

Executive Summary

Alaska Seafood Industry

Sector Report

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Introduction

The 1980s saw rapid and remarkable change in the Alaska seafood industry. Salmon landings and revenues reached all-time highs. The crab and halibut fisheries rebounded. And in the biggest change of the decade, American fishermen and processors took over Alaska's offshore fisheries and the billions of pounds of groundfish harvests that had previously gone to foreign vessels.

As Figure 1 shows, the domestic catch of groundfish off Alaska increased from virtually nothing in 1980 to more than 4.5 billion pounds by the late 1980s. That huge increase in domestic groundfish harvests meant Alaska's overall domestic seafood harvest quadrupled between 1980 and 1990.

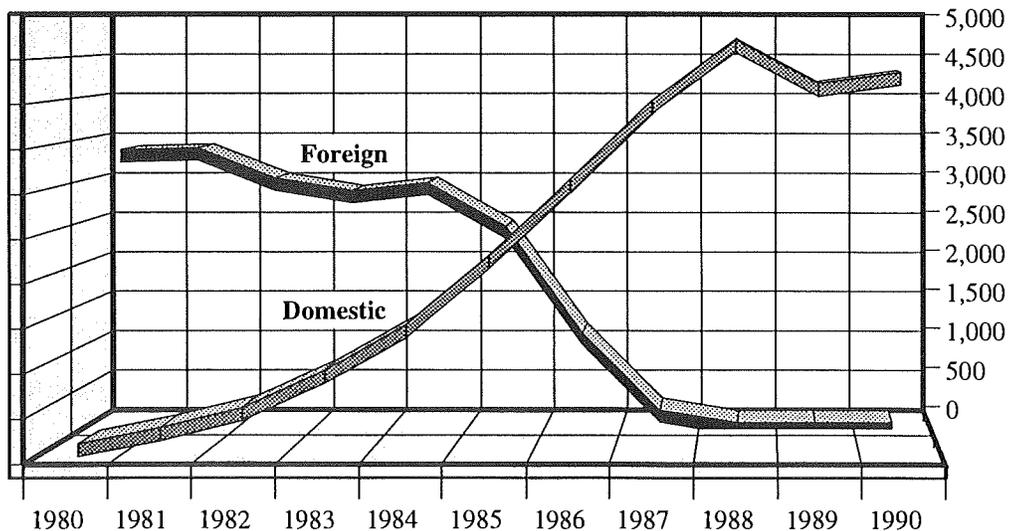
Alaska ranked among the top ten seafood producers in the world in the 1980s. Figure 2 shows Alaska harvests over the decade as compared with those of the entire U.S. and some other major fishing nations. Nearly 3 percent of world harvests, and half of U.S. harvests, came from Alaska waters in recent years.

The seafood industry has always been important to the state's economy, and in the 1980s it provided more jobs and a bigger payroll than any other resource industry. Close to one in ten Alaska adults spent at least some time commercial fishing in 1989, and throughout the 1980s Alaska residents bought about 80 percent of commercial fishing permits and around 65 percent of crew licenses for Alaska fisheries. (For brevity, throughout this publication we use "fishermen" to refer to both men and women who fish.)

Table 1 shows that the seafood industry (including both harvesting and processing) contributed 7 percent of total personal income in Alaska in 1984, and much more than that in coastal regions with the richest fisheries. And if we consider just income from Alaska's private basic industries—those that drive the economy by producing goods or services for export—the seafood industry contributed more than one-quarter of Alaska's private basic income in 1984, and much bigger shares in the Southwest, Gulf Coast, and Southeast regions.

Alaska's commercial fisheries stretch from the southeast panhandle along the Gulf of Alaska and the Aleutian chain and up the southwest and northern coasts. Figure 3 shows locations of major Alaska fisheries.

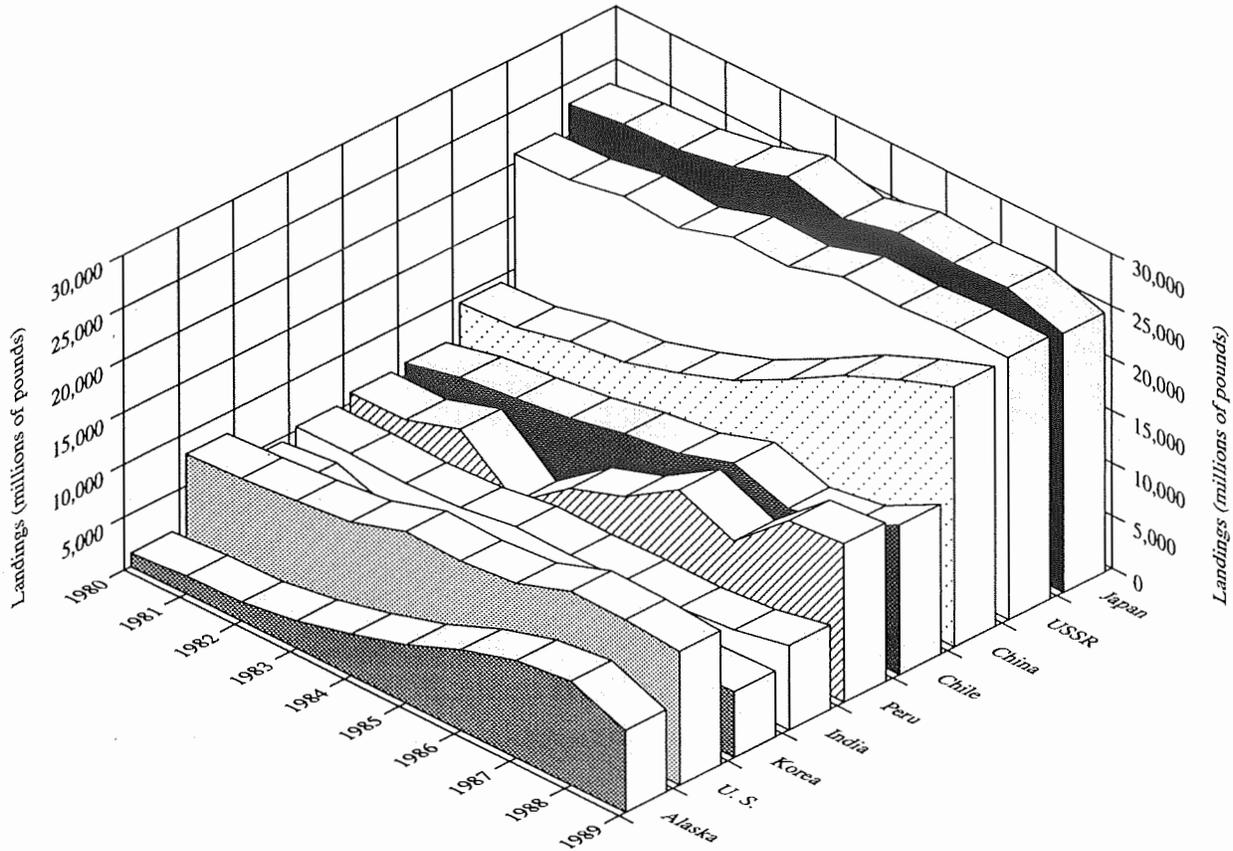
Figure 1. Domestic* and Foreign Groundfish Harvests Off Alaska, 1980-1990
(In Millions of Pounds)



*Domestic harvests here include joint venture harvests—harvests made by American fishermen but processed by foreign trawlers. Such joint ventures ended in 1990.

Source: Alaska Fisheries Economic Database (ISER)

Figure 2. Seafood Harvests of Selected Major Fishing Nations and Alaska, 1980-1989



Source: World Fisheries and Agricultural Organization, yearbooks; National Marine Fisheries Service, Fisheries of the United States, 1985-1989.

What we refer to broadly as the Alaska seafood “industry” is in fact a diverse collection of individuals and businesses that handle seafood products. It includes the fishermen who harvest the catch; processors and shippers who deliver a variety of processed products to the next market level; other shippers, producers, or exporters who resell the products; and ultimately, seafood markets, grocery stores, and restaurants that bring a myriad of seafood products to the consumer.

This publication examines the industry’s performance over the past decade. It both updates and summarizes “The Alaska Seafood Industry: Seafood Sector Report,” published in May 1991 by the Alaska Industrial Development and Export Authority (AIDEA) and the Alaska Department of Commerce and Economic Development (DCED). Both the full report and this summary are based largely on data from ISER’s Alaska Fisheries Economic Database (AKFED).

Table 1. Importance of Seafood Industry* to Alaska Personal Income, 1984

Seafood Income	Anchorage/ Mat-Su	Southwest	Gulf Coast	Interior	Northern	Southeast	Alaska
As Percentage of Regional and Statewide Personal Income	2	47	19	-	2	10	7
As Percentage of Private Basic Income	9	98	44	1	5	40	27

*Includes harvesting and processing income. Regions are Alaska Department of Labor regions.

Source: Berman and Hull, 1987

Figure 3. Major Alaska Fisheries Locations



Performance of the Seafood Industry, 1980-1990

Figures 4 through 7 show how harvests, ex-vessel values, production, and wholesale values of Alaska seafood changed during the 1980s. *Harvests* are simply the total weight of seafood fishermen haul in. *Ex-vessel* value is the total money processors and others pay fishermen for unprocessed seafood. *Production* is the weight of processed seafood, and *wholesale value* is money paid to seafood processors.

Harvests and Ex-Vessel Value

Commercial fishermen use a variety of vessels and gear types to harvest Alaska seafood, and are regulated by several agencies under different management systems. The Alaska Department of Fish and Game manages the salmon, crab, and herring fisheries. The International Pacific Halibut Commission (a joint treaty organization of the U.S. and Canada) manages halibut, and the North Pacific Fishery Management Council manages groundfish off Alaska.

Five types of salmon (chinook, coho, sockeye, pink, and chum) are harvested commercially in Alaska waters. Tanner, king, and dungeness crab make up most of the shellfish harvest, but shrimp and other shellfish also contribute. Herring are harvested for roe (eggs), food, and bait. Pacific halibut from Alaska waters make up most of the world's halibut supply.

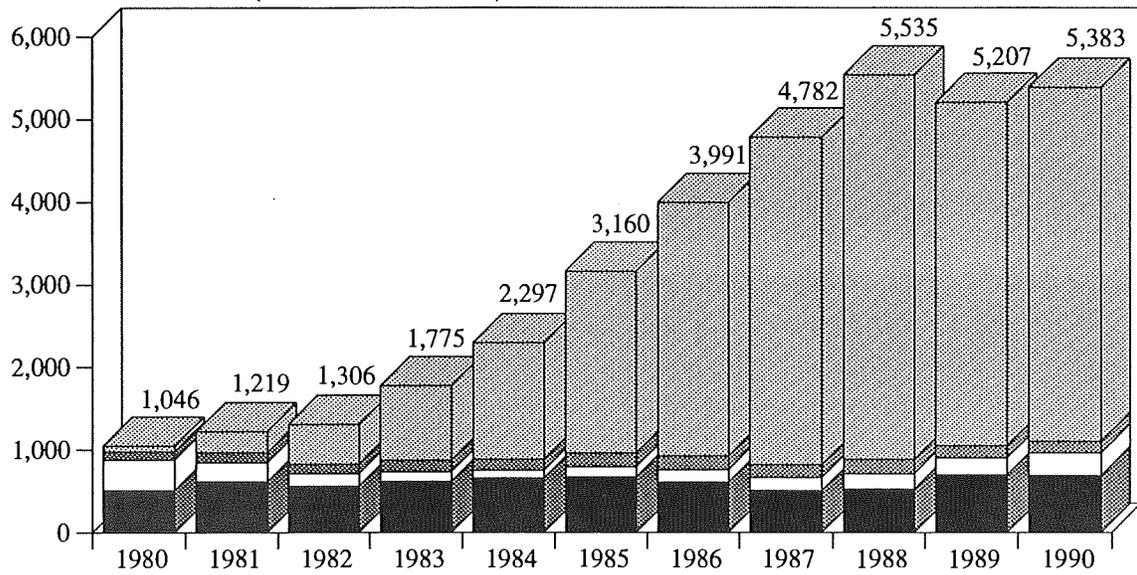
Many kinds of groundfish are harvested in the waters off Alaska, but the most common species groups are Alaska pollock, Pacific cod, flatfish, rockfish, and sablefish. At the beginning of the decade foreign trawlers took 98 percent of the groundfish catch in Alaska's offshore fisheries. But because of the preference to domestic processors written into the federal Magnuson Fishery Conservation and Management Act of 1976, the foreign fishery was phased out. At first domestic vessels began replacing foreign trawlers and delivering to foreign processors ("joint ventures"). Finally domestic processing capacity increased to the point where U.S. processors were able to handle the entire catch. Foreign harvests off Alaska ended in 1987 and joint ventures in 1990.

Changes in the offshore fisheries and in other fisheries meant big changes in harvest and ex-vessel values in the 1980s:

- **Domestic harvests soared 500 percent between 1980 and 1990**—increasing from 1.05 billion pounds to 5.4 billion pounds. The 1990 harvest was made up of 4.3 billion pounds of groundfish, 692 million pounds of salmon, 267 million pounds of shellfish, 91 million pounds of herring, and 53 million pounds of halibut. (Figure 4.)
- **Tremendous growth in the domestic groundfish catch** accounted for most of the increase in Alaska seafood harvests. Domestic groundfish harvests increased from 69 million pounds to 4.3 billion pounds as American fishermen and processors took over the offshore fisheries. (Figure 1.)
- **Harvests of other seafood were more volatile but also trended up.** The combined catch of non-groundfish species was about 13 percent larger in 1990 than in 1980. (Figures 4 and 6.)
- **Salmon harvests generally increased**, with record landings of nearly 700 million pounds in 1989.
- **The shellfish catch peaked in 1980 at 367 million pounds**, crashed to 92 million pounds in 1984 (mostly because of a sharp drop in harvests of king crab and shrimp), and steadily recovered to 267 million pounds in 1990, largely because of growth in Tanner crab harvests.
- **Herring catches moved up and down with no apparent trend** over the decade and stood at about 91 million pounds in 1990.
- **Halibut harvests increased through 1988**, peaking at 61 million pounds. Since then halibut harvests have declined due to lower catch quotas established by the International Pacific Halibut Commission.
- **Groundfish made up nearly 80 percent of the weight of seafood harvested** in Alaska in the second half of the 1980s, with salmon making up about 15 percent, shellfish 4 percent, herring 2 percent and halibut 1 percent. (Figure 7.)
- **American fishermen were paid 230 percent more for their catches** in 1990 than in 1981—\$1.5 billion as compared with \$665 million. Ex-vessel values in 1990 were higher than in 1980 for all species groups. Values for shellfish, halibut, and groundfish reached record highs in 1990 while salmon and herring values peaked in 1988. (Figure 4.)
- **Salmon fishermen saw ex-vessel values rise 175 percent between 1980 and 1988**, then fall 32 percent between 1988 and 1989 as salmon prices plummeted. Prices continued to drop through 1991 (Knapp, 1992). The ex-vessel value recovered somewhat in 1990—not because prices went up, but because harvests of sockeye salmon increased. (Figure 4.)
- **Ups and downs marked shellfish, herring, and halibut ex-vessel values.** (Figures 4 and 6.) Halibut values went from about \$13 million in 1980 to nearly \$96 million in 1990. Herring values ranged from \$15 million in 1980 to \$61 million in 1988 with large variations from year to year. Shellfish values fell to a low of \$103 million when stocks crashed in 1984, but by 1990 had rebounded to a peak of \$365 million.
- **Salmon brought fishermen more money** than any other seafood sector in the 1980s. But as the size of the groundfish harvest grew ever larger and salmon prices dropped in the late 1980s, the ex-vessel value of groundfish moved closer to that of salmon. (Figure 4.) On average during the last half of the decade salmon made up 45 percent of value paid domestic fishermen, followed by groundfish at 27 percent, shellfish at 19 percent, halibut at 6 percent, and herring at 3 percent. (Figure 7.)

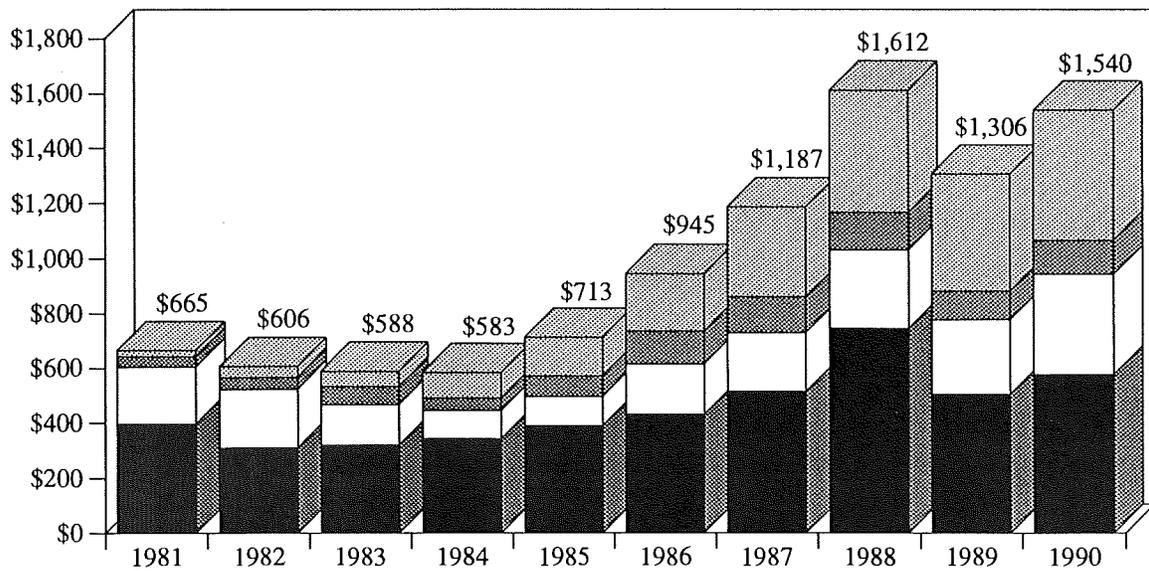
Figure 4. Alaska Domestic Seafood Harvests and Ex-Vessel Value, 1980-1990

Harvests (In Millions of Pounds)



	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Groundfish	69	252	476	901	1,412	2,201	3,063	3,958	4,648*	4,153	4,280
Halibut	14	20	23	33	35	45	58	57	61*	56	53
Herring	84	100	95	108	98	121*	113	102	115	97	91
Shellfish	367*	235	148	112	92	120	150	157	185	203	267
Salmon	512	612	563	622	660	674	608	508	526	699*	692

Ex-Vessel Value (In Millions of Dollars)



	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Groundfish	22	39	55	92	142	209	326	445	425	474*
Halibut	19	25	35	25	38	83	89	75	86	96*
Herring	20	19	30	20	37	38	42	61*	18	29
Shellfish	206	213	147	103	106	182	214	287	272	365*
Salmon	398	311	321	343	390	433	516	745*	505	576

*Peak harvest and ex-vessel value for decade.

Note: Excludes foreign groundfish harvests.

Source: Alaska Fisheries Economic Database, ISER

Production and Wholesale Value

Alaska's seafood harvests are processed into a myriad of wholesale products in a variety of ways—from simple operations such as bleeding the fish to high-technology operations that create products like surimi, a paste made from whitefish flesh. Multiple products, such as pollock fillets and fish meal, may also be produced from a single fish.

The percentage of total weight remaining after processing is known as the yield. Yields vary in different processing operations. For example, a heading and gutting operation may have a 75 to 80 percent yield, while surimi operations typically have yields in the 15 percent range.

In the groundfish and crab fisheries some processing is done offshore on vessels which also harvest (catcher/processors) or which take delivery from catcher vessels (mothership/processors). Otherwise, processing occurs at shoreside plants in Alaska, and to a certain extent, in the Pacific Northwest.

How the groundfish catch is split between offshore processors (which employ mostly non-residents) and onshore plants in Alaska (which create more local jobs) has become controversial in Alaska in recent years. The North Pacific Fishery Management Council in 1992 for the first time specifically allocated portions of future groundfish catches to onshore and offshore processors.

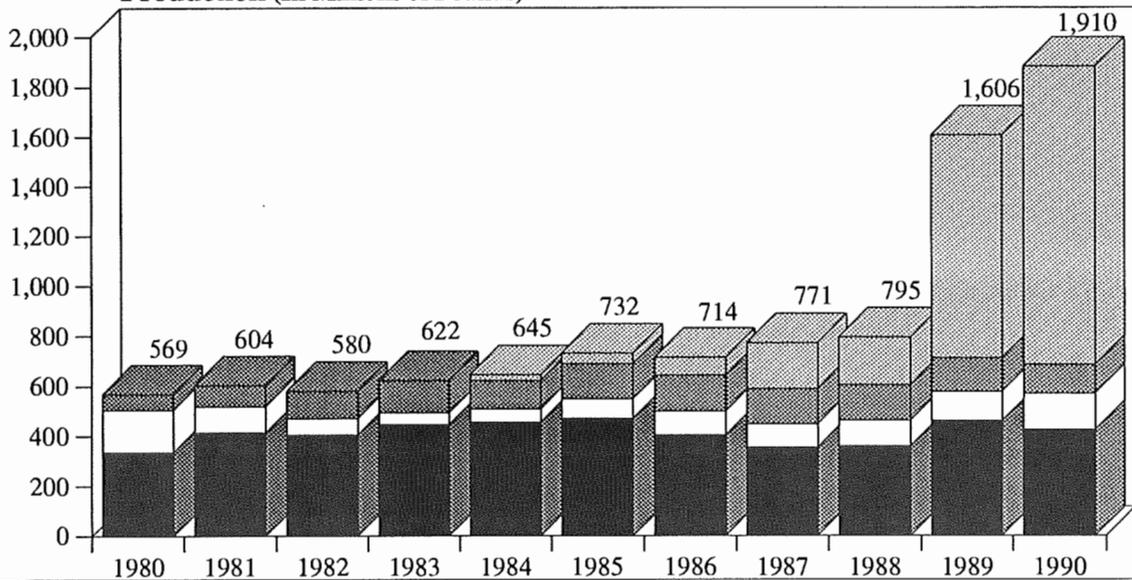
This summary and the full technical report represent the most comprehensive accounting to date of the Alaska seafood industry's wholesale sector. They use previously unpublished production data provided by the Alaska Commercial Fisheries Entry Commission and the National Marine Fisheries Service. Some of the reported production may have occurred at sea or at shoreside processing plants outside Alaska. However, the harvests came from Alaska waters.

Production and wholesale value of Alaska seafood changed dramatically in the 1980s:

- **Domestic production skyrocketed**, growing from about 569 million pounds in 1980 to nearly 2 billion pounds in 1990. (Figure 5.) That 1990 production was made up of 1.2 billion pounds of groundfish, 426 million pounds of salmon, 144 million pounds of shellfish, 75 million pounds of herring, and 41 million pounds of halibut.
- **Groundfish led growth in production**, increasing from about 22 million pounds in 1984 to 1.2 billion pounds in 1990—a nearly six-fold increase in six years.
- **Production from other kinds of seafood was more volatile.** (Figures 5 and 6.) Salmon production peaked in 1985 at 472 million pounds, shellfish in 1980 at 172 million pounds, herring in 1985 at 106 million pounds, and halibut in 1987 at 52 million pounds.
- **Salmon contributed the most to seafood production** in the last half of the 1980s, even though groundfish harvests were much larger. That's because a large portion of the salmon catch is exported with just minor processing, while much of the groundfish catch is used to produce relatively lower yield products (surimi, for instance). Between 1984 and 1990 salmon accounted for 42 percent of total seafood production, groundfish 37 percent, shellfish 10 percent, herring 7 percent and halibut 4 percent. (Figure 7.)
- **By 1990 groundfish overtook salmon** as the largest contributor to production. (Figure 5.) By that time groundfish harvests had grown so large that even with much lower processing yields, the resulting production outweighed salmon production. In 1990 groundfish accounted for 64 percent of total production, salmon 22 percent, shellfish 8 percent herring 4 percent, and halibut 2 percent.
- **The wholesale value of Alaska production doubled** over the decade, growing from just over \$1 billion in 1980 to more than \$2.5 billion in 1990. (Figure 5.) Leading that wholesale value in 1990 were groundfish products worth more than \$1 billion, followed by salmon products at \$893 million, shellfish products at \$468 million, herring products at \$65 million, and halibut products at \$61 million.
- **Wholesale value grew even more dramatically in the last half of the decade.** Because data on the value of groundfish production aren't available for the early 1980s, and shellfish production and value were falling at the same time, the reported total wholesale value of Alaska products bottomed out at about \$745 million in 1984. This means that in the six years from 1984 to 1990, the total wholesale value from production of Alaska seafood increased nearly 350 percent.

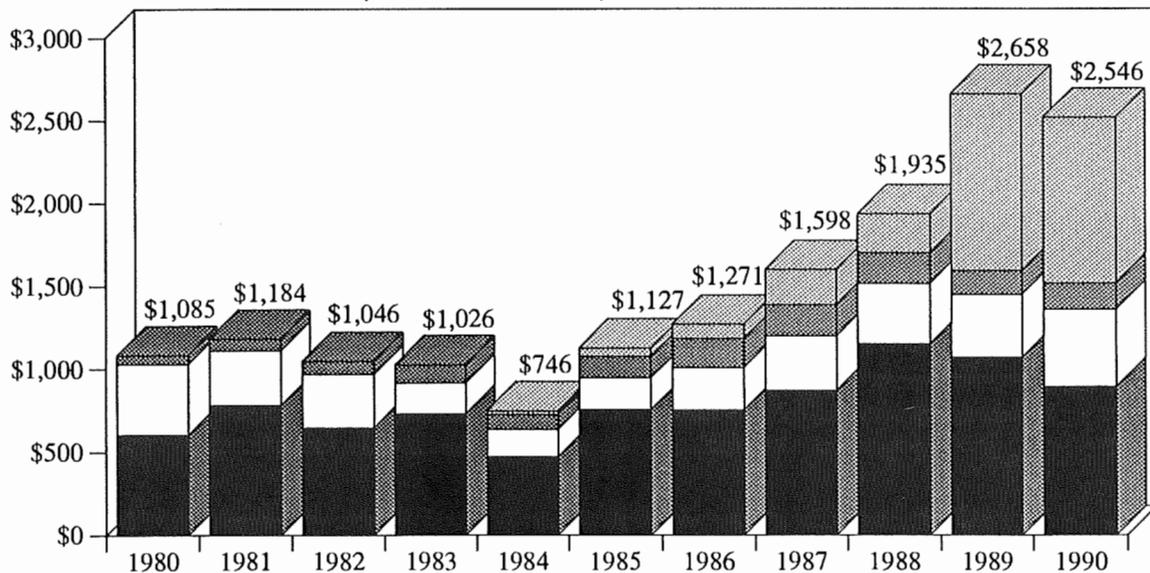
Figure 5. Alaska Domestic Seafood Production and Wholesale Value, 1980-1990

Production (In Millions of Pounds)



	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Groundfish	N/A	N/A	N/A	N/A	22	43	71	181	190	893	1,224*
Halibut	11	16	17	28	30	34	49	52*	50	48	41
Herring	52	70	92	101	83	106*	94	90	91	87	75
Shellfish	172*	106	68	48	54	77	96	93	104	116	144
Salmon	335	413	403	446	456	472*	404	355	359	461	426

Wholesale Value (In Millions of Dollars)



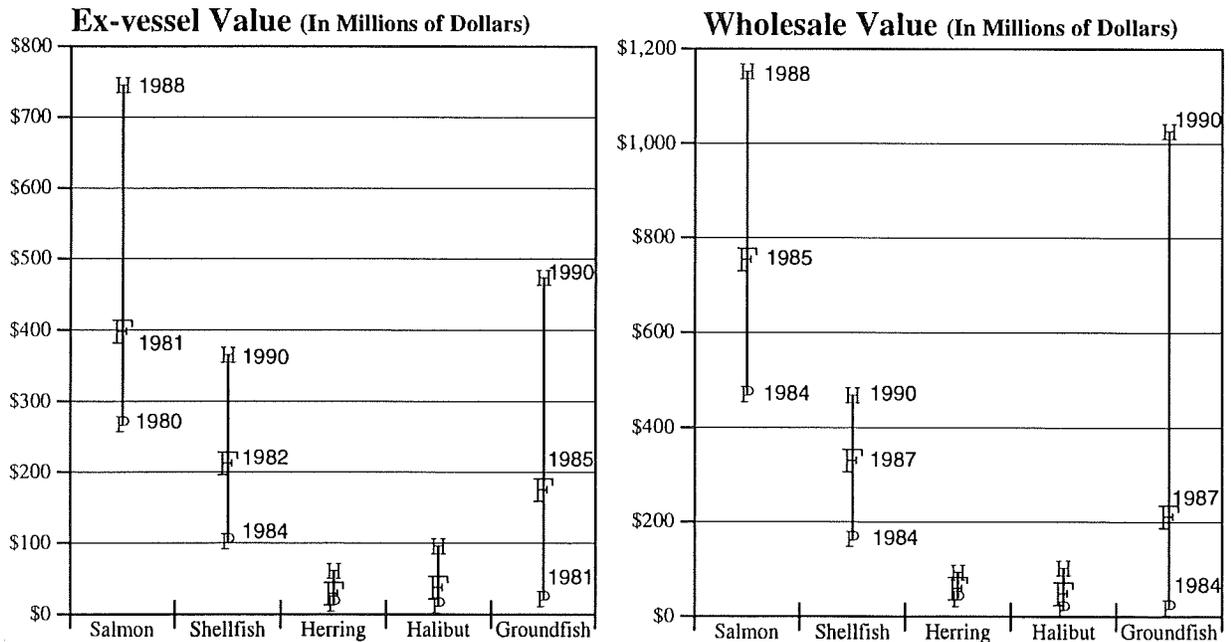
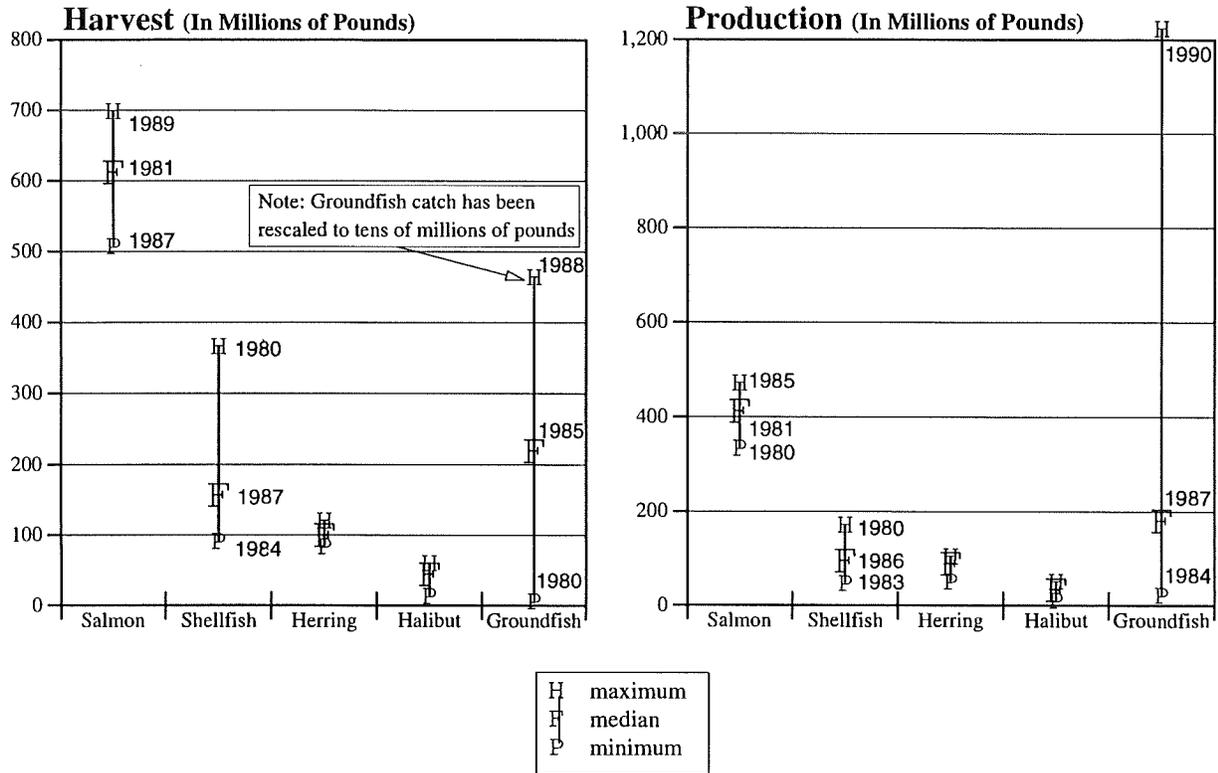
	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Groundfish	N/A	N/A	N/A	N/A	20	50	87	211	235	1,065*	1,026
Halibut	16	22	28	44	37	48	95	103*	90	93	100
Herring	38	52	52	67	55	83	82	86	93*	51	59
Shellfish	428	331	323	188	164	193	258	330	365	378	468*
Salmon	602	780	644	726	470	753	750	869	1,152*	1,071	893

*Peak for decade.

Note: Excludes foreign groundfish production. 1989 groundfish production and wholesale value estimated using 1990 yield and price.

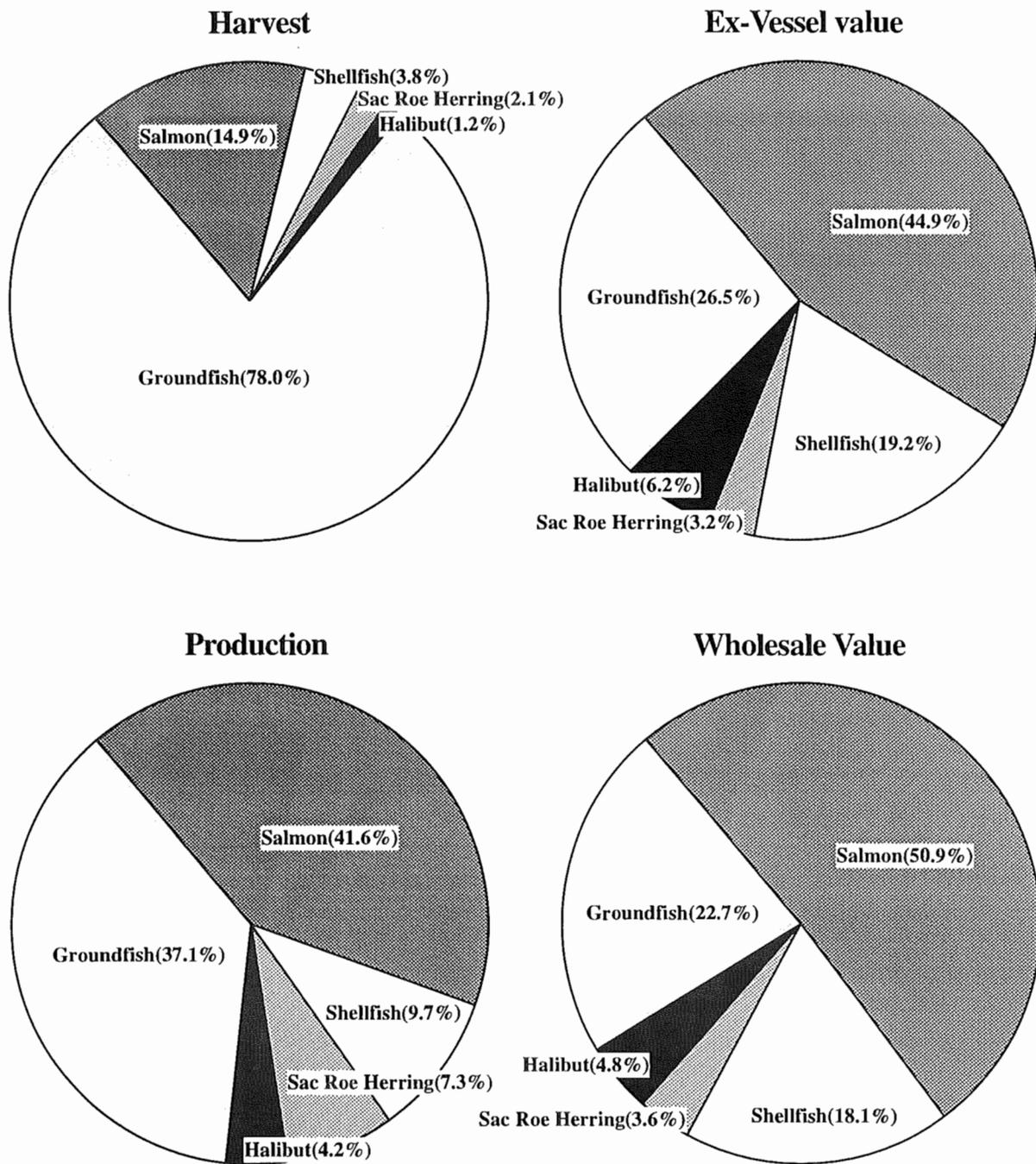
Sources: Alaska Department of Fish and Game, 1980-83, 1989-90; Commercial Fisheries Entry Commission, 1984-88; National Marine Fisheries Service, 1990.

**Figure 6. Range of Performance by Species Groups, 1980-1990
(Maximum, Median, Minimum)**



Sources: See Figures 4 and 5.

**Figure 7. Relative Contributions of Species Groups to Alaska Seafood Industry
(1984-1990 Average)**



Sources: See Figures 4 and 5.

Alaska's Role in U.S. and World Seafood Markets

Alaska's seafood harvests are far and away the largest and most valuable of any state, and they are also significant worldwide. Here are some comparisons for recent years.

- **Alaska contributed about 50 percent of total U.S. harvests** and 40 percent of total ex-vessel value throughout the 1980s.
- **The 1990 Alaska harvest was an all-time record for any state.** The 5.4 billion pounds of seafood harvested off Alaska was more than five times the 1990 harvest off Louisiana, which had the second largest harvest.
- **The 1990 ex-vessel value of Alaska seafood was five times greater** than the ex-vessel value of harvests off Massachusetts, the state ranked second in 1990 ex-vessel value.
- **Alaska's Dutch Harbor was first in U.S. landings** in 1990, and Kodiak was third. Several other Alaska communities also ranked in the top 20 for landings in 1990—Naknek (13), Cordova (14), Petersburg (16), Ketchikan (17), Egegik (19), and Seward (20).
- **Dutch Harbor was second in U.S. ex-vessel value in 1990**, after New Bedford, Massachusetts—home port to many of the George's Bank scallopers. Kodiak ranked third in ex-vessel value, Naknek fourth, Egegik sixth, and Kenai eighth.
- **Alaska pollock alone accounted for 33 percent** of the total domestic catch in 1990. Sockeye salmon and Alaska pollock were the second and third most valuable species harvested in the U.S. in 1990, just behind shrimp from the Gulf of Mexico.
- **Alaska waters provide most of the world's** harvests of sockeye salmon, Tanner crab, Pacific halibut, and sablefish. In 1987, the most recent year for which international harvest data are available, Alaska accounted for 80 percent of the world sockeye harvest, 84 percent of Tanner crab, 87 percent of Pacific halibut, and 67 percent of sablefish. Alaska harvests made up smaller but still substantial shares of the world harvests of Pacific cod (43 percent), pink salmon (34 percent), coho salmon (33 percent), dungeness crab (28 percent), and king crab (26 percent).

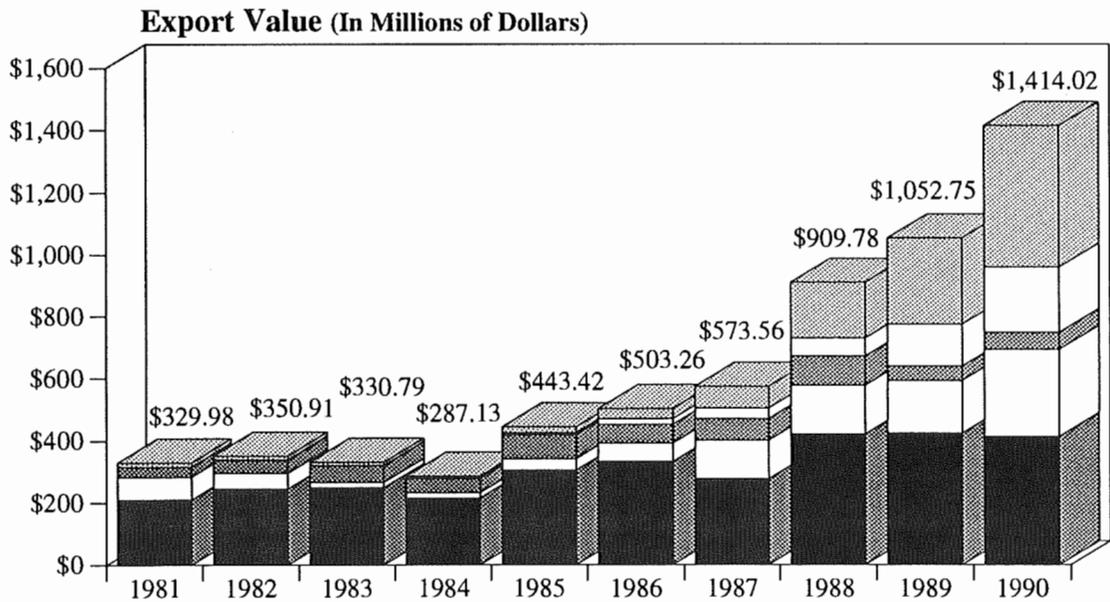
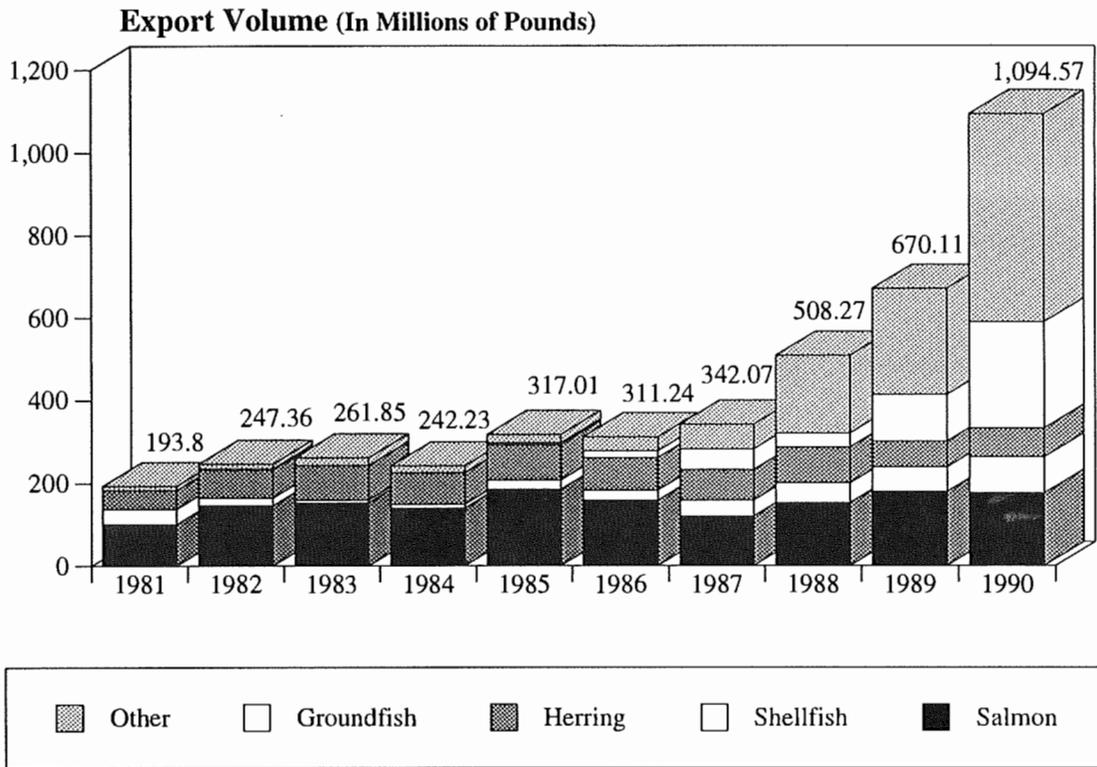
Exports of Alaska Seafood

Some of Alaska's seafood is exported directly from Alaska to other countries, some is exported indirectly (shipped first from Alaska to other states and then exported), and some is eaten in Alaska and other states.

For this study we estimated indirect exports.¹ As far as we know, no other recent studies have estimated indirect exports of Alaska fisheries production. What did Alaska exports look like in the 1980s?

- **Direct exports of Alaska seafood grew five-fold** in volume and four-fold in value over the 1980s. (Figure 8.) In 1980 direct exports totalled just under 2 million pounds worth about \$330 million. By 1990 direct exports from Alaska exceeded 1 billion pounds worth more than \$1.4 billion.
- **Salmon dominated the export statistics** both in weight and value for most of the decade, peaking at about 180 million pounds valued at \$423 million in 1989. Herring have traditionally been the second most important Alaska seafood export, but as of 1989 groundfish exports exceeded herring exports both by weight and value.
- **Salmon remained the most valuable export in 1990, followed by shellfish.** But groundfish led in weight exported. That year about 176 million pounds of salmon products valued at \$412 million were exported directly from Alaska, and 86 million pounds of shellfish valued at \$280 million. By comparison, about 255 million pounds of groundfish valued at \$210 million dollars were exported.²
- **Japan was still the largest market** for Alaska seafood exports at the end of the decade, but other countries were increasing their share. Tables 2 and 3 show that from 1988 through 1990, Japan bought more and more Alaska seafood but its overall share dropped from 95 to 87 percent. During the same period Korea and several European countries sharply increased their purchases of Alaska seafoods.

Figure 8. Direct Alaska Seafood Exports, 1981-1990



Sources: 1981-87: U.S. Department of Commerce, Bureau of the Census, Export Tapes; 1988-90: National Marine Fisheries Service, Alaska Fishery Science Center.

**Table 2. Direct Seafood Exports from Alaska
By Country of Destination, 1988-1990
(In Thousands of Pounds and Dollars)**

	1988		1989		1990	
	Pounds	Value	Pounds	Value	Pounds	Value
Japan	473,873	\$865,372	591,910	\$975,742	870,186	\$1,227,253
Korea	18,464	\$24,014	40,473	\$44,893	103,618	\$80,906
Germany	148	\$231	249	\$274	51,922	\$44,764
Norway	-	-	2,525	\$1,386	40,373	\$28,907
Portugal	6,822	\$8,929	12,522	\$13,224	16,288	\$18,629
Canada	5,472	\$6,273	20,368	\$18,816	4,568	\$7,461
United Kingdom	-	-	-	-	2,063	\$1,709
Taiwan	2,065	\$2,838	1,928	\$1,193	1,835	\$1,146
Spain	-	-	-	-	967	\$854
France	-	\$423	6	\$71	943	\$940
Thailand	1,169	\$1,542	-	-	453	\$672
All Other Countries	69	\$157	125	\$154	551	\$779
Total	508,265	\$909,799	670,105	\$1,055,752	1,093,769	\$1,414,020

Source: National Marine Fisheries Service, Fisheries of the United States.

- *Most Alaska herring was exported directly from Alaska in the 1980s.* (Table 4.)
- *Roughly a third of processed salmon was exported directly and another third indirectly over the decade.*
- *Almost no processed halibut and little king crab was exported directly from Alaska in the 1980s, but about one-quarter of halibut and one-sixth of king crab were exported indirectly.*
- *About 18 percent of processed groundfish was exported directly and another 55 percent exported indirectly from Alaska in the last half of the 1980s.*
- *Total direct and indirect exports in the 1980s included about 60 percent of salmon products, 80 percent of herring, 25 percent of king crab and halibut, and 73 percent of groundfish.*
- *Markets for Alaska seafood include Asia, Europe, and Australia.* Japan buys most exports of fresh and frozen salmon, herring, and crab. The United Kingdom, Canada, and Australia provide the biggest markets for canned salmon. Historically, most groundfish from Alaska waters and other areas of the North Pacific was processed as surimi and exported to Japan. But recently U.S. and European markets for Alaska groundfish blocks and fillets have developed.

**Table 3. Top Importers of Alaska Seafood
(In Percentage of Direct Export Value)**

	1988	1989	1990
Japan	95%	92%	87%
Korea	3	4	6
Portugal	1	1	1
Germany	-	-	3
Norway	-	-	2
Canada	<1	2	<1

Source: See Table 2.

**Table 4. Estimated Alaska Seafood
Exports in the 1980s*
(In Percentage of Alaska Production)**

	Direct	Indirect	Total Exports
Salmon	31%	30%	61%
King Crab	14%	14%	28%
Herring	77%	2%	79%
Halibut	0%	25%	25%
Groundfish	18%	55%	73%

*Salmon and herring, 1980-88 average; king crab and halibut, 1984-87 average; groundfish, 1984-90 average.

Source: ISER calculations, based on fisheries statistics sources.

Public Revenues and Expenditures

Alaska's fish are public resources. Fish within 3 miles offshore are managed by the State of Alaska. Fish within the federal Exclusive Economic Zone, from 3 to 200 miles offshore, are managed by the federal government under the Magnuson Fishery Conservation and Management Act.

In return for their use of the resource, fishermen and processors pay various taxes and fees at the local, state, and federal levels. They also benefit from government expenditures for services such as research, management, and enforcement.

Taxes and Fees

- **The fishing industry paid** about \$52 million in major taxes and fees in fiscal year 1989, the most recent year for which figures are available. In 1980 taxes and fees totalled about \$21.5 million.
- **The biggest source of revenue** is the Fisheries Business Tax (also called the raw fish tax), which brought the state government \$27 million in fiscal 1989.³ The state refunds 50 percent of that tax to the communities and boroughs where it is collected. Other state taxes include the Salmon Enhancement Tax, used to help pay costs of hatchery operations; and the Seafood Marketing Assessment, which funds the Alaska Seafood Marketing Institute. The state government also collected about \$5.1 million from licenses and permits in fiscal 1989.
- **The federal Marine Fuel Tax** netted the government \$7.2 million in 1989, but that figure includes not only taxes paid by commercial fishing vessels but also marine transportation and recreational vessels. The fishing industry also paid \$6.8 million in fiscal 1991 for the observers the federal government requires on vessels in the groundfish fisheries.
- **Cities received \$8.1 million and boroughs \$7.6 million** in shared state fisheries business taxes in fiscal 1989. Shared revenues to cities were up from \$4.7 million in fiscal 1987, and to boroughs up from \$3.9 million.

Expenditures

- **The federal government spent \$4.2 million** in managing fisheries in the Alaska region in fiscal 1989.
- **The Alaska Department of Fish and Game spent about \$49.5 million** managing the commercial fisheries in fiscal 1989. (We reached that estimate by applying the same percentage of commercial management expenses to total ADFG expenses calculated by Kruse [1988] for fiscal 1987.)
- **Together the federal and state governments spent about \$54 million** managing Alaska's fisheries in fiscal 1989 and collected about \$42 million, if we net out revenues that went to salmon aquaculture associations. To give us some perspective on those revenues and expenditures, the total ex-vessel value of the fisheries off Alaska for 1989 was \$1.3 billion and the wholesale value of seafood products was \$2.7 billion.

Table 5. Fisheries Taxes and Fees, FY85-FY89
(In Thousands of Dollars)

	1985	1986	1987	1988	1989
Marine Fuel Tax	\$4,298	\$5,290	\$5,373	\$5,294	\$7,208
Licenses and Permits	4,847	5,073	4,939	5,821	5,162
Seafood Marketing Tax	964	1,122	1,460	2,670	3,349
Salmon Enhancement Tax	2,625	4,263	4,444	5,769	9,544
Fisheries Business Tax	18,663	21,105	26,605	22,523	26,690
TOTAL MAJOR SOURCES	\$31,397	\$36,853	\$42,821	\$42,077	\$51,953

Notes: Marine fuel tax includes taxes paid by vessels other than commercial fishing vessels, such as marine transportation and sport fishing vessels.

Sources: Original data from Kruse, 1987. Updated using data provided by Bob Elliot, Alaska Department of Revenue, May 1990.

The Seafood Industry in Alaska's Economy

The seafood industry has historically been an important part of Alaska's economy. In several regions of the state it provides most of the private economic base. It generates jobs and income in a number of ways—through fishing itself; through seafood processing; through other sectors that supply goods and services to fishermen and processors; and through fishermen, processors, and others spending their money in the local economy. Adding all those sources of jobs and income together shows the overall economic contributions of the seafood industry.

Table 6 gives us an idea of participation in commercial fishing itself in the 1980s, by showing the number of fishing permits and crew licenses purchased annually. (Bear in mind that a single person may hold several fisheries permits.) The number of permits sold fluctuated around 18,000, and the number of crew licenses sold varied from 24,000 to 35,000. Alaska residents bought most of those permits and licenses, but non-residents bought about 20 percent of permits and 35 percent of crew licenses. The largest numbers of fishermen were in the salmon fisheries and in the Southeast, Southcentral, and Bristol Bay regions.

Fisheries jobs are mainly seasonal, and economists commonly assess the economic effects of fishing jobs by calculating how the large number of seasonal jobs would translate into the equivalent of year-round jobs. The most recent available estimates of average annual employment in fishing were done by McDowell (1989) for 1986, and are shown in Figure 9. McDowell's estimates are generally higher than those from previous studies, in part because they include not only time fishermen actually spent fishing but also time they spent before and after the fishing season in preparation, maintenance, and other work related to fishing. The figure shows there were the equivalent of about 10,600 year-round jobs in fishing in 1986, and that most of them were in the salmon fisheries.

Jobs and wages in seafood processing are also important parts of seafood's overall contribution to Alaska's economy. Table 7 shows how average annual employment and annual wages in processing looked in the 1980s. Average annual employment (excluding the groundfish fisheries) varied from about 5,600 to 8,400, and annual wages from \$104 million to \$163 million. Data on employment and wages in the rapidly expanding offshore

Table 6. Estimated Harvesting Participation

**PERMIT HOLDERS AND CREW MEMBERS
(RANGE, 1980-1989)**

	Numbers	Percentage Alaska Resident
Permits Purchased	17,340-19,598	78% - 82%
Crew Licenses Purchased	24,228-35,207	63% - 67%
TOTAL	43,826-53,508	69% - 72%

NUMBERS OF PERMITS AND CREW LICENSES BY REGION AND BY FISHERY, 1986

	Salmon	Shellfish	Herring	Halibut	Percentage Participation by Region [†]
Southeast	6,069	617	651	2,601	22%
Southcentral	4,730	460	1,261	3,366	21
Kodiak	1,564	306	392	3,468	12
Aleutians	1,916	2,411	258	765	12
Bristol Bay	7,193	-	2,200	-	20
Northwest	3,777	-	2,082	-	13
TOTAL PARTICIPATION	25,249	3,794	6,844	10,200	
Percentage Participation [†] by Fishery	55%	8	15	22	

[†] Totals and percentage participation apply to total permits and licenses, not numbers of fishermen, since one person may hold multiple permits.

Sources: Kruse, 1988; Helgath and Rainery, 1987; McDowell, 1989.

groundfish fisheries are limited. Available estimates of processing and harvesting workers combined put total employment in the groundfish fisheries at anywhere from 3,000 to 5,400 in the late 1980s. (McDowell 1989; Coopers and Lybrand 1990; Northern Economics 1990.)

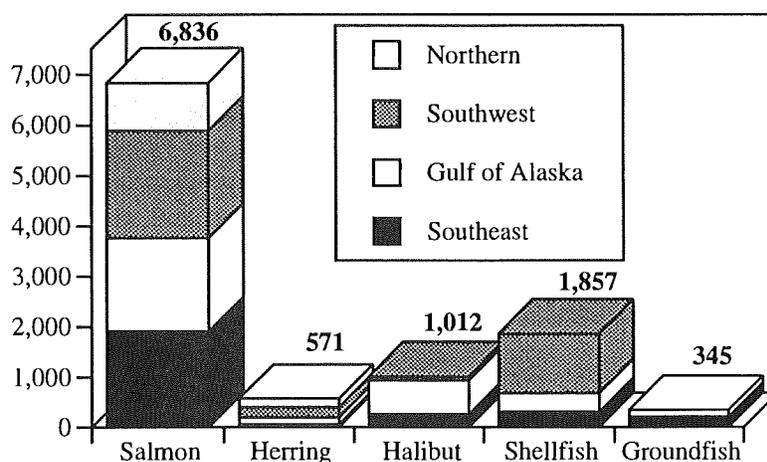
**Table 7. Processing Employment and Wages
Range 1980-1988**

Average Annual Employment	5,650-8,388
Annual Wages	\$104 million-\$163 million
<i>Source: Alaska Department of Labor</i>	

If we add together the jobs and income from fishing itself, from processing, and from all the other activities generated by fishing and processing, we get a total picture of seafood's contribution to the Alaska economy. Two estimates of the seafood industry's economic contributions were done in the 1980s. Berman and Hull (1987) estimated total income generated by the industry in 1984. McDowell (1989) estimated jobs and payroll the industry contributed in 1987. In the 1980s the seafood industry made valuable contributions to Alaska's economy:

- **Total income attributable to the seafood industry in 1984 was \$583 million.** (Figure 10.) Alaskans earned \$431 million, or nearly 75 percent, of that total. The Southwest region accounted for about 42 percent of all seafood income, followed by the Gulf of Alaska region (25 percent), the Southeast (17 percent) and the Anchorage/Matanuska-Susitna region (13 percent). The Northern and Interior regions accounted for the remaining 3 percent.
- **Roughly 33,000 to 38,000 Alaska jobs were attributable to the seafood industry in 1987** (McDowell 1989). Looked at another way, harvesting and processing jobs accounted for roughly 50 to 60 percent of total jobs generated by the seafood industry, while the industry generated the other 40 percent or so of jobs in less direct ways.
- **About 7 percent of all personal income in Alaska in 1984** was contributed by the seafood industry. (Table 1.)
- **About 27 percent of private basic income in Alaska in 1984** was generated by the seafood industry. Basic industries are those that drive the economy by producing goods or services for export. Alaska's private basic industries include the seafood, petroleum, mining, forest products, and tourism industries. The federal government is also considered a basic industry, but it is not a *private* basic industry.
- **The economies of several regions depend heavily** on the seafood industry. In 1984 the southwest region's seafood industry generated 47 percent of total personal income and 98 percent of private basic income. The industry provided 19 percent of total income and 44 percent of private basic income in the Gulf of Alaska region, and 10 percent of total and 40 percent of private basic income in the southeast region.

**Figure 9. Estimated Annual Average Harvesting Jobs,*
By Species Group and Region, 1986**



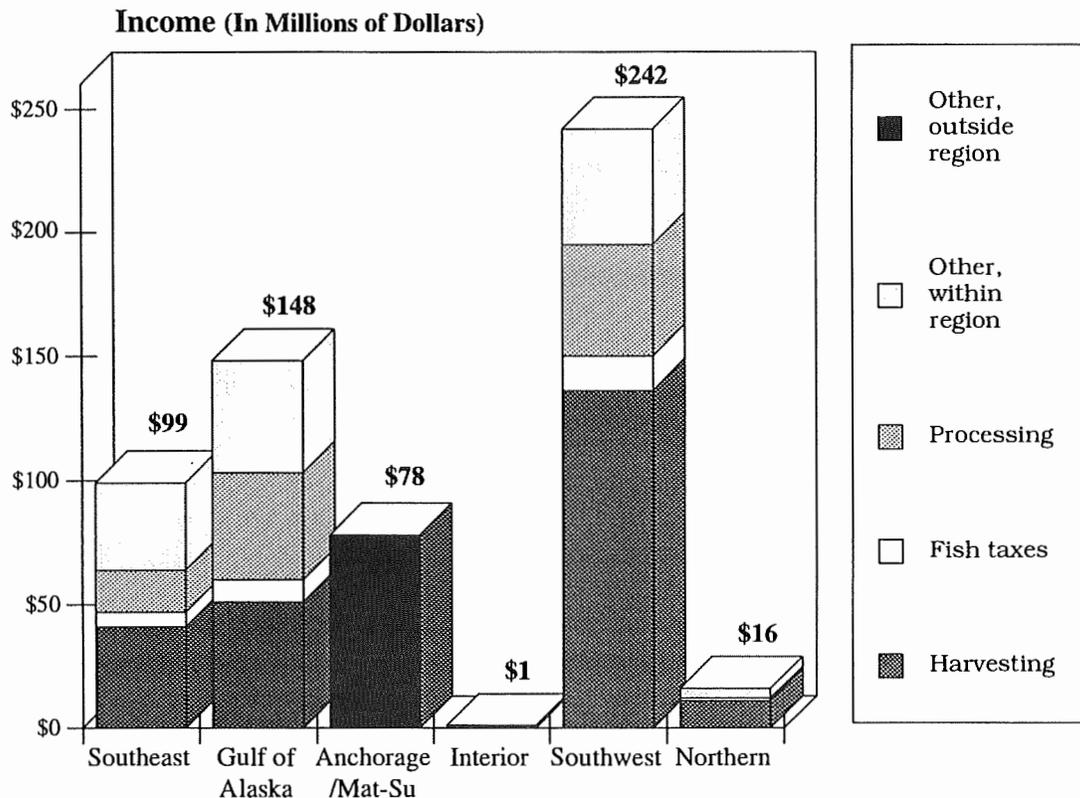
*Based on time spent in fishing-related activities before and after the fishing season as well as actual fishing time.

Source: McDowell et al., 1989.

- **The seafood industry had more workers and a bigger payroll** than any other private basic industry in 1987. Including both the fishing and processing sectors, it accounted for 23 percent of total basic industry employment and 24 percent of basic industry payroll. (Figure 11.) Only the federal government employed more people and had a bigger payroll, and among private basic industries only oil and gas came close to matching seafood's payroll. However, the oil and gas industry didn't employ nearly as many people.

- **Most private employment in Kodiak, the Aleutians, and Bristol Bay in 1987** was in the seafood industry, and that industry was the largest private employer in the southeast and northwest.

Figure 10. Total Income in the Alaska Seafood Industry By Region, 1984



Source: Berman and Hull, 1987.

The Alaska Seafood Industry in the 1990s

Profound and lasting changes in the harvesting, processing, and marketing sectors will likely transform the Alaska seafood industry in the 1990s.

Already at the end of the 1980s growing supplies of farmed salmon and other factors depressed prices for Alaska's wild salmon. Although 1992 prices may rebound slightly (Knapp 1992), long-term prospects are for increased substitution of foreign produced farmed salmon for wild salmon in Alaska's export markets. Fishermen will therefore be squeezed between higher costs and weakening prices.

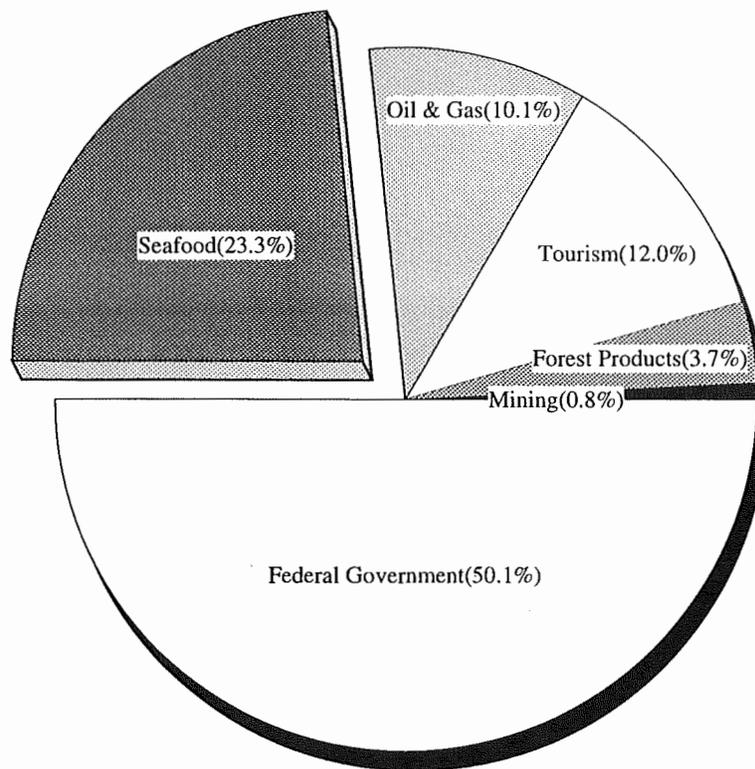
The groundfish fishery is also undergoing significant restructuring. First, the North Pacific Fishery Management Council recently approved, for the first time, a formal allocation of groundfish harvests between inshore and offshore processors. In the short run, this proposed allocation implies displacement of the large offshore fleet and expansion of shoreside processing capacity. In the longer run, overcapitalization of both types of processing and local preemption issues will force further division of the catch quotas by season and area.

Second, the council has approved a share quota limited access system for sablefish and halibut, and is considering a moratorium on further entry into the groundfish and crab fisheries and limited access systems for these fisheries. Privatizing the fisheries will result in a fleet structure considerably different from the current structure, and limited access systems will change the timing and type of production.

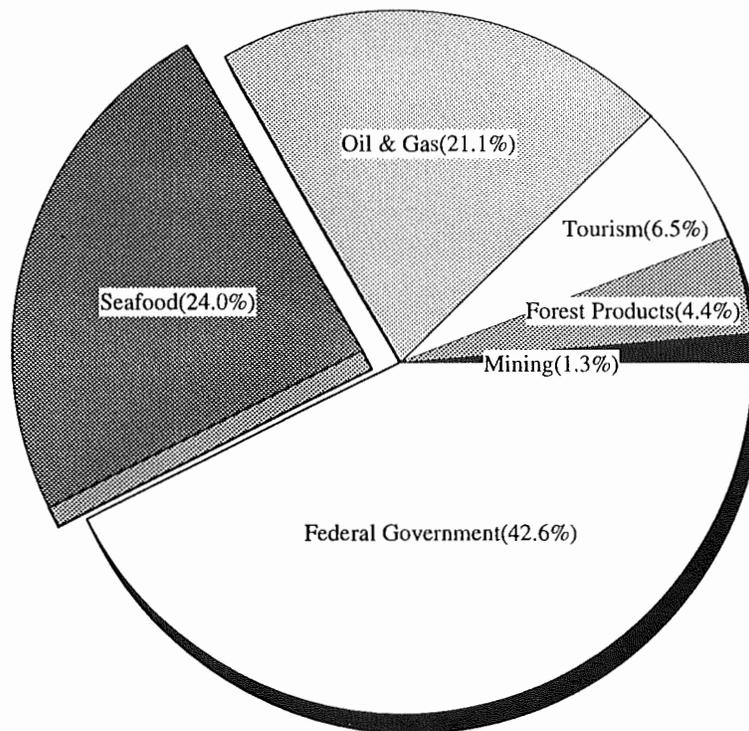
Included under both inshore versus offshore allocation and individual quota systems are programs that will allocate a share of the groundfish resource to Alaska coastal communities. Since these quotas may be fished, leased, or sold, substantial changes in who benefits from groundfish harvesting and processing can be expected.

In sum, Alaska seems likely to retain a prominent role in U.S. and world fisheries, but the complexion of the industry will be very different in the year 2000 from what it is today.

Figure 11. The Role of the Seafood Sector in Alaska's Basic Industries, 1987



Total Employment



Total Payroll

**Includes industries that produce goods or services for export. Excludes state and local government, and portions of support, service, and infrastructure industries.*

Source: McDowell et al., 1989.

Endnotes

1. Information on direct exports is available from the U.S. Department of Commerce, Bureau of the Census. We estimate indirect exports by assuming that for each species the share of the total Alaska exports (direct and indirect) in Alaska production is the same as the share of total U.S. exports in total U.S. production. We then estimate indirect exports as the difference between total Alaska exports and direct exports. Domestic consumption is estimated as the difference between total Alaska production and estimated total exports.
2. The precise distribution of 1990 exports is uncertain, because the data sources allocate 45 percent of exports to the category of "other fish." If the "other fish" category were more accurately allocated, substantial shares would shift to other specific categories.
3. Liability under the Fisheries Business Tax can be reduced by the Fisheries Business Education Credit which allows a fisheries business to credit up to 50 percent of cash contributions for direct instruction, research, and educational support purposes made to two- or four-year colleges and universities in Alaska. Until the end of 1991 liability could also be reduced through the Fisheries Business Tax Credit which allowed processors a credit of up to 50 percent of their annual Fisheries Business Tax liability for approved capital expenditures that (1) increased product diversity, production efficiency or capacity, or product quality at a shore-based fisheries business facility in Alaska; or (2) contributed to the development of a cooperative seafood industrial park in Alaska.

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