



NOAA Technical Memorandum NMFS-AFSC-10

Oregon, Washington, and Alaska Exports of Edible Fishery Products, 1991

by
R. K. Kinoshita and J. M. Terry

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Alaska Fisheries Science Center

February 1993

NOAA Technical Memorandum NMFS

The National Marine Fisheries Service's Alaska Fisheries Science Center uses the NOAA Technical Memorandum series to issue informal scientific and technical publications when complete formal review and editorial processing are not appropriate or feasible. Documents within this series reflect sound professional work and may be referenced in the formal scientific and technical literature.

The NMFS-AFSC Technical Memorandum series of the Alaska Fisheries Science Center continues the NMFS-F/NWC series established in 1970 by the Northwest Fisheries Center. The new NMFS-NWFSC series will be used by the Northwest Fisheries Science Center.

This document should be cited as follows:

Kinoshita, R. K., and J. M. Terry. 1993. Oregon, Washington, and Alaska exports of edible fishery products, 1991. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-AFSC-10, 47 p.

Reference in this document to trade names does not imply endorsement by the National Marine Fisheries Service, NOAA.



NOAA Technical Memorandum NMFS-AFSC-10

Oregon, Washington, and Alaska Exports of Edible Fishery Products, 1991

by

Richard K. Kinoshita and Joseph M. Terry

Alaska Fisheries Science Center
7600 Sand Point Way N.E., BIN C-15700
Seattle, WA. 98115-0070

U.S. DEPARTMENT OF COMMERCE
Barbara Hackman Franklin, Secretary
National Oceanic and Atmospheric Administration
John A. Knauss, Administrator
National Marine Fisheries Service
William W. Fox, Jr., Assistant Administrator for Fisheries

February 1993

This document is available to the public through:

National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Road
Springfield, VA 22161

Notice to Users of this Document

This document is being made available in .PDF format for the convenience of users; however, the accuracy and correctness of the document can only be certified as was presented in the original hard copy format.

ABSTRACT

Oregon, Washington, and Alaska (defined in this report as the Pacific Northwest) exports of edible fishery products in 1991 increased 4% in quantity over 1990 to 1.47 billion pounds (lb) or 666,400 metric tons (t). The value of these fishery exports increased by 7% to \$2.2 billion principally due to the 35% increase in groundfish exports and the 21% increase in crab exports. The 25.5% decrease in Pacific salmon exports kept total exports from being higher. In 1991, groundfish exports of \$1.07 billion and salmon exports of \$612 million accounted for 48.4 and 27.6%, respectively, of the total value of Pacific Northwest fishery exports; This is the first time that groundfish exports surpassed salmon exports. The value of Pacific Northwest exports comprised 72.9% of total U.S. edible fishery exports, down slightly from 74.7% in 1990. In 1991, Pacific Northwest exports were shipped to 35 countries. The top five countries accounted for 92.6% of the total. Increased trade with Japan, the Republic of Korea, the United Kingdom, and Portugal accounted for most of the gain exports to Japan totaled \$1.66 billion or 74.9% of the total, up in value from \$1.61 billion in 1990. The Republic of Korea jumped to the second spot with \$146 million or 6.6% of the total exports, up from \$94.4 million in 1990. Pacific Northwest exports to the United Kingdom increased to \$113.8 million or 5.1% of the total exports, while shipments to Canada fell to \$96.4 million from \$100 million in 1990 and accounted for 4.3% of the total.

THIS PAGE INTENTIONALLY LEFT BLANK

CONTENTS

| | Page |
|---------------------------------------|------|
| Introduction | 1 |
| Pacific Northwest Exports | 3 |
| Major Products | 3 |
| Major Importers. | .14 |
| Exports by Customs District | 20 |
| C i t a t i o n s | 25 |
| Appendix | .27 |

INTRODUCTION

Exports of edible fishery products from Oregon, Washington, and Alaska are a major contributor to both total U.S. fishery exports and to the economy of the Pacific Northwest. This report compares exports of edible fishery products from the Pacific Northwest to total U.S. fishery exports, examines fishery exports by product and major importing country, reviews changes in patterns in exports, and updates the report of Kinoshita et al. (1991).

For purposes of these analyses, the Pacific Northwest is defined as the states of Oregon, Washington, and Alaska. The export data used in this report are from the U.S. Department of Commerce, Bureau of the Census. The database is maintained by the National Marine Fisheries Service (NMFS), Fishery Statistics Division, Silver Spring, Maryland.

Export data from the Oregon, Washington, and Alaska customs districts were used in this report. This method covers the major exports of salmon, groundfish, crabs, and herring. Also included are categories of exports not identified by species, but as whole or dressed fish, minced fish, fish balls, cakes and pudding, and fish sticks. This approach to assessing exports of fishery products is not without problems. First, species harvested in the Pacific Northwest may be exported from customs districts outside the region. Second, species harvested in other regions may be shipped from Oregon, Washington, and Alaska customs districts. However, both problems appear to be minor. There were 19 export items in 1990 and 1991 that were likely to have originated from other parts of the United States. These 19 fishery products, mostly tropical tunas and lobsters, accounted for less than 0.2% of the total value of 1991 Pacific Northwest exports and were not included in this report. Most fishery products are shipped from the general area where they are harvested or processed, provided there are sufficient quantities to be shipped. Two major

products shipped from the Pacific Northwest, whole or dressed Pacific salmon and frozen crab accounted for 95 and 98.3%, respectively, of total U.S. exports of these two products in 1991. In recent years, much of the fish harvested in Alaska has been shipped directly to Pacific Rim countries. Other products may be first shipped to Washington State, then exported to their final destination.

The Harmonized System (**HS**) of coding imports and exports replaced the old Tariff Schedule of the United States (TSUSA) in 1989. The HS product codes, in most cases, provided greater detail by species, product, and condition. The HS in 1989 had 179 categories compared to only 62 under the old TSUSA. There were several cases where Pacific Northwest products were lumped into more general categories. Specifically, the HS grouped frozen king crab, snow crab, and Dungeness crab into one category, Pacific halibut was placed with Greenland turbot, and walleye pollock roe was grouped with "other" fish roe. Categories have been added in 1990 and 1991 to identify these fishery products by species. **However**, some of the changes may not have been fully implemented for the full year. A separate category was not provided for pollock surimi, but a new category for surimi will be established in 1992. In 1991, 13 new codes were introduced and 37 old codes were dropped. The substantial number of the changes included the elimination of categories for fresh and frozen Pacific salmon steaks by species.

After deleting 19 products not likely to originate from the Pacific Northwest, as well as **36** products not exported in 1991, there were 127 products remaining. The HS product codes appear in Appendix Table 1. Scientific names of species identified in this report are listed in Appendix Table 2. Note that totals and percentages in the tables may not always agree because of rounding, and that percentage changes may not agree because they were calculated from unrounded data.

PACIFIC NORTHWEST EXPORTS

The value of Pacific Northwest exports of edible fishery products in 1991 increased by 7% from 1990 to \$2.2 billion, and accounted for 73% of the total U.S. exports of edible fishery products (Table 1). The quantity of Pacific Northwest exports on a product weight basis amounted to 1.47 billion pounds (lb) (666,400 metric tons (t)), an increase of 4% over 1990 (Table 2 and **Fig. 1**).

The upward trend, which started in 1985, continued into 1991 (Fig. 2). Growth in 1991 resulted from increased groundfish and crab exports (Table 2). Since 1984, Pacific Northwest fishery exports have increased by 242% in quantity and 230% in value.

From 1979 to 1990, there were joint venture sales (i.e., direct sales by U.S. fishing vessels to foreign processing vessels in the U.S. Exclusive Economic Zone (EEZ)) off Alaska and the Pacific Coast, but they were not included with Pacific Northwest exports in official U.S. merchandise trade data. To give a complete picture of exports, all joint venture sales were added to fishery exports from 1981 to 1991 (Gharrett 1992a). Joint venture sales in the U.S. EEZ off Alaska and the Pacific Coast ended in 1990, but continued on the East Coast.

Major Products

The Pacific Northwest exports of edible fishery products, by major products and product groups for 1990 and 1991, are presented in Table 2. Table 3 and Figure 3 summarize Pacific Northwest exports in more general groups. The major milestone in 1991 was the 35% increase in groundfish exports to \$1.07 billion or 48.4% of the region's exports of edible fish in 1991, and surpassing Pacific salmon for the first time. Exports of Pacific salmon products sustained a significant decline, dropping to second at \$612 million and

Table 1.--Pacific Northwest exports of edible fishery products (millions of dollars) excluding and including joint venture sales and percent of total U.S. exports of edible fishery products, 1981-91.

| Year | Excluding ventures | | | Including joint ventures | | |
|------|--------------------|------------|--------------|--------------------------|------------|--------------|
| | Pacific Northwest | Total U.S. | % Total U.S. | Pacific Northwest | Total U.S. | % Total U.S. |
| 1981 | \$ 805 | \$1,073 | 75.0 | \$ 818 | \$1,094 | 74.8 |
| 1982 | 739 | 999 | 74.0 | 775 | 1,035 | 74.9 |
| 1983 | 668 | 908 | 73.6 | 715 | 959 | 74.6 |
| 1984 | 648 | 842 | 77.0 | 724 | 921 | 78.6 |
| 1985 | 837 | 1,010 | 82.9 | 940 | 1,115 | 84.3 |
| 1986 | 1,034 | 1,290 | 80.2 | 1,187 | 1,445 | 82.1 |
| 1987 | 1,232 | 1,578 | 78.1 | 1,432 | 1,792 | 79.9 |
| 1988 | 1,700 | 2,162 | 78.6 | 1,920 | 2,383 | 80.6 |
| 1989 | 1,747 | 2,277 | 76.7 | 1,872 | 2,395 | 78.2 |
| 1990 | 2,071 | 2,779 | 74.5 | 2,114 | 2,831 | 74.7 |
| 1991 | 2,218 | 3,037 | 73.0 | 2,218 | 3,041 | 72.9 |

Sources: U.S. Dep. Commer., Bureau of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070; and Natl. Mar. Fish. Serv., Fisheries of the United States, 1991, Silver Spring, MD 20910.

Table 2.--Pacific Northwest exports of edible fishery products, percent change in quantity (million lbs) and value (million dollars) from 1990 to 1991.

| Product | Quantity | | | Value | | |
|---|----------|-------|----------|---------|---------|----------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Fresh and frozen | | | | | | |
| Whole or dressed | | | | | | |
| Salmon | | | | | | |
| chum | 21.2 | 17.1 | -19.2 | \$ 30.6 | \$ 21.3 | -30.6 |
| Pink | 33.8 | 24.3 | -28.3 | 42.3 | 25.5 | -39.7 |
| Sockeye | 201.3 | 163.0 | -19.0 | 490.3 | 293.2 | -40.2 |
| Coho | 27.6 | 26.0 | -5.9 | 54.9 | 45.9 | -16.2 |
| Other | 9.6 | 10.2 | 7.1 | 25.6 | 27.3 | 6.5 |
| Subtotal | 293.5 | 240.6 | -18.0 | 643.7 | 413.2 | -35.8 |
| Groundfish | | | | | | |
| Flatfish | 70.3 | 164.0 | 133.2 | 69.2 | 116.2 | 67.9 |
| Cod | 160.6 | 177.2 | 10.4 | 115.9 | 144.4 | 24.5 |
| Pollock | 3.3 | 0.6 | -81.1 | 2.4 | 0.5 | -81.3 |
| Mackerel | 21.7 | 4.0 | -81.6 | 13.4 | 3.5 | -74.1 |
| Hake | 0.1 | 4.2 | 3,226.0 | 0.1 | 5.7 | 6,316.6 |
| Sablefish | 42.1 | 40.0 | -5.1 | 71.0 | 95.2 | 34.1 |
| Other | 146.9 | 95.1 | -35.3 | 123.3 | 81.6 | -33.8 |
| Subtotal | 445.1 | 485.1 | 9.0 | 395.3 | 447.0 | 13.1 |
| Herring | 67.8 | 72.2 | 6.4 | 51.0 | 54.5 | 6.7 |
| Filletts | | | | | | |
| Cod | 2.6 | 2.2 | -13.5 | 3.0 | 2.6 | -13.3 |
| Halibut | 2.0 | 0.5 | -74.7 | 4.5 | 1.2 | -72.5 |
| Other | 14.7 | 25.7 | 74.2 | 15.3 | 27.5 | 79.2 |
| Roe | | | | | | |
| Herring | 11.3 | 18.1 | 60.5 | 19.5 | 21.3 | 8.9 |
| Salmon | 16.5 | 16.2 | -1.6 | 77.5 | 69.2 | -10.7 |
| Other | 37.5 | 50.6 | 35.0 | 104.6 | 191.8 | 83.4 |
| Minced, meat, balls, cakes, and fish sticks | | | | | | |
| | 340.4 | 287.5 | -15.5 | 257.2 | 382.0 | 48.5 |
| Cod, cured | 11.8 | 15.0 | 27.1 | 14.9 | 22.3 | 49.3 |
| Canned | | | | | | |
| Salmon | | | | | | |
| Pink | 21.1 | 25.1 | 18.8 | 37.6 | 39.1 | 3.9 |
| Sockeye | 21.5 | 26.5 | 23.1 | 53.1 | 67.5 | 27.1 |
| Other | 4.1 | 11.6 | 183.6 | 8.1 | 21.9 | 170.3 |
| Subtotal | 46.7 | 63.2 | 35.2 | 98.8 | 128.5 | 30.0 |

Table 2.--Continued.

| Product | Quantity | | | Value | | |
|----------------------------|------------|------------|------------|------------|-------------|-------------|
| | 1990 | 1991 | & change | 1990 | 1991 | % change |
| Crab | | | | | | |
| King | -- | 8.5 | -- | -- | 53.7 | -- |
| Snow | -- | 71.0 | -- | -- | 153.5 | -- |
| Dungeness | -- | 0.4 | -- | -- | 1.0 | -- |
| Not specified | -- | 94.7 | -- | -- | 201.9 | -- |
| Subtotal | 103.0 | 174.5 | 69.4 | 336.1 | 410.1 | 22.0 |
| Crabmeat | 4.1 | 2.4 | -40.7 | 9.3 | 7.2 | -22.6 |
| Shrimp | 4.1 | 3.4 | -17.2 | 14.3 | 12.8 | -10.4 |
| Molluscs, total | 6.9 | 7.3 | 4.6 | 16.8 | 17.2 | 2.1 |
| Not elsewhere specified | <u>4.2</u> | <u>4.6</u> | <u>7.2</u> | <u>9.1</u> | <u>10.0</u> | <u>10.0</u> |
| Total | 1,412.3 | 1,469.1 | 4.0 | \$2,071.1 | \$2,218.3 | 7.1 |

Note: Discrepancies in totals are due to rounding and percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. **Fish. Serv.**, Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

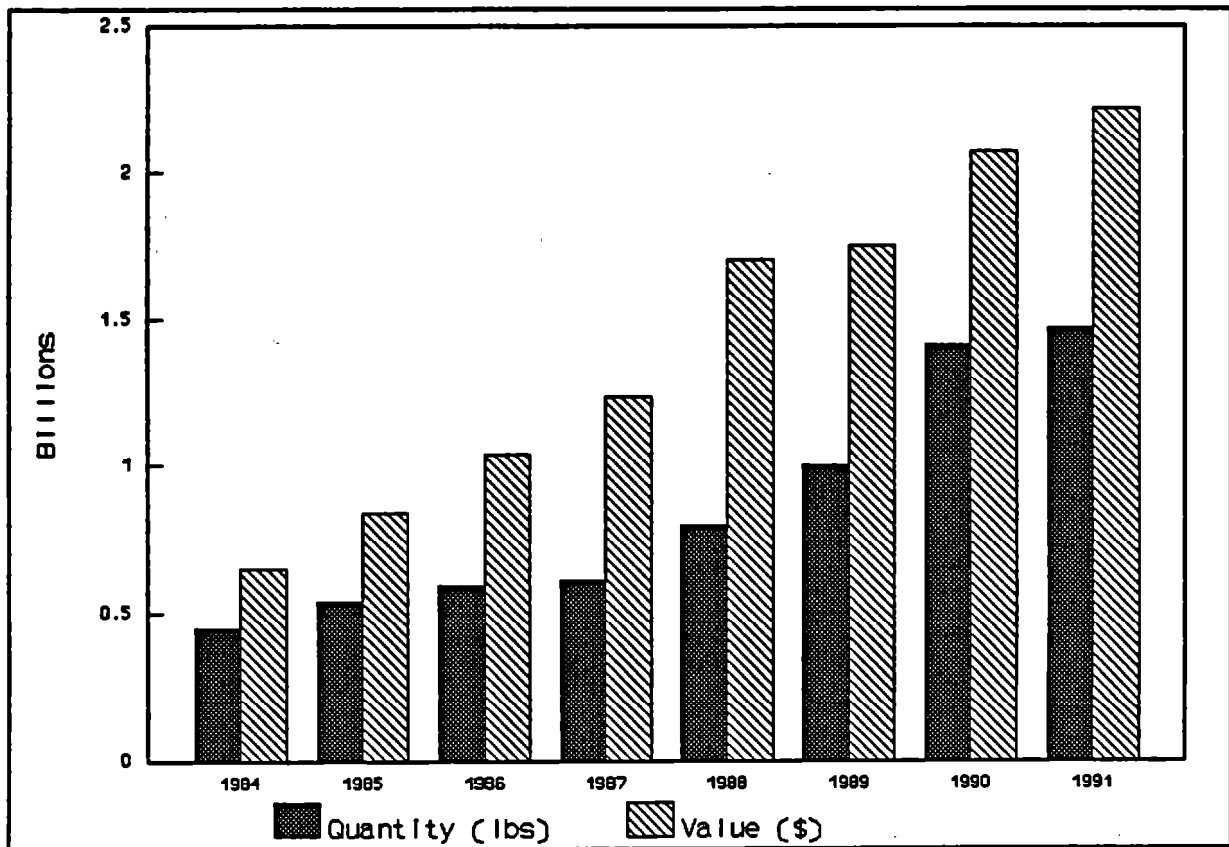


Figure 1.--Quantity and value of Pacific Northwest and Alaska exports of edible fishery products, 1984-91.

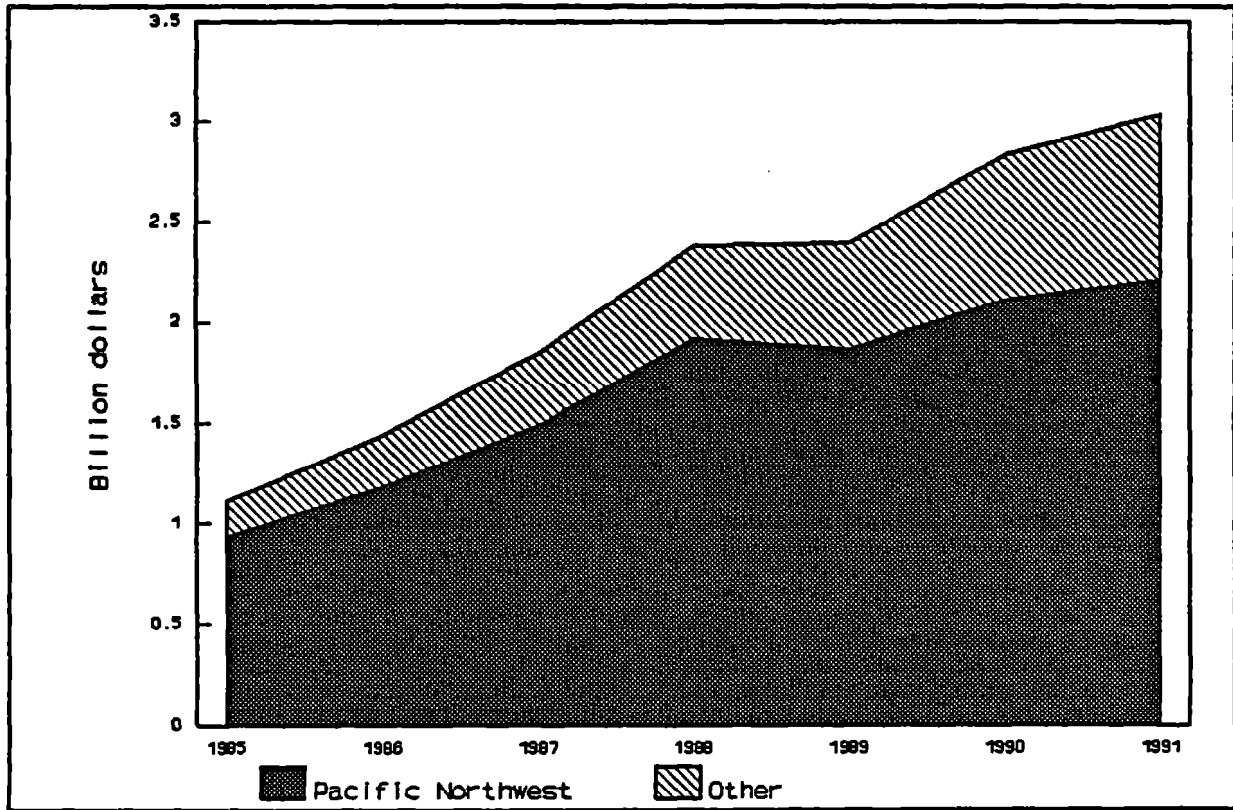


Figure 2. --Pacific Northwest and total U.S. exports of edible fishery products, 1984-91. Includes joint venture sales.

Table 3,--Pacific Northwest exports of edible fishery products or product groups (millions of dollars) and percent of total, 1981-91.

| Year | Salmon | Herring | Ground- fish* | Crab | Other | Total |
|---------|--------|---------|------------------|-------|-------|--------|
| Value | | | | | | |
| 1981 | \$572 | \$ 57 | \$ 30 | \$106 | \$40 | \$ 805 |
| 1982 | 531 | 60 | 25 | 87 | 36 | 739 |
| 1983 | 510 | 67 | 23 | 40 | 29 | 668 |
| 1984 | 480 | 60 | 47 | 36 | 25 | 648 |
| 1985 | 597 | 104 | 66 | 53 | 17 | 837 |
| 1986 | 707 | 78 | 126 | 107 | 16 | 1,034 |
| 1987 | 728 | 93 | 204 | 184 | 24 | 1,232 |
| 1988 | 967 | 115 | 358 | 231 | 29 | 1,700 |
| 1989 | 878 | 59 | 531 | 242 | 37 | 1,747 |
| 1990 | 822 | 71 | 795 | 345 | 38 | 2,071 |
| 1991 | 612 | 76 | 1,074 | 417 | 39 | 2,218 |
| Percent | | | | | | |
| 1981 | 71.0 | 7.1 | 3.7 | 13.2 | 5.0 | 100.0 |
| 1982 | 71.9 | 8.1 | 3.3 | 11.8 | 4.9 | 100.0 |
| 1983 | 76.4 | 10.0 | 3.4 | 6.0 | 4.3 | 100.0 |
| 1984 | 74.1 | 9.3 | 7.2 | 5.5 | 3.9 | 100.0 |
| 1985 | 71.3 | 12.4 | 7.9 | 6.4 | 2.0 | 100.0 |
| 1986 | 68.4 | 7.5 | 12.2 | 10.4 | 1.5 | 100.0 |
| 1987 | 59.1 | 7.5 | 16.6 | 14.9 | 1.9 | 100.0 |
| 1988 | 56.9 | 6.8 | 21.0 | 13.6 | 1.7 | 100.0 |
| 1989 | 50.3 | 3.4 | 30.4 | 13.8 | 2.1 | 100.0 |
| 1990 | 39.7 | 3.4 | 38.4 | 16.7 | 1.8 | 100.0 |
| 1991 | 27.6 | 3.4 | 48.4 | 18.8 | 1.8 | 100.0 |

* Other fresh, frozen, cured, roe, and processed finfish excluding salmon, herring, and other nongroundfish species.

Note : Discrepancies in totals are due to rounding.

Sources: U.S. Dep. Commer., Bureau of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

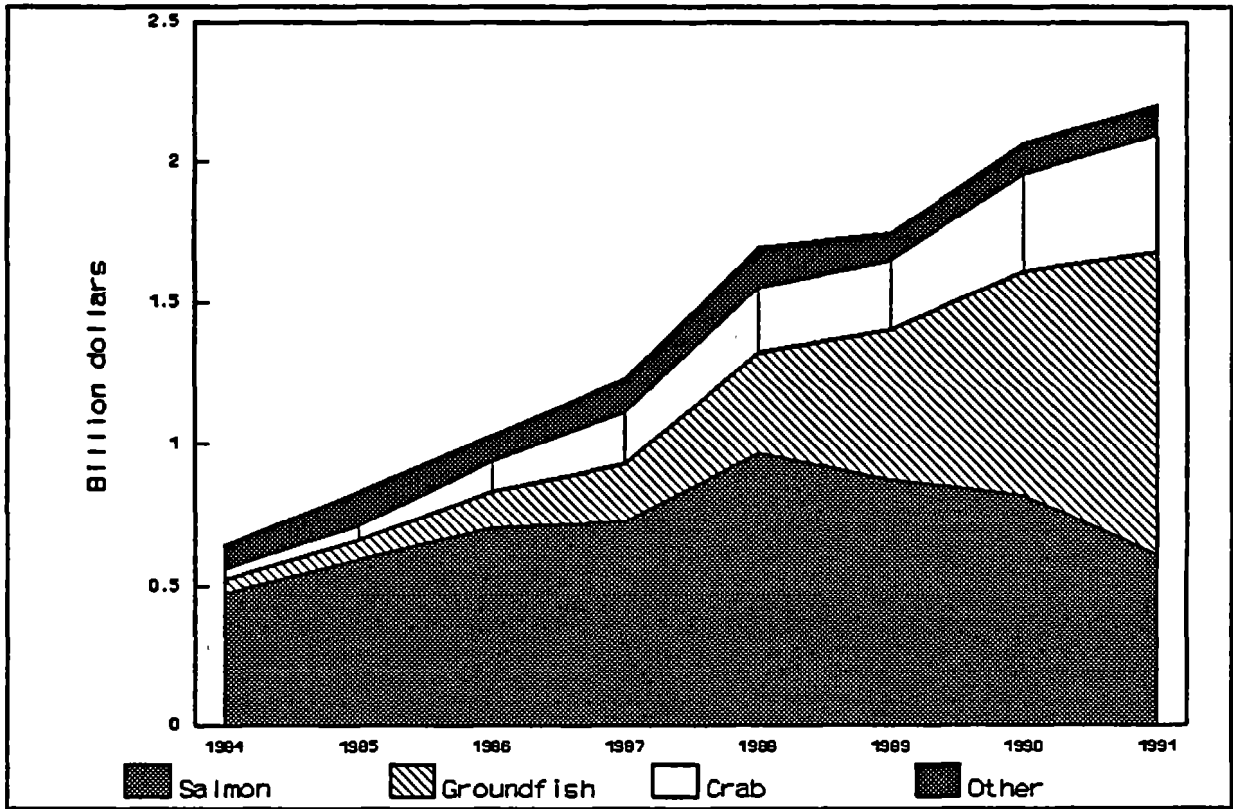


Figure 3. --Pacific Northwest exports of edible fishery products by major products groups, 1984-91.

accounted **for** 27.6% of fishery exports. Prior to 1990, salmon exports had accounted for 50 to 76% of total exports. Crab products ranked third with a value of \$417 million or 18.8% **of** the total, followed by herring products with \$76 million or 3.42 of the total.

Exports of fresh, frozen, canned, cured, and processed groundfish increased by just **over** 1% in quantity, but the value increased by 35% from \$795 million in 1990 to \$1.07 billion in 1991. Groundfish exports were made up of \$144 million of Pacific cod, \$95 million of sablefish, \$116 million of flatfish, \$192 million **of** fish roe, and \$382 million of minced fish (Table 4). The increase in groundfish reflected primarily higher product prices as production of edible products by the domestic at-sea and shore-side plants declined slightly in 1991.

The Alaska **catch** of groundfish in 1991 declined by 2% from 1990 as catch quotas **of** target species or bycatch quotas of other species curtailed fishing effort. The catch of the most important species, walleye (Alaska) pollock, totaled 2.82 billion lb (1.28 million t) in 1991, down 9% from a year earlier. The decline in the groundfish catch would have been greater except for the 9% increase of Pacific cod and the 164% increase of the flatfish catch. Production of a major export commodity, surimi, was an estimated 308 million lb (139,844 t), down 21% from the 1990 production (Gharrett 1992b). Based on Japanese trade data, 225 million lb (102,000 t) of pollock surimi were shipped to Japan from the United States (Sonu 1992). Because there is no specific category for surimi in U.S. trade statistics, it is reported in at least five different categories, together with minced pollock blocks. Exports of minced fish including meat, balls, cakes, and sticks declined from 340 million lb in 1990 to 288 million lb in 1991, with a value of \$382 million. Groundfish exports by country of destination are shown in Appendix Table 3.

Table 4.--Pacific Northwest exports of groundfish products including Pacific halibut, percent change in quantity in million lbs and value in million dollars from 1990 to 1991.

| Product | Quantity | | | Value | | |
|-------------------------------|----------|-------|---------|---------|----------|----------|
| | 1990 | 1991 | %change | 1990 | 1991 | % change |
| Whole or dressed | | | | | | |
| Cod | 160.6 | 177.2 | 10.4 | \$115.9 | \$ 144.4 | 24.5 |
| Halibut | -- | 4.8 | -- | -- | 12.1 | -- |
| Halibut & Green. turbot | 19.1 | 8.8 | -53.7 | 33.2 | 11.0 | -66.9 |
| Oth. flatfish | 51.3 | 150.4 | 193.3 | 36.1 | 93.2 | 158.3 |
| Subtotal | 70.3 | 164.0 | 133.2 | 69.2 | 116.2 | 67.9 |
| Pollock | 3.3 | 0.6 | -81.1 | 2.4 | 0.5 | -81.3 |
| Mackerel | 21.7 | 4.0 | -81.6 | 13.4 | 3.5 | -74.1 |
| Hake | 0.1 | 4.2 | 3,226.0 | 0.1 | 5.7 | 6,316.6 |
| Sablefish | 42.1 | 40.0 | -5.1 | 71.0 | 95.2 | 34.1 |
| Other | 146.9 | 95.1 | -35.3 | 123.3 | 81.6 | -33.8 |
| Subtotal | 445.1 | 485.1 | 9.0 | 395.3 | 447.0 | 13.1 |
| Roe | | | | | | |
| Pollock | -- | 39.8 | -- | -- | 152.6 | -- |
| Other | 37.5 | 10.7 | -71.4 | 104.6 | 39.2 | -62.5 |
| Subtotal | 37.5 | 50.6 | 35.0 | 104.6 | 191.8 | 83.4 |
| Fillets | | | | | | |
| Cod | 2.6 | 2.2 | -13.5 | 3.0 | 2.6 | -13.3 |
| Halibut | 2.0 | 0.5 | -74.7 | 4.5 | 1.2 | -72.5 |
| Pollock | -- | 18.2 | -- | -- | 17.9 | -- |
| Other | 14.7 | 7.5 | -49.4 | 15.3 | 9.6 | -37.6 |
| Subtotal | 19.3 | 28.2 | 47.0 | 22.8 | 31.3 | 37.0 |
| Other | | | | | | |
| Minced, nspf | 255.1 | -- | -- | 194.1 | -- | -- |
| Pollock, minced | -- | 164.1 | -- | -- | 228.7 | -- |
| Fish, nspf, meat | -- | 55.2 | -- | -- | 65.5 | -- |
| Balls, cakes, pudding | 11.1 | 36.7 | 231.5 | 8.4 | 51.9 | 519.4 |
| Sticks, minced, coated | 2.9 | -- | -- | 1.9 | -- | -- |
| Sticks, minced, not coated | 71.4 | 31.5 | -55.9 | 52.8 | 35.8 | -32.2 |
| Subtotal | 340.4 | 287.5 | -15.5 | 257.2 | 382.0 | 48.5 |

Table 4.--Continued.

| Product | Quantity | | | Value | | |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Cured | | | | | | |
| Cod, dried | 0.4 | -- | -- | 0.2 | -- | -- |
| Cod, salted | 11.4 | 15.0 | 31.5 | 14.7 | 22.3 | 51.8 |
| Subtotal | <u>11.8</u> | <u>15.0</u> | <u>27.1</u> | <u>14.9</u> | <u>22.3</u> | <u>49.3</u> |
| Total | 854.1 | 866.4 | 1.4 | \$794.9 | \$1,074.4 | 35.2 |

Note: Discrepancies in totals are due to rounding and percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

The quantity and value of total salmon exports in 1991 fell by 10% to 320.6 million lb, and the value declined 25.5% to \$612.3 million (Gharrett 1992a). The 1991 Alaska salmon catch totaled 715 million lb, up slightly from the 690 million lb in 1990, solely on the 28% increase of pink salmon catch. Average ex-vessel prices **of** salmon were off by 47% from a year ago, with the value of the catch at \$300 million. The quantity of whole or dressed salmon exported in 1991 declined 18% from 1990, while the value declined by nearly 36% as average prices were 22% below a year earlier. At the same time, canned salmon exports were up by 35% in quantity and 30% in value from 1990. Export data by country of destination **for** total salmon, whole or dressed salmon, and canned salmon are presented in Appendix Tables 4, 5, and 6, respectively.

Exports of crab and crabmeat amounted to 177 million lb in 1991 and were valued at \$417 million, up 65% by quantity and 21% by value from 1990. Catches of snow crab (opilio) continued to be strong and hit a record 325 million lbs in 1991 (Gharrett 1992a). Catches of king crab and Tanner crab (baird1) declined from 1990 but were above the 1986-90 average. Exports of fresh and frozen whole crab as well as sections were grouped into one category beginning in 1989, but were again reported by species in 1991. Unfortunately, nearly one-half was reported in the not-specified category.

Major Importers

Pacific Northwest exports of edible fishery products were sold to 35 countries in 1991, with Japan being the leading buyer. The top five countries purchased nearly 93% of the total (Tables 5 and 6, and Fig. 4). There were significant increases in the value of exports to Japan (3.3%), the Republic of Korea (54.5%), the United Kingdom (41.4%), and Portugal (52%) in 1991. At the same time, exports declined to the Federal Republic of Germany (23.7%), the Netherlands (29%), and Australia (17.5%).

Table 5.--Quantity (million lbs) and value (million dollars) of Pacific Northwest edible fishery products exported to the leading countries for 1990 and 1991 and percent change, 1990-91.

| country | Quantity | | | Value | | |
|---------------------------------------|------------|------------|-------------|------------|------------|-------------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Japan | 1,026.0 | 1,019.2 | -0.7 | \$1,608.1 | \$1,660.4 | 3.3 |
| Rep. of Korea | 125.5 | 156.3 | 24.5 | 94.4 | 145.9 | 54.5 |
| United Kingdom | 41.1 | 64.8 | 57.7 | 80.5 | 113.8 | 41.4 |
| Canada | 55.5 | 52.9 | -4.7 | 100.6 | 96.0 | -4.6 |
| Federal Republic of Germany | 54.0 | 40.0 | -26.1 | 50.0 | 38.1 | -23.7 |
| France | 16.2 | 21.2 | 30.9 | 29.8 | 32.5 | 9.1 |
| Norway | 40.9 | 33.3 | -18.6 | 29.7 | 30.9 | 4.0 |
| Portugal | 16.3 | 25.7 | 57.2 | 18.7 | 28.4 | 52.0 |
| People's Republic of China | 0.1 | 11.1 | 8,570.8 | 0.1 | 12.4 | 9,269.2 |
| Australia | 6.5 | 5.9 | -9.8 | 14.4 | 11.8 | -17.5 |
| Netherlands | 8.7 | 6.3 | -27.1 | 15.0 | 10.6 | -29.1 |
| Denmark | 1.9 | 7.7 | 306.8 | 2.1 | 6.9 | 225.6 |
| Thailand | 2.5 | 8.6 | 240.3 | 2.8 | 6.6 | 134.4 |
| Sweden | 4.4 | 4.7 | 6.7 | 6.6 | 6.4 | -3.6 |
| Belgium | 2.8 | 2.0 | -26.7 | 5.3 | 3.9 | -25.5 |
| Hong Kong | 1.1 | 1.4 | 33.3 | 2.3 | 3.6 | 57.1 |
| Taiwan | 5.3 | 2.4 | -55.4 | 5.7 | 2.6 | -54.4 |
| Commonwealth of Independent States | -- | 1.6 | -- | -- | 2.0 | -- |
| Ireland | 0.8 | 0.7 | -3.2 | 1.3 | 1.1 | -15.9 |
| Italy | 0.5 | 0.9 | 69.8 | 0.9 | 1.0 | 13.5 |
| Other | <u>2.1</u> | <u>2.4</u> | <u>12.8</u> | <u>2.9</u> | <u>3.4</u> | <u>14.4</u> |
| Total | 1,412.3 | 1,469.1 | 4.0 | \$2,071.1 | \$2,218.3 | 7.1 |

Note : Discrepancies in totals are due to rounding..
Percentages are based on unrounded data.

Sources: U.S. Dep. Commer., Bureau of the Census, data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Table 6.--Value (million dollars) and percent of Pacific Northwest edible fishery products exported to major countries, 1984-91.

| Country | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
|----------------|----------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Value | | | | | | | | |
| Japan | \$451.2 | \$639.9 | \$ 776.8 | \$ 936.7 | \$1,401.3 | \$1,426.1 | \$1,608.1 | \$1,660.4 |
| Rep. of Korea | 10.1 | 18.0 | 26.7 | 31.5 | 35.9 | 52.5 | 94.4 | 145.9 |
| United Kingdom | 51.1 | 43.5 | 71.1 | 58.4 | 66.0 | 56.5 | 80.5 | 113.8 |
| Canada | 54.4 | 60.8 | 71.6 | 92.5 | 90.4 | 124.8 | 100.6 | 96.4 |
| France | 25.1 | 24.1 | 34.4 | 48.9 | 31.2 | 18.0 | 29.8 | 32.5 |
| Australia | 13.2 | 11.9 | 12.5 | 14.3 | 15.3 | 16.2 | 14.4 | 11.8 |
| Other | <u>42.7</u> | <u>38.5</u> | <u>40.7</u> | <u>49.5</u> | <u>60.0</u> | <u>53.2</u> | <u>142.7</u> | <u>157.9</u> |
| Total | \$647.8 | \$836.7 | \$1,033.7 | \$1,231.8 | \$1,700.1 | \$1,747.3 | \$2,071.1 | \$2,218.3 |
| Percent | | | | | | | | |
| Japan | 69.6 | 76.5 | 75.1 | 76.0 | 82.4 | 81.6 | 77.7 | 74.9 |
| Rep. of Korea | 1.6 | 2.1 | 2.6 | 2.6 | 2.1 | 3.0 | 4.6 | 6.6 |
| United Kingdom | 7.9 | 5.2 | 6.9 | 4.7 | 3.9 | 3.2 | 3.9 | 5.1 |
| Canada | 8.4 | 7.3 | 6.9 | 7.5 | 5.3 | 7.2 | 4.8 | 4.3 |
| France | 3.9 | 2.9 | 3.3 | 4.0 | 1.9 | 1.0 | 1.4 | 1.5 |
| Australia | 2.0 | 1.4 | 1.2 | 1.2 | 0.9 | 0.9 | 0.7 | 0.5 |
| Other | <u>6.6</u> | <u>4.6</u> | <u>3.9</u> | <u>4.0</u> | <u>3.5</u> | <u>3.1</u> | <u>6.9</u> | <u>7.1</u> |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Note: Discrepancies in totals are due to rounding.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

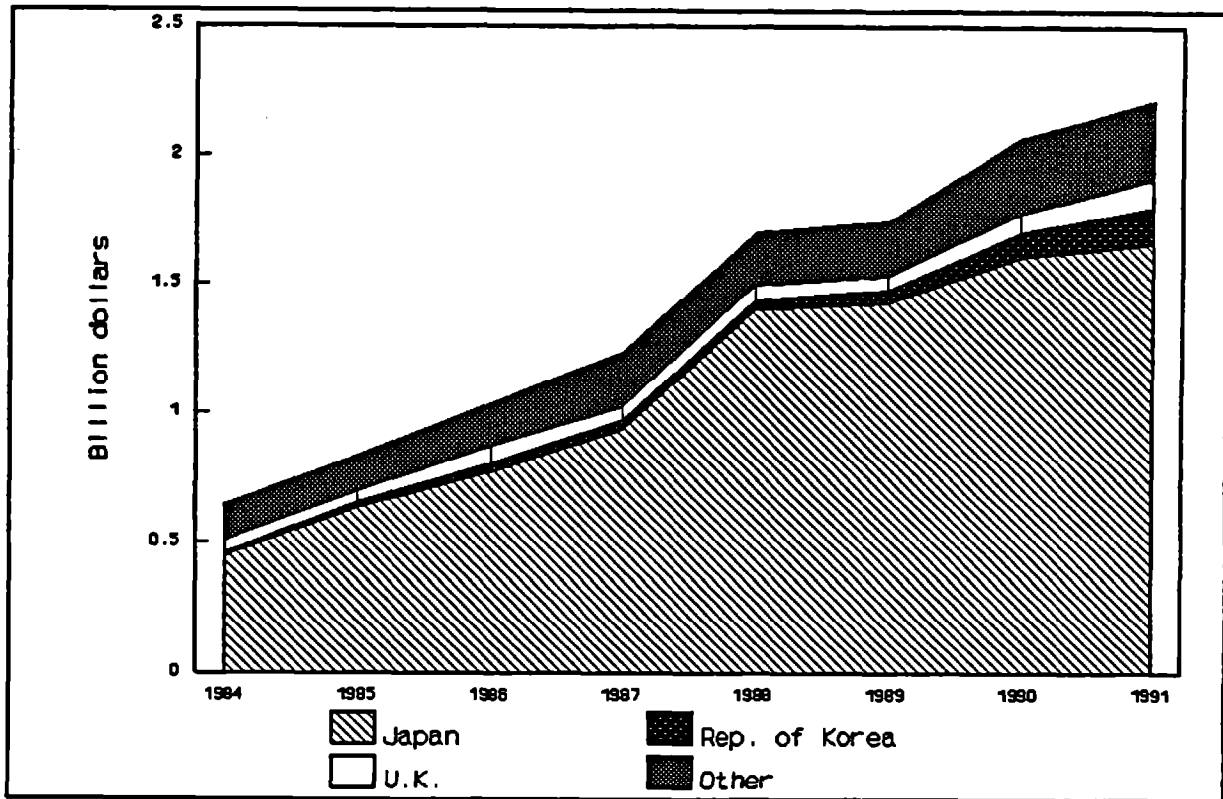


Figure 4.--Pacific Northwest exports of edible fishery products by country of destination, 1984-91.

Japan's imports of edible fishery products from the Pacific Northwest increased by 3.3% to \$1.66 billion and accounted for 74.9% of the total value of the Pacific Northwest's fishery exports. Purchases by Japan in the 1984-91 period have ranged from 68 to 82% of Pacific Northwest fishery exports. In 1991, the Japanese were the leading buyers of whole or dressed Pacific salmon (85%), whole Pacific herring (95%), sablefish (98%), crab (94%), minced fish (76%), and total fish roe (89%) (Appendix Table 7). Exports of the most important **category** sold to Japan, whole or dressed salmon, fell by 18% in quantity and declined by 37.5% in value to \$350 million. The increase in the supply of salmon in Japan has outstripped consumption, and resulted in drastically lower wholesale prices (Atkinson 1991). Increased exports of whole or dressed groundfish (12%), fish roe (42%), crab (18%), and minced fish (45%) contributed to the overall gain.

Advancing to the second spot was the Republic of Korea, as exports increased 24.5% in quantity and 54.5% in value from 1990 to 156 million lb valued **at** \$146 million or 6.6% of the total in 1991. Increased purchases of whole or dressed groundfish, minced fish, and fish roe contributed to the increase (Appendix Table 8).

The United Kingdom moved up one position to third with purchases of \$113.8 million or 5.1% of the total (Appendix Table 9). The quantity increased by 57.7%, while the value advanced by 41.4% from 1990. Canned salmon exports totaled 42.4 million lb, up 64%, and **the** value increased by 60% to \$91.5 million. The United Kingdom was **the** leading buyer of canned salmon, with 71% of the canned salmon exports. Purchases of whole or dressed cod jumped to \$9.7 million in 1991 from just \$1.3 million in the previous year.

Dropping from second to fourth was Canada, with purchases of \$96 million or 4.3% of the total Pacific Northwest fishery exports, down from \$100.6 million

or 4.8% in 1990. Decreased purchases of whole or dressed salmon, halibut, and canned salmon contributed to the 4.7% drop in quantity and 4.6% decline in value (Appendix Table 10).

The Federal Republic of Germany remained in fifth place in 1991, with shipments of \$38 million, down 23.7% from \$50 million in 1990 (Appendix Table 11). The strong European market for groundfish in 1990 was responsible for the huge increase in exports that year; however, it appears that the market may have weakened due to the higher prices. Exports of groundfish products fell to \$34.8 million, down nearly 24% from 1990.

Exports to France ranked **sixth**, increasing 31% in quantity and 9% in value to 21 million lb and \$32.5 million, respectively (Appendix Table 12). The increase was attributed to the rise in the value of fillets and minced fish. Whole or dressed salmon amounted to \$20.8 million, down 6% from 1990 but still comprised 64% of fishery exports to France.

Exports to Norway increased 4% with \$30.9 million in 1991 from \$29.7 million in 1990 (Appendix Table 13). The increase in salted cod from zero in 1990 to \$4.4 million in 1991 contributed to the gain. Shipments of whole or dressed cod was off 6.8% from 1990.

Rounding out the top 10 leading importers were Portugal, **the** People's Republic of China, and Australia, with \$28.4, \$12.4, and \$11.8 million, respectively. Exports to Portugal were mainly salted cod and whole or dressed cod, up 21 and 306%, respectively (Appendix Table 14). The huge increase in exports to the People's Republic of China was attributed to the increase of flatfish and crab. Australia was in the 10th spot with \$11.8 million, down 17.5% from 1990 (Appendix Table 15). Over 99%, or \$11.7 million, were exports of canned salmon. Australia was the second leading buyer of canned salmon, with 9% of the total canned salmon exports from the Pacific Northwest.

Exports by Customs District

Pacific Northwest fishery exports by customs districts of Alaska, Washington, and Oregon for 1990 and 1991 are presented in Tables 7 and 8, respectively. Table 9 presents the percentage distribution by customs district from 1977. By quantity, 1.1 billion lb or 76.2% of exports in 1991 was shipped from the Alaska customs district, compared to 339 million lb or 23.1% from Washington, and 11 million lb or 0.7% from Oregon. By value, \$1.54 billion (69.6%) of the total was from Alaska, \$652 million (29.4%) was from Washington, and \$23 million (1%) was from Oregon (Fig. 5).

A comparison of Tables 7 and 8 also documents that \$1.84 billion or 83.1% of Pacific Northwest fishery exports in 1991 were destined for Pacific Rim countries compared to the \$1.7 billion or 83.5% in 1990, with \$1.4 billion shipped from Alaska and \$399 million from Washington. Exports to Europe increased with greater canned salmon sales and higher groundfish prices to \$277 million, or 12.5% of the total, up from \$241 million or 11.7% of total exports, with \$169 million shipped from Washington and \$107 million from Alaska.

Table 7.--Quantity (thousands of pounds), value (thousands of dollars), and percent of total 1990 value of Pacific Northwest edible fishery products exported by customs district to area or country of destination, 1990.

| District | Asia* | Europe | Canada | * Other | Total |
|-------------------------------|-------------|-----------|-----------|---------|-------------|
| Quantity | | | | | |
| Alaska | 976,384 | 112,896 | 4,567 | -- | 1,093,846 |
| Washington | 182,381 | 76,024 | 50,850 | 375 | 309,630 |
| Oregon | 8,699 | 66 | 46 | -- | 8,810 |
| Total | 1,167,464 | 188,986 | 55,463 | 375 | 1,412,287 |
| Value | | | | | |
| Alaska | \$1,310,972 | \$ 96,308 | \$ 7,461 | -- | \$1,414,741 |
| Washington | 397,438 | 145,063 | 93,030 | \$788 | 636,320 |
| Oregon | 19,837 | 79 | 76 | -- | 20,008 |
| Total | \$1,728,263 | \$241,450 | \$100,567 | \$788 | \$2,071,069 |
| Percent of total value | | | | | |
| Alaska | 63.3 | 4.7 | 0.4 | -- | 68.3 |
| Washington | 19.2 | 7.0 | 4.5 | 0.0 | 30.7 |
| Oregon | 1.0 | 0.0 | 0.0 | -- | 1.0 |
| Total | 83.5 | 11.7 | 4.8 | 0.0 | 100.0 |

* Includes Australia and New Zealand.

Note : Discrepancies in totals are due to rounding. Data revised.

Sources: U.S. Dep. Commer., Bureau of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Table 8.--Quantity (thousands of pounds), value (thousands of dollars), and percent of total 1991 value of Pacific Northwest edible fishery products exported by customs district to area or country of destination, 1991.

| District | Asia* | Europe | Canada | Other | Total |
|-------------------------------|--------------------|------------------|------------------|--------------|--------------------|
| Quantity | | | | | |
| Alaska | 996,110 | 114,047 | 8,712 | -- | 1,118,868 |
| Washington | 199,426 | 95,262 | 44,123 | 387 | 339,201 |
| Oregon | 9,908 | 924 | 43 | 117 | 10,994 |
| Total | 1,205,444 | 210,233 | 52,878 | 504 | 1,469,062 |
| Value | | | | | |
| Alaska | \$1,423,261 | \$107,321 | \$ 12,231 | -- | \$1,542,813 |
| Washington | 398,951 | 169,346 | 83,631 | \$511 | 652,439 |
| Oregon | 22,147 | 706 | 120 | 67 | 23,040 |
| Total | \$1,844,359 | \$277,373 | \$ 95,982 | \$578 | \$2,218,292 |
| Percent of total value | | | | | |
| Alaska | 64.2 | 4.8 | 0.6 | -- | 69.6 |
| Washington | 18.0 | 7.6 | 3.8 | 0.0 | 29.4 |
| Oregon | 1.0 | 0.0 | 0.0 | 0.0 | 1.0 |
| Total | 83.1 | 12.5 | 4.3 | 0.0 | 100.0 |

* Includes Australia and New Zealand.

Note: Discrepancies in totals are due to rounding.

Sources: U.S. Dep. Commer., Bureau of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Table 9.--Pacific Northwest exports of edible fishery products by customs districts in percentage of the total for each year from 1977 to 1991.

| Year | Quantity (%) | | | Value (%) | | |
|------|--------------|------------|--------|-----------|------------|--------|
| | Oregon | Washington | Alaska | Oregon | Washington | Alaska |
| 1977 | 2.1 | 83.3 | 14.6 | 2.2 | 81.6 | 16.2 |
| 1978 | 2.5 | 68.3 | 29.3 | 2.4 | 65.1 | 32.5 |
| 1979 | 2.8 | 51.6 | 45.6 | 1.9 | 51.6 | 46.5 |
| 1980 | 1.4 | 55.4 | 43.2 | 1.4 | 59.5 | 39.1 |
| 1981 | 1.4 | 53.9 | 44.7 | 1.5 | 57.5 | 41.0 |
| 1982 | 2.0 | 42.4 | 55.6 | 2.3 | 50.1 | 47.6 |
| 1983 | 1.3 | 40.6 | 58.1 | 1.6 | 48.8 | 49.6 |
| 1984 | 1.8 | 43.8 | 54.4 | 1.8 | 53.9 | 44.3 |
| 1985 | 1.7 | 39.5 | 58.8 | 1.7 | 45.6 | 52.7 |
| 1986 | 1.5 | 45.5 | 53.1 | 1.9 | 49.0 | 49.2 |
| 1987 | 1.6 | 46.4 | 52.0 | 1.8 | 51.6 | 46.6 |
| 1988 | 1.6 | 34.5 | 63.9 | 2.2 | 44.3 | 53.5 |
| 1989 | 1.1 | 31.7 | 67.2 | 1.4 | 38.2 | 60.4 |
| 1990 | 0.6 | 21.9 | 77.5 | 1.0 | 30.7 | 68.3 |
| 1991 | 0.7 | 23.1 | 76.2 | 1.0 | 29.4 | 69.6 |

Note: Discrepancies in percentages not adding to 100% are due to rounding.

Sources: U.S. Dep. Commer., Bureau of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

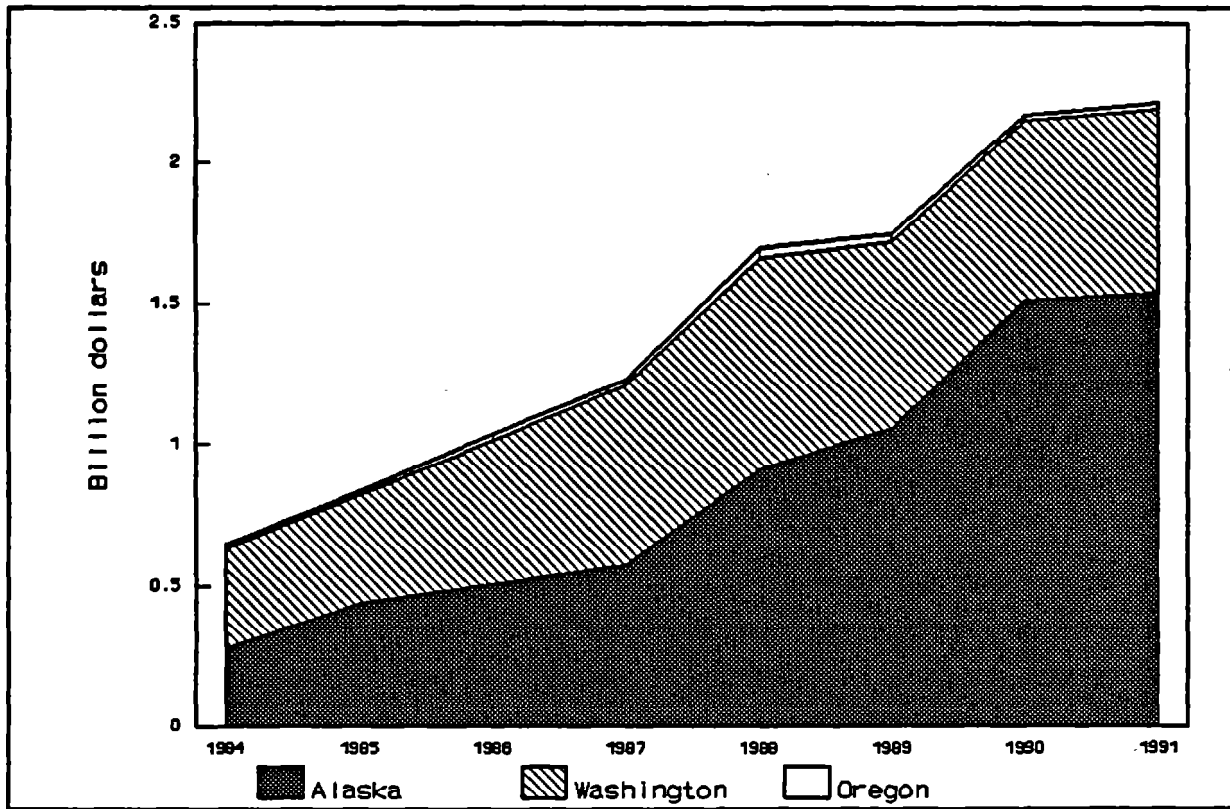


Figure 5. --Pacific Northwest exports of edible fishery products by customs districts, 1984-91.

CITATIONS

- Atkinson, B. 1991. Bill Atkinson's News Report. Issue 406, July 10, 1991, p. 2-4. Available 5507 N.E. 58th St., Seattle, WA 98105-2111.
- Gharrett, J. A. 1992a. Various unpublished data reports. Natl. Mar. Fish. Serv., Alaska Regional Office, P.O. Box 21668, Juneau, AK 99802.
- Gharrett, J. A. 1992b. Weekly Processor Report data base. Natl. Mar. Fish. Serv., Alaska Regional Office, P.O. Box 21668, Juneau, AK 99802. April 1992.
- Kinoshita, R. K., A. Greig, L. E. Queirolo, and J. M. Terry. 1992. Economic status of the groundfish fisheries off Alaska, 1991. In prep., 91 p. Alaska Fish.Sci.Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.
- Kinoshita, R. K., D. A. Colpo, and J. M. Terry. 1991. Oregon, Washington, and Alaska exports of edible fishery products, 1990. U.S. Dep. Commer., NOAA Tech. Memo. F/NWC-209, 48 p.
- National Marine Fisheries Service. 1992. Fisheries of the United States, 1991. U.S. Dep. Commer., Current Fish. Stat. No. 9100, May 1992, 111 p.
- Sonu, S. C. 1992. Natl. Mar. Fish. Serv., Southwest Regional Office, 501 W. Ocean Blvd. Suite 4200, Long Beach, CA 90802-4213. In NMFS Fisheries Market News Report, Urner Barry Pub., Inc., P.O. Box 389, Toms River, NJ 08754-0389. Various issues.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX

Appendix Table 1. --Export categories of edible fishery products for 1991.

Product description

Trout, rainbow, fresh, farmed
 fresh
Salmon, Atlantic, fresh, farmed
 Atlantic, fresh, wild
 chinook, fresh
 chum, fresh
 pink, fresh
 sockeye, fresh
 coho, fresh
 Danube, fresh
Salmonidae, nspf, fresh
Flatfish, halibut, Greenland turbot, fresh
 plaice, fresh
 sole, fresh
 nspf, fresh
Tuna, albacore, fresh
Herring, fresh
Groundfish, cod, nspf, fresh
Groundfish, pollock, Atlantic, fresh
Mackerel, fresh
Shark, dogfish, fresh
Eels, fresh
Sablefish, fresh
Fish, nspf, fresh
Fish, nspf, liver and roe, fresh
Salmon, chinook, frozen
 chum, frozen
 pink, frozen
 sockeye, frozen
 coho, frozen
 Pacific, nspf, frozen
Trout, frozen
Salmon, Atlantic, Danube, frozen
Salmonidae, nspf, frozen
Flatfish, halibut, Atlantic, Pacific, frozen
 turbot, Greenland, frozen
 plaice, frozen
 sole, frozen
 nspf, frozen
Tuna, albacore, frozen
Herring, frozen
Groundfish, cod, nspf, frozen
Groundfish, pollock, Atlantic, frozen
Mackerel, frozen
Shark, dogfish, frozen
Eels, frozen

Appendix Table 1.--Continued.

Product description

Sea bass, frozen
Groundfish, hake, whiting, frozen
Sablefish, frozen
Fish, nspf, frozen
Sturgeon roe, frozen
Herring roe, frozen
Salmon, nspf, roe, frozen
Groundfish, pollock, Alaska roe, frozen
Fish, nspf, liver and roe, frozen
Fish, nspf, fillet, fresh
Groundfish, cod fillet, frozen
Flatfish, halibut, nspf, fillet, frozen
Groundfish, pollock, Alaska fillet, frozen
Fish, nspf, fillet, frozen
Groundfish, pollock, nspf, mince, frozen
Fish, nspf, meat, frozen
Salmon, nspf, roe, cured
Herring roe, cured
Fish, nspf, liver and roe, cured
Fish, nspf, fillet, dried/salted/brined
Salmon, smoked
Herring, smoked
Fish, nspf, smoked
Groundfish, cod, dried
Fish, nspf, dried
Herring, salted
Groundfish, cod, salted
Fish, nspf, salted
Shrimp, shell-on, frozen < 15 count size
 shell-on, frozen 15/20 count size
 shell-on, frozen 21/25 count size
 shell-on, frozen 26/30 count size
 shell-on, frozen 31/40 count size
 shell-on, frozen 41/50 count size
 shell-on, frozen 51/60 count size
 shell-on, frozen 61/70 count size
 shell-on, frozen > 70 count size
 peeled, frozen
Crabmeat, nspf, frozen
Crab, king, frozen
 snow, frozen
 Dungeness, frozen
 nspf, frozen
Crawfish, freshwater, frozen
Crustaceans, nspf, frozen

Appendix Table 1.--Continued.

Product description

Shrimp, live/fresh/dried/salted/brined
Crabmeat, nspf, fresh/dried/salted/brined
Crab, nspf, live/fresh/dried/salted/brined
Crustaceans, nspf, live/fresh/dried/salted/brined
Oysters, live/fresh/frozen/dried/salted/brined
Scallops, live/fresh
Scallops, frozen/dried/salted/brined
Mussels, live/fresh, farmed
 live/fresh, wild
 frozen/dried/salted/brined
Squid, (Loligo), live/fresh
 nspf, live/fresh
 nspf, and cuttlefish, live/fresh
 nspf, fillet, frozen
 (Loligo opalescens), frozen/dried/salted/brined
 (Loligo pealei), frozen/dried/salted/brined
 (Loligo, nspf), frozen/dried/salted/brined
 nspf, frozen/dried/salted/brined
 and cuttlefish, frozen/dried/salted/brined
Octopus, live/fresh
 frozen/dried/salted/brined
Snail, other than sea snail, live/fresh/frozen/salted
Sea urchin, roe, fresh
 live/fresh
Molluscs, nspf, live/fresh
Clam, frozen/dried/salted/brined
Molluscs, nspf, frozen/dried/salted/brined
Fish, shellfish, nspf, juice
Salmon, nspf, canned in oil
 chum, canned not in oil
 pink, canned not in oil
 sockeye, canned not in oil
 nspf, canned not in oil
 nspf, prepared/preserved not in airtight container
Herring, prepared/preserved
Tuna, nspf, prepared/preserved
Mackerel, prepared/preserved
Sticks, type products, coated, not minced
 type products, not coated, not minced
Fish, nspf, prepared meals containing shellfish
Fish balls, cakes, pudding, prepared/preserved
Sticks, type products, coated of minced
 type products, not coated of minced
Caviar, caviar substitute, prepared/preserved
Crab product prepared meals containing fish

Appendix Table 1.--Continued.

Product description

Crabmeat, king in airtight container
 snow (opilio) in airtight container
 snow, other in airtight container
Dungeness in airtight container
nspf, in airtight container
king, frozen
 snow (opilio), frozen
 snow, other, frozen
Dungeness, frozen
nspf, frozen
nspf, other preparations
Crab, nspf, other preparations
Shrimp, products prepared meals containing fish
 frozen in airtight containers
 frozen
 canned
 other preparations
Crustaceans, nspf, products prepared meals containing fish
 nspf, prepared/preserved
Molluscs/other, nspf, products prepared meals containing fish
Clam, prepared/preserved
Abalone, prepared/preserved
Scallops, prepared/preserved
Squid (Loligo), prepared/preserved
Squid, nspf, prepared/preserved
Molluscs, nspf, prepared/preserved
Soups, broths, based on fish or other seafood

nspf - Not specifically provided for.

Sources: U.S. Dep. Commer., Bur. of the Census; U.S. Dep. of
Treasury, Bur. of Customs; and available from Alaska Fish.
Sci. Cent, 7600 Sand Point Way N.E., BIN C15700, Seattle,
WA 98115-0070.

Appendix Table 2. --Scientific names of species identified in this report.

| Common name | Scientific name |
|-------------------------|---|
| FISH | |
| Cod, Pacific | <u>Gadus macrocephalus</u> |
| Flounders and soles | <u>Pleuronectidae</u> family |
| Halibut, Pacific | <u>Hippoglossus stenoleois</u> |
| Herring, Pacific | <u>Clupea pallasii</u> |
| Mackerel, Atka | <u>Pleurogrammus monopterygius</u> |
| Perch, Pacific ocean | <u>Sebastes alutus</u> |
| Pollock, walleye | <u>Theraera chalcogly</u> |
| Rockfish | <u>Sebastes</u> and <u>Sebastes</u> species |
| Sablefish | <u>Anoplopoma fimbria</u> |
| Salmon, Pacific | <u>Oncorhynchus</u> species |
| Chinook | O. <u>tshawvtscha</u> |
| chum | O. <u>keta</u> |
| Coho | O. <u>kisutch</u> |
| Pink | O. <u>gorbuscha</u> |
| Sockeye | O. <u>nerka</u> |
| Turbot, Greenland | <u>Reinhardtius hippoglossoides</u> |
| Whiting (hake), Pacific | <u>Merluccius productus</u> |
| CRUSTACEANS | |
| Crab, Dungeness | <u>Cancer magister</u> |
| Crab, king | <u>Lithodes</u> and <u>Paralithodes</u> species |
| Crab, snow (Tanner) | <u>Chionoecetes bairdi</u> and <u>opilio</u> |
| Shrimp | <u>Pandalus</u> , <u>Pandalopsis</u> , and <u>Crangon</u> species |

Appendix Table 3.-- Pacific Northwest exports of groundfish products including halibut by country of destination, quantity (million lbs), value (million dollars), and percent change from 1990 to 1991.

| country | Quantity | | | Value | | |
|--------------------------------|----------|-------|----------|---------|-----------|----------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Japan | 588.5 | 550.4 | -6.5 | \$559.5 | \$ 763.9 | 36.5 |
| Republic of Korea | 118.5 | 151.7 | 28.1 | 86.0 | 139.3 | 62.0 |
| Canada | 18.7 | 21.8 | 16.4 | 32.2 | 38.7 | 20.0 |
| Federal Republic of Germany | 52.6 | 38.9 | -26.1 | 46.9 | 35.9 | -23.5 |
| Norway | 40.9 | 33.3 | -18.6 | 29.6 | 30.9 | 4.2 |
| Portugal | 16.3 | 25.6 | 57.2 | 18.7 | 28.4 | 52.0 |
| United Kingdom | 6.1 | 16.5 | 172.3 | 7.4 | 13.8 | 85.7 |
| France | 3.6 | 6.4 | 79.5 | 5.4 | 9.1 | 68.5 |
| Denmark | 0.7 | 6.4 | 793.0 | 0.5 | 5.1 | 833.1 |
| Thailand | 0.3 | 5.9 | 1,713.6 | 0.5 | 2.5 | 384.4 |
| Taiwan | 4.7 | 2.1 | -54.3 | 3.5 | 1.9 | -45.3 |
| People's Republic of China | 0.1 | 5.1 | 3,897.6 | 0.1 | 1.7 | 1,181.0 |
| Sweden | 0.9 | 0.9 | 4.8 | 1.6 | 1.5 | -2.8 |
| Italy | 0.1 | 0.6 | 525.3 | 0.0 | 0.4 | 1,176.8 |
| Spain | 1.0 | 0.1 | -86.5 | 0.9 | 0.4 | -58.8 |
| Hong Kong | 0.2 | 0.2 | -7.9 | 0.3 | 0.3 | 18.6 |
| Other | 0.9 | 0.6 | -32.1 | 1.6 | 0.6 | -65.0 |
| Total | 854.1 | 866.4 | 1.4 | \$794.9 | \$1,074.4 | 35.2 |

Note: Zero indicates less than 50,000 lbs or \$50,000.
Discrepancies in totals are due to rounding and percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Appendix Table 4. --Pacific Northwest exports of salmon products (fresh, frozen, canned, cured, and roe) by country of destination, quantity (million lbs), value (million dollars), and percent change from 1990 to 1991.

| country | Quantity | | | Value | | |
|---------------------------------------|----------|-------|----------|---------|---------|----------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Japan | 260.2 | 216.8 | -16.7 | 637.1 | 419.1 | -34.2 |
| United Kingdom | 34.7 | 48.0 | 38.3 | 72.6 | 99.5 | 37.1 |
| Canada | 21.7 | 15.1 | -30.3 | 39.6 | 28.1 | -29.0 |
| France | 12.2 | 14.4 | 17.8 | 22.6 | 22.0 | -2.9 |
| Australia | 6.2 | 5.8 | -6.1 | 13.6 | 11.7 | -13.7 |
| Netherlands | 8.5 | 6.3 | -26.5 | 14.5 | 10.5 | -27.8 |
| Sweden | 3.3 | 3.6 | 8.7 | 4.3 | 4.3 | 1.8 |
| Belgium | 2.4 | 2.0 | -19.7 | 4.6 | 3.8 | -17.2 |
| Republic of Korea | 1.3 | 1.2 | -7.5 | 2.5 | 2.5 | -1.3 |
| Commonwealth of Independent States | -- | 1.6 | -- | -- | 2.0 | -- |
| Denmark | 1.2 | 1.4 | 15.2 | 1.5 | 1.8 | 24.4 |
| Federal Republic of Germany | 1.3 | 0.9 | -29.7 | 2.5 | 1.6 | -35.0 |
| Ireland | 0.8 | 0.7 | -7.0 | 1.3 | 1.1 | -16.9 |
| Hong Kong | 0.6 | 0.5 | -14.3 | 1.0 | 0.8 | -17.6 |
| Switzerland | 0.3 | 0.3 | 4.1 | 0.6 | 0.6 | 7.4 |
| Thailand | 1.7 | 0.6 | -67.6 | 1.6 | 0.6 | -66.4 |
| New Zealand | 0.0 | 0.3 | 1,005.4 | 0.1 | 0.5 | 612.9 |
| South Africa | 0.3 | 0.4 | 33.5 | 0.5 | 0.5 | -.4 |
| Italy | 0.4 | 0.2 | -38.3 | 0.8 | 0.5 | -38.5 |
| Other | 0.3 | 0.5 | 68.3 | 0.8 | 0.7 | -7.9 |
| Total | 357.4 | 320.6 | -10.3 | \$822.0 | \$612.3 | -25.5 |

Note: Zero indicates less than 50,000 lbs or \$50,000.
Discrepancies in totals are due to rounding and percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Appendix Table 5. --Pacific Northwest exports of fresh and frozen salmon by country of destination, quantity (million lbs), value (million dollars), and percent change from 1990 to 1991.

| Country | Quantity | | | Value | | |
|--------------------------------|----------|-------|----------|---------|---------|----------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Japan | 243.7 | 200.5 | -17.7 | \$559.6 | \$349.8 | -37.5 |
| France | 12.0 | 13.4 | 12.4 | 22.2 | 20.8 | -6.0 |
| Canada | 15.2 | 10.7 | -29.3 | 25.2 | 18.9 | -24.9 |
| United Kingdom | 8.7 | 5.2 | -40.2 | 15.0 | 7.3 | -51.3 |
| Sweden | 3.3 | 3.6 | 8.7 | 4.3 | 4.3 | 1.8 |
| Republic of Korea | 1.3 | 1.2 | -7.5 | 2.5 | 2.5 | -1.3 |
| Belgium | 1.1 | 1.1 | -3.3 | 2.5 | 2.3 | -6.3 |
| Denmark | 1.2 | 1.3 | 12.6 | 1.5 | 1.8 | 21.0 |
| Federal Republic of Germany | 1.2 | 0.8 | -29.8 | 2.2 | 1.4 | -34.8 |
| Netherlands | 2.3 | 0.4 | -84.4 | 3.7 | 0.7 | -80.6 |
| Hong Kong | 0.6 | 0.5 | -15.9 | 1.0 | 0.7 | -25.8 |
| Thailand | 1.7 | 0.6 | -67.6 | 1.6 | 0.6 | -66.4 |
| Italy | 0.2 | 0.1 | -40.0 | 0.5 | 0.3 | -42.6 |
| Ireland | 0.1 | -- | -- | 0.2 | -- | -- |
| Other | 0.9 | 1.1 | 33.8 | 1.7 | 1.6 | -2.6 |
| Total | 293.5 | 240.6 | -18.0 | \$643.7 | \$413.2 | -35.8 |

Note: Discrepancies in totals are due to rounding and percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Appendix Table 6. --Pacific Northwest exports of canned salmon by country of destination, quantity (million lbs), value (million dollars), and percent change from 1990 to 1991.

| country | Quantity | | | Value | | |
|---------------------------------------|------------|------------|--------------|------------|------------|-------------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| United Kingdom | 25.9 | 42.4 | 63.9 | \$57.2 | \$ 91.5 | 60.0 |
| Australia | 6.0 | 5.8 | -3.3 | 13.2 | 11.7 | -11.3 |
| Netherlands | 6.1 | 5.9 | -3.3 | 10.6 | 9.7 | -8.7 |
| Canada | 6.3 | 4.3 | -31.9 | 13.6 | 8.9 | -34.3 |
| Commonwealth of Independent States | -- | 1.6 | -- | -- | 2.0 | -- |
| Belgium | 1.3 | 0.9 | -34.1 | 2.0 | 1.4 | -30.6 |
| Ireland | 0.6 | 0.7 | 10.6 | 1.1 | 1.1 | .5 |
| France | 0.2 | 0.9 | 282.6 | 0.4 | 1.0 | 158.2 |
| New Zealand | 0.0 | 0.3 | 1,005.4 | 0.1 | 0.5 | 612.9 |
| Japan | 0.1 | 0.2 | 119.4 | 0.2 | 0.3 | 35.6 |
| Italy | 0.1 | 0.1 | -35.7 | 0.3 | 0.2 | -31.7 |
| Other | <u>0.1</u> | <u>0.1</u> | <u>113.9</u> | <u>0.2</u> | <u>0.2</u> | <u>-5.3</u> |
| Total | 46.7 | 63.2 | 35.2 | \$98.8 | \$128.5 | 30.0 |

Note: Zero indicates less than 50,000 lbs or \$50,000.
Discrepancies in totals are due to rounding and percentages are based on unrounded numbers.

Sources: U.S. Dep. Comber., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Appendix Table 7. --Pacific Northwest exports of edible fishery products to Japan by product, quantity (million lbs), value (million dollars), and percent change from 1990 to 1991.

| Product | Quantity | | | Value | | |
|------------------------------|----------|-------|----------|---------|---------|----------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Whole or dressed | | | | | | |
| Salmon | | | | | | |
| Chinook | 4.7 | 4.5 | -2.7 | \$ 16.3 | \$ 16.2 | -.4 |
| chum | 10.4 | 7.5 | -27.9 | 14.5 | 8.0 | -44.9 |
| Coho | 18.3 | 17.4 | -5.0 | 35.5 | 28.8 | -19.0 |
| Pink | 16.2 | 12.7 | -21.9 | 18.1 | 10.8 | -40.4 |
| Sockeye | 193.2 | 157.0 | -18.7 | 473.2 | 282.6 | -40.3 |
| Other | 0.9 | 1.4 | 50.0 | 2.0 | 3.4 | 72.8 |
| Subtotal | 243.7 | 200.5 | -17.7 | 559.6 | 349.8 | -37.5 |
| Groundfish | | | | | | |
| Halibut & | | | | | | |
| Green. turbot | 12.2 | 8.6 | -29.4 | 16.9 | 10.2 | -39.8 |
| Other flatfish | 40.1 | 103.2 | 157.1 | 31.0 | 76.7 | 147.3 |
| Cod | 73.4 | 71.0 | -3.3 | 60.4 | 66.0 | 9.4 |
| Mackerel | 18.8 | 3.8 | -79.6 | 11.7 | 3.4 | -71.3 |
| Sablefish | 37.8 | 38.9 | 3.0 | 68.6 | 93.7 | 36.7 |
| Other | 100.5 | 61.8 | -38.5 | 85.1 | 57.6 | -32.3 |
| Subtotal | 282.9 | 287.4 | 1.6 | 273.7 | 307.7 | 12.4 |
| Herring | 60.7 | 66.3 | 9.2 | 46.8 | 52.0 | 11.0 |
| Fillets | | | | | | |
| Cod | 0.7 | 0.4 | -48.6 | 0.8 | 0.4 | -49.1 |
| Halibut | 1.2 | 0.1 | -91.9 | 2.6 | 0.2 | -91.8 |
| Other | 0.4 | 2.5 | 466.5 | 0.9 | 2.9 | 241.8 |
| Other | | | | | | |
| Minced, nspf | 213.7 | -- | -- | 163.3 | -- | -- |
| Minced, pollock | -- | 135.0 | -- | -- | 190.2 | -- |
| Meat, nspf | -- | 40.7 | -- | -- | 48.6 | -- |
| Balls, cakes, and pudding | 3.0 | 26.2 | 764.8 | 2.3 | 34.5 | 1,410.2 |
| Sticks, minced | 55.0 | 15.8 | -71.2 | 35.0 | 18.4 | -47.4 |
| Subtotal | 271.8 | 217.8 | -19.9 | 200.6 | 291.8 | 45.4 |
| Roe | | | | | | |
| Pollock | -- | 33.2 | -- | -- | 129.3 | -- |
| Herring | 10.7 | 17.5 | 62.6 | 19.1 | 20.8 | 9.0 |
| Salmon | 16.3 | 16.1 | -1.4 | 77.1 | 68.8 | -10.8 |
| Other | 30.8 | 9.1 | -70.3 | 80.5 | 31.6 | -60.8 |
| Subtotal | 57.9 | 75.9 | 31.0 | 176.7 | 250.5 | 41.8 |

Appendix Table 7.--Continued.

| Product | Quantity | | | Value | | |
|-------------------------|------------|------------|--------------|------------|------------|--------------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Fish, other | 1.9 | 2.0 | 2.4 | 2.8 | 3.6 | 25.4 |
| Crab | 100.1 | 163.2 | 63.0 | \$ 326.8 | \$ 385.8 | 18.0 |
| Crabmeat | 2.7 | 1.6 | -39.4 | 6.2 | 5.9 | -4.7 |
| Sea urchin | 0.9 | 1.0 | 16.0 | 6.5 | 7.7 | 18.8 |
| Caviar | 0.1 | 0.1 | -21.5 | 1.3 | 0.8 | -32.9 |
| Shellfish, other | <u>1.0</u> | <u>0.5</u> | <u>-51.1</u> | <u>2.7</u> | <u>1.4</u> | <u>-49.0</u> |
| Total | 1,026.0 | 1,019.2 | -0.7 | \$1,608.1 | \$1,660.4 | 3.3 |

nspf - Not specifically provided for.

Note: Discrepancies in totals are due to rounding and percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; and Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Appendix Table 8. --Pacific Northwest exports of edible fishery products to the Republic of Korea by product, quantity (million lb), value (million dollars), and percent change from 1990 to 1991.

| Product | Quantity | | | Value | | |
|----------------------------|------------|------------|--------------|------------|------------|--------------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Whole or dressed | | | | | | |
| Groundfish | | | | | | |
| Cod | 33.6 | 36.3 | 8.2 | \$16.4 | \$ 20.6 | 25.8 |
| Flatfish | 10.8 | 34.0 | 214.4 | 4.7 | 11.3 | 142.5 |
| Sablefish | 3.9 | 0.9 | -75.8 | 2.0 | 1.3 | -37.6 |
| Other | 11.8 | 22.6 | 91.0 | 6.1 | 15.1 | 146.1 |
| Subtotal | 60.1 | 93.9 | 56.3 | 29.2 | 48.3 | 65.4 |
| Herring | 2.5 | 0.7 | -73.8 | 1.4 | 0.0 | -97.5 |
| Salmon | 1.3 | 1.2 | -7.5 | 2.5 | 2.5 | -1.3 |
| Filletts | | | | | | |
| Cod | 0.6 | 0.4 | -33.7 | 0.5 | 0.4 | -28.5 |
| Other | 0.3 | 1.4 | 387.9 | 0.1 | 1.4 | 2,576.5 |
| Roe | | | | | | |
| Herring | 0.2 | 0.5 | 115.5 | 0.1 | 0.3 | 135.8 |
| Pollock | -- | 6.5 | -- | -- | 22.9 | -- |
| Other | 6.1 | 1.2 | -81.1 | 20.0 | 3.8 | -81.1 |
| Other | | | | | | |
| Minced, nspf | 32.1 | -- | -- | 21.4 | -- | -- |
| Pollock, minced | -- | 20.4 | -- | -- | 28.2 | -- |
| Meat, nspf | -- | 8.8 | -- | -- | 9.1 | -- |
| Balls, cakes, and puddings | 8.6 | 9.8 | 30.0 | 5.6 | 16.9 | 199.5 |
| Sticks, minced | 11.5 | 9.3 | -18.9 | 9.0 | 8.4 | -6.6 |
| Subtotal | 51.1 | 48.3 | -5.4 | 36.0 | 62.5 | 73.5 |
| Fish, other | 0.4 | 0.2 | -48.1 | 0.2 | 0.3 | 48.7 |
| Crab | 1.3 | 1.9 | 46.1 | 1.7 | 3.3 | 86.8 |
| Crabmeat | 0.9 | -- | -- | 2.1 | -- | -- |
| Shellfish, other | <u>0.6</u> | <u>0.2</u> | <u>-76.4</u> | <u>0.4</u> | <u>0.2</u> | <u>-56.1</u> |
| Total | 25.5 | 156.3 | 24.5 | \$94.4 | \$145.9 | 54.5 |

nspf - Not specifically provided for.

Note: Discrepancies in totals are due to rounding.

Percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Appendix Table 9. --Pacific Northwest exports of edible fishery products to the United Kingdom by product, quantity (million lb), value (million dollars), and percent change from 1990 to 1991.

| Product | Quantity | | | Value | | |
|---|------------|------------|--------------|------------|------------|--------------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Whole or dressed | | | | | | |
| Salmon | | | | | | |
| chum | 1.8 | 1.5 | -13.7 | \$ 2.5 | \$ 2.1 | -17.5 |
| Pink | 3.1 | 1.1 | -64.9 | 5.0 | 1.6 | -67.3 |
| Sockeye | 1.7 | 0.7 | -60.6 | 4.7 | 1.5 | -67.3 |
| Coho | 0.9 | 0.6 | -41.9 | 1.6 | 1.0 | -37.7 |
| Other | 1.2 | 1.4 | 13.0 | 1.2 | 1.1 | -12.8 |
| Subtotal | 8.7 | 5.2 | -40.2 | 15.0 | 7.3 | -51.3 |
| Cod | 1.6 | 12.4 | 669.7 | 1.3 | 9.7 | 632.4 |
| Halibut & Green. turbot | 0.9 | 0.3 | -64.2 | 2.0 | 0.6 | -68.1 |
| Other | 0.1 | 1.4 | 1,922.5 | 0.1 | 1.0 | 1,665.3 |
| Filletts | 0.4 | 0.4 | -0.6 | 0.7 | 0.2 | -69.3 |
| Minced, pollock, balls, cakes, and sticks | 3.0 | 1.9 | -36.4 | 3.3 | 2.3 | -31.5 |
| Canned | | | | | | |
| Salmon | | | | | | |
| chum | 0.9 | 1.5 | 59.3 | 1.5 | 2.1 | 38.0 |
| Pink | 8.2 | 12.5 | 52.9 | 15.3 | 20.7 | 35.8 |
| Sockeye | 15.5 | 20.6 | 32.7 | 37.8 | 53.1 | 40.6 |
| Other | 1.3 | 7.9 | 514.0 | 2.6 | 15.6 | 490.3 |
| Subtotal | 25.9 | 42.4 | 63.9 | 57.2 | 91.5 | 60.0 |
| Fish, other | 0.3 | 0.6 | 114.2 | 0.5 | 1.1 | 101.1 |
| Shellfish, all | <u>0.2</u> | <u>0.1</u> | <u>-43.7</u> | <u>0.4</u> | <u>0.2</u> | <u>-44.7</u> |
| Total | 41.1 | 64.8 | 57.7 | \$80.5 | \$113.8 | 41.4 |

Note : Discrepancies in totals are due to rounding.
Percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Appendix Table 10. --Pacific Northwest exports of edible fishery products to Canada by product, quantity (million lb), value (million dollars), and percent change from 1990 to 1991.

| Product | Quantity | | | Value | | |
|-----------------------|----------|------|---------|--------|--------|----------|
| | 1990 | 1991 | %change | 1990 | 1991 | % change |
| Whole or dressed | | | | | | |
| Salmon | | | | | | |
| Chinook | 0.3 | 0.1 | -55.5 | \$ 0.7 | \$ 0.3 | -53.7 |
| chum | 1.8 | 1.4 | -23.2 | 3.0 | 2.1 | -30.2 |
| Coho | 1.5 | 1.9 | 28.9 | 2.6 | 3.6 | 37.5 |
| Pink | 5.6 | 2.6 | -53.8 | 8.1 | 4.5 | -44.1 |
| Sockeye | 4.7 | 3.7 | -21.6 | 8.2 | 5.9 | -28.2 |
| Not specified | 1.3 | 1.0 | -21.4 | 2.6 | 2.5 | -2.1 |
| Subtotal | 15.2 | 10.7 | -29.3 | 25.2 | 18.9 | -24.9 |
| Halibut & | | | | | | |
| Green. turbot | 4.9 | 4.2 | -13.9 | 12.2 | 11.3 | -7.5 |
| Other flatfish | 0.4 | 0.3 | -27.1 | 0.5 | 0.5 | -3.8 |
| Herring | 4.3 | 4.8 | 11.3 | 2.6 | 2.2 | -16.8 |
| Cod | 0.7 | 2.2 | 227.7 | 0.9 | 2.3 | 164.7 |
| Other | 1.8 | 2.6 | 43.4 | 1.9 | 3.2 | 64.9 |
| Filletts | | | | | | |
| Cod | 0.4 | 0.5 | 22.0 | 0.6 | 0.9 | 42.0 |
| Halibut | 0.5 | 0.3 | -50.2 | 1.1 | 0.7 | -41.7 |
| Other | 3.5 | 3.5 | -.3 | 5.3 | 6.3 | 18.1 |
| Minced, meat, balls,, | 6.5 | 8.2 | 26.6 | 9.4 | 13.0 | 38.4 |
| Roe | 0.2 | 0.2 | -10.5 | 0.4 | 0.6 | 36.5 |
| Canned | | | | | | |
| S a l m o n | | | | | | |
| Pink | 4.0 | 1.7 | -58.1 | 7.7 | 3.0 | -61.1 |
| Sockeye | 1.7 | 2.2 | 30.8 | 4.6 | 5.0 | 9.2 |
| Other | 0.6 | 0.4 | -32.8 | 1.3 | 1.0 | -28.1 |
| Subtotal | 6.3 | 4.3 | -32.0 | 13.6 | 8.9 | -34.4 |
| Fish, other | 1.4 | 1.0 | -25.8 | 2.1 | 1.5 | -30.0 |
| Crab | 1.1 | 1.3 | 20.1 | 5.7 | 6.0 | 4.7 |
| Crabmeat | 0.4 | 0.4 | 7.7 | 0.8 | 0.9 | 8.4 |

Appendix Table 10.--Continued.

| Product | Quantity | | | Value | | |
|-------------------------|-------------------|-------------------|--------------------|-------------------|-------------------|--------------------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Shrimp | 3.3 | 3.1 | -5.3 | \$ 11.9 | \$11.9 | 0.7 |
| Shellfish, other | <u>4.6</u> | <u>5.2</u> | <u>13.9</u> | <u>6.1</u> | <u>6.8</u> | <u>11.5</u> |
| Total | 55.5 | 52.9 | -4.7 | \$100.6 | \$96.0 | -4.6 |

Note: Discrepancies in totals are due to rounding.
Percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Appendix Table 11. --Pacific Northwest exports of edible fishery products to the Federal Republic of Germany by product, quantity (million lb), value (million dollars), and percent change from 1990 to 1991.

| Product | Quantity | | | Value | | |
|--|------------|------------|-------------|------------|------------|-------------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Whole or dressed | | | | | | |
| Salmon | 1.2 | 0.8 | -29.8 | \$ 2.2 | \$ 1.4 | -34.8 |
| Cod | 7.8 | 5.9 | -23.9 | 5.8 | 4.4 | -24.9 |
| Other | 33.4 | 12.4 | -62.8 | 29.9 | 10.4 | -65.3 |
| Roe | 0.1 | 0.1 | 5.8 | 1.3 | 1.4 | 7.5 |
| Fillets | | | | | | |
| Pollock | -- | 12.5 | -- | -- | 11.2 | -- |
| Other | 8.6 | 0.7 | -91.8 | 7.4 | 0.8 | -89.4 |
| Subtotal | 8.6 | 13.2 | 52.9 | 7.4 | 12.0 | 61.8 |
| Minced, pollock, meat, balls, cakes, pudding | 2.6 | 7.2 | 181.8 | 2.6 | 8.0 | 204.1 |
| Fish, other | 0.2 | 0.0 | -85.4 | 0.5 | 0.3 | -28.3 |
| Shellfish, all | <u>0.1</u> | <u>0.1</u> | <u>75.8</u> | <u>0.2</u> | <u>0.2</u> | <u>14.3</u> |
| Total | 54.0 | 40.0 | -26.1 | \$50.0 | \$38.1 | -23.7 |

Note : Zero indicates less than 50,000 lb or \$50,000.
Discrepancies in totals are due to rounding.
Percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; Alaska Fish Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Appendix Table 12.--Pacific Northwest exports of edible fishery products to France by product, quantity (million lb), value (million dollars), and percent change from 1990 to 1991.

| Product | Quantity | | | Value | | |
|------------------|------------|------------|-------------|------------|------------|--------------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Whole or dressed | | | | | | |
| Salmon | | | | | | |
| Chinook | 0.3 | 0.2 | -32.0 | \$ 1.1 | \$ 0.5 | -59.2 |
| chum | 3.6 | 3.3 | -7.7 | 5.2 | 3.9 | -25.5 |
| Coho | 5.1 | 4.5 | -10.9 | 11.4 | 9.4 | -17.6 |
| Pink | 2.5 | 4.2 | 71.0 | 3.4 | 4.8 | 42.4 |
| Sockeye | 0.3 | 0.4 | 12.1 | 0.9 | 0.7 | -22.6 |
| Not specified | 0.1 | 0.8 | 427.4 | 0.2 | 1.7 | 609.2 |
| Subtotal | 12.0 | 13.4 | 12.4 | 22.2 | 20.8 | -6.0 |
| Other | 1.1 | 0.4 | -64.7 | 1.0 | 0.2 | -84.5 |
| Roe | 0.3 | 0.4 | 25.1 | 2.6 | 2.3 | -12.9 |
| Fillets | 1.4 | 3.6 | 147.4 | 1.3 | 3.9 | 209.4 |
| Minced | 0.7 | 1.9 | 170.5 | 0.6 | 2.7 | 354.3 |
| Canned | | | | | | |
| Salmon | 0.2 | 0.9 | 282.6 | 0.4 | 1.0 | 158.2 |
| Fish, other | 0.0 | 0.2 | 418.2 | 0.3 | 0.3 | 20.8 |
| Shellfish, all | <u>0.4</u> | <u>0.3</u> | <u>-6.4</u> | <u>1.5</u> | <u>1.3</u> | <u>-12.9</u> |
| Total | 16.2 | 21.2 | 30.9 | \$29.8 | \$32.5 | 9.1 |

Note: . Zero indicated less than 50,000 lb or \$50,000.
 Discrepancies in totals are due to rounding.
 Percentages are based on unrounded numbers.

Sources : U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; Alaska Fish Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Appendix Table 13. --Pacific Northwest exports of edible fishery products to Norway by product, quantity (million lb), value (million dollars), and percent change from 1990 to 1991.

| Product | Quantity | | | Value | | |
|-------------------------|------------|------------|-------------|------------|------------|-------------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Whole or dressed | | | | | | |
| Cod | 37.9 | 29.2 | -23.0 | \$27.4 | \$25.5 | -6.8 |
| Other | 2.5 | 0.1 | -94.8 | 1.8 | 0.2 | -87.3 |
| Cod, salted | -- | 3.2 | -- | -- | 4.4 | -- |
| Other | <u>0.5</u> | <u>0.8</u> | <u>70.6</u> | <u>0.5</u> | <u>0.7</u> | <u>49.6</u> |
| Total | 40.9 | 33.3 | -18.6 | \$29.7 | \$30.9 | 4.0 |

Note: Discrepancies in totals are due to rounding.
Percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; Alaska Fish Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Appendix Table 14. --Pacific Northwest exports of edible fishery products to Portugal by product, quantity (million lb), value (million dollars), and percent change from 1990 to 1991.

| Product | Quantity | | | Value | | |
|-------------------------|------------|------------|--------------|------------|------------|--------------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Whole or dressed | | | | | | |
| Cod | 4.2 | 13.5 | 225.5 | \$ 2.7 | \$10.8 | 306.0 |
| Other | 0.9 | 0.2 | -77.7 | 1.0 | 0.1 | -88.6 |
| Cod, salted | 10.6 | 11.4 | 7.8 | 14.3 | 17.3 | 21.0 |
| Other | <u>0.7</u> | <u>0.5</u> | <u>-20.1</u> | <u>0.8</u> | <u>0.2</u> | <u>-70.6</u> |
| Total | 16.3 | 25.7 | 57.2 | \$18.7 | \$28.4 | 52.0 |

Note: Discrepancies in totals are due to rounding.
Percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; Alaska Fish Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

Appendix Table 15. --Pacific Northwest exports of edible fishery products to Australia by product, quantity (million lb), value (million dollars), and percent change from 1990 to 1991.

| Product | Quantity | | | Value | | |
|-----------------|------------|------------|--------------|------------|------------|--------------|
| | 1990 | 1991 | % change | 1990 | 1991 | % change |
| Canned | | | | | | |
| Salmon | | | | | | |
| Pink | 3.8 | 3.4 | -10.3 | \$ 7.0 | \$ 5.3 | -24.4 |
| Sockeye | 1.7 | 1.9 | 10.1 | 5.1 | 5.3 | 3.4 |
| Other | 0.5 | 0.5 | 2.9 | 1.1 | 1.2 | 2.4 |
| Subtotal | 6.0 | 5.8 | -3.3 | 13.2 | 11.7 | -11.3 |
| Other | <u>0.6</u> | <u>0.1</u> | <u>-79.6</u> | <u>1.1</u> | <u>0.1</u> | <u>-89.3</u> |
| Total | 6.5 | 5.9 | -9.8 | \$14.4 | \$11.8 | -17.5 |

Note: Discrepancies in totals are due to rounding.
Percentages are based on unrounded numbers.

Sources: U.S. Dep. Commer., Bur. of the Census; data base from Natl. Mar. Fish. Serv., Fish. Stat. Div., Silver Spring, MD 20910; Alaska Fish. Sci. Cent., 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070.

RECENT TECHNICAL MEMORANDUMS

Copies of this and other NOAA Technical Memorandums are available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22167 (web site: www.ntis.gov). Paper and microfiche copies vary in price.

AFSC-

- 9 KARINEN, J. F., M. M. BABCOCK, D. W. BROWN, W. D. MACLEOD, JR., L. S. RAMOS, and J.W. SHORT. 1993. Hydrocarbons in intertidal sediments and mussels from Prince William Sound, Alaska, 1977-1980: Characterization and probable sources, 69 p. NTIS No. PB93-159093.
- 8 WING, B. L. 1993. Winter oceanographic conditions in the eastern Gulf of Alaska, January-February 1986, 53 p. NTIS No. PB93-158335.
- 7 ARMISTEAD, C. E., and D. G. NICHOL. 1993. 1990 bottom trawl survey of the eastern Bering Sea and continental shelf, 190 p. NTIS No. PB93-156677.
- 6 WOLOTIRA, R. J., JR., T. M. SAMPLE, S. F. NOEL, and C. R. ITEN. 1993. Geographic and bathymetric distributions for many commercially important fishes and shellfishes off the West Coast of North America, based on research survey and commercial catch data, 1912-84, 184 p. NTIS No. PB93-167682.
- 5 GUTTORMSEN, M., R. NARITA, J. GHARRETT, G. TROMBLE, and J. BERGER. 1992. Summary of observer sampling of domestic groundfish fisheries in the northeast Pacific Ocean and Eastern Bering Sea, 1990, 281 p. NTIS No. PB93-159085.
- 4 GUTTORMSEN, M., R. NARITA, and J. BERGER. 1992. Summary of U. S. observer sampling of joint venture fisheries in the northeast Pacific Ocean and Eastern Bering Sea, 1990, 78 p. NTIS No. PB93-127546.
- 3 JOHNSON, P. A., S. D. RICE, and M. M. BABCOCK (compilers). 1992. Impacts of oil pollution and Prince William Sound studies: Bibliography of 1960-91 publications and reports, Auke Bay Laboratory, 98 p. NTIS No. PB93-114064.
- 2 KAJIMURA, H., and E. SINCLAIR. 1992. Fur seal investigations, 1990, 192 p. NTIS No. PB93-109080.
- 1 MERRICK, R. L., D. G. CALKINS, and D. C. MCALLISTER. 1992. Aerial and ship-based surveys of Steller sea lions (*Eumetopias jubatus*) in southeast Alaska, the Gulf of Alaska, and Aleutian Islands during June and July 1991, 41 p. NTIS No. PB92-235928.

F/NWC-

- 216 ZENGER, H. H., JR., and M. F. SIGLER. 1992. Relative abundance of Gulf of Alaska sablefish and other groundfish based on National Marine Fisheries Service longline surveys, 1988-90, 103 p. NTIS No. PB92-222843.
- 215 KINOSHITA, R. K., B. M. K. BROOKE, L. E. QUEIROLO, and J. M. TERRY. 1992. Economic status of the groundfish fisheries off Alaska, 1990, 99 p. NTIS No. PB92-187699.
- 214 ANTONELIS, G. A. 1992. Northern fur seal research techniques manual, 47 p. NTIS No. PB92-191824.