projects supportive of Council needs and programs: Four PMFC special projects have generated cooperative research and management activities pursuant to PMFC's Objective II, and concurrently have provided direct assistance to Regional Fishery Management Council programs.

- Salmon management plan development: In anticipation of needs of the Pacific Fishery Management Council, a project begun in 1976 (\$73,000) developed background for an ocean salmon management plan for chinook and coho salmon off Washington, Oregon, and California, and began upgrading of the States' salmon data management capabilities toward a goal of quick-response data collection and analysis. This early planning provided the foundation for the Pacific Council's 1977 ocean salmon management plan. In 1977, a second-phase study (\$128,000) began development of background information on inland aspects of salmon management as a contribution to the Pacific Council's comprehensive salmon management plan.
- Regional Mark Processing Center coordination and operation became PMFC responsibilities in 1977. Under a \$25,000 contract from the Pacific Northwest Regional Commission, PMFC employed mathematician-programmer Grahame King as Regional Mark Processing Center Coordinator. In accordance with guidelines developed by PMFC's Salmon-Steelhead Committee, King was assigned to upgrade collection, processing, and publication of anadromous fish marking and tagging experiments and recapture information on a timely basis, and to expand the data base to include all information from marking experiments relevant to anadromous fisheries management.

In recognition of the importance of these data management needs coastwide, including those of the Councils, NMFS provided contract assistance of \$42,000 for operation of the Regional Mark Processing Center September 1977 through August 1978.

• Chinook and coho salmon sampling programs were expanded off the coasts of Northern California and Oregon in 1977 to recover coded-wire tags in the ocean fishery and otherwise monitor and evaluate the ocean harvest. PMFC coordinated this effort under a \$14,000 Federal grant-in-aid project (P.L. 89-304, the Anadromous Fish Conservation Act of 1965).

- Preparation of Coastwide Data Files was begun in

1977 to combine into coastwide files relevant fisherman, vessel and landings data from Alaska, California, Oregon, and Washington for the three base years of 1974, 1975, and 1976. NMFS contract funds for \$ 10,000 were provided to support computer programming and processing for consolidation of the States' data files.

c. *International Groundfish Committee*: PMFC's Executive Director continues to serve as U.S. member of the International Groundfish Committee and thereby to encourage and support the activities of its Technical Subcommittee. The Technical Subcommittee is comprised of leading groundfish scientists and managers of the Pacific States, NMFS, and the Canadian Fisheries Service. U.S. members comprise the U.S. Section of that Subcommittee, which Section in 1976 superceded PMFC's long-established Groundfish Committee.

The International Groundfish Committee and its Technical Subcommittee were established nearly two decades ago by the Second Conference on Coordination of Fisheries Regulations between Canada and the United States. Terms of reference include:

- 1) to review proposed changes in groundfish regulations affecting fisheries of common interest before they are implemented;
- 2) to review the effectiveness of existing regulations;
- 3) to exchange information on the status of groundfish stocks of mutual concern, and to coordinate, where possible, programs of research;
- 4) to recommend the continuance and further development of research programs in order to provide a basis for future management of the groundfish fishery.

In recognition of the accelerating* need for effective U.S.-Canada interactions at technical and scientific levels, the Pacific Fishery Management Council in 1977 designated the Technical Subcommittee as its instrument for maintaining these U.S.-Canada cooperative interactions. Annual meetings of the International Groundfish Committee are held in conjunction with PMFC's Annual Meeting.

d. *PMFC advocacy of Council needs at Federal levels*: In three major areas, PMFC successfully advocated major changes in Federal positions with respect to financial support for and operation of the Regional Fishery Management Councils.

In conjunction with the Atlantic and the Gulf States Marine Fisheries Commissions, PMFC campaigned strongly for augmented Federal funding for the Regional Councils and also for support of the State Fisheries Directors' participation in Council affairs. Strong Council, State, and constituency support helped bring about a reprogramming of \$3.75 million for those purposes in FY 1977 and FY 1978. These funds included \$25,000 per year sustaining funding for participation in Council affairs by each State's Fisheries Director.

Concerning interpretations of the Fishery Conservation and Management Act of 1976, PMFC supported Congress-

sional action to shorten the time-frame for processing foreign fishing permit applications in 1977. PMFC also successfully advocated modification of NOAA's interim regulations to restore initiatives for managing transboundary stocks to the Regional Fishery Management Councils.

PMFC vigorously advocated restoration of Federal funding for operation of the NOAA research vessel *OREGON*, which had been ordered decommissioned as obsolete. Congress concurred; restored the funds, and directed that the *OREGON* remain in service until a replacement vessel was brought on line.

3. ACTIVITIES IN SUPPORT OF OBJECTIVES DISTINCT FROM THOSE OF THE REGIONAL COUNCILS

a. *Consultant to NOAA's Marine Fisheries Advisory Committee (MAFAC)*: By special action of the NOAA Administrator, the executive directors of the three interstate marine fisheries commissions have been designated consultants to NOAA's Marine Fisheries Advisory Committee (MAFAC), and as such are full participants in MAFAC reviews and discussions of fisheries issues. 1977 meetings took place in February, May, and October, in Washington DC.

Principle issues addressed by MAFAC in 1977 included:

- reviews of Eastland Fisheries Survey recommendations and correlation with the National Plan for Marine Fisheries and its implementation document: *A Marine Fisheries Program for the Nation* (cf. b. following; also review of actions on PMFC Resolution 1, p. 16 of this Annual Report);
- continued monitoring of NMFS operations under extended jurisdiction;
- overview of Regional Fishery Management Council operations as reflected in reports provided by each Council;
- tuna-porpoise and other marine mammal problems (cf. also review of actions on PMFC Resolutions 9 and 10, p. 21);
- "joint ventures" for foreign processing of fish harvested by U.S. fishermen in the Fishery Conservation Zone (reviewed by a special MAFAC subcommittee);
- recreational marine fisheries problems (subcommittee review and recommendations);
- consumer affairs (subcommittee review and recommendations).

West Coast members of MAFAC during 1977 were:

Dr. Donald E. Bevan, Seattle, WA E. Charles Fullerton, Sacramento, CA Dennis A. Grotting, Eureka, CA Edward G. Huffschmidt, Lake Oswego, OR Ronald J. Jensen, Monroe, WA Edward P. Manary, Olympia, WA Dr. Stephen B. Mathews, Seattle, WA Guy R. McMinds, Taholah, WA Mary Depoe Norris, Seattle, WA Kathryn E. Poland, Juneau, AK Dr. Haakon Ragde, Seattle, WA

Elmer E. Rasmuson, Anchorage, AK
 Oliver A. Schulz, San Francisco, CA
 Clement Tillion, Juneau, AK Dr. Robert B.
 Weeden, Fairbanks, AK Melvin H.
 Wilson, Los Angeles, CA Charles C.
 Yamamoto, Honolulu, HA

b. *Federal funding for fisheries research and management:* PMFC aggressively supported augmented funding for Federal grants-in-aid to the States under the Commercial Fisheries Research and Development Act of 1964 (P.L. 88-309) through two campaigns in 1977-78.

1) Support for Congressional extension of the Commercial Fisheries Research and Development Act (P.L. 88-309) and for doubling of authorized funding levels to:

- \$10 million for Section 4a (general)
- \$4 million for Section 4b (disaster relief)
- \$0.5 million for Section 4c (new fisheries)

Congress approved this measure (H.R. 6206) in early 1977, and the President signed it into law (P.L. 95-53).

2) PMFC campaigned throughout 1977-78 for increased funding under this new authorization beyond the level-funding which has prevailed since 1970 (cf. review of action on PMFC Resolution 3, p. 19 of this report).

c. *Completion of the East/and Fisheries Survey:* Two documents published in 1977 summarized nearly two years of work on the Eastland Fisheries Survey. PMFC's area of responsibility was Western United States (including Hawaii and the Pacific Island Territories). The Gulf States Marine Fisheries Commission surveyed States bordering the Gulf of Mexico; the Atlantic States Marine Fisheries Commission was responsible for the Atlantic States and for general supervision of the Great Lakes survey.

The Eastland Fisheries Survey was commissioned by the United States Congress and funded by a special Congressional appropriation of \$500,000. PMFC's share of that funding was \$125,000. 1977 implementing actions are reviewed in the summary on actions supporting PMFC Resolution 1 which also lists the two publications describing the Survey in detail (p. 17 of this report). A tabular review of Pacific coast priorities for action is provided in Appendix 3.

d. *Internal interactions of PMFC on fisheries issues of importance:* PMFC's secretariat continued to place high priority on effective communications and interactions among all components of PMFC structure — agency Directors and Commissioners, scientific and management staff, and constituent Advisors — concerning issues and problems of regional concern. This priority reflects solid commitment to PMFC Objective I, to provide energetic leadership in recognizing and resolving fishery problems.

C. PMFC Projects and Their Support — 1977-78

Figure 1 diagrammatically represents the projects carried forward by PMFC in 1977-78. PMFC's scope of operations and

sources of funding can best be reviewed by beginning with the basic State support (large lower circle) and progressing through the array of externally funded contracts (upper circles) to a consideration of staff positions generated by specific projects. The size of each circle indicates the approximate dollar amount supporting that program. Numbers at the heads of arrows identify staff positions generated by the funding.

1. STATE SUPPORT FOR THE PMFC SECRETARIAT

PMFC operates under a base budget approved by its Executive Committee and funded through member State assessments according to a formula established under PMFC's Compact. State contributions for PMFC support for the fiscal year July 1, 1977-June 30, 1978 totalled \$106,000. Percentage distribution of that budget by functions was:

- salaries and wages (3+ positions).....55%
- office maintenance and operation.....20%
- Annual Meeting costs.....14%
- working committees, publications, etc.....11%

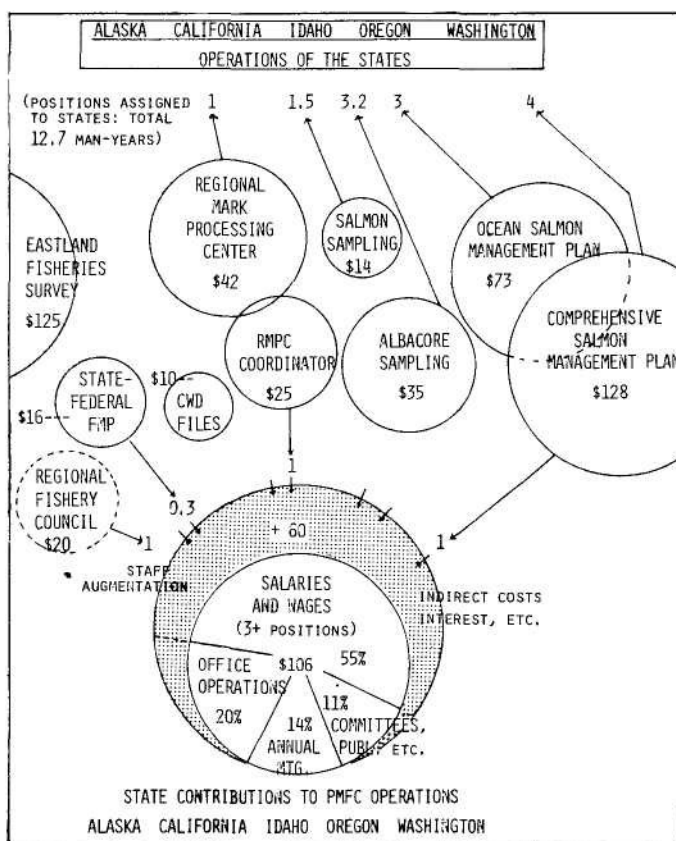


FIGURE 1. Pacific Marine Fisheries Commission 1977-78 cooperative projects, levels of funding (in thousands of dollars), and generation of staff.

This base budget provides the foundation for all PMFC services as the operational arm of its member States. It supports the core headquarters staff (Executive Director, two secretaries, and part-time Treasurer), maintains headquarters office and services, provides for annual meetings, and produces PMFC reports and documents. Implementation of PMFC Resolutions and other aspects of PMFC's advocacy of Compact views and positions depends entirely upon this core support.

This support by the States also provides the operational base for development of specific projects and generation of their external financial support. For 1977-78, external contracts approached \$300,000 for the diverse array of projects shown in Figure 1. Indirect costs generated by these 1977-78 contracts, plus interest on savings and other benefits such as direct contract support of salaries, supplemented funds available for operation of PMFC's secretariat by approximately \$60,000. Thus services were significantly augmented without major increases in State costs.

2. EXTERNAL CONTRACT SUPPORT FOR PMFC PROGRAMS AND SPECIAL PROJECTS

Externally funded projects carried forward by PMFC in 1977-78 can be grouped into four functional areas:

a. *East and Fisheries Survey*: PMFC completed a project begun in 1976 to provide advice to the Congress concerning fisheries problems, needs and recommended policies (\$125,000 over 18 months; only a small portion was allocated to 1977).

b. *Administrative Support of State-Federal Interactions*: Two projects totalled \$36,000 in support and generated 1.3 staff positions to augment PMFC's core staff services. \$20,000 supported PMFC participation in the two Regional Fishery Management Councils in PMFC's service area. \$16,000 supported other State/Federal Fisheries Management Programs (SFFMP).

c. *Improved data collection and management*: Improvement in the Pacific coast data base for fisheries management is the core objective of some four projects having total external support in excess of \$100,000. These include development of Coastwide Data Files (\$10,000), two projects for coordination and operation of the Regional Mark Processing Center (totaling \$67,000), and significant portions of the effort under the albacore sampling project (\$35,000). These programs generate one staff position (Regional Mark Processing Coordinator) to bolster PMFC's headquarters services.

d. *Projects related to specific fisheries*: Four projects are centered upon specific fisheries. The albacore and salmon sampling projects gather regional data on stock distribution, landings, etc., for those fisheries (funded at \$35,000 and \$14,000, respectively). The two interrelated salmon management plan projects organized and supported input by the Pacific States to the Pacific Council's salmon management planning processes (total external support over two years: \$201,000).

3. STAFF POSITIONS GENERATED (summary):

a. PMFC's base budget (State contributions) supports the core headquarters staff of 3+ positions — Executive Director, two Secretaries, part-time Treasurer.

b. External contracts generate an additional 3.3 positions to bolster PMFC's headquarters secretariat

- Regional Mark Processing Coordinator
- Staff Assistant, Salmon Management Plan
- Assistant to Executive Director (to support Regional Council functions)
- Part-time assistance — 0.3 position.

c. External contracts additionally support some 12.7 man-years of temporary and seasonal aide assistance assigned to the participating States to carry forward work under the Regional Mark Processing Center, salmon and albacore sampling, and salmon management planning projects.

4. TRENDS IN PMFC SUPPORT, 1971-1978

Figure 2 graphically represents trends in PMFC's financial support over the seven fiscal years 1971-72 through 1977-78. Since PMFC's base budget is authorized on a biennial basis, State contributions have advanced in 2-year steps from \$58,000 per year for the biennium 1971-73 to \$106,000 per year for 1977-79. These increases average a little over 10% per year and parallel the inflation rate over this period.

In Figure 2, "Secretariat Total Operational Support" indicates added revenues generated for PMFC's general support functions from indirect costs assessed external contracts and from interest on savings. The "Total Support" trend line shows a growth in total operating funds (State contributions plus external contracts) from \$68,000 in 1971-72 when there were no external contracts to more than \$300,000 by 1974-75. Total funding since 1975 has fluctuated at that general level, and is projected upward to about \$390,000 for 1977-78. This healthy growth in PMFC's total services appears to document the usefulness of the Commission as a mechanism for carrying forward cooperative inter-State and State-Federal fisheries projects and programs.

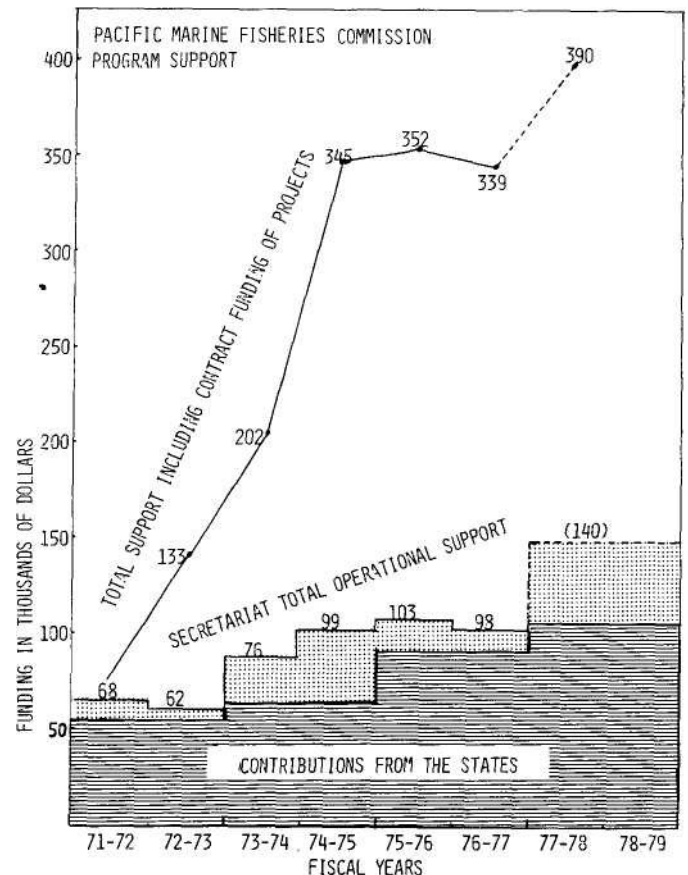


FIGURE 2 Trends in Pacific Marine Fisheries Commission operational support, 1971-1978

Executive Committee Actions

During 1977, regular meetings of the Executive Committee³ were convened in Boise, Idaho (July 25) and Portland, Oregon (November 8). In addition, the Executive Committee met in special session (May 19) while at a National Marine Fisheries Service-State Fish and Wildlife Directors meeting in Washington, D.C. Among the more prominent actions taken by the Executive Committee were:

The Committee found 1977 PMFC activities to be consistent with the guidelines established in November 1976. Approval was given for the continuation of these functions.

PMFC was authorized to support the Pacific Fishery Management Council in the development of information for the inland phase of the Council's Comprehensive Salmon Management Plan. This support encompasses (1) hiring a staff assistant to aid in development of background reference documents and writing of selected background papers (see *Pacific Council's Comprehensive Salmon Management Plan*, page 30); (2) contracting for special studies (e.g. review of alternatives for limiting entry to recreational ocean salmon fisheries); and (3) securing funds for the participating States to assist them in development and review of the Comprehensive Plan's background documents. (For these support activities, \$128,000 were made available to PMFC by means of a National Marine Fisheries Service contract which runs from July 1, 1977 through September 30, 1978).

The Executive Committee agreed to seek Congressional support for increasing the Fiscal Year 1978 appropriations for programs established under the Commercial Fisheries Research and Development Act of 1964 (Public Law 88-309).

The Coastwide Data File Task Force recommendations were approved. These recommendations include the development of California- and Alaska-based data files and the placement of a higher priority on efforts to produce compatible state input to the coastwide data files. The Executive Committee also adopted the recommendation that PMFC and the Task Force continue to develop data files and examine alternatives for coastwide data systems (see *Coastwide Data File Task Force*, page 27). *

Committee approval was given to the recommendations of the Salmon-Steelhead Committee in regard to the Regional Mark Processing Center. PMFC was authorized to seek \$42,000 in funding to enable the Center to expand its programs during Fiscal Year 1978. The Executive Committee also directed the establishment of a considerably expanded data system so that biological as well as basic management data could be collected at the Center. (See *Regional Mark Processing Center*, page 30).

Among the fiscal items approved by the Executive Committee were (1) PMFC's Fiscal Year 1978 budget of \$139,926 and, (2) authorization for the Executive Director and the Treasurer to carry over unused fixed-price contract funds for continuation of approved projects. An increase in private car travel mileage (to 15 cents per mile) and a dental insurance program for

full-time staff members also were approved. (The dental plan does not include dependents of staff members.)

Report of the Treasurer

Treasurer Gerald L. Fisher reported as of October 31, 1977 the cash balance was \$134,606 and accounts receivable totaled \$46,471. The annual audit for the year ended June 30 1977 found PMFC's financial records in satisfactory condition (See Appendix 1 — Financial and Audit Reports for details.)

ANNUAL MEETING EVENTS

The 1977 annual meeting was held November 8-10 at the Portland Hilton Hotel in Portland, Oregon. A summary of the meeting's major events appears below. In addition, Commission elections took place; the names of the Commission's Officers and Steering Group of the Advisory Committee for 1978 are found in Personnel, page 33.

Eastland Fisheries Survey Panel Discussion

Panelists for the Eastland Fisheries Survey discussion which keynoted the 1977 Annual meeting were: Henry O. Wendler, Washington Department of Fisheries; Edward C. Greenhood, California Department of Fish and Game; William O. Saltzman, Oregon Department of Fish and Wildlife; Bob Roys, Alaska Department of Fish and Game; Stacy Gebhards, Idaho Department of Fish and Game; and PMFC Advisor Charles S. Collins, Pacific delegate to the National Conference on the Eastland Fisheries Survey. A summary of the panelists' comments and the reaction of the meeting's participants to these remarks follows.

The Panel

Charles Collins outlined the development of the Eastland Fisheries Survey (EFS) from its inception (as an outgrowth of the 1973 Eastland Resolution) to the publication of the *Eastland Fisheries Survey-A Report to the Congress*. After pointing out the activities of the Pacific, Atlantic States and Gulf States Marine Fisheries Commissions in gathering grassroots information for the EFS, he focused on the actions of the National Conference on the EFS which convened in Washington, D.C. in late 1976. The Conference's 70 delegates, representing all segments of the fishing industry nationwide, were divided into working teams covering conservation of stocks and habitat; fisheries utilization and development; and recreational, environmental, and consumer concerns. From these working teams emerged the recommendations which were adopted at the Conference plenary session and presented to Congress in the Eastland Report.

Bob Roys, in describing Alaska's aquaculture program, indirectly addressed the EFS recommendations on aquaculture. Alaska's program, which is aimed at ocean ranching of salmon, has as its objective the hatchery production of 40 million adult salmon through the cooperative efforts of the State and fishermen. The State has established a \$200 million fund for hatchery construction loans. Fishermen, organized into regional associations, may borrow up to \$3 million from the fund at an annual interest rate no greater than 8%. Borrowers have a 6-year grace

³The Executive Committee is composed of the heads of the fisheries agencies of PMFC's member States. See the list of 1977 Commissioners on page 32 for Committee members.

period before beginning payments. The State also has made grants for planning and other purposes available to the regional associations.

Commenting on the experience of Alaska which has many of its resources under the jurisdiction of more than one federal agency, Roys disagreed with the EFS suggestions of forming a new federal agency to coordinate the activities of federal agencies now involved in fisheries. (*Editor's note: The EFS proposes consolidation of activities within a single agency, presumably an agency now involved in fisheries, rather than a new one.*) In regard to the EFS recommendation for an aquacultural extension service (similar to the agricultural service available to farmers), Roys wondered which federal entity would provide this activity. He felt that this form of technical assistance should be made available to more than just salmon aquacultural projects. In stressing the need for an interdisciplinary approach to aquaculture, Roys pointed out that Alaska is not waiting for the federal government to take the initiative. Alaska, he declared, already has recognized that pathology, genetics, biology, and engineering are essential to the development of aquaculture. He questioned whether strategic planning for salmon can be effective when these fish pass through areas under the jurisdiction of multiple federal agencies.

Ed Greenwood said, because of the number of fisheries plans developed in the past and never implemented, he was not overly optimistic about any actions forthcoming from the EFS recommendations. Each time an EFS recommendation is enacted, he would ask himself if this action would have occurred if the Eastland Report did not exist.

Agreeing with EFS and PMFC attitudes toward the Marine Mammal Protection Act, he called for amending the Act to bring it more in line with the practical necessities of all aspects of society. He urged PMFC to consider actions other than a resolution for securing amendment of the Act. Greenwood concurred with the EFS recommendation to use general tax revenues to provide additional fishery programs. He noted, however, that additional federal funding was presently being directed almost entirely toward the needs of the Regional Fishery Management Councils.

Greenwood gave examples of California's recognition of the growing importance of marine recreational fishing. Although he concurred with the EFS recommendation for more recreational access and facilities (such as marinas and launch ramps), he indicated the EFS does not answer the difficult questions of where the facilities should be located, and what effect increased recreational access will have on state programs.

Depicting Pacific Coast aquaculture as being in a state of infancy for species other than salmon and oysters, Greenwood described aquacultural projects in California and the State's efforts to promote this industry. He warned that while the aquaculture industry might welcome federal funds, both industry and the State should be aware that federal financial assistance means increased federal guidance.

The EFS recommendation for developing markets for fisheries resources was given a high priority by Greenwood. He suggested that not only market development programs, but also

programs for vessel construction and the development of underutilized species could be funded by dollars owed to the federal government from taxes on industry profits. The financing of programs in this manner would place program responsibilities closer to the commercial and recreational fishing industries — those most knowledgeable about and adept at solving their own problems. (*Editor's Note: It was this suggestion that prompted the PMFC Commissioners to instruct Executive Director Harville to analyze the possibilities of obtaining tax credits or other financial incentives so the commercial fishery could help itself.*)

Stacy Gebhards prefaced his remarks by noting the potential conflict between the EFS recommendation of increased access for the recreational angler and the existing problem of overfished salmon stocks. He urged a careful study of increased access unless there is a major reallocation of ocean salmon from the commercial to the recreational fishery.

Gebhards questioned the implication of both the EFS and the Department of Commerce's "National Plan for Marine Fisheries" that habitat restoration and enhancement are equally as important as habitat protection. Judging from his experience with salmonid stream fisheries, Gebhards contended that the primary emphasis should be on habitat protection. Although state and federal laws appear to protect adequately the environment, environmental loss continues. Gebhards attributed this loss to the number of governmental entities involved, the overriding non-fishery economic interests, and conflicting management goals. He felt that until priority commitments are made by Congress, the States, and resource management agencies, key fishery habitats will continue to be the silent victims of economic tradeoffs for power, irrigation, commerce, lumber, grazing, minerals, or anything that will turn the most dollars.

William Saltzman said highest priority should be increasing the fish population, especially that of salmon. He felt that having more fish would make other problems easier to solve. As an example, he noted that an increased number of fish would help remedy the inequitable allocation of stocks among competing users.

Saltzman said the federal government should correct those problems resulting from such activities as dam construction and dredging which have adversely affected fish stocks. In addition, the responsibility for the preservation, restoration, and enhancement of anadromous fish habitats on federal lands also rests with the federal government. In concurring with the EFS recommendation of greater access for recreational fishermen, Saltzman stressed that such access should only be for under-harvested stocks. He also urged continuing studies on the impact of limited entry.

The collection of data on salmon stocks in ocean fisheries and on recreational catches of non-salmonid ocean fish also has high priority. Saltzman supported the EFS recommendations of increased federal funding for research on optimum yield and for studies on the importance of pelagic forage fish to the marine ecosystem. He recognized the importance of marine recreational fisheries as outlined in the EFS. He requested identification of the charter boat industry as a "bonafide commercial enterprise producing fish for human consumption" and recognition of this

industry's special needs. These needs include tax reforms and more favorable assistance from banks.

Henry Wendler remarked on the changes needed in federal institutional arrangements for fisheries management. Although agreeing with the EFS recommendation of a cabinet-level fisheries department, he pointed out that the reduction of federal lines of authority and responsibility will occur only over a long period of time; therefore, an interim solution is needed immediately to "streamline" federal and state relations.

Using the Corps of Engineers' permit procedures as an example, Wendler described the multitude of federal and state agencies involved in the review of a permit application. To avoid duplication, he suggested the following actions:

- (1) Coordination of efforts between state and federal agencies through the use of a "clearinghouse." By this method, one federal agency would be selected as the "lead agency" to work with states.
- (2) Establishment of a panel of "key" federal and state technicians to determine which governmental body is best suited to analyze a permit application. This analysis would bind the applicant and state and federal governments.
- (3) Action by Congress to encourage federal-state planning and implementation efforts without mandating methods for these purposes. As an example, Wendler indicated a provision in the Coastal Zone Management Act Amendments which "pre-approves" interstate compacts.
- (4) Emphasis and clarification of the state role in fish and wildlife conservation. There should be federal intervention only if state laws are proven to be ineffectual.

Wendler also stressed that the EFS recommendations are only a "shopping list." He urged that attempts be made to establish priorities for these recommendations.

Audience Reaction

The statements of the panel had a catalyzing effect on the audience: for almost an hour, the EFS was the focal point of intense discussion among the audience and the panelists. But whether they applauded, damned or questioned the recommendations of the EFS, everyone agreed with PMFC Advisor John Gilchrist that the EFS should not be "buried." Among the topics addressed by the meeting's participants were:

- (1) Fishing Industry Support of the EFS

Perhaps no one summed up the EFS quite as well as PMFC Advisor Bob Hudson who said that, at last, the EFS had provided a forum for the voices of the fishing industry. Lucy Sloan, representing the National Federation of Fishermen, pointed to the existence of a supportive atmosphere in Congress for the Eastland recommendations as an indication of the need for all segments of the industry to rally behind the EFS. Agreeing with Sloan's assessment of Congressional support was PMFC Executive Director Harville, who had recently attended meetings with Congressional staff on the EFS. Joseph Slavín, the National Marine Fisheries Services (NMFS)

Assistant Director for Fisheries Development, emphasized that NMFS does not intend to let the Eastland Report die. However, he felt that implementation of the EFS recommendations is contingent upon the reaction of the Office of Management and Budget and the interest shown by the states and the fishing industry.

- (2) Establishing Priorities for the EFS Recommendations

Henry Wendler's remark on the necessity of establishing priorities for the EFS recommendations probably generated more discussion than any other statement made by the panelists. Everyone seemed to agree that priorities need to be established; however, J. E. Lasaster (Washington Department of Fisheries) warned of the pitfalls of establishing a list of priorities and dealing with each priority in its order of importance. Often, he said, while all attention is focused on solving one priority, the other "neglected" priorities can destroy any likelihood of complete success. Therefore, he suggested that the recommendations be placed in groups and each group be assigned a priority.

Work already is underway among government and industry to establish priorities. Joseph Salvin told the meeting that his NMFS office is analyzing and establishing priorities for the EFS recommendations. Lucy Sloan noted that the National Fishery Conference (composed of representatives from all segments of the commercial fishing industry) is relying on its Washington, D.C.-based Steering Committee to develop broad, industry-wide recommendations for implementing the programs suggested in the Eastland Report. (*Editor's Note: Later at the meeting, the PMFC Commissioners converted their concern over the fate of the EFS into action. They directed Executive Director Harville to convene meetings of the PMFC Advisors so that priorities could be established for the Eastland recommendations.*)

- (3) Consolidation of Federal Fisheries Activities into a Department

Hotly debated were the EFS recommendations for: (a) the creation of a department in which all federal fisheries activities are consolidated; and (b) the establishment within this department of an agency with responsibility for fishery management and development in both marine and inland waters. The initial question for PMFC Commissioner Allan Kelly was, "Is there merit in consolidation?" He said, "A big bureaucracy boggles the mind." According to PMFC Advisor (and panelist) Charles Collins, everybody at the National Conference wanted a single fisheries body; the only issue at the Conference was whether the fishery entity would be given agency or department status. Collins felt the creation of a department was unlikely.

The EFS recommended that the "Fishery Department" coordinate all federal fishery functions in conjunction with state agencies. To PMFC Scientist (and panelist) Bob Roys, "coordinate" implies a "talking between" agencies. He believed the presence of a coordinating agency would accomplish nothing unless

this agency also had authority. Roys (who freely admitted his suspicion of still another agency) said that a "super agency" in Washington, D.C. would only compound existing problems. What was needed, he declared, was a regional not a national approach to coordination and consolidation.

PMFC Commissioner E. C. Fullerton, expressing a strong states rights outlook, opined that fisheries decisions should be returned to such local level participants as the fisherman, the food processor, and the fishery manager. These people, he affirmed, are the ones who can provide the instant response needed in solving fisheries problems.

Several people expressed the opinion that fisheries might be better off if consolidation did not take place within one of the "traditional" fishery agencies (e.g., NOAA). These people believe that the fishing industry has, for too long, been treated as an "object of scientific curiosity" rather than receiving the recognition it deserves as a food-producing industry.

(4) Allocation of Fish

A review and amendment of Indian treaties by Congress were seen by PMFC Commissioner Walter Lofgren as only one step in finding a solution to the allocation of fish among competing user groups. In his opinion, the Eastland Report failed to give sufficient consideration to other allocation solutions (e.g., getting more salmon over the dams and available to the user groups). PMFC Advisor John Marincovich stated that we cannot manage the fish we have. He contended that instead of improving access to the fish, we should limit participation by all user groups". " *

(5) Fish Processing

PMFC Advisor (and processor) Theodore Bugas commented on the inadequacy of the Eastland recommendations in addressing issues faced by the food processor. The Clean Water Act of 1972 was cited as an example of the federal, laws which have established roadflocks in front of the processor. This Act, said Bugas, is financially killing the small processor because of the costs incurred in eliminating fish waste from the water used in processing.

(6) Human Relations

Bob Hudson declared that if it were not for the user groups, there would be no need for the fisheries managers. Hudson believes the managers are too far removed from the fishermen, and steps should be taken to reacquaint the managers with their "constituency."

Update of Actions Taken on 1976 Resolutions

While the actions taken on previous resolutions are not part of the "Annual Meeting Events," it seems important at this point to update actions on the 1976 Resolutions, as frequently the resolutions of previous years are related to those of the current year or to attainment of previous goals that are continuing concerns of PMFC. Pages 24 through 30 of PMFC's 29th Annual

Report contain the Resolutions adopted at the 1976 meeting and the actions taken through March 21, 1977 in response to these Resolutions. The following is an update of those actions:

Resolution 1 — Evaluate Effects of Limited Entry: In July, PMFC Staff Assistant Russell Porter was directed to plan a long-term review and analysis of limited entry alternatives for the commercial salmon fisheries. (See "Background Documents and Review of Limited Entry Alternatives," page 30.) As part of PMFC's support to the Pacific Fishery Management Council in the development of a Comprehensive Salmon Management Plan, PMFC awarded a subcontract in July to Drs. Frank J. Hester and Philip E. Sorensen for "A Comprehensive Analysis of Alternatives for Limiting Entry to Ocean Recreational Salmon Fishing." The final draft of this analysis was submitted to the Council in December 1977 and circulated to members of the Council, and the Council's Scientific and Statistical Committee, Salmon Management Plan Development Team, and Salmon Advisory Subpanel for their comments. (A final report, with the word "Access" substituted for "Entry" in the above title, was published in April 1978. — Editor)

Resolution 3 — Impose Duties to Offset Subsidies of Foreign Fisheries Products: In the *Eastland Fisheries Survey — A Report to the Congress* (May 1977), hereinafter referred to as the Eastland Report, the Atlantic States, Gulf States and Pacific marine fisheries commissions made a strong recommendation for an investigation of the effect of imported fish products on the various domestic markets. (See the Eastland Report, page 22, item D.2.)

Resolution 4 — Modify Impact of the Longshoremen's and Harborworkers' Act: In the Eastland Report (pages 22-23), it was recommended that "a technical committee [be convened] consisting of industry representatives, legislative analysts, academic insurance advisors, and labor law specialists to analyze insurance provisions of the . . . Longshoremen's and Harborworkers' Act to determine if a need exists for legislative change. Because no ceilings are set on liability, private insurance carriers refuse to write adequate coverage. Consequently, many segments of the industry are in violation of federal law." PMFC Advisor Paul Anderson, Executive Manager of the Seiners Association, agreed to present this resolution at the Commercial Fishing Vessel Insurance Conference, held in May, 1977 in Washington D.C.

Resolution 9 — Fishhold Inspection and Validation Prior to Season Opening: Although the Pacific Fishery Management Council in its 1977 Salmon Management Plan proposed mandatory fishhold inspections and certifications for vessels in the waters off California and north of Tillamook Head, Oregon (see *Final Environmental Impact Statement for the implementation of a Fishery Management Plan for "Commercial and Recreational Salmon Fisheries off the Coasts of Washington, Oregon, and California," p. 32-33*), only California inspections were carried out. In its 1978 plan, the Council addressed only the inspection and certification of vessels in the waters off California.

Resolution 10 — Amend the Marine Mammal Protection Act: "Congress should amend the Marine Mammal Protection Act of 1972 to allow rational management of marine mammal

population," declared the Eastland Report (page 27). "The provisions of the Act", this recommendation continued, "prevent man-caused mortality and in some cases encourage overpopulation of seals, sea lions and sea otters with resultant deleterious local effects on prey species. Some of these are important commercial and recreational fish and shellfish species."

Continuing concern about marine mammals resulted in adoption, at the 1 977 Annual Meeting, of two additional resolutions (see nos. 9 and 10, page 20). Presently there are before Congress several bills regarding marine mammals. PMFC's Executive Director continues to call Congressional attention to these resolutions. His most recent action was during testimony at a June 5, 1 978 hearing on the Fishery Conservation and Management Act of 1 976 before the Senate Committee on Commerce, Science and Transportation.

Resolution 11 — To Improve Marine Weather Data: The three interstate marine fisheries commissions recommended in the Eastland Report (p. 27) that

"Congress should ensure adequate funding to improve National Weather Service programs. Because weather forecasting is so important to recreational and commercial fishermen and other mariners, it is vital that the frequency of forecasts is increased and that their accuracy and timeliness are improved. Additionally, the capacity to provide long-range forecasts should be enhanced. The use of offshore buoys as well as greater utilization of vessels at sea for monitoring and reporting purposes are recommended."

Resolution 13 — Improve NMFS Role in Marine Recreational Fisheries: Pages 24 and 25 of the Eastland Report set forth recommendations to the federal government (and by implication, the National Marine Fisheries Service) relating to the importance of the marine recreational fisheries. At the 1977 annual meeting, PMFC's Commissioners endorsed a proposed NMFS plan for the collection of improved marine recreational fishing statistics. See section on "Special Directives to the Executive Director," page 25.

Resolutions Adopted in 1977 and Actions Supporting Them

Of 14 Proposals submitted for consideration by PMFC Advisors, Scientific and Management Staff, and Commissioners, 6 were unanimously approved and 8 were either tabled or rejected. The approved Resolutions bear their original proposal numbers (1, 3, 9, 10, 12, 14). Publication of these Resolutions in PMFC's December 1 977 Newsletter constituted the first step toward implementation. The Newsletter mailing list of approximately 1,100 addressees includes Pacific State and Federal agencies and Congressional delegations (U.S. Senators and Representatives from the Pacific States), plus interested individuals and representatives of fisheries groups and organizations. As followup to this initial publication, PMFC's May 1 978 Newsletter reviewed early actions toward implementation of these Resolutions and of related Commission directives.

The following sections of this Annual Report provide the full texts of approved Resolutions, and a summary of important

implementing actions through the first seven months of 1978 (to July 31).

1. Urge Congressional and Federal Agency Use of the Eastland Fisheries Survey Report

WHEREAS, Senate Concurrent Resolution 1 1, introduced by Senator James O. Eastland in 1973, states "That it is the policy of the Congress that our fishing industry be afforded all support necessary to have it strengthened, and all steps be taken to provide adequate protection for our coastal fisheries against excessive foreign fishing"; and

WHEREAS, Resolution 11 was the beginning of a "grass roots" effort to gather information for the Congress to fulfill that policy; and

WHEREAS, the Eastland Fisheries Survey conducted by the interstate marine fisheries commissions did gather facts, ideas, and suggestions from all areas of the country; and

WHEREAS, these facts, ideas, and suggestions from local and regional hearings, and at the National Conference held in Washington, D. C, were provided in a document to the Congress;

NOW BE IT THEREFORE RESOLVED, that Congress and the appropriate federal agencies be urged to carefully review the document entitled "A Report to the Congress — Eastland Fisheries Survey" to the end that survey findings and recommendations be immediately used as guidelines to implement federal fisheries legislation.

Adopted unanimously by the five Compact States: Alaska, California, Idaho, Oregon and Washington

Action

In addition to giving their unanimous approval to Resolution 1, PMFC Commissioners directed that three related actions be undertaken by its Secretariat:

- determination of PMFC Advisors' priorities for immediate action from among the items identified in the Eastland Fisheries Survey;
- investigation of tax credit incentives for commercial fisheries development;
- evaluation of NMFS and other proposals for assisting the U.S. fishing industry to more fully utilize fishery resources available under FCMA.

Because certain actions taken prior to the 1977 Annual Meeting have served the intent of Resolution 1 and the related directives, they are included in the present review.

MARINE FISHERIES ADVISORY COMMITTEE (MAFAC): PROGRESS REPORTS AND REVIEWS

MAFAC, the national advisory body on marine fisheries to NOAA, has taken an active interest in review and evaluation of the National Plan for Marine Fisheries, and since late 1976, has extended the same interest to the Eastland Fisheries Survey (EFS). At four meetings in 1977-78, MAFAC reviews were as follows:

FEBRUARY 9, 1977. PMFC's Executive Director invited

to review survey methods, organization of National Conference (Nov. 29-Dec. 2, 1976), and major conclusions of EFS. Major review and discussion session scheduled for next MAFAC meeting.

MAY 15, 1977. Pre-publication draft of EFS final report made available to MAFAC; executive officers of the three interstate marine fisheries commissions reviewed conclusions in some detail. MAFAC Subcommittee assigned task of evaluating EFS recommendations in relation to those of the National Plan for Marine Fisheries.

OCTOBER 5-6, 1977. MAFAC noted general concurrence of EFS and National Plan conclusions, and recommended consolidation and implementation by NMFS/NOAA where possible.

FEBRUARY 1, 1978. Joseph Slavin, Assistant Director, Office of Fisheries Development, NMFS, reported progress to date in implementing EFS recommendations. The executive officers of the three interstate marine fisheries commissions updated their earlier reports. PMFC's Executive Director reported in some detail on the results of a December-January survey of Pacific Coast priorities (cf. *Assessment of Pacific Coast Priorities for Implementation of EFS Recommendations*, p. 3; and Appendix 3).

MAFAC discussion focused particularly on the need for development of industry capacity to utilize fisheries newly available under FCMA. Terry Leitzell, NOAA's Assistant Administrator for Fisheries, noted that many converging studies have developed similar conclusions, and pledged his best efforts to secure constructive implementing action. He requested MAFAC assistance, and indicated possibilities for convening a subsequent discussion meeting to review funding priorities.

REPORTS TO THE CONGRESS AND FOLLOWUP ACTIONS WITH CONGRESSIONAL STAFF

APRIL 1 1977. *Summary of Pacific Area Input to the Eastland Fishery Survey* (published March 21, 1977; 107 p.) distributed to Congressional delegations of Pacific States, and to other governmental entities.

JUNE 1 1977. *Eastland Fisheries Survey — a Report to the Congress* (published May 1977; 91 p.) distributed to all Senators and Representatives and to other governmental entities.

AUGUST 29-30, 1977. Conference on implementation of the Eastland Fishery Survey by the three interstate marine fisheries commissions' executive officers with staff representatives of Senators James O. Eastland, Warren G. Magnuson and Harrison A. Williams (co-sponsors of the Eastland Resolution). Major areas selected for priority action were the EFS recommendations concerning institutional arrangements, particularly with respect to governmental reorganization, and those relating to fisheries development with special concern for underutilized resources. Fisheries development was accorded particular priority for three reasons: a) preferential access of U.S. fisheries to new resources

under the extended jurisdiction of the FCMA;

- b) probability of loss of this advantage by default to other nations if U.S. capabilities to utilize are not increased.
- c) numerous barriers to this expansion identified by EFS which could be removed by appropriate federal action.

SEPTEMBER 27, 1977. Senators Eastland, Magnuson and Williams addressed a joint letter to Commerce Secretary Juanita Kreps reviewing the factors generating the Eastland Fisheries Survey, referring the report to her attention, and seeking her participation toward the shared goal of saving commercial fishing and serving sport fishing. Secretary Kreps responded November 14, 1977, commending the Senators' efforts to establish a strong national policy that will benefit commercial fishing and sport fishing and the country as a whole. She advised that NOAA Administrator Richard Frank would work closely with the Senators in devising initiatives which should be undertaken by the Congress and the Administration. She noted that the views of MAFAC would be sought concerning these initiatives.

APRIL 12, 1978. The three interstate marine fisheries commission executive officers again discussed with Congressional staff members possibilities for implementation of Eastland Fisheries Survey recommendations in the 1978 session of Congress. It was the view of experienced observers that new legislation in 1978 was unlikely, considering other high priority issues before the Congress (e.g., Panama Canal treaty, labor issues, energy, inflation, and tax problems). However, fisheries revitalization legislation can be a high priority item for the 96th Congress in 1979 and 1980, and bills before the 95th Congress can provide the forum for useful preparatory hearings. (Relevant bills include several by Congressman Les AuCoin of Oregon, a legislative draft prepared for Congressman Edwin B. Forsythe of New Jersey, and measures introduced by Senator Mark Hatfield of Oregon and Senator Lowell Weicher of Connecticut).

ASSESSMENT OF PACIFIC COAST PRIORITIES FOR IMPLEMENTATION OF EFS RECOMMENDATIONS

PMFC Commissioners, Advisors, and staff recognized that Eastland Fisheries Survey recommendations constitute only a listing of proposed changes, without relative weighing as to significance. Therefore the Commission directed that the views of Advisors and others interested be sought concerning Pacific Coast priorities for implementation.

In view of time and budget constraints, PMFC's Secretariat developed a questionnaire for assessing these priorities. The extensive EFS list of recommendations was consolidated into 41 areas of national significance. Recipients of the questionnaire were asked to evaluate each area on the bases of (A) the present effectiveness of federal activities; (B) the need for immediate and significant increases in federal efforts; and (C) the necessity for long-term federal support. Three hundred questionnaires were mailed in December 1977 to PMFC Advisors and those of the PMFC constituency who participated in or were deeply concerned about the EFS. For a detailed summation of responses received

from 104 Pacific Coast individuals and organizations, see Appendix 3, p. 55 of this Annual Report. Following is a summary of their major conclusions.

Respondents overwhelmingly agreed that the highest priority among the EFS recommendations should be given to conservation and enhancement of fish habitats and stocks. Other high priority areas among all respondents related to traditional areas of fisheries management, to the Fishery Conservation and Management Act and optimum yield, and to a variety of desirable support services. Recreational fisheries interests emphasized need for recognition of their special values and needs. Commercial fisheries respondents stressed the importance of rejuvenation of U.S. fisheries, with emphasis on development of underutilized fisheries. To the surprise of many observers, priority areas did *not* include those often assumed for special interest groups. Recreational users were far more concerned with habitat and stock enhancement than with special access or special information services. Commercial users emphasized need for a favorable climate for private investment, not development of massive federal loan and subsidy programs.

Priority recommendations, grouped by area of special interest, may be summarized as follows:

ALL FISHERIES INTERESTS - HIGHEST PRIORITIES

Traditional areas of concern in fisheries management, including:

- conservation and enhancement of fish habitats and stocks;
- abatement and control of destructive environmental contaminants;
- increased funding for fisheries research and management;
- expansion of information base for fisheries management.

Issues relating to the Fishery Conservation and Management Act of 1976, including:

- ecological relationships as primary concern in management, and modification of legislative framework where necessary (e.g., to conform marine mammal legislation to FCMA);
- priority importance of fish for food in both recreational and commercial uses;
- improved governmental organization to support regional management — Council effectiveness and Federal agency coordination;
- user involvement in evaluation of limited entry as a management tool.

Fisheries support services:

- improved marine weather forecasting;
- augmented funding to improve Coast Guard instrumentation;
- expanded port and harbor development;
- development of integrated compendia of governmental services to fisheries.

RECREATIONAL FISHERIES PRIORITIES (IN ADDITION TO THOSE SUPPORTED BY ALL):

- personal use for food;
- recreational experience;
- support of an important industry.

COMMERCIAL FISHERIES PRIORITIES (IN ADDITION TO THOSE SUPPORTED BY ALL): Regarding national policy:

- create an Office of Fishery Policy advisory to the Congress with strong industry representation;
- revise Marine Mammal Act to conform to ecological concept of FCMA;
- resolve Indian fishing problems;
- recognize biodegradable nature of fish wastes; therefore potential for enrichment rather than pollution.

Regarding fisheries development, particularly for underutilized species:

- improve economic climate for investment in shore-side as well as ship facilities — tax incentives, long-term loans and grants, tariff revisions, etc.;
- expand market development and consumer education with special emphasis on underutilized resources;
- with industry input, establish strong national quality standards for size, grade, portion, nomenclature of fish products and for mandatory inspection of domestic and foreign products;
- consolidation and revision where necessary of tax structures, safety insurance programs and requirements, etc., (presently fragmented and sometimes contradictory among government agencies).

3. Increase Annual Appropriations for Commercial Fisheries Research and Development Act

WHEREAS, the Commercial Fisheries Research and Development Act of 1964 (P.L. 88-309) which has been amended and extended to September 30, 1980, by P.L. 95-53 is a most successful and beneficial aid to commercial fisheries management at the State or local level; and

WHEREAS, Section 4 of the amended Act authorizes appropriation of Federal funds for the following three subsections or purposes —

4(a) to match State funds with Federal funds to increase commercial fisheries research;

4(b) to provide Federal funds to those States, in which there is a commercial fishery resource disaster;

4(c) to make Federal funds available to the States for developing new commercial fisheries; and

WHEREAS, Federal funds appropriated annually for the last 9 years for subsection 4(a) have been only \$3.8 million per year although \$5 million per year were authorized; and

WHEREAS, 18 States recently replied to a survey that they have a backlog of programs totalling \$7.6 million which they desire to have funded under subsection 4(a); and

WHEREAS, The 9 years of level funding of general research and development programs during a period of high inflation has reduced the effectiveness of subsection 4(a); and

WHEREAS, Federal funds for disaster aid under subsection 4(b) have only been appropriated in 6 of the 14 fiscal years (July 1, 1964, through September 30, 1978) of the Act's existence and no funds have been appropriated since 1974; and

WHEREAS, no Federal funds to help the States develop new commercial fisheries under subsection 4(c) have ever been appropriated; and

WHEREAS, National Standard 2 of the Fishery Conservation and Management Act of 1976 requires that "Conservation and management measures shall be based upon the best scientific information available";

NOW BE IT THEREFORE RESOLVED, that the Pacific Marine Fisheries Commission urges the Congress to appropriate supplemental funding for fiscal year 1978 for subsections 4(a), 4(b) and 4(c) of the Commercial Fisheries Research and Development Act to make the following total Federal funds available to the States:

4(a) general commercial fisheries research and development programs, \$6 million;

4(b) commercial fisheries resource disasters, \$3 million; and

4(c) development of new commercial fisheries, \$500,000; and

BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries Commission urges the Secretary of Commerce, the National Oceanic and Atmospheric Administration and the National Marine Fisheries Service, in compliance with the intent of Congress, to budget for fiscal years 1979 and 1980, for the Commercial Fisheries Research and Development Act, funds equal to the amounts authorized by P.L. 95-53.

Adopted unanimously by the five Compact States

Action

A series of actions in 1977 prior to the November Annual Meeting contributed significantly to the objectives of this Resolution, with followup activities continuing through the first six months of 1978.

CONGRESSIONAL AUTHORIZATION INCREASED: H.R. 6206 (P.L. 95-53)

In May 1977, Congress approved H.R. 6206, a bill doubling the authorization for the Commercial Fisheries Research and Development Act [authorizing \$10 million per year for general projects — Sec. 4(a); \$3 billion for disaster relief — Sec. 4(b); and \$500,000 for development of new projects — Sec. 4(c)]. President Carter signed this action into law June 22 as P.L. 95-53.

STATE FISHERIES DIRECTORS RESOLUTION FOR AUGMENTED FUNDING FOR FY 1978

On May 20, 1977, at a national meeting with NOAA/NMFS in Washington, DC, the State Directors for 31 coastal States and territories requested Congressional increases in authorized funding for this grant-in-aid program, and approved a resolution urging augmented appropriations for FY 1978 [to \$6 million for Sec. 4(a); \$3 million for Sec. 4(b); \$500,000 for Sec. 4(c)]. The Directors charged the three interstate marine fisheries commission executive officers with the task of attempting to implement that Resolution.

IMPLEMENTATION EFFORTS UNSUCCESSFUL IN 1977

Despite an all-out effort in personal contacts and letter campaigning, it was not possible to secure a budget augmentation by the House Appropriations Committee. This partially reflected the lateness of this effort after preliminary budget reviews had been completed. The Senate Appropriations Committee did add \$1.7 million to the Senate bill; however, House conferees did not accept this addition, and the proposed increase was lost in Conference Committee. Congressional supporters for these increases recommended an earlier and more extensively documented effort in 1978, to begin in February, well in advance of the House Appropriations hearing cycle.

EARLY 1978 CONTACTS WITH CONGRESSIONAL LEADERS AND NMFS/NOAA

In February, 1978, the interstate marine fisheries commission executive officers met with legislative assistants to Congressmen from coastal States on the House Appropriations Committee. State arguments for increased funding were presented, and arrangements made for testimony at Appropriations Subcommittee hearings. Because any increased appropriation will come late in the budget cycles of most States, some concern was expressed about the States' abilities to secure the necessary matching funds. Failure to match and thereby utilize new funding would be devastating to possibilities for future increases. For this reason, a conservative level of augmentation was requested — from \$3.8 million to \$5 million for general programs [Sec. 4(a)] and for the first-time-ever funding of \$500,000 for development of new programs [Sec. 4(c)].

In mid-February, written documentation of State arguments for funding was provided key Congressmen on the Appropriations Subcommittee. PMFC's letters emphasized the value of Commercial Fisheries Research and Development Act support for development of the data base required for effective fisheries management. Program attrition under eight years of level-funding was stressed, and examples of reductions in Pacific Coast operations were provided. Finally, projects eligible for new funding were described, with emphasis upon those supportive of FCMA and development of new fisheries. Appropriations Committee Congressmen from Pacific States were responsive to these arguments and helpful in securing their review in subsequent Subcommittee hearings. Particular assistance was provided by Representatives Yvonne Brathwaite Burke (California), Norman Dicks (Washington) and Robert Duncan (Oregon).

Concurrent with submission of this background information to Congressional leaders, PMFC provided NOAA Administrator Richard A. Frank with parallel data and arguments, requesting his concurrence with the need for budget augmentation for FY 1979, and for major planned increases for subsequent years. PMFC welcomed NOAA acknowledgement that a backlog of unfunded projects indeed exists, and that most proposed projects would contribute to management of fisheries under FCMA.

During routine budget testimony before the Appropriations Subcommittee in March, NOAA Administrator Richard A. Frank was asked by Congressman Joseph Early (Mass.) to discuss the reasons for the eight years of level-funding. Mr. Frank, assisted

by Robert Schoning, indicated strong support for projects funded under the Act, and explained level-funding in terms of other over-riding departmental priorities. In supplement to this oral questioning at the hearing, Representative Burke (California) arranged for a series of written questions (developed from PMFC materials) to be submitted for the hearing record. These addressed specific values of the program and problems of funding. NMFS/NOAA responses (in writing) were generally supportive of the need for funding increases.

HEARINGS OF THE APPROPRIATIONS SUBCOMMITTEE FOR STATE, JUSTICE, COMMERCE AND THE JUDICIARY, JOHN M. SLACK, CHAIRMAN, APRIL 11-12, 1978.

On April 11, 1978, Congressman Robert L. Leggett, Chairman of the House Subcommittee on Fisheries and Wildlife Conservation and the Environment, testified in support of fisheries budgets before the House Appropriations Subcommittee, and on behalf of his Subcommittee, included strong support for the budget augmentations proposed by the interstate marine fisheries commissions for the Commercial Fisheries Research and Development Act. On April 12, 1978, the Executive Directors of the three interstate marine fisheries commissions presented joint testimony on behalf of their 25 coastal States. A prepared statement was filed for the record, and each officer was allowed five minutes for further comments. PMFC's supplemental remarks stressed the need to develop capability to harvest, process, and market presently underutilized species in order to begin to exploit for U.S. benefit such potentially rich fisheries as hake and Alaskan pollock. Subcommittee Chairman John Slack was responsive and interested.

As supplement to this formal appearance before the Subcommittee, PMFC's Executive Director visited the offices of Pacific States' Representatives on the House Appropriations Committee and Fisheries and Wildlife Conservation and Environment Subcommittee of the Merchant Marine and Fisheries Committee. Copies of the prepared testimony were provided for future reference, and Congressional support requested. PMFC documents supporting augmented funding for the Commercial Fisheries Research and Development Act were thereby provided to the following Pacific States' Congressmen:

	<u>Fisheries and Wildlife Conservation and Environment Subcommittee</u>
California:	Robert L. Leggett — Chairman Glenn M. Anderson
Alaska:	Don Young
Oregon:	Les AuCoin
Washington:	Don Bonker Joel Pritchard
Hawaii:	Daniel K. Akaka
	<u>Appropriations Committee</u>
California:	Yvonne Brathwaite Burke Clair W. Burgener John J. McFall Edward R. Roybal
Oregon:	Robert Duncan
Washington:	Norman D. Dicks

PARALLEL ACTIONS SEEKING SENATE SUPPORT

In April, 1978, the three interstate marine fisheries commission executive officers provided Senator Warren G. Magnuson's Senate Appropriations Committee with copies of testimony and supportive documents developed for the House Subcommittee PMFC particularly sought the support of Pacific Coast Senators for favorable action by the Appropriations Committee. Members of the Senate Appropriations and Commerce Committees concerned with this matter are:

Alaska:	Ted Stevens (Appropriations, Commerce)
Hawaii:	Daniel K. Inouye (Appropriations, Commerce)
Oregon:	Mark Hatfield (Appropriations) Robert Packwood (Commerce)
Washington:	Warren G. Magnuson (Appropriations, Commerce)

CONGRESSIONAL APPROVAL!

Chairman John Slack's House Appropriations Subcommittee endorsed the arguments for increased funding as advanced by the interstate marine fisheries commissions and approved a budget increase of \$1.2 million for Commercial Fisheries Research and Development Act programs for FY 1979. This 30% increase would increase federal funds available to the Pacific States by more than \$250,000: approximately \$73,000 each to Alaska and California which are maximum-sharing States, \$52,000 to Washington, \$39,000 to Oregon, and \$19,000 to Idaho. On June 24, 1978, the House of Representatives approved this augmentation as a part of the Department of Commerce budget.

In parallel action, the Senate Appropriations Subcommittee approved an increase of \$1.7 million, \$500,000 more than was approved in the House (the addition is for development of new fisheries under Sec. 4(c) of the Act). It is assumed that this addition will receive Senate approval. The lesser amount (\$1.2 million) included in both bills would then be essentially assured, assuming the President's signature of the bill as a whole. The \$500,000 Senate increase would depend upon Conference Committee decisions. While a favorable outcome is not fully assured as this report goes to press, it appears that after many years of effort the level-funding pattern which began in 1970 has been broken at last, and our States can look forward to significant augmentations in the years ahead. Ultimate goal should be full-funding to the authorized limit of \$10 million.

9. Manage Marine Mammals for Conservation, Development and Utilization of Fishery Resources

WHEREAS, the Marine Mammal Protection Act of 1972 as presently written, and as has been interpreted by the court, presents great difficulty and concern to the United States fisheries; and

WHEREAS, the policy and principle upon which the Act is based appear to be in conflict with the sound policies of resource management and maintenance of the health and stability of the marine ecosystem which was recognized by Congress in the enactment of the Fishery Conservation and Management Act of 1976; and

WHEREAS, the Pacific Marine Fisheries Commission, sees

the possibility of growing conflict between marine mammals, fishery stocks, and man, with the ecosystem; and

WHEREAS, a sound, comprehensive resource management program must exist which gives equal and balanced consideration to all components of the ecosystem including fishery resources, marine mammal populations, and the socio-economic factors affecting this system; and

WHEREAS, the increasing food requirements of the human population necessitate an enhanced use of the ocean as a source of protein for man, and, thus, substantiate the need to manage the entire ecosystem in a rational and efficient manner;

NOW BE IT THEREFORE RESOLVED, that the Pacific Marine Fisheries Commission reaffirms its resolutions of 1975 and 1976 and urges Congress to amend the Marine Mammal Protection Act to bring the objective of the Act within the framework of the concept of conservation, development and utilization of fishery resources, and facilitate return to the States of marine mammal management within the limits of state jurisdiction.

Adopted unanimously by the five Compact States

Action (summary combined with that for Resolution 10)

10. Seal and Sea Lion Impact on Salmon and Steelhead in Inland Waters

WHEREAS, under the moratorium imposed by the Marine Mammal Protection Act, seal and sea lion numbers have increased in some rivers, bays and estuaries of the Pacific Coast and the Act makes it illegal to control or harass these animals; and

WHEREAS, salmon and steelhead that have been injured or killed by seals and sea lions which are appearing in increasing numbers in commercial and recreational fisheries; and

WHEREAS, the monetary value of salmon has risen sharply in recent years, resulting in a more serious economic impact on commercial fishermen when losses to seals and sea lions occur; and

WHEREAS, studies are needed to document the impact of the increasing numbers of marine mammals on Pacific Coast fisheries; and

WHEREAS, financing of these needed studies is an appropriate federal obligation;

NOW BE IT THEREFORE RESOLVED, that the Pacific Marine Fisheries Commission requests that the necessary authority and sufficient funds be provided by the National Oceanic and Atmospheric Administration to PMFC for contract with appropriate state agencies for studies on inland salmon and steelhead waters to determine:

- 1. the impact of seals and sea lions on commercial and recreational fisheries, including destruction of fishing gear;*
- 2. food habitats of seals and sea lions in inland waters;*
- 3. methods of controlling depredation;*
- 4. modifications needed in the Marine Mammal Protection Act.*

Adopted unanimously by the five Compact States

Action

MARINE MAMMAL/FISHERY INTERACTION WORKSHOP

PMFC's Executive Director was an invited participant in the Marine Mammal/Fishery Interaction Workshop, December 19-20, 1977, in Seattle, Washington. At this scientific and technical workshop, marine mammal-fisheries interactions were reviewed on a region-by-region basis, and severity of impacts was assessed. Current research programs were reported, and needs for further studies were outlined. A final report from this workshop will be available for distribution to participants soon.

As a part of his contribution to that workshop, Executive Director Harville distributed copies of PMFC's two 1977 Resolutions concerning marine mammals, along with copies of related 1976 and 1975 Resolutions, and other backup materials. He emphasized concerns among fisheries scientists and user groups for the serious inconsistencies between the total protection concepts of the Marine Mammal Protection Act of 1972 and the optimum yield objectives of the Fishery Conservation and Management Act of 1976. He cited relevant recommendations from the Eastland Fisheries Survey. He also stressed the commitment of State fisheries agencies to undertake research required to evaluate quantitatively the impact of seals and sea lions on anadromous fisheries.

REGIONAL REVIEW OF MARINE MAMMAL PROBLEMS

On two occasions, PMFC's Executive Director was able to review the problems of marine mammal-fisheries interactions with important regional audiences. On January 6, 1978 he was invited speaker before the Portland City Club, which is considered an influential forum for discussion of public interest issues, and on May 6 he had a similar assignment before an Izaak Walton League regional conference. As a part of a review of marine fisheries management under extended jurisdiction, Harville identified a series of problems which must be resolved to facilitate that management. With respect to marine mammal-fisheries interactions, he asked:

“... can we somehow achieve a constructive accommodation between the humanitarian and emotionally surcharged drives which produced the Marine Mammal Protection Act, and the ecological realities which must be observed if we are to manage our fisheries constructively under the Fishery Conservation and Management Act? The Marine Mammal Protection Act of 1972 was generated by widespread public outcry against the killing of porpoises in the tuna fishery, the slaughter of baby seals for their pelts, and the tragic overkill of the great whales by international whaling fleets. Unfortunately, the legislation resulting from this outcry was itself an example of overkill, involving unrealistic goals and definitions and incredibly cumbersome and expensive bureaucratic processes. Further, the Act applies equally to all marine mammals, including harbor seals and sea lions which are in no way depleted or endangered, but rather are effective competitors with human fishermen for salmon and other prized food fishes. Can we develop the public wisdom and the political courage to rationalize this legislation, still maintaining its desirable humanitarian aspects, still protecting fully our endangered

and depleted marine mammals, but at the same time permitting sensible management of marine mammals which are integral parts of our fisheries ecosystems? Under the present total incompatibility of the Marine Mammal Protection Act and the Fishery Conservation and Management Act, we are seeking to manage our fisheries to produce optimum benefits to our people, but are precluded from controls upon competing marine mammals, which along with man, are top-level predators within the ecosystem."

REFERRAL OF PMFC RESOLUTIONS TO CONGRESS, NMFS, AND THE MARINE MAMMAL COMMISSION

In March, 1978, PMFC's Executive Director forwarded copies of 1977 Resolutions 9 and 10, along with cover letters requesting implementing action, to the Chairman and the Executive Director of the Marine Mammal Commission and to Richard A. Frank, Administrator of NOAA. Copies of 1976 and 1975 Resolutions also were provided to demonstrate the long-sustained concerns of the Pacific Marine Fisheries Commission. The cover letters emphasized the need to revise marine mammal protection legislation to conform with the ecosystem concept inherent in the FCMA and thereby with operational capabilities for conservation, development and utilization of marine resources. The letters illustrated the gravity of this non-conformance in federal legislation, whereby under the total protection afforded them by the Marine Mammal Protection Act, sea lion and harbor seal populations have so expanded, and the individual animals have become so fearless, that their competitive and destructive interference with both commercial and recreational fisheries has become a matter of major concern.

In early April similar letters and copies of relevant Resolutions were sent to the Senators and Congressmen from the States of Alaska, California, Idaho, Oregon, Washington and Hawaii; also to all members of the House Subcommittee on Fisheries and Wildlife Conservation and the Environment and the Senate Committee on Commerce, Science, and Transportation. The letters to Senators and Congressmen noted the relevance of considering the need to conform provisions of the Marine Mammal Protection Act to those of the Fishery Conservation and Management Act at this time when both Houses of Congress are conducting oversight hearings on FCMA. The letters called for action as follows:

"We respectfully request your assistance in bringing the Marine Mammal Protection Act into reasonable consonance with the Fisheries Conservation and Management Act of 1976. Our states have no quarrel with the basic conservation and humanitarian objectives which underlie both the Marine Mammal Protection Act and the Endangered Species Act, particularly in terms of affording special protection to truly depleted and endangered species. We do object to the extension of these otherwise laudable goals to encompass total protection of all marine mammals, thereby removing them operationally from rational management under the ecosystem concept which is embodied under the FCMA."

In response to PMFC's statements of concern, Chairman John M. Murphy of the House Committee on Merchant Marine and Fisheries advised that the Subcommittee on Fisheries and

Wildlife Conservation and the Environment would hold oversight hearings on FCMA in late April, and that he was instructing Committee staff to include PMFC's letter and attachments in the record of that hearing. Subcommittee Chairman Robert L. Leggett also extended an invitation for further testimony. Senator Warren G. Magnuson also expressed interest in the problems identified by PMFC's resolutions and supportive letter, and invited Executive Director Harville to submit further testimony at an FCMA oversight hearing scheduled by the Senate Committee on Commerce, Science, and Transportation for June 5 in Seattle, Washington.

Harville accepted these invitations to testify on fisheries management under FCMA where he emphasized the increasing severity of marine mammal impacts on Northwest fish and fishermen, and cited PMFC's Resolutions calling for increased research on marine mammal/fisheries interactions, and for conformance of the Marine Mammal Protection Act of 1972 to the ecological principles embodied in the Fisheries Conservation and Management Act of 1976. He also referenced PMFC's earlier Resolutions as demonstrations of continuing concern for these problems. Following are excerpts from that testimony:

"Our Pacific coast fisheries constituency is solidly united in the conviction that marine mammals should be subject to the same conservation and management principles which apply to other elements of the marine ecosystem. Instead, under the provisions of the Marine Mammal Protection Act of 1972, all marine mammals, regardless of their population * size or impacts upon the ecosystem, are blanketed under the total protection of a moratorium on taking or even harassment . . .

"For four successive years, the Pacific Marine Fisheries Commission has unanimously approved resolutions calling for major revisions in the Marine Mammal Protection Act of 1972 to bring it into conformance with realistic principles of marine ecosystem management. PMFC's 1974 resolution emphasized the severe economic impact of marine mammal destruction of commercial fishing gear and predation upon desirable fish species, and recommended that the Endangered Species Act of 1973 be substituted for the Marine Mammal Protection Act to protect only those marine mammal species truly needing special protection.

"PMFC's 1975 resolution stressed the unrealistic restrictions placed upon responsible management of the nation's living marine resources by certain of the definitions set forward in the Marine Mammal Protection Act, and emphasized the cumbersome procedures whereby States are permitted to participate in management of marine mammals. The resolution urged that such terms as 'depletion', 'moratorium', and 'take' be redefined so that State and Federal agencies can consider all animals in the marine ecosystem when managing the ocean's fisheries resources'; also that the Marine Mammal Protection Act be amended so that the goal of reducing mammal mortality incidental to commercial fishing be defined in more practical and realistic terms. PMFC's 1976 resolution reaffirmed its recommendations of the previous year concerning amendment of the Act to redefine terms and definitions in a manner that would permit

an ecosystem approach to marine mammal management, and at the same time return management responsibilities to the States where requested as quickly as possible. The resolution further urged that the Act be revised to encourage the States and other competent research entities to conduct biologic, ecologic, and economic studies to evaluate the impacts of the Act upon the ecosystems affected, and upon the conservation and utilization of the total resources of those ecosystems."

Harville then outlined the intent and substance of PMFC's most recent resolutions, emphasizing the need for quantitative assessment of the impact of marine mammal competition on commercial and recreational fisheries. He urged Congressional action as follows:

"as an ecologist . . . I totally agree with the concerns expressed by our States and by our fisheries constituency through PMFC's resolutions of the past four years. I believe that in the very near future the Congress should review the areas of extensive inconsistency, overlap, and confusion brought about in our attempt to implement simultaneously the Marine Mammal Protection Act of 1972, the Endangered Species Act of 1973, and the Fishery Conservation and Management Act of 1976. I believe the Marine Mammal Protection Act of 1972 either should be superceded entirely by the Endangered Species Act, or should be fundamentally restructured to parallel the Endangered Species Act in concept and be consistent with it and with the Fishery Conservation and Management Act of 1976.

"My reasons for this recommendation reflect both ecological and practical considerations. The Endangered Species Act and the Fishery Conservation and Management Act are rational and cost-effective" in three critical areas wherein the Marine Mammal Protection Act is seriously flawed.

"First, the Endangered Species Act applies special protective measures only to those species and stocks which, on the basis of best available scientific information, are designated either *endangered* or *threatened*. Therefore expensive protective "measures are undertaken only where there is consensus concerning need. By contrast, the Marine Mammal Protection Act places *all* marine mammals under moratorium — which means no 'taking', a term defined to include even harassment! Exceptions from this blanket total-protection mandate may be allowed only on the basis of cumbersome, time-consuming, and expensive processing of permit applications.

"Second, the FCMA provides for management of marine resources in accordance with the ecosystem concept, and establishes important new National Standards which truly rationalize the management process'. Three of those Standards are truly innovative, calling for optimum yield (rather than maximum yield), management of each stock as a unit throughout its range, and promotion of economic efficiency. For any fishery significantly impinged by marine mammal predation or competition, these Standards inevitably will be infringed by the limitations of the Marine Mammal

Protection Act. One cannot truly optimize yield if a dominant predator within the ecosystem is beyond management control (e.g., by blanket protection under the marine mammal moratorium). If the only relief from this total restriction is via the complex permit system required under the Marine Mammal Protection Act, these expensive processes place a heavy cost overburden on the entire process.

"Third, both the Endangered Species Act and the FCMA provide for effective, easily administered interactions between Federal and State management agencies in the cooperative pursuit of shared objectives. By contrast, the Marine Mammal Act preempted State jurisdictions entirely, and provided for return of controls to the States only via extremely cumbersome and costly processes ' "

To illustrate the severity of marine mammal impact on Northwest fisheries, Harville cited problems of Oregon State University's Netarts Bay chum salmon hatchery which serves not only as an experimental station for the University, but also as source of supply for chum salmon eggs for Oregon private hatcheries. Future operations of this hatchery are jeopardized by a rapidly growing herd of harbor seals which have more than tripled in numbers since they became totally protected by the Marine Mammal Act of 1972, and now have the capacity to take from half to two-thirds of the adult salmon that return to Netarts Bay to spawn. Harville closed his call for action as follows:

"Mr. Chairman, this kind of problem is the rule rather than the exception in the Pacific Northwest, where commercial and recreational salmon fishing operations are increasingly hampered by rapidly growing populations of harbor seals and sea lions. These animals have never been in an endangered or threatened condition, yet they are accorded the kind of total protection that would be provided only for endangered species under the Endangered Species Act. We believe the time is right for a careful review of this entire legislative complex, and its revision to make it rational and operational in accordance with the concept of total ecosystem management."

RESPONSE FROM NMFS/NOAA

On April 26, 1978, NOAA's Assistant Administrator for Fisheries, Terry Leitzell, responded as follows to PMFC's marine mammal resolution calling for augmented research on marine mammal/fisheries interactions:

" . . . Since the passage of the Marine Mammal Protection Act of 1972, the reported frequency of conflicts between various U.S. fisheries and stocks of marine mammals has been increasing. It is not clear, however, . . . (whether) the reported increased frequency is due to increased stock size or to the reduced harassment in riverine and estuarine waters which might lead to an increased in-migration from adjacent noncommercially-fished regions. To date, only limited and preliminary investigations of fishery and marine mammal relationships have been conducted. The Department of Commerce has requested five additional positions and \$683,000 in the fiscal year 1979 budget which has been submitted to Congress to begin a detailed investigation of the interrelationships on the Pacific coast, including

Hawaii. These interrelationships and the resulting conflicts were recently the subject of a special workshop held on December 20 and 21, 1977, in Seattle, Washington. Based on the conclusions of that workshop and general information which has been compiled since the passage of the Marine Mammal Protection Act in 1972, we will utilize any funds appropriated to begin studying the most critical of these problems.

"At the present time, we cannot detail the exact manpower and funds to be applied to each problem area, however, we will fund programs to accelerate work on the Bering Sea ecosystem model which will be the first biological model to estimate the consumption of food fish by marine mammals, to document the nature of conflicts in commercially important fisheries along the west coast, such as the salmon fisheries in the Northwest and to establish the population levels of marine mammals along the west coast. Initial efforts will be focused on determining population levels in order to determine optimum sustainable population levels of marine mammals as required by the Marine Mammal Protection Act. In addition, we expect to enter into agreements with the west coast States to develop State management programs which would allow the individual States to resume management of marine mammals in waters under U.S. jurisdiction."

12. Establish Priority Water Usage and Protect Habitat for Fish

WHEREAS, salmon and other anadromous fish are a valuable and renewable resource, contributing significantly to our country's recreational and commercial fishing, and are pre-eminent for sporting qualities and food; and

WHEREAS, anadromous fish are hatched in the gravel of unpolluted free flowing streams, swim to the ocean and return to their native streams to spawn; because of these events these fish are critically dependent on habitats with very special characteristics; and

WHEREAS, man in the development and growth of the Pacific Coast has paid little heed to the environmental Quality and the uniqueness and irreplaceability of these anadromous fish resources; he has destroyed much of the spawning and rearing habitat through construction of dams on spawning streams, logging activities, construction of roads alongside spawning streams, pumping or diverting of water for irrigation, municipal and industrial uses from spawning streams, and pollution of spawning streams; and therefore anadromous fish resources have become seriously threatened; and

WHEREAS, increased human population of the Pacific Coast and the recent drought have demonstrated that water is a scarce resource that may make allocation of that resource necessary; and

WHEREAS, the quantity, quality, and flow of water in Pacific Coast rivers and streams are critical to the spawning, rearing and migrating capabilities of anadromous fish; and

WHEREAS, many stocks of anadromous fish, and in particular salmon, have declined in direct proportion to the loss and

degradation of spawning and rearing habitat;

NOW BE IT THEREFORE RESOLVED, that the Pacific Marine Fisheries Commission memorializes the Legislatures and the appropriate state agencies of its member States, as well as the Congress and the appropriate federal agencies, to recognize that protection of the inland environment of anadromous fish is essential to a viable fishing industry on those species, and that anadromous fish are important for aesthetics and recreation, as well as for food and jobs; and

BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries Commission memorializes the Legislatures and appropriate state agencies and the Congress and appropriate federal agencies to protect the habitats of anadromous fish, assign water usage by fish as a top priority, and to allocate that water necessary for creating and maintaining optimum spawning, rearing and migrating conditions for anadromous fish.

Adopted unanimously by the five Compact States

Action: (summary combined with Resolution 14)

14. Conduct Fishery Enhancement Research

WHEREAS, the term "enhancement" includes, among other things, production of fish by artificial means, maintenance and improvement of natural habitats, and management of sport and commercial fisheries; and

WHEREAS, salmon and steelhead enhancement programs have been undertaken in Pacific Coastal States and Canada; and

WHEREAS, improperly planned and implemented enhancement programs may adversely affect the carrying capacity of fresh- and marine-water areas and reduce the ability of natural stocks to survive in these environments; and

WHEREAS, there is a lack of quantitative information on the inter- and intra-species relationships between naturally and artificially produced anadromous fish and their food supply in the freshwater and marine environments;

NOW BE IT THEREFORE RESOLVED, that PMFC member States conducting or considering programs of salmon and steelhead enhancement establish policy which includes research necessary to minimize any adverse effects of such enhancement on naturally and artificially produced stocks including interaction with other aquatic organisms and their habitats, while at the same time maximizing the benefits from monies invested in enhancement.

Adopted unanimously by the five Compact States

Action

Resolutions 12 and 14 address problems primarily within the freshwater and estuarine sectors of anadromous fish habitats; therefore implementation rests principally with the States which control those internal waters. These Resolutions were referred to the States via PMFC's November 1977 Newsletter.

Also, because the Pacific Fishery Management Council's Comprehensive Salmon Management Plan will include recommendations for habitat protection and enhanced production in inland waters, these Resolutions were referred to the Council's Management Plan Development Team with the recommendation

that they be incorporated into objectives for that Plan. Since they are consistent with overall objectives of the Plan, this inclusion can be anticipated, and should materially support their implementation.

Special Directives to the Executive Director

Acting on recommendations by PMFC Chairman John R. Donaldson (Oregon), PMFC Commissioners issued special instructions to Executive Director Harville to take the following actions on major issues addressed at the 1977 Annual Meeting. PMFC's staff, with assistance from PMFC's Advisors, was directed to review the Eastland Fisheries Survey Final Report to determine Pacific Coast priorities for federal action to revitalize U.S. commercial and recreational fisheries. In addition, PMFC's staff was directed to analyze possibilities for securing tax credits or other financial incentives to assist the commercial fishing industry to help itself. Finally, PMFC's staff was directed to study NMFS proposals for increasing the capabilities of U.S. commercial fisheries. As outgrowths of the Eastland Fisheries Survey, these three special directives relate to 1977 Resolution 1 and are served by actions supporting that Resolution and Pacific Coast priorities for its implementation (cf. p. 16).

NMFS Industry-Government Program

The PMFC staff was instructed to investigate the details of a proposed NMFS industry-government program to develop U.S. fisheries. This program was outlined for the Commission in a slide presentation by Joseph W. Slavin, NMFS Assistant Director for Fisheries Development. Pointing out the avenues of potential growth for the U.S. fishing industries opened up by the Fishery Conservation and Management Act of 1976, Slavin called for "a national program aimed at helping industry to realize the full potential of our fisheries within a reasonable length of time." The program would include information and training to help industry diversify and grow, financial incentives to reduce private sector risks and encourage expansion of U.S. fisheries, and methods by which the industry could work together to solve its problems. The primary objective of the proposed program said-Slavin, "would be a vital, self-sufficient, United States fishing industry." *

National Marine Recreational Fishery Statistics Survey

The proposed NMFS survey as outlined by David G. Deuel of the NMFS Washington, DC. staff will take place on a regional basis. The Pacific Coast Region will be subdivided into three sub-regions: Oregon-Washington, Northern California, and Southern California (with the division line just north of Santa Barbara). Alaska and Hawaii will be surveyed as separate regions. Data will be gathered through telephone surveys (to assess regional fishing effort) and on-site creel counts (to determine such catch characteristics as species and size, and to estimate catch per unit effort). According to the NMFS survey proposal, each State will have the option of conducting its own on-site creel count. If the State does not wish to accept this responsibility, the creel count will be carried out by private contractor. Deuel indicated that the estimated first-year cost of this survey is \$1.2 million, about \$300,000 more than funds currently budgeted.

PMFC Commissioners endorsed in principle a proposed NMFS plan for collecting improved marine recreational fishing statistics. The Executive Director was directed to seek augmented funding for this program. The Commissioners also instructed the Executive Director to work directly with Coast Guard and NMFS officials on the Pacific Coast to alleviate fishermen concern for certain boarding problems. PMFC actions on these two special directives are outlined below.

SUPPORT FOR FULL FUNDING

In accordance with PMFC instructions, in December 1977 Executive Director Harville advised NMFS of the strong PMFC support for this project, advising that "the Commission unanimously endorsed the concept and intent of the proposed NMFS marine recreational fisheries statistics survey, and directed that I direct first priority attention to promoting its effective implementation . . . (also) that on behalf of the Pacific Marine Fisheries Commission, I push for adequate funding of that project in 1978 and 1979." On January 23, 1978, David H. Wallace, then Acting Assistant Administrator for Fisheries for NOAA, responded affirmatively: ". . . Be assured, I agree with your recognition of the importance of . . . improved recreational fishery statistics. You have my commitment, consistent with our resources, that the project will be fully funded."

FACILITATION OF STATE PARTICIPATION

To assist the coastal States to review the proposed survey design and assess their interests in participating in the creel census portion of that program, Executive Director Harville held separate day-long meetings with interested fishery agency staff members in Washington (December 1, 1977), Oregon (December 6, 1977), and California (December 14, 1977). On the basis of these discussions, a number of suggestions for project design improvement were relayed to NMFS/Washington, D.C., and most became incorporated in revised guidelines. Each State's staff was asked to develop a proposal for participation, outlining areas in which existing state statistics were presumed to be adequate, other areas requiring new effort, and indicating approximate levels of federal funding required.

On February 27-28, 1978, representatives from the States of California, Oregon, and Washington, NMFS, and PMFC, plus an observer from Alaska, met in Portland to review the status of the NMFS survey proposal and discuss State implementation of the creel census. The States agreed that the statistical sampling levels proposed by NMFS for the creel census would be inadequate to meet State fisheries management needs. Further discussion indicated that a creel census which would satisfy those needs would cost approximately \$360,000 — almost double the cost that NMFS had estimated in its survey proposal (\$184,000).

As a basis for further negotiation, the States were asked to prepare more detailed plans and cost estimates for (1) an optimal creel census which would be designed to provide data needed by NMFS and statistics beneficial to the State in the management of its fisheries resources; and (2) a contingency creel census which would fall within the statistical and fiscal parameters of the NMFS survey proposal, but probably would not be entirely satisfactory to meet the States' needs. At a special

luncheon meeting on coastwide data matters scheduled in conjunction with the State Fisheries Directors meeting in Washington, DC. April 6, 1978, PMFC's Executive Committee further discussed options for the States' participation in the national marine recreational fishery statistics survey. Final determinations appear to depend upon levels of funding available and upon reconciliation of survey requirements with existing State Data collection capabilities.

SURVEY POSTPONED FOR PACIFIC REGION

By May 1 1978 it became apparent that national survey costs would overrun estimates by some \$700,000. Accordingly, because existing Pacific Coast data are more extensive than for other regions, and because the States were not in agreement concerning participation in the survey, a decision was made to defer the Pacific Coast survey until 1979. PMFC, the States, and NMFS will continue to explore ways to cooperate in this endeavor.

U.S. Coast Guard Policies and Procedures for Boardings at Sea

One of the most hotly debated topics at the 1977 Annual Meeting stemmed from a proposed resolution (introduced by the Pacific Coast Federation of Fishermen's Associations) decrying the manner in which the Coast Guard had conducted boardings while enforcing regulations in the new U.S. Fishery Conservation Zone during the 1977 salmon fishing season. Despite extensive rewriting by PMFC's Advisors, the Commissioners were concerned that the Resolution could be construed as undue criticism of past Coast Guard actions. Therefore they tabled the resolution, and instead directed the Executive Director to work with regional Coast Guard and NMFS leaders to improve the dialog between the Coast Guard and the fishermen on a port-by-port basis, and to help establish a program to advise fishermen of Coast Guard and NMFS boarding and inspection responsibilities and procedures.

On November 23, 1977, Executive Director Harville wrote Vice Admiral A. C. Wagner, Coast Guard Commander of the Pacific Area, outlining the history of this directive and suggesting ways of resolving the difficulties faced by both fishermen* and Coast Guard personnel. Executive Director Harville proposed

"... on a long-term basis and toward these objectives of communication and education, improving the dialog between fishermen and the Coast Guard and creating a program informing fishermen of boarding procedures, I should be pleased to meet with appropriate members of your staff to look into appropriate ways and means. I would think that a combination of PMFC and NMFS regional communication mechanisms, plus Sea Grant Advisory services on a more local basis, might be effective resources to help disseminate information to the fishermen. These resources also could be helpful in promoting local contacts between Coast Guard personnel and fishermen, where I think many problems could be forestalled through face-to-face discussion of areas of concern. Please be assured of our interest in providing any useful supplement to the efforts I know already are underway by the Coast Guard. "

Harville also suggested that the Oregon Department of Fish and Wildlife's annual series of port meetings with fishermen "could provide an excellent opportunity for Coast Guard representatives to provide an overview of inspection and boarding procedures, to receive comments and questions from fishermen and otherwise to move us forward effectively in this communication effort."

In an immediate reply, VADM Wagner wrote:

"... in carrying out our law enforcement duties it has always been the intention of the Coast Guard to interfere as little as possible with commercial fishing operations. This is evidenced by our boarding record during the 1977 season. Of the 120 boardings conducted 48 were for cause and resulted in a violation report being issued."

He also indicated general concurrence with the views of fishermen:

"... that the ocean troll salmon industry is best regulated through the use of landing laws and time-area closures. In this way the need for at-sea boardings will be reduced with resulting decreasing inconvenience to the fisherman. Your support for the adoption of such regulations would be welcomed."

VADM Wagner concurred with the Executive Director's proposal to use PMFC, NMFS, and Sea Grant Advisory Services as means of disseminating information to fishermen, and he requested that Harville work with Coast Guard staff toward that purpose.

In April 1978, USCG Captain Arne Soreng provided PMFC with the document, *Coast Guard Maritime Law Enforcement and Coast Guard Boardings at Sea* (reproduced herein as Appendix 4). The Captain's letter of transmittal notes that this informational leaflet also has been provided to the Pacific Council and to fishermen's organizations represented by Advisors to the Council; also that it is being made available at Town Hall meetings concerning FCMA salmon regulations and their enforcement. Captain Soreng welcomed inclusion of this document in PMFC's Newsletter, and urged its widest possible dissemination to fishermen and others interested.

Committee Reports on PMFC Activities

PMFC, a creation of the Pacific Coast States since 1947 with the approval of the U.S. Congress, has been responsible for encouraging and facilitating regional fisheries research and management. Some of PMFC's responsibilities for coordinating fisheries management were transferred in 1976 to the Regional Fishery Management Councils, who were authorized by the Fishery Conservation and Management Act to plan for the management of the United States' fisheries seaward of the States. However, PMFC still continues to coordinate the management of those fisheries (1) which are unaffected by the FCMA or (2) over which the Councils have not exercised jurisdiction.

The FCMA did not radically alter the complexion of PMFC's activities. By conferring to PMFC membership in the Pacific and North Pacific Fishery Management Councils, the FCMA recognized the strong role of PMFC as the regional advocate of States' interests. PMFC's position as an effective intermediary between

the States and the Federal Government was strengthened by the FCMA; in addition, PMFC now finds itself acting as a "go-between" for the States in their interactions with the Councils. The FCMA even indirectly created a new function for PMFC, that of providing support to the Councils in the development of their fishery management plans.

PMFC's research, management and support activities are carried out by its small secretariat (headquartered in Portland, Oregon) and its vast Scientific and Management Staff (composed of the fisheries managers and scientists of its member States). As the following reports show, the members of PMFC's Secretariat and Scientific and Management Staff are deeply involved in the preparation of the Pacific and North Pacific Councils' management plans. These reports also point out that the research initiated and fostered by PMFC over the past 30 years is now providing the foundations on which these Councils are building their fishery plans.

Coastwide Data File Task Force

Task Force Chairman Charles W. Woelke (Washington Department of Fisheries) reported the following. The Task Force is made up of technical representatives from PMFC's member States and the Northwest and Southwest regional offices of NMFS. An observer from Canada also attends the Task Force meetings. The Task Force's main goal is to develop and implement a detailed program whereby each PMFC State would produce computer files of data on commercial landings, vessel information, and recreational and ceremonial catches of fish and shellfish over the past three years. These files would have a common format and would be available from a single source.

During the past year, the Task Force recommended the establishment of two regional files —, in Alaska and California — to eliminate the roadblocks presented by state confidentiality laws. This recommendation was adopted by the Executive Committee. The States have identified their implementation costs and funds have been provided by NMFS for the necessary programming and data preparation. The next step is the allocation of these funds so that the programming can be carried out. Before the regional files are produced, the States will submit test tapes to check data compatibility and to resolve final technical details. The final step will be the establishment of the regional files from the data provided by the States. «

The Pacific and North Pacific Fishery Management Councils will have access to the regional files for the development of their fishery management plans. Therefore, the Scientific and Statistical Committees of both Councils have been kept informed of the activities of the Task Force.

Albacore Committee

Committee Chairman Larry Hreha (Oregon Department of Fish and Wildlife) reported that PMFC has administered funds from Sea Grant (1972 through 1975) and NMFS (1976 and 1977) to enable Washington, Oregon, and California to increase albacore data collection to a level considered adequate to initiate stock assessment studies. The level of sampling has increased several fold and needs to be maintained at the present level in order to adequately monitor this important fishery. The 1977

sampling efforts of the three States resulted in the measurement of 28,712 albacore and information being collected about more than 525 fishing trips made by over 440 boats in the albacore fishery. These trips totalled 7,620 days of fishing effort.

During the year, the Albacore Committee held two meetings. At the June meeting a report on a productive 2-week workshop, involving NMFS and Japanese albacore scientists, was presented. The workshop resulted in exchanges of data, agreements to publish data annually (data used by the NMFS scientists were generated by the sampling program), recommendations for resolving data problems, and priorities for various scientific investigations. The workshop participants will meet again in June 1978. At its November meeting, the Committee reviewed the 1977 season and did some preliminary planning for the 1978 season. A written "Review of the 1977 Pacific Coast Albacore Fishery" was distributed and summarized verbally at PMFC's Annual Meeting. The Review has been updated and included in Appendix 2 of this report.

Ad Hoc Dungeness Crab Management Review Team

Team Chairman Jack G. Robinson (Oregon Department of Fish and Wildlife) reported as follows. Between 1973 and 1977, Washington, Oregon, California, the National Marine Fisheries Service, and the Pacific Marine Fisheries Commission were involved in a cooperative State-Federal Dungeness Crab Management Project. The primary objective of the project, administered by PMFC, was to seek ways to manage the Dungeness crab fisheries on a biological basis, to enhance benefits from the resource, and to promote an orderly coastwide fishery.

In April 1976 the Dungeness Crab Subcouncil of the State-Federal Fisheries Management Program authorized an extension of the project through December 1976. One element of the extension was preparation of background information for management planning in light of Public Law 94-265. To complete this phase, Washington, Oregon, California and NMFS each appointed a representative to an Ad Hoc Dungeness Crab Management Review Team which was directed to inventory, evaluate, and compile available management information on Dungeness crabs, identify data needed to develop a comprehensive management plan based on the requirements of H.R. 200 (P. L. 94-265), and recommend ways to obtain additional required data.

The Review Team was appointed in June 1976. Members were Jack G. Robinson, Oregon Department of Fish and Wildlife (ODFW), Chairman; Melvyn W. Odemar, California Department of Fish and Game (CDFG); Ronald E. Westley, Washington Department of Fisheries (WDF); and Dr. Jack A. Richards, National Marine Fisheries Service (NMFS). First, the Team listed realistic alternative management techniques and reviewed available information needed for each alternative, with respect to the requirements of P.L. 94-265. Eight management techniques were listed by the Review Team: size limits, closed seasons, sex limitations, crab condition, area limitations, catch limit or quota, limits on harvest method, and limited access. Each of these techniques needed 6 or more of a total of 23 types of information. All of these information types must be considered under P.L. 94-265 when a Pacific Council fishery management plan is drafted for Dungeness crab. The Team's final report to

PMFC in April 1977 was submitted to the State-Federal Fisheries Management Program's Pacific Fisheries Directors in May 1977 by PMFC's Executive Director. The report lists each information type, summarizes knowledge (including pertinent publications) for each type, assesses the adequacy of information and recommends ways to obtain additional data required for a management plan.

The Review Team concluded that available information generally is adequate to meet requirements of P.L. 94-265. Determinations of maximum sustainable yield and optimum yield could be problem areas, if stock assessments are essential for such determinations. In the Team's view, however, direct stock assessment was not a high priority for good management of the Pacific Coast Dungeness crab fishery. Stock assessment, including abundance and mortality rate may be required to determine allowable foreign allocation. Available information is inadequate for that task and would need to be augmented by new research. Precise assessment of optimum yield would require considerably improved socio-economic information.

Major areas of weakness in the biological base were catch per unit effort, stock assessment, mortality rates, and causes of cyclic fluctuations in crab abundance. These data are weak or lacking on a coastwide basis. Major gaps in the socio-economic base are: economic information on alternative fishing, and non-fishing employment opportunities, including both human and capital resources. Costs and earnings data for the industry were judged inadequate. Marketing information and the contribution of the crab fishery to the net earnings of fishermen and social structure of coastal communities were also inadequate.

The Review Team's report, a summary of data compiled under the State-Federal project, and a report on early phases of the project will be available to the Pacific Fisheries Management Council through PMFC. (See "1977 PUBLICATIONS," p. 32.) These documents may substantially aid the Council in development of a Dungeness crab management plan.

In 1977 the Pacific Council appointed a Management Plan Development Team for the Dungeness crab fishery. This Team is composed of Darrell Demory, ODFW, chairman; Ronald Westley, WDF; Melvyn Odemar,* CDFG; and Ed Ueber, NMFS (Tiburon). Odemar and Westley were members of the Ad Hoc Dungeness Crab Management Review Team. The Development Team is presently working on the plan, scheduled to be implemented in October 1979.

Following the report on the Review Team's actions, a written "Review of the 1976-77 Pacific Coast Dungeness Crab Fishery" was distributed and summarized verbally. See Appendix 2 of this report for the updated Review.

Groundfish

Pacific Council's Groundfish Management Plan: In April 1977, the Groundfish Team (many of whose members are on the U.S. Section of the Technical Subcommittee of the International Groundfish Committee) began to work on a proposal for the development of a plan. The proposal was submitted to the Pacific Fishery Management Council in June and accepted. The goal is to develop a comprehensive plan with options for the

utilization of the groundfish resources of the California-Oregon-Washington region.

Principal gears used in the groundfish fishery include trawls, lines (commercial and recreational), pots, and setnets. All economically important groundfish species will be considered. However, because groundfish form complex associations which are influenced by seasonal migration, ocean conditions, food habits, bottom type, and depth, the associated fisheries, especially trawl, are also highly complex and are not directed toward one species to the total exclusion of others. The complexities are influenced by area, fish, availability, gear, and season. Any management units (specific fish stocks or groups of fish) developed will vary in their discreteness because few species can be harvested individually. One of the major tasks facing the Council in the plan development is the determination of the appropriate management units, meaning species/time/area/gear, taking into consideration interaction between management units.

The first complete draft of the plan is scheduled for submission by December 30, 1978 to the Council, its Advisory Panel, and its Scientific and Statistical Committee. Final regulations should be promulgated by the Secretary of Commerce by November 1979. Mark Pedersen (Washington Department of Fisheries) presented the above report.

North Pacific Council's Gulf of Alaska Groundfish Management Plan: The following is condensed from the report presented by Philip W. Rigby (Alaska Department of Fish and Game). During the latter part of 1976, a federal-state drafting team was organized to develop a Gulf of Alaska Groundfish Management Plan. The National Marine Fisheries Service was designated as the lead agency; the Alaska Department of Fish and Game, the Alaska Commercial Fisheries Entry Commission, the University of Washington, the International Pacific Halibut Commission, and the Council's Advisory Panel were represented on the team. The purpose of the plan is to manage the groundfish fishery in the Gulf of Alaska for optimum yield (as defined by the Fishery Conservation and Management Act of 1976) and to allocate the harvest between domestic and foreign fishermen. The plan, in its present form, serves not only as a management plan, but also as a useful reference document on the Gulf of Alaska groundfish fisheries. (The plan includes a comprehensive history of the fishery, biological parameters of the stocks, socio-economic characteristics of the fishery, and an environmental impact statement.)

Regarding allocations of harvest to domestic and foreign fisheries, the Council was presented several options by the drafting team. These ranged from allowing no allocations during the year (to compensate for differences between the estimated and actual domestic harvests) to, the final choice of the Council, reserving 30% of the optimum yield and thereby accommodating a conservative appraisal of the estimated domestic annual harvest while allowing for expansion of the U.S. fishery. By mid-year 1978, this 30% will be divided between foreign and domestic fleets depending on the performance of the U.S. fishery to that time.

The team also presented the Council with a set of options for the plan's management objectives. The priority of these

objectives (which dictate management philosophy) was especially important as it determined whether protection of Pacific halibut or rapid development of U.S. fishery for other groundfishes would take precedence. Because of uncertainties surrounding the obvious potential conflicts between protecting halibut and rapidly expanding the U.S. groundfishery, the drafting team felt these two objectives were incompatible and it, therefore, provided the Council with alternatives. The Council's final choice was between the two extremes: protection of halibut was assigned high priority, and significant restrictions were placed on the domestic and foreign fisheries for other groundfish. Although these restrictions will have an impact on the developing domestic fishery, its growth will be encouraged by innovative steps in the plan. (*Editor's note: In March 1978, this plan became the first fishery plan developed by the North Pacific Fishery Management Council to receive the Secretary of Commerce's approval.*)

U. S. Section of Technical Subcommittee of the International Groundfish Committee: Mark Pedersen (Washington Department of Fisheries) reported the following for the U.S. Section of the Subcommittee. Through PMFC, which acts as a conduit for data, the groundfish staffs of its member States exchange data to satisfy interstate, national, and international needs. Compatible data systems are essential for coastwide management of groundfish resources: During 1977, California and Oregon completed development of their trawl fishery data retrieval systems which are compatible with Washington and Canadian systems. Alaska's system, now in the planning stage, will develop at the same time as its trawl fisheries.

Age composition data are vital to interstate, national, and international management of groundfish. As the U.S. Section of the Technical Subcommittee of the International Groundfish Committee (IGF), groundfish scientists from PMFC's member States recommended to the U.S. representative on the IGF that present capabilities for conducting age research be increased. PMFC partially supports a fishery technician located in the age reading section of the Washington Department of Fisheries Laboratory in Seattle. This section's services and expertise are also utilized by Oregon and Alaska.

The research of the U.S. Section of the Technical Subcommittee in 1977 was concentrated on rockfish species (including Pacific ocean perch), sablefish, and Pacific hake. Studies were conducted to determine the factors affecting the availability of rockfish to sampling gears (e.g., notations were made of the species caught during day and night tows). Preliminary studies on age determination criteria and trawl mesh size were completed for various rockfish species. A comprehensive rockfish assessment cruise from California to Washington was undertaken in conjunction with NMFS.

In 1977, the latest status report on Pacific ocean perch stocks off Oregon, Washington, S.W. Vancouver Island, and in Queen Charlotte Sound was published. In addition, an updated report on trawl catch of shelf rockfish by species by year was published. Resource surveys of Pacific hake and tagging studies on sablefish were summarized. Recommendations for controlling the Pacific ocean perch harvest and approving the concept of a coordinated rockfish survey during 1977, 1978, and 1979

were submitted by the Technical Subcommittee to IGF, its parent organization. These recommendations were endorsed by the groundfish scientists, from PMFC's member States, who are participants on the Subcommittee.

As part of its 1978 activities, the Technical Subcommittee will undertake documentation and improvement of the sablefish data base, including standardization of data collection procedures. The Subcommittee will also increase its emphasis of petrale sole studies. Assessments of stocks of rockfish, Pacific ocean perch, Pacific cod, and lingcod will continue in 1978. Workshops on age determination of groundfish and hydroacoustic techniques for stock assessment will be conducted by the Technical Subcommittee in 1978. A written "Review of the 1977 Pacific Coast Fisheries for Groundfish" was distributed and summarized verbally at PMFC's Annual Meeting (see Appendix 2 of this report for the updated Review).

Salmon

Pacific Council's Ocean Salmon Management Plan: Malcolm H. Zirges (Oregon Department of Fish and Wildlife) reported that due to the prior efforts of PMFC's Salmon-Steelhead Committee, the Pacific Fishery Management Council was able to develop and approve a "Fishery Management Plan for Commercial and Recreational Salmon Fisheries off the Coasts of Washington, Oregon, and California" for the 1977 fishing season. The Committee's work began in late 1975 when PMFC's Coordinating Council (later renamed the "Pacific Fisheries Directors"), anticipating the extension of U.S. fishery jurisdiction, instructed the Salmon-Steelhead Committee to develop a proposal for an "Operational Management System for the Commercial Troll Salmon Fisheries of California, Oregon, and Washington." Funded under the State-Federal Fisheries Management Program, the Committee's proposal included development of a coastwide salmon data system, computer simulation of the ocean salmon fishery, and a plan for a management scheme for the troll fishery. Following enactment of the Fishery Conservation and Management Act (the so-called "200 Mile Act"), the Committee's proposed management scheme formed the nucleus for the Pacific Councils Management Plan. [*Editor's note: Some members of the Salmon-Steelhead Committee also serve on the Council's Salmon Plan Development Team.*]

Due to time and data constraints, the 1977 plan specifically addressed the area north of Tillamook Head, Oregon. The plan's proposed regulations, which were adopted by the Secretary of Commerce, deviated from the state regulations previously governing the commercial troll fishery. Although it is uncertain at this time if the regulations met the plan's management objectives, the ocean salmon fishery was significantly affected by the distribution of catch and the modification of patterns of fishing effort which resulted from the 1977 regulations.

In 1978, the Pacific Council is attempting to reduce the problems encountered in implementing the 1977 plan. The Council is expanding the 1977 plan's data base as a means of moving closer to the promulgation of a comprehensive salmon plan which will cover the ocean, coastal, and inland salmon fisheries. PMFC has assumed a major role in the development of a comprehensive plan by obtaining funding to assist the States

in collecting information, by coordinating studies needed for obtaining specific data, and by compiling background reference documents.

During the annual PMFC meeting written reports were distributed and verbal summaries were given on "Review of the 1977 Pacific Coast Troll Salmon Fishery" and "Review of the 1976 Salmon and Steelhead Sport Catches in the Pacific Coast States." See Appendix 2 of this report for updated Reviews.

Pacific Council's Comprehensive Salmon Management Plan: Russell G. Porter (PMFC) reported on Background Documents and Review of Limited Entry Alternatives. During 1977, background reference documents were written by Pacific Coast state and federal fisheries scientists and managers for use in the preparation of the Pacific Council's 1979 Comprehensive Salmon Management Plan ("A Management Plan for Anadromous Salmonid Resources of California, Oregon, Washington, and Idaho"). The 32 documents were organized under the categories of "Catch and Escapement," "Environmental Factors," "Fishery Harvest Programs," "Public Hatchery Programs," "Private Ocean Ranching," "Marketing," "Mammals," "Food Webs," and "Miscellaneous." PMFC wrote the paper on Columbia River environmental factors and assumed the responsibilities of coordinating the writing of all the documents and assembling these papers for the Pacific Council.

Information contained in the reference documents was summarized by PMFC for use by the Council's Salmon Plan Development Team. At the request of the Team, PMFC wrote the "Ecological Relationships" and "Identification of Habitats of Particular Concern: Spawning Grounds" sections for the Council's 1978 Preliminary Salmon Management Plan. PMFC also prepared a summary of escapement goals and recent escapement trends from the background reference documents; this summary appears in an appendix to the 1978 Preliminary Plan.

At the request of the Council, a review of limited entry alternatives for the commercial salmon fishery is being undertaken by PMFC. The review will aid the Council in its consideration of limited entry as a management tool for the Comprehensive Salmon Management Plan. Past and present limited entry programs and theoretical alternatives to limited entry will be discussed and summarized. In addition, members of the fishing industry have been solicited for their comments on limited entry and proposals for limited entry programs.

In compiling the reference documents and reviewing limited entry alternatives, the PMFC staff have spent a great amount of time working with government and industry members of the Council's committees and subpanels. To ensure that the reference documents and review are of the greatest benefit to the Council, PMFC staff have been attending the monthly meetings of the Council as well as sessions of the Council's Scientific and Statistical Committee, Salmon Plan Development Team, Salmon Advisory Subpanel, and the Subpanels Habitat and Limited Entry Committees. Attendance at these meetings has also assisted PMFC in formulating plans for the updating of the reference documents in 1978.

North Pacific Council's Commercial Troll (Salmon) Fisheries

Management Plan: The following is a condensation of a report by Gary K. Gunstrom (Alaska Department of Fish and Game). The "Draft Plan for the Commercial Troll Fisheries Off The Coast of Alaska" was developed by a multi-agency team composed of representatives from the Alaska Department of Fish and Game (lead agency), the Alaska Commercial Fisheries Limited Entry Commission, the National Marine Fisheries Service, and an observer from the Pacific Fishery Management Council. The team was appointed by the North Pacific Council at its February 1 1977 meeting and instructed to develop a management plan for the offshore ocean salmon fishery in Council waters in accordance with the Fishery Conservation and Management Act of 1976 (Public Law 94-265).

The plan is designed to promote conservation of the ocean fisheries resource while allowing proper utilization of its stocks for food production. Target species are Chinook and coho salmon. The North Pacific ocean salmon troll fishery is conducted from the U.S.-Canada boundary (Dixon Entrance) to Middleton Island in the Gulf of Alaska. The troll fishery is the only domestic fishery on salmon in the offshore Fishery Conservation Zone (3- to 200-mile zone). Foreign troll effort is Canadian; it is regulated by a 1977 Reciprocal Fisheries Agreement. The mobility of the fleet, mixture of stocks, and migratory nature of the salmon, make the management of this fishery complex.

A major concern of management in this fishery is the addition of significant numbers of hatchery fish to waters hosting native Chinook stocks. The problem will be to avoid creating a dependency on hatchery fish to the detriment of the wild fish. The most immediate concern in the Alaska troll fishery will be the effect of the fishing effort on chinook. Of the total catch of chinook, only 15 percent is taken in the Fishery Conservation Zone. For this area, two management options are proposed as preferable to the status quo; both options restrict troll fishing north and west of Cape Spencer (the Fairweather Grounds). (Editor's Note: In accordance with recommendations of its Scientific and Statistical Committee and Advisory Panel, the North Pacific Fishery Management Council rejected both proposed actions at its December 1977 meeting. Because of certain technical problems with plan content and organization, the Council withdrew the management plan at its February 1978 meeting, and directed that it be redrafted for resubmission and review later in 1978.)

Management objectives of this plan include: minimizing the fluctuations in stocks due to harvest in order to maintain the reproductive potential of wild stocks; integrating the management of ocean stocks with those of other fisheries; preventing overcapitalization; and reducing the impact on the catch which results from natural fluctuations in fish populations. These objectives may be achieved by maximizing the sustained yield of chinook and coho and increasing the poundage yield to the fishery by reducing the take of salmon having significant remaining growth potential.

Regional Mark Processing Center: Grahame King reported that for many years the Regional Mark Processing Center collated and published data on Pacific Coast releases and recoveries of fin-marked and micro-tagged salmon. To improve the operation of the Center and interagency communications on sampling and

tagging methods, the position of Coordinator was created and King was hired in May 1977. PMFC obtained funds for this position from the Pacific Northwest Regional Commission. In September, with the approval of its Salmon-Steelhead and Executive Committees, PMFC took over the supervision of the Center from the Oregon Department of Fish and Wildlife. In October, funds for the Center's Fiscal Year 1978 budget of \$42,000 were secured from the National Marine Fisheries Service. Since May 1977, the Center has made progress on several fronts, especially interagency communications on sampling and tagging methodology, the establishment of a modern data retrieval system, and publication of annual data reports. These areas represent the three broad functions of the Center: data collection data processing, and data publication.

Data Collection — In the past, the Center has not been involved in improving the compatibility of tagging and sampling data; consequently, this area offers the greatest possibilities for advancements. From November 30 through December 2, PMFC sponsored a workshop in Monterey, California, to initiate standardized methods for salmon tagging and sampling. (There was a general feeling among the participants that the agenda covered many topics which had long been in need of discussion.) The methods developed at the workshop will be documented in a publication which is intended to provide a forum for ongoing communications on techniques and standards; thus a progression toward compatibility of data on a coastwide basis is ensured. This publication will be updated whenever necessary.

Data Processing — The Center's staff has been working toward setting up a more efficient data retrieval system. To achieve this goal, an agreement was made with the Oregon Department of Fish and Wildlife that permits the Center to use the Department's recently-acquired "minicomputer. Access to this computer will allow easy editing of data and should contribute to more accurate and more timely data reporting. Eventually, data on the lengths of individual fish will be included in the Center's data base. This biological data will enable the Center to easily generate detailed reports on coastwide recoveries of hatchery groups of tagged salmon. At present, these reports can be produced "only, with a staggering amount of effort. However, the Center's first priority is to get the present system running smoothly. Participants at the Monterey Workshop agreed that a standard time period for the reporting of data could and should be adopted. This represents a major step towards the simplification of data processing and the production of more valuable reports. A critical step in the processing of mark and tag recovery data is the collection of detailed catch statistics which are used to estimate the number of marked and tagged salmon caught. The timely collection of these data is the major remaining obstacle to be overcome.

Data Reporting — For the annual mark recovery report, the Center has adopted a loose-leaf binding and a new layout which permits the publication of material on a piecemeal basis, rather than delaying printing until all contributors have submitted their data. Another significant alternation to the annual mark recovery report is the addition of articles on the methods used to derive the estimated number of tagged salmon in the catch. These

changes have been successfully implemented in the 1976 data report.

Shrimp

Review of the 1977 Pacific Coast Shrimp Fishery: Written copies and a verbal summary of this Review were presented at the annual PMFC meeting. See Appendix 2 of this report for the updated review.

Pacific Council's Pink Shrimp Management Plan: Richard F. G. Heimann (California Department of Fish and Game) reported on the plan. In August 1977, the Pacific Council directed that work be started on a management plan for pink shrimp. The Council had previously appointed a five-member plan development team and a three-member advisory subpanel. The team's first task is the preparation of a proposal which briefly describes the plan's objectives; and the tasks, timetable, and budget, required for the development of a plan. A first draft of this proposal has been written.

The draft proposal sets two objectives for the plan:

1. *Management of the shrimp stocks* by one or a combination of the following methods:

- a. Adjusting seasons for biological reasons (such as protecting gravid females or preventing the harvest of young shrimp)
- b. Managing effort by regulating the number of operating units, total fishing time or fishing season, or by establishing area licensing
- c. Managing catch by establishing catch quotas, by regulating mesh size and other fishing gear characteristics, or by temporarily closing areas when stocks are depressed.

The team is presently leaving all management options open, although the proposal is oriented more toward management by mesh size, seasons, and limitation of operating units than by the use of annual population assessments and quotas.

2. *Maximization of the economic yield* by:

- a. Harvesting shrimp at the optimum size (based on market value and demand)
- b. Controlling growth in the industry to prevent overcapitalization
- c. Eliminating unnecessary fishing restrictions.

In moving toward a plan which meets these two objectives, the team has established data collection and analyses tasks and is now in the process of compiling data; however, the team has yet to completely define these data tasks for the maximization of economic yield. The team is concerned about the growth in the size of the fishing fleet and the increase in the number of shrimp peeling machines: an overcapitalized fishery could lead to excessive pressure on the limited shrimp stocks as well as reduced earnings for the individual fisherman and processor. The first draft of the management plan will be presented to the Pacific Council in November 1978. The timetable calls for the management plan to be in effect by January 1, 1980.

ADMINISTRATIVE SUPPORT

Publications in 1977

The 1977 *Mark List* was published in March. It contains a record of all groups of salmon, and some groups of steelhead (primarily from the Columbia River systems), which had been marked by excision of one or more fins before they were released to migrate to the ocean and are still at large. It also lists those groups of juvenile fish which were scheduled for marking and releasing in 1977.

A *Summary of Pacific Area Input to the Eastland Fisheries Survey* was published in March. This was followed by publication of *A Report to the Congress, Eastland Fisheries Survey* by the Atlantic States Marine Fisheries Commission, Gulf States Marine Fisheries Commission and Pacific Marine Fisheries Commission in May.

Final Report for Sea Grant: A Coordinated Pacific Coast Albacore Research Program was published in April.

Report on the Proposal for Extension of Dungeness Crab State/Federal Fisheries Management Plan Development for the California, Oregon, and Washington Dungeness Crab Fishery: Part III. Preparation of background information for management planning based on the requirements of P.L. 94-265 was distributed in April. *Dungeness Crab Biological and Economic Data Collected by the State Federal Dungeness Crab Fishery Management Program 1974-1977* was distributed in 3-ring notebook form in September. Revised and supplementary pages, containing 1976 data, for the Crab and Shrimp Section of the PMFC Data Series were distributed in October.

The *29th Annual Report of the Pacific Marine Fisheries Commission for the Year 1976* was published in May. *PMFC Newsletters #27 and #28* were published in October and December, respectively.

Reference Documents Prepared as Input to a Comprehensive Fishery Management Plan for Pacific Coast Chinook and Coho Salmon was distributed in October. Subsequently, this compilation in 3-ring notebook form was revised and distributed in June 1978 with a revised title: *Reference Documents Prepared for the Comprehensive Salmon Management Plan of the Pacific Fishery Management Council*. A preliminary distribution of *A Comparative Analysis of Alternatives for Limiting Access to Ocean Recreational Salmon Fishing* was made in December; final publication was in April 1978.

1978 Annual Meeting

The North Shore Motor Hotel and Convention Center in Coeur d'Alene, Idaho will be the site of the 1978 annual meeting October 17-19.

Personnel

The following served as Commissioners during 1977:

Alaska

Richard I. Eliason, Sitka
Charles A. Powell, Kodiak
Ronald O. Skoog, Juneau - Second Vice Chairman
(succeeded James W. Brooks in July)

California

Harold F. Cary, San Diego
E. Charles Fullerton, Sacramento - Third Vice Chairman
Vincent Thomas, San Pedro

Idaho

Joseph C. Greenley, Boise - First Vice Chairman
Steven J. Herrett) successors to
Twin Falls) Wynne Blake
Richard A. Schwarz) and H. Jack
Idaho Falls) Alvord in August

Oregon

John R. Donaldson, Portland - Chairman
Walter H. Lofgren, Portland Allan Kelly,
Portland

Washington

Harold E. Lokken, Seattle
John Martinis, Everett
Gordon Sandison, Olympia - Secretary (succeeded
Donald Moos in May)

Coordinators for 1977 were:

Alaska

Ed J. Huizer, Alaska Department of Fish and Game

California

Edward C. Greenhood, California Department of Fish
and Game

Idaho

Stacy Gebhards, Idaho Department of Fish and Game

Oregon

Charles J. Campbell, Oregon Department of Fish and
Wildlife

Washington

Cliff J. Millenbach, Washington Department of Game
Henry O. Wendler, Washington Department of Fisheries

The Coordinators act as intermediaries between PMFC and the fisheries agencies of its member States and between PMFC's Advisors and the heads of these state fisheries agencies.

Advisory Committee members during 1977 were:

Alaska

James Burris, Sitka
Jack B. Cotant, Ketchikan
Knut Johnson, Cordova
Bruce Lewis, Juneau
Andy Mathisen, Petersburg - Section Chairman
Charles H. Meacham, Juneau
Jack Phillips, Pelican

California

John P. Gilchrist, Sacramento John P. Mulligan,
Terminal Island Anthony V. Nizetich, Terminal Island
Oliver A. Schulz, San Francisco - Section Chairman L.
R. Budd Thomas, Fields Landing (succeeded Earl
Carpenter in October)

Roger Thomas, San Jose
Elizabeth Venrick, La Jolla

Idaho

W.H. Godfrey, Boise
Keith Stonebraker, Lewiston (succeeded John Hemingway in August) E.G. Thompson, Sandpoint Section Chairman

Oregon

Theodore T. Bugas, Astoria - Committee Deputy Chairman
Don Christenson, Newport - Committee and Section Chairman
Charles S. Collins, Roseburg
Bob Hudson, Charleston
John Marincovich, Astoria (succeeded Ross F. Lindstrom in September)
Phillip W. Schneider, Portland
Wayne Viuhkola, Astoria (succeeded Arthur Paquet in January)

Washington

Paul Anderson, Seattle (succeeded William G. Saletic in January) Les Clark, Chinook
Earl Engman, Tacoma - Section Chairman Edward Manary, Olympia (succeeded Jim Dart Jr. in January) Guy McMinds, Tahola (succeeded Michael E. Luft in January)
Jesse M. Orme, Seattle Ted Smits, Seattle (succeeded John N. Plancich in January)

Elections were held at the annual meeting to select the Commissions officers and its Advisory Committee's Steering Group for 1978. -

Officers for 1978 are:

Chairman -
Joseph C. Greenley, Director
Idaho Department of Fish and Game 1st
Vice Chairman -
Ronald O. Skoog, Commissioner
Alaska Department of Fish and Game
2nd Vice Chairman -
E. Charles Fullerton, Director
California Department of Fish and Game 3rd
Vice Chairman -
Gordon Sandison, Director
Washington Department of Fisheries
Secretary -
John R. Donaldson, Director
Oregon Department of Fish and Wildlife

The 1978 Steering Group is composed of:

Committee and Idaho Section Chairman - W. H. Godfrey
Committee Deputy Chairman - E. G. Thompson
Alaska Section Chairman - Andy Mathisen
California Section Chairman - John P. Gilchrist
Oregon Section Chairman - Don Christenson
Washington Section Chairman - Earl Engman

During 1977, the Secretariat was composed of:

John P. Harville - Executive Director
Gerald L. Fisher - Treasurer
Richard J. Goldsmith - Assistant to the Executive Director
Grahame King - Coordinator, Regional Mark Processing Center
Russell G. Porter - Staff Assistant
Lawrence D. Six - Staff Assistant (resigned March 31)
Robert J. Williams - Staff Assistant (resigned June 15)
Kathleen J. Scorgie - Administrative Assistant
Beverly A. Shinn - Secretary „

Assisting the staff part-time were:

Leon A. Verhoeven, Consultant and Editor
Mary Anne Lauby - Office Assistant

Appendix 1 — Financial and Audit Reports

1977 Financial Support

The Commission receives its financial support from legislative appropriations made in accordance with Article X of the interstate Compact (creating the Commission) in which the signatory States have agreed to make available annual funds for the support of the Commission as follows: eighty percent (80%) of the annual budget is shared equally by those member States having as a boundary the Pacific Ocean; and five percent (5%) of the annual budget is contributed by each other member State; the balance of the annual budget is shared by those member States, having as a boundary the Pacific Ocean, in proportion to the primary market value of the products of their commercial fisheries on the basis of the latest 5-year catch records.

TREASURER'S REPORT OF RECEIPTS AND DISBURSEMENTS November 1, 1976 to November 1, 1977

CASH BALANCE November 1, 1976 -
(November 1976 Treasurer's Report) \$171,408.01

RECEIPTS:

Contributions by Member States		
Alaska (FY 1978)	\$27,400.00	
California (FY 1978)	26,600.00	
Idaho (FY 1978)	5,300.00	
Oregon (FY 1978)	22,600.00	
Washington (FY 1978)	<u>24,100.00</u>	\$106,000.00
Other Receipts		
National Marine Fisheries		
Service	\$155,669.53	
Oregon Dept., Fish & Wildlife	2,898.00	
Washington Dept., Fisheries	52,708.16	
Pacific Northwest Regional		
Commission	9,400.00	
Miscellaneous	<u>2,646.14</u>	\$223,321.83
Interest on Saving Certificates		\$ 7,741.04

DISBURSEMENTS:

Annual Meeting, November 1976, Seattle		
Commissioners	\$1,798.77	
Advisory Committee	3,809.69	
Admin. & Research Staffs	3,087.48	
Tape Recording & Room Rental	<u>490.80</u>	\$ 9,186.74
Salaries & Wages		\$50,098.08
Retirement & Social Security		7,529.15

Medical Insurance	650.00
Travel Expenses, unclassified	2,031.95
Office Supplies & Maintenance	5,412.70
Telephone & Telegraph	3,567.79
Postage, Freight, Express	2,736.28
Rent, headquarters space	5,375.30
Printing & Publications	3,133.90
Bond & Accident Insurance	
Premiums	355.38
Library Supplies	116.95
Capital Outlay	508.27
Prepaid Insurance Premiums	1,980.98
Outside Auditing	2,500.00
Professional Services	646.80
Cooperative Research	
Otolith Reader Project	3,012.88

Other Disbursements 2,002.13

Subtotal State Funded
Expenditures \$100,845.23

External Contract Expenditures:

Councils Liaison	\$ 6,662.28
Eastland Resolution	48,067.57
Wash. Coastal & Puget Sound	
Sampling	47,321.46
Federal and Oregon Shares of	
Coho Season Evaluation	14,965.04
State-Federal Relations	
Contracts	10,309.95
Sea Grant Albacore Tuna	
Contract	1,998.63
Federal Share of Otolith	
Reader	9,038.61
NMFS Dungeness Crab	
Contracts	31,387.55
NMFS Coastwide Data System	2,109.23
NMFS Salmon Management	
Plan	63,120.47
NMFS Albacore Logbook &	
Port Sampling	24,170.46
PNRC Regional Mark	
Coordinator	11,290.57
Other	<u>2,577.61</u>

Subtotal External Contract
Expenditures \$273,019.43

Total Disbursements \$373,864.66

CASH BALANCE,

October 31, 1977	\$134,606.22	
	<u>\$508,470.88</u>	<u>\$508,470.88</u>

Audit Report

ADAMS, CAHALL & CO.
 Certified Public Accountants
 Portland, Oregon September
 15, 1977

The Board of Commissioners Pacific
 Marine Fisheries Commission 528
 S.W. Mill Street Portland, Oregon
 97201

Gentlemen:

We have examined the balance sheet of Pacific Marine Fisheries Commission as of June 30, 1977, and the related statements of revenues and expenditures, fund balances, and changes in cash position for the year then ended. Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the aforementioned financial statements present fairly the financial position of Pacific Marine Fisheries Commission at June 30, 1977, and the results of its operations and the changes in its cash position for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Yours truly,
 Adams, Cahall & Co.

Balance Sheet June 30, 1977

ASSETS

	General Fund	Property Fund
Cash		
Cash on hand and in savings	\$4,636.15	
Certificate of Deposit	130,000.00	
Receivables		
Due from Washington Dept., Fisheries		
Otolith Project	2,183.71	
Ocean Salmon Catches #734	5,369.66	
Due from National Oceanic and Atmospheric Administration — Contract #03-6- 208-35425	2,503.71	
Due from Pacific Fishery Management Council	1,788.16	
Office Furniture and Equipment		<u>\$8,288.92</u>
Total Assets	<u>\$146,481.39</u>	<u>\$8,288.92</u>

LIABILITIES

Bank Overdraft (Checking Account)	\$9,254.72	
Accrued Liabilities	4,161.75	
Unexpended Grant Funds		
National Oceanic and Atmospheric Administration —		
Contract #03-6-208-35390	16,598.73	
Contract #04-7-208-44012	463.85	
Contract #04-5-158-67	7,646.91	
Contract #03-6-208-35315	544.43	
Contract #03-6-208-35375	8,158.79	
Contract #03-6-208-35163	20,482.90	
Pacific Northwest Regional Commission	5,008.46	
Total Liabilities	<u>\$72,320.54</u>	<u>0</u>

FUND BALANCES

Unappropriated Surplus, June 30, 1977	74,160.85	
Investment in Fixed Assets, June 30, 1977		<u>\$8,288.92</u>
Total Liabilities and Fund Balances	<u>\$146,481.39</u>	<u>\$8,288.92</u>

Appendix 2 — Review Reports

Review of the 1977 Pacific Coast Albacore Fishery

North Pacific albacore make annual trans-Pacific migrations and are exploited by at least three major fisheries: the home-island (pole and line) and longline fisheries of Japan, and the coastal fishery of the United States. It is generally accepted that these fisheries exploit six or seven year classes whose far-ranging migration patterns are complex and little-understood. Estimates of the average total annual harvest of this stock approach 220 million pounds. The U.S. commercial catch of North Pacific albacore has averaged 44,963,000 pounds over the last 25 years (Table 1). The preliminary 1977 U.S. commercial catch was 20,775,000 pounds, a decrease of 51% from 1976 landings

TABLE 1. Albacore landings in California, Oregon and Washington (in thousands of pounds)

Year	California	Oregon	Washington	Total
1952	49,804	2,586	177	52,567
1953	33,836	776	89	34,701
1954	26,107	469	421	26,997
1955	29,002	503	233	29,738
1956	37,055	3,654	630	41,339
1957	43,525	2,702	433	46,660
1958	27,188	9,754	1,503	38,445
1959	32,740	10,582	2,961	46,283
1960	35,113	4,563	526	40,202
1961	29,123	3,251	456	32,830
1962	36,622	8,936	365	45,923
1963	48,860	11,413	527	60,800
1964	42,551	4,452	1,055	48,058
1965	23,218	12,122	2,048	37,388
1966	18,189	18,041	1,101	37,331
1967	17,858	29,243	1,240	48,341
1968	15,077	37,752	3,050	55,879
1969	14,722	29,828	3,561	48,111
1970	29,932	21,779	4,390	56,101
1971	36,117	8,420	5,250	49,787
1972	21,001	23,560	16,239	60,800
1973	8,641	16,350	14,446	39,437
1974	11,806	25,225	17,983	55,014
1975	15,413	17,166	16,297	48,876
1976	29,333	5,934	7,202	42,469
25-year average	28,513	12,362	4,087	44,963
1977*	12,000	4,425	4,350	20,775

* Preliminary

and 54% from the 25-year average (Figure 1). The prices paid to fishermen, which ranged from \$1,165 to \$1,195 per ton, were up substantially over those of last year.

Conditions Affecting the Fishery

It is the consensus of PMFC's Albacore Committee that the drastic reduction in the 1977 U.S. commercial catch of albacore was due to a combination of factors: (1) *Failure of a substantial number of albacore to make the normal migration to U.S. shores.* This failure was caused by environmental conditions in the Western and Central Pacific. Supporting this conclusion were the excellent catches made this summer by two scout boats fishing northwest of Midway Island, an area where albacore are not normally found. (2) *Late arrival of migrants to the West Coast.* Their arrival was several weeks later than usual. (3) *Dispersion of fish over large areas of normally productive waters.* This scattering was caused by the very weak development of thermal fronts, especially in the Pacific Northwest. (4) *Concentration of large numbers of boats in areas of good fishing.* This quickly forced the albacore away from the surface and they would not bite. (5) *Reduction of effort, because of low fishing success.* (6) *Loss of fishing time.* Bad weather off California hampered the fleet during much of the season.

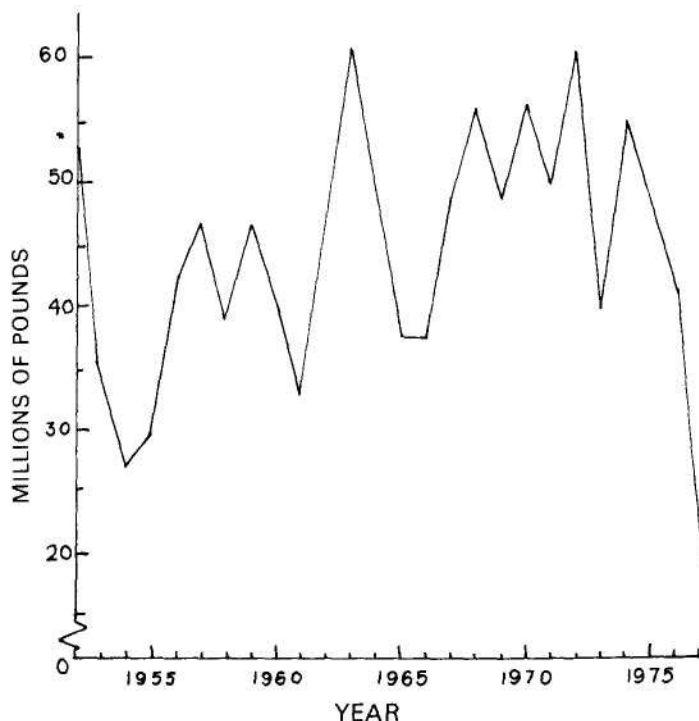


FIGURE 1. Combined annual landings of albacore in California, Oregon and Washington, 1952-1977.

California

The California landings for 1977 were estimated at 1.2 million pounds, far below the 25-year average of 28.5 million pounds. However the high price per ton somewhat compensated for a poor season. The 1977 albacore season, like that of 1976, developed slowly in late June with the appearance of fish around Guadalupe Island and shoreward toward San Martin Island. In June, average catches ranged from 20 to 40 fish/day/boat, with albacore ranging in length from 49 to 85 cm (19 to 33 inches) and in weight from 5 to 25 pounds. Two sizes predominated: one at 65 cm (26 inches) and the other at 76 cm (30 inches). A few boats caught over 100 fish/day.

By July, fishing centered between Guadalupe Island and the area from Geronimo Island to Cape Colnett. Jig boats averaged 30 to 100 fish/day and bait boats fishing south of the jig fleet reported catches on a few days as high as 5 tons. By mid-July, the fleet was spread from Baja California to Fort Bragg and was fishing offshore as far as 300 miles. The fish rarely schooled and were scattered extensively; these phenomena were typical for the entire season. In early July, sport boats out of San Diego averaged up to 1 albacore/angler while fishing 60 to 80 miles south of Pt. Loma; late in the month, this average peaked at 3 fish/angler. On high days, up to 3,700 fish were

landed by the San Diego sport fleet. Some jig boats that were fishing the Cape Colnett area moved up to join the sport boats while others had fair catches working the 213 Spot and the 60 Mile Bank. Meanwhile, catches of up to 50 fish/day/boat were made off Fort Bragg and outside of Jackson Seamount. During the last of July, boats in central California waters were blown into port.

By early August fishing was scattered from Guadalupe Island northward along the California coast. A large part of the fleet moved into productive areas off Oregon, although fair catches averaging 50 fish/day/boat were made at San Juan Seamount, the 1908 Fathom Spot, off Morro Bay, and at Davidson, Guide, and Pioneer Seamounts.

At mid-August, catches of up to 130 fish/day/boat were being made off of Davidson Seamount where over 100 boats were reported fishing. Fish averaged 12 pounds. Fishing off of Baja California continued to produce sporadic catches of 10 to 50 fish/day/boat between San Martin and Todos Santos Islands; however, most boats moved to central California after fishing these southern waters or the waters off of Oregon. San Diego sport boats occasionally had days averaging about 3 fish/angler. Sport boats from Long Beach, Oxnard, and Ventura had small catches, fishing Tanner and Cherry Banks. The 1908 Fathom Spot and its surrounding area produced a fair sport catch which was landed at Morro Bay. August ended with high catches of up to 390 fish/day/boat west of Pigeon Point; fish averaged 1.2 pounds. Boats fishing 40 to 80 miles west of Crescent City caught daily up to 100 large fish which averaged 18 pounds. During this period good catches, ranging from 150 to 300 fish/day/boat, were also made off of Fort Bragg.

Weather hampered fishing in early September, although good catches of 30 to 200 fish/day/boat were made by the fleet fishing between Davidson Seamount and west of Guide Seamount, off Monterey and Fort Bragg, and within 100 miles offshore of the area between Fort Bragg and Eureka. The fish caught between Fort Bragg and Monterey averaged 11 to 13 pounds. Baja California became unproductive except for a few high catches by bait boats landing large fish averaging 23 pounds. As the month progressed, the San Diego sport fishery declined completely.

During September, boats off of Fort Bragg averaged about 1 ton of albacore for every 3 to 5 days of fishing; this was an average of 56 fish/day. Surface water temperatures off Fort Bragg ranged from 60 to 65 degrees Fahrenheit. The month ended with the heaviest catches being made 70 to 100 miles offshore of the area between Santa Cruz and Pigeon Point; however, fishing in this area was slowed by rough weather.

October fishing was widespread from Crescent City to off the San Diego Dumping Grounds. Large fish, averaging 17 to 20 pounds, were caught along the Mendocino Ridge; large fish were also reported off of the San Diego Dumping Grounds. As the month progressed, the fleet concentrated off the Monterey area, but rough seas reduced fishing effort. By month's end, many boats had left the fishery.

During November and December, a few jig boats continued fishing southwest of Cortez Bank and off Baja California. Boats

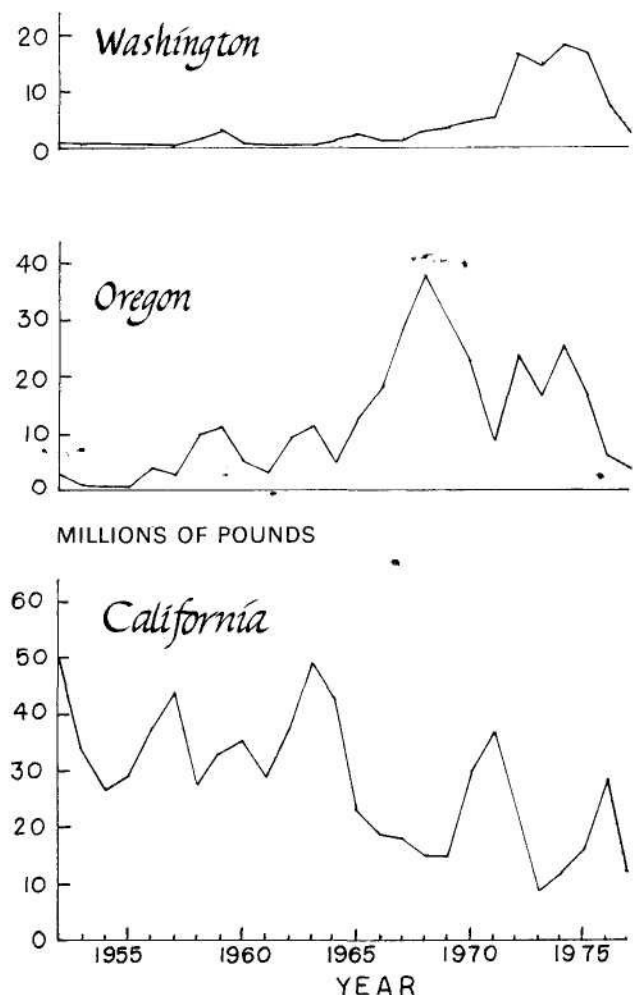


FIGURE 2. Annual albacore landings by State, 1952-1977.

averaged 10 to 15 fish /day. By the end of December, all fishing was concentrated northwest of Guadalupe Island by a small fleet of jig boats operating out of San Diego.

Oregon

The total season landings of 4,424,256 pounds were the lowest since 1961 and were only 36% of the 25-year average. On the annual pre-season scouting cruise, the Oregon Department of Fish and Wildlife's chartered fishing vessel *NEW DAWN* during the cruise period July 5 through 13. However, catches of up to 200/fish/day/boat were reported near Jackson Seamount during the third week of July. By the end of the month, fishing was scattered along the entire Oregon coast and north to Grays Harbor, Washington. Catches averaged in the range of from 30 to 150 fish/day/boat, and a few catches as high as 500 fish/day were reported by some boats. July landings were 181,028 pounds.

During the first half of August, fishing was scattered, with local "hot spots" (lasting 1 to 3 days at a time) located off of Coos Bay, Heceta Bank, Newport, and the Columbia River Dumping Grounds. No consistently good fishing was reported off Oregon, and boats spent much time running from one spot to another. About mid-August fishing success fell drastically with catches ranging from 0 to 150 fish/day/boat, and averaging around 25 fish/day. Many boats moved south to California and some went north to the Vancouver Island — Queen Charlotte Sound area off British Columbia where catches of up to 200 fish /day /boat were sporadically reported through August. Landings for August totalled 3,527,249 pounds.

By the first week of September, fishing ranged from poor to nonexistent off Oregon, although there were a few days during this week when catches of 70 fish/day/boat were reported off of Cape Lookout. By this time, most boats had either quit or gone fishing elsewhere; the season, in effect, was over off Oregon. Landings in Oregon for September were 529,876 pounds, most of which were caught off the coast of Canada or California and unloaded by boats returning to port at the conclusion of their season. October landings of 130,563 pounds were made by boats returning from California waters. In November, 55,540 pounds were landed.

Washington

Total Washington albacore landings for 1977 were an estimated 4,350,000 pounds. This was a decrease of 40% from 1976 landings, but slightly higher than the 25-year average. The season started slowly in late July, when a few jig boats began landing albacore in Washington ports. Most of these fish were caught off of northern California or southern Oregon and averaged 10 to 13 pounds. During the latter part of July, there was limited and spotty fishing off the Washington coast between the Columbia River and Westport, with daily catches averaging less than 50 fish. Washington landings for July were approximately 100,000 pounds.

Fishing off Washington gradually improved during the first part of August. During the second week of August, average daily catches ranging from 100 to 200 fish were reported by jig boats between Grays Harbor and Cape Flattery; at the same time, a few bait boats in the area reported catches of 100 to 300 fish per day. On August 15, daily catches off the Washington coast dropped to nearly zero. Many boats concluded their seasons while others moved north to fish off Vancouver Island or south to California. Jig boats fishing off Vancouver Island during the latter part of August reported catches of 50 to 100 fish per day; a few boats fishing near Tasu Sound in the Queen Charlotte Islands reported similar daily catches. Landings for the month of August totalled an estimated 3,375,000 pounds.

For the month of September, the most consistent fishing was off British Columbia — in the Cape St. James to Tasu Sound area of the Queen Charlotte Islands. There, daily catches of 30 to 200 fish were reported; many of these fish ranged from 20 < to 25 pounds. By mid-month, most of the fleet had departed this area, but a few boats fishing near Tasu Sound from September 20 to 26 reported catches of 100 to 300 fish per day. Fishing effort off the coasts of Washington and British Columbia concluded in September. Estimated Washington landings in September were 750,000 pounds. October landings of approximately 125,000 pounds consisted of albacore caught off California and landed in Washington by boats concluding their season. Compiled by Larry H. Hreha, Oregon Department of Fish & Wildlife Other Contributors:

Fred Hagerman, California Department of Fish & Game
Brian Culver, Washington Department of Fisheries

Review of the 1976-77 Pacific Coast Dungeness Crab Fishery

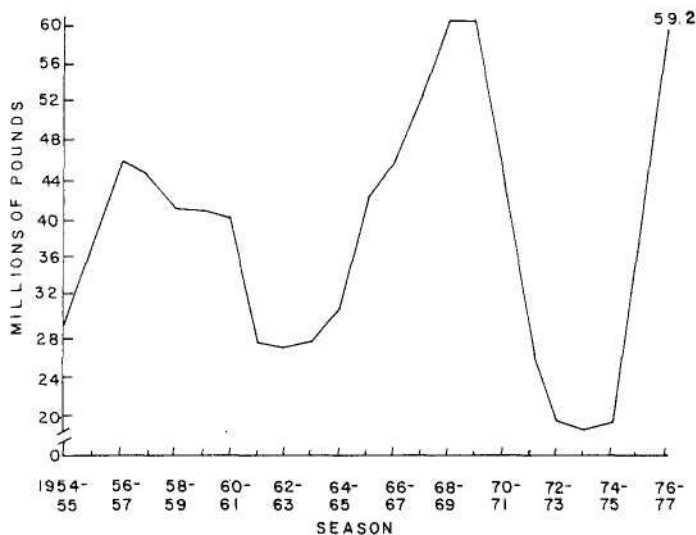
The 1976-77 Pacific Coast Dungeness crab landings, including Canada, totalled 59.2 million pounds, the third highest landings on record and an increase of 19.5 million pounds over the 1975-76 season. This was 21.9 million pounds more than the 20-year average (1957-76) of 37.3 million pounds and 21.2 million pounds greater than the 10-year average (1967-76) of 38.0 million pounds. Landings in Washington (excluding Puget Sound), Oregon and California totalled 53.5 million pounds, an increase of 18.5 million pounds over the 1975-76 landings of 35.0 million pounds and the highest landings ever recorded for these states.

Conditions Affecting the Fishery

The dramatic increase in catch was due to the presence of very strong year classes and a sizeable increase in the amount of fishing effort. Crabs were large and in excellent condition throughout the season. Weather conditions off the California coast, for the second consecutive season, were unusually mild, allowing almost continuous fishing through the season. Washington's coastal crab season was opened by emergency order on December 1, 1976 to coincide with Oregon and northern California openings. Seasons in Oregon and northern California

were extended to September 15 and August 31, respectively. Landing limits were in effect throughout much of the season and price disputes resulted in crabs being given away on two occasions in Oregon and California. A helicopter, using 6-ft diameter pots, fished off southern Oregon.

FIGURE 1. Pacific Coast Dungeness crab landings by season,



including British Columbia.

Alaska'

Dungeness crab landings reached only 1,200,000 pounds. This catch was 400,000 pounds less than 1976 and 5,700,000 pounds below the 10-year average of 6,900,000 pounds.

British Columbia

Landings in British Columbia totalled 2.1 million pounds, just slightly less than the 2.2 million pounds landed in 1976.

Washington

Coastal crab landings through June 1977, were 10.9 million pounds. Final figures were 11.1 million pounds, as fishing effort and success dropped during the last 2 1/2 months of the season. Commercial crab catches in Puget Sound totalled 2.4 million pounds, the highest since 1950-51.

Oregon

Crab landings for the 1976-77 season totalled 16.2 million pounds, and exceeded 1971's record catch of 14.7 million pounds. The new record catch was almost double the 10-year average (1967-76) of 8.7 million pounds.

California

Statewide landings totalled 26.2 million pounds, greatly exceeding the previous record of 19.3 million pounds landed during the 1956-57 season. This was an increase of 8.8 million pounds over the 1975-76 season's catch. Northern California landings were 25.6 million pounds, the largest catch ever recorded for that area. Landings in the San Francisco area totalled 600,000 pounds, double the previous season's catch.

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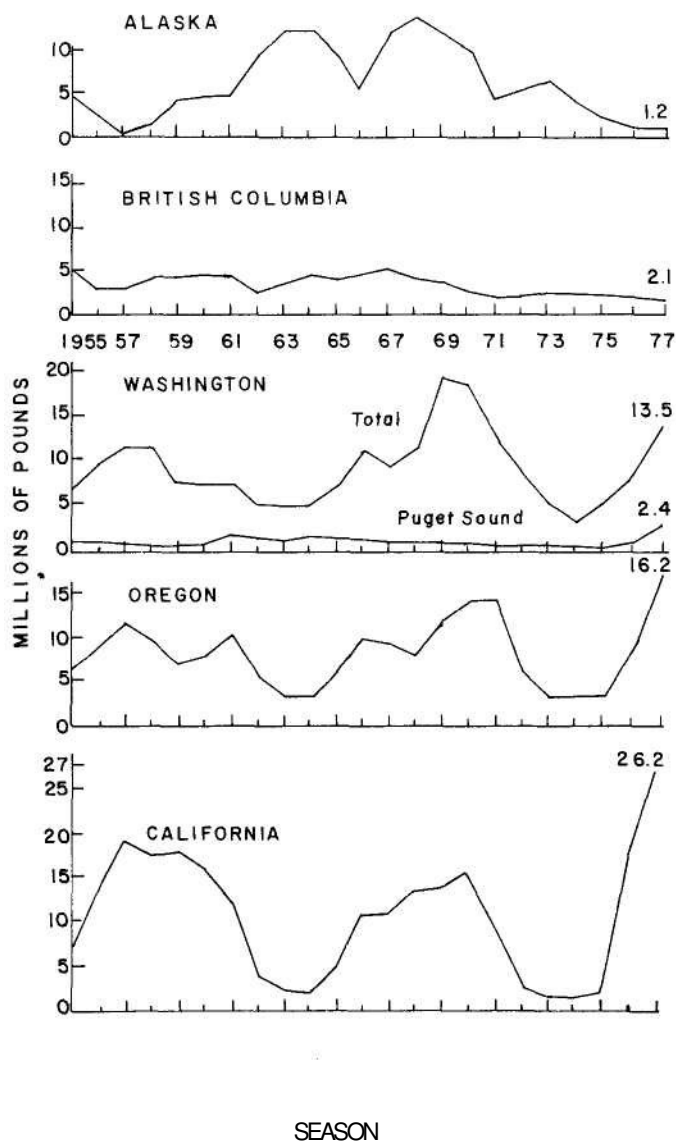


FIGURE 2. Dungeness crab landings by season, 1954-55 through 1976-77, except Alaska and British Columbia seasons are calendar years, i.e., 1954-55= 1955.

Alaska and British Columbia crab data are reported by calendar year.

Review of the 1977 Pacific Coast Fisheries for Groundfish

TRAWL LANDINGS

The projected Pacific coast groundfish landings by American and Canadian trawl fishermen were 183 million pounds. The landings were 4% below those of 1976, but 15% above the 10-year mean. American landings of 130 million pounds were 5% below those of 1976. Canadian landings decreased 1% from last year's landings of 53 million pounds (Table 1, Figure 1).

TABLE 1. Trawl landings (1,000's of lb.) for all purposes by region: 1976 vs. 1977 and 10-year mean (1967-1976)

Region	1976	1977	% change	10-year mean
Alaska	978	2,425	+148	—
Washington	47,754	43,727	-8	49,534
Oregon	25,022	21,686	-13	20,739
California	64,068	62,500	-2	47,708
Total U.S.	137,822	130,338	-5	117,981
British Columbia	53,006	52,721	-1	40,965
Total (U.S.-Canada)	190,828	183,059	-4	158,946

Alaska's landings of 2.4 million pounds in 1977 were projected to be 148% above those in 1976; this increase was attributable to the development of its fishery. Landings from Washington, Oregon, and California were down from those of 1976. Market conditions remained favorable for trawl fishermen along

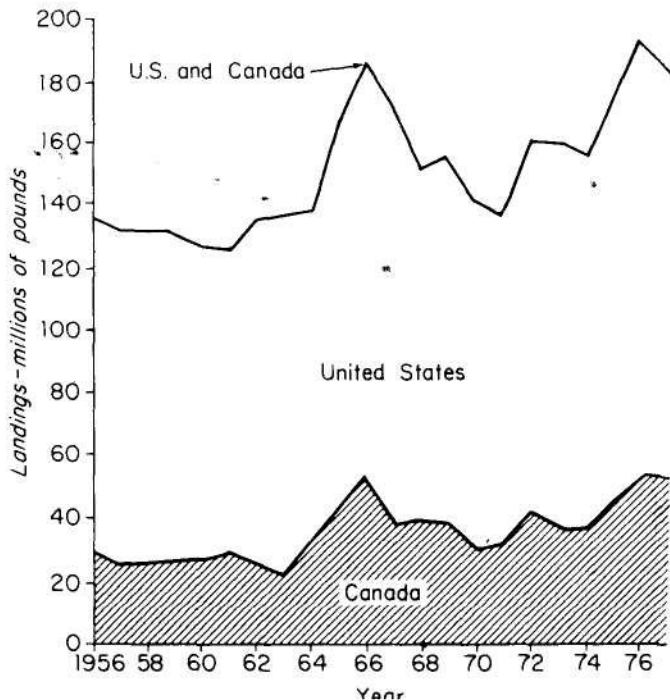


FIGURE 1. Pacific coast trawl landings of the United States and Canada.

the coast. Landings of rockfish and Pacific ocean perch increased substantially, while landings of Pacific cod and all flatfish declined. This reflected use of the new high opening trawl nets which fishermen have employed to fish for rockfish species. The 1976 Reciprocal Fisheries Agreement between the United States and Canada set 1977 quotas of 3.1 million pounds of rockfish (including Pacific ocean perch) for PMFC Areas 3C and 3D; 14.8 million pounds of rockfish for PMFC Areas 5A and 5B; and 3.9 million pounds of sablefish for all PMFC Areas off Canada. The rockfish quota in Areas 3C and 3D was reached by the end of May, at which time reciprocal rockfish fishing in these areas was curtailed.

MAJOR TRAWL SPECIES

Pacific cod, Dover sole, and rockfish continued to dominate coastal landings in 1977. Landings of each of these species exceeded 25 million pounds (Figure 2).

Petrale sole, *Eopsetta jordani*, landings of 6.8 million pounds were 14% below 1976 landings of 7.9 million pounds and were also 17% below the 10-year mean. Decreases occurred in all regions except Oregon (Table 2).

English sole, *Parophrys vetulus*, landings of 12.1 million pounds declined 16% from those of 1976 (Table 2), but remained 14% above the 10-year mean.

Dover sole, *Microstomus pacificus*, landings decreased to 29.1 million pounds, a 12% decline from 1976. Landings dropped in all regions.

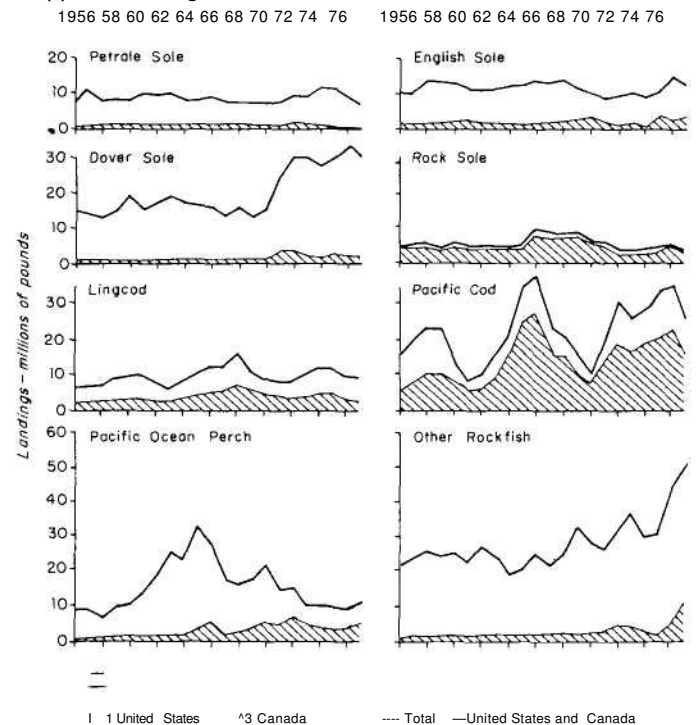


FIGURE 2. Pacific coast trawl landings by major species or group.

TABLE 2. Trawl landings (1,000's of lb.) for food by species and region: 1976 vs. 1977 and 10-year mean (1965-1976)

Species or group	Wash.	Ore.	Calif.	Total * U.S.	British Columbia	Total U.S. & Canada
Petrale sole						
1976	2,444	1,749	2,976	7,169	744	7,913
1977	1,369	1,839	2,950	6,158	614	6,772
% change	-44	+5	-1	-14	-18	-14
10-year mean	1,967	2,115	3,180	7,262	932	8,199
English sole						
1976	3,568	3,622	4,288	11,478	2,880	14,353
1977	2,341	2,234	4,350	8,925	3,164	12,089
% change	-34	-38	+1	-22	+10	-16
10-year mean	2,505	2,216	4,029	8,750	1,902	10,652
Dover sole						
1976	2,810	4,987	22,755	30,552	2,543	33,095
1977	2,116	4,004	21,500	27,620	1,510	29,130
% change	-25	-20	-6	-10	-41	-12
10-year mean	1,578	5,024	16,713	23,315	1,826	25,141
Rock sole						
1976	402	15	13	430	4,749	5,179
1977	513	48	10	571	2,675	3,246
% change	+28	+220	-23	+33	-44	-37
10-year mean	805	26	7	838	4,188	5,026
Pacific cod						
1976	11,529	611	-	12,140	22,193	34,333
1977	9,442	848	-	10,290	15,765	26,055
% change	-18	+39	-	-15	-29	-24
10-year mean	7,451	482	-	7,933	15,609	23,542
Lingcod						
1976	3,241	968	2,747	6,956	3,016	9,972
1977	3,481	976	2,500	6,957	2,506	9,463
% change	+7	+1	-9	0	-17	-5
10-year mean	3,221	1,368	1,978	6,567	3,663	10,230
Pacific ocean perch						
1976	3,031	2,247	89	5,367	3,848	9,215
1977	4,352	1,482	90	5,924	5,512	11,436
% change	+44	-34	+1	+10	+43	+24
10-year mean	8,462	1,272	91	9,825	3,361	13,186
Other rockfish						
1976	12,683	4,578	19,631	36,892	4,455	41,347
1977	14,740	5,000	20,150	39,890	10,902	50,792
% change	+16	+9	+3	+8	+145	+23
10-year mean	10,585	3,753	12,553	26,891	2,017	28,908

* Does not include Alaskan foodfish landings, estimated to be less than 2 million pounds.

Rock sole, *Lepidopsetta bilineata*, landings decreased 37% to 3.2 million pounds. British Columbia landings of rock sole continued to comprise the major part of coastal landings of that species (Table 2).

Pacific cod, *Gadus macrocephalus*, landings of 26 million pounds were 24% less than the 1976 landings of 34.3 million pounds (Table 2). Landings decreased in both British Columbia and Washington, the major producing areas.

Lingcod, *Ophiodon elongatus*, landings totalled 9.5 million pounds, which were slightly less than the 1976 landings and the mean landings from 1967-1976 (Table 2).

Pacific ocean perch, *Sebastes alutus*, landings were projected to rise from 9.2 million pounds to 11.4 million pounds, a 24% increase (Table 2). Production increased dramatically in Washington and British Columbia, but declined in Oregon. The 1970-year-class made a strong showing in 1977.

Other rockfish, *Sebastes* and *Sebastolobus* species, landings in 1977 totalled 50.8 million pounds and were 23% above 1976 and 76% above the 10-year average. All areas recorded increases in 1977 (Table 2).

[b] _____

LANDINGS BY OTHER GEARS¹

Longline

The 1976 longline landings (excluding Pacific halibut) totalled 4.7 million pounds (Table 3). Sablefish and rockfish continued to be the major species with respective landings of 2.4 and 1.3 million pounds. Even though catches of sablefish in all regions except Washington were down from 1975, a strong market existed for this species.

¹ 1976 is the latest year for which data on other gears are available.

Pot

Pot fishermen from the United States and Canada landed 7.1 million pounds of groundfish in 1976, a decline of 26% from landings in 1975. Sablefish continued to be the major species (Table 4). Canadian fishermen landed 686,000 pounds and American fishermen landed 6,459,000 pounds of pot-caught groundfish. Landings in California, which accounted for 82% of the total U.S.-Canadian pot catch in 1976, were down 18% from 1975.

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TABLE 3. Longline landings by major species in 1976 (1,000's of lb.)

Region	Sable-fish	Ling-cod	Rock-fish	Other species	Total
Alaska	1,667	32	277	98	2,074
Washington	449	84	106	465	1,104
Oregon	—	—	—	—	—
California ¹	—	—	—	—	—
Total U.S.	2,116	116	383	563	3,178
British Columbia	239	216	887	199	1,541
U.S. & Canada (total)	2,355	332	1,270	762	4,719

¹ California does not separate longline from miscellaneous gears. California longline catch is estimated to be less than 100,000 lb.

Region	Sable-fish	Ling-cod	Rock-fish	Other species	Total
Alaska	159	—	—	151	310
Washington	267	—	—	1	268
Oregon	—	—	—	—	—
California	5,881	—	—	—	5,881
Total U.S.	6,307	—	—	152	6,459
British Columbia	669	—	17	—	686
U.S. & Canada (total)	6,976	—	17	152	7,145

Region ²	Rock-fish	Ling-cod	Flat-fish	Pacific cod	Other species	Total
Washington	486	178	60	575	247	1,546
Oregon	224	113	8	—	9	354
California	7,200	1,600	90	—	610	9,500
Total	7,910	1,891	158	575	866	11,400

¹ Numbers of fish were converted to pounds by multiplying by the following factors: rockfish x 2.5, lingcod x 9.0, flatfish x 1.0, Pacific cod x 3.0, other x 1.0

² Estimates from Alaska and Canada were unavailable.

TABLE 4. Pot landings by major species in 1976 (1,000's of

Miscellaneous Gears

The 1976 landings of groundfish by miscellaneous gears were estimated to be 14 million pounds (Table 5). Handline and gill net catches of rockfish in California, and set net catches of dogfish in Washington represented the major contributions to the landings.

TABLE 5. Landings from miscellaneous gears by major species in 1976 (1,000's of lb.)

Region	Rock- fish	Ling- cod	Dog- fish	Other species	Total
Alaska	—	—	—	307	307
Washington	367	180	4,098	773	5,418
Oregon	403	80	—	1	484
California ¹	5,250	450	—	65	5,765
Total U.S.	6,020	710	4,098	1,146	1,974
British Columbia	209	1,849	—	39	2,097
U.S. & Canada (Total)	6,229	2,559	4,098	1,185	14,071

¹ Includes longline landings estimated to be less than 100,000 lb.

LANDINGS BY RECREATIONAL FISHERIES²

In 1976, recreational fisheries harvested in excess of 11.4 million pounds of groundfish (Table 6). Although data from Alaska and British Columbia were not available, recreational fisheries represented a significant portion of the catch of groundfish along the Pacific coast. The sport harvest of rockfish in California waters represents the major component of these fisheries. Most of the catch occurs while angling from private and charter vessels, and scuba diving.

³ 1976 is the latest year for which recreational data are available.

TABLE 6. Estimated¹ recreational landings by major species in 1976 (1,000's of lb.)

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Review of the 1977 Pacific Halibut Fishery

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Landings of Pacific halibut in 1977 were 22.3 million pounds; this was 5.2 million pounds less than were landed in 1976. Canadian vessels landed 9.1 million pounds and U.S. vessels landed 13.2 million pounds. (These data are preliminary; regional landings by Canadian and American fishermen are given in Table 1.)

TABLE 1. Landings of halibut in 1977 by regions of the coast*

Region	Canada	United States	Total
Washington-Oregon	353	948	1,301
Southern British Columbia	2,656	—	2,656
Northern British Columbia	3,868	5	3,873
Southeastern Alaska	968	4,293	5,261
Central Alaska	1,221	7,972	9,193
Total	9,066	13,218	22,284

*Preliminary data in thousands of pounds

Some of the decrease in 1977 landings resulted from a 3-million-pound reduction of the catch quota, but in Area 2 (south of Cape Spencer, Alaska) the catch was only 9.2 million pounds, 1.8 million pounds less than the 11-million-pound quota. In Area 3 (north and west of Cape Spencer, Alaska) the catch was 12.3 million pounds. Of this catch, 11.2 million pounds were taken during the regular season when the quota was 11 million pounds; the remaining 1.1 million pounds were taken in Area 3 during a non-quota season west of the Shumagin Islands. In Area 4 (the Bering Sea) the catch was 745,000 pounds, about 200,000 pounds more than in 1976.

The fishing season in Areas 2 and 3 was unique: a sequence of fishing periods with intervening closed periods was used rather than a continuous fishing season. Because the fishermen had discontinued their voluntary lay-up program, use of a split season avoided a short, intense fishery. Although there were some difficulties with the split season, it was more successful than some had expected.

In recent years, there has been a marked increase in the number of vessels that fish for halibut. Since most of these vessels are under 5 net tons or use only salmon troll gear, they are not required to be licensed by the International Pacific Halibut Commission. Many of the vessels in the halibut fleet fish primarily for salmon; halibut are fished before the salmon season though some may be landed incidentally while trolling for salmon. Although 42% of the vessels landing halibut in 1977 were trollers, they accounted for only 1% of the total catch. (Table 2 shows the total catch and catch per trip by licensed and unlicensed vessels in 1977.)

TABLE 2. Total catch and catch per trip by licensed and unlicensed vessels, 1977

Vessel Category	Number of vessels	Number of trips	Catch in 1,000's of lb.	
			Total	Per Trip
Unlicensed Vessels				
Trollers	1,462	3,207	238	0.1
Setliners	880	2,707	1,578	0.6
Other*	—	—	988	—
Licensed Vessels				
5-19 Tons**	930	2,974	5,808	2.0
20-39 Tons	183	608	7,640	12.6
40-59 Tons	34	110	3,355	30.5
60+ Tons	26	72	2,677	37.2
Total	3,515	9,678	22,284	

*Includes miscellaneous vessels such as handliners and deliveries of unknown origin. **Includes small vessels of unknown tonnage

Preliminary analyses indicate that the relative abundance of halibut (as shown by the catch per unit of fishing effort) increased slightly from 1976 to 1977 in Areas 2 and 3. Nevertheless, the halibut stocks remain in critical condition. Although the 1977 Bering Sea and Gulf of Alaska surveys of juvenile halibut suggest that abundance is greater than in 1976, the present level of abundance is far below the long-term average. Until the number of young fish entering the commercial stocks increases, yield will remain at a low level.

Review of the 1976 Salmon and Steelhead Sport Catches in the Pacific Coast States

The estimated total sport catch of salmon and steelhead during 1976 in Alaska, Washington, Idaho, Oregon, and California was over 2,900,000 fish. This catch was composed of 2,747,534 salmon and 211,883 steelhead.

Alaska

Alaska anglers caught an estimated 2,300 steelhead and 200,600 salmon. The catch included 78,100 pink, 59,100 coho, 26,400 sockeye, 26,300 Chinook, and 10,700 chum salmon. (Statistics for 1977 will be upgraded when the Alaska Department of Fish and Game implements a revised data collection system.)

Washington

A record 626,126 salmon anglers harvested a new high of 1,749,560 salmon (1,648,959 marine and 100,601 freshwater). This exceeded the 1975 record catch of 1,399,375 fish. The marine salmon catch by species showed a record for coho of 1,166,764 fish (321,029 more than the prior record set in 1971) in addition to 477,911 chinook, 587 pink, 3,024 chum, and 673 sockeye. The freshwater catch consisted of 28,815 coho, 25,966 chinook, 135 pink, 1,555 unidentified (presumably chum and sockeye), and 44,130 jacks (chinook and coho).

Of the record 626,126 freshwater and marine salmon anglers, there were 456,427 State of Washington and 169,699 out-of-state residents. The out-of-state residents included 48,611 from Oregon, 9,493 from California, 1,288 from Idaho, and 5,899 from Montana, 30,970 from other States, 8,607 from Canada and other foreign countries, and 44,831 without place of residence information. A new high of 1,883,525 trips was established by marine anglers in 1976. These anglers averaged 0.88 salmon per marine trip, compared to the 13-year average of 0.69 salmon per marine trip. Since 1964 there has been an increasing trend in the sport catch of salmon from Washington waters. This upward trend relates to successful salmon enhancement efforts, favorable regulations, increased fishing effort and other biological and physical factors.

Sport fishermen caught 100,601 salmon in freshwater. This exceeded the 13-year average of 96,485 fish. The Columbia

River system yielded 62% of these salmon. The Cowlitz River was again the foremost single producing river, yielding 29,129 fish or 29% of the total freshwater catch. In addition to the marine and freshwater salmon catches, 80,187 steelhead sport anglers caught 55,477 winter-run and 33,585 summer-run steelhead, primarily in freshwater.

Idaho

Idaho continued its fishing closure on salmon in 1976 in order to protect the runs that have been severely crippled by dams on the Snake and Columbia Rivers. In a restricted steelhead fishery on the Snake and Salmon Rivers in the fall, 4,982 anglers fished 19,032 days and caught 2,246 steelhead.

Oregon

The Oregon sport catch of salmon (ocean and freshwater) and steelhead was estimated to be 656,374 and 118,275, respectively. The salmon catch, which was a record for Oregon, consisted of 527,229 coho, 127,490 chinook, 1,605 chum, and 50 pink salmon. This catch exceeded the 1975 catch of 415,928 salmon and the past 10-year average catch of 401,992; the increase was due to a large catch of coho in the ocean. The steelhead catch was 118,275 and was below the 1975 catch of 186,450 and the past 10-year average of 162,192 fish.

Ocean anglers, who accounted for 86.5% of the total sport catch, made 538,414 angler trips to harvest 567,985 salmon (501,550 coho, 66,385 chinook, and 50 pink). These anglers averaged 1.0 salmon per trip.

Anglers are required to purchase either an annual angling license or a daily angling license to fish for salmon or steelhead. In addition, annual license holders must purchase a salmon-steelhead tag (punch card). In 1976, 291,160 anglers purchased salmon-steelhead tags and an additional 74,652 anglers purchased one or more daily angling licenses. Of the 365,812 anglers who bought a tag or daily license, 53.4% (195,373) were successful in catching a fish, 21.0% (76,690) reported they fished without success, and 25.6% (93,749) reported they did not fish. When all anglers who fished are considered, the

TABLE 1. Salmon and steelhead sport catch in 1976

State	Anglers	Chinook	Coho	Pink	Other salmon	Steelhead	Total catch	Fish/angler per year
Alaska	unavailable	26,300	59,100	78,100	37,100 ¹	2,300	202,900	—
California ²	unavailable	84,000	57,000	—	—	unavailable	141,000	—
Idaho	4,982	0	N/A	N/A	N/A	2,246	2,246	0.45
Oregon	272,063	127,490	527,229	50	1,605	118,275	774,649	2.85
Washington	706,313	503,877	1,195,579	722	49,382 ³	89,062	1,838,622	2.60
Total	—	741,667	1,838,908	78,872	88,087	211,883	2,959,417	

¹Includes 26,400 sockeye and 10,700 chum.

²Ocean fishery data only.

³Includes 673 sockeye, 3,024 chum, 44,130 chinook and coho jack salmon, and 1,555 unidentified salmon (presumably chum and sockeye).

average catch per angler per year was 2.85 fish; but for those anglers who actually caught a salmon or steelhead, the catch per angler per year was 3.96 fish. Approximately 72% of the anglers who fished were successful.

California

Final estimates of ocean salmon sport landings showed anglers landed 141,000 salmon. While this represented an increase of 17,000 over the 124,000 salmon landed in 1975 (the worst season since 1967) the 1976 landings were also well below the recent 10-year (1966-75) average of 186,000 salmon. Chinook landings were 84,000, the fewest since 1967 when only 73,000 fish were landed. Chinook landings also were down from 1975's poor landings of 103,000 and well below the 10-year average of 145,000 fish. As usual, the San Francisco

Bay partyboat fleet accounted for the bulk of the landings (64,000). The ocean coho catch of 57,000 fish was almost triple the 1975 landings of 21,000. The 1976 landings were also well ahead of the 10-year average of 41,000 coho. The Eureka area, where anglers landed 20,000 fish, was, as usual, the top coho salmon port.

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Review of the 1977 Pacific Coast Troll Salmon Fishery

Preliminary estimates of the troll catch of chinook and coho salmon for Alaska, British Columbia, Washington, Oregon, and California for 1977 totalled 53.6 million pounds compared to the 10-year average of 63.1 million pounds. Chinook catches of 28.0 million pounds were slightly more than the 10-year average of 27.9 million pounds. Coho catches, which were below the 10-year averages for most regions, totalled 25.6 million pounds.

Troll Chinook Fishery

Alaska chinook landings were about 4 million pounds. This was less than the 10-year average of 4.5 million pounds.

The chinook landings by British Columbia fishermen were 12 million pounds. This was a decrease of 1,800,000 pounds from 1976 and 400,000 pounds less than the 10-year average.

Washington chinook landings were about 2,900,000 pounds, 200,000 pounds less than the 10-year average. This was a 1.4 million pound decrease from the 1976 landings of 4.3 million pounds; however 1976 landings were the second highest in the 20-year period from 1958-1977. The 1977 troll season in Washington commenced on May 1, closed for 2 weeks from June 15 through June 30, and reopened on July 1. The season terminated on October 9.

Oregon chinook landings were about 4.2 million pounds, the second best of record. This was about 2 million pounds more than the 1976 landings and 2.2 million pounds greater than the 10-year average of 2 million pounds.

The estimated California chinook landings were 4.9 million pounds. This represented an increase over the 4.3 million pounds landed in 1976, but was still well-below the 10-year average of 5.9 million pounds.

Troll Coho Fishery

Alaska landings were 4.1 million pounds compared to 1976 landings of 3.8 million pounds. The landings were the same as the 10-year average.

British Columbia landings were expected to be about 14.4 million pounds. This would be 900,000 pounds less than 1976 landings and 1,700,000 pounds less than the 10-year average of 16.1 million pounds.

Washington landings were about 3.9 million pounds. This was approximately 1.4 million pounds below the 10-year average and resulted from a low abundance of coho on the Washington coast.

Oregon landings were about 3 million pounds, the poorest catch since 1963. This was about 7.4 million pounds below 1976 landings and 4.1 million pounds below the 10-year average.

All figures of weight reported are round weight. The period from 1967 through 1976 was used to compute 10-year averages.

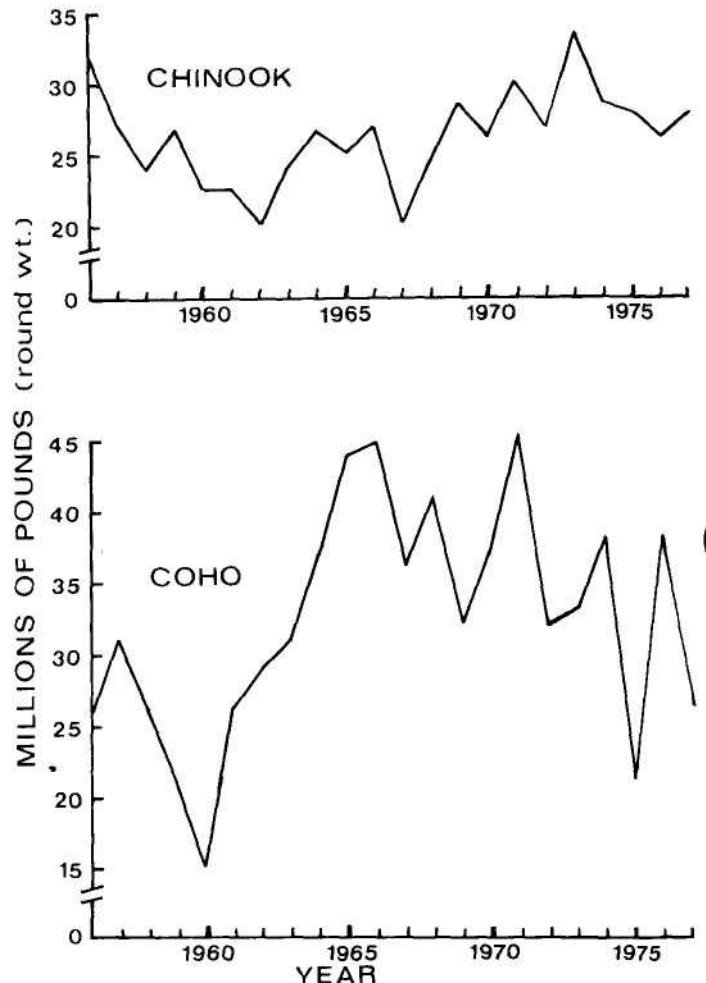


FIGURE 1. Pacific Coast annual landings of troll-caught chinook and coho salmon, 1956-1977.

TABLE 1. Estimated landings of troll-caught chinook and coho salmon in 1977 and 10-year (1967-76) averages (round weight in 1,000s of pounds).

TABLE 1. Estimated landings of troll-caught chinook and coho in 1,000s of pounds).

Region	Chinook		Coho		Total	
	1977	10-Year average	1977	10-Year average	1977	10-Year average
Alaska	4,000	4,500	4,100	4,100	8,100	8,600
British Columbia	12,000	12,400	14,400	16,100	26,400	28,500
Washington	2,900	3,100	3,900	5,300	6,800	8,400
Oregon	4,200	2,000	3,000	7,100	7,200	9,100
California	4,900	5,900	250	2,600	5,150	8,500
Total	28,000	27,900	25,650	35,200	53,650	63,100

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California landings in 1977 were 250,000 pounds, the poorest since 1960 when 125,000 pounds were landed. Landings were also well below 1976 landings of 3.7 million pounds and the 10-year average of 2.6 million pounds. The primary reason for the dramatic decline in California landings was the poor survival of the 1974 brood-year coho from the Columbia River, which river produces the bulk of California's landings.

Troll Pink Fishery

Estimates for pink salmon landings were: Alaska, 900,000 pounds; British Columbia, 14,200,000 pounds; Washington, 1,400,000 pounds; Oregon, 423,000 pounds; and California, 10,000 pounds. There was an excellent return of pinks to Southeast Alaska and British Columbia. Landings in British Columbia were the greatest on record.

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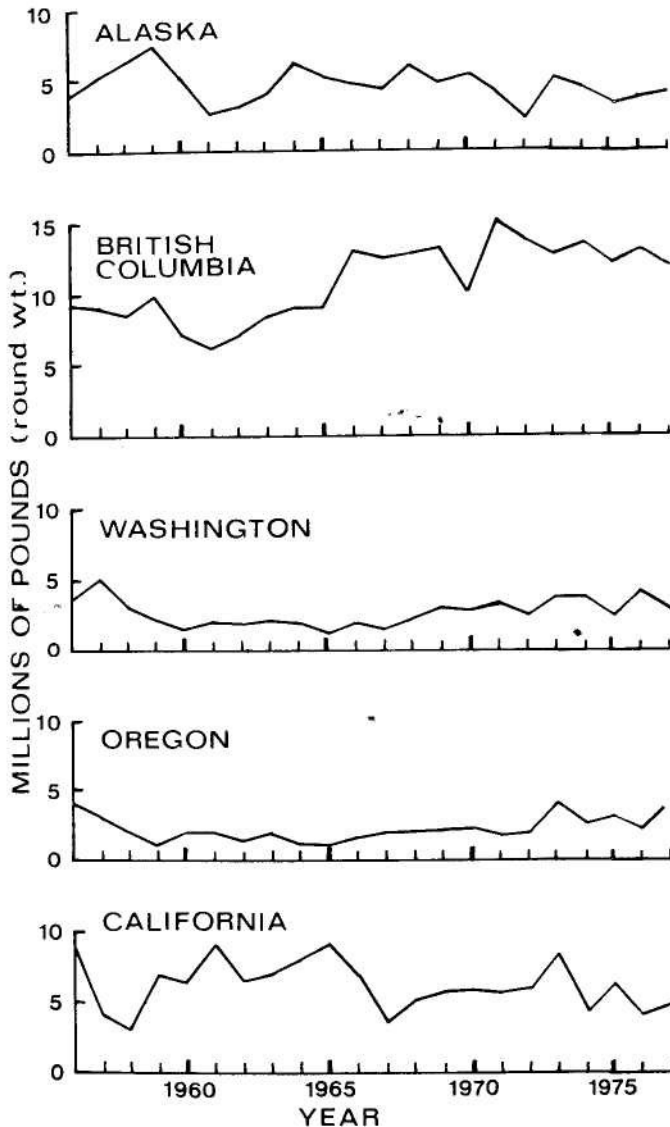


FIGURE 2. Annual troll chinook salmon landings by area, 1956-1977.

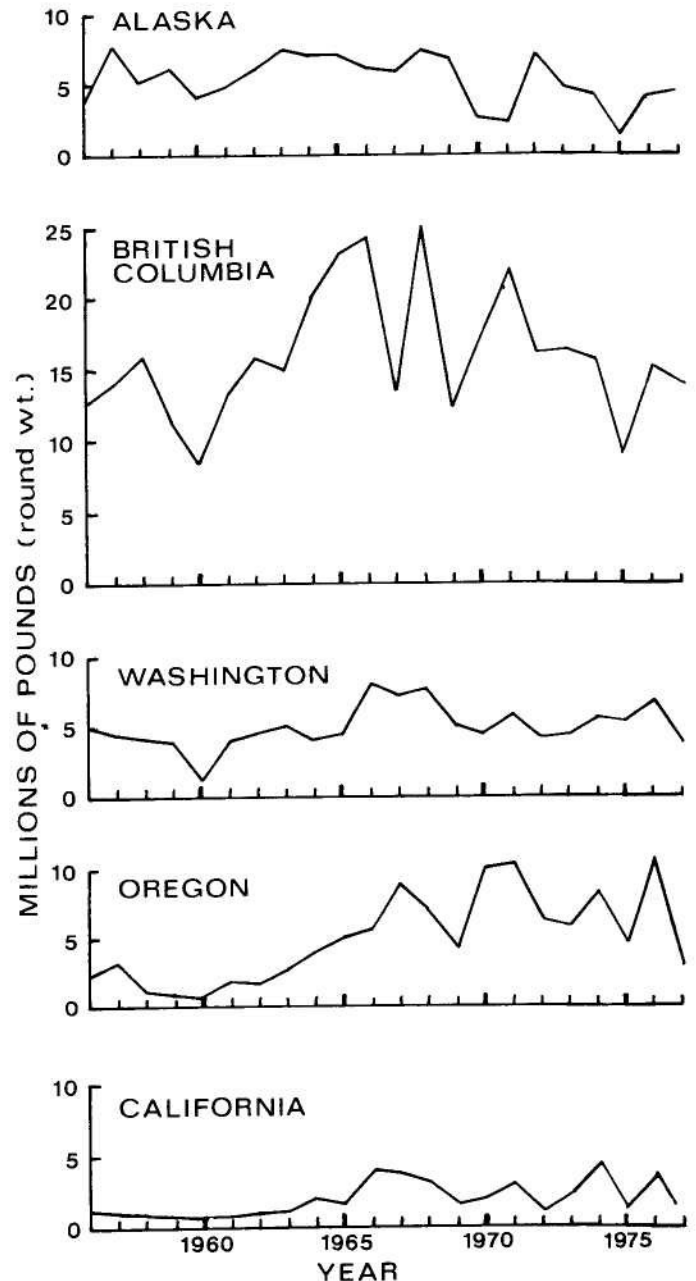


FIGURE 3. Annual troll coho salmon landings by area, 1956-1977.

Review of the 1977 Pacific Coast Shrimp Fishery

Pandalid shrimp landings for the West Coast of the United States and Canada reached a new high of 199.0 million pounds. This represented an increase of 23.5 million pounds over the previous record of 175.5 million pounds set in 1976. Most of this increase was due to the record landings from Washington, Oregon, and California. The record catches may have resulted from shrimp fleet's increased mobility and fishing efficiency which minimized weather impacts, incidental fish catches, and changes in shrimp abundance.

The high abundance of 1974- and 1975-year classes of ocean shrimp off California, Oregon, and Washington, and increased market demand resulted in a combined record catch in these States of over 75.9 million pounds, 37.9 million pounds greater than last year's record. Oregon landings totalled 48.6 million pounds, nearly double its 1976 record of 25.3 million pounds. California landings reached 15.7 million pounds, more than triple the 1975 record of 5 million pounds. Washington landings of 11.7 million pounds, were 1.5 million pounds more than the 1975 record of 10.2 million pounds.

British Columbia landings of 6.2 million pounds were nearly triple the 10-year average, but 2.3 million pounds less than the 1976 record of 8.5 million pounds. Alaska landings reached 116.9 million pounds, 12.1 million pounds below the 1976 record of 129 million pounds. Alaska's production in "historic" areas dropped dramatically, but this decline was tempered by significantly increased landings from previously under-utilized stocks along the Alaska Peninsula.

Conditions Affecting the Fishery

The high and low extremes in stock abundance were the main factors influencing this year's fishery. California, Oregon, and Washington have experienced two successive years of above-average recruitment while Alaska has been experiencing generally declining stock abundance levels since 1974. As a result, there was less effort in Alaska in 1977. Unpredictable weather conditions also affected fishing effort as did the occasional high incidence of small shrimp and incidental fish (primari-

ly smelt and pollock). Unusual oceanographic conditions in certain Alaskan waters may also have influenced the distribution and availability of shrimp.

California

Ocean shrimp, *Pandalus jordani*, landings totalled 15.7 million pounds for the 1977 season. This more than tripled the previous record of 5 million pounds landed in 1975.

Landings from off Crescent City-Eureka (PMFC Area 92) totalled 13.1 million pounds. This is over triple 1970's record catch of 3.8 million pounds. Shrimp were found in good concentrations from Point St. George to Patrick's Point with an average catch rate of 1,653 pounds per trawl hour for the season. Twenty-two vessels (including seven double-rigged) actively fished. The ex-vessel price started and remained at 23 cents per pound. The majority of the catch (70% to 80%) was composed of 1975-year class shrimp (age 2).

Landings from off Fort Bragg (PMFC Area 94) totalled 584,733 pounds compared with 720,549 pounds for the season last year. Five vessels (all single-rigged) participated in this fishery which began with significant landings in mid-September. The average catch per trawl hour for the season was 1,783 pounds. On October 7, all vessels were placed on a 5,000-pound market limit. Catch rates were as high as 16,000 pounds per hour. Most of the fishing took place in 60 to 98 fathoms from Cape Vizcaino to Abalone Point. Two-year-old shrimp represented 65 to 70 percent of the catch. The average number of shrimp per pound was generally between 100-115.

Landings from off Bodega Bay (PMFC Area 96) reached a new record of 2.0 million pounds. The previous record of 1.2 million pounds was established in 1975. No landings were made in 1976 because of small, unmarketable, 1-year-old shrimp. Eight vessels participated in the fishery. Fishing ceased in early September because of a lack of shrimp in commercial quantity. Average catch per hour for the 8 single-rigged vessels was 2,581 pounds. Most of the fishing took place in 65 to 84 fathoms from Stewarts Point to Black Point. Two-year-old

TABLE 1. Annual shrimp landings, 1967-1977, and previous 10-year means in pounds by region

Year	Alaska	British Columbia	Washington	Oregon	California	Total
1967	41,812,552	1,696,000	1,028,744	10,373,956	1,404,821	56,316,073
1968	42,023,084	1,568,000	1,163,864	10,976,258	2,223,205	57,954,411
1969	47,850,560	2,118,700	1,425,286	10,477,945	2,951,800	64,824,291
1970	74,256,326	1,537,800	925,000	13,735,000	4,044,640	94,498,766
1971	94,891,304	735,000	678,000	9,291,000	3,074,000	108,669,304
1972	83,830,064	794,000	1,582,000	20,900,000	2,500,000	109,606,064
1973	119,963,729	1,729,000	5,271,000	24,500,000	1,239,000	152,702,729
1974	108,741,434	2,644,000	9,300,000	19,968,000	2,360,000	143,013,434
1975	98,535,031	1,729,000	10,200,000	23,700,000	4,997,000	139,161,031
1976	129,011,047	8,470,000	9,224,898	25,300,000	3,470,000	175,475,945
Mean	84,091,512	2,302,150	4,079,879	16,922,216	2,826,447	110,222,200
1977	116,871,605	6,200,000	11,700,000	48,580,022	15,663,451	199,015,078

shrimp were well represented in the catch, accounting for 90 to 95 percent of the total in the catch samples. The average number of shrimp per pound ranged between 1 06-1 1 7 for July through August. No landings or effort were reported for the Morrow Bay-Avila area (PMFC Area 98).

Oregon

Oregon ocean shrimp, *Pandalus jordani*, landings in 1977 were a record 48.6 million pounds, nearly twice 1976's record landings. Favorable weather, more efficient gear and excellent market demand contributed to the record catch. Effort was hampered somewhat by weather during April (the first month of the season), but from May through September, monthly landings ranged from 6.9 to 10.2 million pounds. Up to 102 vessels (61 double-rigged) participated in the fishery, 18 more than last year. Many vessels used high opening (average 1 2 ft.) "box" nets which helped reduce the incidental catch of smelt while increasing shrimp catch rates. The average catch rate for the season was 865 pounds per hour for single-rigged vessels and 1,062 pounds per hour for double-rigged vessels. Last years strong market demand for shrimp continued. The price paid fishermen started at 23 cents per pound and remained at that level throughout the season.

The greatest shrimp production came from the Coos Bay grounds (PMFC Area 86) where a record 25.6 million pounds were landed, over 3 times the production from that area in 1 976. A strong 1975-year class (age 2) contributed to the catch throughout most of the season. The average catch per effort for the season was 1,300 pounds per hour for double-rigged vessels and 904 pounds per hour for siggle-rigged vessels.

In northern Oregon, production from PMFC Area 82 (Cape Falcon to Columbia River) reached a record 3.7 million pounds while landings from PMFC Area 84 (Cape Perpetua to Cape Falcon) dropped to 8.5 million pounds from last year's record 10.5 million pounds. Shrimp grade in northern Oregon was excellent, ranging between 80-85 shrimp per pound through most of the season with both 2- and 3-year-old shrimp comprising a high percentage of the production.

Landings from PMFC Area 88 (Cape Blanco to the California-Oregon border) were 2.7 million pounds, more than 3 times the 1976 landings. The catch rate averaged 1,711 pounds per hour for double-rigged vessels and 1,469 pounds per hour for single-rigged vessels.

Shrimp caught off Washington by Oregon vessels totalled 8.0 million pounds, over 5.2 million pounds more than in 1 976. The Grays Harbor grounds (PMFC Area 74) produced 5.8 million pounds, Willapa Bay grounds (PMFC Area 75) yielded 0.8 million pounds and the Destruction Island grounds (PMFC Area 72) yielded 1.4 million pounds. Oregon landings of shrimp caught off Canada totalled only 5,000 pounds prior to the closure of the Tofino grounds (PMFC Area 66) in June. Only 155,000 pounds of shrimp were caught in California waters (PMFC Area 92) and landed in Oregon.

Washington

Landings of ocean shrimp, *Pandalus jordani* totalled a record 1 1.7 million pounds. The previous high was set in 1975 when 1 0.2 million pounds were landed. Landings totalled about 300,-000 pounds during January and February and could have been much greater if the unusually mild weather conditions could have been anticipated. Effort was limited in March by severe weather, but landings rose in April and May and peaked in June when fishing was exceptionally good. Landings fell off temporarily in July when unfavorable weather conditions prevailed during much of the month. Several high-producing boats left during August to enter the Alaska shrimp fishery. Landings leveled off until mid-October when effort was sharply curtailed by a series of storms. A few vessels continued fishing after mid-October, but persistent unfavorable weather allowed only occasional landings to be made during the remainder of the year. Twenty-one vessels (16 double-rigged) participated in the fishery during the June peak; 5 other boats made 5 or more landings at other times of the year. Most buyers paid 23 cents per pound for the entire year.

Westport and South Bend-based vessels concentrated their fishing off Grays Harbor (PMFC Area 74) throughout the year, however, there was considerable effort off Destruction Island (PMFC Area 72) during late July and early August. Although vessels operating from Chinook and Ilwaco divided their efforts between Oregon and Washington, the catch from Oregon waters was considerably greater than in recent years. Washington vessels landed 750,000 pounds of shrimp from Washington waters in Oregon. Only 6,150 pounds were landed from the Tofino grounds off Vancouver Island (PMFC Area 66) prior to the closure of these waters to U.S. vessels in June for the balance of the year. In 1 976, Washington vessels landed nearly 2 million pounds from this area, primarily in August and September. Two landings of shrimp from northern California waters were made in early October.

Large quantities offish, especially smelt, continued to plague fishermen as in 1976. The quality of shrimp landings was good throughout most of the year. However, during the first 6 months, landings consisted at times almost entirely of 2-year-old shrimp which caused the count per pound to rise above 1 30. The average count per pound of shrimp was about 118 for the year. The 1975-year class was abundant throughout the year and is an even stronger year class than the strong 1974-year class. The 1 976-year class did not appear in significant numbers until July; it appears to be of moderate strength. Samples collected early in 1978 indicate that about 20 percent of the 1975-year class will transform to females as 3-year-olds. Effective in 1978, the minimum allowable mesh size for nets will be 1 Vi inches (stretch measure including one knot) and net liners will be prohibited.

British Columbia

Landings of Pandalid shrimp (all species combined) reached 6.2 million pounds, 2.3 million pounds less than the 1 976 record harvest of 8.5 million pounds. The majority of shrimp, *Pandalus jordani*, were taken from the Tofino grounds (PMFC Area 66).

Alaska

Pandalid shrimp landings (primarily *Pandalus borealis*) reached 116.9 million pounds, 12.1 million pounds less than 1976. This decline does not accurately reflect the marked decrease in abundance and commercial harvest from several Alaska Peninsula and Kodiak bay systems.

Kodiak district (PMFC Area 54) landings on a calendar year basis fell to 32 million pounds, a decline of 1.9 million pounds from 1976 (seasonal harvest — September to December 1976 and January to February 1977 — fell to a record low of 25.7 million pounds). Trawl surveys by the Alaska Department of Fish and Game in the major production areas of Twoheaded Island and Marmot Bay indicated dramatic declines in shrimp abundance since 1976. Catch-per-hour rates in these areas were extremely poor this season resulting in greatly reduced catch and effort. Season harvest levels (quotas) were drastically reduced as a result of low catches during trawl surveys and poor commercial fishery catches. Catch and effort on the west side of Kodiak Island improved for the first time since 1974 and production from Uyak and Uganik bays was good. Kodiak Island harvest levels are still being allocated to provide for a split season (September to December, and January-February) in three of the four major production areas. Under this regulation, one-third of the total allowable season harvest level for certain areas is allocated to the January-February period. Total number of vessels fishing Kodiak remained similar to last season even though there was a marked decrease during the January-February period. The majority of vessels are double-rigged and a growing number are being equipped with side-scanning sonar which greatly increases their ability to develop new fishing grounds.

Landings from Chignik, South (Alaska) Peninsula and Aleutian districts (PMFC Area 55) totalled 78.9 million pounds, 8.6 million pounds over the 1976 total. South Peninsula landings reached a record high of 46.5 million pounds primarily as a result of increased landings from Pavlof Bay. Chignik landings reached 27.8 million pounds approximating last year's harvest. Aleutian district landings totalled 4.6 million pounds.

The 58 vessels that fished Chignik and South Peninsula districts this season (May 15, 1976 through February 14, 1977) were primarily Kodiak-based vessels, many of which ranged more than 48 hours from port. Fishing began slowly because of the

uncertainties of ex-vessel prices, but effort increased rapidly when prices stabilized at a record 13.5 cents per pound. Shrimp trawl surveys conducted by the National Marine Fisheries Service indicated high abundance for Pavlof, Morzhovoi and Kujulik bays. Harvest levels (flexible quotas) expressed as a range for these bays were extended significantly. Trawl surveys and commercial fishery performance in the Beaver Bay, Unga Strait, West Nagai and Kennoys Island areas indicate that stocks are severely depressed.

Cook Inlet (PMFC Area 53) landings reached 5.1 million pounds, primarily from Kachemak Bay. Trawl surveys indicated average stock levels although commercial catch composition indicated low concentrations of *Pandalus goniurus* which traditionally contributes heavily to the fall fishery. Pot shrimp landings of 469,000 pounds were below average because of low market demand during the first half of 1977.

Southeastern Alaska (PMFC Area 51) landings totalled 932,000 pounds; both effort and stock abundance were below historic levels. Prince William Sound (PMFC Area 52) landings set a new record of 168,000 pounds due mostly to exploratory effort by Kodiak-based vessels.

Several major shrimp populations in the western Gulf of Alaska have declined drastically and appear to be at their lowest abundance levels of the past decade. Although environmental factors may be responsible in part for present low availability (or catchability) and for possible shifts in distribution of certain stocks, a long-term decline in over-all Gulf of Alaska stock abundance has continued since 1974. Stocks that historically have been heavily exploited appear most affected; however, some virtually unexploited stocks have also declined severely, indicating that these declines are not wholly attributable to the effects of fishing. The current outlook for the 1978-79 season is for further reductions in harvest levels (quotas) and lower total production.

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Review of Foreign Fishing Activity off the Pacific Coast in 1977

This information was generously furnished PMFC by the Alaska and Northwest Regional offices of the National Marine Fisheries Service, regarding fishing activities by foreign fleets off the Pacific Coast of the United States in 1977. This information was not presented at PMFC's Annual Meeting. The foreign fishing will be discussed according to that off Alaska and that off Washington, Oregon and California.

FOREIGN FISHING OFF ALASKA

Under the Fisheries Conservation and Management Act of 1976, five preliminary fisheries management plans (PMP) were developed for the Alaska area and regulations promulgated to implement them. They included the Gulf of Alaska trawl fishery, Bering Sea and Aleutian Island trawl and herring gillnet fishery, sablefish fishery, crab fishery, and snail fishery. Under these preliminary management plans, 1,634,900 metric tons of groundfish and shellfish were allocated to foreign nations off Alaska. Provisional catch reports received from the foreign nations indicated that they harvested 1,373,680.7 metric tons of this allocation. The following table shows the details of this allocation and catch by nation and species.

Soviet Fishing

Soviet fishing off Alaska in 1977 was conducted under the (PMP's Bering Sea and Aleutian Island trawl and herring gillnet fisheries and the Gulf of Alaska trawl fishery. Fifty-five Soviet vessels engaged in the Bering Sea and Aleutian Island trawl and herring gillnet fisheries after the implementation of FCMA Regulations, March 1, 1977. The fleet was composed of 46 stern trawlers, 8 refrigerated transports, and 1 tanker. A total of 40 individual Soviet vessels engaged in the Gulf of Alaska trawl fishery. This fleet was composed of a factory ship with 6 trawlers, 27 stern trawlers, 3 refrigerated transports, 2 tankers and* 1 Cargo vessel.

Trawling in the Bering Sea and Aleutian Island area was conducted in three principal places: (1) the central Aleutian Island area, (2) the western Aleutian Island area, and (3) the central Bering Sea, northwest of the Pribilof Islands. The number of vessels operating in this area slowly decreased from 43 in March, to 6 vessels in July. The Soviets stopped fishing in August and resumed in September with 4 vessels building to 20 in October and November and dropping slightly to 17 in December. The principal catch by the Soviets in this area was pollock, followed by other groundfish and herring.

The principal trawling areas in the Gulf of Alaska by Soviet vessels, were the Albatross Banks area and south of the Shumagin Islands. Thirteen vessels fished during the month of March, then the fishery was abandoned until two vessels returned in July. The number of vessels continued to slowly increase to a peak of 28 in November, and then decreased slightly to 21 in December. The predominant catch in the Gulf of Alaska was pollock, rockfish and Pacific cod.

Japanese Fishing

Japanese fishing off Alaska in 1977 was conducted under all five PMP's. Japan also continued its high seas gillnet fishery for salmon, west of 175° west longitude under the auspices of the INPFC. Japan was given an allocation of 1,168,400 metric tons of groundfish and crab under the PMP's in 1977 and reported a harvest of 1,113,335 metric tons.

A total of 350 Japanese vessels participated in the Bering Sea and Aleutian trawl fishery. The fleet was composed of 6 factory ships, 37 refrigerated transports, 14 cargo vessels, 5 tankers, 57 pairtrawlers, 21 Danish seiners, 186 medium stern trawlers, 19 large stern trawlers, and 5 longliners. The large fleet of independent stern trawlers and longliners operated on and along the Continental Shelf edge in the Bering Sea and along the Aleutian Island chain, while the factory ship fleets operated on and along the Continental Shelf in the central and eastern Bering Sea.

The number of vessels fishing for groundfish increased rapidly from 42 in March to nearly 300 by June, and remained at that level through September, and then tapered downward to 54 in December. The principal species taken by this large fleet was pollock, followed by yellowfin sole, other flounders, and Pacific cod.

Again in 1977 as in previous years, Japan employed factory ship fleets in the tanner crab fishery in the eastern Bering Sea. Two factory ships accompanied by 12 pot fishing vessels operated from March through July. Also Japan employed 12 independent pot fishing vessels which fished for tanner crab west of 175° west longitude in the central Bering Sea. These vessels began operations in early June and had taken their share of the Japanese crab quota by September. Japan was given an allocation of 12,500 metric tons of tanner crab in 1977 and its fishermen harvested 12,471 metric tons.

Japan employed two snail pot fishing vessels in 1977 which operated in the central Bering Sea from June until mid-October. The vessels harvested 404 metric tons of edible meats from a 2,700-metric ton allocation.

Japan deployed 42 individual vessels in the Gulf of Alaska trawl fishery in 1977. This fleet was composed of 17 large stern trawlers, 10 medium stern trawlers, 10 refrigerated transports, 3 cargo vessels and 2 tankers. The vessels operated on and along the Continental Shelf edge throughout the Gulf of Alaska from Dixon Entrance to south of the eastern Aleutian Islands. The number of vessels operating increased from 4 in March to a high of 19 in June, then declined slowly to 9 in November, and increased to 17 in December. Japan was given an allocation of 105,000 metric tons of groundfish in the Gulf of Alaska, including sablefish, and harvested 100,836 metric tons. Again the principal species harvested was pollock, followed by rockfish, flounders and sablefish.

The Japanese longline fishery for sablefish off Alaska was

conducted by 22 independent longline vessels in 1977. The vessels fished along the Continental Shelf edge throughout the Gulf of Alaska, the Bering Sea and the central and western Aleutian Islands. Fourteen vessels operated in the month of March and increased to 20 by June and remained at that level through November, and then decreased to 17. Japan was given an allocation of 19,500 metric tons of sablefish in 1977 and harvested 18,337 metric tons, of which 13,886 metric tons were taken by longliners in the Gulf of Alaska.

The annual Japanese high seas salmon fisheries were conducted by 6 factory ships and 246 gillnet vessels in 1977, as opposed to 10 factory ships and 332 gillnetters employed in recent years. The reduction in 1977 resulted from the exclusion of Japanese salmon fishing within the Soviet 200-mile fishery zone. The fleets began fishing in June, operating south of the western Aleutians until late June when one fleet moved to the Bering Sea. Five fleets fished the central Bering Sea during July while one fleet remained south of the western Aleutians. The six fleets completed operations by the end of July and returned to Japan.

South Korean Fishing

South Korean fishing off Alaska in 1977 decreased significantly from 1976. South Korean trawlers fished for groundfish under the Bering Sea and Aleutian Island trawl and herring gillnet fisheries and the Gulf of Alaska trawl fishery. Korea also had a limited longline fishery for sablefish.

Ten large stern trawlers supported by two refrigerated transports, operated in the Bering Sea and Aleutian Island trawl fishery in 1977. The vessels fished primarily in the eastern Bering Sea between Unimak Pass and the Pribilof Islands. The vessels commenced operations in June and continued for the remainder of 1977. South Korea was given an allocation of 41,490 metric tons of groundfish in the Bering Sea and Aleutian Island trawl fishery in 1977. The Korean vessels harvested 41,753 metric tons which were almost exclusively pollock.

Nine large stern trawlers supported by one refrigerated transport, operated in the Gulf of Alaska trawl fishery in 1977. The vessels began operations in September and remained until the end of 1977. The principal fishing ground was south of the Shumagin Islands westward to the eastern Aleutian Islands. Korea was given an allocation of 36,500 metric tons of groundfish in the Gulf of Alaska and reported a harvest of 36,716 metric tons, almost exclusively pollock.

South Korea also mounted a limited fishery for sablefish by independent longline vessels during 1977. Six longline vessels operated during the year with the principal fishing area being on and along the Continental Shelf edge in the central and western Gulf of Alaska. One vessel began fishing in March and the number increased steadily to a peak of six in July and then decreased gradually to two vessels in December. South Korea was given an allocation of 2,200 metric tons of sablefish in 1977 and reported a harvest of 1,598 metric tons.

Taiwanese Fishing

Taiwanese fishing off Alaska was limited to the Bering Sea

and Aleutian Island trawl and herring gillnet fisheries in 1977. The principal fishing area utilized by the two Taiwanese stern trawlers was between Unimak Pass and the Pribilof Islands. One vessel operated during June, two during August, and one in November and December. The vessels harvested 1,502 metric tons of a 5,510 metric ton allocation with pollock being the predominant species.

Polish Fishing

Poland conducted a limited fishery for groundfish in the Gulf of Alaska during 1977 by two large stern trawlers. The vessels fished the Albatross and Portlock Bank areas south and east of Kodiak Island from October through December. Poland was given an allocation of 7,200 metric tons in 1977 and reported a catch of 1,465 metric tons, predominantly pollock.

Enforcement and Surveillance

In prior years enforcement units were somewhat limited in their actions when a violation was detected. If a vessel was detected violating a U.S. law, the enforcement unit had the option of giving the vessel a verbal warning or seizing it for further prosecution in U.S. District court. If a vessel was detected violating a provision of a bilateral agreement, the incident was documented and the protest sent to the flag government through diplomatic channels. If infractions of the INPFC were detected, the alleged violating vessel was often seized but turned over to the flag government for prosecution.

Under the FCMA a variety of enforcement actions are possible for detected infractions of the Regulations. The enforcement unit has the option of issuing a citation for minor infractions of the Regulations. This is equivalent to a written warning but may be used as a basis for future enforcement actions against that vessel. For more serious violations of the Regulations, the option exists to issue a Report of Violation, which provides for the assessment of civil penalties and possible permit sanctions. For major infractions of the Regulations, the vessel may be seized and prosecuted in U.S. court. In 1977, 56 citations were issued to foreign vessels for minor violations of the Regulations; 36 were issued to Japanese, 7 to Soviet, 11 to South Korean and 2 to Taiwanese. Twenty-one Reports of Violation were issued to foreign vessels in 1977 for more serious violations; 11 were issued to Japanese, 5 to Soviet, 4 to South Korean and 1 to a Taiwanese. The Taiwanese vessel, *HIGHLY No. 301*, was seized on September 1, 1977 for retention of regulated species for which Taiwan did not have an allocation. The case was prosecuted by the U.S. Attorney at Anchorage and an out of court settlement was reached in the amount of \$335,000.

During 1977 foreign vessels operating within the U.S. 200 mile fishery zone, were required to accept U.S. observers aboard their vessels for the monitoring of their catches. Observers were assigned to 143 foreign fishing vessels in 1977. The observers spent 14,351 days aboard these foreign vessels, covering nearly 26 percent of the foreign fishing effort off Alaska. The information gathered was combined with the surveillance data received from Coast Guard and NMFS fishery patrols and was utilized to project foreign catches and terminate fisheries when necessary.

PRELIMINARY SUMMARY OF 1977 FOREIGN CATCHES OFF ALASKA

(in metric tons)

Species / Area	Reported foreign catch	Total assigned foreign allocation	Year-end balance	Percentage of allocation taken
Pollock:				
Bering Sea / Aleutians	888,551.9	950,000	61,448.1	93.5
Gulf of Alaska	121,274.3	149,000	27,725.7	81.4
Pacific Cod:				
Bering Sea / Aleutians	36,465.7	55,300	18,834.3	65.9
Gulf of Alaska	2,454.8	2,300	-154.8	106.7
Yellowfish Sole:				
Bering Sea / Aleutians	58,985.9	102,900	43,914.1	57.3
Other Flounders:				
Bering Sea / Aleutians	62,950.5	101,900	38,949.5	61.8
Flounders:				
Gulf of Alaska	18,587.6	20,500	1,912.4	90.7
Sablefish:				
Bering Sea	2,738.58	4,800	2,061.42	57.1
Aleutians	1,896.2	2,400	503.8	79.0
Gulf of Alaska / Southeast	3,673.2	3,750	76.8	98.0
Gulf of Alaska-Central / West	11,810.79	11,750	-60.79	100.1
Herring				
Bering Sea / Aleutians	18,736.5	19,400	663.5	96.6
Pacific Ocean Perch:				
Bering Sea	2,212.0	6,300	4,088.0	35.1
Aleutians	5,914.7	14,600	8,685.3	40.5
Rockfish: (includes P.O.P.)				
Gulf of Alaska	23,995.51	33,000	9,004.49	72.7
Atka Mackerel:				
Gulf of Alaska	19,428.5	22,000	2,571.5	88.3
Other Groundfish:				
Bering Sea	36,527.22	59,600	23,072.78	61.3
Aleutians	31,715.09	34,000	2,284.91	93.3
Gulf of Alaska	4,570.5	16,200	11,629.5	28.2
Tanner Crab:				
Bering Sea / Aleutians	12,471.3	12,500	28.7	99.8
Squid:				
Bering Sea / Aleutians	8,315.9	10,000	1,684.1	83.2
Snails:				
Bering Sea / Aleutians	404.0	2,700	2,296.0	15.0
TOTAL:				
Bering Sea / Aleutians	1,167,885.49	1,376,400.0	208,514.51	84.9
Gulf of Alaska	205,795.2	258,500.0	52,704.8	79.6

FOREIGN FISHING OFF WASHINGTON, OREGON AND CALIFORNIA

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The Fishery Conservation and Management Act of 1976 (FCMA) implemented March 1, brought about a major change in foreign fishing effort off the coasts of Washington, Oregon and California. The Act's implementation significantly reduced the number of foreign nations participating in fisheries off the United States and reduced the species and amounts of fish that could be taken. Those foreign fishing vessels which were allowed to operate within the new U.S. Fishery Conservation Zone (FCZ) were closely regulated as to fishing times, locations, and the amounts of fish allowed to be taken. In 1976, fishing vessels registered in eight foreign countries (Soviet Union, Poland, Bulgaria, East Germany, Japan, Taiwan, South Korea and Panama¹) fished off the Washington, Oregon and California coasts. After March 1, 1977, only two foreign countries, the Soviet Union and Poland, were permitted to fish within the FCZ.

Taiwan

In January, four longliners fished for black cod (sablefish) off the northern coast of Washington. This number increased to seven longliners in February. By the end of February, all Taiwanese vessels had ceased fishing and departed the FCZ.

South Korea and South Korean Vessels of Panamanian Registry

A combination of 16 longline and pot vessels fished for black cod offshore of Oregon and California during January. In February, the number of vessels increased to 18. The majority of effort for these two months occurred off of California. By the end of February, all of the vessels had ceased fishing and had departed the FCZ.

Soviet Union

Under the FCMA regulations, vessels of the Soviet Union were permitted to fish for Pacific hake and jack mackerel, commencing June 1, 1977, with other species of fish listed as incidental or prohibited. Twenty-five stern trawlers operated in the hake fishery off the northern California and south and central Oregon coasts during June. In July, the fleet increased to 34, with the primary fishing effort occurring off south and central Oregon. In August, the number of stern trawlers increased to 38, and in September, the fleet grew to 41 fishing vessels when the factory ship *SULAK* with 5 medium-sized stern trawlers entered the fishery. During October, the fleet was reduced to 24 fishing vessels, and then to 8. By October 31, when fishing terminated, there were only 3 stern trawlers in the fishery. During the months of August, September and October, the Soviet fleet operated primarily off south and central Oregon.

Poland

As with the Soviet Union, Poland was allocated only Pacific hake and jack mackerel as primary species. All other species of fish were either listed as incidental or prohibited. The Polish fishery began in June with 5 stern trawlers in the northern California and southern Oregon offshore areas. In July, the fleet increased to 6 stern trawlers and remained at this number through September, fishing primarily off southern Oregon. In October, the fleet declined to 3 stern trawlers and the fishery terminated on October 25 when the quota for Pacific hake was reached.

Boardings and Violations

During the 5-month FCMA trawl fishery, 120 boardings were accomplished by special agents of the Northwest and Southwest Regions of NMFS. Violations were minimal, with only 6 citations (written warnings) issued; these principally for failure to comply with the 24-hour notice requirement upon commencing or completing fishing operations in the FCZ. A willingness to cooperate and comply with FCMA regulations was evident in all contacts.

Observer Program

During 1977, following implementation of the NMFS's Northwest and Alaska Fisheries Center proceeded with plans to place scientific observers aboard foreign fishing vessels. The purpose of the observers was to obtain data on species composition, catch rates, incidence of prohibited species, and biological characteristics of target and other species. During the fishing season off the California, Oregon and Washington coasts, observers sampled (at various times) on 26 of the 43 vessels in the Soviet fishery and 5 of the 6 vessels in the Polish fishery. Total coverage by observers (observer days/vessel days on grounds) was 23.9% for Soviet vessels and 37.2% for Polish vessels. The Center, throughout the course of the hake fishery, using catch data provided by the observers and effort data provided by Law Enforcement, provided the Fisheries Management Division with estimates of foreign catches. By this means, the Division was able to pace the progress of each foreign fleet toward seasonal quotas.

¹Panamanian registered fishing vessels were owned and operated by South Korean companies.

Appendix 3 — Summary, Eastland Fisheries Survey Priorities, Pacific Coast Region

INTRODUCTION

The 104 people who responded to PMFC's questionnaire by January 23, 1978 could indicate *one or more* areas of interest they have in the fisheries of the United States. These interests were distributed over the following areas (numbers in the boxes indicate how often each box was checked):

76	commercial fishing	42	recreational fishing	75	salmon
24	commercial processing	28	consumer interests	43	Dungeness crab
27	marketing-retailing	43	environmental and other public interests	24	shrimp
16	aquaculture			42	groundfish
17	commercial services for recreational fishermen	10	marinas, shoreside services	41	tuna
		13	vessel construction and gear	46	other

The respondents evaluated 41 issues or areas of activity in terms of (A) present effectiveness of federal activity; (B) need for *immediate* federal action; and (C) long-term needs for federal support. For each of the 41 areas, the following four levels of effectiveness or priority were considered:

A. PRESENT EFFECTIVENESS

now highly effective now
moderately effective now
low effectiveness not now
effective

B. IMMEDIATE ACTION

highest priority second-level
priority maintain present level
of effort reduce or terminate
effort

C. LONG-TERM NEEDS FOR SUPPORT

highest priority second-
level priority maintain'
present levels reduce or
terminate effort

The following table summarizes the responses of the 104 participants in PMFC's survey. The people surveyed should not be considered a scientifically drawn, random sample. However, PMFC believes their responses are representative of the views of the Pacific Coast fisheries interests.

Numbers in columns A, B, and C of the table are the numbers of respondents who chose each level of effectiveness or priority. In addition to listing the total number of responses received, the table shows the responses for those people who indicated commercial and recreational fishing interests. One who checked the "commercial fishing," "commercial processing," "marketing-retailing" or "aquaculture" boxes was defined as having "commercial interest." Those who *did not* check any of these boxes but did check the "recreational fishing" interest box composed the "recreational interest" group. (81 have commercial interests, 14 have recreational interests.)

RESPONSES TO THE PMFC QUESTIONNAIRE

KEY: COM = Respondents primarily concerned with commercial fisheries (as defined above)

REC = Respondents primarily interested in recreation fisheries (as defined above)

ISSUE OR AREA OF ACTIVITY (bracketed numbers refer to EFS Summary of Recommendations, p. 4-10)	EFFECTIVENESS OR PRIORITY	A PRESENT EFFECTIVENESS			B IMMEDIATE ACTION			C LONG-TERM NEEDS			QUESTION NOT ANSWERED		
		COM	REC	TOTAL	COM	REC	TOTAL	COM	REC	TOTAL	COM	REC	TOTAL
A. GOVERNMENTAL ORGANIZATION													
1. consolidate and strengthen federal policy, organization, coordination affecting fisheries (EFS Summary Sec. IA1,2,3,4,5) (IIB1)	HIGH	2	0	2	16	8	27	23	8	35			
	SECOND	17	4	26	20	1	23	13	2	17	17	4	23
	LOW	26	6	33	12	1	14	9	0	9			
	NONE	6	0	6	9	0	10	8	0	9			
2. strengthen Regional Council membership, authority, effectiveness (IB1)	HIGH	2	1	3	35	5	45	32	7	42			
	SECOND	28	8	39	15	3	19	11	2	17	15	4	21
	LOW	14	8	16	8	1	9	8	1	9			
	NONE	7	0	7	6	0	6	6	6	6			
B. FISHERIES MANAGEMENT — GENERAL CONSIDERATIONS													
1. <i>Policy, definitions, etc.</i> a. Emphasize high priority importance of fish for food in commercial and recreational fisheries and aquaculture (IA4)	HIGH	0	0	1	37	5	47	36	6	44			
	SECOND	19	5	26	24	4	29	22	4	29	6	3	12
	LOW	39	6	47	5	2	7	5	1	6			
	NONE	6	0	6	3	0	3	2	0	2			
b. recognize value of marine recreational fisheries for personal use for food, for recreation, and for support of an important industry (IIIA)	HIGH	12	1	14	11	10	25	10	9	22			
	SECOND	28	3	34	17	1	19	20	1	23	9	2	15
	LOW	16	4	21	31	1	32	31	1	32			
	NONE	3	4	7	7	0	7	6	0	6			
c. create an Office of Fishery Policy to advise Congress, with permanent advisory committee representative of users (IA5)	HIGH	0	0	0	32	3	35	28	4	32			
	SECOND	7	0	9	18	4	24	12	3	17	12	3	18
	LOW	10	3	13	6	1	8	9	1	11			
	NONE	22	3	26	8	2	13	8	2	13			
2. For all fisheries, expand and improve information base (IB2,3)	HIGH	0	0	0	35	6	44	32	7	42			
	SECOND*	29	3	36	28	6	37	28	5	34	6	1	10
	LOW	26	10	37	5	1	6	4	1	6			
	NONE	11	0	11	2	0	22	2	0	2			
3. for recreational fisheries particularly, expand data base	HIGH	5	0	5	12	7	23	11	9	23			
	SECOND	15	1	17	20	3	25	22	1	25	17	3	23
	LOW	23	7	32	22	1	23	21	1	22			
	NONE	7	3	12	6	0	6	5	0	5			
4. improve marine access for recreational fishermen (IIIB)	HIGH	9	0	9	8	1	9	7	4	12			
	SECOND	26	7	37	9	5	18	11	3	17			
	LOW	8	3	12	38	4	43	38	2	41	15	4	23
	NONE	9	0	9	8	0	8	5	1	6			
5. conserve and enhance fish habitats and stocks (IC)	HIGH	1	0	2	61	11	79	57	12	75			
	SECOND	21	3	28	11	3	16	8	2	12			
	LOW	27	7	36	2	0	2	2	0	2	6	0	6
	NONE	13	4	18	0	0	0	0	0	0			

TOTAL = Total number of people answering the question

RESPONSES TO THE PMFC QUESTIONNAIRE

KEY: COM = Respondents primarily concerned with commercial fisheries (as defined above)

REC = Respondents primarily interested in recreation fisheries (as defined above)

TOTAL = Total number of people answering the question

ISSUE OR AREA OF ACTIVITY (bracketed numbers refer to EFS Summary of Recommendations, p. 4-10)	EFFECTIVENESS OR PRIORITY	A PRESENT EFFECTIVENESS			B IMMEDIATE ACTION			C LONG-TERM NEEDS			QUESTION NOT ANSWERED		
		COM	REC	TOTAL	COM	REC	TOTAL	COM	REC	TOTAL	COM	REC	TOTAL
6. develop institutional procedures to manage fisheries effectively, yet properly accommodate treaty rights of Indians and other native Americans (IB4a,b)	HIGH	6	0	6	27	5	38	21	5	30			
	SECOND	16	5	24	9	2	12	15	2	18			
	LOW	16	3	20	12	3	15	9	3	12	11	3	16
	NONE	18	3	22	15	1	16	18	1	19			
7. amend marine mammal legislation to conform to ecosystem approach to management of resources (IB4c)	HIGH	3	0	3	35	6	44	30	7	40			
	SECOND	7	1	10	19	6	26	16	5	23			
	LOW	18	5	25	4	1	5	5	1	6	20	1	24
	NONE	23	5	29	0	0	1	2	0	3			
8. support international management of tuna, maintain U.S. distant-water fisheries (IB4d,e)	HIGH	2	1	3	23	1	28	21	2	27			
	SECOND	20	5	26	22	4	26	20	4	24			
	LOW	15	3	22	6	3	10	4	1	6	25	5	33
	NONE	7	0	8	2	0	3	2	1	4			
9. limited entry a useful management tool; must be carefully evaluated with direct industry input (IB4f)	HIGH	1	0	1	36	4	44	35	5	42			
	SECOND	9	3	13	23	5	32	19	5	29			
	LOW	21	2	26	6	1	7	5	0	5	5	4	10
	NONE	25	5	32	8	0	8	6	0	6			
WC. INFORMATION AND EDUCATION - consolidate and strengthen technical information transfer and education (ID)													
1. information bulletins on technical subjects, free market news reports (ID3.4)	HIGH	5	1	6	17	0	17	20	0	21			
	SECOND	25	6	34	33	2	39	30	2	35			
	LOW	24	0	26	15	6	22	13	5	19	7	6	17
	NONE	7	0	7	3	0	3	3	1	4			
2. train retailers and merchandisers to "handle fish products (ID1)	HIGH	0	2	2	22	1	25	20	2	24			
	SECOND	14	0	15	31	4	38	29	3	35			
	LOW	28	1	31	14	1	15	12	1	13	9	5	18
	NONE	16	2	19	3	3	6	3	3	6			
3. consumer education to promote seafood utilization (ID2)	HIGH	0	1	1	33	1	35	32	2	36			
	SECOND	12	1	14	26	2	31	18	1	21			
	LOW	31	3	36	13	3	17	13	2	16	8	5	17
	NONE	17	1	19	1	3	4	1	4	5			
4. training programs for fishermen — finances, technical support (ID5,6)(IIA1e)	HIGH	1	1	2	16	0	16	13	1	14			
	SECOND	17	0	19	31	2	36	26	1	31			
	LOW	26	3	32	15	1	18	13	1	15	10	7	21
	NONE	11	1	12	8	4	12	8	4	12			
5. aids to recreational fishermen (ID7)	HIGH	4	1	5	3	2	6	2	3	6			
	SECOND	24	2	28	7	5	13	9	4	15			
	LOW	11	3	15	29	2	34	28	2	32	18	2	24
	NONE	5	5	11	21	3	24	19	3	22			

RESPONSES TO THE PMFC QUESTIONNAIRE

KEY: COM = Respondents primarily concerned with commercial fisheries (as defined above)

REC = Respondents primarily interested in recreation fisheries (as defined above)

TOTAL = Total number of people answering the question

ISSUE OR AREA OF ACTIVITY (bracketed numbers refer to EFS Summary of Recommendations, p. 4-10)	EFFECTIVENESS OR PRIORITY	A PRESENT EFFECTIVENESS			B IMMEDIATE ACTION			C LONG-TERM NEEDS			QUESTION NOT ANSWERED			
		COM	REC	TOTAL	COM	REC	TOTAL	COM	REC	TOTAL	COM	REC	TOTAL	
6. public workshops on habitat problems, Indian fishing, etc. (ID8,9)	HIGH	1	0	1	12	4	16	9	5	14				
	SECOND	12	1	14	27	5	36	26	4	34				
	LOW	29	4	36	16	1	19	16	1	19	15	2	20	
	NONE	12	5	18	8	2	10	8	2	10				
D. UTILIZATION AND DEVELOPMENT OF FISHERY RESOURCES														
1. <i>Coordination:</i> Department containing Fishery Agency to coordinate all federal regulatory, enforcement, management functions affecting fishing industry (IA3) (IIA1e,2,11,12,13a,b)	HIGH	1	0	1	23	4	30	24	5	31				
	SECOND	13	1	16	29	2	33	23	1	27				
	LOW	20	2	24	3	1	4	2	1	3	21	7	31	
	NONE	15	2	18	4	0	5	2	0	3				
2. <i>Loans, grants, other funding</i> — research and fishery development														
	a. increase funding for fishery research and management (IB3a)	HIGH	1	0	1	28	8	40	30	9	43			
	SECOND	21	4	28	31	3	35	26	2	29				
	LOW	32	7	41	5	0	6	6	0	7	7	3	13	
NONE	5	0	5	5	0	5	4	0	4					
b. encourage development of underutilized fisheries through grants, loans, tax incentives and extend these incentives to shoreside facilities (IIA1d,g) (IIA10)	HIGH	0	0	0	38	1	40	36	1	39				
	SECOND	7	0	8	28	3	35	23	5	32				
	LOW	31	7	40	3	5	8	3	3	6	7	4	15	
	NONE	17	1	19	1	1	2	2	1	3				
c. provide loans to compensate for disaster and competition losses (IIA1f)	HIGH	0	0	0	20	2	22	17	2	19				
	SECOND	8	1	11	29	0	31	26	0	28				
	LOW	22	1	24	8	2	12	9	2	13	16	9	30	
	NONE	16	0	17	5	1	6	5	1	6				
d. provide loans and other support for aquaculture* as for agriculture (IIB3.4)	HIGH	1	1	2	9	0	11	12	0	14				
	SECOND	7	0	9	20	2	24	17	3	22				
	LOW	18	0	19	10	3	14	11	2	14	20	5	29	
	NONE	19	4	24	16	4	20	17	4	21				
3. <i>Tariffs:</i>														
	a. modify tariffs on imported fish products as necessary to support growth of domestic production (IIA3b,c,d)	HIGH	0	0	0	17	1	18	17	0	17			
	SECOND	0	0	0	24	2	31	17	4	26				
	LOW	0	0	0	9	3	12	9	1	10	31	8	43	
NONE	0	0	0	0	0	0	0	1	1					
b. reduce tariffs on imported nets, webbing (IIA3a)	HIGH	0	0	0	18	3	23	15	2	19				
	SECOND	0	0	0	21	0	24	17	1	21				
	LOW	0	0	0	7	1	8	7	1	8	33	8	45	
	NONE	0	0	0	2	2	4	1	2	3				
c. remove Jones Act requirement of U.S. hulls in U.S. Territories (IIA1 h)	HIGH	0	0	0	11	0	13	9	0	11				
	SECOND	0	0	0	11	1	13	8	1	10				
	LOW	0	0	0	8	1	10	6	1	8	41	8	54	
	NONE	0	0	0	10	4	14	12	4	6				

RESPONSES TO THE PMFC QUESTIONNAIRE

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TDTAI = Total number of people answering the question

ISSUE OR AREA OF ACTIVITY (bracketed numbers refer to EFS Summary of Recommendations, p. 4-10)	EFFECTIVENESS OR PRIORITY	A PRESENT EFFECTIVENESS			B IMMEDIATE ACTION			C LONG-TERM NEEDS			QUESTION NOT ANSWERED		
		COM	REC	TOTAL	COM	REC	TOTAL	COM	REC	TOTAL	COM	REC	TOTAL
4. <i>Taxes</i> : modify tax structure to maximize benefits to fishing industry — e.g., depreciation schedules to match financing; crew members free agents, thus no taxes to be withheld; consolidated handbook of tax procedures, etc. (IIA1a,b,c)	HIGH	2	0	2	33	1	37	27	1	31			
	SECOND	14	1	18	16	2	19	17	2	20			
	LOW	13	1	15	6	1	8	5	1	7	22	10	36
	NONE	17	1	18	4	0	4	4	0	4			
5. <i>Insurance</i> :													
a. revise insurance provisions of Jones Act and Longshoremen and Harborworkers Act as necessary to reduce negative impact on fisheries (MA2)	HIGH	0	0	0	34	3	38	25	3	29			
	SECOND	0	0	0	15	3	20	16	3	21			
	LOW	0	0	0	1	0	1	2	0	2	29	8	43
	NONE	0	0	0	2	0	2	2	0	2			
b. create federal P & I insurance programs where reasonable private coverage is not available (e.g. aquaculture) (IIB5)	HIGH	0	0	0	22	1	23	19	2	21			
	SECOND	0	0	0	16	5	24	11	4	18			
	LOW	0	0	0	2	0	2	5	0	5	33	8	47
	NONE	0	0	0	7	0	7	6	0	6			
6. <i>Safety</i> :													
a. designate Coast Guard the responsible agency for	HIGH	10	1	11	20	3	26	21	4	28			
	SECOND	27	4	32	21	2	25	18	1	21			
	LOW	6	0	7	15	2	17	17	2	19	16	7	27
	NONE	4	1	6	3	0	3	3	0	3			
* maritime safety regulations (IIA4a)	HIGH	1	0	1	16	2	22	19	2	24			
	SECOND	8	1	10	27	7	35	21	6	29			
	LOW	18	1	21	4	0	4	6	0	6	23	5	32
	NONE	18	4	23	8	0	8	8	0	8			
b. coordinated OSHA, FDA, EPA and other protection regulations for realistic application to fisheries (IIA4b, 13b)	HIGH	1	0	2	37	6	46	36	8	47			
	SECOND	19	4	26	17	3	23	11	1	15			
	LOW	22	2	25	6	1	7	8	1	9	17	4	24
	NONE	8	1	9	1	0	1	3	0	3			
7. <i>Environmental quality</i> :													
a. ensure abatement and control of environmental contaminants of fish products (IC2.3)	HIGH	1	0	2	42	4	50	34	4	42			
	SECOND	6	1	8	15	2	18	18	2	21			
	LOW	23	2	28	3	2	6	3	2	6	18	5	26
	NONE	18	2	20	1	1	2	1	1	2			
b. recognize biodegradable character of seafood wastes, thus enrichment rather than pollution in proper dilution (IIA13c)													

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ISSUE OR AREA OF ACTIVITY (bracketed numbers refer to EFS Summary of Recommendations, p. 4-10)	EFFECTIVENESS OR PRIORITY	A PRESENT EFFECTIVENESS			B IMMEDIATE ACTION			C LONG-TERM NEEDS			QUESTION NOT ANSWERED		
		COM	REC	TOTAL	COM	REC	TOTAL	COM	REC	TOTAL	COM	REC	TOTAL
c. expand R&D for improved bacteriological standards and techniques for shellfish growing waters and products (IIA13e)	HIGH	0	0	1	13	1	16	13	2	17			
	SECOND	18	2	21	29	4	37	29	4	37			
	LOW	15	3	21	7	3	10	5	2	7	27	6	36
	NONE	5	0	5	0	0	0	1	0	1			
8. <i>Navigational aids and marine weather forecasting:</i>													
a. ensure adequate Coast Guard funding for modern instrumentation (IIA7)	HIGH	1	0	1	37	6	46	32	7	42			
	SECOND	25	4	33	24	4	30	20	3	25			
	LOW	24	4	28	4	0	4	4	1	5	15	3	22
	NONE	6	0	6	0	0	0	0	0	0			
b. increase Weather Service capabilities in marine weather forecasting (IIA8) (IIIB2)	HIGH	3	0	3	43	4	49	41	5	49			
	SECOND	30	6	39	17	6	26	13	5	20			
	LOW	17	2	20	8	0	8	7	1	8	11	3	18
	NONE	7	0	7	0	0	0	0	0	0			
9. <i>Harbor development: insure that commercial and recreational fisheries needs are met in port and harbor developments and provide compendium of federal support services (IIA5)</i>													
10. <i>Marketing:</i>													
a. with industry input, establish national standards for size, grade, portion, nomenclature of fish products (IIA14a)	HIGH	0	0	0	22	0	24	23	0	25			
	SECOND	15	1	17	32	4	38	28	4	34			
	LOW	29	2	31	4	1	5	5	1	6	18	9	32
	NONE	7	0	8	3	0	3	2	0	2			
b. with industry input, establish good product handling standards and mandatory inspection of domestic and foreign fish products (IIA14b)	HIGH	1	0	1	23	2	28	26	3	33			
	SECOND	17	2	19	28	5	35	19	4	24			
	LOW	27	1	31	11	1	12	10	1	11	16	6	26
	NONE	5	1	7	2	0	2	2	0	2			
c. expand regional and national market development and consumer education programs emphasizing underutilized products (IIA14c,d)	HIGH	0	0	0	31	1	35	30	2	35			
	SECOND	11	2	14	26	4	31	23	3	27			
	LOW	34	1	36	8	0	8	6	0	6	13	8	25
	NONE	9	1	12	1	1	3	2	1	4			

Appendix 4 — Coast Guard Maritime Law Enforcement or Coast Guard Boardings at Sea

With the introduction of the Fishery Conservation and Management Act of 1976 (FCMA), the Coast Guard law enforcement efforts at sea have substantially increased, particularly in the area of boardings. To understand the changes that have occurred, and the continuing enforcement efforts, a brief sketch of the Coast Guard's law enforcement background and authority may be useful.

Although the traditional role of the Coast Guard is frequently seen as search and rescue, this only dates back to 1915 when the Lifesaving Service and the Revenue Cutter Service were merged and formed the U.S. Coast Guard. Prior to that, in 1789, Congress authorized the building of ten revenue cutters to assist in enforcing the Tariff Act (collection of import duties). The modern day Coast Guard still retains this law enforcement duty as shown by Title 14 Section 89 U.S. Code (14 USC 89) which authorizes the Coast Guard to make "inquiries, examinations, inspections, searches, seizures and arrests upon the high seas and waters over which the United States has jurisdiction, for the prevention, detection, and suppression of violations of laws of the United States. For such purposes, commissioned, warrant and petty officers may at any time go on board of any vessel subject to the jurisdiction, or to the operation of any law of the United States, address inquiries to those on board, examine the ship's documents and papers, and examine, inspect, and search the vessel and use all necessary force to compel compliance." Additionally, Title 14 Section 2 U.S. Code (14 USC 2) includes the following as one of the primary duties of the Coast Guard: "Enforce or assist in the enforcement of all applicable federal laws upon the high seas and waters subject to the jurisdiction of the United States."

Although the FCMA (Public law 94-265) has brought forth a greater effort by the Coast Guard in at-sea enforcement, it actually only added one more federal law for the Coast Guard to enforce while on the water. In general terms, all Coast Guard boardings at sea on a U.S. vessel are for the purpose of preventing, detecting and, suppressing violations of all applicable U.S. laws, including:

- Shipping, Navigation and Safety laws (for example the Motorboat Act, Federal Boat Safety Act and the Oil Pollution Acts)

- Fisheries laws. Nowadays mostly FCMA regulations but may also include regulations implementing treaties and Federal court orders.

- Customs laws. Vessels returning from the high seas or foreign waters may be boarded to insure compliance with the customs laws.

It should be noted that, once the Coast Guard Boarding Officer is properly aboard a vessel, he may take enforcement action relative to any violation of federal law which may come to his attention. Selection of vessels to be boarded is normally done on a random basis to the maximum extent possible; however, if an apparent violation of Federal law is observed, you can expect to be boarded. Some of the strongest criticism recently, however, has centered on Coast Guard boardings of

commercial and recreational salmon fishing vessels. These vessels are subject to regulations issued under the FCMA (50CFR661) and to various regulations pertaining to safety and equipment requirements as well as to various other U.S. laws. Most criticism has been related to the interference with legitimate fishing when the Coast Guard pulls alongside and the fisherman must pull his gear to provide a safe boarding area. Additionally the delay in resuming fishing caused by the time necessary to check compliance with the salmon regulations, safety and equipment regulations and other applicable laws has caused hard feelings.

The Coast Guard appreciates these criticisms and, as a matter of policy, attempts to carry out its enforcement duties in a manner which minimizes interference with legitimate activities. Recreational salmon vessels are usually boarded while enroute to or from the fishing grounds to avoid interfering with the fishing time of the paying passengers. Commercial salmon vessels are boarded, if possible, when the gear has already been hauled to retrieve the catch. If this is not possible, then the gear can be hauled on one side and then reset after the boarding party is aboard. However this is no guarantee that the circumstances surrounding a particular boarding will always fit the ideal described above. The point of this is that the Coast Guard will make a reasonable effort to minimize interference while carrying out its duties and exercising its lawful authority to board all U.S. vessels to ensure compliance with the applicable Federal laws and regulations. As an additional matter you can routinely expect to see the boarding party carrying firearms. If you feel that this is unusual or unnecessary, take a look at the next state policeman who stops you for a vehicle safety inspection or minor violation. The Coast Guard is equally a "highway patrolman" on the water. Finally, what can you do as a vessel operator to improve this situation? First, recognize the Coast Guard's "right" to board your vessel. The Coast Guard has both the authority and the responsibility. Second, cooperate. This will make the boarding not only quicker but more pleasant. The equipment inspection is for your own safety and that of others on your vessel. Finally, follow the directions of the Coast Guard unit in providing safe boarding conditions. This will normally involve only providing a lee and a safe boarding area, then you can resume fishing until the boarding party is ready to leave. The Coast Guard will try to make the boarding as convenient as possible; under normal conditions, with the cooperation of the vessel operator, this should not take more than about 30 minutes. Should you have any questions about fishing regulations or required safety equipment, do not hesitate to ask the boarding party.

The Coast Guard law enforcement efforts, including at-sea boardings, will continue so long as there is a need for maritime enforcement. With the anticipated future increase of fishery management plans protecting additional species of fish, these efforts will probably affect more and more vessels. THIS SUMMARY WAS PREPARED BY: COMMANDER (Pol), COAST GUARD PACIFIC AREA, 630 SANSOME ST., SAN FRANCISCO, CA 94126

Appendix 5 - Membership on Pacific and North Pacific Fishery Management Councils and Their Working Components, 1977

Pacific Fishery Management Council

Council Members, voting

CALIFORNIA

Gilbert Hunter, Fields Landing
John Royal, San Pedro
Vern Smith, San Jose
Dir., Calif. Dept., Fish & Game: E. C. Fullerton, *VChm.*

IDAHO

Herman McDevitt, Pocatello
Dir., Idaho Dept. Fish & Game: Joseph C. Greenley

OREGON

George J. Easley, Coos Bay
John McKean, Portland, *Chm.*
Dir., Oreg. Dept. Fish & Wildlife: John R. Donaldson

WASHINGTON

James A. Crutchfield, Seattle
John Martinis, Everett
Dir., Wash. Dept. of Fisheries:
Donald M. Moos (to April 1977) Frank
Haw (Acting, May-August 1977) Gordon
Sandison (after August 1977)

NATIONAL MARINE FISHERIES SERVICE

Donald R. Johnson, Reg. Dir., Northwest Region, Seattle

Council Members, non-voting

ALASKA: Charles H. Meacham, Office of the Governor PMFC:
John P. Harville, Exec. Dir., Portland, Oreg. U.S.'COAST
GUARD: VAdm A. C. Wagner, Commander, Pacific
Area U.S. DEPT., INTERIOR: Kahler Martinson, Reg.
Dir., U.S. Fish
and Wildlife Service, Portland U.S. DEPT.,
STATE: Carl Price, Washington, D. C.

Scientific and Statistical Committee

D. L. Alverson, Dir., Northwest and Alaska Fisheries Center,
NMFS, Seattle, Wash. Izadore Barrett, Dir.,
Southwest Fisheries Center, NMFS,
La Jolla, Calif.
Donald E. Bevan, Univ., Wash., Seattle, *Chm.* Gordon
Broadhead, Living Marine Resources, Inc. San
Diego, Calif.
Stacy Gebhards, Idaho Dept., Fish & Game, Boise Robert
E. Loeffel, Oreg. Dept., Fish & Wildlife, Newport Carl
Mundt, Seattle John Radovich, Calif. Dept., Fish &
Game, Sacramento,
VChm Bruce Rettig, Oreg. St. Univ.,
Corvallis

Richard R. Whitney, Univ., Wash., Seattle
Charles E. Woelke, Wash. Dept., Fisheries, Olympia

Management Plan Development Teams were established in 1976-77 for anchovy, groundfish, Dungeness crab, pink shrimp, salmon and squid. Pacific States fishery managers and scientists serving on these teams include:

CALIFORNIA

Jack Baxter (groundfish)
Herbert Frey (anchovy, squid *Chm.*)
James Hardwick (squid)
Richard Heimann (pink shrimp *Chm.*)
Tom Jow (groundfish)
Patrick O'Brien (salmon)
Mel Odemar (Dungeness crab)

OREGON

Darrell Demory (Dungeness crab *Chm.*)
Robert Demory (groundfish *Chm.*)
Jerry Lukas (pink shrimp)
Paul Reed (salmon, to February 1977)
Malcolm Zirges (salmon, February-September 1977)
Steve Lewis (salmon, after September 1977)

WASHINGTON

Tom Northup (pink shrimp) Mark
Pedersen (groundfish) Ron
Westley (Dungeness crab) Sam
Wright (salmon *Chm.*)

Advisory Panel: The Pacific Management Council elected to establish Advisory Subpanels on a fishery by fishery basis to assure relevant user-group and public interest input to the development and review of fishery management plans. Included on the subpanels are the following PMFC Advisors who have contributed actively to the organization and functions of these Subpanels:

ALASKA

Jack Cotant (salmon)

CALIFORNIA

Anthony Nizetich (anchovy)
Roger Thomas (salmon)

OREGON

Don Christenson (salmon)
Charles S. Collins (salmon)
Bob Hudson (salmon)

WASHINGTON

Paul Anderson (salmon)
Les Clark (salmon)
Edward Manary (salmon)
Guy McMinds (salmon)
Jesse Orme (groundfish)
Ted Smits (salmon)

Council Address

526 S.W. Mill Street Executive Director, Lorry M. Nakatsu
Portland, Oregon 97201 Telephone (503) 221-6352

North Pacific Fishery Management Council

Council Members, voting

ALASKA

D. B. Eaton, Kodiak
Henry Eaton, Kodiak (to August 1977)
Gordon Jensen, Petersburg (after August 1977)
Charles H. Meacham, Office of the Governor, Juneau
Elmer Rasmuson, Anchorage (member and *Chm.* to August 1977)
James O. Campbell, Anchorage (after November 1977)
Clement Tillion, Halibut Cove Commissioner, Alaska Dept., Fish & Game:
James W. Brooks (to July, 1977)
Ronald O. Skoog (after July, 1977)

WASHINGTON

Harold Lokken, Seattle (*Chm.* after August 1977;
Vice Chm. to August 1977)
Donald L. McKernan, Seattle
Dir., Wash. Dept., Fisheries:
Donald M. Moos (to April 1977)
Frank Haw (Acting, May-August 1977)
Gordon Sandison (after August 1977)

OREGON

Dir., Oreg. Dept., Fish & Wildlife: John R. Donaldson

NATIONAL MARINE FISHERIES SERVICE

Harry L. Rietze, Reg. Dir., Alaska Region, Juneau

Council Members, non-voting

U.S. COAST GUARD: RAdm J. B. Hayes, Juneau, Alaska
U.S. DEPT., INTERIOR: Gordon Watson, Reg. Dir., U.S. Fish and Wildlife Service, Anchorage, Alaska U.S.
DEPT., STATE: Carl Price, Washington, DC. PMFC:
John P. Harville, Exec. Dir., Portland, Oreg.

Scientific and Statistical Committee

D. L. Alverson, Dir., Northwest and Alaska Fisheries Center, NMFS, Seattle, Wash.
Donald E. Bevan, Univ., Wash., Seattle, Wash. Robert Loeffel (to February 1977) Jack Robinson (after March 1977), Oreg. Dept., Fish & Wildlife, Newport
Edward Miles, Inst., Marine Studies, Univ., Wash., Seattle
Steve Pennoyer, Alaska Dept., Fish & Game, Juneau
George Rogers, Univ., Alaska, Juneau Donald H. Rosenberg, Univ., Alaska, Fairbanks Carl Rosier, Alaska Dept., Fish & Game, Juneau Bernard Skud, Intl. Pacific Halibut Commission,
Seattle, Wash, (to February 1977) Donald W. Collinsworth, Alaska Dept., Fish & Game,
Juneau (after February 1977) Chas. Woelke, Wash. Dept., Fisheries, Olympia

Management Plan Development Teams were established in 1976-77 for Dungeness crab, king crab, tanner crab, salmon, groundfish-Bering Sea, and groundfish-Gulf of Alaska. Pacific States fishery managers and scientists serving on these teams include:

ALASKA

Warren Blankenbeckler (groundfish)
Don Collinsworth (all plans)
Alan R. Davis (salmon)
Allen S. Davis (Dungeness, king, tanner crabs)
William Donaldson (tanner crab)
Larry Edfelt (all except groundfish plans)
Gary Gunstrom (salmon)
Rod Kaiser (Dungeness, tanner crabs)

Al Kimker (king, tanner crabs)
Paul Kissner, Jr. (salmon, tanner crab)
Tim Koeneman (all except salmon and groundfish)
Jack Lechner (king crab)
Guy Powell (king crab)
Ron Regnart (groundfish)
Phil Rigby (groundfish)
Guy Thornburgh (salmon, Dungeness, tanner crabs)

WASHINGTON — Lloyd Phinney (salmon)

Advisory Panel to the North Pacific Fishery Management Council consists of 25 members broadly representative of Alaska's diversified fisheries interests. Jack Cotant, long active as an Alaska Advisor to the Pacific Marine Fisheries Commission, served as first chairman of this Advisory Panel.

Council Address:

P. O. Box 3136 D.T. Anchorage,
Alaska 99510 Executive Director, Jim
H. Branson Telephone (907) 274-
4563