NOAA Technical Memorandum NMFS F/NWC-161

Economic and Biological Developments in the Alaskan Groundfish Fisheries **1976-87**

by
Rebecca T. Baldwin
and
James D. Hastie

March 1989

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

This TM series is used for documentation and timely communication of preliminary results, interim reports, or special purpose information, and has not received complete formal review, editorial control, or detailed editing.

ECONOMIC-AND BIOLOGICAL DEVELOPMENTS IN THE ALASKAN GROUNDFISH FISHERIES 1976-87

by

Rebecca T. Baldwin

and:

James D. Hastie

Resource Ecology and Fishery Management Division
Northwest and Alaska Fisheries Center
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
7600 Sand Point Way NE, BIN Cl5700
Seattle, Washington 98115-0070

March 1989

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

The Magnuson Fishery Conservation and Management Act of 1976 (Magnuson Act) has changed groundfish fisheries off Alaska. This report describes some of the changes by presenting time series data for important variables, such as catch, effort, and value, for the main groundfish species harvested in the Gulf of Alaska and the Bering Sea/Aleutian Islands regions. The data-reported are for the groundfish fisheries in both the U.S. Exclusive Economic Zone (EEZ) and state waters. This report does not include data for the halibut fishery because it is not managed under a groundfish fishery management plan.

Among the most dramatic changes depicted by these data are those associated with the distribution of catch among domestic, joint venture, and foreign fisheries. The foreign share of total catch decreased from over 99% in 1976 to less than 4% in 1987. This was the result of the rapid expansion of, first, joint venture and more recently domestic fisheries.

Preceding Page Blank

THIS PAGE INTENTIONALLY LEFT BLANK

CONTENTS

	Page
List of Tables	vii
Introduction	1
Trends	2
Catch	2
Effort	3
Ex-vessel Prices and Values	5
Processed Product Prices and Values	6
Distribution of Benefits	6
Exploitation Rates/Discards/By catch	8

Preceding Page Blank

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

Table Page

1. Annual groundfish catch off Alaska by area, fleet, and species, 1976-87..... 13

2. Number of vessels-with groundfish catch in the wholly domestic fishery by gear type and vessel length in feet, 1975-87..... 17

3. Number of domestic vessels in the joint venture groundfish fisheries off Alaska by area,. gear, and length class, 1979-87..... 19

4. Estimated number of fishermen in domestic groundfish fisheries off Alaska by area and gear, 1976-85..... 22

5. Estimated number of domestic fishermen in joint venture groundfish fisheries off Alaska by area, 1979-87..... 23

6. Number of deliveries in the joint venture groundfish fisheries off Alaska by area, 1979-87..... 24

7. Annual ex-vessel value of catch in the groundfish fisheries off Alaska by area, fishery, and species, 1976-87..... 25

8. Annual domestic and joint venture ex-vessel prices in the groundfish fisheries off Alaska by species and area, 1976-87..... 29

9. Estimated prices of processed products from the domestic groundfish fisheries off Alaska, 1976-87..... 32

10. Estimated value of processed products from the domestic groundfish fisheries off Alaska by species and area, 1976-87..... 33

11. Estimated nominal personal income generated in Alaska, Washington, and Oregon by the groundfish fisheries off Alaska by species 35

12. Annual distribution of landings from domestic groundfish fisheries off Alaska between permit-holder residence groups, by area and species, 1976-85..... 36

13. Annual distribution of ex-vessel value from domestic groundfish fisheries off Alaska between permit-holder residence groups by species and area, 1976-85..... 38

Preceding Page Blank

Table | Page

14. Annual count of vessels making domestic landings in groundfish fisheries off Alaska by area and gear, with percentage distribution, by residence of permit holder, 1976-85 40

15. Annual domestic groundfish trips in groundfish fisheries off Alaska by area and gear, with the percentage of trips by residence of permit holder, 1976-85 42

16. Estimated biomass, catch, and exploitation rate in the groundfish fisheries off Alaska by area and species, 1977-87 44

17. Estimated incidental catches of salmon in the foreign and joint venture groundfish fisheries in the Bering Sea/Aleutian Islands region, 1977-87 49

18. Estimated incidental catches of Pacific halibut in the foreign and U.S. joint venture groundfish fisheries in the Bering Sea/Aleutian Islands region, 1977-87 50

19. Estimated incidental catches of snow (Tanner) crab in the foreign and joint venture groundfish fisheries in the Bering Sea/Aleutian Islands region, 1977-87 51

20. Estimated incidental catches of king crab in the foreign and joint venture groundfish fisheries in the Bering Sea/Aleutian Islands region, 1977-87 52

21. Estimated incidental catch of Pacific salmon in the foreign and joint venture groundfish fisheries in the-Gulf of Alaska, 1977-87 53

22. Estimated incidental catch of Pacific halibut in the foreign and joint venture groundfish fisheries in the Gulf of Alaska, 1977-87 54

23. Estimated incidental catches of snow (Tanner) crab in the foreign and joint venture groundfish fisheries in the Gulf of Alaska, 1978-87 55

24. Estimated incidental catch of king crab in the foreign and joint venture groundfish fisheries in the Gulf of Alaska, 1978-87 56

INTRODUCTION

The Magnuson Fishery Conservation and Management Act of 1976 (Magnuson: Act) created-the North--Pacific. Fishery Management. Council (NPFMC) and gave it management responsibilities- for the groundfish fisheries in the U.S. Fishery Conservation Zone, later renamed the U.S. Exclusive Economic-Z-one (EEZ) (3-200 miles offshore), off Alaska. Using the- framework of Fishery- Management Plans (FMPs), the NPFMC sets annual quotas: allocates quotas. among domestic, joint venture, and. foreign operations; allocates harvests by- area and gear types; and regulates, catch of prohibited species, such as halibut and crab. The NPFMC' has separate FMPs for the- Gulf of Alaska and for the Bering Sea/Aleutian Islands region.

The enactment of the Magnuson Act has changed the groundfish fisheries off Alaska, especially with.. regards to allocation of harvest. Prior to the Magnuson Act, these groundfish fisheries had been dominated by foreign fishing fleets, particularly- from Japan, Korea, and the Soviet Union.

This domination changed in part because foreign allocations in the EEZ off Alaska became linked to assistance from these foreign countries in developing the U.S. groundfish fishing industry. Initially, the linkage of allocations gave rise to joint ventures in which U.S. fishing vessels deliver their codends to foreign processing vessels. More recently the U.S. policy environment has promoted growth of the domestic groundfish

fishery. Domestic fisheries are those in which U.S. firms both harvest and process groundfish.

The-data. presented in this report are for the groundfish fisheries,. excluding the Pacific halibut (Hippoglossus stenolepis) fishery,. that occur. off Alaska. The halibut fishery is excluded: because. it is not managed under the groundfish FMPs.

Each section below first discusses the sources and nature- of the data, including the-rationale for blending or omitting certain years" observations, and then-presents-a description. of the trends,.

TRENDS

Catch

Catch data are from several sources and are not necessarily comparable across fisheries or over time. Foreign Fisheries Observer Program estimates. of foreign and joint- venture catches are reported for 1977 through 1987. Prior to 1977, the catch reported by foreign fleets is presented.

Beginning with 1981, Pacific Coast Fishery Information Network (PacFIN) data are used to represent domestic catch. For years prior to 1981, data from the Alaska Commercial Fisheries Entry Commission (CFEC) are presented. The CFEC data include dressed weights for some landings and round weights for others. Other sources report estimated round weights. A difference between the data for the foreign and joint venture fisheries and the domestic fisheries for all years is that the former data are

estimates of catch, while the latter are estimates of landings with the difference being discarded catch.

From 1976 through 1987, total annual groundfish catch ranged from a low of 1.4 million metric tons (t) in 1977 and 1979 to a high of 2.1 million t in 1986 (Table 1). There were greater relative changes in both the catch of some species (e.g., Pacific cod, Gadus macrocenhalus) and the distribution of catch between domestic and foreign fishing vessels (Table 1). As the result of rapid expansion of the domestic and joint venture fisheries, the foreign share of the total annual catch decreased from over 99% in 1976 to less than 4% in 1987.

Effort

Trends in effort are presented in terms of: 1) the number of vessels by size class and gear; 2) the number of fishermen by gear type: and 3) the number of deliveries. Separate sets of data are presented for domestic and joint venture fisheries. The number of fishermen is calculated as the product of number of vessels and estimated average crew size.

In recent years, the number of domestic vessels in groundfish fisheries (both domestic and joint venture) has rapidly increased. The large number of vessels entering the groundfish fisheries from the Alaska crab and halibut fisheries is responsible for a part of the increase (Table 2 and 3). New and refitted vessels have also contributed to the growth of the domestic fleet.

In 1975, 602 domestic vessels (16 trawlers, 322 longliners, 13 pot, and 241 other gear or unknown vessels) reported catches of groundfish. By 1987, 1,843 domestic vessels participated in the fishery (Table 2). The largest percentage increase was in the number of trawlers. Only 16 were reported active in 1975; but by 1987, the number-increased to 147 vessels, a growth of 131 vessels or 819% increase. The number of longliners increased by 424%. Over that same time. period (1975-1987), 1,364 additional vessels become involved in the longline fishery.

The number of domestic vessels involved in Alaska joint ventures increased from 5 catcher boats in 1979 to 117 boats in 1987, a 2,240% increase (Table 3).

Estimates of crew size, by gear type, for the domestic groundfish fisheries are in Table 4. In terms of absolute numbers employed, the longline fishery has consistently been the highest contributor: although both the trawl and pot vessels have experienced high growth rates.

Table 5 provides estimates of the number of domestic fishermen involved in joint ventures. Except for a longline joint venture fishery in 1986, these numbers all represent employment in the trawl fishery. Although joint ventures first appeared in the Gulf of Alaska, with an estimated 20 fishermen employed in 1979, the majority of joint ventures over the past several years has taken place in the Bering Sea/Aleutian Islands region (Table 5). In 1987, 448 of the estimated 468 fishermen

employed in joint ventures worked, at least part of the year, in the Bering Sea.

Another measure of change in effort is the number of deliveries. in 1979, 96 deliveries were made in all of Alaska in the joint venture fishery- (Table 6). As only five. catcher boats were active in this fishery-, the average number of deliveries for an individual catcher boat was 19; By 1987, 40,340 deliveries-to joint venture processors. off Alaska were recorded, resulting in an average of 345 deliveries per vessel.

Ex-vessel Prices and Values

Estimates) of ex-vessel prices- and values are-presented for the domestic, joint venture, and foreign fisheries. Prior to 1984, the CFEC provided: estimates for- domestic fisheries; after 1984, PacFIN provided the estimates. In data from both sources, the domestic ex-vessel prices and values exclude the value added by at-sea processing. The Alaska Region-provided estimated ex-vessel prices for the joint venture fisheries. These joint venture prices were also used to calculate foreign ex-vessel values.

The estimated ex-vessel value of the domestic and joint venture groundfish harvest increased from less than $1 million in 1976 to $330 million in 1987, excluding the value added by at-sea processing (Table 7).

Ex-vessel prices for individual species varied between the Gulf of Alaska and the Bering Sea/Aleutian Islands region (Table

8). There does not appear to be a clear trend in prices, either for individual species over the years- or for the different regions. Instead, prices appear to be responding to a variety of factors, such as the harvest level of the individual species-, and. the quantity and price of the substitute species.

Processed Product Prices and Values

The price of the dominant product form for each species, a product specific recovery rate., and data on domestic landings were used to estimate the product value of domestic groundfish landings. Product forms information was. obtained from National Marine, Fisheries Service Fisheries of the United States, 1977-1987.

The fillet is the dominant product form produced by domestic operations. Product prices, overall, have tended to increase (Table- 9). This trend in prices combined with large annual increases in deliveries to domestic processors resulted in the estimated-annual value of Alaska groundfish processed by domestic processors increasing from less than $3 million in 1976 to more than $450 million in 1987 (Table 10).

Distribution of Benefits

The harvesting and processing of groundfish in the U.S. EEZ off Alaska generate benefits by providing seafood products to consumers and income to fishermen and processors. Firms within the harvesting and processing sectors are also linked through their purchases and sales to other segments of the U.S. and world

economy. Incomes, jobs, and business activities in other segments of the economy will, therefore, be impacted by changes in the magnitude of the benefits derived from the groundfish fisheries.

This report looks at two aspects of this multi-faceted topic. The first aspect considered is that of the overall impact on the regional economy most directly linked to this fishery. The estimates are based on a very rudimentary input-output model. It is not known to what extent these estimates reflect either the actual levels or trends of those impacts.

The second aspect responds to concern about the distribution of benefits between residents of Alaska and other U.S. residents from these groundfish fisheries off Alaska. Many of the participants in these fisheries are not residents of Alaska. To address this issue, data are presented on the distribution of catch and effort between Alaska residents and other U.S. residents. In some instances, there were not enough reporting units to allow such information to be released. When this occurred, the distribution data are for the lowest level of aggregation possible.

The commercial harvest of groundfish off Alaska generates income to the economies of Alaska, Washington, and Oregon. It is mainly residents from these three states who are involved directly in the harvesting and processing of the groundfish. In addition, income is generated indirectly from the fishing activity to these economies, through increased maintenance,

repair work, and purchasing of goods, etc. As the money generated from the fishing activities flows through these economies, it generates additional demand for many goods and helps stimulate the economy. Table 11 presents the estimates of nominal personal income generated by the groundfish fisheries off Alaska for these three states combined.

Tables 12-15 provide additional insight into the distribution of the fishing activity between Alaska residents and other U.S. residents in terms of number of landings, number- of trips, number of vessels, and ex-vessel values. While the vessels active in the gulf are predominately Alaskan (80% for all gear types), the split in the Bering Sea is 55-45 in favor of non-Alaskan residents. As the harvest in the Bering Sea is of much greater magnitude, it is not surprising to find that overall the ex-vessel value of all groundfish accrues mainly to non-Alaskan residents (58% in 1985).

Exploitation Rates/Discards/By-catch

As noted previously, landings rather than catch are reported for the domestic fisheries. Therefore, total removals in the domestic fisheries are not known. The difference between the species composition of joint venture or foreign fisheries and domestic fisheries targeting on the same species suggest that significant amounts of fish are discarded in the domestic groundfish fisheries.

Estimates of biomass based on surveys and biological modeling exercises are presented for the major species and used with catch data to calculate exploitation rates. For some species and areas, annual biomass estimates are not available. For the majority of the stocks, total biomass appears to be increasing, with either stable or declining exploitation rates (Table 16).

As the size of the fleet and the total harvest continue to grow in the groundfish fisheries off Alaska, there will be additional concern about the impact of their activity on other fisheries, such as those for halibut, salmon, and crab. Incidental catch or by catch of prohibited species (i.e., species that may not be retained in the groundfish fishery) has been and is expected to continue to be a contentious issue in groundfish management.

Foreign Fisheries Observer Program estimates of the by-catch for the foreign and joint venture groundfish fisheries are provided in- Tables 17 through 24 in terms of number and tonnage caught of these prohibited species in the Gulf of Alaska and the Bering Sea/Aleutian Islands regions.

Prohibited species of the Gulf of Alaska and the Bering Sea/Aleutian Islands region include:

Pacific salmon	*Oncorhynchus* spp.
Steelhead trout	*Oncorhynchus mykiss* (formerly known as *Salmo gairdneri*)
Pacific halibut	*Hippoglossus stenolepis*

Pacific herring	Clupea harengus pallasi
King crab	Paralithodes spp. and Lithodes spp-.
Snow crab	Chionoecetes spp.

References

Bakkala, R. G. (editor), 1988. Condition of groundfish resources of the eastern Bering Sea and Aleutian Islands region in 1987. U.S. Dep. Commer., NOAA Tech. Memo. NMFS F/NWC-139, 192 p.

Berger, J., R. Nelson, Jr., J. Wall, H. Weikart, and B. Maier, 1988. Summary of U.S. observer sampling of foreign and joint venture fisheries in the Northeast Pacific Ocean and eastern Bering Sea, 1986. U.S. Dep. Commer., NOAA Tech. Memo. NMFS F/NWC-128, 167 p.

Berger J., and H. Weikart, 1988. Summary of U.S. observer sampling of foreign and joint venture fisheries in the Northeast Pacific Ocean and eastern Bering Sea, 1987. U.S. Dep. Commer., NOAA Tech. Memo. NMFS F/NWC-148, 141 p.

Major, R. L., and T. K. Wilderbuer, 1988. Condition of groundfish resources of the Gulf of Alaska region as assessed in 1987. U.S. Dep. Commer., NOAA Tech. Memo. NMFS F/NWC-149, 249 p.

Murai, S., H. A. Gangmark, and R. R. French, 1981. All-nation removals of groundfish, herring, and shrimp from the eastern Bering Sea and Northwest Pacific Ocean, 1964-80. U.S. Dep. Commer., NOAA Tech. Memo. NMFS F/NWC-14, 40 p.

National Marine Fisheries Service, #1987. Fisheries of the United States, 1977-1987, Current Fish. Stat. No. 8385.

THIS PAGE INTENTIONALLY LEFT BLANK

Preceding page blank

Table 1.--Annual groundfish catch off Alaska by area, fleet, and species, 1976-87 (1,000's metric tons).

Species Year	Gulf of Alaska Dom.	JV	For.	Total	Bering Sea/Aleutian Islands Dom.	JV	For.	Total	Total Dom.	JV	For.	Total
Walleye pollock												
1976	0.2	0.0	79.3	79.5	0.0	0.0	1255.7	1255.7	0.2	0.0	1335.1	1335.3
1977	0.2	0.0	117.8	118.1	0.0	0.0	978.4	978.4	0.2	0.0	1096.2	1096.5
1978	1.0	0.0	96.3	97.4	0.0	0.0	977.7	977.7	1.1	0.0	1074.0	1075.1
1979	2.0	0.6	103.2	105.8	0.0	0.0	944.0	944.0	2.0	0.6	1047.2	1049.8
1980	0.9	1.1	113.0	115.0	0.1	10.6	1006.1	1016.8	1.0	11.7	1119.1	1131.9
1981	0.6	16.9	130.3	147.7	0.2	42.1	986.9	1029.3	0.8	58.9	1117.3	1177.0
1982	2.2	73.9	92.6	168.7	0.2	54.5	959.3	1014.0	2.4	128.4	1051.9	1182.8
1983	0.1	134.1	81.4	215.6	1.1	149.0	891.5	1041.6	1.2	283.1	972.8	1257.2
1984	1.0	207.1	99.3	307.4	7.3	237.0	933.0	1177.3	8.4	444.1	1032.2	1484.7
1985	15.4	237.9	31.6	284.8	30.8	377.5	820.3	1228.6	46.1	615.4	851.9	1513.4
1986	21.3	62.6	0.1	84.0	57.9	835.1	352.3	1245.3	79.2	897.7	352.4	1329.4
1987	39.1	22.8	0.0	61.9	218.2	1032.4	3.6	1254.2	257.3	1055.2	3.6	1316.1
Pacific cod												
1976	0.2	0.0	6.5	6.8	0.1	0.0	58.3	58.3	0.2	0.0	64.8	65.0
1977	0.2	0.0	2.0	2.3	0.1	0.0	35.9	35.9	0.3	0.0	37.9	38.2
1978	0.6	0.0	11.4	12.2	0.3	0.0	46.8	46.8	0.8	0.0	58.2	59.0
1979	0.8	0.7	13.2	14.9	0.8	0.0	41.4	42.0	1.6	0.7	54.6	56.9
1980	0.5	0.5	34.2	35.3	2.5	8.4	37.3	51.2	5.8	8.9	71.5	86.6
1981	1.1	0.1	35.0	36.1	14.1	9.2	39.1	62.4	15.2	9.2	74.1	98.5
1982	2.3	0.2	26.9	29.4	24.9	13.5	28.2	66.5	27.1	13.7	55.1	95.9
1983	4.2	2.4	29.8	36.4	42.0	14.4	41.5	97.8	46.2	16.8	71.3	134.2
1984	3.2	4.6	15.9	23.8	38.7	30.8	58.5	128.0	41.9	35.4	74.4	151.7
1985	3.0	2.3	9.1	14.3	45.8	41.3	57.2	144.3	48.8	43.5	66.3	158.6
1986	8.1	1.4	15.2	21.9	34.3	63.9	39.9	140.8	42.4	65.3	55.1	162.7
1987	29.0	2.0	0.0	31.0	44.9	57.5	54.4	156.7	73.9	59.4	54.4	187.7

Table 1. --Continued.

Species Year	Gulf of Alaska Dom.	JV	For.	Total	Bering Sea/Aleutian Islands Dom.	JV	For.	Total	Total Dom.	JV	For.	Total
Sablefish												
1976	0.8	0.0	25.7	26.9	0.0	0.0	4.8	4.8	0.8	0.0	30.6	31.7
1977	0.8	0.0	16.0	17.2	0.0	0.0	4.6	4.6	0.8	0.0	20.6	21.8
1978	1.2	0.0	7.1	8.9	0.0	0.0	2.0	2.0	1.2	0.0	9.1	10.9
1979	2.3	0.0	6.9	10.3	0.0	0.0	2.2	2.2	2.3	0.0	9.1	12.5
1980	1.7	0.0	6.1	8.5	0.0	0.0	2.4	2.4	1.7	0.0	8.5	10.9
1981	1.9	0.0	8.0	9.9	0.0	0.2	3.0	3.1	1.9	0.2	10.9	13.1
1982	2.9	0.0	5.6	8.6	0.2	0.1	3.8	4.1	3.1	0.1	9.5	12.7
1983	3.8	0.3	5.0	9.0	0.1	0.1	3.2	3.4	3.9	0.4	8.1	12.4
1984	8.9	0.5	1.1	10.5	1.1	0.3	1.9	3.3	9.9	0.9	3.0	13.8
1985	11.4	0.2	0.0	11.6	3.4	0.1	0.3	3.8	14.7	0.3	0.4	15.4
1986	21.6	0.1	0.0	21.6	6.0	0.4	0.1	6.5	27.6	0.5	0.1	28.2
1987	26.1	0.2	0.0	26.3	7.9	0.1	0.0	8.0	34.0	0.3	0.0	34.3
Flatfish												
1976	0.2	0.0	5.9	6.1	0.0	0.0	137.3	137.3	0.2	0.0	143.3	143.4
1977	0.7	0.0	16.0	16.7	0.0	0.0	136.6	136.6	0.7	0.0	152.6	153.3
1978	0.8	0.0	14.3	15.2	0.0	0.0	235.8	235.8	0.8	0.0	250.1	251.0
1979	0.4	0.1	13.5	13.9	0.0	0.0	191.0	191.0	0.4	0.1	204.5	204.9
1980	0.2	0.2	15.5	15.9	0.0	12.4	166.3	178.7	0.2	12.6	181.8	194.6
1981	0.4	0.0	14.4	14.9	0.0	22.0	173.2	195.2	0.4	22.1	187.6	210.1
1982	0.3	0.0	9.0	9.3	0.0	26.6	155.3	181.9	0.3	26.7	164.3	191.2
1983	0.4	2.7	9.5	12.7	0.0	34.3	166.3	200.6	0.4	37.0	175.8	213.3
1984	0.4	3.4	3.0	6.9	0.0	50.2	186.1	236.3	0.4	53.6	189.2	243.2
1985	0.5	2.4	0.2	3.1	0.1	172.7	147.6	320.5	0.5	175.2	147.8	323.6
1986	1.5	1.0	0.1	2.6	6.6	216.9	78.0	301.4	8.1	217.8	78.0	303.9
1987	2.7	7.2	0.0	9.9	24.0	214.7	7.4	246.1	26.7	221.9	7.4	256.0

Table 1. --Continued.

Species Year	Gulf of Alaska Dom.	JV	For.	Total	Bering Sea/Aleutian Islands Dom.	JV	For.	Total	Total Dom.	JV	For.	Total
Rockfish												
1976	0.1	0.0	56.4	56.7	0.0	0.0	35.4	35.4	0.1	0.0	91.8	92.0
1977	0.1	0.0	23.6	23.8	0.0	0.0	10.8	10.8	0.1	0.0	34.4	34.6
1978	0.1	0.0	10.1	10.3	0.0	0.0	7.5	7.5	0.1	0.0	17.6	17.8
1979	0.2	0.1	12.3	12.8	0.0	0.0	7.2	7.2	0.3	0.1	19.5	20.1
1980	0.2	0.0	16.6	17.1	0.0	0.1	8.5	8.6	0.2	0.1	25.1	25.7
1981	0.4	0.0	17.9	18.2	0.0	0.0	7.3	7.4	0.4	0.0	25.2	25.6
1982	0.3	0.0	10.5	10.7	0.0	0.0	4.9	4.9	0.3	0.0	15.3	15.6
1983	0.4	2.3	7.8	10.6	0.0	0.1	2.0	2.1	0.4	2.4	9.8	12.7
1984	1.1	2.0	3.2	6.3	1.3	0.6	0.9	2.9	2.4	2.7	4.1	9.1
1985	2.7	0.3	0.0	3.0	1.0	0.5	0.0	1.5	3.7	0.8	0.1	4.6
1986	7.9	0.1	0.0	8.0	1.1	0.5	0.0	1.6	8.9	0.6	0.0	9.6
1987	12.4	0.0	0.2	12.6	0.6	0.9	0.0	3.5	15.1	1.0	0.0	16.1
Atka mackerel												
1976	0.0	0.0	19.9	19.9	0.0	0.0	20.8	20.8	0.0	0.0	40.8	40.8
1977	0.0	0.0	19.5	19.5	0.0	0.0	21.8	21.8	0.0	0.0	41.2	41.2
1978	0.0	0.0	19.6	19.6	0.0	0.0	24.2	24.2	0.0	0.0	43.8	43.8
1979	0.0	0.0	10.9	10.9	0.0	0.0	23.3	23.3	0.0	0.0	34.2	34.2
1980	0.0	0.0	13.2	13.2	0.0	0.3	20.2	20.5	0.0	0.3	33.4	33.7
1981	0.0	0.0	18.7	18.7	0.0	1.6	18.1	19.7	0.0	1.6	36.8	38.4
1982	0.0	0.0	6.8	6.8	0.0	12.5	7.4	19.9	0.0	12.5	14.2	26.6
1983	0.0	0.8	11.5	12.3	0.0	10.5	1.2	11.7	0.0	11.3	12.7	24.0
1984	0.0	0.6	0.5	1.2	0.0	35.9	0.1	36.1	0.0	36.5	0.6	37.2
1985	0.0	1.8	0.0	1.8	0.0	37.9	0.0	37.9	0.0	39.7	0.0	39.7
1986	0.0	0.0	0.0	0.0	0.0	32.0	0.0	32.0	0.0	32.0	0.0	32.0
1987	0.0	0.0	0.0	0.0	0.1	30.0	0.0	30.2	0.1	30.0	0.0	30.2

Table 1. --Continued.

Species Year	Gulf of Alaska Dom.	JV	For.	Total	Bering Sea/Aleutian Islands Dom.	JV	For.	Total	Total Dom.	JV	For.	Total
All species												
1976	2.0	0.0	193.9	195.9	0.0	0.0	1512.4	1512.4	2.0	0.0	1706.2	1708.3
1977	2.6	0.0	194.9	197.5	0.0	0.0	1188.1	1188.1	2.6	0.0	1382.9	1385.6
1978	4.7	0.0	158.8	163.5	0.1	0.0	1294.0	1294.1	4.7	0.0	1452.8	1457.6
1979	7.3	1.5	160.0	168.7	0.6	0.0	1209.1	1209.7	7.9	1.5	1369.1	1378.5
1980	4.5	1.9	198.7	205.0	5.7	31.8	1240.8	1278.3	10.2	33.7	1439.5	1483.3
1981	4.5	16.9	224.3	245.5	14.4	75.1	1227.6	1317.1	18.9	92.0	1451.9	1562.6
1982	8.0	74.1	151.4	233.5	25.2	107.2	1158.9	1291.4	33.3	181.4	1310.3	1524.8
1983	9.0	142.6	144.9	296.5	43.2	208.5	1105.6	1357.2	52.1	351.0	1250.6	1653.7
1984	14.8	219.6	123.7	358.1	48.4	357.5	1191.2	1597.2	63.2	577.2	1314.9	1955.3
1985	33.0	247.2	41.0	321.4	81.5	636.4	1033.4	1751.2	114.7	883.6	1074.4	2072.6
1986	60.9	65.3	15.5	141.7	106.4	1156.4	475.2	1738.0	167.3	1221.7	490.7	1879.8
1987	109.7	32.5	0.0	142.7	298.6	1341.7	68.2	1708.5	408.3	1374.2	68.2	1850.7

Notes : "All Species" includes herring, squid, and snails in the joint venture and foreign fisheries. All joint venture (JV) and foreign (For.) data and domestic (Dom.) data beginning in 1981 are in round weight. Prior to 1981 domestic data are in landed weight which consists of a mix of round and dressed weights. The joint venture and foreign data are estimates of catch: however, the domestic data are estimates of landed catch excluding discards.

Sources: Domestic: 1976-80, Commercial Fishing Entry Commission, Condensed Gross Earnings Database, Pouch KB, Juneau, AK 99811.
Foreign: 1976, Murai et al. 1981.
JV 1979-80 and Foreign 1977-80: Berger and Weikart 1988.
Domestic, JV and Foreign 1981-87: Pacific Coast Fishery Information Network (PacFIN), Pacific Marine Fisheries Commission, Metro Center, Suite 170, 2000 SW First Avenue, Portland, OR 97201.

Table 2.--Number of vessels with groundfish catch in the wholly domestic fishery by gear type and vessel length in feet, 1975-87:

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Trawl	16	44	51	49	76	57	63	84	82	78	80	80	147
Longline	322	381	307	326	578	444	374	382	361	485	619	945	1686
Pot	13	6	10	10	11	8	5	4	6	14	24	25	30
All gears	602	652	619	724	1377	1007	874	869	835	986	1020	1449	1843
All gear													
< 60				631	1145	872	753	752	722	827	840	1157	1520
60 - 84				43	62	46	44	44	51	74	87	108	164
85 - 109				4	7	10	9	15	13	13	25	31	46
110 - 134				1		3	6	10	1	9	14	16	30
135 - 159						1		1	2	3	2	4	7
160 - 184								1	1	2	5	6	11
≥ 185					1	1	2	2	1	2	3	3	7
Unknown				45	162	74	60	44	44	56	44	124	58
Trawl gear													
< 60				14	25	20	22	22	30	21	22	19	38
60 - 84				28	40	21	28	27	31	29	21	14	31
85 - 109				4	7	9	6	15	12	10	16	15	25
110 - 134						2	4	9	1	6	13	10	24
135 - 159						1		1	2	3	2	3	4
160 - 184								1	1	2	2	4	7
≥ 185							1	1	1	2	3	3	7
Unknown				3	4	4	2	8	4	5	1	12	11

Table 2. --Continued.

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Longline gear													
< 60				293	507	388	328	340	316	413	508	764	1472
60 - 84				13	21	20	13	16	19	40	72	89	140
85 - 109					1		1	1	1	2	6	15	18
110 - 134						1	2	1		2	2	3	6
135 - 159												1	2
160 - 184													2
≥ 185						1	1	1					
Unknown				20	49	34	29	23	25	28	31	73	46
Pot gear													
< 60				7	9	4	3	4	5	7	13	4	13
60 - 84				1	1	2	1			5	4	8	4
85 - 109				1		1				1	4	6	4
110 - 134										1		4	3
135 - 159													1
160 - 184											3	2	3
≥ 185													
Unknown				1	1	1	1		1			1	2

Note: Groundfish excludes Pacific halibut, all gear includes gear types other than the three identified above,' and the large increase in the number of vessels in 1979 is in part explained by the unusually large number of troll vessels landing small amounts of groundfish.

Source: Commercial Fishing Entry Commission, Condensed Gross Earnings database.

Table 3.--Number of domestic vessels in the joint venture groundfish fisheries off Alaska by area, gear, and length class, 1979-87.

	1979	1980	1981	1982	1983	1984	1985	1986	1987
Gulf of Alaska									
Trawl									
<59			2		2	1		2	5
60-84	2	6	5	6	10	12	8	4	20
85-109	2	5	5	9	19	30	26	29	12
110-134		4	4	7	11	20	20	27	2
135-159	1					1		3	
160-184									
≥ 185									1
No vessel data			1						1
Total	5	15	17	22	42	64	54	65	41
Longline									
<59								4	
60-84								2	
85-109									
110-134									
135-159									
160-184									
≥ 185									
Total	0	0	0	0	0	0	0	6	0

Table 3.--Continued.

	1979	1980	1981	1982	1983	1984	1985	1986	1987
Bering Sea/Aleutian Islands									
Trawl									
<59									
60-84		6	5	7	11	14	22	19	15
85-109		5	6	13	23	32	39	45	54
110-134		3	2	8	11	23	22	31	37
135-159		1	1	2	1	1	1	3	5
160-184				1					
≥ 185									1
No vessel data							1		
Total	0	15	14	31	46	70	85	98	112
Longline									
<59							4		
60-84							5		
85-109									
110-134									
135-159									
160-184									
≥ 185									
No vessel data									
Total	0	0	0	0	0	0	9	0	0

Table 3.--Continued.

	1979	1980	1981	1982	1983	1984	1985	1986	1987
Alaska Total									
Trawl									
<59			2		2	1		3	
60-84	2	8	6	7	15	16	20	20	16
85-109	2	7	6	13	29	35	44	49	56
110-134		4	5	11	14	25	30	32	38
135-159	1	2	1	2	1	1	1	3	5
160-184				1					
≥ 185									1
No vessel data			1				1		1
Total	5	21	21	34	61	78	96	107	117
Longline									
<59							4	4	
60-84							5	2	
85-109									
110-134									
135-159									
160-184									
≥ 185									
No vessel data									
Total	0	0	0	0	0	0	9	6	0

Note: The sums of vessels from the Bering Sea and Gulf of Alaska may not equal the total for Alaska since some vessels fish in both regions.

Source: Unpublished report, NMFS, Alaska Region. 1968.

Table 4.--Estimated number of fishermen in domestic groundfish fisheries off Alaska by area and gear, 1976-85.

	Gulf of Alaska				Bering Sea/ Aleutian Islands				Total			
Year	Long-line	Pots	Trawl	All gear	Long-line	Pots	Trawl	All gear	Long-line	Pots	Trawl	All gear
1976	1,119	14	112	1,245	0	0	56	56	1,119	14	148	1,281
1977	918	21	126	1,065	0	0	63	63	918	21	169	1,108
1978	969	23	126	1,118	12	0	77	89	978	23	173	1,174
1979	1,722	25	231	1,979	15	0	161	176	1,734	25	300	2,059
1980	1,411	22	144	1,578	0	0	62	62	1,399	22	187	1,608
1981	1,171	14	141	1,326	25	0	72	96	1,178	14	200	1,392
1982	1,203	11	131	1,346	25	0	140	165	1,203	11	264	1,479
1983	1,146	14	157	1,316	12	0	114	126	1,137	14	258	1,409
1984	1,488	36	138	1,662	71	0	117	188	1,528	36	242	1,806
1985	1,914	53	144	2,111	229	28	153	410	1,950	71	261	2,282

Note: The sum from the Gulf of Alaska and Bering Sea will not equal total for Alaska since some vessels and fishermen fish in both regions,

Source: Commercial Fishing Entry Commission (CFEC) vessel data shown in Table 2 and crew estimates derived by CFEC and Alaska Dep. of Labor. These estimates were developed in the early 1980s and do not account for the large crew sizes in relatively new factory trawlers.

Table 5.--Estimated number of domestic fishermen in joint venture groundfish fisheries off Alaska by area, 1979-87.

Year	Gulf of Alaska	Bering Sea/ Aleutian Islands	Alaska total
1979	20	0	20
1980	60	60	84
1981	68	56	84
1982	88	124	136
1983	168	184	244
1984	256	280	312
1985	216	376	430
1986	284	392	452
1987	164	448	468

Note : The number of fishermen was derived from using the yearly total number of boats in each region from Table 3 times the average crew size of four. Alaska total excludes duplication from fishermen who fished in both regions.

Table 6.--Number of deliveries in the joint venture groundfish fisheries off Alaska by area, 1979-87.

	Gulf of Alaska	Bering Sea/ Aleutian Islands	Alaska total
1979	96	0	96
1980	249	900	1,149
1981	130	1,395	1,525
1982	194	4,058	4,252
1983	3,871	5,737	9,608
1984	6,713	12,281	18,994
1985	7,163	27,493	34,656
1986	1,994	38,310	40,304
1987	1,308	39,032	40,340

Source: U.S. Foreign Fisheries Observer Program, Northwest and Alaska Fisheries Center, National Marine Fisheries Service, NOAA, 7600 Sand Point Way NE, BIN C1700, Seattle, WA 98115.

Table 7.--Annual ex-vessel value of catch in the groundfish fisheries off Alaska by area, fishery, and species, 1976-87 (million of dollars).

	Gulf of Alaska				Bering Sea/ Aleutian Islands				Total			
Species	Dom.	JV	For.	Total	Dom.	JV	For.	Total	Dom.	JV	For.	Total
Walleye pollock												
1976	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1977	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
1978	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00
1979	0.35	0.09	14.79	15.22	0.00	0.00	135.28	135.28	0.35	0.09	150.07	150.51
1980	0.13	0.16	16.19	16.48	0.02	1.52	144.18	145.72	0.15	1.68	160.38	162.20
1981	0.09	2.42	18.67	21.18	0.00	6.03	141.43	147.47	0.12	8.46	160.10	168.68
1982	0.32	9.29	11.64	21.24	0.03	6.61	116.28	122.92	0.35	15.89	127.92	144.16
1983	0.03	13.01	7.90	20.93	0.09	12.96	77.56	90.61	0.11	25.97	85.46	111.54
1984	0.12	19.67	9.43	29.23	1.32	22.04	86.77	110.13	1.44	41.72	96.20	139.36
1985	2.67	22.84	3.03	28.54	3.61	37.00	80.39	120.99	6.28	59.83	83.42	149.53
1986	2.63	6.64	0.01	9.28	10.10	87.69	36.99	134.78	12.74	94.32	37.00	144.06
1987	6.95	2.92	0.00	9.87	39.31	131.11	0.46	170.89	46.26	134.03	0.46	180.75
Pacific cod												
1976	0.07	0.00	0.00	0.00	0.03	0.00	0.00	0.03	0.10	0.00	0.00	0.00
1977	0.11	0.00	0.00	0.00	0.03	0.00	0.00	0.03	0.14	0.00	0.00	0.00
1978	0.40	0.00	0.00	0.00	0.16	0.00	0.00	0.16	0.56	0.00	0.00	0.00
1979	0.37	0.15	2.75	3.26	0.60	0.00	8.67	9.27	0.96	0.15	11.42	12.53
1980	0.25	0.10	7.12	7.48	1.48	1.76	7.81	11.05	3.52	1.86	14.94	20.32
1981	0.30	0.02	7.29	7.61	5.02	1.93	8.19	15.14	5.32	1.95	15.48	22.75
1982	0.70	0.05	6.51	7.26	8.89	2.98	6.22	18.09	9.58	3.03	12.73	25.34
1983	1.44	0.53	6.59	8.56	12.54	2.95	8.51	24.00	13.99	3.48	15.09	32.56
1984	0.98	1.00	3.45	5.43	16.66	6.68	12.69	36.04	17.64	7.68	16.14	41.46
1985	0.83	0.40	1.60	2.84	14.80	8.96	12.41	36.17	15.63	9.37	14.01	39.01
1986	2.36	0.31	3.31	5.98	8.05	13.99	8.74	30.78	10.41	14.30	12.05	36.76
1987	11.96	0.49	0.00	12.45	17.10	14.84	14.04	45.97	29.07	15.33	14.04	58.43

Table 7. --Continued.

Species	Gulf of Alaska				Bering Sea/ Aleutian Islands				Total			
	Dom.	JV	For.	Total	Dom.	JV	For.	Total	Dom.	JV	For.	Total
Sablefish												
1976	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00	0.00	0.00
1977	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24	0.00	0.00	0.00
1978	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	0.00	0.00	0.00
1979	3.76	0.00	2.42	6.17	0.00	0.00	0.32	0.32	3.76	0.00	2.73	6.49
1980	1.50	0.00	2.14	3.64	0.00	0.00	0.35	0.35	1.50	0.00	2.48	3.98
1981	1.11	0.00	2.80	3.91	0.00	0.03	0.43	0.46	1.11	0.03	3.23	4.37
1982	3.09	0.00	1.96	5.05	0.19	0.01	0.55	0.75	3.28	0.01	2.51	5.80
1983	3.16	0.15	2.44	5.75	0.02	0.02	0.56	0.60	3.18	0.16	3.00	6.34
1984	6.62	0.27	0.60	7.50	0.41	0.10	0.60	1.11	7.03	0.37	1.21	8.61
1985	15.65	0.11	0.00	15.76	3.74	0.03	0.09	3.86	19.38	0.14	0.09	19.61
1986	28.03	0.05	0.00	28.09	6.47	0.12	0.03	6.62	34.56	0.18	0.03	34.76
1987	38.99	0.11	0.00	39.10	9.68	0.03	0.00	9.71	48.68	0.14	0.00	48.82
Flatfish												
1976	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00
1977	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00
1978	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00
1979	0.15	0.01	1.53	1.69	0.00	0.00	21.59	21.59	0.15	0.01	23.12	23.28
1980	0.11	0.02	1.75	1.88	0.01	1.40	18.80	20.21	0.12	1.42	20.55	22.10
1981	0.13	0.00	1.63	1.76	0.00	3.39	26.73	30.12	0.13	3.39	28.35	31.88
1982	0.12	0.00	2.04	2.15	0.00	3.99	23.29	27.27	0.12	3.99	25.32	29.43
1983	0.14	0.74	2.59	3.47	0.00	4.56	22.12	26.68	0.14	5.30	24.71	30.15
1984	0.16	0.53	0.47	1.15	0.01	6.98	25.87	32.85	0.16	7.50	26.33	34.00
1985	0.14	0.27	0.02	0.43	0.05	23.83	20.37	44.25	0.19	24.10	20.39	44.68
1986	0.49	0.16	0.02	0.66	2.17	29.06	10.45	41.69	2.66	29.22	10.47	42.35
1987	0.70	1.11	0.00	1.81	7.05	31.78	1.10	39.92	7.75	32.88	1.10	41.73

Table 7. --Continued.

Species	Gulf of Alaska				Bering Sea/ Aleutian Islands				Total			
	Dom.	JV	For.	Total	Dom.	JV	For.	Total	Dom.	JV	For.	Total
Rockfish												
1976	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00
1977	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00
1978	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00
1979	0.17	0.01	1.81	1.99	0.00	0.00	1.06	1.06	0.17	0.01	2.87	3.05
1980	0.11	0.00	2.44	2.55	0.00	0.01	1.25	1.26	0.11	0.01	3.69	3.81
1981	0.27	0.00	2.63	2.90	0.00	0.00	1.07	1.07	0.27	0.00	3.70	3.97
1982	0.25	0.00	3.31	3.56	0.00	0.00	1.15	1.15	0.25	0.00	4.45	4.70
1983	0.40	0.68	2.30	3.38	0.00	0.03	0.52	0.55	0.40	0.70	2.82	3.93
1984	0.89	0.62	0.99	2.49	0.37	0.16	0.24	0.76	1.25	0.78	1.23	3.25
1985	1.53	0.06	0.00	1.59	0.30	0.10	0.00	0.40	1.84	0.16	0.00	2.00
1986	3.72	0.02	0.00	3.73	0.40	0.09	0.00	0.49	4.12	0.11	0.00	4.23
1987	8.16	0.00	0.06	8.22	1.35	0.28	0.00	1.63	9.51	0.28	0.06	9.85
Atka mackerel												
1976	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1977	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1978	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1979	0.00	0.00	1.44	1.44	0.00	0.00	3.08	3.08	0.00	0.00	4.52	4.52
1980	0.00	0.00	1.75	1.75	0.00	0.04	2.67	2.71	0.00	0.04	4.42	4.46
1981	0.00	0.00	2.47	2.47	0.00	0.21	2.39	2.61	0.00	0.21	4.87	5.08
1982	0.00	0.00	0.90	0.90	0.00	1.93	1.14	3.07	0.00	1.93	2.04	3.97
1983	0.00	0.11	1.53	1.64	0.00	1.41	0.16	1.57	0.00	1.51	1.69	3.20
1984	0.01	0.13	0.11	0.25	0.00	7.79	0.02	7.81	0.00	7.92	0.13	8.05
1985	0.00	0.32	0.00	0.32	0.00	8.22	0.00	8.22	0.00	8.54	0.00	8.54
1986	0.00	0.00	0.00	0.00	0.00	4.83	0.00	4.83	0.00	4.83	0.00	4.83
1987	0.00	0.00	0.00	0.00	0.04	4.77	0.00	4.81	0.04	4.77	0.00	4.81

Table 7. --Continued.

	Gulf of Alaska				Bering Sea/ Aleutian Islands				Total			
	Dom.	JV	For.	Total	Dom.	JV	For.	Total	Dom.	JV	For.	Total
All species												
1976	0.86	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.89	0.00	0.00	0.00
1977	1.58	0.00	0.00	0.00	0.03	0.00	0.00	0.00	1.61	0.00	0.00	0.00
1978	2.63	0.00	0.00	0.00	0.16	0.00	0.00	0.00	2.79	0.00	0.00	0.00
1979	4.79	0.26	24.73	29.78	0.60	0.00	170.01	170.60	5.39	0.26	194.74	200.38
1980	2.10	0.28	31.39	33.77	1.51	4.73	175.06	181.31	5.39	5.02	206.45	216.87
1981	1.89	2.44	35.49	39.83	5.02	11.60	180.25	196.86	6.95	14.04	215.74	236.73
1982	4.48	9.33	26.35	40.16	9.10	15.52	148.62	173.24	13.58	24.85	174.97	213.40
1983	5.17	15.21	23.35	43.72	12.65	21.93	109.42	144.00	17.83	37.13	132.77	187.73
1984	8.78	22.22	15.05	46.04	18.77	43.75	126.19	188.71	27.52	65.97	141.24	234.73
1985	20.82	24.00	4.66	49.48	22.50	78.14	113.26	213.90	43.32	102.14	117.92	263.38
1986	37.23	7.17	3.34	47.74	27.20	135.79	56.21	219.20	64.48	142.96	59.55	266.99
1987	66.76	4.63	0.06	71.45	74.53	182.81	15.59	272.93	141.31	187.43	15.65	344.39

Notes: Joint venture (JV) prices could not be obtained for all periods in which JV or foreign (For.) catch was reported. No attempt has been made to estimate prices which would be appropriate for the valuation of foreign catch prior to 1980. From 1980 on, catch was valued in such cases at the nearest available JV price for the species. Domestic (Dom.) values are based on ex-vessel prices that do not include the value added by at-sea processing; therefore, they reflect the value of catch prior to processing.

Sources: Domestic: 1976-83, Commercial Fishing Entry Commission, Condensed Gross Earnings Database; 1984-87, PacFIN.
JV and Foreign: Computed from catch data in Table 1 and JV prices obtained from NMFS Alaska Region.

Table 8. --Annual domestic and joint venture (JV) ex-vessel prices in the groundfish fisheries, off Alaska by species and area ($/lb.), 1976-87.

Species Year	Gulf of Alaska Domestic	Gulf of Alaska JV	Bering Sea/Aleutian Islands Domestic	Bering Sea/Aleutian Islands JV
Walleye pollock				
1976	0.010			
1977	0.052			
1978	0.060		0.050	
1979	0.078	0.065 *		0.065 *
1980	0.065	0.065 *	0.071	0.065 *
1981	0.070	0.065		0.065
1982	0.066	0.057	0.064	0.055
1983	0.103	0.044	0.041	0.039
1984	0.053	0.043	0.082	0.042
1985	0.079	0.044	0.053	0.044
1986	0.056	0.048	0.079	0.048
1987	0.081	0.058	0.082	0.058
Pacific cod				
1976	0.195		0.200	
1977	0.247		0.157	
1978	0.319		0.281	
1979	0.204	0.094 *	0.358	0.095 *
1980	0.222	0.094 *	0.268	0.095 *
1981	0.187	0.094	0.157	0.095
1982	0.161	0.110	0.161	0.100
1983	0.159	0.100	0.136	0.093
1984	0.137	0.098	0.195	0.098
1985	0.128	0.080	0.146	0.098
1986	0.133	0.099	0.107	0.099
1987	0.187	0.112	0.103	0.117
Sablefish				
1976	0.401			
1977	0.683			
1978	0.700			
1979	0.733	0.159 *		0.065
1980	0.412	0.159 *		0.065 *
1981	0.391	0.159 *		0.065
1982	0.710	0.159	0.477	0.144
1983	0.528	0.221	0.163	0.079
1984	0.339	0.248	0.175	0.144
1985	0.624	0.248 *	0.502	0.137
1986	0.590	0.248 *	0.489	0.137 *
1987	0.667	0.248 *	0.559	0.137

Table. 8. --Continued.

Species Year	Gulf of Alaska Domestic	Gulf of Alaska JV	Bering Sea/Aleutian Islands Domestic	Bering Sea/Aleutian Islands JV
Flatfish				
1976	0.103			
1977	0.109			
1978	0.129			
1979	0.188	0.103		0.068
1980	0.276	0.124	0.082	0.060
1981	0.162	0.051		0.070
1982	0.269	0.103		0.068
1983	0.197	0.124		0.060
1984	0.163	0.070	0.119	0.063
1985	0.135	0.051	0.291	0.063
1986	0.146	0.073	0.150	0.061
1987	0.117	0.070	0.133	0.067
Rockfish				
1976	0.151			
1977	0.182			
1978	0.266			
1979	0.324	0.067 *		0.067 *
1980	0.236	0.067 *		0.067 *
1981	0.352	0.067 *		0.067
1982	0.431	0.143		0.106
1983	0.434	0.134		0.118
1984	0.380	0.140	0.126	0.120
1985	0.257	0.090 *	0.144	0.090
1986	0.214	0.081 *	0.174	0.081
1987	0.298	0.141 *	0.234	0.141
Atka mackerel				
1976				
1977				
1978				
1979		0.060 *		0.060 *
1980		0.060 *		0.060 *
1981		0.060 *		0.060
1982		0.060 *		0.070
1983		0.060		0.061
1984	0.169	0.098		0.098
1985		0.080		0.098
1986			0.210	0.068
1987			0.133	0.072

Table 8. --Continued.

Notes: Entries with missing prices indicate an absence of reported harvest in the fishery. Prices followed by a "*" indicate the values applied to foreign harvest in the absence of JV prices. Domestic prices do not include the value added by at-sea processing; therefore, they reflect prices prior to processing.

Source: Domestic: 1976-83, Commercial Fishing Entry Commission, Condensed Gross Earnings Database; 1984-87, PacFIN.
Joint venture: NMFS, Alaska Region.

Table 9.--Estimated prices of processed products from the domestic (DAP) groundfish fisheries off Alaska, 1976-87.

	Sablefish smoked	Sablefish raw fillets	Pacific cod raw fillets	Walleye pollock raw fillets	Rockfish raw fillets
	Price ($ per pound product weight)				
1976	1.80		1.15		0.86
1977	1.94		1.16		0.77
1978	2.15		1.32	0.84	1.12
1979	1.76		1.36	0.80	1.14
1980	2.11		1.36	0.91	1.04
1981	1.43	1.14	1.61	0.97	1.08
1982	1.67	1.00	1.46	1.03	1.04
1983	1.37	0.72	1.31	1.10	1.11
1984		0.78	1.33	0.94	1.13
1985		1.21	1.55	0.95	1.35
1986		1.15	2.02	1.05	1.42
1987		1.70	2.52	1.06	1.50
	Price ($ per pound round weight)				
1976	1.26		0.39	0.00	0.31
1977	1.36		0.39	0.00	0.28
1978	1.51		0.45	0.29	0.40
1979	1.23		0.46	0.27	0.41
1980	1.48		0.46	0.31	0.37
1981	1.00	0.80	0.55	0.33	0.39
1982	1.17	0.70	0.50	0.35	0.37
1983	0.96	0.50	0.45	0.37	0.40
1984		0.55	0.45	0.32	0.41
1985		0.85	0.53	0.32	0.49
1986		0.80	0.69	0.36	0.51
1987		1.19	0.86	0.36	0.54

Sources: Processed Products West Coast database, NMFS; NMFS Fisheries of the United States, 1977-1987.

Table 10.--Estimated value of processed products from the domestic (DAP) groundfish fisheries off Alaska by species and area, 1976-87 ($l,000's).

Area	Year	Sablefish	Pacific cod	Walleye pollock	Rockfish	Total
Gulf of Alaska	1976	2,216	140	0	88	2,445
	1977	2,455	177	0	64	2,697
	1978	3,877	563	655	76	5,171
	1979	6,313	836	1,218	211	8,577
	1980	5,375	519	615	168	6,677
	1981	3,769	1,327	436	343	5,875
	1982	6,072	2,516	1,698	248	10,534
	1983	5,863	4,123	82	352	10,420
	1984	10,710	3,189	704	986	15,590
	1985	21,281	3,485	10,963	2,892	38,621
	1986	38,323	12,261	16,759	8,901	76,244
	1987	68,454	54,968	31,024	14,758	169,203
Bering Sea/ Aleutians	1976	0	51	0	0	51
	1977	0	70	0	0	70
	1978	0	248	0	0	248
	1979	0	768	0	0	768
	1980	0	2,555	68	0	2,623
	1981	0	17,011	145	0	17,157
	1982	419	27,242	154	0	27,815
	1983	154	41,230	907	0	42,291
	1984	1,324	38,570	5,142	1,166	46,202
	1985	6,347	53,197	21,926	1,071	82,542
	1986	10,645	51,920	45,557	1,239	109,362
	1987	20,720	85,105	173,129	3,094	282,048

Table 10. --Continued.

Area	Year	Sablefish	Pacific cod	Walleye pollock	Rockfish	Total
Alaska Total	1976	2,216	191	0	88	2,495
	1977	2,455	248	0	64	2,767
	1978	3,877	811	655	76	5,418
	1979	6,313	1,603	1,218	211	9,344
	1980	5,375	3,074	684	168	9,300
	1981	3,769	18,338	582	343	23,031
	1982	6,491	29,759	1,852	248	38,349
	1983	6,017	45,353	989	352	52,711
	1984	12,034	41,760	5,847	2,152	61,792
	1985	27,628	56,682	32,889	3,963	121,163
	1986	48,968	64,181	62,317	10,140	185,607
	1987	89,174	140,073	204,152	17,852	451,251

Notes: Values are calculated as price per round weight times the amount landed. Although not included in this time series, flatfish processed products became significant in 1987, with an estimated value of $20,746,000. Totals may include some rounding errors.

Table 11.--Estimated nominal personal income generated in Alaska, Washington, and Oregon by the groundfish fisheries off Alaska by species (in millions of dollars)..

Year	Walleye pollock	Cod	Sablefish	Flatfish	Rockfish	Total
1976	0.25	0.26	17.11	0.24	0.33	18.19
1977	0.25	0.41	17.66	0.75	0.29	19.36
1978	13.94	1.55	36.88	1.64	0.31	54.32
1979	2.42	26.86	73.75	0.66	0.75	104.44
1980	0.71	9.37	34.21	0.28	0.52	45.09
1981	1.17	22.95	1.91	0.67	0.54	27.24
1982	3.67	55.09	7.01	0.45	0.47	66.69
1983	1.99	85.78	10.63	0.66	0.80	99.86
1984	1.19	78.17	31.58	0.54	5.69	117.17
1985	66.13	91.04	33.02	0.95	8.03	199.17
1986	125.40	90.48	60.72	17.82	19.58	314.00

Notes : The estimates of income presented in this table are based, in part, on results from Dr. Radtke's input-output model. Other factors such as the degree of product exportation which may affect income are not included in this report.

Source: Personal communication with Dr. Hans Radtke, Resource Economist, P.O. BOX 244, Yachats, OR, May 1988.

Table 12.--Annual distribution of landings (in percent) from domestic groundfish fisheries off Alaska between permit-holder residence groups by area and species, 1976-85.

	Gulf of Alaska		Bering Sea/ Aleutian Islands		Total	
Species Year	Alaskan resident	Non-AK resident	Alaskan resident	Non-AK resident	Alaskan resident	Non-AK resident
Walleye pollock						
1976					0.0	0.0
1977	100.0	0.0			100.0	0.0
1978	78.7	21.3			76.8	23.2
1979	73.0	27.0			73.0	27.0
1980	100.0	0.0	0.0	100.0	87.9	12.1
1981					70.0	30.0
1982	89.3	10.7	0.0	100.0	82.0	18.0
1983	100.0	0.0	26.1	73.9	32.5	67.5
1984	100.0	0.0	0.0	100.0	26.8	73.2
1985	41.2	58.8	9.5	90.5	18.4	81.6
Pacific cod						
1976					64.4	35.6
1977	77.3	22.7	65.2	34.8	73.2	26.8
1978	76.8	23.2	66.3	33.7	73.7	26.3
1979	71.9	28.1	34.5	65.5	54.0	46.0
1980	90.3	9.7	21.8	78.2	17.3	82.7
1981	90.5	9.5	7.4	92.6	11.5	88.5
1982	96.2	3.8	5.5	94.5	12.0	88.0
1983	97.5	2.5	15.1	84.9	22.5	77.5
1984	80.0	20.0	19.7	80.3	24.2	75.8
1985	58.2	41.8	14.4	85.6	17.3	82.7
Sablefish						
1976	70.8	29.2			70.8	29.2
1977					74.3	25.7
1978					72.9	27.1
1979	63.5	36.5			63.5	36.5
1980					71.3	28.7
1981					73.7	26.3
1982	67.3	32.7	0.5	99.5	61.8	38.2
1983	71.8	28.2	0.0	100.0	70.2	29.8
1984	53.1	46.9	50.7	49.3	52.6	47.4
1985	59.3	40.7	37.3	62.7	51.6	48.4

Table 12. --continued.

Species Year	Gulf of Alaska Alaskan resident	Gulf of Alaska Non-AK resident	Bering Sea/ Aleutian Islands Alaskan resident	Bering Sea/ Aleutian Islands Non-AK resident	Total Alaskan resident	Total Non-AK resident
Flatfish						
1976	100.0	0.0			100.0	0.0
1977					82.0	18.0
1978					85.0	15.0
1979	34.6	65.4			34.7	65.3
1980	53.1	46.9			53.1	46.9
1981	20.6	79.4			20.6	79.4
1982					36.9	63.1
1983					21.1	78.9
1984					82.2	17.8
1985	73.2	26.8	100.0	0.0	69.9	30.1
Rockfish						
1976	81.7	18.3			81.7	18.3
1977	87.9	12.1			87.9	12.1
1978	83.0	17.0			83.0	17.0
1979					80.0	20.0
1980	73.2	26.8			73.2	26.8
1981					66.9	33.1
1982					74.7	25.3
1983					81.6	18.4
1984	84.5	15.5	0.0	100.0	78.3	21.7
1985	36.5	63.5	11.8	88.2	33.8	66.2
All species						
1976	76.1	23.9	100.0	0.0	75.9	24.1
1977	80.6	19.4	61.9	38.1	78.4	21.6
1978	78.7	21.3	61.9	38.1	77.6	22.4
1979	70.5	29.5	45.8	54.2	65.5	34.5
1980	82.1	17.9	22.5	77.5	40.9	59.1
1981	76.5	23.5	7.3	92.7	20.4	79.6
1982	82.8	17.2	5.4	94.6	21.6	78.4
1983	84.2	15.8	17.6	82.4	27.3	72.7
1984	65.1	34.9	20.8	79.2	29.7	70.3
1985	49.4	50.6	14.4	85.6	23.5	76.5

Note: Missing values may indicate either zero catch or catch that could not be revealed due to confidentiality restrictions. Values for the Atka mackerel fisheries are not reported for the latter reason.

Source: Commercial Fishing Entry Commission, Condensed Gross Earnings Database.

Table 13. --Annual distribution of ex-vessel value (in percent) from domestic groundfish fisheries. off Alaska between permit-holder residence groups by species and area, 1976-85.

	Gulf of Alaska		Bering Sea/ Aleutian Islands		Total	
Species Year	Alaskan Resident	Non-AK resident	Alaskan resident	Non-AK resident	Alaskan resident	Non-AK resident
Walleye pollock						
1976					0.0	0.0
1977	100.0	0.0			100.0	0.0
1978	78.8	21.2			77.1	22.9
1979	73.2	26.8			73.2	26.8
1980	100.0	0.0	0.0	100.0	87.2	12.8
1981					70.2	29.8
1982	89.5	10.5	0.0	100.0	82.3	17.7
1983	100.0	0.0	25.6	74.4	39.8	60.2
1984	100.0	0.0	0.0	100.0	26.8	73.2
1985	41.2	58.8	9.5	90.5	19.5	80.5
Pacific cod						
1976					63.4	36.6
1977	76.6	23.4	64.3	35.7	73.6	26.4
1978	76.2	23.8	60.0	40.0	71.5	28.5
1979	71.5	28.5	32.1	67.9	47.2	52.8
1980	89.1	10.9	23.1	76.9	16.0	84.0
1981	89.8	10.2	7.9	92.1	12.6	87.4
1982	95.4	4.6	4.6	95.4	11.2	88.8
1983	97.5	2.5	13.0	87.0	21.7	78.3
1984	80.4	19.6	19.9	80.1	24.3	75.7
1985	62.3	37.7	14.5	85.5	18.2	81.8
Sablefish						
1976	72.9	27.1			72.9	27.1
1977					74.5	25.5
1978					72.9	27.1
1979	63.1	36.9			63.1	36.9
1980					71.3	28.7
1981					74.3	25.7
1982	67.5	32.5	0.5	99.5	63.7	36.3
1983	72.1	27.9	0.0	100.0	71.6	28.4
1984	55.0	45.0	60.3	39.7	55.6	44.4
1985	59.2	40.8	39.0	61.0	52.8	47.2

Table 13. --Continued.

Species Year	Gulf of Alaska Alaskan resident	Gulf of Alaska Non-AK resident	Bering Sea/ Aleutian Islands Alaskan resident	Bering Sea/ Aleutian Islands Non-AK resident	Total Alaskan resident	Total Non-AK resident
Flatfish						
1976	100.0	0.0			100.0	0.0
1977					82.7	17.3
1978					85.3	14.7
1979	38.6	61.4			38.6	61.4
1980	52.7	47.3			52.7	47.3
1981	15.6	84.4			15.6	84.4
1982					44.8	55.2
1983					26.2	73.8
1984					83.2	16.8
1985	78.2	21.8	100.0	0.0	75.0	25.0
Rockfish						
1976	81.4	18.6			81.4	18.6
1977	88.4	11.6			88.4	11.6
1978	84.0	16.0			84.0	16.0
1979					80.1	19.9
1980	74.5	25.5			74.5	25.5
1981					65.7	34.3
1982					76.6	23.4
1983					82.8	17.3
1984	84.6	15.4	0.0	100.0	81.4	18.6
1985	44.3	55.7	12.0	88.0	42.3	57.7
All groundfish						
1976	75.5	24.5	100.0	0.0	75.4	24.6
1977	77.3	22.7	60.0	40.0	76.5	23.5
1978	75.5	24.5	60.1	39.9	74.6	25.4
1979	65.0	35.0	31.1	68.9	61.4	38.6
1980	77.3	22.7	23.5	76.5	38.9	61.1
1981	74.0	26.0	7.8	92.2	26.3	73.7
1982	73.7	26.3	4.5	95.5	27.6	72.4
1983	78.9	21.1	13.3	86.7	32.5	67.5
1984	60.8	39.2	22.7	77.3	39.2	60.8
1985	57.1	42.9	24.5	75.5	41.9	58.1

Note: Missing values may indicate either zero catch or catch that could not be revealed due to confidentiality. Values for the Atka mackerel fisheries are not reported for the latter reason.

Source: Commercial Fishing Entry Commission, Condensed Gross Earnings Database.

Table 14.--Annual count of vessels making domestic landings in groundfish fisheries off Alaska by area and gear, with percentage distribution by residence of permit holder, 1976-85.

	Gulf of Alaska				Bering Sea				Total			
	LL	Pots	Trawl	All gear	LL	Pots	Trawl	All gear	LL	Pots	Trawl	All gear
All U.S. residents												
1976	373	6	33	634	0	0	16	16	381	6	43	652
1977	306	9	37	604	0	0	18	19	307	10	49	619
1978	323	10	37	708	4	0	22	26	326	10	50	724
1979	574	11	68	1,331	5	0	46	49	578	11	87	1,377
1980	441	8	45	991	0	0	19	23	444	8	58	1,007
1981	366	5	44	845	8	0	22	33	374	5	62	874
1982	376	4	41	821	8	0	43	53	382	4	82	869
1983	358	5	49	797	4	0	35	44	361	6	80	835
1984	465	13	43	923	23	0	36	66	485	14	75	986
1985	598	19	45	961	74	9	47	122	619	24	81	1,020
						(Percentage)						
Alaskan residents												
1976	82.7	0.0	75.0	80.8	0.0	0.0	100.0	100.0	82.2	0.0	78.6	80.7
1977	82.5	100.0	100.0	81.2	0.0	0.0	100.0	78.9	82.3	100.0	87.5	80.7
1978	86.2	50.0	88.9	81.1	0.0	0.0	81.0	66.7	85.7	50.0	80.8	80.8
1979	89.5	100.0	81.7	80.5	0.0	0.0	69.4	61.5	88.9	100.0	76.1	80.3
1980	82.4	50.0	91.5	77.6	0.0	0.0	50.0	41.7	81.9	50.0	78.7	76.8
1981	88.6	100.0	79.5	82.4	100.0	0.0	43.5	57.1	88.3	100.0	66.7	81.4
1982	84.3	100.0	71.4	79.1	100.0	0.0	23.4	31.6	84.5	100.0	45.3	76.3
1983	86.7	100.0	79.6	80.2	0.0	0.0	25.0	31.1	86.8	100.0	58.0	78.1
1984	82.6	53.8	83.7	78.6	100.0	0.0	23.7	48.5	83.1	50.0	54.5	76.1
1985	85.4	73.7	71.7	80.3	64.9	40.0	18.4	45.3	85.2	64.0	47.1	77.5

Table 14. --Continued.

	Gulf of Alaska				Bering Sea				Total			
	LL	Pots	Trawl	All gear	LL	Pots	Trawl	All gear	LL	Pots	Trawl	All gear
Non-Alaskan residents												
1976	17.3	100.0	25.0	19.2	0.0	0.0	0.0	0.0	17.8	100.0	21.4	19.3
1977	17.5	0.0	0.0	18.8	0.0	0.0	0.0	21.1	17.7	0.0	12.5	19.3
1978	13.8	50.0	11.1	18.9	0.0	0.0	19.0	33.3	14.3	50.0	19.2	19.2
1979	10.5	0.0	18.3	19.5	100.0	0.0	30.6	38.5	11.1	0.0	23.9	19.7
1980	17.6	50.0	8.5	22.4	0.0	0.0	50.0	58.3	18.1	50.0	21.3	23.2
1981	11.4	0.0	20.5	17.6	0.0	0.0	56.5	42.9	11.7	0.0	33.3	18.6
1982	15.7	0.0	28.6	20.9	0.0	0.0	76.6	68.4	15.5	0.0	54.7	23.7
1983	13.3	0.0	20.4	19.8	0.0	0.0	75.0	68.9	13.2	0.0	42.0	21.9
1984	17.4	46.2	16.3	21.4	0.0	0.0	76.3	51.5	16.9	50.0	45.5	23.9
1985	14.6	26.3	28.3	19.7	35.1	60.0	81.6	54.7	14.8	36.0	52.9	22.5

LL = Longline.

Note : Some all-of-Alaska totals prior to 1980 may include data with missing area codes. Percentages for residents and nonresidents total to 100.0 for each (gear, area, year) combination.

Source: Commercial Fishing Entry Commission, Condensed Gross Earnings Database.

Table 15.--Annual domestic groundfish trips in groundfish fisheries off Alaska by area and gear, with the percentage of trips by residence of permit holder, 1976-85.

	Gulf of Alaska				Bering Sea				Total			
	LL	Pots	Trawl	All Gear	LL	Pots	Trawl	All Gear	LL	Pots	Trawl	All Gear
All U.S. residents												
1976	1,646	30	142	2,410	0	0	27	27	1,658	30	170	2,450
1977	1,306	19	200	2,194	0	0	35	59	1,310	43	235	2,258
1978	1,245	24	430	2,713	4	0	44	48	1,255	24	474	2,767
1979	2,162	47	529	6,044	5	0	294	300	2,168	47	824	6,395
1980	1,319	43	291	4,296	0	0	83	100	1,325	43	376	4,398
1981	1,230	8	219	3,435	13	0	172	190	1,244	8	391	3,626
1982	1,265	16	360	3,265	20	0	534	644	1,285	16	894	3,909
1983	1,547	6	634	3,787	4	0	928	945	1,552	8	1,562	4,736
1984	2,431	38	286	4,449	106	0	667	858	2,556	45	953	5,340
1985	2,538	48	438	4,204	290	48	921	1,259	2,828	96	1,359	5,469
						(percentage)						
Alaskan residents												
1976	84.7	0.0	83.6	83.1	0.0	0.0	100.0	100.0	84.5	0.0	84.5	83.1
1977	84.7	100.0	100.0	83.3	0.0	0.0	100.0	45.8	84.5	100.0	93.3	82.2
1978	86.7	20.8	92.0	82.6	0.0	0.0	77.5	66.7	86.4	20.8	89.0	82.3
1979	86.4	100.0	83.6	79.8	0.0	0.0	57.1	56.3	86.2	100.0	74.1	78.9
1980	80.1	79.1	97.3	77.7	0.0	0.0	31.3	26.0	79.7	79.1	82.2	76.5
1981	85.4	100.0	92.7	82.3	100.0	0.0	46.5	49.5	85.2	100.0	72.4	80.6
1982	80.4	100.0	84.2	77.5	100.0	0.0	21.0	21.0	80.5	100.0	46.4	68.2
1983	85.1	100.0	93.1	81.2	0.0	0.0	33.6	33.5	85.1	100.0	57.7	71.7
1984	79.9	52.6	83.6	78.6	100.0	0.0	20.1	32.6	80.5	57.8	39.1	71.0
1985	83.1	85.4	45.7	77.4	64.5	47.9	21.1	32.1	81.2	66.7	29.0	66.9

Table 15. --Continued.

	Gulf of Alaska				Bering Sea				Total			
	LL	Pots	Trawl	All Gear	LL	Pots	Trawl	All Gear	LL	Pots	Trawl	All Gear
Non-Alaskan residents												
1976	15.3	100.0	16.4	16.9	0.0	0.0	0.0	0.0	15.5	100.0	15.5	16.9
1977	15.3	0.0	0.0	16.7	0.0	0.0	0.0	54.2	15.5	0.0	6.7	17.8
1978	13.3	79.2	8.0	17.4	0.0	0.0	22.5	33.3	13.6	79.2	11.0	17.7
1979	13.6	0.0	16.4	20.2	100.0	0.0	42.9	43.7	13.8	0.0	25.9	21.1
1980	19.9	20.9	2.7	22.3	0.0	0.0	68.7	74.0	20.3	20.9	17.8	23.5
1981	14.6	0.0	7.3	17.7	0.0	0.0	53.5	50.5	14.8	0.0	27.6	19.4
1982	19.6	0.0	15.8	22.5	0.0	0.0	79.0	79.0	19.5	0.0	53.6	31.8
1983	14.9	0.0	6.9	18.8	0.0	0.0	66.4	66.5	14.9	0.0	42.3	28.3
1984	20.1	47.4	16.4	21.4	0.0	0.0	79.9	67.4	19.5	42.2	60.9	29.0
1985	16.9	14.6	54.3	22.6	35.5	52.1	78.9	67.9	18.8	33.3	71.0	33.1

LL = Longline.

Notes: Some all-of-Alaska totals prior to 1980 may include data with missing area codes. Percentages for residents and nonresidents total to 100.0 for each (gear, area, year) combination. Double-counting of trips may occur when multiple species are landed in the same trip.

Source: Commercial Fishing Entry Commission, Condensed Gross Earnings Database.

Table 16.--Estimated biomass, catch (thousand metric tons), and exploitation rate (proportion) in the groundfish fisheries off Alaska by area and species, 1977-87.

Species Year	Gulf of Alaska Biomass[1] Stock ass.	Gulf of Alaska Biomass[1] Hydro	Gulf of Alaska Catch	Gulf of Alaska ER[2] %	Bering Sea Biomass	Bering Sea Catch	Bering Sea ER %	Aleutian Islands Biomass	Aleutian Islands Catch	Aleutian Islands ER %
Walleye pollock										
1977	786		118		7,100	980	13.8		8	
1978	1,111		97		6,800	980	14.4		6	
1979	1,661		106		6,400	910	14.2		10	
1980	1,965		115		6,400	960	15.0		58	
1981	2,421	3,410	148	4.3	8,900	974	10.9		56	
1982	2,383		169		9,300	956	10.3		58	
1983	1,814	2,370	215	9.1	9,600	983	10.2		59	
1984	1,251	1,830	307	16.8	8,300	1,100	13.2		78	
1985	687	680	285	41.9	8,400	1,170	13.9		58	
1986	375	490	84	17.1	6,700	1,199	17.9	890	46	5.2
1987	687	62			5,100	1,225	24.0	690	29	4.2
Pacific cod										
1977			2			33			3	
1978			12		312	43	13.6		3	
1979			15		792	34	4.3		6	
1980			35		913	46	5.0	79	6	7.3
1981			36		840	55	6.5		7	
1982			29		1,014	58	5.7		8	
1983			36		1,126	89	7.9	137	8	6.2
1984		850	24		1,000	120	12.0		8	
1985			14		958	137	14.3		7	
1986			25		1,134	131	11.6		7	
1987		482	31		11,424	144	1.3	257	13	5.1

Table 16. --Continued.

Species Year	Gulf of Alaska Biomass Stock ass.	Gulf of Alaska Biomass Hydro	Gulf of Alaska Catch	Gulf of Alaska ER[2] %	Bering Sea Biomass	Bering Sea Catch	Bering Sea ER %	Aleutian Islands Biomass	Aleutian Islands Catch	Aleutian Islands ER %
Flatfish										
1977			17			14				
1978			15			21				
1979			14		628	20	3.1			
1980			16		812	20	2.5			
1981			15		1,089	25	2.3			
1982			9		1,618	25	1.6			
1983			13		1,914	31	1.6			
1984	2,057		7		2,081	45	2.2			
1985			3		1,637	85	5.2			
1986			3		1,981	84	4.3			
1987	2,111		10		1,250	61	4.9			
Yellowfin sole										
1977						58				
1978						138				
1979					1,655	99	6.0			
1980					1,607	87	5.4			
1981					2,052	87	4.2			
1982					2,610	91	3.5			
1983					3,688	105	2.9			
1984					3,137	155	4.9			
1985					2,122	227	10.7			
1986					1,788	209	11.7			
1987					2,368	181	7.6			
Greenland turbot										
1977						28			2	
1978						37			5	
1979					350	35			6	

Table 16. --Continued.

Species Year	Gulf of Alaska Biomass[1] Stock ass.	Gulf of Alaska Biomass[1] Hydro	Gulf of Alaska Catch	Gulf of Alaska ER[2] %	Bering Sea Biomass	Bering Sea Catch	Bering Sea ER %	Aleutian Islands Biomass	Aleutian Islands Catch	Aleutian Islands ER %
Greenland turbot (Cont.)										
1980						49		49	4	7.6
1981					186	60	32.3		4	
1982					139	47	33.8		6	
1983						45		64	4	6.5
1984						24			2	
1985					87	8	9.7		2	
1986						7		77	3	4.0
1987						7			3	
Arrowtooth flounder										
1977						10			2	
1978						8			2	
1979					72	8	11.0		6	
1980						14		40	5	11.4
1981					84	13	15.1		4	
1982					92	9	10.1		2	
1983						11		45	4	8.3
1984						8			2	
1985					234					
1986								126		
1987										
Sablefish										
1977			17			3			2	
1978			9			1			1	
1979			10		21	1	6.5		1	
1980			9			2		20		1.3
1981			10		48	3	5.4		1	
1982			9		53	3	6.1		1	

Table 16.--Continued.

Species Year	Gulf of Alaska Biomass[a] Stock ass.	Gulf of Alaska Biomass[a] Hydro	Gulf of Alaska Catch	Gulf of Alaska ER[b] %	Bering Sea Biomass	Bering Sea Catch	Bering Sea ER %	Aleutian Islands Biomass	Aleutian Islands Catch	Aleutian Islands ER %
Sablefish (Cont.)										
1983			9			3		69	1	0.9
1984	520		11	2.0		2			1	
1985			12		58	2	4.1		1	
1986			22			4		96	3	3.1
1987	520		26	5.1		4			4	
Pacific ocean perch[c]										
1977			23			3			8	
1978			8			2			5	
1979			10		5	2	38.3		5	
1980			12			1		109	4	3.7
1981			9		10	1	12.2		4	
1982			3		6		4.1		1	
1983			3					144		0.2
1984	580		3	0.5		2			1	
1985			1		32	1	2.2			
1986			3			1		221		0.1
1987	697		5	0.7		1			1	
Other rockfish										
1977									3	
1978						3			1	
1979					3	2	63.9		5	
1980								19		2.2
1981					5	1	23.3		1	
1982					4	1	19.6		3	
1983								16	1	7.3
1984										
1985					5		4.0		1	
1986								20	1	2.6
1987						1			1	

Table 16.--Continued.

Species Year	Gulf of Alaska Biomass[1] Stock ass.	Gulf of Alaska Biomass[1] Hydro	Gulf of Alaska Catch	Gulf of Alaska ER[2] %	Bering Sea Biomass	Bering Sea Catch	Bering Sea ER %	Aleutian Islands Biomass	Aleutian Islands Catch	Aleutian Islands ER %
Thornyhead rockfish										
1980			1							
1981			1							
1982			1							
1983			1							
1984	123			0.1						
1985										
1986			1							
1987	99		2	2.0						
Atka mackerel										
1978									23	
1979									21	
1980								198	16	7.9
1981									17	
1982									20	
1983								307	12	3.8
1984									36	
1985									38	
1986								545	32	5.9
1987									30	

[a]The exploitable biomass estimates for pollock are from a stock assessment model, as well as a hydroacoustic survey. The biomass estimates for the other species refer to the hydroacoustic surveys.
[b]ER = Exploitation Rate.
[c]Pacific ocean perch refers to the POP complex for the Gulf of Alaska, but not for the Bering Sea or Aleutian Islands.

Sources: Catch data, 1977-87: PacFIN. Biomass: Condition of groundfish resources of the eastern Bering Sea and Aleutian Islands region in 1987 (Bakkala 1988). Condition of groundfish resources of the Gulf of Alaska region as assessed in 1987 (Major and Wilderbuer 1988).

Table 17.--Estimated incidental catches (numbers and metric-tons) of salmon (Oncorhynchus spp.) in the foreign and joint venture groundfish fisheries in: the Bering- Sea/Aleutian, Islands region, 1977-87.

Year	Foreign		Joint venture		Total	
	No.	t	No.	t	No.	t
1977	47,840	198	NF	NF	47,840	198
1978	44,548	137	NF	NF	44,548	137
1979	107,706	340	NF	NF	107,706	340
1980	120,104	381	1,898	7	122,002	388
1981	42,337	137	854	3	43,191	140
1982	21,241	85	2,382	8	23,623	92
1983	18,173	66	24,493	54	42,666	120
1984	16,516	51	67,622	160	84,138	211
1985	10,003	33	10,420	30	20,423	63
1986	1,643	5	19,340	66	20,983	71
1987	3,386	13	10,848	41	14,234	54

*Estimated catches for years 1977-86 from Berger and Weikart 1988.

NF = No fishing.

Table 18.--Estimated incidental catches (numbers. and metric tons) of Pacific halibut (*Hippoglossus stenolepis*) in- the foreign and U.S. joint venture groundfish fisheries in the Bering Sea/Aleutian Islands region, 1977-87.

Year	Foreign		Joint venture		Total	
	No.	t	No.	t	No.	t
1977	344,973	1,453	NF	NF	344,973	1,453
1978	599,852	2,853	NF	NF	599,852	2,853
1979	583,811	2,863	NF	NF	583,811	2,863
1980	959,566	4,311	204,948	286	1,164,514	4,597
1981	988,731	2,704	103,616	232	1,092,347	2,936
1982	423,340	1,609	412,115	563	835,455	2,172
1983	515,587	1,872	274,080	438	789,667	2,310
1984	518,327	2,128	254,273	617	772,600	2,745
1985	485,311	1,789	447,370	1,026	932,681	2,815
1986	296,372	1,192	593,597	1,711	889,969	2,903
1987	273,197	1,077	545,065	1,485	818,262	2,562

*Estimated catches for years 1977-86 from Berger and Weikart 1988.

NF = no fishing.

Table 19.--Estimated incidental catches (numbers and metric tons) of Snow (Tanner) crab (*Chionoecetes* spp.) in the foreign and joint venture groundfish fisheries in the Bering Sea/Aleutian Islands region, 1977-87[a].

	Foreign		Joint venture		Total	
Year	No.[b]	t	No.	t	No.	t
1977	17.6	3,728	NF	NF	17.6	3,728
1978	17.3	4,267	NF	NF	17.3	4,267
1979	18.0	3,654	NF	NF	18.0	3,654
1980	11.1	2,058	0.3	56	11.4	2,114
1981	5.6	1,196	0.7	276	6.3	1,472
1982	2.3	425	0.1	24	2.4	448
1983	2.5	501	0.5	171	3.0	672
1984	2.6	527	0.4	119	3.0	646
1985	1.8	263	0.9	134	2.7	397
1986	1.7	280	5.5	370	7.2	650
1987	0.3	101	7.1	537	7.4	638

[a]Estimated catches for years 1977-86 from Berger and Weikart 1988.

[b]Numbers are millions of crab.

NF = no fishing.

Table 20.--Estimated incidental catches (numbers and metric tons) of king crab (Lithodes and Paralithodes spp.) in the foreign and joint venture groundfish fisheries in the Bering Sea/Aleutian Islands region, 1977-87.

Year	Foreign		Joint venture		Total	
	No.	t	No.	t	No.	t
1977	599,623	641	NF	NF	599,623	641
1978	1,277,931	1,097	NF	NF	1,277,931	1,097
1979	1,007,796	1,008	NF	NF	1,007,796	1,008
1980	858,129	781	289,542	241	1,147,671	1,022
1981	733,026	666	1,084,126	642	1,817,152	1,308
1982	380,004	343	193,915	90	573,919	433
1983	404,013	353	630,144	337	1,034,157	690
1984	292,223	309	398,865	283	691,088	592
1985	219,783	191	1,005,290	678	1,225,073	869
1986	14,631	19	260,435	332	275,066	351
1987	7,403	9	139,983	169	145,386	178

*Estimated catches for years 1977-86 from Berger and Weikart 1988.

NF = no fishing.

Table 21.--Estimated incidental catch (numbers and metric. tons) of Pacific salmon in the foreign and joint venture groundfish fisheries in the Gulf of Alaska, 1977-87[a].

Year	Foreign		Joint venture		Total	
	No.	t	No.	t	No.	t
1977	5,272	19.30	NF	NF	5,272	19.30
1978[b]	45,603	131.27			45,603	131.27
1979	20,410	68.69	1,050	2.31	21,460	71.00
1980	35,901	106.90	168	1.07	36,069	107.97
1981	30,860	95.89	0	0.00	30,860	95.89
1982	5,556	18.89	1,411	2.77	6,967	21.66
1983	9,621	31.76	4,253	11.98	13,874	43.74
1984	12,001	36.13	63,845	168.97	75,846	205.10
1985	365	1.64	13,737	38.86	14,102	40.50
1986	0	0.00	20,820	53.72	20,820	53.72
1987	NF	NF	1,221	3.71	1,221	3.71

[a]Estimates for years 1977-86 are from Berger and Weikart 1988.

[b]No estimates of incidental catch were made of the limited joint venture fishery in 1978.

NF = No fishing.

Table 22.--Estimated incidental catch (numbers. and metric tons) of Pacific halibut in the foreign and- joint venture groundfish fisheries in the Gulf of Alaska, 1977-87[a].

Year	Foreign		Joint venture		Total	
	No.	t	No.	t	No.	t
1977	413,009	2,200	NF	NF	413,009	2,200
1978[b]	293,374	1,289			293,374	1,289
1979	249,641	2,576	5,127	21.49	254,768	2,597
1980	511,521	3,205	19,318	48.50	530,839	3,254
1981	417,311	2,499	274	4.81	417,585	2,504
1982	562,196	2,690	2,371	3.60	564,567	2,694
1983	689,688	3,235	98,571	356.49	788,259	3,592
1984	361,913	1,506	165,721	589.66	527,634	2,096
1985	124,786	241	78,484	300.30	203,270	541
1986	116,220	384	27,432	89.27	143,652	473
1987	NF	NF	196,924	655.90	196,924	656

[a]Estimates for years 1977-86 are- from Berger and Weikart 1988.

[b]No estimates of incidental catch were made of the limited joint venture fishery in 1978.

NF = No fishing.

Table 23.--Estimated incidental catches (numbers and metric tons) of snow (Tanner) crab in the foreign and joint venture groundfish fisheries in the Gulf of Alaska, 1978-87[a].

Year	Foreign		Joint venture		Total	
	No.	t	No.	t	No.	t
1978[b]	23,969	14.16			23,969	14.16
1979	16,992	11.30	626	0.25	17,618	11.55
1980	27,844	16.62	58,022	14.43	85,866	31.05
1981	96,662	70.19	0	0	96,662	70.19
1982	63,293	35.33	364	0.17	63,657	35.50
1983	30,609	22.42	102,840	54.87	133,449	77.29
1984	8,885	5.69	41,663	27.36	50,548	33.05
1985	509	0.28	64,640	16.61	65,149	16.89
1986	1,425	1.17	11,762	4.76	13,187	5.93
1987	NF	NF	5,496	1.90	5,496	1.90

[a]Estimates for years 1978-86 are from Berger and Weikart 1988.

[b]No estimates of incidental catch were made of the limited joint venture fishery in 1978.

NF = No fishing.

Table 24.--Estimated incidental catch (numbers and metric tons) of king crab in the foreign and joint venture groundfish fisheries in the Gulf of Alaska, 1978-87[a].

Year	Foreign		Joint venture		Total	
	No.	t	No.	t	No.	t
1978[b]	93,875	135.31			93,875	135.31
1979	24,094	40.30	466	0.83	24,560	41.13
1980	6,395	8.95	6,285	13.03	12,680	21.98
1981	6,619	8.01	0	0.00	6,619	8.01
1982	3,464	5.60	11	0.03	3,475	5.63
1983	2,124	3.00	4,454	15.01	6,578	18.01
1984	1,465	4.89	5,482	20.15	6,947	25.04
1985	10	0.01	2,427	7.69	2,437	7.70
1986	0	0.00	33	0.08	33	0.08
1987	NF	NF	69	0.18	69	0.18

[a]Estimates for years 1978-86 are from Berger and Weikart 1988.

[b]No estimates of incidental catch were made of the limited joint venture fishery in 1978.

NF = No fishing.