

REVIEW OF THE 1991  
CENTRAL REGION GROUND FISH FISHERIES



by

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## ABSTRACT

The Central Region includes all state waters west of Cape Suckling and north of Cape Douglas; and includes Prince William Sound, Cook Inlet, and what is referred to as the North Gulf. In 1991, 272 fishermen delivered 6.0 million lb (2,720 tonne) of groundfish in 1,129 landings from Central Region waters. This was the largest harvest on record and generated an ex-vessel value of \$1.9 million. By weight, Pacific cod comprised 85%, sablefish 7%, and rockfish 6% of the 1991 harvest. Species caught primarily as bycatch included flounders, lingcod, and "other" groundfish. Longline vessels delivered 57%, pot vessels 37%, and jig vessels 6% of the 1991 harvest. Increased harvests in 1991 were attributed to strong groundfish markets, and economic or biological declines in salmon and shellfish fisheries. Management actions for groundfish stocks in Cook Inlet, Prince William Sound, and the North Gulf generally coincided with openings and closures in the adjacent federal waters. Primary exceptions included sablefish in Prince William Sound and gear closures to protect depressed shellfish stocks in Cook Inlet. Given the increased fishing effort in recent years, a more conservative management approach has been adopted for rockfish and lingcod stocks. Sampling programs have been initiated to determine groundfish stock composition. Central Region groundfish fisheries, particularly for Pacific cod, should remain strong for several years, although annual federal harvest allocations for this species have continued to decline. More intensive state management is anticipated for rockfish and lingcod because these resources are easily overfished.

KEY WORDS: Groundfish, Central Region, Prince William Sound, Cook Inlet, North Gulf, state management.

## INTRODUCTION

Groundfish, or bottomfish, includes all marine finfish excluding halibut, herring, salmonids, and osmerids. The Alaska Department of Fish and Game (ADF&G) and the National Marine Fisheries Service (NMFS) coordinate management responsibilities for groundfish fishing in Alaska coastal waters. The ADF&G has management jurisdiction for groundfish stocks in territorial seas, which extend three miles from shore. Territorial seas will also be referred to as state waters. Descriptions of state management areas are available in the Alaska statutes (State of Alaska 1987). Federally managed waters of the Exclusive Economic Zone (EEZ<sup>1</sup>) extend from 3-200 miles offshore (NMFS 1991). Fishery management plans (FMP's) for the EEZ are established by the North Pacific Fisheries Management Council with inseason management implemented by the NMFS. Federal managers sequentially change a fishery status from OPEN, to BYCATCH, to CLOSED (i.e., prohibited species catch or PSC). Depending upon the intensity of the fishery, a bycatch status is assigned when 90-95% of the Total Allowable Catch (TAC) is harvested. When the TAC is fully harvested, the fishery is closed. Management regulations for state waters are established by the Alaska Board of Fisheries with inseason adjustments made through Emergency Order by the ADF&G. For the territorial seas, state management actions are generally consistent with federal actions in the adjacent EEZ.

This report presents data on the commercial harvest of groundfish from all waters of state jurisdiction in the Central Region, including waters between Cape Suckling (144° W. longitude) and Cape Douglas (58°52' N. latitude), and from the adjacent federal waters. The data presented herein as harvests from federal waters was limited to activities by Central Region processors.

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<sup>1</sup> Previously referred to as the Fishery Conservation Zone.

## METHODS

### *Fish Ticket Reporting System*

As part of a cooperative agreement between the NMFS and the ADF&G, groundfish harvest data reported by Central Region processors were entered into the statewide groundfish database. Processors, buyers, and fishermen were responsible for recording each groundfish landing on an ADF&G fish ticket and submitting that fish ticket to the ADF&G. An ADF&G representative reviewed the fish ticket data for incomplete or inaccurate information, then entered the data into an electronic database (ADF&G 1989). Groundfish data were electronically transferred to the NMFS Management Division office in Juneau, Alaska, for compilation of statewide harvest data. NMFS applied this database to harvest verification and inseason implementation of the FMP's for the Gulf of Alaska and the Bering Sea/Aleutian Islands. Data was later transferred to the ADF&G Computer Services office in Juneau. Fisheries contributing to the data compiled herein included longline, trawl, jig, pot, and sunken gillnet fisheries for sablefish and miscellaneous groundfish in Prince William Sound, Cook Inlet, and the North Gulf; and longline, trawl, jig, and pot fisheries in the EEZ of the Gulf of Alaska, Bering Sea, and Aleutian Islands Management Areas.

### *Reporting Areas*

Central Region groundfish harvest data were summarized for federal waters of the EEZ, and for state waters (territorial seas). Harvests from state waters of the Central Region were further summarized according to the three areas described below (Figure 1):

(1) Cook Inlet - here defined as all waters (including federal waters of Cook Inlet) enclosed by a line from Point Adam (59°15'20" N, 151°58'30" W) to Cape Elizabeth (59°09'30" N, 151°53' W) to Cape Douglas (58°52' N);

2) Prince William Sound - waters enclosed by lines from Point Whitshed (60°27' N, 145°53' W) to Point Bentinck (60°24' N, 146°04' W), from Cape Hinchinbrook (60°14' N, 146°39' W) to Zaikof Point (60°19' N, 146°55' W), and

from Cape Cleare (59°46'25" N, 147°54'30" W) to Cape Puget (59°56'35" N, 148°26'30" W); and

3) North Gulf, or state waters between Cape Suckling (143°53' W.) and Cape Douglas, excluding Prince William Sound and Cook Inlet.

### *Conversion and Summary of Fish Products*

Harvests reported by commercial fishermen and processors on ADF&G fish tickets were generally expressed as dressed weight. The dressed weight and the product value were converted to round weight equivalents using product recovery rates (PRR's) which are specific to species and delivery condition codes (Appendix A; ADF&G 1989). Groundfish harvest data, expressed in pounds and tonnes of round weight, were summarized into the fish groups of rockfish (*Sebastes* and *Sebastolobus* species), sablefish (*Anoplopoma fimbria*), Pacific cod (*Gadus macrocephalus*), lingcod (*Ophiodon elongatus*), and "other groundfish". These groups described the major, definable, fisheries in the Central Region. Further discrimination of these fisheries was difficult due to inconsistencies or errors in harvest reporting on groundfish fish tickets (e.g., rockfish species are often reported as "red rockfish"). Pollock (*Theragra chalcogramma*) comprised only 0.3% (9,384 lb; 4.3 tonne) of the catch from Central Region state waters, and was included in the "other groundfish" category. Unless otherwise indicated, all data represented harvests from only Central Region waters.

For consistency with other data in this report, exvessel value was presented as round-weight equivalents. Product value was not always available for each landing report. To estimate exvessel value, the price-per-pound, by individual species, was averaged across all Central Region landings for which product values were reported by the processor. This average price was then extrapolated to all Central Region landings and summed within the fish groups.

Most processors paid for sablefish deliveries on a sliding scale that varied in 1-lb increments of dressed weight. Fish ticket reports reflected the size composition of each sablefish delivery as sorted into 1-lb increments. These data were summarized to estimate the proportional contribution of each size class to the total landed weight from the Prince William Sound sablefish fisheries during 1987-1991. For each size class, the total dressed weight was also divided by the size class to estimate the relative numbers of sablefish

and the proportional contribution of each size class to the total number of landed sablefish.

## RESULTS

### *Management Actions in 1991*

An ADF&G Emergency Order (EO), effective throughout 1991, stated that management actions for state waters of Cook Inlet, the Central Gulf of Alaska, and the Western Gulf of Alaska would correspond with waters in the adjacent federal waters, unless superseded by other EO (Appendices B.1 and B.2). A similar EO was issued for Prince William Sound on 29 April. These EO's: (1) allowed for consistent management of fisheries which target the same groundfish stocks in adjacent state and federal waters; (2) facilitated enforcement of regulations; and (3) reduced the duplication of individual regulatory actions for adjacent state and federal waters.

Groundfish fisheries in the federal waters generally open on calendar dates, and close due to the harvest of species quotas or due to bycatch limits. With the exception of sablefish, all groundfish fisheries in state waters of the Central Region and the adjacent federal waters were opened for directed fishing on 1 January 1991. Sablefish remained closed in Prince William Sound, but was opened to bycatch allowances in other areas of the Central Region and in federal waters of the Central Gulf. Sablefish opened to directed fishing in the Central Gulf and all areas of the Central Region on 15 May. Most fishermen targeted Pacific cod until a bycatch only status for Pacific cod was implemented on 29 April. After the 29 April closure, fishing effort virtually ceased until the directed sablefish opening. Sablefish fishing with hook-and-line gear shifted to bycatch only in the Central Gulf on 17 June, and closed to all gears in Prince William Sound on 22 June. With the exception of the September halibut opening (managed by the International Pacific Halibut Commission), the Gulf of Alaska closed to longline gear on 8 July and remained closed for the remainder of 1991. The directed Pacific cod fishery reopened on 11 October to gears other than longline.

Because of concerns over the impact of groundfish fishing on depressed king and Tanner crab stocks, groundfish pot gear was closed on 15 March in

territorial waters of Kamishak and Kachemak Bay in Cook Inlet; and pot and trawl gear was closed on 12 April in federal waters of Kamishak Bay.

While finfish managers have encouraged more accurate identification of rockfish on groundfish fish tickets, rockfish closures illustrated the limitations, or reluctance, of Central Region processors to provide adequate species identification for rockfish. Harvest records prior to the 8 April closure of Pacific ocean perch indicated a substantial harvest of Pacific ocean perch or "red snapper". Following and 8 April closure, the incidence of "red snapper" increased. Following the 21 June closure of shortraker and roughey rockfish, the incidence of "slope rockfish" increased. It is probable that species closures created a shift in reporting practices, and not necessarily fishing strategies.

#### *Area Registration and Permits*

In addition to other licensing requirements (Appendix C), commercial groundfish fishermen must obtain an area registration for each vessel prior to operating commercial groundfish gear in state waters of the Central Region. Area registration specifies the area to be fished, the gear to be used, and the target species. A vessel may be registered for only one area at a time, but the area may be changed at any time within a given calendar year. At the end of 1991, 284 vessels were registered for Central Region waters: 69 registered for Cook Inlet, 69 registered for Prince William Sound, and 144 registered for the North Gulf. The gear types listed on the registrations were longline (75%), jig (3%), other gears (1%), and a combination of gears (14%).

Fishermen must obtain a Prince William Sound Sablefish Fishery Permit prior to commercially fishing for sablefish in Prince William Sound. In 1991, 96 fishermen obtained permits. Fishermen participating in the Prince William Sound sablefish fishery were encouraged to obtain a groundfish area registration for Prince William Sound in addition to the sablefish permit. Fishermen validly licensed to fish both sablefish and miscellaneous finfish in the Prince William Sound area may retain both sablefish and miscellaneous groundfish in excess of the state's 20% incidental catch limits, thereby reducing waste of the resource and allowing fishermen to maximize potential income.

## Central Region Harvest

The harvest of groundfish from state waters of the Central Region during 1991 peaked during March-April and again in December (Table 1). By the end of 1991, 272 fishermen made 1,129 landings, delivering 6.0 million lb (2,720 tonne) of groundfish. Most of the 1991 harvest occurred in fisheries for Pacific cod (5.1 million lb, 2,324 tonne, or 85% of the 1991 total), sablefish (397,921 lb, 180 tonne, or 7% of the total), and rockfish (381,754 lb, 173 tonne, or 6% of the total). Additional groundfish species, primarily caught as bycatch, included lingcod (84,613 lb, 38 tonne), flounders (4,542 lb, 2 tonne), and other groundfish (3,954 lb, 2 tonne).

The 1991 groundfish harvest was the largest in recent record for state waters of the Central Region (Table 2). During the years 1987-1991, the groundfish harvest from Central Region waters ranged from 451,664 lb (205 tonne) in 1989 to 6.0 million lb (2,720 tonne) in 1991. The size of the harvest reflected increased effort, measured by the number of vessels and the number of landings.

A single vessel may fish several gear types within a season or at the same time if all applicable licenses and permits are obtained. However, most vessels fished a single gear type. In 1991, 229 longline vessels made 814 landings totaling 3.4 million lb (1,559 tonne), or 57% of the total groundfish harvest from state waters of the Central Region (Table 3). Historically, this was the smallest proportion of the annual harvest caught by longline gear. Thirty-three pot vessels made 187 landings totaling 2.2 million (996 tonne), or 37% of the Region total and the largest proportional harvest on record for pot gear. Fourteen jig (including hand troll) vessels made 99 landings totaling 328,169 lb (149 tonne), 6% of the region total; and five vessels using other gear types landed 37,332 lb (17 tonne), less than one percent of the total harvest. The longline harvest peaked in March and the pot harvest peaked in April. Jig harvest peaked in October but was relatively high in April and June. These harvest trends reflected the longline fleet targeting on Pacific cod and sablefish with a bycatch of rockfish, pot gear targeting Pacific cod, and jig gear targeting rockfish and lingcod (Table 4).

### Central Region Product Value

Product value was calculated using round weight equivalents. The 6.0 million lb of groundfish harvested from state waters of the Central Region in 1991 generated an estimated exvessel value of \$1.9 million, the greatest on record (Table 2). Pacific cod, at an average of \$0.28/lb, generated the greatest exvessel value at \$1.4 million. Sablefish deliveries were paid the highest price at \$.91/lb (or \$1.51/lb dressed) and generated an exvessel value of \$362,100. Rockfish, priced at \$0.28/lb, generated an exvessel value of \$106,900, whereas lingcod generated \$31,300, flounders generated \$1,000, and other groundfish generated \$1,800. The Pacific cod price was the greatest and the rockfish price the smallest for these fish groups since 1987.

### Harvest by Reporting Area

#### Prince William Sound Harvest

*Prince William Sound Groundfish.* A total of 2.6 million lb (1,199 tonne) of groundfish were harvested from state waters of Prince William Sound during 1991 (Table 5). Monthly harvest levels peaked at 1.3 million lb (584 tonne) in March because of increased effort in the Pacific cod fishery. Pacific cod comprised 83% (2,201,304 lb, or 998 tonne) of the Prince William Sound groundfish harvest, reflecting the favorable market for Pacific cod. Rockfish, caught primarily in conjunction with directed sablefish (see below) and Pacific cod fisheries, comprised 5% (125,467 lb, or 57 tonne) of the Prince William Sound groundfish harvest. Other species that were primarily harvested as a bycatch to Pacific cod or sablefish included lingcod (19,357 lb, or 9 tonne), flounders (2,917, or 1 tonne), and other groundfish (1,104 lb, 0.5 tonne).

The 1991 Prince William Sound groundfish harvest of 2.6 million lb was the largest in recent record (Tables 6). The 1991 lingcod harvest, which was substantially larger than for any other year, generated concerns about stock conservation and more intensive management measures are probable in the future. Fishermen also reported a substantial, but undocumented, discard of rockfish during the September halibut opening; an additional and significant removal of rockfish biomass can be assumed.

*Prince William Sound Sablefish.* The Prince William Sound sablefish fishery, the only actively managed fishery in state waters of the Central Region, opened by regulation on 15 May and closed by Emergency Order on 22 June (Appendix B.2). The 293,814 lb (133 tonne; Table 7) of sablefish landed by 66 vessels in 118 deliveries was the second highest on record. The 1991 harvest was within the guideline range of 88,200 to 308,700 lb (40-140 tonne), but substantially larger than the desired harvest level of 200,000 lb. Management of the Prince William Sound sablefish fishery was based on fishery performance, as indicated by fish ticket records. A larger-than-desired harvest resulted from several processors retaining groundfish fish tickets until the end of June 1991. This lag in reporting was in contrast to state regulation (5 AAC 39.130; State of Alaska 1977) which requires fish tickets to be submitted to the ADF&G within seven days of a landing.

The mean price paid to the fishermen depended upon sablefish size (based on 1-lb increments), delivery condition (e.g., round or bled), and quality at the time of delivery. Sablefish are generally delivered to the processor either in the round, or as headed-and-gutted eastern or western cut. The exvessel value of \$267,370 for the 1991 sablefish harvest was the largest on record.

#### Cook Inlet Harvest

During 1991, 2.1 million lb (942 tonne) of groundfish were harvested from Cook Inlet by 103 vessels making 464 landings (Table 5 and 6). Reflecting a favorable market and limited alternative groundfish resources, Pacific cod comprised 97% (2.0 million lb, or 912 tonne) of the Cook Inlet groundfish harvest. Other species were harvested primarily as a bycatch to Pacific cod or halibut and included sablefish (31,952 lb, or 14 tonne), rockfish (31,695 lb, or 14 tonne), flatfish (1,450 lb, or 0.7 tonne), and other groundfish (1,612 lb, or 0.7 tonne). Monthly harvest levels for Cook Inlet peaked at 1.0 million lb (467 tonne) in April. The 1991 harvest was the second largest in recent record from the Cook Inlet management area.

#### North Gulf Harvest

During 1991, 113 vessels made 262 landings totaling 1.3 million lb (579 tonne) of groundfish harvested from state waters of the North Gulf (Table 5 and 6). Fishing in the North Gulf peaked in March-April. Pacific cod comprised 72% (913,019, or 414 tonne) and rockfish comprised 18% (224,592 lb, or 102 tonne) of the 1991 harvest. The remainder of the harvest was comprised of sablefish

(72,155 lb, 33 tonne), lingcod (65,256 lb, 30 tonne), other groundfish (1,238 lb, 0.6 tonne), and flatfish (175 lb, or 0.8 tonne). The 1991 harvest was the largest on record from the North Gulf.

#### *Changes in State Management*

Lingcod tend to be slow-growing and have strong homing tendencies, with populations supported by strong year-classes that occur every five to seven years (D. Vincent-Lang, ADF&G, Anchorage). Rockfish tend to be late maturing, slow-growing, long-lived, and have strong homing tendencies. These characteristics make rockfish and lingcod highly susceptible to overfishing from sporadic, intensive fisheries such as the nearshore groundfish fisheries observed in recent years. To address management concerns about the long-term sustainability of these stocks, the ADF&G implemented catch sampling of rockfish and lingcod resources in Central Region waters in 1991. Commercially harvested rockfish and lingcod were sampled opportunistically at the ports of Seward, Whittier, and Homer (Bechtol, in preparation). Rockfish obtained from ADF&G shellfish surveys in Prince William Sound and Cook Inlet were also sampled. Data obtained from these samples, including species, age, size, and sex composition, will be applied to management plans of these species. Such plans will be developed with input from user group representatives and from managers for the affected sport, commercial, and subsistence fisheries. As additional stock composition data is compiled, specific resource concerns are realized, and management plans are being developed, the ADF&G will more actively manage the nearshore rockfish and lingcod resources.

Statewide groundfish issues addressed during the 1991-92 cycle of the Alaska Board of Fisheries included:

- (1) The Board modified area registration requirements so that the Commissioner of the ADF&G may waive groundfish area registrations for a fishery or season.
- (2) The Board moved to clarify the definition of a groundfish pot as a pot having a permanent label with the word "groundfish" and having a tunnel opening of not more than 30 inches.
- (3) The Board opted not to eliminate the use of sunken gillnets for groundfish and directed the ADF&G to closely monitor the fishery and collect more area-specific data on fishery performance. The sunken gillnet issue has continued

to be a contentious issue; the Board opted again addressed this fishery in March 1992 and will again review the fishery during the 1992-1993 Board cycle.

(4) The Board adopted a regulation to require all vessels which fish in territorial seas to comply with the federal logbook requirements. However, this regulation was not in effect by April 1992.

(5) Adopted a regulation to require all vessels which fish in territorial seas to comply with the federal observer requirements. However, this regulation was not in effect by April 1992.

#### *Central Region Processor Activity*

##### Deliveries of Central Region Companies

The groundfish processing activities of Central Region companies reflected continued expansion of the domestic groundfish fleets, particularly in EEZ fisheries, during recent years (Table 8). Groundfish landings reported by Central Region companies in 1991 totaled 102.3 million lb (46,411 tonne), which is a 22% increase over the 1991 harvest and a 77% increase over the 1989. The greatest increase in Central Region processor activity during 1991 was in flatfish (346%). Processing of "other groundfish" also increased 34%, whereas decreased processing was observed for rockfish (48%), Pacific cod (16%), and sablefish (7%). An additional 18.3 million lb (8,293 tonne) of groundfish were reported as "discarded-at-sea" and represented discards due to species-closures or a low value species.

##### Deliveries by Port for Central Region Companies

Companies based in the Central Region operate fishing vessels and floating domestic processors (FLD's) both within and outside of Central Region state waters, and in the EEZ of the Gulf of Alaska, the Bering Sea, and the Aleutian Island management areas. FLD's includes catcher-processor vessels, which process their own catch, and mothership-processor vessels, which process the catch delivered by other vessels. Of the 102.3 million lb of groundfish processed in 1991 by Central Region processors or vessels, 72% (74.0

million lb or 33,556 tonne) was harvested and/or processed by FLD's operating primarily in the EEZ (Table 9). Landings to FLD's were comprised primarily of flatfish (51%), other groundfish (20%), Pacific cod (17%), and rockfish (11%). In 1991, Central Region shore-based processors received 28.3 million lb (12,856 tonne) of groundfish with 18.9 million lb (8,569 tonne) delivered to Seward, 3.2 million lb (1,470 tonne) to Cordova, 3.0 million lb (1,351 tonne) to Homer, 2.1 million (967 tonne) to Seldovia, 594,766 lb (270 tonne) to Valdez, 433,692 million lb (197 tonne) to Whittier, and 14,431 lb (7 tonne) to the Kenai area. Central Region processing of groundfish harvested from state waters, including waters outside of the Central Region, totaled 8.5 million lb (3,876 tonne). This catch was primarily Pacific cod (60%), rockfish (23%), flatfish (8%), and sablefish (8%).

#### GROUND FISH FISHERIES OUTLOOK

Fisheries for groundfish, including Pacific cod, should continue to develop as long as market conditions remain favorable. A major factor of marketing is product quality, and fishermen and processors will need to deliver a high quality product in order to maintain a market share. Processors currently pay a lower price for poor quality fish and, in some cases, refuse to buy all or portions of a vessels's delivery if product quality is poor.

Historical participation in most Central Region groundfish fisheries has been limited and largely driven by annual or local market fluctuations. As groundfish fisheries continue to develop, knowledge from these fisheries may be applied to area- or species-specific management plans. However, until a sufficient database on stock composition and production parameters is developed, openings and closures of groundfish fisheries in state waters of the Central Region will continue to reflect actions in the adjacent federal waters of the Gulf of Alaska. The major exception will be the Prince William Sound sablefish fishery, which is actively managed by the state of Alaska for a guideline harvest range.

Fishermen have become more aware of bycatch issues after prohibited species catch limits for halibut resulted in closures of longline and trawl fisheries in the Gulf of Alaska in 1990 and 1991. In an effort to maximize fishing time during the 1991 Pacific cod fisheries, fishermen increased their use of groundfish pots, modified with halibut exclusion devices. However, because groundfish pots which exclude crab have not been developed, future groundfish

pot closures are likely in areas where crab concentrate or during seasons when crab are particularly susceptible to mortality (e.g., soft-shell periods).

As fishing technology has continued to develop, fishermen increasingly have both the capacity and potential to overharvest a given species or stock. An example is rockfish which are typically long-lived, slow-growing, late-maturing, and highly susceptible to overfishing. Most rockfish species embolize and die when brought to the surface. Management of rockfish stocks will require extensive cooperation between managers and fishermen in order to understand the distribution and life history patterns of individual species or rockfish complexes. Fishermen will need to be familiar with both the identification characteristics and the distribution patterns of individual species in order to target on specific rockfish complexes. As catch allocations for individual species complexes are taken, fishermen will need to adjust their fishing strategies in order to avoid unnecessary discard of the fishery resource. Fisheries managers will need to coordinate seasons and bycatch allowances to provide fishing access to this resource while reducing potential overharvest problems, and without generating waste of the resource through unnecessary discards.

During 1991, sablefish and halibut fisheries in the Gulf of Alaska moved closer to a system of Individual Transferrable Quotas (ITQ's). The ITQ system will allocate a fixed share of the total allowable catch for a fishery to an individual fisherman and serve to limit entry into the fishery. Some of the objectives of the ITQ system are to reduce overcapitalization; increase vessel safety; reduce potential overfishing during short-duration, derby-style openings; and to increase the value of the resource by allowing the fishery product to enter the market over a longer time frame than is presently seen. Problems encountered in previous ITQ programs include catch high-grading, a reduction of the overall economic base supported by the fishery, and the costs to administer and enforce an ITQ system (e.g., Clark and Duncan 1986). As ITQ systems are established in federal waters, fishing effort can be expected to increase in the state waters where fishery entry is not limited.

Groundfish fisheries are continuing to evolve as concerns such as bycatch, marine mammals, and gear efficiency are addressed. It will take cooperative efforts between the industry and management agencies to develop gear that is cost-effective to operate and minimizes bycatch. While managers develop a better understanding of stock production parameters, the future will also involve a greater role of the "public process" in allocative decisions, including the determination of acceptable bycatch levels. Ultimately,

fishermen will need to deliver a quality product at a price that will maintain and expand groundfish markets, both foreign and domestic.

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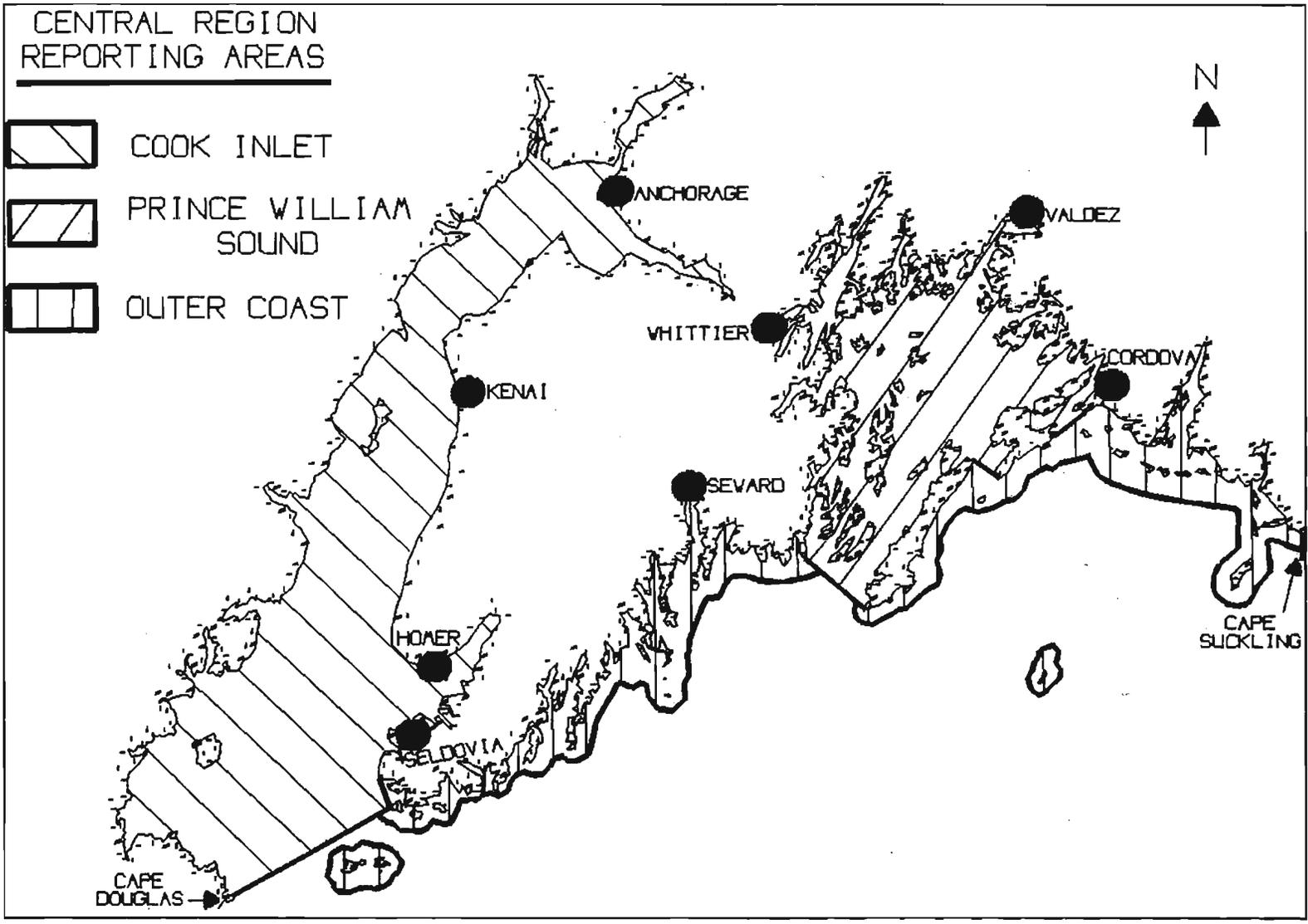


Figure 1. Data summary areas for the reporting of groundfish harvested from state waters of the Central Region.

Table 1. Monthly groundfish harvest and effort from state waters of the Central Region during 1991.

Month	Vessels	Land-ings	Round Weight (lb)						Total
			Rockfish	Sablefish	Pacific Cod	Flatfish	Other Groundfish	Lingcod	
January	25	35	8,677	437	100,081		2,321		111,516
February	45	126	3,900	301	498,943		305		503,449
March	120	297	15,516		2,239,634	1,538	194	144	2,257,026
April	90	222	50,057		1,865,833	1,015	30	2,565	1,919,500
May	102	167	76,130	181,800	23,268	1,482	1,097	2,246	286,023
June	57	123	93,569	215,383	4,428	507		5,042	318,929
July	6	21	41,016		139			7,489	48,644
August	5	12	8,765		278			2,920	11,963
September	10	14	14,917		1,025			11,989	27,931
October	14	20	33,350		43,776			27,571	104,697
November	15	40	15,832		148,736			13,430	177,998
December	14	52	20,025		198,857		7	11,217	230,106
Total	272	1,129	381,754	397,921	5,124,998	4,542	3,954	84,613	5,997,782

Table 2. Annual groundfish harvest (lb), price (\$/lb), exvessel value (\$), and effort from state waters of the Central Region during 1987-1991.

Vessels	Land-ings	Rockfish	Sablefish	Pacific Cod	Flatfish	Other Groundfish	Lingcod	Total
1987 Harvest								
Round Weight (lb)		280,749	223,737	2,076,646	163,059	69,727	26,219	2,840,137
Price (\$/lb)		0.31	0.64	0.24	0.28	0.25	0.45	
Value (\$)		\$87,600	\$143,200	\$498,400	\$45,400	\$17,100	\$11,800	\$803,500
1988 Harvest								
Round Weight (lb)		317,114	375,262	841,740	17,875	16,397	26,641	1,595,029
Price (\$/lb)		0.33	0.99	0.24	0.35	0.28	0.34	
Value (\$)		\$103,600	\$371,500	\$202,000	\$6,200	\$4,700	\$9,100	\$697,100
1989 Harvest								
Round Weight (lb)		143,333	190,042	104,850	11	5,122	8,306	451,664
Price (\$/lb)		0.41	0.89	0.21	0.10	0.16	0.36	
Value (\$)		\$58,100	\$169,100	\$22,000	\$0	\$0,800	\$3,000	\$253,000
1990 Harvest								
Round Weight (lb)		537,111	221,923	1,528,630	72,986	12,226	13,998	2,386,874
Price (\$/lb)		0.38	0.69	0.24	0.22	0.12	0.36	
Value (\$)		\$202,200	\$153,100	\$366,900	\$16,300	\$1,400	\$5,000	\$745,000
1991 Harvest								
Round Weight (lb)		381,754	397,921	5,124,998	4,542	3,954	84,613	5,997,782
Price (\$/lb)		0.28	0.91	0.28	0.23	0.46	0.37	
Value (\$)		\$106,900	\$362,100	\$1,435,000	\$1,000	\$1,800	\$31,300	\$1,938,200

Table 3. Monthly groundfish harvest in pounds by gear type from state waters of the Central Region during 1991.

	Round Weight (lb)				Total
	Longline	Jig	Pot	Other	
January	104,007	500	7,009	0	111,516
February	358,745	1,492	143,212	0	503,449
March	1,628,213	558	613,795	14,460	2,257,026
April	809,853	54,561	1,053,843	1,243	1,919,500
May	261,339	18,833	0	5,851	286,023
June	263,326	55,603	0	0	318,929
July	2,069	43,002	0	5,642	50,713
August	3,292	6,137	0	3,757	13,186
September	0	24,639	0	0	24,639
October	0	61,977	42,720	0	104,697
November	0	29,943	143,915	4,140	177,998
December	5,824	30,924	191,129	2,229	230,106
<b>Total</b>	<b>3,436,668</b>	<b>328,169</b>	<b>2,195,623</b>	<b>37,322</b>	<b>5,997,782</b>

	Number of Vessels and Landings				Total
	Longline	Jig	Pot	Other	
Vessels	229	14	33	5	272
Landings <sup>a</sup>	814	99	187	29	1,129

Annual Central Region catch composition by gear type during 1987-1991.

Year	Percentage of Total Weight Landed				Vessels	Landings	Total Lbs
	Longline	Jig	Pots	Other			
1987	87.2%	3.1%	0.6%	10.0%	324	1250	2,800,753
1988	90.8%	6.2%	1.3%	1.7%	171	634	1,633,701
1989	94.5%	4.2%	0.2%	1.1%	60	208	451,664
1990	89.1%	2.8%	3.0%	5.1%	211	798	2,386,874
1991	57.3%	5.5%	36.6%	0.6%	272	1129	5,997,782

<sup>a</sup> Some vessels fish more than one gear type during a year.

Table 4. Catch composition by gear type and groundfish group from state waters of the Central Region during 1991.

GEAR	Round Weight (lb)						TOTAL
	ROCKFISH	SABLEFISH	PACIFIC COD	FLATFISH	OTHER GROUNDFISH	LINGCOD	
LONGLINE HARVEST (lb)	144,050	394,979	2,891,456	682	3,448	2,053	3,436,668
LONGLINE COMPOSITION % OF ALL GEARS	0.04	0.11	0.84	0.00	0.00	0.00	1.00
	0.38	0.99	0.56	0.15	0.87	0.02	0.57
JIG/TROLL HARVEST	226,193	0	19,721	0	7	82,248	328,169
JIG/TROLL COMPOSITION % OF ALL GEARS	0.69	0.00	0.06	0.00	0.00	0.25	1.00
	0.59	0.00	0.00	0.00	0.00	0.97	0.05
POT HARVEST	0	0	2,195,096	0	499	28	2,195,623
POT COMPOSITION % OF ALL GEARS	0.00	0.00	1.00	0.00		0.00	1.00
	0.00	0.00	0.43	0.00	0.13	0.00	0.37
OTHER GEAR HARVEST	11,511	2,942	18,725	3,860	0	284	37,322
OTHER COMPOSITION % OF ALL GEARS	0.31	0.08	0.50	0.10	0.00	0.01	1.00
	0.03	0.01	0.00	0.85	0.00	0.00	0.01

CENTRAL REGION TOTAL

	ROCKFISH	SABLEFISH	PACIFIC COD	FLOUNDERS	OTHER GROUNDFISH	LINGCOD	TOTAL
TOTAL FOR ALL GEARS	381,754	397,921	5,124,998	4,542	3,954	84,613	5,997,782

Table 5. Monthly groundfish catch and effort by Central Region reporting area during 1991.

Month	Vessels	Land-ings <sup>a</sup>	Round Weight (lb)						Total
			Rockfish	Sablefish	Pacific Cod	Flatfish	Other Groundfish	Lingcod	
<b>Cook Inlet</b>									
January	12	15			31,331			1,272	32,603
February	28	93	58		248,408			305	248,711
March	44	127	216		511,804			35	512,055
April	40	127	1,707		1,028,677	197			1,030,581
May	9	20	4,641	8,607	1,483	746			15,477
June	10	22	15,998	23,345		507			39,850
July	<4		5,318						5,318
August	<4		3,757						3,757
September	<4				800				800
October	5	6			29,929				29,929
November	6	19			71,596				71,596
December	6	28			86,647				86,647
<b>Total</b>	<b>103</b>	<b>464</b>	<b>31,695</b>	<b>31,952</b>	<b>2,010,675</b>	<b>1,450</b>	<b>1,612</b>	<b>0</b>	<b>2,077,384</b>
<b>Prince William Sound</b>									
January	10	13	8,488		49,103				57,591
February	15	22	3,357		185,216				188,573
March	57	105	11,646		1,273,719	1,538			1,286,903
April	27	44	5,940		481,760	718			488,418
May	58	98	50,845	147,028	10,404	661	1,097		210,035
June	40	76	26,213	146,786	2,034				175,033
July	<4		11,308		139			5,505	16,952
August	<4		1,913		278			1,293	3,484
September	5	7	1,811		64			4,822	6,697
October	4	4	270		11,767			2,702	14,739
November	6	10	485		76,459			2,637	79,581
December	6	14	3,191		110,361		7	2,398	115,957
<b>Total</b>	<b>141</b>	<b>403</b>	<b>125,467</b>	<b>293,814</b>	<b>2,201,304</b>	<b>2,917</b>	<b>1,104</b>	<b>19,357</b>	<b>2,643,963</b>
<b>Outer Coast</b>									
January	4	7	189	437	19,647		1,049		21,322
February	8	11	485	301	65,319				66,105
March	35	65	3,654		454,111		159	144	458,068
April	35	51	42,410		355,396	100	30	2,565	400,501
May	41	49	20,644	26,165	11,381	75		2,246	60,511
June	14	25	51,358	45,252	2,394			5,042	104,046
July	<4		24,390					1,984	26,374
August	<4		3,095					1,627	4,722
September	4	6	13,106		161			7,167	20,434
October	6	10	33,080		2,080			24,869	60,029
November	4	11	15,347		681			10,793	26,821
December	4	10	16,834		1,849			8,819	27,502
<b>Total</b>	<b>113</b>	<b>262</b>	<b>224,592</b>	<b>72,155</b>	<b>913,019</b>	<b>175</b>	<b>1,238</b>	<b>65,256</b>	<b>1,276,435</b>

<sup>a</sup> To comply with Alaska statute 16.05.815, CONFIDENTIAL NATURE OF CERTAIN REPORTS AND RECORDS, effort data has been masked where fewer than four vessels fished an area in a given month.

Table 6. Annual groundfish harvest and effort from Cook Inlet, Prince William Sound, and the Outer Coast during 1987-1991.

Year	Ves- sels	Land- ings	Round Weight (lb)						Total
			Rockfish	Sablefish	Pacific Cod	Flatfish	Other Groundfish	Lingcod	
Cook Inlet									
1987	178	731	21,541	2,359	870,530	135,059	56,472	103	1,086,064
1988	67	178	7,154	74,337	215,586	220	275	127	297,699
1989	11	20	1,736	5,400	8,363	11	2,620	0	18,130
1990	88	302	134,853	24,664	387,779	5,002	10,593	394	563,285
1991	103	464	31,695	31,952	2,010,675	1,450	1,612	0	2,077,384
Prince William Sound									
1987	100	207	90,061	184,581	415,483	27,113	8,117	594	725,949
1988	79	265	109,611	211,769	319,202	15,287	13,655	1,338	670,862
1989	39	132	91,508	180,903	65,698	0	2,113	1,280	341,502
1990	110	416	355,284	185,670	1,069,004	67,971	1,085	7,906	1,686,920
1991	141	403	125,467	293,814	2,201,304	2,917	1,104	19,357	2,643,963
Outer Coast									
1987	117	312	169,147	36,797	790,633	877	5,138	25,522	1,028,114
1988	71	191	200,349	89,156	306,952	2,368	2,467	25,176	626,468
1989	25	56	50,089	3,739	30,789	0	389	7,026	92,032
1990	59	80	46,974	11,589	71,847	13	548	5,698	136,669
1991	113	262	224,592	72,155	913,019	175	1,238	65,256	1,276,435
Central Region Total									
1987	324	1,250	280,749	223,737	2,076,646	163,059	69,727	26,219	2,840,137
1988	171	634	317,114	375,262	841,740	17,875	16,397	26,641	1,595,029
1989	60	208	143,333	190,042	104,850	11	5,122	8,306	451,664
1990	211	798	537,111	221,923	1,528,630	72,986	12,226	13,998	2,386,874
1991	272	1,129	381,754	397,921	5,124,998	4,542	3,954	84,613	5,997,782

Table 7. Historical harvest (round weight in pounds, with tonne in parenthesis) and effort in the Prince William Sound sablefish fishery, 1985-1991.

YEAR	HARVEST (lb)	VESSELS	LANDINGS	PRICE (\$/lb)	EXVESSEL VALUE	PERMITS ISSUED
1985	383,290 (173 tonne)	29	108			
1986	189,850 (86 tonne)	32	36			88
1987	205,350 (93 tonne)	71	120	\$0.66	\$135,530	116
1988	219,720 (100 tonne)	53	147	\$0.99	\$217,520	76
1989	186,300 (84 tonne)	26	98	\$0.80	\$149,040	86
1990	208,820 (95 tonne)	70	258	\$0.67	\$139,910	108
1991	293,810 (133 tonne)	66	118	\$0.91	\$267,370	96

<sup>1</sup> 1 tonne = 2,205 lb

Table 8. Groundfish harvest (round weight, lb) from waters off the coast of Alaska and landed to Central Region based processors during 1981-1991.

YEAR	Round Weight (lb)					TOTAL
	ROCKFISH	SABLEFISH	PACIFIC COD	FLATFISH	OTHER <sup>1</sup> GROUND FISH	
1981	134,444	2,204	11,020	72,732	88,160	308,560
1982	22,040	130,036	26,448	132,240	70,528	381,292
1983	37,468	304,152	22,040	28,652	136,648	528,960
1984	94,772	3,193,596	8,816	11,020	15,428	3,323,632
1985	3,920,916	6,012,512	68,324	74,936	185,136	10,261,824
1986	2,129,064	9,406,672	189,544	59,508	26,448	11,811,236
1987	8,028,832	12,004,742	2,999,334	881,985	166,578	24,081,471
1988	21,110,677	15,447,243	5,793,211	2,085,354	1,582,905	46,019,390
1989	20,242,130	14,248,762	13,999,551	5,328,150	4,111,952	57,930,545
1990	17,631,821	19,099,038	27,577,299	8,379,681	11,045,709	83,733,548
1991	9,171,394	17,819,904	23,119,843	37,388,996	14,836,562	102,336,699

<sup>1</sup> "Other groundfish" differs from previous uses of this category in the text by including lingcod.

Table 9. Port of landing for groundfish processed (round weight, lb) from state waters or the Exclusive Economic Zone (EEZ) during 1991 by Central Region fishing companies or vessels.

Port		Ves- sels	Land- ings	Round Weight (lb)						Total
				Rockfish	Sablefish	Pacific Cod	Flatfish	Other Groundfish	Lingcod	
Cordova	State	34	64	13,451	160,847	207,636	0	0	0	381,934
	EEZ	92	130	77,158	2,753,156	28,690	0	0	86	2,859,090
	Total	86	194	90,609	2,914,003	236,326	0	0	86	3,241,024
FLD <sup>1</sup>	State	5	6	1,581,065	265,938	39,437	661,683	3,345	0	2,551,468
	EEZ	8	315	6,815,456	758,196	12,404,971	36,722,498	14,709,564	27,942	71,438,627
	Total	8	321	8,396,521	1,024,134	12,444,408	37,384,181	14,712,909	27,942	73,990,095
Homer	State	89	323	104,612	8,488	1,575,064	0	2,673	9,429	1,700,266
	EEZ	75	130	15,639	997,947	264,843	0	998	0	1,279,427
	Total	137	453	120,251	1,006,435	1,839,907	0	3,671	9,429	2,979,693
Kenai	State	0	0	0	0	0	0	0	0	0
	EEZ	4	5	0	14,431	0	0	0	0	14,431
	Total	4	5	0	14,431	0	0	0	0	14,431
Seldovia	State	46	222	26,602	0	994,177	0	147	1,842	1,022,768
	EEZ	40	84	5,725	642,903	455,974	0	1,632	2,692	1,108,926
	Total	72	306	32,327	642,903	1,450,151	0	1,779	4,534	2,131,694
Seward	State	96	292	115,264	95,701	2,167,791	175	37	50,231	2,429,199
	EEZ	248	856	273,188	11,493,246	4,697,495	273	538	213	16,464,953
	Total	280	1,148	388,452	11,588,947	6,865,286	448	575	50,444	18,894,152
Valdez	State	20	35	7,961	31,495	6,753	0	1,097	856	48,162
	EEZ	13	36	20,706	496,265	28,648	0	0	985	546,604
	Total	32	71	28,667	527,760	35,401	0	1,097	1,841	594,766
Whittier	State	51	188	113,858	101,291	171,788	4,367	0	22,255	413,559
	EEZ	1	1	709	0	19,424	0	0	0	20,133
	Total	51	189	114,567	101,291	191,212	4,367	0	22,255	433,692
Other	State	0	0	0	0	0	0	0	0	0
	EEZ	3	3	0	0	57,152	0	0	0	57,152
	Total	3	3	0	0	57,152	0	0	0	57,152
Central Region Total				Round Weight (lb)						
		Ves- sels	Land- ings	Rockfish	Sablefish	Pacific Cod	Flatfish	Other Groundfish	Lingcod	Total
	State	276	1,130	1,962,813	663,760	5,162,646	666,225	7,299	84,613	8,547,356
	EEZ	365	1,560	7,208,581	17,156,144	17,957,197	36,722,771	14,712,732	31,918	93,789,343
	Total	512	2,690	9,171,394	17,819,904	23,119,843	37,388,996	14,720,031	116,531	102,336,699

<sup>1</sup> FLD = Floating Domestic Processor.

Appendix A. Delivery condition codes used to specify the dressed weight condition of a groundfish product as reported on groundfish fish tickets.

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CONDITION CODE	FISH PRODUCT <sup>1</sup>
01	WHOLE FISH/FOOD FISH
02	WHOLE FISH/BAIT
03	BLED ONLY
04	GUTTED ONLY
06	HEADED AND GUTTED, WITH ROE
07	HEADED AND GUTTED, WESTERN CUT
08	HEADED AND GUTTED, EASTERN CUT
10	HEADED AND GUTTED, TAIL REMOVED
11	KIRIMI
12	SALTED AND SPLIT
13	WINGS
14	ROE
15	PECTORAL GIRDLE
16	HEADS
17	CHEEKS
18	CHINS
19	BELLY (MEAT)
20	FILLETS WITH SKIN AND RIBS
21	FILLETS WITH SKIN, NO RIBS
22	FILLETS WITH RIBS, NO SKIN
23	FILLETS, SKINLESS AND BONELESS
30	SURIMI
31	MINCED
32	FISH MEAL
33	FISH OIL
34	MILT
35	STOMACHS (INTERNAL ORGANS)
36	OCTOPUS/SQUID MANTLES
37	BUTTERFLY, NO BACKBONE
39	BONES
96	DECOMPOSED FISH
97	OTHER - SPECIFY
98	DISCARDED AT SEA
99	LANDED DISCARDED

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<sup>1</sup> In cases where multiple products are derived from the same fish, the primary product is shown with the appropriate code and secondary products are listed with the appropriate codes preceded by the letter "A".

Appendix B.1. Primary federal openings and closures of groundfish fisheries in waters of the Exclusive Economic Zone (EEZ) adjacent to the Central Region during 1991.

Date	Waters <sup>1</sup>	Fishery	Gear <sup>2</sup>	Action <sup>3</sup>
1/1	EG, CG, WG	GROUND FISH, EX. SABLEFISH	ALL	OPENED
1/1	EG, CG, WG	SABLEFISH	POT	CLOSED
1/1	EG, CG, WG	SABLEFISH	H&L	BYCATCH
1/1	EG	SABLEFISH	TRAWL	BYCATCH
1/15	CG, WG	SABLEFISH	TRAWL	BYCATCH
2/4	SHELIKOF STRAIT	POLLOCK	ALL	CLOSED
2/15	CG, WG	POLLOCK	ALL	BYCATCH
2/25	EG, WG	SHORTRAKER-ROUGHEYE	ALL	BYCATCH
3/1	CG, WG	POLLOCK	ALL	CLOSED
3/23	WG	PACIFIC COD	ALL	BYCATCH
4/8	EG	POLLOCK	ALL	CLOSED
4/8	CG	PACIFIC OCEAN PERCH	ALL	CLOSED
4/8	WG	SHORTRAKER-ROUGHEYE	ALL	CLOSED
4/12	EAST YAKUTAT	SABLEFISH	TRAWL	CLOSED
4/12	WEST LOWER COOK INLET	ALL	POT, TRAWL	CLOSED
4/14	CG	SHORTRAKER-ROUGHEYE	ALL	BYCATCH
4/22	EG	PACIFIC OCEAN PERCH	ALL	BYCATCH
4/27	WG	PACIFIC OCEAN PERCH	ALL	BYCATCH
4/29	CG	PACIFIC COD	ALL	BYCATCH
5/8	EG, CG, WG	ALL	NON-PELAGIC TRAWL	CLOSED
5/15	EG, CG, WG	SABLEFISH	H&L	OPENED
5/25	EAST YAKUTAT	SABLEFISH	H&L	BYCATCH
6/10	WEST YAKUTAT	SABLEFISH	H&L	BYCATCH
6/13	CG, WG	ALL	TRAWL	
CLOSED WITHIN 10 nm OF 14 SEA LION ROOKERIES				
6/13	CENTRAL/WESTERN SUBAREAS	POLLOCK	ALL	OPENED
6/17	CG	SABLEFISH	H&L	BYCATCH
6/21	EG, CG	SHORTRAKER-ROUGHEYE	ALL	CLOSED
7/1	EG, CG, WG	PACIFIC COD/ROCKFISH	TRAWL	
BYCATCH STANDARDS FOR VESSEL INCENTIVE PROGRAM ESTABLISHED				
7/1	EG, CG, WG	ALL	NON-PELAGIC TRAWL	OPENED
7/5	WEST YAKUTAT	SABLEFISH	H&L	CLOSED
7/8	EG, CG, WG	ALL	H&L	CLOSED
7/20	CENTRAL POLLOCK SUBAREA	POLLOCK	ALL	BYCATCH
7/24	WESTERN POLLOCK SUBAREA	POLLOCK	ALL	BYCATCH
8/8	EG, CG, WG	ALL	TRAWL GEAR RESTRICTIONS	
9/16	CG	OTHER ROCKFISH	ALL	BYCATCH
9/25	CG	ARROWTOOTH FLOUNDER	ALL	CLOSED
10/5	EG	PELAGIC SHELF ROCKFISH	ALL	CLOSED
10/10	WEST YAKUTAT	SABLEFISH	TRAWL	CLOSED
10/11	CG, WG	PACIFIC COD	ALL EXC. H&L	OPENED
10/14	EG, CG, WG	ALL EXC. POLLOCK	TRAWL	CLOSED
10/14	EG, CG, WG	POLLOCK	NON-PELAGIC TRAWL	CLOSED
10/21	WESTERN/CENTRAL SUBAREA	POLLOCK	PELAGIC TRAWL	OPENED
10/24	CENTRAL POLLOCK SUBAREA	POLLOCK	ALL	CLOSED
10/26	WESTERN POLLOCK SUBAREA	POLLOCK	ALL	CLOSED

<sup>1</sup> EG - Eastern Gulf, CG - Central Gulf, WG - Western Gulf

<sup>2</sup> H&L - Hook-and-line gear.

<sup>3</sup> BYCATCH - Means that a fishery is open only to bycatch allowances.

Appendix B.2. Primary openings and closures of groundfish fisheries in state waters of the Central Region during 1991.

DATE	WATERS <sup>1</sup>	FISHERY	GEAR <sup>2</sup>	ACTION <sup>3</sup>
*1/1	CI	SEASONS COINCIDE W/NMFS	INSEASON ADJUSTMENTS	
*1/1	CI, CG, WG	SEASONS COINCIDE W/NMFS	INSEASON ADJUSTMENTS	
*1/1	KAMISHAK & KACHEMAK BAYS	ALL	TRAWL	CLOSED
1/1	CI, CG, WG	SABLEFISH	ALL	CLOSED
1/15	CI, CG, WG	SABLEFISH	TRAWL	CLOSED
2/15	CI, CG, WG	POLLOCK	ALL	CLOSED
2/25	WG	SHORTRAKER-ROUGHEYE	ALL	CLOSED
*3/15	KAMISHAK & KACHEMAK BAYS	GROUNDFISH	POT	CLOSED
*3/15	SOUTHEAST PWS	GROUNDFISH	POT	CLOSED
3/23	WG	PACIFIC COD	ALL	CLOSED
4/8	CI, CG	PACIFIC OCEAN PERCH	ALL	CLOSED
4/8	WG	SHORTRAKER-ROUGHEYE	ALL	CLOSED
4/12	EAST YAKUTAT	SABLEFISH	TRAWL	CLOSED
4/14	CI, CG	SHORTRAKER-ROUGHEYE	ALL	BYCATCH
4/14	PWS, CG	ALL	SUNKEN GILLNET	CLOSED
4/27	WG	PACIFIC OCEAN PERCH	ALL	BYCATCH
4/29	CI, CG	PACIFIC COD	ALL	BYCATCH
*4/29	PWS	SEASONS COINCIDE W/NMFS	INSEASON ADJUSTMENTS	
5/8	CI, PWS, EG, CG, WG	ALL	NON-PELAGIC TRAWL	CLOSED
5/15	CI, EG, CG, WG	SABLEFISH	ALL	OPENED
*5/15	PWS	SABLEFISH	ALL	OPENED
6/10	WEST YAKUTAT	SABLEFISH	H&L	BYCATCH
*6/13	CI, PWS, CG, WG		TRAWL	
		CLOSED WITHIN 10 nm OF 14 SEA LION ROOKERIES		
6/17	CI, PWS, CG	SABLEFISH	H&L	BYCATCH
6/21	CI, PWS, CG	SHORTRAKER-ROUGHEYE	ALL	CLOSED
*6/22	PWS	SABLEFISH	ALL	CLOSED
7/1	CI, PWS, EG, CG, WG	ALL	NON-PELAGIC TRAWL	OPENED
7/5	CI, CG, WEST YAKUTAT	SABLEFISH	H&L	CLOSED
7/8	CI, PWS, EG, CG, WG	ALL	H&L	CLOSED
7/20	CI, PWS, CG	POLLOCK	ALL	BYCATCH
7/24	WG	POLLOCK	ALL	BYCATCH
8/8	CI, PWS, EG, CG, WG	ALL	TRAWL GEAR RESTRICTIONS	
8/16	CI, PWS, CG	OTHER ROCKFISH	ALL	BYCATCH
9/15	PWS, CG, WG	ALL	SUNKEN GILLNET	OPENED
9/19	CI, PWS, CG, WG	POLLOCK	TRAWL SEASON	DELAYED
9/25	CI, PWS, CG	ARROWTOOTH FLOUNDER	ALL	CLOSED
10/11	CI, PWS, CG, WG	PACIFIC COD	ALL EXC. H&L	OPENED
*10/11	CI		POT	OPENED
10/14	CI, PWS, EG, CG, WG	ALL EXC. POLLOCK	TRAWL	CLOSED
10/14	CI, PWS, EG, CG, WG	POLLOCK	NON-PELAGIC TRAWL	CLOSED
10/21	WESTERN/CENTRAL SUBAREA	POLLOCK	PELAGIC TRAWL	OPENED
10/24	CENTRAL POLLACK SUBAREA	POLLOCK	ALL	CLOSED
10/26	WESTERN POLLACK SUBAREA	POLLOCK	ALL	CLOSED

<sup>1</sup> CI - Cook Inlet, PWS - Prince William Sound, CG - Central Gulf (includes the North Gulf), WG - Western Gulf

<sup>2</sup> H&L - Hook-and-line gear.

<sup>3</sup> BYCATCH - Means that a fishery is open only to bycatch allowances.

\* Denotes management actions implemented through state regulation or ADF&G Emergency Order authority.

Appendix C. Licenses, permits, and registrations required of Central Region groundfish fishermen in 1991.

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All Fisheries

1. Coast Guard vessel documentation number (AK No.).
2. 1991 vessel license (ADF&G No.)
3. 1991 interim-use card (CFEC card) applicable to fishery and gear type.
4. 1991 Marine mammals exemption, as required by fishery, gear type, and area.

State Waters (0-3 miles from shore)

1. 1991 groundfish area registration applicable to fishery and management area.
2. 1991 ADF&G fishery-specific permits; these permits complete registration requirements as specified above. Central Region permit fisheries include:
  - a. Sunken gillnet fisheries;
  - b. Prince William Sound sablefish

Fed Waters (3-200 miles from shore)

1. Federal groundfish fishery permit.

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