

BIBLIOGRAPHIC INFORMATION

PB92-115971

Report Nos: NOAA-TM-NMFS-F/NWC-209

Title: Oregon, Washington, and Alaska Exports of Edible Fishery Products, 1990.

Date: Oct 91

Authors: R. K. Kinoshita, D. A. Colpo, and J. M. Terry.

Performing Organization: National Marine Fisheries Service. Seattle, WA. Alaska Fisheries Science Center.

Type of Report and Period Covered: Technical memo.

Supplementary Notes: See also PB91-104968.

NTIS Field/Group Codes: 98F, 96C

Price: PC A04/MF A01

Availability: Available from the National Technical Information Service,  
Springfield, VA. 22161

Number of Pages: 53p

Keywords: \*International trade, \*Fisheries, \*Oregon, \*Alaska. Washington(State), Shipping. Volume, Market value, Canada, Korea, Japan, Salmon.

Abstract: Oregon, Washington, and Alaska (defined in the report as the Pacific Northwest) exports of edible fishery products in 1990 increased 42% in quantity over 1989 to over 1.4 billion pounds (lb) or 640,000 metric tons (t). The value of these fishery exports increased by 18% to nearly \$2.1 billion principally due to the \$265 million (50%) increase in groundfish exports, the \$103 million (43%) increase in crab exports, and the \$55 million (6%) decrease in salmon exports. In 1990, salmon exports of \$823 million and groundfish exports of \$796 million, respectively, accounted for 39.8 and 38.5% of the total value of Pacific Northwest fishery exports. The value of Pacific Northwest exports comprised 74.6% of total U.S. edible fishery exports, down slightly from 76.7% in 1989.



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OREGON, WASHINGTON, AND ALASKA EXPORTS OF EDIBLE FISHERY  
PRODUCTS. 1990

by

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October 1991

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## ABSTRACT

Oregon, Washington, and Alaska (defined in this report as the Pacific Northwest) exports of edible fishery products in 1990 increased 42% in quantity over 1989 to over 1.4 billion pounds (lb) or 660,000 metric tons (t). The value of these fishery exports increased by 18% to nearly \$2.1 billion principally due to the \$265 million (50%) increase in groundfish exports, the \$103 million (43%) increase in crab exports, and the \$55 million (6%) decrease in salmon exports. In 1990, salmon exports of \$823 million and groundfish exports of \$796 million, respectively, accounted for 39.8 and 38.5% of the total value of Pacific Northwest fishery exports. This is the first time in many years that salmon did not account for more than 50% of the exports. The value of Pacific Northwest exports comprised 74.6% of total U.S. edible fishery exports, down slightly from 76.7% in 1989. In 1990, Pacific Northwest exports were shipped to 27 countries. The top five countries accounted for over 93% of the total. Increased trade with Japan, the Republic of Korea, the United Kingdom, and the Federal Republic of Germany accounted for most of the gain. Exports to Japan totaled \$1.6 billion or 77.7% of the total, up in value from \$1.4 billion in 1989. Canada was a distant second with \$100 million or 4.82% of the total exports, down from \$124.8 million in 1989. Pacific Northwest exports to the United Kingdom increased to \$80.5 million or 3.9% of the total exports, while shipments to the Republic of Korea rose to \$94.4 million from \$52.5 million in 1989 and accounted for 4.6% of the total.

Over-the-side deliveries by U.S. fishing vessels to foreign processing vessels (commonly called joint venture sales) off the Pacific Coast declined by more than one-half to 670.8 million lb (304,300 t), with an estimated value of \$46.3 million. These sales are not included in U.S. trade statistics. If they were included, Pacific Northwest exports of edible fishery products would total \$2.11 billion and would comprise 74.9% of U.S. fishery exports.

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## INTRODUCTION

Exports of edible fishery products from Oregon, Washington, and Alaska make a major contribution 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, summarizes joint venture sales, and updates the report of Kinoshita and Terry (1990).

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, and maintained by the National Marine Fisheries Service (NMFS). Fishery Statistics Division, Silver Spring, Maryland.

There are two approaches that can be taken to differentiate Pacific Northwest exports of edible fishery products from total U.S. fishery exports. The first method selects species or products attributable to species harvested in Oregon, Washington, and Alaska waters. Two serious problems arise in defining regional exports on the basis of species or product. First a number of "species categories" are found in both Atlantic and Pacific Oceans, such as cod, flatfish, herring, crab, shrimp, and squid. Second, there are significant exports of products not identified by species but placed into various aggregate categories generally listed as "other."

The approach used in this report employs export data from the Oregon, Washington, and Alaska customs districts. This method covers the major exports of salmon, groundfish, crabs, and herring. Also included are categories of "other" exports: whole or dressed fish, minced fish, fish balls, cakes and pudding, and fish sticks. This approach is also 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 18 items that were likely to have originated from other parts of the United States. They accounted for less than 0.3% of the total value of Pacific Northwest exports and were removed from the data summarized in this report. Most fishery products are shipped from the general area where they are harvested or processed, provided there are shippers servicing the destination countries on a regular basis. Two major products shipped from the Pacific Northwest, whole or dressed Pacific salmon and frozen crab accounted for 95.6 and 95.5%, respectively, of total U.S. exports of these two products. 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 new Harmonized System (HS) of coding imports and exports was put in place in 1989, superseding the old Tariff Schedule of the United States (TSUSA). The new HS product codes, in most cases, provide greater detail by species, product, and condition. The new HS has 179 categories compared to only 62 under the old TSUSA. There are, nonetheless, several important examples 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 halibut, and walleye pollock roe was grouped with "other" fish roe. A separate category was not provided for pollock surimi. In fact, pollock surimi now appears in several different categories.

After deleting products unlikely to originate from the Pacific Northwest, as well as products not exported in 1990, there were 128 products remaining. Changes were made in 1990 to correct some of these identification problems, but



changes are not expected to appear in the data until 1991.

The new and old product codas are shown in Appendix Tables 1 and 2, respectively. Scientific names of species identified in this report are listed in Appendix Table 3. Note that totals and percentages in the tables may not always agree because of rounding, and that percentage changes may not agree precisely because they were calculated from unrounded data.

#### PACIFIC NORTHWEST EXPORTS

The value of Pacific Northwest exports of edible fishery products in 1990 was \$2.07 billion, an increase of 18% from 1989, and accounted for 74.4% 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 just over 1.4 billion pounds (lb) (640,000 metric tons (t)). an increase of 42% over 1989 (Table 2).

The upward trend, which started in 1985, continued (Fig. 1). Growth in 1990 was principally the result of increased groundfish and crab exports (Table 2). Since 1984, Pacific Northwest fishery exports have increased by 217% in quantity, 219% in nominal value, and 161% in constant dollar value (deflated by the Gross National Product implicit price deflator).

In 1990, joint venture sales (i.e., sales by U.S. fishing vessels to foreign processing vessels in the U.S. exclusive economic zone (EEZ)) fell by more than one-half from 1989 to 1990 and reached their lowest level since 1983 as the domestic fishery continued to supplant the joint venture fishery. Joint venture sales are not included in official U.S. merchandise trade data. If joint venture sales of fish harvested by U.S. vessels were added to fishery exports, the 1990 Pacific Northwest exports would total \$2.11 billion (Fig. 2) and would account for 76.7% of total U.S. exports of edible fishery products.

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, 1981-90.

Year	<u>Excluding joint ventures</u>			<u>Including joint ventures</u>		
	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	2,068	2,779	74.4	2,114	2,831	74.7

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, 1990, Silver Spring, MD 20910.

Table Z.--Pacific Northwest exports of edible fishery products. percent change in quantity (million lbs) and value (million dollars) from 1989 to 1990.

Product	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Fresh and frozen						
Whole or dressed						
Salmon						
Coho	33.9	27.2	-20	\$ 67.6	\$ 53.9	-20
Chum	36.3	20.7	-43	50.1	29.8	-40
Pink	47.2	33.7	-29	50.8	42.2	-17
Sockeye	187.5	200.4	+7	506.7	487.8	-3
Other	12.9	8.6	-34	32.1	23.7	-26
Subtotal	317.8	290.6	-9	707.3	637.5	-10
Groundfish						
Cod	41.2	160.6	+290	40.6	115.9	+186
Flatfish	31.6	51.3	+62	44.0	36.1	-18
Pollock	8.1	3.2	-59	4.4	2.4	-44
Sablefish	48.4	42.1	-13	81.5	71.0	-13
Other	82.6	163.6	+99	76.9	136.6	+78
Subtotal	211.7	425.9	+101	247.3	362.1	+46
Halibut	17.4	19.1	+10	25.6	33.2	+30
Herring	48.7	67.8	+39	32.0	51.0	+59
Fillets and steaks						
Cod	1.1	2.6	+128	1.4	3.0	+114
Halibut	1.7	2.0	+22	2.4	4.5	+84
Salmon	7.4	2.0	-73	16.3	4.8	-70
Other	25.1	14.7	-41	24.5	15.3	-37
Other						
Minced	28.8	255.1	+785	27.8	194.1	+598
Balls, cakes, pudding	53.9	11.1	-79	52.6	8.4	-84
Sticks, minced	48.9	74.2	+52	46.1	54.7	+19
Canned						
Salmon						
Pink	16.4	21.1	+29	32.6	37.6	+16
Sockeye	13.5	21.5	+59	36.7	53.1	+45
Other	4.7	4.1	-13	8.9	8.1	-9
Subtotal	34.6	46.7	+35	78.1	98.8	+26

Table 2.--Continued.

Product	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Roe						
Herring	20.4	11.3	-45	\$ 24.8	\$ 19.5	-21
Salmon	18.1	16.5	-9	71.3	77.5	+9
Other	23.1	37.5	+62	73.0	104.6	+43
Cod, salted	12.7	11.4	-10	13.4	14.7	+9
Crab	79.8	106.3	+33	239.6	343.3	+43
Shrimp	5.1	4.1	-20	16.1	14.3	-12
Sea urchin	2.1	2.6	+21	8.8	8.0	-9
N.E.S.	<u>38.1</u>	<u>9.5</u>	<u>-75</u>	<u>38.9</u>	<u>18.1</u>	<u>-53</u>
Total	996.6	1,411.0	+42	\$1,747.3	\$2,067.6	+18

N.E.S. - Not elsewhere specified.

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.

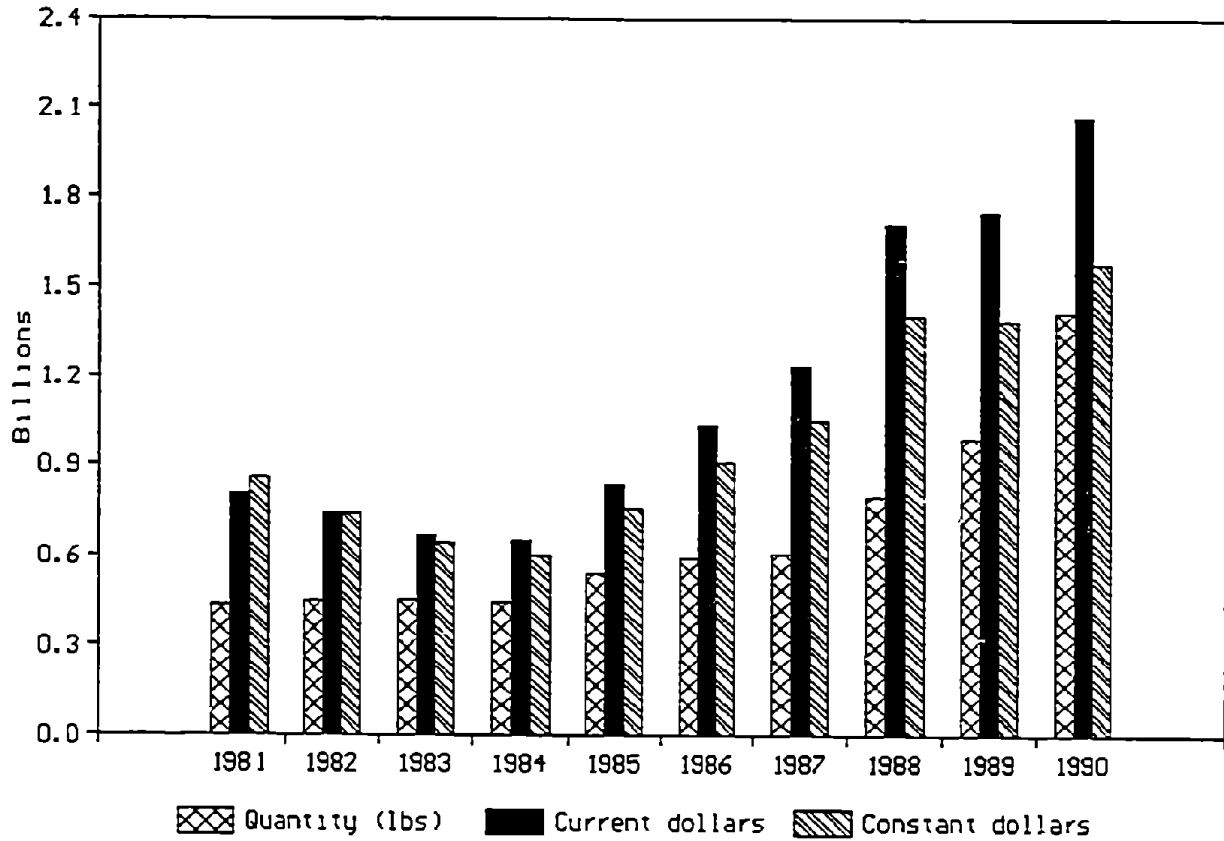


Figure 1.--Quantity, current and constant dollar values of Pacific Northwest exports of edible fishery products, 1981-90. Current dollar value was deflated by Gross National Product implicit price deflator to compute constant dollar value.

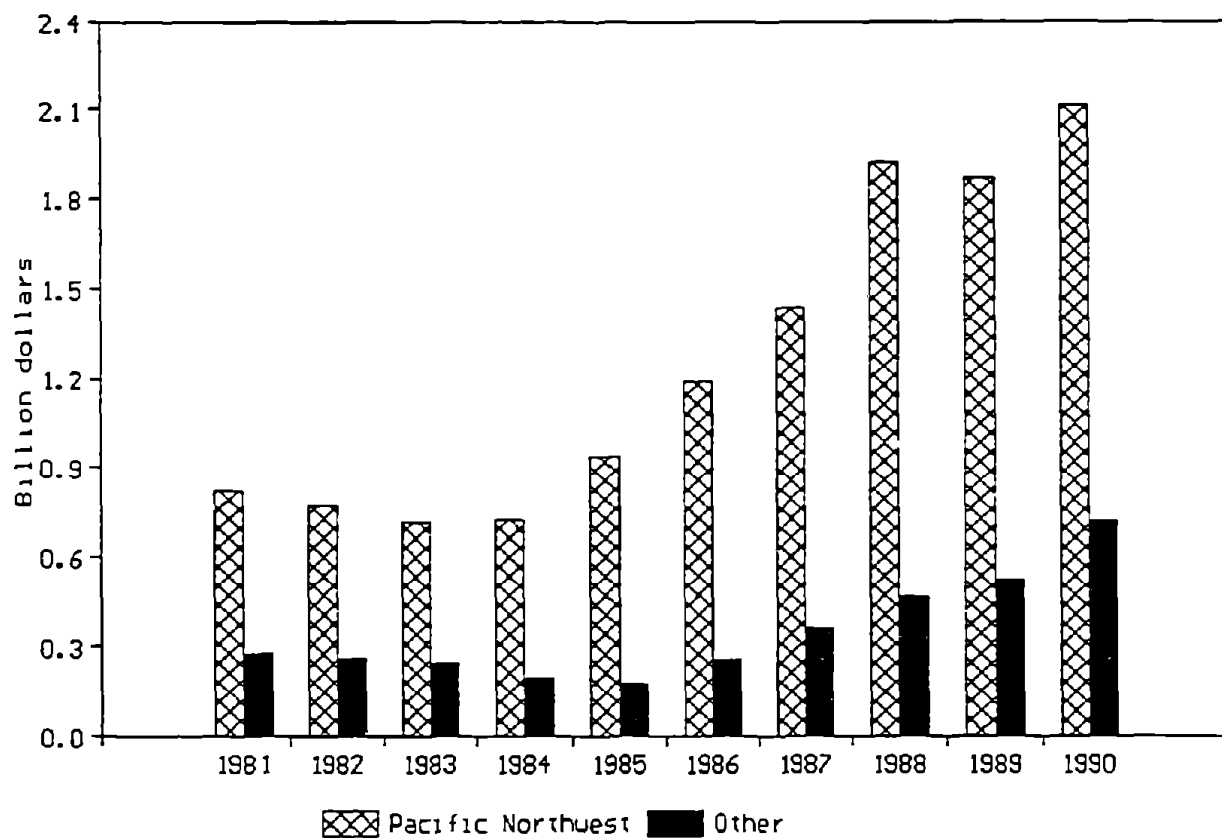


Figure 2. --Pacific Northwest and total U.S. exports of edible fishery products, 1981-90. Includes joint venture sales.

### Major Products

The Pacific Northwest exports of edible fishery products, by major products and product groups for 1989-90, are presented in Table 2. Table 3 sizes Pacific Northwest exports in more general groups from 1981 through 1990. Exports of Pacific salmon products amounted to \$823 million and accounted for 39.8% of fishery exports. Prior to 1990, salmon exports had accounted for more than 50% of total exports. Salmon exports were followed closely by "other" finfish, a category that aggregates groundfish species and products. Groundfish exports increased by nearly 50% between 1989 and 1990 to \$796 million, or 38.5% of the region's 1990 exports of edible fish. Crab products ranked third with a value of \$345 million or 16.7% of the total, followed by herring products with \$71 million or 3.4% of the total.

Pacific Northwest exports by product group, including joint venture sales, are shown in Figure 3. The quantity and value of total salmon exports in 1990 fell by 6% to 357.9 million lb with a value of \$822.8 million, reflecting in part the 3% decline in the 1990 Alaska salmon catch of 690 million lb from 713 million lb in 1989. The quantity of whole or dressed salmon exported in 1990 declined 9% from 1989, while its value declined by 10% as average prices were 1.4% below a year earlier. At the same time, canned salmon exports were up by 35% in quantity and 26% in value from 1989. Export data on total salmon, whole or dressed salmon, and canned salmon are presented in Appendix Tables 4, 5, and 6, respectively.

Exports of fresh, frozen, canned, cured, and processed groundfish (species other than salmon, herring, and nongroundfish species) increased by 50% from \$531 million in 1989 to \$796 million in 1990. The rapidly growing groundfish exports were made up of \$116 million of cod, \$71 million of sablefish, \$136.6 million of other whole or dressed fish, \$104.6 million of fish roe, and

Table 3.--Pacific Northwest exports of edible fishery products or product groups (millions of dollars) and percent of total, 1981-90.

Year	Salmon	Herring	Other finfish*	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	823	71	796	345	33	2,068
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	39.8	3.4	38.5	16.7	1.6	100.0

\* Other fresh, frozen, canned, 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.



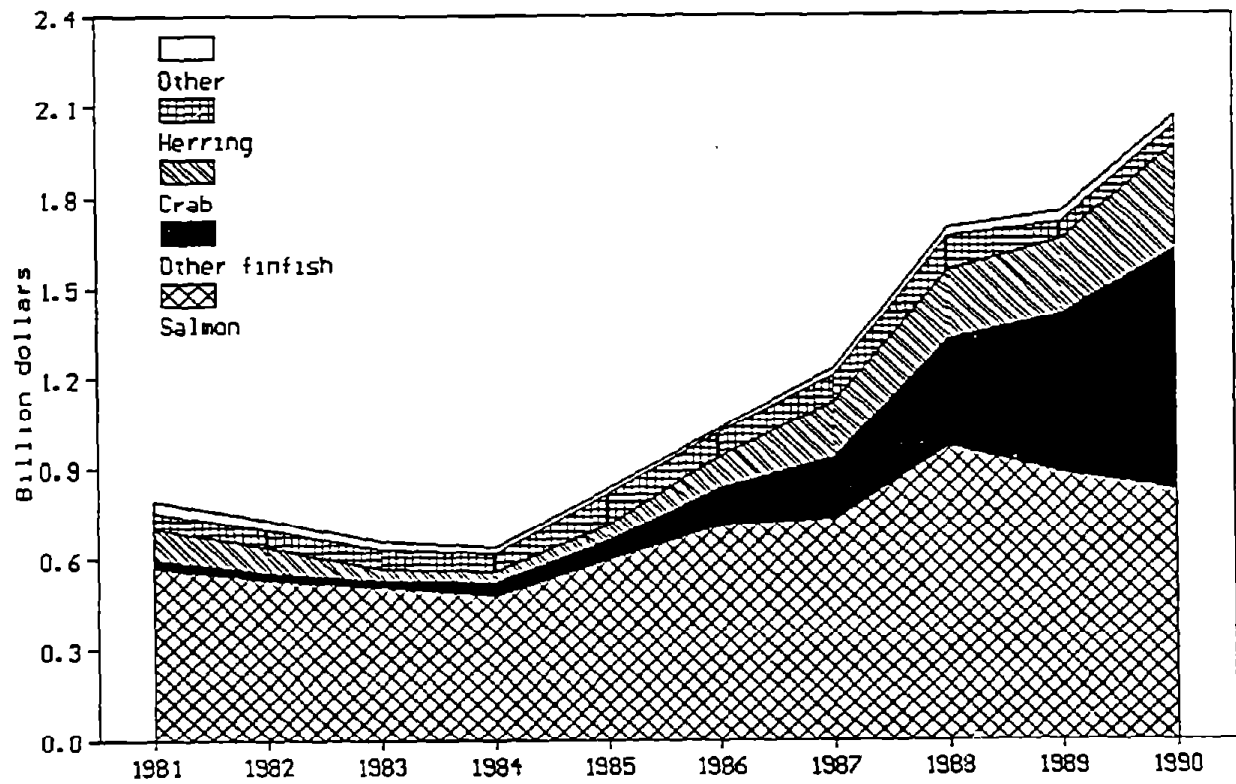


Figure 3. --Pacific Northwest exports of edible fishery products by major product groups, 1981-90. Includes joint venture sales.

\$194 million of minced fish. The increases in this category reflect the growth of the domestic catcher-processor and mothership fleet and shoreside plants (Terry et al. 1991).

The Alaska catch of walleye pollock in 1990 hit a record 3.15 billion lb (1.4 million t). There were 24 at-sea surimi processors and 6 shoreside plants operating in 1990 (Freese 1990), with an estimated surimi production of 381 million lb (172.700 t), 722 greater than the 1989 production (Gharrett 1991). Based on Japanese trade data, 294 million lb (133.200 t) of surimi were shipped to Japan from the United States (Atkinson 1991). Because there is no category for surimi in U.S. trade statistics, it is reported in five different categories, mostly as minced fish. Minced fish exports increased from 28.8 million lb in 1989 to 255 million lb in 1990 and had a value of \$194 million.

Exports of crab and crabmeat amounted to 106 million lb in 1990 and were valued at \$343 million, up 33% by quantity and 43% by value from 1989. Catches of king crab and snow (Tanner) crab (bairdi) improved from 1989 but are still below 1977-80 levels. Catches of snow crab (opilio) continue to be strong. Exports of fresh and frozen whole crab as well as sections were grouped into one category beginning in 1989, but they are expected to be reported by species starting in 1991.

#### Major Importers

Pacific Northwest exports of edible fishery products were sold to 27 countries in 1990, with Japan as the leading buyer. The top five countries purchased over 93% of the total (Tables 4 and 5, Fig. 4). There were significant increases in exports of groundfish to the Republic of Korea, the Federal Republic of Germany, and Norway in 1990.

Table 4.--Quantity (million lbs) and value (million dollars) of Pacific Northwest edible fishery products exported to the leading countries for 1989 and 1990 and percent change. 1989-90.

Country	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Japan	785.7	1,025.2	+30	\$1,426.1	\$1,605.8	+13
Canada	80.1	55.1	-31	124.8	100.0	-20
Rep. of Korea	48.2	125.5	+161	52.5	94.4	+80
United Kingdom	26.6	41.1	+55	56.5	80.5	+42
Fed. Rep. of Germany	2.4	54.0	+2,149	6.2	50.0	+702
France	10.5	16.2	+53	18.0	29.8	+66
Norway	4.5	40.9	+805	4.1	29.7	+620
Portugal	12.7	16.3	+28	13.5	18.7	+38
Netherlands	4.7	8.7	+85	8.2	15.0	+83
Australia	7.3	6.5	-10	16.2	14.4	-11
Sweden	3.3	4.4	+35	6.4	6.6	+3
Taiwan	3.7	5.3	+42	3.1	5.4	+75
Belgium and Luxembourg	2.2	2.8	+25	3.9	5.3	+35
Thailand	0.8	2.5	+233	1.0	2.8	+183
Hong Kong	1.1	1.1	-2	2.1	2.1	-1
Denmark	0.9	1.9	+110	1.5	2.1	+45
Ireland	0.1	0.8	+849	0.2	1.3	+729
Other	1.8	2.4	+34	3.0	3.6	+17
Total	996.6	1,411.0	+42	\$1,747.3	\$2,067.6	+18

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 5.--Value (million dollars) and percent of Pacific Northwest edible fishery products exported to major countries, 1982-90.

Country	1982	1983	1984	1985	1986	1987	1988	1989	1990
Value									
Japan	\$540.8	\$455.5	\$451.2	\$639.9	\$ 776.8	\$ 936.7	\$1,401.3	\$1,426.1	\$1,605.8
Canada	55.3	62.0	54.4	60.8	71.6	92.5	90.4	124.8	100.0
Rep. of Korea	13.1	12.5	10.1	18.0	26.7	31.5	35.9	52.5	94.4
United Kingdom	30.9	52.6	51.1	43.5	71.1	58.4	66.0	56.5	80.5
France	40.4	24.8	25.1	24.1	34.4	48.9	31.2	18.0	29.8
Australia	8.2	12.5	13.2	11.9	12.5	14.3	15.3	16.2	14.4
Other	<u>50.1</u>	<u>48.0</u>	<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>
Total	\$738.8	\$667.9	\$647.8	\$836.7	\$1,033.7	\$1,231.8	\$1,700.1	\$1,747.3	\$2,067.6
Percent									
Japan	73.2	68.2	69.6	76.5	75.1	76.0	82.4	81.6	77.7
Canada	7.5	9.3	8.4	7.3	6.9	7.5	5.3	7.2	4.8
Rep. of Korea	1.8	1.9	1.6	2.1	2.6	2.6	2.1	3.0	4.6
United Kingdom	4.2	7.8	7.9	5.2	6.9	4.7	3.9	3.2	3.9
France	5.4	3.7	3.9	2.9	3.3	4.0	1.9	1.0	1.4
Australia	1.1	1.9	2.0	1.4	1.2	1.2	0.9	0.9	0.7
Other	<u>6.8</u>	<u>7.2</u>	<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>
Total	100.0	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.

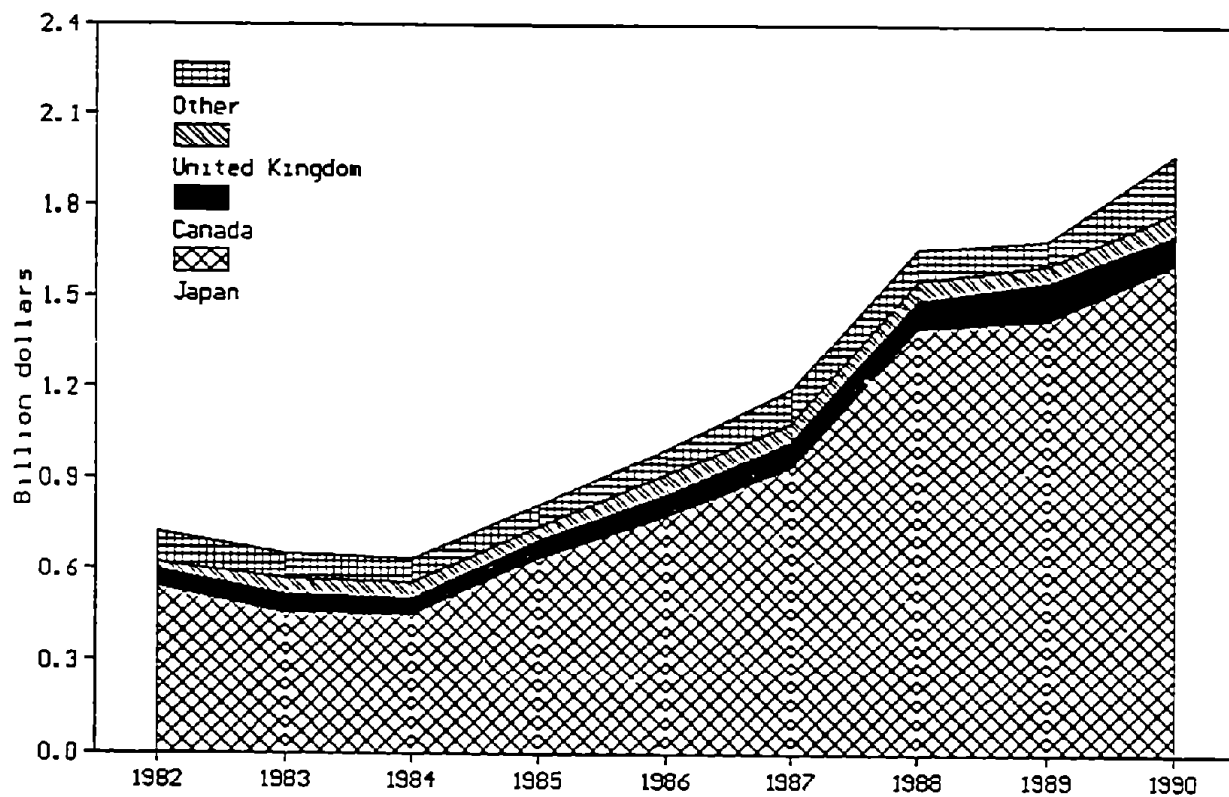


Figure 4.--Pacific Northwest exports of edible fishery products by country of destination, 1982-90.

Japan's imports of edible fishery products from the Pacific Northwest increased by 13% to \$1.6 billion and accounted for 77.7% of the total value of the Pacific Northwest's fishery exports. Purchases by Japan in the 1982-90 period have ranged from 68 to 82% of Pacific Northwest fishery exports. In 1990, the Japanese were the leading buyers of whole or dressed Pacific salmon (87%). whole Pacific herring (92%). sablefish (97%). crab (95%). minced fish (84%). and total fish roe (88%) (Appendix Table 7). Exports of the most important category sold to Japan, whole or dressed salmon, fell by 6% in quantity but fell by 10% in value to \$557 million. Increased exports of whole or dressed groundfish. fish roe, crab, and minced fish contributed to the overall increase.

U.S. exports to Japan increased in value by 13%. while quantities grew by 30%. These disproportionate increases resulted from lower prices in the United States and a weaker Japanese market. The value of the U.S. dollar relative to the Japanese yen increased 4.9% in 1990 to an annual average of 144.8 yen from 138 yen in 1989. The value of Pacific Northwest exports to Japan was 232 billion yen in 1990, up 18% from 1989.

Canada was a distant second. with purchases of \$100 million or 4.8% of the total Pacific Northwest fishery exports, down from \$125 million or 7.2% in 1989. Decreased purchases of whole or dressed salmon, halibut, and canned salmon led to the 31% drop in quantity and 20% decline in value (Appendix Table 8).

Exports to the Republic of Korea increased 161% in quantity and 80% in value from 1989 to 125 million lb valued at \$94.4 million in 1990 (Appendix Table 9). Increased purchases of whole or dressed cod, minced fish, and fish roe contributed to the increase.

Dropping from the third to fourth was the United Kingdom, with purchases of \$80.5 million or 3.9% of the total (Appendix Table 10). The quantity rose

55%, while the value advanced by 42% from 1989. Canned salmon exports were 25.9 million lb, up 52%. while the value increased by 44% to \$57.2 million. The United Kingdom was the leading buyer of canned salmon, with 58% of the canned salmon exports.

The Federal Republic of Germany leaped from 10th place to 5th in 1990. with shipments of \$50 million, up from only \$6.2 million in 1989, a 700% increase from the previous year (Appendix Table 11). The strong European market for groundfish was responsible for the increase in exports of groundfish products, which amounted to \$45.8 million or 90% of total exports to the Federal Republic of Germany.

Exports to France ranked sixth, increasing 53% in quantity and 66% in value to 16.2 million lb and \$29.8 million. respectively (Appendix Table 12). This increase was due to the 61% rise in the value of whole or dressed Pacific salmon. Whole or dressed salmon comprised 72%. or \$21.4 million of fishery exports to France.

Exports to Norway in 1990 jumped 620% to seventh place with \$29.7 million compared to \$4.1 million in 1989. The increase in whole or dressed cod from less than \$1.9 million in 1989 to \$27.4 million contributed to the gain.

Rounding out the top 10 countries were Portugal, the Netherlands. and Australia. with \$18.7. \$15.0, and \$14.4 million, respectively. Exports to Portugal were concentrated in cod products, mostly salted cod. An 83% increase in exports to the Netherlands was attributable to the more than doubling of canned salmon and a 53% increase of frozen Pacific salmon. Australia was in the 10th position, with \$14.4 million, down 11% from 1989 (Appendix Table 12). Nearly 92% or \$13.2 million, reflected exports of canned salmon. Australia was the third leading buyer of canned salmon, with 13% 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 are shown in Tables 6, 7, and 8. By volume, 1.1 billion lb or 77.5% of exports in 1990 exited through the Alaska customs district, compared to 309 million lb or 21.9% from Washington, and 9 million lb or 0.6% from Oregon. By value, \$1.4 billion or 68.3% of the total was from Alaska, \$635 million or 30.7% was from Washington, and \$20 million or 1% was from Oregon (Fig. 5).

Tables 6 and 7 also indicate that \$1.7 billion or 83.5% of Pacific Northwest fishery exports were destined for Pacific Rim countries compared to the \$1.5 billion or 86% in 1989. Exports to Europe, spurred by increases in pollock and cod sales, doubled to \$241 million or 11.7% of the total, up from \$120 million or 6.9% of total exports, with \$145 million shipped from Washington and \$96 million from Alaska.

## JOINT VENTURES

Joint venture sales are catches by U.S. fishermen that are transferred to foreign processing vessels in the U.S. EEZ. Joint venture sales are not classified as fishery exports in official U.S. trade statistics. The joint venture catch in the U.S. EEZ off the Pacific Coast increased from 553 million lb (250,975 t) in 1982 to 3.3 billion lb (1.49 million t) in 1987 (Table 9). Joint venture catch has declined dramatically since 1988, amounting to 671 million lb (304,270 t) and \$46.3 million in 1990 as the catch allocated to the domestic processing sector increased (NMFS 1991) (Figs. 6 and 7). The joint venture walleye pollock catch declined by 92% to 49 million lb between 1989 and 1990, while flatfish catches dropped by 49% to 219.6 million lb. The catch of Pacific whiting declined 16% to 377 million lb in 1990 and accounted for 56% of



Table 6.--Quantity (thousands of lbs). 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	975,579	112,896	4,567	--	1,093,042
Washington	182,366	75,936	50,506	317	309,125
Oregon	8,685	66	44	--	8,795
Total	1,166,630	188,898	55,117	317	1,410,962
Value					
Alaska	\$1,308,746	\$ 96,308	\$ 7,461	--	\$1,412,515
Washington	397,055	145,042	92,434	\$617	625,148
Oregon	19,837	79	67	--	19,983
Total	\$1,725,638	\$241,429	\$99,795	\$617	\$2,067,646
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.

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 7---Quantity (thousands of lbs), value (thousands of dollars), and percent of total 1989 value of Pacific Northwest edible fishery products exported by customs district to area or country of destination. 1989.

District	Asia*	Europe	Canada	Other	Total
Quantity					
Alaska	634,000	15,323	20,365	--	669,688
Washington	202,035	53,427	59,741	290	315,493
Oregon	11,164	177	--	38	11,379
Total	847,199	68,927	80,106	328	996,560
Value					
Alaska	\$1,020,962	\$ 15,081	\$ 18,816	--	\$1,054,859
Washington	456,498	104,879	105,979	\$420	667,776
Oregon	24,402	229	--	54	24,685
Total	\$1,501,862	\$120,189	\$124,795	\$474	\$1,747,320
Percent of total value					
Alaska	58.4	0.9	1.1	--	60.4
Washington	26.1	6.0	6.1	0.0	38.2
Oregon	1.4	0.0	--	0.0	1.4
Total	86.0	6.9	7.1	0.0	100.0

\* Includes Australia.

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 8.--Pacific Northwest exports of edible fishery products by customs districts in percentage of the total for each year from 1977 to 1990.

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

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.

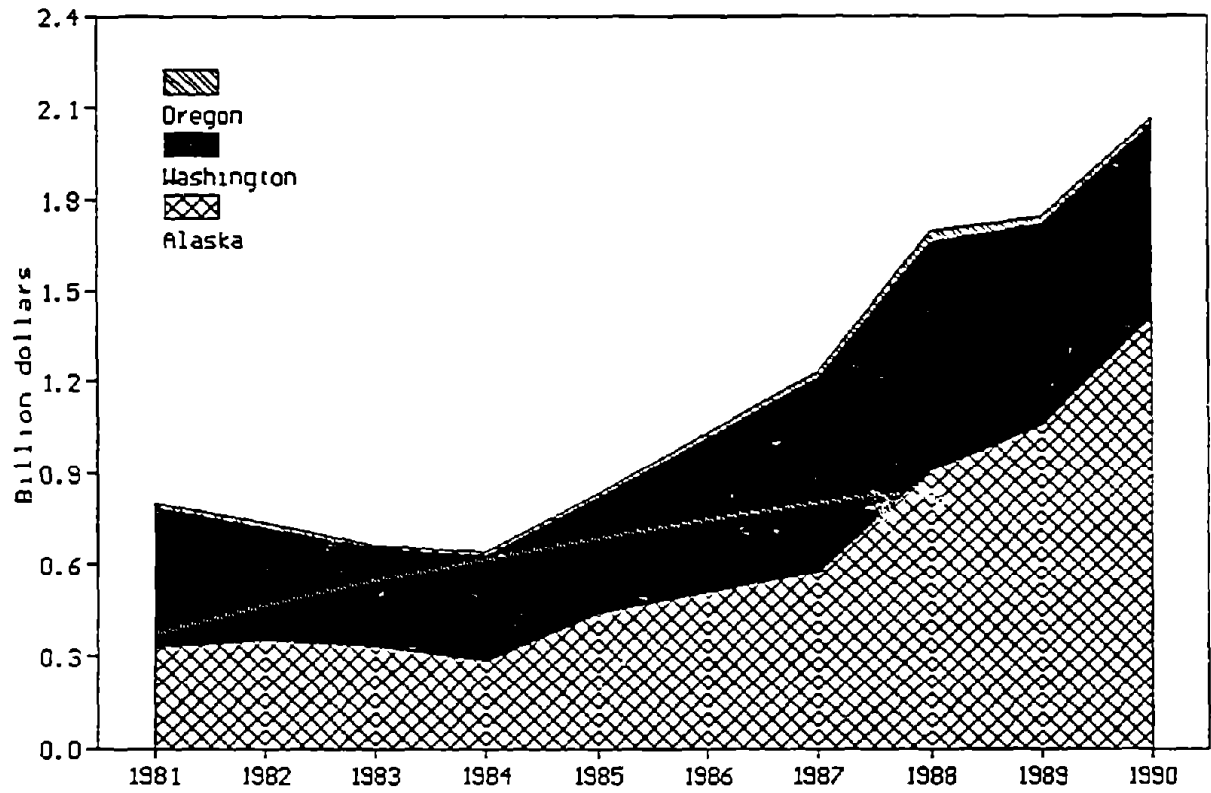


Figure S.--Pacific Northwest exports of edible fishery products by custom districts, 1981-90.

Table 9.--Pacific Coast joint venture catch by species, quantity (million lbs), value (million dollars), and percentage of the value, 1982-90.

Species	1982	1983	1984	1985	1986	1987	1988	1989	1990	
Quantity										
Atka mackerel	27.5	24.9	80.5	87.5	70.5	66.3	43.2	0.1	--	
Pacific cod	30.1	37.0	78.1	96.0	144.0	132.6	245.7	98.4	17.8	
Flatfish	58.8	81.6	118.2	386.2	480.2	491.2	728.3	427.0	219.6	
Walleye pollock	284.1	624.2	979.1	1,356.7	1,979.1	2,353.0	1,821.9	634.4	49.4	
Rockfish	0.1	5.3	6.2	1.8	1.7	2.4	4.6	0.5	--	
Sablefish	0.3	0.9	1.9	0.7	1.1	0.7	0.1	0.0	--	
Pacific whiting	148.7	159.0	173.9	69.9	180.0	233.7	277.3	448.8	376.9	
Other	<u>3.7</u>	<u>4.4</u>	<u>8.8</u>	<u>19.1</u>	<u>17.4</u>	<u>13.9</u>	<u>26.4</u>	<u>10.7</u>	<u>7.2</u>	
Total	553.3	937.3	1,446.6	2,017.9	2,873.9	3,293.8	3,147.7	1,619.9	670.8	Σ
Value										
Atka mackerel	\$ 1.9	\$ 1.5	\$ 5.6	\$ 6.1	\$ 4.8	\$ 4.8	\$ 3.6	\$ 0.0	--	
Pacific cod	3.0	3.5	8.5	9.3	14.5	15.3	30.4	12.5	\$ 1.8	
Flatfish	4.0	5.3	7.6	24.2	28.9	33.3	53.8	33.8	23.5	
Walleye pollock	16.0	26.1	41.6	59.8	95.3	134.3	116.1	40.4	2.1	
Rockfish	0.0	0.0	0.1	0.1	0.1	0.3	0.7	0.1	--	
Sablefish	0.0	0.1	0.4	0.1	0.1	0.0	0.0	0.0	--	
Pacific whiting	10.4	10.2	11.4	3.8	8.8	11.7	14.6	23.6	18.5	
Other	<u>0.3</u>	<u>0.3</u>	<u>0.7</u>	<u>1.1</u>	<u>0.8</u>	<u>0.6</u>	<u>1.1</u>	<u>0.4</u>	<u>0.3</u>	
Total	\$35.6	\$47.0	\$75.9	\$104.5	\$153.2	\$200.4	\$220.3	\$110.8	\$46.3	

Table 9.--Continued.

Species	1982	1983	1984	1985	1986	1987	1988	1989	1990
Percentage of value									
Atka mackerel	5.3	3.2	7.4	5.8	3.1	2.4	1.7	0.0	--
Pacific cod	8.4	7.5	11.2	8.9	9.5	7.6	13.8	11.3	3.8
Flatfish	11.2	11.3	10.0	23.2	18.8	16.6	24.4	30.5	50.9
Walleye pollock	45.0	55.5	54.8	57.2	62.2	67.0	52.7	36.5	4.6
Rockfish	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.1	--
Sablefish	0.0	0.2	0.5	0.1	0.1	0.0	0.0	0.0	--
Pacific whiting	29.2	21.7	15.0	3.6	5.7	5.8	6.6	21.3	40.1
Other	<u>0.9</u>	<u>0.6</u>	<u>0.9</u>	<u>1.1</u>	<u>0.5</u>	<u>0.3</u>	<u>0.5</u>	<u>0.3</u>	<u>0.6</u>
Total	100.0	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: Pacific Marine Fisheries Commission, Pacific Fisheries Information Network, 7600 Sand Point Way N.E., BIN C15700, Seattle, WA 98115-0070; and Natl. Mar. Fish. Serv., Fisheries of the United States, 1990, Silver Spring, MD 20910.

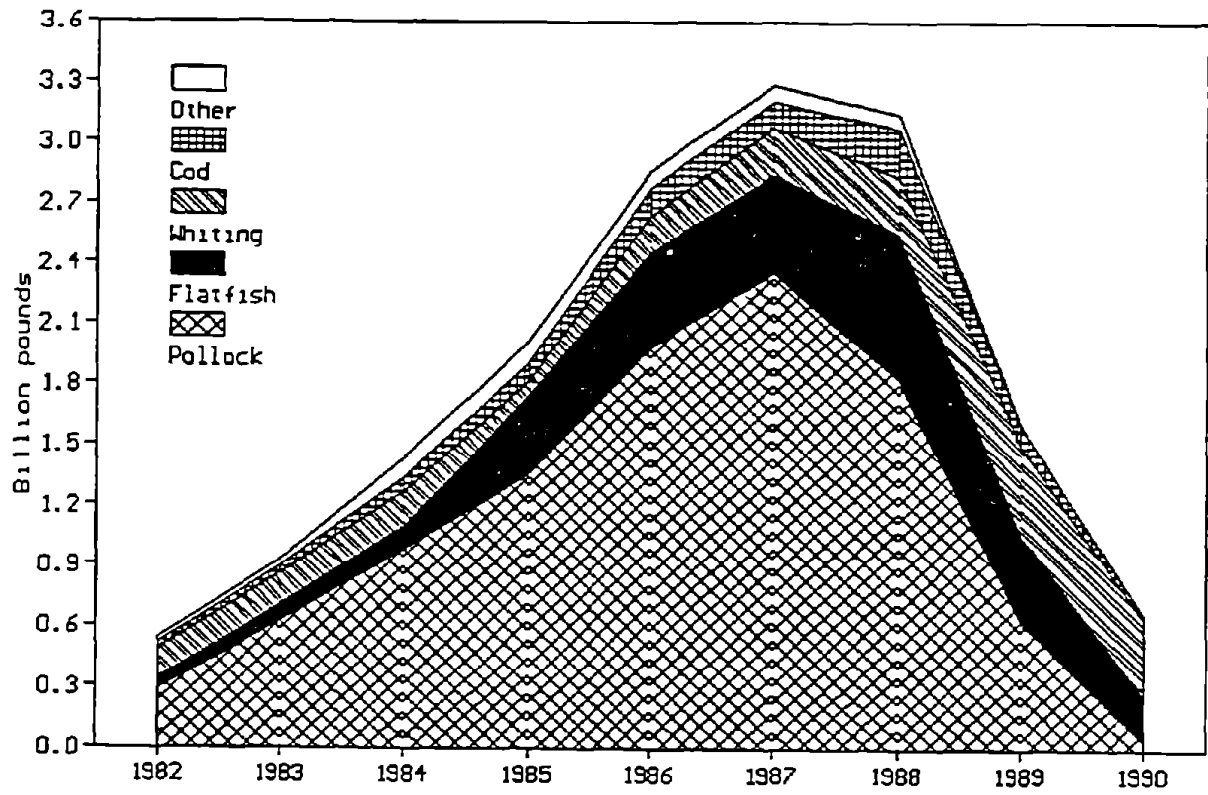


Figure 6.--Pacific coast joint venture catch by species, 1982-90.

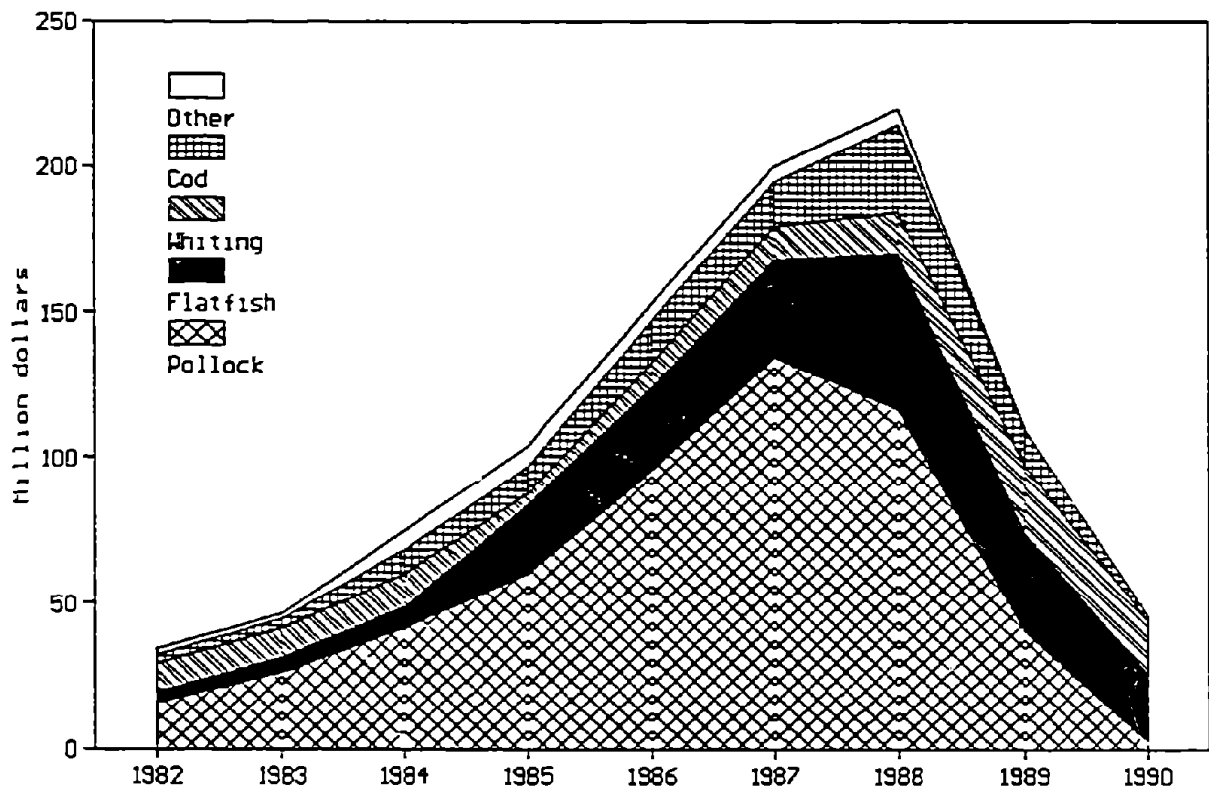


Figure 7.--Value of the Pacific coast joint venture catch by species, 1982-90.



the total joint venture catch.

The value of the Pacific Coast joint venture catch increased annually from \$35.6 million in 1982 to \$220.3 million in 1988, and then declined to \$46.3 million by 1990.

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APPENDIX

Appendix Table 1. --Export categories of edible fishery products  
for 1989-90.

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Product description

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Trout, excluding fillet, fresh/chill  
 Salmon, chinook, steaks, fresh/chill  
     chinook, other prep. excl. fillet, fresh/chill  
     chum, steaks, fresh/chill  
     chum, other prep. excl. fillet, fresh/chill  
     pink, steaks, fresh/chill  
     pink, other prep. excl. fillet, fresh/chill  
     sockeye, steaks, fresh/chill  
     sockeye, other prep. excl. fillet, fresh/chill  
     coho, steaks, fresh/chill  
     coho, other prep. excl. fillet, fresh/chill  
     Atlantic, Danube, steaks, fresh/chill  
     Atlantic, Danube other prep. excl. fillet, fresh/chill  
 Salmonidae, nspf, fresh/chill excl. fillet  
 Flatfish, halibut, Greenland turbot, fresh/chill  
     plaice, fresh/chill  
     sole, fresh/chill  
     nspf, fresh/chill  
 Tuna, albacore, fresh/chill  
 Herring, fresh/chill  
 Cod, fresh/chill  
 Atlantic pollock, fresh/chill  
 Mackerel, fresh/chill  
 Shark, dogfish, fresh/chill  
 Eels, fresh/chill  
 Sablefish, fresh/chill excluding fillet  
 Fish, nspf, fresh/chill excluding fillet  
 Fish, nspf, liver & roe, fresh/chill  
 Salmon, chinook, steaks, frozen  
     chinook, other prep. excl. fillet, frozen  
     chum, steaks, frozen  
     chum, other prep. excl. fillet, frozen  
     pink, steaks, frozen  
     pink, other prep. excl. fillet, frozen  
     sockeye, steaks, frozen  
     sockeye, other prep. excl. fillet, frozen  
     coho, steaks, frozen  
     coho, other prep. excl. fillet, frozen  
     Pacific, nspf, steaks, frozen  
     Pacific, nspf, other prep. excl. fillet, frozen  
 Trout excluding fillet, frozen  
 Salmon, Atlantic, Danube steaks, frozen  
 Salmon, Atlantic, Danube other prep. excl. fillet, frozen

Appendix Table 1.--Continued.

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Product description

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Salmonidae, nspf, steaks, frozen  
 Salmonidae, nspf, other prep. excl. fillet, frozen  
 Flatfish, halibut, Greenland turbot, frozen  
     plaice, frozen  
     sole, frozen  
     nspf, frozen  
 Tuna, albacore, frozen  
 Herring, frozen  
 Cod, frozen  
 Atlantic pollock, frozen  
 Mackerel, frozen  
 Shark, dogfish, frozen  
 Eels, frozen  
 Sea bass, frozen  
 Whiting, hake, frozen  
 Sablefish, frozen  
 Fish, nspf, frozen  
 Sturgeon roe, frozen  
 Herring roe, frozen  
 Salmon, nspf, roe, frozen  
 Fish, nspf, liver & roe, frozen  
 Fish, nspf, fillet, fresh/chill/frozen  
 Cod fillet, frozen  
 Flatfish, halibut fillet, frozen  
 Fish, nspf, fillet, frozen  
 Fish, nspf, fillet, other  
 Fish meal for human consumption  
 Salmon, nspf, roe, cured  
 Herring roe, cured  
 Fish, nspf, liver & roe, cured  
 Fish, nspf, fillet, dried/salted/brined not smoked  
 Salmon, Pacific, Atlantic, Danube, smoked incl. fillet  
 Herring, smoked incl. fillet  
 Fish, nspf, smoked incl. fillet  
 Cod, dried whether or not salted, not smoked  
 Fish, nspf, dried whether or not salted, not smoked  
 Herring, salted not dried or smoked  
 Cod, salted not dried or smoked  
 Fish, nspf, salted not dried or smoked  
 Shrimp, frozen  
 Crab, nspf, frozen  
 Crawfish, freshwater, frozen  
 Crustaceans, nspf, frozen

Appendix Table 1.--Continued.

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Product description
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Shrimp, live/fresh/chill/dried/salted/brined
Crabmeat, nspf, fresh/chill/dried/salted/brined
Crab, nspf, live/fresh/chill/dried/salted/brined
Crustaceans, nspf, live/fresh/chill/dried/salted/brined
Oysters, live/fresh/chill/frozen/dried/salted/brined
Scallops, live/fresh/chill
Scallops, frozen/dried/salted/brined
Mussels, live/fresh/chill
Mussels, frozen/dried/salted/brined
Squid ( <u>loligo</u> ), live/fresh/chill
Squid, nspf, live/fresh/chill
Cuttlefish, live/fresh/chill
Squid ( <u>loligo</u> ), frozen/dried/salted/brined
Squid, nspf, frozen/dried/salted/brined
Cuttlefish, frozen/dried/salted/brined
Octopus, live/fresh/chill
Octopus, frozen/dried/salted/brined
Snail, other than sea snail, live/fresh/chill/frozen/salted
Sea urchin, live/fresh/chill
Molluscs, nspf, live/fresh/chill
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
Fish sticks, similar products, prepared/preserved
Fish, nspf, prepared/preserved
Analog product containing shellfish
Fish balls, cakes, pudding, prepared/preserved
Fish sticks, similar products, prepared/preserved
Fish sticks, similar products
Caviar, caviar substitute, prepared/preserved
Analog product containing crab
Crabmeat, king in airtight container
snow ( <u>opilio</u> ) in airtight container
snow, other in airtight container

Appendix Table 1.--Continued.

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Product description

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Crabmeat, 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  
 Analog product containing shrimp  
 Shrimp, frozen in airtight containers  
     frozen  
     canned  
     other preparations  
 Analog product containing lobster  
 Analog product containing crustaceans, nspf  
 Crustaceans, nspf, prepared/preserved  
 Analog product containing molluscs/other, nspf  
 Clam, prepared/preserved  
 Scallops, prepared/preserved  
 Squid (loligo), prepared/preserved  
 Squid, nspf, prepared/preserved  
 Molluscs, nspf, prepared/preserved

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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.--Export categories of edible fishery products from the Pacific Northwest for 1987-88. and the years for which data have been collected for that category.

Product description	Year
Herring, whole or dressed, fresh or frozen	1981-88
Pollock, whole or dressed, fresh or frozen	1981-88
Sablefish, whole or dressed, fresh or frozen	1981-88
Salmon, Chinook, whole or dressed, fresh or frozen	1981-88
Chum, whole or dressed, fresh or frozen	1981-88
Pink, whole or dressed, fresh or frozen	1981-88
Silver, whole or dressed, fresh or frozen	1986-88
Sockeye, whole or dressed, fresh or frozen	1981-88
Unclassified, whole or dressed, fresh or frozen	1986-88
Unclassified, whole or dressed, fresh or frozen	1986-88
Halibut, whole or dressed, fresh or frozen	1986-88
Other fish, whole or dressed, fresh or frozen	1986-88
Salmon fillets, steaks, portions, fresh or frozen	1978-88
Herring fillets, steaks, portions, fresh or frozen	1981-88
Halibut fillets, steaks, portions, fresh or frozen	1986-88
Cod fillets, steaks, portions, fresh or frozen	1986-88
Other fish fillets, steaks, portions, fresh or frozen	1986-88
Cod, dried, salted, or smoked	1986-88
Salmon, dried, salted, or smoked	1986-88
Other fish, dried, salted, or smoked	1986-88
Salmon, canned, Chum	1981-88
Pink	1981-88
Sockeye	1981-88
Other	1981-88
Other canned fish	1978-88
Fish in airtight containers but not canned	1978-88
Fish sticks and portions, breaded or batter coated	1978-88
Herring roe	1981-88
Salmon roe	1981-88
Other fish roe	1981-88
Fish balls, cakes, pudding, etc., fresh or frozen	1978-88
Shrimp, fresh or frozen	1985-88
Scallops, fresh or frozen	1986-88
King crab, frozen	1978-88
Snow crab, <u>opilio</u> , frozen	1986-88
Snow crab, other, frozen	1986-88
Dungeness, crab, frozen	1986-88
Crabs, other, frozen	1986-88
Shellfish, other, fresh or frozen	1986-88
Shellfish, other, canned	1985-88
Shellfish, other, includes cured not canned	1978-88

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 3.--Scientific names of species identified in this report:.

Common name	Scientific name
<b>FISH</b>	
Cod, Pacific	<u>Gadus macrocephalus</u>
Flounders and soles	<u>Pleuronectidae</u> family
Halibut, Pacific	<u>Hippoglossus stenolepis</u>
Herring, Pacific	<u>Clupea harengus pallasii</u>
Mackerel, Atka	<u>Pleurogrammus monopterygius</u>
Perch, Pacific ocean	<u>Sebastes alutus</u>
Pollock, walleye	<u>Theragra chalcogramma</u>
Rockfish	<u>Sebastes</u> and <u>Sebastolobus</u> species
Sablefish	<u>Anoplopoma fimbria</u>
Salmon, Pacific	<u>Oncorhynchus</u> species
Chinook	<u>O. tshawytscha</u>
Chum	<u>O. keta</u>
Coho	<u>O. kisutch</u>
Pink	<u>O. gorbuscha</u>
Sockeye	<u>O. nerka</u>
Turbot, Greenland	<u>Reinhardtius hippoglossoides</u>
Whiting (hake), Pacific	<u>Merluccius productus</u>
<b>CRUSTACEANS</b>	
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 4. --Pacific Northwest exports of all product forms of salmon by country of destination, quantity (million lbs), value (million dollars), and percent change from 1989 to 1990.

Country	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Japan	283.1	260.4	-8	\$706.5	\$637.7	-10
United Kingdom	24.4	34.7	+42	53.9	72.6	+35
Canada	45.3	21.9	-52	67.0	39.8	-41
France	8.5	12.2	+44	13.9	22.6	+63
Netherlands	4.3	8.5	+100	7.5	14.5	+94
Australia	7.0	6.2	-12	15.6	13.6	-13
Belgium and Luxembourg	1.9	2.4	+31	3.5	4.6	+29
Sweden	2.1	3.3	+55	3.0	4.3	+44
Fed. Rep. of Germany	0.8	1.3	+53	1.4	2.5	+79
Rep. of Korea	0.7	1.3	+99	1.0	2.5	+149
Thailand	0.6	1.7	+208	0.6	1.6	+183
Denmark	0.7	1.2	+57	1.2	1.5	+24
Ireland	0.1	0.8	+849	0.2	1.3	+729
Hong Kong	0.6	0.6	-6	0.8	1.0	+15
Other	1.0	1.3	+30	2.2	2.7	+22
Total	381.1	357.8	-6	\$878.4	\$822.8	-6

Note: Zero indicates less than 50,000 lb.  
 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 Nat. 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 5.--Pacific Northwest exports of whole or dressed salmon by country of destination, quantity (million lbs), value (million dollars), and percent change from 1989 to 1990.

Country	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Japan	258.1	242.7	-6	\$621.0	\$557.1	-10
Canada	35.8	14.5	-60	45.3	24.0	-47
France	8.0	11.6	+45	13.3	21.4	+61
United Kingdom	7.2	8.7	+19	14.0	15.0	+7
Sweden	2.0	3.3	+61	2.7	4.2	+53
Netherlands	1.5	2.3	+52	2.4	3.7	+53
Belgium and Luxembourg	0.9	1.1	+21	1.9	2.5	+32
Fed. Rep. of Germany	0.8	1.1	+41	1.3	2.0	+53
Rep. of Korea	0.6	1.1	+71	1.0	1.9	+96
Thailand	0.5	1.7	+230	0.5	1.6	+237
Denmark	0.7	1.0	+43	1.1	1.3	+10
Hong Kong	0.6	0.4	-23	0.8	0.7	-7
Other	0.9	1.1	+17	1.9	2.1	+13
Total	317.8	290.6	-9	\$707.3	\$637.5	-10

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

Sources: U.S. Dep. Commr., 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 6. --Pacific Northwest exports of canned salmon by country of destination, quantity (million lbs), value (million dollars), and percent change from 1989 to 1990.

Country	Quantity			Value		
	1989	1990	% change	1989	1990	% change
United Kingdom	17.0	25.9	+52	\$39.6	\$57.2	+44
Canada	7.7	6.3	-18	17.2	13.6	-21
Australia	6.3	6.0	-5	14.4	13.2	-8
Netherlands	2.4	6.1	+151	4.6	10.6	+130
Belgium and Luxembourg	0.9	1.3	+47	1.6	2.0	+32
Ireland	0.0	0.6	+1,803	0.1	1.1	+1,355
Other	<u>0.3</u>	<u>0.5</u>	<u>+67</u>	<u>0.7</u>	<u>1.1</u>	<u>+51</u>
Total	34.6	46.7	+35	\$78.1	\$98.8	+26

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 7.--Pacific Northwest exports of edible fishery products to Japan by product, quantity (million lbs), value (million dollars), and percent change from 1989 to 1990.

Product	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Whole or dressed						
Salmon						
Chinook	7.6	4.6	-39	\$ 21.4	\$ 16.1	-25
Chum	24.9	10.4	-58	34.2	14.5	-58
Pink	20.1	16.2	-20	21.7	18.1	-17
Coho	24.5	18.2	-26	49.8	35.2	-29
Sockeye	178.1	192.5	+8	488.3	471.3	-3
Unclassified	2.9	0.8	-71	5.7	1.9	-67
Subtotal	258.1	242.7	-6	621.0	557.1	-10
Groundfish						
Cod	32.1	73.4	+129	35.9	60.4	+68
Flatfish	29.1	40.1	+38	41.8	31.0	-26
Mackerel	3.3	18.8	+473	1.6	11.7	+653
Pollock	5.9	0.5	-91	3.2	0.4	-89
Sablefish	47.5	37.8	-20	80.7	68.6	-15
Other	75.8	99.9	+32	72.8	84.7	+16
Subtotal	193.7	270.6	+40	235.9	256.7	+9
Halibut	9.1	12.2	+34	10.3	16.9	+65
Herring	44.2	60.7	+37	30.3	46.8	+54
Other	1.7	0.6	-65	2.1	0.9	-57
Fillets and steaks						
Cod	0.3	0.7	+119	0.5	0.8	+70
Halibut	0.5	1.2	+131	0.6	2.6	+344
Salmon	5.9	0.9	-84	13.3	2.4	-82
Other	19.2	0.4	-98	16.9	0.9	-95
Subtotal	25.9	3.2	-88	31.2	6.7	-78
Smoked and salted	4.6	0.8	-82	4.7	0.9	-82
Canned or prepared	0.3	0.2	-11	1.7	1.5	-11
Roe						
Herring	15.9	10.7	-33	21.5	19.1	-11
Salmon	17.9	16.3	-9	70.2	77.1	+10
Other	18.1	30.8	+70	54.4	80.5	+48
Subtotal	52.0	57.9	+11	146.1	176.7	+21

Appendix Table 7.--Continued.

Product	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Other						
Minced	18.3	213.7	+1,069	17.8	163.3	+817
Fish meal for human	18.5	--	-100	12.6	--	-100
Balls, cakes, pudd.	40.2	3.0	-92	39.4	2.3	-94
Fish sticks, p/pres.	5.9	2.6	-56	7.4	1.6	-78
Fish sticks, other	35.8	52.5	+46	30.0	33.4	+11
Subtotal	118.7	271.8	+129	107.1	200.6	+87
Crab and crabmeat	73.8	100.1	+36	223.1	326.8	+46
Sea urchin	0.9	0.9	+1	5.6	6.5	+16
Shellfish, other	<u>2.6</u>	<u>3.2</u>	<u>+25</u>	<u>6.9</u>	<u>7.5</u>	<u>+9</u>
Total	785.7	1,025.2	+30	\$1,426.1	\$1,605.8	+13

p/pres. - Prepared or preserved.

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 8. --Pacific Northwest *exports* of edible fishery products to Canada by product. quantity (million lbs), value (million dollars), and percent change from 1989 to 1990.

Product	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Whole or dressed						
Salmon						
Chinook	1.0	0.3	-67	\$ 2.3	\$ 0.7	-67
Chum	4.0	1.8	-55	4.8	3.0	-37
Coho	3.5	1.5	-57	5.7	2.6	-55
Pink	19.0	5.6	-71	16.9	8.1	-52
Sockeye	7.7	4.7	-39	14.4	8.2	-43
Unclassified	0.6	0.6	+2	1.3	1.4	+9
Subtotal	35.8	14.5	-60	45.3	23.9	-47
Halibut	7.3	4.9	-34	12.8	12.2	-4
Herring	2.0	4.3	+117	0.8	2.6	+242
Other	3.5	4.3	+23	4.4	5.4	+22
Fillets and steaks	6.7	6.1	-9	9.9	9.3	-6
Roe	2.1	0.2	-88	3.0	0.4	-85
Canned						
Salmon						
Pink	3.1	4.0	+29	5.5	7.7	+41
Sockeye	4.1	1.7	-59	10.8	4.6	-58
Other	0.4	0.6	+36	0.9	1.3	+51
Subtotal	7.7	6.3	-18	17.2	13.6	-21
Other fish	1.7	5.5	+214	2.6	8.6	+234
Crab and crabmeat	3.3	1.1	-65	9.1	5.9	-34
Shrimp	3.2	3.3	+2	9.9	11.9	+20
Shellfish, other	<u>6.8</u>	<u>4.6</u>	<u>-32</u>	<u>9.9</u>	<u>6.1</u>	<u>-38</u>
Total	80.1	55.1	-31	\$124.8	\$100.0	-20

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 Republic of Korea by product, quantity (million lbs), value (million dollars), and percent change from 1989 to 1990.

Product	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Whole or dressed						
Groundfish						
Cod	5.1	33.6	+565	\$ 2.2	\$16.4	+652
Flatfish	1.6	10.7	+564	1.5	4.5	+207
Pollock	0.6	1.7	+174	0.3	1.1	+249
Mackerel	0.1	2.8	+2,193	0.1	1.6	+1,662
Sablefish	0.4	3.9	+761	0.4	2.0	+422
Other	1.2	7.3	+521	0.6	3.5	+461
Subtotal	9.1	60.0	+561	5.0	29.0	+476
Herring	2.4	2.5	+4	0.9	1.4	+62
Salmon	0.6	1.1	+71	1.0	1.9	+96
Other	0.3	0.2	-33	0.3	0.3	+2
Filletts and steaks	1.3	1.1	-13	1.2	1.2	+8
Other						
Minced	5.6	32.1	+478	5.1	21.4	+317
Fish meal for human consumption	2.5	--	-100	1.9	--	-100
Fish balls, cakes, puddings	12.1	7.6	-37	11.5	5.6	-51
Sticks	5.6	11.5	+103	7.0	9.0	+28
Other	0.0	0.3	+1,183	0.0	0.1	+504
Roe	7.2	6.3	-12	15.2	20.2	+33
Crab	1.4	1.3	-10	3.4	1.7	-49
Shellfish, other	<u>0.1</u>	<u>1.6</u>	<u>+2,263</u>	<u>0.1</u>	<u>2.5</u>	<u>+1,902</u>
Total	48.2	125.2	+161	\$52.5	\$94.4	+80

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 the United Kingdom by product, quantity (million lbs). value (million dollars), and percent change from 1989 to 1990.

Product	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Whole or dressed						
Salmon						
Chum	1.6	1.8	+7	\$ 2.1	\$ 2.5	+20
Coho	1.3	0.9	-28	3.1	1.6	-48
Pink	2.5	3.1	+20	5.2	5.0	-4
Sockeye	1.3	1.7	+32	3.1	4.7	+50
Other	0.5	1.2	+162	0.5	1.2	+147
Subtotal	7.2	8.7	+19	14.0	15.0	+7
Halibut	0.3	0.9	+204	0.6	2.0	+245
Other	0.1	1.7	+1,951	0.1	1.4	+1,954
Fillets, stk. & other	0.5	0.4	-9	0.6	0.7	+32
Minced	1.2	2.1	+80	1.0	2.0	+100
Canned						
Salmon						
Chum	2.7	0.9	-65	5.0	1.5	-70
Pink	7.0	8.2	+17	14.7	15.3	+4
Sockeye	6.6	15.5	+135	18.3	37.8	+107
Other	0.7	1.1	+54	1.6	2.4	+50
Subtotal	17.0	25.9	+52	39.6	57.2	+44
Fish, other	0.3	1.2	+379	0.4	1.8	+350
Shellfish, all	<u>0.1</u>	<u>0.2</u>	<u>+234</u>	<u>0.3</u>	<u>0.4</u>	<u>+24</u>
Total	26.6	41.1	+55	\$56.5	\$80.5	+42

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 lbs), value (million dollars), and percent change from 1989 to 1990.

Product	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Whole or dressed						
Salmon	0.8	1.1	+41	\$1.3	\$ 2.0	+56
Cod	0.1	7.8	+7,058	0.1	5.8	+6,067
Other	0.3	33.4	+11,662	0.3	29.9	+11,116
Filletts and steaks	0.5	8.7	+1,532	0.7	7.6	+1,035
Minced	0.3	2.5	+690	0.5	2.5	+384
Other	0.0	0.3	+1,350	0.2	0.5	+118
Roe	0.2	0.1	-25	2.2	1.3	-40
Shellfish, all	<u>0.2</u>	<u>0.1</u>	<u>-56</u>	<u>0.9</u>	<u>0.2</u>	<u>-77</u>
Total	2.4	54.0	+2,149	\$6.2	\$50.0	+702

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 12.--Pacific Northwest exports of edible fishery products to France by product, quantity (million lbs). value (million dollars). and percent change from 1989 to 1990.

Product	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Whole or dressed						
Salmon						
Chinook	0.1	0.3	+143	\$ 0.3	\$ 1.0	+276
Chum	3.0	3.6	+18	4.6	5.2	+13
Pink	2.0	2.4	+22	2.3	3.3	+41
Coho	2.8	4.9	+75	5.8	10.9	+89
Other	0.1	0.5	+273	0.4	1.1	+202
Subtotal	8.0	11.6	+45	13.3	21.4	+61
Other	0.7	1.1	+49	0.6	1.0	+67
Filletts and steaks	0.8	1.8	+128	1.2	2.0	+68
Minced	0.9	0.7	-18	0.7	0.6	-19
Other	0.0	0.3	+9,067	0.0	0.6	+1,726
Roe	0.1	0.3	+114	2.1	2.6	+25
Shellfish, all	<u>0.0</u>	<u>0.4</u>	<u>+3,630</u>	<u>0.0</u>	<u>1.5</u>	<u>+5,024</u>
Total	10.5	16.2	+53	\$18.0	\$29.8	+66

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 Australia by product, quantity (million lbs). value (million dollars), and percent change from 1989 to 1990.

Product	Quantity			Value		
	1989	1990	% change	1989	1990	% change
Canned						
Salmon						
Pink	4.1	3.8	-9	\$ 8.5	\$ 7.0	-18
Sockeye	1.9	1.7	-9	5.4	5.1	-5
Other	0.3	0.5	+77	0.5	1.1	+119
Subtotal	6.3	6.0	-5	14.4	13.2	-8
Fish, other	0.8	0.5	-42	1.4	0.9	-35
Shellfish, all	<u>0.1</u>	<u>0.1</u>	<u>-50</u>	<u>0.4</u>	<u>0.2</u>	<u>-44</u>
Total	7.3	6.5	-10	\$16.2	\$14.4	-11

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.