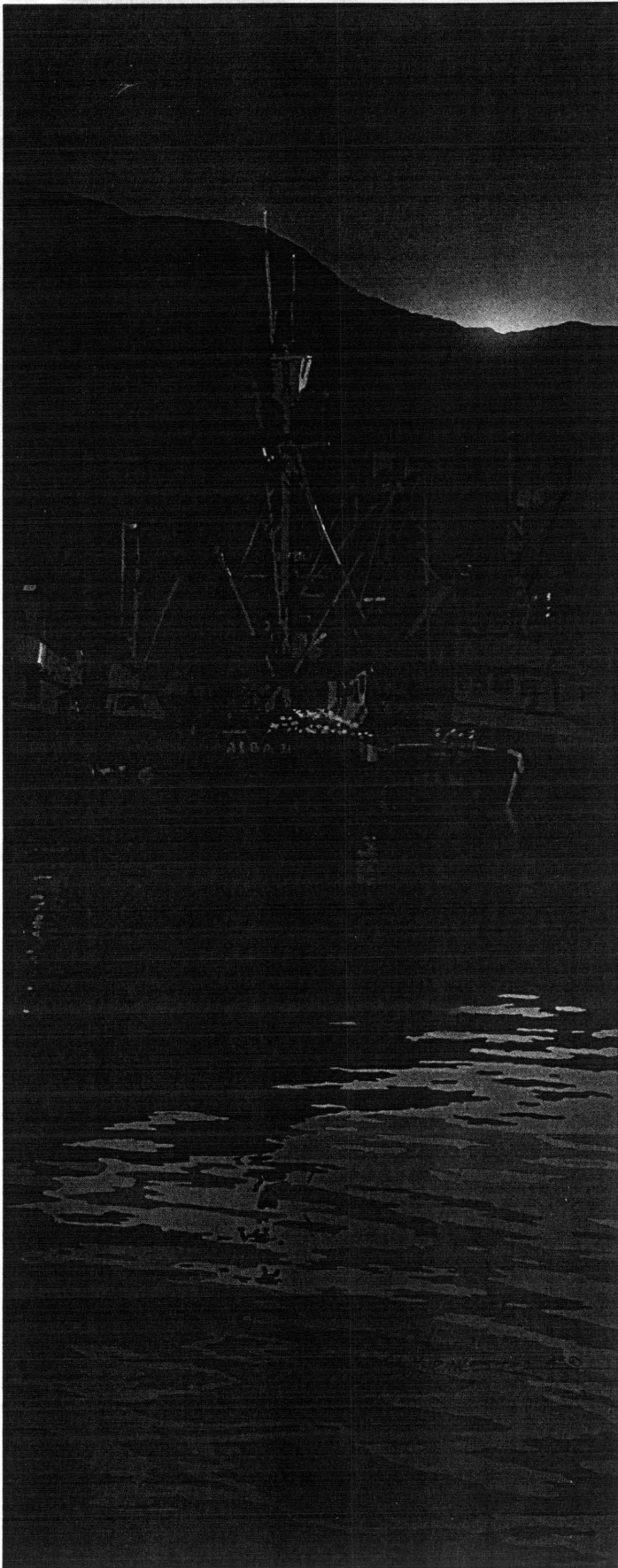


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**Alaska Seafood
Industry Study**
A Summary

March 1989

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Contents, early morning seiners, John Hyde, Alaska Department of Fish and Game (ADF&G); p. 3, clockwise from top left: ADF&G technicians taking scale samples, J. Hyde, ADF&G; woman handling salmon net, Marion Stirrup; two women, man holding salmon, and two men with iced salmon, all from Alaska Seafood Marketing Institute (ASMI); p. 5, salmon cannery, J.E. Thwaites collection, Alaska State Library; p. 6, halibut on dock, p. 7, herring eggs and herring fleet, and p. 8, groundfish in net bag, all by J. Hyde, ADF&G; p. 8, sablefish, Alaska Sea Grant College Program; p. 9, purse seiner, Donald Kramer, Alaska Sea Grant Marine Advisory Program (MAP); p. 10, offloading halibut, ASMI; p. 12, shrimp, Deborah Mercy, MAP; p. 12, crab, J. Hyde, ADF&G; p. 13, container vessel, and p. 14, Kodiak Harbor, both by M. Stirrup; p. 17, woman in salmon cannery, D. Mercy, MAP; p. 19, Sitka Harbor, J. Hyde, ADF&G; p. 20, crab pots, Craig Wiese, MAP; p. 21, chum salmon and salmon fry, both by J. Hyde, ADF&G; p. 22, stacking seine web, ADF&G.

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A Summary

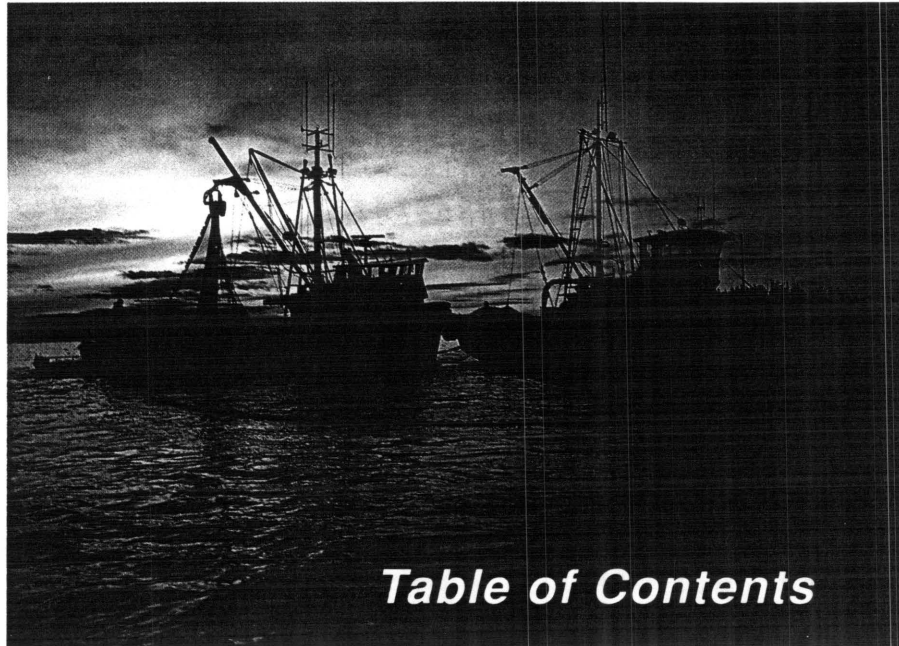
prepared for

**Alaska Seafood Industry
Study Commission
Anchorage, Alaska**

by

**The McDowell Group
A Division of Data Decisions Group, Inc.
Economic and Market Consultants
Juneau, Alaska**

March 1989



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Introduction

The *Alaska Seafood Industry Study: A Summary** has two purposes. The first is to highlight the effects of the state's largest private basic industry on the economy of Alaska. There is a general lack of standard economic data for the seafood industry, and research and analysis performed for this study fills that void.

The second purpose is to describe this complex and diverse industry to the Alaskan public. Most of Alaska's population and economy is concentrated in a few urban areas. In contrast, most of the seafood industry is conducted in coastal areas well away from the population centers. As a result, Alaskans are uninformed about the seafood industry. This document is designed to increase awareness and knowledge.

The Alaska Seafood Industry Study Commission is a cooperative organization formed to produce this study. Selected to conduct the study was The McDowell Group of Juneau, Alaskan economic and market consultants who have conducted 300 studies of the economy, industries and businesses of Alaska over the past 17 years. A comprehensive (technical) document supporting this summary, the *Alaska Seafood Industry Study: A Technical Report*, was also produced by the study team. Both documents are available from the University of Alaska Sea Grant College Program.

The study, conducted from July to December of 1988, included surveys of processors, factory trawlers and seafood organizations and agencies. Volumes of existing data from state, federal, international and private sources were collected and analyzed, the most important data being provided by the Commercial Fisheries Entry Commission. Finally, methods were developed for measuring harvest employment and payroll and the role of the industry in the economy.

Commission Members

Alaska Commercial Fishing and Agriculture Bank	Copper River Fishermen's Cooperative
Alaska Department of Commerce and Economic Development	Cordova District Fishermen United
Alaska Department of Fish and Game	Kenai Peninsula Fishermen's Association
Alaska Department of Labor	Northern Southeast Regional Aquaculture Association
Alaska Draggers Association	Pacific Seafood Processors Association
Alaska Factory Trawlers Association	Petersburg Vessel Owners Association
Alaska Fisheries Development Foundation	Prince William Sound Aquaculture Corporation
Alaska Longline Fishermen's Association	Seafood Producers Cooperative
Alaska Seafood Marketing Institute	Southeast Alaska Seiners Association
Alaska Setnetters Association	United Fishermen of Alaska
Alaska Trollers Association	United Fishermen's Marketing Association
Bering Sea Fishermen's Association	United Southeast Alaska Gillnetters
Bristol Bay Driftnetters Association	University of Alaska Institute for Social and Economic Research
Commercial Fisheries Entry Commission	University of Alaska Marine Advisory Program
	University of Alaska Sea Grant College Program

* Sources of data in this document, Alaska Sea Grant Education Publication No. 2, can be found in the complete report, *Alaska Seafood Industry Study: A Technical Report*. This summary and the full report are available from the Alaska Sea Grant College Program, Communications Office, 138 Irving II, Fairbanks, AK 99775-5040. Telephone (907) 474-7086.

Summary

Jobs: The seafood industry is Alaska's largest private basic industry employer, providing nearly 70,000 seasonal jobs which translates to 33,000 direct, indirect and induced year-round jobs.

Payroll: The total seafood industry payroll in 1987 was the largest among private basic industries, estimated at \$596 million.

Revenue: The seafood industry is the second largest revenue generator in the state. The industry paid \$27 million in fish taxes during 1987 and is the major contributor to the \$5 million marine fuel tax.

Expenditures: Expenditures in Alaska on goods and services in support of processing and harvesting are nearly \$300 million.

Harvest Value: Alaska leads the nation in value of commercial seafood landings. The 1987 Alaska seafood harvest was worth \$1.1 billion, and the estimate for 1988 is a record \$1.8 billion. The salmon fishery is the most important, bringing in 42% of all harvest income.

Wholesale Value: The 1987 Alaska seafood harvest was worth \$1.9 billion at the first wholesale level, after primary processing. It rose to \$3 billion in 1988.

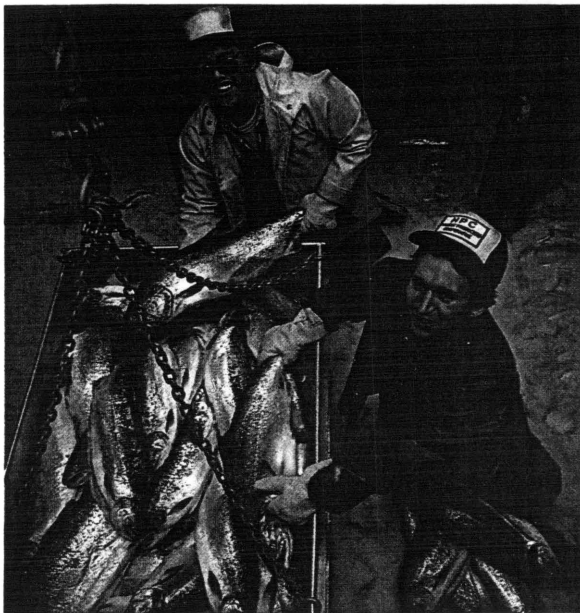
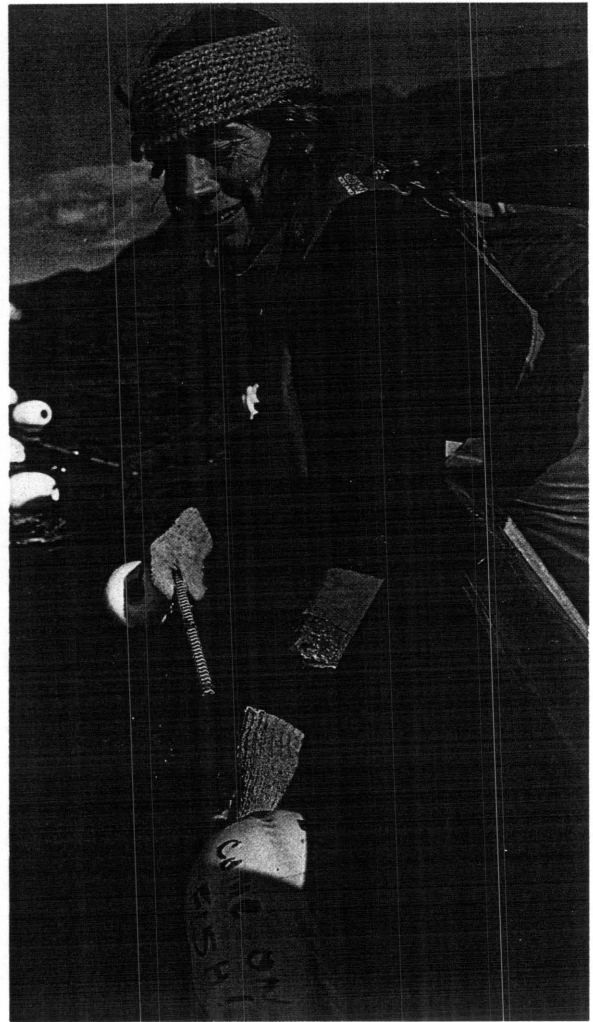
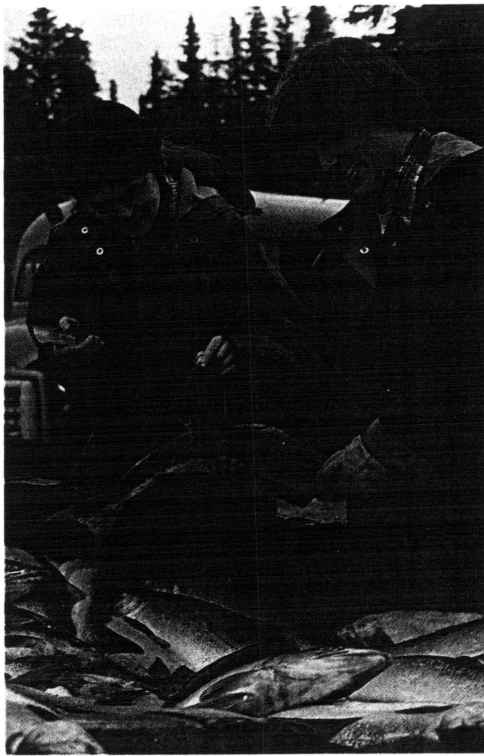
Exports: Alaska exported \$561 million in seafood during 1987, a third of all U.S. seafood exports. Japan received 95%.

Capital Assets: Total investment by the Alaska seafood industry is estimated at \$4 billion.

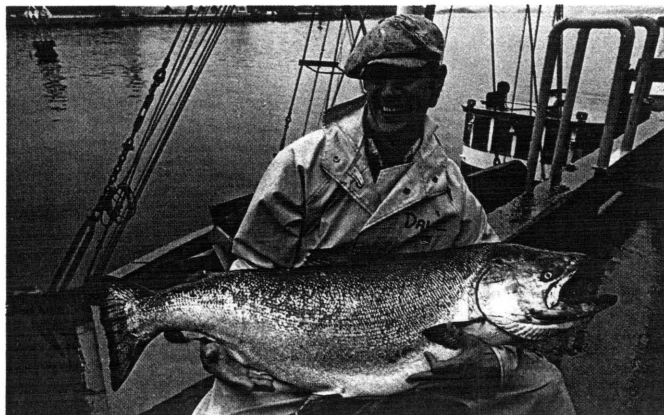
- The salmon fleet has a capital investment of \$800 million in vessels and onboard equipment, and \$900 million in permits.
- The offshore groundfish industry accounts for \$500 million, and crabbers account for \$400 million in capital investment.
- The value of processing plants and tenders is estimated at \$1 billion.

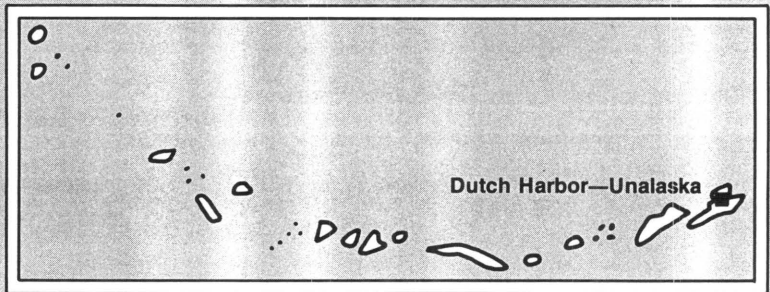
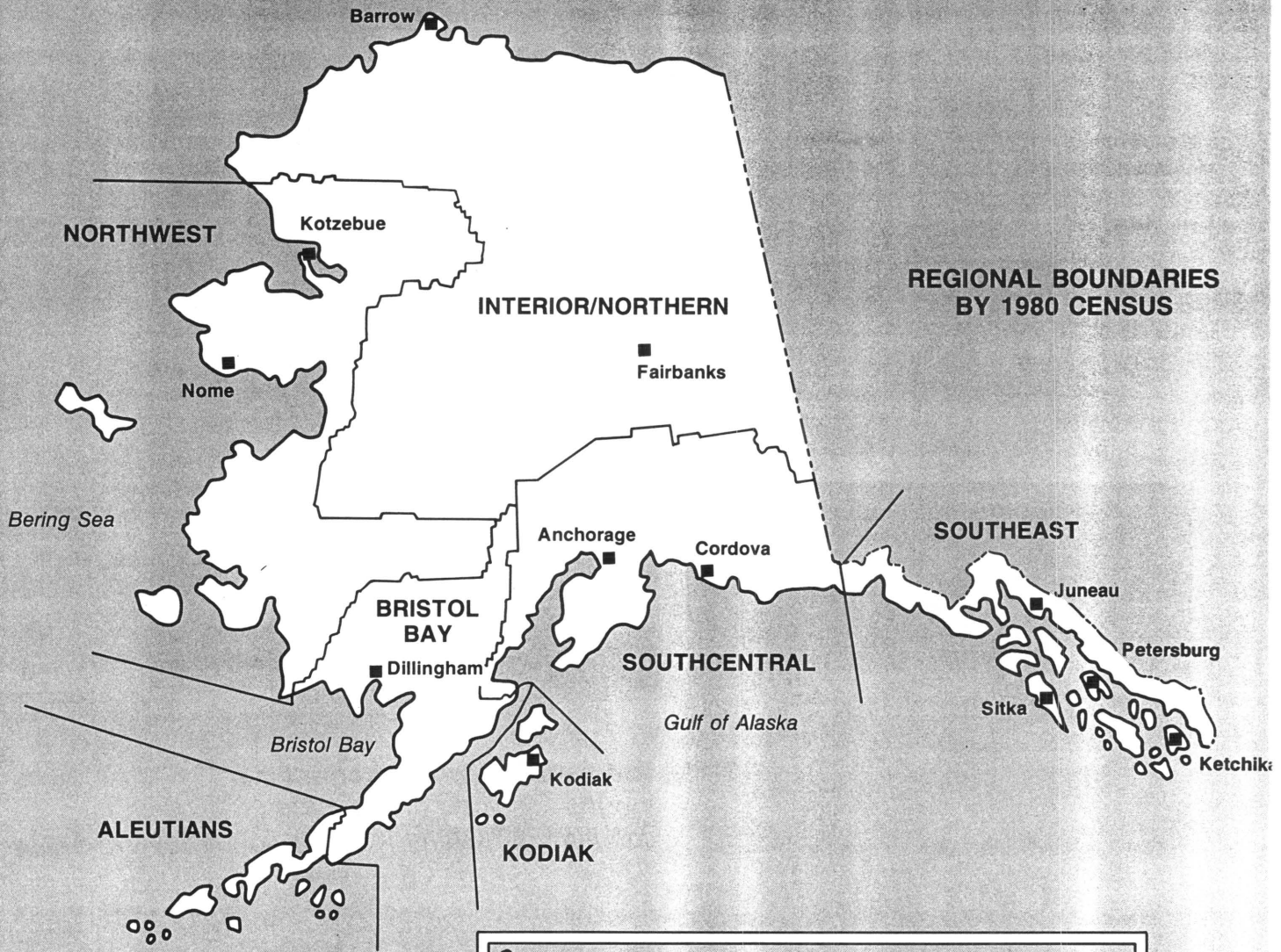
Regional Impacts: The Alaska seafood industry is the most important employer in five regions of the state — Southeast, Kodiak, Aleutians, Bristol Bay and Northwest Alaska.

Community Impacts: The leading beneficiaries of seafood harvesting are Kodiak, where residents earned \$86 million in 1986; Dillingham, \$46 million; and Anchorage, \$31 million.

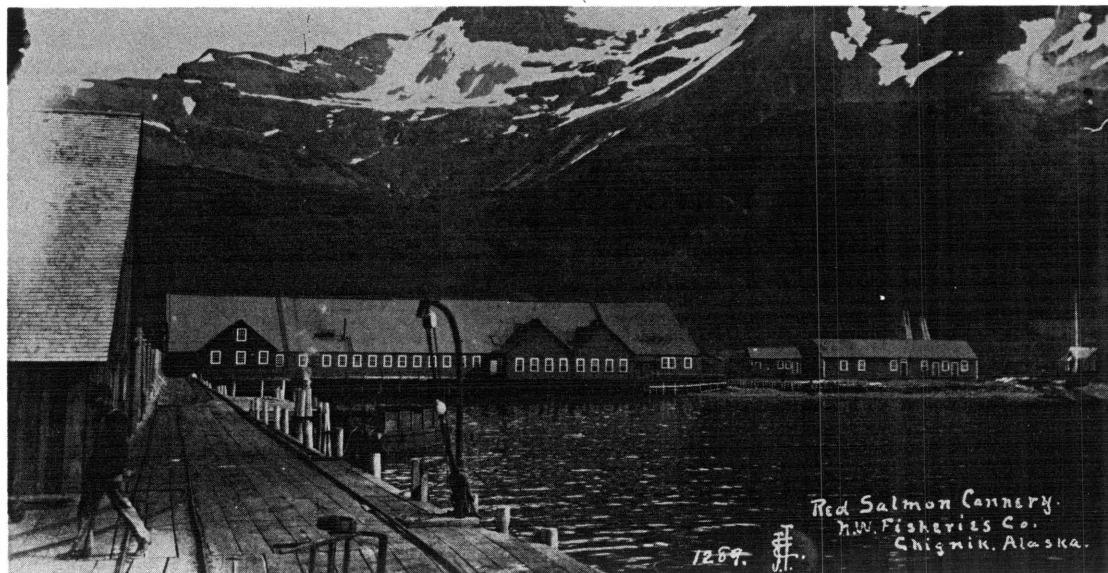


*The men and women of Alaska
are the lifeblood of the state's
commercial fishing industry.*





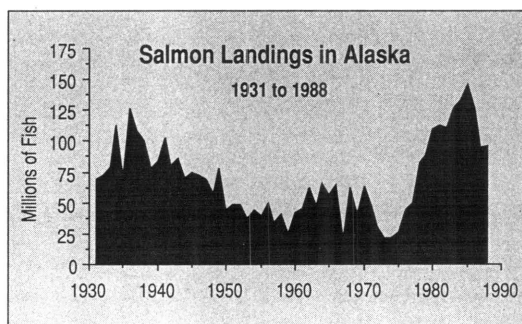
History of Alaska's Fisheries



Alaska's history as a commercial seafood producer can be divided into three phases: Alaska's territorial phase, statehood, and most recently, extended jurisdiction in U.S. waters. The territorial days were characterized by fish traps, canneries, resource over-exploitation, long distance federal management and political conflict. With statehood in 1959, Alaskans assumed responsibility for management of their nearshore seafood resources. This period was marked by responsible biological management, limited entry for the salmon fishery, and full recovery of the once-depleted salmon resource. Alaska recently entered a third phase with the 1976 enactment of the Magnuson Act. This act transferred to the U.S. government jurisdiction of the fisheries in the Exclusive Economic Zone (EEZ), which extends from 3 to 200 miles offshore. This area includes the vast groundfish resource of the Gulf of Alaska and Bering Sea.

Salmon

Exploitation of Alaska's salmon resource dates back to the first canneries in Alaska in 1878. Over the next 50 years the Seattle-based salmon canneries developed into the dominant force in Alaska's seafood industry. By 1929, there were 159 canneries operating in Alaska. When Alaska became a state, it took over management of the salmon fishery. Under state management, Alaska's salmon



The 1987 halibut catch from Alaska waters totaled 57 million pounds and earned an estimated \$70 million for harvesters.



Halibut on dock awaiting transport to processor. Over 10,000 fishermen earned \$70 million for their 1987 halibut catch.

harvest fell to an all-time low of 22 million fish in 1974 and climbed to a high of 147 million fish in 1985.

The Alaska salmon fishery, conducted from Ketchikan to Kotzebue, harvests five species of salmon — king (chinook), red (sockeye), silver (coho), chum (dog) and pink (humpy). The fishery employs about 25,000 skippers and crew members. Four types of gear are used — seine, gillnet, set-net and troll — depending on the area and species targeted.

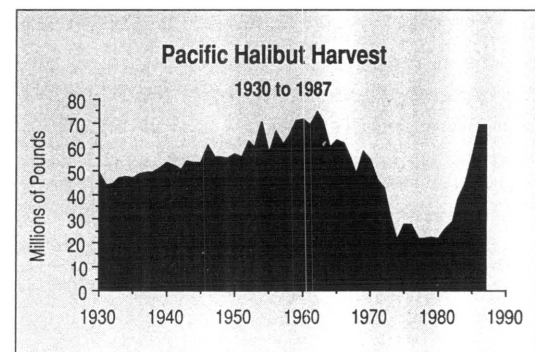
The salmon fishery is Alaska's most valuable. The 1988 harvest was worth an all-time high of \$742 million ex-vessel, a 50% increase over the 1987 total of \$478 million (fish sales by harvesters are expressed as ex-vessel values). About 65% of Alaska's salmon harvest was marketed fresh or frozen (and a small amount salted) in 1987, continuing a trend away from canned salmon.

Sockeye accounted for about 50% of Alaska's fresh, frozen and salted production weight in 1987, at just under 123 million pounds. Chum salmon was next at 44 million pounds. Coho production was 16 million pounds, pink salmon 35 million pounds, and king salmon 10 million pounds.

Halibut

Commercial harvest of Alaska's halibut began about 1910 when the Puget Sound schooner fleet ventured into northern waters. The total Pacific halibut harvest peaked at 75 million pounds in 1962 but declined to 21 million pounds between 1974 and 1978. The halibut harvest has since climbed back to near-record levels, though the 24-hour halibut derbies bear little resemblance to the longer fishing seasons of years past.

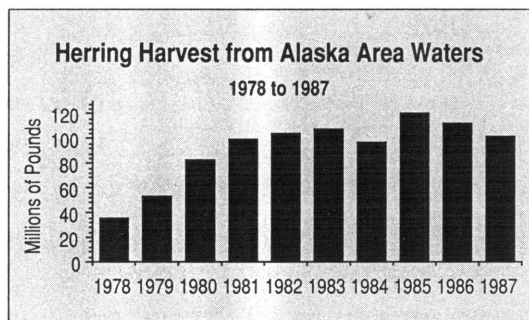
With 10,200 skippers and crew, the halibut fishery attracts more participants than any fishery except salmon. Halibut fishermen use longline gear with baited hooks.



The 1987 halibut catch from Alaska waters totaled 57 million pounds and earned an estimated \$70 million for harvesters. The 1987 catch was down slightly from 1986 in pounds harvested but up about 10% in ex-vessel value.

Herring

The Alaska herring fishery dates back to the saltery days of the 1890s. The fishery was reborn in the mid-1970s with development of a Japanese market for herring sac roe (eggs), valued highly as a holiday delicacy. When herring eggs are ripe for spawning in spring, the allowable quota is usually caught in a matter of hours with seine and gillnet gear.



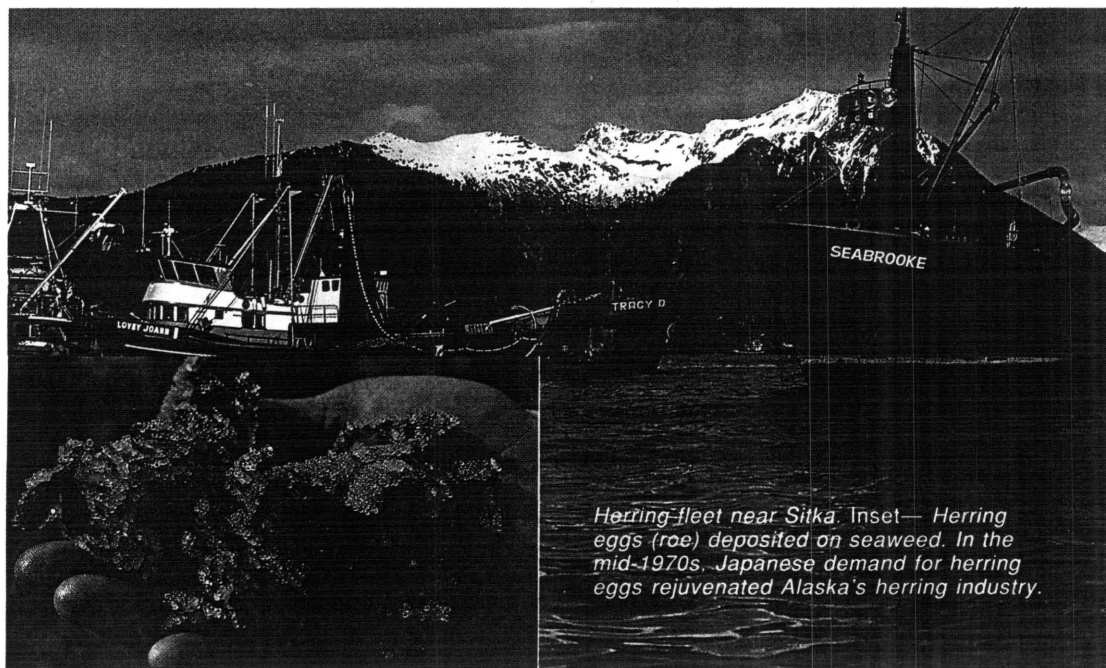
Skippers and crew number nearly 7,000.

In 1987, sac roe, food and bait herring harvested from Alaska waters were worth an estimated \$43 million ex-vessel. Alaska sac roe herring harvest peaked in 1985, but the value of the harvest is still on the rise. The value of the 1988 harvest reached an estimated \$56 million, the highest ever.

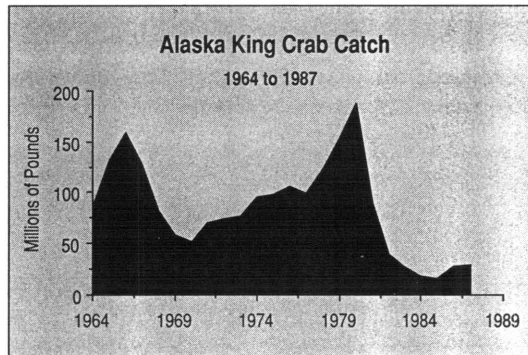
Shellfish

The shellfish fisheries — king, tanner and Dungeness crab, shrimp and scallops — are conducted along most of the Alaska coast by 3,800 skippers and crew. Baited wire mesh pots are set along the bottom, trapping the crab inside. Shrimp are usually caught by dragging trawls along the bottom.

The king crab fishery evolved from a primarily Japanese and Soviet fishery in the 1930s and 1940s into an important domestic fishery in the 1950s. The domestic Alaska king crab harvest increased from just 5 million pounds in 1953 to 188 million pounds in 1980, with a value greater than the Alaska salmon harvest. But the king crab harvest collapsed to 15 million pounds only 5 years later. Now the king crab fishery may be on the rebound.



Herring fleet near Sitka. Inset— Herring eggs (roe) deposited on seaweed. In the mid-1970s, Japanese demand for herring eggs rejuvenated Alaska's herring industry.



The 1987 shellfish harvest was worth an estimated \$214 million ex-vessel. The tanner (snow) crab harvest accounted for about two-thirds of the total Alaska shellfish catch. The king crab harvest represented about one-fifth of the total. Alaska's shellfish harvest has increased over 80% since the industry's low in 1984, but is still well below the peak years of the early 1980s.

Groundfish

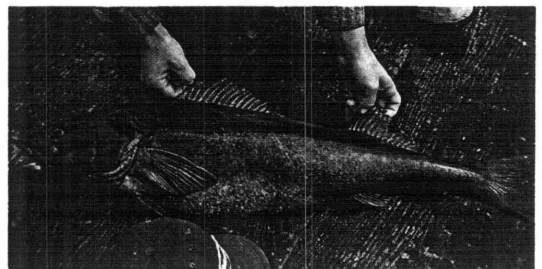
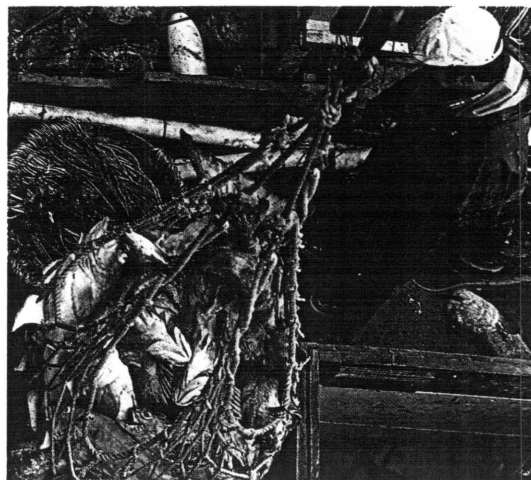
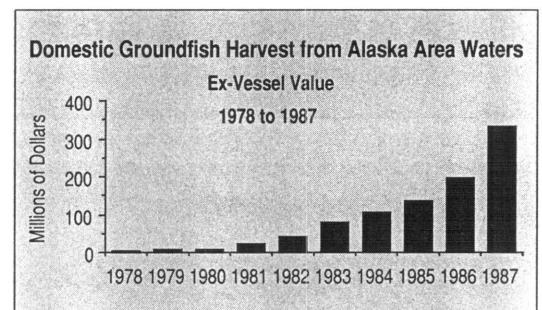
Today, only a small fraction of the groundfish taken off Alaska is harvested by foreign operators. Joint venture (JV) operations, where American catchers sell to foreign processors at sea, accounted for the majority of the offshore groundfish harvest in 1988, while domestic operations will account for the majority in 1989.

In order of value, groundfish species are pollock, Pacific cod, sablefish (black cod)

and rockfish. Most groundfish are taken in the Bering Sea using trawl gear, open-ended sock-shaped nets. In 1988, the groundfish fleet consisted of 100 trawlers with about 5,000 workers.

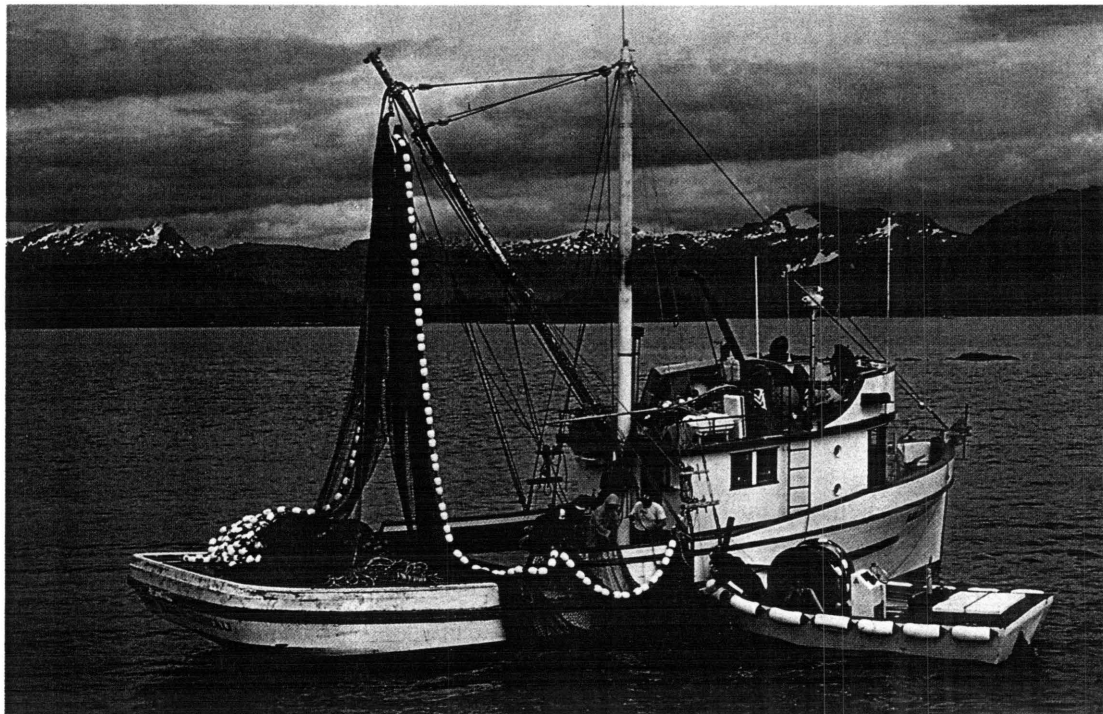
For the 1987 Bering Sea and Gulf of Alaska groundfish harvest, JV operators accounted for about 78% of the total catch. The value of the 1987 domestic and JV groundfish harvest reached an estimated \$331 million ex-vessel, 67% higher than the value of the 1986 harvest.

Though three-fourths of the 1987 groundfish harvest was foreign processed, an increasing share is being processed by domestic seafood producers. In 1987, the total domestic groundfish production value at the first wholesale level was estimated at \$472 million, 50 times that in 1980. The value of groundfish processed on shore in Alaska has increased remarkably from \$49 million in 1986 to \$147 million in 1987.



Left— Groundfish, mostly rockfish, in net bag. Above— Sablefish. Groundfish include pollock, Pacific cod, sablefish (black cod), rockfish, flatfish, Atka mackerel, and Pacific ocean perch. As a result of "Americanization" of the Bering Sea and Gulf of Alaska fishery, the 1987 domestic groundfish wholesale production value was 50 times greater than in 1980.

Overview of Alaska's Seafood Industry



A salmon seiner in Prince William Sound. Most of the owner-operators and crews for small boats like this are Alaska residents. Overall, Alaskans hold 70% of Alaska's seafood harvesting jobs.

The Alaska seafood industry is based on a natural resource that is the common property of the people.

The Alaska fishing industry can be divided into two parts — the small boat, nearshore fisheries and the offshore highly capitalized fisheries. The small boat, nearshore fleets concentrate on seasonal salmon, herring, halibut, black cod and to a lesser extent on Dungeness, king and tanner crab. Vessels are mostly 30 to 45 feet long and valued under \$500,000. Participants in these fisheries tend to be resident Alaskans, and the majority of these fisheries are managed by the State of Alaska. Time, areas, and gear fished are regulated in nearly all of these fisheries. The historical and regulatory patterns in these nearshore fisheries have cre-

ated a climate suited almost exclusively to owner-operated fishing businesses.

The highly capitalized groundfish fishery and most of the king and tanner crab harvests are conducted well offshore in the Bering Sea and western Gulf of Alaska and are subject to federal management. These fisheries demand much larger vessels, substantial capital investments and large crews. Vessel values range from less than \$1 million to \$40 million for large factory trawlers. Nonresidents dominate these fisheries, and ownership tends to be corporate. Time, areas, gear, harvests and participation are far less limited than in the nearshore fisheries.

Resident harvesters concentrate in the traditional fisheries, especially salmon, where they hold nearly 80% of the permits.

Residency

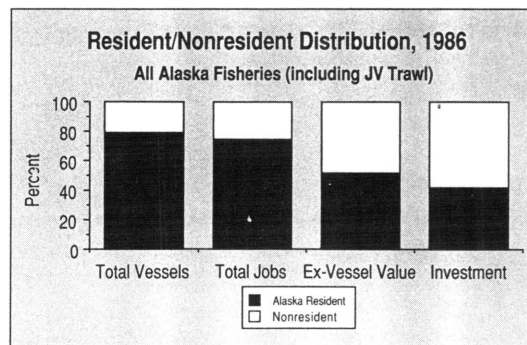
Both residents and nonresidents participate in the Alaska seafood industry. In seafood harvesting, where most of the employment occurs, 70% of the participants are Alaskans, compared to the 77% average resident composition for all Alaska private industry. In seafood processing, 47% of the participants are Alaskans.

Resident harvesters concentrate in the traditional fisheries, especially salmon, where they hold nearly 80% of the permits. Residents also are concentrated in the small boat and subsistence-oriented fisheries.

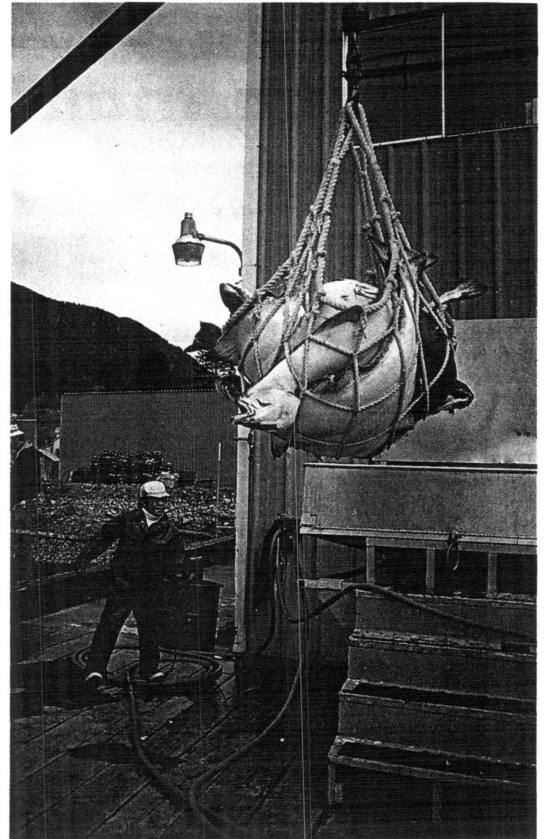
Nonresident harvesters are more likely to dominate the heavily capitalized and large boat fisheries. Thus, while Alaskans own most of the vessels and permits and hold most of the harvesting jobs, nonresidents have a higher level of investment and, on average, produce more than residents.

Obviously, the more resident participation and catch value, the greater the benefits to the Alaska economy because residents spend their take-home pay in the state. However, the process by which Alaskans might acquire more permits and make greater investments in vessels and equipment is not apparent, especially in the highly capitalized offshore fisheries.

Apart from the JV and factory trawl fisheries, nonresidents hold 21% of the permits and captured 40% of the gross harvest earnings in 1986. Alaska permit holders participate in more fisheries than nonresidents, but nonresidents net greater yield per fishery.



10



Offloading chilled halibut. This popular species is managed by a joint U.S./Canadian commission. Overharvest seriously reduced halibut stocks in the 1970s, but strict controls have helped return halibut harvests to near record levels.

Management of the Fisheries

The Alaska seafood industry is based on a natural resource (fish and shellfish) that is the common property of the people. The management responsibilities of the state government are defined by the state constitution and statutes. The fisheries management responsibilities of the federal government are primarily defined by the Magnuson Act which gave the United States authority over the living resources in the EEZ and on the continental shelf.

Management of Alaska's fisheries is a complex, sometimes fragmented process with responsibility sprinkled among state, national and international bodies. Alaska Department of Fish and Game (ADFG) manages most fisheries up to three miles off-

shore. A lay Board of Fisheries sets regulations for fisheries in state waters. The EEZ is managed by the National Marine Fisheries Service (NMFS) which is directed by the North Pacific Fishery Management Council (NPFMC). NMFS manages the emerging groundfish fishery. Halibut decisions are made by the International Pacific Halibut Commission which includes representatives from Canada, Alaska and Washington. For all king salmon and minor amounts of sockeye in southeast Alaska, decisions are made by the International Pacific Salmon Fisheries Commission, which administers the terms of the U.S./Canada Pacific Salmon Treaty. Other bodies such as the International North Pacific Fisheries Commission deal with concerns of nations that use North Pacific resources, including Japan, Canada and the United States.

Markets for Alaska's Seafood

Alaska's seafood industry is enjoying the benefits of unprecedented increases in per capita seafood consumption by health conscious consumers worldwide, and of a declining U.S. dollar that has made Alaska products very attractive. But changing con-

sumer preferences combined with new products from competing producers are challenging Alaska seafood in the marketplace. However, the Alaska seafood industry is now producing many bottomfish products that once were only foreign produced. Examples of new products include frozen cod and pollock fillets, frozen headed and gutted cod and pollock, pollock roe, frozen flatfish fillets, and pollock surimi, used to make foods such as imitation crab.

Alaska's seafood processors and the state of Alaska are responding to change in the seafood market with aggressive private and public/private cooperative efforts to promote seafood products. Indeed, Alaska seafood processors spent an estimated \$6 million on promotion and advertising in 1987. These efforts have been directed at maintaining existing markets and developing new markets for Alaska's variety of seafood products.

One-third of all U.S. seafood exports is shipped directly from Alaska. Over half a billion dollars worth of seafood was exported from Alaska to foreign nations in 1987, twice the value of direct exports in 1984. In addition, a significant portion of Alaska's seafood is shipped to the state of

One-third of all U.S. seafood exports is shipped directly from Alaska.



Left— Broiled pollock. Pollock, a member of the cod family, is harvested extensively in the Bering Sea and Gulf of Alaska. Right— Japan is Alaska's leading seafood customer, buying from Alaska nearly \$530 million in seafood in 1987.



Left— Shrimp. Right— Dungeness crab. Alaska's 1987 shrimp harvest totaled almost 3 million pounds. The 1987 shellfish harvest produced over \$213 million in gross income for fishermen.

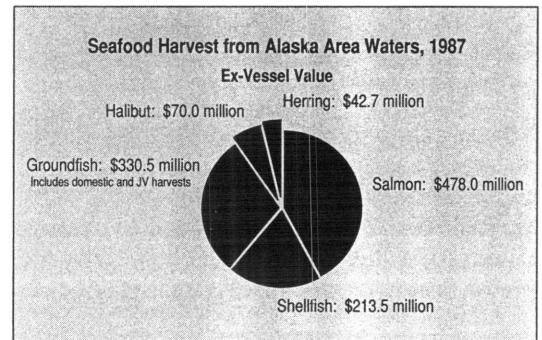
Washington before being exported. Overall, the United States exported 783 million pounds of seafood products in 1987, valued at \$1.58 billion.

Alaska's leading export customer is Japan, which in 1987 received about 95% of Alaska's direct seafood exports, valued at \$530 million. The second largest direct customer is Korea, purchaser of \$20 million in Alaska seafood products in 1987. Canada is third with \$9 million in purchases of Alaska seafood.

Selected Trends

Harvest Value

The late 1970s and 1980s have been a period of dramatic change in Alaska's commercial fisheries. Salmon production recovered from the all-time lows of the early and mid-1970s to the sustained highs of the 1980s. Both the herring and halibut fisheries saw a steady growth in value, while Alaska shellfish production collapsed in the 1982-1985 period and then started to recover. Finally, the dramatic events surrounding the increase in U.S. fisheries operations in the EEZ has seen groundfish production become the largest component of total U.S. harvest. Total harvest value rose from \$493 million to \$1.1 billion, including the offshore groundfish fishery, over the 1978-1987 period.



Diversification

In 1978, salmon and shellfish accounted for 92% of the total Alaska fisheries harvest by value. With halibut, this percentage rises to 98%, leaving a meager 2% for herring and groundfish combined. The dependence on salmon and shellfish in 1978 left the Alaska fisheries vulnerable to biological and economic fluctuations. Fortunately, herring and groundfish development diversified the industry to partially offset the 1984 shellfish failure.

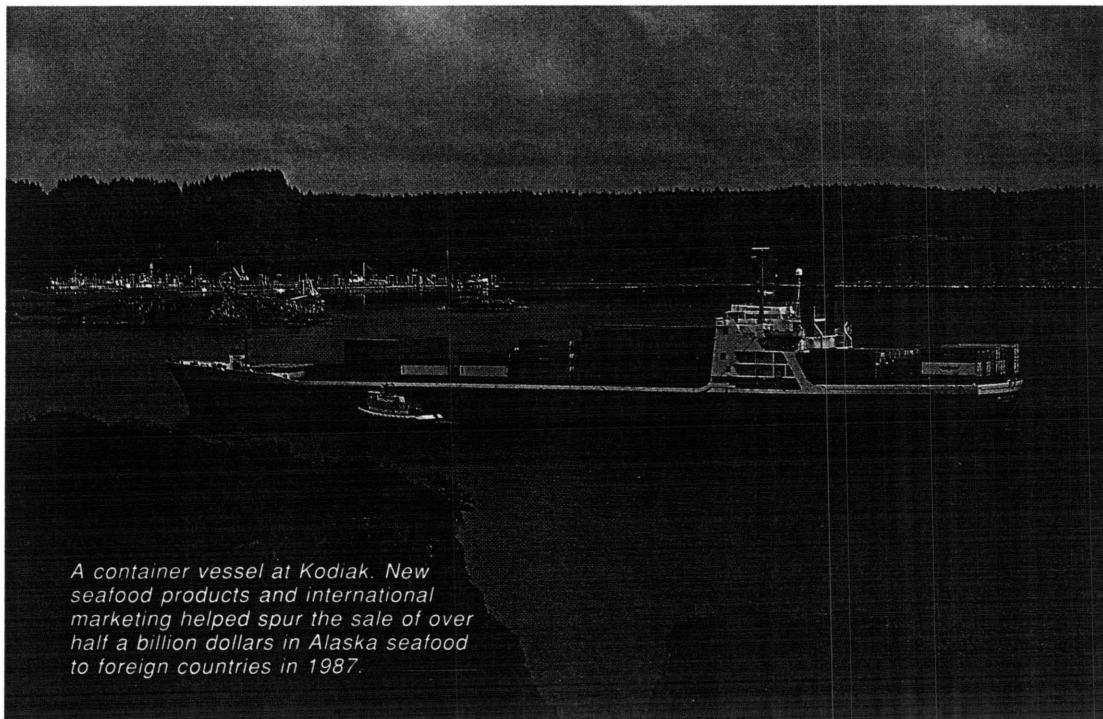
Though salmon was still the most important income source in 1987 at \$478 million, groundfish (\$331 million), shellfish (\$213 million) and halibut (\$70 million) all contributed heavily. Even herring, the least significant of the five major fisheries, brought \$43 million in gross earnings to harvesters.

Alaska's Role in the U.S. and World Seafood Industries

Had Alaska been an independent nation in 1986, it would have ranked eleventh in world fisheries production by volume, and probably much higher in value. While it lagged far behind such giants as Japan and the Soviet Union, whose distant water fleets roam the oceans of the world, Alaska out-produced such well known fishing nations as Norway, Denmark, Iceland and Canada. Although Alaska harvests accounted for only 2% of the world's total catch by volume, they represented 24% of North and Central American seafood production, and 46% of total U.S. production.

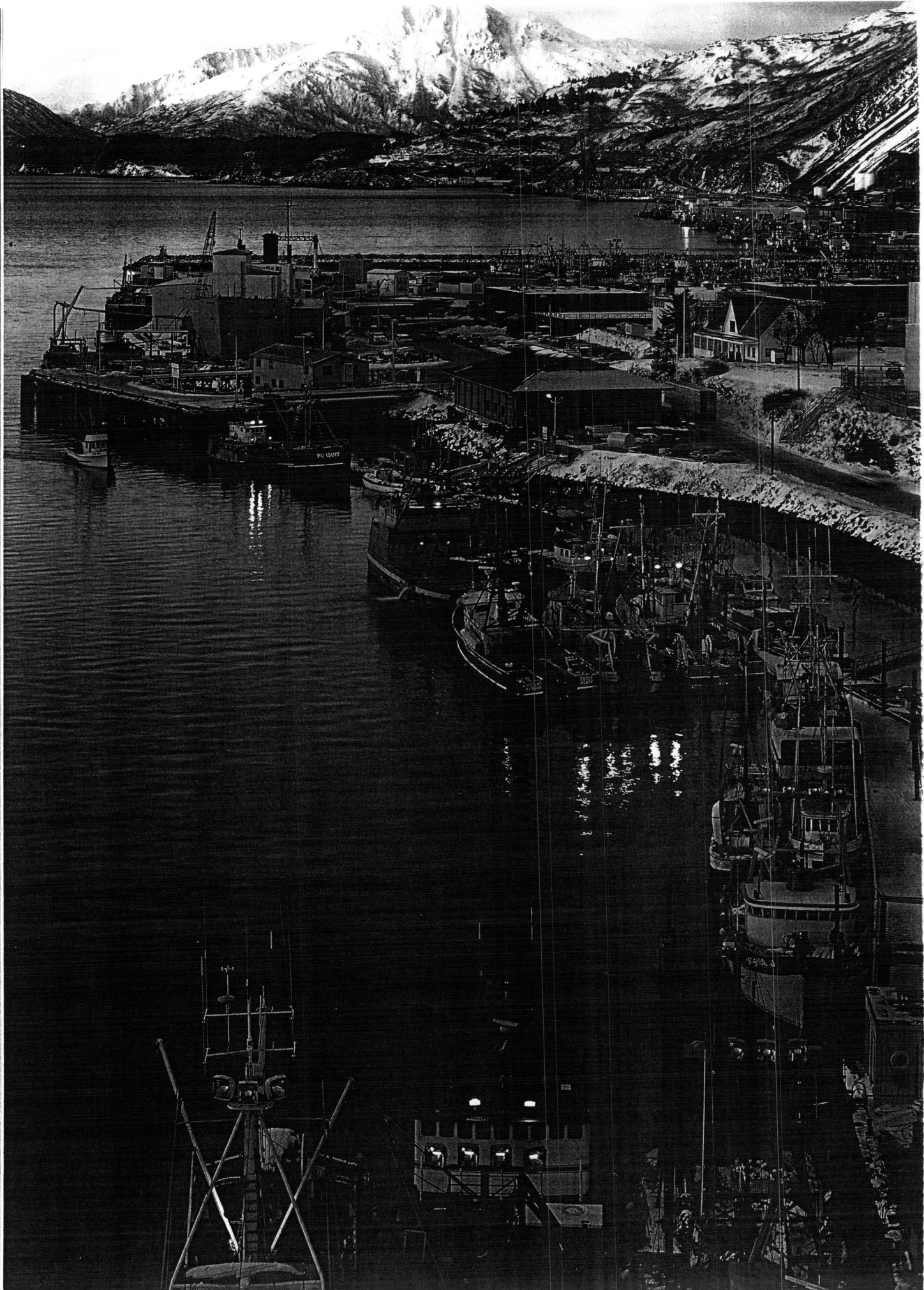
The 1987 total value of Alaska's commercial seafood landings at \$942 million is over three times that of Louisiana, which ranks second. Alaska accounted for over 30% of the total value of U.S. seafood landings in 1987. If the value of the harvest rises at the current rate, Alaska will soon account for over 50% of the total U.S. production by volume, and 40% of the total value of U.S. commercial fisheries.

Measured in value of seafood landings, four Alaska communities were among the nation's top ten commercial fishing ports in 1987: Kodiak (ranked 2), with \$132 million in landings, Dutch Harbor-Unalaska (4), Cordova (9) and Petersburg (10). Sitka (15) and Ketchikan (24) also recorded multi-million dollar seafood landings. In 1988, Kodiak led the nation with \$166 million in seafood landings.



A container vessel at Kodiak. New seafood products and international marketing helped spur the sale of over half a billion dollars in Alaska seafood to foreign countries in 1987.

Had Alaska been an independent nation in 1986, it would have ranked eleventh in world fisheries production by volume....



Economic Contribution of the Seafood Industry

Importance to Alaska's Economy

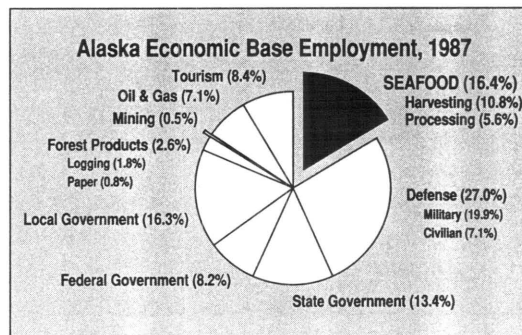
The seafood industry is Alaska's largest private basic industry employer and ranks second to defense among Alaska basic industries. Nearly one-sixth of all Alaska basic industry employment and payroll is in the seafood industry.

Alaska's basic economy produces goods and services for export, meeting demand originating outside the state. Alaska's basic industries are — in order of average annual employment — national defense, seafood, the portions of local and state government that result from oil and gas tax revenue, tourism, civilian federal government serving national interests other than defense, oil and gas, forest products and non-petroleum mining.

The seafood harvesting average monthly wage is higher than average at an estimated \$3,135. Seafood processing is lower at \$1,572. The highest paying industry is oil and gas extraction at \$5,273 per month, double the basic industry average, while tourism pays least at \$1,354 per month.

Indirect and Induced Employment

Thousands of jobs are created in Alaska's service and supply sector in support of seafood industry activities. For example, the



seafood industry indirectly generates jobs in Alaska's transportation industry, which handles nearly \$2 billion in seafood products each year. Coastal communities see employment created in marine hardware stores, shipyards, fuel suppliers, equipment repair and service businesses, and in many other sectors of the economy.

One step removed from the harvester and processor, but still the result of the seafood industry's presence in Alaska, is the employment created in support of seafood industry workers and their families. These jobs, which in economic jargon are termed "induced," are in grocery stores, clothing stores, schools, gas stations, doctors' offices, banks and local and state government — virtually all across the economy. Together, indirect and induced jobs comprise support industry employment. Alaska's 1987 basic

Estimates of Alaska Seafood Industry Employment, 1987

Average Annual Employment in Harvesting and Processing	19,232
Indirect and Induced Employment	13,800 to 18,950
Total Average Annual Direct, Indirect and Induced Employment Attributable to the Alaska Seafood Industry	33,032 to 38,182

Nearly 48,000 people participate in Alaska's billion dollar seafood harvest....

industry employment of 117,284 generated support employment of 126,700, for a total employment of 243,984, including seafood harvesting.

Seafood Harvesting Employment and Payroll

Nearly 48,000 people participate in Alaska's billion dollar seafood harvest, not counting the decreasing number of foreign operators in the offshore groundfish harvest. Included in the total are 13,310 active permit holders, 31,159 crew members, and an estimated 3,000 participants in the domestic and JV groundfish industries.

Estimated employment and payroll for Alaska's seafood harvesting industry is presented in the accompanying table. The salmon fisheries provide most of the employment in Alaska's seafood harvesting industry, employing over 20,000 people.

However, most of these 20,000 people do not work year-round in seafood harvesting. Thus, spread over one year, their total months worked are equal to 6,836 full-time

jobs. Economists call this the *average annual equivalent*.

Of the various gear groups involved in salmon fishing, drift gillnetters account for the annual equivalent of 2,502 jobs, seiners 1,690 jobs, setnetters 847 jobs, power trollers 655 jobs, hand trollers 198 jobs. Other salmon fisheries account for an annual equivalent of 944 jobs.

Significant growth in employment is occurring in Alaska's offshore groundfish fisheries. Employment on catcher/processors increased about 50% in 1988, and a similar increase is expected between 1988 and 1989.

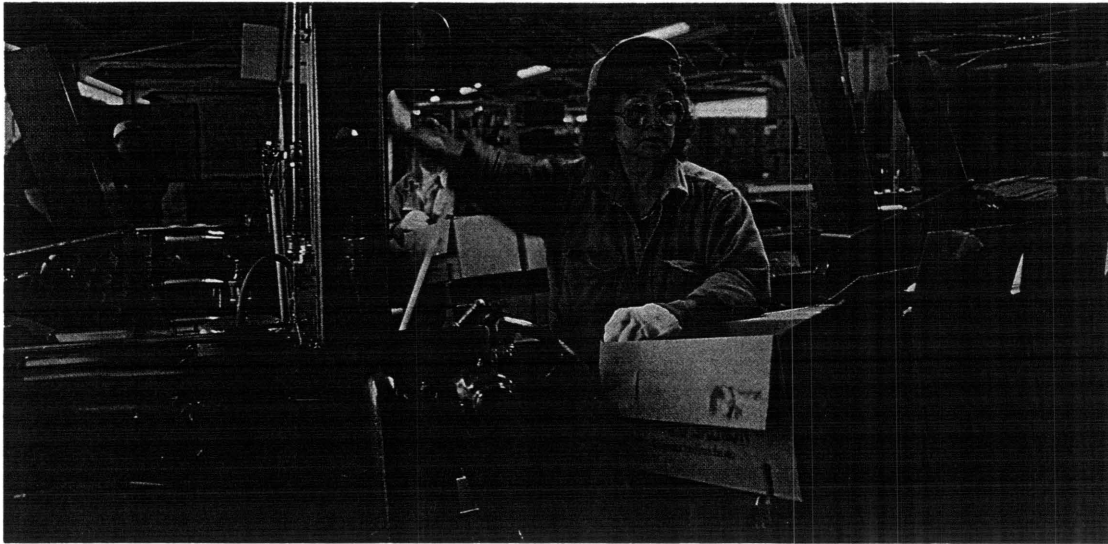
Seafood Processing Employment and Payroll

Employment in Alaska's seafood processing industry reached a 6-year high in 1987 with an annual equivalent employment level of 6,611 jobs. Peak seasonal employment was 14,970 workers. Total seasonal participation in seafood processing in Alaska probably exceeded 21,000 workers earning \$125 million, the highest processing payroll to date.

Employment and Payroll in Alaska's Seafood Harvesting Industry, 1986

Fishery	Permits Fished	People Employed	Annual Equivalent Employment	Estimated Payroll (\$ million)
Salmon	10,228	24,979	6,836	185.0
Herring	1,855	6,844	571	22.2
Halibut, Black Cod and other	4,013	13,516	1,357	80.6
Shellfish	1,174	3,794	1,857	84.7
SUBTOTAL¹	17,270	47,469	10,621	372.5
Groundfish (Offshore, 1987)				
Domestic & JV Trawl	110 vessels	900	600	56.2
Catcher/Processors	35 vessels	2,100	1,400	42.4
Total		3,000	2,000	98.6
GRAND TOTAL		49,569	12,621	\$471.1

¹Totals eliminate double counting of harvesters active in more than one salmon fishery. Therefore, totals are not sums.



Woman in salmon cannery. The number of seasonal jobs in canneries is decreasing, but increased shore-based groundfish processing is creating more year-round employment and higher average salaries.

Seafood processing employment in Alaska peaked in 1981 at 7,065 jobs. Employment declined to a low of 5,417 in 1984. The crash of the king crab stocks accounted for some of the decline, but a major factor was the shift from canned to fresh/frozen product, which requires less labor. The increase in shore-based groundfish production in Alaska is partly responsible for a trend toward greater year-round employment even as peak season employment declines. More year-round business in the seafood processing industry means greater stability, more resident participation and higher average salaries.

Kodiak led Alaska communities in seafood processing employment in 1987 with 1,996 jobs and an annual average of 1,495 jobs. Dutch Harbor recorded 1,063 with an annual average of 880 seafood processing jobs, an indication of year-round stability. Petersburg led Southeast in seafood processing employment with a summer peak of 806 jobs and an annual average of 330, reflecting a dependence on the seasonal salmon fisheries.

Among all basic industries in Alaska, seafood processing has the largest component of nonresidents in its workforce. In 1987, an estimated 46.5% of the 23,676 food processing workers in Alaska were nonre-

sidents. Though most seafood processing companies operating in Alaska actively recruit resident workers, the seasonal nature of processing jobs and the low wages discourage some residents. Further, many processing operations are remote and local labor cannot meet demand. The Department of Labor states that the processing industry places more job orders than can be filled by the Alaska labor force.

Importance to Regional Economies

The seafood industry is the largest private sector employer in five of the seven Alaska regions discussed below. In the Kodiak, Bristol Bay and Aleutian regions, seafood is the dominant basic industry. In southcentral Alaska, which contains over half the state's economy, seafood employs three-fourths as many people as the oil and gas industry and nearly half as many as state government.

The following table shows the distribution of permit ownership and earnings in Alaska. Residents of southcentral Alaska earned the most in 1986, \$131 million before expenses and boat and permit payments. Residents of the city of Kodiak grossed \$86 million, highest of any community.

Employment in Alaska's seafood processing industry reached a 6-year high in 1987....

*Anchorage... is
Alaska's third
largest seafood
harvesting
money earner.*

Southeast: The seafood industry, with average annual employment of 3,993, is southeast Alaska's largest private industry. Southeast is the state's largest seafood region in employment, just ahead of Southcentral. Twenty-one percent of the state's seafood jobs are in southeast Alaska. Based on 1986 gross harvest earnings Southeast ranks second with \$109 million, compared to \$131 million earned by Southcentral residents.

Southcentral: This region is the economic heart of Alaska with over half of the state's employment. Anchorage serves as the transportation, finance and trade center for most of Alaska and alone is Alaska's third largest seafood harvesting money earner.

The seafood industry employs 3,735 in Southcentral. Residents earn more from seafood harvesting (\$131 million) than any other Alaska region. Another \$30 million in net income is earned by seafood processing workers. Southcentral residents earn 28% of all resident seafood harvesting gross income and 24% of all processing wages.

Kodiak: Kodiak is one of three Alaska regions in which the seafood industry is the dominant economic activity. With an aver-

age annual employment of nearly 2,600, Kodiak's seafood industry accounts for 55% of private sector employment and 38% of total employment. The Kodiak region accounts for nearly one in four of the state's seafood processing jobs and 14% of all seafood employment.

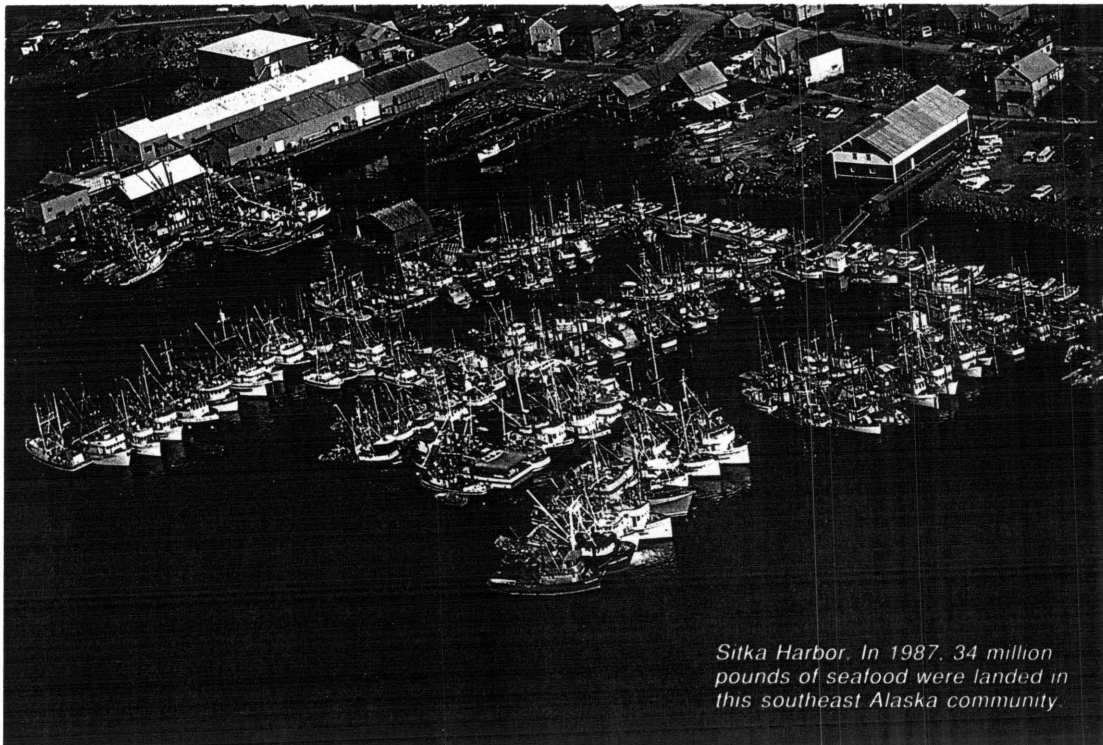
Aleutians: The Aleutian region has a very sparse population and an economy dominated by the seafood industry, which employs 64% of all private sector workers. The Aleutian seafood industry has an annual average employment of 2,989, 36% of the total regional employment.

The Aleutian share of the Alaska seafood industry accounts for 16% of all seafood employment and 17% of the processing workforce. In 1986 Aleutian residents captured \$47 million in gross harvesting earnings. These harvesters are the state's most productive.

Bristol Bay: This region of the legendary salmon runs is more dependent on the seafood industry than any other. Over 70% of the region's private industry employment is in seafood with an annual average of 2,550 people employed in 1987. Seafood domi-

Seafood Harvesting Participation and Earnings, 1986
by Region of Residence

Region	Permit Holders	Permits Fished	Pounds Harvested (millions)	Gross Earnings (\$ million)
Southeast	2,724	4,725	162.5	109.3
Southcentral	2,977	4,125	172.7	130.6
Anchorage	873	1,015	36.1	30.8
Kodiak (region)	811	1,563	161.2	95.2
Aleutians	326	556	57.2	46.7
Bristol Bay	1,178	1,431	49.1	55.9
Northwest	2,251	2,460	33.7	19.2
Other Alaska	242	261	3.4	3.5
Fairbanks	101	112	2.0	2.1
TOTAL ALASKA	10,496	15,121	639.8	\$460.6



Sitka Harbor. In 1987, 34 million pounds of seafood were landed in this southeast Alaska community.

...101 Fairbank resident permit holders grossec \$2.1 million in 1986 fishing elsewhere in the state.

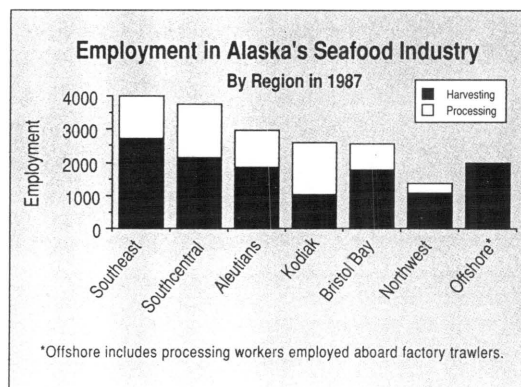
nates the Bristol Bay economy with 51% of all employment. Residents earned \$56 million in harvesting gross income in 1986, or about 12% of the Alaska total.

Northwest: In the Northwest region, one of four private sector jobs is in seafood harvesting or processing. The seafood industry directly accounts for 13% of the nearly 11,000 average annual total employment.

The seafood harvesting industry in the Northwest region is very labor intensive. Residents earned \$19 million in harvesting gross income in 1986, and processing workers took home paychecks totaling over \$5 million in 1987.

Interior/Northern: This region has no significant commercial fishery. However, the 242 residents who earned nearly \$4 million in harvesting gross income (about 1% of the Alaska total) hold permits for fisheries located in other areas of the state. For example, 101 Fairbanks resident permit holders grossed \$2.1 million in 1986 fishing elsewhere in the state.

Offshore and Undetermined: This category consists of the estimated 2,000 average annual employment in the offshore and domestic trawl fisheries, which account for about 10% of Alaska's seafood industry employment. These jobs have little effect on Alaska's economy because workers are mostly non-residents and spend little or no time ashore in Alaska. There are also 2,037 other jobs that have no specifically determined geographic location in Alaska.





Stacked king crab pots and floats. Alaska crabbers have a capital investment of about \$400 million.

Capital Investment

Investment in Alaska's seafood industry is estimated at \$4 billion. Investment in fishing vessels in Alaska's nearshore and offshore fisheries is between \$1.8 billion and \$2.0 billion, plus an additional \$200 million to \$300 million in onboard equipment. The salmon fisheries account for an estimated \$800 million of this total, and the offshore groundfish industry accounts for \$500 million. Harvesters have invested another \$900 million in permits for Alaska's limited entry salmon fisheries. Investment in other types of permits adds another \$100 million to the total. Investment in seafood processing plants and equipment may approach \$1 billion, measured in insured or assessed value.

Expenditures in Alaska

In-state expenditures by processors exceeded \$90 million in 1987, not including fish purchases or payroll. This spending is on such goods and services as fuel, electrical power,

transportation, hardware, repair services, supplies and food.

An estimate of expenditures by harvesters places in-state spending on goods and services in support of Alaska's harvesting fleets at about \$190 million, including \$33 million from the factory trawl fleet. Fleet support expenditures are spread throughout the economy and include repair and maintenance services, insurance, food, gear, equipment, fuel, crew transportation, bait, ice, professional services and many other items.

In total, spending on goods and services in support of harvesting and processing may reach \$300 million or more.

The industry paid raw fish taxes of \$27 million in 1987 and is the major contributor to the \$5 million marine fuel tax. Harvesters also tax themselves in excess of \$4 million annually for support of regional aquaculture programs. License fees and local sales and property taxes generate millions from seafood industry activities.

Estimated Capital Investment in Alaska's Seafood Industry, 1988

Investment in Harvesting Vessels and Onboard Equipment	\$2.0 billion to \$2.3 billion
Investment in Commercial Fishery Permits	\$900 million to \$1.0 billion
Investment in Seafood Processing Plants and Equipment	\$800 million to \$1.0 billion

Total Capital Investment in Alaska's Seafood Industry	\$3.7 billion to \$4.3 billion
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Seafood-Related Agencies and Organizations

Important to any major industry are the support organizations and government agencies which regulate and serve that industry. In Alaska, these entities make a substantial contribution to the state's economy in general, and to the seafood industry in particular.

For example, among government agencies the Alaska Department of Fish and Game operates hatcheries that contribute to common property fisheries. The University of Alaska offers education, training, basic and applied research, and field advisory services in support of the industry. The National Marine Fisheries Service performs biological and technical research, as well as enforcement services to protect Alaska's fisheries. One unique and beneficial program is the cooperative marketing program financed jointly by the State of Alaska, the federal government and the industry through

the Alaska Seafood Marketing Institute.

Both state-run hatcheries and private non-profit hatcheries produce fish for the common property fishery. These fish are worth many times the costs of hatchery production.

Other groups, such as harvester and processor organizations, lobby for programs and legislation on behalf of the entire industry.

While these industry benefits are great, the economic benefits to the state are also significant. The agencies and organizations are both support sector (education, research, lobbying) and basic sector (fish production) contributors to the economy. Agencies and organizations directly related to the seafood industry in Alaska contribute a minimum of 1,100 jobs in average annual employment; an annual payroll of at least \$40 million; and a total annual budget in support of the seafood industry of \$82 million, the majority of it State of Alaska money.

Agencies and organizations directly related to the seafood industry in Alaska contribute... an annual payroll of at least \$40 million....



Hatchery-spawned chum salmon. In 1988, 24% of the total Alaska commercial and sport fishing salmon harvest originated in Alaska's state-run and private non-profit hatcheries. Inset— Pink salmon yolk fry. At this early development stage, salmon rely on nutrients stored in their yolk sacs, and are especially vulnerable to environmental contaminants. Cooperative state and federal research programs are developing more productive ways to ensure a consistent supply of healthy hatchery salmon.

Conclusion

The Alaska seafood industry is a diverse and evolving giant in the Alaska economy and its rhythms underlie the lifestyles of communities throughout the state. It provides jobs and income for more Alaskans and in more locations than any other private industry. Economic benefits of this multi-billion dollar industry are distributed from Ketchikan to Kotzebue, in urban and remote areas.

The industry's politics and management span Juneau, Anchorage, Washington, D.C. and other states and countries, and its markets are widespread. The sometimes exasperating political web often helps (and sometimes hinders) the industry's growth.

Extending U.S. fishing efforts into the Exclusive Economic Zone is a national success, and it is now Alaska's challenge to make it a state success. Marketing can be an effective means of improving the appeal of the industry's products. Hatchery production, limited entry, rejuvenated salmon runs, a bank devoted to seafood industry finance, and reductions in foreign interception are other examples of political and regulatory successes.

Finally, the lifeblood is the individual drive of the men and women who harvest, process, distribute, transport, market, and support Alaska's renewable resource.

