



46th Annual Report of the

PACIFIC STATES MARINE FISHERIES COMMISSION

FOR THE YEAR 1993

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

PSMFC COMMISSIONERS 1993

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Alaska State Senate

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Washington State Senate

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Washington Dept. Fisheries

HARRIET SPANEL
Governor's Appointee &
Washington State Senate

Our goal, as stated in the bylaws, is "to promote and support policies and actions directed at the conservation, development and management of fishery resources of mutual concern to member states through a coordinated regional approach to research, monitoring and utilization".

46th Annual Report
of the
PACIFIC STATES
MARINE FISHERIES
COMMISSION
FOR THE YEAR 1993

To the Congress of the United States and the Governors and Legislatures of the Five Compacting States, Washington, Oregon, California, Idaho, and Alaska, by the Commissioners of the Pacific States Marine Fisheries Commission in Compliance with the State Enabling Acts Creating the Commission and Public Laws 232; 766; and 315 of the 80th; 87th; and 91st Congresses of the United States Assenting Thereto.

Respectfully submitted, PACIFIC
STATES MARINE FISHERIES COMMISSION

RANDY FISHER, Executive Director

Headquarters
45 SE 82nd Drive, Suite 100
Gladstone, Oregon 97027-2522

Al J. Didier, Jr.
EDITOR

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46TH ANNUAL REPORT - 1993

ADMINISTRATIVE REPORTS AND ACTIONS

EXECUTIVE DIRECTOR'S REPORT

1993 was a year of unprecedented growth and change for the Pacific States Marine Fisheries Commission. PSMFC, representing the agencies, recreational fishermen, and commercial fishermen of its five member states, worked to coordinate participation by West Coast fishing interests in the reauthorization of the Marine Mammal Protection Act; expanded its role as custodian and coordinator of coastwide fisheries computerized data bases; increased contract services for the states and related agencies; and worked with fishermen on issues such as crab fishery management, marine debris, and habitat protection. The following are among the highlights of 1993:

- PSMFC hosted a two-day workshop on April 28 and 29 in Portland to discuss issues related to the upcoming reauthorizations of the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), and the Magnuson Act (MFCMA). The workshop was attended by over 120 people, and was designed to provide an opportunity for sport and commercial fishermen, and representatives of environmental groups to freely exchange their views on reauthorization of the acts.

- While reauthorizations of the ESA, MMPA, and MFCMA were scheduled, only the **Marine Mammal Protection Act** received extensive attention during the year. PSMFC and many fishing interests from both the West and East coasts negotiated through the spring with representatives of conservation and animal rights organizations in an attempt to develop a consensus position on this reauthorization. While an agreement was reached in June between the fishing industry and the more mainstream conservation organizations, the animal rights community continued to pursue its own independent agenda. The negotiated agreement would have restructured the existing Interim Program by focusing NMFS research and management attention on "critical stocks", which by virtue of their population size and the level of their human-caused mortality truly need attention. Implementation of management measures such as vessel registration and observers would have been based on need as determined under a scientifically defensible Recovery Plan. In return, fishermen agreed to forgo existing options to lethally remove marine mammals in defense of gear and catch. As the year

ended, committee action to date suggested that the final legislation would indeed prohibit intentional lethal removal, but other provisions would remain much closer to the status quo (i.e., arbitrary classification and mandatory registration in some fisheries, and little real effort to deal with problems caused by nuisance animals). Final action on the MMPA reauthorization is expected in 1994, at which time discussion of the MFCMA and ESA will begin.

- The value of external contracts administered by PSMFC increased by 54% from \$7.5 million in 1992 to \$11.5 million in 1993.

- PSMFC moved into its new offices during May 1993. Located along the Clackamas River just south of Portland, the 12,000 sq. ft. facility allows more efficient organization of computer and administrative staff, while providing a more enjoyable work environment. PSMFC occupies approximately two-thirds of the building, and the remainder is occupied by tenants. The North Clackamas County Chamber of Commerce selected the Commission as a recipient of the Chamber's 1993 Beautification Award for Interior Remodeling.

- In its work with the **Tri-State Dungeness Crab Committee**, PSMFC completed a major summary report that reviewed historical harvests, recent participation history, levels of capitalization in the fishery, and the



Figure 1. PSMFC's new office is located in Gladstone, just south of Portland, OR.

results of two surveys taken to assess preferences of crab fishermen toward limited entry. PSMFC also coordinated the signing of a Memorandum of Understanding between the states of Washington, Oregon, and California to implement the Tri-State Committee's 1992 recommendations for management of the crab fishing season in the event of a delay due to a prevalence of soft-shell crab in northern waters.

- A new section was formed internally at PSMFC to better manage and coordinate the expanding role it plays in coastwide fisheries computerized databases. The **Information Management Services** section is now home to the:

Pacific Fisheries Information Network (PacFIN)
Regional Mark Processing Center (RMPC) Pit
Tag Information System (PTAGIS) Coordinated
Information System (CIS) PSMFC Computer
Services Center (CSC)

- In early 1993 PSMFC assumed project management, regional data management, and administrative responsibility for the **Coordinated Information System (CIS)**. A project identified under the Northwest Power Planning Council's Fish and Wildlife Program and funded by the Bonneville Power Administration, CIS was initiated to develop and provide "user friendly" methods for accessing the myriad of often hard to find anadromous fish information in the region. A people network, as well as a personal computer based information network, is being established to provide users access to standardized and documented information pertaining to all aspects of anadromous fish information. A reference/bibliography system in addition to a physical library collection is also being established. Services are to be fully operational by next year.

- The Regional Mark Processing Center continued its involvement in regional tag and mark coordination activities, management and reporting of the coastwide Coded-Wire Tag (CWT) data, and the exchange of CWT data with Canada in accordance with the Pacific Salmon Treaty. The primary accomplishment of the year was the successful completion and enhancement of the **Regional Mark Information System (RMIS)**. RMIS is the on-line system for the CWT database, which is accessible through the PSMFC Headquarters computer. RMIS offers a variety of ways to select subsets of CWT data, build reports, and electronically transfer those reports. Types of data available include fish releases (either tagged or untagged), catch/samples, tag recoveries, or lists of geographic locations.

- The Pit Tag Operations Center successfully deployed a new version of the **Pit Tag Information**

System (PTAGIS) reporting tool in time for a very busy field season. This new tool saved fisheries research agencies time and money while providing a flexible method for selecting subsets of Pit Tag data collected in the Columbia and Snake River drainages. There were over 375,000 detections of pit tagged fish at a variety of sites during the 1993 juvenile salmon and steelhead outmigration.

- The **Pacific Fisheries Information Network (PacFIN)** staff completed the primary development effort for the "redefined" central processing system during 1993. The records portion of the database was implemented for the Washington-Oregon-California (W-O-C) subsets of the PacFIN database. Various fisheries research and management organizations employed this database for their data needs during 1993. Examples of projects that used the records part of the new database included: a W-O-C dungeness crab study; the National Marine Fisheries Service (NMFS) Groundfish Limited Entry Office; the Coastal Pelagic Species FMP Development Team; a PFMC vessel capacity study; many analyses for the PFMC's Individual Quota project; and an Oregon Department of Fish and Wildlife black rockfish study. Monthly updates were incorporated into the database so the "best available" data was used to satisfy data requests. Development of the vessel summaries subsystem was essentially completed during 1993 as well. Fisheries economists and biologists began using these vessel summary data files to develop answers to specific fishery questions. Checkout and testing of the on-line catch summaries continued on through the end of the year. These on-line summaries serve as the foundation of the PacFIN reporting system. The combining of fish ticket data from three states (W-O-C) with proportions developed from port sampling and trawl logbooks to produce the best estimates of catch for each groundfish species by month, area, and gear is the essence of these on-line catch summaries.

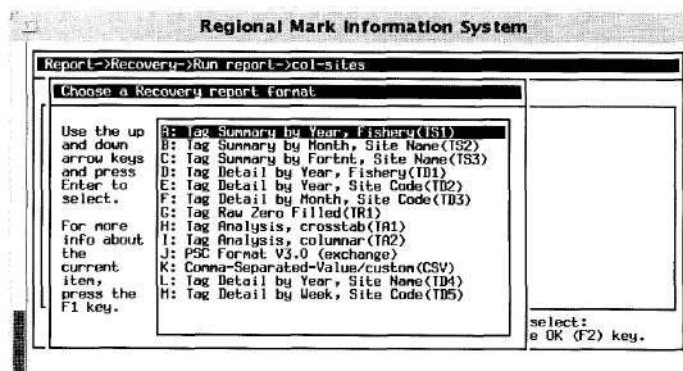


Figure 2. The new RMIS system offers a wide variety of coded-wire tag report options.

- The PSMFC **Computer Services Center (CSC)**, established in 1992 to organize, manage and maintain the PSMFC computer resources (Sequent, SUN, and PC's), continued efforts to truly integrate various computer platforms and provide a stable 24-hour a day environment for all data activities. 1993 CSC activities also involved a successful layout and move of all computer resources to the new PSMFC Headquarters office, and set-up of an Internet mail connection (psmfc.gov).

- **Recreational Fisheries Information Network (RecFIN).** Field sampling to collect Pacific coast marine recreational fisheries catch and effort data commenced again in 1993. Sampling in Oregon and California was obtained by use of the Marine Recreational Fisheries Statistics Survey (MRFSS) methodology employed by NMFS on the Atlantic and Gulf coasts. Over 30,000 anglers were interviewed at the fishing site upon completion of their trip in California and Oregon. Data on species caught, lengths and weights and various demographic, trip and activity data were collected for each angler. In Washington state, RecFIN provided funding to augment existing state sampling programs. These included recreational halibut monitoring, expanding the sampling season for the Ocean Sampling Program and adding to the Puget Sound Boat Sampling Program. The RecFIN Program provided funds to print the catch record cards used in the recreational halibut fishery. The Ocean Sampling Program was extended one month at the beginning and end of the state's sampling period to better sample the majority of the fishing effort on the coast. Augmentation of the Puget Sound Boat Survey allowed for placing of samplers in some of the more remote San Juan Island fishing sites to provide better sampling coverage of the total Puget Sound Boat fishery. It is anticipated similar programs will be undertaken by RecFIN in the three states in 1994.

- **Marine Mammal Observer Program.** The Marine Mammal Observer Program continued sampling the Columbia River, Grays Harbor and Willapa Bay Salmon gillnet fisheries in 1993. The following seasonal fisheries were sampled for marine mammal interactions: Winter Columbia River Fishery; Fall Columbia River Fishery; Summer Dip-in Fishery in Willapa Bay; Summer Dip-in Fishery in Grays Harbor; Fall Grays Harbor Fishery; Fall Willapa Bay Fishery; Fall Youngs Bay Fishery (Columbia River); Fall Quinalt Set-Net Fishery in Grays Harbor, Humptulips River and Chehalis River. Summary Reports of all these sampling seasons were printed and are available from PSMFC or NMFS, Seattle. The program will come to an end in early 1994. Numerous reports have been prepared that summarize the three years of seasonal fisheries sampled. A preliminary report of estimated marine mammal mortality associated with the Columbia River Fall and Winter fisheries in 1991-

1992 was also published this year and is available from PSMFC. Additional reports covering the other seasons and areas are being written for completion in 1994.

- **Northern Squawfish Sport Reward Fishery.** The Northern Squawfish Program continued in 1993. Participants included: PSMFC, Bonneville Power Administration, Washington Department of Fish & Wildlife, Oregon Department of Fish and Wildlife, Columbia River Intertribal Fish Commission; Yakima Indian Nation, Confederated Tribes of the Umatilla Indian Reservation, Nez Perce Tribe, Confederated Tribes of the Warm Springs, Columbia Basin Fish and Wildlife Authority, C.R. Cramer Inc., and Oregon State University. PSMFC provided data entry, reward payment, and fiscal review and accounting for the sport reward portion of the program. The goal is to reduce the older age class portion of the population that prey on young downstream migrant salmonids. After the 1995 season, population studies and tagging programs run by Oregon Department of Fish and Wildlife will provide an evaluation of the effectiveness of the program in saving young salmonids from the large populations of predatory Northern squawfish. In 1994 PSMFC will provide fiscal and administrative services for all the participants in the program as well as pay and account for the sport rewards and related drawings, derbies and tournaments.

- The Gill **Net Recycling Program** works with fishermen and ports in Alaska and Washington to collect and prepare used gill net web for recycling. Only the web is recycled and all lines and gear must be removed. In 1993 almost 90,000 pounds of used web was collected and sold to overseas markets in Taiwan. Those communities which bale the nets can receive between \$.04-\$.06/lb for the net, otherwise they just benefit by not having to pay disposal costs and by keeping this material out of their rapidly filling landfills. In Taiwan the net was chopped up, melted, dyed and pelletized, to be sold to manufacturers of auto, electronic, and appliance parts and kitchen utensils.

Quantities recycled from the various areas during the fall of 1993 from Alaska ports were: Petersburg, 3,000-4,000 pounds; Dillingham, 3,200 pounds; Naknek, 30,180 pounds of baled nets; and Kenai, 8,180 pounds. Collection sites at Washington ports receive nets from Puget Sound fishermen as well as from returning Alaskan fishermen. Between May and September 1993 the following weights of nets were recycled at Washington ports: Seattle, 8,100 lbs; Anacortes, 5,700 lbs; Bellingham, 3,900 lbs; and Everett, 1,300 lbs. The net recycling program is funded by a grant from the Environmental Protection Agency.

- The **F.I.S.H Habitat Education Program** added a stronger **Pollution Prevention** component to its work in 1993. This program distributed information to commercial and recreational fishermen about vessel

management practices to curtail pollution, and worked with ports to insure that fuel nozzles have automatic flow cut-off features, that oil recycling is available, and that tarps are made available for vessel maintenance. Through this program, a cooperative effort at oil spill prevention education using the slogan "Spills Aren't Slick" was also instituted coastwide, and a uniform oil spill reporting number "1-800-OILS-911" was established. Now fishermen and boaters who transit the coast don't have to remember different spill reporting telephone numbers for each state and British Columbia; they only have to remember a single state/province reporting number and the U.S. national (Coast Guard) reporting number. This telephone number is also going national, as the international Council of Great Lakes Governors has endorsed use of this single number and campaign. The Atlantic and Gulf States Marine Fisheries Commissions are seeking funding to initiate a similar program. Funding for the Pollution Prevention Campaign came from the Northwest Pollution Prevention Research Center and the National Fish and Wildlife Foundation.

- The F.I.S.H. Habitat Education Program also produced and coordinated widespread distribution of the 19 minute videotape, **"No Safe Harbor"**. This video stars Ted Danson as he talks with fishermen and scientists about coastal habitat problems and solutions from around the country. The video is a tool that fishermen and teachers can use to educate others. It shows the importance of coastal estuaries and bays to marine fish production, shows fishermen the importance of their involvement, and shows the public that fishermen are concerned about taking care of the environment. Much of the footage for the video was donated by National Audubon Society and Turner Broadcasting. Major funding for the video came from the National Fish and Wildlife Foundation, Ocean Trust, Federal Aid in Sportfish Restoration, and National Fisherman.



Figure 3. The "Spills Aren't Slick" campaign simplified oil spill reporting along the West Coast.

FINANCIAL, AUDIT, AND BUDGET REPORTS

The Commission receives its financial support from contributions from its member states, grants, contracts, and indirect cost charges on external contracts. Since 1977, the states' contributions have remained level funded at \$106,000 per year. These contributions are made available from the member states in accordance with Article X of the Interstate Compact which created the Commission. The formula calls for eighty percent of the total contributions to be shared equally by those states having as a boundary the Pacific Ocean and five percent from Idaho. The fifteen percent balance is divided by the states in proportion to the primary market value of the products of their commercial fisheries on the basis of the latest 5-year catch records.

1993 Audit Report

To the Board of Commissioners
Pacific States Marine Fisheries Commission
Portland, Oregon

We have audited the accompanying general purpose financial statements of Pacific States Marine Fisheries Commission as of and for the year then ended June 30, 1993. These general purpose financial statements are the responsibility of Pacific States Marine Fisheries Commission's management. Our responsibility is to express an opinion on these general purpose financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards, Government Auditing Standards, issued by the Comptroller General of the United States, and the provisions of Office of Management and Budget Circular A-128, "Audits of State and Local Governments." Those standards and OMB Circular A-128 require that we plan and perform the audit to obtain reasonable assurance about whether the general purpose financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall general purpose financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the general purpose financial statements referred to in the first paragraph present fairly, in all material respects, the financial position of Pacific States Marine Fisheries Commission, as of June 30, 1993, and the results of its operations for the year then ended in conformity with generally accepted accounting principles.

Our audit was conducted for the purpose of forming an opinion on the general purpose financial statements taken as a whole. The supplementary information listed in the table of contents is presented for purposes of additional analysis and is not a required part of the general purpose financial statements of Pacific States Marine Fisheries Commission. Such information has been subjected to the auditing procedures applied in the audit of the general purpose financial statements and, in our opinion, is fairly presented in all material respects in relation to the general purpose financial statements taken as a whole.

Cahall, Nolan, Foster & Co., P.C.
Portland, Oregon January 13, 1994

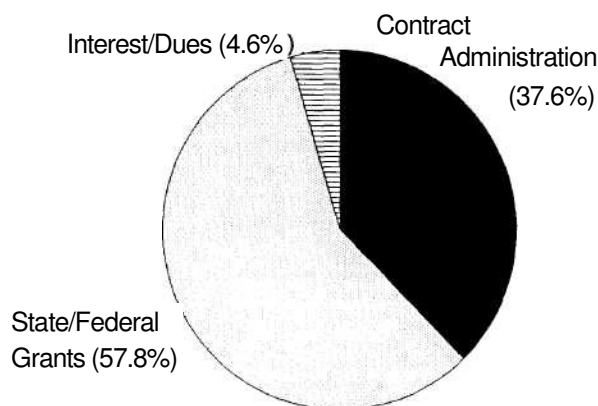
Editor's Note: Copies of the complete auditor's report are available upon request.

COMBINED BALANCE SHEET - JUNE 30, 1993				
	General Fund	General Fixed Assets	General Long-Term Debt	Totals
ASSETS				
Cash	220,122			220,122
Receivables:				0
Grants and Contracts	1,486,824			1,486,824
Other				0
Fixed Assets		3,003,639		3,003,639
Amount to be Provided for Retirement of General Long-Term Debt			876,280	876,280
Total Assets	1,706,946	3,003,639	876,280	5,586,865
LIABILITIES AND FUND BALANCE				
Liabilities				
Accounts Payable	1,171,256			1,171,256
Tenant Deposits	3,302			3,302
Capital Lease Obligations			269,472	269,472
Deferred Revenue	457,921			457,921
Other Liabilities	68,008			68,008
Real Estate Contract			606,808	606,808
Total Liabilities	1,700,487		876,280	2,576,767
Fund Equity				
Investment in General Fixed Assets		3,003,639		3,003,639
Fund Balance	6,459			6,459
Total Fund Equity	6,459	3,003,639	0	3,010,098
Total Liabilities and Fund Equity	1,706,946	3,003,639	876,280	5,586,865

1993 PSMFC OPERATING BUDGET

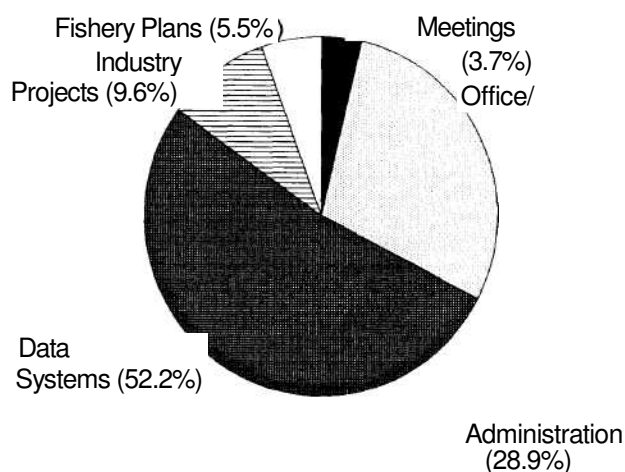
REVENUES

(\$2,487,938)



EXPENDITURES

(\$2,487,938)



External Contracts for the Period July 1, 1992- June 30, 1993

Contract	Amount
NMFS Albacore Logbook & Port Sampling	68,317
NMFS Columbia River Gill-Net Fisheries Observer Program	1,058,490
NMFS Interjurisdictional Fisheries Program	110,000
NMFS Pacific Fisheries Information Network (PacFIN)	1,600,050
NMFS Recreational Fisheries Information Network (RecFIN)	782,364
NMFS/USFWS Regional Mark Processing Center	335,250
USFWS Cooperative Interstate Fishery Management	79,251
USFWS Stream Improvement	23,911
USFWS Subyearling Chinook Study	12,432
PFMC/NPFMC Council Support	25,300
EPA Net Collection and Recycling	44,514
Coastal Education Challenge Grant	200,000
PNPPRC Pollution Prevention	51,000
AK High Seas Drift Net	45,000
AK Marine Mammal Fishery Interaction	16,000
CA Bay, Estuary	29,441
CA Non-Market Valuation Guide	100,000
CA Northern Sportfish	30,500
CA Ocean Salmon Stock Analysis	25,000
CA Salmon Protection & Enhancement	11,967
CA Sea Urchin Fishery	75,418
CA Sportfish Sampling Studies	250,000
ODFW/PSMFC Whiting Observer Program	92,174
BPA Analytical Method Coordinator	1,943
BPA Columbia Basin Fish & Wildlife Authority	504,078
BPA Columbia River Coded Wire Tag	1,044,552
BPA Coordinated Information System	660,478
BPA Integrated Hatchery Operations	708,910
BPA Implementation of Planning Process	112,864
BPA PIT Tag Data Base	876,167
BPA Scientific Review Group Support	128,750
BPA Smolt Coordination (FPC)	1,218,253
BPA Squawfish Sport Reward Program	1,166,678
Fish Marking Coordinator Support	23,597
Total Contracts	\$11,530,140

Submitted by Pam Kahut, Fiscal Manager/Treasurer

ANNUAL MEETING EVENTS

SUMMARY

The 1993 PSMFC Annual Meeting was held October 10-12 in Post Falls, Idaho. The meeting was chaired by Mr. Jerry Conley, director of the Idaho Department of Fish and Game. The agenda included in-state meetings for the five member states; presentations on a National ESA Coalition, the crisis facing coastal coho, and bycatch/discard studies; a panel discussion on the Recovery Plan for Snake River salmon; and the annual business meeting.

SPECIAL ISSUES

National ESA Coalition

Adam Berger of the Sierra Club Legal Defense Fund represented a coalition of approximately 80 environmental, scientific, and animal welfare organizations who have joined to promote a series of amendments that strengthen the Endangered Species Act (ESA). Mr. Berger reviewed the structure of the ESA, and described ways the Coalition believes it should be changed. These include: a) preventing species from becoming extinct by establishing a national inventory of biological resources, increasing protection for listing candidate species, and restructuring federal programs that currently subsidize destruction of biological resources; b) putting greater emphasis on habitat and ecosystem conservation, and ensuring that critical habitat is designated and protected; c) requiring development and implementation of multispecies recovery plans within two years of listing, and including state wildlife management agencies in the recovery planning process; d) increasing appropriations to implement the ESA, and providing financial incentives to private landowners who promote listed species recovery; and e) closing what the Coalition views as legal loopholes by stiffening penalties and allowing emergency waiver of the 60-notice requirement for citizen suits. Mr. Berger and his organization support H.R. 2043, the ESA reauthorization bill introduced by Rep. Studds.

Coastal Coho Crisis

Coho salmon stocks that spawn and rear in upriver tributaries are generally in decline. ODFW's Jim Martin narrated a slide show that illustrated how the cumulative "thousand cuts" of many human activities have depleted the capacity of coastal streams and estuaries. The presentation focused on commercial development and forest and agricultural practices, and contrasted recent examples of healthy and damaged habitat. Stream channelization was shown to reduce

complex rearing habitat areas, while poor culvert installation blocked upstream access. Forest road systems were described as a major source of stream sedimentation. Streams diverted for agricultural uses were susceptible to excessive temperature elevation, and poor screening allowed both adult and juvenile migrants to become stranded. The presentation was a vivid illustration of the habitat controversy, and a video-taped version is being developed for general use.

Bycatch/Discard Update

Dr. Lee Alverson of Natural Resources Consultants provided a preliminary report on his efforts to document the amount and rate of bycatch throughout the world. Bycatch is usually defined as anything taken that was not the target species. While the literature seems to assume that bycatch is equivalent to waste, Dr. Alverson found that in many parts of the world the majority of bycatch is used. Indeed, he maintained that many commonly held beliefs regarding bycatch are not supported by the data. Dr. Alverson maintained that trawls do not inherently produce more bycatch than pot gear, since bycatch rates are heavily dependent on the variables of time and place. Bycatch rates for North Pacific trawl fisheries, for example, were described as among the lowest in the world. Contrary to expectation, there was no significant difference in the diversity of species taken as bycatch in the North Pacific versus tropical regions. The diversity of bycatch species was more aggregated in the North Pacific, however, and those species tended to themselves be commercially important. Dr. Alverson's recommended ways to address bycatch concerns include: control effort; implement time, area, and gear restrictions; continue gear/behavior research; enhance the documentation of bycatch and discard rates; improve understanding of the importance of bycatch in a species and multi-species context; and broaden the uses of bycatch.

Salmon Recovery Plan

Release of the draft Recovery Plan for Snake River salmon stocks was scheduled for October 20, approximately one week after the PSMFC Annual Meeting. Dr. David Hanson of PSMFC moderated a panel consisting of the representatives of three states who were asked to describe the elements they thought this plan should include.

Steve Huffaker of the Idaho Department of Fish and Game attributed reduced productivity of the Salmon and Snake Rivers to hydroelectric dams on the Columbia River. Wild salmon have declined despite restructured hatchery programs and harvest restrictions, and steelhead stocks are following a similar (somewhat

slower) pattern. Enactment of the Northwest Power Planning and Conservation Act has not reversed this decline. The problem of the dams is not new, but their operation is so politically charged it is difficult to address. The most important job of the recovery plan will be to restore public credibility lost through 15 years of fish mismanagement. At a minimum, the plan should document the relative causes for salmon declines. Complex harvest issues, debatable hatchery programs, and real habitat degradation issues should not divert attention from the central problem of mainstem survival. Lack of knowledge is often used as an excuse for inaction, but current conditions may require a response even without complete data. Mr. Huffaker's greatest fear is that the recovery plan will simply maintain the status quo.

Mel Seibel of the Alaska Department of Fish and Game described five guidelines that he believes should be embodied in a good recovery plan. The plan should clearly define ESA goals (not maximum sustainable yield goals), and should establish a realistic time frame. The focus of recovery efforts should be on the primary factors that caused the decline, recognizing that the hydro power systems have produced most of the human induced mortality. The plan should make use of the best available data. The Snake River plan should be coordinated with a general Columbia River plan. Finally, the plan should include the flexibility to adapt to any new information obtained while monitoring progress toward its goals.

Jim Martin of the Oregon Department of Fish and Wildlife stressed that the real evaluation of current decisions is far in the future. The problems of salmon in the Snake River are byproducts of many other, often unrelated, decisions. Those problems took a long time to create, and will take at least that long to correct. Meaningful actions will be expensive, uncertain and hard to verify, fairly prone to error, and controversial. Mr. Martin believes that tweaking around the edges will be inadequate; the hydro power system should be pushed to do the best that it can. He stated that recovery should be defined in the context of productivity. Oregon favors an approach using life cycle modeling of indicator stocks, with annual reviews of performance standards and their relevance. Success should be measured in terms of both numbers of fish and in increases in freshwater productivity. The plan should establish a specific rebuilding schedule which focuses on tangible intermediate objectives. Biological objectives should be quantifiable, and all contributors to the problem should be made accountable for specific performance standards. Mr. Martin fears that interim measures will be too timid, and that stocks will be lost in the process. He prefers an approach which tries a lot of different things immediately, with flags to identify the dumb ones fast. He believes that drawdown should be given a reasonable chance. For the long term, the Snake River presents the most difficult challenge because it is the

most water-poor system in the drainage. There is no longer sufficient freshwater productivity to support historic levels of mixed stock fisheries, so at best the plan should enable the Snake River system to function in the context of its current condition,

BUSINESS MEETING

Guy Thornburgh announced his resignation as Executive Director, effective January 1, 1994. Mr. Thornburgh leaves PSMFC to join Northwest Marine Technology, Inc., a manufacturer of scientific instrumentation used in fisheries research. A selection committee consisting of Mr. Felando, Mr. Martin, Mr. Conley, Mr. Sutherland, and Mr. Meacham, was appointed to find a replacement.

In other business, the Commission:

- endorsed proposed changes to Section 306 of the Magnuson Act that would clarify state management authority in the absence of a federal management plan, and allow more restrictive state regulations with Council approval if such a plan existed;
- adopted a resolution requesting that NMFS prioritize Snake River salmon recovery measures to first address activities that are primarily responsible for the listing, and adopt recovery measures recognizing the importance of delivering actual benefits to the spawning grounds;
- voiced no objection to MMPA scientific permit amendments suggested by marine mammal researchers, but rejected an approach to OSP that would simply legislate a lower limit to the OSP range for harbor seals and California sea lions;
- directed staff to continue an observation and monitoring role in ongoing ESA listings, and to determine PSMFC's role in ESA reauthorization based on the outcome of a November workshop.

1994 ANNUAL MEETING

The 47th Annual Meeting of PSMFC will be hosted by the state of Washington. The meeting has been scheduled for October 2-4 at the Radisson Hotel in Seattle, Washington. Sen. Harriet Spanel of Washington was elected chair for 1994.

ANNUAL PSMFC AWARD FOR CONTRIBUTION TO PACIFIC COAST FISHERIES

CECIL D. ANDRUS

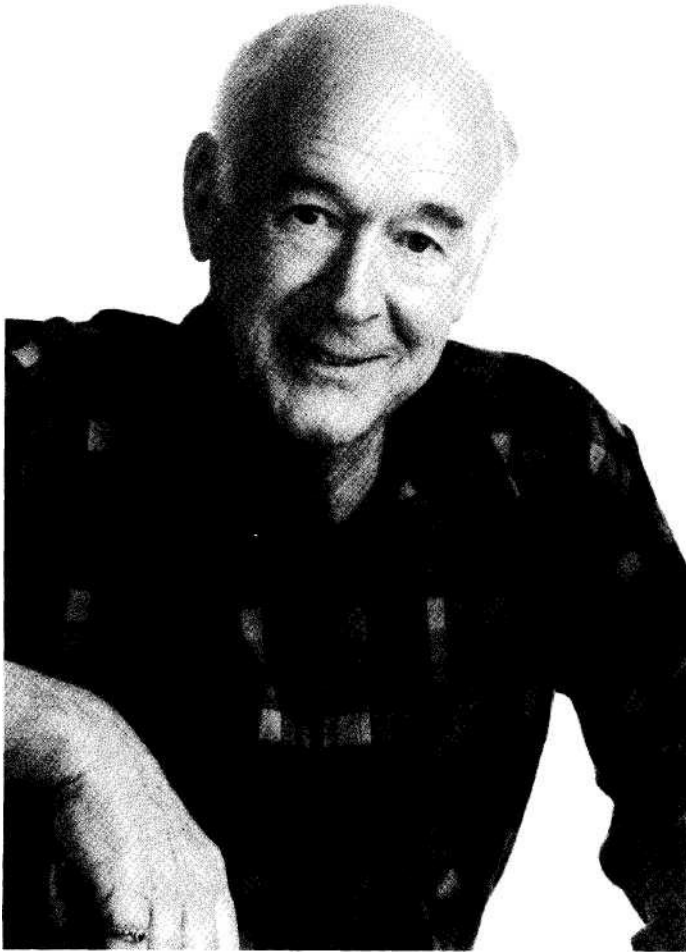


Figure 4. Governor Cecil D. Andrus of Idaho, received PSMFC's 1993 Annual Award for Contribution to Pacific Coast Fisheries.

Each year, PSMFC honors special individuals with interests in fisheries who have made extremely significant contributions toward promoting fisheries in our member states. PSMFC is proud to acknowledge Governor Cecil D. Andrus as the recipient of this award for 1993.

On November 6, 1990, Cecil Andrus became the first person in Idaho history to be elected governor four different times (1970, 1974, 1986, and 1990). He is among the senior governors in the United States in length of service and the first Idahoan to serve in a Presidential Cabinet, appointed in 1977 as Secretary of the Interior. His public service has been highlighted by his deep commitment to policies and programs to enhance the quality of life.

Cece Andrus has earned a national reputation for being able to strike a wise balance between often-conflicting conservation and development positions. He describes himself as a common-sense conservationist. The Andrus motto has always been: "First, you must make a living; then you must have a living that is worthwhile."

During his years in public service, the Governor has championed local land-use planning laws and protection of wild and scenic rivers. Most recently, he helped engineer a comprehensive agreement between industry and conservation groups to assure the protection of Idaho's water quality. Like most Idahoans, Cece Andrus loves the outdoors - he hunts and fishes whenever he can.

His many honors include the prestigious Conservationist of the Year Award (Idaho Wildlife Federation, 1972); Conservationist of the Year (National Wildlife Federation, 1980); Ansel Adams Award (Wilderness Society, 1985) and Audubon Medal (1985).

In the Salmon issue, Governor Andrus has:

- abandoned the easier role of straddling the fence and taken a very strong position;
- taken the time to learn the issues - and all sides of them (Hatfield's Salmon Summit);
- dedicated staff time from a wide variety of fields of expertise;
- listened to the collective expertise of biologists, economists, irrigators, and hydrologists;
- proposed a solution to the central problem and said right up front, that this may not be the best solution, and he has invited others to propose a better one! He shaped the Power Planning Council "Strategy for Salmon";
- been the spokesman for himself and his constituents, despite controversy and criticism.

In short, the Governor has demonstrated those qualities of leadership that fulfill the public's expectations of elected officials. PSMFC is proud to recognize his contributions.

1993 PUBLICATIONS

Habitat Hotline (published periodically) is a bulletin board of current events dealing with water quality, wetlands development, logging, and other habitat issues that affect fisheries.

"*Wo Safe Harbor*" is a 19-minute video on coastal habitat and pollution problems. Cost: \$8.

Save Our Schools is a color poster and coloring guide produced by the Habitat Education Program that features estuarine dependent fish species.

Habitat Education Packets from PSMFC's Habitat Education Program contain fisheries habitat ecology information; "Save Our Schools Teacher's Guide"; brochures, and activity ideas.

Spills Aren't Slick information packet describes proper clean-up and prevention of marine oil spills, and provides telephone numbers that can be used to report marine oil spills on the Pacific coast.

Important Coastal Fish and Their Habitat Needs describes the life cycles of selected commercially and recreationally important fish species, with emphasis on the habitat used by each of these species during their life stages.

1993 PIT Tag Workshop: The Use of the PIT Tag in Anadromous Fish (January 1993) summarizes the proceedings of a January 20-22, 1993 workshop sponsored by PSMFC.

PIT Tag Information System Users Manual (March 1993) is an updated user's guide to operation of the PSMFC Computer Services Center Passive Integrated Transponder (PIT) Tag Information System.

PIT Tag Specification Document, Columbia River Basin PIT Tag Information System Data Source Input Specifications (March 1993) provides file format and code lists as prepared by the PIT Tag Work Group

PIT Tag Marking Station Procedural Manual, Version 1.0 (March 1993) describes the tagging data entry station used when recording information on fish, the operation of that station, and the editing and transfer of collected data.

Preliminary Report on Estimated Marine Mammal Mortality in Columbia River Fall and Winter Salmon Gillnet Fisheries, 1991-1992 (March 1993) by R. Brown and S. Jeffries describes fishing seasons and summarizes fishing effort, observer coverage, damage to catch, marine mammal abundance, and estimated marine mammal mortalities.

Summary Report on the 1992 Fall Grays Harbor Salmon Gillnet Fishery (May 1993) by K Matteson, W. Barnett, and J. Langton presents a summary of marine mammal mortality and fishery interaction data collected by observers during the fall gillnet fishery in Grays Harbor during 1992.

A Review of the California, Oregon, and Washington Dungeness Crab Fishery (June 1993) reviews coastwide crab fishery statistics and participation patterns since 1951 with emphasis on the 1981-1991 period, evaluates levels of capitalization in the fishery, presents the results from two opinion surveys of fishery participants on limited entry for the crab fishery, and reviews some jurisdictional issues surrounding management of a 3-state fishery under state authority.

44th Annual Report of the Pacific States Marine Fisheries Commission for the Year 1991 (August 1993) contains a summary of PSMFC activities, funding, and expenditures, and reviews of selected Pacific Coast fisheries statistics for 1991.

Regional Mark Information System User Manual, Version 1.0 (August 1993) is an updated users guide to retrieving coded-wire tag information from PSMFC's Regional Mark Information System (RMIS). It covers main retrieval functions and provides patterns for similar queries.

Habitat Activities of Fishing Groups of the West Coast (October 1993) presents the results of a survey conducted by PSMFC.

Summary of the Third Pacific Coast Steelhead Management Workshop (December 1993) is a summary of panel discussions at a March 1993 meeting of steelhead managers. Topics included: oceanographic and marine factors affecting steelhead survival; stock monitoring and the Endangered Species Act; and genetic conservation of wild steelhead.

Pacific Salmonid Coded Wire Tag Releases, 1986-1992 (And Preliminary 1993 Data) (December 1993) documents coded wire tag (CWT) releases of Pacific coast salmon and steelhead during 1986 through 1992, with some preliminary information for 1993.

The following are Bonneville Power Administration reports for projects in which PSMFC is now involved. Limited copies of these reports are available:

Development of a System-Wide Predator Control Program: Stepwise Implementation of a Predation Index, Predator Control Fisheries, Evaluation Plan in the Columbia Basin (February

1993) is an annual report describing activities of the program to control squawfish predation on salmonids in the Columbia basin during 1991.

Columbia River Coordinated Information System: Phase II Project Summary Report 1992 (May 1993) is an executive summary of the CIS project to date. It summarizes and integrates 5 of the 7 project reports, focusing on issues of organization and operation.

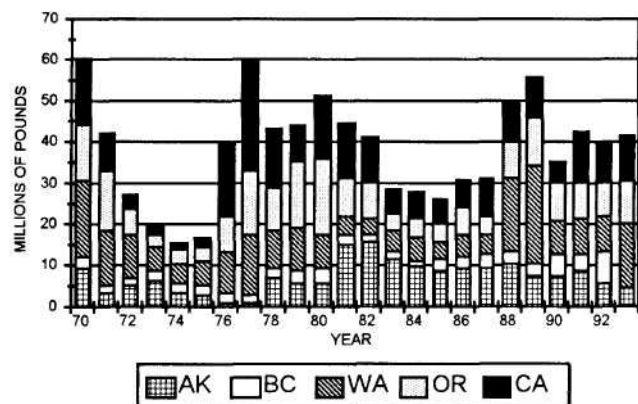
Columbia River Coordinated Information System: Report on Information Needs (May 1993) identifies core information needed to plan, implement, monitor, and evaluate projects to manage and restore anadromous fish.

Columbia River Coordinated Information System: Data Catalog (May 1993) is a "yellow pages" directory describing relevant numeric data available throughout the basin.

Columbia River Coordinated Information System: Stock Summary Report for Columbia River Anadromous Salmonids (October 1992) is a five volume report providing a variety of data by sub-basin and anadromous stock.

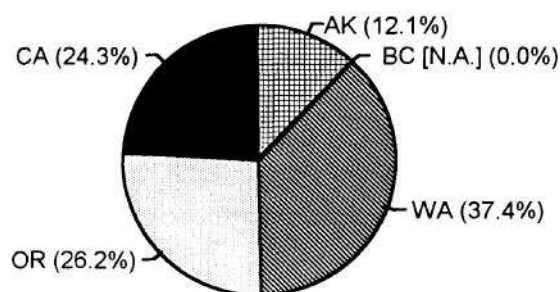
PACIFIC COAST FISHERY REVIEW REPORTS

DUNGENESS CRAB FISHERY IN 1992-93



1969-70 TO 1992-93

1992-93 FISHERY



Alaska

Total landings were 5.0 million pounds, about 1.2 million pounds less than in 1992. In addition, there were 28,610 pounds of deadloss statewide. The largest area of production was Southeast (3.3 million pounds), followed by Kodiak (1.4 million pounds). Approximately 373,054 pounds were taken in Chignik, Alaska Peninsula, Dutch Harbor, and the Bering Sea, combined. Landings generally declined in all areas, except western Alaska.

Washington

Landings for the 1992-93 Dungeness crab fishery totaled 15.5 million pounds. The coastal fishery (December 1, 1992 - September 15, 1993) produced 13.4 million pounds. The Puget Sound fishery (October 1, 1992 - April 15, 1993) produced 2.1 million pounds. Tribal landings are included in both figures. The coastal crab quality at the beginning of the season was excellent. The opening ex-vessel price for the coastal fishery was \$1.00 per pound. Two hundred sixty-two vessels made 7,724 landings in the coastal fishery. Washington industry representatives introduced a limited entry bill for the coastal fishery which did not pass during the 1993 Washington legislative session. A similar bill is planned for introduction in 1994. Fishery regulatory agencies in Washington, Oregon, and California reached a zone fishing/soft-shell agreement to be used in the event of a soft-shell crab closure at the beginning of a commercial season.

Oregon

Oregon ocean landings were 10.9 million pounds, up from 7.6 million pounds last season. Catch was spread evenly along the coast, with Brookings, Astoria, and Newport the leading ports at 2.8, 2.7, and 2.6 million pounds, respectively. Fishing commenced on December 1, with an opening exvessel price of \$1.00. A fleet of 354 vessels made 8,711 landings in the ocean fishery. An additional 53,447 pounds were landed in the fall bay fishery.

Table 1. Annual landings of Dungeness crab by state, province, and entire Pacific coast (in 1000's of lbs.)

Year or Season*	Alaska	British Columbia	Washington	Oregon	California	Total
1969-70	9,696	2,548	18,675	13,849	15,564	60,332
70-71	3,749	1,963	13,211	14,735	8,501	42,159
71-72	5,448	1,975	10,095	6,780	2,875	27,173
72-73	6,423	2,580	5,583	3,143	1,500	19,229
73-74	3,818	2,500	4,604	3,462	880	15,264
74-75	3,036	2,513	5,896	3,335	1,816	16,596
75-76	1,545	2,121	9,885	9,099	17,410	40,060
76-77	1,162	2,269	14,023	16,200	26,404	60,058
77-78	7,169	2,592	9,237	10,375	13,800	43,173
78-79	6,334	2,599	10,362	16,352	8,300	43,947
1979-80	5,912	3,750	8,320	18,277	14,853	51,112
80-81	15,109	2,626	4,494	9,429	12,717	44,375
81-82	15,811	1,969	3,928	8,700	10,786	41,194
82-83 *	*11,801	1,848	5,237	4,100	5,413	28,399
83-84	9,967	1,155	6,166	4,700	5,854	27,842
84-85	9,180	2,561	4,266	4,900	5,248	26,155
85-86	9,358	2,913	5,430	7,171	5,990	30,862
86-87	9,346	3,587	4,806	4,747	8,597	31,083
87-88	10,571	3,324	17,858	8,685	8,754	49,192
88-89	7,667	3,348	23,896	11,154	9,552	55,617
1989-90	8,145	4,648	8,629	9,236	4,548	35,206
90-91	9,062	4,160	8,883	8,248	11,956	42,309
91-92	6,210	7,291	9,173	7,657	9,807	40,138
10-year	9,131	3,484	9,434	7,060	7,572	36,680
Mean						
1992-93	5,015	N.A.	15,533	10,873	10,071	41,492

* Alaska and British Columbia crab catches are reported on a calendar year basis. The last year mentioned in this column is the calendar year. Washington, Oregon and California catches are reported on a season basis that begins during the first year and ends the following year.

** Includes all deadloss.

N.A. Not Available

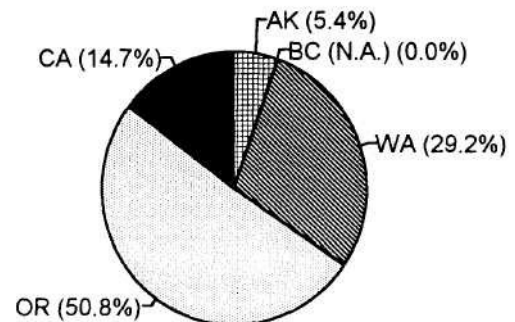
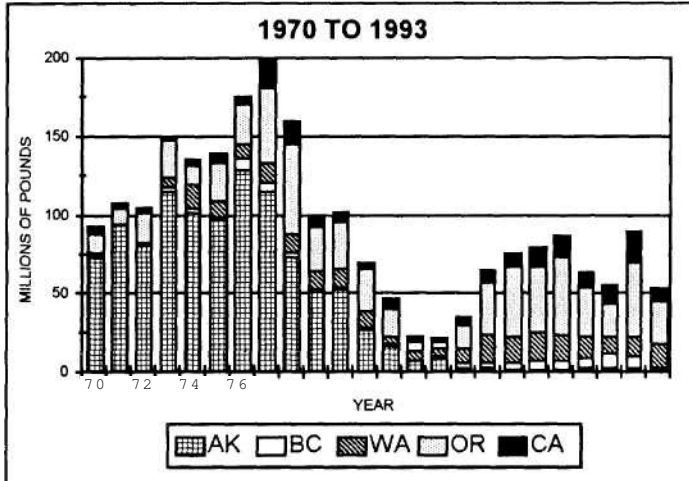
California

California Dungeness crab landings were 10.1 million pounds, a 3% increase over the previous season. Landings for the northern California ports of Crescent City, Trinidad, Eureka, and Fort Bragg were 5.5, 0.8, 3.2, and 0.16 million pounds, respectively. The exvessel price opened at \$1.05 per pound and there were 454 vessels in the fleet. Central California landings totaled 0.46 million pounds, down 0.68 million pounds from the 1991 -92 season. The exvessel price opened at \$ 1.83 per pound.

Contributors:

Carole Smith, Alaska Dept. of Fish and Game Colin Wallace, Dept. of Fisheries and Oceans, Canada Paul LaRiviere, Washington Department of Fisheries Neil Richmond, Oregon Department of Fish and Wildlife Ron Warner, California Department of Fish and Game

SHRIMP FISHERY IN 1993



1993 FISHERY

Alaska

Commercial landings of shrimp totaled 2.8 million pounds in 1993, a decrease of about 6% from the 1992 season. Landings of trawl-caught shrimp totaled 2.3 million pounds, and 0.5 million pounds of shrimp were caught by pot.

Southeastern Alaska shrimp landings accounted for 89% of the Alaska total, with 2.0 million pounds of trawl-caught and all 547,000 pounds of pot-caught shrimp. Prince William Sound accounted for 7% of the Alaska total with 191,100 pounds of trawl-caught shrimp. The remaining Alaska landings were distributed between Kodiak and the Bering Sea.

Washington

Coastal pink shrimp landings in 1993 totaled 15,455,723 pounds, an increase of three million pounds (29%) over 1992 landings, and about two and one half million pounds over the average for the previous ten years. Landings by month were: 2,879,016 pounds April; 4,691,648 pounds in May; 4,339,014 pounds in June; 1,397,777 pounds in July; 1,322,177 pounds during August; 519,489 pounds during September; and 306,602 pounds during October. A total of 90 vessels made 874 landings.

Oregon

The total 1993 pink shrimp (*Pandalus jordani*) harvest in Oregon was approximately 26.9 million pounds (Table 2), nearly 50 percent less than the 1992 landed catch and well below the fifteen year average of 30.5 million pounds. A total of 154 vessels made 1,617 deliveries of pink shrimp into Oregon ports during 1993 compared with 182 vessels and

2,310 deliveries during 1992.

The total effort (hours) expended to harvest the landed catch was 49,662 h, a decrease of 11,586 h over 1992 (Table 3). Total CPUE was 542 lb/h in 1993, considerably less than the 748 lb/h seen in 1992 but typical of levels seen since the mid 1980's. Unlike 1991 and 1992, PSMFC area 72 had the most pounds harvested. PSMFC area 86 had the most effort expended.

Monthly catches were highest during April, May and June, but declined precipitously coastwide during July and remained low through October. The largest catches occurred early in the season off northern Washington and generally were more modest to the south. The scenario was the reverse of 1992, when the largest catches occurred off southern Oregon in September. Again, this pattern probably resulted from a weak 1992 year-class. In 1992, age-1 shrimp (the 1991 year-class) were heavily harvested to the south, but much less so off Washington due to their small size. In 1993, relatively few age-2 shrimp were available south, but were abundant and had grown in the north.

Fishing effort was also highest from April through June, with high effort levels off Washington during this period. CPUE was relatively high through June, except for area 86 where it was low. CPUE declined through October, except in areas south of Cape Blanco where it stabilized.

The catch weighted count per pound of shrimp landed in Oregon was excellent during 1993, at about 88 shrimp/lb. Low counts resulted from a high percentage of age-2 shrimp and a correspondingly low percentage of smaller age-1 shrimp

in the catch. Growth of both age-1 and age-2 shrimp appeared normal; consistent with the ranges seen since 1978. The age composition of the late season shrimp catch may provide some insight into what might happen in 1994. Age-2 shrimp comprised 35% to 60% of shrimp caught during October 1993. During October 1992 they comprised 3% to 14%. Many of these age-2 shrimp will die over the winter of natural causes, leaving a relatively small component of age-3 shrimp for the 1994 season. Low abundance of age-1 shrimp during 1993 means that there will be few of them available in 1994 at age-2. The result is that the 1994 fishery will be heavily dependent on the incoming crop of age-1 shrimp, whose recruitment success is unknown. Two scenarios seem most likely. Either there will be a successful incoming year-class (meaning high counts and possible count per pound problems), or there will be low numbers of all age-classes. Evidence supporting either scenario is conflicting. Our recruitment model (still being tested) suggests below average recruitment is expected due to poor ocean conditions. However, our October market samples showed that the percentage of new recruits (zero-age shrimp) was fairly high south of Cape Blanco. In the past, a good showing of zeros to the south has often been associated with strong recruitment events.

California

Pacific ocean shrimp landings for the 1993 season totaled 7.8 million pounds statewide, an decrease of 58 percent from the record 1992 season. The season opened on April 1 with a price settlement of \$0.30 per pound.

Contributors:

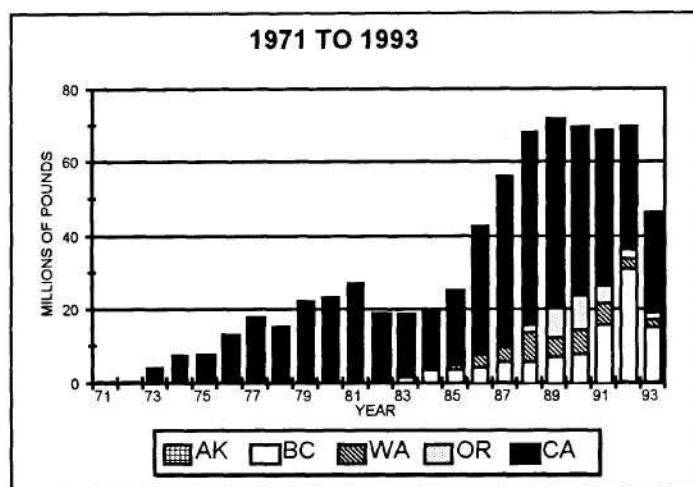
Carole Smith, Alaska Department of Fish and Game
Colin Wallace, Department of Fisheries and Oceans,
Canada
Steve Barry, Washington Department of Fisheries
Stephen Jones, Oregon Department of Fish and Wildlife
Ron Warner, California Department of Fish and Game

Year	Alaska	British Columbia	Washington	Oregon	California	Total
1975	98,535	1,728	10,167	23,893	4,993	139,316
76	129,011	7,723	9,261	25,392	3,400	174,787
77	116,011	6,176	11,803	48,580	15,633	198,203
78	73,293	3,460	12,298	56,997	13,167	159,215
79	50,916	1,578	12,135	29,579	4,992	99,200
1980	52,568	1,500	12,629	30,152	5,050	101,899
81	28,029	1,841	10,055	25,918	3,670	69,513
82	16,987	1,200	5,000	18,462	4,550	46,199
83	7,458	1,200	5,656	6,547	1,132	21,993
84	9,539	2,009	3,423	4,844	1,485	21,300
85	4,204	2,969	9,118	14,848	3,293	34,432
86	4,064	2,400	17,400	33,798	6,800	64,462
87	2,457	4,700	15,900	44,800	7,800	75,657
88	2,773	5,600	18,300	41,484	11,100	79,257
89	2,000	6,300	15,870	49,083	13,314	86,567
1990	3,197	5,845	13,504	31,883	8,684	63,113
91	3,794	9,244	9,949	21,720	10,358	55,065
92	3,073	7,895	12,012	48,033	18,516	89,529
10-yr	4,256	4,816	12,113	29,704	8,248	59,138
Mean						
1993	2,838	N.A.	15,456	26,923	7,800	53,017
N.A.	Not Available					

Table 3. Oregon landings (pounds) of pink shrimp and effort (hours) during 1992 and 1993, by PSMFC area of harvest.

PSMFC Area	Geographic Boundaries	1993		1992	
		Pounds	Hours	Pounds	Hours
72	Cape Flattery to Cape Elizabeth	6,448,853	7,995	1,058,929	1,221
74	Cape Elizabeth to Willapa Bay	3,849,148	7,351	3,051,023	5,049
75	Willapa Bay to Columbia River	40,109	53	32,535	59
82	Columbia River to Cape Falcon Cape	3,365,698	5,345	3,028,304	4,939
84	Falcon to Cape Perpetua Cape	2,396,875	4,751	4,994,644	8,951
86	Perpetua to Cape Blanco Cape	4,825,946	12,795	24,323,999	29,185
88	Blanco to California border	3,430,717	6,801	9,247,427	9,356
92	border to Cape Mendocino	2,565,797	4,571	2,296,379	2,487
Total		26,923,143	49,662	48,033,240	61,248

SEA URCHIN FISHERY IN 1993



Alaska

The Alaska sea urchin fishery landings totaled 368,900 pounds, live weight, in 1993. That total includes approximately 143,500 pounds from Sitka Sound in Southeast Alaska and 225,400 pounds from the remainder of the state, principally Kodiak and Cook Inlet. The Sitka Sound catch comprised about 39% of the statewide harvest and was composed of red urchins taken from April 11 through April 26 by 18 divers. The Kodiak fishery totaled approximately 30,000 pounds of green urchins, taken from October through January by six divers. The Cook Inlet fishery was also composed of green urchins and experienced a record urchin catch in 1993. During the regular October through January season, 29 divers harvested 195,400 pounds, greatly surpassing the previous high harvest of 20,400 pounds taken in 1991. The Sitka Sound fishery is a component of an Alaska Department of Fish and Game research project funded in part by PSMFC.

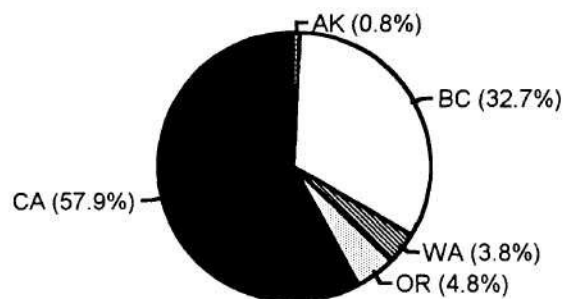
British Columbia

Preliminary 1993 landings of sea urchins in British Columbia were 15.1 million pounds, and most of these were red sea urchins (13.5 million pounds). A North Coast quota for red sea urchins was set at 12 million pounds, and the South Coast quota for reds was 3.089 million pounds. This effectively reduced the coastwide catch of red sea urchins by 50%. Green sea urchin landings were 1.5 million pounds in 1993. There were no quotas for green sea urchins, but stock strength concerns prompted DFO to reduce fishing times on both the North and South Coasts. The coastwide reduction for green sea urchins was about 32%. Purple sea urchins are no longer harvested in British Columbia. Red sea urchin quotas in 1994 will remain the same as in 1993, and a quota for green sea urchins will be instituted in 1994.

Washington

Total red urchin landings were 1.114 million pounds, with an average ex-vessel price of \$1.19 per pound and a landed value of \$1.33 million. Green sea urchin landings totalled 640,000 pounds, with an average price of \$1.55 per pound and a landed value of \$0.99 million. Sixty-two boats made landings, down from last season's 74 boats due to court decisions related to limited entry.

1993 FISHERY



The red sea urchin season opened December 6, 1993 and closed February 8, 1994. Fishing was allowed two days per week in Districts 2 (Southern San Juans) and 5 (Neah Bay) with a combined quota for the two districts of 1.13 million pounds. For the first time in the fishery's history, the quota was set based on a size-based population yield model. The model suggested that previous harvest levels should be reduced significantly. Average catch-per-diver-hour was down

Table 4. Annual landings of sea urchins by state, province, and entire Pacific coast (in 1000's of pounds).

Year	Alaska Columbia	British Columbia	Wash- ington	Oregon	California	Total
1971		t	1.8		0.2	2.0
72		t	2.5		76.5	79.0
73		802.5	14.7		3,594.7	4,411.9
74		t	57.4		7,107.8	7,165.2
75		t	31.0		7,567.2	7,598.2
76		t	1,544.4		11,106.4	12,650.8
77		154.5	1,045.6		16,536.3	17,736.4
78		165.3	471.4		14,424.3	15,061.0
79		701.5	697.0		20,544.2	21,942.7
1980		733.7	132.9		22,167.1	23,033.7
81		254.2	304.2		26,333.7	26,892.1
82		351.2	40.6		18,403.9	18,795.7
83		2,173.3	497.2		15,809.4	18,479.9
84	107.4	3,890.1	604.5		14,746.5	19,348.5
85	126.0	4,001.2	878.8		19,994.9	25,000.9
86	282.4	4,556.7	3,436.1	55.8	34,130.7	42,461.7
87	757.1	4,935.0	4,475.0	202.8	45,636.8	56,006.7
88	244.9	5,644.5	8,092.4	1,947.3	51,988.0	67,917.1
89	187.0	7,201.2	5,242.4	7,842.6	51,187.3	71,660.5
1990	100.3	8,008.5	6,612.8	9,320.9	45,269.7	69,312.2
91	225.1	16,105.2	5,419.2	4,736.9	41,926.7	68,413.1
92	454.1	30,928.3	2,526.4	2,954.2	32,681.4	69,544.4
5-year Mean	242.3	13,577.5	5,578.6	5,360.4	44,610.6	69,369.5
1993 *	386.9	15,075.1	1,753.4	2,217.5	26,718.3	46,151.2

Confidential information: fewer than four fishermen with landings.

All 1993 data are preliminary.

t Data from 1971-73 combined.

t Data from 1974-77 combined.

21 % in both districts from 1 990 levels. Average harvest depth increased six feet in District 2 from the 1990 level, but remained at the 1 990 level in District 5. The green sea urchin quota of 600,000 pounds remained unchanged from previous seasons, and fishing remained open for this species through January 11, 1994.

Oregon

Red sea urchin landings in Oregon declined for the third year in a row since the peak harvest in 1990. Total landings in 1993 were just over 2.1 million pounds landed by 46 harvesters, with a record average ex-vessel price of \$0.87 per pound. Port Orford continues to be the major port of landing, even with a voluntary industry closure of Orford Reef from May through October to protect Steller sea lion pupping rocks and reserve Orford Reef for the winter fishery. Average size and catch-per-unit-of-effort continue to decrease.

Purple sea urchins were harvested for the second year in 1993. Specific areas were opened for the harvest of purple urchins only after surveys of size and densities were conducted. Harvest was very limited, totalling 34,235 pounds, taken from five separate areas. Most of the harvest was landed into Depoe Bay on the central coast.

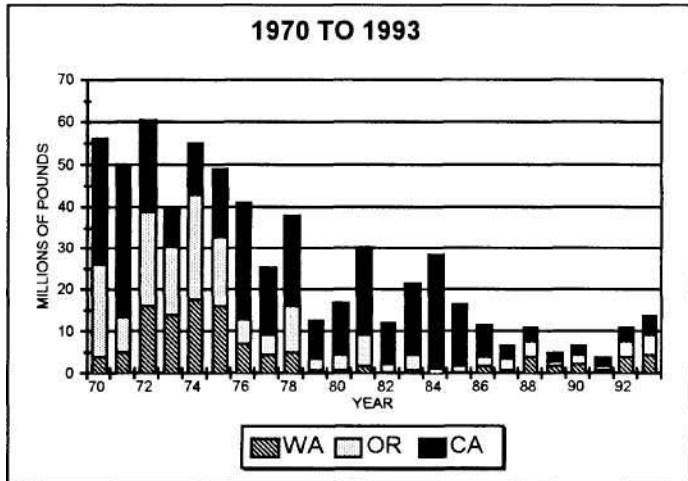
California

Preliminary estimates of 1993 sea urchin landings in California show a 17% decline for red urchins to 26.6 million pounds, and a 50% decline for purple urchins to 155,929 pounds . There were no regulation changes during 1 993 which would have caused an effort reduction. A disproportionate percentage of the red sea urchin decline was in northern California, and was related, variously, to: a reduction in available biomass as the pre-1985 virgin stocks became fully exploited; bad weather which reduced available harvest days; and a shift in selectivity by the divers to a higher quality product. Many divers felt they were taking (numerically) as many sea urchins as before, but since they were harvesting smaller-sized sea urchins, the reduction in poundage was not believed reflective of a similar reduction in the sea urchin population. Regulations were adopted by the Fish and Game Commission in early 1994 to reshape the provisions for entry into the fishery and to establish a new goal of not more than 300 divers. Until that goal is reached, there will be only one new permit available for each 10 that leave the fishery.

Contributors:

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Alex Bradbury, Washington Department of Fisheries
Jean McCrae, Oregon Department of Fish and Wildlife
John Duffy, California Department of Fish and Game

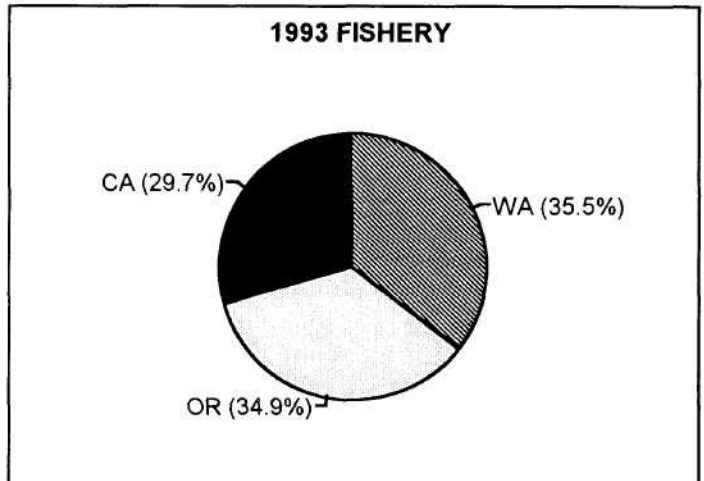
ALBACORE FISHERY IN 1993



Commercial albacore landings increased in 1993 with total landings of approximately 13.6 million pounds in California, Oregon and Washington. This represents a 26% increase from 1992, but is still 38% below the 20-year average for this fishery.

California

Although the 1993 commercial landings of albacore in California increased 45% over the 1992 total, the four million pounds landed was only 35% of the 20-year average. The number of boats participating in the fishery increased 41% over 1992 to 249 boats. Of these boats, 184 (74%) landed



over one ton, a slight increase over 1992.

Landings through July totaled 17,022 pounds and were from boats fishing in the South Pacific. The season in the north Pacific began in August. Fishing effort was concentrated 100 miles offshore in an area bounded by Newport, Oregon on the north and Eureka, California on the south. Over 184,000 pounds were landed in August, with the majority of landings occurring in Eureka.

In September, effort was split between an area 400 miles west of Eureka and the area fished in August. Landings totaled 1.4 million pounds; the majority (75%) was landed in

Eureka and San Pedro. The markets in Eureka offered \$1,325 per ton for iced fish and \$1,750 per ton for frozen fish, but were charging \$175 per ton for handling and shipping. Consequently, selling by the pound to the public became popular since the price averaged \$2,500 per ton. In Oakland, the cannery could not front albacore fishers the entire amount due. Therefore, many boats came south to San Pedro to offload because the cannery there offered \$1,900 per ton.

Fishing effort in October was concentrated 100 to 200 miles off Eureka. Over 1.8 million pounds were landed in October, with San Pedro receiving the majority of the landings. The season came to a close in November as landings dropped to 578,000 pounds. As is typical of the albacore season, the majority of end-of-season landings came into San Pedro. Many boats came south because of the higher price offered in San Pedro, the problems in Oakland, and it was their last trip of the year.

Oregon

The 1993 Oregon albacore fishery commenced in late July with 182,974 pounds delivered into Oregon ports during that month. Fish were scattered and fishing was spotty within 100 miles of the Oregon coast early in the season.

By mid-August, fishing improved 50 to 100 miles off the central Oregon coast with average catches of 50 to 100 + fish per day being reported. August landings totaled 1,243,704 pounds.

The fishery in September continued much as it had in August. Catch rates remained fairly stable through September and then dropped off in October. September landings totaled 2,661,776 pounds, declining to 613,174 pounds in October. This decline may have been partially caused by a poor Oregon market for frozen albacore late in the season; a number of boats delivered their frozen fish into Washington or California. Late in September and through October most boats were fishing just north of Coos Bay from 50 to 150 miles offshore. Good catches were also reported as far south as Cape Blanco in late October. During November the fishery continued to decline with only 30,529 pounds landed in Oregon.

The average weight of individual albacore landed during 1993 in Oregon was quite variable, ranging from 12 to 20 pounds. Newport received 47% of Oregon deliveries, with Astoria second at 27% and Charleston third at 17%. Several other ports made up the rest of the landings. Ex-vessel prices paid during 1993 ranged from about \$1,200 to \$1,800 per ton, depending on the processor and whether the product was fresh or frozen. Albacore under 9 pounds brought about \$400 to \$600 per ton.

The total albacore landings in Oregon during 1993 were 4,732,157 pounds, the highest of the last decade.

Table 5. Albacore landings in California, Oregon and Washington (in thousands of pounds).

Year	California	Oregon	Washington	Total
1970	29,932	21,782	4,390	56,104
71	36,117	8,420	5,250	49,787
72	21,001	23,056	16,238	60,295
73	8,641	16,350	14,446	39,437
74	11,806	25,225	17,983	55,014
75	15,413	17,166	16,297	48,876
76	27,754	5,934	7,202	40,890
77	15,905	4,420	4,948	25,273
78	21,549	11,285	5,008	37,842
79	8,508	3,107	830	12,445
1980	11,958	3,505	1,299	16,762
81	20,584	7,727	1,928	30,239
82	9,439	1,913	586	11,938
83	16,732	3,410	1,168	21,310
84	26,520	1,631	147	28,298
85	14,410	1,525	379	16,314
86	7,018	2,461	1,862	11,341
87	3,090	2,288	1,167	6,545
88	2,665	3,967	4,197	10,829
89	1,819	1,080	1,882	4,781
1990	1,942	2,079	2,542	6,563
91	1,494	1,259	943	3,696
92	2,772	3,889	4,095	10,756
20-year	11,501	6,011	4,445	21,957
Mean				
1993*	4,028	4,732	4,813	13,573

*Preliminary

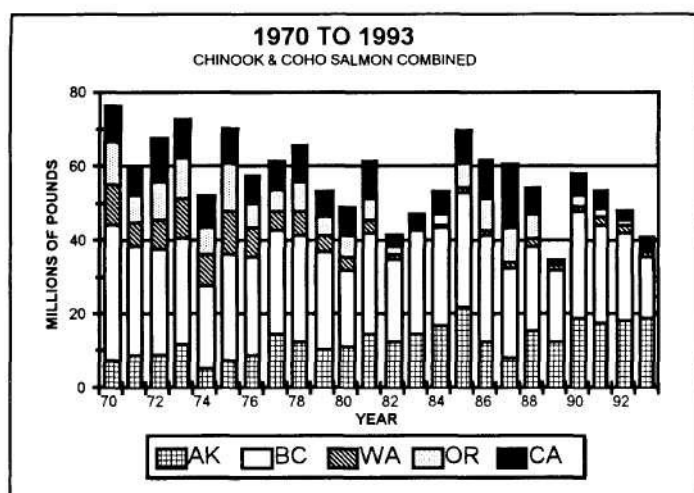
Washington

Albacore landings in Washington during 1993 totaled 4,812,649 pounds. Landings by month were: 304,184 pounds in July; 817,356 pounds during August; 1,970,849 pounds during September; 1,489,204 pounds during October; and 231,056 pounds during November. About 4% of the total catch was reported to have come from Canadian catch areas.

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TROLL SALMON FISHERY IN 1993



Alaska

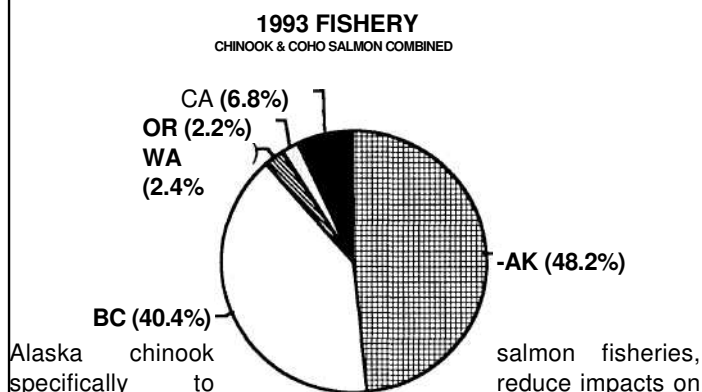
The commercial troll fishery in Southeast Alaska and Yakutat occurs in State of Alaska waters and in the Federal Exclusive Economic Zone (EEZ) east of the longitude of Cape Suckling. The EEZ waters are those more than 3 miles west of the surf line. All other waters of Alaska are closed to commercial trolling.

The commercial troll fishery harvests primarily chinook and coho salmon. Other species of salmon harvested by trollers are normally considered incidental, although targeting on pink and chum salmon has increased in recent years. The troll fishery normally harvests about 90 percent of the chinook salmon and 50-75 percent (target is 61 percent) of the coho salmon taken in Southeast Alaska commercial fisheries.

Commercial trolling for chinook salmon occurs in two seasons: winter (October 11 through April 14) and summer (April 15 to September 30). A quota on the number of non-Alaskan chinook salmon is set yearly under the U.S./Canada Pacific Salmon Treaty (PST). Time and area openings are set by the Alaska Board of Fisheries. The season for coho salmon is from June 15 to September 20. There are no season restrictions for other species of salmon.

A total of 4,071,968 salmon of all species were harvested by the troll fleet in 1993. This was the highest total since statehood, due to record catches of coho, chum, and sockeye salmon.

The 1993 troll chinook salmon fishery was managed to: (1) comply with provisions of the PST regarding chinook catch ceilings and to minimize incidental mortalities; (2) continue the Southeast Alaska natural chinook rebuilding program; (3) harvest a total of 201,690 treaty chinook salmon; and (4) provide maximum harvest of Alaska hatchery-produced chinook salmon. However, in 1993 additional actions were required to comply with conditions issued by the National Marine Fisheries Service (NMFS) for threatened Snake River fall chinook salmon. Under the Endangered Species Act of 1973, no taking, no matter how small, of a threatened species is allowed without an Incidental Take Permit (ITP) issued by NMFS. The Chinook Annex of the PST expired following the 1992 season and the PST negotiations ended without an agreement for chinook salmon for 1993. At this time, NMFS Northwest Region entered into consultation with the North Pacific Fishery Management Council (NPFMC) over management of Southeast



Alaska chinook salmon fisheries, specifically to reduce impacts on Snake River fall chinook. During the consultation process, the state worked closely with NMFS to develop options for management of the fishery. Following the consultation, NMFS issued a Biological Opinion that required additional management actions in the 1993 fishery. These actions constituted the ITP.

Consequently, the 1993 chinook salmon troll fishery was managed for a ceiling of 263,000 fish. In addition, although no annex was formally signed, the fishery was managed to comply with previous PST protocol. The department chose to achieve a reduction on the exploitation of Snake River fall chinook by decreasing incidental mortality rather than by reducing catch. To accomplish this, the spring fisheries normally limited to 35,000 treaty fish were modified. The hatchery access fishery was eliminated and 25,000 treaty fish were transferred to the general summer fishery to reduce the number of chinook non-retention days. The department managed the spring experimental fisheries to not exceed a harvest of 10,000 treaty fish. In addition, the general summer troll fishery was closed for five days following the initial scheduled opening.

The harvest of chinook salmon in the winter troll fishery totaled 62,720 fish, the second largest winter catch on record. In 1993, spring experimental fisheries were conducted a minimum of two days per week during late May and June in 12 near-terminal hatchery areas. The purpose of all except the Cross Sound fishery was to increase the take of Alaska-origin hatchery chinook salmon. Time was increased in areas that have high Alaska hatchery catch percentages. Between 100 to 300 boats participated each week in the 1993 experimental fisheries, harvesting 15,831 chinook salmon of which 38.5% were of Alaska hatchery origin.

The harvest target for the general summer opening was determined by subtracting the base catches in the winter and spring troll fisheries. Five percent of this total was added for the expected Alaska hatchery contribution. Opening of the general troll season was again delayed until July 1 to reduce the duration of the chinook salmon non-retention fishery which occurs after the allowable chinook salmon catch has been taken. Because of the relatively low number of chinook salmon available under the 1993 quota (approximately 132,000) and

an expected high abundance of chinook salmon, the 1993 summer troll fishery was opened for an initial period of six days. This opening was followed by a five-day closure to comply with the conditions of the **ITP**. The catch was 101,127 fish during that five-day opening. With over 32,000 fish remaining under the quota, another five days of chinook salmon fishing were allowed from August 21 to 25 which harvested another 24,865 fish. Based on preliminary catch data, about 11,000 chinook salmon were thought to still be available for harvest, so commercial troll fishing for chinook salmon resumed September 12 and continued through September 20. The preliminary estimate of harvest for that opening was 18,645 fish. Chinook salmon non-retention was implemented for a total of 49 days in 1993: July 12 through August 12 (32 days) ; and August 26 through September 11 (17 days). Total 1993 Southeast Alaska chinook salmon troll catch was 226,345 fish (3,890,887 pounds dressed weight; 4,421,463 pounds round weight).

General regulatory dates for the troll coho salmon season are June 15 through September 20. The major portion of the coho salmon catch normally occurs from mid-July through early September. Southeast Alaska coho salmon fisheries are managed based on assessed in-season run strength, and are regulated to achieve conservation objectives and allocation policies established by the Alaska Board of Fisheries. Harvest ceilings like those in the chinook salmon fishery are not used. Coho salmon catch totalled 2.40 million fish (13.43 million pounds dressed weight or 15.26 million pounds round weight). The 1993 troll coho salmon harvest was the highest in numbers of fish since the fishery began 100 years ago, and third highest in poundage. The troll share of the commercial harvest beginning in 1989 has averaged 62.8%.

The estimated ex-vessel value for the chinook salmon troll fishery for 1993 was approximately \$6.17 million (\$1.71 per pound), while the coho salmon fishery was valued at about \$14.29 million (\$1.07 per pound).

Washington

Washington non-treaty trollers targeted on chinook salmon in a coho salmon non-retention fishery that was open from Cape Falcon, Oregon, north to the U.S.-Canada border. The fishery opened on May 1 and closed permanently on June 15 for a total of 46 fishing days. There were no evaluation closures during this fishery.

The all-salmon plug fishery, from Cape Falcon, Oregon, north to the U.S.-Canada border, opened July 14 through August 6 on a four-day-on/three-day-off cycle for a total of 15 fishing days. Gear was restricted to six-inch or larger plugs, or six-inch or larger whole bait, and no more than four spreads per line. There was also a possession limit of 50 coho salmon per four-day open period.

The pink-directed fishery from Carroll Island, Washington north to the U.S.-Canada border opened seven days per week from August 8 to 25, for a total of 18 fishing days. Gear was restricted to flashers with bars, blued hooks only. Chinook and coho salmon retention was prohibited.

The late-season all-salmon fishery opened from the Queets River to Cape Falcon from August 27 to September 12 and from Leadbetter Point to Cape Falcon from September 16 to 19. The fishery opened on August 27 for two days, then reopened on a four-day-on/three-day-off cycle for a total of 14 fishing days. A possession limit of 35 coho salmon was in

Table 6	Pacific (millions of pounds)	Doast commercial troll (millions of pounds)	Wash- ington (millions of pounds)	Oregon (millions of pounds)	California (millions of pounds)	Total (millions of pounds)
Year	'Alaska	British Columbia	Wash- ington	Oregon	California	Total
1970	5.1	9.9	2.5	1.9	6.1	25.5
71	4.9	15.2	3.1	1.2	5.7	30.1
72	3.3	14.1	2.6	1.5	6.2	27.7
73	5.0	12.7	3.8	4.0	8.7	34.2
74	5.1	13.5	4.3	2.6	5.8	31.3
75	4.4	12.6	3.3	3.0	6.6	29.9
76	3.5	13.8	4.4	2.2	5.7	29.6
77	4.7	12.1	3.3	4.0	6.6	30.7
78	6.8	13.2	2.4	2.2	6.0	30.6
79	6.0	11.1	2.0	3.0	7.9	30.0
1980	5.5	11.6	1.9	2.5	6.4	27.9
81	4.7	9.9	1.4	1.8	6.8	24.6
82	4.5	11.9	1.9	2.7	8.5	29.5
83	4.3	9.5	0.8	0.8	2.4	17.8
84	4.4	11.1	0.2	0.6	2.3	18.6
85	4.0	9.3	0.6	2.3	5.2	21.4
86	4.7	8.6	0.7	3.9	7.6	25.5
87	5.3	10.2	1.1	6.0	9.5	32.1
88	4.3	11.3	1.5	5.0	16.5	38.6
89	5.2	8.6	1.2	4.1	6.2	25.3
1990	5.6	9.2	0.6	2.5	4.7	22.6
91	5.2	8.3	0.8	0.8	3.7	18.8
92	3.3	10.1	1.0	1.2	1.9	17.5
10-yr	4.6	9.6	0.9	2.7	6.0	23.8
Mean						
1993t	4.4	8.6	0.6	0.9	2.8	17.1

* Troll-caught salmon are landed dressed. Round weights are projected. t All 1993 data are preliminary.

place during the first two-day opener, and was changed to 70 coho salmon during subsequent four-day open periods. The fishery was originally scheduled to run through October 31, however, the suspected poor status of Washington coastal and Puget Sound coho salmon stocks was confirmed by the first available run-size information in mid-September. The fishery was first restricted to the area south of Leadbetter Point during September 16 to 19, and then closed permanently to protect weak coho salmon stocks.

The 1993 treaty troll season differed from recent years in that the fishery ran continuously from May 1 to September 23 for the **QTA** tribes and to September 30 for the Makah tribe. The 1993 treaty troll fishery began May 1 with a chinook-directed fishery that ran through June 30. The availability of chinook salmon was good, and the total catch of 12,594 fish represented 33% of the overall chinook salmon quota of 33,000 fish. In the all-salmon season which started July 1, 24,971 chinook salmon (76% of the 33,000 fish quota) and 62,387 coho (69% of the 90,000 fish quota) were taken.

Concerns over reduced 1993 coho salmon availability prompted both the state and **QTA** tribes to close their fisheries on September 23, and the Makah to close on September 30. Therefore, the 1993 treaty troll season ran for 146 days for QTA tribes and 153 days for the Makah tribe. This compares

Table 7. Pacific Coast commercial troll coho salmon landings in million of pounds round weight.

Year	Alaska	British Columbia	Washington	Oregon	California	Total
1970	2.2	17.3	6.1	8.7	1.5	35.8
71	3.1	21.4	7.9	10.1	3.7	46.2
72	5.7	15.9	3.9	5.6	1.2	32.3
73	4.5	16.2	4.3	5.9	2.3	33.2
74	6.7	15.6	6.4	8.3	4.3	41.3
75	1.5	9.5	5.1	4.7	1.3	22.1
76	4.3	15.3	7.2	10.4	3.3	40.5
77	4.9	14.4	4.3	3.0	0.2	26.8
78	8.0	14.9	3.2	3.2	1.5	30.8
79	7.1	17.7	4.2	5.3	1.2	35.5
1980	5.0	15.3	2.3	2.5	0.3	25.4
81	6.7	11.3	2.0	3.8	0.5	24.3
82	10.2	15.8	2.2	3.1	0.6	31.9
83	8.5	13.3	0.3	1.3	0.3	23.7
84	10.4	17.3	0.3	0.1	0.4	28.5
85	13.2	17.3	0.6	0.6	0.1	31.8
86	17.3	23.0	0.7	2.2	0.8	44.0
87	7.8	18.5	0.7	2.2	0.3	29.5
88	4.4	13.1	0.3	3.8	0.4	22.0
89	10.4	15.1	0.7	2.3	0.3	28.8
1990	13.8	19.5	1.0	0.7	0.4	35.4
91	12.5	19.0	1.1	1.6	0.5	34.7
92	15.5	13.7	1.0	0.2	0.0	30.4
10-yr Mean	11.4	17.0	0.7	1.5	0.4	30.9
1993t	15.3	7.9	0.4	0.0	-	23.3

Troll-caught salmon are landed dressed. Round weights are projected.
All 1993 data are preliminary.

with 73 and 84.5 days for treaty troll fisheries in 1992 and 1991, respectively, representing years with good coho salmon abundance.

Landings from non-treaty fisheries totaled 0.379 million pounds round of Chinook salmon and 0.077 million pounds round of coho salmon. Landings from treaty fisheries totaled 0.214 million pounds round of Chinook and 0.310 million pounds round of coho. The combined Washington commercial troll fishery totaled 0.593 million pounds round of Chinook salmon and 0.387 million pounds round of coho salmon. The 1993 chinook salmon landings were 40% below the 1992 landings of 1.0 million pounds round and were 33% below the 10-year mean of 0.9 million pounds round. The 1993 coho salmon landings were 60% below the 1992 landings of 1.0 million pounds round, and 43% below the 10-year average of 0.7 million pounds round.

Oregon

The area north of Cape Falcon opened to troll fishing for all salmon species except coho salmon on May 1 and continued through June 15. The all-species troll fishery was open July 14-17, July 21-24, July 28-31, August 4-6, August 27-28, September 1-4, September 9-12, and September 16-

19. The first four openings had a landing limit of 50 coho salmon per open period, and gear was limited to not more than four spreads per wire and terminal tackle of six-inch or larger plugs and/or six-inch or larger whole bait. The fifth all-species opening had a 35 coho salmon landing limit, but no special gear restrictions. The remaining three open periods in September had landing limits of 70 coho salmon per open period.

The area from Cape Falcon to the Florence South Jetty was open May 1 through October 31 for all species except coho salmon. The area from the Florence South Jetty to Cape Arago was open for all species except coho salmon May 1 through June 30 and September 1 through October 31. The area from Cape Arago to Humbug Mountain was open May 1-31 and September 1 through October 31. All of these openings were restricted to not more than four spreads per wire to reduce coho salmon hooking mortality.

The area from Cape Blanco to Humbug Mountain within state waters (0-3 miles) was open from November 1-30 for all species except coho salmon. This fishery targets on returning Elk River fall chinook salmon.

No commercial troll salmon fisheries were authorized for the area from Humbug Mountain south to the Oregon/California border. No seasons have been authorized in this area since 1991.

Oregon troll chinook salmon landings in 1993 totaled 0.9 million pounds (round weight). The 1993 landings were 25% below the 1992 total of 1.2 million pounds, and 67% below the 1983-92 average of 2.7 million pounds.

The 1993 coho salmon landings in Oregon were the lowest on record with only 10,000 pounds (round weight) landed. The 1993 landings were 96% below the 1992 landings and 99% below the 1983-92 average of 1.5 million pounds.

California

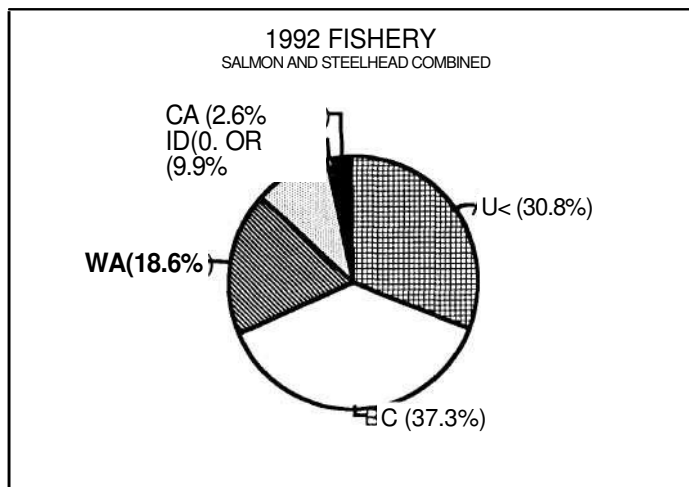
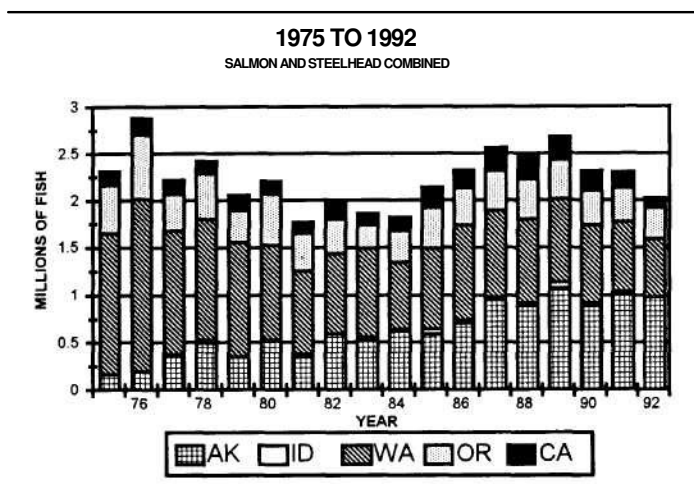
In 1993, the troll season north of Horse Mountain was closed the entire season. Between Horse Mountain and Point Arena there was a fishery for all salmon except coho during the month of September. South of Point Arena, fishing for all salmon except coho occurred from May 1 through August 31, except for a closure between Point Arena and Point San Pedro (approximately 15 miles south of the Golden Gate) from June 1 through July 25. Statewide, the minimum size limit for chinook salmon was 26 inches total length, and barbless hooks were required.

California's preliminary troll chinook salmon landings were 2.8 million pounds round weight, approximately 47% below the previous 10-year average of 6.0 million pounds. Commercial fishing for coho salmon was closed for the entire season.

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SALMON AND STEELHEAD SPORT HARVESTS IN 1992



Alaska

Anglers harvested an estimated 993,150 salmon and 3,149 steelhead in Alaska in 1992. The salmon harvest was the third highest on record, down 4% from the 1991 harvest but still up 24% from the 1982-1991 mean. The chinook salmon harvest was another record high, up 2% from the previous record in 1991 and 42% above the previous ten-year mean. The coho salmon harvest was down 11 % from 1991 's record but was still 32% above the previous ten-year mean. The steelhead harvest was down 38% from 1991 and was 43% below the previous 10-year mean.

Washington

Marine recreational anglers caught a total of 118,568 chinook salmon, 317,915 coho salmon, 399 pink salmon, and 9,037 chum, sockeye, and jack salmon. The total of 445,919 salmon harvested in 1992 was 38% below the ten-year mean.

The 1992 Washington sport catch of steelhead was 153,552 fish. Attributed to better ocean survivals, this catch was nearly 50% above 1991, and 11% above the previous ten-year mean.

Oregon

Under restrictive regulations, ocean salmon anglers caught 198,400 salmon in 1992, down 28% from the brief 1991 season.

Chinook salmon harvest was down slightly with 12,600 fish taken in 1992, compared to 14,400 in 1991 and 62% below the 1982-91 average of 32,900 chinook.

Coho salmon harvest was down 28% from 1991; 185,800 fish compared to 259,100 in 1991. The 10-year average coho harvest is 197,500 fish.

The steelhead harvest of 122,700 fish in 1992 was 23% above the 1991 take of 95,000 fish but still less than the 1982-91 average of 144,100 fish. Only a fraction of this harvest is made in the ocean.

Idaho

Sport fishing opportunity for salmon was limited in 1992. A nine-day sport season for chinook salmon was opened on 2.5 miles of the Little Salmon River this year. Anglers harvested 499 fish which were produced at the Rapid River Hatchery.

Steelhead anglers harvested 21,316 fish in 1992; 10,820 from the 1991-92 run (spring season) and 10,820 from the 1992-93 run (fall season). The 1992 harvest was 19% less than the 1991 harvest and 29% less than the ten-year average.

Table 8. Salmon and steelhead sport harvest, 1992.

State/Province	Chinook	Coho	Pink	Other * Salmon	Steelhead	Total
Alaska	153,919	345,513	149,372	344,346	3,149	996,299
British Columbia	242,000	756,000	66,000	131,000	10,921	1,205,921
Washington	118,568	317,915	399	9,037	153,552	599,471
Oregon	12,600	185,800	-	-	122,700	321,100
Idaho	499	-	-	-	21,316	21,815
California	73,600	11,500	-	-	#*	85,100
Total	601,186	1,616,728	215,771	484,383	311,638	3,229,706

* Sockeye and chum salmon

** Unavailable

Table 9. Salmon and steelhead sport catches (1000's of fish) for the Pacific Coast States, 1975 to 1992 and 10-year (1982-1991) averages.

Year	Alaska		Washington		Oregon		Idaho		California		Total	
	Salmon	Steelhead	**Salmon	Steelhead	**Salmon	Steelhead	Salmon	Steelhead	**Salmon	Steelhead	Salmon	*Steelhead
1975	178.0	2.2	1,399.4	92.9	329.1	185.5	0.0	0.0	125.0	Steelhead	2,031.5	280.6
76	200.6	2.3	1,749.6	89.1	580.7	118.3	0.0	2.0	139.0	catches	2,669.9	211.7
77	381.1	3.7	1,191.4	100.0	260.7	145.1	3.5	13.0	117.8	are	1,954.5	261.8
78	525.4	4.3	1,107.9	163.1	282.6	200.6	7.0	11.5	114.0	not	2,036.9	379.5
79	361.2	3.0	1,123.9	94.8	202.3	122.4	closed	5.7	140.9	estimated	1,828.3	225.9
										in		
1980	531.8	4.8	852.9	151.1	344.9	203.7	closed	9.1	106.4	California	1,836.0	368.7
81	379.5	3.3	760.1	125.1	230.6	155.0	closed	13.0	94.6		1,464.8	296.4
82	597.3	3.7	736.9	104.2	213.9	135.1	closed	20.5	165.4		1,713.5	263.5
83	532.5	5.4	860.6	78.6	171.7	84.2	closed	32.2	91.1		1,655.9	200.4
84	625.8	6.5	561.4	149.5	140.3	198.4	closed	25.1	106.8		1,434.3	379.5
85	619.0	4.7	686.3	165.8	246.1	188.4	2.5	34.5	186.9		1,740.8	393.4
86	720.5	5.9	830.6	168.5	234.0	149.5	4.0	40.0	160.3		1,949.4	363.9
87	969.9	5.9	782.8	134.5	236.0	161.0	0.7	30.2	239.8		2,229.2	331.6
88	907.8	6.3	746.6	138.0	265.0	174.1	0.7	21.3	206.1		2,126.2	339.7
89	1,097.2	6.4	645.9	236.2	305.6	112.8	closed	38.6	237.0		2,285.7	394.0
1990	909.1	5.6	699.4	103.0	226.8	142.3	0.9	30.6	191.4		2,027.6	281.5
91	1,036.6	5.1	608.6	103.0	273.5	95.0	closed	26.4	150.1		2,068.8	229.5
10-year Mean	801.6	5.6	715.9	138.1	231.3	144.1	0.9	29.9	173.5		1,923.1	317.7
1992	993.2	3.1	445.9	153.6	198.4	122.7	0.5	21.3	85.1		1,723.1	300.7

Excluding California catch

** Marine fishery data only

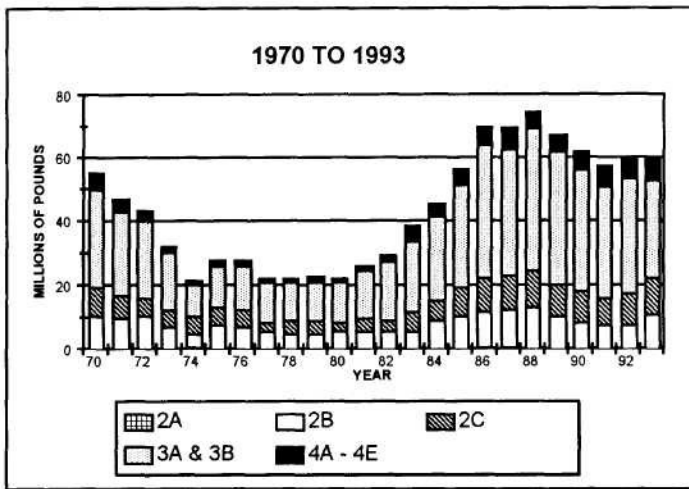
California

The 1992 ocean sport salmon catch, estimated at 85,100 fish, was down 43% from the 1991 harvest of 150,100 fish. Coho salmon made up 14% of the total ocean sport salmon catch in 1992. Steelhead catches are not estimated in California and no catch data are available.

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PACIFIC HALIBUT FISHERY IN 1993



The 1993 commercial catch of 59.3 million pounds (Table 10) was just above the 54.1 million pound catch limit. Largest abundance and the majority of the catch occurred in the Gulf of Alaska (Alaska Peninsula through Southeast Alaska).

The Canadian Individual Quota Fishery continued in 1993, commencing on March 1 and ending on October 31. Under the IVQ system, 434 vessels were allowed to catch a predetermined poundage as calculated by the Canadian Department of Fisheries and Oceans (DFO), based on the 10.0 million pound catch limit approved by the IPHC.

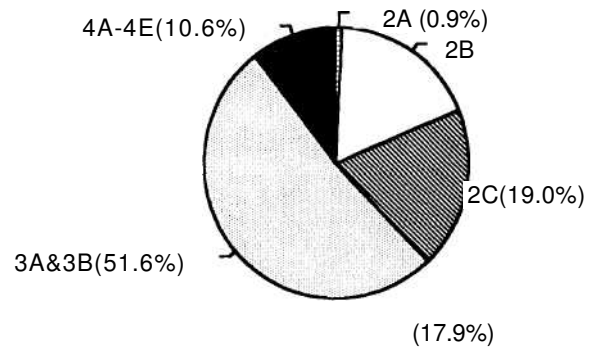
In the United States, the Pacific halibut fishery is an open access fishery with no limited entry. In 1993, the IPHC processed 5,577 commercial license applications, representing an eleven percent decrease from the number issued in 1992. This is only the second decrease in licenses issued since 1987

Table 10. Preliminary catch summary of the 1993 Pacific halibut fishery.

Regulatory Area	Catch Limit (millions lbs.)	Fishing Days	Catch (millions lbs.)
		0.4	0.366
		81.5	0.138
2A	0.225	244	10.628
2A*	0.136	2	11.290
2B	10.5	16.5	22.738
2C	10.0	12	7.855
3A	20.7	112	2.561
3B	6.5	112	1.962
4A	2.02		0.831
4B	2.3		0.836
4C	0.8		0.037
4D	0.8		0.027
4ENW	0.084		
4ESE	0.036		
			59.269
Total			
	54.101		

The United States Government allocated 136,000 pounds commercial and 14,000 pounds subsistence from the Area 2A catch limit to twelve Northwest Indian treaty tribes.

1993 FISHERY



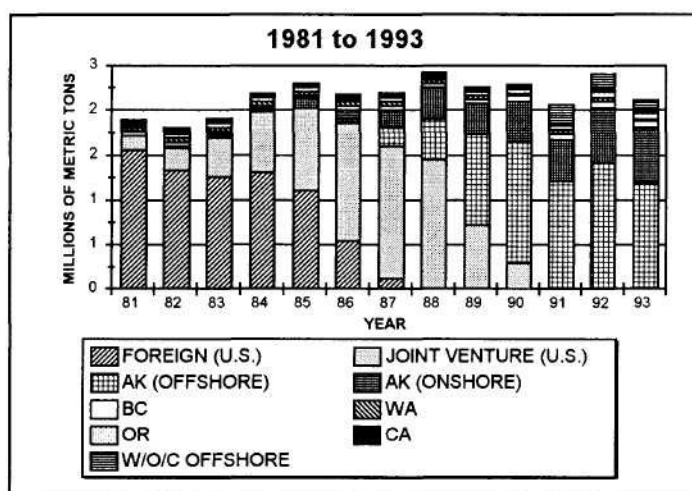
with the exception of 1989 when vessels worked on the Exxon Valdez oil spill clean-up in Prince William Sound. The number of vessels which actually fished were lower in all areas except Area 2A, which showed a 33 percent increase in effort over 1992.

Compiled by Gordon Peltonen, International Pacific Halibut Commission.

Table 11. Pacific Coast halibut landings of the United States and Canada (millions of pounds).

Year	Canadian	U.S.	Total
1970	29.2	25.8	54.9
71	25.5	21.2	46.7
72	22.5	20.4	42.9
73	14.4	17.3	31.7
74	7.4	13.9	21.3
75	11.3	16.3	27.6
76	12.0	15.5	27.5
77	8.8	13.1	21.9
78	8.6	13.4	22.0
79	6.6	15.9	22.5
1980	7.6	14.3	21.9
81	5.6	20.1	25.7
82	5.5	23.5	29.0
83	5.4	33.0	38.4
84	8.9	35.9	44.8
85	10.4	45.7	56.7
86	11.0	58.0	69.0
87	12.3	55.9	68.2
88	12.9	61.4	74.3
89	10.1	56.5	66.6
1990	8.6	53.0	61.6
91	7.2	49.8	57.0
92	7.6	52.3	59.9
93	10.6	48.6	59.3

GROUNDFISH FISHERY IN 1993

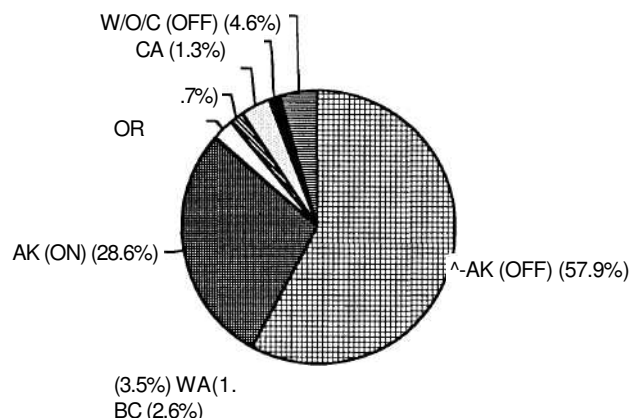


The estimated 1993 groundfish landings by North American fishermen fishing in the North Pacific Ocean are 2,151,952 metric tons (mt), a 13% decrease from 1992 (Table 12). The Canadian Joint Venture Fishery decreased 36%, landings by at-sea processors off Alaska decreased 15%, and Washington-Oregon-California at-sea processing decreased 33% (Table 12). Trawl fisheries accounted for 93% (1,965,905 mt) of the aggregate domestic catch, followed by longline at 6% (117,683 mt), pot at 0.7% (30,535 mt) and other gear at 0.3% (6,310 mt) (Table 13).

Statistics by state or province presented in this report are from the Pacific Fisheries Information Network (PacFIN), and reflect first port of landing. Catches by geographic area are different, and those statistics are also available from PacFIN. All 1993 data are preliminary.

Table 12. Total commercial groundfish landings in metric tons (mt) by port of landing with percent change.			
Region	1992 (mt)	1993 (mt)	Percent Change
Alaska	603,991	601,890	-0
Alaska At-Sea	1,432,976	1,218,196	-15
Washington	40,694	34,869	-14
Oregon	83,394	72,967	-13
California	34,783	28,055	-19
WOC At-Sea	143,074	95,827	-33
Total U.S.	2,338,912	2,051,804	-12
Canada (B.C.)	65,977	53,775	-18
Canada Joint Venture	72,269	46,373	-36
Total Canada	138,246	100,148	-28
Total U.S.-Canada	2,477,158	2,151,952	-13

1993 FISHERY



Alaska

The 1993 total Alaska groundfish harvest from at-sea processors and Alaskan ports combined was down 12% from 1992 levels. Of the 1,820,086 mt catch, 33% was landed at Alaskan ports, up from 30% in 1992. The remaining 67% was delivered to at-sea processors.

Landings to Alaskan ports remained relatively unchanged from 1992 levels, due largely to a 1% increase in trawl landings. This offset a 7% decrease in longline landings, a 31% decrease in pot landings, and a 70% decrease in landings by other gears.

Landings to at-sea processors decreased by 15% from the 1992 levels. Trawl landings decreased 13%, hook and line landings decreased 32%, and pot landings decreased 95%.

British Columbia

Landings of groundfish (excluding halibut) to Canadian ports were 53,775 mt in 1993, an decrease of 18% from 1992 levels. Trawlers landed 46,668 mt, 87% of the total catch and 17% below 1992 levels. Major species in the trawl landings were Pacific whiting (20%) and Pacific cod (14%).

Landings to Canadian ports of groundfish caught by gear other than trawl totalled 7,107 mt. Sablefish traps accounted for 3,378 mt (100% sablefish). Longline and handline accounted for 3,545 mt (48% rockfish, 34% lingcod and 11% sablefish). Miscellaneous gear, including troll gear and shrimp trawls, accounted for 184 mt (85% lingcod).

Each year, Fisheries Branch (DFO) conducts creel surveys of the recreational angling fishery in the Strait of Georgia (Area 4B). Principal target species are Chinook and coho salmon. In 1993 these surveys covered only the months of January through September. Provisional estimates of 1993 catches for this nine-month period were 6,802 fish for lingcod, 104,009 fish for all rockfish species, and 1,907 fish for dogfish. There was also an estimate of 35,218 fish for other fin fish which includes greenlings and sculpins, as well as other species such as herring.

In 1993, two foreign nations, Poland and China, were involved in joint venture fisheries for Pacific whiting off the southwest coast of Vancouver Island (Area 3C). Sixty-two Canadian catcher vessels delivered Pacific whiting and incidental species to eight processing vessels. A total of

Table 13. Domestic groundfish landings in metric tons by gear and first port of landing.

Region	Trawl		Longline		Pots		Other Gear*		Total	
	1992	1993	1992	1993	1992	1993	1992	1993	1992	1993
Alaska	560,293	565,308	27,525	25,575	15,724	10,874	449	133	603,991	601,890
Alaska At-Sea	1,304,895	1,137,871	118,082	79,791	9,999	534	0	0	1,432,976	1,218,196
Washington	32,853	28,500	3,794	3,629	15	8	4,032	2,733	40,694	34,869
Oregon	80,518	69,693	1,892	1,666	410	674	575	935	83,394	72,967
California	26,096	22,039	5,155	3,478	346	214	3,187	2,325	34,783	28,055
WOC At-Sea	143,074	95,827	0	0	0	0	0	0	143,074	95,827
Total U.S.	2,147,729	1,919,237	156,448	114,138	26,492	12,303	8,243	6,126	2,338,912	2,051,804
Canada (B.C.)	56,392	46,668	5,342	3,545	4,042	3,378	200	184	65,977	53,775
Total U.S.- Canada	2,204,121	1,965,905	161,790	117,683	30,535	15,681	8,443	6,310	2,404,889	2,105,579

Other Gear includes the following PSMFC Gear groupings: Nets, Trolls, Shrimp Trawls, and Other.

46,373 mt of Pacific whiting was processed by six Polish vessels and two Chinese vessels.

There were no national or supplemental fisheries for Pacific whiting off southwest Vancouver Island (Area 3C) in 1993.

Washington

Total groundfish landings in Washington decreased by 14% in 1993 to 34,869 mt from 40,694 mt in 1992 (Table 18). In 1993, 40% of the total groundfish landed in Washington (13,973 mt) came from Canadian areas, down from 47% in 1992 (19,093 mt). Trawl landings made up 82% of the total, with an overall decrease of 13% from 32,853 mt in 1992 to 28,500 mt in 1993. Major species in the trawl fishery included unspecified rockfish, Pacific whiting, arrowtooth flounder, and Dover sole, all of which had decreased landings in 1993.

Washington trawlers fishing off the WOC coast and inside waters landed 15,058 mt of groundfish in 1993, up 3% from 1992. The 1993 trawl groundfish landings in Puget Sound decreased 18% to 1,060 mt. Major species in the Puget Sound trawl fishery were flatfish, Pacific cod, and spiny dogfish. Trawl gear accounted for 35% of the total Puget Sound groundfish landings, with a net fishery for sea cucumbers making up approximately 65% of the remainder. Proposals to restrict or eliminate the bottomfish trawl fishery in Puget Sound, the Strait of Juan de Fuca, and the Strait of Georgia are under review.

WOC At-Sea

The 1993 at-sea fishery for Pacific whiting opened April 15 with an allocation of 100,000 mt, and closed May 5 when the allocation was reached. Eighteen vessels with processing capacity participated in the 21-day fishery. Total groundfish landings were 95,827 mt, a 33% decrease from 1992. The decrease was due to increased allocation of Pacific whiting to the shore-based fishery.

Oregon

Total commercial groundfish landings in 1993 were 72,967 mt., a 12% decrease from 1992. Trawl landings were 95% of the total and were 13% lower than in 1992. This decline was primarily due to the sharp drop in landings of Pacific whiting. The shore-based whiting fishery was allocated fewer fish, and as a result ended earlier in the year and landings were down 27% from 1992. Flatfish landings were stable from 1992 to 1993. Although rockfish landings were also stable, there was a shift in effort and resultant landings toward more slope than shelf species. Longline and pot landings showed a 20% decrease and a 65% increase, respectively. This reflects more effort in the sablefish fishery moving from longline to pot gear. Landings by other hook and line gears were down 2%.

California

California's 1993 commercial groundfish harvest was 27,933 mt, with an ex-vessel value of approximately \$23.5 million. All-species 1993 landings declined approximately 19% or 6,565 mt from the 1992 level. Significant decreases in harvest were noted for Dover sole, sablefish, and whiting. Thornyhead and most other categories also declined but to a lesser degree.

The general distribution of 1993 landings by trawl and line gear reversed the trend of the past few years. The bottom and midwater trawl component rose to 78% in 1993, up from 75% in 1992. The line proportion of the catch dropped from 18% in 1992 to 16% in 1993. Trap and setnet components were similar to 1992 at 1% and 5%, respectively.

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Table 14. Landings (metric tons) into Alaska ports during 1993 by gear and by species.

SPECIES	LONGLINE	OTHER	NETS	POTS	TROLLS	TRAWLS	TOTAL
ARROWTOOTH FLOUNDER	116	16	-	0	-	2,040	2,171
ALASKA PLAICE	-	-	-	-	-	13	13
DOVER SOLE	0	1	-	TR	-	1,654	1,655
ENGLISH SOLE	-	-	-	-	-	3	3
GREENLAND TURBOT	1,141	-	-	-	-	11	1,151
PETRALE SOLE	-	-	-	TR	-	2	2
REX SOLE	1	-	-	-	-	602	603
ROCK SOLE	11	37	-	TR	-	10,162	10,209
STARRY FLOUNDER	1	-	TR	-	-	149	150
YELLOWFIN SOLE	TR	-	-	0	-	518	518
OTHER FLATFISH	1	9	-	TR	-	2,706	2,716
UNSPECIFIED DEEP FLOUNDER	-	-	-	-	-	10	10
UNSPECIFIED SHALLOW FLOUNDER	-	-	-	-	-	27	27
UNSPECIFIED FLATFISH	4	-	-	-	-	581	584
BLACK ROCKFISH	123	-	-	-	28	1	152
BOCACCIO	1	-	-	-	-	-	1
CANARY ROCKFISH	4	-	-	-	TR	1	5
DARKBLOTCHED ROCKFISH	1	-	-	-	-	TR	1
DUSKY ROCKFISH	49	-	-	-	7	27	83
QUILLBACK ROCKFISH	61	-	TR	0	1	0	63
REDBANDED ROCKFISH	30	-	TR	-	-	TR	30
REDSTRIPE ROCKFISH	4	-	-	-	-	0	4
ROSETHORN ROCKFISH	3	-	-	-	-	-	3
ROUGHEYE ROCKFISH	174	-	-	TR	-	25	199
SHORTRAKER ROCKFISH	71	0	TR	-	TR	32	104
SILVERGREY ROCKFISH	18	-	-	0	1	0	19
YELLOWWEYE ROCKFISH	661	-	0	0	1	0	662
YELLOWTAIL ROCKFISH	1	-	-	-	-	TR	1
PACIFIC OCEAN PERCH	1	-	-	-	-	61	62
THORNYHEADS	412	1	1	-	0	133	546
WIDOW ROCKFISH	0	-	-	-	-	TR	0
OTHER DEMERSAL ROCKFISH	7	-	-	-	0	TR	7
OTHER SLOPE ROCKFISH	22	-	-	-	-	4	26
UNSPECIFIED PELAGIC ROCKFISH	TR	-	-	-	-	0	0
UNSPECIFIED SLOPE ROCKFISH	0	-	-	-	-	68	68
UNSPECIFIED ROCKFISH	43	-	-	TR	-	23	66
ATKA MACKEREL	0	-	-	TR	-	27	27
LINGCOD	535	1	-	9	4	0	549
PACIFIC COD	3,500	8	-	10,695	0	69,647	83,849
SABLEFISH	18,386	3	3	0	TR	409	18,801
WALLEYE POLLOCK	15	-	-	91	-	475,019	475,126
UNSPECIFIED ROUND FISH	TR	-	-	-	-	TR	TR
SPINY DOGFISH	3	-	-	-	-	5	8
UNSPECIFIED SQUID	TR	-	-	TR	-	134	134
OTHER GROUND FISH	0	-	-	1	-	70	70
UNSPECIFIED GROUND FISH	180	12	-	78	-	1,147	1,416
ALL GROUND FISH	25,575	87	4	10,874	42	565,308	601,890

Table 15. Landings (metric tons) to domestic at-sea processors during 1993 by area, gear, and species.

CDCPACC ortdto	ALASKA				WASHINGTON OREGON	TOTAL DOMESTIC AT-SEA PROCESSING
	LONGLINE	POTS	TRAWLS	TOTAL	CALIFORNIA AT-SEA	
ARROWTOOTH FLOUNDER	226		1,800	2,026	-	2026
UNSPECIFIED TURBOTS	5,356		626	5,982	-	5,982
FLATHEAD SOLE	0		861	861		861
ROCK SOLE	0		23,161	23,162	-	23,162
YELLOWFIN SOLE	0		76,166	76,166	-	76,166
UNSPECIFIED DEEP-91 FLOUNDER	15		3,325	3,340	-	3,340
UNSPECIFIED SHALLOW-91 FLOUNDER	-		447	447	-	447
UNSPECIFIED FLATFISH	11		10,120	10,131	-	10,131
BOCACCIO	-	-		-	TR	0
CANARY ROCKFISH	-	-		-	TR	0
YELLOWTAIL ROCKFISH	-	-		-	11	11
OTHER ROCKFISH	-	-		-	3	3
PACIFIC OCEAN PERCH	4		11,231	11,235	TR	11,235
THORNYHEADS	153		368	521	-	521
SHORTRAKER + ROUGH EYE	354		1,663	2,017	-	2,017
SRKR + REYE + NRCK + SHRP	110		977	1,086	-	1,086
THORNYHEADS	-	-		-	TR	0
UNSPECIFIED DEMERSAL-91	18		161	179	-	179
UNSPECIFIED PELAGIC ROCKFISH	11		2,539	2,550	-	2,550
UNSPECIFIED SLOPE-93	4		2,463	2,466	-	2,466
UNSPECIFIED ROCKFISH	289		95	384	-	384
WIDOW ROCKFISH	-			-	4	4
ATKA MACKEREL	4	0	39,179	39,183	-	39,183
JACK MACKEREL	-	-		-	TR	0
LINGCOD	-			-	TR	0
PACIFIC COD	66,741	533	40,838	108,112	-	108,112
PACIFIC WHITING	-	-		-	95,808	95,808
SABLEFISH	5,140		1,651	6,790	1	6,791
WALLEYE POLLOCK	257		913,985	914,242	-	914,242
UNSPECIFIED SQUID	-		70	70	-	70
UNSPECIFIED GROUND FISH	1,101	1	6,146	7,249	-	7,249
ALL GROUND FISH	79,791	534	1,137,871	1,218,196	95,827	1,314,023

NOTE: 0 = landed catch less than 0.5 metric tons; TR = landed catch less than 0.05 metric tons

Table 16. Landings (metric tons) into British Columbia ports during 1993 by gear and by species.

SPECIES	LOGLINE	NETS	POTS	TRAWLS	TROLLS	SHRIMP TRAWLS	TOTAL
ARROWTOOTH FLOUNDER	-	-	-	1,666	-	-	1,666
DOVER SOLE	0	-	-	2,252	-	-	2,252
ENGLISH SOLE	1	-	-	1,413	-	-	1,414
PETRALE SOLE	1	-	-	351	-	-	352
REX SOLE	-	-	-	162	-	-	162
ROCK SOLE	6	-	-	2,456	-	-	2,462
STARRY FLOUNDER	1	-	-	69	-	-	70
OTHER FLATFISH	-	-	-	205	-	-	205
UNSPECIFIED FLATFISH	0	-	-	-	-	-	0
BLACK ROCKFISH	-	-	-	37	-	-	37
BOCACCIO	-	-	-	0	-	-	0
CANARY ROCKFISH	-	-	-	713	-	-	713
DARKBLOTCHED ROCKFISH	-	-	-	52	-	-	52
DUSKY ROCKFISH	-	-	-	1	-	-	1
REDBANDED ROCKFISH	-	-	-	547	-	-	547
REDSTRIPE ROCKFISH	-	-	-	820	-	-	820
ROSETHORN ROCKFISH	-	-	-	0	-	-	0
ROUGHEYE ROCKFISH	-	-	-	1,045	-	-	1,045
SHARPCIN ROCKFISH	-	-	-	9	-	-	9
SHORTRAKER ROCKFISH	-	-	-	82	-	-	82
SILVERGREY ROCKFISH	-	-	-	1,257	-	-	1,257
SPLITNOSE ROCKFISH	-	-	-	92	-	-	92
VERMILION ROCKFISH	-	-	-	22	-	-	22
YELLOW EYE ROCKFISH	-	-	-	617	-	-	617
YELLOWMOUTH ROCKFISH	TR	-	-	1,047	-	-	1,047
YELLOWTAIL ROCKFISH	7	-	-	3,216	1	2	3,225
OTHER ROCKFISH	1,694	1	-	129	17	-	1,841
PACIFIC OCEAN PERCH	4	-	-	2,954	TR	-	2,958
THORNYHEADS	3	-	-	338	-	-	342
WIDOW ROCKFISH	-	-	-	990	-	-	990
JACK MACKEREL	-	-	-	6	-	-	6
LINGCOD	1,196	8	-	2,595	149	-	3,948
PACIFIC COD	4	TR	-	6,734	0	-	6,739
PACIFIC WHITING	-	-	-	9,159	-	-	9,159
SABLEFISH	389	-	3,378	333	0	-	4,100
WALLEYE POLLOCK	0	-	-	4,970	-	-	4,970
SPINY DOGFISH	220	-	-	75	1	-	296
UNSPECIFIED OCTOPUS	-	-	-	31	-	-	31
UNSPECIFIED SCULPIN	-	-	-	0	-	-	0
UNSPECIFIED SHARK	8	-	-	TR	TR	-	8
UNSPECIFIED SKATE	3	-	-	91	-	-	95
UNSPECIFIED SQUID	-	-	-	0	-	-	0
OTHER GROUND FISH	-	-	-	132	-	-	132
UNSPECIFIED GROUND FISH	7	5	-	-	-	-	13
ALL GROUND FISH	3,545	15	3,378	46,668	167	2	53,775

Table 17. Landings (metric tons) by British Columbia joint-venture directed fisheries during 1993.

SPECIES	LANDINGS
PACIFIC WHITING	46,373
WALLEYE POLLOCK	552
ROCKFISH OTHER FISH	85
	4
TOTAL	47,779

Table 18. Landings (metric tons) into Washington ports during 1993 by gear and by species.

SPECIES	LONGLINE	NETS	POTS	TROLLS	TRAWLS	SHRIMP TRAWLS	TOTAL
ARROWTOOTH FLOUNDER	0	-	-	-	3,289	2	3,291
DOVER SOLE	2	-	-	TR	2,582	25	2,609
ENGLISH SOLE	TR	-	-	TR	794	3	798
PETRALE SOLE	0	-	-	-	422	1	423
REX SOLE	-	-	-	-	91	0	91
ROCK SOLE	TR	TR	-	-	326	0	326
STARRY FLOUNDER	-	0	-	-	272	-	272
OTHER FLATFISH	-	TR	-	-	71	1	72
YELLOWTAIL ROCKFISH	57	TR	-	10	1,262	313	1,642
OTHER ROCKFISH	278	TR	-	5	1,550	2	1,835
PACIFIC OCEAN PERCH	TR	-	-	-	1,497	0	1,497
THORNYHEADS	28	-	-	TR	462	TR	489
WIDOW ROCKFISH	2	TR	-	0	1,223	-	1,225
UNSPECIFIED ROCKFISH	285	0	-	36	5,035	296	5,653
LINGCOD	60	TR	TR	25	1,421	13	1,519
PACIFIC COD	20	TR	-	1	1,854	47	1,922
PACIFIC WHITING	-	-	-	-	3,658	-	3,658
SABLEFISH	1,519	-	0	2	568	82	2,171
WALLEYE POLLOCK	-	-	-	-	934	-	934
OTHER ROUND FISH	-	297	-	-	-	-	297
SPINY DOGFISH	1,351	140	-	0	1,031	-	2,522
UNSPECIFIED SQUID	-	5	-	-	-	-	5
OTHER GROUND FISH	27	1,311	7	0	157	113	1,616
UNSPECIFIED GROUND FISH			TR	-	2	TR	2
ALL GROUND FISH	3,629	1,753		80	28,500	900	34,869

NOTE: 0 = landed catch less than 0.5 metric tons; TR = landed catch less than 0.05 metric tons

Table 19. Landings (metric tons) into Oregon ports during 1993 by gear and by species.

SPECIES	DREDGES	LONGLINE	OTHER	NETS	POTS	TROLLS	TRAWLS	SHRIMP TRAWLS	TOTAL
ARROWTOOTH FLOUNDER	-	0	-	-	0	-	1,655	3	1,659
DOVER SOLE	-	TR	-	-	TR	-	6,463	20	6,484
ENGLISH SOLE	0	-	-	-	-	-	717	1	718
PETRALE SOLE	0	0	-	-	-	TR	771	3	775
REX SOLE	-	-	-	-	-	-	274	0	274
ROCK SOLE	-	TR	-	-	-	-	2	-	2
STARRY FLOUNDER	TR	-	-	TR	-	-	74	0	75
OTHER FLATFISH	0	TR	-	-	-	TR	499	1	500
BLACK ROCKFISH	-	52	-	-	-	-	36	-	88
BOCACCIO	-	1	-	-	-	-	194	-	195
CANARY ROCKFISH	-	105	-	-	-	-	1,690	45	1,839
CHILIPEPPER	-	-	-	-	-	-	8	-	8
DARKBLOTCHED ROCKFISH	-	1	-	-	-	-	849	1	850
REDSTRIPE ROCKFISH	-	5	-	-	-	-	371	-	375
SHARPCIN ROCKFISH	-	TR	-	-	-	-	302	0	302
SILVERGREY ROCKFISH	-	1	-	-	-	-	132	-	133
SPLITNOSE ROCKFISH	-	TR	-	-	-	-	117	TR	117
YELLOW EYE ROCKFISH	-	56	-	-	-	-	102	-	158
YELLOWMOUTH ROCKFISH	-	0	-	-	-	-	446	-	446
YELLOWTAIL ROCKFISH	-	152	-	-	-	9	2,333	321	2,815
OTHER ROCKFISH	-	84	-	-	1	-	497	1	583
PACIFIC OCEAN PERCH	-	4	-	-	TR	-	806	1	811
SHORTBELLY ROCKFISH	-	-	-	-	-	-	6	-	6
THORNYHEADS	-	5	-	-	0	-	4,455	0	4,460
WIDOW ROCKFISH	-	31	-	-	TR	1	6,676	8	6,715
UNSPECIFIED ROCKFISH	0	350	-	-	2	105	54	297	807
JACK MACKEREL	-	-	-	-	-	-	277	-	277
LINGCOD	0	76	-	-	0	10	732	16	834
PACIFIC COD	1	0	-	-	-	-	471	19	491
PACIFIC WHITING	-	-	-	-	-	-	35,820	-	35,820
SABLEFISH	-	742	-	-	671	0	2,457	58	3,928
WALLEYE POLLOCK	-	-	-	-	-	-	0	-	0
OTHER ROUND FISH	-	-	11	2	-	-	-	-	12
UNSPECIFIED ROUND FISH	-	0	-	-	TR	-	-	-	0
SPINY DOGFISH	-	-	-	-	-	-	35	-	35
OTHER GROUND FISH	-	2	-	-	0	TR	371	0	373
UNSPECIFIED GROUND FISH	-	1	-	-	-	-	2	TR	2
ALL GROUND FISH	1	1,666	11	2	674	125	69,693	797	72,967

Table 20. Landings (metric tons) California ports during 1993 by gear and by species.							
SPECIES	LONGLINE	OTHER	NETS	POTS	TROLLS	TRAWLS	TOTAL
ARROWTOOTH FLOUNDER	1	2	-	TR	-	55	57
DOVER SOLE	27	269	7	3	1	6,237	6,544
ENGLISH SOLE	2	28	1	1	TR	442	474
PETRALE SOLE	3	18	5	1	TR	437	464
REX SOLE	1	12	0	1	-	443	457
ROCK SOLE	0	0	0	-	TR	7	7
STARRY FLOUNDER	0	0	0	TR	-	19	19
OTHER FLATFISH	7	18	2	0	0	399	427
UNSPECIFIED FLATFISH	1	1	1	0	TR	30	33
BLACK ROCKFISH	104	-	-	-	TR	-	104
BOCACCIO	358	101	329	2	2	461	1,252
CANARY ROCKFISH	35	-	1	-	TR	60	96
CHILIPEPPER	303	-	121	-	TR	1,002	1,426
DARKBLOTCHED ROCKFISH	TR	-	1	-	-	203	204
REDSTRIPE ROCKFISH	-	-	-	-	-	1	1
SHARPCHIN ROCKFISH	TR	-	0	-	-	20	20
SILVERGREY ROCKFISH	1	-	-	-	-	4	5
SPLITNOSE ROCKFISH	1	-	20	-	-	221	242
YELLOW EYE ROCKFISH	16	-	TR	-	TR	4	20
YELLOWMOUTH ROCKFISH	2	-	-	-	-	3	5
YELLOWTAIL ROCKFISH	76	-	-	-	0	81	157
OTHER ROCKFISH	300	1	84	1	TR	352	739
PACIFIC OCEAN PERCH	-	TR	-	TR	-	6	7
SHORTBELLY ROCKFISH	TR	-	0	-	-	1	1
THORNYHEADS	21	74	9	0	2	4,055	4,162
WIDOW ROCKFISH	44	43	41	0	2	1,054	1,185
UNSPECIFIED ROCKFISH	1,568	399	337	11	20	733	3,069
LINGCOD	146	45	127	1	2	369	689
PACIFIC COD	0	0	-	-	-	TR	0
PACIFIC WHITING	0	46	0	-	0	3,054	3,100
SABLEFISH	435	61	11	192	2	1,875	2,575
OTHER ROUND FISH	0	-	-	-	-	-	0
OTHER GROUND FISH	23	7	52	1	TR	14	96
UNSPECIFIED GROUND FISH	1	11	7	0	1	399	419
ALL GROUND FISH	3,478	1,136	1,157	214	32	22,039	28,055

NOTE: 0 = landed catch less than 0.5 metric tons; TR = landed catch less than 0.05 metric tons

PERSONNEL

COMMISSIONERS

The following were commissioners during all or part of 1993:

Alaska

Dale Kelley, Juneau
Loren Leman, Anchorage
Chuck Meacham, Jr., Juneau

California

Gerald Felando, San Pedro
Al Petrovich, Sacramento

Idaho

Jerry Conley, Boise
Norman Guth, Salmon
Bruce Sweeney, Lewiston

Oregon

Bill Bradbury, Bandon
Paul Heikkila, Coquille
Jim Martin, Portland

Washington

Ed Manary, Olympia
Harriet Spanel, Bellingham
Dean Sutherland, Vancouver

Washington

Fred Fellman, Seattle Donald
Bevan, Seattle Joe Blum, Seattle
John Thomas, White Salmon
Rudy Peterson, Seattle Terry
Wright, Olympia Robert Zuanich,
Seattle

COORDINATORS

PSMFC Coordinators facilitate all aspects of PSMFC programs within their State. The following were PSMFC Coordinators in 1993: Alaska

Phil Rigby, Alaska Dept. Fish & Game

California

L.B. Boydstun, California Dept. Fish & Game

Idaho

Steve Huffaker, Idaho Dept. Fish & Game

Oregon

Kay Brown, Oregon Dept. Fish & Wildlife

Washington

Judy Baddock, Washington Dept. of
Fisheries

ADVISORS

The Advisory Committee is composed of representatives of the major user groups in each State. The following were Advisory Committee members during all or part of 1993: Alaska

Chris Blackburn, Kodiak
Loren Croxton, Petersburg
Paul Gronholdt, Sand Point
Henry Mitchell, Anchorage
Doug Ogden, Anchorage
Harold Thompson, Sitka
Bruce Wallace, Ketchikan

California

Robert Fletcher, San Diego
Zeke Grader, Sausalito
Harold Olsen, Torrance
Charles Platt, Fort Bragg
Robert Ross, Sacramento
Roger Thomas, Sausalito
Tony West, San Pedro

Idaho

Keith Carlson, Lewiston
Richard Meiers, Eagle
Louis Racine, Pocatello

Oregon

Don Christenson, Newport
Joe Easley, Astoria
Harriet Engblom, Astoria
Herb Goblirsch, Otter Rock
John Marincovich, Astoria
Ron Sparks, Monmouth
Frank Warrens, Portland

PSMFC EXECUTIVE STAFF

The following were PSMFC Staff members in 1993:

Guy Thornburgh, Executive Director

David Hanson, Deputy Director

Russell Porter, Field Programs Administrator

Al Didier, Program Manager

Pam Kahut, Fiscal Manager/Treasurer

Lori Johnson, Fiscal Assistant

Mary Washkoske, Personnel

Matt Robertson, Payroll

Rick Masters, Accounting Supervisor

Renee Barrett, Account Payable

Carol Rick, Executive Secretary

Liza Bauman, Clerical Specialist

Stan Allen, IMS Chief

J. Kenneth Johnson, RMPC Manager

James Longwill, RMPC Computer Specialist

Will Daspit, PacFIN Data Manager

Ed Kiel, PacFIN Computer Programmer

Brad Stenberg, PacFIN Computer Aide

Carter Stein, PIT Tag Database Manager

Don Warf, PIT Tag Engineering Technician

Terry Shane, Computer Services Center Manager

Fran Recht, Habitat/Debris Coordinator

Stephen Phillips, Habitat Specialist

Craig Miller, Data Entry Technician