

KODIAK AND CHIGNIK AREA PACIFIC COD
AND BLACK ROCKFISH FISHERIES, 2001:
REPORT TO THE ALASKA BOARD OF FISHERIES.

By

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ABSTRACT

This report provides a summary for the Alaska Board of Fisheries (BOF) of the state and federally managed Pacific cod *Gadus macrocephalus* and black rockfish *Sebastes melanops* fisheries that occur in state waters of the Kodiak and Chignik groundfish registration areas. As such, the information contained herein is designed to provide a fishery overview with specific background in relation to proposals that will be addressed by the BOF in January 2002.

Participation and harvest in the 2001 state-waters Pacific cod fisheries in these two areas was down from previous years. Through September 30, 2001, the harvest in the state-waters Pacific cod fisheries in the Kodiak and Chignik Areas was 6.9 million pounds (3,141 mt) harvested by 117 vessels for an estimated exvessel value of \$2.0 million. Additional information regarding season dates, trends in participation and harvest timing, and biological data collected on Pacific cod during the state-waters fisheries is summarized.

Effort and harvest from the Pacific cod fisheries prosecuted in state waters during the federal fisheries (i.e. the parallel fisheries) are summarized for the Kodiak and Chignik Areas. Information on the size of vessels participating in the parallel fisheries is listed as well.

An overview of the management rationale for black rockfish in the Westward Region is provided, including the development of the State of Alaska management authority and establishment of guideline harvest levels (GHLs) and fishing sections. A 2001 fishery summary is provided for the black rockfish fisheries in the Kodiak and Chignik Areas. In 2001, 61 vessels harvested 0.3 million pounds (146 mt) worth an estimated exvessel value of \$0.1 million from these two areas. A narrative of recent management concerns is provided as background to ADF&G proposals 59-66 outlining additional management measures needed to preserve the long-term health of black rockfish stocks in these areas. Data from dockside sampling is also provided.

INTRODUCTION

Groundfish harvests in the Gulf of Alaska (GOA)¹ 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 the groundfish Acceptable Biological Catch (ABC) specifications. The NPFMC may reduce ABC due to biologic, economic, and social considerations to the level available for directed fishing known as the Total Allowable Catch (TAC).

Authorization for federal control of resources in the Exclusive Economic Zone (EEZ) from 3-200 nautical miles (nm) offshore comes from the Fishery Conservation and Management Act, now known as the Magnuson-Stevens Act, originally passed by the United States Congress in 1976 (MSFMCA 1996). The State of Alaska has management authority for groundfish resources within territorial waters from shore to three nm. For most groundfish fisheries, the Alaska Department of Fish & Game (ADF&G) issues an emergency order (EO) at the beginning of each year, creating what is referred to as the parallel fishing seasons. During parallel seasons management actions taken by NMFS, such as restrictions on gear types, bycatch, and fishing seasons, are duplicated in state waters.

Some exceptions to the parallel fishing seasons occur where the state has established separate guideline harvest levels (GHLs) and seasons for state waters. In the Westward Region, this includes sablefish *Anoplopoma fimbria*, lingcod *Ophidion elongatus*, Pacific cod *Gadus macrocephalus*, and black rockfish *Sebastes melanops*². The state-waters fisheries for sablefish and Pacific cod occur within three nautical miles of shore. In the lingcod and rockfish fisheries, the state has full management authority from shore to the 200 nautical mile boundary of the EEZ. Additionally, certain actions taken by NMFS as a result of the Endangered Species Act Section 7 consultation Biological Opinion and Incidental Take Statement or BiOp (NMFS 2000) for Steller sea lions (SSL), have not been adopted by the State of Alaska. For 2001, the State of Alaska did not recognize fishery closures around SSL haul outs in state waters.

The State of Alaska has established registration areas that differ from the federal management areas. State designated registration areas are the Eastern Gulf of Alaska, Prince William Sound, Cook Inlet, Kodiak, Chignik, South Alaska Peninsula, Bering Sea-Aleutian Islands and Chukchi-Beaufort Sea Areas (Figure 1). The latter five registration areas are within the department's Westward Region. The areas used for federal groundfish fisheries management are shown in Figure 2.

¹ Appendix A contains frequently used acronyms and key words.

² Management of blue rockfish *Sebastes mystinus* is also delegated to the State of Alaska in all waters from shore to 200 nautical miles, however, blue rockfish are not typically found in the Westward Region.

STATE-WATERS PACIFIC COD FISHERIES

Historic Background

In 1996, the BOF adopted state-water Pacific Cod Management Plans for fisheries in five management areas including Kodiak and Chignik. The descriptions of the areas are outlined in Chapter 5 of the Alaska Administrative Code (AAC) section 28.081; Kodiak as outlined in 5 AAC 28.467, and Chignik as outlined in 5 AAC 28.537. Registration areas and selected regulations of each management plan are illustrated in Figure 3. Included are season, gear, and allocation specifications. Eligibility for participation in these areas is not restricted to vessels qualified under the federal moratorium or license limitation programs (LLP). The fishing seasons were established with an opening date shortly after the federal fishery closures that have typically been in late winter/early spring. Exclusive registration areas were established and the fishery was limited to pot, hand troll, and mechanical jig gears. No more than 60 pots or 5 jig machines could be used to harvest Pacific cod. The harvest level for each area was set as a percentage of the estimated Pacific cod ABC as established by the NPFMC. The initial harvest levels were set at 15% of the Central Gulf of Alaska (CGOA) ABC to be apportioned between the Kodiak, Chignik, and Cook Inlet Areas. The percentage allocated from the Central Gulf ABC was designed to increase over time when 90% of the GHL had been attained in individual management areas. The maximum allocation to the three areas was to be 25% of the CGOA ABC.

Additional regulations adopted in 1996 included a 58-foot vessel size limit in the Chignik Area and allocations between pot and jig gear types in Kodiak. The fishery management plans also provided for removal of restrictions on exclusive area registrations, vessel size restrictions, and gear limits after October 31 to increase late-season production.

Over the next few BOF meeting cycles, several refinements were made to the original Pacific cod management plans. The BOF adopted language in 1999 that restricted vessels greater than 58 feet in length using pot gear in the Kodiak Area to 25% of the total GHL before September 1. Also in 1999, a 15% allocation for jig gear in the Chignik Area was adopted. An April 15 fishery opening date to both pot and jig gears was specified for Chignik with an August 15 rollover to pot gear for any unharvested portion of the jig allocation. In that year, the Chignik Area was also designated as a supereclusive registration area for the state-waters Pacific cod fishery. Clarification was added to the gear definitions of hand troll and jig gears for all state-waters Pacific cod seasons. Hooks were limited to no more than 30 per line or not more than 150 hooks on one line used in a continual loop for mechanical jig machines.

In 2000, uncertainty regarding restructuring of federal fisheries following release of the BiOp on SSL prompted the BOF to modify the state-waters Pacific cod fisheries. The BOF directed that state-waters seasons would remain open after their regularly scheduled opening in the spring until area GHLS were fully attained or the season closed by regulation on December 31. In addition, the opening date of the Chignik Area was changed to seven days following the closure of the CGOA parallel fishery. Thus, state waters would not reopen to a parallel season if a federal fishery opening occurred and there was still state-waters GHL to be harvested. These regulations were adopted as an interim measure for the year 2001 with the structure of the state-waters 2002 season to be determined in the 2001-2002 BOF cycle.

In November 2001, the BOF reaffirmed the same season structure for the 2002 state-water fisheries. The Chignik Area fishery will open on March 1, 2002. For parallel Pacific cod fisheries, the BOF also agreed with all NPFMC recommendations for SSL haul out closures except for two listings. State waters within three miles of Cape Barnabas on Kodiak Island and Caton Island in the South Alaska Peninsula Area would not close to pot gear.

2001 Westward Region State-waters Pacific Cod Fisheries

The 2001 season is the fifth year of fishing under the state-waters Pacific cod management plans in the Westward Region. Through September 30, two hundred thirty-eight vessels have harvested over 20.3 million pounds³ (9,225 mt) of Pacific cod from the three Westward Region areas combined. The Kodiak and Chignik Areas contribute 6.9 million pounds (3,129 mt) to the total. The 13.4 million pound GHL in the South Alaska Peninsula Area has been attained while fisheries in the Kodiak and Chignik Areas are ongoing and will likely remain open until the regulatory closure date of December 31. The approximate exvessel fishery value to date is \$5.6 million (Table 1). The largest catches came from areas near Sanak and Nagai Islands, Chignik Bay, and from the west and south sides of Kodiak Island (Figure 4).

Kodiak Area. A GHL of 10.6 million pounds (4,809 mt) of Pacific cod for the Kodiak Area state-waters season was announced by news release on January 25, 2001. The fishery began March 11, 2001, seven days after the closure of the federal CGOA Pacific cod fishery. The actual opening date of the Kodiak Area fishery has varied over the first four seasons with the 2001 season opening on the same date as had the previous season (Table 2).

The 2001 Kodiak Area fishery has been very different from previous years. The number of vessels registering for and participating in the fishery was down significantly from 2000. Weekly harvest rates were also lower than previous seasons, owing much to the decreased participation. In the first four weeks of the fishery, historically the weeks of the greatest pot gear harvest in the Kodiak Area, only 108 pot landings occurred. This compares to 210 pot landings in 2000 and 180 landings in 1999 from pot gear during the same period. In 1997 through 1999, the 50% of the GHL that was allocated to pot gear was completely attained within the first six weeks of fishing. The 2000 fishery continued for pot gear from March 11 to the regulatory closure date of December 31. The 2001 fishery is likely to continue from the opening date of March 11 until the December 31 closure with over half of the GHL going unharvested.

Jig gear showed similar harvest decreases in the month of May, historically the month for the greatest production for that gear type. In May 2001, there were 170 jig landings made, down from 567 in May of 2000 and 389 in May of 1999. The weekly harvest by gear type for the years 1998-2001 is shown in Figure 5. Individual pot and jig landings decreased in 2001, with pot landings down approximately 2,000 pounds per landing from 2000 and jig landings came in less than 500 pounds below the average landing in the previous year. Additionally, average price per pound decreased from \$0.43 in 2000 to \$0.31 in 2001. Fuel costs remained high over both years. Several operators stated that cod operations were simply not profitable in 2001.

³ All weights refer to round pounds.

Pot gear harvest averaged slightly over 350,000 pounds (167 mt) per week for the first month of the fishery (Figure 5). Harvest peaked in the third week of April when 23 landings occurred for 536,592 pounds (243 mt). Harvest and participation declined quickly thereafter and by the end of May, there were few vessels participating in the Kodiak Area pot fishery. Less than three vessels have made pot landings from May through September 30 in the Kodiak fishery, resulting in confidential data. On September 1 the allocation rollover and vessel size restrictions on pot boats were lifted. Approximately 80% of the 2001 pot gear harvest to date has been by vessels less than or equal to 58 feet.

The 2001 jig harvest in Kodiak was similar to that of the pot fleet; it was reduced from previous years with fewer participants. Weekly harvest peaked in May, which has been the case in all previous fisheries. The week of May 13 had a harvest of 168,374 (76 mt) pounds from 46 landings. Comparatively, this same week in 2000 produced a record harvest in the Kodiak Area of over 480,000 pounds (218 mt) from 168 landings. As has been the case in previous Kodiak state-waters jig fisheries, effort decreased when salmon fisheries opened in June. In the middle of summer, one local Kodiak processor that had been the primary processor of smaller volume jig harvests closed their operation. There were, however, a number of landings throughout the summer. Less than three vessels participated in most weeks, so the harvest amount remains confidential. Some effort occurred in early September, but it is not expected that a significant jig harvest will occur in the fall, based on previous patterns exhibited by the fleet.

Federal recommendations for the ABC of Pacific cod have decreased each year since 1998 (Thompson et al. 2000) and are expected to be further reduced for 2002. Anecdotal information from participants in the Kodiak Area state-waters and parallel Pacific cod fisheries have relayed that there are indeed fewer cod available to harvest. This decline has not been unanticipated, as the number of age 3+ fish has been declining with reduced numbers of animals recruiting to the CGOA (Thompson et al. 2000). Furthermore, this decrease has been reflected in ADF&G marine resource assessment surveys conducted over the same period as the decline, i.e., 1998 through 2001 (*in press*). ADF&G has conducted rudimentary analysis of available data to discern if near-shore depletion has occurred in the Kodiak Area Pacific cod stock. Analysis has not indicated the occurrence of differential depletion among areas; decreases in stocks have been indicated as similar levels in state and federal fisheries and surveys occurring both inshore and offshore. Detailed, longer term localized depletion studies related to SSL research are being outlined to evaluate these declines.

Through September 30, the total harvest of Pacific cod in the Kodiak Area has been 4.5 million pounds (2,041 mt) taken by 94 vessels. The estimated exvessel fishery value was \$1.4 million. There were 3.3 million pounds (1,497 mt) taken by 32 pot vessels and 1.2 million pounds (544 mt) taken by 63 jig vessels (Table 3). One vessel fished both gear types. Thirty-four separate statistical areas were fished with the largest harvests coming from Kodiak's westside capes, the Alitak Bay area, and from Chiniak Bay near the city of Kodiak (Table 4, Appendix B). The pot limit and exclusive area designation were removed at the end of October. Based on expected participation through the fall and early winter, it is likely that the Kodiak Area will remain open until the regulatory closure date of December 31 and that a significant portion of the 2001 GHL will go unharvested.

The Kodiak Area attained the final GHl step-up increment in the 1999 fishery. Therefore, the Kodiak Area will receive 12.5% of the 2002 CGOA Allowable Biological Catch. The NPFMC had not set the 2002 Pacific cod ABC for the CGOA at the time of publication.

Chignik Area. A GHl of 6.0 million pounds (2,722 mt) of Pacific cod was set for the Chignik Area and announced by news release on January 25, 2001. The fishery opened on March 11, seven days following the closure of the CGOA (Table 5). Very little activity occurred in the Chignik Area until the second week of April, because of no processing capacity in the area. Less than three participants began fishing when the area opened, delivering their catch to Sand Point until a floating processor arrived in the area. The harvest from this initial period remains confidential.

The number of participants in the Chignik Area fishery declined in 2001. A major decrease occurred between 1999 and 2000 when the number of registrations dropped from 37 to 19. This was largely the result of the area being designated as superexclusive for the state-water Pacific cod fishery. In 2001, there were 14 vessels registered for pots, a continued decrease from 2000. The peak of the pot gear harvest occurred in the second week of April when 31 landings resulted in 503,349 pounds (228 mt). Participation began to decline thereafter and weekly landings began to decline proportionately. No one has fished since early June with pot gear. Weekly harvest rates for the Chignik Area fishery, by gear type, is shown in Figure 6.

The number of participants in the Chignik Area jig fishery increased from four in 2000 to 13 in 2001. Individual landings averaged over 8,000 pounds (4 mt) and the last week of May produced the largest weekly harvest of over 53,000 pounds (24 mt). Effort declined thereafter with no landings since July.

A salmon strike in the first few weeks of June resulted in longer than usual participation in the pot and jig fisheries in the Chignik Area. After the salmon strike was resolved, both fishermen and processors switched exclusively to salmon. The allocation rollover occurred on August 15 removing the individual gear type quotas. This action did not prompt any vessels to resume fishing. Given historic patterns exhibited by the fleet in the Chignik Area and processor availability, it is unlikely that the 2001 GHl will be attained before the regulatory closure date of December 31.

The total harvest from the 2001 Chignik state-waters Pacific cod fishery through September 30 was 2.4 million pounds (1,087 mt) from 175 landings (Table 6). Pot vessels harvested 2.1 million pounds (953 mt) from 114 landings and jig gear had landed 276,698 pounds (126 mt) from 53 landings. The approximate exvessel fishery value was \$646,822. Harvests were spread throughout the area with landings reported from seven statistical areas (Table 7 and Appendix C). The majority of the harvest came from the statistical area that generally approximates Chignik Bay.

The 2001 Chignik Area Pacific cod fishery harvested 38% of the GHl through September 30 and probably will not attain 90% of the 6.0 million pound GHl before the regulatory closure. The 2001 GHl will again be 7% of the Central Gulf ABC as set by the NPFMC. The NPFMC had not set the 2002 Pacific cod ABC for the CGOA at the time of publication.

State-Waters Harvest Monitoring

The department monitored the state-waters Pacific cod harvest in 2001 in the same manner as had been done in previous years. Dockside samplers were placed in the ports of Chignik and Kodiak during the first few months of the season when fishing effort and harvest rates were at the highest level of the fisheries. Dockside sampling has occurred year round in Kodiak. Port samplers conducted confidential interviews with vessel operators to obtain information on catch location, catch per unit of effort, bycatch, and fishing effort. Samplers collected biological data from delivered fish, including fish length, reproductive status, average weights, and otoliths for later analysis in the aging laboratory. Dockside personnel were opportunistically placed on board commercial vessels as observers to collect biological data and bycatch information.

Length frequency data has been collected every year of the state-waters fisheries. Figure 7 shows the length frequencies of fish from each of the Kodiak and Chignik registration areas. The data collected in 2001 did not show substantial differences from the data collected in previous years. Average Pacific cod lengths have typically varied between the two gear types and 2001 was no exception; jig gear harvested fish that averaged 65.7 cm in length while pot gear harvested fish that averaged 66.5 cm in length (Figure 8).

Through September 30, there have been 3,708 pairs of otoliths collected from the Kodiak and Chignik Management Areas during the 2001 state-waters Pacific cod seasons. Analysis of the 2000 and 2001 otolith age data has not been completed. Analysis of otolith data from the 1999 state-waters season showed that retained Pacific cod ranged from 2 to 12 years in Kodiak and from 3 to 9 years in Chignik. The six-year old age class was the predominant age class from these areas.

PARALLEL PACIFIC COD FISHERIES

Introduction

Fishery statistics compiled by NMFS show Pacific cod landings from the GOA beginning in 1964, with the highest harvests occurring during the 1990s. The average total state and federal waters catches since 1989 has been approximately 76.6 million pounds (34,745 mt). Harvest figures through September 30, 2001 show a total GOA catch of approximately 94.0 million pounds (42,638 mt) with almost equal parts coming from the CGOA and Western Gulf of Alaska (WGOA) (Table 8). Since 1989, the harvest of Pacific cod from state waters within the CGOA and WGOA has ranged from 12.2 million pounds (5,500 mt) in 1989 to 53.8 million pounds (24,410 mt) in 1999. The 2001 state waters harvest was 37.5 million pounds (17,010 mt) from the Central and Western Gulf of Alaska areas (Table 8).

During 2001, state waters were opened for a parallel Pacific cod fishing season concurrent with the federal season managed by NMFS. Pot, longline, and jig gears were legal gear types beginning January 1. Trawl gear was allowed beginning January 20, but operators generally target walleye pollock *Theragra chalcogramma* in January and early February. Additionally, much of the state waters in the Kodiak and Chignik Area are closed to non-pelagic trawling, the trawl type used to direct effort on Pacific cod. During directed fishery openings, 100% of Pacific

cod and walleye pollock must be retained under state regulation 5 AAC 28.075 UTILIZATION OF POLLOCK AND PACIFIC COD TAKEN IN A COMMERCIAL FISHERY. Federal regulation, 50 CFR 679.B.27 INCREASED RETENTION/INCREASED UTILIZATION PROGRAM, contains similar language requiring full retention of these species during a directed fishery (Beardon 1999). During directed fishery closures, the maximum allowable Pacific cod and walleye pollock bycatch percentages must be retained; this is typically 20% by target species weight.

Vessels that are not License Limitation Program (LLP) eligible may participate inside state waters during the parallel fisheries. Vessels that carry federal species, gear, and area endorsements may fish both state and EEZ waters.

In 2001, several actions were taken by NMFS in response to the BiOp issued in November of 2000. The actions taken changed widely over the course of the year and are best understood by referencing the appropriate federal documents. The State of Alaska sought to minimize the impact of the SSL measures within state waters during the parallel fishery by endorsing all sea lion rookery closures but not recognizing the additional haul out closures.

The 2001 ABC for Pacific cod in the Gulf of Alaska was reduced 15% from the previous year (Thompson et al, 2000). Further reductions are anticipated for the 2002 fisheries, however, final ABCs had not been adopted by the NPFMC at the time of publication.

2001 Kodiak Area

The waters of the Kodiak Area, part of the CGOA, closed to directed fishing for the inshore processing component on March 4, 2001. The state-waters Pacific cod fishery opened seven days following on March 11 and has remained open since. The federal CGOA did reopen to Pacific cod fishing on September 1, 2001. However, as the total GHF had not been harvested in the state-waters season, state waters did not reopen to a parallel federal season. The harvest of cod from state waters of the Kodiak Area in the parallel fishery through September 30 totaled 5.2 million pounds (2,358 mt) (Table 9). Pot gear accounted for the majority of harvest in the Kodiak fishery, with approximately 2.7 million pounds (1,260 mt) landed. The amount of Pacific cod harvested with trawl gear was well below levels seen prior to the implementation of SSL measures. There are several reasons for the reduction in Pacific cod harvest with trawl gear. Additional waters within the Kodiak Area were closed to non-pelagic trawling in 2000 by the BOF. Additionally, conservation measures taken to preserve prey fields for endangered SSL closed areas to pelagic trawling significantly reducing the amount of Pacific cod bycatch. A variety of vessel sizes participated in the Kodiak parallel fishery, with a large number of small longline and mid to large-sized pot vessels composing most of the fleet (Figure 9).

2001 Chignik Area

The parallel season in the Chignik Area closed to directed fishing for the inshore processing component on March 4, 2001. As was the case in the Kodiak Area, the state-waters quota had not been fully attained when the scheduled federal reopening of the CGOA occurred on September 1. Therefore, state waters remained under state-waters rules while the federal fishery opened beyond three nautical miles. Through September 30, the catch from the state waters of the Chignik Area was 0.2 million pounds (108 mt) (Table 10). Pot gear accounted for the majority of harvest in the Chignik Area with minor amounts taken by longline and pelagic

trawls. Significantly fewer vessels participated in the parallel season in the Chignik Area compared to the Kodiak fishery. The majority of vessels in the Chignik Area fishery were smaller than 58 feet length overall (Figure 9).

BLACK ROCKFISH FISHERIES

Historic Background

Black rockfish were of low market interest and generally not harvested in the Kodiak area until 1990. The catch jumped to 874,718 pounds (381 mt) in 1991 as operators fished on previously unexploited populations (Table 11). 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 from the city of Kodiak. Fishery performance fell sharply in the following years presumably due to low fish abundance. Lower value for fish and alternative fisheries may have been additional factors that limited production after 1991. There was also concern that localized depletion could occur very easily on this long-lived, low-fecundity fish. Harvests during the 1992-1997 period averaged 250,000 pounds (109 mt) 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 200,000 pounds (91 mt) from the Chignik Area (Table 12).

The black rockfish fisheries were managed by NMFS during the period before 1997. Black rockfish were part of the pelagic shelf rockfish group that included dusky *S. ciliatus*, yellowtail *S. flavidus*, and widow rockfish *S. entomelas*. 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. ADF&G was concerned with the harvest of black rockfish in several areas during that period. In some cases, the department would close state waters by emergency order. Adjacent federal waters often did not close, however. Although the majority of the black rockfish resource is in state waters, enforcement of closures became a problem. Landings continued from state waters with federal statistical areas being reported on fish tickets. Those reports were not always credible.

ADF&G submitted a Fisheries Management Plan amendment to the NPFMC that would relinquish black rockfish management within the EEZ in the GOA to the State of Alaska. This amendment was passed and implemented effective April 5, 1998. As an interim measure, the NPFMC separated black rockfish from the pelagic shelf group in 1997. This enabled federal fishery managers to place a 260 mt (573,201 pound) 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 were set at 75% of average production from 1978-1995.

ADF&G fishery managers applied this 260 mt limit split into fisheries in the Cook Inlet, Kodiak, and Chignik Areas to set preseason guidelines for state waters in 1997. Harvest levels were set low enough to accommodate potential black rockfish bycatch in other fisheries and not exceed the 573,201 pound (260 mt) total. Assigning GHs to areas within the Central Gulf was aimed at distributing the effort and avoiding intense localized effort that could lead to long-term harm

to the stocks. In 1997, the total directed harvest GHL for the Kodiak Area state waters was set at 170,000 pounds (77 mt). The GHL was further divided into four sections; three that encompassed the areas of historic harvest and one additional section with a low GHL to allow for exploration into previously unexploited waters. The Chignik Area directed harvest GHL for state waters was set at 100,000 pounds (45 mt).

In 1998, the State of Alaska assumed management of black rockfish from shore to the 200 nm EEZ boundary. The Kodiak Area was further subdivided into seven sections, each with individual GHLs. The areas were loosely based on existing Tanner crab management sections and modified into sections that equally divided the highest historic effort. The Chignik Area remained as an individual management unit. The areas and sections established for the 1998 fishery have remained in use through 2001 and are shown in Figure 10.

2001 Kodiak Area

The fishery opened on January 1, 2001. Minimal harvest effort was expected in January. The department issued a news release on February 5, 2001, before the onset of heavy fishing activity, specifying a directed fishing GHL of 185,000 pounds (83 mt) for the Kodiak Area. The Kodiak Area GHL was divided into seven fishing sections with individual GHLs to distribute the catch (Figure 10, Table 13).

A general trend has emerged in the black rockfish fisheries over the past few seasons where directed effort has begun earlier each year (Figure 11). In 2001, the majority of the harvest in the Kodiak Area occurred in March. Five of the seven Kodiak Sections in the area closed between the onset of effort in late February and March 29. This compares to 1998 when most section closures occurred in May (Figure 11).

The Northeast Section closed on February 23, 2001. Eight vessel operators had made directed landings of black rockfish for a total of 18,444 pounds (8 mt). In previous years, the Northeast Section had also been the first section to close, owing much to its proximity to the City of Kodiak and some areas accessible to smaller vessels in moderately foul weather. However, unlike previous years, the Northeast Section closed to directed harvest before the state-waters Pacific cod fishery opened.

The Eastside Section closed next, on March 6, 2001. Seven vessel operators made directed landings totaling 38,639 pounds (18 mt). This exceeded the directed fishery GHL by 22%, with nearly 25,000 pounds (11 mt) of directed harvest taken in a 24-hour period. Some individual vessels had individual landings ranging from 2,500 pounds (1 mt) to as high as 12,000 pounds (5 mt).

Effort was divided between the Afognak and Southeast Sections after the closure of the Eastside Section. Again, favorable weather and good catches resulted in a 24-hour period where a tremendous amount of harvest occurred. In the Southeast Section, over 30,000 pounds (14 mt) were harvested in one day. The directed fishery harvest totaled 52,201 pounds (24 mt) and the section closed on March 19, 2001. Seven vessels participated in the directed fishery. More vessels participated in the Afognak Section, but harvest rates were slower and seemed down from previous years. With deliveries averaging approximately 1,000 pounds (0.5 mt), the Afognak Section closed on March 20.

Effort was less in the Southwest Section. Many of the vessels targeting black rockfish had either switched to fishing for Pacific cod in the state-waters season or had moved their rockfish operations west to the Chignik and South Alaska Peninsula Areas. The Southwest Section closed on March 29 with 9,359 pounds (4 mt) harvested. Several vessels believed to be fishing in the section when the closure was projected did not fare as well as anticipated or were simply no longer fishing for rockfish. Without definitive means to assess effort and harvest levels inseason, some assumptions were made by ADF&G in projecting the closure. This resulted in a harvest less than the preseason GHL being taken.

Sporadic effort occurred in the Mainland and Westside Sections following the closure of the Southwest Section. Historically, minimal effort has occurred in these two sections. In May, some vessels en route to the Chignik Area participated in the Mainland Section and harvested the remaining GHL. The Mainland Section closed on May 22. Two vessels fished the remaining Westside GHL pounds, attaining that section GHL in July and closing the section on the 30th. This was the first time since the State of Alaska assumed management of black rockfish that all seven of the Kodiak Area sections closed because the GHGs had been attained before December 31. Up to 5% bycatch per target species weight has been allowed after the directed fishery closures, however, harvest as bycatch has been minimal. The highest areas of harvest were along Kodiak Island's eastside (Figure 12). The vast majority of the harvest in the Kodiak Area was directed effort; a modest bycatch harvest of 12,877 pounds had occurred through September 30 (Table 13.)

In previous Kodiak Area black rockfish fisheries, there were a large number of vessels participating and the average delivery was small, generally less than 1,000 pounds (0.5 mt) before 2000. Much of the black rockfish quota was harvested during the state-waters Pacific cod fishery. The average landing in 2001 was 1,170 pounds (0.5 mt), up from 838 pounds (0.4 mt). In the 2001 fishery, there were fewer participants but an increase in the average size of landing. This can be attributed to the small number of vessels making large landings, some exceeding 12,000 pounds (5 mt) Figure 13.

Fifteen vessels had directed harvest landings of black rockfish in the 2001 Kodiak fishery. This was a reduction from the 49 vessels directing their effort towards black rockfish in 2000. The average directed harvest landing was 2,275 pounds (1 mt) compared to just under 2,000 (0.9 mt) in 2000.

Other trends have emerged in the past few seasons in the Kodiak Area. As previously mentioned, vessels have started their fishing efforts earlier in the year each year since 1996 (Figure 11). In 2000, some harvests occurred prior to the opening of the state-waters Pacific cod fishery on March 21. The 2001 fishery harvested more than 100,000 pounds (45 mt) before the state Pacific cod season opened on March 11. Again, this was a result of a small group of vessels that began targeting black rockfish earlier in the year and with great success.

As was the case in 2000, several vessels were able to make very large individual landings in a short period. Predicting these times was not possible, as vessels fishing for black rockfish were not required to register for an individual groundfish species or management areas. Nor was it possible to keep a radio schedule with the fleet to obtain updated information from the grounds. The participating vessels were generally too small to have dependable SSB communications. On any day, it was unknown which portion of the jig fleet was targeting black rockfish, Pacific cod,

or fishing at all. In some cases, these periods of short, intense harvest caused section GHGs to be exceeded even when checking for the most recent landing information with processors several times a day. The daily landing volume varied from no landings for several days in a row to over 15,000 pounds (7 mt) per day (Figure 14). Some harvest of black rockfish occurred as bycatch to the Pacific cod fishery on some days with no directed landings. Again, there is a high degree of day to day variability in volume landed that can be seen through out the course of the 2001 fishery (Figure 15).

ADF&G has proposed measures aimed at improving management precision for the Kodiak Area black rockfish fishery. These include a single species black rockfish registration so that directed effort can be anticipated. Another proposal would set weekly trip limits to reduce the possibility of exceeding any section GHGs. In addition, ADF&G is asking for section descriptions to be placed in regulation for ease of reference; there are no regulatory descriptions for the management sections that have been in use since 1998 (Figure 10). The proposed sections contain only minor changes to align section with existing statistical area boundaries (Figure 16). With sections listed in regulation, ADF&G may also implement section registration if necessary to determine current effort levels.

2001 Chignik Area

The first reported landings in the 2001 Chignik Area black rockfish fishery occurred in early April, subsequent to the state-waters Pacific cod fishery opening. During the month of April, weekly harvest was characterized by small landings by a few vessels each week (i.e. less than 200 pounds 0.1 mt per delivery). Periodically, larger deliveries exceeding 1,000 pounds (0.5 mt) occurred. These larger deliveries were primarily made by boats that had targeted black rockfish in the Kodiak Area and were moving west following closures of many of the Kodiak Sections.

The first week of May began a period when fishing effort increased. Landings were primarily being made by a group of vessel operators targeting black rockfish. In some cases, these boats were fishing in both the South Alaska Peninsula and Chignik Areas under a Westward Region Groundfish Registration and delivering totals in excess of 20,000 pounds (9 mt) from the two areas. Bycatch of black rockfish delivered from state-waters Pacific cod deliveries continued at a rate of a few hundred pounds a delivery. The cumulative harvest was approximately 30,000 pounds (14 mt) after the first week of May.

Harvest rates would vary over the rest of May, with a total of approximately 60,000 pounds (27 mt) being taken during the month. In early June, two very large deliveries were made bringing the total harvest to approximately 87,000 pounds (39 mt). With favorable weather on the grounds and the expectation that large deliveries were to continue, a closure was announced for June 5, 2001.

The final harvest indicated on fishtickets is 102,904 pounds (47 mt) (Table 10). The majority of the 2001 harvest was made by the eight vessel operators directing their effort on black rockfish. The total directed harvest in 2001 was 101,151 pounds (46 mt). The average delivery was 2,940 pounds (1 mt); bycatch deliveries averaged 219 pounds (0.1 mt) while directed harvest deliveries averaged 3,746 pounds (2 mt). The entire 2001 Chignik Area quota was harvested by vessels using jig gear. Harvest was concentrated in Chignik Bay and near Cape Kuyuyakak (Figure 12, Table 14).

The 2001 Chignik Area black rockfish fishery occurred earlier in the year than previous fisheries (Figure 17). Nearly all of the harvest was made by vessel operators directing their effort specifically towards black rockfish (Figure 18). Many of the directed effort vessels were boats that participated in all the black rockfish fisheries in the Westward Region. A highly variable daily landing rate contributed to the difficulty managing the fishery from harvest data. As the 100,000-pound (45 mt) GHL was larger than quotas for smaller sections in the Kodiak Area, there was a bit more margin in accommodating very large volume deliveries. Daily landings from the 2001 Chignik Area fishery are illustrated in Figure 19. Several vessels participated simultaneously in the South Alaska Peninsula Area and in the Chignik Area. These same vessels often delivered in different locations, making it difficult to know when or where they might be fishing and where their next deliveries would occur.

It should be noted that some complaints from within the fleet were made towards a number of vessels for using the opportunity to simultaneously fish both areas and misreport harvest locations. These complaints were brought to the attention of Fish and Wildlife Protection (F&WP). The potential problem was reported after the fishery was all but finished. The allegations charged that boats reported half of their harvest from the South Alaska Peninsula Area to prolong the season in the Chignik Area. ADF&G managed the fishery based on the numbers reported on fishtickets and, ultimately, both sections were closed within 2% of the GHL.

The department has proposed several management measures for the Chignik Area. These include the creation of management sections to distribute harvest and area registration requirements to eliminate the ability to fish in both the Chignik and South Alaska Peninsula Areas at the same time. Three management sections are proposed (Figure 16 to subdivide the existing Chignik Area (Figure 10). The proposed sections would allow for the establishment of GHGs to distribute effort, dividing areas of historically high effort, much like what was done in the Kodiak Area prior to the 1998 fishery.

Harvest Monitoring

Black rockfish harvests are monitored through fish ticket records and dockside sampling of commercial catches. The information collected by dockside samplers is similar to that collected in other state-waters fisheries. Information on fishing location and effort as well as fish length, sex, reproductive maturity, and otoliths for aging are collected. Mean size of black rockfish sampled from landings in the Kodiak Area was 46.2 cm while smaller fish were harvested in the Chignik Area at an average of 41.9 cm (Figure 20).

Aging analysis of collected otolith samples has been completed for the data through 1999. This data shows two prominent age classes present in the Kodiak Area commercial fisheries (Figure 21). In the 1999 data, one prominent group of samples occurs around 20 years old with another around eight years old with minor groups at age 13 and 24. These modes have tracked well through annual data collections from the fisheries. The mode at 8 years has only recently recruited to the commercial fishery. Though not presented in graphical form, data from Chignik Area fishery has followed the patterns seen in the Kodiak fishery. Chignik was not presented, as the data set is very small and, in some years, absent due to a lack of fishing effort in the area. It should also be noted that there is not a direct correlation in length and age. Age and size at 50%

maturity is approximately 6-8 years old with corresponding total lengths of 38-42 cm in studies conducted of the coast of California (Echeverria 1987). No such studies have been conducted in the Gulf of Alaska.

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Table 1. Catch, effort, and value from the Westward Region state-waters Pacific cod fisheries, 1997-2001.

Year	Vessels	Landings	GHL ^a	Pounds harvested	Price/Pound	Fishery value	Avg. Weight (lbs.)
Kodiak Area							
1997	105	710	8.5	7,600,571	\$0.23	\$1,748,131	9.1
1998	129	979	8.1	8,279,269	\$0.23	\$1,904,232	8.5
1999	179	1,284	11.7	10,781,817	\$0.37	\$3,989,272	8.1
2000	231	1,824	12.0	8,635,207	\$0.43	\$3,713,139	7.5
2001 ^b	94	680	10.6	4,529,138	\$0.31	\$1,404,033	7.0
Chignik Area							
1997	12	74	5.9	1,143,261	\$0.18	\$205,787	7.5
1998	44	297	5.7	5,609,498	\$0.20	\$1,121,900	6.3
1999	43	450	8.2	6,454,215	\$0.22	\$1,419,927	6.4
2000	22	175	6.7	1,775,779	\$0.30	\$532,734	6.1
2001 ^b	25	167	6.0	2,395,636	\$0.27	\$646,822	7.9
South Alaska Peninsula Area							
1997	88	642	9.4	9,370,498	\$0.18	\$1,686,690	7.0
1998	69	421	9.0	8,639,769	\$0.17	\$1,468,761	7.3
1999	75	552	13.0	11,880,116	\$0.26	\$3,088,830	11.3
2000	94	671	15.1	15,133,686	\$0.29	\$4,388,769	6.8
2001 ^b	121	772	13.4	13,411,106	\$0.25	\$3,352,777	7.2
Westward Region Total							
1997	205	1,426	23.8	18,114,330	\$0.20	\$3,562,485	
1998	242	1,697	22.8	22,528,536	\$0.20	\$4,505,707	
1999	297	2,286	32.9	29,116,148	\$0.28	\$8,249,575	
2000	347	2,670	33.8	25,544,672	\$0.34	\$8,685,188	
2001 ^b	240	1,619	30.0	20,335,880	\$0.28	\$5,626,260	

^a Guideline harvest level in millions of pounds.

^b Harvest data through 9/30/01. Source: ADF&G Fish ticket database.

Table 2. Kodiak Area state-waters Pacific cod fishery openings, 1997-2001.

Year	Pot Gear	Jig Gear
1997	<i>Fishery Dates:</i> April 4 - May 4 September 1 - September 30 October 28 - December 31	<i>Fishery Dates:</i> April 4 - December 31 October 28- December 31
	<i>Management Actions:</i> September 1 - reopened to pot gear October 31 allocation rollover - gear limits, exclusive registration area lifted.	
	<hr/>	
1998	<i>Fishery Dates:</i> March 17 - April 27 September 1 - December 31	<i>Fishery Dates:</i> March 17 - December 31
	<i>Management Actions:</i> September 1 - reopened to pot gear October 31 vessel size limit - gear limits, exclusive registration area lifted.	
	<hr/>	
1999	<i>Fishery Dates:</i> March 21 - April 27 October 6 - December 31	<i>Fishery Dates:</i> March 21 - August 31 October 6 - December 31
	<i>Management Actions:</i> October 6 - reopen to pot gear. (following CGOA opening) October 31 - gear limits lifted, exclusive registration area lifted.	
	<hr/>	
2000	<i>Fishery Dates:</i> March 11 - December 31	<i>Fishery Dates:</i> March 11 - December 31
	<i>Management Actions:</i> October 31 - limits on pots, jigs, and vessel size removed, exclusive registration area lifted.	
	<hr/>	
2001	<i>Fishery Dates:</i> March 11 - Ongoing at publication	<i>Fishery Dates:</i> March 11 - Ongoing at publication
	<i>Management Actions:</i> October 31 - limits on pots, jigs, and vessel size removed, exclusive registration area lifted.	
	<hr/>	

Table 3. Catch and effort, Kodiak Area state-waters Pacific cod fishery through September 30, 2001.

Gear	Vessels	Landings	Pounds	Price/Pound	Avg. Weight (lbs)
Pot	32	228	3,308,663	\$0.28	6.8
Jig	63	452	1,220,475	\$0.37	7.2
Total	94 ^a	680	4,529,138	\$0.33	7.0

^a One vessel fished both gear types.

Table 4. Catch by statistical area from the state-waters Pacific cod fishery in the Kodiak Area through September 30, 2001.

Statistical Area	Pounds	Vessels	Landings
525701	410,820	39	136
525703	89,206	4	15
525731	59,928	15	32
525733	109,855	27	100
525803	47,051	3	5
525806	11,101	7	9
525834	109,217	4	6
535601	102,917	8	17
535631	336,189	22	103
535633	145,599	6	12
535634	113,420	6	13
535701	4,160	3	3
535703	19,334	4	5
535706	570,440	13	37
535733	5,658	3	3
535734	24,612	8	14
535803	202,235	11	24
545601	111,446	3	7
545632	531,095	9	38
545701	80,970	4	6
545733	431,607	3	21
545734	296,219	6	21
545802	127,685	3	10
545803	81,199	4	7
555732	42,346	3	3
Other ^a	464,829	13	33
Total	4,529,138	94	680

^aTotal of 9 statistical areas.

Source: ADF&G fish ticket database.

Table 5. Chignik Area state-waters Pacific cod fishery openings, 1997-2001.

Year	Pot Gear	Jig Gear
1997	<p><i>Fishery Dates:</i> April 15 - June 15 August 1 - September 30 October 28- December 31</p> <p><i>Management Actions:</i> October 31 allocation rollover-vessel size limit, gear limits, exclusive registration area lifted.</p>	<p><i>Fishery Dates:</i> April 15 - June 15 August 1 - September 30 October 28- December 31</p>
1998	<p><i>Fishery Dates:</i> April 1 - April 26</p> <p><i>Management Actions:</i> May 20 reopened to jig gear. October 31 allocation rollover - gear limits lifted.</p>	<p><i>Fishery Dates:</i> April 1- April 26 May 20 - December 31</p>
1999	<p><i>Fishery Dates:</i> April 15 - September 1 October 5 - December 31</p> <p><i>Management Actions:</i> October 31 allocation rollover - limits on number of pots, jigs, and vessel size removed, exclusive area designation lifted.</p>	<p><i>Fishery Dates:</i> April 21 - September 1 October 5 - December 31</p>
2000	<p><i>Fishery Dates:</i> April 15 - December 31</p> <p><i>Management Actions:</i> October 31 - limits on number of pots, jigs, and vessel size removed.</p>	<p><i>Fishery Dates:</i> April 15 - December 31</p>
2001	<p><i>Fishery Dates:</i> March 11 - Ongoing at publication</p> <p><i>Management Actions:</i> October 31 - limits on number of pots, jigs, and vessel size removed.</p>	<p><i>Fishery Dates:</i> March 11 - Ongoing at publication</p>

Table 6. Catch and effort, Chignik Area state-waters Pacific cod fishery through September 30, 2001.

Gear	Vessels	Landings	Pounds	Price/Pound	Avg. Weight (lbs)
Pot	14	114	2,118,938	\$0.27	7.8
Jig	13	53	276,698	\$0.27	7.9
Total	25 ^a	167	2,395,636	\$0.27	7.9

^a Two vessels fished both gear types.

Table 7. Catch by statistical area from the state-waters Pacific cod fishery in the Chignik Area through September 30, 2001.

Statistical Area	Pounds	Vessels	Landings
575603	143,258	4	14
585531	636,557	6	18
585601	955,063	14	94
595531	362,943	10	37
Other ^a	297,815	6	12
Total	2,395,636	22	175

^aTotal of 3 statistical areas.

Source: ADF&G fish ticket database.

Table 8. Pacific cod harvest in millions of pounds from the Central and Western Gulf of Alaska , 1989-2001.

Year	NMFS Area	Vessels	Landings	Pounds	State Waters	
					Pounds ^a	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	1093	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	Central	575	6,225	96.7	24.3	25%
	Western	202	1,637	54.9	17.5	32%
1999	Central	644	6,309	103.0	32.8	32%
	Western	197	1,859	58.1	21.0	36%
2000	Central	674	6,334	78.4	21.6	28%
	Western	214	1,916	60.7	27.4	45%
2001	Central	487	4,183	49.0	13.5	28%
	Western	224	1,661	45.0	24.0	53%

^aTotal for all gear types, state-waters and parallel fisheries occurring in state waters.

Source: ADF&G fish ticket database, data through 9/30/01.

Table 9. Pacific cod harvest in pounds by gear type from Kodiak Area state waters during parallel federal seasons, 1997-2001.

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
1999	5,925,404	2,563,187	1,219,321	14,084	9,721,996
2000	4,335,868	3,574,916	249,225	78,876	8,238,885
2001 ^a	2,778,946	2,275,138	155,999	33,514	5,243,597

Table 10. Pacific cod harvest in pounds by gear type from Chignik Area state waters during parallel federal seasons, 1997-2001.

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
1999	585,239	3,623	39,704	1,875	630,441
2000	334,494	46,807	53,513	0	434,814
2001 ^a	237,722	1,359	8,315	0	247,396

^aHarvest data through 9/30/01.

Source: ADF&G fish ticket database.

Table 11. Catch and effort, Kodiak Area black rockfish fishery, 1990-2001.

Year	Vessels	Landings	Directed GHL	Total Harvest	Price (\$)
1990	12	NA	NA	66,709	0.22
1991	58	NA	NA	874,718	0.29
1992	45	NA	NA	487,208	0.25
1993	18	NA	NA	107,825	0.22
1994	19	NA	NA	128,507	0.25
1995	41	NA	NA	320,899	0.36
1996	52	NA	NA	311,992	0.32
1997	65	NA	NA	224,237	0.27
1998	74	277	190,000	201,318	0.32
1999	92	320	185,000	135,589	0.40
2000	95	346	185,000	256,266	0.41
2001	54	236	185,000	219,895	0.43

NA = Not Available

Table 12. Catch and effort, Chignik Area black rockfish fishery, 1990-2001.

Year	Vessels	Landings	Directed GHL	Total Harvest	Price (\$)
1990	0	0	NA	0	NA
1991	0	0	NA	0	NA
1992	0	0	NA	0	NA
1993	4	NA	NA	357	0.26
1994	0	0	NA	0	NA
1995	12	NA	NA	28,668	NA
1996	12	NA	NA	201,828	NA
1997	10	NA	NA	80,742	NA
1998	15	30	100,000	87,912	0.23
1999	15	41	100,000	11,437	0.25
2000	13	24	100,000	95,747	0.41
2001	14	35	100,000	102,904	0.34

NA = Not Available

Source: ADF&G fish ticket database.

Table 13. Black rockfish harvest from the Kodiak and Chignik Areas, 2001.

Area/District	Guideline Harvest Level ^a	Total Harvest ^b	Directed Fishery Closure Date	Directed Harvest ^c	Nondirected Harvest Total ^d
Kodiak Area					
Afognak	35,000	32,115	March, 20	31,227	888
Northeast	20,000	19,635	February, 23	18,443	1,192
Eastside	30,000	42,840	March, 6	38,639	4,201
Southeast	30,000	55,761	March, 19	52,201	3,560
Southwest	20,000	11,859	March, 29	9,359	2,500
Westside	30,000	28,504	July, 30	28,034	470
Mainland	20,000	29,180	May, 22	29,114	66
Total (Kodiak Area)	185,000	219,894		207,017	12,877
Chignik Area	100,000	102,904	June, 5	101,151	1,753

^a Directed fishery.

^b Includes directed effort and bycatch before and after directed fishery closure.

^c Harvest by vessels directing effort towards black rockfish.

^d Harvest incidental to other fishery targets, e.g., the state-managed Pacific cod fishery.

Source: ADF&G fish ticket database.

Table 14. Harvest, vessels, and landings by statistical area from the black rockfish fisheries in the Kodiak, and Chignik Areas, through September 30, 2001.

Kodiak Area			
Stat area	Pounds	Vessels	Landings
515801	2,956	4	4
525701	31,693	15	36
525702	718	5	5
525703	10,318	5	7
525731	10,158	9	20
525732	2,075	6	6
525733	7,217	14	28
525805	6,843	9	14
525606	15,708	8	17
535631	34,111	14	26
535634	7,327	4	4
535705	11,561	4	4
535732	17,539	7	13
535803	4,255	4	5
545602	3,417	4	4
Other ^a	53,999	25	43
Total	219,895	54	236

^a Total of 30 statistical areas.

Chignik Area			
Stat area	Pounds	Vessels	Landings
565633	26,410	4	4
585531	2,956	3	4
585601	23,731	4	9
595531	43,902	8	14
Other ^b	5,905	4	4
Total	102,904	14	35

^b Total of 4 statistical areas.

Source: ADF&G fish ticket database.

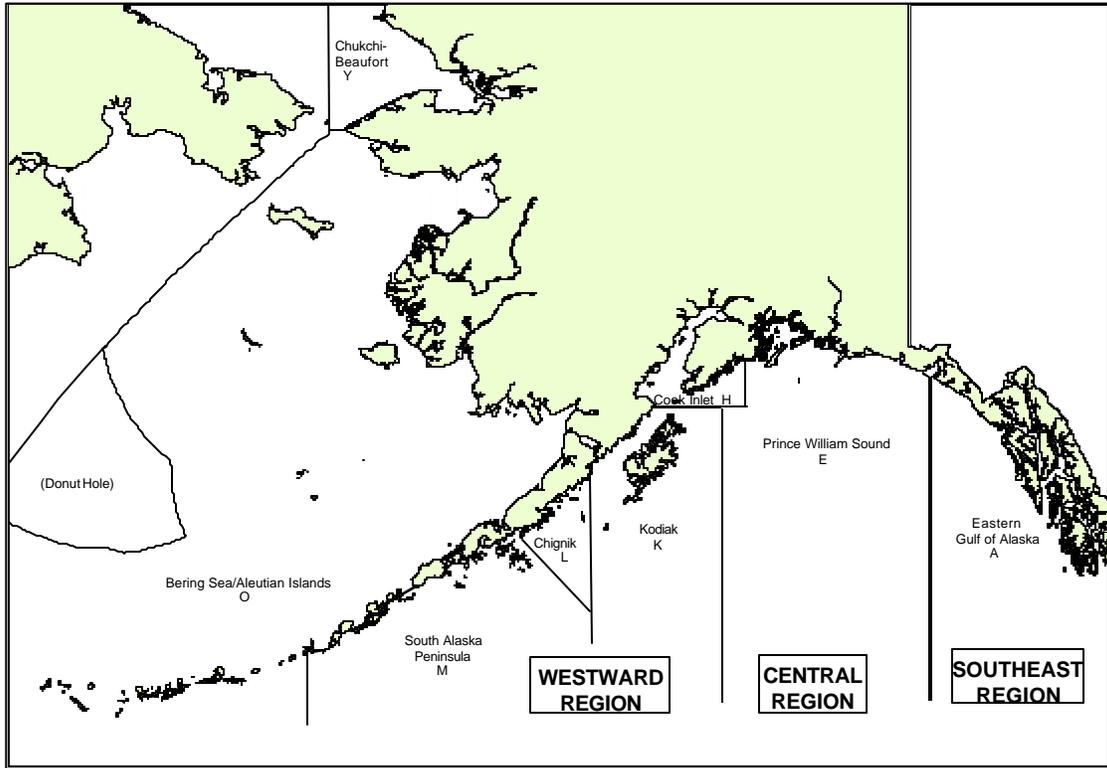


Figure 1. State of Alaska groundfish registration areas and regions.

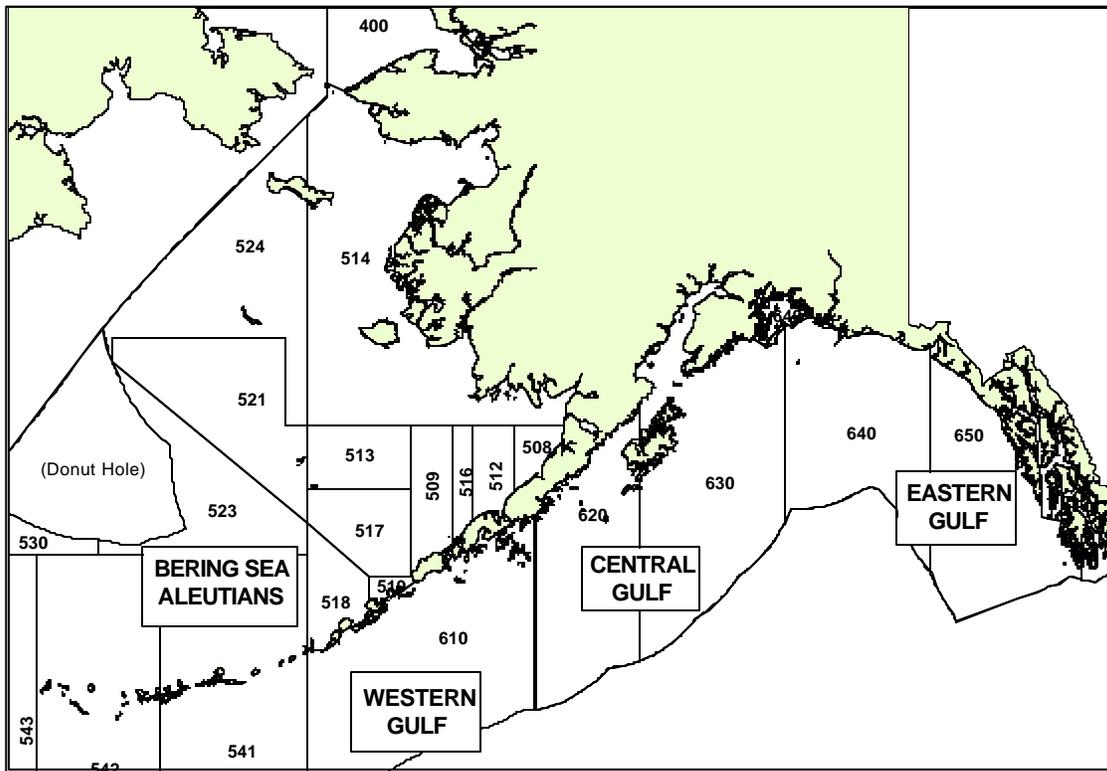


Figure 2. Federal groundfish management areas.

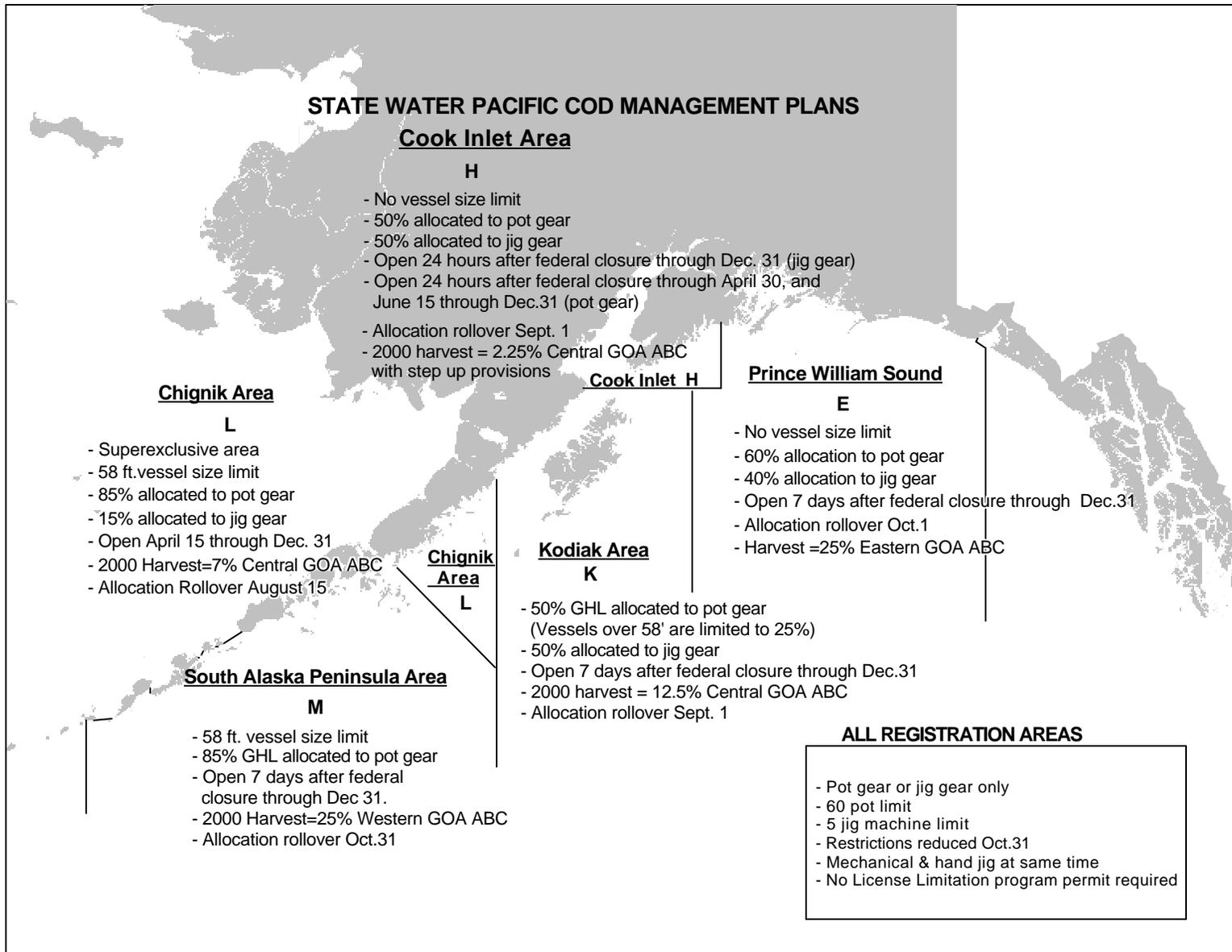


Figure 3. Elements of the state-waters Pacific cod fisheries, 2001.

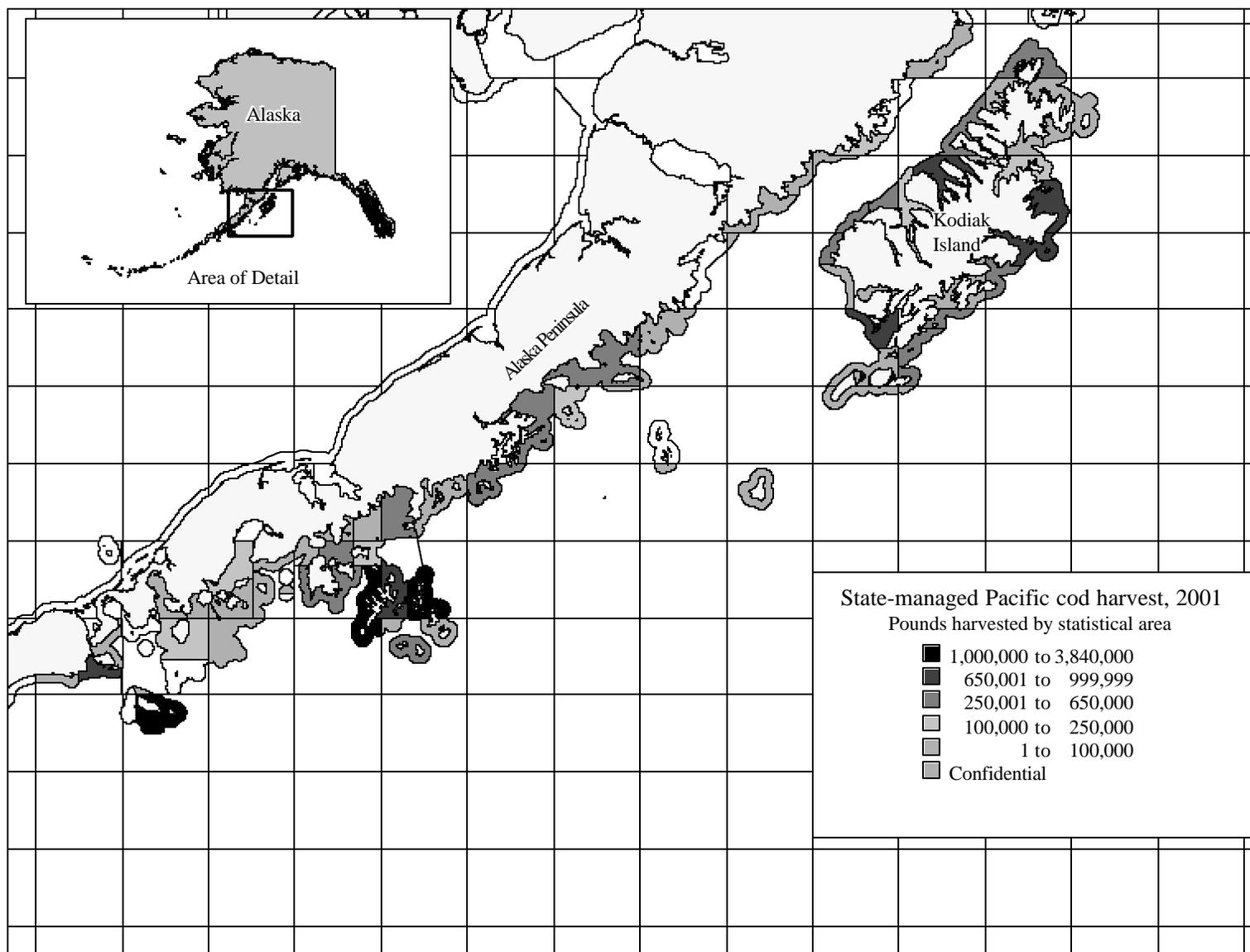


Figure 4. State-waters Pacific cod harvest from the Kodiak, Chignik, and South Alaska Peninsula Areas, through September 30, 2001.

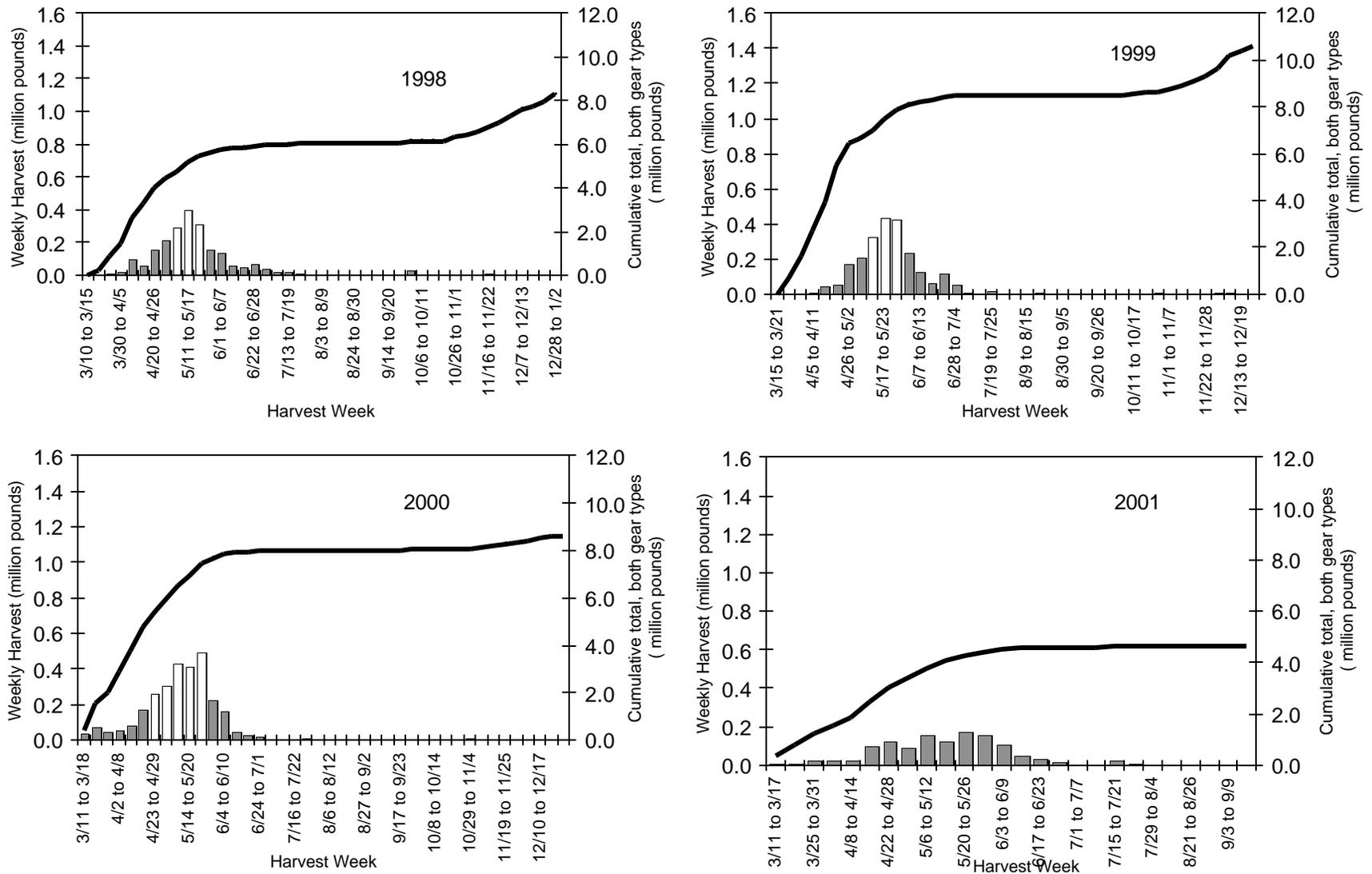


Figure 5. Kodiak Area state-waters Pacific cod harvest by fishery week, 1998-2001 ^a.

^a fishery data through September 30, 2001.



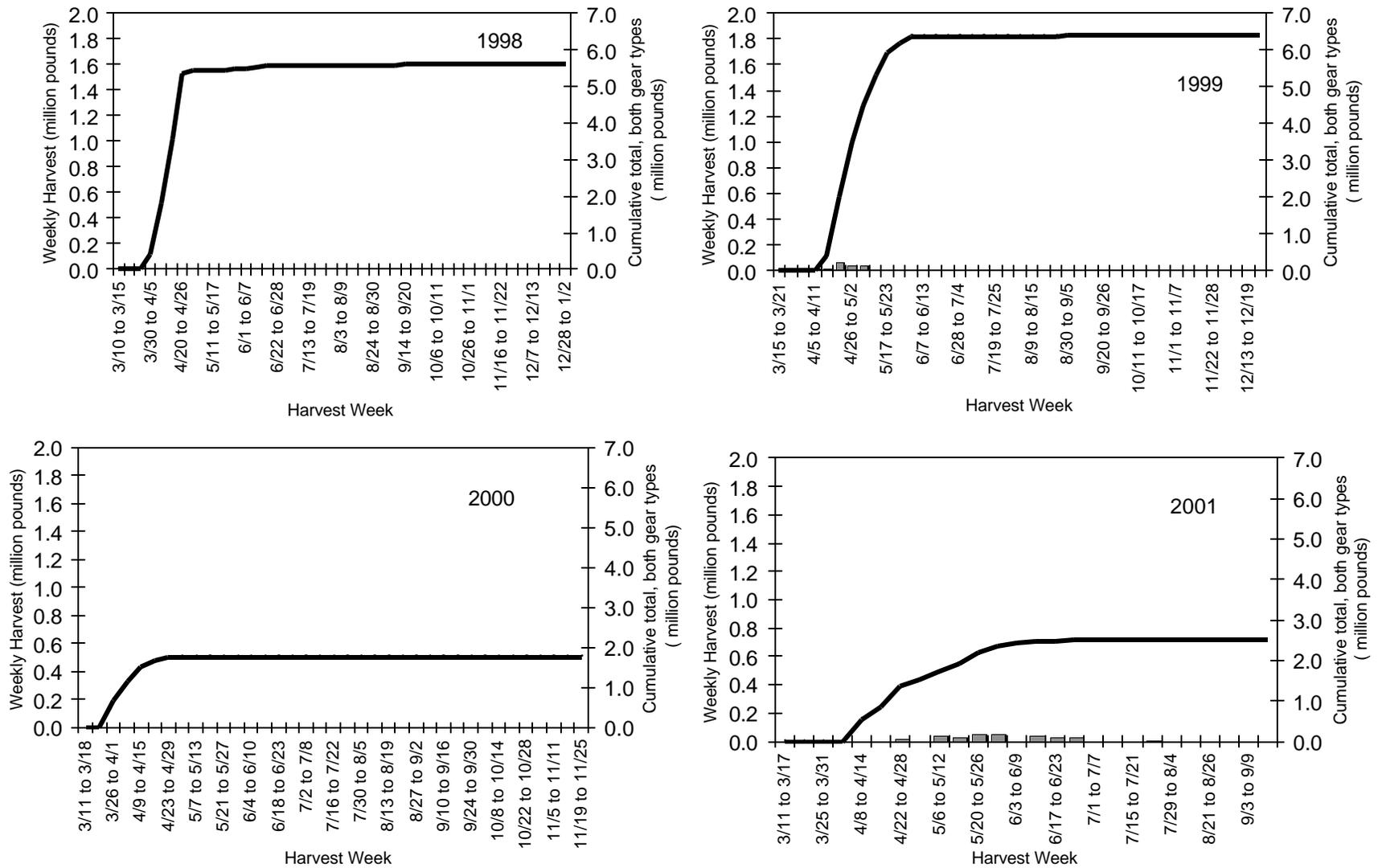


Figure 6. Chignik Area state-waters Pacific cod harvest by fishery week, 1998-2001 ^a.

^a fishery data through September 30, 2001.



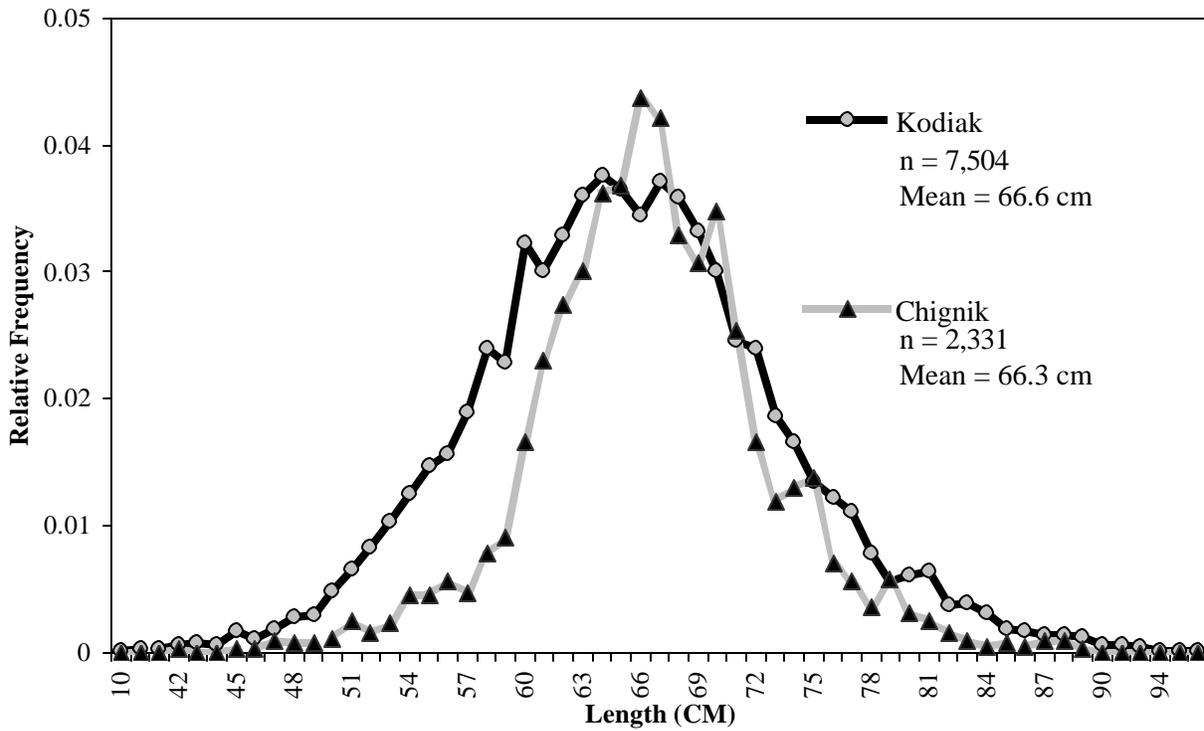


Figure 7. Pacific cod lengths collected from the state-managed waters in the Kodiak and Chignik Areas, 2001.

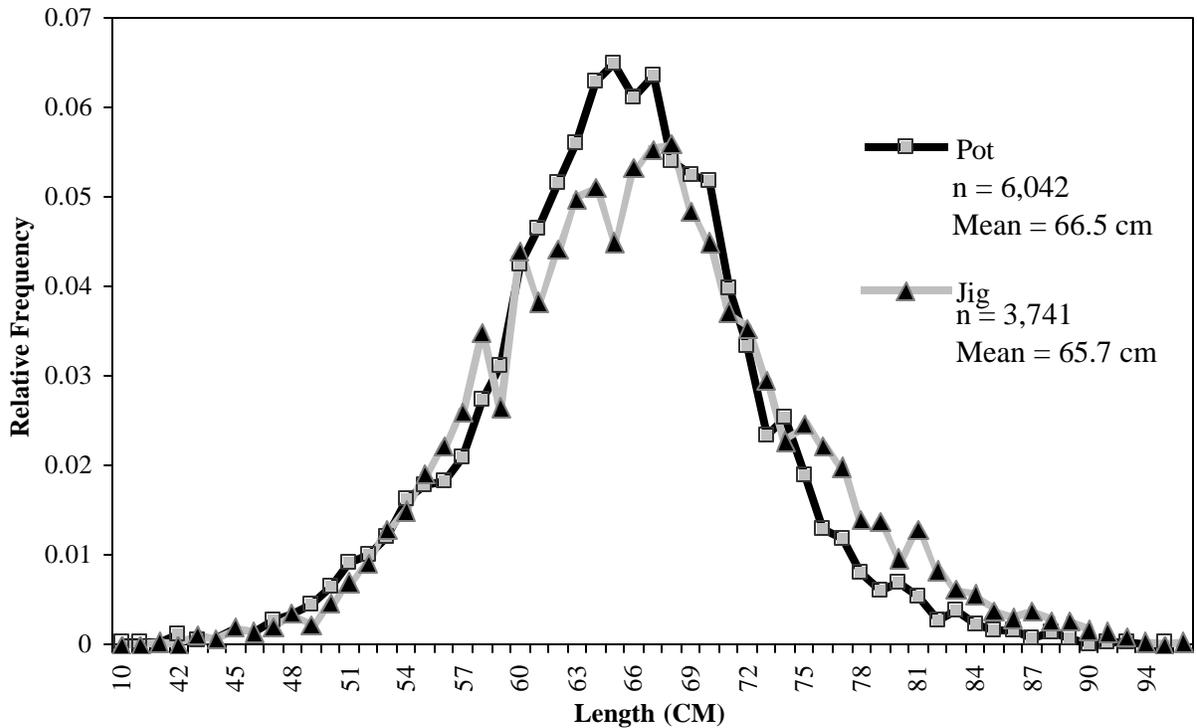


Figure 8. Pacific cod lengths by gear type collected from the state-waters fisheries in the Kodiak and Chignik Areas, 2001.

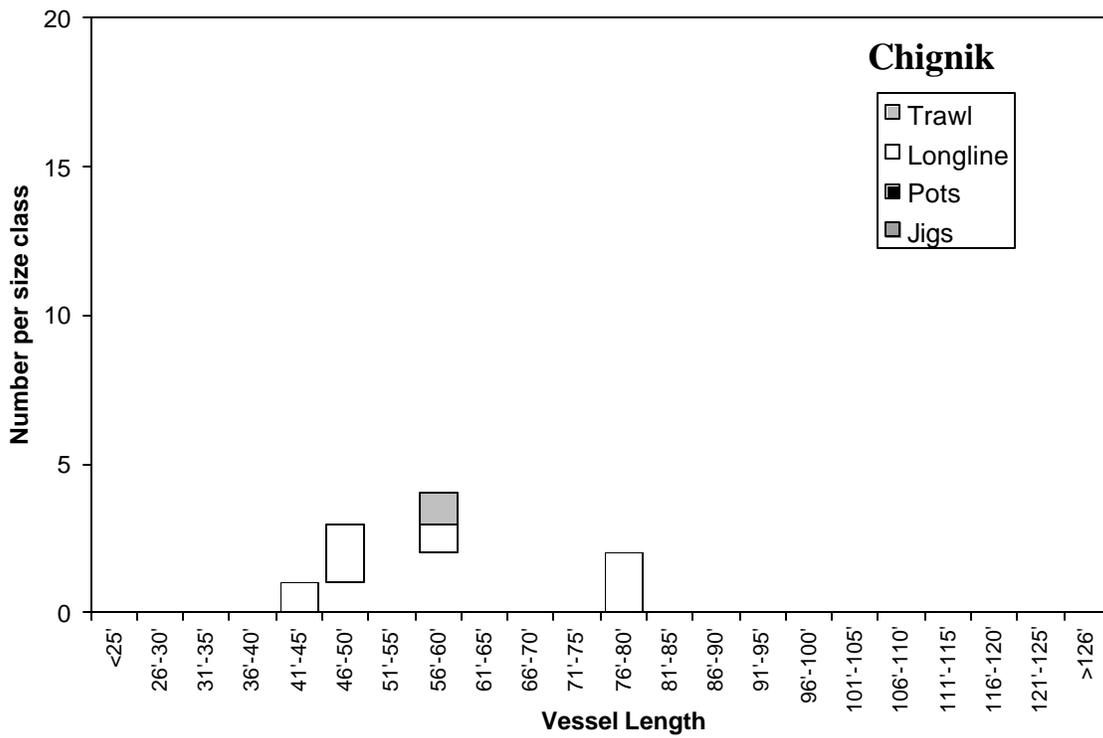
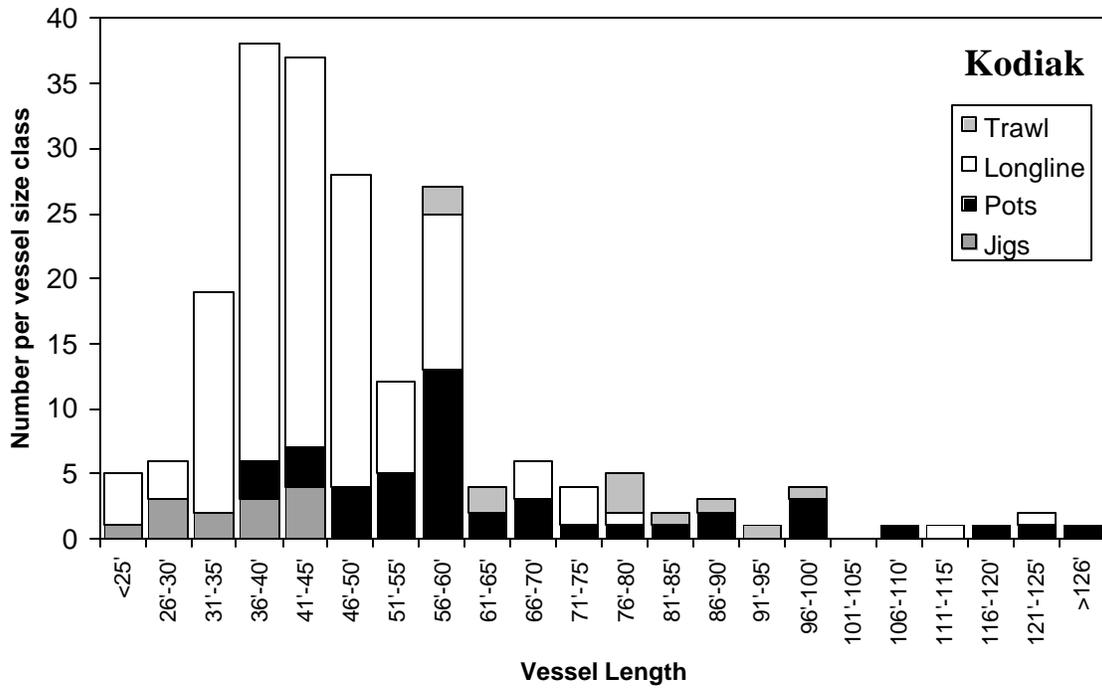


Figure 9. Parallel Pacific cod fishery participation by vessel length and gear type for the Kodiak and Chignik Areas state waters, 2001.

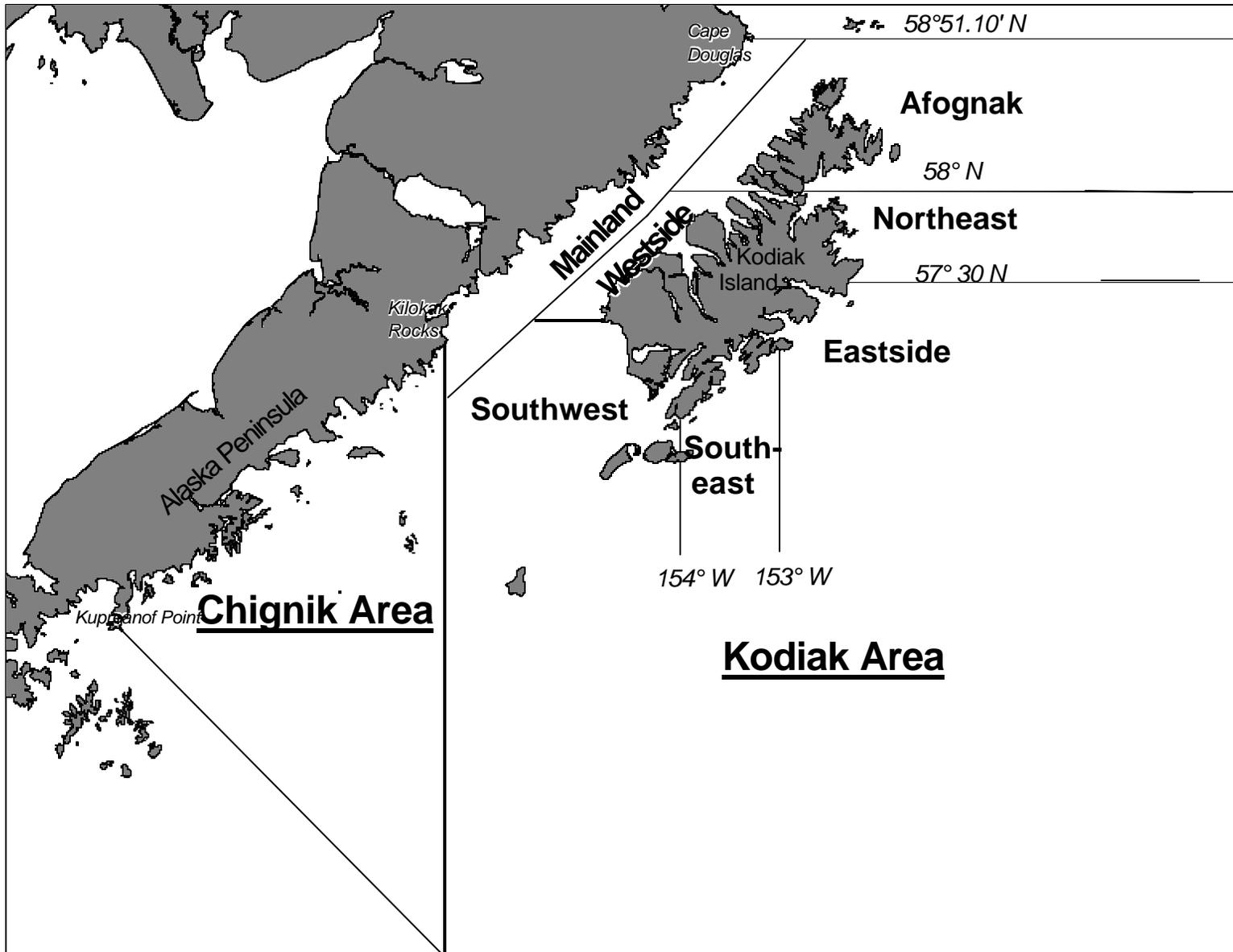


Figure 10. Kodiak and Chignik Areas and sections utilized for black rockfish management, 2001.

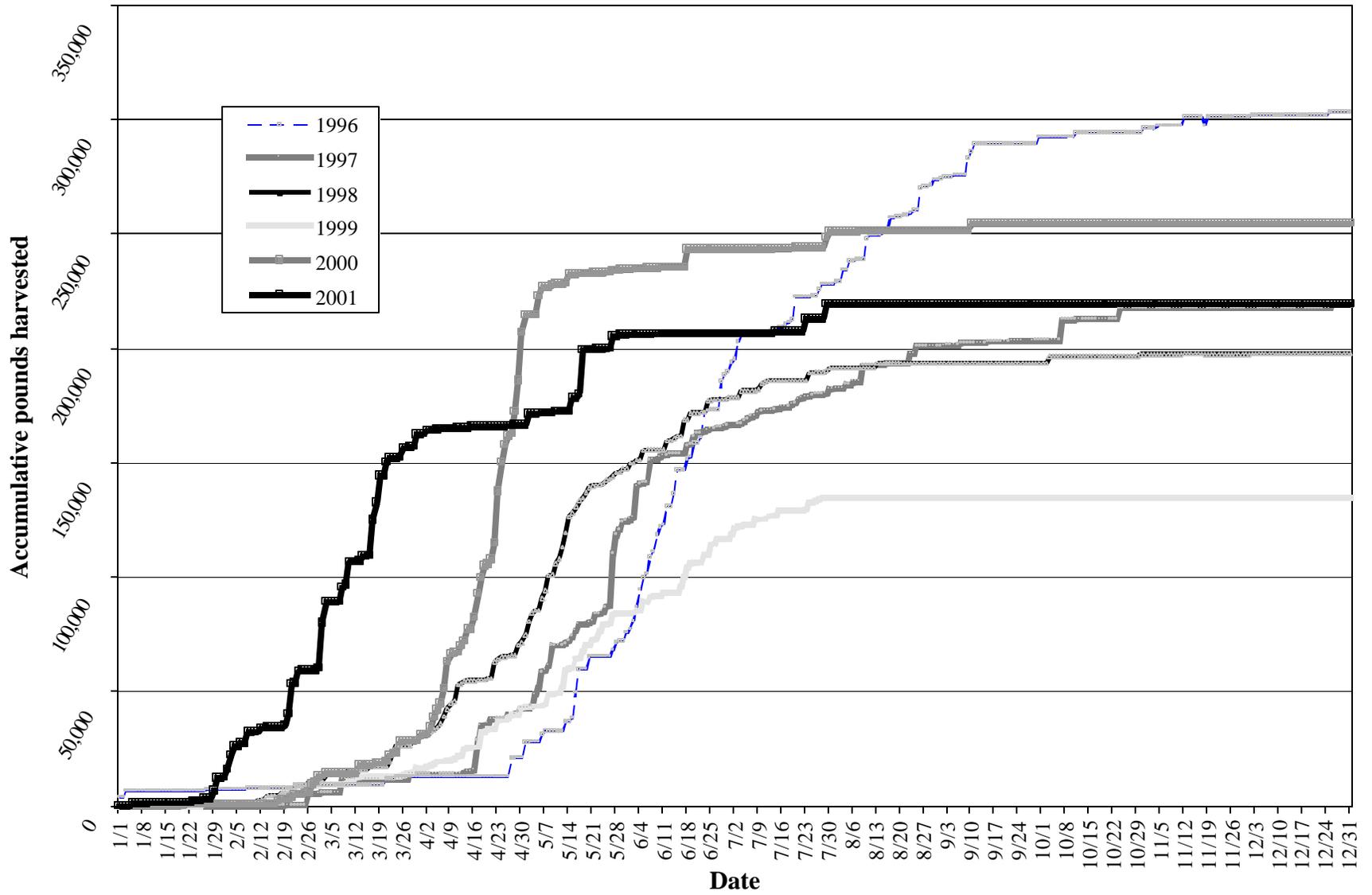


Figure 11. Kodiak Area black rockfish accumulative harvest by date per year, 1996-2001.

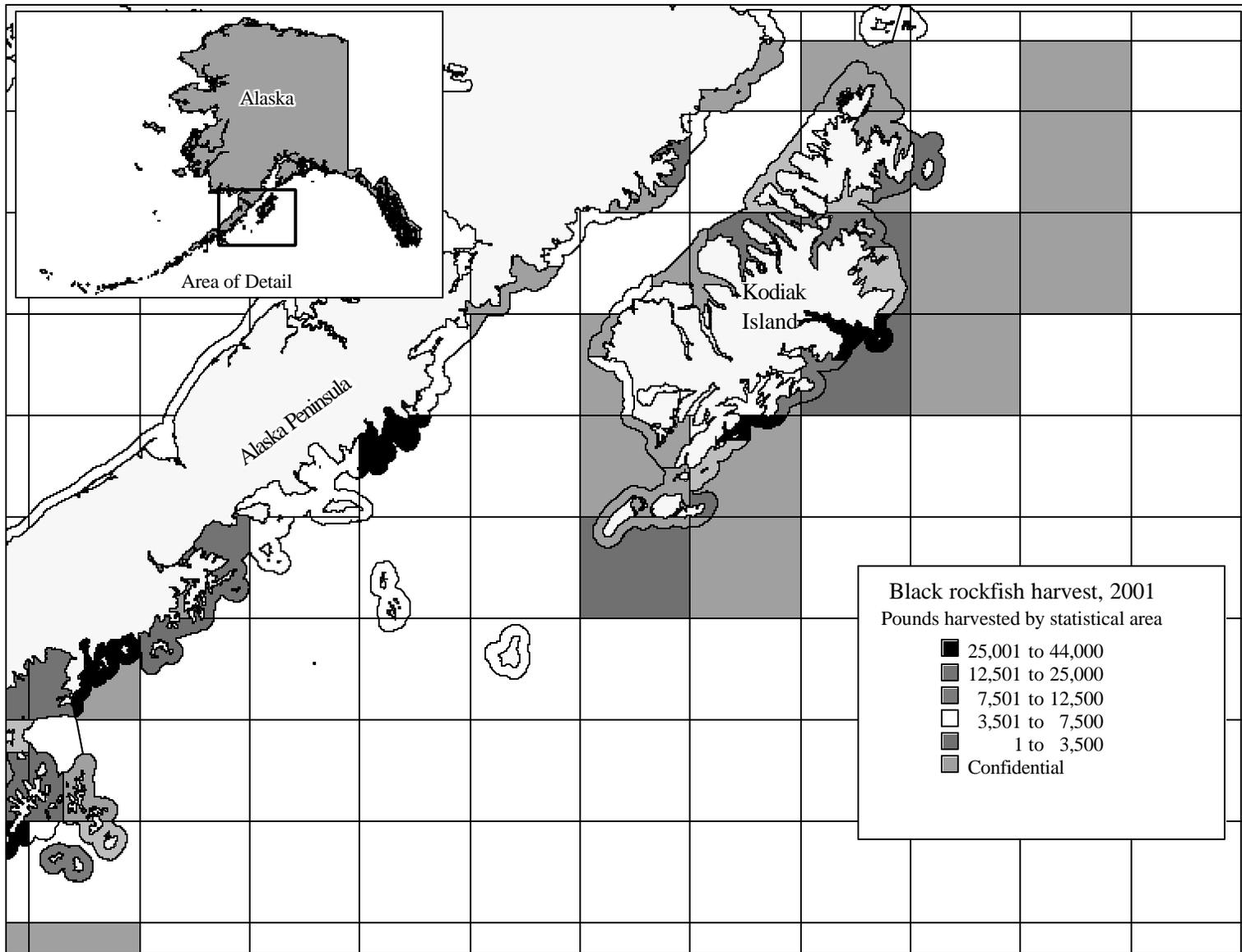


Figure 12. Black rockfish harvest by statistical area from the Kodiak and Chignik Areas, 2001.

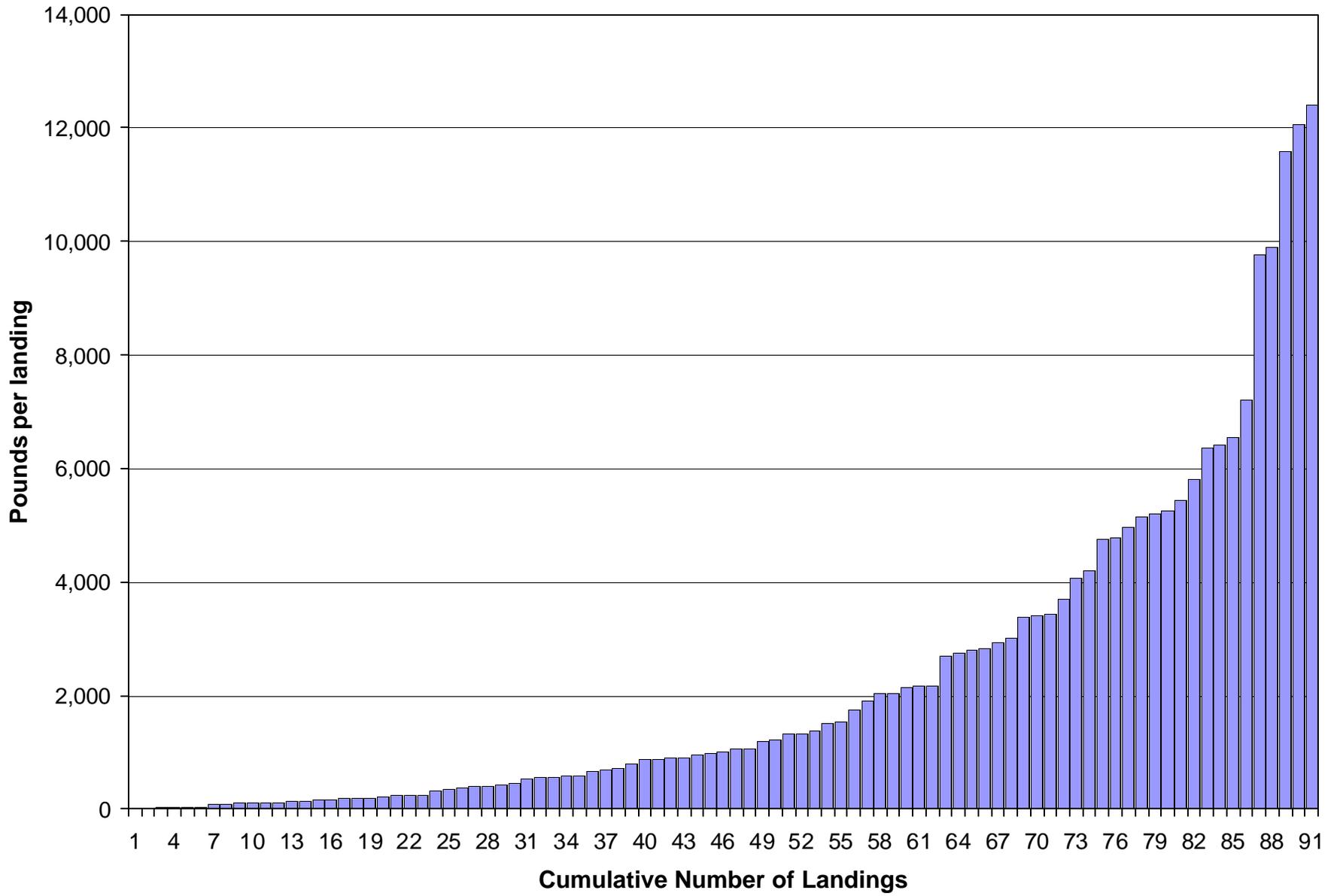


Figure 13. Directed black rockfish landings in the Kodiak Area fishery, 2001.

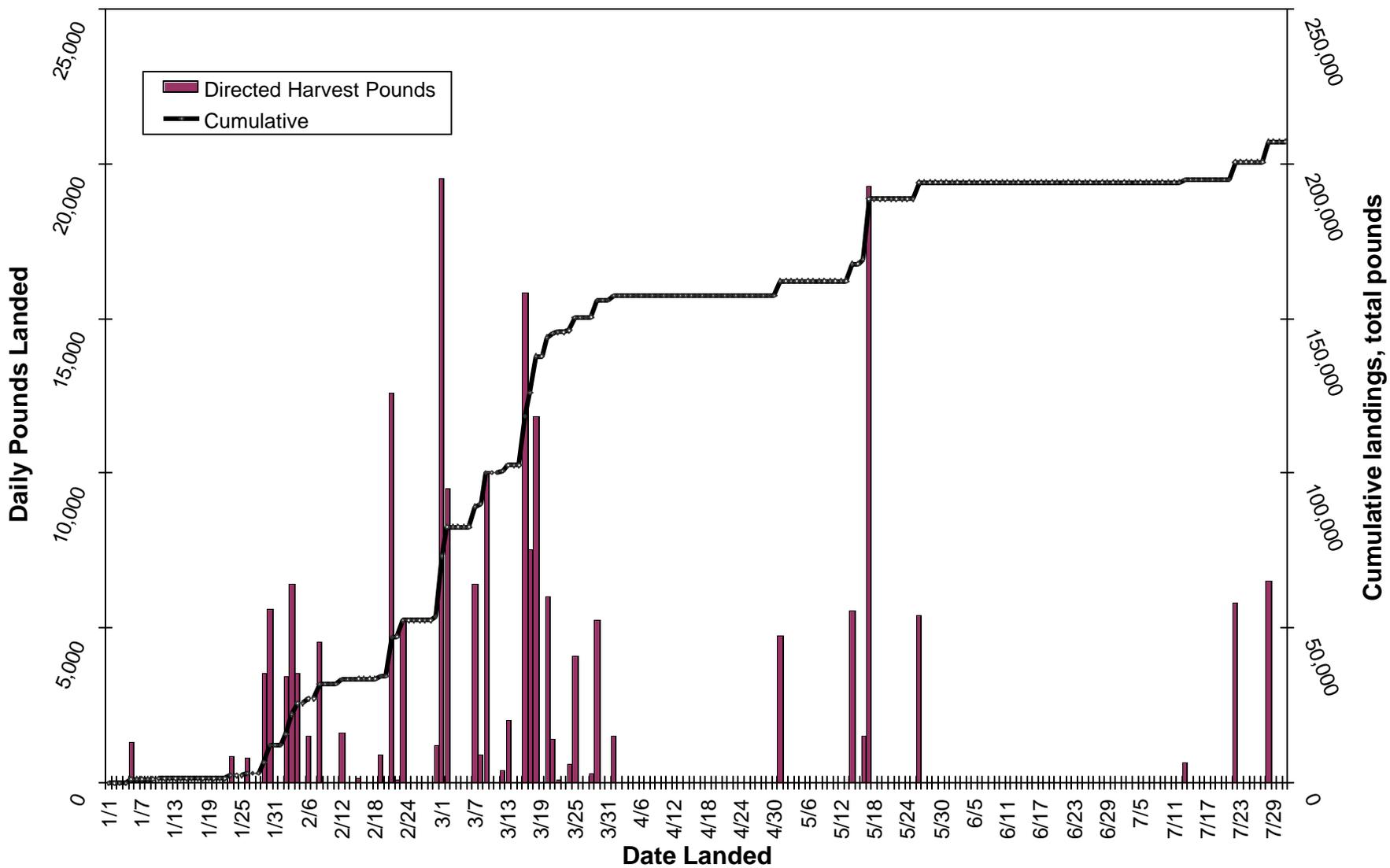


Figure 14. Directed and cumulative harvest of black rockfish in the 2001 Kodiak Area fishery by landing date.

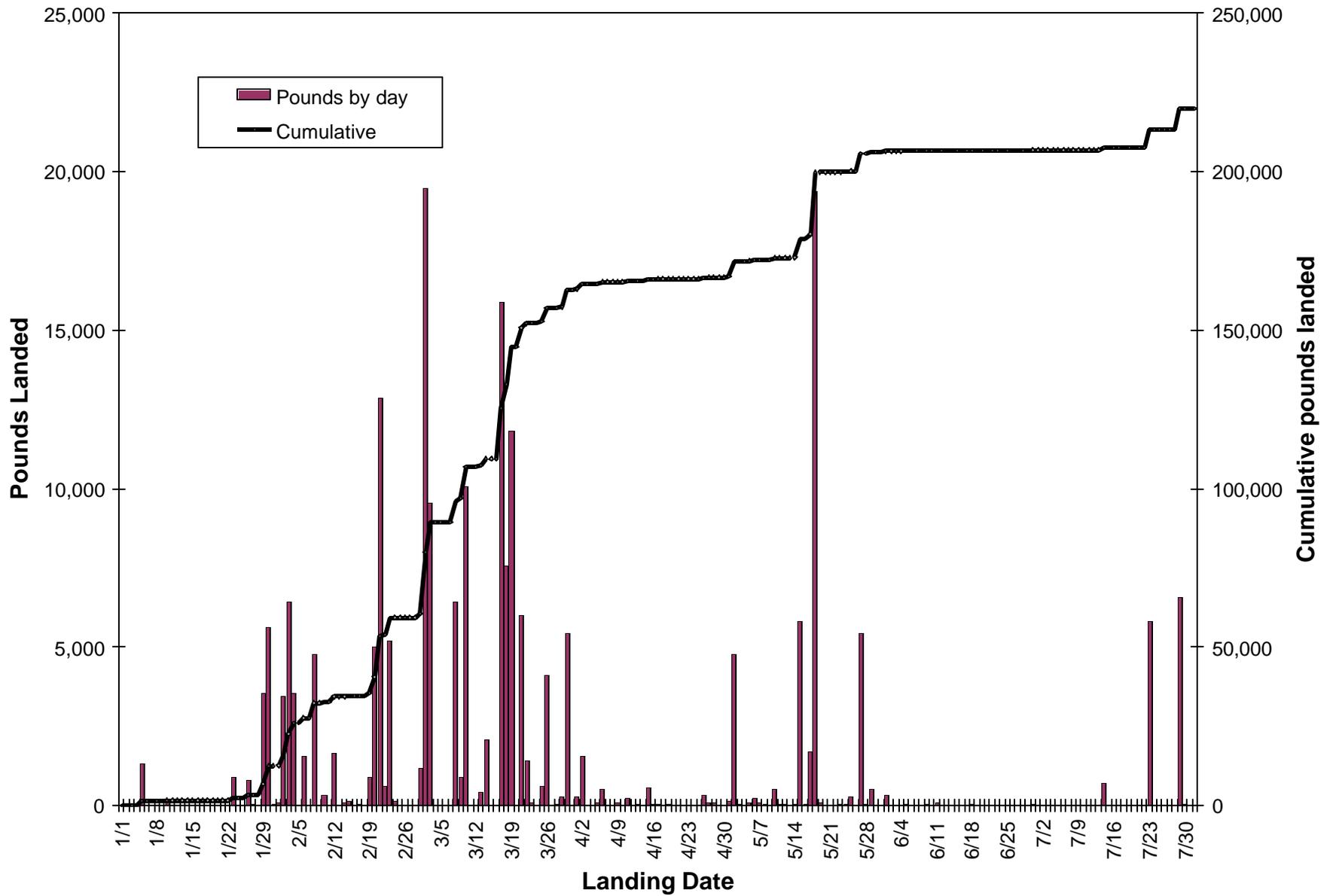


Figure 15. Kodiak Area black rockfish total and cumulative harvest by day, 2001.

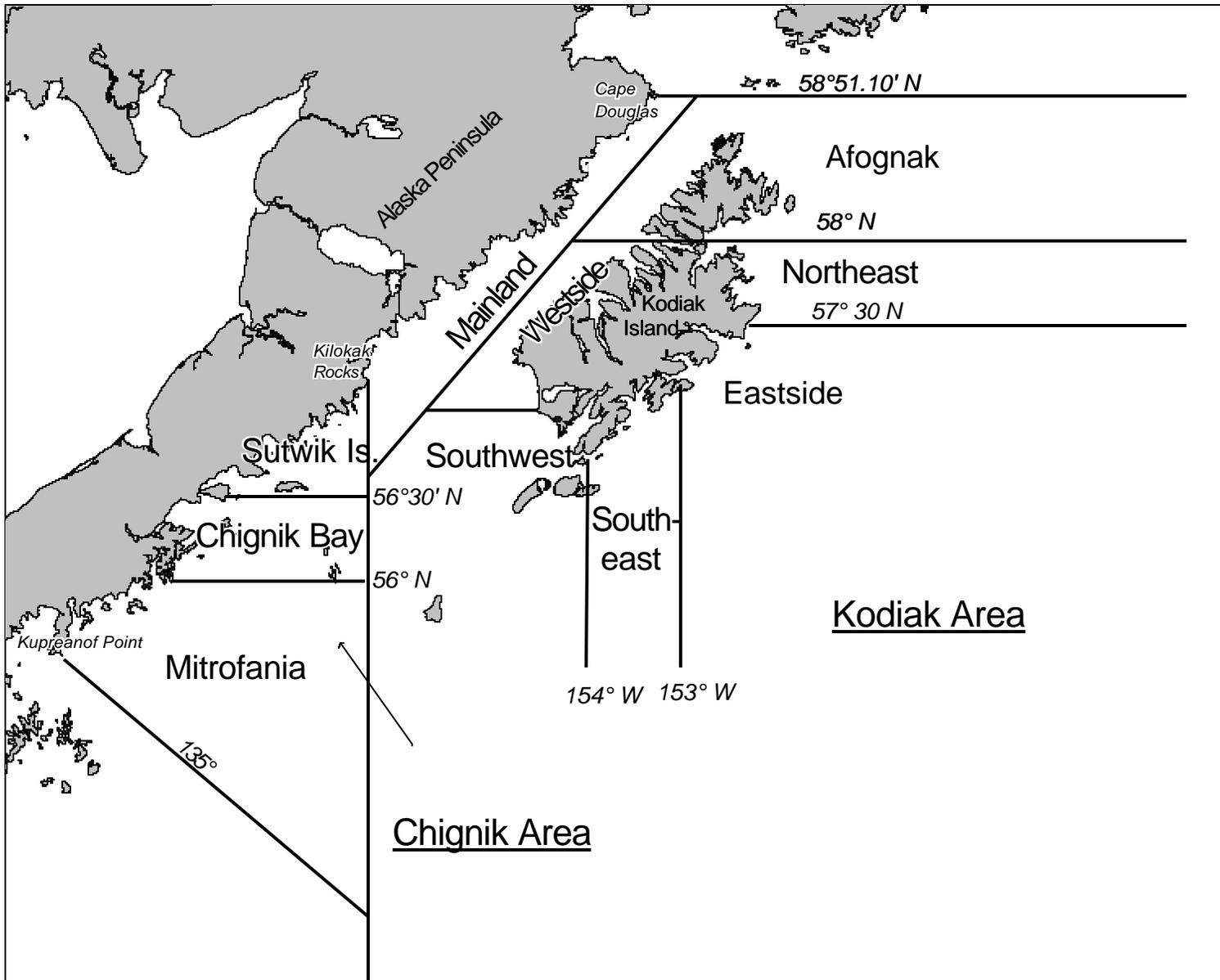


Figure 16. Proposed management sections for groundfish including black rockfish in the Kodiak and Chignik registration areas.

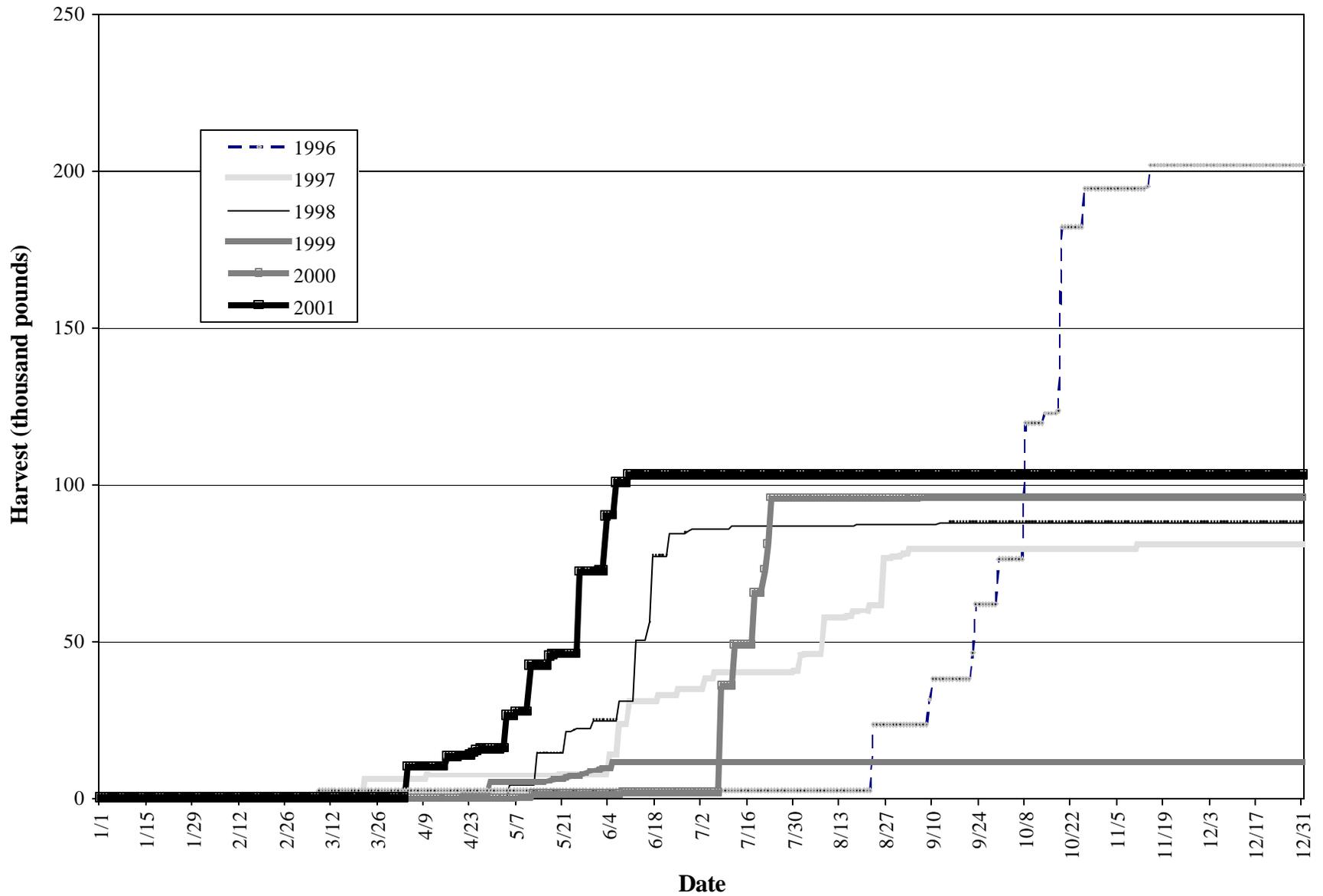


Figure 17. Chignik Area black rockfish accumulative harvest by date per year, 1996-2001.

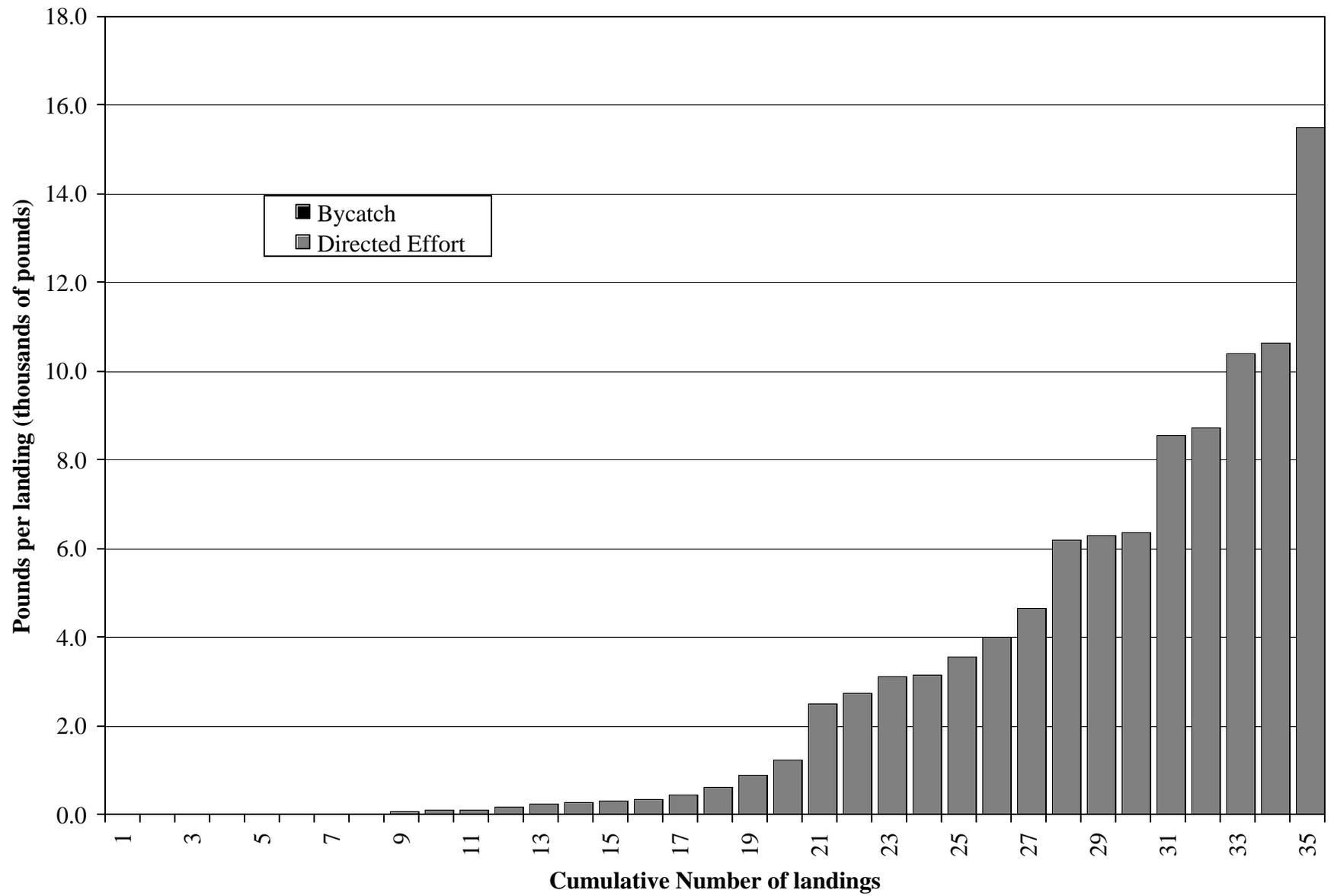


Figure 18. Directed and bycatch black rockfish landings in the Chignik Area fishery, 2001.

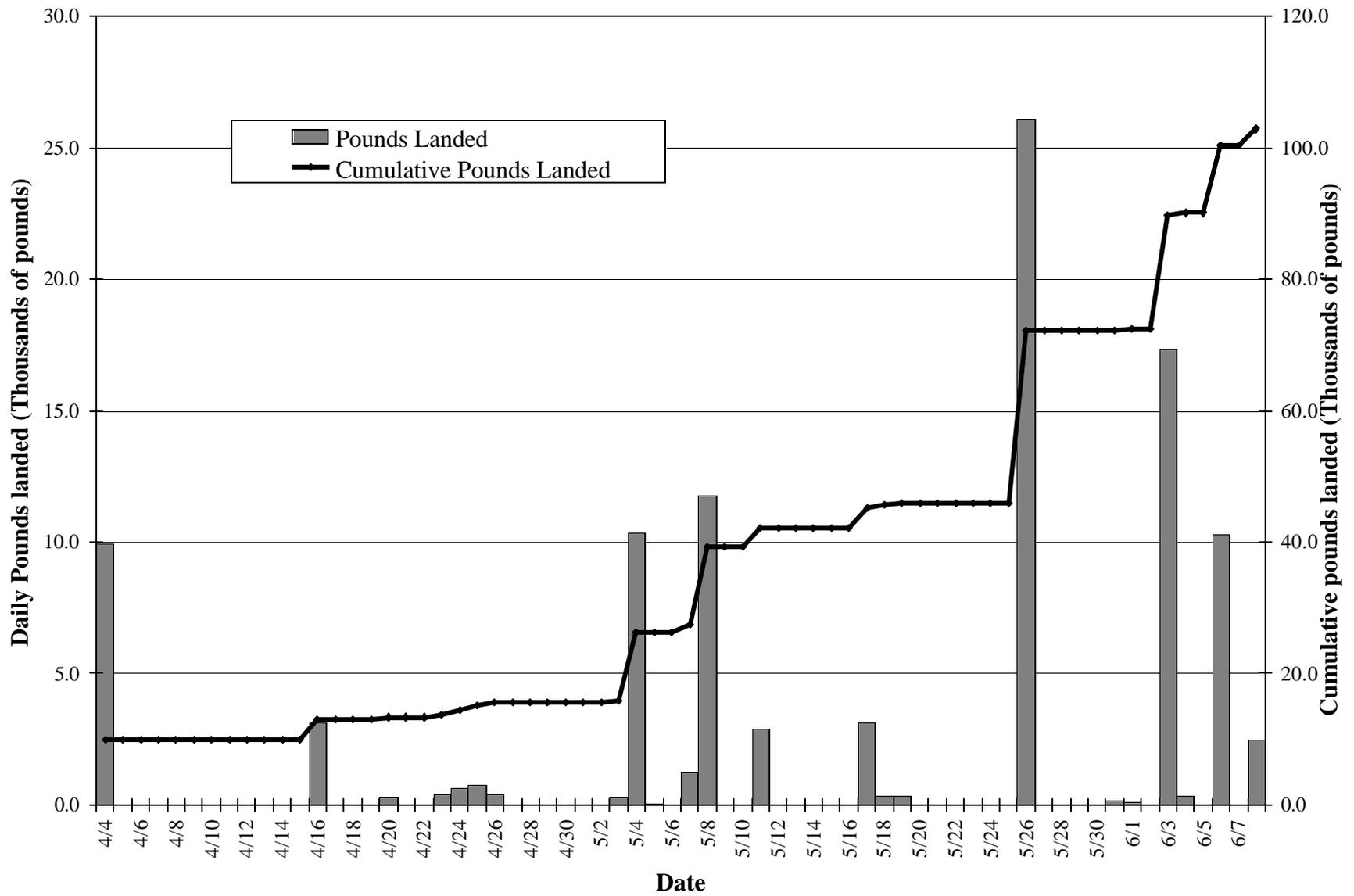


Figure 19. Chignik Area black rockfish total and cumulative harvest by day, 2001.

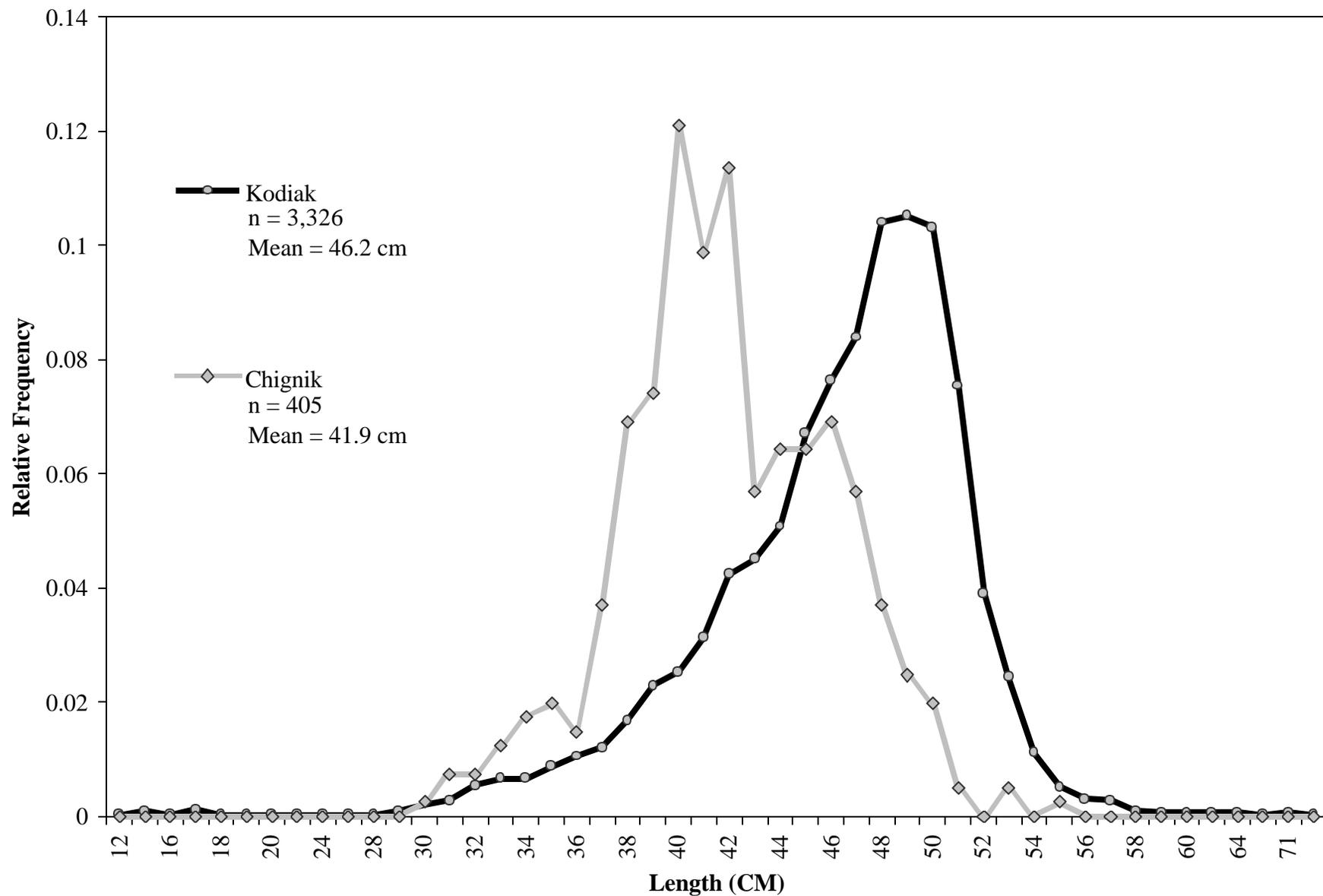


Figure 20. Size composition of black rockfish collected from the 2001 Kodiak and Chignik Area fisheries.

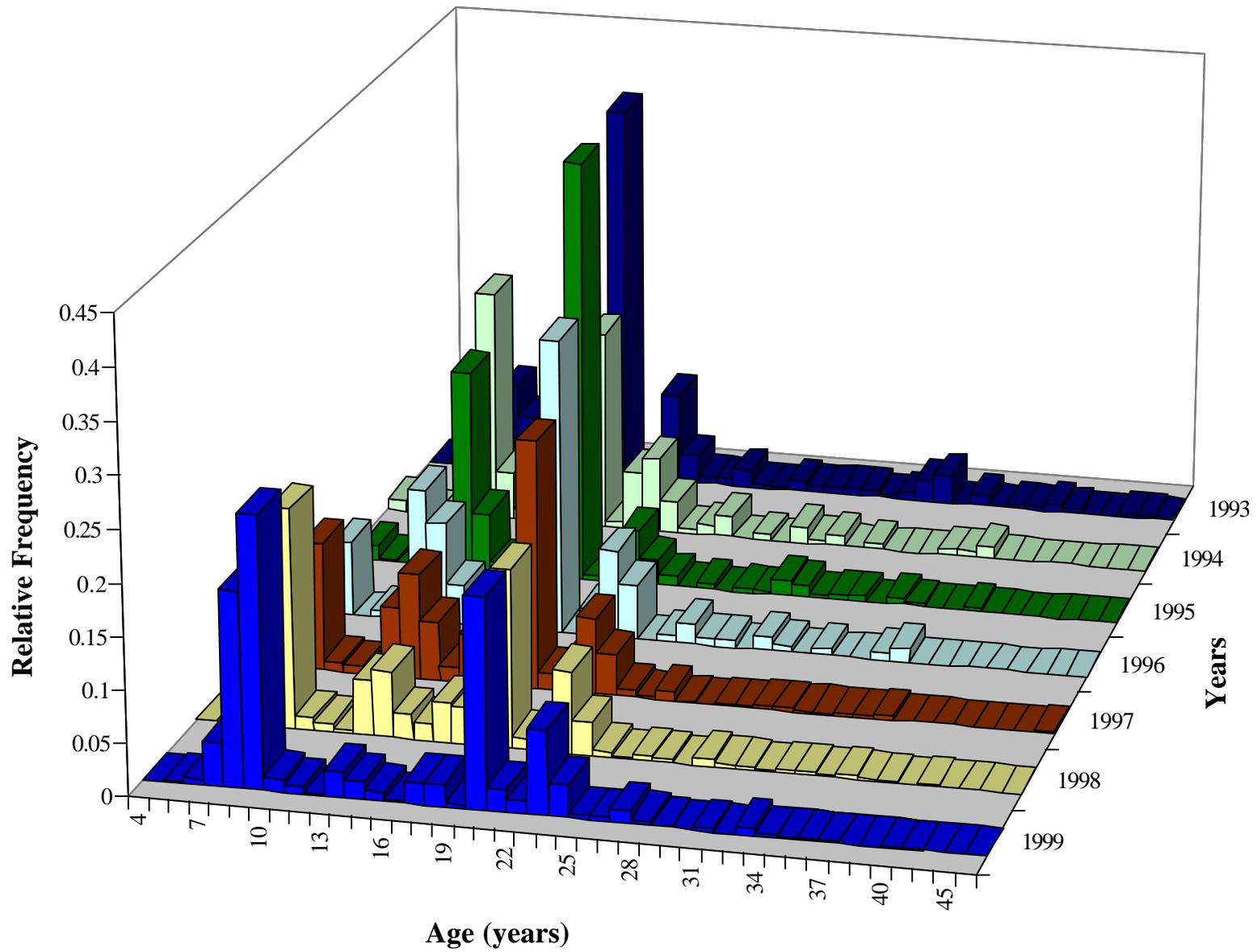
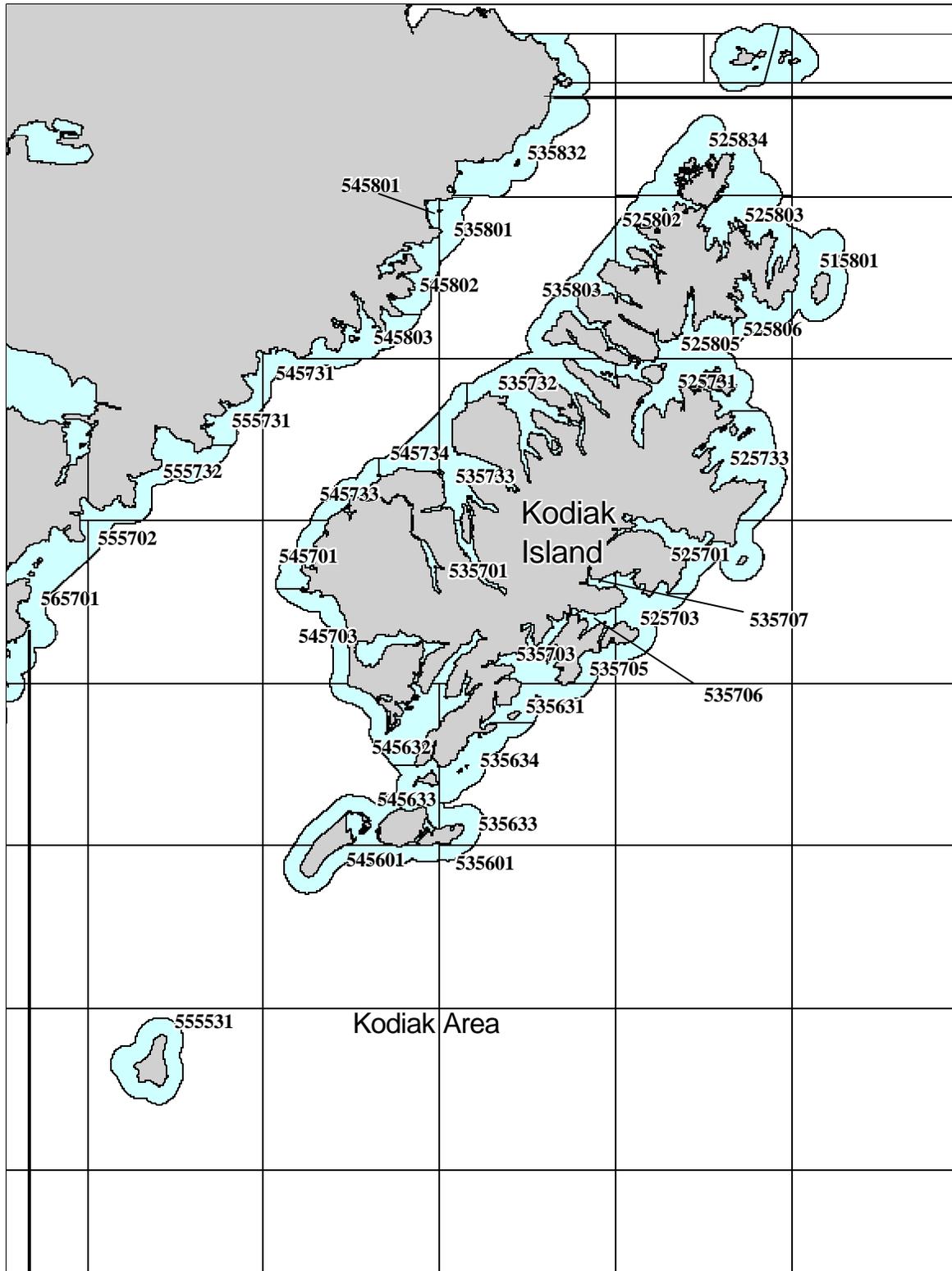


Figure 21. Age composition of black rockfish sampled from the Kodiak Area fisheries, 1993-1999.

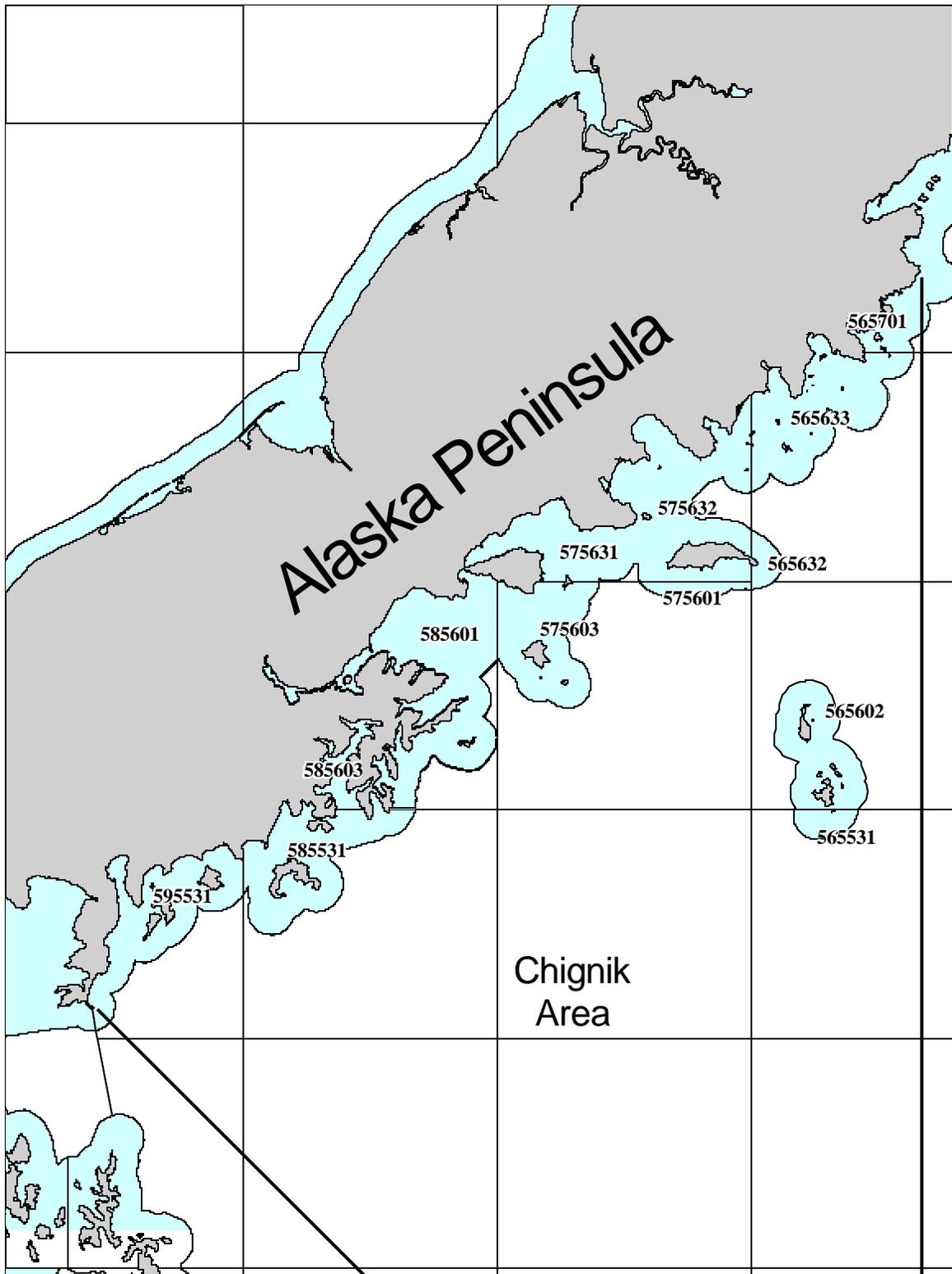
APPENDIX

Appendix A. Frequently used acronyms and key words.

Acronym	Definition
AAC	Alaska Administrative Code
ABC	Acceptable Biological Catch: stock specification as set by the NPFMC on an annual basis
ADF&G	Alaska Department of Fish and Game
BiOp	Endangered Species Act Section 7 Consultation Biological Opinion and Incidental Take Statement
BOF	The Alaska Board of Fisheries
BSAI	Bering Sea/Aleutian Islands Areas: state management area and federal management area composed of several sub areas.
Bycatch or Bycatch effort	Harvest of a species that was not the primary target species
CFR	Code of the Federal Register
CGOA	Central Gulf of Alaska, federal management areas 620 and 630
Directed harvest or effort	Intentionally targeting a species for harvest
EEZ	Exclusive Economic Zone: from 3 to 200 nautical miles offshore
EO	Emergency order, management action taken by ADF&G to effect regulatory change
F&WP	Alaska Department of Public Safety, Division of Fish and Wildlife Protection
GHL	Guideline Harvest Level: quotas set for state fisheries
GOA	Gulf of Alaska
LLP	License Limitation Program
mt	metric tons (equal to 2,204.62 pounds)
NMFS	National Marine Fisheries Service
NPFMC	North Pacific Fishery Management Council
Parallel fishery	State waters from 0 to 3 nautical miles open under federal rules while a federal fishery is ongoing from 3 to 200 nautical miles
SSL	Steller sea lion <i>Eumetopias jubatus</i>
State waters	Territorial sea from shore to three nautical miles
TAC	Total Allowable Catch: final federal harvest specification for directed fishing as recommended by the NPFMC and set by NMFS
WGOA	Western Gulf of Alaska: federal management area 610
Kodiak Area	
Chignik Area	
South Alaska Peninsula Area	State-waters groundfish areas with specific Pacific cod management plans



Appendix B. Kodiak Management Area state water statistical areas for groundfish.



Appendix C. Chignik Management Area state water statistical areas for groundfish.

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