

*22nd Annual Report of the*

**PACIFIC MARINE  
FISHERIES COMMISSION**

FOR THE YEAR 1969

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

# Errata for 22nd Annual Report of the Pacific Marine Fisheries Commission for the Year 1969

Please insert this sheet between pages 20 and 21 of your copy of the 1969 report. Figures 2 and 3 for troll-caught chinook and coho salmon have been corrected. The following corrected figures are from the 1970 Annual Report.

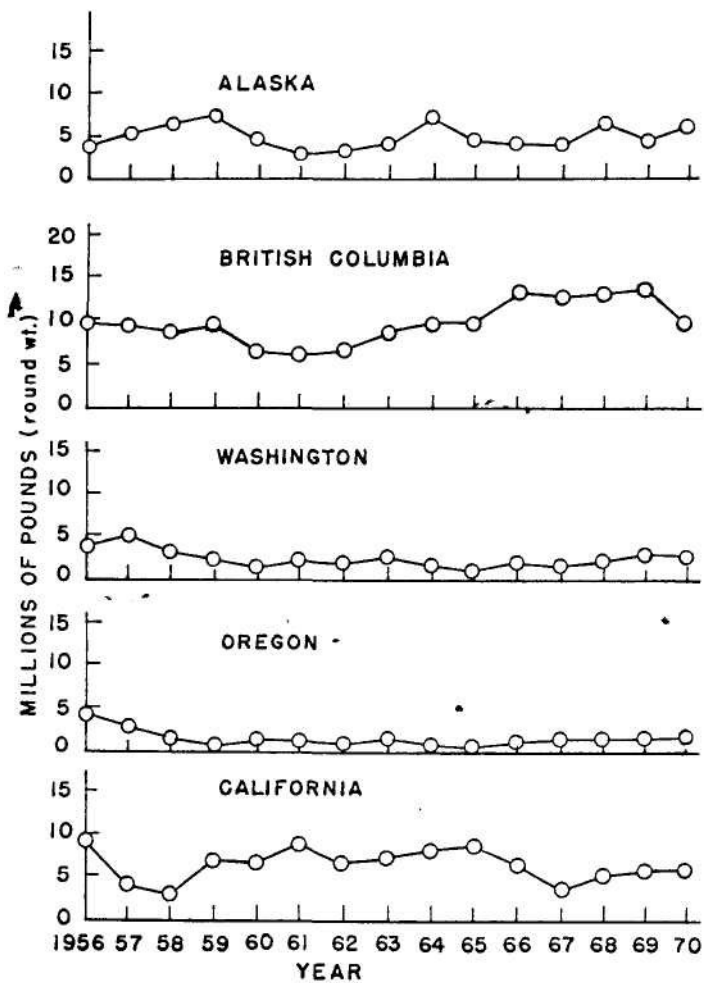


FIGURE 2. Pacific Coast annual troll chinook salmon landings by area, 1956-1970. (Figure 2 in last year's report indicated landings in British Columbia that were too high.)

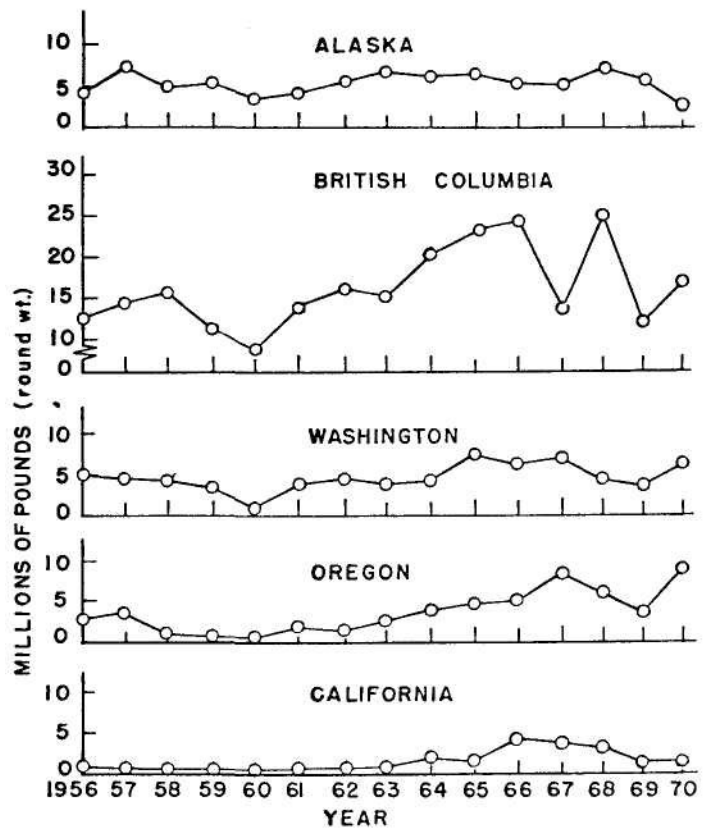


FIGURE 3. Pacific Coast annual troll coho landings by area, 1956-1970. (Figure 3 in last year's report indicated landings in British Columbia that were too high.)

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**PACIFIC MARINE  
FISHERIES COMMISSION**

**FOR THE YEAR 1969**

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 and 766 of the 80th and 87th Congresses of the United States Assenting Thereto.

Respectfully submitted,

PACIFIC MARINE FISHERIES COMMISSION

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August 1970

## TABLE OF CONTENTS

	Page		Page
Introduction _____	1	Urge Extension of Anadromous Fish Conservation Act _____	10
Administration _____	2	Surveillance of Pacific Coast Foreign Fishing Fleet Activity _____	10
Personnel _____	2	Requesting the Congress of the United States of America to Promptly Enact Legislation Providing for a Fair and Equitable Solution to the Alaska Native Land Claim Problem _____	11
Conferences and Meetings _____	3	Commend Government of Canada and Urge Continuation of Mark Recovery Effort _____	11
Administrative and Service Activities _____	3	Limit Imports of Groundfish _____	11
Commission Action _____	4	In Memory of Thomas R. Gardiner _____	12
Action on 1968 Resolutions _____	5	Appreciation for Meeting Arrangements _____	12
1969 Resolutions _____	7	Election of Officers, Etc _____	12
Legal Status of Fish and Game _____	7	Finances _____	12
Delta Facilities of the California Water Plan _____	7	Audit Report _____	13
Opposition to Upper Columbia River Navigation Project and/or Ben Franklin Dam _____	7	Appendix 1 — Status Reports _____	14
Secure Agreement to Establish Offshore Conservation Zones through Extension of Jurisdiction of Coastal State _____	8	Status of the 1969 Pacific Coast Albacore Fishery _____	14
Study and Revise PMFC's Activities _____	8	Status of the 1968-69 Pacific Coast Dungeness Crab Fishery _____	16
Compile North Pacific Domestic Laws and Regulations Affecting Large U.S. Stern Trawlers and Request Scientific Observers _____	8	Status of 1968 Salmon and Steelhead Sport Catches in the Pacific Coast States _____	18
Designate Authority to Deal with Oil and Chemical Spills on Navigable Waters _____	9	Status of the 1969 Pacific Coast Troll Salmon Fishery—	20
Uniform Opening Dates and Minimum-size Limits in California, Oregon, Washington and Alaska Coho Troll Fisheries _____	9	Status of the 1969 Pacific Coast Shrimp Fishery _____	22
Retain Existing Fishery Attache Posts and Establish One in Peru _____*	9	Status of the 1969 Pacific Coast Trawl Fisheries _____	26
Oppose Construction of Asotin Dam, Snake River..	9	Appendix 2 — Cooperative Research _____	31
Moratorium on Dam Construction Middle Snake River _____	10	Summary of Progress of Pacific Oyster Mass Mortality Investigations, 1968-1969 _____	31
Multi-level Water Outlets in Dworshak Dam _____	10	Appendix 3 — Special Reports _____	33
Oppose Construction of Dams on Main Stem of Clearwater River _____	10	The Weathervane Scallop Fishery of Alaska with Notes on Occurrence in Washington and Oregon _____	33
		Ocean Salmon Regulations Along the Pacific Coast _____	35

# 22nd Annual Report — 1969

## INTRODUCTION

Far-reaching international developments affecting fisheries occurred in 1969. The International Convention for the Conservation of Atlantic Tunas became effective formally when Spain, the seventh country, ratified the Convention following earlier ratification by the United States, Japan, Ghana, South Africa, France and Canada. This resulted in the establishment of the Atlantic Tuna Commission, with headquarters in Madrid, Spain.

A Convention on the Conservation of the Living Resources of the Southeast Atlantic was drafted in Rome to provide for the protection of fishery resources of the southwest Atlantic Ocean off the coast of Africa south of the Congo River. Formal signers of the Convention were Cuba, West Germany, Italy, Portugal and South Africa. Other countries who endorsed but did not sign the Convention formally were Belgium, France, Japan, Republic of Korea, Spain and Togo.

The General Assembly of the United Nations on December 2 passed three resolutions concerning the seabed which, although they do not mention fisheries specifically, could involve the living resources of the sea:

1. Calls on the Secretary-General to poll member nations on the desirability of a new conference of nations to discuss the Convention on the Continental Shelf drawn in 1958 and in active effect for some time; and calls for reopening discussion on the Law of the Sea in order to review that subject; (This was introduced by Malta several years ago and is generally referred to as the Malta Resolution.)
2. Seeks a study of possible machinery for establishing international control of seabed resources;
3. Seeks to invoke a moratorium on all exploration and exploitation of the resources of the seabed and ocean floor by any nation, presumably pending United Nations control.

(See "International Trends, 1969 and Beyond" by Dewitt Gilbert, National Fisherman Yearbook Issue 1970.)

There were developments in the extension of offshore fishery jurisdictions during 1969. The most notable of which were Uruguay's claim of territorial jurisdiction to 200 miles offshore, covering not only fisheries, but air space and the seabed as well; and Canada's move to implement its policy of 12-mile limits drawn from point to point baselines.

Two meetings were held between the United States, Chile, Ecuador and Peru on the subject of fishing by U.S. vessels within 200 miles of the coasts of South American countries which claim jurisdiction out to that distance. The first meeting was in Buenos Aires, Argentina. The second meeting was in Santiago, Chile.

Entry into bilateral agreements between two fishing nations was a frequent occurrence in 1969. Of interest to the fisheries of the Pacific Coast of the United States were 2-year renewals of agreements between the United States and the Soviet Union, and the United States and Japan.

The Republic of Korea's open entry into high seas fishing for salmon in the North Pacific Ocean and Bering Sea coupled

with continuing concern over high seas fishing for Atlantic salmon makes urgent the universal establishment of the abstention principle for anadromous fishes.

At the national level in 1969, President Richard M. Nixon, a Republican, took over from former President Lyndon B. Johnson, a Democrat. This change was followed by the usual changes in the roster of appointed federal officials. Of specific interest to fisheries was the succession of Governor of Alaska, Walter J. Hickel, to Secretary of the Interior; of Dr. Leslie L. Glasgow to Assistant Secretary for Fish and Wildlife, and Parks and Marine Resources; Charles H. Meacham to Commissioner of the Fish and Wildlife Service; and Philip M. Roedel to Director of the Bureau of Commercial Fisheries.

There was increased emphasis on protection of the environment as evidenced by passage of The National Environmental Policy Act (Public Law 91-190), which was introduced by Senator Henry M. Jackson.

In 1969, U.S. fishermen landed over 4.2 billion pounds of fish and shellfish valued at \$475 million. Domestic landings accounted for 33% of the weight of fishery products used in the United States compared to only 25% in 1968. The total use of fishery products (domestic and imported, on a round weight basis) was nearly 13 billion pounds. This was 25% less than the 1968 record of 17.3 billion pounds, with all of the decline being in non-edible products, particularly fish meal. Improving prices for domestically produced fish meal resulted in increased harvesting of anchovy. Landings of anchovy in California for reduction purposes totalled an estimated 27,200 tons during the 1968-69 season and increased to an estimated 83,500 tons during the 1969-70 season, which opened August 1, 1969 in the northern area and September 15 in the southern area; both areas closed May 15, 1970.

Oil was big news. On January 28, an offshore oil well near Santa Barbara, California blew out, causing over an 800-square mile oil slick and contamination of beaches. Marine accidents in the transportation of oil were frequent. Following the discovery of oil off Alaska's Arctic North Slope in 1968, the State of Alaska held a sale of oil leases on September 10, 1969 which brought the State over \$900 million and made the name Prudhoe Bay familiar. An 800-mile, 48-inch pipeline, costing an estimated \$900 million, has been proposed to move crude oil from the North Slope area to proposed marine terminal facilities at Valdez, Alaska. In September, an experimental supertanker, the S.S. *Manhattan* made history by traversing the Northwest Passage from the Atlantic Coast to Prudhoe Bay and Point Barrow and returning to the Atlantic Coast. This was followed in October by announcement in the Canadian Parliament that Canada would enforce navigation and pollution regulations to protect its Arctic waters. The S.S. *Manhattan* is scheduled to make a second Arctic voyage in the summer of 1970.

On the West Coast, results of experimental fishing by Japan off California and northward for Pacific saury led to announcement that a large Japanese firm would conduct a commercial fishery for saury in those waters in 1970. Meanwhile, the U.S. Bureau of Commercial Fisheries' Exploratory Fishing Gear Research Base at Seattle was mounting a program in late 1969

to test the potential for a domestic fishery on this presently nearly unused saury resource.

The *Seafreeze Pacific*, a 296-foot stern trawler, the second of a pair of factory-type trawlers built for American Stern Trawlers, Inc., with a 50% U.S. construction subsidy, made her debut off the Pacific Northwest just before the end of 1969-

Indian fishing rights, the potential effects on aquatic organisms of hot water effluents from thermal-nuclear-electric plants, and the detonation of an underground nuclear device on Amchitka Island on October 2 were other matters of concern to fish and game personnel in 1969.

Also of special interest to the State of Alaska and the Pacific Marine Fisheries Commission was that State's hosting of its first PMFC Annual Meeting at Sitka from September 30 through October 3. Over 110 persons, including visitors from Canada and Washington, D.C., and from PMFC's five member States, attended the meeting, over which Wallace H. Noerenberg, Commissioner, Alaska Department of Fish and Game, presided as Chairman.

## ADMINISTRATION

### Personnel

Four new commissioners were appointed in 1969: In Alaska, Wallace H. Noerenberg replaced Augie Reetz, and R. L. Rettig replaced Charles A. Powell; in California, G. Ray Arnett replaced Walter T. Shannon; and in Idaho, Paul C. Keeton replaced Arlie Johnson. New Advisors were C. A. Weberg for Charles H. Meacham in Alaska; John Eaton and Robert G. Kalb for William B. Durbon and Ray Sims, respectively, in Idaho; and Phillip W. Schneider for Charles F. Henne in Oregon. Thomas R. Gardiner died September 14; a new Advisor was not named in 1969 to fill this California vacancy. There were no changes in Washington. The roster of Commissioners was:

#### Alaska

Wallace H. Noerenberg, Juneau, Chairman, successor to Augie Reetz  
Ron L. Rettig, Anchorage, successor to Charles A. Powell  
R. E. Thompson, Petersburg

#### California

G. Ray Arnett, Sacramento, First Vice-Chairman, successor to W. T. Shannon  
Harold F. Cary, San Diego  
Vincent Thomas, San Pedro

#### Idaho

R. J. Holmes, Twin Falls  
Paul C. Keeton, Lewiston, successor to Arlie Johnson  
John R. Woodworth, Boise, Secretary

#### Oregon

John P. Amacher, Winchester Joseph I. Eoff, Salem, Third Vice-Chairman George L. Hibbard, Oregon City Edward G. Huffschmidt, Portland

J. Pat Metke, Bend  
Joseph W. Smith, Klamath Falls  
McKee A. Smith, Portland

,  
James Whittaker, Pilot Rock

#### Washington

Dwight S. Hawley, Seattle Harold E. Lokken, Seattle Thor C. Tollefson, Olympia, Second Vice-Chairman

The Advisory Committee consisted of the following members:

#### Alaska\*

J. B. Cotant, Ketchikan  
Richard I. Eliason, Sitka, Deputy Chairman  
Ben Engdal, Wrangell  
Charles A. Powell, Kodiak, successor to R. L. Rettig  
Norman A. Riddell, Juneau, Chairman  
C. A. Weberg, Juneau, successor to Charles H. Meacham Charles Wells, Cordova

#### California

Charles R. Carry, Terminal Island, Section Chairman  
Clifton D. Day, San Francisco  
Thomas R. Gardiner, Oakland, deceased, September 14, 1969  
John P. Gilchrist, San Francisco  
Paul McKeehan, Santa Clara

#### I

Anthony Nizetich, Terminal Island  
Charles V. Williams, Crescent City

#### Idaho

John Eaton, Cascade, successor to William B. Durbon  
Robert G. Kalb, Sandpoint, successor to Ray Sims  
Glenn Stanger, Idaho Falls, Section Chairman

#### Oregon

David B. Charlton, Portland Section Chairman  
Charles S. Collins, Roseburg Harold C. Gramson, Warrenton J. F. Hoagland, Astoria  
Andrew J. Naterlin, Newport Arthur Paquet, Astoria  
Phillip W. Schneider, Portland, successor to Charles F. Henne

#### Washington

Robert E. Colwell, Seattle  
Earl Engman, Tacoma  
Charles F. Mechals, Seattle  
Nick Mladinich, Tacoma, Section Chairman  
Bjarne Nilsen, Westport  
Jesse Orme, Seattle  
John N. Plancich, Anacortes

Alternates, approved for those members who were unable to attend the Annual Meeting, are listed under Committee ) Action. These alternates serve only during the designated meeting.

The staff comprised:

Leon A. Verhoeven, Executive Director  
Gerald L. Fisher, Treasurer  
Mrs. Evelyn Korn, Office Secretary

They were assisted for short periods by: Alphonse Kemmerich, Consultant; and W. Markham Morton, part-time Editor, who succeeded Consultant Joseph T. Barnaby.

Temporary clerical employees were utilized as needed.

## Conferences and Meetings

The intergroup relationships of the Pacific Marine Fisheries Commission call for frequent participation in conferences and meetings. In furtherance of this function, the Executive Director attended the following as a representative of the Commission during 1969:

Oregon Chapter of American Fisheries Society, Annual Meeting, Corvallis, January 10-11.

Association of Pacific Fisheries and National Cannery Association, Annual Meeting, Seattle, January 15.

International Pacific Halibut Commission, Annual Meeting, Seattle; attended January 28 only.

Pacific Northwest Rivers Basins Commission; Vancouver, Washington, February 19-20; Vancouver, March 27; and Idaho Falls, Idaho, July 22.

Bureau of Commercial Fisheries' Ad Hoc Committee on Surveillance (of foreign fishing); Seattle, March 13; Seattle, June 11; Seattle, October 28-29 (Informal "Committee on Chinook and Coho was discussed in addition to foreign fishing).

National Fishermen and Wives, Inc., Seattle; attended March 29 only.

Meeting with Dr. Leslie Glasgow, Assistant Secretary of the Interior for Fish and Wildlife and Parks and Marine Resources, by the directors of the Atlantic States and Gulf States and Pacific marine fisheries commissions and representatives of industry, Washington, D. C., April 24.

Joint Annual Meeting of Western Association of Game and Fish Commissioners and Western Division of American Fisheries Society, Teton, Wyoming, June 26-29.

Pacific Northwest Regional Conference of the National Water Commission, Portland, August 29.

Fish Expo 1969 (American Commercial Fish Exposition Inc.) Seattle; attended October 6 only.

Pacific Coast Statistical Association, Parksville, B. C.; October 22-24. Fish Commission of Oregon, public hearing regarding Dungeness crab regulations, Portland, December 8.

Fishery Town Hall Meeting, sponsored by Fish Commission of Oregon, Oregon State University and Bureau of Commercial Fisheries; Astoria, December 15.

## Administrative and Service Activities

The annual meeting to coordinate and record salmon and steelhead fin-marking programs of Pacific Coast agencies was held in Portland on February 11, 1969. Requests or information from agencies that could not send representatives were considered. Subsequently a 47-page 1969 mark list was distributed and memoranda advising the agencies of additions or revisions were issued when necessary.

On February 17, the Commission's office was moved from room 741 to room 342 of the State Office Building at the request of the Oregon Department of General Services.

The Groundfish, Salmon and Shellfish sections of PMFC's Research Staff held independent meetings in Portland on March 24-25. These meetings were followed by a meeting of Research Directors on May 6-7. The Research Staff recommended PMFC's continued financial contribution toward the support of a technician on the federal-state unit to age groundfish at the Bureau of Commercial Fisheries' Laboratory in Seattle.

The Executive Director continued to serve as one of the two United States members of the Informal Committee on Chinook and Coho. On April 30, the Canadian and United States Sections of the Committee met in Seattle to receive from the Committee's Technical Working Group written reports: "Reports by the United States and Canada on the Status, Ocean Migrations and Exploitation of Northeast Pacific Stocks of Chinook and Coho Salmon, to 1964," volume 1 report by the United States Section, volume 2 report by the Canadian Section. These reports after study and final revision were subsequently forwarded to the Canadian and United States Governments for review before public distribution of 150 copies of each report by each national Section. The Informal Committee on Chinook and Coho met again with its Technical Working Group on November 7 at Vancouver, B.C., to review a proposed coordinated research program.

The Executive Committee at its spring meeting in Portland on May 27 approved continuation of financial contribution toward support of a technician on the federal-state age determination unit for groundfish, and approved an operating budget for the year July 1, 1969 to June 30, 1970 and a budget for the biennium ending June 30, 1971.

The Executive Committee met thrice more on September 30, and October 2 and 3 at the Annual Meeting in Sitka. The Committee ruled that four proposals for resolutions which had been received less than 15 days before the Annual Meeting were not emergencies and should not be distributed or considered at the Annual Meeting. It was reported to the Committee that each member State had amended its law regarding participation in the Pacific Marine Fisheries Compact, and that Congress was considering bills H.R. 13407 and S. 2765,

"To consent to the amendment of the Pacific Marine Fisheries Compact." The amendment is primarily the adoption, as of July 1, 1969, of the contribution formula or revision of ARTICLE X of the Compact as described in Resolution No. 9 of 1967. The Executive Director was instructed to write Senator Magnuson in support of bill S. 2396 to extend the Anadromous Fish Conservation Act. This was done on October 17 and copies of the letter were sent to all of the other members of the West Coast Congressional Delegation and also to various other public officials. Subsequently, two more letters and a statement for a hearing by the Senate Subcommittee on Energy and Natural Resources and the Environment were mailed. (See Resolution 15 under 1969 Resolutions.)

The Executive Director, as liaison officer for the United States Section of the Trawl Fishery Committee of the Conference on Coordination of Fishery Regulations Between Canada and the United States, attended the tenth annual meeting of the Committee's Technical Subcommittee in Seattle on June 17 and 18. The statistics in the Bottom or Trawl Fish section of PMFC's Data Series are furnished by the Canadian and United States agencies represented on this subcommittee. The Executive Director also participated in the eleventh annual meeting of the Trawl Fishery Committee in Sitka on October 1.

At the request of the Alaska Department of Fish and Game, the Executive Director, with the consent of the Executive Committee, sent a letter and telegram on June 17 to Chairman John D. Dingell of the House of Representatives' Subcommittee on Fisheries and Wildlife Conservation, urging passage of H.R. 507, "To prohibit processing of fish in the territorial waters of the United States except where there is a determination that no adequate American processing facilities are available," and of H.R. 509, "To amend the Act prohibiting fishing in the territorial waters of the United States by vessels other than vessels of the United States in order to expand the definition of the term 'fisheries'."

The Executive Director, in discharge of his duties, as ex officio secretary for the Pacific Salmon Inter-Agency Council and as an observer on the Council's Technical Committee, attended one meeting of the Technical Committee and attended and-prepared minutes for four meetings of the Council, beginning with a meeting on November 19, 1968. He continued to coordinate and administer the Salmon Council's project to update the Salmon Compendium.

On August 21, word was received that the Department of State proposed to eliminate three of its four foreign fishery attache posts. Letters were sent by PMFC's office to President Nixon on August 25 and September 9, objecting to the proposed reduction of the fishery attache program and urging instead an expansion of the program and elevation of fisheries to Department level with Cabinet status in the Federal Government. Copies of these letters were sent to the Congressional Delegates from the Pacific Coast and to other officials including the Secretaries of State and of the Interior. For further details see Resolution 10 in section on 1969 Resolutions.

The Executive Director, as an observer, on September 17, attended a meeting in Seattle of Advisers to the U.S. Section of the International North Pacific Fisheries Commission. Data on the propagation and conservation of salmon, on commercial fishing regulations concerning salmon and halibut and on enforcement of those regulations in the States of Washington,

Oregon, and California were secured and forwarded to the Office of International Relations, Bureau of Commercial Fisheries in compliance with an annual request for these materials which are compiled and forwarded via the U.S. Section of INPFC to the Japanese Government.

PMFC publications during 1969 were the 21st Annual Report of the Commission for the Year 1968, and revised and supplemental pages for 1968 catches of trawl fish and Dungeness crab and shrimp for the Data Series. The manuscript for Bulletin 7, which is primarily on English sole, was completed and will be printed in 1970. Copies of the usual status reports, and of special reports on "Summary of Progress of Pacific Oyster Mass Mortality Investigations, 1968-1969" and ". . . Weathervane Scallop Fishery of Alaska with Notes on Occurrence in Washington and Oregon," were distributed at PMFC's Annual Meeting and have been included as appendices to this Annual Report.

## COMMISSION ACTION

The 22nd annual meeting of the Commission was held in the excellent facilities of the City of Sitka's convention center on October 2 and 3, and was preceded by the usual two days of committee meetings. This was Alaska's first year as host to the Commission after joining the Pacific Marine Fisheries Compact in 1968.

The purpose of the meeting was to arrive at conclusions and recommendations affecting the fisheries of the Pacific Coast, but other matters of internal concern were also considered. The latter included:

1. New Commissioners and alternates for Commissioners who were unable to attend were introduced:

Wallace H. Noerenberg, successor to Augie Reetz  
(Alaska) Chairman of PMFC

R. L. Rettig, successor to Charles A. Powell (Alaska) G.

Ray Arnett, successor to Walter T. Shannon

(California) First Vice-Chairman of PMFC Paul C.

Keeton, successor to Arlie Johnson (Idaho) \* Robert G.

Kalb, alternate for R. J. Holmes (Idaho) Robert W.

Schoning, alternate for Joseph I. Eoff

(Oregon) Thomas E. Kruse, alternate for Edward G.

Huffschmidt

(Oregon)

2. New Advisors were confirmed and alternates for Advisors who were unable to attend were approved:

C.A. Weberg, successor to Charles H. Meacham

(Alaska)

John Eaton, successor to William B. Durbon (Idaho)

Robert G. Kalb, successor to Ray Sims (Idaho) Phillip

W. Schneider, successor to Charles F. Henne

(Oregon)

William Hill, alternate for Charles R. Carry (California)

Fred Phebus, alternate for John P. Gilchrist (California)

Russell Bristow, alternate for Harold C. Gramson

(Oregon)

Vern Davis, alternate for Andrew J. Naterlin (Oregon)

Richard L. Patana, alternate for Bjarne Nilsen

(Washington) D. E. Reinhardt, alternate for

John N. Plancich

(Washington)



3. The actions of the Executive Committee during the year were reviewed and unanimously confirmed.

4. Reports by the Executive Director and Treasurer were received and approved. The financial report for the calendar year 1969 is presented on page 12 of this report.

5. Mr. Stephen C. Smedley of the Research Staff, Alaska Department of Fish and Game, and Chairman of PMFC's Research Staff, introduced the speakers who presented the fishery status reports which are presented in Appendix I. This was followed by a series of panel discussions or special reports on national fishing limits and conservation zones; marine oil, gas and other mineral explorations; and recommendations by the Advisory Committee and Research Staff on proposals before the Commission for consideration as resolutions.

Mr. C. A. Weberg, Director of International Fisheries, Office of the Governor, Alaska, and a PMFC Advisor, was the moderator for the "National Fishing Limits and Conservation Zones" panel on which the speakers and titles of their papers were:

Honorable Howard W. Pollock of Alaska, Member of the United States House of Representatives, "Protection of the U.S. Fisheries and Development of the Northwest Passage."

Mrs. Bus Morwitz of Sitka read the paper "United States and World Fisheries Problems" by Mr. Lowell Wakefield of Wakefield Fisheries, Alaska, who was unable to attend because of an accident. Mr. Harold E. Lokken of Seattle, Manager of the Fishing Vessel Owners Association and a PMFC Commissioner, "Jurisdiction for Management of Ocean Fishery Resources." Mr. G. Ray Arnett, Director of the California Department of Fish and Game, and First Vice-Chairman of PMFC, was the moderator for the "Marine Oil, Gas, and Other Mineral Explorations" panel on which the speakers \* and titles of their papers were:

Mr. Eugene Standley of Washington, D.C., Staff Engineer for Mineral Resources Office of the Assistant Secretary for Mineral Resources, Department of the Interior, "Outer Continental Shelf Oil, Gas and \* " Other Mineral Explorations."

Mr. Ben Hillicker, Deputy Commissioner for Sport Fish and Game, Alaska Department of Fish and Game, "Marine Oil and Gas Explorations and Fish and Wildlife in Alaska." \*

Mr. Eugene F. Griffin, District Operating Manager for the Western Region of Union Oil Company, Anchorage, Alaska, "Marine Oil and Gas Explorations and Fisheries."

The remarks of the moderators were included in the minutes of the meeting and copies of the above papers were included in Appendix B of the minutes, which minutes were mailed to all registrants at the meeting.

Copies of the following special reports were distributed at the meeting:

"Crab Condition and Washington Coastal Season,"  
I anonymous

"California Department of Fish and Game, Shellfish and Bottomfish Data Analysis Project," Tom Jow

"Washington Pacific Ocean Perch Biological Cruises,"  
Don Gunderson

"A summary of Recent Groundfish Tagging Studies Conducted by the Washington State Department of Fisheries," Gene DiDonato

## Action on 1968 Resolutions

The following information was sent to all Commissioners and Advisors, and Research Supervisors on September 22, 1969 in compliance with Resolution No. 10 of 1965, "Report of Actions Taken on Last Year's Resolutions." It also appeared as Appendix A to the report of the Executive Director on October 2, 1969.

The following resolutions were mailed or distributed as directed:

- No. 1, To the Memory of Wayne E. Phillips;
- 2, Columbia River Hatcheries — Operate at Design Capacity and Maintain in Proper Condition;
- 3, Concerning Dam Development on Middle Snake River;
- 7, Fund Biological Studies as Part of Water Project Planning;
- 8, Manage Fisheries to Prevent Depletion and to Ensure Mankind a Continuous Food Supply;
- 10, State and Federal Institutions Use Only Domestically Produced Fishery Products;
- 11, Membership on the Pacific Northwest River Basins Commission;
- 12, Opposition to Asotin Dam on the Snake River;
- 14, Requesting Corps of Engineers to Revise Policies and Regulations Relating to Economic Analysis for Fish Mitigation;
- 16, Commend Portland General Electric, Pacific Power and Light, and Pollution Control Agencies;  
(A footnote was added to include the Washington Water Power Company in this commendation.—L.A.V.)
- 17, Opposition to Ben Franklin Dam;
- 21, Recommending a Department and Cabinet Post for Marine Fisheries;
- 24, Commendation to Idaho Fish and Game Commission.

The following proposals for resolutions were tabled at the 1968 meeting without instructions to the Executive Director for further action:

- No. 4, Commendation to State and Federal Fishery Agencies;
- 5, Commendation to Joint Power Planning Council;
- 9, Use of Hatchery Salmon or Carcasses;
- 15, Permit Trawling to Within One Mile of California Mainland;

- 18, Amending the Columbia River Compact to Include the State of Idaho and Designating the Regulatory Agencies Under the Amended Compact;
- 20, Oyster Opening Machine;
- 22, March is Opening for the Chinook Salmon Troll Fishery;
- 23, A Uniform Opening Date and a Uniform Size Limit in the States of California, Oregon and Washington for the Coho Salmon Fishery.

In those instances where the author of a tabled proposal was absent from the meeting and where the Executive Director felt that courtesy required an explanation, he wrote the author informing him of the reasons for the tabling of his proposal.

Distribution or action on the following resolutions was incomplete:

- No. 6, Thermal Plants to be Licensed by FPC;
- 13, Offshore Herring Fishing;
- 19, Delta Facilities of the California Water Plan.

Extenuating circumstances surrounding each of these resolutions are:

No. 6, Thermal Plants to be Licensed by F.P.C. — There are a number of bills before Congress (H. R. 1058, Dingell and Karth; H. R. 4148; S. 7, Muskie; S. 2768, Tydings) that would affect the discharge of heated effluents, but would not give the licensing responsibility to the FPC. PMFC's member agencies have not decided whether to support one or more of these bills that would affect heated effluents or to simply distribute Resolution No. 6 without comment on pending legislation.

No. 13, Offshore Herring Fishing — The PMFC member agencies with jurisdiction over marine fisheries and BCF's regional offices in Juneau and Seattle were contacted for information on offshore fishing for herring by foreign fishermen and for information on the presence of immature salmon among herring caught offshore. Only the Juneau office of BCF had positive information on herring fishing by foreign fleets "and" this information concerned fishing in Bering Sea. None of the agencies could supply information on the incidence of immature salmon in the herring catches. Information on this subject will be requested from the Canadian Department of Fisheries and the Fisheries Research Board of Canada.

No. 19, Delta Facilities of the California Water Plan — This was the fifth consecutive annual resolution on this subject. The resolution numbers in other years were 1967 — #3, 1966 — #13, 1965 — #18, and 1964 — #20. Always the replies from congressional delegates and others to these resolutions were: as soon as the feasibility report on the peripheral canal has been completed and submitted to Congress; authorization of the project can be considered. The feasibility report was approved by the Secretary of the Interior on July 10, 1969. It is therefore desirable that a 1969 resolution be adopted and distributed widely, especially to Members of Congress with a request for early authorization and appropriation of funds to build the project.

Comments or actions relative to some of the completely distributed resolutions are:

- No. 2, Columbia River Hatcheries — Operate at Design

Capacity and Maintain in Proper Condition: The Bureau of Commercial Fisheries' budget for fiscal year 1970 included an increase of \$220,000 for the operation and maintenance of 21 lower Columbia River hatcheries. The House of Representatives in July added an additional \$180,000 to the BCF budget for this purpose, but the Senate deleted the \$180,000 and the matter will now go to conference. On June 27, 1969 the Western Division of the American Fisheries Society adopted a resolution very similar to PMFC's.

No. 3, Concerning Dam Development on Middle Snake River: Senators Church and Jordan have introduced S. 940 to establish a 10-year moratorium on construction of additional dams on the Middle Snake River (the stretch of river from Hells Canyon Dam downstream to a point, river mile 146.5 above the mouth of the Snake River, where the Asotin Dam project was authorized). The Western Division of the American Fisheries Society's Resolution No. 10 of June 27, 1969 is almost identical to PMFC's. This year's proposal no. 12 urges passage of S. 940.

No. 7, Fund Biological Studies as Part of Water Project Planning: Resolution No. 3 of the Western Division of the American Fisheries Society, June 27, 1969, is similar.

No. 11, Membership on the Pacific Northwest River Basins Commission: Oregon and Wyoming are in favor of welcoming PMFC to membership on the River Basins Commission, Idaho and Washington are opposed, and Montana is undecided. (In 1970, Montana announced it was in favor. — L.A.V.)

No. 12, Opposition to Asotin Dam on the Snake River: This year the Corps of Engineers retracted its request for pre-construction funds for this project.

No. 14, Requesting Corps of Engineers to Revise Policies and Regulations Relating to Economic Analysis for Fish Mitigation: The Western Division of the American Fisheries Society adopted a similar resolution, no. 6 on June 27, 1969. PMFC's resolution was sent to the Chief of the Corps of Engineers on July 23, 1969 and copies were sent to other addresses. No answers have been received.

No. 17, Opposition to Ben Franklin Dam: Resolution No. 11 adopted June 27, 1969 by the Western Division of the American Fisheries Society is similar, but both resolutions fail to clearly indicate that two projects are involved, the Upper Columbia River Navigation Project for which the Corps of Engineers is requesting Congressional authorization and the Ben Franklin Dam for which the Corps is not asking authorization at this time. This year's proposal no. 3 clearly states the problems and if adopted will be a more effective resolution than was last year's No. 17.

No. 21, Recommending a Department and Cabinet Post for Marine Fisheries: A number of bills related to this subject are now before Congress: H. R. 3848 (Bob Wilson, Calif.) and H. R. 4838 (Morton, Md.) to establish a National Oceanographic Agency; H. R. 9482 (Pepper, Fla.) to establish a Department of Oceanographic Services within the President's Cabinet; H. R. 10869 (Anderson, Calif.) and H. R. 12094 (Pollock, Alaska) to establish a Cabinet-level Department of Maritime Affairs; H. R. 11240 (Dellenback, Oregon) to establish the National Oceanic and Atmospheric Agency; and S<sup>^</sup> 2204 (Murphy, Calif., Hatfield, Ore., Tower, Tex.) to establish the National Oceanic Agency.

## 1969 Resolutions

The extensive pre-meeting preparations, including the provision of secretarial assistance to the Advisory Committee, facilitated careful screening of the many recommendations and resolutions which emanated from the diverse fishery interests of the Pacific Coast. Simultaneously, the Research Staff received the proposals with the result that the Commission had available the views of the Advisers and Researchers before it acted upon the pending resolutions at the final business meeting.

Twenty-six proposals for resolutions were received prior to or during the meeting. Four of these were received late and were rejected by the Executive Committee because they did not qualify as emergencies. In addition, the Commission rejected No. 8, "March 15 Opening for the Chinook Salmon Troll Fishery," and tabled No. 17, "Extend U.S. Fishing Limits." The remaining 20 proposals, which were adopted as resolutions On October 3, are cited verbatim. The missing numbers are the result of rejection or tabling of proposals bearing those numbers.

### 1. Legal Status of Fish and Game

WHEREAS, the legal status of fish and game has been questioned by some Departments and Bureaus of the Federal Establishment by virtue of their unqualified assertion of management jurisdiction over these resources based upon custodial responsibility for certain federal lands, and

WHEREAS, extensive and continuing efforts of the States to resolve this problem through negotiation have thus far failed to develop a mutually satisfactory resolution and clarification of the issue, thus precipitating at least one litigation presently in the courts and the introduction of legislation now before the Congress, and

WHEREAS, it is the strong view of the Pacific Marine Fisheries Commission that fish and wildlife are common properties held in trust by the several States for all their citizens and that such trusteeship, with certain exceptions provided under the constitutional treaty-making powers of the Federal Government, carries with it jurisdiction for management "and regulation separate from that of land ownership,

NOW, THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission, in annual meeting at Sitka, Alaska, this 3rd day of October, 1969, does hereby reaffirm the Commission's support of the several States in their objective, seeking clarification of this important question.

### 2. Delta Facilities of the California Water Plan

WHEREAS, the State of California and the Federal Government have selected the Peripheral Canal as the engineering facility in the Sacramento-San Joaquin Delta to carry out the California Water Plan and to further develop the Central Valley Project, and

WHEREAS, the State of California is faced with a deficit in the financing of the State Water Project and the Bureau of Reclamation has suffered some unfortunate delays in submission of the Feasibility Report to Congress, and

WHEREAS, the Secretary of Interior approved the Feasibility Report on July 10, 1969, and

WHEREAS, the California Department of Fish and Game has predicted increasing dangers to the salmon resources in the years between the start of State pumping operations (now operating), increased pumping by the Bureau of Reclamation, and completion of the Peripheral Canal, and

WHEREAS, the king salmon resources of the Central Valley of California must pass successfully through the Sacramento-San Joaquin Delta, and

WHEREAS, man's activities have already done considerable damage to the salmon resources, and there is great need to protect and rebuild these resources, and

WHEREAS, these king salmon runs are of major importance to the salmon fisheries in the ocean off California and also contribute to ocean fisheries off Oregon and Washington, and

WHEREAS, the Peripheral Canal Plan is the only known engineering plan which will protect existing king salmon resources passing through the Sacramento-San Joaquin Delta and will provide opportunities for passage through the Delta of increased king salmon runs, thereby allowing enhancement of said salmon runs, and

WHEREAS, existing conditions in the Delta are detrimental to the San Joaquin River salmon runs and may become so to the Sacramento River and the American River salmon runs before completion of the Peripheral Canal, and

WHEREAS, operation of the Peripheral Canal, after its completion, may well be the most critical factor for protecting and enhancing the Central Valley salmon runs,

NOW, THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission reaffirms its support of the Peripheral Canal Plan and urges all appropriate agencies to start and complete this project at the earliest possible date to protect and enhance the salmon resources of the Central Valley of California, and

BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries Commission urges that the operation of the Peripheral Canal to maintain a Delta environment compatible with king salmon runs be an objective of the project.

### 3. Opposition to Upper Columbia River Navigation Project and/or Ben Franklin Dam

WHEREAS, the Corps of Engineers is considering construction of one or two related projects on the Columbia River between Richland and Wenatchee, Washington. One of the projects, the Upper Columbia River Navigation proposal, would be for the purpose of barge transportation from the pool of McNary Dam to Wenatchee, Washington, by dredging the last free-flowing stretch of the main stem of the Columbia River and by providing Priest Rapids, Wanapum, and Rock Island dams with ship locks. The other project, Ben Franklin Dam, would generate electricity and, with the inclusion of ship locks in four dams (Ben Franklin, Priest Rapids, Wanapum, and Rock Island), would facilitate river navigation to Wenatchee, and

WHEREAS, either project would destroy the last free-flowing stretch of the main stem of the Columbia River and would adversely affect valuable anadromous and resident fish,

waterfowl and other wildlife, recreation and archeological resources, and

WHEREAS, the Corps of Engineers has approved and has forwarded the Upper Columbia River Navigation proposal to Congress for authorization, even though barge transportation to Wenatchee is unnecessary; will be destructive to natural resource values, and is subsidization of water transportation at taxpayer expense when other adequate forms of transportation already exist, and

WHEREAS, the Corps of Engineers has not yet approved the Ben Franklin Dam project for which there are alternative means of producing electricity and for which the benefit/cost ratio is a dubious and marginal 1.06 to 1, and

WHEREAS, either of these projects will destroy the last remaining free-flowing section and the last remaining natural spawning area on the main stem of the Columbia River for chinook salmon and steelhead trout, together with angling areas for these species; and either project would also destroy or greatly reduce the following: nesting area for resident geese (Canada Goose); resting area for migratory waterfowl and associated area for hunting; feeding and fawning area for deer; areas of archeological value; camping and other recreational opportunities associated with the foregoing assets, and

WHEREAS, the adverse effects on anadromous fishes and waterfowl can affect the harvesting of these renewal annual resources in many additional areas extending from Alaska to California,

THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission joins with the Columbia River Conservation League, its member and supporting organizations, and other conservation and fish and wildlife groups in urging Congress to reject the Upper Columbia River Navigation proposal and to instruct the Corps of Engineers to cease planning and promotion of the Ben Franklin Dam project.

#### **4. Secure Agreement to Establish Offshore Conservation Zones through Extension of Jurisdiction of Coastal State**

WHEREAS, massive fishing effort by foreign fishing fleets on the fishing grounds of the Northeastern Pacific Ocean and Bering Sea is continuing, and

WHEREAS, it is certain that drastic depletion is occurring with serious effect on coastal fishermen and fisheries, and

WHEREAS, if this continues, the U. S. North Pacific bottomfish fleet will be reduced to the point where it will cease to exist as a meaningful industry, and

WHEREAS, such a development is contrary to the best interests of the United States, and

WHEREAS, existing conditions do not provide adequate means of handling the problem,

BE IT THEREFORE RESOLVED, that the Pacific Marine Fisheries Commission urges the appropriate governmental agencies to take all feasible steps to secure sufficient agreement among all countries to permit coastal nations to extend their jurisdiction over coastal fishery resources to whatever extent necessary so as to permit the establishment of conservation regimes which will be effective in preventing depletion of coastal fishery resources by any and all nations.

#### **5. Study and Revise PMFC's Activities**

WHEREAS, the Pacific Marine Fisheries Commission has been in existence for 22 years, and

WHEREAS, the fishery problems in the Northeast Pacific region are increasing both in number and complexity, and

WHEREAS, the need for an effective organization to deal with such problems has never been greater, and

WHEREAS, despite this need, general doubts have been expressed from time to time as to the effectiveness of the work of the Pacific Marine Fisheries Commission, and

WHEREAS, the California Department of Fish and Game has prepared a draft report entitled "THE OBJECTIVES AND GOALS OF THE PACIFIC MARINE FISHERIES COMMISSION" which contains both a summary of PMFC's present status and recommendations to strengthen the role of PMFC,

BE IT THEREFORE RESOLVED, that the Executive Committee of PMFC, in consultation with the member state management agencies, federal agencies and all fishery interests, be instructed to conduct a study of the functions of the organization for the purpose of recommending, if found advisable, changes in its rules of procedure, objectives, operations, finances, composition and other pertinent activities, and

BE IT FURTHER RESOLVED, that the California Department of Fish and Game draft report be used as guideline material for the Executive Committee's study, and that the PMFC delegation of each member state be requested to review the California draft report and to submit comments and recommendations to the Executive Committee prior to its 1970 spring meeting, and

BE IT FURTHER RESOLVED, that the results of such study including recommendations, if any, be presented for consideration at the 1970 annual meeting of the organization.

#### **6. Compile North Pacific Domestic Laws and Regulations Affecting Large U. S. Stern Trawlers and Request Scientific Observers**

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WHEREAS, under a U. S. construction subsidy program a large stern trawler comparable to those operated by foreign nations in the North Pacific Ocean including Bering Sea will soon commence operations in the North Pacific, and

WHEREAS, the operation of this vessel could have a harmful effect upon the U. S. fishing industry as a whole if conducted without regard to the letter, spirit and intent of existing treaties, agreements, laws, rules and regulations existing in the Eastern Pacific including the Bering Sea, and

WHEREAS, this influence would cause a further harmful effect by foreign trawlers and would provide unfair competition to local vessels if the U. S. stern trawler operates contrary to the conditions under which other trawlers are required to operate,

BE IT THEREFORE RESOLVED, that the Pacific Marine Fisheries Commission itself, or some appropriate governmental agency upon request of the Pacific Marine Fisheries Commission, compile a list of the parts of treaties, governmental agreements, laws, rules and regulations affecting the vessel's operations, and

BE IT FURTHER RESOLVED, that such a list be made available to all interested persons and organizations, and

BE IT FURTHER RESOLVED, that the operators of the vessel be requested to permit an official U. S. scientist on board from time to time, similar to the U. S. scientists being permitted on foreign vessels, in order to provide similarity of research by U. S. scientists on foreign and domestic vessels during comparable operations.

#### **7. Designate Authority to Deal with Oil and Chemical Spills on Navigable Waters**

WHEREAS, several catastrophic oil and chemical spills in navigable waters have occurred in recent years, and

WHEREAS, catastrophic oil and chemical spills may occur in waters beyond the jurisdiction of a coastal state, and

WHEREAS, such spills may be harmful to the resources of that state, and

WHEREAS, spills inside the state's jurisdiction may be of such magnitude that they are beyond the capabilities of the state to control, and

WHEREAS, the state has the principal authority to prevent pollution of its waters, and

WHEREAS, there is urgent need to vest in one federal agency emergency authority so that prompt decisions can be made to deal with major oil or chemical spills in international waters and to provide necessary assistance to a coastal state to control oil and chemical spills inside territorial waters,

NOW, THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission urges the President of the United States by executive order to vest in a single federal agency authority necessary for that agency to take immediate command of operations in controlling the spill of oil, other petroleum products, or chemicals in international waters, and to cooperate with appropriate state agencies and to take appropriate action to prevent or minimize damage to fish, shellfish and wildlife, and

BE IT FURTHER RESOLVED, that such federal agency be authorized to assist a coastal state when requested in controlling a catastrophe involving a spill of oil or chemical within the state's jurisdiction, and

BE IT FURTHER RESOLVED, that the designated federal agency be authorized to prevent the application of oil dispersants and other chemical substances on navigable waters or beach areas until appropriate state or federal fishery agencies have been consulted.

#### **9. Uniform Opening Dates and Minimum-Size Limits in California, Oregon, Washington and Alaska Coho Troll Fisheries**

WHEREAS, California has an April 15 opening and Oregon, Washington and Alaska have June 15 openings for the coho troll fishery, and

WHEREAS, California has a 25-inch, Washington a 20-inch, Oregon a 15-inch minimum-size limit, and Alaska has no minimum-size limit, and

WHEREAS, this creates bitterness between the fleets of the respective States, and

WHEREAS, this causes a marketing problem between the respective States,

NOW, THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission recommends that the fishery agencies of California, Oregon, Washington and Alaska give consideration to establishing regulations as uniform as possible.

#### **10. Retain Existing Fishery Attache Posts and Establish One in Peru**

WHEREAS, it has been United States policy for many years to promote fishing agreements and treaties with all maritime fishing countries for the purpose of preventing the depletion of ocean fishery resources, and

WHEREAS, an important part of this policy has been the maintenance of fishery attaches in major fishery centers of the world, and

WHEREAS, attache posts are maintained now in Denmark, Ivory Coast, Mexico and Japan, and there are plans to locate a post in Peru, and

WHEREAS, it is now proposed to cut back severely the fishery attache program by not establishing the attache post in Peru and by reducing the number of existing posts by 50 or 75%, and

WHEREAS, if the proposed cut is carried out, United States fishery policy is going to be seriously handicapped; the opportunities to maintain ocean fish production on a sustained basis is going to be greatly reduced; and international problems connected with harvesting of ocean resources are going to be greatly intensified,

BE IT THEREFORE RESOLVED, that the Pacific Marine Fisheries Commission as a matter of high priority strongly urges the Department of State to retain the existing four fishery attache posts and to proceed with all possible haste to establish the planned post in Peru, and

BE IT FURTHER RESOLVED, that copies of this resolution be sent to all appropriate governmental officials and to all Senators and Representatives from the member States of the Pacific Marine Fisheries Commission.

(The four existing attache posts are being maintained in 1970. — editor)

#### **11. Oppose Construction of Asotin Dam, Snake River**

WHEREAS, the U. S. Army Corps of Engineers has indicated it will request pre-construction funds for Asotin Dam, and

WHEREAS, Asotin Dam will adversely affect runs of anadromous fish to the Snake River drainage, and

WHEREAS, power and other benefits produced by this project will be relatively insignificant,

NOW, THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission opposes the construction of Asotin Dam and urges Congress not to appropriate funds for the project, and

BE IT FURTHER RESOLVED, that copies of this resolution be sent to the Congressional Delegates from the Pacific Coast States, to the U. S. Army Corps of Engineers and to other appropriate parties.

## **12. Moratorium on Dam Construction Middle Snake River**

WHEREAS, the anadromous and resident fish of the Snake River have been progressively and seriously reduced by existing dams, and

WHEREAS, the issue of further dam construction on the Middle Snake River is now under consideration by the Federal Power Commission, and

WHEREAS, the construction of any of the proposed alternative projects for the Middle Snake River would have serious adverse effects on major Snake River runs into the Salmon and Imnaha Rivers, and

WHEREAS, Senators Church and Jordon of Idaho have introduced legislation to establish a moratorium on construction of additional dams on the Middle Snake River,

NOW, THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission does urge Congress to enact legislation providing for a moratorium on dam construction in the Middle Snake River.

BE IT FURTHER RESOLVED, that copies of this resolution be sent to the Congressional Delegates and Governors of the Pacific Coast States and to other interested parties.

## **13. Multi-Level Water Outlets in Dworshak Dam**

WHEREAS, Dworshak Dam as now designed will be capable of releasing water only from low level outlets, and

WHEREAS, low level water releases at other storage projects have caused serious adverse effects to anadromous fish runs due to unsuitable water temperature and quality, and

WHEREAS, it is predicted that the Clearwater River Chinook run will be similarly affected by low level water releases, and

WHEREAS, construction of multi-level outlets would eliminate the possibility of these adverse effects and could improve conditions for anadromous fish,

NOW, THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission does urge the construction of multi-level outlets in Dworshak Dam, and

BE IT FURTHER RESOLVED, that copies of this resolution be sent to the U. S. Army Corps of Engineers and to other appropriate parties.

(The Corps of Engineers is including multi-gated outlets. — editor)

## **14. Oppose Construction of Dams on Main Stem of Clearwater River**

WHEREAS, the Clearwater River drainage produces close to 50 percent of the summer steelhead trout which presently enter Idaho waters, and

WHEREAS, an excellent potential exists for the establishment of spring and summer chinook salmon runs which could rival the Salmon River drainage's production of chinook salmon, and

WHEREAS, when the construction of Lower Granite Dam on the Snake River and Dworshak Dam on the North Fork of the Clearwater River is completed, the main Clearwater River

will be the only remaining reach of water where the Clearwater River steelhead trout and chinook salmon runs can be fully utilized by Idaho fishermen, and

WHEREAS, the Corps of Engineers is proposing an investigation and authorization of the Lenore Dam on the main stem of the Clearwater River which would inundate a large portion of the river between Lewiston and the mouth of the North Fork of the Clearwater,

NOW, THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission hereby strongly recommends against any dams on the main stem of the Clearwater River or on its tributaries because of the adverse effect on the remaining anadromous and resident fish populations in the drainage, and

BE IT FURTHER RESOLVED, that copies of this resolution be sent to the Congressional Delegates and Governors of Oregon, Washington and Idaho, the U. S. Army Corps of Engineers and to other appropriate parties.

## **15. Urge Extension of Anadromous Fish Conservation Act**

WHEREAS, the Anadromous Fish Conservation Act of 1965 (Public Law 89-304) will expire on June 30, 1970, and

WHEREAS, this Act is of great assistance to the States in perpetuating and enhancing runs of anadromous fishes, the existence of which runs is being threatened in many areas by the advances of civilization with its water diversions, dams and other water uses, many of which are federally sponsored, and

WHEREAS, included among anadromous fishes are salmon, steelhead trout and other searun trout, and

WHEREAS, salmon are the second most valuable commercial group of fishes in the United States, and

WHEREAS, to this great commercial value there should be added a great but unmeasured sport and recreation value,

NOW, THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission urges the passage of Senate Bill 2396 to extend the ANADROMOUS FISH CONSERVATION ACT from July 1, 1970 to June 30, 1975.

(The President on May 14, 1970 signed H.R. 1049, as amended, thereby extending the act. — editor)

## **16. Surveillance of Pacific Coast Foreign Fishing Fleet Activity**

WHEREAS, Eastern Pacific fishery stocks are presently exploited by foreign fishing fleets, and

WHEREAS, the conservation and welfare of such stocks are a matter of prime interest and concern to the Pacific Marine Fisheries Commission, and

WHEREAS, certain of these stocks have been reduced to a depleted state and others threatened as the result of massive foreign fishing effort, and

WHEREAS, the effectiveness of existing bilateral and multilateral agreements and treaties to which the United States is a party depends to a large degree upon adequate United States Government surveillance of such foreign fishing activity, and

WHEREAS, despite the present surveillance activity by the

United States Government and the regular reporting of such results to the various existing Government/industry committees charged with monitoring such efforts, there is a continual flow of individual and group sightings indicating foreign violations of United States law and/or Treaties and agreements, thus raising doubt as to the adequacy of present official surveillance ability, and

WHEREAS, it is neither the responsibility nor within the means of individual fishermen to carry out such surveillance activity, either officially or unofficially, and

WHEREAS, the Pacific salmon qualify best as a specific target for increased surveillance, not only because these species enjoy the range of the compacting States but are also sought by both commercial and recreational fisherman and present an intrinsic glamour from their widespread national publicity and anadromous nature,

NOW, THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission petitions the Congress and all other available avenues to press for additional and proper funding of the U. S. Coast Guard and other affected Federal and State agencies so that the proper surveillance of foreign fishing activity may be achieved, and

BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries Commission suggests that the Pacific salmon might be the proper initial target for enhanced activity until adequate surveillance is established on all species concerned, and

BE IT FURTHER RESOLVED, that the results of the existing surveillance program and the enhanced effort called for by this resolution be made available to all those interested and concerned and information be withheld only in those instances where the Government's judgment dictates that national security is concerned.

#### **18. Requesting the Congress of the United States of America to Promptly Enact Legislation Providing for a Fair and Equitable Solution to the Alaska Native Land Claim Problem**

WHEREAS, the anadromous fishery resources of Alaska are mutually important to the residents of Alaska and to the residents of the other Pacific coast states, and »

WHEREAS, the Interior Department recently proposed to Congress to recognize Native ownership of 40 million acres of land in Alaska, which could be submerged lands as well as uplands, and

WHEREAS, the possibility exists that recognition of ownership of 40 million acres of Alaskan land might include a provision for exclusive Native ownership of the fish and wild-life resources occurring on the uplands and submerged lands, and

WHEREAS, exclusive Native ownership of the fish and game resources on 40 million acres of land would upset the equality which presently exists among all races in Alaska in the use and enjoyment of Alaska's fish and game resources,

NOW, THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission opposes in principle the concept of exclusive ownership of the anadromous fish resource as a part of the Alaska Native Land Claim settlement because such ownership would be contrary to the long established principle

of public ownership of fish and game; would seriously hamper the conservation and management programs of the Alaska Department of Fish and Game; and would be contrary to the best interests of the residents of the other Pacific coast states, and

BE IT FURTHER RESOLVED, that the Pacific Marine Fisheries Commission hereby requests the Congress of the United States to promptly enact legislation providing for a fair and equitable solution to the Alaska Native Land Claim problem.

#### **19 Commend Government of Canada and Urge Continuation of Mark Recovery Effort**

WHEREAS, a mark and recovery program, Operation Fin Clip, has been in existence from 1962 to 1969 to evaluate the contribution by hatcheries on the Columbia River to the chinook salmon fisheries of the Pacific Coast, and

WHEREAS, a similar mark and recovery program was begun by the State of Washington with the 1964-brood year of coho salmon to evaluate the contribution of State of Washington hatcheries to the coho salmon fisheries, and

WHEREAS, this latter program was expanded to include subsequent brood years, and also hatcheries on the Columbia River and in the State of Oregon, and

WHEREAS, a program was begun with the 1968-brood year of chinook salmon to evaluate production from federal and state hatcheries in California, and

WHEREAS, Pacific salmon migrate great distances in the ocean and are harvested at many places, making it important to maintain mark recovery effort in as many places as possible to get the best possible evaluation of hatchery contributions and the maximum information on the migrations of salmon, and

WHEREAS, the Government of Canada has generously maintained a mark recovery program in British Columbia ports for salmon marked from hatcheries in the United States,

, NOW, THEREFORE, BE IT RESOLVED, that the Pacific Marine Fisheries Commission commends the Government of Canada for its excellent cooperation, and

BE IT FURTHER RESOLVED, that the Government of Canada be asked to continue its mark recovery program in 1970, and in subsequent years.

#### **20. Limit Imports of Groundfish**

WHEREAS, during recent years both total and per capita consumption of groundfish in the United States have increased continuously while the quantity of fish landed by United States vessels and the number of fishermen employed has declined, and

WHEREAS, during recent years imports of groundfish have doubled, and

WHEREAS, it is evident that the United States groundfish fishermen are suffering economically from a cost-price squeeze precipitated by the depressing effect of large quantities of imports on groundfish prices,

BE IT THEREFORE RESOLVED, that the Pacific Marine Fisheries Commission urges the Congress of the United States

to take whatever action is appropriate and necessary to limit imports of groundfish to the 1965-1967 level.

## 21. In Memory of Thomas R. Gardiner

WHEREAS, Thomas R. Gardiner, a California advisor to the Pacific Marine Fisheries Commission for many years, died on September 14, 1969, and

WHEREAS, despite the pressure of his business affairs, he always found time to participate fully in the affairs of this body, as well as in those of other fishery organizations in his home State of California, and

WHEREAS, his advice and council contributed greatly to the success of this organization, bringing as he did, the points of view of both recreational and commercial fishermen into logical focus,

NOW, THEREFORE, BE IT RESOLVED, that this Commission, its advisors and staff, in regular session at Sitka, Alaska on October 3, 1969, having observed a moment of silence in Thomas R. Gardiner's memory, instructs the Executive Director to convey their deep appreciation to his widow and family.

## 22. Appreciation for Meeting Arrangements

WHEREAS, the State of Alaska has been an official member of the Pacific Marine Fisheries Commission only since 1968, and

WHEREAS, the State of Alaska's active and constructive participation in the work of the Commission has been most helpful, and

WHEREAS, this participation has culminated in the State of Alaska being host for the 1969 annual meeting, with a welcome being extended by the Honorable \*R. L. Rettig, Member of the Legislature, State of Alaska and the Honorable Les Shepard, Mayor of Sitka,

THEREFORE, BE IT RESOLVED, that the Commission does hereby express its sincere appreciation for the facilities and services provided by the Alaska Department of Fish and Game, and by other\* contributing agencies and individuals especially the City of Sitka in making the 1969 annual meeting a successful and pleasing event, and

BE IT FURTHER RESOLVED, that the Commission thanks the ladies who worked long and faithfully in the Steno Pool, thereby contributing to the success of the meeting.

## Election of Officers, Etc.

The following were elected officers for 1970:

Executive Committee:

Chairman—G. Ray Arnett, Director, California Department of Fish and Game

\*Included among the "other contributing agencies and individuals" were Alaska Airlines, Sitka Sportsmen's Association, Sitka Cold Storage and Wakefield Fisheries who sponsored the Social Hour; the Sitka Russian Dancers who entertained; and the Greater Sitka Chamber of Commerce who was so hospitable.

1st Vice-Chairman — Thor C. Tollefson, Director,  
Washington Department of Fisheries  
2nd Vice-Chairman — Joseph I. Eoff, Member, Fish  
Commission of Oregon  
3rd Vice-Chairman — John R. Woodworth, Director,  
Idaho Fish and Game Department  
Secretary — Wallace H. Noerenberg, Commissioner,  
Alaska Department of Fish and Game

Steering Group of Advisory Committee:

Overall Chairman — Qifton D. Day, California  
Deputy Chairman — Paul McKeehan, California  
Sectional Chairman — Nick Mladinich, Washington  
— David B. Charlton, Oregon  
— Robert G. Kalb, Idaho  
— J. B. Cotant, Alaska

The Commission voted to hold the 1970 Annual Meeting in the San Francisco Bay area, in late November or early December. (Rickey's Hyatt House, Palo Alto, California, November 17-20, 1970 were the final choices. — editor)

## FINANCES

The Commission receives its financial support from legislative appropriations made in accordance with Article X of the interstate Compact as revised effective July 1, 1969 in which the signatory states have agreed to make available annual funds for the support of the Commission as follows: eighty percent (80%) of the annual budget is shared equally by those member states having as a boundary the Pacific Ocean; and five percent (5%) of the annual budget is contributed by each other member State; the balance of the annual budget is shared by those member States, having as a boundary the Pacific Ocean, in proportion to the primary market value of the products of their commercial fisheries on the basis of the latest five-year catch records.

### STATEMENT OF RECEIPTS AND DISBURSEMENTS

January 1, 1969 to December 31, 1969

CASH BALANCE December 31, 1968		
(Ending Balance 21st Annual Report)		\$45,593.64
<b>RECEIPTS: Contributions by Member States—</b>		
Alaska	\$16,000.00	
California	15,300.00	
Idaho	3,000.00	
Oregon	12,600.00	
Washington	13,300.00	\$60,200.00
<b>REFUNDS:</b>		
Pacific Inter-Agency Salmon Council	200.00	
Alaska Airlines	21.00	
Dexter F. Lall	216.00	
Western Airlines	9.70	446.70
Interest from Savings Certificates		871.12
City of Sitka: Tax Refund		6.00
<b>DISBURSEMENTS:</b>		
Salaries and Wages: Executive Director, Consultants, Treasurer, Office Secretary and Temporary	\$26,072.14	
Office Supplies	1,060.17	
Telephone and Telegraph	671.73	
Postage, Freight, Express	1,014.04	
Printing of Publications	2,224.22	
Rents, Office	1,263.53	
Premiums: Bonds, Insurance	256.47	
Audit Fees	340.00	
Professional Services	132.90	
Private Car Mileage	110.14	



**BALANCE SHEET**

**June 30, 1969**

**EXHIBIT "A"**

ASSETS:	EXHIBIT "A"		
	Total	General Fund	Property Fund
Cash in Bank	\$ 813.33	\$ 813.33	\$ ---
Certificate of Deposit	22,000.00	22,000.00	---
Office Furniture and Equipment	4,205.29	---	4,205.29
<b>Total Assets</b>	<b>\$27,018.62</b>	<b>\$22,813.33</b>	<b>\$ 4,205.29</b>

LIABILITIES:	Total	General Fund	Property Fund
Accounts Payable	\$ 742.43	\$ 742.43	---

RESERVES:	Total	General Fund	Property Fund
Reserve for Allocation— Co-op Research (Note No. 1)	4,611.78	4,611.78	---
Reserve for Allocation— Printing (Note No. 2)	9,428.40	9,428.40	---
<b>Total Reserves</b>	<b>\$14,040.18</b>	<b>\$14,040.18</b>	<b>---</b>

FUND BALANCES:	Total	General Fund	Property Fund
Investment in Fixed Assets	\$ 4,205.29	\$ ---	\$ 4,205.29
Unappropriated Surplus	8,030.72	8,030.72	---
<b>Total Fund Balances</b>	<b>\$12,236.01</b>	<b>\$ 8,030.72</b>	<b>\$ 4,205.29</b>
<b>Total Liabilities, Reserves and Fund Balances</b>	<b>\$27,018.62</b>	<b>\$22,813.33</b>	<b>\$ 4,205.29</b>

**NOTE NO. 1:**  
At year end, \$4,611.78 allocated for cooperative research projects was detailed as follows:

—Unpaid balance on Otolith Reader cooperative research project with the Washington Department of Fisheries	\$4,076.18
—Unpaid balance on Port Sampler cooperative research project with the California Department of Fish and Game	535.60
<b>Total</b>	<b>\$4,611.78</b>

**NOTE NO. 2:**  
Purchase orders were issued during the fiscal year ending June 30, 1967, for printing of the 19th Annual Report in the amount of \$2,082.00 and Bulletin No. 7 in the amount of \$3,510.00, or a total of \$5,592.00. In the fiscal year ending June 30, 1968, a purchase order was issued for printing the 20th Annual Report, the commitment amount of this order being \$1,368.00. In the fiscal year ending June 30, 1969, a purchase order was issued for printing the 21st Annual Report, the commitment of this order being \$2,468.40. The commitments for all years total \$9,428.40. No charges have been received against these commitments to date.

Fares: Plane, Railroad, Bus	1,583.09	
Meals and Lodging	536.94	
Medical Insurance	120.00	
Library Supplies	39.07	
Retirement Annuity	2,182.28	
Social Security	927.93	
Prepaid Employee Contributions for Pension Plan	370.26	
Annual and Research Meetings:		
Advisory Committee	\$ 5,719.12	
Commissioners	3,393.35	
Administrative and Research Staff	7,580.67	
Meeting Rooms, etc.	317.50	17,010.64
Capital Outlay	\$ 51.50	
Cooperative Research	5,305.35	
All Other	8.00	
<b>Total Disbursements</b>	<b>\$61,280.40</b>	
Cash on Deposit in The United States National Bank of Portland, Oregon, December 31, 1969	45,837.06	
	<b>\$107,117.46</b>	<b>\$107,117.46</b>

**AUDIT REPORT**

ALLEN H. ADAMS  
Certified Public Accountant  
Portland, Oregon

August 28, 1969

The Board of Commissioners Pacific Marine Fisheries Commission State Office Building Portland, Oregon 97201

Gentlemen:

I have examined the books and records of the Pacific Marine Fisheries Commission for the fiscal year ending June 30, 1969. The examination was made in accordance with generally accepted auditing standards and, accordingly, included such procedures as were considered necessary in the circumstances.

The accounting procedures of the Commission reflect revenue in the accounts when it is received rather than at that date when appropriated by member states to the Commission and reflect expenditures in the fiscal period in which they arise irrespective of when paid, i.e., the accrual basis.

The following exhibits are submitted:\*

- Combined Balance Sheet, as at June 30, 1969, of the. General Fund and the Property Fund, and Notes to Balance Sheet.
- Statement of Revenue and Expenditures, with Budgetary comparisons, for the period July 1, 1968, to June 30, 1969.
- Analysis of changes in Unappropriated Surplus and in the Property Fund for the period July 1, 1968, to June 30, 1969.
- Reconciliation of changes in the cash balance with Revenues and Expenditures for the period July 1, 1968, to June 30, 1969.
- Audit Comments.
- Scope of the Audit.

In my opinion, the accompanying statements present fairly the financial position of the Pacific Marine Fisheries Commission at June 30, 1969, and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Yours very truly,  
ALLEN H. ADAMS  
Certified Public Accountant

# Appendix 1 — Status Reports

## STATUS OF THE 1969 PACIFIC COAST ALBACORE FISHERY

The trend toward below-average California landings and above-average Oregon-Washington landings continued for the fifth consecutive year. Combined albacore landings for California, Oregon and Washington were 48 million pounds. This is 8 million pounds below last year, but it exceeds by 5 million the 25-year average of 43 million pounds.

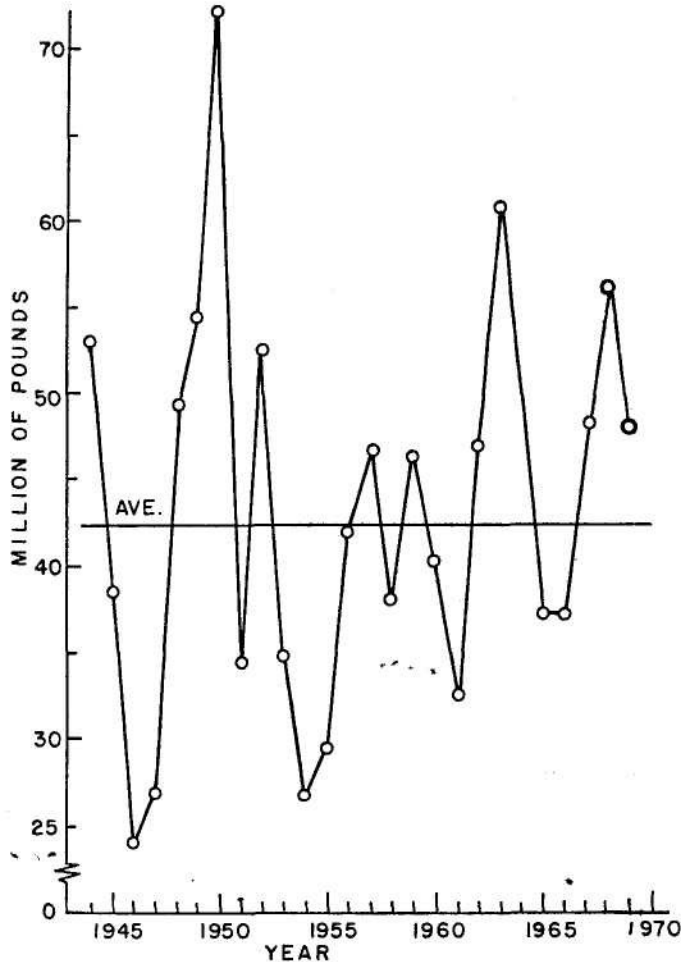


FIGURE 1. Pacific Coast albacore landings through 1969 and 25-year average (1944-1968, incl.).

### California

Preseason scouting for albacore was minimal. The Department of Fish and Game did not field a preseason cruise this year, and the Bureau of Commercial Fisheries trolled for albacore only incidentally during a routine hydrographic trip. One commercial vessel explored the offshore fishing grounds in June, prior to the industry price settlement, and caught a few albacore nearly 400 miles off Cape Mendocino. While these catches were not significant economically, they did indicate that the 1969 migration was underway.

On July 1, fishermen and processors agreed on a basic price of \$450 per ton. By this time albacore had appeared off Oregon, and most of the California fleet sailed north.

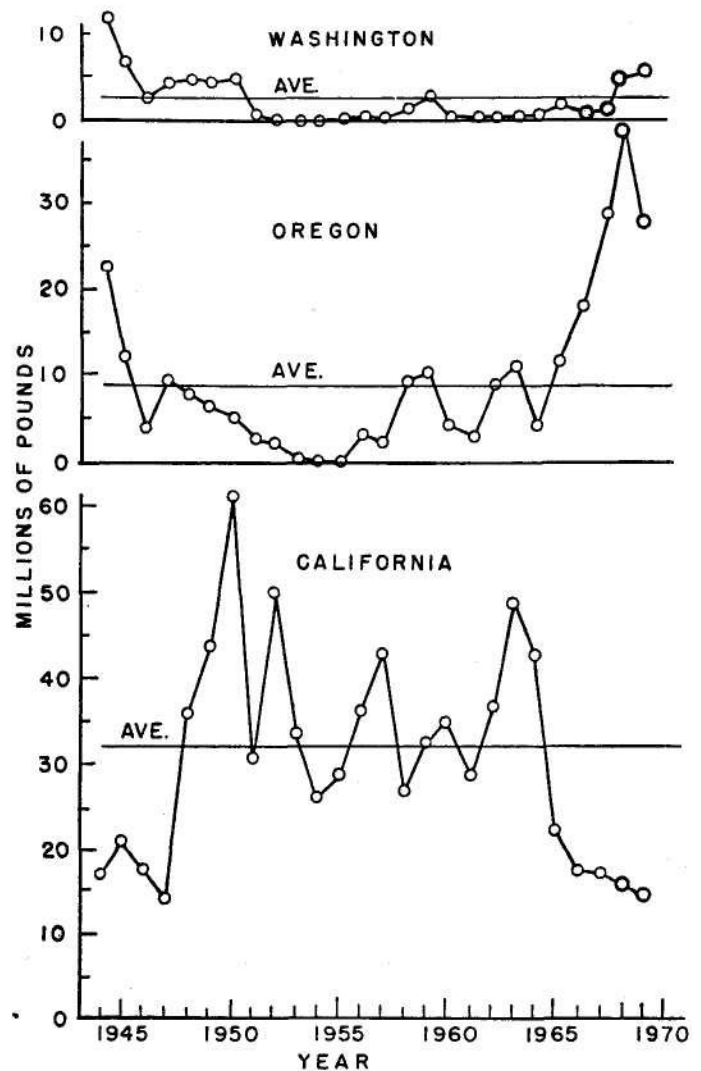


FIGURE 2. Annual albacore landings by States through 1969 and 25-year average (1944-1968, incl.).

Fewer than 50 commercial vessels remained on the southern fishing grounds. Fishing was poor south of San Diego, where the sportfishing boats were operating, but this small fleet made fair catches 90 to 130 miles south and southwest of Point Conception. Fishing periods in this area were brief in July and August due to strong winds and rough seas. The albacore were larger than usual, averaging 20 pounds apiece. Landings for these two important months were, as in 1968, only slightly over 2 million pounds.

A good fishery developed off northern California late in August. As fishing diminished in the Pacific northwest, the fleet off California grew and spread southward to Point Arguello. Fair fishing persisted through mid-December resulting in landings which compared favorably with the same period in 1968. However, the late season success did not offset, poor fishing earlier, and total California landings dropped to 14.7 million pounds.

## Oregon

The Fish Commission of Oregon chartered the vessel SUNRISE during the first 10 days in July. Favorable water conditions were found, but only 14 albacore were caught. This indicated that the migration was not as early this year as it was in 1968 and that commercial catches would likely be made during mid-July.

As expected from the cruise results, early catches occurred 50-150 miles off Coos Bay. The center of fishing moved rapidly northward and was located off Destruction Island, Washington by the end of the month. July landings were 2.9 million pounds.

Fishing was spotty at the beginning of August as the fish and the fleet scattered between Coos Bay and northern Washington. No major production centers were located until mid-month when catches up to 1,000 fish per day were reported off Vancouver Island. Unfortunately, this concentrated fishery was short-lived. August landings totaled 18.2 million pounds, the highest for a single month in the history of the Oregon fishery.

The weather deteriorated during September, and jig boat success declined steadily. Most of this fleet either moved south to the California fishery or quit for the season. Bait boats, on the other hand, were quite successful for a short time. Catches up to 2,000 fish per day were reported 25 to 60 miles offshore between Newport and Astoria. September landings totaled 6.9 million pounds.

Fishing off Oregon ceased by mid-October with 1.5 million pounds landed for October. These landings were largely from Oregon and Washington boats returning to their homes from California.

Total albacore landings in Oregon were 29.8 million pounds, making 1969 the second best season on record.

## Washington

The Washington albacore fishery commenced with an air of optimism. Albacore were abundant along the coast, and buyers at Ilwaco, Westport and LaPush accepted fish at prices between \$415 and \$425 per ton. In past years, buyers discouraged albacore landings because there was a shortage of storage and processing facilities.

The troll fishery for coho salmon was only mediocre during June and early July so many of the larger trailers sought albacore. This continued the recent trend of increased albacore fishing by the salmon fleet. Favorable oceanographic and economic conditions resulted in above-average landings of 3.6 million pounds — the highest since 1950.

## Summary

As it has during the past 4 years, the albacore migration this year occurred predominantly off the Pacific Northwest. Some of the season's best fishing was located off Vancouver Island for the first time in a quarter century.

California landings were only slightly behind those of last year, thus continuing the below-average trend. Oregon landings did not reach the record 38 million pounds of 1968, but they continued well above average. Washington landings were 500 tons higher than last year's which were above average. The combined Pacific Coast albacore catch totaled 48 million pounds. This exceeded the long-term average by 5 million pounds.

Evidence at hand indicates that the albacore migration in the northeastern Pacific is healthy. Since the fishery depends upon an annual migration, it is subject to large natural fluctuations in availability.

Compiled by William L. Craig, California Department of Fish and Game

Contributors: Larry Hreha, Fish Commission of Oregon; and Sam Wright, Washington Department of Fisheries

## STATUS OF THE 1968-69 PACIFIC COAST DUNGENESS CRAB FISHERY

The final 1968-69 season total of 44.1 million pounds of Dungeness crab for the combined landings of Washington, Oregon and California is the highest ever recorded for these States, and is 2.2 million pounds higher than the previous record season of 1956-57. The catch for the West Coast, excluding Canada, was 53.2 million pounds, of which Alaska contributed 9.1 million<sup>1</sup> (Figure 1). This exceeds the 15-year combined average of 34.1 million pounds by 19.1 million pounds for the 4 Pacific Coast States.

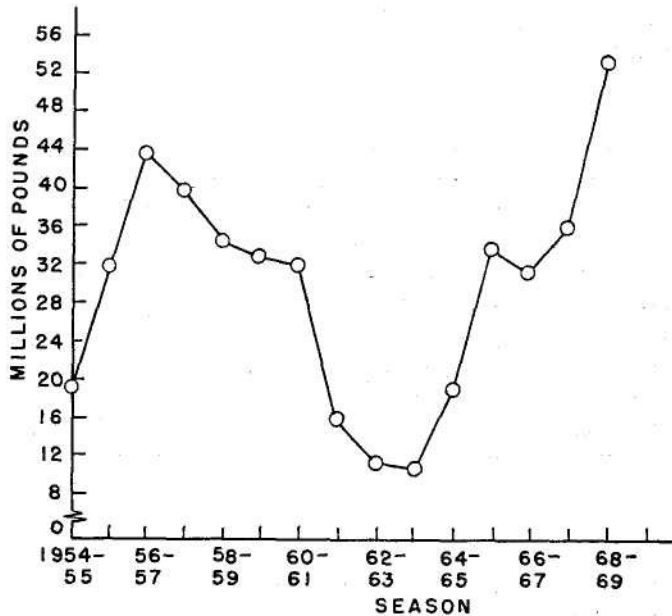


FIGURE 1. Combined Dungeness crab landings for the Pacific Coast except British Columbia.

### Alaska

Landings in Alaska for 1969 totalled 9.1 million pounds as compared to 13.2 million pounds in 1968 (Figure 2). This decline is possibly related to a poor survival of the 1965-year "class or abnormally cold winter temperatures which inhibited the mass moulting which normally occurs in the spring. Either possibility would be reflected in a lack of legal-size crab. Gear restrictions and the rapidly increasing Tanner crab fishery also may be partially responsible for the decline by diverting effort away from Dungeness crab.

### Washington

Coastal crab landings in Washington through July, 1969 totalled 18.2 million pounds (Figure 2). This is 7.4 million pounds greater than the 1967-68 season landings and 4 million pounds greater than the previous high in 1948. It is estimated that in excess of 20 million pounds of crab were harvested off the coast of Washington during the 1968-69 season which harvest represents a record high<sup>2</sup>. The Puget Sound fishery produced an estimated 800,000 pounds. Crabs at the beginning of the season were of poor quality with one-third being soft-shell, one-third hardening and about one-third in good hard-

shell condition. Consequently, the season, which started December 1, was closed on December 11. It reopened January 1, and crab condition was fair by mid-January but was never really good until the end of the season.

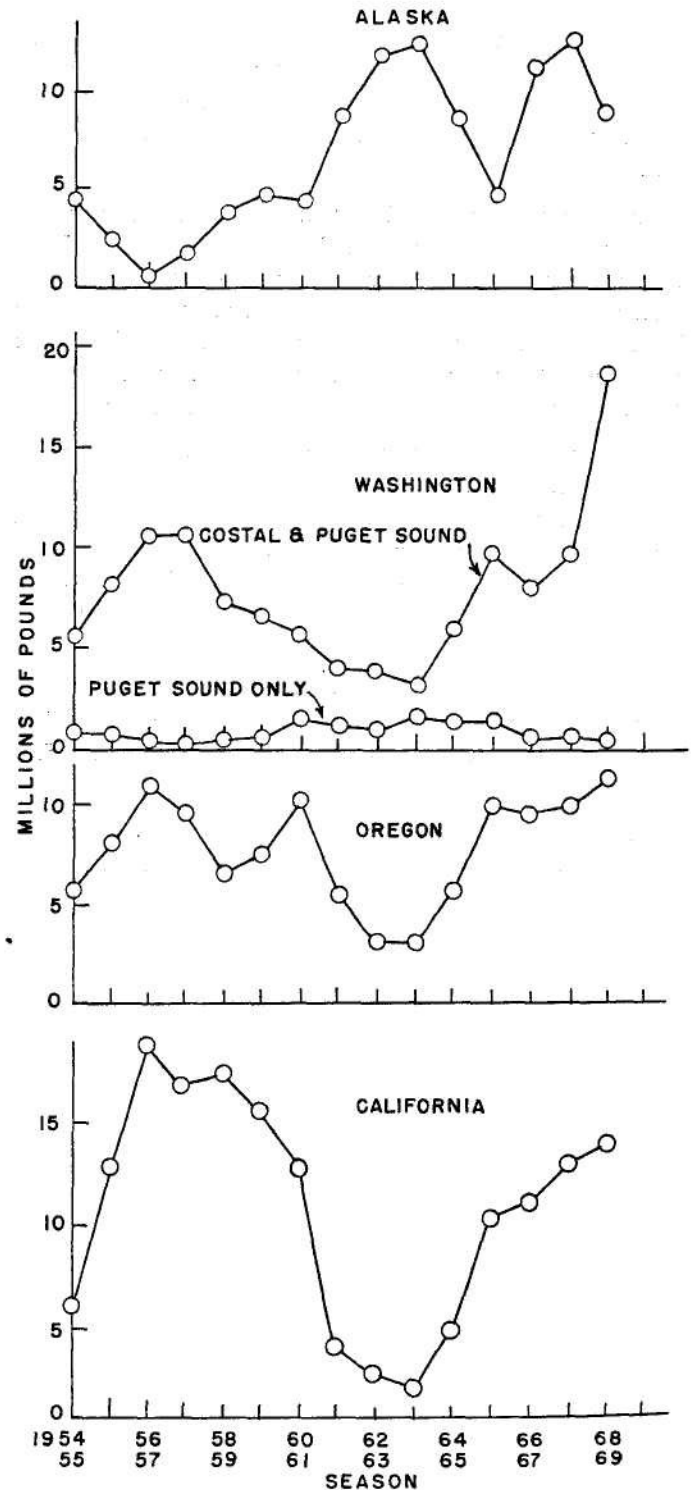


FIGURE 2. Dungeness crab landings by season, 1954-55 through 1968-69, except Alaskan seasons are on calendar year basis, i.e., 1954-55 = 1955.

**Oregon**

Oregon crab landings through June 1969 totalled 11.7 million pounds. The season total was expected to be between 12.0 and 12.1 million pounds (Figure 2). This represents 4 seasons in a row when 10 million or more pounds were landed and one of the best seasons ever recorded. Landings were below normal on the central coast and above normal on the north and south coasts, with one-third of the landings being made at Astoria.

**California**

California crab landings totalled 13.9 million pounds (Figure 2). This represents a 700,000-pound increase over the 1967-68 season and is nearly 5 million pounds over the 10-year average of 9.0 million pounds. The northern California area (Fort Bragg to Crescent City) accounted for 13.1 million

pounds of the total which is a record high for this area. Landings in the San Francisco area totalled 835,000 pounds; this is well below the 10-year average of 1.8 million pounds. Prices received by the fishermen remained good throughout the season. The outlook for the 1969-70 season in central California, based on a post-season cruise, is for an improved fishery. A pre-season cruise is planned for northern California.

Compiled by C. Dale Snow, Fish Commission of Oregon.

Contributors:

- Herb C. Tegelberg ..... Washington Department of Fisheries
- Walt Dahlstrom..... California Department of Fish and Game
- Dexter F. Lall .....Alaska Department of Fish and Game

## STATUS OF 1968 SALMON AND STEELHEAD SPORT CATCHES IN THE PACIFIC COAST STATES

Estimated total catch of salmon and steelhead during 1968 in the Pacific Coast States (Washington, Oregon, California, Alaska and Idaho) by sport fishermen was 2,065,967 fish of which slightly under one million were coho salmon.

The 1968 sport catch was composed approximately of 45% coho, 30% chinook, 24% steelhead, 1% red salmon, and 0.5% pink salmon (Table 1). It represented about 13.1 million pounds of salmon and 2.5 million pounds of steelhead for a combined total of 15.6 million pounds.

steelhead. The number of salmon taken was down nearly 100,000 from 1967, while the catch of steelhead was up about 20,000 fish. A total of 312,000 anglers purchased Oregon salmon-steelhead licenses, but only 165,000 (54%) made catches. Of the remainder, it was estimated 81,000 (26%) did not fish, while 65,000 (20%) fished without success. When all anglers who fished are considered, the average catch per angler per year was 2.1 fish.

In the Columbia River estuary, the 1968 sport catch was

**TABLE 1**  
1968 Salmon and Steelhead Sport Catch

State	Anglers	Chinook	Coho	Red	Pink	Steelhead	Total catch	Fish/ang. per year
Washington . . . . .	1,231,221*	385,975**	552,434	41	474	316,900	1,255,824**	0.9
Oregon . . . . .	312,000*	52,000	298,000	..	286	154,000	504,000	1.5
California*** . . . . .	Unavailable	154,244	40,399	..	..	Unavailable	194,643	..
Alaska . . . . .	90,565	10,100	30,100	22,000	11,800	1,500	75,500	0.8
Idaho . . . . .	26,399	11,500	..	..	..	24,500	36,000	1.4
Totals . . . . .		613,819	920,933	22,041	12,560	496,900	2,065,967	

\*Does not include freshwater salmon anglers.

\*\*Includes 61,663 salmon caught in freshwater, a portion of which may be coho, no breakdown available.

\*\*\*No freshwater data available.

**TABLE 2**  
Columbia River Estuary and Adjacent Ocean Catch,  
Oregon and Washington, 1968

Angler trips	Chinook	Coho	Totals	Fish/ang. trip
181,164	50,353	236,418	286,771	1.6

### Washington

Although the number of saltwater angler trips for salmon was the lowest since 1961, the catch of salmon was the highest recreational catch on record for an even-numbered year. Odd-year catches are usually bolstered by large numbers of pink salmon. On a statewide basis, saltwater anglers averaged 0.74 salmon per daily outing — the best average since the great pink salmon year of 1963.

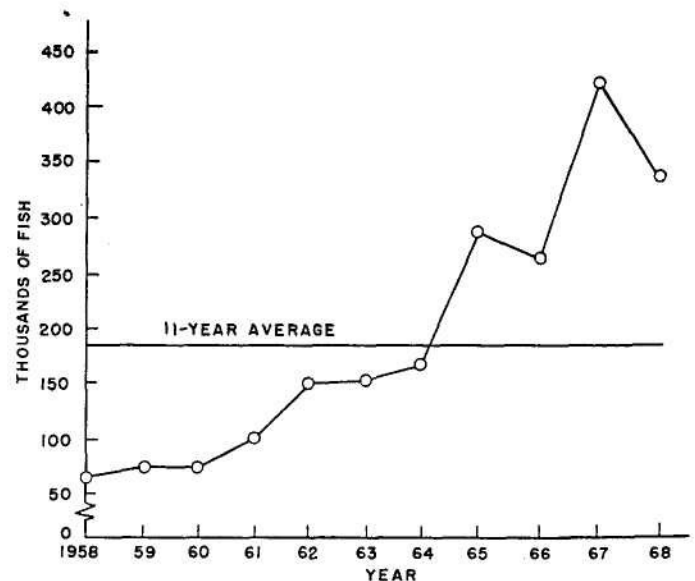
In addition to the marine catch, freshwater anglers caught another 61,700 salmon to bring the total recreational catch to 938,924. The freshwater catch was the second best since 1964 when the stream-catch estimates began.

An estimated 316,900 steelhead were taken by approximately 140,000 anglers.

### Oregon

The Oregon sport catch in 1968 was estimated to be 504,000 fish of which 350,000 were salmon and 154,000 were

evaluated through a cooperative effort of the Oregon Game Commission and the Washington Department of Fisheries (Table 2). Approximately 287,000 salmon were taken in this fishery, a drop of about 134,000 salmon from the record 1967 catch but above average for previous years (Figure 1).



**FIGURE 1.** Columbia River estuary and adjacent ocean sport catch of salmon.

**California**

The California marine sport fishery for 1968 produced a record catch of 194,643 salmon (154,244 chinooks, and 40,399 coho). No data are available for the freshwater fishery.

**Alaska**

A total of 75,500 salmon and steelhead were caught by 90,565 licensed sport anglers during 1968. Approximately 40% of the total were coho, 13% chinook, 29% red salmon, 15% pink salmon, 1% chum salmon, and 2% steelhead. Total poundage during 1968 was 685,410 pounds compared to 653,000 pounds in 1967.

**Idaho**

An estimated 26,399 (51.1%) of 51,662 anglers who were issued salmon-steelhead permits fished for steelhead in Idaho during 1968. Of these, 8,059 anglers caught 24,617 steelhead.

Approximately 11,269 chinook salmon were caught by 4,990 successful anglers in Idaho during 1968. Only 10% of 51,662 permittees caught chinook.

Compiled by Jerry Mallet, Idaho Fish and Game Department.

Contributors:

- Rupert E. Andrews.....Alaska Department of Fish and Game
- Patrick O'Brien .....California Department of Fish and Game
- Fred E. Locke .....Oregon Game Commission
- Frank Haw .....Washington Department of Fisheries
- Cliff Millenbach.....Washington Department of Game

## STATUS OF THE 1969 PACIFIC COAST TROLL SALMON FISHERY

The estimated troll salmon catch for British Columbia, Alaska, Washington, Oregon and California for 1969 was 74.1 million pounds (round weight). The 1969 catch was considerably above the 63.8 million pounds that were taken during 1968. Total landings by species were 28.4 million pounds of chinook and 31.1 million pounds of coho. Coho landings dropped below the 1968 landings in all reporting areas.

### Troll Chinook Fishery

Oregon chinook landings for 1969 were 1.4 million pounds round, surpassing the 1.1 million pounds landed in 1968. Columbia River area catches were poor all season, while Newport area fishing was only fair. Coos Bay area catches were good to excellent all year, and a later-than-normal peak was apparent. Brookings landings were excellent in May and June but very poor later in the season.

Washington chinook landings for the 1969 season were approximately 2.3 million pounds round weight and rank as the best since 1963. Success of the fishery was due almost entirely to the excellent abundance of chinook on grounds off central Washington as the two major Grays Harbor District landing ports, Westport and Lapush, received 85 percent of the State's total landings through July.

Alaska chinook landings were about 4.9 million pounds (round weight) compared to 6.1 million pounds in 1968. However, this was about average for the previous 5-year period.

California chinook landings were approximately 5.6 million pounds (round weight) during 1969 compared to 5.4 million pounds in 1968.

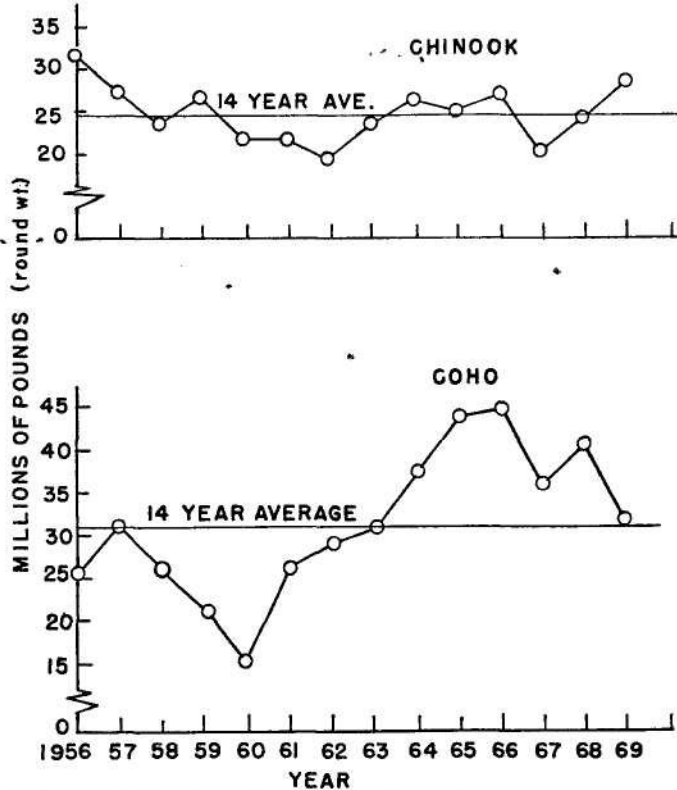


FIGURE 1. Total Pacific Coast landings of troll-caught salmon, 1956-1969.

British Columbia chinook landings totalled 14.2 million *gr* pounds (round weight) in 1969- These landings were above \* average for the last several years.

Region	Chinook	Coho	Pink	Total
British Columbia	14,240,000	17,620,000	13,820,000	45,680,000
Alaska . . .	4,868,000	5,206,000	unavailable	10,074,000
California	5,619,000	1,425,000	26,000	7,070,000
Washington	2,281,000	3,279,000	340,000	5,900,000
Oregon . .	1,400,000	3,600,000	339,000	5,339,000
Total . . .	28,408,000	31,130,000	14,525,000	74,063,000

TABLE 1  
Final Pacific Coast Troll Salmon Landings (pounds round),  
1969 **Troll Coho Fishery**

Oregon coho landings for 1969 were 3.6 million pounds (round weight) compared to 5.1 million pounds landed in 1968. The average weight was up from 1968, but the fish were

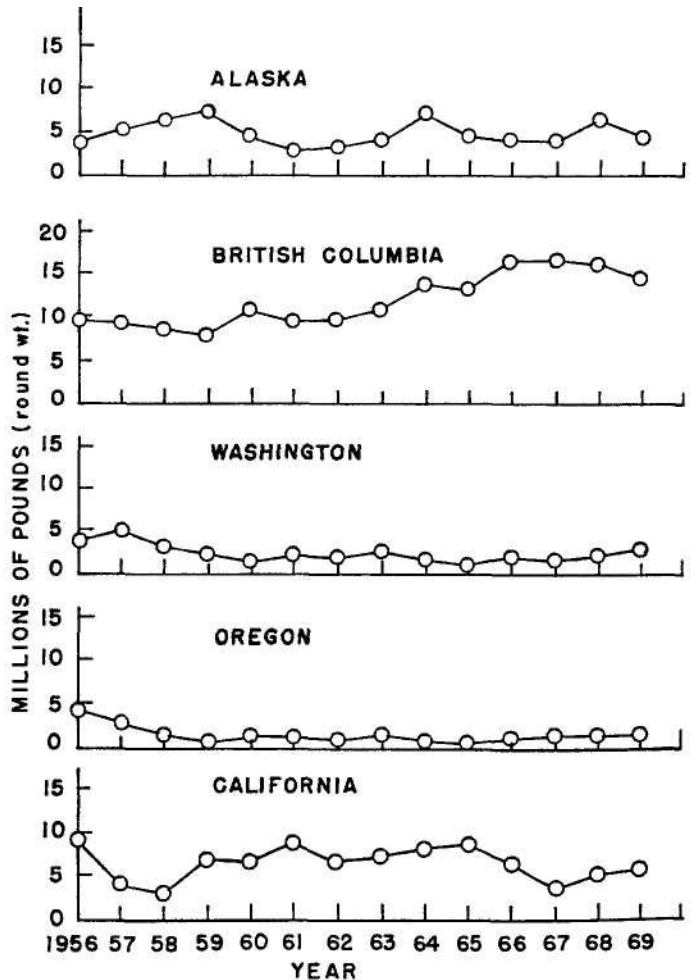


FIGURE 2. Pacific Coast troll chinook salmon landings, 1956-1969.



still small, about 5.7 pounds per fish, dressed weight. The Columbia River area had a poor season with only about one week of good fishing in July. Newport area landings were fair with some good landings in July. Coos Bay area landings were excellent during the last week of June and first week of July but otherwise only fair. Brookings landings were good in June but poor the rest of the season.

The early portion of Washington's troll coho fishery was completely discouraging. Total statewide landings through July 31 totalled only 1.1 million pounds round weight, lowest for a comparable period since the "failure" season of 1960. Landings for the most recent 5 years (1964-1968) have ranged from 1.7 to 3.2 million pounds at the end of July. Total 1969 season landings were 3-3 million pounds. This can only be categorized as a "poor" year when compared to the totals of the previous 5 years of 4.5, 7.4, 6.1, 6.2 and 4.5 million pounds, respectively. On the basis of mark recovery data, hatchery-produced coho appeared to be comprising a much higher percentage of the catch in 1969 than in 1968. If it is assumed that survival of hatchery smolts is reasonably constant from year to year, then a significantly lower abundance of "wild" fish was indicated for 1969.

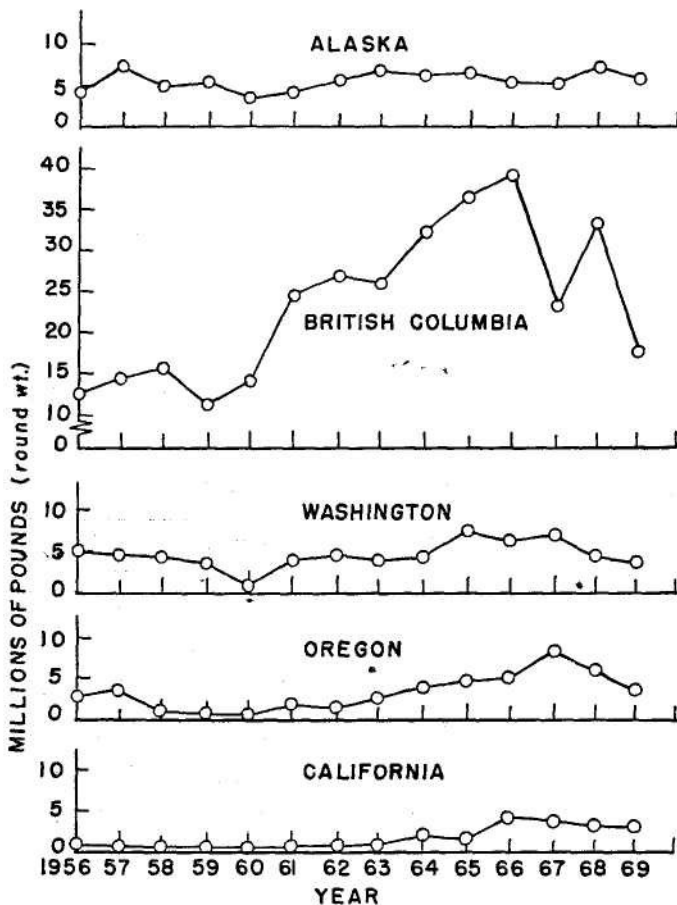


FIGURE 3. Pacific Coast troll coho salmon landings, 1956-1969.

The harvest of 1.4 million pounds of troll-caught coho for California indicates a continuation of the downward trend from the 1966 high of 4.1 million pounds. This figure is also significantly lower than the 1968 catch of 2.8 million pounds.

British Columbia's troll fishery in 1969 caught only 17.6 million pounds (round weight). This was the poorest catch since 1960.

The 1969 coho troll fishery in Alaska was also disappointing, and amounted to only 5.2 million pounds (round weight).

### Troll Pink Fishery

Through July, troll-caught pink salmon landings in Washington (which reach significant levels only during odd-numbered years) totalled only about 90,000 pounds round weight. This was only 40 to 50% of the total for comparable periods during recent "poor" years (1961 and 1965) and only 10 to 15% of recent "good" years (1963 and 1967). The 1969 total Washington troll catch for this species was 340,000 pounds (round weight). Virtually no effort by Washington trailers was noted specifically for pinks during 1969; the meager landings resulted almost entirely from incidental catches made during trolling for chinook and coho. Still the low catch points to poor Fraser River-Puget Sound production from the 1967 spawners.

Oregon pink salmon landings for 1969 were 339,000 pounds (round weight). Landings were very spotty; the Coos Bay area did well in July, and the Newport landings peaked in August.

The 1969 California pink salmon landings were 26,000 pounds — well above 1968 landings of 2,100 pounds, but considerably lower than the record 187,500 pounds landed in 1967.

Pink salmon landings in British Columbia were approximately 13.8 million pounds (round weight) considerably above the 1967 or 1968 landings of 12.4 and 5.2 million pounds, respectively.

No data on Alaska pink salmon harvest are available.

Compiled by Jerry Mallet, Idaho Fish and Game Department.

### Contributors:

Roy Rickey .....	Alaska Department of Fish and Game
Patrick O'Brien .....	California Department of Fish and Game
Robert K. McQueen .....	Fish Commission of Oregon
Sam Wright .....	Washington Department of Fisheries
Blake A. Campbell.....	Department of Fisheries and Forestry of Canada

## STATUS OF THE 1969 PACIFIC COAST SHRIMP FISHERY

The 1969 landings of pink or ocean shrimp for the West Coast of the United States and Canada have again established a record. The 1968 total catch amounted to 58,008,431 pounds, while the 1969 catch rose to 64,824,255 pounds (Table 1). Increases were recorded for Alaska, Washington, California and British Columbia while landings in Oregon dropped only slightly (Figures 1-3).

### California

Ocean shrimp (*Pandalus jordani*) landings were exclusively from Area A (Crescent City-Eureka) this season. No effort was reported from Area B-1 (Fort Bragg), Area B-2 (Bodega Bay) and Area C (Morro Bay).

Area A's quota of 3 million pounds was reached on August 2 with final landings of 2,951,200 pounds (Figure 2). Prior to the May 1 opening, the 2-million-pound quota had been raised to 3 million pounds by the Fish and Game Commission based on Department of Fish and Game recommendations. The landings for 1969 are a new state-wide record for the fishery which started in 1952.

Twenty-two vessels participated in the fishery. Principal fishing area was off Redding Rock in 55 to 75 fathoms. Average catch per hour in May was 1,275 pounds, in June 525 pounds, and July to the second of August 562 pounds. The average catch per hour for the season was 657 pounds.

A cooperative survey of the Area A shrimp bed with the aid of 12 vessels of the fleet was made on July 10 and 11. From the data obtained it was estimated that the shrimp school covered 102 square miles (50 pounds plus per hour), and the population estimate obtained was 6.1 million pounds. Most of the shrimp were located in the Redding Rock area where the fleet was fishing.

The status of the shrimp stocks appears marginal. Unless

recruitment is fairly strong in 1970, the outlook for an increased quota in Area A does not look promising, and the landings could be less than in 1969. Strong recruitment is needed in the other areas for the fisheries to be reestablished.

### Oregon

The pink shrimp (*Pandalus jordani*) deliveries in Oregon totaled 10,477,945 pounds compared to 10,976,258 pounds

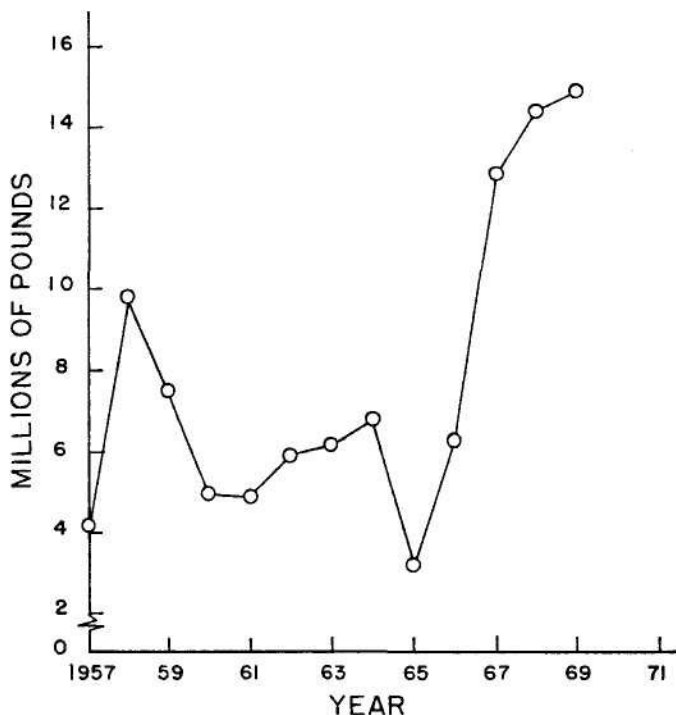


FIGURE 1. Annual combined shrimp landings for Washington, Oregon and California.

Table 1.— Final Shrimp landings for Alaska, British Columbia, Washington, Oregon, and California (in pounds).

Year	Alaska	British Columbia	Washington	Oregon	California	Total
1957	2,380,154	1,597,000	2,383,854	403,600	1,425,631	8,190,239
1958	7,862,366	1,908,000	6,531,239	1,522,200	1,730,222	19,554,027
1959	13,052,320	1,043,000	2,942,557	2,764,100	1,785,228	21,587,205
1960	7,436,206	1,678,000	1,780,718	1,132,500	2,026,787	14,054,211
1961	15,980,550	1,206,000	1,436,599	1,455,900	2,006,274	22,085,323
1962	16,943,120	1,663,000	1,367,441	2,750,400	1,786,289	24,510,250
1963	15,126,950	1,788,000	956,105	3,114,700	2,095,278	23,081,033
1964	7,726,750	1,052,000	314,130	5,477,400	980,608	15,550,888
1965	16,818,941	1,755,000	23,468	1,748,000	1,425,875	21,771,284
1966	28,192,621	1,682,000	282,947	4,751,300	1,213,959	36,122,827
1967	41,812,552	1,696,000	1,028,744	10,373,956	1,404,821	56,316,073
1968	42,077,104	1,568,000	1,163,864	10,976,258	2,223,205	58,088,431
1969	47,850,524	2,118,700	1,425,286	10,477,945	2,951,800	64,824,255

delivered during 1968 (Figure 2). Despite the conversion of all but one Newport and 4 of the 6 Astoria vessels to albacore tuna and groundfish fishing in August, the 1969 total approached 11.0 million pounds. If the vessels engaged in tuna fishing had returned to the shrimp fishery in 1969, this year's total landing would almost certainly have been the third consecutive record year in Oregon. Average size of shrimp, except at Coos Bay and Brookings, was large.

The very strong 1966-year class has continued to dominate Oregon landings from Coos Bay to Astoria, being strongest off northern Oregon and Washington where the majority of Oregon's 1969 landings have been taken. The 1968-year class (one year old in April 1969) has also shown very strongly in all areas off Oregon except south of Cape Blanco, although it has been scarce in catches from the Washington coast. It has been a major problem at Coos Bay and, to a lesser extent, in areas off northern Oregon because shrimp of that age are too small for processing. This marks the third year in a row at Coos Bay (odd-year basis) when very strong incoming year classes (1964, 1966 and 1968) in 1965, 1967 and 1969 have hampered processors and fishermen.

A total of 1,204,485 pounds were taken off the Washington coast including 166,387 pounds at a catch rate of 692 pounds-per-hour tow off Destruction Island (PMFC Area 72) and 1,038,098 pounds off Grays Harbor (Area 74) at 691 pounds-per-hour tow. Only 7,000 pounds were taken off Washington in 1968 by Oregon shrimpers. PMFC Area 92 (northern California) has contributed 140,380 pounds at 551 pounds-per-hour tow compared to 192,600 pounds at 1,080 pounds per hour in 1968; this will probably change little since the Oregon Fish Commission prohibited shrimp landings in Oregon from that area effective August 5, shortly after the California season was closed. The closure will remain in force until May 1, 1970.

Of areas off Oregon, PMFC Areas 82 and 84 (Tillamook Head and Cape Lookout-Newport) have contributed 1,220,026 and 4,067,238 pounds at 662 and 557 pounds-per-hour tow respectively. This is ahead of last year's totals of 1,088,300 and 2,580,600 pounds at 755 and 525 pounds-per-hour tow respectively. PMFC Area 86 (Coos Bay) has contributed 3,812,843 pounds (.430 pounds per hour) up from the record 1968 total of 3,048,706 pounds (640 pounds per hour). It was a good season (third best on record since the fishery started in 1957) especially considering the depressive influence of the strong 1968-year class there.

PMFC Area 88 (Cape Blanco to the California-Oregon border) has been the only area off Oregon that is not producing record quantities of shrimp in 1969. An area off Port Orford which produced 1,303,000 pounds (entire year) at 1,087 pounds-per-hour tow (826,000 at 1,620 pounds per hour through July 31) in 1968 has produced only 17,047 pounds of shrimp. Fishermen have not located shrimp there although effort has been very light as the total catch indicates. This area has produced from 212,000 to 862,000 pounds annually since 1964, exclusive of the 1968 figure. It has been a unique area in that shrimp usually are scarce or absent there (within the area fished) until mid-April. This year shrimp failed to show up at all, including the 1968-year class which was so strong off Coos Bay and California, and which had not been subjected to a fishery in 1968. We believe the unusual

oceanographic conditions in the area this year (late beginning of upwelling and northerly prevailing winds) may be the cause of the failure of this area in 1969.

Shrimp were also scarce off Brookings in 1969 as was expected. We believe these are probably part of the population off northern California which showed a southerly shift in abundance late in 1968. The area produced 140,380 pounds compared to 73,830 pounds in 1968.

### Washington

The year's first catches consisted of two small landings at Ilwaco during February by an Oregon vessel. Fishing was poor,

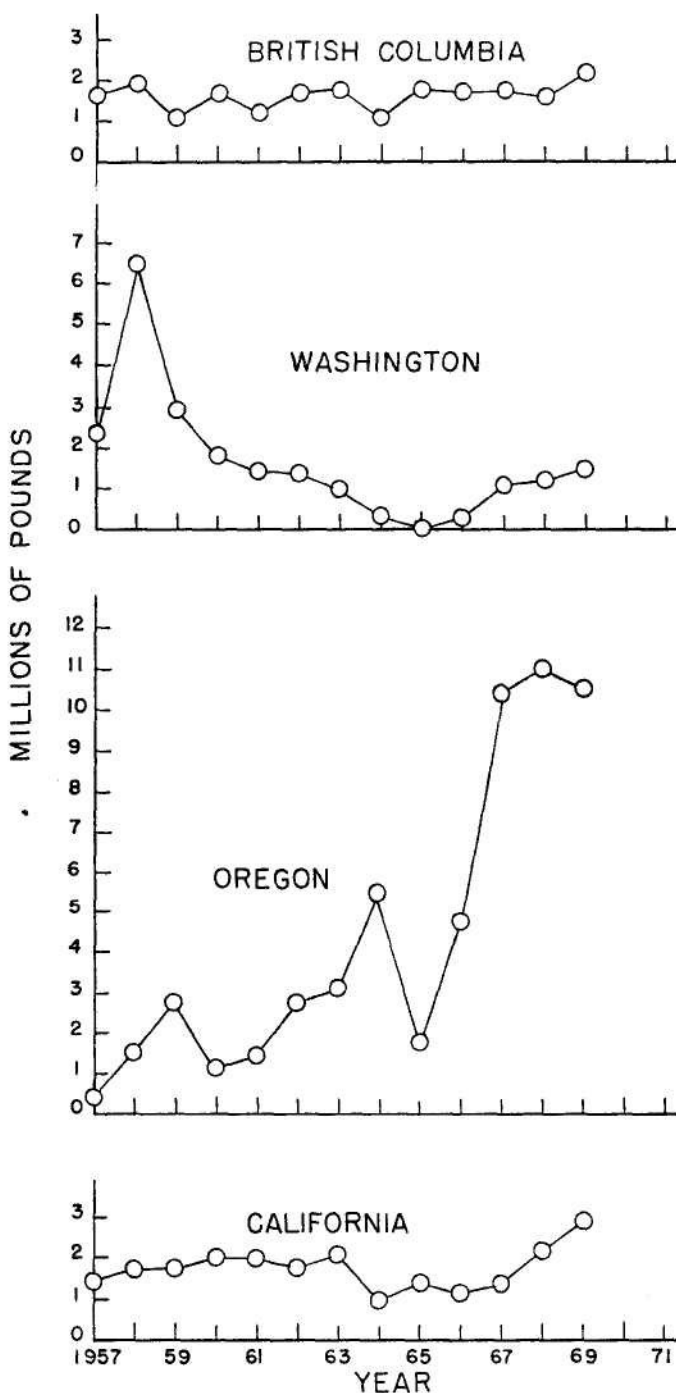


FIGURE 2. Annual shrimp landings in British Columbia, Washington, Oregon and California.

and no further landings were made until late-April when Grays Harbor vessels entered the fishery. The small fleet of 3 Washington boats made 15 landings totaling 228,000 pounds in May. Fishing was excellent with an average catch of 800 pounds-per-hour drag. Two vessels landed in Westport, and one in Ilwaco. The June catch of 363,000 pounds was taken at the rate of over 900 pounds per hour, and the July catch of 248,000 pounds was taken at about 700 pounds per hour. These were the best catch rates in many years.

During August, 10 shrimp vessels from California and Oregon joined the fishery. Although the catch rate dropped to 550 pounds per hour, 407,000 pounds were landed in August. Intensive fishing continued during the first half of September when 10 California and Oregon boats and 2 Washington boats landed 151,000 pounds in 33 trips at a further reduced catch rate of about 400 pounds per hour. Then the first good storm of the fall sent the visiting boats south. Washington shrimp had been in demand by the hand-peeling plants in Oregon and California because of their unusually large size. Shrimp were boxed and iced on the vessels, landed at Westport, and trucked to processing plants as far south as Eureka, California. Approximately 750,000 pounds were handled in this manner.

One vessel made 2 landings during October and 2 landings during December. As with the February landings, this was an Oregon shrimp circumventing the closed season in Oregon.

Total landings in Washington State were 1.4 million pounds taken at an average of 630-pounds-per-hour drag (Figure 2). An additional 1.2 million pounds caught off Washington were landed in Oregon ports. Including these Oregon landings, the Grays Harbor area produced about 2.3 million pounds and the Destruction Island area 250,000 pounds. The total production from Washington beds was the highest since 1959, and third highest of record.

Three-year-old shrimp of the 1966-year class predominated throughout the season. Consequently, average size was large at 95 shrimp per pound. The 1967-year class (2-year-olds) made a very poor showing, and small males of the 1968-year class (1-year-olds) made only a fair showing late in the season. "Unless the 1968-year class is stronger than indicated, shrimp are not expected to be abundant in 1970 off Washington.

### British Columbia

Since 1965 the British Columbia shrimp fishery has been fairly stable, averaging 1.68 million pounds. Trawl grounds adjacent to Vancouver Island, where *Pandalus jordani* occur, yield a greater part of the production. In 1968 trap fishing for "prawn" or "spot" shrimp (*Pandalus platyceros*) accounted for 10.1% of the total catch, and it is expected that these operations will continue to expand.

The accumulated catch for 1969 was 2,118,700 pounds, compared with 1,568,000 pounds in 1968 (Figure 2).

### Alaska

The shrimp fishery of Western Alaska is an otter-trawl fishery operating in open waters. Vessel size ranges from 49 to 100 feet using trawls with 70- to 120-foot ground lines at an average trawl depth of 65 fathoms. Duration of the drags

is generally one to two hours. A very small pot fishery exists off Kodiak and in Prince Williams Sound.

Five species of shrimp are utilized in Western Alaska. The most abundant species is pink shrimp (*Pandalus borellis*) which makes up 90-95 percent of the catch. Other species in order of abundance are sidestripe shrimp (*Pandalopsis dispar*), humpy shrimp (*Pandalus goniuris*), coonstripe shrimp (*Pandalus hypsinotus*) and spot shrimp (*Pandalus platyceros*).

The catches for 1969 were reported as 41,243,556 pounds for Kodiak, 3,076,912 pounds for the Alaska Peninsula, 1,847,202 pounds for Cook Inlet and 2,573 pounds for Prince Williams Sound. This brings the total catch for Western Alaska to 47,850,524 (Figure 3).

Approximately 22 vessels were involved in the fishery in Western Alaska with deliveries recorded for each month of the year. Catch-per-unit effort varied from a low of 2,228 pounds per hour in May to a high of 4,798 pounds per hour in November. No significant change in the catch-per-unit effort could be determined when compared to the catch-per-unit effort for the previous years.

The Russian fleet continued to fish shrimp in Western Alaska near Kodiak but has recently been forced off grounds previously fished near the Alaska Peninsula due to the protection offered by the 9-mile contiguous fishery zone.

The limiting factor to further expansion of the shrimp fishery in Western Alaska is market demand for the particular type of shrimp caught.

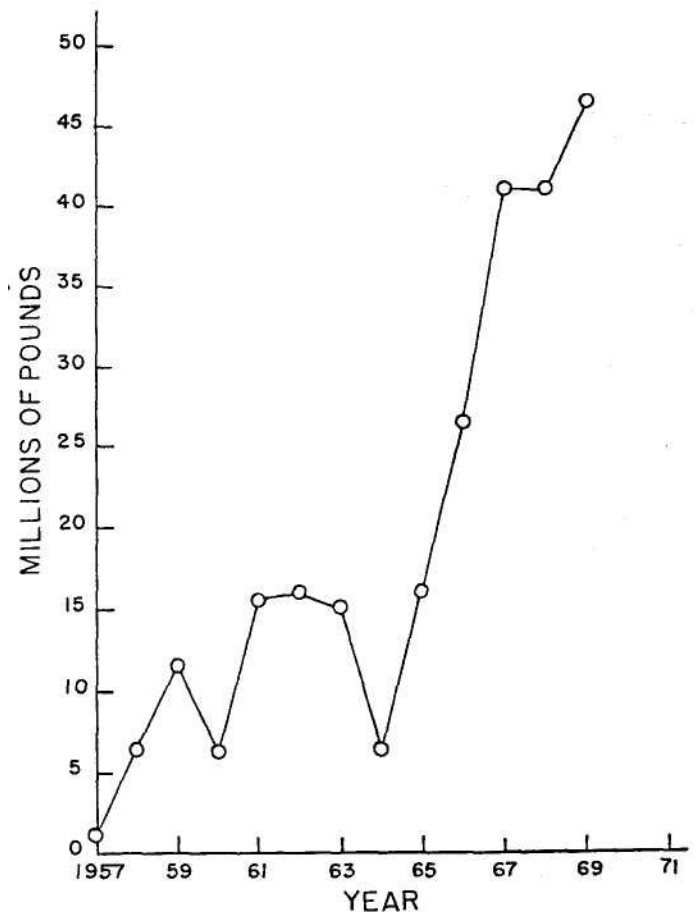


FIGURE 3. Annual shrimp landings in Alaska.

The shrimp fishery of Southeastern Alaska is conducted with beam trawls by smaller vessels on inside waters. Stock recruitment to various small fishing areas, bays and straits for the most part continues to govern the catch. In 1969 a catch of 1,680,281 pounds of shrimp was taken in this fishery. This catch is slightly behind the catch of previous years indicating a below-average recruitment into the fishery.

**Status of Shrimp**

Shrimp landings have made moderate increases on the West Coast of the United States and Canada in the past year. Substantial gains have not been made due to limited market demands.

Stocks appear to be in good condition as evidenced by an overall increase in catches and the reestablished fishery in Cook Inlet. Continued effort by foreign fleets in the Kodiak

area and their previous activity near the Shumagin Islands indicates that stocks are available that are not presently being utilized by our domestic fishery.

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# STATUS OF THE 1969 PACIFIC COAST TRAWL FISHERIES

## Domestic Fisheries

Pacific Coast trawl landings of bottomfish species by the United States and Canada totalled 153.5 million pounds in 1969 (Figure 1). This amount is up 1.5% over 1968 landings of 151.3 million pounds and 5.2% over the past 10-year mean of 145.9 million pounds. The 1969 catch reverses a 2-year decline in U.S.-Canada trawl production which had occurred following the record high 1966 landings of 184.8 million pounds.

Region	1968	1969	% Change
Alaska	negligible	negligible	-----
Washington	55,966	58,110	+3.8
Oregon	20,899	21,025	+0.6
California	34,411	36,533	+6.2
Total U.S.	111,276	115,668	+3.9
British Columbia	40,023	37,827	-5.5
Total (U.S.-Can.)	151,299	153,495	+1.5

A capsule look at the 1969 total catch levels by State and the Province of British Columbia reveals the following patterns (Table 1). In Alaska, trawl landings are negligible, usually less than 100,000 pounds. The Washington trawl catch totalled

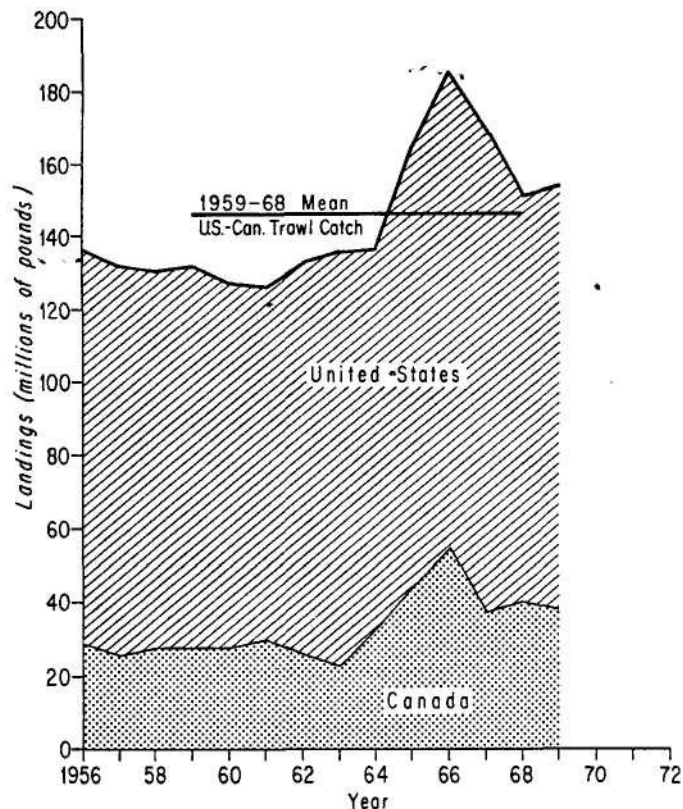


FIGURE 1. Pacific Coast trawl landings of the United States and Canada.

TABLE 1

U.S.-Can. Trawl Landings (1968 and 1969 in 1,000's of lbs.)

58.1 million pounds — up 3.8% from 1968. A relatively strong foodfish market for all major species and a meal market for the Puget Sound-based hake fishery accounted for the increase. Oregon trawl landings of 21.0 million pounds remained at virtually the same level as reported for 1968. Foodfish landings accounted for 87.6% of the 1969 Oregon production. The California catch of 36.5 million pounds was up 6.2% over 1968 and represents the third highest trawl catch on record in that State. This high catch was largely due to the record landing of 12.9 million pounds of Dover sole. The combined catch of California, Oregon and Washington totalled 115.7 million pounds in 1969 — up 3.9% from the 111.3 million pounds landed in 1968.

In British Columbia, trawl landings of bottomfish amounted to 37.8 million pounds — down 5.5% from the 1968 production of 40.0 million pounds. This decline was due primarily to a significant decrease in Pacific cod which is the most important species in the British Columbia trawl landings.

The following is a look at the status of the eight most important species comprising the Pacific Coast trawl catch of the United States and Canada. These species generally account for approximately 75% of the annual foodfish landings.

### Petrale Sole

(*Eopsetta jordani*)

Petrale sole landings of 6.7 million pounds in 1969 were down 4.6% from the 1968 catch of 7.0 million pounds and 21.0% below the past 10-year average (Figure 2). This decline in landings reflects a significant decrease in petrale sole abundance in coastal waters off British Columbia where this species is becoming of incidental importance to trawl fishermen in the historically important summer inshore fishery. In contrast petrale sole landings off the Washington, Oregon and California coasts have remained fairly stable.

The 1969 petrale sole landings by area reveal slightly increased catches in Washington and Oregon and decreased landings in California (Table 2). The catches of these 3 States totalled 6.3 million pounds — up 2.0% from 1968. The British Columbia landings of petrale sole totalled only 351,000

TABLE 2

U.S.-Can. Trawl Landings of Petrale Sole<sup>1</sup> (in 1,000's of lbs.)

Region	1968	1969	% Change
Alaska	-----	-----	-----
Washington	1,575	1,608	+ 2.1
Oregon	1,653	1,835	+11.0
California	2,943	2,867	- 2.6
Total U.S.	6,171	6,310	+ 2.0
British Columbia	813	351	-56.8
Total (U.S.-Can.)	6,984	6,661	- 4.6

<sup>1</sup>Foodfish utilization only.

pounds which is a 56.8% decrease from the relatively low 1968 catch of 813,000 pounds.

### English Sole

(*Parophrys vetulus*)

The 10.7 million-pound production of English sole by Canadian and United States trawl fleets during 1969 was down 18.8% as compared to 1968, and was 12.5% below the past 10-year average (Figure 2).

Region	1968	1969	% Change
Alaska	-----	-----	-----
Washington	3,169	2,989	— 5.7
Oregon	2,360	1,716	—27.3
California	5,810	3,803	—34.5
Total U.S.	11,339	8,508	—25.0
British Columbia	1,849	2,196	+18.8
Total (U.S.-Can.)	13,188	10,704	—18.8

<sup>1</sup>Foodfish utilization only

Substantial declines occurred in catches landed in Oregon and California (Table 3). Based on the catch per unit of fishing effort (pounds caught per hour of trawling), it appears that the abundance of this species was down in all major fishing areas off the Washington-Oregon-California coasts. Combined catches for these 3 States equalled 8.5 million pounds which was down 25% from 1968. British Columbia landings of English sole, however, amounted to 2.2 million pounds — up 18.8% from 1968. The bulk of the Canadian catch was taken from grounds in northern Hecate Strait.

### Dover Sole

(*Microstomus pacificus*)

A record high Dover sole trawl catch of 21.2 million pounds was landed by United States and Canadian trawl fleets in 1969 (Figure 2). This was a 45.0% increase over 1968 and 34.7% over the past 10-year average.

Increasing market demand coupled with expanding exploitation of populations off the northern California and southern Oregon coasts accounted for the sharp rise in California and Oregon catches. The 1969 California Dover sole catch of 12.9 million pounds was a record high; the previous high was 11.7 million pounds landed in 1952. Part of Washington's increased landings were due to the harvest of Dover sole from Queen Charlotte Sound. Combined production of California, Oregon

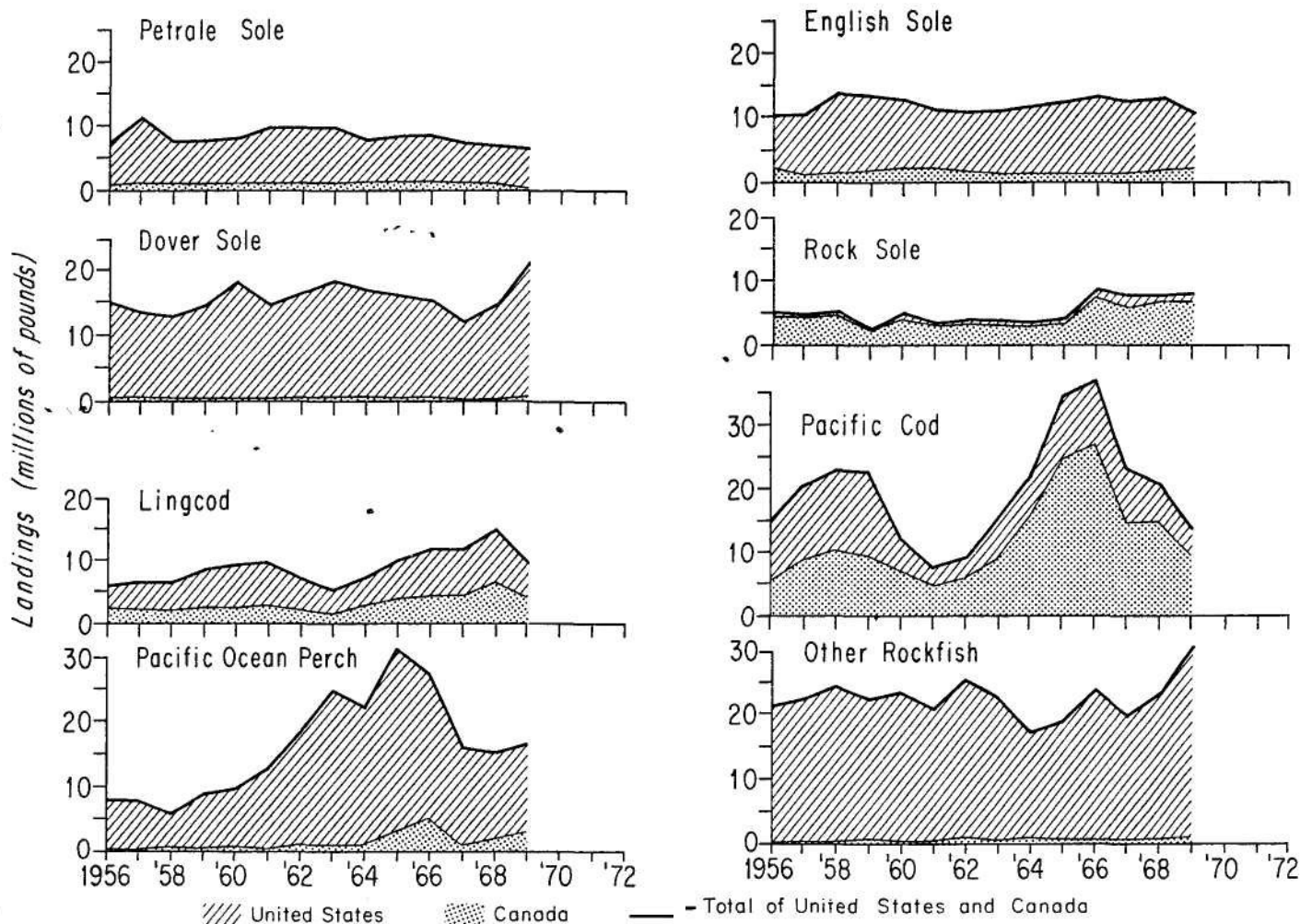


FIGURE 2. Pacific Coast trawl landings by major species or group.

and Washington totalled 20.3 million pounds which was 96% of the total U.S.-Canada Dover sole catch. Increased market demand in British Columbia resulted in a 1969 catch of 855,000 pounds which was substantially above previous annual landings.

**TABLE 4**

U.S.-Can. Trawl Landings of Dover Sole<sup>1</sup> (in 1,000's of lbs.)

Region	1968	1969	% Change
Alaska	-----	-----	-----
Washington	1,526	1,850	+ 21.2
Oregon	4,325	5,554	+ 28.4
California	8,526	12,919	+ 51.5
Total U.S.	14,377	20,323	+ 41.4
British Columbia	231	855	+270.1
Total (U.S.-Can.)	14,608	21,178	+ 45.0

<sup>1</sup>Foodfish utilization only

**Rock Sole**

(*Lepidopsetta bilineata*)

Rock sole have become increasingly important to the Canadian and United States trawl fleets over the past 10 years. Total United States and Canadian trawl landings of this species during 1969 equalled 7.8 million pounds which is up 2.7% over 1968 and 56.5% over the past 10-year mean (Figure 2).

The United States catch of rock sole is landed almost entirely in Washington ports (Table 5). Total U.S. landings of this species equalled 1.2 million pounds in 1969 — up 33.6% from the 880,000 pounds landed in 1968. Most of the rock sole catch is made by the British Columbia trawl fleet. The 1969 Canadian catch was 6.7 million pounds or virtually the same as the 1968 catch.

**TABLE 5**

U.S.-Can. Trawl Landings of Rock Sole<sup>1</sup> (1,000's of lbs.)

Region	1968	1969	% Change
Alaska	-----	-----	-----
Washington	826	1,148	+39.0
Oregon	51	25	-----
California	3	3	-----
Total U.S.	880	1,176	+33.6
British Columbia	6,744	6,653	- 1.3
Total (U.S.-Can.)	7,624	7,829	+ 2.7

<sup>1</sup>Foodfish utilization only

**Pacific Cod**

(*Gadus macrocephalus*)

The 1969 landings of Pacific cod by United States and Canadian trawl fishermen amounted to 13.5 million pounds (Figure 2). This total was 34.9% below the 20.8 million pounds landed in 1968 and 34.0% below the past 10-year average. Landings of Pacific cod fluctuate widely since the

fishery is primarily supported by only two or three year-classes, and year-class strength varies considerably. The present decline is attributed to a reduction in recruitment of young fish to the fishery, i.e., weak year-classes entering the fishery.

The United States landings of Pacific cod occur primarily in Washington as this region approximates the southern end of commercial quantities of this species. Washington landings in 1969 totalled 3.8 million pounds — down 31.8% from 1968 (Table 6). British Columbia landings were 9.7 million pounds in 1969 — down 34.7% from the 14.8 million pounds landed in 1968.

**TABLE 6**

U.S.-Can. Trawl Landings of Pacific Cod<sup>1</sup> (1,000's of lbs.)

Region	1968	1969	% Change
Alaska	-----	-----	-----
Washington	5,526	3,767	-31.8
Oregon	385	47	-87.8
California	0	0	-----
Total U.S.	5,911	3,814	-35.5
British Columbia	14,840	9,686	-34.7
Total (U.S.-Can.)	20,751	13,500	-34.9

<sup>1</sup>Foodfish utilization only.

**Lingcod**

(*Ophiodon elongatus*)

The United States and Canadian catch of lingcod in 1969 was 9.4 million pounds (Figure 2). This amount was 36.5% below the very good 1968 catch of 14.8 million pounds although only 0.5% below the past 10-year average.

The trawl catch of lingcod was down in California, Oregon and Washington (Table 7). Washington, which is the primary State for lingcod trawl landings, suffered a 41.7% decrease from 1968. Combined landings of lingcod for all 3 States totalled 5.4 million pounds which was 35.8% below the 8.4 million pounds landed in 1968. British Columbia landings totalled 4.0 million pounds — down 37.5% from 1968. It appears that the lingcod populations, which had been supporting record high catches since 1966 due to good market demand, may now be at a much reduced level of abundance.

**TABLE 7**

U.S.-Can. Trawl Landings of Lingcod<sup>1</sup> (1,000's of lbs.)

Region	1968	1969	% Change
Alaska	-----	-----	-----
Washington	5,940	3,465	-41.7
Oregon	1,526	1,084	-29.0
California	923	836	- 9.4
Total U.S.	8,389	5,385	-35.8
British Columbia	6,435	4,022	-37.5
Total (U.S.-Can.)	14,824	9,407	-36.5

<sup>1</sup>Foodfish utilization only.



## Pacific Ocean Perch

(*Sebastes alutus*)

Pacific Ocean perch landings in 1969 totalled 16.6 million pounds, up 8.2% from 1968 although still 10.9% below the past 10-year average (Figure 2).

United States landings of Pacific Ocean perch occur in Washington and Oregon as this species is not present in commercial abundance in California coastal waters. Oregon landings of 940,000 pounds were down 43.0% below the already much reduced 1968 catch level of 1.6 million pounds (Table 8). This catch reflects the very low abundance of this species which in 1965 was the major foodfish supporting the Oregon trawl fleet. Washington landings of 12.3 million pounds were up 4.7% over 1968. Queen Charlotte Sound, British Columbia, produced 90% of the 1969 catch landed in Washington. Based on catch and effort records obtained from the Washington trawl fleet, it is evident that the Pacific Ocean perch populations found along the northern Washington coast and west coast of Vancouver Island have been considerably reduced. These diminished populations did not attract sustained fishing effort from the Washington trawl fleet in 1969. British Columbia landings of 3.3 million pounds were 71.6% greater than the 1.9 million pounds landed in 1968. Canadian production of Pacific Ocean perch is also centered in Queen Charlotte Sound. Statistics from the Washington trawl fleet indicate a decrease in abundance of this species in Queen Charlotte Sound has occurred in recent years.

**TABLE 8**

U.S.-Can. Trawl Landings of Pacific Ocean perch<sup>1</sup>  
(1,000's of lbs.)

Region	1968	1969	% Change
Alaska	-----	-----	-----
Washington	11,715	12,269	+ 4.7
Oregon	1,649	940	-43.0
California	23	45	-----
Total U.S.	13,387	13,254	- 1.0
British Columbia	-1,932	3,316	+71.6
Total (U.S.-Can.)	15,319	16,570	+ 8.2

<sup>1</sup>Foodfish utilization only.

## Other Rockfish

The "other rockfish" category comprises all rockfish (*Sebastes* and *Sebastes*) species other than Pacific Ocean perch (*Sebastes alutus*). The landings of "other rockfish" species are affected primarily by market conditions, and evaluation of the status of the numerous species comprising the catch is made extremely difficult by that fact. The 1969 landings of other rockfish amounted to 30.8 million pounds — up 33-6% over the 1968 catch of 23.0 million pounds and 42.6% over the past 10-year average (Figure 2). Improving market conditions and declines in abundance of other major foodfish species accounted for the very good production achieved in 1969-

United States trawlers accounted for 96.7% of the other rockfish catch in 1969. Washington landings of 17.1 million pounds were up 67.1% over the 10.3 million pounds landed in 1968 (Table 9). This development has occurred because of declining Pacific Ocean perch catches coupled with development of a lighter weight trawl net which is more effective on the various rockfish species. A large part of the increased landings have come from Queen Charlotte Sound. Oregon landings of 5.1 million pounds were up 19-9% over 1968 catches while California landings declined slightly due to fleet tie-ups and poor weather conditions early in the year. British Columbia landings of 1.0 million pounds were up 39.5% over 1968.

**TABLE 9**

U.S.-Can. Trawl Landings of Other Rockfish<sup>1</sup> (1,000's of lbs.)

Region	1968	1969	% Change
Alaska	-----	-----	-----
Washington	10,255	17,141	+67.1
Oregon	4,253	5,101	+19.9
California	7,841	7,571	- 3.4
Total U. S.	22,349	29,813	+33.4
British Columbia	719	1,003	+39.5
Total (U.S.-Can.)	23,068	30,816	+33.6

<sup>1</sup>Foodfish utilization only.

## Foreign Fisheries

### Japanese Trawl Fishery

Japanese vessels began fishing the Gulf of Alaska in the early 1960's. In 1966 Japanese trawlers worked their way southward off the British Columbia coast for the first time and appeared as far south as central California. The great majority of Japan's bottomfish catch still comes from the northern Gulf of Alaska and Bering Sea. It is interesting to note, however, the magnitude and species composition of that portion of the 1966 Japanese trawl catch (latest published data) made in waters where United States and Canadian trawl fleets operate (Table

The coastal waters historically fished by United States and Canadian trawl fleets are now truly the area of an international fishery. The harvests by Soviet and Japanese fishing fleets in these waters of some species important to the U.S. trawl fleet are equal to or exceed the U.S. harvests. It is obvious that the presence of these foreign fleets must be considered in any attempt to assess the impact of the total fishery on the resource. Unfortunately adequately detailed and relatively current Japanese and Soviet catch statistics are generally unavailable.

10). It appears that Pacific Ocean perch (and probably associated deep water rockfish species) are the most important species harvested by Japan in waters off British Columbia, accounting for 64% of the 1966 catch of 10.7 million pounds. Since 1966, Japanese fishing effort and catch (both trawl and longline) have substantially increased off British Columbia, Washington, Oregon and California. Published catch statistics for those areas during later years are still unavailable. It is known, however, that rockfish species and sablefish comprise the major portion of the landings.

### Soviet Trawl Fishery

Soviet catch data obtained for 1967 indicated total U.S.S.R. trawl catches off the Washington-Oregon-California coasts amounted to 521.8 million pounds (Table 11). This catch was comprised of 351.3 million pounds of Pacific hake, 82.9 million pounds of rockfish (including Pacific Ocean perch) and 87.6 million pounds of unspecified species. A breakdown of catches off British Columbia was not available except for Pacific hake.

The 1968 U.S.S.R. data indicated a considerable decrease in

pounds of all species caught. A breakdown of catches off British Columbia was available for 1968. Total catches for all coastal areas from British Columbia southward to California indicated a total catch of 323.4 million pounds, of which 228.6 million pounds were Pacific hake, 51.9 million pounds were rockfish (including Pacific Ocean perch) and 42.8 million pounds were unspecified species.

Catch statistics for 1969 are scheduled to be exchanged between the Soviet Union and the United States during the fall of 1970.

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30

**TABLE 10**  
1966 Japanese Trawl Landings in the Northeastern Pacific by  
Selected INPFC Statistical Areas (1,000's of lbs.)

INPFC Areas and Boundaries		Total Catch	P. O. Perch	Sablefish	Pollock	Other Fish
Charlotte	54°31'N to 50°30'N	5,669	4,064	362	137	1,106
Vancouver	50°30'N to 47°30'N	4,904	2,785	22	249	1,848
Columbia	47°30'N to 43°00'N	44	13	-----	-----	31
Eureka	43°00'N to 40°00'N	33	15	-----	-----	18
South of 40°00'N	-----	83	15	-----	-----	68
Total		10,733	6,892	384	386	3,071

Source: International North Pacific Fisheries Commission 1967 Statistical Yearbook

**TABLE 11**  
1967 and 1968 Soviet Catch Statistics for Waters off British  
Columbia and Southward to California (1,000's of lbs.)

Region	1967				1968			
	Pacific Hake	Rockfish	Unspecified	Total	Pacific Hake	Rockfish	Unspecified	Total
British Columbia	24,824	N.A.*	N.A.	N.A.	78,933	16,107	24,306	119,346
Washington-Oregon	274,803	43,750	65,137	383,690	140,700	15,675	15,609	171,984
California	76,453	39,167	22,467	138,087	8,984	20,152	2,886	32,022
Total	376,080	-----	-----	-----	228,617	51,934	42,801	323,352

\*Data not available.

Source: U.S.S.R. Data received through reciprocal data exchange commitments resulting from annual U.S.-U.S.S.R. Bilateral Scientific Meetings

# Appendix 2 — Cooperative Research

## M SUMMARY OF PROGRESS OF PACIFIC OYSTER MASS MORTALITY INVESTIGATIONS

1968-1969

R. E. WESTLY Washington

Department of Fisheries

Mass mortality of adult Pacific oysters has occurred each of the past several years in certain bays of Washington and California. Losses of 25% to 75% occur among 2-year plus age oysters. In high mortality years, 1-plus oysters also may be affected. Joint effort of the Pacific Oyster Growers Association and the Pacific Marine Fisheries Commission in 1964 resulted in a federal appropriation of \$150,000 a year to the Bureau of Commercial Fisheries to establish contracts with various State and other agencies to determine the reasons for the mortality, and to determine methods of minimizing, avoiding, or culturing around the mortality.

A steering committee was set up by the Bureau of Commercial Fisheries to review progress and planned programs twice yearly, to coordinate action, and to take maximum advantage of information as it became available. Reports of the first three-and-one-half years of research have been given at previous annual meetings of the Pacific Marine Fisheries Commission.

### Washington - R. E. Westley

While work is continuing and we are becoming more fully cognizant of the details of the occurrence of mortality, cultural experiments are also being conducted in search of ways to minimize mortalities. From these we now know that the upper ends of the bays are the mortality areas; that, except in high mortality years, oysters do not die during the first year after planting; that oysters transplanted out of the mortality area prior to June each year will escape the mortality. An experiment also is being conducted to learn if seed from any of the five major sources of Pacific oyster seed is either resistant or susceptible to the unknown adult mortality factors. An experiment is being conducted to determine if delay in planting of seed in spring and summer will slow growth enough to allow the oysters to subsequently survive for an additional year.

Table 1 presents a summary of monitoring of oyster mortalities in Washington State from 1964 through 1969. Table 2 presents results of the seed oyster source study through July 1969.

**TABLE 1**

Cumulative Mortality in Per Cent for Period  
June to December, each year.

Area	1964	1965	1966	1967	1968	1969*
Quilcene Bay	13	7	6	10	6	4
Oakland Bay	6	8	3	14	18	4
Totten Inlet	12	29	14	48	26	9
Case Inlet	16	25	12	48	57	19
Eld Inlet	—	28	21	40	29	15

\*Through August 11, 1969.

**TABLE 2**  
Seed Source Experiment.

Seed source	Live and Dead, Total Spat Per Shell					
	May 1968	May 1969	June	Nov.	April	July*
Mangoku-ura (Japan)	13	12	7	7	4	4
Pendrell (B.C.)	39	38	20	18	13	11
Willapa (Wash.)	19	15	8	5	3	3
Dabob (Wash.)	80	78	51	20	16	15
Hojima (Japan)	14	11	7	6	5	4

\*July 1969 values calculated from per cent mortality.

Table 1 indicates that through mid-August adult Pacific oyster mortalities in Washington State during 1969 were low. While the oysters in the seed source study have not yet reached the age when adult mortality predominately occurs, the data suggest either that initial high spat count is desirable for ultimate survival, or that Dabob and Pendrell Sound oyster seed have better survival than seed from the other three sources.

### University of Washington — Dr. A. K. Sparks

The University of Washington has continued to process and evaluate preserved histological material submitted by the Washington Department of Fisheries and the Oregon Fish Commission. No new or significant pathological conditions have been found. There is little evidence now of an infectious disease in Southern Puget Sound, Washington but the high incidence of pathogenic conditions in summer samples indicates that more intensive study is needed.

The following organisms or conditions are under study:

1. *Mytilicola*
2. *Ancistrocoma*
3. *Trichodina*
4. Foci of bacteria
5. Ciliates on palps or gills.

An effort is being made to learn more about the effect of the process of resorption of gonadal products through observations of the hemocytic reaction of oysters from Washington. Although resorption of the gonad is a normal process in Washington due to failure of the oysters to spawn completely, it appears to be quite destructive. Resorbing oysters are characterized by heavy hemocytic infiltration and edema of large areas of leydig tissues as well as gonad tissues. The degree of reaction varies considerably.

## Oregon — C. Dale Snow

Routine oyster mortality and growth data were collected and oyster samples were taken in Yaquina, Tillamook, and Coos Bays. Hydrographic information is being collected in Yaquina Bay. A new mortality study was begun in Yaquina Bay on the native oyster beds. Tonged oysters are examined monthly for recent mortality data from experimental trays at the Yaquina stations.

Yaquina Bay: Pacific oyster mortality was 0.6% during the April to June 1969 period. Mortality of native oysters was 1.7%, a lower than expected mortality for this time period.

Tillamook and Coos Bays: Mortality of Pacific oysters was less than 1 % in each bay.

## Bureau of Commercial Fisheries, Oxford, Maryland — Dr. Aaron Rosenfield

Work of the Oxford Laboratory in this study is directed toward assessment of the role of parasites and pathogens in mortality of oysters (principally *Crassostrea gigas*). During the past year the following organisms or conditions have been under study to determine their role in oyster mortalities.

1. *Focal necrosis* (probably bacterial): Presumably this is the same as the condition called multiple abscesses by Japanese researchers.
2. *Microcell Disease* (Denman Island Disease): This or a very similar organism has been observed in Pacific oysters, European oysters, and Olympia oysters. It is thought to be the causative organism of the outbreak of disease in Pacific oysters at Denman Island, B.C., several years ago.
3. *Amoeboid Organism*: Previous studies have indicated this could be an important pathogen. At the present time six forms have been isolated, none of which is a proven pathogen.
4. *Protozoan*: A method has been utilized to detect presence of protozoans using a fluorescent antibody technique. • \*

It does seem that, unlike the situation in oysters from the East Coast where haplosporidia and a fungal disease are important, Pacific oysters are affected principally by bacterial

and amoeboid pathogens. The Oxford Laboratory plans to concentrate on cultivation and life cycle studies of amoeboid organisms, on the bacterial pathogen causing "focal necrosis" or multiple abscesses, and on the microcell organism associated with Denman Island Disease.

## California — Dr. S. C. Katkansky

Routine sampling was carried out in Humboldt Bay, Drakes Estero, and Tomales Bay during April, May, and June 1969. Losses among the experimental population were low at Drakes Estero. A general mortality had begun in 1968-seed plantings in Humboldt Bay during the latter part of June. Significant losses were also noted among the 1968-Japanese seed plantings at Tomales Bay during June 1969-

Humboldt Bay: Losses among the oysters at the experimental stations and on the commercial beds were noted in late June of 1969; however, total losses were less than 5%.

Drakes Estero and Tomales Bay: Losses among the 1968 Japanese seed plantings were 11 % during the last 2 weeks of June. Losses among the other experimental populations were low.

## Summary

The work which has been carried on since 1965 can be summarized as follows. To date no clear-cut single cause of mortality has been discovered. Histological studies have not disclosed a pathogen that can be considered responsible, although several organisms have been found which may be related to isolated instances of oyster mortality. In Humboldt Bay an organism that may be related to mortality is under study.

Oyster mortalities in Oregon continue at an extremely low level and the observations thus far provide a basis for comparison with higher mortality areas.

In Washington State intensive studies of the oysters and the environment have led to a tentative conclusion that the mortalities are related to the fatness and spawning cycles of the oysters. Here fat oysters die at time of spawning, however, in most such instances normal complete spawning had not occurred. Work also is progressing to develop cultural techniques to avoid or minimize the mortalities.

# Appendix 3 — Special Reports

## THE WEATHERVANE SCALLOP FISHERY OF ALASKA WITH NOTES ON OCCURRENCE IN WASHINGTON AND OREGON

DAN HENNICK Alaska  
Department of Fish and Game

The weathervane scallop *Patinopecten caurinus*, was first discovered off Port Townsend, Washington in 1850. It is frequently taken incidentally in other fisheries occurring from California to Alaska. Exploratory surveys along the Washington and Oregon coast by the Bureau of Commercial Fisheries located beds of weathervane scallops, however yields were well below the commercial level as was the size of the scallops. Additionally, many empty shells were found along with a high incidence of a marine shell boring worm; which causes scallop shells to become very brittle and perhaps eventually causes early death.

In early 1969 a commercial scallop vessel explored parts of Puget Sound and located a small bed of weathervane scallops in the eastern portion of the Strait of Georgia. The scallops on this bed were evidently reduced below commercial abundance very quickly. Only 12,000 pounds of shucked meats were landed and the information on hand indicates it is unlikely that there are other scallop beds of sufficient size or density in Washington or Oregon to support a commercial fishery for the species.

From April through June of 1968 the New Bedford commercial scallop vessel *Viking Queen*, and her experienced crew were chartered by State, Federal and private interests to conduct a series of exploratory cruises, pff Alaska from Cape Fairweather to the vicinity of Kodiak Island. Primarily, the work was conducted along the 50-fathom contour. Catches per 30-minute tow in the Cape Fairweather to Cape St. Elias area (Yakutat region) reached levels as high as 80 bushels and in the Kodiak area as high as 17 bushels. The average for these areas, however, was considerably less. Traces were found in other atreas, but were considered inadequate for a commercial fishery. \*

Based, at least in part, upon the results of this exploratory work, 3 additional commercial scallop vessels moved from New Bedford, Massachusetts to Alaska in June of 1968 and began commercial operations, primarily in the Yakutat area. The initial trips produced average landings of near 40,000 pounds of shucked meats for 10-day fishing periods. By late 1968, 8 additional New Bedford vessels entered the Alaska fishery and at least 4 local vessels had been converted to scalloping while the fishing area had been expanded to include the Kodiak Island region. Eventually a high of 18 vessels had participated in the fishery, but at the present time the number has decreased to 9, only one of which is a local vessel. Reasons for this decline will become apparent later in this report.

The total commercial landing of shucked scallop meats from Alaska waters was approximately 1.7 million pounds during 1968. Of this total, 970,000 pounds were taken in the Yakutat area and 730,000 pounds in the Kodiak area. During 1969 through August 15 th, landings of shucked meats

totalled about 1.3 million pounds; 706,000 pounds from Yakutat and 594,000 pounds from Kodiak. Hence, approximately 3 million pounds have been landed from Alaskan waters since the inception of the commercial fishery in 1968.

The commercial scallop fleet has conducted extensive exploratory fishing on its own accord throughout much of the coastal and many of the bay areas of Alaska. Small populations, mostly commercially insignificant, were located in the vicinity of Prince William Sound, Cook Inlet and along the Alaskan Peninsula to Unimak Island. One vessel even entered the Bering Sea to prospect, but found no trace of weathervane scallops in that region.

Only recently the Bureau of Commercial Fisheries concluded 90 days of exploratory work by chartered commercial vessel, mostly in the Alaska Peninsula area. At this time data regarding the findings are incomplete, but preliminary reports indicate no extensive scallop beds were located. On the contrary, most of the area was found unfishable due to the rough, rocky bottom which is characteristic of the area. Those scallops which were found were extremely large, but widely scattered.

Age and growth data on Alaska scallops reflects what one would expect from virgin, unexploited scallop populations. All age groups are well represented, though the age structure does vary from area to area. Based on samples taken by observers aboard the commercial vessels, over 95% of all scallops currently being harvested are aged at 6 years or older, most are between 7 and 15 years old, with a few reaching 25 or more. Very few seed scallops (3-year-olds or less) have been found but, recently (June-July) they have been reported abundant in the Yakutaga to Cape Fairweather area.

There are large differences in growth rates and sizes between scallops from the Yakutat area and those from Kodiak. For example, the average height (base of hinge to top of shell), for 7-year-old scallops from the Kodiak area is between 140 to 145 mm. A similar aged scallop from the Yakutat area has an average shell height of between 115 to 120 mm. Comparing the average number of meats per pound for the two areas one finds that they run between 19 to 22 for Yakutat and 7 to 9 for Kodiak. Stated in another context, Kodiak meats weigh more than twice the weights of meats from scallops in the Yakutat area. The sea bottoms also differ greatly, being mostly mud off Yakutat and sand and gravel off Kodiak. It is clearly apparent that as one moves north and west of the Yakutat area, scallops become larger and grow faster, but at the same time they become less numerous. An individual with an adductor muscle weighing nearly % of a pound was recovered from the Kodiak area.

Studies on sexual development are presently preliminary. In general, however, scallops 3 years of age or less are imma-

cure. At 3 years of age they are 70 to 90 mm or less in shell height, depending on the area where taken. Observations on mature individuals indicated that from late August through November of 1968, the gonads were only partially filled with sex products, but sexes could be distinguished quite easily. By December the gonads appeared to be filling rapidly and they continued to do so through early May of 1969- Observations during the first 3 weeks in June indicated that most scallops had spawned or were in the process of doing so. The actual timing varied between areas and even within the same area. Following spawning the gonads become watery and transparent and sexes cannot be easily distinguished. The gonads remained empty through July, but by late August a few began showing formation of eggs or sperms near the anterior region of the gonad. In most, however, sex remained indistinguishable to the unaided human eye. From these observations it may be concluded that the major spawning occurred during late May and June and that only one annual spawning period is likely.

The future of the commercial scallop fishery in Alaska is at best uncertain. A number of trends are becoming apparent which are worthy of comment:

- (1) Winter weather conditions have made fishing extremely hazardous, with a corresponding sharp decrease in catch per unit of effort. It is likely there will be a further decrease in the size of the fleet by October of this year, or even that fishing will cease completely

until spring when improved weather conditions will prevail.

- (2) Presently known scallop beds are not thought to be extensive. The most extensive populations are found in narrow bands between the 25- and 50-fathom contours. Individual beds may be reduced to commercial insignificance within a relatively short period of time.
- (3) An increase in the number of vessels fishing did not result in increased total yield. Rather, the catch per unit of effort has shown a fairly consistent decline, even when the differences attributed to weather and relative vessel efficiency were considered.
- (4) Damage to other bottom dwellers attributable to scallop gear has occurred, especially to king, Dungeness and tanner crabs. Such damage increases while crabs are inshore during their molting and breeding migrations. This migration period coincides with favorable fishing weather as well as with the scallop spawning period.

In conclusion it is unlikely that the known populations of scallops off Alaska can support an increased harvest. An annual harvest of 1 to 1.5 million pounds of shucked meats appears feasible, but the take from individual beds will bear close watching as will conflicts with associated species, especially king crab in the Kodiak area.

# OCEAN SALMON REGULATIONS ALONG THE PACIFIC COAST

HENRY O. WENDLER  
Washington Department of Fisheries

At the 1969 spring research staff meeting of the Pacific Marine Fisheries Commission for salmon and steelhead, representatives of the California Department of Fish and Game, Oregon Fish Commission, and the Washington Department of Fisheries agreed to prepare reports on several key aspects of ocean salmon management. One of these included a review of ocean commercial and sport fishing regulations as they apply coastwise. It is intended that this report with appendices provide the reader with a resume of existing restrictions on and estimates of catches of salmon by ocean sport and commercial troll fisheries.

## RECOMMENDATIONS

The Pacific Marine Fisheries Commission in 1948 (PMFC Bull. 2, 1951) made the following recommendations for the regulation of the ocean troll fishery which operates chiefly on king (chinook) and silver (coho) salmon:

1. No king salmon less than 26 inches, measured from the tip of the snout to the tip of the tail, should be taken by trollers. No king salmon less than 26 inches taken incidentally by other gear should be permitted to be sold.
2. The king salmon fishing season should be from March 15 to October 31. Any State could set a shorter season within that period.
3. The silver salmon season should be from June 15 to October 31. Any State could set a shorter season within that period.

4. It was deemed by the Commission that California's alternate proposal for troll silver salmon regulations consisting of a 25-inch minimum size limit (tip to tip) and a fishing season from May 1 to September 30 would be an acceptable substitute for the recommended June 15 to October 31 fishing season.

(Note: During the past few years the ocean troll fisheries off northern Oregon, Washington, and the Province of British Columbia have developed gear capable of catching large numbers of pink and sockeye salmon.)

These recommendations, designed to conserve and better utilize these resources, were subsequently adopted in substance by the States of California, Oregon, and Washington and the then Territory of Alaska.

The Commission recognized the preliminary nature of such recommendations and further recommended that research be continued so as to obtain more complete data on which to base additional regulations for the management of the ocean troll fishery if it should prove necessary. With the exception of a change in opening date from March 15 to April 15 (beginning in Oregon and Washington in 1956), no additional management changes have occurred through Commission action. Canada adopted the June 15 opening date for coho salmon in outside (ocean) waters off British Columbia in 1952. Canada also adopted a troll season from April 15 through October 31

TABLE 1

Washington, Oregon, and California Combined Ocean Chinook (King) Salmon Catches in Thousands of Fish and Per Cent by Fishery, 2-year Average, 1947-1967.

Averaged Years	Commercial Catch	Est. Sport Catch	Total Catch	Per cent	
				Commercial Catch	Sport Catch
1947-48	1,642	28	1,670	98.3	1.7
1948-49	1,507	56	1,563	96.4	3.6
1949-50	1,575	124	1,699	92.7	7.3
1950-51	1,734	232	1,966	88.2	11.8
1951-52	2,077	373	2,450	84.8	15.2
1952-53	2,177	428	2,605	83.6	16.4
1953-54	2,409	461	2,870	83.9	16.1
1954-55	2,789	586	3,375	82.6	17.4
1955-56	3,026	659	3,685	82.1	17.9
1956-57	2,679	577	3,256	82.3	17.7
1957-58	1,886	468	2,354	80.1	19.9
1958-59	1,563	492	2,055	76.1	23.9
1959-60	1,559	474	2,033	76.7	23.3
1960-61	1,862	421	2,283	81.6	18.4
1961-62	1,839	497	2,336	78.7	21.3
1962-63	1,786	494	2,280	78.3	21.7
1963-64	1,937	476	2,413	80.3	19.7
1964-65	1,771	493	2,264	78.2	21.8
1965-66	1,647	520	2,167	76.0	24.0
1966-67	1,364	605	1,969	69.3	30.7

Year	Commercial Catch	Est. Sport Catch	Total Catch	Per cent	
				Commercial Catch	Sport Catch
1947	671	3	674	99.5	0.5
1948	839	4	843	99.5	0.5
1949	780	19	799	97.6	2.4
1950	800	21	821	97.4	2.6
1951	971	29	1,000	97.1	2.9
1952	1,288	56	1,344	95.8	4.2
1953	1,043	74	1,117	93.4	6.6
1954	707	99	806	87.7	12.3
1955	817	120	937	87.2	12.8
1956	1,223	258	1,481	82.6	17.4
1957	1,377	321	1,698	81.1	18.9
1958	740	209	949	78.0	22.0
1959	787	330	1,117	70.5	29.5
1960	311	166	477	65.2	34.8
1961	940	281	1,231	77.2	22.8
1962	958	404	1,362	70.4	29.6
1963	1,205	534	1,739	69.3	30.7
1964	1,403	518	1,921	73.0	27.0
1965	1,846	874	2,720	67.9	32.1
1966	1,976	562	2,538	77.9	22.1
1967	2,181	809	2,990	73.0	27.0

Sources: California Fish and Game Vol. 46, No. 3 - July 1960, for data prior to 1959; PSAC Report No. 4 - July 1966, for data 1958 through 1964; and various agency reports for data after 1964.

TABLE 2

Washington, Oregon, and California Combined Ocean Coho (Silver) Catch in Thousands of Fish and Per Cent Catch by

following the International Conference on the Coordination of Fishing Regulations between the United States and Canada in 1957. In addition, the minimum size limit of 26 inches total length was adopted for chinook salmon caught in offshore (ocean) waters. These offshore waters were defined as seaward from baselines established by the individual States. Net fishing for salmon was banned outside of these lines by all States and Canada.

### COMMERCIAL TROLL FISHERY

The troll fishery along the Pacific Coast takes mainly chinook and coho salmon. Ocean catches of these two species landed in the States of Washington, Oregon and California for the years 1947 -1967 are shown in Tables 1 and 2. Initial

efforts to "regulate" this fishery occurred in 1948 when specific seasons for chinook and coho were inaugurated. Comparative troll fishery regulations for chinook and coho in the United States and Canada are shown in Table 3.

### SPORT FISHERY

Expansion of the ocean sport fishery for chinook and coho followed imposition of coastwise troll fishing regulations in Washington, Oregon and California. This was manifested by steadily increasing catches of both species (Tables 1 and 2).

Regulations for the ocean sport fishery vary widely between States, ranging from year-round seasons in some areas of California, Oregon, British Columbia, and Alaska to a season in Washington (Table 4) paralleling the commercial troll season.

**TABLE 3**  
Troll Salmon Fishing Regulations<sup>1</sup> of California, Oregon, Washington, Alaska, and Canada (current to 1969).

Type of Regulation	State or Province				
	California	Oregon	Washington	British Columbia	Alaska
License	Required	Required	Required	Required	Required
Season	For chinook: All States and the Province of British Columbia begins on April 15. For coho: Except California, all States and the Province of British Columbia begins on June 15. California fishermen may retain coho if 25 inches or longer during regular (chinook) troll fishing season. Seasonal closing dates vary between political entities ranging from September 20 in Alaska; September 30 in California; October 31 in Oregon, Washington, and the Province of British Columbia.				
Minimum Size Limits					
Chinook	26 in.	26 in.	26 in.	26 in.	26 in.
Coho	25 in.	None	22 in. <sup>2</sup>	3 lb. rd.	None
Gear	No limit on hooks or lines	No limit on hooks or lines	Limited to 6 main troll lines	No limit on hooks or lines	Limited to 4 main troll lines

<sup>1</sup>Does not include special regulations, exceptions, etc.

<sup>2</sup>Washington reduced the size limit on troll-caught coho in the ocean to 20 inches in 1969.

**TABLE 4**  
Ocean Sport Salmon Fishing Regulations<sup>1</sup> of California, Oregon, Washington, Alaska, and Canada (current to 1969).

Type of Regulation	State or Province				
	California	Oregon	Washington	British Columbia	Alaska <sup>2</sup>
Season	Oregon and Alaska and Canada (British Columbia) permit a year-round salt-water sport fishing season. California permits a year-round salt-water season north of Tomales Point. Washington limits ocean sport fishing to the same season in effect for commercial trolling for chinook (see Table 3).				
Size Limits:					
Chinook	22 in.	20 in.	20 in.	12 in.	None
Coho	22 in.	20 in.	20 in.	12 in.	None
Bag Limit:					
Daily	3 salmon	3 salmon	3 salmon	4 salmon	6 coho; 3 chinook
In possession	1 daily limit	6 salmon in 7 day period	2 daily limits	2 daily limits	2 daily limits
Gear	Angling gear only	1 line per fisherman	1 line per fisherman	More than 1 rod and line legal while trolling	1 rod; 1 line per fisherman

<sup>1</sup>Does not include special regulations, exceptions, etc.

<sup>2</sup>Southeastern Alaska only.