

KODIAK, CHIGNIK AND SOUTH ALASKA PENINSULA  
STATE WATER GROUND FISH HARVEST, 1998

By

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and

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## INTRODUCTION

Groundfish harvests in the Gulf of Alaska (GOA) and Bering Sea/Aleutian Islands (BSAI) are primarily managed by the National Marine Fisheries Service (NMFS) under guidelines developed by the North Pacific Fishery Management Council (NPFMC). The council establishes annual groundfish Acceptable Biological Catch (ABC) specifications. The ABC may be reduced for biological or economic considerations to the level available for directed fishing, the Total Allowable Catch (TAC).

Authorization for federal control of resources in the Exclusive Economic Zone (EEZ) from 3-200 miles came from the Magnuson Act passed by the United States Congress in 1976. Federal management areas in the GOA are designated, Western Central and Eastern Gulf (Figure 1). The State of Alaska has management authority for groundfish resources within territorial waters from zero to three miles. The Alaska Department of Fish & Game (ADF&G) issues what is termed a global emergency order (EO) for most groundfish fisheries at the beginning of each year, allowing state management to coincide with the federal inseason management decisions. This results in parallel state and federal groundfish seasons.

Some exceptions to the parallel seasons occur in areas that the state has established separate harvest quotas and seasons for state waters. In the Westward Region, these include the nearshore rockfishes, sablefish, lingcod and the state water Pacific cod fisheries. The state has also established registration areas, which differ from the federal management areas. They include the Eastern Gulf of Alaska, Prince William Sound, Cook Inlet, and in the ADF&G Westward Region Kodiak, Chignik, South Alaska Peninsula, Bering Sea-Aleutian islands and Chukchi-Beaufort (Figure 2). This report will focus on fisheries occurring in the Kodiak, Chignik and South Alaska Peninsula Areas.

## STATE MANAGED FISHERIES

### *Pacific Cod*

#### **Historic Background**

Fishery statistics compiled by NMFS show landings from the GOA beginning in 1964 with the highest harvests occurring during the early 1990's. The average catch since 1977 has been approximately 83.8 million pounds (38,000 mt)<sup>1</sup>. Preliminary 1998 harvest figures show a GOA catch of approximately 150.0 million pounds (68,000 mt) with nearly two-thirds coming from the Central Gulf and one-third from the Western Gulf (Figure 3). Since 1989, the harvest of Pacific cod from Central and Western GOA state waters has ranged from 12.2 million pounds (5,500 mt) in 1989 to 43.3 million pounds (16,100 mt) in 1997 (Table 1).

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<sup>1</sup> All weights refer to round weight of fish.

The Alaska Board of Fisheries (BOF) in 1996 adopted state water Pacific cod Management Plans for fisheries in five groundfish areas: Prince William Sound, Cook Inlet, Kodiak, Chignik and South Alaska Peninsula (Figure 4). Fishing was not restricted to vessels qualified under the federal moratorium program. Included within the management plans were season, gear and harvest specifications. The fishing seasons were subsequent to the parallel federal season, which generally closed in the spring. Exclusive registration areas were established and the fishery was limited to pots or jig gear. Gear limitations of a maximum of 60 pots or 5 jig machines were implemented. The harvest level was based on the estimate of acceptable biological catch of Pacific cod as established by the NPFMC. The initial harvest levels were set so that 15% of the Western Gulf ABC was to be reserved for the South Alaska Peninsula Area, 15% of the Central Gulf ABC was apportioned between the Kodiak, Chignik and Cook Inlet Areas and 25% of the Eastern Gulf ABC apportioned to the Prince William Sound Area. Subsequent year's harvest levels from the Central and Western Gulf are scheduled to step up to 20% and 25% of the area ABC's if production of harvest levels can be achieved.

Additional regulations included a 58' vessel size limit in the Chignik and South Alaska Peninsula Areas and allocations between gear types in Kodiak, Cook Inlet and Prince William Sound. In 1998, the BOF added a 15% allocation to the jig fleet in the South Alaska Peninsula. The fishery management plans also provided for removal of restrictions on exclusive area registrations, vessel sizes and gear limits after October 31 to increase late season production. Harvests during the first year of state water Pacific cod management plans totaled 18.2 million pounds (Table 2).

### **1998 Fishery**

This was the second year of fishing under state water Pacific cod management plans. Westward region fishermen caught over 21 million pounds worth about \$ 4.5 million ex-vessel value. Highest catches came from Sanak Island, the area just south of Sand Point, Chignik Bay, and from the west side of Kodiak Island (Figure 5).

***Kodiak Area.*** A preseason guideline harvest level of 8.1 million pounds of Pacific cod was set for the Kodiak area and announced by news release on February 18, 1998. The management plan prescribed an equal allocation between pot gear and jig gear.

The fishery began March 17, 1998 to both gear types. It was closed to pot gear on April 27, 1998 when approximately 4.0 million pounds or half of the Kodiak guideline had been taken. Jig gear remained open to the end of the year. Fishermen using jig gear had taken 2.1 million pounds by the end of summer with little production after July (Figure 6). The fishery reopened to pot gear on September 1 to harvest the unused portion of the jig allocation.

Fishing was slow during September and October with only about 200,000 pounds landed. The parallel federal season reopened in the Central Gulf from October 5 – October 9 for a clean up of the federal TAC. Most of the catch was taken by trawlers during this time. Through October about 2 million pounds were left to harvest on the state water guideline. Based on the BOF Pacific Cod Management Plan, restrictions on pot limits, jig machine limits and the exclusive registration area were removed as of October 31. This EO allowed

the groundfish industry additional opportunity to harvest Pacific cod remaining on the Kodiak guideline harvest level. A late season increase in price brought resurgence to the fishery. Fishermen were able to harvest over a million pounds with pot gear in November and December.

The fishing season is expected to remain open to the regulatory closure date of December 31, 1998. The 1998 harvest of Pacific cod in the state managed fishery through 12/20/98 was 7.8 million pounds taken by 128 vessels. There were 5.6 million pounds taken by 41 pot vessels and 2.1 million pounds taken by 93 jig vessels (Table 3). Six vessels fished both gear types. Forty-five statistical areas were fished with larger harvests coming from the island's westside capes and from Chiniak Bay near the city of Kodiak (Table 4). The fishery had an ex-vessel value of about \$ 1.8 million.

Due to the fact that the 1998 harvest came within 10% of the preseason guideline harvest level of 8.1 million pounds, the step up provisions will be in effect for the next fishery. The Kodiak Area allocation will increase to 10% of the Central GOA acceptable catch. The council set the ABC at 53,170 mt for the Central Gulf, so the Kodiak 1999 state waters guideline harvest level will be 11.7 million pounds.

**Chignik Area.** A preseason guideline harvest level (GHL) of 5.7 million pounds of Pacific cod was set for the Chignik Area and announced by news release on February 18, 1998. Effort and interest was considerably increased in the 1998 Chignik Pacific cod fishery compared to the previous year. The fishery opened April 1 with buyers in King Cove, Sand Point, Kodiak and a floating processor in Chignik. Daily deliveries ranged from 100,000 to 500,000 pounds, averaging 230,000 pounds per day. Thirty-seven vessels participated of which 33 used pot gear and 4 used jig gear. The fishing season closed on April 26. The harvest totaled 5.45 million pounds out of the 5.7 million pound guideline.

A remainder of 250,000 pounds of cod was still available on the 1998 state water guideline after the closure. The average delivery during the fishery was 23,000 pounds from a pot gear vessel and 800 pounds from a jig gear vessel. Considering potential catch rates of both pot and jig gear, there was not enough harvest left available to provide for a manageable fishery with both gear types. It is the intention of the Alaska Board of Fisheries to fully utilize the Pacific cod that were allocated to the Chignik area state water fishery. Therefore, in order to achieve this goal and provide a manageable fishery it was necessary to limit a reopening of the fishery to jig gear. The lower catch rates from jig gear allowed the department sufficient opportunity to monitor the harvest and remain within specified levels. Pacific cod fishing with jig gear reopened May 20, 1998. Just a few vessels participated landing 150,000 pounds through mid-September. No one has fished after that time, although the fishery has remained open.

The total harvest from the Chignik state water Pacific cod fishery stands at 5.6 million pounds from 297 landings through December 20, 1998 (Table 5). Ex-vessel value was about \$ 1.1 million. Forty-four vessels participated and harvests were spread throughout the area with four statistical areas totaling more than 800,000 pounds each (Table 6). Restrictions on vessel size and exclusive registration area were not removed at the end of October because the catch had already achieved harvest goals.

The fishery achieved the production level required to step-up to a larger share of the Central Gulf acceptable catch. The Chignik Area allocation increases to 7% of the Central Gulf ABC as set by the NPFMC. The guideline harvest level for the 1999 Chignik state water fishery will be 8.2 million pounds.

***South Alaska Peninsula Area.*** The GHL of 9.0 million pounds for the South Alaska Peninsula area was announced by news release on February 18, 1998. Fifteen percent of the harvest was intended to be reserved for jig gear. The fishery opened at 12:00 noon on March 10, 1998, seven days after the close of the federal parallel season in the Western GOA. Storms were frequent during the first month of the season causing sporadic fishing activity. Daily deliveries ranged from 10 thousand pounds per day to over 500,000 pounds per day. Through April 14, 1998 there had been 7.3 million pounds landed and a closure to pot gear was announced for April 16, 1998. Jig fishing was largely unproductive until May with the bulk of the landings occurring that month. The fishing season for jig gear stayed open for the remainder of the year.

Pot gear openings occurred again for Pacific cod fishing between 10/09 – 10/11/98 and 10/21/98 through the end of the year when NMFS reopened the federal parallel fishery in the Western GOA. Catches during the parallel federal season were not taken off the state water guideline. There were sixty-nine vessels participating in the 1998 state water fishery, down 18 from the previous year. Pot gear used by forty-nine vessel operators accounted for 8.2 million pounds while twenty-five jig vessels contributed 438,000 pounds (Table 7). The harvest totaled 8,639,769 pounds. Twenty-eight statistical areas were fished with major catches in the Sanak Island area, and in the Shumagin Islands near Sand Point (Table 8).

The 1998 fishery achieved the production level specified in the Pacific Cod Management Plan to increase the allocation for the next season. The 1999 guideline harvest level will be 20% of the Western Gulf ABC for Pacific cod. The council set the ABC at 29,540 mt, so the South Alaska Peninsula GHL will be 13.0 million pounds in 1999.

### **Harvest Monitoring**

The department monitored the cod harvest in 1998 from the state waters in the same manner as had been done in the previous year. Dockside samplers were placed in the ports of King Cover, Sand Point, Chignik, and Kodiak during the first few months of the season when harvest rates were at the highest level. Dockside sampling continued for the entire year in the port of Kodiak. Samplers conducted confidential interviews with vessel operators to obtain information on catch location, catch per unit effort, and fishing effort. Samplers also measured cod lengths, assessed the reproductive status of the fish, collected otoliths for aging purposes, and determined average weights of deliveries from commercial catches.

Analysis of the length frequency data shows that the Kodiak average length of 67.9 centimeters (cm) was significantly larger than that of the fish from the South Alaska Peninsula averaging 66.6 cm (Figure 7; Z test, Devore and Peck 1993). This was also the case in 1997 (Jackson and Urban, 1998) The Chignik average fish length of 66.8 cm was not found to be different than the average from the South Alaska Peninsula or Kodiak. Differences in average fish lengths from pots and jigs were also not found to be significant (Figure 8).

A total of 1,648 otoliths were sampled from the Kodiak Chignik and South Peninsula management areas during the 1997 season (Figure 9). Ages for Pacific cod ranged from 2 to 13 years with average ages of 5.6, 6.5 and 6.4 for Kodiak, Chignik and South Peninsula, respectively. The six-year old age class was the predominant age class sampled from these areas.

Reproductive condition relative to spawn timing of Pacific cod was also assessed in 1997 and 1998 by ADF&G samplers. Fish were largely spawned out by the April 4 opening date in 1997, while the spawning season was not complete until the week ending April 13 in 1998 (Figure 10).

## ***Black Rockfish***

### **Historic Background**

Black rockfish (*Sebastes melanops*) were of low market interest and generally not harvested in the Kodiak area until 1990. The catch jumped to 870,000 pounds in 1991 as operators fished on previously unexploited populations (Table 9). Fishermen primarily used jig gear to target black rockfish but some bycatch occurred in longline and trawl fisheries. Production was concentrated in areas easily accessible to the city of Kodiak. Fishery performance fell sharply in the following years presumably due to low abundance of fish. Lower value for fish and alternative fisheries may have been additional factors that limited production after 1991. There was also concern that localized depletion may have occurred. Harvests during the '92-'97 period averaged 250,000 pounds from the Kodiak Area. Stocks along the Alaska Peninsula were initially targeted in 1995. Fishermen worked in areas near the port of Sand Point and east to Mitrofanina Island. The highest catch was in 1996 with over 360,000 pounds combined from the Chignik and South Alaska Peninsula Areas (Table 10 and Table 11).

Management of black rockfish during this period was largely controlled by NMFS. Black rockfish were part of the pelagic shelf rockfish group which included dusky, yellowtail widow rockfish. Gulfwide, dusky rockfish is the most abundant species in the group and predominated NMFS survey catches. An annual ABC largely supported by dusky rockfish biomass estimates was assigned to the entire group. This management scheme placed few restrictions on the take of individual species within that group. The department was concerned with the harvest of black rockfish in several areas during this period and state waters were closed by emergency order in some cases. Adjacent federal waters however did not close. Although the majority of the black rockfish resource is in state waters, enforcement of closures became a problem. Landings continued with federal statistical areas reported on fish tickets. These reports were not always credible.

The department submitted a Fisheries Management Plan amendment to the NPFMC that would relinquish black rockfish management to the state with control from 0-200 miles. This amendment was passed and implemented effective April 5, 1998. As an interim measure, the NPFMC had separated black rockfish from the pelagic shelf group in 1997. This enabled federal fishery managers to place a 260 mt ABC on black rockfish in the Central Gulf. The ABC was based on the council's Tier 6 guidelines, which apply to fisheries with little stock assessment information. Harvest limits are set at 75% of average production from 1978-

1995. ADF&G fishery managers applied this limit to fisheries in Cook Inlet, Kodiak and Chignik when setting preseason guidelines in 1997 and 1998. Harvest levels were set low enough to accommodate potential black rockfish bycatch in other fisheries. GHL's were assigned to areas within the region with the goal of distributing the effort throughout the region.

### **1998 Fishery**

The fishery opened with the general groundfish seasons on January 1, 1998. Contrary to previous years when no activity occurred until April, there were a number of landings in February and March. The department issued a news release on March 11, 1998, detailing directed fishing harvest guidelines for the region. Fishermen were allocated 190,000 pounds in Kodiak, 100,000 pounds in Chignik and 100,000 pounds in South Alaska Peninsula. Kodiak was further divided into fishing districts to distribute the catch (Figure 11).

Initial activity focused on grounds close to town and along the eastside of the Island. The Eastside and Southeast Districts closed first to directed fishing on May 8 (Table 12). Five percent bycatch of black rockfish would still be allowed in the Pacific cod fishery. Fishing activity was generally sporadic as operators switched between rockfish and Pacific cod as opportunities arose. Three other Kodiak districts closed to directed fishing before June 17. The harvests were minimal after July (Figure 12). Although, the fishery remained open no landings occurred in Chignik or South Alaska Peninsula after September 15. The most productive fishing occurred along the eastside of Kodiak Island and along the Alaska Peninsula near the village of Perryville (Figure 13). The 1998 black rockfish catch in the Kodiak area from all gears included harvests from 74 vessels and totaled 199,155 pounds. Approximately 80% of that catch was taken in directed fisheries. The Chignik Area harvest in 1998 was 87,712 pounds taken by 15 vessels. The catch in the South Alaska Peninsula was 92,095 pounds and 22 vessels participated. Ex-vessel value from all 3 areas totaled about \$125,000. The mean size of black rockfish sampled from landings in the region was 46 cm (Figure 14).

### ***Lingcod and Sablefish***

Other groundfish species managed by ADF&G in the Kodiak, Chignik and South Alaska Peninsula areas include lingcod and sablefish.

Lingcod have not generally been targeted in the region. The catch to date has primarily been as bycatch in other fisheries, although directed harvest by jig gear has occurred sporadically. The highest harvest of 136,000 pounds was in 1988 primarily from several trawl hauls (Table 13). The 1998 harvest was 9,000 pounds from Kodiak, Chignik and South Alaska Peninsula combined. Lingcod catch can occur in jig, pot, longline and trawl gear (Table 14). Regulations include a fishing season of July 1 – December 31 and a minimum size limit of 35 inches in the Kodiak and Chignik areas. The South Alaska Peninsula area does not have any restrictions on season or size.

Sablefish in state waters are also managed separately from the federal program. These fish generally prefer deeper waters of the continental slope. Habitat for mature sablefish is very

limited in the Kodiak, Chignik and the eastern portion of the South Alaska Peninsula areas. Stocks are not abundant, therefore a directed fishery has not been allowed. Bycatch in other fisheries is limited to 1%. In the deeper state waters of the Aleutians there is a small sablefish harvest allowed. The preliminary 1998 catch is 171,000 pounds. The waters of the South Alaska Peninsula Area west of Scotch Cap Light are included in that fishery.

## **PARALLEL FEDERAL FISHERIES**

### ***Pacific Cod***

The parallel federal fishery occurs when state waters open for Pacific cod fishing concurrent with federal seasons managed by NMFS. Pot gear, longline gear and jig gear were all allowed beginning January 1. Trawl gear was allowed beginning January 20, but operators generally target pollock in January and early February.

The federal Western GOA, which includes the South Alaska Peninsula Area closed to directed Pacific cod fishing on March 3, 1998. Up to 20% bycatch of Pacific cod was still allowed in other fisheries, such as halibut. The area reopened to directed fishing from October 5-October 11. Pot and jig gear was again allowed after October 21 and remained open until the end of the year. Traditionally, trawl gear accounts for the majority of the harvest during the parallel federal fishery, but was surpassed by pot gear catch in 1998. Although most of the area is closed to trawling there are a few very productive areas available to the trawl fleet. The total harvest of Pacific cod from parallel federal fisheries in the South Alaska Peninsula during 1998 was 9.0 million pounds. (Table 15).

The Central GOA which includes the Kodiak and Chignik Areas initially closed to directed fishing on March 10, 1998. A reopening to directed fishing was held October 5-October 9. Bycatch in other fisheries was allowed up to the 20% level throughout the year.

The 1998 catch of Pacific cod from parallel fisheries in the Kodiak area totaled 7.7 million pounds. (Table 16). The Chignik Area harvest was 1.6 million pounds (Table 17). Pot gear accounted for the majority of harvest in those areas.

### ***Pollock***

State waters open for pollock fishing concurrent with federal seasons managed by NMFS. A significant portion of the Central and Western GOA pollock harvest is caught in state waters. Out of a total harvest of 250 million pounds in 1998 about 40% or nearly 100 million pounds came from state waters (Table 18). Quotas are released on a trimester basis with fisheries in January, June and September. The fishery was open 62 days in area 620 and 39.5 days in area 630 during 1998 (Table 19). The catch is primarily taken with pelagic trawl gear although other gear types are legal. There were 8,000 pounds landed in 1997 and 10,000 pounds landed in 1998 as bycatch from jig gear during the state water Pacific cod fishery. The South Alaska Peninsula Area produced the highest state water pollock harvest in 1998 followed by the Chignik Area (Table 20 and Figure 15).

### *Miscellaneous Groundfish*

State waters are open for targeting other groundfish concurrent with federal seasons managed by NMFS. Other species that have been landed include skates, flathead sole, rock sole, butter sole, yellowfin sole, starry flounder and arrowtooth flounder. Exploitation has been limited primarily because nonpelagic trawls are prohibited in most state waters and longline halibut bycatch allowances are taken up by the Pacific cod fishery. Other harvest methods have not proved economically effective.

### **BYCATCH**

The bycatch of other species in federal GOA groundfish fisheries is monitored by National Marine Fisheries Service observers. Information is tallied by fishery and gear type. Halibut is the only species with bycatch limits in the Gulf of Alaska. Restrictions on halibut bycatch are apportioned by fishery and gear type. Annual flatfish TAC specifications have generally not been achieved because of excessive halibut bycatch. Observer reports through 10/31/98 show 105,000 Tanner crabs caught by trawl gear and 91,000 Tanner crabs caught incidental to fishing with pot gear (Table 21). The largest bycatch of Tanner crab in the trawl fisheries occurred when targeting flathead sole and the largest bycatch of Tanner crab with pot gear occurred when targeting Pacific cod.

### **NONPELAGIC TRAWL CLOSURES**

There is a patchwork of time and area closures to nonpelagic trawl gear around Kodiak Island and along the Alaska Peninsula (Figure 16). Generally, the bays have been closed year round. Most of the current trawl closures were adopted in 1986. Modifications occurred in 1993 when the BOF created a controlled observed fishery in Marmot Bay and South Sitkalidak Strait. Crab bycatch limits were established and vessels were required to report to ADF&G daily. Additional changes occurred in 1994 and 1995 when the BOF opened state waters near Castle Rock and Sanak Island (Appendix A).

Nonpelagic trawl harvests from the remaining Kodiak area state waters has averaged 6.5 million pounds since 1994 (Table 22). Pollock has been the primary species targeted, but significant landings of Pacific cod and rock sole have also occurred (Figure 17). The harvest from nonpelagic trawl gear in Marmot Bay and South Sitkalidak Straits has averaged 140,000 pounds of groundfish per year with an incidental catch of 900 Tanner crab per year (Table 23). Flathead sole and yellowfin sole were the principal species caught in those areas.

Groundfish harvests from nonpelagic trawl gear in the Chignik Area that remains open has totaled 1.1 million pounds since 1988. Pacific cod accounted for more the 90% of the landings.

Trawl restrictions in the Gulf of Alaska will likely increase during 1999. The National Marine Fisheries Service and North Pacific Fisheries Management Council are currently

considering increased time and area closures around sea lion habitat to foster prey populations for that species. In addition, the department has proposed a groundfish plan amendment to the council that would close Cook Inlet to trawling with nonpelagic gear.

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Table 1. Pacific cod harvest from the Central and Western Gulf of Alaska, 1989-1998.

Year	NMFS Area	Vessels	Landings	Pounds <sup>a</sup>	State Waters	
					Pounds <sup>a</sup>	Percent
1989	Central	236	1,460	60.4	4.4	7%
	Western	137	598	31.1	7.8	25%
1990	Central	595	3,222	92.4	11.8	13%
	Western	165	985	85.7	13.1	15%
1991	Central	908	4,389	101.2	19.4	19%
	Western	280	1,380	76.5	4.8	6%
1992	Central	1,093	5,115	89.9	16.3	18%
	Western	296	1,452	73.7	13.2	18%
1993	Central	727	3,347	72.1	11.5	16%
	Western	166	987	39.8	1.9	5%
1994	Central	632	2,825	63.5	12.9	20%
	Western	208	1,150	32.4	7.4	23%
1995	Central	907	4,369	97.1	21.7	22%
	Western	266	1,115	42.3	9.0	21%
1996	Central	655	3,916	91.7	16.9	18%
	Western	231	1,336	46.2	12.9	28%
1997	Central	581	5,589	102.9	24.5	24%
	Western	216	1,631	59.8	18.8	31%
1998 <sup>b</sup>	Central	575	5,768	94.8	22.3	23%
	Western	192	1,561	53.6	17.3	32%

<sup>a</sup>Total round weight catch in millions of pounds for all gear types.

<sup>b</sup>database through 11/13/97

Source: ADF&G fish ticket database.

Table 2. Catch and effort from the Westward Region state water Pacific Cod fisheries, 1997-1998.

Year	Vessels	Landings	Pounds	Price/Pound	Avg. Weight (lbs)
Kodiak Area					
1997	105	710	7,600,571	0.23	9.1
1998	128	290	7,764,739 <sup>a</sup>	0.23	8.5
Chignik Area					
1997	12	74	1,143,261	0.18	7.5
1998	44	297	5,609,498 <sup>a</sup>	0.20	6.3
South Alaska Peninsula Area					
1997	88	642	9,370,498	0.18	7.0
1998	69	421	8,639,769 <sup>a</sup>	0.17	7.3

<sup>a</sup> Harvest through 12/20/98.

Table 3. Catch and effort, Kodiak Area state water Pacific cod fishery, 1998.

Gear	Vessels	Landings	Pounds	Price/Pound	Avg. Weight (lbs)
Pot	41	290	5,639,278	0.22	8.4
Jig	93	671	2,125,461	0.23	8.6
Total	128 <sup>a</sup>	961	7,764,739 <sup>b</sup>	0.23	8.5

<sup>a</sup>Six vessels fished both gear types.

<sup>b</sup>Harvest through 12/20/98.

Table 4. Catch by statistical area from the 1998 state water Pacific cod fishery in the Kodiak Area.

Stat Area	Pounds	Vessels	Landings <sup>a</sup>
515801	50,578	8	10
525701	717,213	42	139
525703	395,191	28	81
525731	280,474	18	56
525732	45,233	6	7
525733	577,453	57	226
525803	79,374	6	6
525805	99,842	11	18
525806	66,536	5	8
525834	43,501	3	3
535631	351,143	29	78
535632	18,054	3	3
535633	127,631	8	18
535634	204,337	13	24
535703	47,098	9	19
535705	104,951	7	14
535732	632,028	14	31
535733	56,294	5	10
535803	606,606	15	34
545631	12,721	4	4
545632	617,769	24	65
545633	84,560	9	10
545701	614,005	5	22
545702	5,345	3	3
545703	158,619	8	9
545704	397,853	3	10
545733	436,878	4	12
545802	79,091	3	4
545803	214,498	4	8
Other <sup>b</sup>	639,865	19	33
	7,764,739 <sup>c</sup>	146	961

<sup>a</sup>Partial landings from a statistical area are counted as one.

<sup>b</sup>Total of 16 statistical areas.

<sup>c</sup>Harvest through 12/20/98.

Table 5. Catch and effort, Chignik Area state water Pacific cod fishery, 1998.

Gear	Vessels	Landings	Pounds	Price Per Pound	Avg. Weight (lbs)
Pot	33	236	5,439,890	0.18	6.50
Jig	13	61	169,608	0.22	6.07
Total	44 <sup>a</sup>	297	5,609,498 <sup>b</sup>	0.20	6.29

<sup>a</sup> Two vessels fished both gear types.

<sup>b</sup> Harvest through 12/20/98.

Table 6. Catch by statistical area from the 1998 state water Pacific cod fishery in the Chignik Area.

Stat-area	Pounds	Vessels	Landings
575601	884,085	6	37
575603	277,852	4	19
575631	413,595	4	7
575632	415,723	3	8
585531	1,040,887	11	43
585601	825,375	20	112
595531	828,793	14	52
Other <sup>a</sup>	923,188	6	19
	5,609,498 <sup>b</sup>	44	297

<sup>a</sup>Total of 6 statistical areas.

<sup>b</sup> Harvest through 12/20/98.

Table 7. Catch and effort, South Alaska Peninsula Area state water Pacific cod fishery, 1998.

Gear	Vessels	Landings	Pounds	Price Per Pound	Avg. Weight (lbs)
Pot	49	309	8,200,892	0.17	7.36
Jig	25	112	438,877	0.16	7.24
Total	69 <sup>a</sup>	421	8,639,769 <sup>b</sup>	0.17	7.30

<sup>a</sup>Five vessels fished both gear types.

<sup>b</sup>Harvest through 12/20/98.

Table 8. Catch by statistical area from the 1998 state water Pacific cod fishery in the South Alaska Peninsula Area.

Stat-area	Pounds	Vessels	Landings
595502	147,694	3	5
595503	854,274	11	33
595533	301,126	4	11
605432	1,106,321	11	32
605501	76,164	10	15
605502	597,364	6	22
605504	809,213	22	84
605507	459,750	20	69
605531	41,387	4	3
605532	77,810	6	9
625401	2,571,191	9	54
625431	154,507	4	18
635432	304,384	3	14
635436	547,858	3	13
other <sup>a</sup>	590,725	20	39
	8,639,769 <sup>b</sup>	74	421

<sup>a</sup>Total of 14 other statistical areas.

<sup>b</sup>Harvest through 12/20/98.

Table 9. Catch and effort from the Kodiak Area black rockfish fishery, 1990-1998.

Year	Vessels	Pounds	Price
1990	12	66,709	0.22
1991	59	874,718	0.29
1992	45	487,208	0.25
1993	18	107,825	0.22
1994	19	128,507	0.25
1995	41	320,899	0.36
1996	52	311,992	0.32
1997	65	224,237	0.27
1998	74	199,155	0.32

Table 10. Catch and effort from the Chignik Area black rockfish fishery, 1990-1998.

Year	Vessels	Pounds	Price
1990	0	0	0.22
1991	0	0	0.37
1992	0	0	0.24
1993	4	357	0.26
1994	0	0	0.27
1995	12	28,668	0.29
1996	12	201,828	0.34
1997	10	80,742	0.31
1998	15	87,712	0.23

Table 11. Catch and effort from the South Alaska Peninsula Area black rockfish fishery, 1990-1998.

Year	Vessels	Pounds	Price
1990	3	8,073	0.22
1991	4	145	0.44
1992	0	0	0.22
1993	** <sup>a</sup>	** <sup>a</sup>	0.29
1994	11	2,118	0.29
1995	14	120,971	0.22
1996	26	165,496	0.36
1997	17	184,697	0.35
1998	22	92,095	0.23

<sup>a</sup> Data from 1993 and 1994 are combined records for less than three vessels.

Source: ADF&G fish ticket Database, 12/4/98.

Table 12. Black rockfish harvest from the Kodiak, Chignik, and South Alaska Peninsula Areas, 1998.

Area	Harvest <sup>a</sup>	GHL <sup>b</sup>	Directed Fishing	Catch
			Closure Date	Through Closure
<b>Kodiak Area</b>				
Afognak	35,981	35,000	June 1, 1998	33,671
Northeast	34,607	25,000	May 19, 1998	29,900
Eastside	34,882	30,000	May 8, 1998	30,790
Southeast	42,531	30,000	May 8, 1998	30,675
Southwest	30,080	20,000	June 17, 1998	18,500
Westside	7,966	30,000	Open	
Mainland	13,286	20,000	Open	
Total Kodiak Area	199,333	190,000		
Chignik Area	87,712	100,000	Open	
South Alaska Peninsula	92,095	100,000	Open	

<sup>a</sup> Includes bycatch landings that occurred after the closure of directed fishing.

<sup>b</sup> Guideline Harvest Level.

Data through 12/20/98

Table 13. Lingcod harvest from the Kodiak, Chignik, and South Alaska Peninsula Areas, 1988-1998.

Year	Kodiak	Chignik	South Alaska	Total Pounds
			Peninsula	
1988	136,290	0	0	136,290
1989	**	**	**	12,194 <sup>a</sup>
1990	9,144	0	0	9,144
1991	**	**	**	10,028 <sup>a</sup>
1992	**	**	**	37,704 <sup>a</sup>
1993	**	**	**	6,143 <sup>a</sup>
1994	5,949	0	0	5,949
1995	35,949	2,811	4,638	43,398
1996	**	**	**	62,197 <sup>a</sup>
1997	**	**	**	28,635 <sup>a</sup>
1998	**	**	**	9,091 <sup>a</sup>

\*\* Harvest records of less than three vessels.

<sup>a</sup>Data combined for all areas.

Table 14. Lingcod harvest by gear type from the Kodiak, Chignik, and South Alaska Peninsula Areas, 1988-1998.

Year	Gear Type				Total
	Jig	Longline	Pot	Trawl	
1988	**	42	0	**	136,290 <sup>a</sup>
1989	**	0	0	**	12,194 <sup>a</sup>
1990	1,413	**	**	5,484	9,144 <sup>a</sup>
1991	8,403	501	**	739	10,028 <sup>a</sup>
1992	5,317	4,402	78	10,956	37,704
1993	**	1,161	0	4,772	6,143 <sup>a</sup>
1994	4,818	802	0	329	5,949 <sup>a</sup>
1995	36,077	3,563	1,143	1,996	42,779
1996	43,385	7,892	0	10,920	62,197
1997	12,628	6,489	**	5,267	28,635 <sup>a</sup>
1998	**	1,766	**	3,514	9,091 <sup>a</sup>
Totals	115,989	27,463	7,459	192,292	343,203

\*\* Harvest records of less than three vessels.

<sup>a</sup>Data combined for all areas.

Source: ADF&G fish ticket database.

Table 15. Pacific cod harvest from South Alaska Peninsula state waters during parallel federal seasons, 1997-1998.

Year	Gear Type				Total
	Pots	Longline	Trawl	Jig	
1997	1,693,527	246,467	7,665,722	5,768	9,611,484
1998	4,357,072	754,766	3,867,735	23,083	9,002,656

Table 16. Pacific cod harvest by gear from Kodiak state waters during parallel federal seasons, 1997-1998.

Year	Gear Type				Total
	Pots	Longline	Trawl	Jig	
1997	8,408,596	1,918,998	954,239	13,683	11,295,516
1998	4,674,372	2,169,287	824,080	5,457	7,673,196

Table 17. Pacific cod harvest from Chignik state waters during parallel federal seasons, 1997-1998.

Year	Gear Type				Total
	Pots	Longline	Trawl	Jig	
1997	541,102	3,939	99,761	22	644,824
1998	1,424,592	9,226	192,673	0	1,626,491

Table 18. Pollock harvest from the Central and Western Gulf of Alaska, 1989-1998.

Year	NMFS Area	Vessels	Landings	Pounds <sup>a</sup>	State Waters	
					Pounds <sup>a</sup>	Percent
1989	Central	117	672	117.5	15.3	13%
	Western	30	61	28.9	0	0%
1990	Central	210	1,423	154.1	6.2	4%
	Western	80	231	23.2	0.9	4%
1991	Central	245	1,359	111.7	14.5	13%
	Western	120	353	77.7	0.8	1%
1992	Central	436	1,880	147.6	7.4	5%
	Western	173	530	39.0	3.9	10%
1993	Central	332	1,753	196.3	27.5	14%
	Western	93	511	45.3	11.3	25%
1994	Central	312	1,609	176.0	66.9	38%
	Western	97	449	47.7	15.3	32%
1995	Central	336	1,175	75.4	9.0	12%
	Western	161	502	65.9	22.4	34%
1996	Central	394	1,551	50.0	12.5	25%
	Western	190	451	53.0	31.3	59%
1997	Central	570	2,446	115.2	34.6	30%
	Western	231	420	62.1	19.3	31%
1998 <sup>b</sup>	Central	571	2,562	188.4	60.3	32%
	Western	230	416	62.9	38.4	58%

<sup>a</sup>Total round pounds of catch, all gear types, in million.

<sup>b</sup>Data available through 12/10/98.

Source: ADF&G fish ticket database.

Table 19. Central and Western Gulf of Alaska pollock openings, 1997-1998.

1997	1998
Area 630	Area 630
January 20 - February 4	January 20 - February 2
June 1 - June 9	June 1 - June 12
September 1 - September 12	September 1 - September 16
	September 26 ( <i>12 hour opening</i> )
Area 620	Area 620
January 20 - February 7	January 20 - February 7
June 1 - June 8	June 1 - July 1
September 1 - September 21	September 1 - October 12
	October 27 - October 30
Area 610	Area 610
January 20 - January 26	January 20 - January 26
June 1 - June 2 ( <i>18 hour opening</i> )	June 1 - June 3
September 1 - September 7	June 8 - June 19
	September 1 - September 2
	September 9 - September 14
	September 24 - September 25

Source: National Marine Fisheries Service Alaska Region Homepage.

Table 20. Pollock harvest in millions of pounds from Kodiak, Chignik, and South Alaska Peninsula State Waters, 1989-1998.

Year	Million of Pounds		
	Kodiak	Chignik	South Alaska Peninsula
1989	14.9	0	0
1990	6.6	0.006	0.4
1991	14.3	** <sup>a</sup>	0.3
1992	7.8	0.003	3.6
1993	28.1	** <sup>a</sup>	11.2
1994	66.7	** <sup>a</sup>	15.3
1995	7.4	2.1	22.4
1996	12.5	0	30.5
1997	19.6	15.8	19.3
1998	29.9	34.8	38.1

<sup>a</sup> Small harvest combined with Kodiak because less than three vessels participated.  
Source: ADF&G fish ticket Database.

Table 21. Bycatch in Gulf of Alaska groundfish fisheries, 1998.

Chinook Salmon (number)	16,815	
Other Salmon (number)	13,678	
Tanner Crab (number)		
Trawl Gear	105,413	
Pot Gear	91,762	
Hook and Line Gear	11	
King Crab (number)		
Trawl Gear	274	
Pot Gear	12	
Hook and Line Gear	52	
Halibut (metric tons)		
Trawl Gear	2,979	
Pot Gear	75	
Hook and Line Gear	2,663	
Discarded Groundfish (metric tons)		<u>Percent of Total Catch</u>
Shoreside Processors	11,473	5.5%
Mothership	451	11.3%
Catcher/Processor	11,123	30.5%

Data through 10/31/98 except through 11/21/98 for discard information.

Source: National Marine Fisheries Services Alaska Region Homepage.

Table 22. Groundfish harvest with nonpelagic trawl gear from the Kodiak Area state waters in millions of pounds, 1994-1998.

Species	1994	1995	1996	1997	1998 <sup>a</sup>	Total
Pacific Cod	0.87	0.90	0.92	0.83	0.72	4.24
Pollock	4.31	1.45	3.43	2.92	4.37	16.48
Arrowtooth Flounder	0.16	0.38	0.67	0.45	0.19	1.85
Flathead Sole	0.18	0.28	0.42	0.34	0.27	1.49
Rock Sole	0.33	1.38	2.46	1.67	0.59	6.43
Butter Sole	0.01	0.01	0.02	0.07	0.01	0.12
Yellowfin Sole	0.16	0.13	0.17	0.05	0.04	0.55
Starry Flounder	0.01	0.15	0.71	0.25	0.11	1.23
Alaska Plaice	0.04	0.05	0.14	0.08	0.01	0.32
<b>Total (Million of Pounds)</b>	<b>6.07</b>	<b>4.73</b>	<b>8.94</b>	<b>6.66</b>	<b>6.31</b>	<b>32.71</b>
<b>Vessels Participating</b>	<b>32</b>	<b>24</b>	<b>33</b>	<b>36</b>	<b>28</b>	<b>69</b>

Source: ADF&G fish ticket Database.

<sup>a</sup> Data Available as of 9/15/98

Table 23. Tanner crab bycatch from the seasonally opened Marmot and South Sitkalidak state waters, 1994-1998.

	1994	1995-1996 <sup>a</sup>	1997-1998 <sup>b</sup>	Total
Number of Vessels	3	5	6	14
Number of Tows made	15	20	50	85
Pounds of Fish Harvested	300,348	105,467	279,001	684,816
Number of Crab Caught	913	1,151	2,360	4,424

<sup>a</sup> 1995 and 1996 data combined because less than three vessels participated.

<sup>b</sup> 1997 and 1998 data combined because less than three vessels participated.

Source: National Marine Fisheries Service North Pacific Groundfish Observer Database.

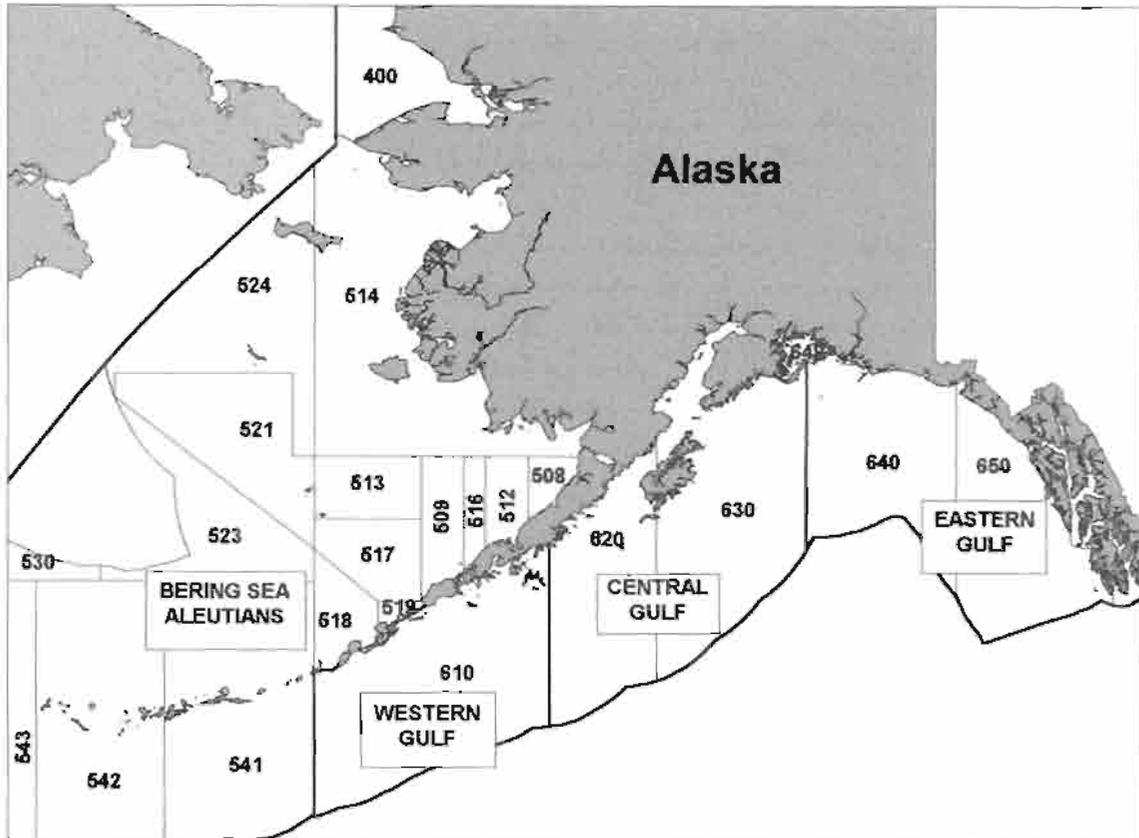


Figure 1. Federal groundfish management areas.

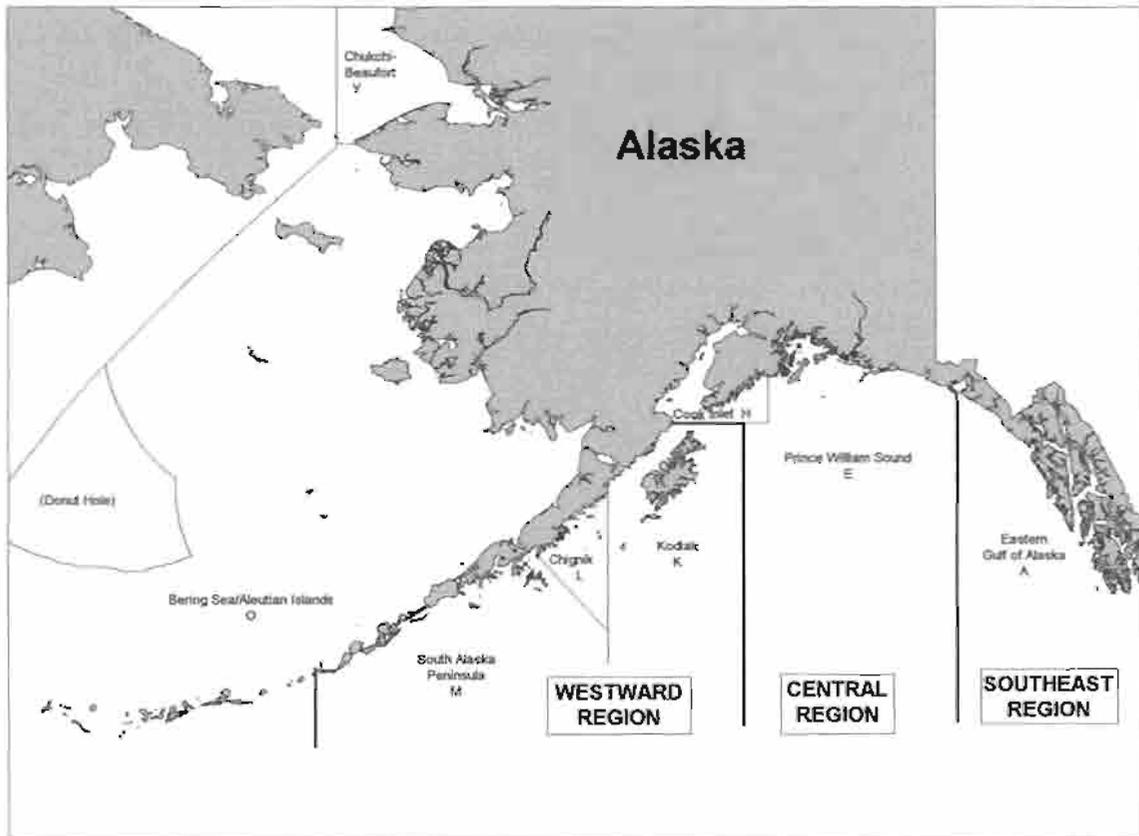


Figure 2. State of Alaska groundfish registration areas and regions.

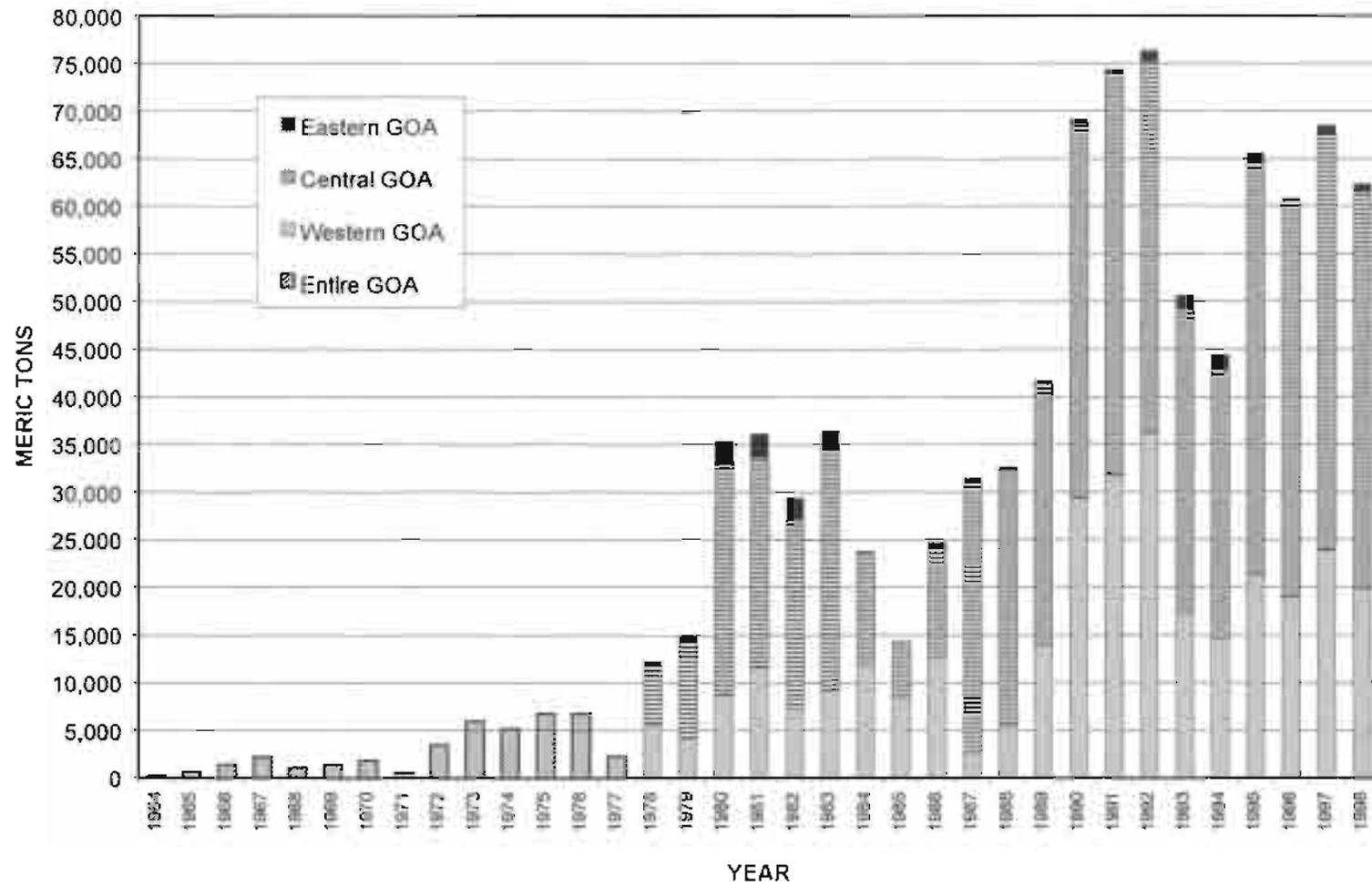


Figure 3. Pacific Cod landings from the Gulf of Alaska, 1964-1998. Source: NMFS Alaska Region Home Page, 11/14/98.

## STATE WATER PACIFIC COD MANAGEMENT PLANS

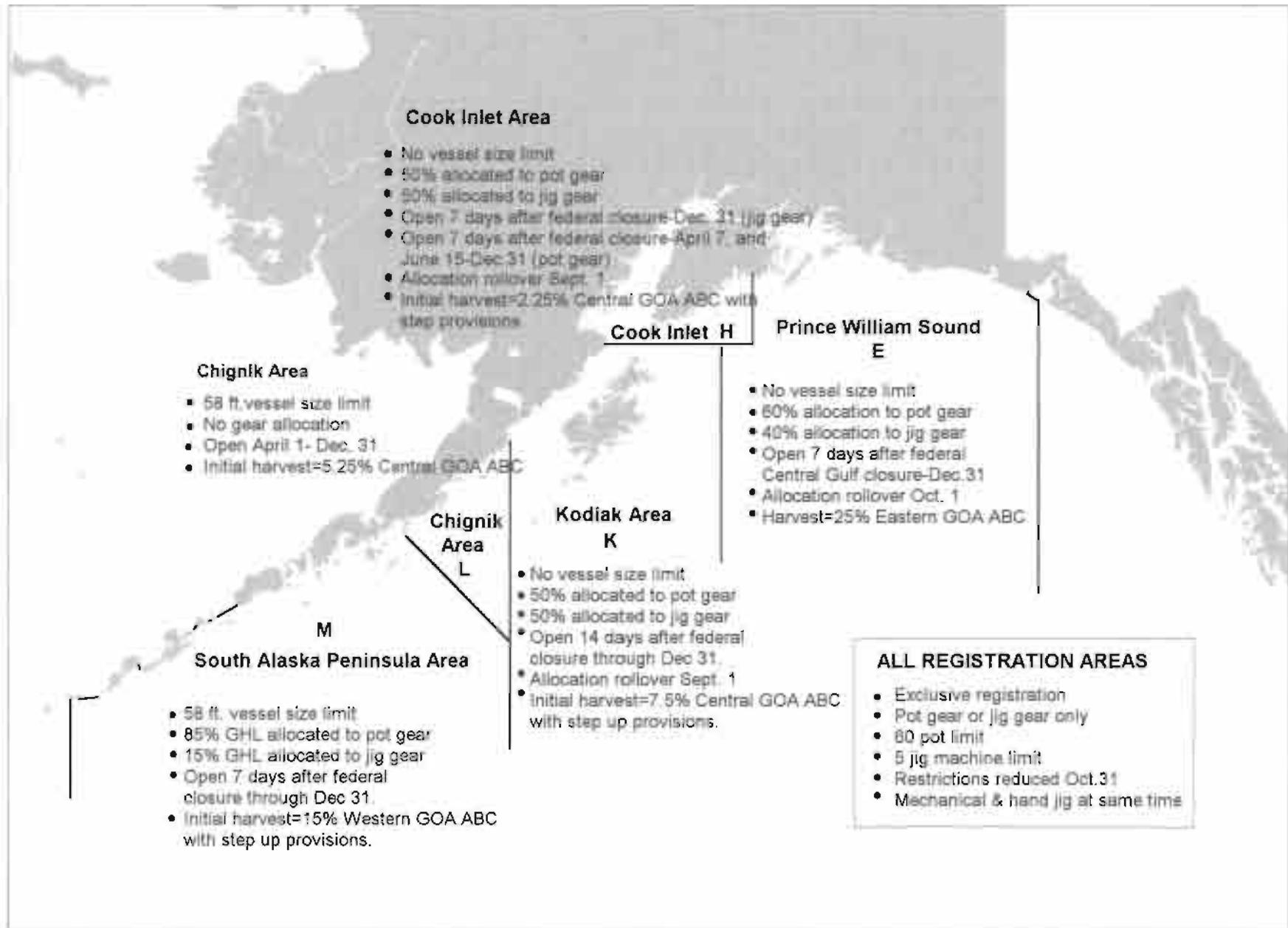


Figure 4. Elements of state water Pacific cod management plans.

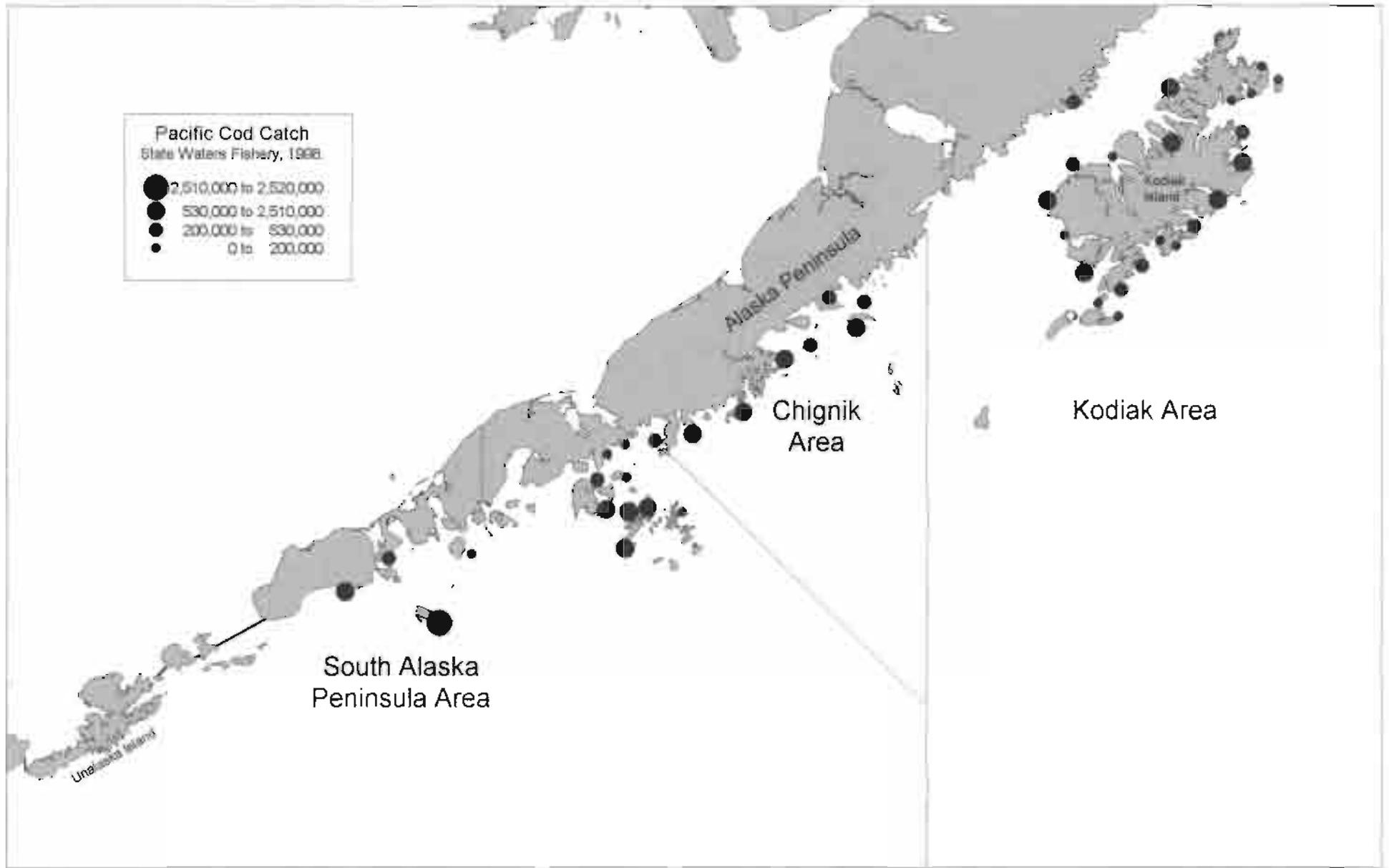


Figure 5. Pacific cod catch by statistical area from the 1998 Kodiak, Chignik, and South Alaska Peninsula state water fisheries.

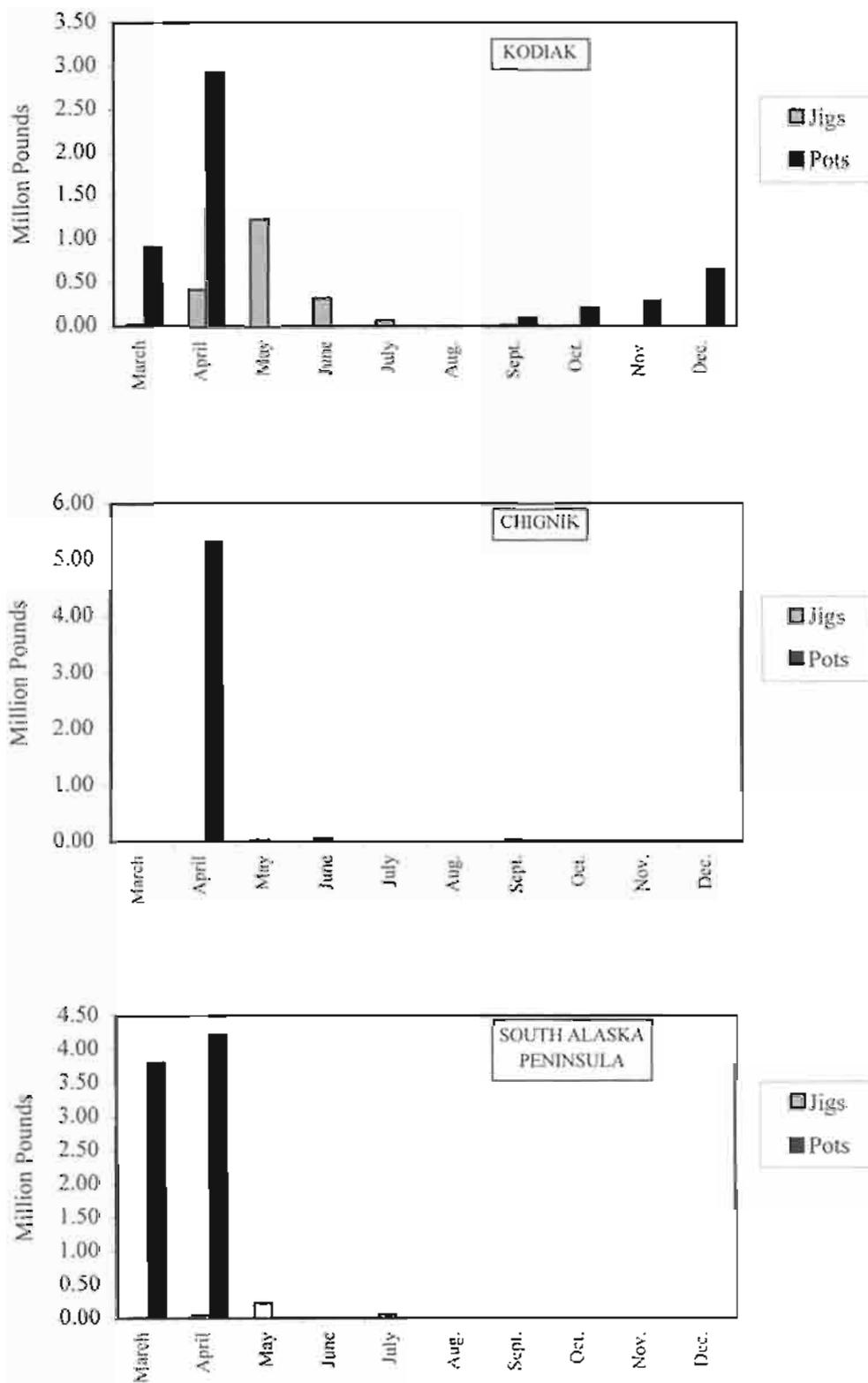


Figure 6. The 1998 Pacific cod catch by month by gear type for the Kodiak, Chignik, and South Alaska Peninsula state water fisheries.

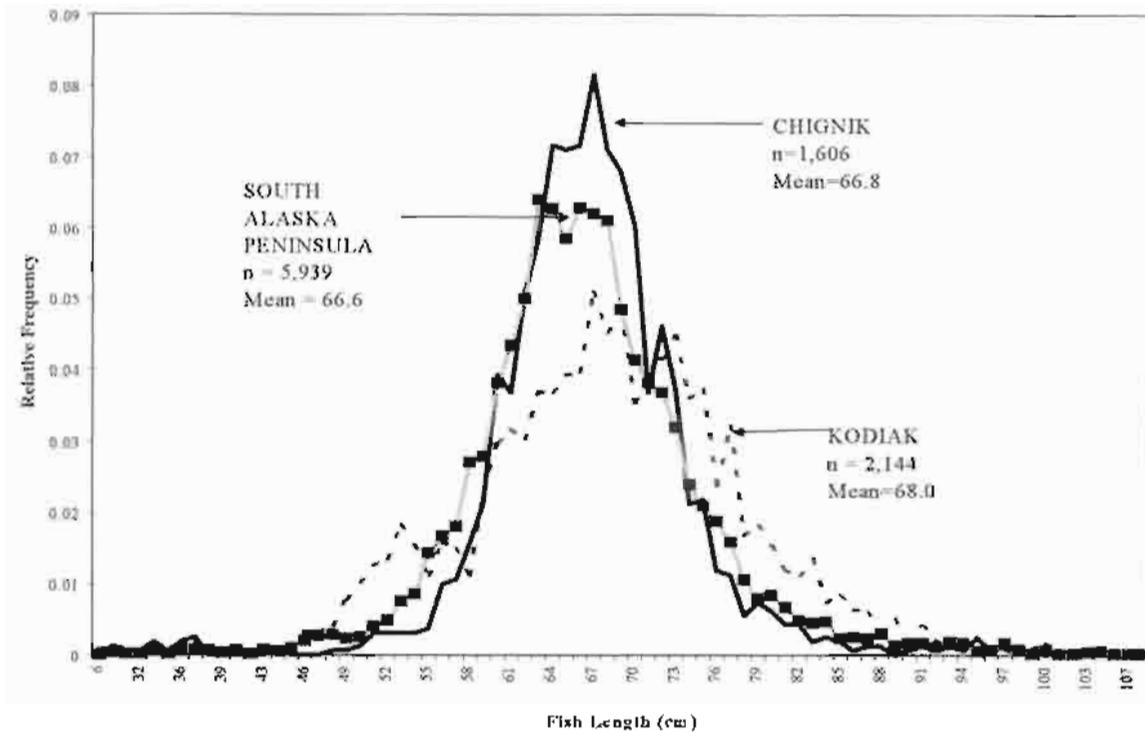


Figure 7. Pacific cod lengths by area collected from the 1998 state water fishery in the Westward Region.

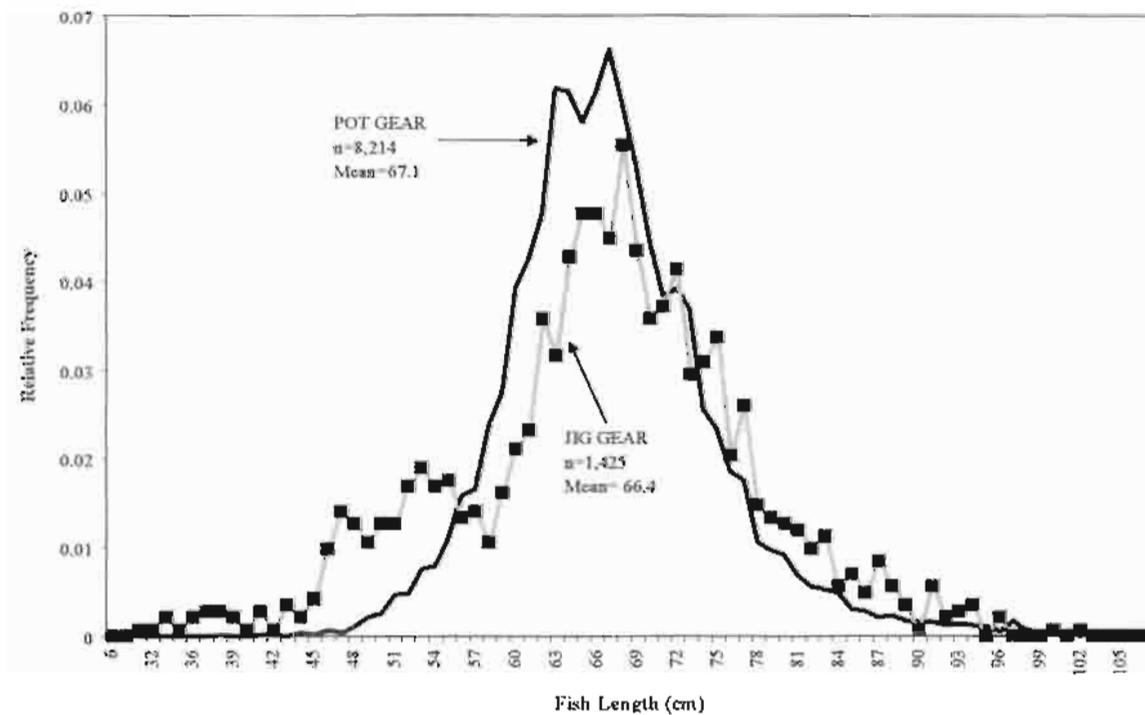


Figure 8. Pacific cod lengths by gear type taken from the 1998 state water fishery in the Westward Region.

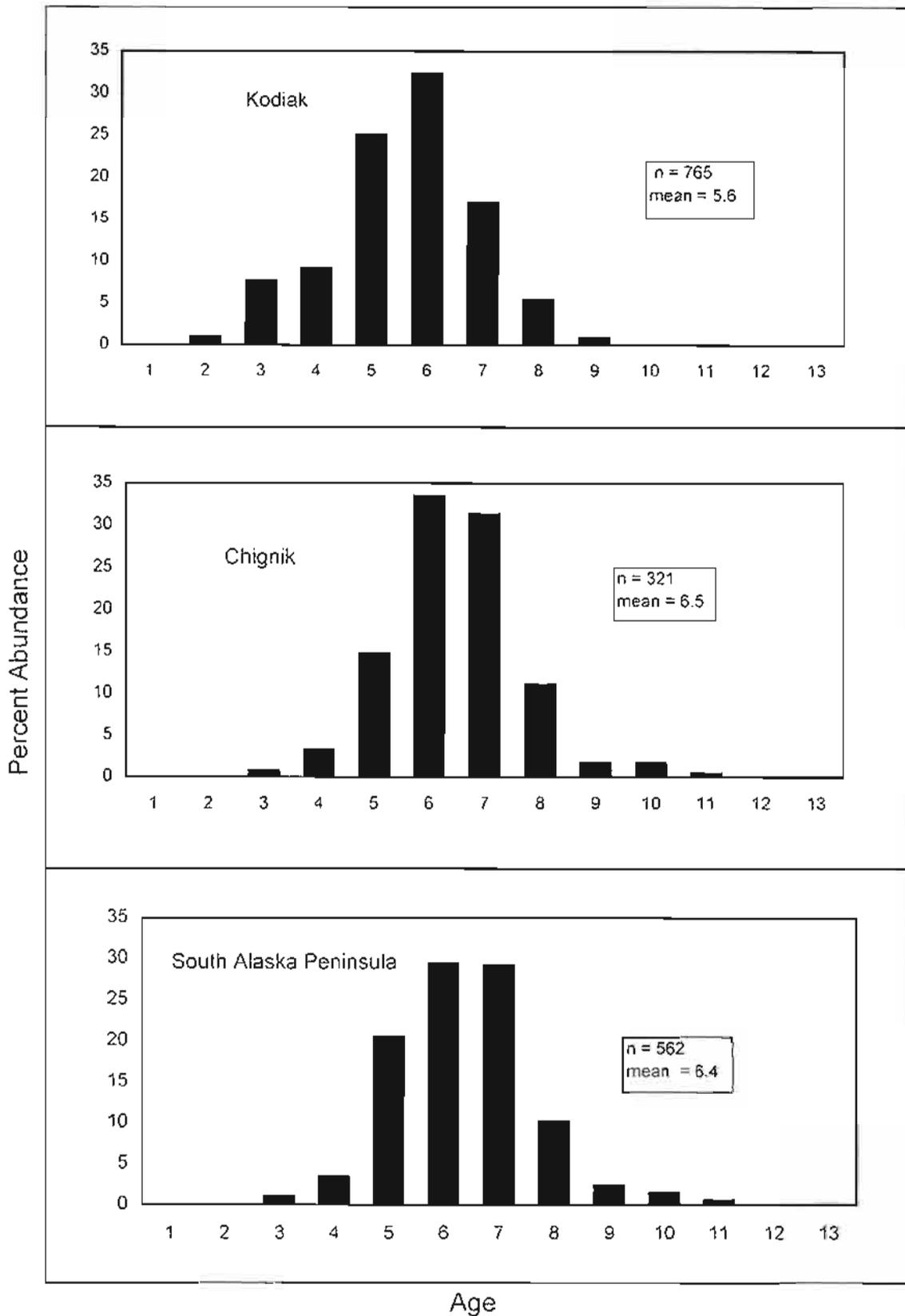


Figure 9. Age composition of Pacific cod sampled from Westward Region state water fishery, 1997.

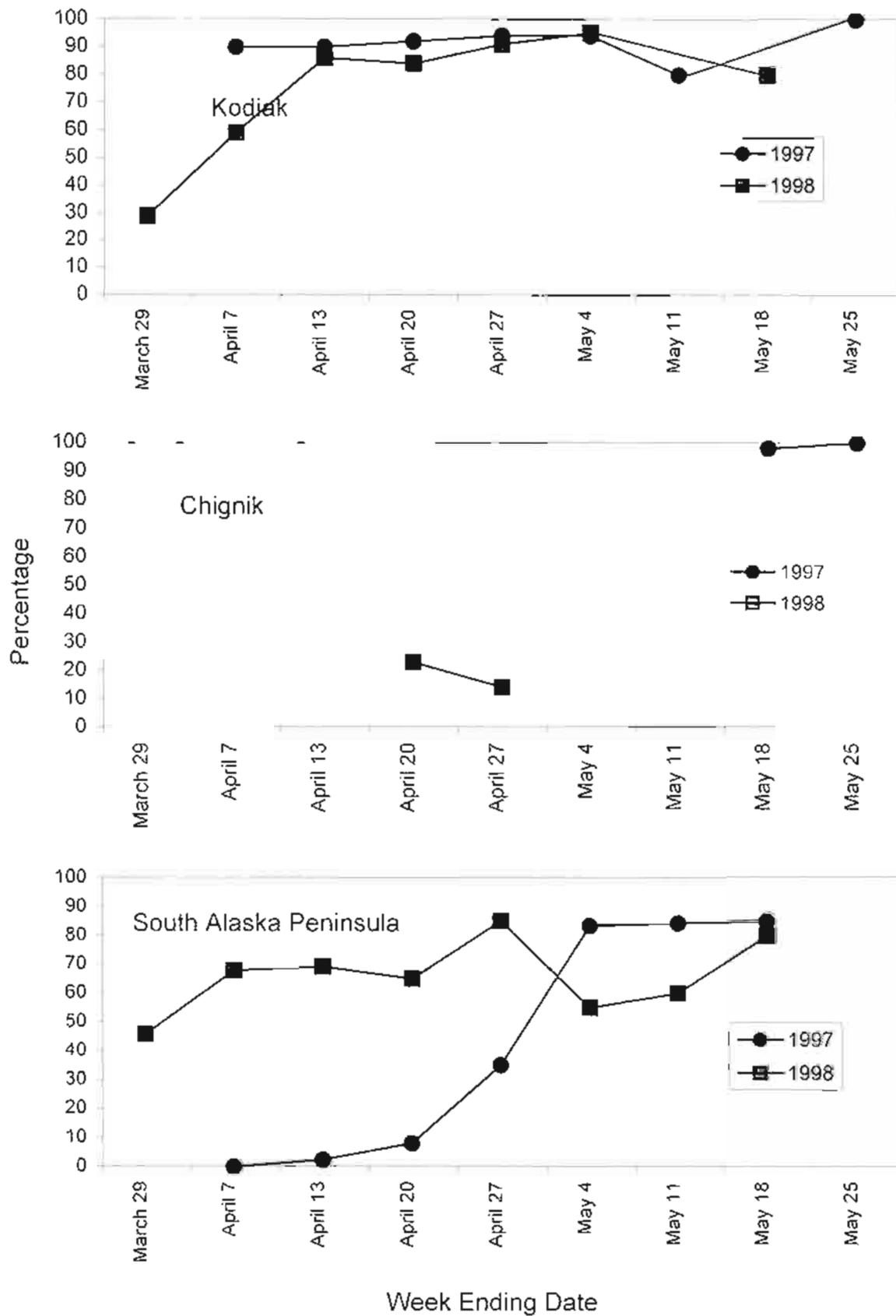


Figure 10. The percentage of spawned Pacific cod from the Westward Region management areas during the 1997 and 1998 state water fishery .

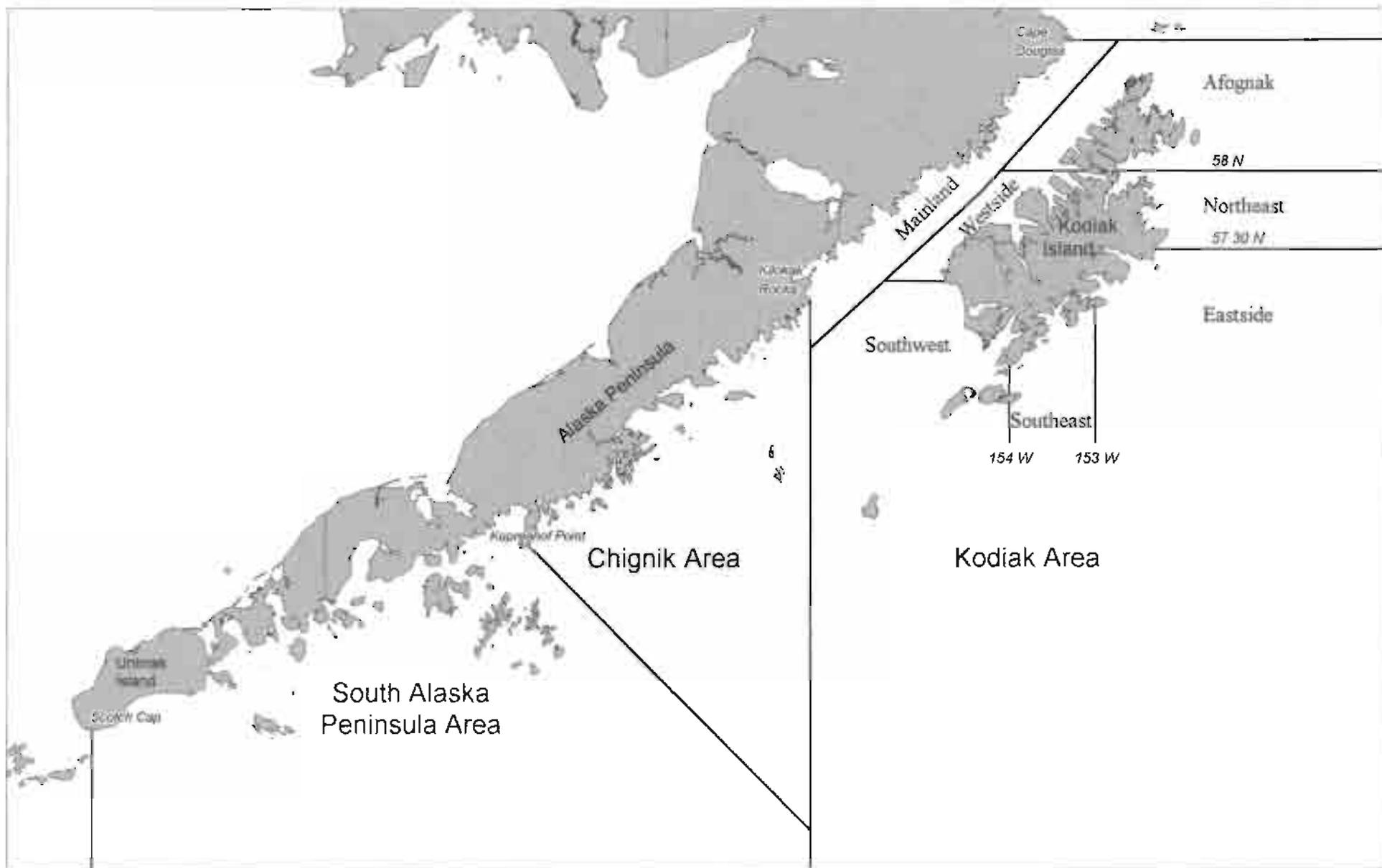


Figure 11. Black rockfish management units in the Kodiak, Chignik, South Alaska Peninsula Area, 1998.

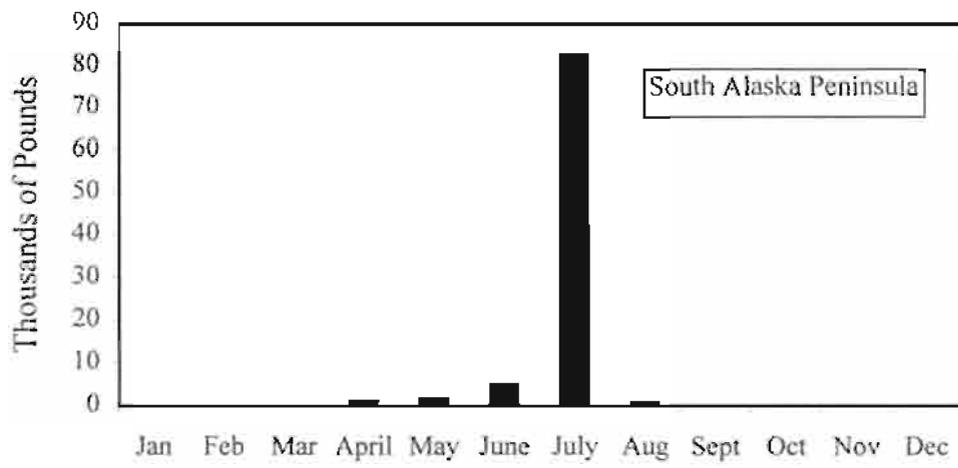
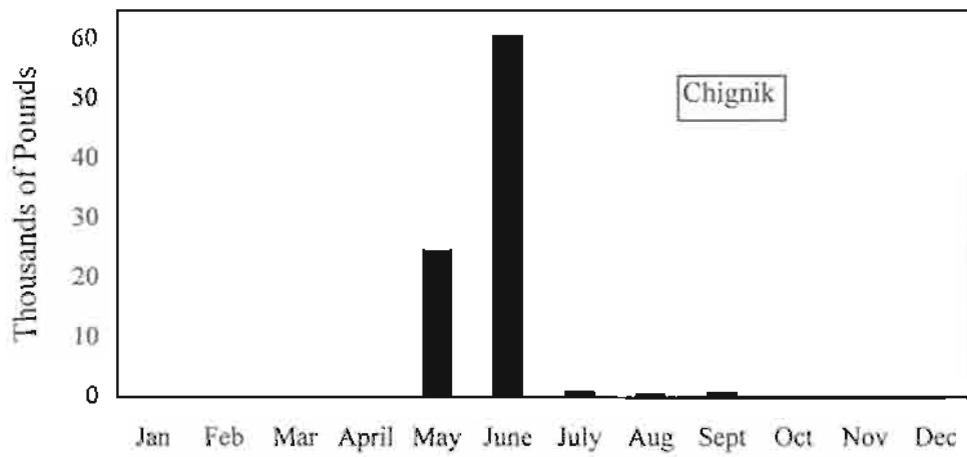
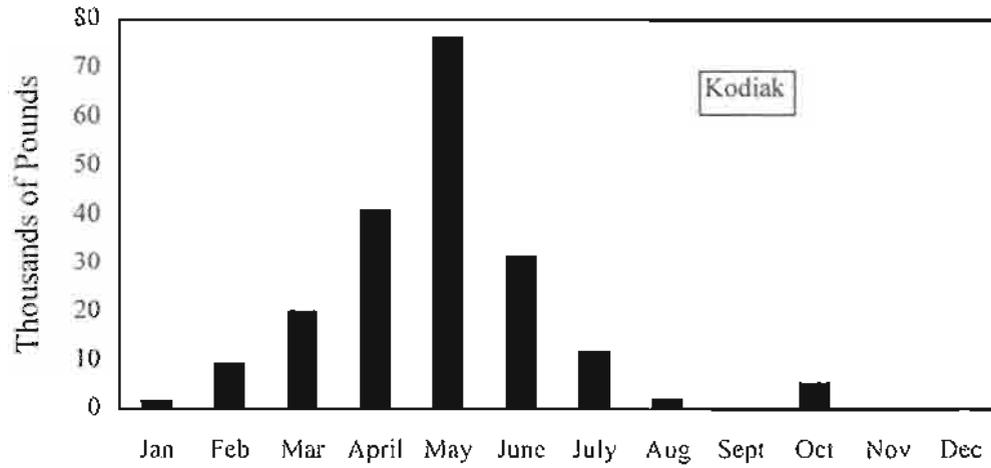


Figure 12. The 1998 black rockfish catch by month from the Kodiak, Chignik, and South Alaska Peninsula areas.

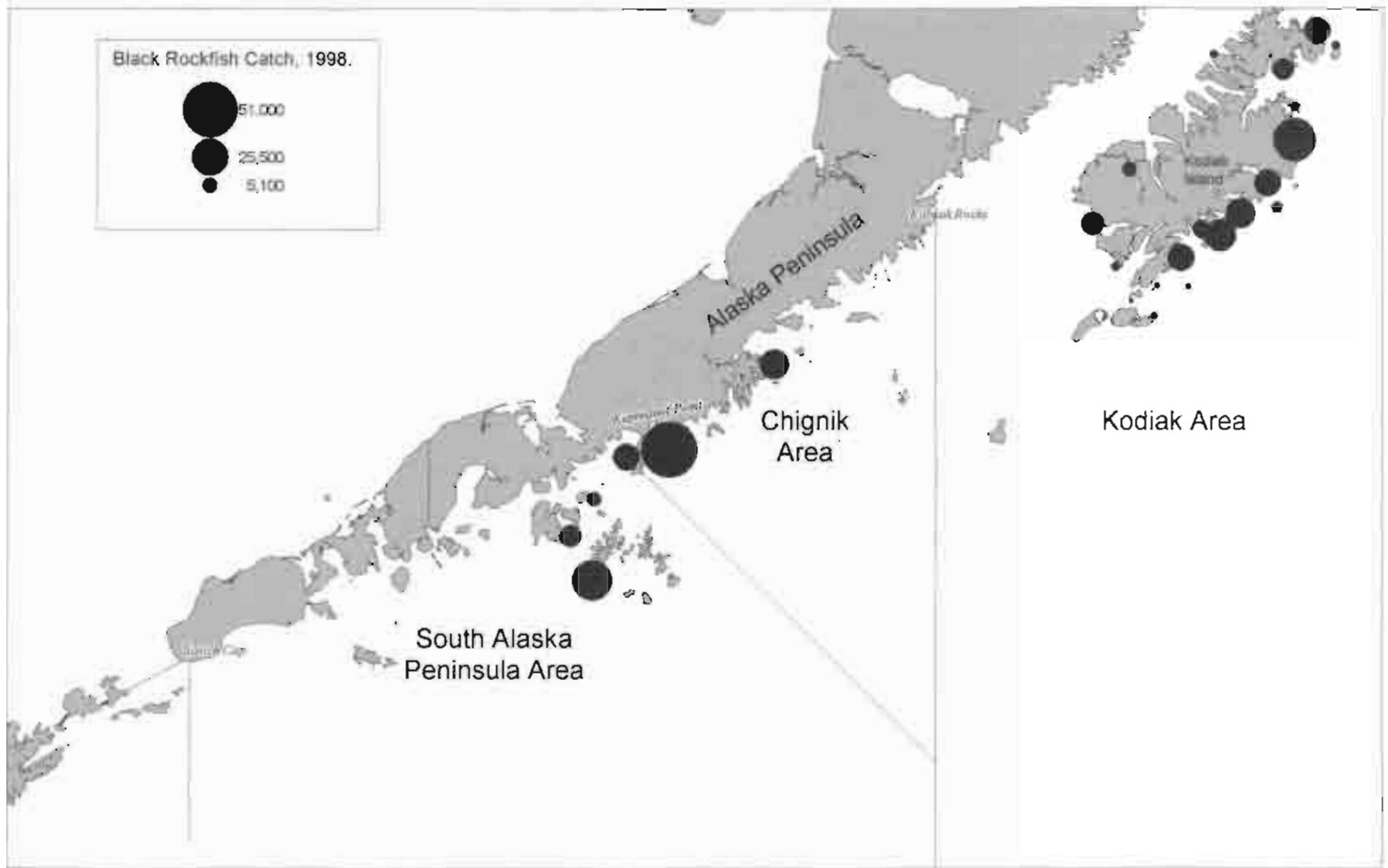


Figure 13. Black rockfish catches by statistical area from the Kodiak, Chignik, and South Alaska Peninsula Areas, 1998.

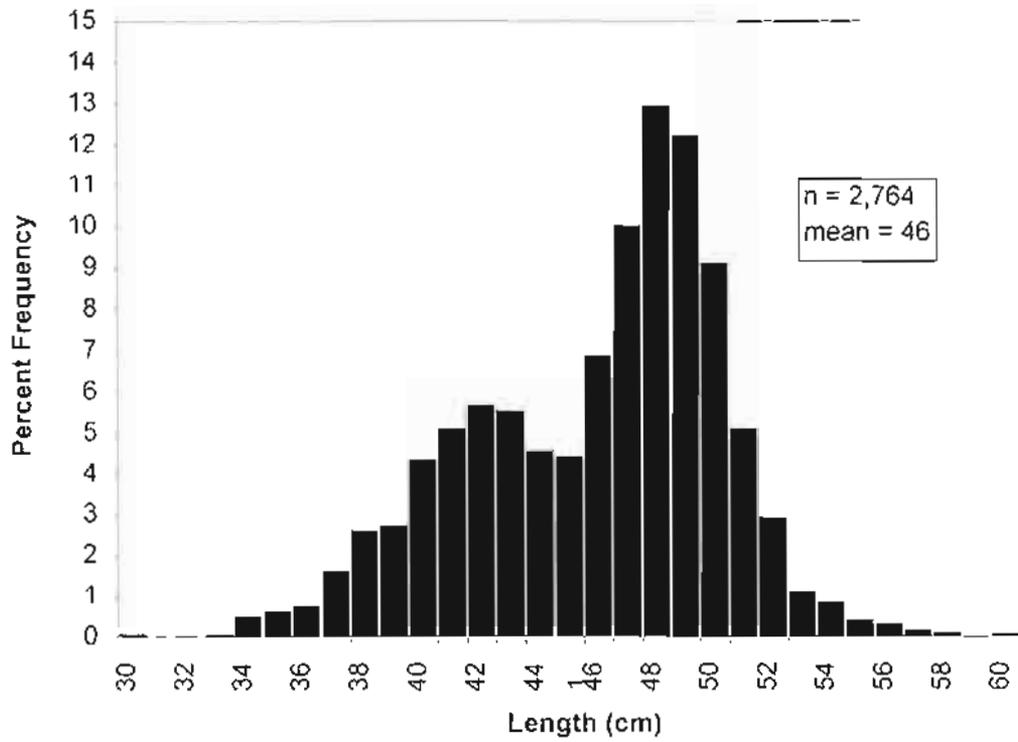


Figure 14. Size composition of black rockfish collected from the 1998 fishery in the Kodiak, Chignik and South Alaska Peninsula areas.

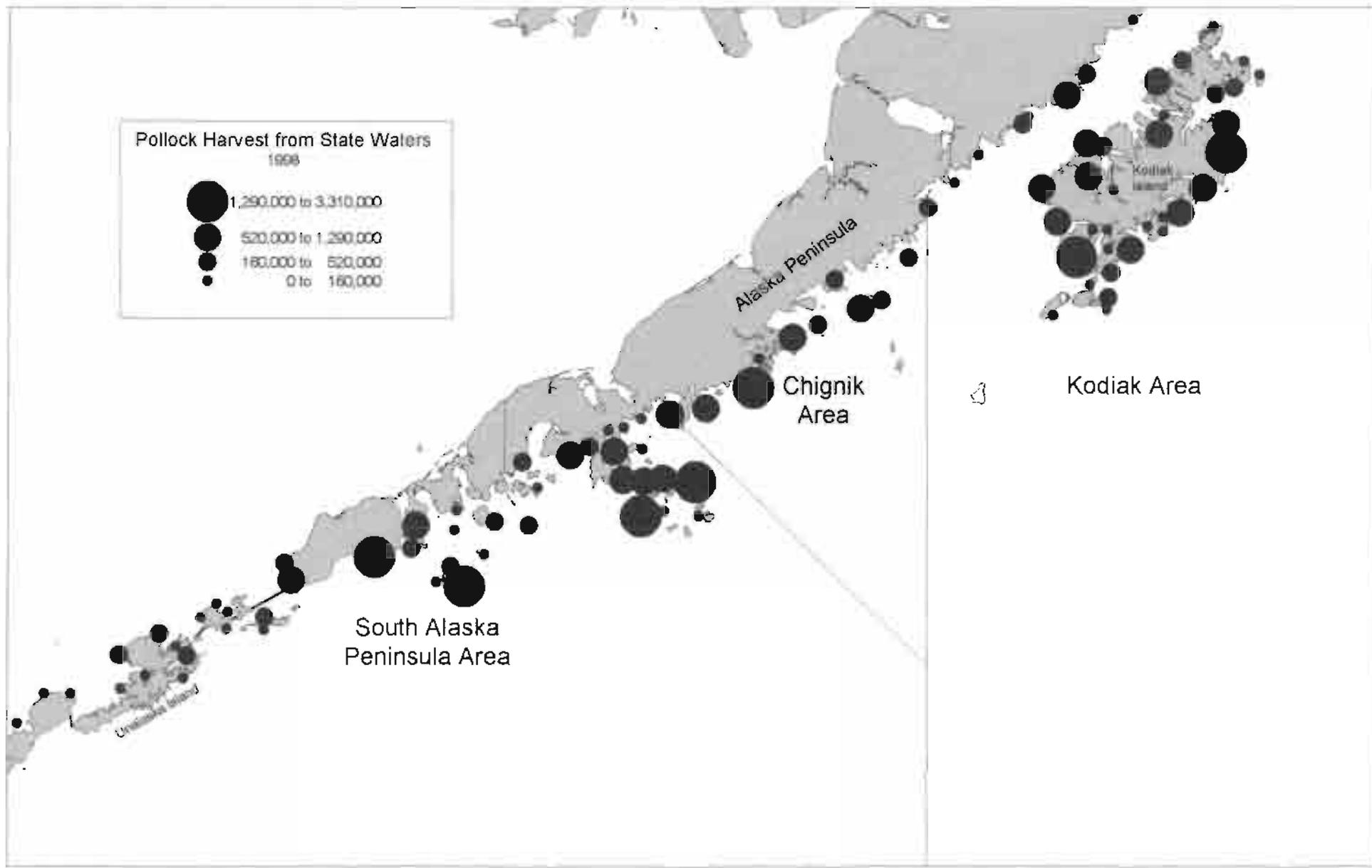


Figure 15. Pollock catch by statistical area from the 1998 Kodiak, Chignik, and South Alaska Peninsula areas state waters.

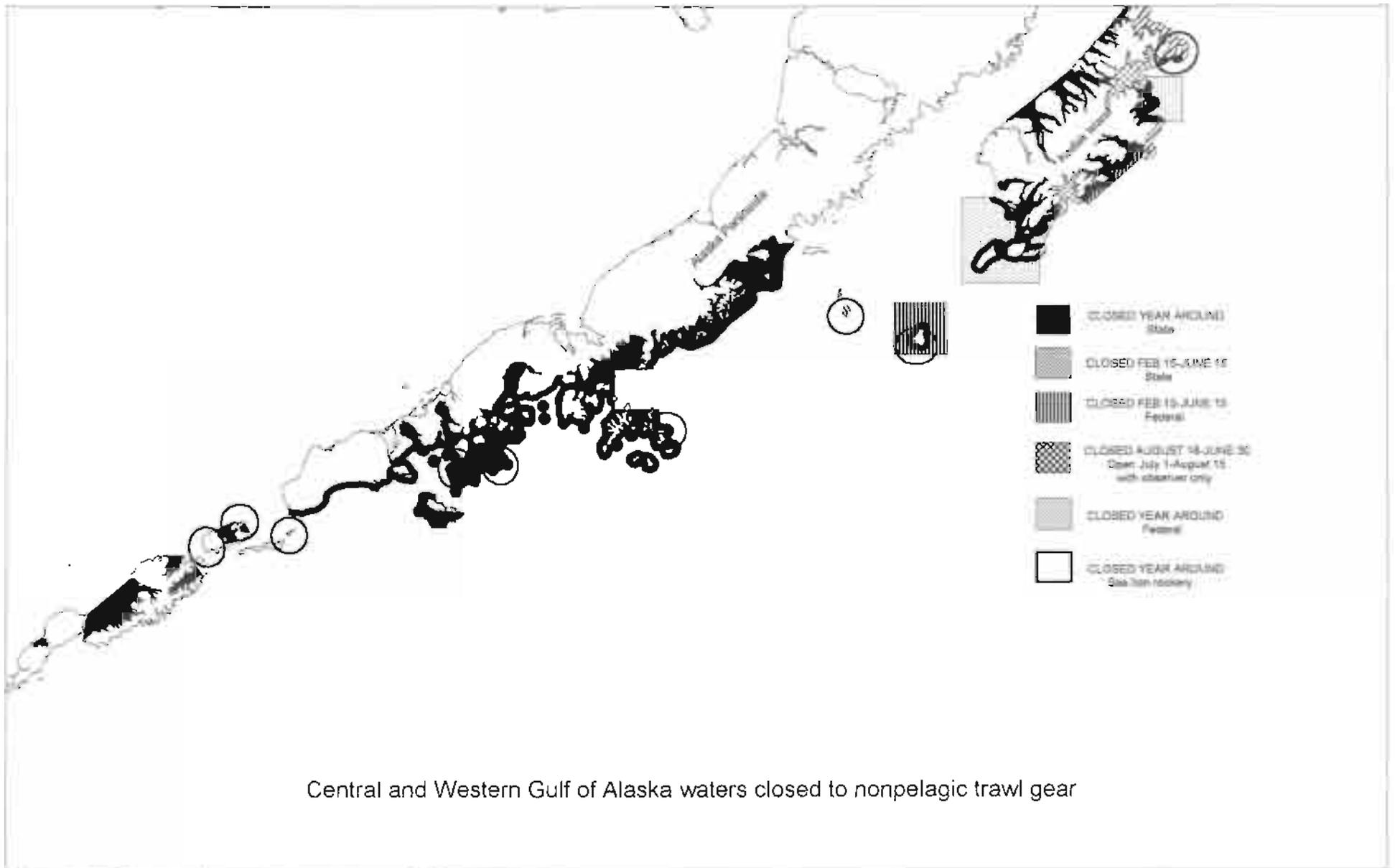


Figure 16. Nonpelagic trawl closure map, 1998.

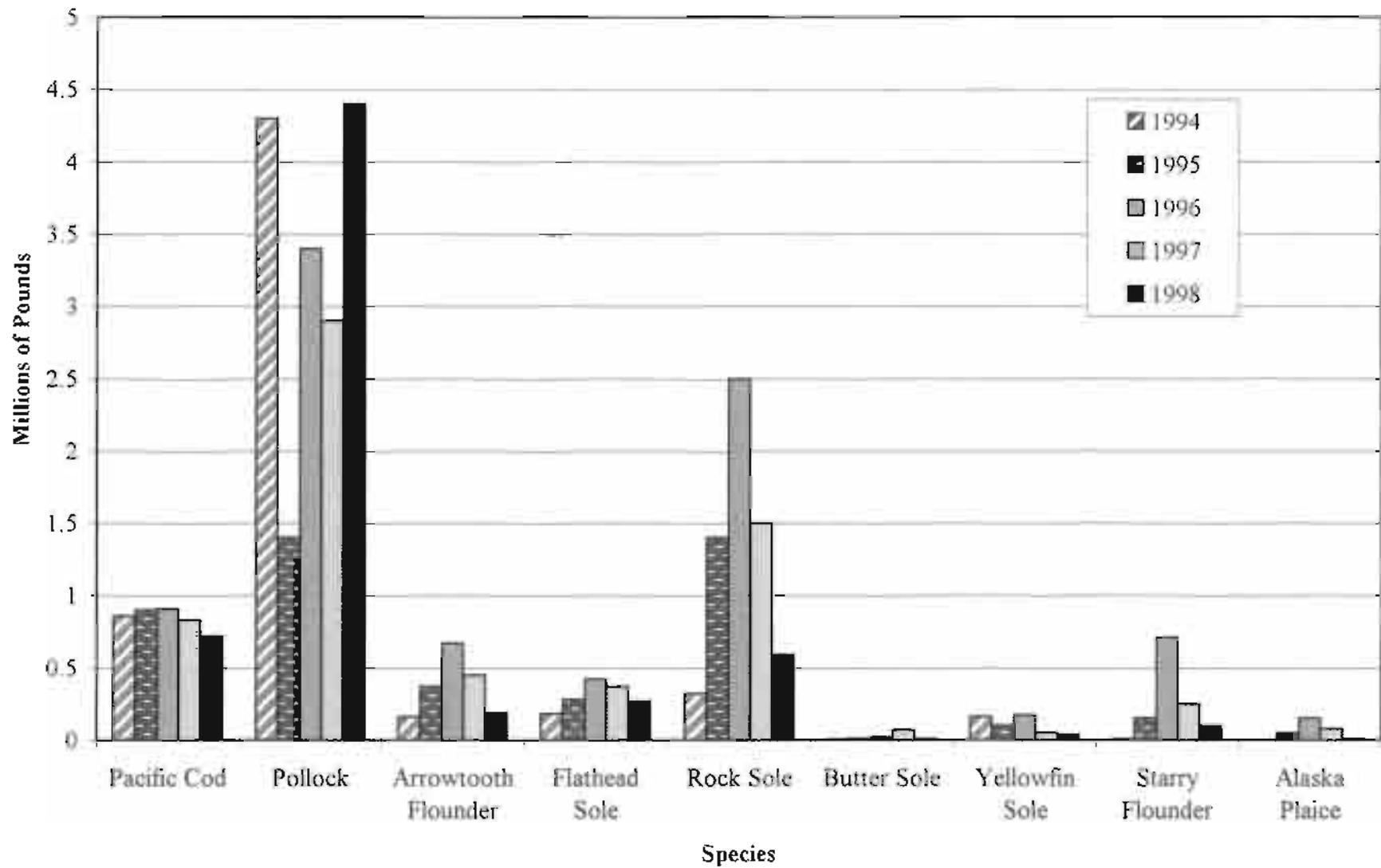


Figure 17. Groundfish harvest from nonpelagic trawl gear in the Kodiak Area state waters.

## APPENDIX

## Appendix A. Gulf of Alaska trawl closure time line.

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1976. The Magnuson Act. The U.S. declared exclusive management authority over all fishery resources out to 200 miles. A major goal of the Act was to encourage domestic groundfish fisheries

1978. The Alaska Department of Fish and Game (ADF&G), Kodiak conducted an onboard observer program on trawlers fishing bottom gear in the Westward Region. Observer data demonstrated the potential for high crab bycatch, particularly in bays and during January through June when king crabs are congregated.

1983. Joint venture operations begin targeting sole and other flatfish. This emerging fishery utilized hard on bottom trawl gear and occurred in generally the same areas where crabs inhabit.

1984. ADF&G proposed to the Alaska Board of Fisheries (BOF) a trawl closure period from February 1 to June 1 to sensitive crab habitat during soft-shell and molting periods for king crabs. This was amended and adopted as the Bottom Trawl Fisheries Management Plan. No areas were closed, but provisions allowed the state to place observers onboard trawl vessels operating within areas of crab habitat.

1986. The North Pacific Fisheries Management Council (NPFMC) passed Amendment 15 to close hard on bottom trawling from February 15 to June 15 in the Chirikof Island and Barnabas areas, while Alitak Flats, the Towers, and the Marmot Flats were closed year round. Federal closure areas were established for a period of three years (Current FMP type I and II closures).

1986. Six proposals were presented to the BOF dealing with trawl closures in the Kodiak Area. Most time and area closures that are currently in regulation for the Kodiak Area, state waters of Area M (the Alaska Peninsula), and areas around Unalaska and Akutan were adopted at that time.

1989. The NPFMC passed Amendment 18, which continued type I and II closures and expanded the closed area when a significant crab recruitment event occurs. These areas, identified as Type III are adjacent to closed waters which are known to have contained high concentrations of juvenile king crab or are important migratory pathways during periods of high abundance. This action also was effective for three years.

1992. Amendments passed by the NPFMC established trawl closures around sea lion rookeries and reinstated King Crab Protective Zones around Kodiak on a permanent basis (Types I-III closures).

1993. The BOF reduced the open period for bottom trawling in Marmot Bay and South Sitkalidak Straits from 8 months to 6 weeks with an observer requirement and crab bycatch limits.

1994. The BOF reopened an area near Castle Rock in the Shumagin Islands to bottom trawling.

1995. The BOF closed Cook Inlet state waters to bottom trawling. Also, the BOF reopened to bottom trawling an area near Sanak Island on the Alaska Peninsula.

1996. The BOF closed Prince William Sound state waters to bottom trawling.

1998. The NPFMC closed the Eastern Gulf of Alaska to all trawling.

1998. ADF&G proposal to the NPFMC closing Cook Inlet to bottom trawling.  
NMFS proposal to close additional areas to trawling to facilitate sea lion population recovery.

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