

Fifteenth Annual Report of the

**PACIFIC MARINE
FISHERIES COMMISSION**

1962

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

Fifteenth Annual Report of the

PACIFIC MARINE FISHERIES COMMISSION

FOR THE YEAR 1962

To the Congress of the United States and the Governors and Legislatures of the Three Compacting States, Washington, Oregon, and California, by the Commissioners of the Pacific Marine Fisheries Commission in Compliance with the State Enabling Acts Creating the Commission and Public Law 232 of the 80th Congress of the United States Assenting Thereto.

Respectfully submitted,

PACIFIC MARINE FISHERIES COMMISSION

JOHN P. AMACHER
ROLLIN E. BOWLES
TALLANf GREENOUGH
LEONARD N. HALL
EDWARD G. HUFFSCHMIDT
HERMAN P. MEIERJURGEN

WAYNE E. PHILLIPS
WILLIAM O. RILEY
WALTER T. SHANNON
JOSEPH W. SMITH
GEORGE C. STARLUND
VINCENT THOMAS

Headquarters Office: PACIFIC
MARINE FISHERIES COMMISSION

RICHARD S. CROKER, *Executive Director*
EVELYN KORN, *Office Secretary*

741 State Office Building
1400 S.W. Fifth Avenue
Portland 1, Oregon

June, 1963

TABLE OF CONTENTS

	Page
The First Fifteen Years.....	1
Administration	4
Personnel	4
Meetings and Conferences.....	5
Service Functions.....	
5	
Publications	
6	
Administrative Activities.....	6
Legislation	6
Commission Action	7
International.....	7
Federal Legislation.....	7
Seismic Exploration	7
Pollution.....	7
Salmon	8
Tuna.....	10
Groundfish and Shellfish	10
Commission Policy and Objectives.....	10
Administrative Matters.....	11
Honors and Memorial	12
Budget . . . -.....	12
Election of Officers.....	12
Rejected Proposals	12
Review of Action Taken on 1961 Recommendations.....	13
Fishery Status Reports	13
*	
Albacore	14
Crab.....	14
Pink Shrimp	15
Troll Salmon	16
Trawl Fisheries	17
Research Reports	21
Oregon-Washington Chinook Salmon Tagging.....	21
Salmon Hooking Mortality, Treble and Single Hooks	22
Ocean Sport Fisheries.....	24
Groundfish Tagging Experiments.....	30
Crab Condition Studies	31
Finances	34
Audit Report	34

THE FIRST FIFTEEN YEARS

The Early Days

When the Pacific Marine Fisheries Commission was organized fifteen years ago, the Founding Fathers had definitely in mind what it should do. Simply stated, it was to bring the coastal States together for the mutual benefit of their fisheries.

The objectives of the fledgling commission were set forth in the Compact itself. A review of the Compact and the accomplishments of the first fifteen years seems appropriate. Pertinent parts of the Compact are quoted below, with some repetitious wording omitted:

"A compact entered into by and between the States Signatory hereto, with the consent of the Congress of the United States of America by an Act approved July 24, 1947, granting the consent and approval of the Congress to an interstate compact relating to the better utilization of the fisheries, marine, shell and anadromous, of the Pacific Coast, and creating the Pacific Marine Fisheries Commission.

"The contracting states do hereby agree as follows:

ARTICLE I

"The purposes of this compact are and shall be to promote the better utilization of fisheries . . . which are of mutual concern, and to develop a joint program of protection and prevention of physical waste of such fisheries in all of those areas of the Pacific Ocean over which the states of California, Oregon and Washington jointly or separately now have or may hereafter acquire jurisdiction.

"Nothing herein contained shall be construed so as to authorize the aforesaid states or any of them to limit the production of fish or fish products for the purpose of establishing or fixing the prices thereof or creating and perpetuating a monopoly.

ARTICLE IV* " *

"The duty of the said Commission shall be to make inquiry and ascertain from time to time such methods, practices, circumstances and conditions as may be disclosed for bringing about the conservation and the prevention of the depletion and physical waste of the fisheries . . . The Commission shall have power to recommend the coordination of the exercise of the public powers of the several states within their respective jurisdictions and said conservation zones to promote the preservation of those fisheries and their protection against over-fishing, waste, depletion or any abuse whatsoever and to assure a continuing yield from the fisheries*resources of the signatory parties hereto.

"To that end the Commission shall draft and, after consultation with the Advisory Committee hereinafter authorized, recommend to the governors and legislative branches of the various signatory states hereto legislation dealing with the conservation of the . . . fisheries . . .

"The Commission shall consult with and advise the pertinent administrative agencies in the signatory states with regard to problems connected with the fisheries and recommend the adoption of such regulations as it deems advisable and which lie within the jurisdiction of such agencies ..."

The Commission has two effective arms with which to conduct its program. They are provided for in Article VII, as follows:

"The fisheries research agencies of the signatory states shall act in collaboration as the official research agency of the Pacific Marine Fisheries Commission.

"An Advisory Committee to be representative of the commercial fishermen, commercial fishing industry and such other interests of each state as the Commission deems advisable shall be established by the Commission as soon as practicable for the purpose of advising the Commission upon such recommendations as it may desire to make."

Operations of the Commission are financed by contributions from the member States, as specified in Article X:

"The states agree to make available annual funds for the support of the Commission in proportion to primary market value of the products of their fisheries as recorded in the latest published reports (five year average), provided no state shall contribute less than two thousand dollars per annum . . ."

The Commission's sphere of operations, responsibilities and influence can now be increased as the Congress amended the Compact during 1962, following action taken by the member States, to permit entry of additional States. The applicable part of the new Article XII of the Compact reads:

"The States of Alaska or Hawaii, or any state having rivers or streams tributary to the Pacific Ocean may become a contracting state by enactment of the Pacific Marine Fisheries Compact. Upon admission of any new state to the compact, the purposes of the compact and the duties of the commission shall extend to the development of joint programs for the conservation, protection and prevention of physical waste of fisheries in which the contracting states are mutually concerned and to all waters of the newly admitted state necessary to develop such programs."

Coastwide Cooperation

When the scattered fisheries administrators and scientists returned from World War II, they realized that a way must be found to give cohesion to their program. Separately they could do little to solve their mounting problems. Together they might. Prior to the war there had been little enough interchange of views and ideas along the lengthy coast. What there was came about through personal friendships, because no regular system had existed since the well-intentioned efforts of Babcock and others to form a coastwide council nearly twenty years earlier. This was the short-lived International Pacific Salmon Federation, whose executive committee consisted of the executive officers (or their delegates) of the fisheries departments of the U.S. and Canada and one scientific officer from each government, together with the executive officers (or their delegates) of the States of California, Oregon and Washington, the Province of British Columbia, and the Territory of Alaska.

The fishing industry itself was even less united. The various segments scarcely knew of each others' existence and the idea of working together for common goals was just beginning to form.

The new Commission entered this near-void on the eve of momentous events that were bound to bring the fisheries

people together: water projects, pollution and over-fishing that threatened the salmon, and international competition that threatened both the resources and the market for many fisheries.

Pacific Marine Fisheries Commission was scarcely adequate moneywise or in manpower to assert the kind of leadership it might have, but it served a more than useful service in bringing together many different kinds of fisheries people to discuss and solve problems jointly.

It is difficult to say which was more important—the bringing together of any one kind of worker from the length and breadth of the Pacific coast, scientists *or* administrators *or* fishermen, or the cutting across old distinctions by bringing together scientists *and* administrators *and* fishermen *and* many others. The two-way combination is PMFC's biggest contribution to ending what has been aptly called "the parochial attitude". Introspection can be by geography, by fishery, or by type of work and training. If nothing else, the forum of PMFC has been a factor in the general appreciation of the other fellow's problems, in the understanding that everyone's problems are pretty much the same, and the reaffirmation of the motto that was the basis of this nation's emergence, "United we stand, divided we fall." Other organizations have followed this pattern to the point that all segments of the fishery have fallen into the desirable habit of working together.

Also, it was soon recognized that the scientists and managers of the member States could not function alone. Early the practice was adopted that the Commission meetings would benefit from the participation of scientists from Alaska (first as a territory, then as a state), Idaho, Canada and the various Federal and International agencies. The researchers and administrators of these organizations have added a great deal to the program of PMFC ever since.

Coordinated Research

As envisioned by the founders, PMFC has exerted considerable influence in coordinating meaningful research on problems of mutual interest. Several gaps in knowledge have been filled and needless overlap has been avoided. Several small projects have been sponsored by PMFC, and the Commission's publications have disseminated the results of numerous investigations. *

Comparable Regulations

Also, in accordance with the original concept, PMFC has recommended and has seen enacted, several sets of coastwide regulations which also include Alaska and Canada. Notable examples of comparable regulations are those for troll salmon seasons and for trawl mesh size. Less apparent but at least equally important, PMFC has discouraged unwise restrictive regulations of various kinds because it has sought and gotten the facts and presented them to the appropriate persons.

Changing Emphasis

Noteworthy in PMFC's first fifteen years has been the continual change — in problems, in emphasis and in attitudes. The change takes several forms: shifting emphasis from some species to others, from some kinds of programs to new assignments, from primary concern with commercial

fisheries to an equal appreciation of the sport fisheries, from strictly local problems to an increasing involvement in the international scene, and from a rejection of a bare mention of economics to a growing awareness of the economic aspects of fishery conservation. Each of these is touched on below.

Change in Species

From the outset, chinook and silver salmon have been of extremely great importance to PMFC, in fact some people have even thought of the organization as a sort of "salmon commission". Although salmon remain in the forefront, PMFC has always been equally concerned with other species. Sharing attention since the beginning has been the coastwide trawl fishery—sole, rockfish, sablefish, and lingcod. Also of importance all along is the albacore program.

Much of the discussion at early meetings revolved around three species whose names are scarcely mentioned any more. Soon after the Commission was organized the sardine disappeared from the northern states, and although this fish lingered on in California for many years, it ceased to be discussed except as a "horrible example". The soupfin shark and the dogfish were headed for extermination at the hands of the Vitamin A liver fishery, and PMFC had recommended restrictions, when suddenly the fishery collapsed because of synthetics and imports. Since then, the soupfin has staged a heartening comeback and now supports a modest food fishery. The dogfish has bounced back to the point that it is a menacing nuisance and any discussions nowadays involve how to get rid of it.

In the meantime new problems have arisen in two fisheries that give cause for concern. The meteoric development of the pink shrimp fishery has given rise to problems of conservation, particularly where fishing grounds lie athwart State lines. The heavily exploited (and heavily regulated) Dungeness crab fishery fluctuates violently from year to year. The Commission is constantly concerned with its conservation, particularly when natural declines that look like the results of overfishing cause the fishermen to become alarmed (no one ever gets upset by natural increases, however). Differing legal seasons up and down the coast keep the fishery in a turmoil also.

Changing Assignments

New assignments continue to pile up, reflecting changing emphasis and attitudes. One thing that was scarcely envisioned fifteen years ago was the vast intensification of fishery and oceanic research that has taken place. Federal and State agencies have stepped up their programs and improved them almost beyond recognition. To some degree PMFC has become something less than a prime motivating force in getting programs started. The research groups themselves have matured beyond that need. A gentle nudge one way or the other is enough. To some degree, PMFC has become a service agency, keeping track of projects and disseminating information. For example, all the many agencies that are conducting salmon and steelhead marking projects have turned to the Commission to assign or reject all requests for marks and to record them. The tuna research agencies have recently requested PMFC to collect, compile and publish tuna tagging figures and to publish

albacore vital statistics. Coastwide tables of catches of various species are gathered and published.

However, the concept of coordination has scarcely been forgotten. When the proliferation of salmon projects got to the point that two conferences had to be called (by Governor Egan of Alaska in February 1961 and Governor Rosellini of Washington in January 1963), many turned to PMFC to take a hand in coordination. The challenge was met, and next year's report will recount the part the Commission is playing in stabilizing salmon and steelhead research. Suffice it to say now that since July 1962 a great deal of the staff's time and effort has been taken up with the Governors' Conferences.

It has been said that an agency can only grow or die, it cannot stand still. The Commission intends to grow. Even if PMFC were to double its staff, it would still qualify as the nation's "smallest bureaucracy". But physical growth is not as important as program growth and that is where PMFC intends to move forward and increase its stature.

The Emerging Sport Fisheries

Two simultaneous but very different trends have served to broaden the base of the Commission's activities.

One of these is the "coming of age" of the marine (and anadromous) sport fisheries. Originally the Commission's emphasis was on commercial fishing almost entirely, but the phenomenal growth of the recreational fisheries has resulted in the inclusion of sport fish problems and in fact the addition of sport fishery representatives to the Advisory Committee. Nowadays the recreational fishermen's representatives join with commercial fishermen, dealers, packers, scientists, fishery managers, and legislators in the Commission's deliberations. It is true that the problems of any one of them are the concern of all.

The International Scene

The other trend is PMFC's increasing involvement in international affairs. From the beginning, the Commission has been closely concerned with U.S.-Canadian fishery affairs and has helped bring the scientists and administrators of the two neighbor nations together. PMFC was instrumental in the formation of the International Trawl Fishery Committee and has urged formation of a similar king and silver salmon committee.

But the Eastern Pacific is no longer a North American "pond". Fishermen from Japan and the Soviet Union are now fishing within sight of this continent and new problems arise nearly every week. (For that matter, U.S. and Canadian west coast fishermen are seeking tuna far from home to the southward and in the Atlantic and are fishing halibut in Western Bering Sea.) PMFC not only assists the International North Pacific Fisheries Commission in collecting and correlating statistics and other information, but acts on the advisory committee of the U.S. Section. Every local action must be weighed and considered in relation to its ramifications on the international front. Every little action may affect some distant U.S. fishery and conversely every move in another fishery may have its effect on the Pacific Coast. PMFC has a responsibility to keep pace with and help formulate a variety of developments.

Fishery Economics Becomes Respectable

Last but not least is the Commission's changing attitude toward economics. For many years in fishery circles, economics was a "nasty word". This attitude is exemplified by the wording of the second paragraph of the Compact's Article I which mentions price fixing.

But as elsewhere, times change. There has been a growing awareness that economics must share a place with biology in the field of fishery conservation. For one thing, it would seem to avail us little to conserve and maintain a resource if in the meantime the fishery (commercial or sport) is forced out of business by profit and loss considerations either connected with unrealistic regulations or with marketing or outside factors. Furthermore, the very expenditure of millions of dollars on fishery maintenance structures and research has a connotation of economics, as one might ask the question as to whether the investments are economically feasible.

No longer can the word "economics" be swept into a dark corner. In order to throw some light onto the situation and to suggest a changing role for PMFC, Mr. M. C. James, consultant for the Commission, has offered some challenging comments. He states:

"Throughout the period of its existence the Commission has operated in an area of ambiguity which has been and still is shared by the State Fishery agencies. All of these organizations lack any clear-cut determination of the degree to which economics of the fishing industry may be recognized in the formulation and application of fishery management measures and in the research related to such measures. Indeed, there has been question whether economics can be recognized at all.

"Exclusion of economics from fishery management in certain respects is apparently required by the language of the Compact (see Article I, above) and some state laws may be open to similar interpretation. The exclusion has been more complete as the result of official policies which seem to go beyond the letter of any law. In addition, the fishing industry itself has traditionally objected to the injection of open economic considerations into the regulatory enactments of the management agencies. At the same time the industry has not hesitated to press for measures which have far-reaching economic effects even though the justification and need has been argued upon the grounds of biological wisdom. Certainly, there never has been any denial that catching, processing and distributing food fish is an economic enterprise, and now the servicing of the sport fisheries is claimed to be a bedrock economic foundation of many communities and whole regions.

"While this paradox has been allowed to prevail as an administrative principle, it has not been ignored by groups outside the immediate local area of interest. Some literature on the subject has appeared in the media of the professional economists. Several international conferences have directed their attention to economic problems of the fisheries although such attention has largely focused on technology of production, processing and marketing, rather than the economics of maintaining the raw material base. Locally, the University of Washington conducted a seminar on the subject in 1959 and university personnel have been called upon to make studies and prepare reports upon specific problems which have major economic connotations. The Second Governors' Salmon Conference included in its agenda a section on economics which attracted impressive interest. The U.S. Bureau of Commercial Fisheries has gradually strengthened the economic unit of its organization although here again emphasis has been upon

technological and distributional problems. In brief, it would seem that the role of economics in fishery management has become a matter of some concern to almost every group except the ones which have the most direct and immediate responsibility for action in such management.

"It is readily admissible that the present state of knowledge in this extremely specialized field of economic science is not such as to justify any headlong plunge into a merging of biology and economics in the routine administration programs and policies of the management agencies. It is equally evident that the PMFC is not in position to bring about drastic changes in the existing pattern, and apparent legal handicaps must be evaluated before any organization can work out entirely new approaches.

"However, throwing light into a corner may have the merit of revealing a way out of that corner. The Commission could engage in an experiment by requesting that all proposals and recommendations which are submitted for decision at its annual meeting or under other circumstances be drafted to include the best possible estimate of potential economic implications along with the usual rationale of biological consequences. This could apply both to staff proposals and those emanating from the Advisory Committee and the industry in general. At the outset no high degree of validity might be expected from economic forecasting by non-economists, but some judgment as to the merits of the procedure itself might be gained. In any case, the somewhat dubious practice of sweeping potent economic considerations under the rug would no longer prevail, and prescriptions could be compounded without the unexpected effects of hidden ingredients.

"The economics of its raw material supply can be a problem to any industry. It is especially so in the case of a freely moving living resource of the sea which is either uncontrollable or only partially controlled by edict of third parties — the official conservation agencies. The question is whether the partial control by these bodies can be made more intelligent and effective by awareness of and adjustment to economic factors in conjunction with biological evaluations. No harm can come from taking the first step in the form of a long hard look at that question."

With our fishing industry fighting for its existence in the face of foreign competition for its raw materials and its market, not to mention the aggressive competition of other products for the consumer's dollar, and with the increasing threat of other uses for the resources' environment (particularly salmon, steelhead, oysters and clams), there is no escaping the hard fact that we must pay attention to economic factors. The fishery agencies employ fishery oceanographers and other scientists, attorneys experienced in water laws, hydraulic and other engineers, and pollution experts to help solve their problems. Why not fishery economists also?

Instead of becoming bemused with the second paragraph of Article I, we suggest more emphasis on the initial clause of the same article. "The purposes of this compact are and shall be to promote the better utilization of fisheries which are of mutual concern . . ." Surely that expression leaves room for the dollar sign.

The Road Ahead

In order to keep pace with the changing times, the Commission adopted a tentative statement of policy and objectives at its annual meeting in 1962 (see page 10). At the same time, the Commission instructed the executive director

to present for its consideration in 1963 a more complete declaration of purpose based on the outline. Implicit in these instructions was the premise that PMFC should go as far as the compact and the statutes of the member States permit in assuming a dynamic role of leadership to promote the better utilization of the fisheries of mutual concern.

The active part played by PMFC in the Governors' Salmon Conferences and in the Inter-Agency Council formed at the second conference is an example of how the Commission is moving ahead. On a lesser scale, but of real significance, is PMFC's albacore program. As Asiatic fleets move toward our bottomfish and crab resources, PMFC's program in this field must and will be intensified.

RICHARD S. CROKER
Executive Director

ADMINISTRATION

Personnel

Several changes were made in the membership of the Commission during 1962.

The official membership in 1962 comprised:

Washington

George C. Starlund, Seattle, chairman.

Oregon

John Amacher, Winchester
Rollin E. Bowles, Portland
Tallant Greenough, Coquille
Leonard N. Hall, Charleston
Edward G. Huffs Schmidt, Portland
Herman P. Meierjürgen, Beaverton, vice-chairman
Joseph W. Smith, Klamath Falls
Max Wilson, Joseph
Wayne E. Phillips, Baker, successor to Mr. Wilson, effective August 14, 1962

California

Richard S. Croker, Sacramento, secretary, resigned June 18, 1962
Walter T. Shannon, Sacramento, secretary, effective June 18, 1962
William O. Riley, Eureka, effective April 5, 1962
Vincent Thomas, San Pedro

With his appointment to the Commission, Mr. Riley joined Messrs. Amacher, Bowles and Hall as a "graduate" of the Advisory Committee.

The staff comprised the following:

Alphonse Kemmerich, Executive Director, resigned August 31, 1962, appointed Consultant
Richard S. Croker, Executive Director, effective September 1, 1962
H. F. Linse, Treasurer
M. C. James, Consultant
Mrs. Evelyn Korn, Office Secretary

The Advisory Committee during 1962 comprised:

Washington

Robert E. Colwell
Bert G. Johnston
Charles Mechals, replaced Mr. Johnston
Harold E. Lokken
Bjorne Nilsen
John Plancich
John H. Wedin
James Walganski
Fred L. Bullock (alternate)

Oregon

Charles Collins Allard J.
Conger, Jr. Harold C. Gramson
Charles F. Henne J. Frank
Hoagland Herbert J. Lundy
(resigned) Andrew J. Naterlin
Arthur Paquet (alternate)

California

Herbert C. Davis (resigned) *
Charles R. Carry, replaced Mr. Davis
Clifton D. Day
Thomas R. Gardiner
John P. Gilchrist
Anthony Nizetich
W. O. Riley, appointed to Commission
Charles V. Williams, replaced Mr. Riley
Ray E. Welsh
Fred L. Phebus (alternate)
Jack P. Wolf (alternate),

*At the annual meeting, Mr. Davis was appointed "Adviser Emeritus".

Meetings and Conferences

During 1962 the Executive Director participated in the following meetings as a representative of the Commission (Mr. Kemmerich through August, Mr. Croker commencing in September):

Pacific Tuna Meeting, and
PMFC's Albacore Steering Committee, La Jolla, California January
U.S. Section, International North Pacific Fisheries Commission, Juneau, Alaska, March
Pacific Fishery Biologists, Chico, California, April
PMFC research staff, Los Molinos, California, April
PMFC research staff, Portland, Oregon, June
FAO World Scientific Meeting on the Biology of Tunas, La Jolla, California, July
Western Division, American Fisheries Society, Seattle, Washington, July
Western Association of Game and Fish Commissioners, Seattle, Washington, July
Technical Sub-Committee, International Trawl Fisheries Committee, Portland, Oregon, August
U.S. Trout Farmers' Association, Jackson Hole, Wyoming, September

American Fisheries Society, Jackson Hole, Wyoming, September

International Association of Game, Fish and Conservation Commissioners, Jackson Hole, Wyoming, September

Thirteenth Pacific Tuna Conference, Lake Wilderness, Washington, October

Ninth Eastern Pacific Oceanic Conference, Lake Wilderness, Washington, October

International Trawl Fishery Committee, Seattle, Washington, October

International North Pacific Fisheries Commission, Seattle, Washington, November

Association of Pacific Fisheries, Seattle, Washington, November

Northwest Fish Cultural Conference, Longview, Washington, December

International Pacific Salmon Fisheries Commission, Bellingham, Washington, December

Also, one or more of the Commissioners participated in many of these conferences. Commissioner Starlund was co-host of the Western Association meeting in Seattle. The Executive Director presented papers at three of the above meetings.

In addition, the Commission staff participated in several meetings in preparation for the Second Governors' Salmon Conference which was convened by Governor Rosellini for January 1963 in Seattle. Commissioner Starlund, the Executive Director and both Consultants were members of the Steering Committee. Commissioner Starlund was named as general chairman and the Executive Director was designated program chairman. Preparatory work commenced in August and continued to the end of the year.

The Executive Committee, at its meeting in May, decided that the Commission should be represented at all meetings where the interests of the Commission or its member States are involved, insofar as feasible. The wide range of the meetings listed above illustrates the complex nature of the scientific and administrative problems facing the Pacific fisheries and the deep involvement of PMFC in all of them.

Service Functions

At the request of the office of International Relations, Fish and Wildlife Service, the staff again secured specific statistics concerning the salmon, herring and halibut fishery landings, the propagation of salmon, commercial fishing regulations, and enforcement of these regulations concerning salmon and halibut in the States of Washington, Oregon, and California. After consolidation, this material was forwarded through proper channels—U.S.F.W.S., U.S. Section, INPFC—to the Japanese government.

A meeting, attended by representatives from the fish and game departments of California, Oregon, and Washington, University of Washington, and U.S. Fish and Wildlife Service concerned with salmon and steelhead marking programs, was held in January. Subsequently, the fin-mark list for 1962, brood year 1961, was prepared and given coastwise distribution.

The sixth annual edition of coastwise consolidated statistics of otter-trawl landings for the calendar year 1961, including British Columbia, Washington, Oregon and California, was compiled and distributed to interested agencies and news media.

PMFC's first NEWSLETTER was distributed in October, and the second issue, dated January 1, 1963, was mailed at year's end.

The first issue carried this statement: "The outgoing and incoming Executive Directors are happy to announce that the Executive Committee has authorized a new service in behalf of all those interested in the well being of Pacific Coast fisheries . . . What we have in mind is a means of disseminating information so everyone will know what is going on in the fisheries, and particularly in research, before it's ancient history . . . We realize that most of you already receive more reading matter than you can possibly handle so we will try to keep this concise, informative, and enough different that you will find it useful."

It is felt that one of PMFC's chief functions is to keep people informed of what others are doing. The NEWSLETTER should be extremely helpful in this respect, judging by the response to the first two issues. It is planned to issue it bi-monthly, distributing it to Commissioners, Advisers, fishery agencies, laboratories, associations, and others with an interest in Pacific Coast fisheries.

Publications

The Fourteenth Annual Report was the only publication issued in 1962. It continued in the expanded form of the previous report. In addition the Fourteenth Report contained, as an appendix, the coastwise monthly trawl fishery landings by area of catch for the period 1956-1960, inclusive. These valuable tables included Canadian catches. In fact, the publication of these figures would not have been possible without the assistance of J. A. Thomson of the Fisheries Research Board of Canada, who consolidated the figures and readied them for publication.

Publication of the trawl tables was expensive, and with the prospect of annual tables plus past and future landings of other fisheries, a less costly method of reproduction has been sought and found. The Commission, therefore, intends to initiate a new Data Report Series of more limited distribution, to include the trawl and other landing figures as well as certain vital statistics on albacore, tuna tagging, etc. The trawl tables published in the 14th Annual Report will be repeated, with corrections, as part of the first issue of the new series to provide continuity.

Administrative Activities

The Executive Committee held one meeting in 1962. The meeting was held in Portland on May 1. The following subjects were discussed:

1. Consideration of budget for Fiscal Year 1963. The budget in the amount of \$43,100 was adopted.
2. Consideration of proposed budget, biennium 1963-65. (See below under Commission Action.)
3. Determination of Alaska's membership. (See below, under Legislation.)
4. Salary adjustments. Salary increases were approved.
5. Successor to Executive Director. Having been previously notified by Mr. Kemmerich of his intention to resign in the summer of 1962, the Commission had been considering selection of a replacement. Messrs. Meierjurgan and Starlund, acting for the Commission, chose Mr. Croker to fill the position. He accepted the appointment, effective September 1, 1962.
6. Mr. Kemmerich was appointed as Consultant, to serve upon specific request.
7. The Executive Director was instructed to take part in meetings of international, national and interstate groups embraced within the area of responsibility of the member States.
8. Changes were suggested in travel expense rates. (See below under Commission Action.)
9. Minimum contributions of member States. It was suggested that the minimum contribution of \$2,000 be raised. (See below under Commission Action.)
10. News Letter. Issuance of a News Letter was authorized.
11. Minor operational matters.

Legislation

During 1962, legislation was enacted that makes entrance of Alaska into the Compact possible. The States of Washington, Oregon and California adopted amendments to their enabling legislation to permit entrance of not only Alaska, but Hawaii and any State having rivers tributary to the Pacific Ocean. Alaska's enabling legislation passed both houses of the Legislature without a dissenting vote during the 1962 session and was signed by Governor Egan.

The Congressional act to consent to amendment of the Compact passed both houses of the 87th Congress without opposition. President Kennedy's signature on October 9, 1962, cleared the way for Alaska's entry. By enactment of State legislation other States are now eligible.

COMMISSION ACTION

The Commission held one meeting in 1962. The formal meeting held in Seattle, Washington, extended from October 17 through 19. The Advisory Committee meeting commenced on October 16, following the previous year's successful example of a pre-meeting session. As the Commissioners and staff are available for consultation at all Advisory Committee meetings, this in effect amounted to a four-day meeting. Under the Commission's policy, all recommendations, regardless of origin, are reviewed by the Advisory Committee to insure that they are given full consideration. In addition to Commissioners, Advisers and Staff, over 100 persons attended the meeting.

The following resolutions and motions were adopted by the Commission at the 1962 annual meeting:

International

WHEREAS, in June of 1963, the International North Pacific Fisheries Treaty will have been in effect for ten years, and

WHEREAS, under the terms of the Treaty, one of the parties signatory to it may at that time serve notice of modification or termination, and

WHEREAS, such modification or termination could lead to conditions which would result in virtual destruction of North American fishery resources, and

WHEREAS, foreign fishing fleets, outside of the terms of the Treaty, are operating in offshore North American waters, and

WHEREAS, these developments pose a threat not only to fishery resources maintained by extreme sacrifice of Canadian and American fishermen but to resources not now used by Canada and the United States but which may be of utmost importance to these countries in the future,

BE IT THEREFORE RESOLVED, That the Pacific Marine Fisheries Commission urge adoption by the United States and Canadian governments of a policy in all fishery negotiations of (1) resisting all attempts by fishermen other than those of Canada and the United States to engage in the harvest of the fisheries of the Eastern North Pacific which are now fully utilized and under severe management restrictions, and (2) insisting that all fishing operations contiguous to the coast of Canada and the United States be conducted with sufficient restraint as to permit the stocks of fish in the area to be harvested on a maximum sustained yield basis from year to year in the future, and

BE IT FURTHER RESOLVED, That copies of this resolution be sent to appropriate governmental agencies.

Federal Legislation

WHEREAS, Senator Gruening of Alaska introduced S. 1230 in the 87th Congress, which bill related to the use of funds derived from duties collected on fisheries products, and

WHEREAS, the 87th Congress failed to enact this legislation,

THEREFORE, BE IT RESOLVED by the Pacific Marine Fisheries Commission in meeting assembled on October 19, 1962, that Senator Gruening be requested to reintroduce this legislation at the next session of the Congress.

Seismic Exploration

WHEREAS, the increased exploration for petroleum resources is a matter of extreme concern to the fisheries of the member States, and

WHEREAS, policies in the regulation, observance and control of these efforts are administered by the States on an individual basis, and

WHEREAS, in the event the aforementioned explorations show promise, the probability of actual drilling is evident, and the further problems of pollution and ground damage which could result will become a matter of concern, and

WHEREAS, common guidelines for all affected Pacific Coast States would prove beneficial to the respective fisheries,

NOW, THEREFORE, BE IT RESOLVED, That the Pacific Marine Fisheries Commission do establish a comprehensive scientific study of the effects of all types of explosives on marine life, including but not limited to eggs, larvae and other constituents of the plankton, the spawning environment of anadromous fishes, bottomfish, pelagic fish and invertebrates, such a study to include analyses of the immediate and delayed physical effects on the organisms, the effects on their behavior and physiology and such other scientific studies as may seem appropriate, and further

BE IT RESOLVED, for the purpose of notification, that copies of this resolution be forwarded immediately to the affected Pacific Coast State agencies and the responsible authorities of the Federal Government.

Pollution

Four resolutions relating to pesticides and general pollution were adopted:

WHEREAS, the inability to control or abate certain types of industrial pollution in the member States of the Pacific Marine Fisheries Commission has become a serious problem, and

WHEREAS, scientific evidence indicates that such pollution is definitely damaging to the marine resources of the respective States, and

WHEREAS, in many cases, local political pressures are such that fisheries agencies are often at a serious disadvantage in attempting to enforce the law to correct such situations, and

WHEREAS, the United States Congress, recognizing the aforementioned conditions, did pass legislation whereby the Department of Health, Education and Welfare upon request of the Governor of any State, is empowered to be-

come a party to the controversy and aid water resource agencies in cleaning up such pollution,

NOW, THEREFORE, BE IT RESOLVED, That the Pacific Marine Fisheries Commission commend the Congress and Department of Health, Education and Welfare for assistance already granted in cases where State aid proved insufficient, and in future efforts to assure clean waters as a continuing heritage, and

BE IT FURTHER RESOLVED, That copies of this resolution be forwarded to members of the Pacific Coast Congressional Delegation, the President of the United States, and the Secretary of Health, Education and Welfare.

WHEREAS, pollution control in this modern world is a growing pain of progress that must be met in order to provide a stable economy, and

WHEREAS, municipalities have spent millions of dollars on treatment plants and are well along toward solving their problem, and

WHEREAS, plastic and chemical plants often discharge amounts of vicious chemicals which cause extensive fish kills and are dangerous to human health and safety, and

WHEREAS, some large industries put forth the principle of "Multiple use of Waters" to justify their right to discharge millions of gallons of water polluted by corrosive and vicious acids in defiance of the authority of the various States to maintain the pure quality of their waters, and

WHEREAS, great damage is done to our fisheries and our recreational industries by this continuing and increasing industrial pollution in disregard of the right of these damaged industries to protection, and

WHEREAS, the Federal Water Pollution Control Advisory Board recommends the recognition by State Legislatures of their responsibilities in carrying out these aforementioned policies and recommendations,

BE IT THEREFORE RESOLVED, by the Pacific Marine Fisheries Commission in session at Seattle, Washington October 19, 1962, that

The Governors of the member States be made aware of the aforementioned facts and be requested to ask for legislation to strengthen the pollution laws in the Western States.

WHEREAS, the uncontrolled and indiscriminate use of pesticides in the United States poses a dangerous threat to the fisheries of the United States and,

WHEREAS, no person or group of persons has, to date, presented a comprehensive program for the widespread regulation of such uses that is enforceable and effective,

THEREFORE, BE IT RESOLVED, That the Pacific Fisheries Commission take immediate steps to determine that a danger exists through the compilation of existing data that are available in many State and Federal agencies and other sources, and

BE IT FURTHER RESOLVED, That after need has been established, the Pacific Marine Fisheries Commission exert its efforts to obtain such legislative action as is necessary to attain the protection of fishery resources from the dangers of pesticides.

WHEREAS, the widespread use of pesticides has been shown in some areas to be detrimental to anadromous fish and to other fish and wildlife, and

WHEREAS, the U.S. Government has established a pesticide research laboratory to assess the damage done by pesticides in the Southeastern States, and

WHEREAS, adequate pesticide research facilities are not available in those Western States where anadromous fish are most likely to be affected,

THEREFORE, BE IT RESOLVED by the Pacific Marine Fisheries Commission at its annual meeting on October 19, 1962, that it recommend to the U.S. Government that it establish a pesticide research laboratory in one of the Pacific Coast States where the effects of pesticides on anadromous fish can be studied, and

BE IT FURTHER RESOLVED, That copies of this resolution be sent to the Secretaries of Agriculture, Health, Education and Welfare, and the Interior, and to the U.S. Senators from California, Oregon and Washington.

Salmon

The Commission approved seven resolutions and motions relating to salmon. Some of these involved international problems and could have been listed above under that heading.

WHEREAS, the International Pacific Salmon Fisheries Commission has called to the attention of the Governments of the United States and Canada the existing potential for the development of a long-line fishery for salmon on the High Seas which would be detrimental to the conservation of this resource, and has recommended that the two Governments take action to prohibit such a fishery,

NOW, THEREFORE, BE IT RESOLVED, That the Pacific Marine Fisheries Commission in meeting assembled this 19th day of October, 1962, recommend to its member States of Washington, Oregon and California that they take appropriate action to prohibit ocean long-lining for salmon.

WHEREAS, the Advisory Committee recommends that:

1. The 30-day closure for high seas salmon trolling, as proposed at the 1961 meeting, be deferred, and
2. The Pacific Marine Fisheries Commission expedite the establishment of an International King and Silver Salmon Committee, as approved by Resolution 16 at the 1961 meeting, and in so doing give consideration of industry representation,

THEREFORE, BE IT RESOLVED, That the Pacific Marine Fisheries Commission continue its efforts toward

the establishment of an International King and Silver Salmon Committee and that it urge consideration of industry membership thereon.

WHEREAS, unrestricted fishing for sockeye and pink salmon in areas over which the International Pacific Salmon Fisheries Commission does not have jurisdiction can nullify the conservation program of that Commission,

THEREFORE, BE IT RESOLVED, That the Pacific Marine Fisheries Commission set up a Committee for study and recommendation of regulations in regard to sockeye and pink salmon as may be suggested or recommended by the International Pacific Salmon Fisheries Commission for those waters on the High Seas over which said Salmon Commission does not have control.

WHEREAS, the Pacific Marine Fisheries Commission, an interstate compact commission created by the Legislatures of California, Oregon, and Washington and assented thereto by the Congress of the United States, is charged with the conservation and enhancement of the fisheries of these States, and,

WHEREAS, the chinook salmon produced in the Sacramento River watershed provide a large part of the recreational and commercial catch of this species off the coasts of California, Oregon, Washington and British Columbia, and,

WHEREAS, the continued unrestricted construction of water-use projects in this watershed would further diminish the stocks of salmon and steelhead contributing to this fishery, and

WHEREAS, the chinook salmon, spawning habitat in California River basins has deteriorated to such an alarming extent, and

WHEREAS, it is necessary to restore and prevent further deterioration of this resource,

THEREFORE, BE IT RESOLVED, That the Pacific Marine Fisheries Commission urges the Congress of the United States and the Legislature of the State of California to establish by appropriate legislation a salmon spawning sanctuary in the Sacramento River and its tributaries upstream from and including Chico and Stony Creeks wherein no dams destructive to migratory fish life shall be built, and

BE IT FURTHER RESOLVED, That copies of this Resolution be forwarded to all California members of the Senate and the House of Representatives and to the members of the California State Legislature.

WHEREAS, the Pacific Marine Fisheries Commission is an interstate compact organization created by the legislatures of California, Oregon, and Washington and approved by the Congress of the United States to conserve and enhance the fisheries of these States, and

WHEREAS, the Pacific Marine Fisheries Commission has particular concern for the critical condition of the salmon and other anadromous fisheries, and

WHEREAS, the Congress of the United States in December 1944 authorized the construction of the Iron Canyon Dam on the Sacramento River near Red Bluff, California, and

WHEREAS, current investigations are being conducted as to the present feasibility of this project by government and other agencies, and

WHEREAS, past investigations have shown a negative cost benefit ratio of .95 (1945) and

WHEREAS, the Tributary Plan recommended has a positive cost benefit ratio of 1.13 (1945), and

WHEREAS, fisheries scientists and fisheries management biologists on the staff, and in consultation with this Commission, are unanimously agreed that this authorized Iron Canyon Dam project on the Sacramento River would create, if constructed, serious obstacles to the upstream and downstream migration of salmon and steelhead into the Sacramento River and its tributaries above this dam site, and

WHEREAS, no evidence presently exists on which to base any hope that the salmon and steelhead runs, utilizing the Sacramento River system above this dam site, would survive should this dam project be constructed, and

WHEREAS, it is anticipated that construction of the Tributary Dam System will provide more flood control, more water for domestic and agricultural purposes, and by providing timed proper quality water releases enhance the fishery and in a number of streams restore many miles of salmon spawning area and materially aid the economy of the area and contribute to the California Water Plan whereas the Iron Canyon Project may not do any of these things and may in fact have a contrary effect, and

WHEREAS, no assurance can be given by fisheries scientists and management biologists that the runs of salmon and steelhead that would be affected by this project, if constructed, could be replaced, duplicated, or maintained by hatchery operations, or by other means,

THEREFORE, BE IT RESOLVED, That the Pacific Marine Fisheries Commission join other conservation organizations in requesting Congress to withdraw its authorization previously given for the construction of the Iron Canyon Dam, and

BE IT FURTHER RESOLVED, That copies of this resolution be forwarded to all United States Senators and Congressmen and the Legislative Representatives of the member States.

On the Staff proposal for establishment of a salmon and steelhead mark and tag processing and analysis center, based on the recommendation made at the 1961 meeting, the Commission approved the following motion:

The Pacific Marine Fisheries Commission approves the proposal in principle and directs the Executive Director to submit the proposal to the Second Governors' Salmon Conference in January 1963.

After a long discussion of a proposed resolution calling for Congressional action on Indian fishing for salmon

and steelhead, the Commission adopted the following motion in lieu thereof:

The staff is instructed to prepare a brief report on the subject of Indian fishing in the States involved, said report to be presented at the next annual meeting for consideration of the Commission.

Tuna

Two resolutions relate to tuna:

WHEREAS, the Thirteenth Pacific Tuna Conference held October 3, 1962, at Lake Wilderness recommended that the Pacific Marine Fisheries Commission undertake the task of obtaining, compiling and distributing an annual inventory of tuna tagging programs, and that the Commission initiate such correspondence as is required to obtain the necessary records, and

WHEREAS, publication of tuna tagging information will be of benefit to the research program and hence to the fishery,

THEREFORE, BE IT RESOLVED, That the Pacific Marine Fisheries Commission undertake this assignment.

WHEREAS, the Executive Director has not yet made appointments of industry members to the albacore research committee established by Resolution 5 of the 1961 meeting,

THEREFORE, BE IT RESOLVED, That the Executive Director is hereby requested to appoint two industry representatives to the albacore committee from each of the States of California, Oregon and Washington.

Groundfish and Shellfish

Three actions were taken on groundfish and shellfish problems, as follows:

WHEREAS, the future of the North Pacific fisheries for groundfish and Dungeness crabs depends on a knowledge of the state of utilization of these resources, »

THEREFORE, BE IT RESOLVED, That the Pacific Marine Fisheries Commission give urgent consideration to a study of the available scientific evidence bearing upon the state of utilization of the groundfish and Dungeness crab resources off Alaska, Washington, Oregon and California.

WHEREAS, the Advisory Committee recommends unanimously that the resolution for a three-months' trawl closure presented at the 1961 meeting and re-introduced at this meeting be rejected at this time, and

WHEREAS, the Advisory Committee commends the research on Pacific Coast groundfish species, urges its continuation, and requests that the results of such research as to the merit of the closure be presented at the 1963 meeting for further consideration,

THEREFORE, BE IT FURTHER RESOLVED by the Pacific Marine Fisheries Commission that the research

be continued and that it be reported upon at the 1963 meeting.

WHEREAS, a bed of ocean shrimp (*Pandalus jordani*) lies off the coast of southern Oregon and northern California, more particularly between Cape Blanco, Oregon, and False Cape, California, and

WHEREAS, shrimp from this bed are taken by fishermen of both states, their catches are landed at the ports of both states, and therefore that the continued optimal production of this bed is of direct concern to the citizens of both states, and

WHEREAS, shrimp landed in California are subject to regulations of the California Fish and Game Commission so far as total catch, gear and season are concerned while shrimp landed in Oregon are not subject to regulation, and

WHEREAS, the historical record of shrimp fisheries here and elsewhere throughout the world demonstrates that limitation on the catch in accordance with sound scientific principles is necessary to insure continued optimal yield from the resource, and

WHEREAS, it is believed that the Oregon-California shrimp fishery is best controlled through a total seasonal bag limit, and

WHEREAS, sufficient data have been available to California for several years upon which it has based regulations of total catch which have brought about a reasonably stable fishery,

NOW, THEREFORE, BE IT RESOLVED, That the Pacific Marine Fisheries Commission recommend that the States of Oregon and California jointly establish an annual quota for the shrimp bed common to both based upon the findings of their scientific staffs, and that Oregon and California take such joint action as is required to insure closure of the bed when the quota is reached, and,

BE IT FURTHER RESOLVED, That copies of this resolution be forwarded to appropriate authorities in Oregon and California.

Commission Policy and Objectives

WHEREAS, the authorized functions and responsibilities of the Pacific Marine Fisheries Commission, as set forth in the Compact, are expressed in generalized terms which are subject to varied interpretations, and

WHEREAS, the scope of activity of the Commission may be enlarged by reason of adherence of additional states to the Compact, and

WHEREAS, a more clear understanding of the powers and limitations of the Commission in the exercise of its functions will facilitate the discharge of those duties and will be of benefit to the member States and to all who are concerned with Commission activities,

THEREFORE, BE IT RESOLVED by the Pacific Marine Fisheries Commission assembled in annual meeting at Seattle, Washington, on October 19, 1962, that the authorized powers and functions of the Commission may

be construed tentatively to include, but not be limited to, the following activities:

1. The collection, compilation, publication and distribution of statistical, economic, and biological data of specialized or general nature applicable to its area of jurisdiction.
2. The conduct of specific investigations within the foregoing categories by means of personnel employed and supervised by the Commission.
3. The monitoring of comparable investigations conducted by the member States, or planned by said States, to the end that feasible uniformity of methods and techniques may be employed, and to expedite the interchange of results and conclusions among the member States and other interested organizations.
4. The observation of comparable investigations conducted by non-member organizations operating within the Commission's area of interest, and the transmittal of information with regard thereto to the member States.
5. The polling of the member States for the purpose of ascertaining their respective attitudes and viewpoints with regard to:
 - (a) pending or desirable Federal or state legislation;
 - (b) international agreements and policies arising thereunder, and
 - (c) other public or private programs which materially affect the interests of the member States.When a consensus of views concerning such matters may be shown to exist among the member States the Commission may be authorized to present such views and any related recommendations to appropriate agencies or persons as a joint expression of the constituent membership of the Commission.
6. The acceptance and disbursement of funds, other than the contributions specified in the Compact, from the member States or from other public or private agencies to be used for the conduct of specific investigations or projects, or the preparation and publication of specific reports. Such activities shall be governed by the terms of specific individual agreements covering costs and performance.
7. All activities listed in the preceding sections and any which may be subsequently approved shall be undertaken only upon the request of, or with the consent of, the member States or other agencies involved, and

BE IT FURTHER RESOLVED, That the Executive Director be instructed to review the tentative outline of Commission functions and powers, as expressed above, together with other relevant data, including pertinent state statutes and opinions, and submit his recommendations to the Executive Committee in time for the Executive Committee to review the study and present its findings to the Commission at its 1963 annual meeting, and

BE IT FURTHER RESOLVED, That the above-mentioned study include a review of Commission rules and regulations as they relate to voting procedures.

The Commission adopted a policy that not only would all Commission meetings be open, but all meetings of the Advisory Committee would be open also.

Administrative Matters

Article XVI of the Rules and Regulations of the Pacific Marine Fisheries Commission was amended, by adoption of two motions. The new Article XVI supersedes the one shown on pages 9 and 10 of the Fourteenth Annual Report, and reads as follows:

All commissioners and officers authorized to perform and performing services for the commission shall receive a per diem allowance not to exceed \$18.00 in lieu of subsistence expenses, plus transportation costs, when away from their home station, and shall be reimbursed for actual expenses incurred attending meetings of the commission in their city of residence.

Each state participating in and joining the Pacific Marine Fisheries Commission shall appoint not more than three representatives at Pacific Marine Fisheries Commission expense to the Commission.

Other employees of the commission and all employees and staff members of the respective state agencies authorized to perform and performing services for the commission shall receive reimbursement for their actual expenses not to exceed \$18.00 per day, plus transportation costs, when away from their home station, and shall be reimbursed for actual expenses incurred attending meetings of the commission in their city of residence.

Advisory committee members authorized to perform and performing services for the commission shall receive a per diem allowance not to exceed \$18.00 in lieu of subsistence expenses, plus transportation costs, when away from their home station.

The per diem allowances provided herein are based upon travel cost and time by common carrier and represent the maximum allowable, not the minimum. It is the responsibility of the chief administrative officer of the commission to see that approval of travel expense claims authorizes only such per diem allowances and other travel costs as are justified by the circumstances affecting the travel.

In case of travel by private vehicle by commissioners, officers, employees of the commission, employees and staff members of the respective state agencies, and advisory committee members, mileage shall be allowed at the rate of 8 cents per mile.

All claims for travel expenses shall be submitted on the form prescribed and furnished by the commission.

This amendment shall be retroactive to include the current commission meeting.

Other administrative matters included: approval to terminate the revolving fund as no longer necessary and to transfer the remaining money to the general account; continuation of the California Workmen's Compensation Insurance policy for temporary employes; and the Executive Committee was instructed to:

1. Consider preparation of legislation to amend Article X of the Pacific Marine Fisheries Compact to revise the for-

mula for allocation of annual state contributions in order to increase the minimum amount so that no state with a marine fishery shall contribute less than \$10,000 per annum, and

2. Report to the members of the Commission as soon as possible but no later than January 1, 1963.

Honors and Memorial

In view of his long and distinguished service to the Commission as a member of the Advisory Committee, Mr. Herbert C. Davis was honored on the occasion of his retirement by appointment as Adviser Emeritus.

The Commission honored the late Congressman Clem Miller of California for his contributions to fisheries conservation by the adoption of a memorial resolution and by adjourning the annual meeting in his memory.

Budget

The original amount recommended for the biennial budget by the Executive Committee was \$120,000, or \$60,000 per year, on the basis of Alaska's participation commencing July 1, 1963. When it was found necessary to adjust this figure to \$118,000, the Staff after consultation with the Commission recommended that the \$9,000 under "Annual and Research Meetings" be changed to \$7,000. This would mean that each State could then send but three instead of five research men to the meetings at Pacific Marine Fisheries Commission expense.

The budget as adopted for the July 1963-June 1965 Biennium, in the amount of \$118,000, as shown below, will permit resumption of cooperative research, on something like its former scale as well as the publication of reports which have been long delayed.

*Value of catch, 1956-1960 inclusive

PACIFIC MARINE FISHERIES COMMISSION BUDGET

Biennium July 1, 1963 to June 30, 1965

ALASKA, CALIFORNIA, OREGON, AND WASHINGTON

Salaries and Wages:	
Executive Director	\$ 25,200
Office Secretary	10,330
Part-Time and Temporary	7,100
General Operations and Maintenance:	
Office Supplies	2,000
Telephone and Telegraph	1,000
Postage, Freight, Express	800
Rent, Office	3,080
Premiums, Bonds	500
Accounting Fees	550
Private car mileage	300
Fares, Plane, R.R., Bus	3,000
Meals and Lodging	2,100
Library Supplies	100
Retirement Contributions	1,240
Annual and Research Meetings:	
Meeting Rooms	450
Advisory Committee, Travel, etc.	10,000
Commissioners, Travel, etc.	4,500
Administrative and Research Staff	7,000
Tape Recordings	500
Publications:	
Annual Report No. 16 and 17	5,500
Bulletins No. 7 and 8	5,000
Cooperative Research	26,450
Capital Outlay:	
Furniture	
Bookcases	300
Desk and Chair	250
Office Equipment and Machines	250
Miscellaneous	500
Total Estimate	\$118,000

The amounts indicated herein under the headings "Salaries and Wages"; "General Operations and Maintenance"; "Annual and Research Meetings"; "Publications"; "Cooperative Research", and "Capital Outlay" are estimates only, and the expenditures under any individual category may exceed the estimates shown therefor, but the total expenditures shall not exceed the total amount as approved.

PROPORTIONATE ALLOCATIONS BASED ON ANNUAL BUDGET OF \$59,000

	5-Year Average*	Percentage	Annual Allocation
Alaska	\$ 34,441,905	29.971	\$17,700
California	51,820,161	45.093	26,600
Oregon	7,622,128	6.633	3,900
Washington	21,033,845	18.303	10,800
	<u>\$114,918,039</u>	<u>100.000</u>	<u>\$59,000</u>

Election of Officers

The following were elected officers for the calendar year 1963:

Herman P. Meierjorgen, Chairman
Walter T. Shannon, Vice-Chairman
George C. Starlund, Secretary

Rejected Proposals

Not all proposals submitted to the Commission are adopted and some are modified considerably before approval. Some are screened out by the Advisory Committee or changed drastically by it. An example is the proposal for a winter closed trawling season (see above) which was changed completely in the Committee. Another example is the proposal on Indian fishing wherein two resolutions were rejected by the Advisory Committee but a committee member submitted one of them to the Commission which in turn modified it completely before adopting a motion.

In 1962, three proposals of the Advisory Committee failed to receive Commission approval.

Two of these, although receiving a majority of the votes, failed to meet with unanimous approval and were lost. They would have recommended that salmon could not be brought into the United States from any nation whose fishermen use long lines or nets on the High Seas in areas where American fishermen may not use those types of gear.

The third proposal was a recommendation to eliminate the present closed season on petrale sole. This was not voted on as it was considered to be in the area of responsibility of the International Trawl Fishery Committee, not the PMFC.

REVIEW OF ACTION TAKEN ON 1961 RECOMMENDATIONS

At its 1961 meeting in San Francisco, the Commission took affirmative action on many proposals. Subsequent to the meeting these recommendations were effectuated, as follows:

The albacore study committee called for by resolution met three times during 1962—in January, July and October. The scientist members considered plans for collecting and disseminating information on albacore research and fishing. State and Federal agencies accelerated their prediction and public information activities. Through an oversight, the industry members were not appointed to the committee, a situation corrected by Commission action at the 1962 meeting.

The proposals on winter petrale restrictions were adopted by the States involved.

In response to the recommendation to accelerate trawl research, all member States stepped up their work. Washington increased its staff, undertook a petrale study and tagged several thousand fish. Oregon is currently engaged in a study of the offshore-inshore migration of groundfish off the mouth of the Columbia River. California conducted exploratory fishing and tagging all along the coast. The Bureau of Commercial Fisheries kept its exploratory fishing vessel busy all year from Alaska to California.

In response to the recommendation for better trawl fishery statistics, the Commission published massive catch tables in the Fourteenth Annual Report. The figures were provided by the several States and Canada. The technical sub-committee of the International Trawl Fishery Committee has under consideration plans for providing catch-effort figures.

The recommendations on cooperative research have been followed in so far as funds allow. Money has been allotted to Oregon and California for employment of seasonal assistants to project leaders who are detailed to the preparation of papers for Research Bulletin 6. As noted above, catch statistics on the trawl fishery were published.

Another recommendation called for a massive increase in salmon research. None of the States is able to finance a significant increase. Federal funds are all committed. Several bills were introduced in the 87th Congress but did not pass. Other bills to finance accelerated salmon programs are being considered in the 88th Congress. The Second Governors' Salmon Conference in January 1963 kept the issue alive.

The proposal to activate an International King and Silver Salmon Committee received considerable attention during the year. During the 1962 meeting and in connection with other meetings shortly thereafter, preliminary conversations were held with representatives of the Department of State and the Canadian Fisheries Department.

In all cases where resolutions called for submitting copies to various agencies, officials and legislators, the required copies were submitted. Many recipients acknowledged these. In cases where the subject of resolutions is still under discussion, similar follow-up resolutions were adopted at the 1962 meeting (see above).

FISHERY STATUS REPORTS

Reports on the status of major Pacific Coast fisheries are given at each annual meeting. These reports are prepared by the staff members of the several State agencies. It has become the custom for the "host State" to assume responsibility for the correlation and preparation of the status reports, as well as assembling the research reports and taking care of the local arrangements for the meeting. For the 1962 meeting in Seattle, Mr. Donald Kauffman, research supervisor for the Washington State Department of Fisheries, deserves the credit for the fine presentation. He devoted a great deal of time and effort to this assignment, and the results are a tribute to his ability.

This would be an appropriate place to acknowledge the fine cooperation of dozens of people without whose efforts the Commission's work would not be possible. The status reports and the research reports that follow are the result of contributions made by many persons. The cooperation of the scientists of the member State agencies is always forthcoming. We are particularly grateful to contributions of the staff of the Alaska Department of Fish and Game, the Canadian Department of Fisheries, the Fisheries Research Board of Canada, the U.S. Bureau of Commercial Fisheries, and the U.S. Bureau of Sport Fisheries and Wildlife, all of which agencies work closely with the Commission. Members of the fishing industry and sportsmen's groups also contribute to the Commission's activities, particularly the members of the Advisory Committee. To all, we say, "Thank you."

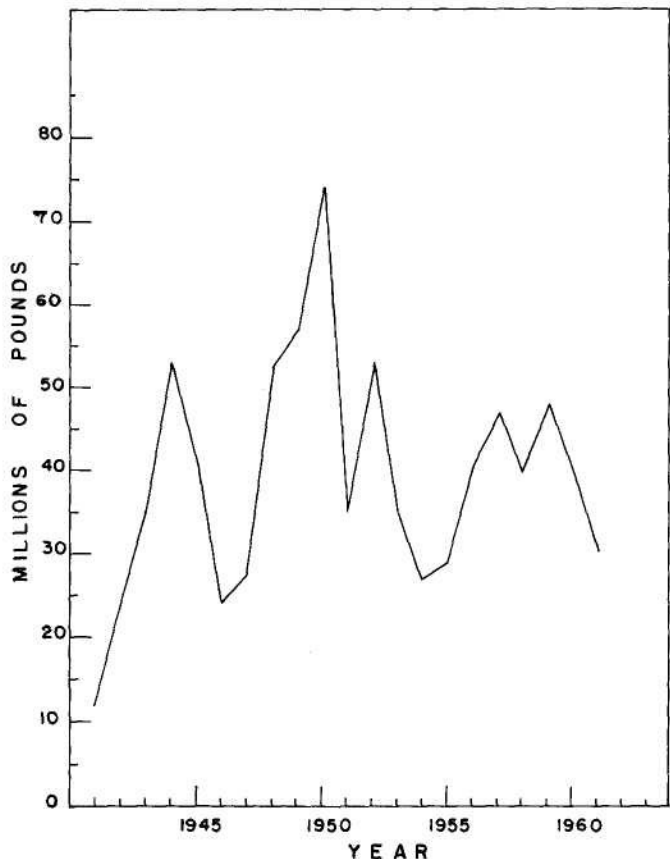


FIGURE 1. Pacific Coast Albacore Landings, 1941-1961

The status reports were prepared for the meeting held in October 1962, and hence do not present complete "year-end" figures.

STATUS OF THE 1962 PACIFIC COAST ALBACORE FISHERY

Hugh Fiscus Washington
Department of Fisheries

The 1962 albacore season was highlighted by an abundance of small-sized fish. The season began well off Southern California and progressively carried through to the North. The catch resulting from this year's efforts, estimated at around 43 million pounds, should exceed last year's take by about 13 million pounds and be just above the previous 20-year average.

California

The California fishery, which contributes the bulk of the coastal landings, began well with a \$400 per ton price and an abundance of fish between Pt. Conception and Baja California.

The troll fleet fished these grounds through mid-August in contrast to last year's failure here. After the beginning of August trailers extended their effort north-

ward from the Baja California coast to fish the usual fishing grounds up to the Columbia River. Live bait boats concentrated on the southern fishing grounds as usual.

The abundance of fish, many of them small and of low value for canning, led to a series of cuts which brought the price down to \$310 per ton by September. At times, canneries were so glutted with fish that vessels unloading were delayed for several days.

Although large fish up to 40 pounds were abundant, the overall average size was smaller than in recent years, with many catches averaging fish between 9 and 10 pounds apiece. Especially notable was the mixture of size groups schooled together.

Though purse seine landings were less than last year's record catch, they should reach over 100 tons, similar to the 1960 catch.

Sport fishermen enjoyed another successful season off California, with an anticipated catch near the 185,000 fish reported last year.

The total season landings in California are estimated to reach from 33 to 35 million pounds. This will be an increase from last year and several million pounds above the previous 20-year average.

Oregon

Although the albacore season started slowly off the Oregon coast, catches improved rapidly late in July. Oregon landings are expected to reach 6 million pounds. This will nearly triple last year's catch and exceed the previous 20-year average by 2 million pounds.

Washington

Washington troll albacore landings are down slightly from last year, with 350,000 pounds reported through September.

Diversion of both effort and landings to the south, plus the attraction of salmon trolling, have contributed to the pattern of low landings in Washington, which, over the last 10 years, have oscillated around the 500,000 pound mark excepting the warm-water years of 1958 and 1959.

In summary, this year's albacore season was a successful one and continued the characteristic fluctuating pattern of landings evidenced over the past years.

STATUS OF THE 1962 PACIFIC COAST DUNGENESS CRAB FISHERY

Herb. C. Tegelberg
Washington Department of Fisheries

Catch statistics for Dungeness crab are nearly complete for the season just ended and show a combined California, Oregon and Washington coastal catch of just over 13 million pounds. This is a drastic drop from the landings of 30 to 32 million pounds during each of the previous three seasons. Crab prices paid to fishermen set record highs in all areas, helping somewhat to offset the low production.

Figure 3 illustrates annual crab landings by state since 1940. California landings took the greatest plunge and will total just short of 4 million pounds for the 1961-1962 season. San Francisco area landings total only 710,000 pounds, lowest since records were started in 1916. Prices paid to fishermen started at 21 cents per pound in San Francisco, but climbed to a record high of 55 cents per

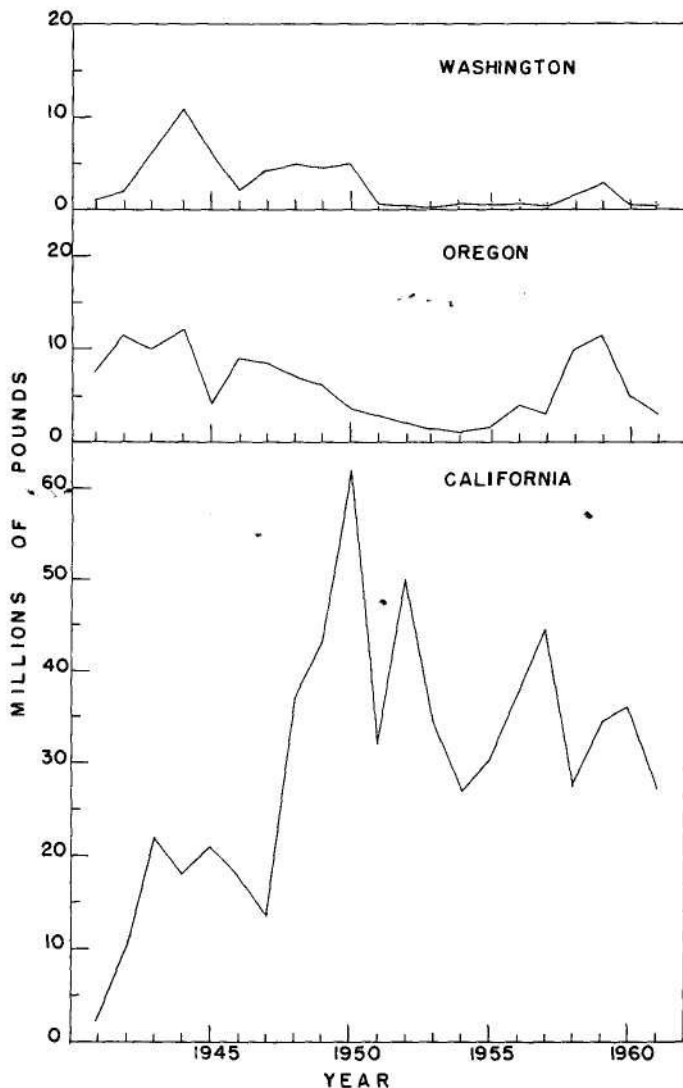


FIGURE 2. Annual Albacore Landings by State, 1941-1961

pound due to the short supply. On the encouraging side, biologists on the research vessel *Nautilus* have been able to catch and follow a strong 1961 year class which will enter the San Francisco area fishery within the next two to three seasons.

The Crescent City-Eureka area landings total 3V4 million pounds, lowest since 1954-1955. The 10-year average for this area has been nearly 8 million pounds.

Oregon crab landings totalled 5.1 million pounds through May and will approximate 5VA million pounds for the 1961-1962 season. As noted on the graph, this is as low as any yield in the past 20 years. This season's catch represents a sharp reduction when compared to the catch of 11.4 million pounds in 1960-1961 and 8 million in 1959-1960. All ports had lower landings, but Brookings showed the greatest decline. Fishermen received as high as 40 cents per pound at some ports.

Crab landings for Washington edged over the 4 million pound mark for the January 1-September 15 coastal season. This was the lowest catch since 1952 when 3V4 million pounds were landed. As seen on the graph, Washington landings have steadily declined since a peak of 10.8 million pounds in 1957. Peak months during 1962 were the 1.7 million pounds in January and 1 million in February. June was relatively good for the few boats still operating, and the catch was 200,000 pounds. Washington prices were also high, reaching 30 cents per pound to fishermen.

In reply to a question as to the cause of the decrease in crab catches, Mr. Tegelberg replied as follows: The staff believes the fluctuations are due to natural causes. If there is good reproduction for two or three years in a row, there will be some very large year classes of crabs and some high fisheries. If there is poor reproduction for a couple of seasons, few will be recruited to the fishery and low years would result. It is interesting that California and Washington catches seem to have fluctuated more than those in

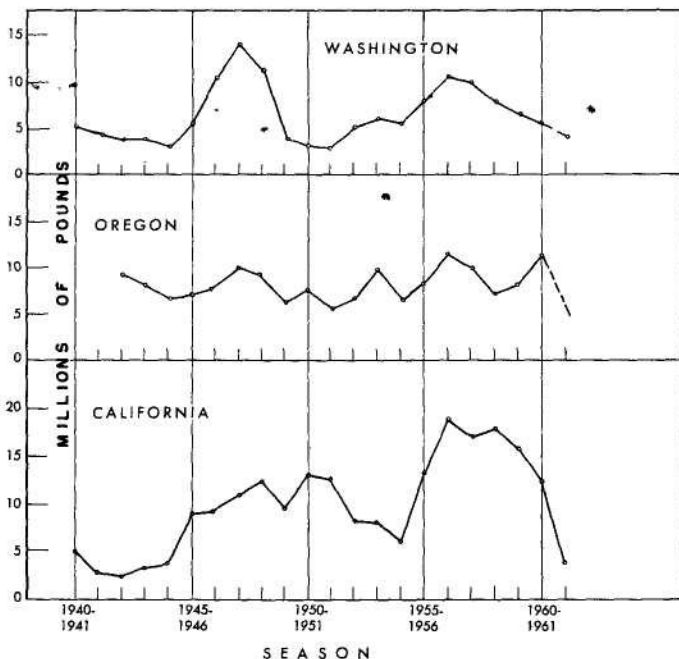


FIGURE 3. Pacific Coast Crab Landings

Oregon. The fishery is based on taking a very large percent of the available legal-sized crabs. Each year's fishery relies heavily on moulting crabs growing enough to enter the fishery.

In answer to a question on the condition of the crab fishery in California, H. G. Orcutt of that State's staff stated: As reported by Mr. Tegelberg this has been a bad year. We predicted this would be a bad year. Our studies of the year classes now in the ocean coming up indicate that the next season will be better and the season following that will be better yet. No changes in legislation are needed at this time.

STATUS OF THE PACIFIC COAST PINK SHRIMP FISHERY

Herb. C. Tegelberg
Washington Department of Fisheries

Combined California, Oregon and Washington pink shrimp landings for 1962 total nearly 5VA million pounds through September. The season remains open in Oregon and Washington but subsequent 1962 landings should be light. Due to increased southern Oregon landings, the 1962 catch shows a small increase over the combined 4.9 million pounds landed in 1961. Only the 1958 and 1959 landings exceeded those of 1962 for this relatively young fishery.

The annual shrimp landings by state are shown in Figure 4. Just over 2 million pounds were landed in California during both 1960 and 1961. The 1962 landings are WA million pounds. Of this total, 1.5 million pounds, which was

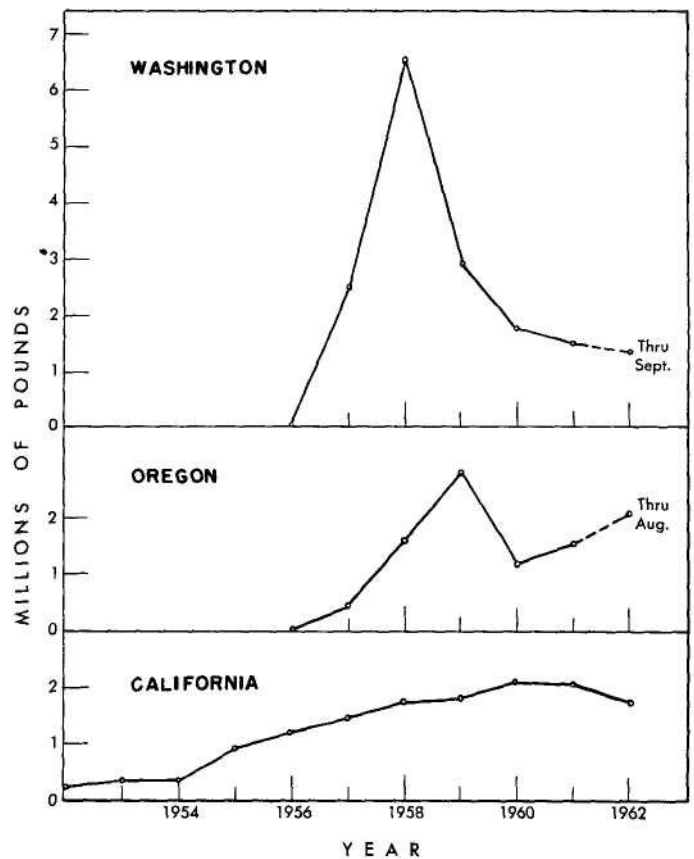


FIGURE 4. Pacific Coast Pink Shrimp Landings

the quota, came from the Crescent City-Eureka area (Area A). Shrimp were caught in this area at an average of about 475 pounds per hour this year compared to 627 pounds per hour in 1961. The average for the past eight seasons has been close to 550 pounds per hour, so fishing success was below average this season. Area A produced considerably more than the 1.5 million pounds landed in California, however, since 80 or 90 percent of the shrimp landed at Brookings, Oregon, also came from this area. Total catch for this shrimp bed was over 2Vi million pounds, a magnitude that is of concern to the California staff. Area A was closed on October 3 by California, but vessels operating out of Brookings continued to fish the bed.

Bodega Bay (Area B-2) was the only other California producing area. Five vessels took the 250,000 pound quota between July 17 and August 1. The catch per hour of 661 pounds was the highest since 1957, as was the total catch for this area. No landings were made in Area B-1 (Fort Bragg) which produced 800,000 pounds last season.

Oregon shrimp landings totalled 1.45 million pounds in 1961 and fishing by Oregon vessels was well distributed from Grays Harbor to Eureka. The 1962 landings top 2 million pounds, second only to 1959. This increase is due mainly to large early season landings at Brookings. California and Oregon vessels operating out of Brookings and fishing mostly off the California coastline in the vicinity of Redding Rock landed about 600,000 pounds before the California season opened in June. Astoria landings were low, while Coos Bay with 0.7 million pounds and Brookings with 1.1 million increased considerably. The catch per unit of effort for all Oregon landings is about 410 pounds per hour. Best fishing was the 500 per hour average for Brookings landings.

Washington landings for 1962 total 1.35 million pounds through September and are expected to equal the 1961 catch of 1.43 million pounds, which was the lowest since the fishery began. The Washington fishery has somewhat stabilized with two processing plants and a maximum of nine boats. Preliminary records indicate a poor average of just over 350 pounds per hour drag, which is below the 436* pound average for 1961, but as good or better than the average in 1960. Grays Harbor and Destruction*Island were the main fishing areas, with the best production at Destruction Island since 1958. The catch off Willapa Bay was negligible and Washington boats fished a limited amount off Oregon, taking about 160,000 pounds or about the same as in 1961.

Size-frequency studies were continued on pink shrimp, and both Oregon and Washington samples showed a strong 1961 year class entering the 1962 catch. A very weak 1960 year class had been noted in Washington and northern Oregon samples last year, and resulted in few 2-year-olds in the catch this season. The 1961 year class of shrimp has comprised over 50 percent by number of recent Washington samples. These shrimp will be important to the northern fisheries for the next two years. California studies indicated that the 1960 and 1961 year classes were both strong in Area A. The 1961 year class (1-year-olds) was very strong in Area B-2 and represented 84 percent of the 1962 Bodega Bay area catch. The California fishery catches almost entirely 1 and 2-year-old shrimp, while the northern Oregon and Washington fisheries rely heavily on 2 and 3-year-olds.

STATUS OF THE 1962 PACIFIC COAST TROLL SALMON FISHERY AND A REVIEW OF PAST LANDINGS

J. E. Lasater Washington

Department of Fisheries

The final coastwise landings of troll caught salmon are very difficult to forecast at this date. Limited information has been received from Alaska; Canadian catches are available through June and for the remaining three states through July. It would appear that the 1962 landings will be above those of 1960, but down moderately from those of 1961 (Figure 5).

Troll Chinook Salmon Fishery

Through June Canadian landings were near those of 1961, with poor landings in the north compensated for by better landings along the southern coast. Washington landings of chinook are up slightly, but both Oregon and California report reduced landings (Figure 6). The unusually good landings at Eureka will not compensate for poor land-

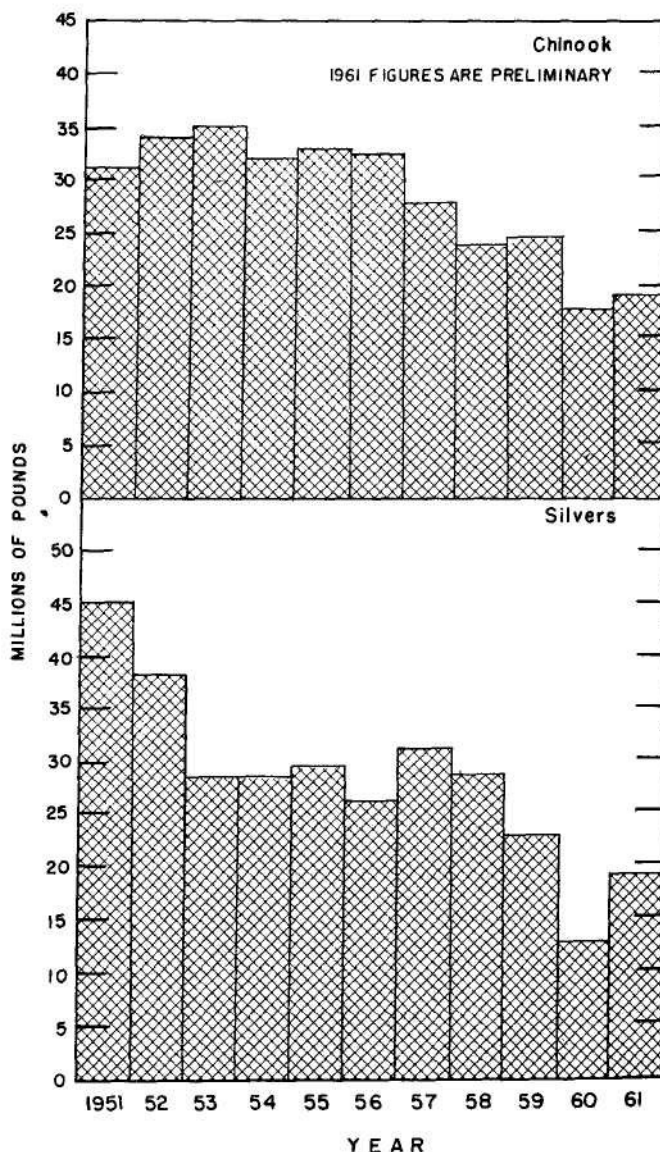


FIGURE 5. Pacific Coast Landings of Troll Caught Salmon, 1951-1961

ings at other ports. Coastwise chinook landings will once again be poor compared to the years prior to 1960.

Troll Silver Salmon Fishery

Through June, silver salmon landings in Canadian ports were less than in 1961 while landings were good in Washington. Oregon reports reduced silver salmon catches even though landings at Astoria are greater than in 1961. From all data at hand it appears that silver salmon are unusually concentrated on the Washington coast where their availability to the troll and sport fisheries seems high. It is not likely that Washington catches can compensate for reduced landings elsewhere, and the coastwise catch is expected to be down from 1961 but not as low as 1960 (Figure 7).

Summary

The weakness and uncertainty in the ocean harvest of chinook and silver salmon is being continued in 1962. Catches are much reduced from the mid-1950's and can only be favorably compared with those of 1960, a record low year.

During the discussion period, Mr. Lasater added the following statement: The uncertainty I referred to means that some areas are up a bit, while others are down. It could be looked at as an upturn in some places, although the overall picture is not up. If the sport catch is added to the commercial catch, the trend in recent years is still downward.

THE STATUS OF THE TRAWL FISHERIES OF THE PACIFIC COAST, 1962

**E. K. Holmberg Washington
Department of Fisheries**

Last year Mr. Best gave you the 1960 statistics and an idea of the trend for 1961. He reported in December with fairly firm figures through September. This year we are meeting earlier in the year. We can give catch data for 1961, but data for 1962 are firm through March and less firm through June.

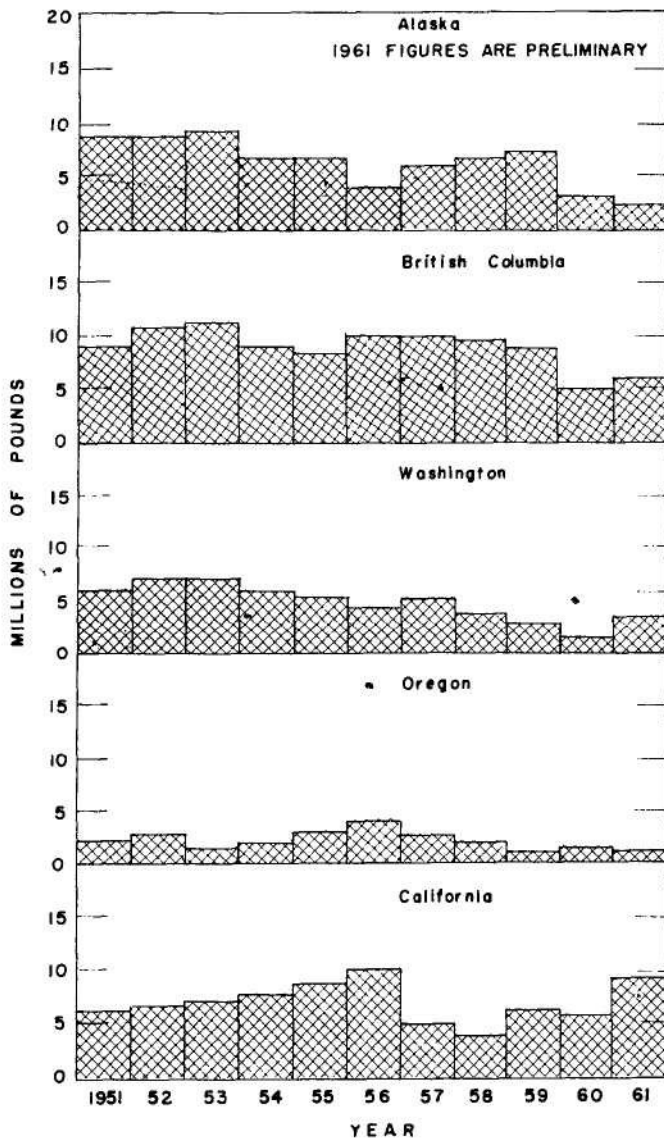


FIGURE 6. Pacific Coast Landings of Troll Caught Chinook Salmon, 1951-1961

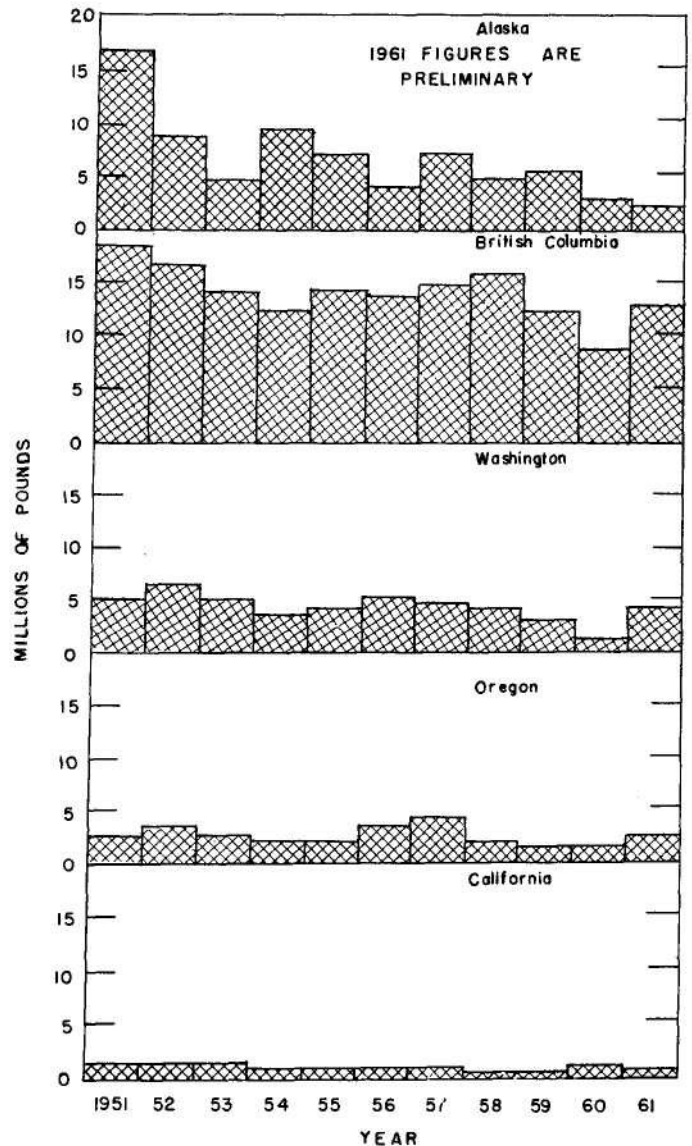


FIGURE 7. Pacific Coast Landings of Troll Caught Silver Salmon, 1951-1961

Total Trawl Fishery

The trend for the coastal trawl fisheries is downward in total production (Figure 8). Market demand continues to limit the size of the landings in most areas. Peak production of 140 million pounds occurred in 1956. During 1960, 130 million pounds were landed, and during 1961, some 126 million pounds were reported. It is too early to predict 1962 results, but the downward trend is expected to continue.

Generally, to the south, California expects less landings in 1962 as Dover sole catches have declined from lack of demand. This was partially compensated for by increased petrale sole landings. Eureka boats have stopped landing fish for animal food because of an unfavorable price structure. Oregon expects equal or slightly better landings in 1962, based upon trends during the first half year. To the northward, landings of Pacific cod are down in Washington and Canada, but have been replaced in Washington by ocean perch, rockfish, lingcod, and petrale sole. Catches of lingcod are increased in Canada as well as landings of animal food and dogfish livers.

Petrale Sole

Landings of petrale sole have increased in California and Washington, decreased in Oregon and remained about the same in Canada. Total production was about 9.6 million pounds during 1961 as compared to 8.6 million pounds during 1960. About the same poundage is expected in 1962. The stocks north of Esteban, off Vancouver Island, which are protected by regulation show no signs of improvement.

Research on petrale sole continues for catch analysis, tagging for stock identification, and age analysis for mortality rates.

English Sole

Increased landings of English sole were experienced in California, and landings were equal in Canada, but Oregon and Washington reported declines. Total production is 11.1 million in 1961 compared to 12.9 million pounds in 1960. The increase of nearly a million pounds in California was offset by declines of Vi million pounds in Oregon and over 2 million pounds in Washington. The decline in Washington was general in all areas where English sole are taken. Fishing success was the same or improved in most areas indicating that the decrease was in effort or demand and not primarily in stock abundance.

English sole research on the coast consists of catch statistics analysis, tagging studies, and age analyses.

Dover Sole

Market demand has weakened for Dover sole and landings of this fish have decreased all along the coast (Figure 9), and especially in California and Oregon where heaviest landings are made. Declining fishing pressure should allow stocks to increase, and the increased fishing success reported by California is indicative of this. Oregon biologists are tagging these fish and sablefish in deep water to determine migration patterns, and results will be reported upon in a special report.

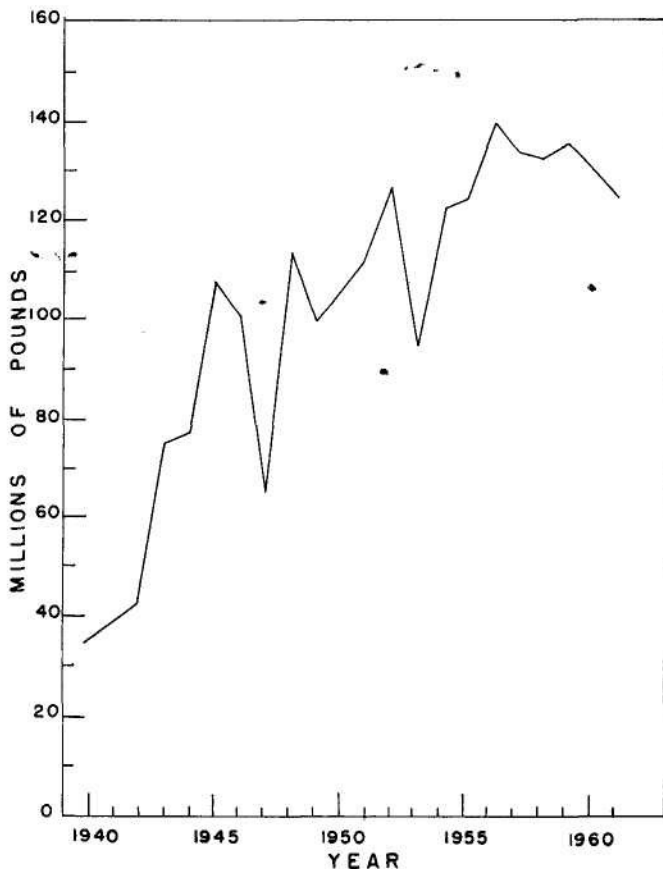


FIGURE 8. Pacific Coast Trawl Landings, 1940-1961

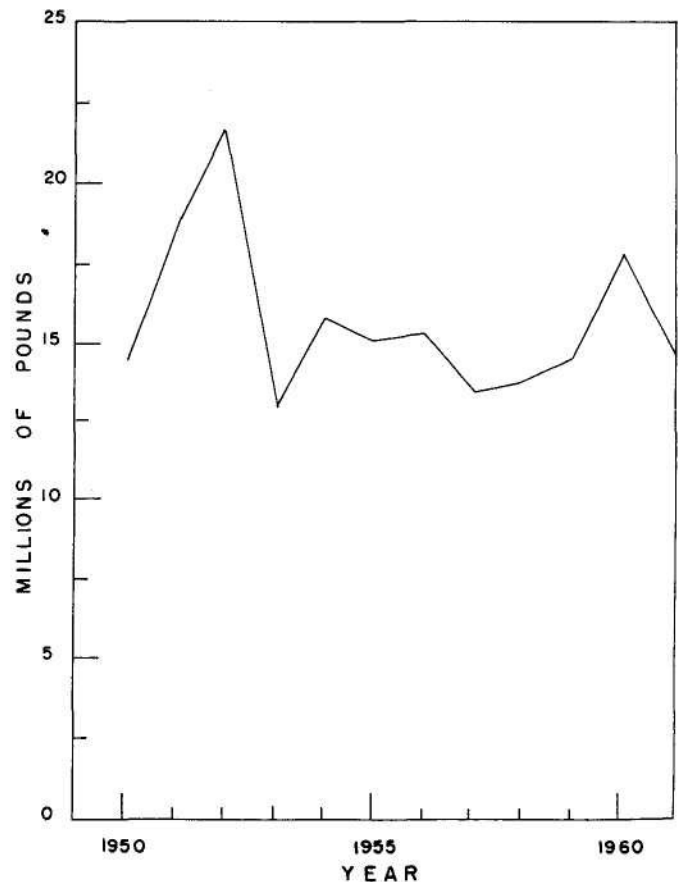


FIGURE 9. Dover Sole Landings, 1950-1961

Rockfish

Landings of rockfish were down in 1961 to 20.8 million pounds from 23.5 million in 1960. Washington landings were increased by 1.3 million pounds, however. California biologists suspect a decline in rockfish stocks has taken place on the fishing grounds. This is very possible as it is known that stocks were depleted by the heavy exploitation during the World War Two years. Washington expects a record catch in 1962, with 5 million pounds landed from January through June.

Research is being conducted to determine life histories and species composition. The California Department of Fish and Game has succeeded in tagging these fish with detachable hook tags. Little or no success was had using the usual tagging methods as rockfish have a large air bladder that becomes distended when the fish are raised from any great depth of water.

Ocean Perch

Sebastes alutus catches were increased by all fishermen except the Canadians with a coastwide total of 12.8 million pounds during 1961 compared with 9.6 million pounds taken during 1960. 1962 is expected to be a peak year. California reports landings from off central Oregon. Ordinarily none are landed in California. Oregon reports increased landings in 1962. Washington had 5 million pounds at midyear, and landings are over 2 million pounds in Canada where 800,000 pounds was their former peak catch.

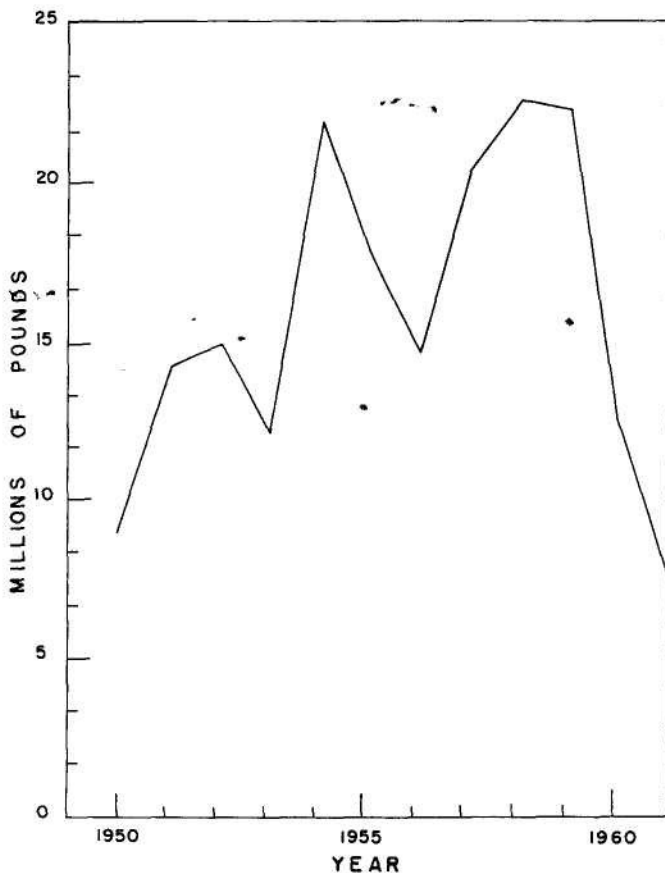


FIGURE 10. Pacific Cod Landings, 1950-1961.

Research work consists of species composition studies. About eight other species are taken with the perch. Life history and age determination work has been started by Canada and Washington.

Pacific Cod

This species ranges southward to Destruction Island off the Washington coast. Oregon fishermen take a few hundred thousand pounds of these fish while fishing northern waters. However, until 1959, cod was the principal species taken by Canadian and Washington trawlers. The peak occurred in 1959 when 22.5 million pounds were landed (Figure 10). Catches declined principally for Washingtonians to 12.3 million pounds during 1960 and to 7.6 million pounds during 1961. The decline is continuing at about the same rate in 1962. The Canadian biologists can show that the entry of young fish into the fishery has declined. We are willing to go one step further and attribute the decline to an adverse environment produced by warmer than normal water, especially in 1958. There are two reasons for this statement: (1) Cod were reduced similarly in all areas. A fishery would tend to reduce stocks unequally by areas. (2) The fact that the range of codfish extends only partially south along the coast indicates that there are environmental limits. Evidently warming of the coastal waters literally moved the range of codfish northward. Cod should recover as temperatures cool, and stocks should increase again provided fishing does not push the stocks below the point of no return.

Research, carried on primarily by Canada, consists of tagging and market sampling.

Japanese and Russian Trawl Activities In the Bering Sea and the Gulf of Alaska

Initial exploration of the Bering Sea by the Japanese began in 1929 along the Alaska Peninsula to Nunivak Island.

The first commercial operations began in 1933 in the Eastern Bering Sea and continued to 1937. Alaska pollack *Theragra chalcogrammus* was the principal species fished, with most of the fish landed going into fish meal. However, these operations ceased in 1937 because of a world decline in the fish meal market.

In 1940-1941 Japan re-entered the Bering Sea fishery on a commercial scale to obtain fish for human consumption. This operation terminated due to the outbreak of World War Two. Present commercial fishing operations are carried on immediately north of the Aleutians in the Bering Sea. The 1961 catch approximated 1.4 billion pounds (Tables 1 and 2). In 1961 the Japanese fleet in the Bering Sea consisted of 10 motherships and 173 catcher trawlers.

Exploratory work has been carried on in the Gulf of Alaska and two Japanese motherships received permission from the Japanese Fisheries Agency to travel south of the Alaska Peninsula, but only in waters east of 170 degrees E. longitude.

TABLE 1
Breakdown of 1961 Japanese Bering Sea Catch

Species	1961 (pounds)
Flatfish	1,000,000,000
Halibut	24,000,000
Cod (<i>Gadus macrocephalus</i>).....	15,000,000
Alaska pollack	54,000,000
Sablefish	58,000,000
Rockfish	24,000,000
Shrimp	22,000,000
Herring	159,000,000
Other	13,000,000
Total	1,369,000,000

TABLE 2
Total Production in Pounds (demersal fish) of Russia and Japan from the Bering Sea, 1954-1961 (estimated)

Japan	Year	Russia
27,000,000	1954	.....
27,000,000	1955	.....
56,000,000	1956	.....
53,000,000	1957	.....
102,000,000	1958	.....
350,000,000	1959	150,000,000
977,000,000	1960	300,000,000
1,400,000,000	1961	500,000,000

Russia had made a series of exploratory cruises during the years 1931-1935 also. However, their first commercial operations did not begin until 1959. The Russians are presently fishing the 100-fathom contour in the Bering Sea for ocean perch. Their shallow water operations are carried out more to the north than that of the Japanese fleet. Nunivak Island is the northern extreme of their present fishing operations. The estimated Russian catch of demersal fish from the Bering Sea exceeds 500 million pounds (Tables 2 and 3). The Russians have explored the Gulf of Alaska since 1960 and started commercial operations in the area west of Kodiak Island about June, 1962.

TABLE 3
Approximate Breakdown of Russian Catch, in Pounds, from Bering Sea During 1960 and 1961

Species	1960	1961
Flat fishes	232,000,000	
381,000,000 (English sole, yellow fin sole, rock sole, turbot, starry flounder)		
Ocean perch.....	26,000,000	107,000,000
Saury*	29,000,000	54,000,000
Herring*		151,000,000
Other	17,000,000	32,000,000
Total	304,000,000	725,000,000

*Included although not classified as demersal fishes

During this past summer, the number of ships in the Soviet fishing fleet in the Gulf of Alaska was estimated as 107, the number of Russian trawlers as 89, including a number of modern stern ramp trawlers displacing as much as ten times the tonnage of United States trawlers.

It is estimated that Soviet and Japanese vessels will take from the North Pacific waters this year over 2 billion pounds of bottom fish. (This is 16 times the catch of bottom fish by the United States fleet along the entire Pacific coast and 40 per cent of the total American catch from both marine and fresh water.)

We can foresee the Russian fleet eventually moving down along Vancouver Island and the Washington coast due to the abundance of ocean perch in these areas. Since this is a prime species sought after by the Russians and since the abundance of ocean perch found off our coast is many times that of the Gulf of Alaska, this is a reasonable conclusion.

Note: Special thanks are due to Mr. Al Pruter, United States Bureau of Commercial Fisheries, Seattle, Washington, for providing catch data of the Russian and Japanese Bering Sea fishery.

RESEARCH REPORTS

The Pacific Marine Fisheries Commission frequently recommends investigations specifically directed to the objective of providing information upon which decisions can be based. The five "research briefs" that follow were prepared in response to questions asked by the Commission. As such they are presented without any pretense that they are the results of profound basic research. They are answers to specific questions that needed answering.

A SUMMARY REPORT ON THE 1959-1960 OREGON-WASHINGTON TROLL CHINOOK SALMON TAGGING STUDY

Peter K. Bergman
Washington Department of Fisheries

The 1959-1960 troll chinook tagging of the Oregon Fish Commission and the Washington Department of Fisheries was intended to indicate what benefit the March 15-April 14 troll closure had to fall chinook spawning in the Columbia River. Preliminary results of this study, and procedures employed, were reported to the Pacific Marine Fisheries Commission in 1960. A complete report is nearing completion for publication.

The catch-per-day of the tagging boats indicated a decline in chinook abundance during the years of tagging as

compared with pre-closure years. Further, the catch was comprised of fish of smaller average size than before the closure.

Four hundred twenty-two chinook were tagged in 1959, and 343 in 1960. From the 1959 tagging, 109 tags were recovered in 1959, 7 in 1960 and 3 in 1961. Recoveries from the 1960 tagging were 105 in 1960, 5 in 1961 and 1 so far in 1962. Tags were recovered from the middle West Coast of Vancouver Island on the north, to the Farallon Islands on the south, and in the Fraser, Columbia, Umpqua, and Sacramento-San Joaquin Rivers (Figures 11 and 12).

Sixty tags were recovered in the Columbia fall chinook run, 28 in the fisheries and 32 in hatcheries. This reiterates what had previously been shown by mark studies: that Columbia falls were present in the area during the closure period. It does not, however, show contribution of the Columbia relative to other streams since opportunities for recovery, i.e., hatcheries and fisheries, are numerous in the Columbia and vary widely in other streams.

A point of considerable interest is the rate of tag return from fish of various ages. Twenty-eight per cent of fall-type three-year-old fish were recovered in the year of tagging, and a similar 29 per cent of fall-type four-year-olds. It would be expected that most four-year fish would spawn in that year, and accordingly, few would be recovered in their

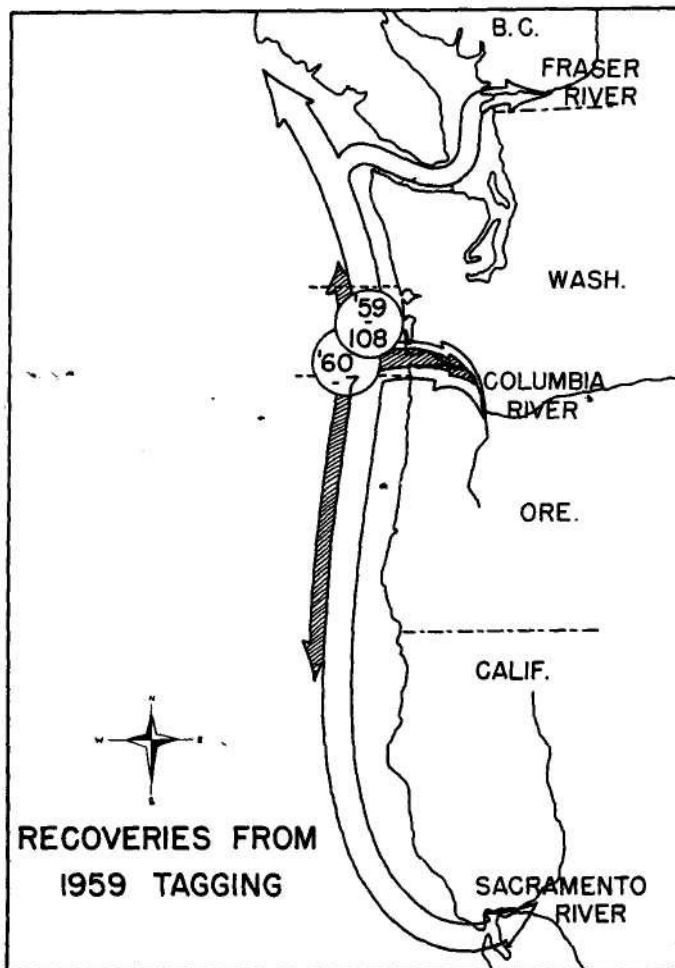


FIGURE 11

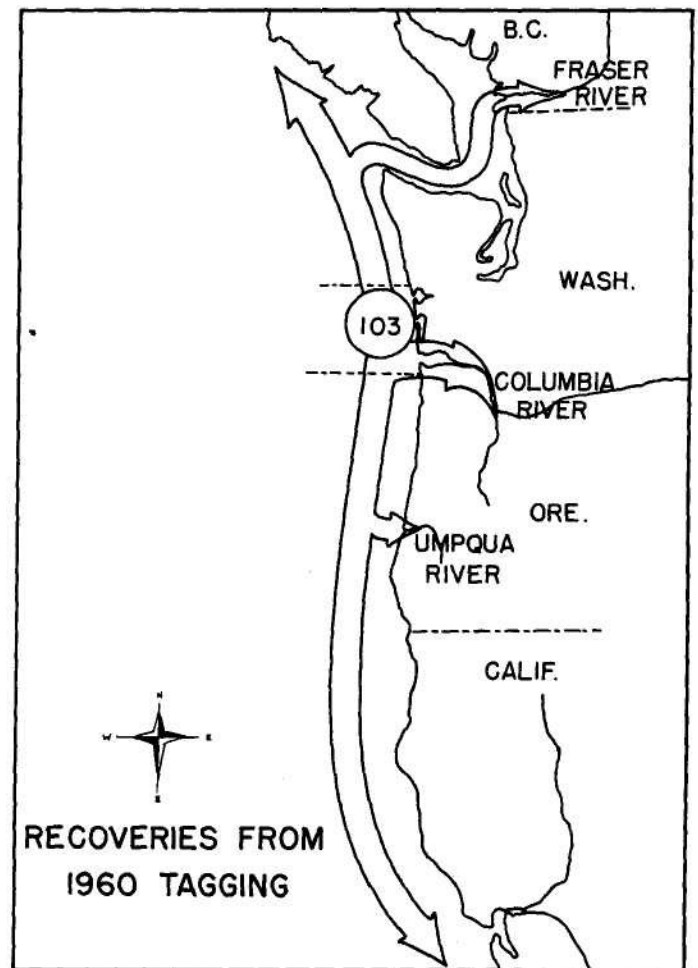


FIGURE 12

fifth year, the second season after tagging. This occurred as anticipated; the second season recovery of these fish was one per cent. Chinook three years old when tagged would be expected to contribute relatively well during their fourth year, the second season following tagging. Ocean chinook tagging has historically shown this pattern. But in this case the second year recovery of fish three years old when tagged was only 2 per cent.

Various hypotheses suggest themselves to explain the unusual recovery pattern of three-year-old tagged fish, from tag loss to severe exploitation by the fishery to natural or tagging mortality. And suggesting that these recoveries are representative of the 72 per cent unrecovered tags is obviously debatable. In any case, the number of recoveries is so small that statistical analysis is virtually inapplicable. This would be expected from anticipated fishing rates of so few boats, coupled with knowledge of recovery rates, and points out the need for future analyses to be carried on at a scale appropriate to the problem.

There is one further point that should be clarified. In the Thirteenth Annual Report of the Pacific Marine Fisheries Commission for 1960, page 46, the preliminary report on this study states, "... however, it may be stated that this March 15-April 14 closure has served to augment the Columbia River fall chinook escapement." It is obvious that a reduction in total fishing pressure should yield a greater escapement, but this study cannot indicate pressure changes. It is clear that without the closure there would have been no savings. Yet if this tagging had been accomplished while the fishery was still open, and obviously without a savings to the river, some of the tagged fish would almost certainly have escaped the fishery to spawn. The measurement we need is the difference between the survival rate before the closure and after the closure, not simply an indication of whether a portion of the early season fish survive through the year. We are aware that the fishery does not take all the fish. The point is that this study could not measure the benefits of the troll closure to the Columbia River fall chinook escapement.

While information on chinook migration patterns was gained from this study, much of its value lies in suggesting standards which must be set for future work.

COMPARATIVE HOOKING MORTALITY BETWEEN TREBLE AND SINGLE HOOKS ON CHINOOK SALMON

Frank Haw Washington
Department of Fisheries

In 1959, in concern over possible excessive hooking mortality from treble hooks, the Pacific Marine Fisheries Commission recommended that member states investigate the incidence of the use of treble hooks and their effect on hooking mortality. As a part of this investigation, salmon were caught with sport gear and tagged during April and May of 1960 near the southern tip of Whidbey Island in Puget Sound, using treble and single hooks. This was done with the intention of determining survival differences from subsequent tag recoveries.

Details of the equipment and procedures as well as the results pertaining to silver salmon have been reported (Lasater and Haw, 1961). The chinook salmon tagged

were members of three year classes, resulting in recoveries over three calendar years. This report is preliminary in that final recoveries may not occur until late fall, 1962. It is extremely unlikely, however, that additional data will affect conclusions regarding comparative hooking mortality.

Results and Discussion

A total of 346 chinook salmon was tagged, 180 on treble hooks and 166 on single hooks. Of the 180 treble hook fish, 36 or 20.0 per cent were recovered and of the 166 tagged with single hooks, 25 or 15.1 per cent were recovered. The treble and single hooks each accounted for one untagged mortality. These results certainly offer no evidence that released treble hooked chinook suffer greater mortality than single hooked fish. Numbers of tag recoveries were far fewer than necessary to determine small differences in hooking mortalities.

Paulik (1961) has provided a table listing numbers of tag recoveries necessary for prescribed results. Using this table, it can be stated with at least 90 per cent certainty that if treble hook mortalities are greater, they are no greater than twice those of the single hook. The fact that actual recoveries from trebles are greater than those from singles provides additional evidence that the treble hook was no more damaging. Further use of Paulik's table reveals that if differences in hooking mortalities as small as 20 per cent are to be detected with 90 per cent certainty, 529 recoveries would be required. Assuming like recovery rates, this would necessitate the hooking and tagging of about 3,000 chinook salmon.

Since the author or J. E. Lasater examined and removed hooks from all of the 531 chinook and silver salmon involved in both phases of the experiment, certain pertinent impressions were gained. Although the treble hooked fish often suffered multiple wounds (50 per cent), the hook's size and shape caused more superficial wounding than the single hook. In addition, small fish were seldom hooked far back in the oral cavity with the bulkier treble hook. In practice, of course, large fish capable of taking the treble deeply will most often be retained and hooking mortality will be irrelevant. Without the interference of multiple bends and points and with the greater distance from point to bend, it was felt the single hook generally wounded more deeply. The hooks involved in the experiment are illustrated in Figure 13.

Table 1 shows the wound location frequency and recoveries by hook type. Location of wound appeared to be a factor in the survival of the chinook salmon.

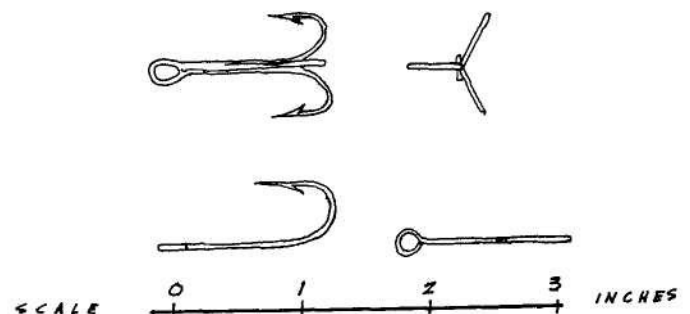


FIGURE 13. Treble and Single Hooks Used in This Experiment.

Effect of Size at Time of Tagging

Chinook salmon tagged ranged from 19 to 60 cm. fork

TABLE 1
Wound Location Frequency and Recoveries by Hook Type

Wounds	Nos. Hooked		Nos. Recovered		Percent Recov'd (Total)
	Single	Treble	Single	Treble	
Involving lower jaw	48	116	8	24	19.5
Lower jaw only	43	51	8	13	22.3
Involving roof of mouth	21	70	1	12	14.3
Roof of mouth only	18	12	1	3	13.3
Involving behind maxillary	44	31	11	4	20.0
Behind maxillary only	39	19	11	2	22.4
Involving cheek	23	15	2	2	13.2
Cheek only	21	9	2	2	13.3
Involving eye	16	7	0	1	4.3
Eye only	12	3	0	0	0
Involving tongue	6	10	1	3	25.0
Tongue only	6	0	1	0	16.7
Involving gills	6	8	0	0	0
Gills only	4	1	0	0	0
Involving opercle	2	5	1	2	42.9
(outside mouth)					
Opercle only	1	2	1	1	66.7
Involving clavicle	0	1	0	1	100
Clavicle only	0	1	0	1	100
Involving tail	0	1	0	0	0
Tail only	0	1	0	0	0
Involving isthmus	2	2	0	0	0
Isthmus only	1	0	0	0	0

length and averaged 36.6 cm. (16 inches total length). Single hooked fish averaged 0.6 cm. longer than those tagged from trebles. Figure 14 shows the per cent of total recoveries by five centimeter groups and the corresponding 95 per cent confidence limits. Since, the numbers of fish on either end of the size range were small, they have been taken from length intervals greater than five centimeters.

Size at tagging appeared to affect recovery rates. None of the 19 tagged chinook salmon less than 28 cm. fork length have been recovered. It should not be concluded, however, that hooking mortality is the only factor involved. In an experiment- testing several types of tags on small chinook salmon at Bowman's Bay Station, Washington (Lasater, unpublished), it was concluded that spaghetti tags of 1/16 inch poly vinyl chloride were unuseable for other than short term experiments on chinook salmon ranging from 17 to 22 cm. fork length. The 22 cm. chinook were the largest involved in the experiment. Without being hooked, one hundred controls were tagged identically to the chinook in the hooking mortality study and held in salt water ponds for five months. At the end of this period ten fish had died and 20 more had shed tags. Histological analysis of chinook retaining tags revealed no healing due to the large tag and injured area in relation to the size of the tagged fish. Under stress, retained tags had eroded dorsally along the path of least resistance at a slight caudal angle. Although 1,000 of these small chinook were released into the waters of Puget Sound in 1960, none has yet been recovered.

Of the 79 chinook salmon 36 cm. fork length or over, hooked in the lower jaw only or behind the maxillary bone only, 21 (26.6 per cent) were later recovered.

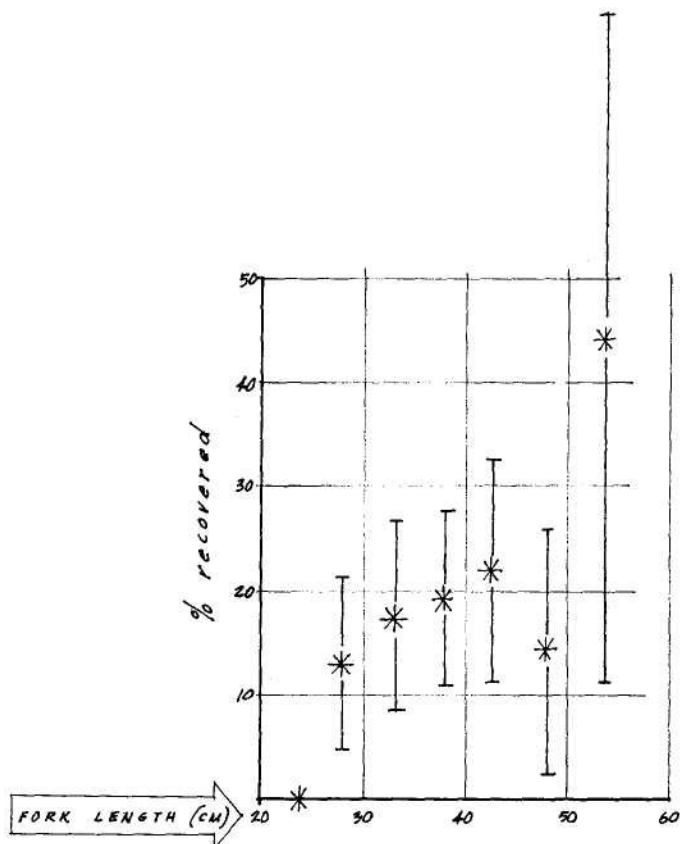


FIGURE 14. Percent Recoveries by Five Centimeter Intervals, Including Approximate 95 Percent Confidence Limits. The Lowest Interval Includes Lengths from 19-25 cm. (inclusive) and the Highest Interval Lengths from 51-60 cm .

Migration and Other Recovery Data

Recoveries were reported along the coasts of Washington and British Columbia, between approximately six degrees of latitude, from Olympia to Fitzhugh Sound (Figure 15). The international aspect of the tag returns is striking, with Canada accounting for 47.6 per cent of the total. Fresh water recoveries are also evenly divided with five reported returning to Puget Sound Hatchery racks and four to the Fmser River System. Puget Sound and the waters of the Strait of Georgia yielded 79.2 per cent of the marine returns.

Of the United States marine recoveries, 23, or 82.1 per cent, were from the Puget Sound sport fishery, four from the ocean commercial troll, and one from a Puget Sound Indian beach seine. In sharp contrast to this, only about 10 per cent of the Canadian marine returns were by sport fishermen with the remainder by the various commercial fisheries. Exact Canadian figures are unknown since gear data was sometimes omitted from forwarded tag returns.

Conclusions

1. No evidence was found that released treble hooked chinook salmon suffer greater mortality than released single hooked fish.
2. Under the experimental conditions there is a 90 per cent certainty that treble hooks are less than twice as damaging as single hooks.
3. The possibility exists that the multiple wounds of the treble hook were at least partially compensated for by the depth of penetration by the single hook and further, that the size and shape of the treble hook used inhibits its deep inhalation by small fish.

4. Tag recoveries were nearly evenly divided between the United States and Canada.
5. Tag recovery rates increased with size of chinook but more serious effects of tagging on smaller fish were probably involved.
6. The Puget Sound sport fishery accounted for 82.1 per cent of the United States marine tag recoveries while various commercial fisheries accounted for about 90 per cent of the Canadian marine recoveries.

Literature Cited

Lasater, J. E. and F. Haw, 1961.
 Comparative Hooking Mortality Between Treble and Single Hooks on Silver Salmon. Pacific Marine Fisheries Commission Bulletin 5, p. 74-76.

Lasater, J. E. (Unpublished).
 An Experiment Testing Several Types of Tags on Small Chinook Salmon. Washington State Department of Fisheries.

Paulik, G. J., 1961.
 Detection of Incomplete Reporting of Tags. Journal Fisheries Research Board, Canada, 18 (5): 817-832.

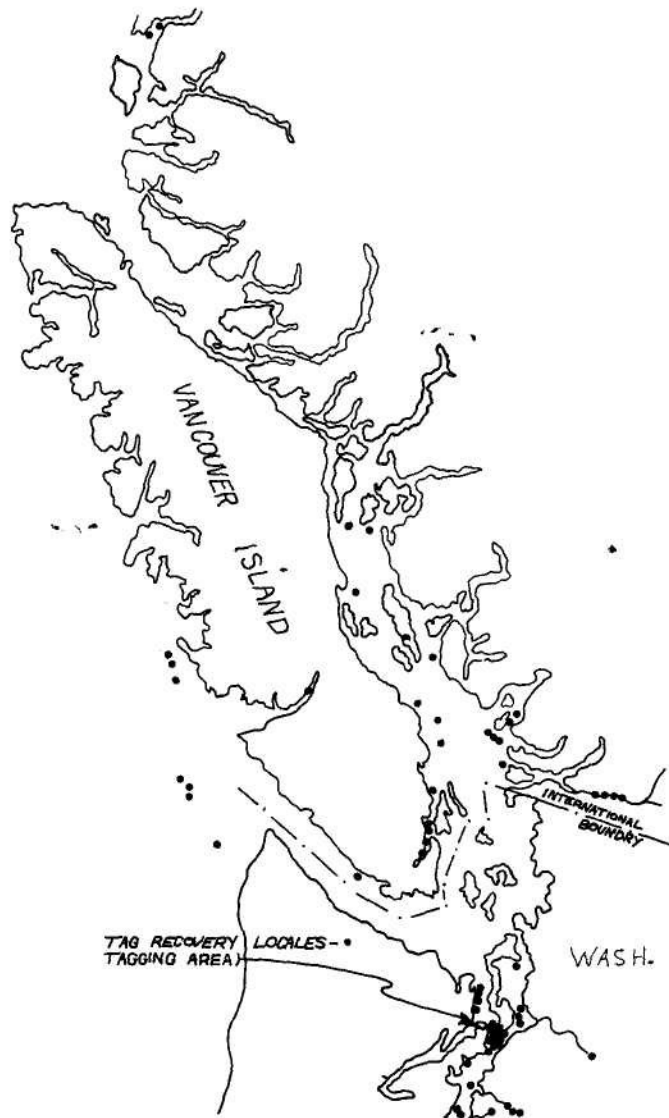


FIGURE T5. Recovery Locales of Chinook* Tagged off Whidbey Island.

OCEAN SPORT FISHERIES¹

**Daniel J. Miller California
 Department of Fish and Game**

In some areas of the Pacific coast, sport fish are abundant enough so that fluctuations in abundance of most stocks are not easily apparent from the sport catch. Concern over which species are the most important and thus demand research attention is usually determined by the current commercial value of each species in the fisheries. Such an area is the Pacific Northwest where not only are large catches of salmon and true smelts, but also unknown numbers of greenlings, lingcod, surfperches, cottids and rockfish taken each year. Other species besides salmon and true smelts are becoming more important as population pressures increase and as new methods of capture such as spearfishing are becoming popular. However, salmon will probably always be a prime sport fish in this northern area. Spearfishing has given new status to lingcod and octopus and of course true smelts have been an important food source for centuries. Other species, such as those taken from shore and from piers, will gain in importance as fishing pressures increase.

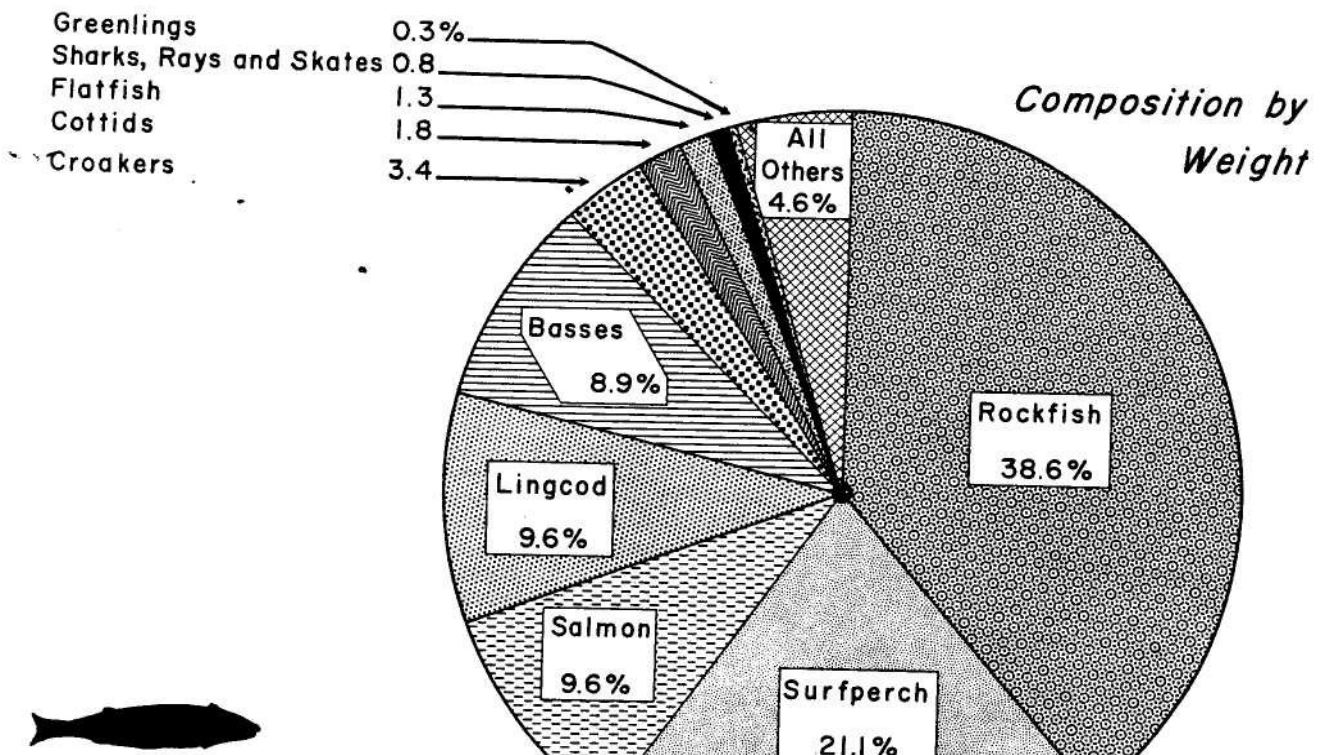
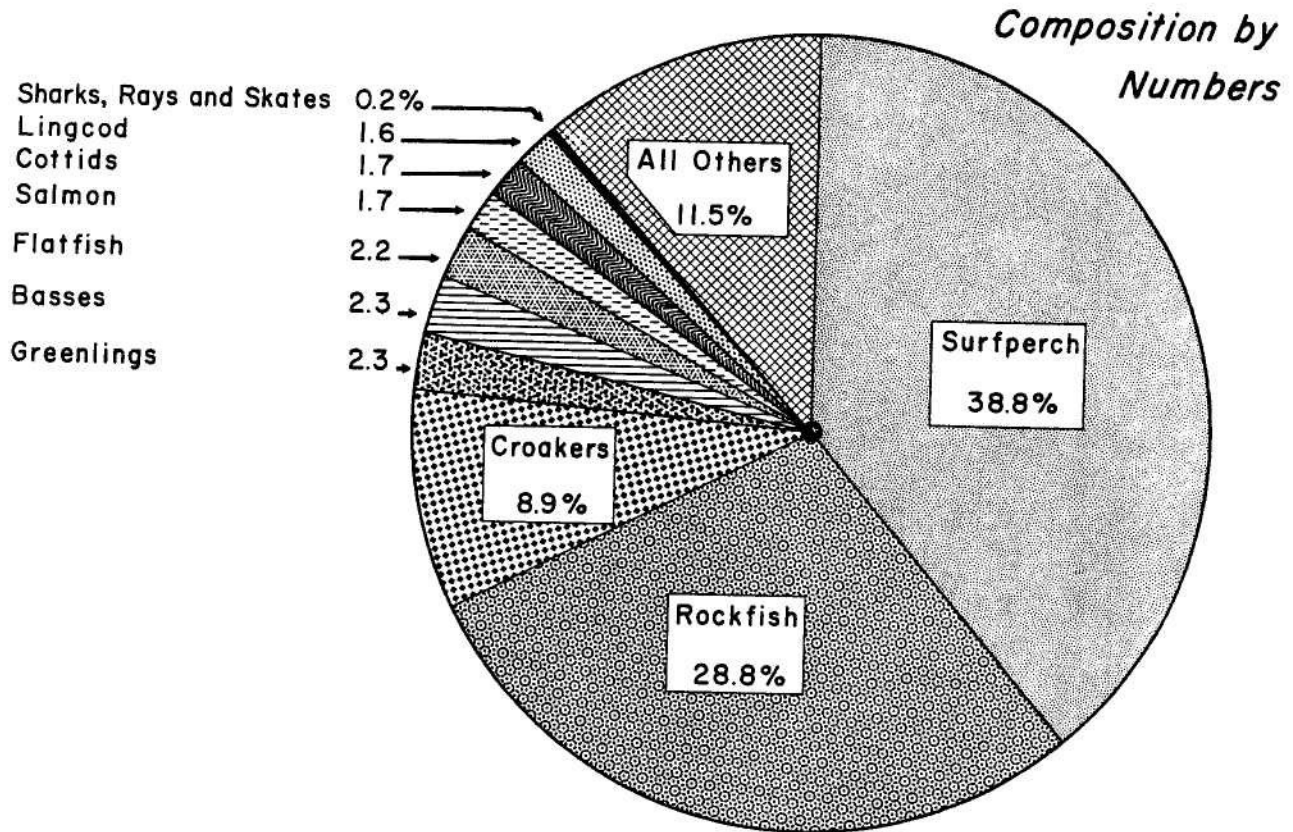
Farther south along the coast we run into the area between the moist Pacific Northwest and arid Baja California called California. Within this 1,200 miles of coastline there is a gradation between the northern temperate rain climate and the arid desert climate with corresponding changes in flora and fauna. The principal break in climate and fauna occurs near Point Conception. However, gradual changes are apparent throughout. The northern limits of distribution of many southern California fishes and southern limits of distribution of many Pacific Northwest species occur in central California. Salmon and true smelts have been taken in good numbers, at least until recently, south to Monterey Bay but at lower latitudes salmon occurrence has been erratic and no spawning areas of true smelts have been found.

Proceeding south from Canada numbers of sport fishermen increase and fishing facilities and access to the ocean increase. Party boats, fishing piers, fishing barges and skiff launching ramps are numerous in southern California and are becoming more popular in central and northern California. With increased fishing pressure more species become important sport fish and there is a marked change in attitude toward different species as you proceed southward from Canada to Mexico. Some groups of fishermen consider capture of salmon the only sport fishery; others ply only for lingcod. Some, especially those of southeast Asian origin, prefer white croakers and still others prefer blue rockfish, halibut, barracuda, white seabass, and so on. In recent years skindiving competition meets have become popular in Puget Sound and in central and southern California. In these events the fish has become a means rather than an end. However, in our experience, the surplus fish taken are not wasted in that they are usually donated to a county hospital or other similar establishment. Still other anglers are strictly meat fishermen and consider any fish fair game in any situation where it can be taken cheaply and legally.

¹This work was performed as part of Project "California F-12-R", supported by Federal Aid to Fish Restoration Fund.

Ocean Sportfish Catch-Oregon to Pt. Arguello, Calif.

Percent Composition by Numbers and Weight, 1958-1961



Sportfish Taken Annually - Oregon to Pt. Arguello, Calif.

Average Number and Weight

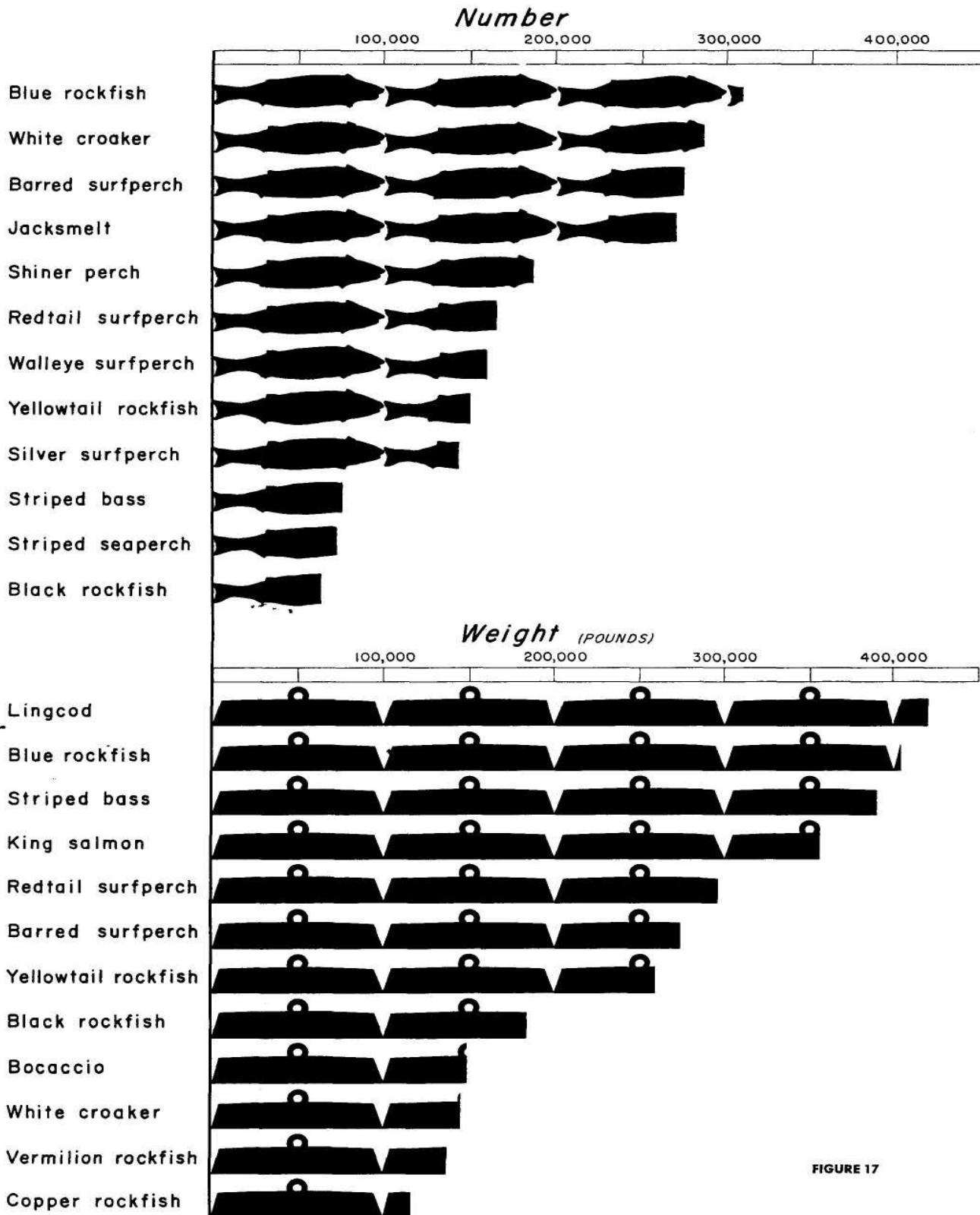


FIGURE 17

As fishing pressure increases there is a corresponding increase in restrictions upon fishing. In southern California there are restrictions on practically all sport fishes and the take of several species is denied commercial fishermen.

Until recently no thorough survey had been undertaken on the Pacific coast to gain full knowledge of the ocean sport fishery. Fragmentary information such as that attained from party boat logs and various life history studies were available but no thorough assessment of angler days expended, catch by species and detailed description of fishing areas was at hand.

In 1957, California embarked on such a survey which was to assess all fishing methods from Oregon to Point Arguello. This year this same type of study has been initiated to survey the area from Point Arguello to Mexico. Thus a complete sportfish survey of ocean species from Mexico to Oregon has been or is being done. The following discussion is a general summary of results of the recently completed Northern California Marine Sport Fish Survey.

Methods

Methods will not be dealt with in detail in this paper. All sampling procedures were conducted on a judgment sampling basis rather than a statistical random sampling. We were able to acquire at least a ten percent sample of total effort for each method except for shore fishing where only a six percent sample was attained. Not all methods were sampled in the same year. Pier fishing and sandy shore fishing were surveyed during late 1957 and 1958, skiff fishing was sampled in 1959 and party boat fishing, scindiving and rocky shore fishing were surveyed in 1960 and early 1961. Thus, when I refer to total "annual" catch and effort I am referring to an average annual value within the period from 1958 to 1960. No outstanding variations in species other than the 1958 ocean striped bass run occurred during this three year period. Rapid warming of the inshore waters occurred in 1957, prior to the study period, and from 1958 through 1960 there was a gradual cooling of the inshore waters. Salmon were beginning to show strength again in the sport catch and throughout the study period this species was about average in strength to a little less than average at some ports. For some areas total annual effort figures were available from party boat logs, skiff concessionaire records and pier fishing receipts. These accurate total effort figures revealed no outstanding variations in effort throughout the study period. Thus I feel the average "annual" figures presented are truly representative even though they were collected over a three year period and covered only a

portion of the methods within each year. Effort and catch data will be treated separately in the following discussion.

Effort

Shore fishing effort exceeded all other methods. However, had all piers been surveyed pier fishing would have ranked first. Three small piers along the outer coast and most of the smaller piers inside San Francisco Bay were not surveyed. Actually, all figures presented are minimal figures. However, the actual values are probably not much more than five percent greater for any method.

About 1,450,000 angler days were expended annually for all methods including both hook-and-line and surf netting. Hook-and-line effort was as follows: shore fishing, 603,100 angler days; pier fishing, 528,100 angler days; skiff fishing, 122,000 angler days; party boat fishing, 117,300 angler days; and skindiving, 40,000 diving days. Surf netting effort was about 42,000 net days for daytime netters. No night smelt effort or catch estimates were made although fishermen interviewed indicated night smelting was less in magnitude than daytime surf smelting.

Catch

In the northernmost part of the study area the sport fishery is typically of Northwest Pacific type with salmon, true smelt and redbtail surf perch the principal species. Other species such as striped bass, lingcod, rockfishes and other species of surfperch become more important from San Francisco to Monterey, and from Monterey to Point Arguello, barred surfperch, blue rockfish, lingcod and other species of rockfish and surfperch were dominant in the sport catch. Fishing pressure was heaviest in the center of the study area, i.e., San Francisco to Monterey. To the north intensive boating was undertaken at a few ports, i.e., Crescent City, Trinidad, Eureka and Fort Bragg. Shore fishing and pier fishing were undertaken wherever access was allowed but effort was relatively light compared to that in the San Francisco-Monterey area. South of Monterey, access was the limiting factor in that the shoreline highway does not follow the beach for many miles and the area is too rugged for residential or commercial development. Relatively heavy boating, shorefishing and pier fishing occurs between Cayucos and Pismo Beach.

Catch will be presented in two categories, i.e., one which covers the total fish landed by all methods combined in numbers and weight of the twenty most frequently caught species (Table 1), and the other covering the top five species by numbers and weight, in each of the methods (Table 2).

TABLE 1

Number and Percent Composition of Twenty Most Commonly Landed Species by Numbers and Weight for All Sportfishing Methods in an Average Year (Oregon to Point Argueilo, California)

NUMBERS				WEIGHT		
Rank	Species	Number	% of Total	Species	Pounds	% of Total
1	Blue rockfish.	310,500	9.67	Lingcod	420,400	9.61
2	White croaker.	287,000	8.93	Blue rockfish.	403,700	9.23
3	Barred surfperch ____	273,500	8.51	Striped bass..	388,600	8.89
4	Jacksmelt	271,200	8.44	King salmon.	356,220	8.15
5	Shiner perch..	186,500	5.80	Redtail surfperch ...	296,900	6.79
6	Redtail surfperch ____	164,900	5.13	Barred surfperch ...	273,500	6.25
7	Walleye surfperch	160,300	4.99	Yellowtail rockfish	259,800	5.94
8	Yellowtail rockfish	150,100	4.67	Black rockfish ____	182,500	4.17
9	Silver surfperch ____	142,600	4.44	Bocaccio ____	149,300	3.41
10	Striped bass ..	74,700	2.33	White croaker	146,400	3.35
11	Striped seaperch	72,500	2.26	Vermilion rockfish ____	137,100	3.14
12	Black rockfish	63,400	1.97	Copper rockfish	116,800	2.67
13	Kelp greenling	56,300	1.75	Jacksmelt ...	108,500	2.48
14	Calico surfperch ____	52,700	1.64	Olive rockfish ____	93,300	2.13
15	Lingcod	52,600	1.64	Striped seaperch	87,000	1.99
16	Olive rockfish.	48,400	1.51	Cabezen ____	76,500	1.75
17	Copper rockfish	45,400	1.41	Canary rockfish ____	73,200	1.67
18	Canary rockfish	44,700	1.39	Silver salmon	63,700	1.46
19	King salmon..	44,600	1.39	Kelp greenling ...	47,300	1.80
20	Bocaccio	43,800	1.36	Brown rockfish	44,350	1.01

Total Catch All Methods

The tabular data include hook-and-line fishing only. Surf netting is a specialized fishery using unique gear and undertaken by a relatively few individuals. Surf netters landed approximately 3,200,000 surf smelt in 1958 weighing about 310,000 pounds which places this species among the most frequently taken in both numbers and weight.

Hook-and-line catches were dominantly of bottomfish with the blue rockfish, white croaker, barred surfperch and jacksmelt the major species by numbers; and lingcod, blue rockfish, striped bass and king salmon the major species by weight.

The closeness of the top six species in both the numbers and weight comparisons is striking. Any dominant or poor year of abundance or availability of any one of these species could alter the sequence considerably. King salmon were relatively weak during the survey and during any peak year

TABLE 2

Five Most Frequently Landed Species by Numbers and Weight for Each Fishing Method During the Period 1958-1960 (Hook-and-Line Fishing, Oregon to Point Argueilo)

Method	Rank	Species by Numbers	Species by Weight
Party Boat	1	Blue rockfish	Blue rockfish
	2	Yellowtail rockfish	King salmon
	3	Olive rockfish	Yellowtail rockfish
	4	Bocaccio	Lingcod
	5	King salmon	Striped bass
Skindiving	1	Blue rockfish	Lingcod
	2	Lingcod	Black rockfish
	3	Striped seaperch	Blue rockfish
	4	Black rockfish	Striped seaperch
	5	Kelp greenling	Kelp rockfish
Skiff	1	Blue rockfish	Lingcod
	2	White croaker	Blue rockfish
	3	Black rockfish	Black rockfish
	4	Pacific sanddab	King salmon
	5	Copper rockfish	Copper rockfish
Shore	1	Barred surfperch	Redtail surfperch
	2	Redtail surfperch	Barred surfperch
	3	Silver surfperch	Striped bass
	4	Walleye surfperch	Cabezen
	5	Jacksmelt	Kelp greenling
Pier	1	White croaker	White croaker
	2	Jacksmelt	Jacksmelt
	3	Shiner perch	Barred surfperch
	4	Walleye surfperch	Walleye surfperch
	5	Barred surfperch	Shiner perch

this species would be by far the most important by weight. Blue rockfish likewise were below their peak abundance and in 1956 and 1957 would have been first in both numbers and weight. Striped bass, on the other hand, were at their peak of abundance in 1958 and will probably not attain a higher relative importance than indicated on this survey. Most surprising to us were the large numbers of redbtail surfperch and white croaker in both numbers and weight. King salmon were 19th in numbers and 4th by weight, and, contrary to recent unfounded reports, cabezen was a minor species ranking 22nd by numbers and 16th by weight, contributing 1.19 percent and 1.75 percent of the total catch by numbers and weight respectively. No species contributed to more than ten percent of the catch in either category and the top twenty species accounted for 78.56 percent and 88.17 percent of the catch by numbers and weight respectively.

Catch by Method

Party Boat

Party boat fishermen landed 812,630 fish in 1960, of which blue rockfish and yellowtail rockfish far outnumbered other species contributing 27.41 percent and 17.93 percent of the catch by numbers respectively. Blue rockfish was first by weight, followed by king salmon, yellowtail rockfish, lingcod and striped bass. At all northern ports king salmon, silver salmon and black rockfish were dominant and in San Francisco Bay area striped bass became a major species. From Princeton south, lingcod, blue rockfish and yellowtail rockfish were the principal species. Most party boat trips were either salmon or striped bass trolling trips or regular bottom fishing excursions but there were a few trips chartered by skindivers to the Farallon Islands and out-of-the-way shore areas near Monterey and Morro Bay, as well as several albacore, white seabass and halibut excursions. A little over half the central and northern California party boat effort was expended on bottom fishing with 64,583 of the total 117,300 angler days on this type of fishing. A large amount of trolling in the San Francisco Bay area was for striped bass. Party boat catch-per-day values were the highest for all fishing methods with 6.92 fish-per-day.

Even though the southern California party boat catch was not covered in our survey, we do have catch data from party boat logs. Compared to northern and central California the southern California fishery is dependent on more migratory or shifting populations. These are the California yellowtail, California barracuda, Pacific bonito, jack and Pacific mackerel, white seabass and albacore. Other more local species of importance are the California halibut, kelp bass, sand bass, sculpin, California sljeephead and rockfishes. In 1961 the party boat catch of central and northern California was 633,600 fish as compared to 2,819,900 fish reported for southern California, demonstrating the magnitude of this type of fishery in southern California. In 1961 Pacific bonito, kelp and sand bass, California barracuda, rockfishes and albacore were the major fishes.

Skiff Fishing

A total of 122,017 angler days were spent by skiff fishermen in 1959 with a catch of 327,200 fish. This yields an average catch-per-day of 2.68 fish which ranks second to party boat success.

The principal species by numbers were the blue rockfish, white croaker and black rockfish; and lingcod, blue rockfish and black rockfish by weight. As with party boat fishing, skiff effort north of San Francisco, was primarily for salmon, whereas in the area south of Princeton bottomfish such as lingcod, blue rockfish, white croaker and Pacific sanddab became more important.

Scuba Diving

About 40,000 diving days were spent by skindivers in 1960. The average skindiver spent about 51 percent of his time spearfishing. The remainder of his time was spent mainly on abalone picking (31 percent of his time) and observing and practicing (16 percent of his time). Our

data were tabulated by Scuba and free-diving categories as well as by competition and non-competition. However, in this report the catch and effort of all series of data are collated into total skindiving catch and effort. A total catch of 21,600 fish was estimated for 1960, yielding an average catch-per-diving day of 0.54 fish, the lowest average catch-per-unit of effort value for all fishing methods. The main catch was of blue rockfish, lingcod and striped seaperch. Of the total diving days, 618 or 1.5 percent were expended in competition diving.

Shore Fishing

Shore fishing was separated into sandy beach and rocky shore categories. Of the total 603,100 angler days approximately 389,100 were expended on sandy beaches and 214,000 on rocky shoreline. The heaviest shore fishing area was from San Francisco to Santa Cruz where in 1958 the ocean run of striped bass attracted large numbers of anglers.

Redtail surfperch was the most common species taken in the surf north of San Francisco and barred surfperch was most abundant from Princeton south. Rocky shore fishermen caught primarily striped seaperch, kelp greenling and cabezon. The average catch-per-day value was 1.70 fish-per-day, the second lowest for all methods.

Pier Fishing

Pier fishing was the most popular fishing method (considering all piers in the area including those not sampled). People of all ages can enjoy ocean fishing from piers and pier fishing is usually an entire family affair. Public pier fishing, including rock jetties, is the only type of fishing for which an angling license is not required in California. Four piers are reserved exclusively for pier fishing: San Francisco Municipal pier, Seacliff Beach State Park pier, Pismo Beach pier, and Berkeley Municipal pier.

White croaker was the dominant species by both numbers and weight. Most piers are built over sandy bottom, hence the dominance of sandy bottom and pelagic forms such as white croaker, jacksmelt and the surfperches. The average catch-per-day of 1.94 fish indicates relatively poor catches compared to skiff and party boat catches but is higher than shore fishing and skindiving.

Summary

Throughout the sport fishery of northern and central California certain species such as the blue rockfish, lingcod, white croaker, and several surfperches and rockfishes appear in most of the sport fisheries and are pursued by a large number of fishermen. Other species such as the salmon, true smelts and striped bass are more specialized ocean sport fisheries and pursued by relatively fewer individuals although the actual take may be relatively large, especially by weight. When attempting to ascertain relative values of sport fish, comparisons by weight and by numbers are strikingly different. However, within each category the top ranking species are close in absolute values.

Because of the overall importance of the blue rockfish by both numbers caught and weight in most of the sport fisheries, the Department has embarked on a life history study of this species.

A REPORT ON RECENT GROUND FISH TAGGING EXPERIMENTS

Sigurd J. Westheim¹
Oregon Fish Commission

Introduction

Groundfish stocks in the Pacific Ocean off the coasts of the United States and Canada present serious management problems because their migration patterns heretofore have not been well delineated. Development of deep-water winter fisheries since 1954 for Dover and petrale sole accentuated this problem and led to initiation of a number of tagging experiments to determine the offshore-inshore exchange of some of these stocks, as well as the north-south distribution. The Thirteenth Annual Report of the Pacific Marine Fisheries Commission (for 1960) contains summaries of significant English and petrale tagging experiments initiated through 1959.

Since 1959 additional experiments dealing with Dover, English, and petrale soles, lingcod, Pacific Ocean perch, and sablefish have begun. This report summarizes the preliminary results of these experiments initiated through June 1962. Recoveries through May 31, 1962, are included. The primary purpose of this report is to note the scope of the coastwide studies on the migration of selected groundfish species. Figure 18 shows the P.M.F.C. statistical areas off Canada and the United States which are pertinent to this report.

Dover Sole

Three Dover sole tagging experiments (10,166 fish) have been initiated since 1959 (Table 1). To date, no

¹The author is now with the Fisheries Research Board of Canada.

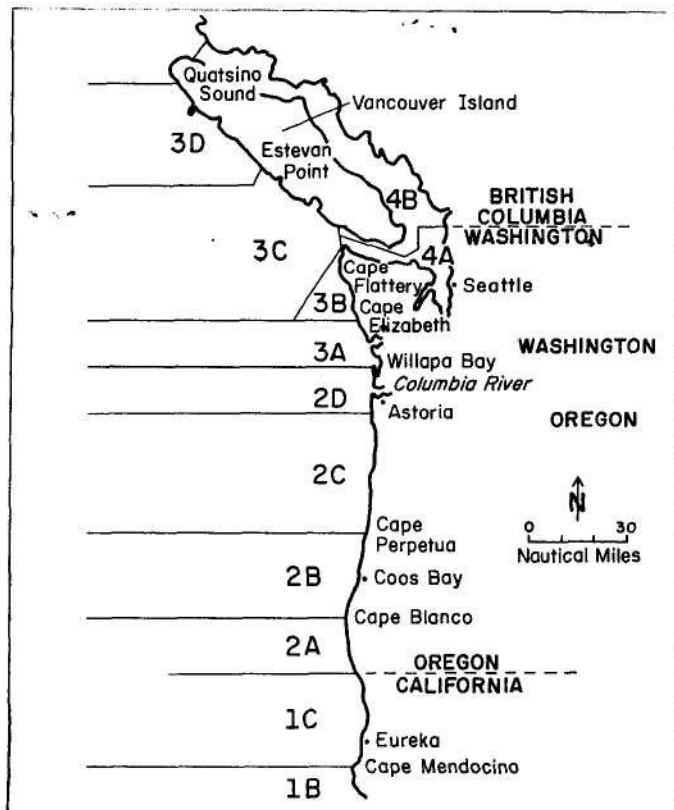


FIGURE 18. Chart of Pacific Coast Showing P.M.F.C. Trawl Areas.

tagged fish have been recaptured outside the P.M.F.C. area in which they were tagged. Recoveries from these experiments can be expected for at least another 5 years and the migration pattern now evident may change.

TABLE 1
Summary of Dover Sole Tagging Experiments, 1961-62

Experiment No.	Area	Depth (fms.)	Dates	Nos. Tagged	Nos. Recovered ¹	Agency ²
1	2C—Stonewall Bank	85-272	May-June 1961	4,319	15	OFC-BCF
2	2D—SW Columbia River	50-300	June 1961-June 1962	3,451	9	OFC (AEC)
3	1C-2A—Eureka to Mack Arch	45-136	April 1962	2,396	35	CDFG-OFC
Total				10,166		

¹Recoveries through May 31, 1962

²AEC—Atomic Energy Commission

BCF—Bureau of Commercial Fisheries

CDFG—California Department of Fish and Game

OFC—Oregon Fish Commission

Petrale Sole

Seven petrale sole tagging experiments (12,602 fish) have been initiated since 1959 (Table 2). Numbers 3, 4, and 5 have yielded no recoveries outside the P.M.F.C. tagging area. Number 7 has yielded no recoveries to date. Figure 19 shows the distribution of recoveries from Numbers 1, 2 and 6. The results are variable. Petrale tagged off Heceta Bank, primarily in deep water, have moved as far north as Area 3D (Vancouver Island) and south to Area 1C (N. California). Petrale sole tagged west of Cape Flattery on La Perouse spit and bank in shallow water have not been recaptured in P.M.F.C. areas north of the tagging area; most have been recovered in the tagging area but some have moved as far south as Area 2B (Oregon). Petrale sole tagged in the Willapa Deep moved north as far as Area 3C (Vancouver Island), but none have been recaptured south of the tagging area.

TABLE 2
Summary of Petrale Sole Tagging Experiments, 1960-62

Experiment No.	Area	Depth (fms.)	Dates	Nos. Tagged	Nos. Recovered ¹	Agency ²
1	2B—Heceta Bank	68-210	Feb.-Mar. 1960	5,040	272	OFC
2	3C—Cape Flattery	65	May 1960	174	57	WDF
3	1B—Halfmoon Bay to Ano Neuvo Island ³	165-225	Nov.-Dec. 1960	2,378	50	CDFG
4	3C—La Perouse Bank	40-50	May-June 1961	53	13	WDF
5	1C-2A—Eureka to Mack Arch	45-136	April 1962	441	17	CDFG-OFC
6	3A—Willapa Deep	190	Feb. 1962	4,461	54	WDF
7	3B—Destruction Island Deep	190	Feb. 1962	55	0	WDF
Total				12,602		

¹Recoveries through May 31, 1962

²CDFG—California Department of Fish and Game

OFC—Oregon Fish Commission

WDF—Washington Department of Fisheries

³Southwest from San Francisco (not shown in Figure 18)

Miscellaneous Species

Five tagging experiments have involved lingcod (2), Pacific Ocean perch (1), and sablefish (2) (Table 3). Lingcod recaptures were substantial, but only two fish were recaptured outside the P.M.F.C. tagging area. One was re-

** Tagging Experiments, 1960-62
CRAB CONDITION STUDIES
DURING THE 1960-61 AND 1961-62 SEASONS
IN OREGON

C. Dale Snow Oregon
Fish Commission

Introduction

The condition of Dungeness crabs at the inception of each season fluctuates considerably between years. In some years only a small portion of the marketable crabs have soft shells (and little meat) and in other years substantial portions. The poor quality of crabs during the early portion of the 1959-60 season caused considerable concern within the industry and this resulted in a recommendation to the Pacific Marine Fisheries Commission in November, 1960, to delay the opening date along the coast. A concurrent recommendation called for uniform opening dates for all areas. The northern California, northern Oregon (Area 1, north of Cascade Head), and Washington areas opened December 15 and southern Oregon (Area 2, south of Cascade Head) opened November 15. The variable opening dates in Oregon were based upon condition studies undertaken in 1948 and 1949.

The Oregon Fish Commission acted in December, 1960 to change the opening date for Area 1 from December 15 to January 1, and for Area 2 from November 15 to December 1. These new dates would become effective in the 1961-62 season if the Washington season was altered to coincide with that in Oregon's Area 1. Subsequently the Washington season was altered accordingly.

The Oregon Fish Commission action created controversy among some segments of the Oregon industry who alleged that the crab condition did not vary sufficiently between areas to warrant different opening dates for Areas 1 and 2. In accordance with a Pacific Marine Fisheries Commission staff request, a 2-year investigation was undertaken to determine the condition of crabs landed in the principal Oregon ports.

This report deals with the information collected during the 1960-61 and 1961-62 seasons.

Methods

Through the cooperation of the processing plants and fishermen, crabs were sampled at sea and dockside for shell condition during the 1960-61 season and at dockside only during the 1961-62 season. Condition of the crabs was determined by pinching the shell at the base of the tenth antero-lateral spine. If the shell was immovable at this point, the crab was considered to be condition 1, or hard-shell. If the shell was flexible under pressure, it was considered as condition 2, or soft-shell. If it was very soft or compressed readily it was classified as condition 3. Samples were taken weekly when weather and landings permitted until the soft-shell percentage declined to minimum levels. Also, each staff member sampled at least once in every port in order to minimize bias.

In this type of sampling the following assumptions must be made: (1) a crab with a soft or flexible shell is a crab that has not completely filled out since shedding; (2) uniform interpretation of shell condition by all samplers; and (3) the samples taken are representative of the crabs being caught in the fishing area.

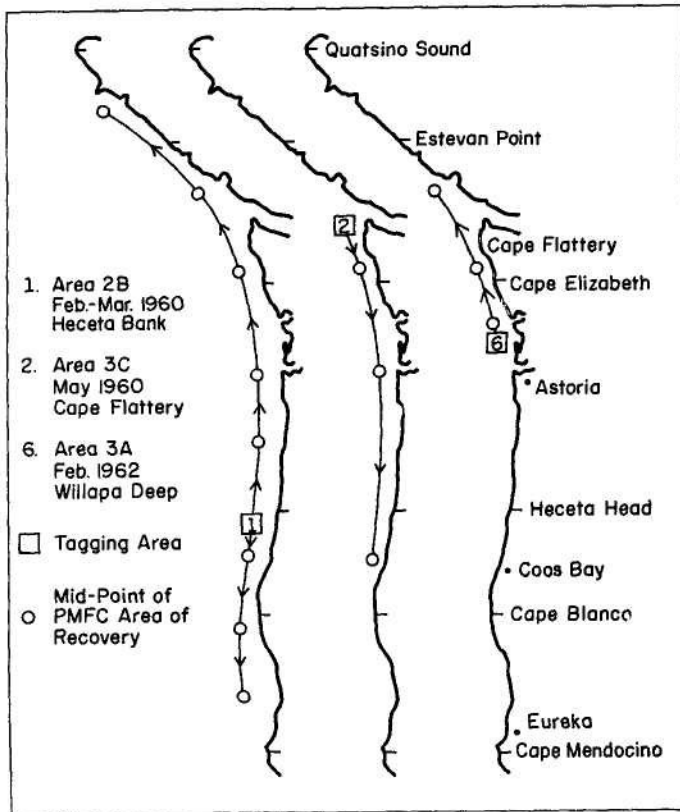


FIGURE 19. Chart Showing Migrations of Tagged Petrale Sole.

captured in Puget Sound (Area 4A) and the other in the Straits of Georgia (Area 4B). Only one sablefish has been recaptured and this was taken in the tagging area. No Pacific Ocean perch have been recaptured.

This tagging effort in recent years by the coastal states has been substantial and subsequent recoveries will strengthen our knowledge of these groundfish stocks.

Experiment No.	Area	Depth (fms.)	Dates	Nos. Tagged	Nos. Recovered ¹	Agency ²
LINGCOD						
1	3C—40-Mile Bank	40	June 1960	436	280	WDF
2	3C—La Perouse Bank	40-50	May-June 1961	549	158	WDF
			Total	985		
PACIFIC OCEAN PERCH						
1	2C—Stonewall Bank	85-120	May-June 1961	115	0	OFC-BCF
			Total	115		
SABLEFISH						
1	2D—SW Columbia River	50-300	June 1961 June 1962	577	0	OFC (AEC)
2	3B—Destruction Island Deep	190	Feb. 1962	130	1	WDF
			Total	707		

¹Recoveries through May 31, 1962

²AEC—Atomic Energy Commission
 BCF—Bureau of Commercial Fisheries
 OFC—Oregon Fish Commission
 WDF—Washington Department of Fisheries

TABLE 3
 Summary of Lingcod, Pacific Ocean Perch and Sablefish

Results

During the 1960-61 season, 17,080 crabs were sampled for shell condition and in 1961-62, 10,825. Sampling took place at all major ports from Astoria to Brookings. In conjunction with this study, width measurements were taken for all soft-shell crabs and a portion of the hard-shell crabs.

Crab Condition—1960-61

Table 1 summarizes the information collected concerning the condition of crabs landed as measured by the per cent soft-shell crabs in the samples during the 1960-1961 season. In general, the per cent soft-shell crabs declined steadily after the season opened in all fishing areas. However, there was a decided difference in the condition of crabs between fishing areas, in the same week, during the early portion of the season. For the week ending January 1, percentage for southern Washington was 37 (the previous week it was 41 compared with 29 for Area 1). For Area 2, exclusive of the southernmost portion (Rogue River Reef to the California border), the percentages were 3, 5, and 13, respectively, moving southward. Curiously, the Rogue River Reef-California border sub-area had a percentage of 20 which is comparable to that in Area 1. This area has only recently been extensively exploited by Oregon fishermen. Further study is indicated to determine whether this condition is consistent. The data indicates that a later opening in 1960 for all areas would have reduced the proportion of soft-shell crabs landed; and that the crab condition does vary markedly between areas.

Crab Condition—1961-62

Table 2 summarizes the information collected concerning the condition of crabs landed as-measured by the per cent soft-shell crabs in the samples during the 1961-62 season. Crab condition was better on the season opening in all areas in 1961-62 than in 1960-61, except for those crabs taken just south of the Columbia River. This area contained an unusually high percentage of soft-shell crabs. In general the trend was for the soft-shell percentage to decline as the season progressed. However, what appeared to be a group of late-shedding crabs entered the fishery in mid-January and increased the soft-shell percentages at Coos Bay and

Brookings. Differences in condition between areas were not pronounced as in 1960-61, perhaps because of the lower incidence of soft-shell crabs in 1961-62.

Crab Widths

Information was also collected concerning the mean width of hard and soft-shell crabs during the 1960-61 and 1961-62 seasons. The soft-shell crabs in almost all samples in both seasons were smaller than the hard-shell crabs. Furthermore, the mean width of soft-shell crabs declined throughout the season in most areas. One or more of the following reasons may account for this: (1) crabs which were sub-legal during the early portion of the seasons molted and reached marketable size but had not hardened up; (2) freshets may have caused bay crabs to emigrate to the sea—these are smaller crabs and a substantial portion of them are soft at any time of year; or (3) smaller crabs have thinner shells and may have been categorized as soft merely because the thinner shells offered less resistance to squeezing.

Conclusions

The 1960-61 and 1961-62 crab sampling substantiated the difference in condition of crabs from different areas, particularly so in 1960-61. The differences within Area 2 on the opening in 1961 were minimal. However, some crabs captured just off the mouth of the Umpqua River were softer than those landed shortly after the opening. The area of origin of these soft crabs is one that traditionally contains small crabs during the winter that probably come out of the Umpqua River during freshets. The area from the Rogue River Reef south has only recently been exploited by Oregon fishermen and merits further study before any conclusions are reached.

In general the 2-year study shows wide variations in crab condition at the season opening. However, the data does indicate that a later opening would result in a higher percentage of crabs in prime condition. This 2-year study also indicates, because of the high degree of variation, that a longer period of sampling is needed to establish long-term variations in crab condition during the early weeks of each season.

TABLE 1—Numbers of Crabs Sampled and Percent Soft-Shell, by Area Caught and Date Sampled, for the 1960-61 Season

DATE	AREA CAUGHT													
	Longbeach, Wn. to Columbia R.		Columbia R. to Cape Falcon ¹		Cape Falcon to Cape Lookout		Cape Lookout to Umpqua R.		Umpqua R. to Cape Blanco		Cape Blanco to Rogue R. Reef		Rogue R. Reef to Calif. Border	
Week Ending	No. Sampled	% Soft	No. Sampled	% Soft	No. Sampled	% Soft	No. Sampled	% Soft	No. Sampled	% Soft	No. Sampled	% Soft	No. Sampled	% Soft
Nov. 27	0	....	0	....	....	....	161	38	0	....	0	....	0	....
Dec. 13	581	57	0	....	....	....	426	20	468	14	279	6	632	36
Dec. 26	195	41	300	29	....	....	555	7	0	....	0	....	200	36
Jan. 1	150	37	0	....	....	....	73	3	190	5	95	13	250	20
Jan. 8	0	....	159	13	....	....	539	5	0	....	0	....	0	....
Jan. 15	0	....	0	....	....	....	490	8	0	....	349	10	503	20
Jan. 22	379	13	148	9	....	....	734	7	369	6	0	....	0	....
Jan. 29	524	9	0	....	....	....	832	9	0	....	500	9	506	13
Feb. 5	0	....	0	....	No Samples	....	629	6	0	....	0	....	0	....
Feb. 19	257	7	141	22	....	....	0	....	0	....	0	....	0	....
Feb. 26	0	....	0	....	....	....	450	2	0	....	0	....	0	....
Mar. 5	0	....	0	....	....	....	471	6	488	29	0	....	334	12
Mar. 19	399	5	535	6	....	....	0	....	0	....	0	....	0	....
Mar. 26	0	....	0	....	....	....	301	3	0	....	0	....	419	5
Apr. 2	149	63	319	10	....	....	0	....	0	....	0	....	0	....
Apr. 16	0	....	0	....	....	....	391	5	453	2	0	....	0	....
Apr. 30	316	23	0	....	....	....	0	....	0	....	0	....	0	....
May 7	441	13	0	....	....	....	0	....	0	....	0	....	0	....
Totals	3,391		1,602				6,052		1,968		1,223		2,844	

¹Cape Falcon is 43 miles north of Cascade Head, the northern boundary of Area 2

TABLE 2—Summary of Soft-Shell Crab Sampling, by Area, by Weekly Time Period for the 1961-62 Season

DATE	AREA CAUGHT													
	Longbeach, Wn. to Columbia R.		Columbia R. to Cape Falcon ¹		Cape Falcon to Cape Lookout		Cape Lookout to Umpqua R.		Umpqua R. to Cape Blanco		Cape Blanco to Rogue R. Reef		Rogue R. Reef to Calif. Border	
Week Ending	No. Sampled	% Soft	No. Sampled	% Soft	No. Sampled	% Soft	No. Sampled	% Soft	No. Sampled	% Soft	No. Sampled	% Soft	No. Sampled	% Soft
Dec. 10	0	....	0	....	....	....	198	13	212	11	0	....	225	10
Dec. 17	0	....	0	....	....	....	429	10	422	12	488	14	307	10
Dec. 24	0	....	0	....	....	....	0	....	0	....	0	....	0	....
Dec. 31	0	....	0	....	....	....	438	12	0	....	0	....	0	....
Season opened January 1														
Jan. 7	0	....	0	....	....	....	0	....	703	19	0	....	463	25
Jan. 14	441	21	205	50	....	....	0	....	0	....	0	....	0	....
Jan. 21	432	7	128	17	No Samples	....	421	4	315	23	296	0	369	16
Jan. 28	0	....	0	....	....	....	0	....	0	....	0	....	0	....
Feb. 4	307	5	232	14	....	....	250	7	315	7	0	....	323	5
Feb. 11	464	4	0	....	....	....	0	....	0	....	0	....	0	....
Feb. 18	0	....	0	....	....	....	0	....	0	....	0	....	0	....
Feb. 25	0	....	208	3	....	....	360	1	200	15	0	....	358	7
Mar. 4	222	3	0	....	....	....	0	....	0	....	0	....	0	....
Mar. 11	407	4	0	....	....	....	0	....	0	....	0	....	0	....
Mar. 18	339	5	0	....	....	....	348	9	0	....	0	....	0	....
Totals	2,612		773				2,444		2,167		784		2,045	

¹Cape Falcon is 43 miles north of Cascade Head, the northern boundary of Area 2

FINANCES

The Commission receives its financial support from legislative appropriations made in accordance with ARTICLE X of the inter-state Compact in which the signatory states have agreed to make available annual funds for the support of the Commission in proportion to primary market value of the products of their fisheries as recorded in the latest published reports (five-year average), with the provision that no state shall contribute less than two thousand dollars per annum and the annual contribution of each state above the minimum shall be figured to the nearest one hundred dollars.

STATEMENT OF RECEIPTS AND DISBURSEMENTS January 1, 1962 to December 31, 1962

CASH BALANCE Dec. 31, 1961
(Ending Balance 14th Annual Report).....\$12,047.56

RECEIPTS: Contributions by

Member States—		
California	\$26,600.00	
Oregon	3,900.00	
Washington	11,600.00	42,100.00
United Airlines—		
Refund on Plane Fare		8.64

DISBURSEMENTS:

Salaries and Wages:		
Executive Director, Consultants, Treasurer, Office Secretary, and Temporary	\$18,118.86	
Office Supplies	\$ 861.01	
Telephone and Telegraph ..	325.55	
Postage, Freight, Express ..	342.25	
Printing of Publications ...	2,641.00	
Rents: Headquarters Office and Meeting Rooms ...	2,240.00	
Premiums: Fidelity Bonds, Fire Insurance, Work- men's Compensation		
Insurance	144.25	
Audit of Fiscal Books and Records	300.00	
Private Car Mileage	432.91	
Fares: Airplane, Railroad Pullman, Other	1,828.13	
Meals and Lodging	2,513.11	
Motor Vehicle Storage	26.30	
Library Supplies	6.75	
Retirement Contributions (O.A.S.I.)	264.13	
Travel Expenses— Advisory Committee ...	2,389.08	
Sound Service— Annual Meeting	70.31	
Miscellaneous Expenses ...	14.05	
Total General Expenses	14,398.83	
Office Furniture and Equipment	265.45	
Cooperative Research with Other Agencies	944.34	
Total Disbursements	\$33,727.48	

Cash on Deposit in The United States
National Bank of Portland, Oregon:
General Checking
Account
 \$20,428.72 |

Revolving Fund
Checking Account
(Transferred to
General Checking
Account)

CASH BALANCE Dec. 31, 1962	20,428.72	
	\$54,156.20	\$54,156.20

AUDIT REPORT

ALLEN H. ADAMS
Certified Public Accountant
Portland, Oregon

August 22, 1962

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

Gentlemen:

I have examined the books and records of the Pacific Marine Fisheries Commission for the fiscal year ending June 30, 1962. The audit embraced the verification of the assets and liabilities of the three funds, i.e. General Fund, Revolving Fund and Property Fund as at June 30, 1962 and a detailed examination of each financial transaction for the period under review. Other auditing procedures were employed to the extent considered necessary in the circumstances.

The following exhibits are submitted:

- A. Balance Sheets, as at June 30, 1962 of the General Fund, the Revolving Fund and the Property Fund.
- B. Statement of Income and Expenses for the period July 1, 1961 to June 30, 1962.
- C. Analysis of Surplus for the period July 1, 1961 to June 30, 1962.
- D. Statement of Cash Receipts and Disbursements for the period July 1, 1961 to June 30, 1962.
- E. Notes to Financial Statements.
- F. Scope of the Audit.

In my opinion, the accompanying statements present fairly the financial position of the Pacific Marine Fisheries Commission at June 30, 1962, and the results of its operation for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Respectfully submitted,

/s/ Allen H. Adams
Allen H. Adams
Certified Public Accountant

BALANCE SHEET June 30, 1962

EXHIBIT "A" GENERAL FUND

ASSETS	
Cash in Bank	\$ 326.11
LIABILITIES, RESERVES AND SURPLUS	
LIABILITIES:	
Accounts Payable	\$ 44.34
RESERVES:	
Unexpended Balance of Allocations for Cooperative Research with other Agencies (See Note 2)	(67.36)
FUND BALANCE:	
Surplus—Current—Exhibit C	349.13
Total Liabilities, Reserves and Surplus	\$ 326.11
REVOLVING FUND	
ASSETS	
Cash in Bank	\$ 390.99
FUND BALANCE	
Reserve for Revolving Fund	\$ 390.99
PROPERTY FUND	
ASSETS	
Office Furniture and Equipment	\$3,392.00
FUND BALANCE	
Investment in Fixed Assets	\$3,392.00

**STATEMENT OF INCOME AND EXPENSES
GENERAL FUND**

For the Fiscal Year Ended June 30, 1962

EXHIBIT "B"

INCOME:	
Contributions from Member States	\$26,400.00
EXPENSES:	
Salaries and Wages—	
Full Time Employees	\$14,464.37
Salaries and Wages—	
Part Time Employees	1,713.86
Office Supplies	572.90
Telephone and Telegraph	318.29
Postage, Freight and Express	266.04
Printing of Publications	2,964.50
Rents	1,569.20
Insurance Premiums	139.32
Auditing Fee	250.00
Private Car Mileage	334.27
Railroad, Plane and	
Other Transport. Fares	1,489.68
Meals and Lodging	1,275.07
Motor Vehicle Supplies	5.00
Retirement Contributions	184.36
Travel Expenses—	
Advisory Committee	2,490.43
Sound Service for Annual Meeting ...	227.00
Capital Outlays: Office Equipment ..	18.50
Research Expenses	50.00
TOTAL EXPENSES	28,332.79
Excess of Expenses over Income for Year—Exhibit C ..	\$(1,932.79)

**ANALYSIS OF SURPLUS For
the Year Ended June 30, 1962**

EXHIBIT "C"

Surplus—Current—July 1, 1961	\$1,822.91
Portion of Funds Reserved for Revolving Fund payments transferred to General Fund during year	609.01
Reserved for Cooperative Research, July 1, 1961	(17.36)
	2,214.56
LESS:	
Excess of Expenses over Income for the fiscal year ended June 30, 1962— Exhibit B	\$ 1,932.79
Reserved for Cooperative Research, June 30, 1962	(67.36)
Surplus—Current—Exhibit C	\$ 349.13

STATEMENT OF CASH RECEIPTS AND DISBURSEMENTS

For the Period July 1, 1961 to June 30, 1962

EXHIBIT "D"

GENERAL FUND

Cash in Bank, July 1, 1961	\$ 1,675.20
RECEIPTS DURING PERIOD JULY 1, 1961 TO JUNE 30, 1962:	
Appropriations from Member States ..	\$26,400.00
Refund from Air Lines	8.64
Total Cash Available	28,083.84
DISBURSEMENTS DURING PERIOD JULY 1, 1961 TO JUNE 30, 1962:	
Salaries and Wages—	
Full Time Employees	14,464.37
Salaries and Wages—	
Part Time Employees	1,713.86
Office Supplies	555.67
Telephone and Telegraph	337.48
Postage, Freight and Express	266.04
Printing of Publications	2,964.50
Rents	1,569.20
Insurance Premium	139.32
Auditing Fee	250.00
Private Car Mileage	334.27
Railroad, Plane and Other	
Transport. Fares	1,498.32
Meals and Lodging	1,298.42
Motor Vehicle Supplies	5.00
Retirement Contributions	184.36
Travel Expenses—	
Advisory Committee	2,490.43
Sound Service for Annual Meeting ...	227.00
Capital Outlays: Office Equipment ..	18.50
Research Expenses	50.00
Total Disbursements	28,366.74
Less: Disbursements paid from	
Revolving Fund	609.01
Disbursements paid from General Fund	27,757.73
Cash in Bank, June 30, 1962	\$ 326.11

REVOLVING FUND

Cash in Bank, July 1, 1961	\$ 1,000.00
Reimbursements from General Fund During Period ...	1,001.89
	\$ 2,001.89
DISBURSEMENTS:	
Salaries and Wages—	
Full Time Employees	333.80
Salaries and Wages—	
Part Time Employees	29.80
Office Supplies	53.05
Postage, Freight and Express	230.50
Rent	128.25
Insurance Premiums	4.25
Private Car Mileage	44.94
Railroad, Plane and Other	
Transport. Fares	673.85
Meals and Lodging	80.40
Retirement Contributions	32.06
Cash in Bank, June 30, 1962	\$ 390.99

NOTES TO FINANCIAL STATEMENTS
June 30, 1962

SCOPE OF THE AUDIT For the
Period July 1, 1961 to June 30, 1962

EXHIBIT "E"

EXHIBIT "F"

NOTE 1:

Under action taken by the respective states, funds were appropriated to the Commission as follows: State of Oregon for the 1961-63 biennium the sum of \$7,800.00 against which the Commission received \$2,400.00 in the current fiscal year; the State of California for the 1961-62 fiscal year, the sum of \$16,700.00 which was received in August of the current fiscal year; the State of Washington for the 1961-63 biennium, the sum of \$19,000.00 against which the Commission received \$7,300.00 in the current fiscal year.

NOTE 2:

The negative balance of \$67.36 in the Unexpended Balance for Cooperative Research represents certain routine expenditures, incident to prior allocations, made subsequent to January 1961, (at which date the unexpended balances then existing had been returned to the unobligated surplus funds of the Commission.)

NOTE 3:

At a meeting of the Executive Committee in December, 1961, authority was granted to use funds set aside in the Revolving Fund to defray the regular expenditures of the Commission, as considered necessary. From this date to June 30, 1962, expenditures in the amount of \$609.01 were paid, which will not, in accordance with prior procedure, be "reimbursed" to the Revolving Fund by the General Fund.

NOTE 4:

Expenses incurred by the Commission, per Exhibit "B" and disbursements made by the Commission, per Exhibit "D", for the period under review are not in exact agreement because the Commission follows the cash basis of accounting (i.e. recording expenditures in the books when the checks are written, irrespective of the fiscal period to which the expenditure pertains). It was necessary in order to present clearly the expenses paid and incurred during the fiscal year ending June 30, 1962 to include unpaid bills at that date as expenses (and liabilities on the balance sheet of the General Fund) and to eliminate those bills unpaid >. at June 30, 1961 which were included, on the books, as current years expenses. The above computations were made for clarity in presentation of financial data only; considering the volume of transactions, it is my opinion that the existing accounting system is adequate, and I, therefore, do not recommend a change to the accrual basis of accounting.

NOTE 5:

As of June 30, 1962, Commission funds were obligated, under purchase order, in the amount of \$2,641.00 for publication of the 14th Annual Report. This amount was billed and paid in July, 1962. It is understood that the issuance of such purchase order in June was solely for the convenience of the supplier, it being the intention that the cost would be paid out of 1962-63 revenues.

Cash on deposit in both the general fund and the revolving fund as at June 30, 1962 was verified by certificate from the depository, The United States National Bank of Portland, Oregon. Collateral, consisting of United States Treasury Bonds in the amount of \$50,000.00, pledged by the depository bank to the First National Bank, Portland, Oregon to secure the Commission's bank balance was verified by certificate from the latter bank. Cash received by the Commission for the period under review was substantiated by certificates from the respective Secretaries of State of the three states.

Property of the Commission, consisting of office furniture and equipment, was verified by physical inventory, additions and disposals during the year being substantiated by inspection of appropriate evidence. A fire insurance policy on the property was inspected for dates and adequacy of coverage.

A surety bond, with a limit of \$35,000.00 on the Treasurer of the Commission, was inspected for dates, coverage and premium cost.

Liabilities of the Commission, owing as of June 30, 1962, were substantiated by inspection of purchase invoices and vouchers, and by related approvals of these items. Such liabilities were all paid in the month of July, 1962.

A detailed examination was made of all financial transactions for the period under review, substantiating book entries for these transactions by inspection of cancelled checks, purchase invoices, travel vouchers, wage and salary vouchers, receipt vouchers and by reference to the Commission Minute Book and correspondence for authority where applicable. I am satisfied that all transactions are properly substantiated by appropriate evidence, authority, and general tests of reasonableness and are correctly recorded in the books of account.