

*32nd Annual Report of the*

# **PACIFIC MARINE FISHERIES COMMISSION**

**FOR THE YEAR 1979**

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

## ERRATA

FOR 26TH, 29TH AND 32ND ANNUAL REPORTS OF THE PACIFIC MARINE  
FISHERIES COMMISSION FOR THE YEARS 1973, 1976 AND 1979.

### 26TH ANNUAL REPORT FOR 1973:

<u>Page, paragraph, line, etc.</u>	<u>Error</u>	<u>Correct</u>
p. 41, left-hand column, line 6 under heading "Artificial Propagation"	166 <u>billion</u>	166 <u>million</u>

### 29TH ANNUAL REPORT FOR 1976:

<u>Page, paragraph, line, etc.</u>	<u>Error</u>	<u>Correct</u>
p. 6, right-hand column, line 5	5.4 <u>million</u>	5.4 <u>billion</u>

### 32ND ANNUAL REPORT 1979:

<u>Page, paragraph, line, etc.</u>	<u>Error</u>	<u>Correct</u>
p. 6, left-hand column, lines 7 and 8	Ponape, <u>and</u> Majuro	Ponape, Majuro, <u>and American Samoa.</u>
p. 36, left-hand column, 2nd paragraph last line; right-hand column, legend for Figure 2;	(Figure <u>2</u> )	(Figure <u>3</u> )
right-hand column, "Troll Coho Fishery," 3rd line	<u>chinook</u> salmon (Figure <u>3</u> )	<u>coho</u> salmon (Figure <u>2</u> )
p. 37, right-hand column, legend for Figure 3	<u>coho</u> salmon	<u>chinook</u> salmon

Pacific Marine Fisheries Commission  
528 S.W. Mill Street Portland, Oregon  
97201 July 8, 1980

*32nd Annual Report*  
*of the*  
**PACIFIC MARINE  
FISHERIES COMMISSION**

**FOR THE YEAR 1979**

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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## 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 purpose of this Compact, as stated in its Goal and Objectives, is to promote the wise management, utilization, and development of fisheries of mutual concern, and to develop a joint program of protection, enhancement, and prevention of physical waste of such fisheries.

The advent of the Fishery Conservation and Management Act (FCMA) of 1976 and amendments thereto has caused spectacular and continuing changes in the management of marine fisheries in the United States. The FCMA created the Fishery Conservation Zone (FCZ) between 3 and 200 nautical miles offshore, established 8 Regional Fishery Management Councils with authority to develop fishery management plans within the FCZ, and granted the Secretary of Commerce the power to regulate both domestic and foreign fishing fleets within the FCZ. The FCMA greatly modified fishery management roles at state, interstate, national and international levels.

The Pacific Marine Fisheries Commission recognized early that its operational role would change as a result of possible functional overlaps with the two regional fishery management councils established on the Pacific Coast. On the one hand, the FCMA provides non-voting Council membership to the Executive Directors of the interstate Marine Fisheries Commissions, thus assuring active participation as the Councils deliberate on fishery matters of concern to the States. In addition, many of the Council prerogatives relate closely to the purposes for which the Pacific Marine Fisheries Commission was created.

The Commission was influenced by these events and agreed at its 1979 Annual Meeting in Sitka to review and decide on the present and future role of PMFC. This was reflected in the agenda of the meeting at which the Executive Director described: 1) the effectiveness of political persuasion through PMFC's resolutions, and 2) the evolution of PMFC's service functions since creation of FCMA. The Commission directed that its goal and objectives be updated to conform with the present functions of its Secretariat.

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1. These programs are the sole source of data on the migration of stocks and their contribution to multi-stock salmonid fisheries.
7. All tagging studies on Pacific salmonids, which require other than terminal recoveries, depend on good data from this source.
3. There are many significant one-time improvements to these tag recovery programs from which benefits will be reaped every year thereafter for as long as the programs are maintained.
4. For many tagging studies a complete coastwide picture is essential for a proper analysis to be done; sampling needs to be done in every sampling stratum in which there is a catch.
5. Obtaining data from British Columbia is contingent on the United States sending complete data to Canada; the success of international negotiations depends in part on an effective data exchange.

The tag recovery data are given higher priority than the produc-

tion data because the production data are currently collected at the hatchery level and could be merged into a regional data base at a later date, whereas tag sampling opportunities missed can never be recovered,

### Specific Funding Proposals

Eight proposals for immediate funding along with a copy of this report were forwarded to the Northwest and Alaska Fisheries Center of NMFS. The proposals are listed by the summary table on page 47. The order of the proposals bore no relation to priority except that Oregon's six proposals were in the order of priority determined by its Department of Fish and Wildlife. Proposals from the Washington Department of Fisheries were to be routed through the Salmon and Steelhead Council being formed in that State.

## Appendix 4—Policy Statement Concerning Equal Employment Opportunity & Affirmative Action

The Pacific Marine Fisheries Commission was created through an interstate Compact initially entered into by California, Oregon and Washington, and subsequently by Idaho and Alaska. The United States Congress consented to the Compact on July 24, 1947 (Public Law 232, 80th Congress, 61 Stat. 419), and subsequently amended it on October 9, 1962 (Public Law 766, 87th Congress, 76 Stat. 763) and on July 10, 1970 (Public Law 315, 91st Congress, 84 Stat. 415).

It is the policy of the Pacific Marine Fisheries Commission to provide equal employment opportunity for all employees and applicants for employment. In so doing the Commission will endeavor to create an atmosphere which encourages and allows all employees to reach their maximum potential regardless of race, color, religion, national origin, sex, age, handicap or veterans status. This policy applies to all employment practices of the Commission including but not limited to recruitment, hiring, training, promotion, demotion, transfer, compensation, and termination. The Executive Director, as chief executive officer of the Commission, is responsible for this policy's implementation and will ensure that all Commission employees are informed of its content and adhere to its tenets.

It is the policy of the Pacific Marine Fisheries Commission and its employees to support the Constitution of the United States and the constitutions of the member states; to cooperate fully with other agencies concerned with promoting the better utilization of marine, shell, and anadromous fisheries, of mutual concern, and to develop a joint program of protection and prevention of physical waste of such fisheries in all Pacific Ocean areas under the jurisdiction of the member states; and to promote the support and cooperation of appropriate governmental bodies for adequate protection facilities and sound management of the resource.

The Commission maintains its headquarters in Portland, Oregon. The Executive Director supervises a small nucleus staff in serving the Commission and administering its operations. To assist member states in furthering the purposes of the Compact, the Commission hires technical employees on a seasonal basis to work with state fishery agencies. In this capacity, these employees receive virtually all direction and supervision from the state agencies, but receive their salaries from and are considered to be employees of the Commission.

Each member state of the Commission has instituted its own affirmative action policy and plan which govern employment practices by the state. The Commission has reviewed each applicable plan and finds each to be consistent with this statement of policy. Therefore, with regard to seasonal employees who are hired, supervised, and controlled essentially by state agencies, the Commission believes the provisions of the pertinent state affirmative action plan should control. This policy statement will apply directly to all other employment practices of the Commission.

## Improved In-Season Catch Reporting

A major obstacle to effective in-season management of valuable salmonid stocks has been long delays in the processing and publication of tag recoveries and catch statistics. The latest Tag Recovery report published by the RMPC, for example, is for 1976 data. With the exception of Washington, none of the States has published its 1977 or later data. Much of the problem has been the lack of qualified personnel or adequate computer facilities to process the data on a timely basis. Alaska, for example, has all of its data keypunched but no staff to process it further. The Committee therefore recommends:

*that one-time funding be provided for upgrading the turnaround time of existing data processing systems. This would mean providing funding for necessary computer trained technicians as in the case of Alaska and for computer facilities (software, hardware) as presently needed by Oregon and California. Studies on how to streamline existing data flow pathways should be supported also.*

## Increased Data Compatibility Coastwide

A major obstacle to upgrading tag recovery programs on a regional basis has been the lack of complete compatibility between data sets maintained by the various agencies. For example, information considered important to one State is not collected by others or perhaps is collected in different units or format. Since this lack of compatibility seriously reduces the value and usefulness of data generated by high capital investments, the Committee recommends financial support for projects which *maximize data compatibility between all areas. This includes the Columbia River and British Columbia fisheries. Specific suggestions to increase data compatibility are as follows:*

- 1) *Same data elements should be collected.*
- 2) *Same units should be used as far as possible (e.g., weights and lengths) to avoid conversions necessary before merging into regional data base.*
- 3) *Differences in estimation procedures should be eliminated as much as possible (e.g., time periods should be standardized).*
- 4) *Estimation techniques should be documented so that differences can be taken into account.*
- 5) *Criteria for selecting time periods for expansion needs must be developed on a sound statistical basis. This is also true for techniques developed for estimating by area of catch.*
- 6) *Other stratifications in sampling and estimation procedures must be considered (e.g., trip boats vs. day boats).*

The Committee also unanimously recommends that no monies be provided for studies employing color-coded tags. The use of those tags is highly discouraged because of the general opinion that their use is incapable of providing reliable information on a cost effective basis.

## HATCHERY PRODUCTION DATA

Since the FCMA, there have been increasing demands by the Pacific and North Pacific Fishery Management Councils (PFMC and NPFMC) for hatchery production data from the States. These data are also required by other agencies with a regional purview such as the Columbia River Fisheries Council and NMFS. Hatchery production data are required by the States also. Therefore the Salmon and Steelhead Committee recommends:

- a) *that the States upgrade their hatchery production data bases so that each State can provide the necessary information on request in compatible, machine-readable formats; coordination of the States in determining common data elements and standard formats should be effected through the Salmon and Steelhead Committee;*
- b) *that this information should be merged into a regional data base managed by the RMPC and interfaced with the tag release data base currently maintained by the RMPC. This objective was identified as a long term goal in contrast to part "a)" above, which is of immediate concern.*

## Justification of Priorities

There are on the order of a thousand distinct tag codes in millions of tagged Chinook, coho, and chum salmon and steelhead from the Pacific Northwest which are currently available for harvest in Pacific fisheries. Moreover, tagging programs are continuing and expanding each year in all States. Valuable information for resource management and research purposes can be obtained from this major capital investment if proper procedures are used to randomly sample the fisheries for tags and then to derive accurate estimates of the number of each tag code in the catch by time and area. However, many significant weaknesses have been identified (see "Priority Areas of Immediate Concern" above). These weaknesses are subject to correction or improvement which will have major benefits that will be realized each and every year thereafter.

International negotiations between the United States and Canada have the potential for great impact on Northwest salmonid stocks. An important step in these negotiations has been the agreement (reached on August 30, 1978) to exchange machine-readable tag recovery data. The success of future negotiations depends on maintaining an effective data exchange which depends on the data from Alaska, Washington, Oregon and California all being delivered in a timely fashion through the RMPC. Of course, regardless of the outcome of these negotiations, it is important to United States managers and researchers to have the data from British Columbia.

In summary, the upgrading of the tag recovery program is to be given the highest priority for immediate funding because:

The 1979 Annual Meeting was held October 1-2 at the Shee Atika Hotel and Sitka Centennial Building in Sitka, Alaska. A

## 32nd Annual Report—1979

### ANNUAL MEETING EVENTS

summary of the meeting's major events appears below. In addition, Commission elections were held; all changes are included in the personnel section under Administrative Support.

### Review of Role of PMFC

This Annual Report provides a review and discussion of the present and future role of PMFC in light of current conditions, including formation of Regional Fishery Management Councils under FCMA. In 1978 at the Commission's Annual Meeting in Coeur d'Alene, Idaho, the Executive Committee requested that an analysis of PMFC's operations be presented for review and decision at this Annual Meeting. Chairman Ron Skoog introduced the subject, at the plenary session in Sitka, by expressing his view that under present circumstances the role of the Commission logically "fitted" into two categories; the resolutions process and support (service) functions. An evaluation of these would provide general recommendations for determining the future role of the Commission and its mode of operation. The Chairman asked executive Director John Harville to provide an assessment of PMFC's resolution process and service functions.

### Resolution Process

Harville pointed out that the degree of success in obtaining results being sought from Resolutions depends, in large part, on the kinds of supporting information that are provided by the Secretariat in letters of transmittal to specific addressees named in the Resolutions and to other addressees concerned with the resolution subject matter. On one hand, where PMFC has been only one of a number of advocates for a given action, the assessment of the effectiveness of its resolutions may be difficult or be considered subjective. On the other hand, where PMFC has been the primary proponent in generating support, the results obtained can be objectively assessed as extremely beneficial to Pacific Coast fishery entities.

#### A. Actions for which PMFC was the primary proponent

1. Requested an increase in annual federal funding for Commercial Fisheries Research and Development Act (P.L. 88-309) by means of 1977 Resolution 3.

In response to instructions from its member States and 1977 Resolution 3, PMFC provided the principle initiative and supporting arguments which resulted in Congressional increases to the base budget for P.L. 88-309 by .2 million, an increase of 30%, beginning in FY 1979. This PMFC advocacy role was conducted in concert with the Atlantic and Gulf States Marine Fisheries Commissions.

2. Senate instructions for a \$1.3 million increase in federal funding for the Anadromous Fish Conservation Act (P.L.

89-304) indirectly by means of 1977 Resolution 3.

The successful campaign (or increased federal funding for P.L. 88-309 encouraged increased federal funding for P.L. 89-304. PMFC supplied the initiative and major supportive data for this effort, with important support from the other interstate Marine Fisheries Commissions and (the International Association of Fish and Wildlife Agencies. The \$1.3 million increase mandated by the Senate is 65% more than previous annual appropriations and is the first increase since 1970. In an ancillary effort, the federal government in October, 1979 released \$1.3 million in Saitonstall-Kennedy funds for anadromous fisheries research in the Pacific Northwest to be allocated by the National Marine Fisheries Service. At the Commission's 1979 Annual Meeting the Executive Committee directed the Salmon and Steelhead Committee, representing salmonid scientist/managers of the five member states, to identify regional projects having highest priority for support from this funding source. The S-S Committee identified and requested funding for projects to upgrade regional tag recovery systems and establish hatchery production data bases. (See Salmon and Steelhead Committee p. 17).

3. Facilitation for formation of West Coast Fisheries Development Foundation by means of: 1977 Resolution 1; 1978 Resolutions 1 and 2; and the Eastland Fisheries Survey,

As a direct outgrowth of the Eastland Fisheries Survey and supportive Resolutions in 1977-78, PMFC was asked by the National Marine Fisheries Service to assist the fishing industry in assessing the feasibility of establishing some form of institutional arrangement for fisheries development on the West Coast. PMFC undertook a six-month contracted project for that purpose which culminated in an industry decision to establish the West Coast Fisheries Development Foundation, and a National Marine Fisheries Service decision to supply partial funding for that effort.

6. *Actions for which significant PMFC support can be demonstrated as part of a cooperative effort involving other advocates.*

1. New (1979) federal policy and program for fisheries development by means of Eastland Fisheries Survey, 1977 Resolution 1, and 1978 Resolutions 1 and 2.

Federal authorities credit the Eastland Fisheries Survey and implementing efforts on the part of the interstate Marine Fisheries Commissions with substantive input detailing constituent interests and concern. That input helped shape the new federal policy announced by the President in May, 1979. PMFC's communications with constituents before and after this action have contributed significantly to these decisions. An outgrowth in 1979 of these efforts by PMFC, among others, to support

and emphasize the need for fishery development alternatives, particularly the Eastland Fisheries Survey recommendations reported to the Congress in 1977, resulted in the award of a federal contract to PMFC's Executive Director to provide an independent assessment of institutional alternatives for fishery development in the Pacific Islands. The assessment, scheduled for completion in June, 1980 will include opportunities, needs, and problems in Hawaii, Guam, Saipan, Palau, Ponape, and Majuro.

- 2. Consideration of anadromous fish requirements in Pacific Northwest electric power legislation by means of 1977 Resolution 12 and 1978 Resolution 9.

PMFC joined with other fisheries advocates in urging inclusion of anadromous fisheries needs and enhancement programs in pending federal electric power legislation, in reaction to this and other public demand, S.885 passed by the Senate in 1979 contained an amendment (Church amendment) which is considered to be a significant first response to fishery needs. Certain aspects of the amendment required strengthening and PMFC supplied relevant testimony and suggestions concerning language to key Congressmen. (See 1979 Resolution 4 on page 11).

- 3. State role in marine mammal management by means of 1977 Resolutions 9 and 10, and 1978 Resolution 10.

In concert with other fisheries agencies and organizations, PMFC has continued to provide information to rationalize marine mammal management and to reestablish state initiatives and controls. Significant progress has been achieved through workshops and augmented research programs funded by NMFS with state cooperation and participation. In this regard, California contracted with PMFC in 1979 to determine the degree of damage by marine mammals to commercial and recreational fisheries with emphasis on the harbor seal, elephant seal, California sea lion, and Stellar sea lion.

- 4. Regional Council progress toward comprehensive salmon management plans by means of 1977 Resolution 12 and 13, and 1978 Resolution 9.

The Pacific and North Pacific Fishery Management Councils continue to work toward the development and implementation of comprehensive salmon management plans which incorporate freshwater requirements. PMFC's relevant resolutions regarding water quality and quantity, concerns for interspecies competition, among other important aspects, have received consideration in the development of plan objectives. PMFC has coordinated certain aspects of state input to those plans such as background documents developed in 1978, and has convened meetings of PMFC's Salmon and Steelhead Committee to identify areas of needed research and for upgrading data delivery systems in a timely manner (Appendix 3).

C. Actions supported by PMFC, but for which its input had less apparent impact.

- 1. U.S.-Mexico cooperation in anchovy management (1978 Resolution 3).

PMFC supported the Pacific Council position. To date Mexico has not been substantively responsive.

- 2. Restrictions in fishing privileges for nations restricting U.S. imports (1978 Resolution 13).

PMFC supported State of Alaska and North Pacific Fishery Management

Council positions on this issue; theirs was the decisive pressure.

- 3. Continue research and management of halibut resources and fishery (1978 Resolution 14).

U.S.-Canada agreements have extended the life of the International Pacific Halibut Commission, thus satisfying the intent of this Resolution, but without requiring the specific alternative processes proposed in it.

- 4. Coordinated planning for fishing harbor development (1978 Resolution 5).

PMFC distributed this resolution broadly, but has made additional substantive input only with respect to a Coos Bay development.

- 5. Control the transfer of fish pathogens (1978 Resolution 6).

PMFC has deferred to the Western Association of Fish and Wildlife Agencies for leadership in this effort, which has strong PMFC support.

- 6. Effects of seafood wastes on marine environments (1978 Resolution 15).

The project of major concern at the 1978 Annual Meeting has been completed successfully as PMFC's Resolution urged. PMFC continues to supply strong support to the ecological concepts basic to the Resolution via the Marine Fisheries Advisory Committee's Subcommittee on Seafood Processing Effluent Guidelines (Dr. Dorothy Soule, Chm).

D. PMFC Resolutions published as directed but without significant followup action. 1. Government-fishing industry cooperation for fisheries management (1978 Resolution 4).

PMFC published and circulated the Resolution as directed. No further implementation seemed necessary or appropriate, since the Council PMFC, and the agencies addressed already have mechanisms and practices in place for consultation with users and for cooperative planning.

Harville concluded this portion of his assessment of the resolutions process by commenting on the resolutions themselves. The effectiveness of a resolution is a function of its relevancy, worthwhileness, and amenability to practical response. If they are not relevant in these terms they should be discontinued.

On the other hand, if resolutions are relevant in these terms, then it is necessary to improve the mechanism to make them even more effective. Partial implementation begins with sending letters to individuals and agencies directly concerned with the subject matter of the resolution. These may be "special attention" letters to sponsors of Congressional legislation relating to fisheries matters of concern to PMFC member States, or to agencies directly involved. Full implementation occurs with formal publication in PMFC Newsletters and Annual Report, follow-up meetings where appropriate, and testimony before Congressional Committees. It is extremely important to note that resolutions are guidelines for action and provide the formal statement of PMFC policy and positions from which the Secretariat develops implementing materials such as letters and testimony. In February of this year, the General Accounting Office released its findings on the functions and activities of the interstate Marine Fisheries Commissions since passage of the FCMA. The GAO report was requested by Senator Magnuson in 1978. GAO commented on the advocacy role of the commissions and singled out PMFC's 1977

data for any given area or time period. Thus, given the low number of tags normally recovered, an accurate expansion factor is essential to adequately estimate stock parameters. Currently there is no regional consensus as to the best method for estimating stock size from tag recoveries nor are there reliable procedures to estimate essential confidence limits. In addition, there exist serious, long delays in the release of tag recovery and catch statistics for use by other agencies. To correct these deficiencies, the Committee recommends the following action:

Summary of priorities of the Salmon and Steelhead Committee and areas addressed by funding proposals								
Proposal <sup>1</sup>	\$ Amount	First priority (upgrade regional tag recovery data)					Second priority (hatchery production data)	
		Improved sampling coverage	Improved tag estimation procedures	Continued operation of RMPC	Improved in-season catch reporting	Increased data compatibility coastwide	Establish state data bases	Form regional data base at RMPC
ADFG: Tag Recovery Program.	276,000	X	X		X	X		
ODFW: 1. Oregon Ocean Salmon Tag Sampling	118,600	X	X		X			
2. Oregon & RMPC Information System Upgrade	120,000			X	X	X	X	X
3. Statistical Evaluation of Tag Recovery Sampling and Estimation Procedures	30,000	X	X					
4. Upgrade California Ocean Tag Recovery Program	13,000	X			X			
5. Establish Fish Cultural Information System	15,000						X	X
6. Ratios of Wild & Hatchery Coho in Oregon Fisheries	60,300				X			
RMPC: Continued Operation	34,000	X	X	X	X	X	X	X
Total	\$666,900							

<sup>1</sup> Oregon's proposals are arranged in order of their priority for funding and immediate action. Washington's proposals will be submitted through the Washington Salmon/Steelhead Research Council.

Continued Operation of the Regional Mark Processing Center

The Regional Mark Processing Center (RMPC), through the efforts of the Regional Mark Coordinator, has provided much needed services in the form of coastwide coordination of tag recovery programs, maintenance of regional data bases, and publication of regional tag recovery and mark list reports. Historically, federal funding for the Center has been provided under separate contracts for the RMPC and the position of the Regional Mark Coordinator. Since this artificial separation creates un-

The contracted biometrician also review estimation procedures and recommend necessary changes to ensure accurate estimation of stock parameters as well as provide confidence limits. Recommendations would also be provided on how to streamline state data processing and publishing procedures. These studies would be coordinated by the Regional Mark Coordinator to facilitate a cooperative approach and ensure regional compatibility.

necessary administrative costs, the Committee recommends:

that \$34,000 of the Saltonstall-Kennedy funds be allocated for the partial support of the Regional Mark Processing Center in FY 1981 with the understanding that the Compact States will provide the remainder of support (\$17,000) through the Pacific Marine Fisheries Commission. This allocation would terminate the cumbersome present distinction between costs required for the maintenance of the RMPC and the position of Regional Mark Coordinator.

## PRIORITIES FOR CONSERVATION AND MANAGEMENT OF PACIFIC NORTHWEST SALMONID STOCKS

A Report' from the Salmon and Steelhead Committee to the Executive Committee of the  
Pacific Marine Fisheries Commission, November 6, 1979

As directed by the Executive Committee of PMFC at the highest priority for the application of short-term funds to improve the Annual Meeting on October 1, 1979, the Salmon and Steelhead conservation and management of Northwest salmonid stocks. A Committee was convened in Boise, Idaho to determine priorities regional approach was favored, with first priority assigned to for improved conservation and management of Pacific Northwest improving and strengthening all aspects of coded wire tag recovery salmonid stocks. The state representatives present were:

Chairman—Al Davis (ADFG)	Ken Hall (ODFW)
Guy Thornburgh (ADFG)	Pat O'Brien (CDFG)
Dennis Austin (WDF)	Bill Yost (CDFG)
Tony Rasch (WDF)	Dave Ortmann (IDFG)
Steve Lewis (ODFW)	

Representatives of other agencies present were: Bob Smith (NMFS); Terry Holubetz, Columbia River Fisheries Council (CRFC); and Jeff Opdycke, U.S. Fish and Wildlife Service (USFWS). PMFC staff present were Grahame King, Ken Johnson, Clarence Pautzke and Russell Porter. Lee Alverson (NMFS) also was present for about half an hour to explain the process of allocation of Saitonstall-Kennedy funds (\$1.3 million) and respond to questions.

The outline of this report was generated by the Committee at the Boise meeting. The task of filling in the outline from minutes of the meeting and tape transcripts was delegated by the Committee to the PMFC staff. Detailed minutes of the meeting will be distributed at a later date, probably by the end of November. This report was prepared to aid PMFC's Executive Committee in its review of the proposed allocation of \$1.3 million Saitonstall-Kennedy funds. However, due to the procedure chosen by NMFS for allocating these funds and the severe time constraints involved, copies of this report were forwarded directly to the involved NMFS personnel. Specific detailed proposals from Oregon, Alaska and PMFC were included with the copies of the report for the same reasons. The Washington Department of Fisheries will be submitting specific proposals through a newly formed Salmon and Steelhead Research Council which also will represent tribal and other interests in that State. However, the recommendations in the section "Priority Areas of Immediate Concern" are supported by the State of Washington as well as the other PMFC member States. The following table summarizes the priority areas identified by the Salmon and Steelhead Committee and shows how each funding proposal addresses them.

### Priority Areas of Immediate Concern

The Salmon and Steelhead Committee identified the regional upgrading of current data delivery systems as the area of

### REGIONAL UPGRADING OF TAG RECOVERY DATA

The Committee unanimously recommends that: *"The highest priority should be given to the upgrading of existing tag recovery systems into an enduring regional system for delivering, to all users, adequate tag recovery data for all major fisheries that impact Pacific Northwest salmonid stocks. By adequate data are meant data collected and derived on a timely and statistically sound basis, and in a manner providing for compatibility between data collected by different agencies."* Under this heading, the following areas (all high priority) were identified as being of major concern:

#### Improved Sampling Coverage

Current estimates of stock distribution, abundance and harvest rates are generally inadequate for resource management requirements because of incomplete sampling coverage in both time and area. While not intending to single out any one State, the recent coho return in Oregon is a case in point. In spite of sampling over 20% of the landed catch, the sampling was believed biased because not all ports or time periods were covered. Similar situations exist with other agencies. While obvious gaps in sampling design are generally recognizable, it is often physically impossible to sample all ports and time periods. For this reason, the Committee members recommend the following action:

*Each State obtain the services of a qualified biometrician with statistical expertise to review its sampling program, and to design, if necessary, a statistically sound sampling coverage to produce a random sample. Recommendations would cover sampling techniques, areas covered, time periods and frequency. Interchange between the States would be facilitated by the Regional Mark Coordinator to develop a regional approach insofar as possible. Efforts must also be made to exchange data and procedural information with British Columbia.*

#### Improved Tag Estimation Procedures

Adequate stock assessment for management purposes is also highly dependent on accurate expansion of tag recovery

Resolution 3 calling for an increased level of federal funding for the Commercial Fisheries Research and Development Act (P.L. 88-309) as one example of the role of these commissions. This resolution and subsequent testimony by interstate Marine Fisheries Commission officials in Congressional hearings resulted in adding \$1.2 million to fiscal year 1979 appropriations.

### Service Functions

In addition to an evaluation of PMFC's resolutions process, Harville reviewed the scope and purposes of PMFC's operations in support of fisheries research and management. Earlier in the year, the Secretariat had requested recommendations regarding priorities on procedures and on activities concerning PMFC services and functions as these related to various state programs. The Secretariat received 28 responses—all of which indicated solid support for programs directly related to specific fisheries (e.g., albacore and salmon data collection and monitoring; PMFC-sponsored workshops and committee meetings). However, state scientists and managers were divided on the values of

their participation in the Annual Meeting and the usefulness of their fisheries reviews. They also were divided on the question of whether other agencies (e.g., Regional Fishery Management Councils, or States individually) could support these functions adequately in the absence of PMFC.

Harville perceived this question to be primarily one of assessing the values of these PMFC services, and determining if directions should be modified for future PMFC priorities and programs. To assist in that assessment, he summarized PMFC's contracts which support these activities—the dollars committed and manpower generated—from the following table. These services are grouped under four general headings (general administrative support, data management, specific fisheries-related, and special state services). It should be noted that the table considerably over-emphasizes the dollar-levels involved, which is by no means the most important criterion concerning service values to PMFC. Approximately half of the total external funding is for support in this region of the Marine Recreational

Analysis of PMFC external contracts in 1979									
Category and contract short title	Support				Man years	Total funds	Indirect cost income	Period of contract	Remarks
	Positions supported								
	PMFC	Calif.	Ore.	Wash.					
General administrative support									
Regional Council Support	1				1	\$26,000	\$3,400	10/1/78-9/30/79	Renewed
State/Federal Administrative Support (SFFMP)						16,000	2,100	10/1/78-9/30/79	Renewed
Pacific Islands Development Alternatives	0.5				0.5	80,000	7,200	9/25/79-6/25/80	New
Data management									
Regional Salmonid Mark Processing Center	1				1	31,200 7,000	—	7/1/79-6/30/80 3/31/79-9/30/79	On-going
Regional Data Consolidation	1				1	173,000	15,000	9/1/79-8/31/80	Renewed
Coastwide Data File Development						6,000	—		On-going
Regional Recreational Fisheries Statistics	1	10	4	8	16.75	525,000	46,300	7/1/79-6/30/80	New
Specific fisheries related									
Otolith Reader-Aging				1	1	13,700	—	7/1/79-6/30/80	On-going
Coastwide Albacore Logbook and Sampling Program		5		2	3.3	43,000	4,500	8/1/79-7/31/79	Renewed
Experimental Herring Fishery Observers				2	0.84	20,000	600	7/9/79-11/30/79	Extended
Marine Mammal Program Observers		9			2.25	25,000	3,200	7/1/79-6/30/80	On-going
Salmon Maturity Studies (Chinook & Coho)		1	3		1.2	25,700	—	4/1/79-3/31/80	On-going
Swordfish Observer Program		4			1	15,000	1,900	8/1/79-10/31/79	Extended
Harbor Seal-Fisheries Interaction			0.7		0.3	23,235	3,420	8/20/79-2/29/80	New
Special state services									
Washington Salmon Sampling				14	6.5	96,500	12,600	10/1/78-9/30/79	Renewed
Oregon Regional Council Support						20,000	1,700	10/1/78-9/30/79	Renewed
Totals	4.5	29	7.7	27	36.64	\$1,146,335	\$101,920		



Fisheries Statistics Survey, an important task to be sure, but by no means 50% of PMFC's operational responsibility or usefulness. Two of these four service categories only indirectly affect the working scientists and managers, and these involve some 22% of the total external funding.

*Administrative support* activities relate to PMFC's Pacific and North Pacific Fishery Management Council membership, general assistance to State/Federal programs, and a special short-term assessment of fisheries development alternatives for the Pacific Islands as follow-up on the Eastland Fisheries Survey. *State services* involve payroll support under contract arrangements with the individual States.

Of more direct interest to scientists/managers are the four projects concerned with data management (Regional Salmonid Mark Processing Center, Regional Data Consolidation, Coast-wide Data File Development, and the Regional Marine Recreational Fisheries Statistics Survey), and the seven projects relating to specific fisheries (otolith reading—groundfish, albacore, hering, marine mammals, harbor seals, salmon, swordfish). These 11 projects are supported by some \$900,000 in contract funds for the present fiscal year; they support 3 (short-term) positions on PMFC's headquarters staff; and they fund approximately 50 field sampling and supervisory positions in the States for some 28.6 man-years of work on these projects.

Some of these projects are "targets of opportunity" created primarily by funding and/or manpower limitations in certain States. PMFC has served as "broker" to handle funds and manpower required for these projects. Other projects (e.g., albacore and salmon) derive from earlier PMFC initiatives, and constitute sustaining actions by PMFC. Still others (e.g., regional data programs) constitute current PMFC initiatives on behalf of the member States and in support of improved regional management of shared fisheries. Harville commented that in his view these programs and procedures were clearly supportive of PMFC's broad goal and objectives, and that PMFC's services should be used wherever they can be helpful to assist the States to work cooperatively with each other and with the federal government.

If these projects and programs are deemed to have merit, another consideration must be their cost-effectiveness. Again, PMFC can demonstrate a good track-record, particularly for returns on dollars invested by the States. As the following illustration demonstrates, contributions by the States for support of PMFC in FY1979 totalled \$106,000. As the States' agent, PMFC will manage about \$1,087,000 in externally funded contracts for this fiscal year—a return on the States' investment of better than 10-1!

## Audience Response

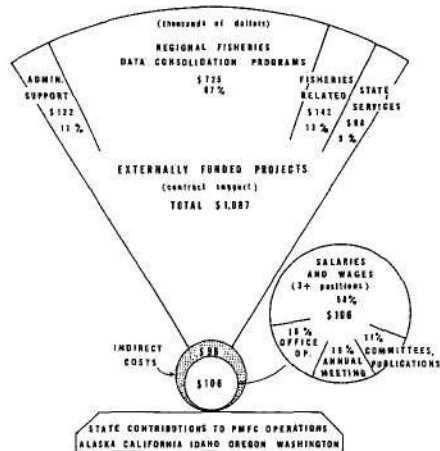
It was immediately obvious that the future role of the Commission was of interest to the participants. *Charles Collins*, Oregon Advisor, commented that political functions of PMFC presently cannot be duplicated by any other agency. In the absence of PMFC, other state and federal agencies, the Regional Fishery Management Councils, or new state departments would have to pick up the load. He cited the lack of research coordination among

the States in the early days and that it exists now as a result of PMFC's efforts.

*Irene Martin*, representing Washington Advisor Kent Martin, saw no major problem with PMFC's resolution process. She felt, however, that results from such meetings (Annual Meeting) would be greater if additional people could attend. Her proposed solution: schedule meetings such as this after fishing seasons so that more fishermen could participate in discussion of the issues, and consider appointing more women as Advisors since many women are fishing partners with their husbands and can speak on the issues. Mrs. Martin added that PMFC did not appear to be duplicating Regional Council functions.

*Ronald Skoog*, PMFC Chairman, asked about funding for in-state Advisors meetings that would precede the Annual Meeting. Harville responded that funding was available and that some member States conduct such meetings. Dr. Skoog continued by asking if the format of resolutions as presently used was acceptable or if a "position paper" approach was better.

*Robert Mace*, Deputy Director, Oregon Department of Fish and Wildlife, commented that position papers may provide an improved method of getting PMFC's points across to whomever will be the recipient of them. As written today, resolutions tend to use outdated language and several participants thought a concise statement of intent would provide a better image of what PMFC was attempting to accomplish. PMFC Commissioner, *Herbert Lundy* (Oregon) doubted that the general public (through the press) really knew what the Commission was doing and that,



PACIFIC MARINE FISHERIES COMMISSION OPERATIONAL BUDGET, FY 1979 (Funding by States: \$106,000) (External Contract Support: \$1,087,000, generating \$96,000 in indirect cost support, 4.5 man-years of headquarters staff support, 31 man-years of fisheries work in the States.

## Upgrade of Regional Mark Processing Center

While both the routine operations and the upgrading of the RMPC were funded from other sources, the Regional Coordinator had a key role to play in these areas. It was the Coordinator's duty to determine what the users required of the RMPC, and to recommend a plan for meeting those requirements and to supervise the implementation of the plan. It was also his duty to supervise the routine operations of the Center. During the transition phase from October 1977 through 1978 when the ODFW was still working on the 1976 tag recovery report, no tag recovery data for 1977 were received. Thus it was possible for the Coordinator to do some of the software (computer program) development while still carrying out his other duties.

## Increased Detail in Data Base

One of the users' requirements which was not being met by the RMPC in 1976 was the generation of a "release-oriented report" (see "Data Reports" below), which would summarize, on one or two pages, a year's recoveries along the entire coast for a given tag code. This report would include a summary of length data. There were two prerequisites for this; standard time periods and the collection of detailed recovery data on individual fish from the recovering agencies rather than the summarized data that had been collected. As long as the regional data base was to go to this level of detail, it was a small extra step to include in the base a wealth of detail that was desired by the Canadians. This helped to create an atmosphere more favorable to a complete exchange of machine-readable data between the United States and Canada (see discussion above). The data base was designed to include recovery data on individual fish and to allow the formation of summaries in a uniform time period of choice.

## Hardware and Software

The choice of computer hardware (equipment) and development of software were two important areas in which the Coordinator played a role. Although the final responsibility lay with the PMFC member States, the Coordinator did a feasibility study and presented an array of options to PMFC's Salmon-Steelhead Committee. It chose an on-line data base system which would include biological data on individual fish. To develop such a system, on the Coordinator's recommendation, PMFC contracted with the ODFW to share its minicomputer system. This allowed the RMPC to lease computer time through PMFC at a very competitive rate. Other benefits included fast turnarounds, on-line software development and the ease of budgeting for fixed predetermined computer costs.

The Regional Coordinator had the necessary background to supervise the software development and do some of the computer programming. The software development is not complete at this time but the system is developed to the point where it is possible to collect the detailed tag release and recovery data and generate the kinds of summaries that have been generated in the past. Software to generate "release-oriented reports" (see "Data Reports" below) has yet to be developed.

## Data Reports

Since being hired in May 1977, the Coordinator has supervised the publication of the 1976 tag recovery report. The 1977 tag recovery data have still not been submitted by any of the States except Washington and 1978 data have not been submitted by any State. This means that the States are more than a year behind schedule. However, this situation is being rapidly corrected and data from 1979 and later recoveries will be reported in a much more timely manner as the States upgrade their data processing operations. To minimize the problem of tardiness in the meantime, a modular approach was used in publishing the 1976 recovery report. This allowed sections of the report to be distributed independently when the data became available for the users to add to a loose-leaf binder. The loose-leaf binding had already been adopted but the modular approach in pagination and organization took maximum advantage of the loose-leaf binding.

So far it has been determined that one new type of report is required—a release-oriented report that summarizes all recoveries of a given tag code by area and time period of recovery. In the past all reports generated were "fishery-oriented" in that they summarized all recoveries of all tags in a given fishery by area and time period. Release-oriented reports have been produced by the State of Washington for recoveries in Washington fisheries of tags released by the Washington Department of Fisheries. Now that data at the necessary level of detail are being collected in the regional data base, it will be possible to generate such reports on a regional basis. The other prerequisite for the generation of release-oriented reports was the standardization of time periods. The interim method of standardization discussed above was sufficient to allow progress on this new report type.

Grahame King  
Pacific Marine Fisheries Commission, October 1, 1979

and include a chapter on types of marks available and restrictions on their use.

## United States-Canada Data Exchange

The United States and Canada have each been vitally interested in tag and fin-mark recovery data collected by the other. However, due to a variety of political pressures, funding limitations, and manpower problems there have been serious breakdowns in the exchange of machine-readable data between the two countries. The Canadians had, for many years, expressed a desire to talk to a single agency representing the United States and a reluctance to deal with individual States except on a very informal basis. This was a problem because the National Marine Fisheries Service was not able to represent the States. Once the Regional Coordinator position was created the relationship between the two countries improved because Canada could then talk on a one-to-one basis to the States through PMFC.

Another important step towards establishing an international exchange of machine-readable data was the standardization of time periods (see section on Standardization of Time Periods). An agreement between the two countries to exchange machine-readable data each year was reached at a meeting on August 30, 1978. Detailed formats were developed the next day based on formats already developed by the Regional Mark Coordinator for PMFC's member States.

## Standardization of Time Periods

One of the disagreements between the United States and Canada, which prevented a data exchange, was on the question of what time periods to use in making estimates and summarizing tag recovery data. The State of Washington uses the statistical month (a unit originally introduced by Canada)- Canada now uses biweekly periods for troll fisheries and weekly periods for net fisheries. The other States use various other time periods including semi-monthly and monthly (calendar). Also some agencies begin their week on Sunday and others on Monday and some even treat sport and commercial troll fisheries differently in this respect.

This problem was so intractable, because of in-house commitments, that only a very poor compromise was reached as an interim measure. It was agreed that each agency with ocean recovery programs would make their estimates using whatever time periods they saw fit. These estimates would then be expressed in terms of expansion factors that could be applied on a per-tag basis. This means that estimates can be summarized in any time periods desired giving results consistent with those obtained by the recovering agency.

## Future Needs for Coordination:

While many problems have been solved, there is still a great need for regional coordination in the following areas:

### 1. Standardizing Time Periods

Although an interim solution to the problem of coastwide standardization of time periods was found as discussed above, there is no basis for this solution in theoretical statistics. Therefore this area is one in which further intensive work is required on a cooperative basis.

### 2. Improving Timeliness of Data Reports

Another major problem has been the tardiness of data delivery by the States and Canada. Invariably the critical elements are the catch statistics. While the States report good progress towards more timely data delivery, there is still a need for a person with regional responsibility to act as the conscience of the more tardy agencies. In June, 1979, an emergency meeting of PMFC's Salmon-Steelhead Committee was called to address just this problem. The committee drafted a very strong recommendation to the directors of the state fish and game agencies asking that the necessary priority be given to the generation of salmon catch statistics so that tag recovery reports for each year could be distributed in June of the following year. This echoed a recommendation of a similar meeting three years earlier but the times have changed and definite steps are being taken so it is reasonable to believe that results will be seen soon.

### 3. Standardization of Sampling Design and Techniques

The tag sampling agencies have only recently begun to look critically at their sampling designs and estimation techniques on a regional basis. The Regional Coordinator could continue to facilitate such a review and implement any resultant changes required in the regional data base.

### 4. Possibility of Expansion of Data Base

There are many directions in which the regional data base might evolve (see section on Upgrade of Regional Mark Processing Center). One area in which there has been recent pressure to change is the release data. There have been proposals to collect more detailed data on each tag release group. There has also been a proposal to include data on total hatchery production. Also the tag recovery data base might be expanded by the addition of hatchery rack recoveries and river recoveries. The data base has already been designed to allow for this latter change. Any such changes should only be implemented after thorough planning with input from all users and from suppliers of the data. This is an obvious function for the Regional Coordinator in the future.

perhaps, a public relations expert might help in establishing an improved public image. *Dr. Harville* commented that PMFC's relations with the public were not too effective and, for the most part," public relations were left to the individual States. But, in dealing with the Congress, correspondence transmitting PMFC intent contains background information appropriate to the issue. Often it is the background information that provides the impetus to action. No consensus was reached regarding the use of resolutions versus position papers.

The service functions of PMFC were uniformly considered valuable by Advisors and the Scientific and Management staff. *Rupert Andrews*, PMFC Coordinator for Alaska, said PMFC fills a need for the scientists of the member States to have regular opportunities to exchange information with regard to mutual programs. *Andy Mathisen*, Alaska Advisor, commented that program support functions and projects were necessary and valuable but he also felt the results should be more evident considering the expense.

*John Gilchrist*, California Advisor, strongly supported the multi-purpose aspects of PMFC. He commented that it was wrong for the Commission to place responsibility for implementing resolutions solely on the Executive Director. He believes the Commissioners and other participants should also act to implement the resolutions. By acting in concert, all can provide far more support for resolutions and other PMFC actions, than can the Executive Director alone. To provide the proper platform for implementing the resolutions, Gilchrist recommended: (1) a list of standards be developed; (2) proposals for resolution must meet these standards in order to be considered at the Annual Meeting; (3) compliance to standards is the responsibility of the Executive Committee; (4) each adopted resolution is to be sent to the member States with a request they also take implementing action. Gilchrist further believes PMFC should act as a buffer between the Regional Fishery Management Councils and Congress. *Andy Mathisen* agreed that all concerned with the viability of PMFC have a responsibility in implementing resolutions. *Harville* commented there was need for him to work more closely with individual state fisheries directors to improve dissemination of resolutions.

## Action by the Chairman

On the basis of Executive Committee directives in 1978, the analysis of PMFC's functions provided by the Executive Director, and the discussion by the meeting's participants, Chairman Skoog named an ad hoc committee to draft a statement of direction that the Commission might follow relative to resolutions. Along with these instructions, Harville suggested that this committee also address PMFC's service functions and the annual meeting format. The committee consisted of: Charles Collins (Oregon Advisor), Harold Lokken (Washington Commissioner), Edward Greenhood (PMFC Coordinator for California and acting Commissioner), Joseph Greenley (Idaho Commissioner), John Gilchrist (California Advisor), Rupert Andrews (PMFC Coordinator for Alaska), and Henry O. Wendler (PMFC Staff). They were

instructed further to develop recommendations in time for adoption prior to adjournment of the 1979 Annual Meeting. The following is the *Draft Statement of the Ad Hoc Committee to Review PMFC Role*:

"The Pacific Marine Fisheries Commission has been an effective organization in securing regional coordination of state fishery matters involving research and management, and providing a forum for fishery problems of mutual concern among its member States. However, recent federal legislation creating Regional Fishery Management Councils requires a re-definition of the role of PMFC and how this compact can best serve its member States in the future.

"PMFC can and should be an advocate for its member States before the U.S. Congress. As an advocate, it will maintain an awareness of proposed and pending legislation as it may impact fishery programs of the respective States and represent those States in gaining support from Congress and other governmental agencies.

"The Committee established to consider the future role of PMFC was charged to address four concerns: (1) the resolutions process, (2) assistance to the States in maintenance of liaison and program development between state and federal agencies as appropriate, (3) improving implementation of resolutions, and (4) the annual meeting format.

"In developing the resolutions process, the Committee believes that guidelines and standards need to be developed by the Commission which should contain the following elements: a) conformance to established standards, b) judgement by the Executive Committee that resolutions are in conformance to these standards, c) need for the author of a resolution to be present when the resolution is being considered, d) adopted resolutions are to be implemented by not only the Executive Director but also by member States of PMFC, and by others as pertinent.

"In reference to establishing the future role of PMFC with respect to the four items above, the Committee believes in making current, the goals and objectives of the Commission which were adopted in November 1970. The Committee recommends that Commissioners and Advisors collectively develop a plan for implementing and transmitting adopted resolutions to legislative delegations of the member States. These efforts to be in addition to instructions given by the Commission to the Executive Director.

"The present meeting format is acceptable with the caveat that length and content will depend on the importance of issues brought before the Commission. Finally, the Committee recommends that standards for the resolution process be developed by the PMFC Secretariat in accordance with PMFC goals and objectives and the above guidelines in time for approval by the Executive Committee at its next meeting."

er Martinis and some of the Ad-  
ve was too strongly directed to the  
ge was suggested without a con-  
y Wendler, however, that the draft  
line for developing procedures and  
n Skoog directed the Secretariat  
standards, criteria, and acceptable  
Commissioners, Advisors and in-  
well in advance of the 1980 Annual

## on 1978 Resolutions

ns adopted by the Commission in  
ion by the Secretariat to obtain  
Congress or other individuals and  
and their subject matter were:

1978 Resolutions 1 and 2: PMFC  
f fisheries development, supported  
ake to Pacific whiting, worked for a  
ferment of Saltonstall-Kennedy  
fisheries Development Conference  
ty study of a West Coast Fisheries

3 Resolution 5: PMFC provided a  
ne Coos-Curry (County) Develop-  
tailing the needs of the fishing in-  
ed harbor facilities as this nation  
resources under the preferential  
A. In November, 1979 the National  
NMFS) published a notice in the  
a program to fund such harbor  
notice to the Director of Coos-Curry  
ong with a letter urging that ad-  
ding source.

Salmonids—1978 Resolution 9:  
Congressional legislation relating  
At the request of Oregon, PMFC  
red to be weak language in an  
st Power Bill. PMFC worked with  
of the Columbia River Fisheries  
er language (see 1979 Resolution

## 1979 and Supporting Actions

itted to PMFC's Advisors, Scientific  
Commissioners, six (Resolutions 1,  
y all five Compact States and one  
Resolution 7 was approved with  
gon voting for and California and  
ed Resolutions bear their original  
ation of these Resolutions began

with their publication in *PMFC's Newsletter No. 32* in November  
1979. The Newsletter mailing list of approximately 1,100 address-  
ees includes federal and Pacific state agencies, the Congres-  
sional delegations of Alaska, Washington, Idaho, Oregon, and  
California, plus interested entities involved in the widely-based  
fisheries industry.

Concomitant with the Newsletter, explanatory transmittal  
letters and copies of relevant Resolutions were mailed to mem-  
bers of the Pacific and North Pacific Fishery Management  
Councils; to National Oceanic and Atmospheric Administration  
(NOAA); Marine Fisheries Advisory Committee (MAFAC) and its  
Chairman, Terry Leitzell, Assistant Administrator for Fisheries,  
NOAA; Chairmen and members of Congressional Committees  
and Subcommittees with interest in fisheries matters; and the  
Governors of the Pacific States. The complete texts of approved  
Resolutions and a summary of additional supporting actions to  
date are provided below.

### 1. Continue and Increase Funding for Fisheries De- velopment with Saltonstall-Kennedy Funds

*WHEREAS, the Pacific Marine Fisheries Commission in 1978  
through its Resolution 2 urged the President to release Salton-  
stall-Kennedy funds for the express purpose of enhancing the  
harvesting, processing, and marketing sectors of the fishing  
industry; and*

*WHEREAS, the United States Senate in early 1979 unani-  
mously approved Resolution SO directing release of some \$6  
million of these funds in FY 79; and*

*WHEREAS, the Office of Management and Budget earlier had  
impounded these funds to the detriment of the fishing industry;  
and*

*WHEREAS, these funds are urgently needed to enhance these  
sectors of the fishing industry; and*

*WHEREAS, administrative policy seeks to stop funding for  
fishery development with Saltonstall-Kennedy funds as desig-  
nated by Congress; and*

*WHEREAS, this administrative policy intends to replace exist-  
ing legislation with yet unspecified fisheries development legis-  
lation subject to budgetary control of OMB and the Executive  
Branch;*

*NOW BE IT THEREFORE RESOLVED, that the Pacific Marine  
Fisheries Commission requests that the Congress continue to  
support Saltonstall-Kennedy funding and, to the extent possible,  
augment funding from this source; and*

*BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries  
Commission opposes the Administration's stated intent to sup-  
plant Saltonstall-Kennedy funds with funds included in NMFS's  
base funding "budget."*

Unanimously approved by the five Compact States: Alaska,  
California, Idaho, Oregon and Washington.

## Action

Letters explaining the need and requesting continued support

## Appendix 3—Coded Wire Tag Studies & Salmonid Priorities

### FINAL REPORT TO PACIFIC NORTHWEST REGIONAL COMMISSION ON CONTRACT FOR REGIONAL COORDINATOR —CODED WIRE TAG STUDIES

## Background

Marking procedures (fin dipping, tagging etc.) have long  
been used by state and federal agencies to obtain essential  
information on migratory behavior and population parameters of  
salmonid stocks for effective management. Prior to the 1970's,  
successful recovery of mark data depended largely on individual  
interagency exchanges. Recognizing the serious need for re-  
gional summaries of these data the Oregon Department of Fish  
and Wildlife established the Regional Mark Processing Center  
(RMPC) at Clackamas. Operation of this center during the period  
of 1970-1976 resulted in the publication of annual regional sum-  
maries of fin mark and tag recovery data for the various Pacific  
Coast fisheries.

In June 1976 PMFC's Salmon-Steelhead Committee re-  
commended the creation of a Regional Mark Coordinator position  
to meet the growing need for better communication and coopera-  
tion between agencies involved in the tagging of salmon and the  
recovery of tags. Areas of particular concern were the standardi-  
zation of time periods used in summarizing tag recoveries, and  
delivery of the tag recovery reports on a timely basis. PMFC  
obtained funding for this position from Pacific Northwest Regional  
Commission (PNRC) beginning in February 1977. After an an-  
nouncement of the position was circulated and candidates were  
interviewed by the Salmon-Steelhead Committee, Grahame King  
was hired to the position on May 13, 1977.

## Interagency Coordination

### Adoption by PMFC of Regional Mark Processing Center

In July, 1977, the RMPC was placed under PMFC's supervi-  
sion by PMFC's Executive Committee (comprised of the heads of  
the fish and game departments of PMFC's member States). The  
Regional Coordinator had recommended this as a first step in  
improving communications because PMFC was in a better posi-  
tion to function as an intermediary between the various state and  
federal agencies. Since ODFW was in the midst of publishing the  
1976 tag recovery data reports at the time, the personnel working  
on this task were kept on it under the Coordinator's supervision.  
PMFC secured funding for the Center for one year, beginning  
October 1st, 1977, from the National Marine Fisheries Service.  
The sum of \$42,000 was applied to upgrading of the Center's data  
processing functions to an on-line data base system (see Up-  
grade of Regional Mark Processing Center).

## Survey of Sampling Sites

In August and September, 1977, the Re-  
gional Coordinator was invited to tour all the major sampling sites  
in Oregon to Juneau, Alaska. Personnel from  
agencies, the National Marine Fisheries Service, the  
Department of Fisheries and Oceans partici-  
pated in the tour which had already been arranged between the  
United States and Canada to ensure that each country was satis-  
fied with the sampling procedures. The Regional Coordinator  
toured the California sampling sites and the Oregon sampling  
survey. The survey fulfilled its prime function of  
providing a basis for the development of acceptable sampling  
procedures; all parties were satisfied in general. Some con-  
structive criticisms were made and acted upon. The Regional  
Coordinator gained a familiarity with all the different agencies  
involved in the later task of editing the Pacific Salmon  
Tagging workbook (see section on Workbook).

## Workbook and Workshops

To further improve interagency communication, a "workbook" was conceived, which  
would contain the procedures used by all agencies involved in an-  
nual tag studies from design through implantation, sampling,  
data processing and analysis. To initiate the workbook, a  
three-day workshop was held at Astoria, Oregon, in November,  
1977. At the end of November, 1977, the Regional Coordinator  
met with the participants in a single group, the participants split  
into working groups by specialty: tagging, sampling, tag re-  
covery, and data processing. The morning sessions were spent  
in discussions. Preliminary writing assignments were given  
before the next workshop in November 1978. The workbook  
was published in a three-ring binder in a format that would  
facilitate subsequent updates including the changes in the  
chapters.

The November 1978 workshop in Vancouver, British Columbia,  
attempted to focus on the areas of statistics and data processing.  
Two technical papers were presented and discussed, but  
discussions did no more than spotlight major problems.  
This meeting also included representatives of the National  
Marine Fisheries Service and was split into working groups  
by specialty and was split into working groups by specialty.  
An update of the PSST workbook is in progress. The workbook  
as reflecting some of the proceedings of the 1978 workshop  
update package will correct errors, reflect changes, and add new  
information.

metric tons (83.8 million pounds) in 1,220 vessel days. Mexico rounded out the foreign fisheries with 3 trawlers fishing almost exclusively near Kodiak and the Shumagin Islands. Mexico took 10,397 metric tons (22.9 million pounds) of groundfish using 551 vessel days.

## Enforcement & Surveillance

During 1979, the second full year of FCMA enforcement on the foreign fleets off Alaska by joint NMFS-Coast Guard patrols, totals of 98,069 surface miles and 275,360 aircraft miles were patrolled. NMFS Special Agents covered 25 percent of the total miles patrolled in 1979. There were 6,814 sightings of foreign vessels. Personnel from surface vessels boarded 879 Japanese, 126 Soviet, 166 South Korean, 4 Taiwanese, 79 Polish, and 26 Mexican vessels. These boardings resulted in 8 citations, 20 violations, and 6 seizures of Japanese vessels; 7 citations and 21 violations against Soviet vessels; 1 citation, 3 violations, and 3 seized South Korean vessels; 2 seized Taiwanese vessels; 2 citations against Polish vessels; and 2 citations and 6 violations against Mexican vessels. Total penalties paid for foreign violations and seizures in 1979 are to date \$743,900, however, several cases being prosecuted under the civil penalties system have yet to be settled.

## WASHINGTON, OREGON AND CALIFORNIA

The foreign fishing effort off Washington-Oregon-California in 1979 was limited to the Soviet Union and Poland. Mexico received an allocation for Pacific hake but chose not to participate in the fishery. FCMA regulations for 1979 allowed, as in 1978, a trawl fishery within the FCZ from June 1 through October 31; however, foreign participation in this fishery was terminated prior to October 31 when the incidental catch quota for sablefish was reached in early October. The U.S.-U.S.S.R. joint venture operation expanded this year, allowing participating U.S. fishing vessels to deliver their catch to five Soviet trawler-processors, an increase of three over the two used in 1978.

## Soviet Union

Vessels of the Soviet Union were permitted to fish for an allocated 132,077 m.t. of Pacific hake and 3,963 m.t. of jack

mackerel. The Soviet fleet began fishing on June 1 and by the end of the month 28 stern trawlers were fishing in the FCZ off northern California and southern Oregon. Fishing operations followed the same general pattern as in 1977 and 1978 with a gradual movement of the fleet northward to south-central Oregon by August when the fleet reached a peak of 35 stern trawlers. Soviet participation in the trawl fishery was terminated on October 10 when the incidental catch quota for sablefish was reached. The Soviet catch for 1979 amounted to 96,836.8 m.t. of hake and 710.2 m.t. of jack mackerel. Catches of incidental species were: Pacific Ocean perch (POP) 45.9 m.t.; all species of rockfish (including POP) 789.5 m.t.; flounder 12.2 m.t.; sablefish 157.1 m.t.; and other miscellaneous species 155.8 m.t.

## Poland

Poland received an allocation of 23,323 m.t. of Pacific hake and 700 m.t. of jack mackerel. Five stern trawlers entered the fishery in June conducting their fishing operation off northern California and southern Oregon in a fishing pattern similar to that of 1978. By July the fleet had increased to nine stern trawlers, however, only seven conducted fishing operations at any one time. The termination of the Polish fishery occurred on October 8 when it reached its incidental catch quota of sablefish. Total catch for 1979 was: Pacific hake 18,072.6 m.t.; jack mackerel 315.9 m.t.; Pacific Ocean perch 8.3 m.t.; all species of rockfish (including POP) 149.2 m.t.; flounder 2.1 m.t.; sablefish 41.3 m.t.; and other miscellaneous species 32 m.t.

## Boardings and Violations

During 1979, FCMA boardings and inspections were made on 113 foreign vessels. These boardings were conducted by NMFS Special Agents and personnel of the U.S. Coast Guard. Three Documentation of Violations and eight citations were issued to foreign fishing vessels for violations. An additional 15 possible infractions of FCMA regulations are currently under investigation.

and augmentation of Saltonstall-Kennedy funds for fishery development were sent to Senators Kennedy, Magnuson and seven co-sponsors of S. 1656 in time for inclusion in the record of hearings scheduled on this bill. Similar letters were sent to members of the House Subcommittee on Fisheries, Wildlife Conservation and the Environment who were considering H.R.5243, the companion bill to S.1656, and to the Committee on Merchant Marine and Fisheries.

## 2. Extend Capital Construction Fund and Loan Guarantee Program to Shoreside Facilities

WHEREAS, maximum public benefits from the Fishery Conservation and Management Act of 1976 will come only when domestic fishermen and the fishing industry can fully utilize through domestic channels the resources available to them on a preferential basis in the Fishery Conservation Zone; and

WHEREAS, this full utilization of fishery resources requires the integrated development of domestic harvesting, processing, distributing, and marketing capabilities; and

WHEREAS, under present laws, the Capital Construction Fund established by the Merchant Marine Act of 1936 as amended, presently cannot be applied to the shoreside facilities so urgently needed in this integrated development of the domestic fishing industry; and

WHEREAS, representatives of the fishing industry specifically endorsed extension of Capital Construction Fund provisions to include shoreside facilities directly related to harvesting, processing, and marketing of fishery products as a major recommendation of the Eastland Fisheries Survey (Eastland Fisheries Survey, a Report to the Congress, May, 1977; p. 21, Sec. B.3.); and

WHEREAS, at the recent (May 23-24) National Conference of Fisheries Development fishing industry spokesmen strongly objected to government proposals to delay action on this issue to permit further study;

NOW BE IT THEREFORE RESOLVED, that the Pacific Marine Fisheries Commission strongly supports the immediate extension of the Capital Construction Fund and the Obligation Loan Guarantee Program as established under the Merchant Marine Act of 1936 as amended, to include shoreside facilities directly concerned with processing and marketing of domestic fishery products.

Unanimously approved by the five Compact States: Alaska, California, Idaho, Oregon and Washington

## Action

Both Resolutions 1 and 2 related to fishery development and transmittal letters for Resolution 1 included comments on Resolution 2. Senate-House conferees on the Maritime Authorization Bill (S.640) rejected inclusion of shoreside facilities under the Capital Construction (CCF). On October 30, however, Senators Packwood, Magnuson and Long offered an amendment to S.1656 which would allow extension of the CCF to

shoreside facilities so that the private sector can accumulate the capital it needs to develop these facilities. The loan guarantee program is included in this amendment since it is a necessary complement to the construction fund. These Resolutions, along with appropriate transmittal letters, were sent to members of Subcommittees of both Houses reviewing this legislation.

## 4. Equal Consideration for Maintenance of Anadromous Fisheries in Power Production and Other Water Use Programs

WHEREAS, Pacific salmon and steelhead trout fisheries constitute a renewable natural resource of inestimable economic and recreational value to the people of the United States; and

WHEREAS, maintenance of Pacific salmon and steelhead trout fisheries and their restoration to optimum productivity require major improvements in management of the water resource to accommodate freshwater spawning, early rearing, and migration phases of the salmon life cycle; and

WHEREAS, man-made modifications in streams and rivers nurturing these anadromous fish can irretrievably damage those fisheries resources unless the needs offish for adequate water quantity and quality are accommodated in the planning and operations processes; and

WHEREAS, the United States Congress is actively developing a Pacific Northwest Electric Power Planning and Conservation Act, which specifies new guidelines for power development in the Northwest, with particular attention to hydroelectric resources of the Columbia River Basin; and

WHEREAS, Congressional leaders have indicated interest in incorporating consideration for anadromous fisheries needs into this new legislation, and a significant step in that direction has been achieved by inclusion of Idaho Senator Frank Church's "fisheries amendment" in S.885 as approved by the Senate on August 3.

NOW THEREFORE BE IT RESOLVED, that the Pacific Marine Fisheries Commission urges the appropriate Congressional Delegations and the members of the concerned Subcommittees in the House of Representatives to strongly support strengthening of S.885 by requiring equal consideration for fisheries needs with other uses for water resources.

Unanimously aproved by the five Compact States: Alaska, California, Idaho, Oregon and Washington

## Action

No other Proposal adopted in 1979 generated as much action as did this Resolution. Letters of transmittal were sent to Congressional Committee Chairmen and individual members of every Committee and Subcommittee concerned with energy legislation and its potential effect on anadromous fishery resources of the Pacific Northwest. S.885 when originally introduced by Senator Jackson was silent on provisions for protection of anadromous fish. Subsequently, an eleventh hour amendment to S.885 was offered by Senator Church which required the

Council (established by the legislation) to "consider" certain recommendations for fishery protection. Another proposed amendment by Congressman Bonker would, among other things, direct the Council to "implement" rather than "consider" fishery protection mandates. PMFC endorsed the October 19, 1979 testimony of Terry Hotubetz, Executive Secretary of the Columbia River Fisheries Council, to the Subcommittee on Energy and Power of the House Interstate and Foreign Commerce Committee, for inclusion of fishery protection language in S.885 and H.R. 3508, as amended.

## 5. Priority Funding for Coastwide Salmon Tag Recovery

WHEREAS, tag recovery information is critical to the coastwide management of Chinook and coho salmon resources; and

WHEREAS, tag recovery programs provide a data base required for developing and understanding ocean salmon fishery management plans of both the Pacific Fishery Management Council and the North Pacific Fishery Management Council; and

WHEREAS, salmon tag recovery programs supply data pertinent to negotiations between Canada and the United States in regard to salmon interception negotiations; and

WHEREAS, THE Pacific Coast States have conducted tag and recovery programs for a number of years; and

WHEREAS, the cost of such programs, especially that of the recovery phase, is becoming prohibitively expensive;

NOW BE IT THEREFORE RESOLVED, that the Pacific Marine Fisheries Commission requests that the National Marine Fisheries Service substantially increase the funding of the Pacific Coast States tag recovery programs through augmentation of the established grant-in-aid programs, (PL88-309) Commercial Fisheries Research and Development Act and (PL89-304) Anadromous Fish Conservation Act; or by direct funding through programmatic money provided to the West Coast Fisheries Centers.

Unanimously approved by the five Compact States: Alaska, California, Idaho, Oregon and Washington

## Action

Letters explaining the need for funding for these programs were sent to appropriate state and federal agencies. In addition, PMFC's Saimon-Steelhead Committee was directed by the Executive Committee to develop proposals for short-term anadromous fisheries research. The Salmon-Steelhead Committee met in Boise on November 6, 1979. It identified the needs for improving the conservation and management of northwest salmonid stocks, and priorities for support from a \$1.3 million surplus in Saltonstall-Kennedy funds being administered through NMFS Northwest and Alaska Fisheries Center. First priority was assigned to Tag Recovery Programs in Alaska, Oregon, and California, with emphasis on a coastwide approach. Proposals reflecting these needs and priorities were sent to NMFS in mid-November for initial review and subsequent presentation to the

Salmon/Steelhead Research Council established in the State of Washington to document, assess, and prioritize salmon and steelhead research and development, and to make recommendations to governmental bodies, and to PMFC's Executive Committee (see page 46).

## 6. Support for Development of Coastwide Data Resources of Adequate Quality and Timeliness for Effective Fisheries Management under FCMA

WHEREAS, effective fisheries management requires timely data of high quality; and

WHEREAS, fisheries must be managed over their range which may transcend state and federal boundaries, and particularly in the case of salmonid species throughout a wide variety of marine and inland habitats, thus requiring a highly coordinated effort to produce compatible data on a coastwide basis; and

WHEREAS, these compatible data must be provided simultaneously to all participants in the decision process, including the Councils, States, NMFS, certain private sector elements, and the public; and

WHEREAS, the Pacific Marine Fisheries Commission's geographical scope encompasses all relevant Pacific coast elements; and PMFC historically has participated in collecting, organizing and disseminating fisheries data through the Groundfish Data Series, Crab and Shrimp Data Series, Regional Mark Processing Center, and Albacore Logbook Program; and

WHEREAS, the PMFC accords high priority to the achievement of compatible data of acceptable quality and timeliness for management of fisheries subject to multiple jurisdictions or subject to Fisheries Management Plans developed pursuant to the provisions of the Fishery Conservation and Management Act of 1976;

NOW THEREFORE BE IT RESOLVED, that member States accord high priority to achievement of compatible, timely data necessary for management and that the Pacific Marine Fisheries Commission requests that the NMFS work closely with the States and the PMFC, assisting with funding where necessary and appropriate, to facilitate production of compatible data, and to simultaneously take steps necessary to assure the flow of federally generated data compatible with those from the States; and

BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries Commission requests the Pacific and North Pacific Fishery Management Councils to support the data management activities of the States, NMFS, and PMFC through joint planning, letters of understanding, and appropriate financial participation.

Unanimously approved by the five Compact States: Alaska, California, Idaho, Oregon and Washington

## Action

The delay in providing timely information for management purposes is caused by a lag in obtaining current catch statistics. Although this is true of nearly all fisheries; PMFC's Salmon and

(INPFC). The total number of foreign vessels present monthly in Alaskan waters ranged from 121 to 515 and the total vessel days of effort was 73,568 (201.6 vessel years). The Bering Sea and Aleutian Islands area accounted for 86 percent of the effort and 89 percent of the total foreign catch. Compared to 1978, total foreign effort off Alaska was up 11 percent while the overall catch was down 4 percent.

## Japanese Fishing

Japan again dominated the foreign fisheries off Alaska in 1979, fishing under all FCMA management plans, and conducting a high seas salmon fishery regulated by the INPFC. A total of 596 Japanese vessels fished off Alaska in 1979. Involved were five pollock factory ships and one yellowfin sole factory ship. These ships were accompanied by 60 pair trawlers, 17 Danish seiners, and 13 small trawlers. Additionally, there were 103 medium trawlers, 23 large trawlers, 25 longliners, 2 crab factory ships with 13 crabpot vessels, 11 independent crabpot vessels, 3 snailpot vessels, 4 salmon factory ships, 172 gillnet vessels, 40 refrigerated transports, 14 cargo vessels and 5 tankers. Total number of vessels present per month ranged from 74 to 469, with peak activities in June and July. The pollock and crab factory fleets fished the central and northern Bering Sea, the flounder factory ship worked the Bering Sea flats southeast of the Pribilof Islands, the salmon fleet operated in the western Aleutian Islands. The remaining vessels ranged over the full breadth of Alaska's fishing area.

Japanese fishing effort was 61,934 vessel days (169.7 years), or 84 percent of the total foreign effort off Alaska for 1979. This effort produced a total catch of 1,116,130.2 metric tons (2.5 billion pounds), or 76 percent of the total foreign catch. Pollock dominated the catch and represented 73 percent of the Japanese harvest. Other species in the total catch were flounders at 13 percent, salmon and crab combined were 2 percent, and miscellaneous species formed the remaining 11 percent. The Bering Sea provided 94 percent of the catch, and the Gulf of Alaska 6 percent, similar to 1978.

Two crab factoryships and 13 associated catcher boats, plus 11 independent crabpot vessels fished in the Bering Sea in 1979. A total of 3,728 vessel days were used to land a catch of 14,954 metric tons (33 million pounds) of Tanner crab. The 1979 factoryship season ran from late February to late August and the independent crabpot vessels were active from early May to early October.

Japan's snail fishery was greatly reduced down from 8 vessels in 1978 to 2 vessels in 1979. These vessels fished from mid-July to early September, using 136 vessel days to land 573.2 metric tons (1.26 million pounds) of snails from the north central Bering Sea.

Gulf of Alaska waters produced only 6 percent of Japan's catch off Alaska in 1979, down slightly from 8 percent in 1978. Total landings were 71,608 metric tons (1.6 million pounds) and

were predominantly pollock, flounders, and cod. Longliners, and medium and large stem trawlers fished in the Gulf of Alaska. Twenty-three longliners, fishing for blackcod (sablefish) and Pacific cod fished a total of 2,944 vessel days, while 22 trawlers targeting on groundfish put in 2,291 vessel days. Trawlers fished all areas of the Gulf of Alaska, but longliners fished only those waters west of 140°W longitude (waters eastward were closed to ailing by regulation). The effort was predominantly focused in the Kodiak and Shumagin Islands areas.

## Soviet Fishing

The Soviet Union continued as the second most important foreign fishing nation off Alaska again in 1979. A fleet of 126 trawlers and transport vessels utilized 5,096 vessel days to secure a total catch of 177,826 metric tons (392 million pounds). This was 12 percent of the catch and 7 percent of the effort for all foreign fishermen. Total vessels present monthly off Alaska ranged from 5 to 45, with major effort exerted in the January to March and October to November periods. Of the total catch 83 percent was landed in the Bering Sea and 17 percent in the Gulf of Alaska. The Soviet catch consisted of 42 percent pollock, 30 percent flounder, 17 percent Atka mackerel (greenling), and 11 percent miscellaneous species. The winter herring catch was 5,394 metric tons (11.8 million pounds), down from 13,145 metric tons in 1978. The overall Soviet catch was reduced 28 percent from 1978. The Soviet Union briefly conducted a joint venture effort with two U.S. trawlers in the Gulf of Alaska in late summer. The catch and effort amassed by this brief fishery were minimal.

## South Korea Fishing

South Korea conducted a versatile fishery in 1979, using traditional trawlers and longliners while introducing a factory ship as a processor and receiving catch from U.S. catcher boats and larger Mexican vessels. South Korea landed 127,357 metric tons (280.1 million pounds) using 4,562 vessel days. The Bering Sea accounted for 77 percent of both catch and effort. South Korean vessels landed 9 percent of the total foreign catch off Alaska in 1979. Joint venture operations with U.S. vessels accounted for only 194 vessel days and a small catch.

## Other Nations

Three additional nations operated sporadically in Alaskan waters in 1979. These nations were Taiwan, Poland, and Mexico who collectively landed 3 percent of the catch with 3 percent of the effort of all foreign nations off Alaska. All 3 nations used stem trawlers to land the catch of predominantly pollock. Taiwan sent 3 vessels to the Bering Sea in 1979. These vessels landed 2,007 metric tons (4.4 million pounds) with 205 days of effort. Poland fished in both the Bering Sea and Gulf of Alaska, dispatching 14 vessels off Alaska. These vessels evenly divided their effort between the Bering Sea and the Gulf of Alaska, landing 38,029

and adopted by the Alaska Board of Fisheries, stock exploitation rates of 15%-30% of the estimated biomass are allowed when biomass is at least 40% of historic levels and age composition is balanced.

Kodiak landings (PMFC Area 54) reached only 14.5 million pounds, 8.3 million pounds below the 1977 catch and only 17% of the record catch of 82.2 million pounds in 1971. Most historic production areas were not opened for fishing in 1979. The Alitak Bay-Olga Bay complex was the major producer with landings of 5.7 million pounds. Catches from Puale and Wide Bays, two new areas fished in 1978, declined from 9.1 to 3 million pounds. Ugak Bay, which had been closed since 1973, opened for fishing in November but a severe storm hampered fishing and 19 vessels landed only 500,000 pounds of the 750,000-pound quota during a 7-day season. Trawl surveys indicate continued depression of all major stocks except Ugak and Alitak Bays.

Chignik. South (Alaska) Peninsula and Aleutian districts' (PMFC Area 55) landings continued to decline, reaching only 30.1 million pounds. Chignik landings totalled 23.7 million pounds, nearly the same as in 1978 but below the record of 27.8 million pounds in 1977. Although the Stepovak Bay and Mitrofanian Island stocks in the Chignik district are depressed, stock abundance and production has remained high in the Chignik Bay and Kujulik Bay sections. These two sections contributed over 16 million pounds to the total Chignik district catch. The South Peninsula district catch was only 3.1 million pounds, 8.7 million pounds below 1978 and 43.4 million pounds below the 1977 record. Pavlof Bay produced 2.9 million pounds of the South Peninsula catch but was far below the record of 25.7 million pounds in 1977.

Cook Inlet (PMFC Area 53) landings of 4.5 million pounds

This information was provided by the Alaska and Northwest Regional offices of the National Marine Fisheries Service. It was not available at PMFC's Annual Meeting.

FOREIGN FISHING ACTIVITY OFF

ALASKA

The Fishery Conservation and Management Act (FCMA) in 1979 regulated foreign fishing in the 3- to 200-mile fishery conservation zone (FCZ) for the third successive year off Alaska. Two Preliminary Management Plans (PMPs) remained intact from 1978 for the Bering Sea and Aleutian Islands Trawl and Herring Gillnet fisheries and the Snail fishery. Plans finalized at the close of 1978 and in effect for 1979 included Fishery Management Plans (FMPs) for Gulf of Alaska Groundfish and Tanner Crab fisheries. These FMPs control both foreign and domestic fishing within the FCZ. The former PMP for sablefish was absorbed into groundfish plans regulating the Bering Sea and Gulf of Alaska.

were 3 million pounds less than in 1978. However, abundance of trawl shrimp stocks remains relatively high with the catch for the 1979-80 season reaching 6.2 million pounds. The 1979-80 season harvest was separated into three subseasons beginning July 1, October 1, and January 1, which were further divided into about 9 weekly fishing periods with a catch quota for each period. The pot shrimp fishery landed 242,000 pounds, slightly above the present quota of 200,000 pounds.

Prince William Sound (PMFC Area 52) landings reached a new record of 610,770 pounds, surpassing the 1978 record of 448,417 pounds. Exploratory effort by Kodiak based vessels and processing in Valdez accounted for the increase.

Southeastern Alaska (PMFC Area 51) landings of 982,580 pounds were nearly the same as in 1978. Stock abundance is still below historic levels but is slowly improving.

Trawl surveys by the ADF&G indicate continued severe depression of several major stocks in the Western Gulf of Alaska. The 1980 season will be heavily dependent on continued production from Alitak, Kujulik and Chignik Bays. Stocks appear to be improving in the Ugak Bay, Mitrofanian Island and Unga Straits sections and may provide some fishing.

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Within these plans, foreign fisheries added a new dimension as the nations of the USSR and South Korea entered into Joint Venture operations with U.S. entities. The USSR conducted op-

THE PACIFIC COAST IN 1979

erations with U.S. vessels in the central and eastern Gulf of Alaska. South Korea worked with U.S. vessels in the central and western Gulf of Alaska, and also was intimately involved in assisting Mexico in developing its fledgling Alaskan efforts. South Korea allowed Mexican deliveries to South Korean transports and provided technical expertise onboard Mexican ships.

Six foreign nations dispatched vessels to Alaskan waters in 1979. Japan, USSR, South Korea, Taiwan, Poland, and Mexico dispatched nearly 800 vessels and reported landings of 1.47 million metric tons (3.2 billion pounds) of groundfish, salmon, crab, and snails. Most of these vessels operated under management plans of the FCMA. Japan utilized 176 vessels of the total foreign fleet to land salmon on the high seas, which fishery is regulated by the International North Pacific Fishery Convention

Steelhead Committee proposals, prepared for the Executive Committee to aid in its review of allocation of \$1.3 million S-K funds, addressed this subject in regard to salmonids (see page 46).

7. Opposition to Oregon Initiative Petition to Prohibit Oregon Non-Treaty Commercial Fishing of Spring and Summer Chinook on the Columbia River

WHEREAS, an Oregon initiative petition to prohibit Oregon non-treaty commercial fishing of spring and summer chinook on the Columbia River is being circulated; and

WHEREAS, because commercial fishing on the Columbia River is jointly controlled by Oregon and Washington through an interstate compact, approved by the United States Congress, unilateral action as proposed by the initiative raises serious legal questions; and

WHEREAS, the proposed initiative, if enacted into law, would not achieve the desired purpose as State of Washington non-treaty commercial fishermen would not be affected by the Oregon initiative but would simply move into the river fishery to fill the void left by the absence of Oregon non-treaty fishermen, resulting in no material change in the harvest of Columbia River spring and summer chinooks; and

WHEREAS, such permanent closure as this measure proposes would continue the growing and dangerous pattern of political management of fisheries; and

WHEREAS, the Oregon Department of Fish and Wildlife and the Washington Department of Fisheries have been administratively managing these runs to preserve the runs and provide fish to all user groups; and

WHEREAS, this administrative management has prevented commercial fishing on two out of three of these runs for the past several years in an effort to rejuvenate the runs; and

WHEREAS, the proposed initiative petition would permanently stop Oregon non-treaty commercial harvesting of these fish, even if the runs, as anticipated, are regenerated;

NOW BE IT THEREFORE RESOLVED, that the Pacific Marine Fisheries Commission opposes this initiative petition and urges instead that fisheries be managed at all levels by the best qualified administrators acting upon the best available scientific data.

Adopted by the States of Washington, Oregon and Alaska. California and Idaho abstained.

8. Reaffirm Opposition to Ben Franklin Dam

WHEREAS, Congress has approved funding for the Corps of Engineers to re-examine the feasibility of constructing Ben Franklin Dam on the Columbia River; and

WHEREAS, construction of this dam will eliminate the last major upriver spawning area for fall Chinook and steelhead in the Columbia River; and

WHEREAS, this area accommodates from 15,000 to 30,000 fall chinook spawners annually; and

WHEREAS, harvest production from these spawners in this

area provides great social and economic benefits to sport and commercial fishermen along the entire Pacific Coast; and

WHEREAS, Pacific Marine Fisheries Commission Resolution 17 in 1968 expressed unalterable opposition to authorization or construction of Ben Franklin Dam,

NOW BE IT RESOLVED, that the Pacific Marine Fisheries Commission strongly reaffirms its opposition to the construction of this dam.

Unanimously approved by the five Compact States: Alaska, California, Idaho, Oregon and Washington

Action

A copy of this Resolution was included as an enclosure in letters transmitting Resolution 4 and sent to appropriate Congressional Subcommittee Chairmen, Corps of Engineers, and the President. Congress appropriated \$100,000 in FY 1979 and another \$400,000 in FY 1980 for the Corps of Engineers to resume feasibility studies for construction of this dam in the Hanford Reach—the largest remaining remnant of main-stem Columbia River spawning habitat for chinook and steelhead. Because of environmental concerns relating to fisheries and the possibility that the lake behind the dam might raise ground water levels sufficiently to leach radioactive water from the Hanford nuclear complex into the Columbia River, Senator Magnuson asked that this dam be excluded from hydro projects being considered.

Committee Reports on PMFC Activities Regional

Fisheries Data Consolidation Project

Clarence G. Pautzke, Assistant to PMFC's Executive Director and Team Leader for the Coastwide Fisheries Data Project presented the following: We on the Pacific Coast are on the verge of an immense improvement in our capabilities to provide high quality, timely information for fisheries management. Fisheries management is a very complex process, in which the primary role of the resource manager is to make decisions concerning the resource and its users. It is this decision role that our data systems must support. We must make decisions using the best scientific information available. Further, the standard for that best scientific information must improve over time.

To expedite this improvement, the Pacific Marine Fisheries Commission, with funding from NMFS, established and provided staff support for the Committee on Goals and Guidelines for Regional Fisheries Data Consolidation. This Committee is composed of data processing and resource management personnel from all major Pacific Coast fishery resource agencies including the five States, three NMFS Regions, two NMFS Fisheries Centers, and two Regional Fishery Management Councils.

The Committee pursued three main tasks this past year. First was the completion of the Coastwide Data Files for 1974-76.

These files contain landings and vessel data from Washington, Oregon, and California and are now being merged at the Southwest Fisheries Center. A summary file with landings by vessel, species, week, gear type, State and port will be available with the merged files by January 1980. The second task was facilitation of the Marine Recreational Fisheries Survey. This survey is currently being conducted in Washington, Oregon, and California and provides monthly catch with a 2-month lag. Greatest emphasis was on the third task, the analysis of data requirements for regional fisheries management.

The three primary objectives of this analysis were defining 'data requirements, determining data availability, and recommending alternatives for improving this availability. These objectives were pursued by interviewing resource and data managers, examining various fishery plans, charting the flow of data through the resource agencies, and retaining a consultant, Dr. Norman Sondak, Chairman of the Information System's Department of San Diego State University. The Committee's attention has focused on three major fisheries—salmon, groundfish, and shrimp. Today I will report our progress, drawing mainly on the Pacific Fishery Management Council's Groundfish Plan for examples. Before beginning, I want to stress the evolutionary nature of this type of analysis. As fisheries management under FCMA evolves, so will the information requirements.

Data Requirements

Turning first to the data requirements of fisheries management, I noted earlier that our information systems must support the decision maker. The gathering, processing and reporting of information are the initial steps of the overall decision process. Information flows into the cognizant agency through a variety of collection mechanisms. It is processed and then disseminated to the resource manager for eventual decision and action, which may or may not impact the fishery.

Data processing is a time consuming, but critical step that improves the usability of the data by reducing error, accumulating data for specific time periods and areas, and generally making the information available to the manager (Figure 1). This overall

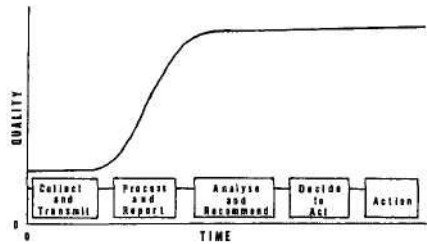


FIGURE 1. The data-decision process and change in quality of information over time.

increase in quality of the data during processing is the benefit. The tradeoff for quality is timeliness which is a cost. However, timeliness is affected by more than just data processing. Each subsequent step in the decision process adds time and delays the impact of the data on the fishery.

This simple process model may be illustrated using in-season management of the groundfish fishery. The current Groundfish Plan specifies 13 measures the Council may employ (Table 1). Three justifications for these actions include the point of concern, allocation adjustment, and harvest guidelines adjustment. The point of concern mechanism reflects concern for the biological condition of the stocks, allocation adjustment indicates concern for distribution of the harvest among the participants, and harvest guidelines adjustment simply corrects an underestimated optimum yield (OY).

Table 1. In-season management measures and their basis according to the Pacific Fishery Management Council's Groundfish Plan (November 1979)			
Management action	Basis for action		
	Point of concern	Allocation adjustment	Harvest guideline adjustment
1. Close area to all	x		
2. Close area to some	x	x	
3. Stop directed fishing	x		
4. Limit incidental catch	x		
5. Change/restrict gears	x		
Other necessary measures	x		
6. Impose quotas	x		
7. Impose trip limits	x		
8. Impose size limits	x		
9. Prohibit landings	x		
10. Adjust DAH		x	
11. Release reserves		x	
12. Release DAH to FF		x	
13. Adjust OY			x

DAH (domestic annual harvest), FF (foreign fisheries), OY (optimum yield)

These management measures are the end product of decision processes identified in the Plan (Figure 2). The processes for point of concern and harvest guideline adjustment are identical. The Plan Team assesses information generated from the fishery, may decide to act, reports its recommendation to the Council for Council and public consideration. The NMFS's Regional Director then acts upon a Council recommendation, and the management action is taken after publication in the *Federal Register*. In-season release of reserves, as it is now specified in the Plan depends on the Regional Director assessing the stocks. His proposed actions are published in the *Federal Register* and then considered by the Council. The Regional Director then acts by releasing the reserves. Emergency actions, a fourth basis for action, relies on input from any of several sources: State, Council, Team, or NMFS.

Oregon

Oregon ocean shrimp landings of 29.4 million pounds were about half the 1978 record catch of 57 million pounds. The 1979 catch, however, is third highest after the record 1977 (second) and 1978 (first) catches. The 1979 catch was made by 203 vessels, an increase of 17 vessels over the 1978 total. Shrimp were periodically most available off the northern coast of California and the southern coast of Washington, enticing Oregon vessels to stray from traditional beds and inducing out-of-state boats to remain off their respective home ports most of the season. Processors were prepared for a big season with 20 newly installed peeler machines, bringing the total to 87. As in 1978, there were 26 processors buying shrimp. The number of buying stations fell from 38 in 1978 to 28 in 1979. The ex-vessel price for shrimp was 32 cents per pound from April through early May. Prices jumped to 35 cents and then to 42 cents by early June. From late June through season's end (October 15), the price stabilized at a record 46 cents per pound, 64% above the 1978 price of 28 cents per pound.

The Coos Bay and Blanco shrimp grounds (PMFC Area 86) produced 50% of Oregon's landings. Total production from PMFC Area 86 was 14.6 million pounds compared with 1978 landings of 41.3 million pounds. Season catch rates for double-rigged vessels fishing the Blanco and Coos Bay grounds averaged 491 and 419 pounds per hour, respectively. The 1978-year class (age I) comprised close to 50% of the shrimp sampled for the season, while the 1977-year class contributed 45%. Counts per pound reached a high of 122 in May and a low of 77 in September.

Landings from PMFC Area 88 totalled 1.8 million pounds, only 29% of the 1978 catch of 6.2 million pounds. The Brookings ground produced 1.0 million pounds of the total landings from this area compared to 5.9 million pounds last season. Northern Oregon (PMFC Area 82 and 84) shrimp production remained relatively low at 3.6 million pounds, the same as in 1978.

The overall season catch rates of 399 and 270 pounds per hour for double and single-rigged vessels, respectively, were down considerably from the 1978 season averages of 879 and 621 pounds per hour, respectively. Oregon based vessels landed 7.8 million pounds of shrimp caught off Washington, nearly equaling the record 8.0 million pounds caught in 1977. Destruction Island grounds (PMFC Area 72) yielded a record 3.4 million pounds while the Grays Harbor grounds (PMFC Area 74) produced 4.2 million pounds. Landings from California waters by Oregon based vessels were 1.3 million pounds.

Washington

Ocean shrimp landings totalled 12 million pounds, slightly less than the record 1978 catch of 12.3 million pounds. By November, a total of 49 vessels (5 single-rigged) had 5 or more landings of shrimp compared to 33 vessels in 1978. Market demand remained strong with a sharp increase in price from 28 cents per pound in January to 46 cents per pound in August. The price remained 46 cents per pound through December.

Early in the season fishing effort concentrated off Grays Harbor (PMFC Area 74) shifting in late March to the Destruction Island shrimp beds (PMFC Area 72) where catch per effort for double-rigged boats reached the season high of 915 pounds per hour. Unusually high counts per pound, ranging from 138 to 158, were found in sampled landings from the Destruction Island area. In June the fishing effort shifted back to the Grays Harbor area and catch per effort dropped to 382 pounds per hour. Fishing continued primarily in the Grays Harbor area through the remainder of the year. Catch per effort remained low in Grays Harbor and Destruction Island areas with year end averages of 411 and 571 pounds per hour, respectively. May had the highest poundage landed of 3.3 million pounds or 30% of the year's total landings.

Several boats fished the Coos Bay and Bandon shrimp grounds (PMFC Area 86) and Northern Oregon (PMFC Area 84) during April. Catch per effort averaged 810 pounds per hour with a total of 430,000 pounds landed from those areas for the month of April. Willapa Bay shrimp grounds (PMFC Area 75) received little effort except during August when 173,000 pounds or 15% of the monthly poundage was landed. Catch per effort from the Willapa Bay area during August averaged 300 pounds per hour.

Sampling showed commercial catches in March to be comprised of ages I-9%, II-65%, III and IV-26%. Recruitment of the 1978-year class resulted in age I individuals comprising 53% and 75% of June and October samples, respectively. Counts per pound ranged from 98 to 158 with a season average of 122 reflecting the high percentage of one-year-olds.

British Columbia

Preliminary pandalid shrimp landings (all species combined) in British Columbia during 1979 were 1.2 million pounds. The reason for the low landings was the poor year-classes in the ocean shrimp fishery off the west coast of Vancouver Island. Pot fishing for prawn, "spot shrimp" *Pandalus platyceros*, reached an all-time high, accounting for 44% of the total catch.

Alaska

Pandalid shrimp landings (primarily *Pandalus borealis*) continued to decline dramatically in the Gulf of Alaska. The 1979 catch was 50.7 million pounds, 22.6 million pounds less than 1978 and only 39% of the record 129 million pounds in 1976. This decline reflects the continued depression of most stocks in the Kodiak, Chignik, Alaska Peninsula and Aleutian shrimp districts. Seasons in many fishing sections of these districts have been reduced to provide maximum protection of stocks during breeding and egg bearing periods. Several major production areas remain closed and most seasons are opened and closed by Alaska Department of Fish and Game (ADF&G) emergency order based on trawl survey results and commercial fisheries performance. According to a stock recovery plan proposed by ADF&G

## SHRIMP FISHERY IN 1979

States and Canada totalled 98.4 million pounds, a decline of 61 million pounds from 1978 and 100 million pounds below the 1977 record of 199 million pounds (Table 1). Alaska landings continued to decline sharply. Ex-vessel prices reached new record highs ranging from 22.5 cents per pound in Alaska to 46 cents per pound off Washington and Oregon. Combined landings from Washington, Oregon and California totalled 46.4 million pounds, a decline of 36.1 million pounds from the record high 82.3 million pounds in 1978. Washington landings of 12 million pounds were nearly equal to the record 1978 production and nearly double the 10-year mean. Oregon landings reached 29.4 million pounds, the third highest total but only 51% of the 1978 record. California landings of about 5.0 million pounds were far below the 1978 record of 13.2 million pounds, but were still slightly above the 10 year average. British Columbia landings totalled 1.2 million pounds, much lower than the 1978 catch and 10-year mean of about 3 million pounds. Alaska landings reached 50.8 million pounds, the lowest total since 1967 and only 39% of the 1976 record 129 million pounds, and were 43.9 million pounds below the 10-year mean.

## Conditions Affecting the Fishery

The numbers of vessels engaged in shrimp fisheries off Washington, Oregon and California reached record highs but poor weather, ocean upwelling, small shrimp, and overcrowding of vessels contributed to the overall reduction in landings. Alaska's lowest catch in 10 years reflected the continued depression of most of its shrimp stocks. Record ex-vessel prices indicate a continued strong market demand for shrimp. British Columbia landings declined due to successive years of poor recruitment to the shrimp stocks off the west coast of Vancouver Island.

## California

Ocean shrimp (*Pandalus jordani*) landings totalled 5.0 million pounds for the season, down 8.2 million pounds from the 1978 catch of 13.2 million pounds. The 1978 catch was the second highest in the history of the California fishery.

Area A (Crescent City-Eureka; PMFC Area 92) landings totalled 4.1 million pounds, a large decrease from the 1978 season total of 11.1 million pounds. A record 71 vessels (35 double-rigged and 36 single-rigged) engaged in the fishery. The average catch rate for the season was 468 pounds per hour for the double-rigged and 336 pounds per hour for the single-rigged boats. The season was closed from July 15 to August 15 because the catch rate was less than 350 pounds per hour for two consecutive weeks and the year-class composition exceeded 70% one-year-old shrimp. The season was terminated on October 13 because fishery performance fell below established criteria to continue the season.

No catches were reported from Area B-1 (Fort Bragg; PMFC Area 94). Although some effort was expended, no commercial quantities of shrimp were located. Last season a record 2.1 million pounds were landed.

Only 4,385 pounds were reported caught in Area B-2 (Bodega Bay, PMFC Area 96). This is the second consecutive year that the area has been virtually unproductive.

Area C (Morro Bay-Avila; PMFC Area 98) shrimp landings totalled a record 864,867 pounds. The highest previous catch was in 1953 when 199,000 pounds were landed. Most effort was expended in 90 to 125 fathoms off Pt. Sal, and in 100 to 120 fathoms between Pt. San Luis and Pt. Buchon. A total of 18 vessels participated. Average catch per hour for all reporting vessels was 744 pounds per vessel. Average count per pound of sampled shrimp was about 65 with a range of 41 to 133.

TABLE 1. Annual shrimp landings, 1969-1979, and previous 10-year means in pounds by region

Year	Alaska	British Columbia	Washington	Oregon	California	Total
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
1977	116,871,605	6,200,000	11,400,000	48,580,022	15,663,451	198,715,078
1978	73,292,614	3,100,000	12,298,000	56,997,105	13,163,243	159,850,962
Mean	94,724,371	2,905,750	6,230,419	25,344,908	4,029,990	134,651,760
38.79	50,774,943	1,200,000	12,000,000	29,416,950	4,969,252	98,361,145

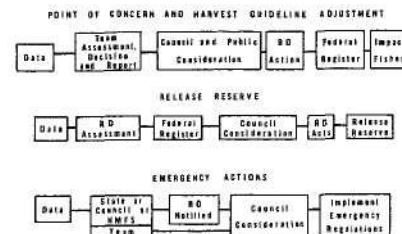


FIGURE 2. In-season management decision processes identified in the Groundfish plan. (RD = Regional Director, NMFS).

Each of these decision processes requires information. It is the data manager's responsibility to provide this information. To do so effectively, the data manager must have clear specification of data needs by the resource manager. And this is my first main point: *Improving the information environment for fisheries management depends first on improving communication between the resource manager and the data manager.*

Arriving at the complete specification of data requirements is no easy task. First, the fishery management plan may be examined. For example, the current groundfish plan lists these general information types as necessary to support management actions (Table 2). These general information types are based on certain data generated from the fishery by various collection mechanisms: (1) fish tickets give total weight of catch, species composition, port, gear, and price; (2) port sampling gives length, weight, age, sex, and species composition; and (3) logbooks and interviews give fishing time, area, gear, vessel type, and species composition.

A second way of defining data needs for management is to discuss the problem directly with the fishery plan team. Our Data Committee met with the Groundfish Plan Team on December 7, 1979. The following data specifications were generated at that meeting: (1) first priority was assigned to the monthly reporting (within 7 days after month endings) of preliminary landings by species by area and gear type; (2) second priority was given to the quarterly reporting (within 6 weeks after quarter endings) of biological data according to species such as: length, weight, age, sex, and maturity. These specifications are for reporting by the pertinent state fishery agencies on the U.S. commercial fishery. For the foreign fishery, weekly catch reports are required. When 90% of the annual allocation has been reached, daily reports are required.

These reporting specifications influence our ability to manage the fishery. I noted earlier that the decision process requires time. Now we can estimate exactly how much time is required between the collection of data from the fishery and the implementation of a management action. Consider the closing of the fishery! Data reported monthly within 7 days would be, on average, about 20 days old. To this must be added the time required for a decision to be made. The Northwest Regional Office of

Table 2. Types of information required for in-season management decisions specified in PFMC Groundfish Plan (November 1979)

Basis for action	General information types
Point of concern and stock assessment	<ol style="list-style-type: none"> <li>1. Cumulative catch</li> <li>2. Exploitable biomass vs optimum</li> <li>3. Recruitment vs average</li> <li>4. Age at maturity vs normal</li> <li>5. Age or size composition</li> <li>6. Fishing mortality</li> <li>7. Catch rate</li> <li>8. Effort, strategy, technology</li> <li>9. New stock or biology data</li> <li>10. Interspecies relationships</li> <li>11. Other pertinent data</li> </ol>
Allocation adjustment	<ol style="list-style-type: none"> <li>1. U.S. catch and effort</li> <li>2. Catch and effort projections</li> <li>3. DAH, DAP ranges</li> <li>4. Processor and JV projections</li> <li>5. U.S. harvest intent and use patterns</li> </ol>
Harvest guidelines adjustment	<ol style="list-style-type: none"> <li>1. Catch rates</li> <li>2. Effort, strategy, technology</li> <li>3. New stock status or biol. condition data</li> <li>4. All other pertinent data</li> </ol> and if available: <ol style="list-style-type: none"> <li>5. Stock size</li> <li>6. Recruitment</li> <li>7. Age at maturity</li> <li>8. Age composition of catch</li> <li>9. Fishing mortality</li> </ol>
Emergency regulations	<ol style="list-style-type: none"> <li>1. Unforeseeable circumstances</li> </ol>

DAH (domestic annual harvest), DAP (domestic annual processing capacity), JV (joint venture).

NMFS estimates it would require about 2 to 3 weeks for NMFS to respond to a distress signal from the fishery. This includes review by the Regional Office and the Head Office in Washington, D.C., and publication of emergency regulations in the *Federal Register*. With an additional 1 to 3 days to close the fishery, the total decision process from data collection to impact on the fishery would require about 40 days. Applying this time delay to average groundfish landings in Oregon, if the above circumstances arose in late July during the period of high harvest rate, the catch could increase by 30% over the catch on July 31. Dr. D. L. Alverson (NMFS) has pointed out that harvest rate probably would not remain the same if the stocks were really distressed. However, some harvest would continue while the decision process transpires. This underscores my second major point: *The status of the stocks may change significantly while the data are being processed and analyzed, and the management decision is being made.*

It is therefore incumbent on the resource managers to carefully consider the limitations placed on their ability to manage by the time lag introduced by the data-decision process. There seems to be a tendency to base data specifications on the past or



current abilities of the available data systems. Which leads to my next major point: *Date specifications must be based on current and future fisheries management needs, not on past data systems performance.*

#### Data Availability

Given the above reporting requirements, can the resource agencies perform to these specifications? Groundfish catch data are generated from four fishery categories: foreign fisheries; joint-ventures; and domestic recreational, and commercial fisheries. NMFS monitors the first two categories. Foreign catch is radioed weekly from the fleet via the U.S. Coast Guard or private operator to an embassy in Washington, D.C. (for Soviets) or designated representative in New York (for Polish). The NW Regional Office obtains the catch data by telex and places it on the NMFS Catch and Monitoring System within 4 days after the week of landing.

Domestic commercial groundfish catch data are generated through the States by three basic mechanisms: fish tickets, logbooks/interviews, and port sampling. The flow of information through the state agencies, from collection of the data to the generation of a report for the resource manager, has been charted for groundfish, salmon, and shrimp in Washington, Oregon and California. The flow is very complex as shown here for the Washington Department of Fisheries groundfish data (Figure 3). I will only point out that this type of analysis has several basic purposes. First, it reveals where rate-limiting steps are. For example, in Washington's system, a time-consuming step is previewing of the fish tickets to reduce the number entering the error cycle. A very labor intensive step is transcribing log data to interview sheets in the field. A second purpose of the flow analysis, then, is to indicate what improvements will increase the overall efficiency of the process. For example, in Washington for the 1980 season, the addition of two people to the groundfish staff would allow

greater field sampling coverage and decrease the data processing delay from the current 3 months to 7 days. A third advantage is that flow analysis allows one State's data manager to know what is happening in another State. For example, Washington, Oregon, and California all enter data twice in order to verify the entry operation. In Alaska, data are entered only once but heavily machine edited. Dr. Kenneth Hall (ODFW) estimates that with Oregon data, entry verification detects about 10 errors in 1,000 entries. The question is whether double entry is really needed in Washington, Oregon, and California? If Alaska's format were followed in Washington, Oregon and California, the entry rate could be doubled by these States with little increase in error level.

These analyses are just part of the overall improvements being made in state and federal data systems on the Pacific Coast. It appears that, if funding is adequate, the state agencies and NMFS will have the following catch reporting capabilities for the 1980 season (shown as reporting delay in days after statistical time period):

	CDFG	ODFW	WDF	NMFS	Plan specifications
Groundfish	7	7-14	7	4	Monthly within 7 days
Salmon	7	12	3	—	Weekly within 14 days
Shrimp	30	14	14	— ?	

CDFG = California Dept., Fish & Game;

ODFW = Oregon Dept., Fish & Wildlife;

WDF = Washington Dept., Fisheries

The review of these activities and capabilities leads to my next main point: *Major strides are being made by the States and NMFS toward improving their capabilities to provide timely, high quality data for management under FCMA.*

The Oregon troll season for coho was also shortened, and the landings in 1979 totalled about 5.3 million pounds of troll-caught coho compared to 3.2 million pounds landed in 1978. The 10-year average was 6.4 million pounds.

California troll coho landings were about 1.2 million pounds in 1979. This was 300,000 pounds less than the estimated landings in 1978, and 900,000 pounds less than the 10-year average of 2.1 million pounds.

#### Troll Pink Fishery

An estimated 23.6 million pounds of troll-caught pink salmon were landed in 1979. The landings in Alaska (2.5 million pounds), British Columbia (18.2 million pounds), and Washington (2.8 million pounds) were above odd-year record levels in those three northern regions. Only 100,000 pounds were landed in Oregon.

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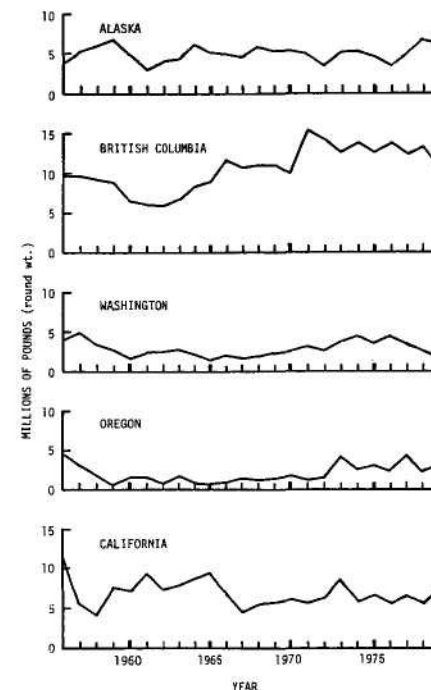


FIGURE 3. Annual troll <sup>chiseok</sup> coho salmon landings by area, 1956-77 and preliminary 1978-79.

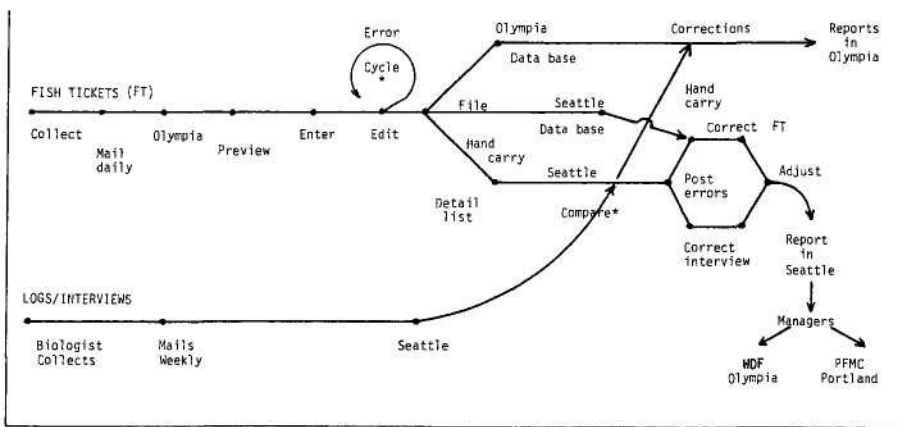


FIGURE 3. Flow of groundfish data in Washington Department of Fisheries. \*Indicates critical need.

gon. A 10-day closure at the end of July occurred in Washington and northern Oregon waters to provide escapements of Chinook salmon. Selected waters were also closed to protect coho salmon in Southeastern Alaska, and ocean salmon fisheries were terminated early in most Washington and Oregon waters to help guarantee coho escapements.

### Troll Chinook Fishery

Alaska troll-caught Chinook landings were about 6.3 million pounds in 1979, only 400,000 pounds less than the recent record in 1978 (Figure 2). The 10-year average was 4.8 million pounds.

British Columbia troll chinook landings of about 10.8 million pounds were 2.0 million pounds less than the 10-year average and 2.4 million pounds below the 13.2 million pounds in 1978.

Washington 1979 troll chinook landings were about 1.8 million pounds compared to a 10-year average of 3.2 million pounds and 1978 landings of 2.4 million pounds.

Oregon troll chinook landings for 1979 were about 3.0 million pounds. This is about 800,000 pounds greater than 1978 landings, and 600,000 pounds above the 10-year average of 2.4 million pounds.

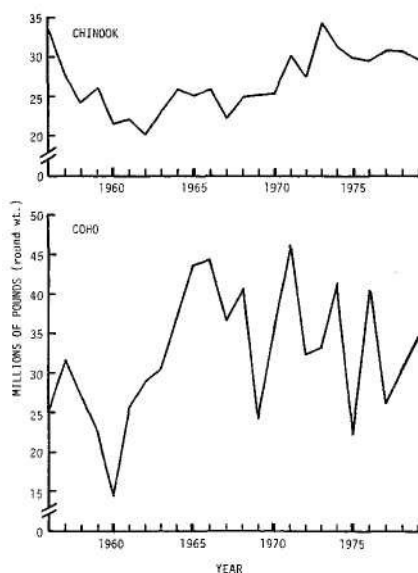


FIGURE 1. Pacific Coast annual landings of troll-caught chinook and coho salmon, 1956-77 and preliminary 1978-79.

Estimates of 7.6 million pounds of chinook for the 1979 California troll salmon fishery were 1.3 million pounds above the 10-year average and 1.6 million pounds over the 1978 landings.

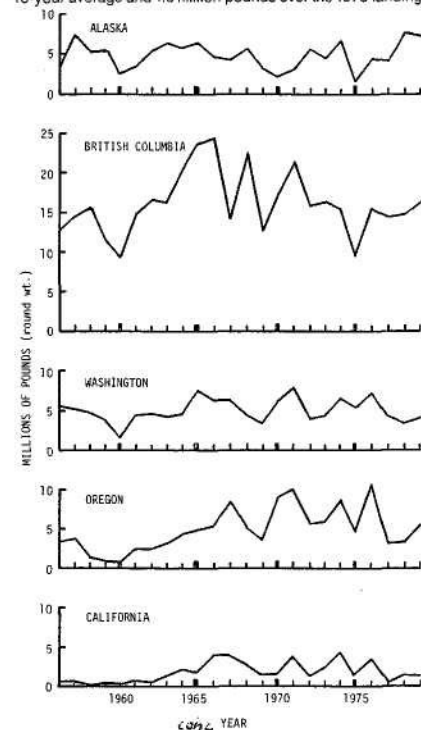


FIGURE 2. Annual troll o&flook salmon landings by area, 1956-77 and preliminary 1978-79.

### Troll Coho Fishery

Alaska troll coho landings for 1979 were an estimated 70 million pounds. This was down from the 1978 landings of 7.8 million pounds (Figure 2), but was still approximately 2.7 million pounds greater than the 10-year average of 4.3 million pounds.

British Columbia troll coho landings were around 16.9 million pounds. This was 1.6 million pounds greater than the 10-year average of 15.3 million pounds. Landings in 1978 were 14.9 million pounds.

Washington troll coho landings totalled about 4.2 million pounds in 1979. With a shorter season than in previous years, the 1979 total was still 1.0 million pounds more than in 1978, though it was 1.0 million pounds less than the 10-year average of 5.2 million pounds.

### Costs of Data Improvements

These improvements in data capabilities are not without cost. Last season, NMFS provided \$30,000 to California and \$56,000 to Oregon for salmon data reporting alone. This year, the NW Region of NMFS is providing Washington and Oregon \$54,000 each to improve data capabilities to handle shrimp, salmon, and groundfish. The SW Region of NMFS is providing California with \$57,000 for a systems study to determine in detail what improvement must be made to provide data for management under FCMA. An additional contract is pending the Pacific Fishery Management Council's consideration. The Groundfish Monitoring Contract will provide \$153,600 for distribution to Washington, Oregon, and California to provide greater field collection of biological data, faster processing and reporting of preliminary catch data, and finer resolution of species composition, especially rockfish, than can be acquired through fish tickets alone. Approximately \$32,000 would be used to determine the statistical adequacy of the port sampling program coastwide.

Each fishery management plan that the Council and Secretary of Commerce approve contains management options resulting from a decision process that is based on the best scientific information available. It is my belief that no matter how detailed or replete any plan is with available management options: *A management decision made concerning the fishery can be no better than the information on which it is based.*

A significant problem that the Fishery Management Councils, the States, and NMFS must confront is that current funding for data acquisition, processing, and reporting is patchwork and not long term. For example, in Oregon, the State provides about \$68,000 for catch data processing and reporting. To meet FCMA data requirements for 1979, a total of \$155,000 was used. Only \$120,000 (including state funds) is committed for fiscal year 1981. The decline in committed funds in the near future underscores my next major point: *A stable, long-term funding mechanism is needed to maintain the present and improve the future capabilities of the Pacific Coast data systems to supply information for management under FCMA.*

### Regionalization of Data

Given that these rapid improvements in our data capabilities will continue, the next major task is to work toward the regionalization of information where this mutual sharing is needed. Sharing of salmon data is planned for 1980. Catch summaries will be sent by California and Oregon to Washington for entry on WDF's soft data system. For groundfish data in 1980 the team members will compile their own regional summaries monthly and evaluate their needs for 1981. Other examples of regional sharing include the Coastwide Data Files 1974-76, and the CDFG-NMFS enforcement network (Pacific Area Cooperative Enforcement System).

PMFC'S Committee for Regional Fisheries Data Consolidation will be examining ways to regionalize fisheries data. Some

of the considerations for regional data systems design might include degree of centralization, current capabilities, hardware, data volume, data comparability, data transfer points, need for detailed data, schedule for system implementation, and funding alternatives. These lead to my final major point: *Alternatives for regionalizing fisheries data are being examined, but, at present, the final form of such a regional system is not known.*

During this talk, I stressed seven main points and I informed you about current fisheries management information activities and progress on the Pacific Coast, and some of the problems and concerns, regarding foreign and domestic commercial fisheries statistics. But before closing, I would like to say a few words about marine recreational fisheries statistics.

### Marine Recreational Fisheries Statistics Survey

In June 1979, PMFC was awarded a contract to coordinate on the West Coast the creel intercept portion of the National Marine Recreational Fisheries Statistics Survey. The national survey includes the Atlantic and Gulf Coasts, Hawaii, Guam, American Samoa, the Northern Marianas, Puerto Rico, and the U.S. Virgin Islands in addition to the coasts of California, Oregon and Washington. The State of Alaska because of its vastness and inadequate telephone communications in many of its remote areas is conducting an independent survey. The survey, which began in July on the West Coast, has as its basic intent the determination of the number of saltwater sport fishermen and their effort, catch, and target species, according to geographical area and four modes of fishing: beach, private boats, charter boats and man-made structures, such as piers, jetties and bridges. The West Coast contract is expected to run for three years and will produce statistics on species sought, average trip length, distance travelled and average cost per trip, in addition to the catch and effort data.

Through January, 1980 nearly 22,000 fishermen in California, Oregon and Washington have been interviewed and the proportion of successful vs unsuccessful trips has been determined. In addition to the information listed above, data have been collected on each participant's State and county of residence, fishing avidity, and length and weight of catch as well as number of fish thrown back. The total survey employs a dual frame methodology which requires a telephone survey in addition to the creel intercept. Unlike the latter, the telephone survey is conducted by a private consulting firm which works closely with PMFC and the States to provide coordination and data exchange between the two parts of the survey. The complimentary information so collected are then combined to derive final estimates of catch and number of trips.

### Salmon and Steelhead Committee

This committee met twice in 1979, once in June and again in November. Both meetings were chaired by Alan R. Davis, Alaska Department of Fish and Game. The purpose of the June

meeting was to reassess the goals of the Regional Mark Processing Center (RMPC) and to provide ways of achieving these goals within a reasonable time frame. Grahame King, Regional Mark Processing Center Coordinator, reviewed the goals originally set for the RMPC. These were:

1. Improve Data Timeliness;
2. Collect Biological Data;
3. Standardize time periods for reporting and expansion of tag data;
4. Produce complete summary recovery sheets for each tag code; (Goals 2 and 3 were prerequisites to this goal)
5. Improve documentation of tag recovery.

King indicated that a problem still exists with timeliness. The tag recovery reports are running about one year behind because of a delay caused by tardy catch statistics. Washington indicated their delay on catch statistics is a result of problems relating to resource allocation (Boldt decision), volume of tickets, and data processing. Errors, incomplete fish tickets, and late fish tickets also slow the system. Oregon indicated some improvement in the processing of commercial landing data. Fish tickets are now received daily by means of self-mailers. Timely catch statistics are anticipated soon. California's computer system presently coming on line should eliminate most of that State's delay problems. The new computer system should make catch statistics available in time for inclusion in the annual Tag Recovery Report. Alaska indicated that lack of mail service in some remote areas necessitates the use of an airplane to collect fish tickets. However, Alaska does not use the recovery data since most tags are of non-Alaska origin. Established deadlines could be met, if these data were of importance to the State.

It was agreed that the States need to establish priorities for timely final catch statistics through the state fishery directors. The Committee drafted the following statement for submission by PMFC to the directors of its member state fishery agencies:

"There is a continuing problem in meeting the deadline for regional tag recovery reports (June of the following calendar year). All States have a common problem of finalizing catch statistics. For example, recoveries of fish tagged (as juveniles) in 1972 have not been officially reported because of the lack of finalized 1977 catch statistics. Because of this, final catch statistics (which should be used for management) when obtained, will be relegated to the status of only historical data.

"Final catch statistics are urgently needed for timely management and for mark recovery analysis. Without such catch statistics, the management regulations cannot be adjusted to reflect the actual resource status. The offshore fisheries management requirements for 1979 Chinook and coho emphasized the need for this type of management capability.

"The coastal states' tagging and recovery programs cost millions of dollars annually. Data obtained from these programs cannot be used until catch statistics are available to expand the basic recovery data. Besides evaluating artificial production programs, this information is critical to the Columbia River model, the ocean catch/regulations model, and any resource enhancement models. In addition, the effort (millions of dollars)

spent on tagging programs also suffers since tagging research depends on tag recovery data. At present, data 4 or 5 years old are being used in these models because of tardy catch statistics.

"Therefore, the Salmon-Steelhead Committee unanimously recommends that PMFC member States give the necessary priority to obtaining final catch statistics no later than April for the preceding calendar year."

Washington expressed a desire that *all* hatchery releases and recoveries be collected by the RMPC on a regional basis. Oregon pointed out that some of these data are unavailable as they are maintained by the individual hatchery. PMFC Director Harville suggested that as a first step the States develop a depository of this information in a common format. Whether or not it would be placed into the RMPC data base would be a second step. Coordinator King stated that talks with Canada reached agreement that recovery data tapes would be exchanged. Chairman Davis indicated that each agency representative should look at procedures for in-house hatchery recoveries and releases (other than contribution studies).

Davis also raised the subject of wild stock tagging and recoveries indicating Alaska is doing some and that a format for handling these data should be available. Washington is presently marking wild coho in Puget Sound, some on the coast, and a few in the Columbia River. They have also tried marking chinook in northern Puget Sound and the Columbia River. Oregon is marking a few salmonids in the John Day and Deschutes rivers. California marks a few chinook in the Feather River on a continuing basis but indicates there are not many wild salmon stocks in the State.

The November meeting of the Salmon and Steelhead Committee was convened at the request of PMFC's Executive Committee to develop proposals having high priority for improved conservation and management of Pacific Northwest salmonid stocks. Representatives of the five Compact States were present in addition to the U.S. Fish and Wildlife Service, Columbia River Fisheries Council, and the National Marine Fisheries Service. Dr. Dayton Lee Alverson (NMFS) also was present to explain the process of allocation of Sattonstall-Kennedy funds (\$1.3 million) released to the Northwest and Alaska Fisheries Center for short-term salmonid research. "Priorities for Conservation and Management of Pacific Northwest Salmonid Stocks", in Appendix 3 of this report, details the projects which the scientists agreed should have high priority for such funds.

### Other Fisheries

Only some of the customary review reports were summarized verbally at the Annual Meeting in Sitka. Stacy Gebhardt, Idaho Department of Fish and Game (IDFG), reported on the Salmon and Steelhead Sport Catches in 1978. Dennis Austin, WDF, reported on the Troll Salmon Salmon Fishery in 1979. Robert L Demory, ODFW, reported on the Groundfish Fishery in 1979. Steve Hoyt, International Pacific Halibut Commission, reported on the Pacific Halibut Fishery in 1979. Updated written versions of the above reports plus review reports for albacore, Dungeness crab, shrimp, and foreign fishing activity are contained in Appendix 2.

685,819 coho salmon. Washington anglers caught an estimated 163,112 steelhead in 1975, which was Washington's best catch since 1972.

### Idaho

An estimated 17,125 anglers fished 73,605 days to catch 6,921 Chinook salmon in 1978. This was Idaho's best catch since 1973 and was 134% of the 10-year average. Fishing for steelhead in 1978 was limited to 1977-78 run fish in the spring of the year. No fishing was allowed in the fall because the 1978-79 run was below minimum escapement requirements. An estimated 10,292 anglers caught 11,616 steelhead, which was 98% of the 10-year average.

### Oregon

Oregon's sport catch (marine and freshwater) totalled 386,932 salmon and 200,553 steelhead. The salmon catch consisted of 268,980 coho, 112,808 chinook, 5,104 chum, and 40 pink salmon. The salmon catch was above the 1977 catch of 372,174 and below the 10-year average of 431,675. The steelhead catch

Preliminary estimates of the 1979 troll catches of combined Chinook and coho salmon for Alaska, British Columbia, Washington, Oregon and California totalled about 64.1 million pounds

### TROLL SALMON FISHERY IN 1979

(round weight) compared to the 10-year (1969-78) average of 62.8 million pounds (Table 1). Total chinook landings were at levels similar to the recent average; decreases off British Columbia and Washington were counterbalanced by increases in Alaska, Oregon and California. Coho landings were 1.3 million pounds above the 10-year average; increases occurred in Alaska and British Columbia troll fisheries and decreases occurred in

exceeded both the 1977 catch of 145,105 and the 10-year average of 158,317.

### California

Estimates for 1978 show that California's ocean anglers landed 128,000 salmon. This represents a decrease of 26,000 from 1977 landings of 154,000 salmon. The 1978 landings were also well below the 10-year average of 192,300 salmon. Chinook landings in 1978 were 84,000, considerably less than 1977 landings of 127,000 and the 10-year average of 151,000. Coho landings, at 44,000 fish, were well above 1977 landings of 27,000 and slightly above the 10-year average landings of 41,000 fish. Data for steelhead are unavailable.

Compiled by David W. Ortmann, Idaho Department of Fish and Game

Other contributors:

Mike Mills, Alaska Department of Fish and Game  
Marc Miller, Washington Department of Fisheries  
Dan Collins, Washington Department of Game  
Richard Berry, Oregon Department of Fish and Wildlife  
Pat O'Brien, California Department of Fish and Game

Washington, Oregon and California. Annual chinook and coho landings for the years 1956 through 1979 for all areas combined are presented in Figure 1. Troll landings of pink salmon in 1979

were at exceptional levels in Alaska, British Columbia, and Washington, and the coastwide landings totalled about 23.6 million pounds.

In addition to more restrictive 1979 regulations set prior to the season in the three southerly States, special note is made of emergency regulations enacted in Alaska, Washington and Ore-

TABLE 1. Estimated landings of troll-caught chinook and coho salmon in 1979 and 10-year (1969-78) average (round weight in 1,000's of pounds)<sup>1</sup>

Region	Chinook		Coho		Total	
	1979	10-year average	1979	10-year average	1979	10-year average
Alaska	6,300	4,800	7,000	4,300	13,300	9,100
British Columbia	10,800	12,800	16,900	15,300	27,700	28,100
Washington	1,800	3,200	4,200	5,200	6,000	8,400
Oregon	3,000	2,400	5,300	6,400	8,300	8,800
California	7,600	6,300	1,200	2,100	8,800	8,400
Total	29,500	29,500	34,600	33,300	64,100	62,800

<sup>1</sup>Estimated 1979 landings are preliminary for all areas, and 1978 estimates are preliminary for U.S. waters.

# STEELHEAD SPORT CATCHES IN 1978 IN THE PACIFIC COAST STATES

port catch of salmon and steelhead in Washington, Idaho, Oregon, and California in 1978. This catch was composed of 1,019 steelhead and, in both cases, was above the 1968-1977 averages (Table 2).

Chinook, 60,529 coho, 111,442 sockeye, 121,438 pink, and 25,299 chum salmon. The Alaska sport steelhead harvest of 4,338, also a record high, was 152% of the 10-year average.

## Washington

During 1978 anglers in Washington landed an estimated 1,107,852 salmon, somewhat behind 1971 through 1977 levels because of lagging success, though ahead of 1968 through 1970 levels due to continued good angler participation. Of this catch 1,021,007 salmon were landed from marine waters and 86,845 from freshwater areas. Marine angler trips totalled 1,833,433 in 1978, providing Chinook and coho catches of 325,101 and 693,404, respectively. The 10-year (1968-1977) averages for marine waters are 1,541,357 angler trips, 385,922 Chinook and

Steelhead sport catches in 1978

Chinook	Coho	Pink	Other salmon	Steelhead	Total catch
1,149	131,945	194,817	154,452	4,338	529,701
1,000	44,000	—	—	unavailable	128,000
1,921	—	—	—	11,616	18,537
1,808	268,980	40	5,104	200,553	587,485
1,101*	693,404*	—	2,502	163,112	1,270,964 <sup>b</sup>
1,979	1,138,329	194,857	162,058	379,619	2,534,687

\* 86,845 fish not identified by species.

Steelhead sport catches (1,000s of fish) for the Pacific Coast States, 1968 to 1978, and 10-year (1968-1977)

Washington		Idaho		Oregon		California		Total	
Salmon	Steel-head	Salmon	Steel-head	Salmon	Steel-head	Salmon <sup>1</sup>	Steel-head	Salmon	Steel-head
877.3	190.1	10.0	23.0	350.1	153.9	194.0	—	1,504.8	368.5
876.7	139.4	11.5	15.5	348.8	130.2	184.0	—	1,518.0	286.6
978.4	130.9	5.5	20.5	422.4	164.8	163.0	—	1,671.1	317.9
1,344.8	173.6	3.5	17.5	463.7	197.5	255.0	—	2,165.8	389.8
1,138.9	167.4	6.5	13.5	403.0	157.9	245.0	—	1,920.6	340.1
1,095.4	148.3	9.5	10.5	406.6	162.2	230.0	—	1,963.2	321.9
1,320.4	110.0	1.5	3.0	465.0	166.8	234.0	—	2,205.8	280.8
1,399.4	92.9	0.0	0.0	415.9	186.4	125.0	—	2,118.3	281.5
1,749.6	89.1	0.0	2.0	669.0	118.3	139.0	—	2,758.2	211.7
1,191.4	100.0	3.5	13.0	372.2	145.1	154.0	—	2,102.2	261.8
1,197.2	134.2	5.1	11.8	431.7	158.3	192.3	—	1,992.8	306.1
1,107.9	163.1	7.0	11.5	386.9	200.6	128.0	—	2,155.2	379.5

Steelhead catches are not estimated in California.

## ADMINISTRATIVE REPORTS

### Executive Committee Actions in 1979

The Executive Committee met on July 23 in Los Angeles, California and on September 29 and October 1 in Petersburg and Sitka, Alaska, respectively. The Committee took the following actions in 1979:

1. Confirmed the actions taken by the Executive Director in the interim between Executive Committee meetings. (These included the transfer of funds to cover cost over-runs for the salmon maturity study in Oregon and California; consolidation of budget items; and capital expenditures for a new typewriter and computer printing terminal.)

2. Accepted an Affirmative Action Policy concerning equal employment opportunity developed by Edward D. Evans, Jr. (This was necessary to ensure that PMFC's affirmative action policy meets the equal opportunity clause required by Federal Contract Provisions, see Appendix 4.)

3. Approved PMFC's proposed budget for FY-1980 and augmentation of \$46,700 for 1979-80, and \$16,300 for 1980-81; and also approved an increase in State funding of the Regional Mark Processing Center (RMPC) from the current \$7,000 to \$17,000, if 2:1 matching monies from the Federal Government could be obtained. (In regard to the latter, discussion focused on expendi-

ture of \$1.3 million in Saltonstall-Kennedy funds allocated to NMFS's Northwest and Alaska Fisheries Center, and allocation for anadromous fish problems in the Pacific Northwest. The Committee instructed the Executive Director to develop a research program in Salmon and Steelhead Committee to develop term research priorities and submit these to the Committee for funding, seep. 46.)

4. Approved a change in PMFC Rule XIV (Travel and Subsistence Expense) effective November 1, 1979, increasing the current \$15 daily meal allowance to actual hotel costs when the \$30 per diem allowance is inadequate because of hotel costs; and a privately-owned vehicle mileage allowance from 10 to 15 miles per mile.

### Report of the Treasurer

Treasurer, Gerald L. Fisher, reported that the cash balance as of June 30, 1979, the cash balance was \$529,027.00 and the total balance was \$164,088.74. The annual audit of the financial records ending June 30, 1979 found the financial records in satisfactory condition (see Appendix 1. Financial Reports).

## ADMINISTRATIVE SUPPORT

### Publications in 1979

*Releases of Coded-Wire Tagged Salmon and Steelhead from Pacific Coast Streams through 1978*, published in May, is the sixth of a series of annual reports documenting the use of coded-wire tags in studies of Pacific Coast salmon and steelhead. The current list includes all codes released before January 1979 that were to identify Chinook salmon and steelhead from 1971 and later brood years, and coho salmon from 1973 and later brood years. The 1979 *Mark Ust* was published in March. It contains a record of all groups of salmon, and some groups of steelhead (primarily from the Columbia River system), which had been identified by excision of one or more fins prior to their release. It also includes those groups of juvenile fish scheduled for marking and releasing in 1979.

The 31st *Annual Report of the Pacific Marine Fisheries Commission for the Year 1978* was published in March. The 32nd issue of *PMFC's Newsletter* highlighting the Annual Meeting events was printed in November and sent to 1,100 individuals, groups, and other entities.

### 1980 Annual Meeting

The 1980 Annual Meeting, originally scheduled to be held in California will, instead, be held in Washington State. The meeting will be held in the Sheraton-Renton Inn, Renton, Washington on October 6-7.

### Personnel

The following served as Commissioners in 1979:

Alaska  
Dr. Ronald D. Skoog, Juneau—Chairman  
Honorable Richard I. Eliason, Sitka  
A. Powell, Kodiak

California  
E. Charles Fullerton, Sacramento—1st Vice  
Helen Xitco, Lakewood

Idaho  
Joseph C. Greenley, Boise—Secretary  
Keith Stonebraker, Lewiston E. G. (P)  
Thompson, Sandpoint

Oregon  
Dr. John R. Donaldson, Portland—3rd Vice  
Walter H. Lofgren, Portland (through 1980)  
F. Lundy, Portland

Washington  
Gordon Sandison, Olympia—2nd Vice  
Honorable John Martinis, Everett  
Lokken, Seattle

aska Department of Fish and Game

d, California Department of Fish  
ommissioner for California at 1979

Department of Fish and Game

n Department of Fish and Wildlife  
Washington Department of

Millenbach) Dr. Charles E.  
Department  
ded Henry O. Wendler)

s intermediaries between PMFC  
its member States and between  
ncy directors.

during 1979 were:

etersburg—Committee and

kan  
va  
Charles  
Lary

amento—Section Chairman  
anta Monica Frank Mason, San  
tich, Terminal Island Roger  
R. Budd Thomas, Fields Landing  
k, La Jolla

n, Nampa—

d W. H. Godfrey in April)  
Falls (succeeded Keith  
ary) Richard A. Schwarz, Idaho

y)

port—Section Chairman  
storia  
seburg  
ria (succeeded Wayne Viuhkola in Sep-  
(succeeded Bob Hudson in Sep-  
oria  
ortland

Washington

Earl Engman, Tacoma—Section Chairman Paul L.  
Anderson, Seattle Edward Manary, Olympia Kent O.  
Martin, Skamokawa (succeeded Les Clark in  
August)  
(Mrs. Kent Martin substituted at 1979 Annual Meeting)  
GuyMcMinds.Tahola Rudy Petersen, Seattle  
(succeeded Jesse M. Orme in  
August) Ted  
Smits, Seattle

Elections were held at the Annual Meeting to select the  
Commission's officers and the Advisory Committee's Steering  
Group for 1980.

Officers for 1980 are:

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

The 1980 Steering Group is composed of:

Committee and Washington Section Chairman—Earl  
Engman  
Alaska Section Chairman—Andy Mathisen  
California Section Chairman—John P. Gilchrist  
Idaho Section Chairman—Fred A. Christensen  
Oregon Section Chairman—Don Christenson

During 1979, the Secretariat was composed of:

Dr. John P. Harville—Executive Director  
Pam Kahut—Bookkeeper/Secretary (succeeding Ann  
Swenson)  
Janet Ekberg—Administrative Secretary (succeeding  
Peggy Champagne and Maria Clark who resigned  
during 1979)  
Gerald L. Fisher—Treasurer  
Dr. Clarence G. Pautzke—Assistant to the Executive  
Director  
Grahame King—Coordinator, Regional Mark Process-  
ing Center  
J. Kenneth Johnson—Assistant Coordinator, Regional  
Mark Processing Center  
Russell G. Porter—Staff Assistant

Assisting the staff part-time were:

Leon A. Verhoeven, Consultant  
Henry O. Wendler, Special Assistant-Consultant

The protocol provided that Canadian fishermen could take  
2 million pounds of halibut in U.S. waters during 1979 and 1 million  
pounds in 1980 or a total of 3 million pounds over the 2 years. At  
the end of the first fishing period, Canadian vessels had taken 1.8  
million pounds. The Commission advised that Canadian vessels  
be allowed to take 1.2 million pounds in U.S. waters during 1980 to  
reach the 3 million pound allocation set for 2 years. Both govern-  
ments accepted the Commission's proposal.

A major problem arose during the 1979 fishing season  
because of the requirement that the Area 2 quota be divided  
between Canadian and U.S. waters on a 60%/40% basis. At the  
close of the first fishing period landings from the U.S. portion of  
Area 2 were 2.7 million pounds. After examining all available  
data, the Commission announced that the U.S. portion of Area 2  
would close on July 3, the date the 3.6 million-pound catch limit  
was expected to be reached. The staff could not anticipate that for  
the second fishing period the catch per boat per day in Southeast-  
ern Alaska would increase 47% and the number of vessels would  
increase 9%. Consequently, the catch from the U.S. portion of  
Area 2 exceeded the quota by nearly 1 million pounds. Mean-  
while, fishing was relatively poor in the Canadian portion of Area  
2, and by the end of the second fishing period, Canadian vessels  
were about 1 million pounds below their 5.4 million-pound catch  
limit.

The Canadian shortfall notwithstanding, the Area 2 catch  
limit of 9 million pounds had been reached and the Commission  
was required to close the area. The only way the Canadian  
fishermen could be allowed to continue fishing would be to in-  
crease the Area 2 catch limit. The Commission's staff advised that  
the catch limit could be raised about 600,000 pounds without  
exceeding the equilibrium yield for Area 2 and that the stock  
would not be adversely affected, although the rebuilding rate  
would be somewhat slowed. With assurance that the resource

would not be jeopardized, the Commission re-  
Governments that the catch limit for Area 2 be  
pounds to permit additional fishing by Canada  
Governments quickly approved the change  
fishing period was opened for Canadian ves-  
537,000 pounds were taken. The total catch from  
2 reached 4.9 million pounds, still 500,000 po  
Canadian allocation.

The protocol had little effect on the fisher  
except that Canadian vessels were not allowe  
and their catch in Area 3 was restricted as mer

Some of the problems that marred the 19  
can be avoided in the future and some cannot  
cannot achieve a precise division of the Area  
due to unavoidable management errors. How  
of years the Commission should have no diffic  
the division of the Area 2 quota as required by

Catch per unit of effort (CPUE) data pro  
fishery exhibit regional variations that have co  
ment of the resource. A sharp reduction in CPU  
3 was more than offset by an increase in CPU  
region. Similarly, an increase in the CPUE  
Alaska was nearly offset by a decrease in CPU  
Charlotte region. No explanation for these sh  
been discovered thus far. Other stock assessm  
further stock decline in Area 3 and a continu  
abundance of juvenile halibut in Areas 2 and  
catch of juvenile halibut by foreign trawlers de  
mid-1970's, but increased in 1978, the most rec  
data are available. The Commission also is con  
level of incidental catch of halibut in several don  
well.

Annual Commission & Staff Meetings  
Advisory Committee, Travel Expense  
Commissioners, Travel Expense  
Research & Management, Travel Expense  
Administrative Staff, Travel Expense  
Meeting Rooms, Steno, Sound & Record  
In-State Pre-meeting Caucuses  
Spring and Special Meetings  
Executive Committee, Travel Exp.  
Research & Management Special Mtgs.  
Subtotal Meetings

Publications:	
Annual Reports Nos. 32 and 33	\$ 7,100
Data Series	1,100
Subtotal Publications	\$ 8,200
Cooperative Research & Management:	
Otolith Reader, 25% Match, Share	\$ 7,600
In-state Mgt. Related Res.	34,000
Subtotal Cooperative R & M	\$ 41,600
Capital Outlay:	\$ 1,500
TOTAL EXPENDITURES	\$374,956
Source of Financing:	
Savings from Previous Biennium	\$138,627
Interest Income	7,000
External Contract Income (indirect costs)	99,906
State Contributions	212,000
TOTAL AVAILABLE	\$457,533
Less Expenditures	374,956
AMOUNT CARRIED FORWARD TO NEXT BIENNIUM	\$ 82,577

PROPORTIONATE CONTRIBUTIONS BASED ON TOTAL BIENNIAL CONTRIBUTIONS OF \$212,000			
Member	5-Year Average*	% of Con- tribution	Biennial Contri- bution
Alaska	\$121,200,971	26	\$54,800
California	108,150,758	25	53,000
Washington	53,122,849	23	47,800
Oregon	27,131,000	21	45,200
Idaho	Insignificant	5	10,600
		100	\$212,000

\*Annual value of catch, 1971-1975 inclusive.

## Audit Report

CAHALL & ROBERTS  
Certified Public Accountants  
10700 S.W. Beaverton Highway, Suite 500  
Beaverton, Oregon 97005  
September 13, 1979

The Board of Commissioners Pacific  
Marine Fisheries Commission  
Portland, Oregon

We have examined the statement of assets and liabilities arising from cash transactions of Pacific Marine Fisheries Commission as of June 30, 1979, and the related statements of revenue collected and expenditures, changes in cash position and changes in fund balance 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.

As described in Note 8, the Commission's policy is to prepare its financial statements on the basis of cash receipts and disbursements, with the exception of the accrual of expenses on the

General Fund. Consequently, certain revenue and related assets are recognized when received rather than when earned in all funds, and certain expenses are recognized when paid rather than when the obligation is incurred in the special projects funds. Accordingly, the accompanying financial statements are not intended to present financial position and results of operations in conformity with generally accepted accounting principles.

In our opinion, the financial statements referred to above present fairly the assets and liabilities arising from the cash transactions of the Pacific Marine Fisheries Commission as of June 30, 1979, and the revenue collected and expenditures during the year then ended on the basis of accounting described in Note 8, which basis has been applied in a manner consistent with that of the preceding year.

Cahall and Roberts

## Balance Sheet June 30, 1979

### ASSETS

	General Fund	Property Fund
Cash		
Cash on hand and in savings	\$ 26,487	
Certificate of Deposit	85,000	
Receivables		
Due from Washington Dept., Fisheries		
Otolith Project	2,940	
Ocean Salmon Sampling	23,838	
Due from National Oceanic and Atmospheric Administration		
Grant-In-Aid #9A-BD-PM11B	2,922	
Contract #03-78-MQ2-295	9,516	
Contract #03-78-MQ2-0288	9,749	
Contract #03-7-208-35287	2,400	
Contract #NA-78AA-H-00029	113	
Contract #01-7-208-14721	4,325	
Due from Oregon Department of Fish & Wildlife	3,889	
Office Furniture and Equipment		\$27,711
Total Assets	\$172,961	\$ 27,711

### LIABILITIES

Bank Overdraft (Checking Account)	6,130	
Accrued Liabilities	7,928	
Unexpended Grant Funds:		
National Oceanic and Atmospheric Administration—		
Grant-In-Aid #9-MQ2-PM 1B	2,341	
Contract #03-78-MQ2-241	10,224	
Contract #NA-78AA-H-00015	56	
Contract #79-ABA-00479	3,500	
Pacific Northwest Regional Commission	1,601	
Total Liabilities	\$ 33,789	0

### FUND BALANCES

General Fund Balance	\$139,201	
Property Fund Balance		\$ 27,711
Total Liabilities and Fund Balances	\$172,981	\$27,711

**Pacific Ocean perch**, *Sebastes alutus*, landings decreased 14% in 1979, but were only slightly below the 10-year mean coast wide. Oregon landings were up an estimated 35%, matching a 35% decline in Washington. Total U.S. landings in the combined INPFC Vancouver and Columbia Areas will likely be less than the current estimated sustainable yield, partly due to landing restrictions by Washington and Oregon, but also due to dealer imposed limits after mid summer and reopening of Canadian waters to U.S. fishermen in 1979. Much of the 1979 Oregon "perch" fishery was prosecuted on perch-like fishes, especially *S. reedi* (yellowmouth rockfish), off northern Oregon. Preliminary analyses of a spring 1979 biomass survey by Oregon, Washington, and NMFS did not result in significant change of estimated stock size from that estimated in 1977.

**Other rockfish**, *Seoastes* and *Sebastes* species, landings of 71.6 million lb were 11% greater than in 1978 and 88% greater than the 10-year mean. Only in Canada was a significant decrease (19%) seen. A 103% increase occurred in Oregon where 19.6 million lb were landed. Much of the Oregon increase was due to much increased catches of soft-brown rockfish (*S. entomelas*) in mid-water trawls early in the year.

**Pacific whiting (hake)**, *Merluccius productus*, landings of 3.2 million lb were almost 3-fold those in 1978 and about 10 times the 10-year mean. Only in Oregon did domestic landings decrease. Substantial catches by U.S. fishermen occurred in the joint-venture fishery also, with a probable total in 1979 of 15,000 m.t. (33 million lb).

**Walleye pollock**, *Theragra chalcogrammus*, landings were 14.0 million lb, 210% above 1978's and 10.5 times the 10-year mean. British Columbia landings increased 20% while

Washington landings decreased 19%. No landings of this species were recorded in Oregon and California. Alaskan landings were about 6.5 million lb.

**Sablefish**, *Anoplopoma fimbria*, landings by trawl totaled 10.7 million lb in 1979, 18% above the 1978 level and 62% above the 10-year mean. Large increases were recorded in both Washington (+47%) and Oregon (+56%), while California and Canada landings showed slight decreases. U.S. landings by other gears will probably approach or exceed 33 million lb with 73% of that being from pot fisheries, for a total catch by all gears of about 44 million lb. The latter total is 60% above the U.S. 1978 all-gear catch. Oregon-Washington-California all-gear catches will approach 39 million lb (17,690 m.t.). All 1979 totals are strictly preliminary.

### LANDINGS BY OTHER GEARS<sup>1</sup>

Gears other than trawl in 1978 (excluding Pacific halibut) took 51.5 million lb, including an estimated U.S. recreational catch of 9.4 million lb. Other commercial gears, including longline, pot, troll and handline, gillnet, setnet, and shrimp trawls, took the rest.

The longline catch was 12.8 million lb, most of it in Canada, Alaska and Washington. Sablefish, dogfish, and rockfish continued to be the major species (Table 3).

Pot fishermen landed 13.8 million lb in 1978, 90% of it in the U.S. Coastwide catches were 98% greater in 1978 than in 1977; much of the increase occurred in the California sablefish fishery (+93%). California catches continued to dominate total pot

TABLE 4. Pot landings by major species in 1978 in 1,000's of lb (with equivalent m.t. in parentheses)

Region	Sablefish	Lingcod	Rockfish	Other species	Total
Alaska	35 (16)	—	—	—	35 (16)
Washington	1,043 (473)	—	24 (11)	—	1,068 (485)
Oregon	639 (290)	1 (5)	8 (4)	0	648 (294)
California	10,620 (4,817)	0	0	0	10,620 (4,817)
Total U.S.	12,337 (5,596)	1 (5)	32 (15)	0	12,371 (5,612)
B.C.	1,399 (635)	6 (3)	3 (1)	0	1,408 (639)
Total					
US-Canada	13,736 (6,231)	7 (4)	35 (16)	0	13,779 (6,251)

TABLE 5. Landings from miscellaneous gears by major species in 1978 in 1,000's of lb (with equivalent m.t. in parentheses)

Region	Rockfish	Lingcod	Dogfish	Other species	Total
Washington <sup>1</sup>	761 (345)	421 (191)	2,639 (1,197)	590 (268)	4,411 (2,001)
Oregon <sup>2</sup>	2,546 (1,155)	236 (107)	0 (0)	398 (180)	3,180 (1,442)
California <sup>3</sup>	4,250 (1,928)	450 (204)	0 (0)	150 (68)	4,850 (2,200)
Total U.S.	7,557 (3,428)	1,107 (502)	2,639 (1,197)	1,138 (516)	12,441 (5,643)
B.C.	615 (279)	2,134 (968)	57 (26)	244 (112)	3,050 (1,385)
Total					
US-Canada	8,172 (3,707)	3,241 (1,470)	2,696 (1,223)	1,382 (628)	15,491 (7,028)

<sup>1</sup>Includes handline, troll, setnet, drag seine, shrimp trawl, and gillnet.

<sup>2</sup>Includes troll and shrimp trawl.

<sup>3</sup>Includes longline, shrimp trawl, troll, gillnet; most of "other species" group were sablefish.

## MAJOR TRAWL SPECIES

are projected at 62.5 million lb but 2% from 1978, but 16.6% above 1978. As in other States, demand for months, but fell off by July. The trawled due to landing limitations but was enlarged due to entry by increased effort was toward inshore most major species were down (Table 2). Only English sole (+7%), 344%) showed increases in land- California. Dover sole and "other" dominate the trawl fishery.

Columbia were about 58 million lb less than in 1978, but 33% above 1978. Landings of Pacific cod, rock sole were 15-22% higher in 1979, while Pacific ocean perch, and Pacific rockfish, and Pacific ocean perch. Slight increases in English and Shoreland landings of Pacific hake (1978) to about one million lb in

overall British Columbia groundfish fishery, pollock, dogfish, and rockfish, interest in sablefish has been increased slowly but steadily since 1970. A fivefold increase in number of trap or about to enter the fishery. While fish to a Japanese longline fishery that the Canadian fleet will require in future. There was also a strong fishery in February-March. This by the beginning of the more decreases in availability of Pacific in increased market acceptance of may not persist as cod becomes increase in the fishery for dogfish line vessels in Area 4B. The Area probably caught in 1979, primarily by est in other areas has been slight.

ings in 1979 were estimated to be due to closure of major fishing east of Queen Charlotte Islands). accounted for substantial rockfish closed in 1979 for conservation of rockfish from other areas will not re-entry of U.S. vessels in 1979 in a.

Pacific cod, Dover sole, and rockfish continued to dominate domestic trawl landings in 1979. Each of these species-species groups exceeded 28 million lb (11,800 m.t.) in 1979 (Table 2). Only the Pacific whiting (hake) fisheries, including joint-venture operations will approach levels of these fisheries. The sablefish fisheries including fixed gear but excluding Alaskan and Canadian catches, may have exceeded 39 million lb (17,700 m.t.) in 1979. Table 2 compares in pounds the 1979 landings of the major trawl species with the 1978 landings and the 10-year-mean landings. Figure 2 presents in metric tons the annual landings for each of eight major trawl species during the period 1960-1979.

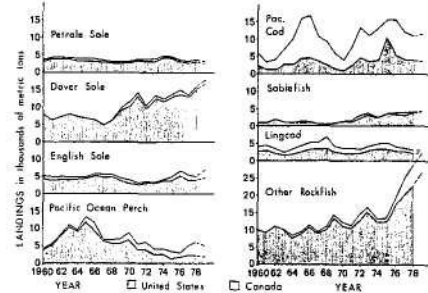


FIGURE 2. Pacific Coast trawl landings by major species or group.

**Petrable sole, *Eopsetta jordani***, landings of 6.2 million lb were 18% below 1978 and 24% below the 10-year mean. Landings decreased in all areas, but were most depressed in Washington and Canada.

**English sole, *Parophrys vetulus***, landings of 11.9 million lb were 4% less than in 1978 and 13% above the 10-year mean.

**Dover sole, *Microstomus pacificus***, landings of 39.1 million lb were 13% above 1978's and 35% above the 10-year mean. Landings increased in all areas except California.

**Rock sole, *Lepidopsetta bilineata***, landings of 3.9 million lb were 19% above 1978's, but slightly less than the 10-year mean. A large increase occurred in Oregon, however, it is a minor species off Oregon and California.

**Pacific cod, *Gadus macrocephalus***, landings totalled 28.7 million lb, 17% more than in 1978 and 18% more than the 10-year mean. Canadian landings increased 22%, while U.S. landings increased 9.4% because of landings in Alaska. Washington landings decreased 18%.

**Lingcod, *Ophiodon elongatus***, landings of 7.4 million lb were 9% above 1978's and but 20% less than the 1969-1978 mean. A large increase (99%) in Washington landings was largely responsible for the coastwide increase. Decreases were again seen in all other areas except Oregon, where a slight increase (4%) is projected.

## Appendix 2—Pacific Coast Fishery

### ALBACORE FISHERY IN 1979

The 1979 albacore catch by U.S. vessels is estimated at 12,000,000 pounds which is the lowest catch in the past 25 years (Table 1) and in actuality is the lowest since 1941. Washington landings totalled 807,194 pounds and were down almost 4,200,000 pounds from 1978. Oregon Landings of 3,105,381 pounds were less than 1/3 of 1978. California followed this trend with only 8,000,000 pounds landed compared to 1978 landings of 21,000,000 pounds (Figures 1 and 2). The only bright spot in an otherwise disastrous fishery, though unrelated to the above landings, was the catch by 30 vessels of about 3,500,000 pounds of albacore north of Midway Island in the Central Pacific.

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

Year	California	Oregon	Washington	Total
1954	26,107	469	421	26,997
55	29,002	503	233	29,738
56	37,005	3,653	630	41,288
57	43,525	2,702	433	46,660
58	27,188	9,754	1,503	38,445
59	32,740	10,574	2,961	46,275
1960	35,113	4,563	526	40,202
61	29,123	3,250	456	32,829
62	36,622	8,949	365	45,936
63	48,860	11,400	527	60,787
64	42,551	4,452	1,055	48,058
1965	23,218	12,122	2,048	37,388
66	18,189	18,041	1,101	37,331
67	17,858	29,243	1,240	48,341
68	15,077	37,752	3,050	55,879
69	14,722	29,828	3,561	48,111
1970	29,932	21,782	4,390	56,104
71	36,117	8,420	5,250	49,787
72	21,001	23,056	16,238	60,295
73	8,641	16,350	14,446	39,437
74	11,806	25,225	17,983	55,014
1975	15,413	17,166	16,297	48,876
76	27,754	5,934	7,202	40,890
77	15,905	4,425	4,948	25,278
78	21,000	11,248	5,008	37,256
25-year average	26,580	12,940	4,475	43,888
1979*	8,000	3,105	807	11,912

\*Preliminary

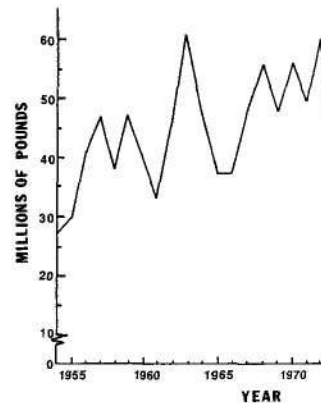


FIGURE 1. Combined annual landings of albacore in California, Oregon and Washington, 1954-1979.

### Conditions Affecting the Fishery

The total catch from the traditional U.S. fishery in 1979 was the lowest since 1941. Contributing to this were: 1. Albacore migrated in Coast fishing areas two to three weeks later than in previous years. 2. Canada closed its waters to U.S. fishermen. 3. Weather patterns which altered probably because weather patterns which altered off Oregon and Washington were absent. 4. Scouting efforts were relatively low due to poor weather and high fuel costs. 5. The apparent level of effort was low.

### California

The albacore, which usually arrive on the California coast in June, were late in 1979 and there were few dominant age-II fish. Occasionally some albacore were caught in Baja California and then contribute to the fishery. In addition to being late, the number of albacore apparently were so small that the record low.

In late June a few jigboats scouted for fish off the coast of Baja California to 300 to 400 miles west of the coast.



FIGURE 2. Annual albacore landings by State, 1954-1979.

During the first week of August, fishing success was generally good from Newport to the Columbia River from 80 to 150 miles offshore but the good fishing was spotty with catches ranging up to 300 fish per boat per day if the boats were in the right spot, otherwise the catches were quite low, from 0 to 50 fish and the

<sup>2</sup> California does not separate longline from miscellaneous gears (see Table 5).

00's of lb) for food, 1978 and 1979 (preliminary) and 10-year mean (1969-1978) by species and region

	Alaska	Washington	Oregon	California	Total U.S.	British Columbia	Total U.S. & Canada
	—	2,000	2,205	2,925	7,130	498	7,628
	—	1,500	2,000	2,500	6,000	250	6,250
	—	-25	-9	-15	-16	-50	-18
	—	1,958	2,174	3,196	7,328	860	8,188
	—	3,522	2,295	4,750	10,567	1,779	12,346
	—	2,638	2,360	5,100	10,098	1,820	11,918
	—	-25	+3	+7	-4	+2	-4
	—	2,507	2,200	3,776	8,843	2,073	10,556
	—	3,259	7,438	22,250	32,947	1,614	34,561
	—	5,208	11,260	21,000	37,468	1,650	39,118
	—	+60	+51	-6	+14	+2	+13
	—	1,884	5,380	19,513	26,777	2,098	28,875
	—	370	26	12	408	2,885	3,293
	—	453	150	10	613	3,310	3,923
	—	+22	+477	-17	+50	+15	+19
	—	613	24	9	646	3,508	4,154
	—	8,881	877	0	9,758	14,701	24,459
	2,500	7,274	905	0	10,679	17,980	28,659
	—	-18	+3	—	+9.4	+22	+17
	—	7,840	569	0	8,409	15,821	24,230
	—	1,554	981	2,250	4,785	2,001	6,786
	—	3,094	1,020	1,500	5,614	1,800	7,414
	—	+99	+4	-33	+17	-10	+9
	—	2,474	1,293	2,464	6,231	3,062	9,293
	—	4,317	1,071	92	5,480	8,513	13,993
	—	2,824	1,450	95	4,369	7,670	12,039
	—	-35	+35	+3	-20	-10	-14
	—	6,811	753	105	7,669	4,532	12,201
	—	21,048	9,674	20,000	50,722	13,552	64,274
	—	21,216	19,620	19,750	60,586	11,000	71,586
	—	+1	+103	-1	+20	-19	+11
	—	12,817	4,807	16,113	33,737	4,322	38,059
	—	1,488	2,112	5,160	8,760	287	9,047
	—	2,188	3,305	5,000	10,493	220	10,713
	—	+47	+56	-3	+20	-23	+18
	—	438	675	4,863	5,976	657	6,633
	—	15	844	225	1,084	4 <sup>a</sup>	1,088
	—	900	300	1,000	2,200	1,000	3,200
	—	+5,900	-64	+344	+103	Great	+294
	—	14	243	48	305	—	305
	—	1,334	0	0	1,334	5,306	6,640
	6,500	1,087	0	0	7,587	6,380	13,967
	—	-19	—	—	+568	+20	+210
	—	215	0	0	215	1,110	1,325

During 1978 cooperative fishing venture with Poland.

average was in the neighborhood of 30 to 40 fish per boat per day. During the second week of August the fishing success dropped to an average around 25 fish per boat per day, all along the coast. Fishing success was better in very small localized spots for one or two days at a time with catches ranging up to 150 fish per day. Fish averaged 11 to 13 pounds. During the third week of August fishing generally was better in 3 localized areas, where for about 5 days catches averaged about 130 fish per boat per day. These spots were off the Columbia River Dumping Grounds, off Newport about 100 to 150 miles offshore, and off Coos Bay-Heceta Bank about 80 miles offshore. These fish averaged about 9 pounds. In the last week of August fishing success again dropped with no particular hot spots and catches ranged from 0 to 50 fish per boat per day and averaged about 20 fish per day. August landings were 1,310,316 pounds.

September fishing was quite poor with no hot spots and catches averaging only 10 to 20 fish per boat per day. Most boats quit fishing for the year. Those boats that did fish reported widely scattered catches with some fish being caught almost anywhere the boats went, but there were no concentrations or big catches. Fish size averaged 9 to 11 pounds. September landings totaled 435,177 pounds.

In early October, vessels returning from the Midway Island area made good catches in the area of the Cobb Seamount. The few large vessels still fishing converged on the area and made good catches until mid month when the catches dwindled and most of the fleet quit. Catches ranged up to 600 fish per boat per day in the area and averaged about 150 to 200 fish per boat per day. The fleet was estimated at about 50 boats. Landings from this area and from some of the vessels returning from Midway swelled the October landings to 1,282,735 pounds. November landings totalled 41,858 pounds, bringing the total Oregon landings for the season to 3,105,381 pounds, the poorest since 1957.

## Washington

Washington's 1979 albacore season began in July when a few jigboats reported catches. The first catch west of the Columbia River Dumping Ground was made. Landings of albacore in Washington ports in July totaled 1,310,316 pounds.

Boats continued to work the area off the coast of Washington during the first two weeks of August then began to move westward during the latter part of the month. Washington's fleet remained somewhat smaller than normal due to high costs and lack of promising fishing reports. Most of the Pacific Northwest during this period averaged about 20 fish per boat with a few smaller fish weighing 7 to 9 pounds. Good fishing with catches exceeding 200 fish per boat was reported off Vancouver Island during the third week of August. On August 26, Canadian authorities began seizing vessels fishing within 200 miles of the Canadian coast. No vessels have been seized by early September. Curtailment of fishing in Canadian waters was yet another factor which limited Washington's albacore landings in an already very poor season. Landings totalled 418,266 pounds.

Inclement weather hampered fishing in the last two weeks of September. When weather permitted, there was good fishing in the vicinity of the Cobb Seamount. Catches of over 200 fish. Up to 50 boats converged on the area during the latter part of September reporting catches of 100 to 400 fish per boat of fish weighing 12 to 15 pounds. Washington's albacore vessels had by this time completed the season or were engaged in other fisheries. Total landings for the month of September were 94,059 pounds. The boat trips scheduled by Washington charter companies for the 1979 season were cancelled due to lack of fish.

Compiled by Larry H. Hreha, Oregon Dept., and other contributors:

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## DUNGENESS CRAB FISHERY IN 1978-79

Coast Dungeness crab landings, in 1978-79 season's landings. This is 6.1 million pounds more than the 10-year average (1959-78) of 38.0 million pounds. Landings in Washington and California totalled 33.0 million pounds over the 1977-78 season.



Dungeness crab landings by season, 1954-79.

### Fishery

Washington, Oregon and California was in poor condition and price disputes. Washington's season ended on September 10, 1978 but few crabs were landed. In Oregon, a general slowdown was evident. California fishermen didn't start their season until October. A record high price settlement of \$.80 per pound was reached. Fishing effort, in general, was heavy. In Washington, 455 vessels made landings. Intense effort yielded almost 90% of the total catch. Coastwide opening ex-vessel prices in 1978. The price for a 10-pound crab reached a high of \$1.00 per pound at the end of the season.

### British Columbia'

Preliminary Dungeness crab landings totalled 2.3 million pounds, very close to the previous 10-year average of 2.5 million pounds and only slightly less than the 2.4 million pounds landed in 1977-78.

### Washington

Washington's coastal crab landings from December 1, 1978 through August, 1979 totalled 8.3 million pounds. This is an increase of 0.8 million pounds over the 1977-78 season and slightly more than the long-term seasonal average of 8.0 million pounds. Abundance was fair to good except in Puget Sound. Puget Sound landings reached a record high but effort were below expectations.

A large increase in effort has occurred in the Puget Sound fishery since 1973.

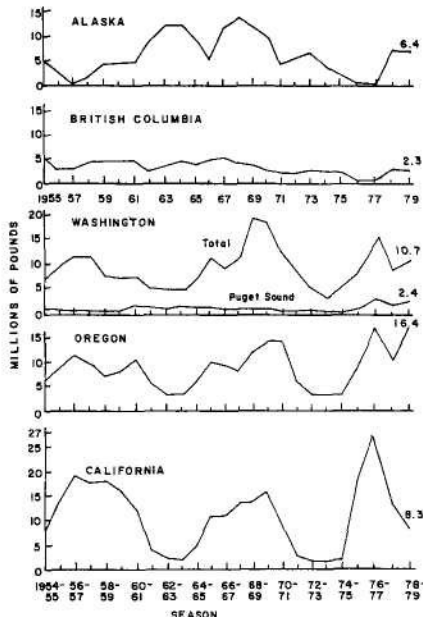


FIGURE 2. Dungeness crab landings by season, 1954-55 through 1978-79, except Alaska and British Columbia seasons are calendar years, i.e., 1954-55 = 1955.

## Oregon

Landings in Oregon for the 1979 season, which ended September 15, totalled 16.4 million pounds. This is a new record, being 200,000 pounds over the 1977 record of 16.2 million pounds.

Compiled by Ron Warner, California Dept. Fish.

## California

Statewide landings totalled 8.3 million pounds compared to 13.8 million pounds landed during the 1977-78 season. The northern California crab season was extended from July 15 to August 31, but only 27,000 pounds were landed during the extension.

Other contributors:

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Washington Department of Fisheries Darrel Demory,  
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## GROUNDFISH FISHERY IN 1978-79

Preliminary U.S. Pacific Coast groundfish landings for all purposes by all gears are estimated at about 226 million pounds (102,513 metric tons) in 1979 for U.S. fisheries, including Alaska. Canadian (British Columbia) trawl landings in 1979 are projected to be 58 million lb (26,309 m.t.). The preliminary total North American commercially landed catch exceeds 284 million lb (128,822 m.t.). Landings in 1979 by gear other than trawl were not provided by Canada. About 80% (182 million lb) of the U.S. total was trawl-caught. The U.S. trawl catch was 13% above that of 1978 and 48% above the 10-year mean of 123 million lb (Table 1, Figure 1). At a minimum 22¢ per lb, the ex-vessel value of U.S. landings was about \$50 million for all gears. An additional 15,000 m.t. (33.1 million lb) of Pacific whiting (hake) were probably caught by U.S. vessels in the 1979 Marine Resources, Inc., (U.S.-U.S.S.R.) joint venture fishery, compared to 856 m.t. in the 1978 joint venture. Foreign catches of groundfish are reported elsewhere in this Appendix (see Foreign Fishing Activity off the Pacific Coast in 1979).

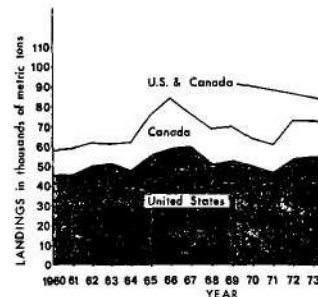


FIGURE 1. Pacific Coast trawl landings of groundfish in thousands of metric tons, 1960-79.

TABLE 1. Trawl landings in 1,000's of lb (with equivalent m.t. in parentheses) for all purposes by region: 1978 vs. 1979 and 10-year mean (1969-1978)

Region	lb	(m.t.)	lb	(m.t.)	% change	10-year mean
Alaska	5,791	(2,627)*	10,000	(4,536)	+72.7	—
Washington	58,944	(26,737)	59,102	(26,809)	+0.3	47.3
Oregon	31,799	(14,424)	50,000	(22,725)	57.5	21,8
California	64,018	(29,038)	62,500	(28,350)	-2.4%	53,6
Total U.S.	160,552	(70,199)	181,602	(82,374)	13.1	122,7
Canada (B.C.)	60,040	(27,234)	58,000	(26,309)	-3.4	43,5
TOTAL						
U.S.-Canada	220,592	(97,433)	239,602	(108,683)	+8.6%	166,3