

Fishery Management Report No. 04-14

**Commercial Salmon Fisheries of the Kodiak
Management Area:**

**A Report to the Alaska Board of Fisheries,
January 2005**

by

Kevin Brennan

December 2004

Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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Division of Commercial Fisheries, Kodiak

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Division of Sport Fish, Research and Technical Services
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ABSTRACT

Five species of salmon return to streams of the Kodiak Archipelago and Alaska Peninsula including Chinook *Oncorhynchus tshawytscha*, sockeye *O. nerka*, coho *O. kisutch*, pink *O. gorbuscha*, and chum *O. keta* salmon. This report describes the historic and current salmon escapements, commercial fisheries management strategies and plans, and commercial harvests of salmon from the waters of the Kodiak Management Area (KMA).

The majority of KMA sockeye salmon and all Chinook salmon escapement counts are obtained with the use of fish weirs. For the remainder of the sockeye salmon systems and most coho, pink, and chum salmon systems, escapement counts are collected from fixed-wing aircraft surveys of bays and streams. Foot surveys are also used on a few streams. Commercial salmon fisheries (purse seine, beach seine, and set gillnet) occur throughout the KMA, from early June through September. The entire KMA is managed under Alaska Board of Fisheries approved regulatory management plans that detail the targeted species and stocks that are managed for in each district and section throughout the fishing season.

Kodiak wild Chinook salmon stocks are considered healthy. The Kodiak area Chinook escapements have met the aggregate goal (8,400 to 16,900; Nelson and Lloyd 2001) annually since 1983, and have met or exceeded the upper end of the aggregate escapement goal range each year since 1987. Overall, KMA sockeye salmon stocks are healthy. The 2002, 2003, and 2004 annual KMA sockeye escapements (1.62 million, 2.22 million, and 1.84 million) met or exceeded the current aggregate escapement goal (1.28 to 1.89 million; Nelson and Lloyd 2001). The lower aggregate escapement goal for Kodiak sockeye salmon has been met annually since 1978; the upper aggregate goal has been exceeded only twice (1999 and 2003) in the past 10 years (1995 to 2004). Coho salmon stocks of the KMA are considered healthy. Taken in aggregate, KMA coho salmon escapement estimates have met or exceeded the current escapement goals (55,300 to 94,275; Nelson and Lloyd 2001) each year since 1981. The KMA coho salmon escapement was estimated in 2002 at 168,271 coho salmon, 122,824 coho salmon in 2003, and 71,456 coho salmon in 2004. The trend of decreasing escapement is related to fewer late season escapement surveys and reduced weir operational time, not a decline in production. The 10-year (1994 to 2003) average escapement was 188,094 coho salmon. Except for occasional local variations, KMA pink salmon stocks are considered very healthy. Area-wide, pink salmon escapement objectives have been met or exceeded each year since 1975. The KMA pink salmon escapement was estimated in 2002 at 8,396,402 pink salmon, 5,096,962 pink salmon in 2003, and 8,786,518 pink salmon in 2004. The area-wide chum salmon escapement objective (273,000 to 819,000 chum salmon; Nelson and Lloyd 2001) has been met or exceeded each year since 1993. The KMA chum escapement was estimated in 2002 at 530,591 chum salmon, 380,523 chum salmon in 2003, and 533,091 chum salmon in 2004. The average escapement from the previous 10-year period (1994 to 2003) is 549,966 chum salmon.

Key words: Chinook salmon, sockeye salmon, coho salmon, pink salmon, chum salmon, Alaska Department of Fish and Game, Kodiak Management Area, commercial fisheries, subsistence, sport fisheries, Alaska Board of Fisheries, management plan, purse seine, set gillnet, harvest, escapement

INTRODUCTION

From the time that Alaska was granted statehood, the Alaska Department of Fish and Game (ADF&G) has been charged with the management of the salmon resources of the state. The mission of the Division of Commercial Fisheries (CF) is to manage, protect, rehabilitate, enhance, and develop fisheries and aquatic plant resources in the interest of the economy and general well-being of the state, consistent with the sustained yield principle and subject to allocations established through public regulatory processes. The CF is responsible for management of the state's subsistence, commercial, and personal use fisheries, the rehabilitation and enhancement of existing fishery resources, and the development of new fisheries.

This report describes the Kodiak Management Area (KMA) and provides an overview of the salmon resources. It gives a brief history of the commercial fishery and provides information concerning the current KMA salmon commercial, subsistence, and sport fisheries. Further, this

report describes the harvest strategies and management plans that are in effect throughout the commercial salmon fishing season. An analysis of the status of the various KMA salmon stocks is provided with an emphasis on the past three years (2002, 2003, and 2004). In addition, this report describes recent and historical harvests and effort levels, and identifies some of the issues that have developed recently in the salmon fisheries.

Due to the Exxon Valdez oil spill, most of the KMA remained closed to commercial salmon fishing for the entire 1989 season. Where average harvest information is used, 1989 may not be included in the averages. Tables and graphs in this report may not include 1989 data. In addition, this report was prepared for informational purposes. To accommodate timely reporting of recently collected information, this report contains preliminary data; this information may be subsequently finalized and published. Consequently, this report should not be cited without prior approval of the authors or the Division of Commercial Fisheries.

KODIAK MANAGEMENT AREA DESCRIPTION

LOCATION AND BOUNDARIES

The KMA comprises the waters of the western Gulf of Alaska surrounding the Kodiak Archipelago and along that portion of the Alaska Peninsula that borders the Shelikof Strait between Cape Douglas and Kilokak Rocks (Figure 1).

The archipelago is approximately 150 miles long, extending from Shuyak Island south to Tugidak Island. Chirikof Island, located approximately 40 miles south southwest of Tugidak Island, is also included in the Kodiak Management Area (Appendix A.1). The Alaska Peninsula portion is about 160 miles long and is separated from the archipelago by Shelikof Strait, which averages 30 miles in width.

The regulatory description of the KMA is all waters of Alaska south of a line extending east from Cape Douglas at 58° 51.10' N lat., west of 150° W long., north of 55° 30.00' N lat., and north and east of a line extending 135° southeast from a point near Kilokak Rocks at 57° 10.34' N lat., 156° 20.22' W long. (the longitude of the southern entrance of Imuya Bay) for three miles, then due south (ADF&G 2002).¹

PHYSICAL DESCRIPTION

Glaciation shaped the Kodiak Archipelago. Kodiak's topography ranges from sharp crested alpine peaks (which run down the northeast-southwest axis of the island), to broad U-shaped alpine valleys, to low, flat-bottomed wetlands. The coastline is mostly very rocky and irregular, deeply indented by numerous glacially scoured straits, inlets, and branching fjords. Though the archipelago covers approximately 5,000 square miles of land area, there is no place on Kodiak Island that is more than 15 miles from the ocean (Buck et al. 1975). The southwest end of the island is lower with more subdued topography and a relatively smooth, rounded coastline. Streams are generally short and steep, draining deep mountain lakes or small glaciers. In the southwest part of Kodiak streams are longer, flowing along wide valleys. The KMA's longest rivers, the Karluk and the Ayakulik, are located in this zone and each extends about 30 miles.

¹ All latitudes and longitudes currently used in ADF&G Commercial Fishing Regulations are shown in decimal minutes and are based on North American datum of 1983 (5 AAC 39.997(b)). This document also follows that system.

The western portion of the KMA lies along the Alaska Peninsula. While similar in many ways to the Kodiak Archipelago, and also greatly shaped by glaciation, it is an area strongly influenced by volcanism. The rugged Aleutian Range dominates the topography, running in a northeast-southwest direction, down the peninsula, and forms the boundary of the watersheds that drain into Shelikof Strait. The mountains here are higher than those of the Kodiak Archipelago, and there are many large glaciers. Generally, temperatures are lower on average and there is less annual precipitation. Again, streams are relatively short and steep. Because of the local occurrence of deep beds of volcanic ash, most streams are unstable with shifting stream channels.

The marine waters of the area are influenced by the Alaska Current, which moves north along the Southeast Alaska panhandle, west by the north shore of the Gulf of Alaska (past Yakutat and Prince William Sound), then moves south and west past Kodiak Island. The Alaska Current narrows and intensifies near the Kodiak Archipelago, and becomes the Alaska Stream, which then passes down along the Alaska Peninsula. Little is known of the inshore circulation of marine waters over Kodiak's continental shelf. Actual surface currents are greatly influenced by tides and strong winds associated with frequent storms in the Gulf of Alaska. The climate of the Kodiak region is dominated by this strong marine influence. It is characterized by mild temperatures (the overall mean annual temperature is 40° F), predominantly cloudy skies (days are overcast more than half the year), and moderately to heavy precipitation (averaging over 68 inches per year, with up to 200 inches per year documented in specific locations).

The marine waters around the Kodiak Archipelago are among the most productive in the North Pacific. Offshore upwelling combines with abundant freshwater runoff to make nearshore waters rich in nutrients. There are over a hundred species of marine fish native to the KMA. Five species of salmon return to streams of the Kodiak Archipelago and the Alaska Peninsula, including Chinook *Oncorhynchus tshawytscha*, sockeye *O. nerka*, coho *O. kisutch*, pink *O. gorbuscha*, and chum *O. keta* salmon.

POPULATION AND COMMUNITIES

Approximately 13,800 people currently reside within the boundaries of the KMA. The majority of area residents reside in the city of Kodiak (approximately 6,100) and along the connecting road system (approximately 5,900; including the U.S. Coast Guard Base adjacent to town, and outlying communities of Monashka Bay, Bell Flats, Pasagshak, and Chiniak). The remaining people reside in remote homes and small communities scattered around the island, including the cities of Akhiok, Larsen Bay, Old Harbor, Ouzinkie, Port Lions, and the village of Karluk (Figure 2). Approximately 15% of the population is of Alaska Native heritage (all estimates are based on 2003 statistics from the Alaska Department of Labor).

Commercial fishing and processing is the largest employer in Kodiak. The seafood industry employs approximately 25% of Kodiak's private sector work force, while approximately 55% of all businesses are "somewhat" related to area fisheries (D. King, Economic Development Specialist, Kodiak Chamber of Commerce; personal communication). During the commercial salmon fishing season (approximately June through September) up to 5,000 people have been involved in the KMA commercial salmon fishery. This includes approximately 1,800 to 2,000 fishermen and crew, 200 to 300 tender operators and crew, and 2,200 to 2,700 processing personnel (Brennan 2001).

SALMON RESOURCES

SALMON PRODUCING STREAMS

There are approximately 800 streams within the KMA in which salmon migration or spawning has been documented (ADF&G 1993). Of these, 440 streams have been documented to support yearly spawning populations of salmon (Table 1). The remainder are small streams that are usually used by pink salmon only in years with very large returns. Four streams support viable Chinook salmon stocks; 39 streams support sockeye salmon stocks of varying size; 174 streams have coho salmon stocks; approximately 150 streams have chum salmon stocks; and all 440 streams support pink salmon stocks. Of these streams, 92 are located in the Mainland District (on the Alaska Peninsula), 102 are in the Afognak District (18 on Shuyak Island and 84 on Afognak and Raspberry Islands), 234 are on Kodiak Island and 12 are on the Trinity Island group (in the Northwest, Southwest, Alitak, Eastside and Northeast Kodiak Districts; Appendix A.1).

ESCAPEMENT GOALS

The ADF&G salmon management and research staff have established escapement goals and ranges for each salmon species. The KMA commercial salmon fisheries are managed to achieve escapement levels that are within the established ranges for some individual systems. Aggregated by district, the targeted escapement goal ranges for KMA salmon are 8,400 to 16,900 Chinook salmon, 1,279,000 to 1,888,000 sockeye salmon, 55,300 to 94,275 coho salmon, 1,007,000 to 3,021,000 odd-year and 2,398,000 to 5,994,000 even-year pink salmon², and 273,000 to 819,000 chum salmon (Table 2; Nelson and Lloyd 2001).

SALMON PRODUCTION POTENTIAL (WILD STOCKS)

The estimated production potential for certain KMA salmon species can be calculated by multiplying the expected escapement (the targeted goal) by an estimated average return per spawner (RPS; this can be calculated from escapement and subsequent estimated returns for specific salmon stocks). The annual potential harvest can then be calculated by subtracting the specific targeted escapement goal from the production potential (Table 3). If targeted escapements are met and environmental conditions are favorable, KMA sockeye salmon potential annual harvest has been estimated at approximately 4,617,000 fish. Pink salmon potential harvest has been estimated at 6,000,000 (odd year) to 9,000,000 (even year). KMA salmon systems should also produce average annual harvests of over 22,500 Chinook, 990,000 chum, and 135,000 coho salmon. These values are averages around which natural survival and returns will fluctuate. Actual salmon production has often exceeded these estimated potentials (Table 4).

SUPPLEMENTAL PRODUCTION

Two hatcheries located in the KMA currently produce salmon to supplement natural salmon production (Figure 2). The Kodiak Regional Aquaculture Association (KRAA) operates the Kitoi Bay and Pillar Creek Hatcheries. The Kitoi Bay Hatchery, located on the east side of Afognak Island, produces primarily pink salmon; however, sockeye, chum, and coho salmon are also cultured (Honnold and Aro 2003). Outstocking of juvenile coho and sockeye salmon fry occurs, but the majority of the salmon are intended to return to the hatchery for common property

² Pink salmon production in individual systems is highly cyclical due to the pink salmon fixed 2-year life cycle.

harvest (in 2003 and 2004 cost-recovery fisheries also occurred at the Kitoi Bay Hatchery). Pillar Creek Hatchery, located north of the City of Kodiak at Monashka Bay, is used primarily as an incubation facility for sockeye salmon outstocking projects however Chinook and coho salmon are also reared at the facility (Honnold and Clevenger 2003).

The Kodiak Regional Planning Team (KRPT³) identified sockeye salmon as the priority species for supplemental production. Through the use of remote egg takes and hatchery incubation, sockeye salmon juveniles are being stocked to enhance future sockeye salmon harvests through put-and-take projects, broodstock development, and to restore systems with depleted runs. Sockeye salmon are stocked for put-and-take fisheries at Spiridon, Hidden, Crescent, Little Waterfall, and Big Waterfall Lakes. Sockeye salmon are stocked for broodstock development in Little Kitoi Lake. Coho salmon are outstocked into Crescent Lake near the community of Port Lions, and into Katmai Lake on Spruce Island near the community of Ouzinkie.

The ADF&G Division of Sport Fish (SF), in conjunction with KRAA, has stocked coho salmon fingerlings and Chinook salmon smolt to produce put-and-take sport fisheries and enhance sport fishing opportunities along the Kodiak road system. Chinook salmon smolt were stocked into Island and Mission Lakes near the city of Kodiak until 1995, and then into the Buskin River in 1995 and 1996. A new smolt stocking project is now underway, and annual Chinook stocking of Monashka Creek began in 2002. Coho salmon have been stocked into Island, Pony, Southern, Mayflower, Dark, Mission, Orbin, and Potato Patch Lakes near the city of Kodiak.

Supplementing KMA salmon fisheries is an ongoing long-term project. A goal of the Kodiak Regional Comprehensive Salmon Plan was to increase the annual harvest of salmon (over and above the KMA wild salmon harvest) by an additional 3,000 Chinook, 1,700,000 sockeye, 383,000 coho, 11,500,000 pink, and 1,100,000 chum salmon by the year 2003 (KRPT 1992). To date, the peak years of supplemental production have produced an undetermined number of Chinook salmon and an estimated additional 796,359 sockeye, 209,259 coho, 13,126,761 pink, and 466,205 chum to the annual harvest (Table 5).

NONLOCAL SALMON IN THE KODIAK MANAGEMENT AREA

Salmon tagging studies have been conducted in the KMA to aid management of commercial fisheries. These studies were performed to determine presence or absence of major stocks at a particular time and place and average travel time through fishery management units, not to determine stock compositions. The earliest tagging study was conducted in 1927 (Rich and Morton 1929) and there were intermittent tagging studies through 1981 (Bowe 1941; Bevan 1959; Simon et al. 1969; Nicholson 1978; Tyler et al. 1986). Most tagging studies occurred along the south and west sides of the Kodiak Archipelago, to study the migration of sockeye salmon traveling to the major systems of Kodiak Island (Karluk, Ayakulik, Upper Station, and Frazer). Some sockeye salmon tagging was done along the north and east sides of the archipelago (Tyler et al. 1986) and at the southwest end of the KMA, along the Alaska Peninsula near Wide Bay (Simon et al. 1969). Salmon migrating through KMA waters to the Chignik and Cook Inlet Management Areas were documented in some of those studies. Other tagging studies have documented the migration of salmon from Cook Inlet and South Peninsula waters to Kodiak Island waters (Noerenberg and Calkins 1959; Eggers et al. 1987).

³ The RPT is a group consisting of representatives of ADF&G, regional aquaculture associations, and the public, mandated by Alaska Statutes (16.10.375-470) to develop and amend comprehensive salmon production plans for salmon production regions.

Chinook salmon of Oregon, Washington, British Columbia, Southeast Alaska, and Cook Inlet origin have been documented in the KMA from coded wire tag (CWT) recoveries (Clark and Nelson 2001). CWT recovery projects were conducted in 1994, and 1997 through 1999. The majority of the nonlocal Chinook salmon documented by these studies were from British Columbia hatcheries and it was concluded that there was only a low incidental harvest of Cook Inlet Chinook salmon. The only local Chinook salmon stock within the KMA that has been marked with CWT was hatchery produced Chinook salmon fry released into the Buskin River; no Kodiak wild stock Chinook salmon were marked with CWT prior to, during, or since this study.

The most recent attempts at estimating sockeye salmon stock composition within the KMA have involved studies that used scale pattern analysis, run timing, and analysis of shifts in average weights of commercial catches (Barrett and Swanton 1992; Barrett and Nelson 1994; Swanton and Nelson 1994; Vining and Barrett 1994).

SALMON FISHERIES

The salmon resources of the KMA have been used for subsistence for thousands of years, and have been exploited commercially for over 150 years (Roppel 1986). The first commercial fisheries were small, salted salmon ventures by the occupying Russians in the early 1800s. Salmon streams were blocked and salmon captured as they became schooled behind these barriers. Sockeye salmon returning to the Karluk River brought fishermen and processors to Kodiak Island soon after the territory was transferred from the Russians to the United States in 1867. Commercial sockeye salmon harvest records date back to 1882 (Table 4). Intense competition led to expansion of the fishery to other areas and species. By the early 1900s fisheries for coho, pink, and chum salmon had developed.

COMMERCIAL GEAR USE

Beach seines were the first gear type effectively used commercially in the KMA. In the late 1800s, beach seines 40 fathoms in length were used to harvest sockeye salmon in Karluk Lagoon (Roppel 1986). As competition for fish grew, the primary harvest location for Karluk sockeye salmon moved outside the lagoon, using heavily manned beach seines averaging 450 fathoms in length. The first fish trap was built in Kodiak in 1896. Until the late 1950s the Kodiak commercial salmon fishery was dominated by cannery-owned fish traps, with some independent purse seine, beach seine, and set gillnet operators. When Alaska was granted statehood in 1959, fish traps were prohibited, and the KMA commercial salmon fishery was conducted by purse seine, set gillnet, and beach seine gear (in decreasing order of abundance). Prior to 1965, troll gear was also listed as a legal gear type in the Kodiak Area. In 1974 a limited entry system was adopted by the State of Alaska, which restricted the number of individuals allowed to participate in commercial salmon fisheries. This system formally established the level of purse seine, beach seine, and set gillnet gear participation (troll gear was not include).

There are 608 commercial salmon permits available for the KMA: 384 purse seine (making this the second largest purse seine fleet in the state), 188 set gillnet, and 36 beach seine (CFEC 2004). Actual numbers of permits issued and fished varies annually, but there has been a downward trend in the number of seine permits fished (Figure 3). In 2004, only 314 purse seine, 186 set gillnet, and 29 beach seine permits were renewed, and only 141 purse seine, 164 gillnet, and 0 beach seine permit holders actually fished (Table 6). Alaska state residents own 73.4 % of KMA

salmon permits (purse seine = 75.2%, set gillnet = 68.6%, and beach seine = 81.3%), with Kodiak Island residents owning approximately 44.9% (purse seine = 43.2%, set gillnet = 47.9%, and beach seine = 46.9%) of all KMA commercial salmon fishing permits.

COMMERCIAL FISHERY MANAGEMENT UNITS AND LEGAL GEAR AREAS

Inseason management of the KMA commercial salmon fishery is structured around 7 districts that are subdivided into 52 sections (Appendices A.1 to A.8). These sections are occasionally subdivided inseason to adjust fishing effort on unexpected salmon surpluses or deficits. Each management unit (section) defines a traditional geographic harvest area, managed for specific stocks or traditional fishing patterns.

There are regulations on which gear types can operate in specific management units, which are based on historical gear use patterns (ADF&G 2002). Both purse and beach seine gear are allowed to operate in the entire management area except in the Alitak, Moser, and Olga Bay Sections of the Alitak Bay District where set gillnets are the only legal gear⁴ (Appendix A.2). In the Central Section of the Northwest Kodiak District, both set gillnet and seine gear are allowed (Appendix A.3). Since 1974 the geographical areas currently open to specific gear types have, with few exceptions, remained unchanged.

In the mid 1970s that portion of the Southwest Kodiak District between Rocky Point and Cape Uyak (statistical area 255-20; Appendix A.4) was closed to set gillnet gear in an attempt to accelerate the rebuilding of the Karluk sockeye and pink salmon stocks. No existing gillnet sites were affected, as no gillnet gear had been documented as fished there since the early 1960s. Several purse seine fishing locations were within this area, which could impact Karluk stocks. Two sections were established. The terminal Inner Karluk Section and the near terminal Outer Karluk Section were formed, but were normally kept closed to purse seine fishing. These sections provided an “expanded closed water sanctuary” for severely depleted Karluk sockeye and pink salmon stocks.

In the late 1970s, a gear and area adjustment occurred in the Alitak Bay District. The common boundary between the Moser-Olga Bay Section (now divided into the Alitak, Moser, and Olga Bay Sections) and the Cape Alitak and Humpy-Deadman Sections was adjusted in an effort to reduce gear conflicts caused by an unclear boundary description. The area open to set gillnet gear was reduced from Cape Alitak to Tanner Head and was increased in Deadman Bay to a point northwest of Fox Island (statistical area 257-41; Appendix A.2).

Also in the late 1970s, a gear and area adjustment was made in Zachar Bay to alleviate fixed and mobile gear conflicts. Closed water sanctuary markers were reduced (moved further into the bay) and the new open area was designated seine-only. The creation of this small seine-only area adjacent to the closed waters within Zachar Bay was consistent with that of other major westside Kodiak bays (Appendix A.3).

In 1989, due to confusion between state and federal regulations, the Alaska Board of Fisheries (BOF) specified that KMA commercial salmon fishing activities should be restricted to waters

⁴ Prior to Alaska being granted statehood, these management units were designated set gillnet-only. In 1970 this rule was amended such that the Moser-Olga Bay Section (now the Alitak, Moser, and Olga Bay Sections) remains gillnet-only prior to September 5; seine gear is then legal in the entire Alitak Bay District. The Dog Salmon Flats, Inner and Outer Akalura, and the Inner and Outer Upper Station Sections are normally closed to commercial fishing. In the event of overescapement, mop-up fisheries can occur in these sections. Again, prior to September 5, only set gillnet gear are allowed in these sections.

located within the State of Alaska territorial sea boundary (three-mile limit; Appendix A.1). An emergency order (EO) was issued to close waters seaward of the state territorial sea boundary for the 1991 and 1992 seasons. Beginning in 1993 a new regulation was in effect that states that all district and section boundaries do not extend beyond the three-mile limit. However, due to a conflict in the district and section descriptions, this three-mile-limit closure was further clarified in 1995 by listing those waters seaward of the state territorial sea boundary as closed to fishing under closed waters regulations (5 AAC 18.350).

COMMERCIAL SALMON PROCESSING

Commercial salmon processing within the KMA began in the late 1860s with small, salting and pickling operations located around Kodiak Island near major harvest areas (Roppel 1986). In 1882 processing evolved when the first cannery was built at Karluk Spit. Kodiak's processing plants have further evolved from those scattered, seasonally operated canning operations into efficient multi-tasked plants, mainly congregated within the City of Kodiak. The majority of these plants are year-round operations, processing crab and groundfish in addition to salmon. Kodiak processors produce fresh, frozen, and canned salmon products. Recent technology has been adapted to salmon processing, yielding new, diverse salmon products (such as skinless-boneless whole fillets and individual portions, surimi, salmon hams, nuggets, and burgers, and salmon-in-a-pouch).

From 10 to 15 salmon buyers or processors participate annually in KMA salmon fisheries. Processing plants are located in the City of Kodiak, Larsen Bay, and Alitak Bay (Figure 2). The sustained processing capacity of Kodiak shorebased processors has been estimated at approximately 4,335,000 pounds of salmon per day (Brennan 2001). With this high processing capacity, it is common for Kodiak processors to import salmon harvested elsewhere in the state. At times, salmon from Bristol Bay, Cook Inlet, Prince William Sound, the Alaska Peninsula, and Chignik Management Areas are processed in Kodiak plants. In years of high local salmon production, it is not uncommon for Kodiak salmon to be tendered to plants in Cordova, Seward, or King Cove for processing.

There is increasing interest from Kodiak area salmon fishermen to directly market their own product. Catcher-Seller permits have allowed individual fishermen to sell their catch at the dock. Other fishermen have developed specialty markets for limited amounts of custom processed salmon. Some purse seine fishermen have installed processing operations aboard their seine vessels, designed to process and freeze salmon as quickly as possible. Some are attempting to satisfy the rigorous demands of supplying the fresh salmon market, by “high grading” their catch and shipping fresh fish out as soon as possible (gutted and iced, or custom filleted and chilled).

COMMERCIAL SALMON FISHERY MANAGEMENT

STAFF

ADF&G CF staff responsible for regulation of the KMA commercial salmon fishery consists of an Area Management Biologist (AMB), two Assistant AMBs, and approximately 15 seasonal employees. The Kodiak salmon research staff includes six research biologists, and approximately 15 seasonal employees. A Regional Finfish Management Supervisor and a Regional Finfish Research Supervisor oversee these staff. Biologists and technicians from the SF, Alaska State

Parks, U.S. Fish and Wildlife Service (Kodiak National Wildlife Refuge), and KRAA aid in the collection of data during the salmon fishing season.

PRESEASON FORECASTS

Preseason salmon forecasts are developed jointly by ADF&G CF management and research biologists. Coho, pink, and chum salmon returns to the KMA are predicted by broad geographic area (by district or a combination of districts), while individual forecasts are made for major sockeye and Chinook salmon stocks (Plotnick and Eggers, editors. 2004). Projected harvests are estimated by fishery and geographic area (Table 7). These include forecasts and harvest estimates for supplemental and enhanced salmon production from stocking projects conducted by ADF&G and KRAA.

System specific salmon forecasts are developed for six major sockeye stocks including Karluk (early and late runs), Ayakulik, Frazer, and Upper Station (early and late runs). These forecasts are based primarily on linear regression models employing recent brood year sibling relationships for the major age classes. Smolt number and condition, as well as climate indices have been incorporated into these models. Forecasts for minor systems are based on previous escapements and relative return analysis. Forecasts for supplemental sockeye production (e.g., Spiridon) are based on previous fry, presmolt, and smolt releases and the subsequent returns and the number and condition of recent stockings. Forecasting the returns of Karluk and Ayakulik Chinook salmon is a fairly new process, undertaken by SF research staff.

The KMA pink salmon forecasts need to be reliable in projecting extremes for major systems and total production. The pink salmon forecast assists fishery managers in making preseason decisions concerning fishing time and areas open to fishing, especially during the early portion of the pink salmon run. The preseason forecast for total return of wild stock pink salmon is made by a combination of quantitative and qualitative methods, using spawner-recruit models (past escapement and subsequent return data) and factoring in environmental conditions. The wild pink salmon forecast is based on the selection of one of five different harvest magnitude categories (Very Weak – less than 3 million, Weak – 3 to 6 million, Average – 6 to 10 million, Strong – 10 to 14 million, and Excellent – greater than 14 million). The forecast for the Kitoi Bay Hatchery pink salmon return is developed using fry release numbers and survival rates from previous years, with range estimates calculated by using the average survival rate of the lowest and highest returns, plus an assessment of the condition of pink fry upon release (Plotnick and Eggers, editors. 2004).

Formal forecasts are not prepared for wild stock coho or chum salmon. The potential harvest is estimated by the department based on previous escapements and observed escapement to return relationships. The Kitoi Bay Hatchery coho and chum salmon forecasts are also developed using survival rates from past releases.

REGULATORY MANAGEMENT PLANS

Guiding the KMA salmon fishery are 10 BOF approved management plans (MP) that ADF&G management staff follow when structuring commercial salmon fisheries and directing management activity in specific portions of the KMA (Table 8). These MPs were developed from the 1970s through 1990s by Kodiak AMBs, and are now part of Kodiak Area commercial salmon fishery regulations (ADF&G 2002). An intent of the MPs was to maintain historic fishing opportunities and the resulting division of the commercial harvest between and within

gear types participating in specific fisheries. These MPs also intend that the majority of the commercial salmon harvest occur in “traditional” (historic) fisheries in some management units covered by the plans. Proper implementation of these plans requires a major effort in communication between ADF&G and processing industry personnel.

Six MPs establish harvest strategies that promote the biological integrity of local salmon stocks, including the Alitak Bay District Salmon MP, the Westside Kodiak MP, the Eastside Afognak MP, the Eastside Kodiak Salmon MP, the North Afognak/ Shuyak Island Salmon MP, and the Mainland District Salmon MP. These MPs specify which species are the focus of management actions in specific sections throughout the season. The plans, when originally adopted into regulation, recognized a historical chronology of management actions and fishing patterns. All 52 sections of the KMA are covered by one of these 6 season-long regulatory plans.

Two MPs, the Cape Igvak Salmon MP and the North Shelikof Strait Sockeye Salmon MP, authorize opportunity for Kodiak purse seine fishermen to target salmon migrating through the KMA to spawning systems in the Chignik and Cook Inlet Management Areas. The Crescent Lake Coho Salmon MP and the Spiridon Lake Sockeye Salmon MP regulate put-and-take fisheries on salmon stocked by ADF&G and KRAA.

Cape Igvak Salmon Management Plan (5AAC 18.360)

Beginning in 1964 a purse seine fishery developed along the capes in the southern portion of the Mainland District near Wide Bay, in what is now the Cape Igvak Section (statistical areas 262-75 to 262-90; Appendices A.5 and B.1). Tagging studies and stock identification studies using average weight and age composition conducted in 1968 and 1969 concluded that up to 80 percent of the sockeye salmon harvested in the Cape Igvak fishery were of Chignik origin (Simon et al. 1969).

The issue of interception of Chignik-bound sockeye salmon near Cape Igvak came before the BOF several times in the 1970s, and management of this section was modified many times. From 1974 through 1978 this area was managed for day-for-day equal fishing time with Chignik. In 1978 a specific management plan for the Cape Igvak fishery was adopted by the BOF.

The Cape Igvak Salmon Management Plan regulates fishing activity in the Cape Igvak Section of the Mainland District from June 5 through July 25. This MP stipulates that 90%⁵ of the Cape Igvak Section sockeye salmon harvest from June 5 through July 25 are considered Chignik bound and allows the KMA fleet to harvest as near as possible 15% of the Chignik-bound sockeye salmon harvest⁶. The plan also stipulates strict allocative and biological requirements that must be met in the Chignik Management Area prior to any fisheries occurring in the Cape Igvak Section.

There are two distinct runs of sockeye salmon to the Chignik River watershed. Early-run sockeye salmon, bound for Black Lake, predominate in June; late-run sockeye salmon, bound for Chignik Lake, predominate in July and August. Because of the difficulty in evaluating the strength of the second run, the management plan states that commercial fishing will be restricted or disallowed in the Cape Igvak Section from approximately June 26 to July 9.

⁵ From 1978 through 2001, 80% of the Cape Igvak June 5 to July 25 sockeye salmon harvest were considered to be Chignik bound. In 2002, after testimony from Chignik fishermen and their consultants, the BOF modified the MP to consider 90% of the June 5 to July 25 sockeye salmon harvest in Cape Igvak Section to be Chignik bound. The change was based on testimony that the original analysis of the stock composition was flawed.

⁶ Chignik-bound sockeye salmon are also harvested in the Southeastern District Mainland of the Alaska Peninsula Management Area, in accordance with the regulatory Southeastern District Mainland Salmon Management Plan, 5 AAC 09.360.

Since this plan was adopted in 1978, the catch of Chignik-bound sockeye salmon from the Cape Igvak Section through July 25 has ranged from 0% to 17.9% of the Chignik sockeye salmon harvest and has averaged 12.3 %, of the Chignik sockeye salmon harvest. The Cape Igvak harvest has met or exceeded the 15% allocation only 5 times (1983, 1987, 1993, 1999, and 2004). Additional information regarding this management plan can be found in Appendices B.1 through B.4.

Alitak Bay District Salmon Management Plan (5AAC 18.361)

Historically, the salmon fisheries of the Alitak Bay area are some of the longest operating in the KMA. Sockeye salmon bound for Upper Station (South Olga Lakes) were targeted as early as 1882, and the first cannery was built in this area in 1889 with others soon following (Roppel 1986). As competition for the salmon resources of the area increased, sockeye salmon stocks declined. Pink salmon made up a substantial portion of the harvest from this district after 1924. With statehood came greater control over the fishery, and ADF&G was given the duty to conserve and rebuild these salmon stocks. Sockeye salmon were introduced into the previously barren Frazer Lake beginning in 1951. This introduction was very successful and since the early 1970s, with the annual operation of a fish pass, the Frazer system has had a self-sustaining sockeye salmon run.

The Alitak Bay District fishery is unique in the KMA because set gillnet and seine gear can fish in this district but are segregated in different sections. Set gillnets only are allowed in the Alitak Bay, Moser Bay, and Olga Bay Sections while seine gear is limited to the Cape Alitak and Humpy-Deadman Sections (Appendices A.2 and C.1). Prior to the mid 1980s various strategies were applied in the Alitak Bay District to conserve and build the sockeye salmon stocks returning to the Frazer and Upper Station systems, while offering some protection to minor sockeye and local coho, pink, and chum salmon stocks. In 1987 the existing harvest strategy was formalized into a regulatory management plan and was adopted by the BOF. This plan details the key species and targeted stocks that are managed for in each section of the district throughout the fishing season. The intent of this MP is that salmon be harvested in the traditional fisheries located in the Humpy-Deadman, Cape Alitak, Alitak Bay, Moser Bay, and Olga Bay Sections (ADF&G 2002).

The plan was modified in 1999 and 2002 to address concerns for small stocks and the allocation of sockeye harvests. Minimum closure times were instituted (2.6 days in each 10-day period) to allow a “pulse” of unfettered escapement to all systems. Fishery opening times for the four traditional sockeye fishing areas, the Cape Alitak, Alitak Bay, Moser Bay, and Olga Bay Sections, were staggered to allow more fish to enter Olga Bay during closures and provide additional fishing opportunity to Olga and Moser Bay set gillnet fishermen. Allocation guideline ranges for each of those four sections were included in regulation, to act as a method to judge the success of the changes in the MP, not as targets for inseason management actions.

A separate report to the BOF has been prepared to describe this MP and the Alitak Bay District fishery (Wadle 2004). Additional information regarding this management plan can be found in Appendices C.1 through C.6.

Westside Kodiak Management Plan (5AAC 18.362)

Commercial salmon fisheries along the westside of Kodiak Island are the longest operating in Alaska (Roppel 1986). Sockeye salmon returning to the Karluk River drew processors and fishermen to Kodiak soon after the Alaska territory was transferred from the Russians in 1867.

The Karluk system is said to have produced more sockeye salmon for its size than any other system in the world. In 1889 the catch at the mouth of this river totaled 3.5 million sockeye salmon. In 1896 the first catches from other westside Kodiak streams were documented, with sockeye salmon being landed from the Uganik, Little, and Ayakulik Rivers.

With increased fishing pressure, Kodiak sockeye salmon stocks declined. Fisheries spread along the westside to target migrating mixed sockeye, pink, chum, and coho salmon stocks. Fish traps were heavily used and accounted for the majority of the harvest. There was much controversy concerning the use of cannery owned fish traps, due to allocative concerns of independent fishermen and biological concerns of management biologists. Traps were outlawed by the State of Alaska in 1959, and seine and gillnet gear competed for the available salmon resources. Gear specific fishing areas, closed water sanctuaries, and complicated stock-specific harvest strategies developed to ease allocative conflicts and to aid in rebuilding depressed sockeye salmon stocks.

Management of westside Kodiak fisheries is very complex due to the mixing of various local salmon stocks during inshore migration. Many tagging studies were done along Kodiak Island's west side to help discern migratory pathways and timing of the westside salmon stocks, as well as salmon moving to the Alitak Bay District. Both set gillnet and seine gear are legal in part of the westside (the Central Section), and occasional allocative disputes arose. Harvest strategies evolved until 1990, when a specific management plan governing fisheries along the westside of Kodiak and southwest Afognak was adopted into regulation by the BOF. It was hoped that placing a MP in regulation would clarify the management strategy and help maintain the biological integrity of local salmon stocks and alleviate allocative concerns of local fishermen.

The intent of the Westside Kodiak Management Plan is to harvest salmon bound to local systems in traditional fisheries located in the westside sections (Appendix D.1). This MP is effective for the entire salmon season, and covers the Southwest Kodiak and Northwest Kodiak Districts, and the Southwest Afognak Section of the Afognak District (Appendices A. 3, A.4, and A.6). This MP guides early-run and late-run sockeye salmon fisheries, including those targeting the major systems of Ayakulik and Karluk, and the minor systems of Little River, Uganik, and Malina. The Westside Kodiak MP also guides local pink, chum, and coho salmon fisheries of the Southwest Afognak Section and the Northwest and Southwest Kodiak Districts. These fisheries take place from early July through early October. Additional information regarding this MP can be found in Appendix D.1 through D.5.

North Shelikof Strait Sockeye Salmon Management Plan (5AAC 18.363.)

In 1988 there was a significant harvest of large (greater than 6 pound) sockeye salmon in management units bordering the northern portion of Shelikof Strait (Appendix E.1). Analysis of average weights, salmon ages (determined from scale analysis), review of past tagging studies, and estimates of migratory timing, led to the determination that the majority of these sockeye salmon were bound for Cook Inlet (Barrett 1989). Though the Cook Inlet sockeye salmon run was at record level, the BOF felt that this was an expanding, nontraditional harvest pattern. In 1990 the North Shelikof Strait Sockeye Salmon Management Plan was adopted into regulation.

The North Shelikof Strait Sockeye Salmon Management Plan, subsection (a), states “The purpose of the North Shelikof Strait Sockeye Salmon Management Plan is to allow traditional fisheries in the area to be conducted on Kodiak Area salmon stocks, while minimizing the directed harvest of Cook Inlet sockeye salmon stocks. The board recognizes that some incidental harvest of other stocks has and will occur in this area while the seine fishery is managed for

Kodiak Area salmon stocks. The board intends, however, to prevent a repetition of the nontraditional harvest pattern which occurred during 1988”.

This plan limits purse seine fishing opportunities in those sections of the Kodiak Area that border the north Shelikof Strait in those waters of Shelikof Strait from Dakavak Bay to Cape Douglas in the Mainland District and from Raspberry Cape to Shuyak Island in the Afognak District. The plan covers the time period from July 6 through July 25 and defines two management units:

- The Southwest Afognak unit (comprised of the entire Southwest Afognak Section); and,
- The North Shelikof unit (comprised of the Dakavak Bay, Outer Kukak Bay, Hallo Bay, and Big River Sections of the Mainland District and the Shuyak Island and Northwest Afognak Sections of the Afognak District).

This management plan restricts fishing opportunities by creating Shoreward Zones and Seaward Zones within the affected sections (basically divided by a line that runs from cape to cape⁷). Should the sockeye harvest exceed the established sockeye harvest cap in either of two areas, then further fisheries in the effected sections must move inside the defined Shoreward Zones and Seaward Zones are closed through July 25. This eliminates most cape fishing and all offshore fishing within the north Shelikof Strait.

The North Shelikof Strait Sockeye Salmon Management Plan establishes two specific sockeye salmon harvest “triggers” for these management units, to protect Cook Inlet-bound sockeye salmon that migrate through the Shelikof Strait. If the sockeye salmon harvest within either of these units reaches an established level then commercial fishing opportunities within that unit are severely restricted. The Seaward Zone of the Southwest Afognak unit will close to fishing if 50,000 sockeye salmon are harvested between July 6 through July 25. The Seaward Zone of the North Shelikof unit will close to fishing if 15,000 sockeye salmon are harvested between July 6 through July 25.

If a Seaward Zone closure occurs, only the inshore Shoreward Zone (all waters inside the baseline) may remain open to commercial fishing during normal fishing periods.

The length and timing of commercial salmon fishing periods in the areas covered by this plan during July are based on the Kodiak pink and chum salmon harvest strategy. These areas have historically been opened during this time to allow for the harvest of bright, high quality pink and chum salmon migrating down the Shelikof Strait towards the major spawning systems of the west and south sides of Kodiak, or to local systems of Afognak and the Alaska Peninsula. Weekly fishing periods during July are scheduled preseason based on the forecasted return strength of pink salmon.

Since this plan has been in effect, Seaward Zone closures occurred in the Southwest Afognak Unit in 1992, 1993, and 2003 and in the North Shelikof Unit seaward zone closures have occurred every year except 1991 and 2000. Additional information regarding this management plan can be found in Appendices E.1 through E.3.

⁷ In 1993 the Seaward Zone boundary of the Southwest Afognak unit was modified by the Alaska Board of Fisheries. The Seaward Zone boundary was moved 1/2 mile offshore of the baseline running cape to cape, in order to allow for traditional harvest opportunities of pink salmon.

Eastside Afognak Management Plan (5AAC 18.365)

The commercial fisheries conducted along the east side of the Afognak District (Appendix A.6) have unique characteristics. The Kitoi Bay Hatchery on the east side of Afognak Island produces significant returns of pink, chum, and coho salmon (Figure 2). In 1992 the BOF approved the Eastside Afognak Management Plan to govern the fisheries in the vicinity of the hatchery. This MP details the targeted species and stocks that are managed for in each of these sections throughout the fishing season. Although occasionally modified, the MP has been in effect since 1981, and was formulated jointly by ADF&G and KRAA. The goal of this MP is to achieve escapement and harvest objectives for local salmon stocks and hatchery fish in the Southeast Afognak, Duck Bay, Izhut Bay, and Kitoi Bay Sections, while assuring sufficient broodstock for the hatchery (ADF&G 2002). Modifications made to the MP in 1999 included a provision for managing the Raspberry Strait Section and an adjustment of the time periods for management of hatchery stocks.

The fisheries associated with the Kitoi Bay Hatchery mainly target pink salmon; however, the hatchery also produces early returns of chum and sockeye salmon, and late returns of coho salmon (Honnold and Aro 2004). The management units closest to the hatchery, the Inner and Outer Kitoi Bay Sections, are normally closed to allow buildup and collection of fish for hatchery broodstock. The initial openings in July for pink salmon fisheries around Kitoi are scheduled to coincide with general KMA pink salmon fisheries. Early July fisheries may be allowed if broodstock requirements are met for early chum and sockeye salmon, and fisheries may be limited from late July to late August until pink salmon broodstock requirements are met.

Within the Southeast Afognak Section, the Afognak Lake system can produce significant runs of wild sockeye, pink, and coho salmon. The Eastside Afognak Management Plan also guides local sockeye, pink, chum, and coho salmon fisheries of the Southeast Afognak Section, which take place from early June through early October.

Prior to 2001, commercial fisheries in the Southeast Afognak Section were common during June and July targeting Afognak Lake sockeye salmon. With enhancement efforts and increased production in the 1990s, commercial openings were often of long duration. In years of strong production, closed waters were reduced for both subsistence and commercial fishing, occasionally to the river mouth. However, since 2001 Afognak Lake sockeye salmon production has been very low and, due to low escapements and declining production, a very conservative management strategy has been used. No commercial fisheries have been allowed targeting Afognak Lake sockeye salmon in June or early July in the Southeast Afognak Section, to protect the stock.

Since 2002, subsistence fisheries have also been restricted in the Southeast Afognak Section. In 2002, State and Federal managers closely monitored escapements, and on June 13 coordinated a closure of all of Afognak Bay, from Cape Kazakof to Afognak Point (over 6 miles from the river mouth) to all subsistence fishing. With continued low escapements, this subsistence fishing closure remained in effect until August 1 (essentially, the end of the Afognak Lake sockeye salmon run). In 2003, initial sockeye escapements were again very low, and State and Federal managers closed this same area to subsistence fishing from June 7 to August 7. In 2004, with escapements once again below expectations, managers again closed Afognak Bay to subsistence fishing. A slightly different closed area was employed, which included all waters within the normal commercial fishing closed water markers at Otrubistoi Point and Settlement Point, for

ease of identification (Appendix F.4). In 2004, subsistence fishing in Afognak Bay was closed from June 12 to August 1. Additional information regarding this management plan can be found in Appendices F.1 through F.4.

Eastside Kodiak Salmon Management Plan (5AAC 18.367)

The streams of the eastside of Kodiak Island support sockeye, pink, chum, and coho salmon runs. Additionally, mixed stocks of salmon moving toward their natal streams after feeding in the Gulf of Alaska and North Pacific pass along the east side of the Kodiak Island Archipelago. Since the early 1970s commercial salmon fisheries of the area followed a framework developed by fishery managers, with the eastside Kodiak harvest strategy remaining basically unchanged after the mid 1980s. In November 1995 the BOF placed the Eastside Kodiak Salmon Management Plan into regulation, governing the commercial salmon fisheries of the Eastside Kodiak (Appendix A.7.) and Northeast Kodiak Districts (Appendix A.8.). The goal of this MP is to achieve escapement and harvest objectives for sockeye, pink, chum, and coho salmon returning to spawning systems located in the Northeast Kodiak and Eastside Kodiak Districts (ADF&G 2002). This MP details the targeted species and stocks that are managed for in each district and section throughout the fishing season.

Several minor sockeye salmon systems are located within the area covered by this plan. Significant sockeye salmon runs return to the Buskin Lake system (within the Northeast Kodiak District near the City of Kodiak) and the Saltery Lake system (within the Inner Ugak Section of the Eastside Kodiak District connected to the City of Kodiak by an unmaintained road). The Buskin sockeye salmon run is normally fully utilized by subsistence and sport fisheries, with no directed commercial fisheries. The Buskin River is weired from May through September, so an accurate record of escapements is made each year. The Saltery sockeye salmon run is targeted by commercial fisheries, and experienced a large increase in sport fishing through 2003. There was a weir on Saltery Creek for the sockeye run, and occasionally through the early portion of the coho salmon run, from the mid 1980s through 2003. Increased costs and reduced budgets led to this weir being eliminated; escapement was documented with aerial surveys in 2004. Additional information regarding this management plan can be found in Appendices G.1 through G.3.

North Afognak/Shuyak Island Salmon Management Plan (5AAC 18.368)

The salmon fisheries of the north end of the Kodiak Archipelago have unique characteristics. In Pauls and Perenosa Bays (statistical areas 251-82 through 251-85; Appendix A.6) several systems have been the site of salmon enhancement and rehabilitation work for many years (Schrof et al. 2000). Sockeye salmon were stocked into the Pauls and Laura Lake system and the Portage Lake system beginning in the 1950s. Fish passes were built at both systems to allow salmon to move further upstream, increasing spawning area and subsequent returns. The Little Waterfall system has been the site of extensive enhancement work (statistical area 251-84), with fish pass remodeling and stocking, with the intent of increasing pink, sockeye, and coho salmon returns (Honnold 1999). Hidden Lake in the Northwest Afognak Section (statistical areas 251-40 and -41) has also been the site of coho and sockeye salmon stocking. Much of Shuyak Island and portions of northern Afognak Island are within the Alaska State Park system, and the myriad deep bays, lagoons, small streams and lakes support early, strong coho salmon runs. North Afognak and Shuyak Island fisheries have been important to local Kodiak salmon seine fishermen (this is a seine-only area), and there has been an increasing interest in these fisheries by sport users (Brennan et al. 2001).

In November 1995, the BOF placed into regulation the North Afognak/Shuyak Island Salmon Management Plan, governing all commercial salmon fisheries on the north end of the Kodiak Archipelago (the Northwest Afognak and Shuyak Island Sections are also managed on the North Shelikof Strait Sockeye Salmon Management Plan from July 6 to 25). Though no comprehensive regulatory management plan was in effect prior to 1995, the commercial fisheries of the area had followed a framework developed by fishery managers beginning in the early 1970s, with the harvest strategy remaining basically unchanged after 1987. The goal of this plan is to achieve escapement and harvest objectives for sockeye, pink, and coho salmon returning to spawning systems located in the Northeast Afognak, Pauls Bay, Perenosa Bay, Shuyak Island, and Northwest Afognak Sections of the Afognak District (ADF&G 2002). This MP details the targeted species and stocks that are managed for in each of these sections throughout the fishing season.

As mentioned, within the Pauls Bay and Perenosa Bay Sections, the Pauls Lake and Portage Lake systems produce runs of sockeye and coho salmon. The Pauls and Portage systems were formerly weired for much of the season for accurate escapement enumeration. Increased costs and reduced budgets led to these weirs being eliminated. Currently escapement is documented with aerial surveys, and KRAA has funded operation of the Pauls Bay weir for a few weeks in June to count sockeye salmon escapement. The Little Waterfall system is stocked with sockeye salmon. The Waterfall Bay Terminal Harvest Area (THA; statistical area 251-84; 5 AAC 18.376) is used to harvest sockeye salmon returning in June and early July, from stocking of the Little Waterfall system. In addition, in the Northwest Afognak Section, fishing time may be allowed in June and early July in the Foul Bay THA (statistical area 251-41; 5 AAC 18.375) to harvest sockeye salmon returning from stocking of Hidden Lake. Additional information regarding this management plan can be found in Appendices H.1 through H.5.

Mainland District Salmon Management Plan (5AAC 18.369)

The streams of the Alaska Peninsula portion of the Kodiak Management Area (the Mainland District; Appendix A.5) support significant pink, chum, and coho salmon runs, and several minor sockeye salmon runs. Additionally, mixed stocks of salmon moving toward their natal streams after feeding in the Gulf of Alaska and North Pacific pass through the Shelikof Strait and may move through the Mainland District waters. Several villages once existed in this district but have been uninhabited for decades. Commercial salmon fisheries have occurred in what is now the Mainland District since before statehood. Previous BOF action placed into regulation specific allocation plans for nonlocal sockeye salmon that migrate through portions of the Mainland District (the Cape Igvak and North Shelikof Strait Salmon Management Plans). In 1999 the general management framework for the Mainland, developed and used by fishery managers since the 1980s, was adopted by the BOF as the Mainland District Salmon Management Plan (ADF&G 2002). The goal of this MP is to achieve escapement and harvest objectives for sockeye, pink, chum, and coho salmon returning to spawning systems located in the Mainland District. This MP details the targeted species and stocks that are managed for in each of section throughout the fishing season, while also recognizing that the Cape Igvak Salmon Management Plan is in effect from June 5 through July 25 and the North Shelikof Strait Sockeye Salmon Management Plan is in effect from July 6 through 25. Additional information regarding this management plan can be found in Appendices I.1 and I.2.

Spiridon Lake Sockeye Salmon Management Plan (5AAC 18.366)

Within the Northwest Kodiak District, juvenile sockeye salmon have been stocked into Spiridon Lake (Figure 2; Appendix A.3) since 1990, with the first returns evident in 1993 (about 4,000 fish; Schrof et al. 2000). The return of adult salmon to the lake is prevented by a large series of barrier falls in the river. There is no suitable spawning or rearing habitat for sockeye salmon in Telrod Creek, the creek into which Spiridon Lake drains. The Spiridon Lake salmon stocking is categorized as a put-and-take project, with the intent of harvesting returning sockeye salmon in the traditional commercial fishing areas of the Northwest Kodiak District (ADF&G 2002). The BOF adopted the Spiridon Lake Sockeye Salmon Management Plan in January of 1993. This plan defines a THA and provides a strategy to harvest sockeye salmon that may escape westside Kodiak fisheries and return to the river mouth. Modifications were made by the BOF in 1995, including the reduction of the size of the THA to include only those waters in Telrod Cove. The Spiridon Lake Sockeye Salmon Management Plan provides for the full utilization of sockeye salmon returns from the Spiridon Lake enhancement project, while providing adequate protection to local wild stocks of Spiridon Bay.

Sockeye salmon stocked into Spiridon Lake were from the late-run Upper Station (Olga Lakes) stock from 1990 through 1994 and in 1996 and 1997, and from Saltery Lake stock from 1998 through 2004 (Honnold and Schrof 2001, Honnold and Byrne 2004). The timing of the run has coincided with the early-run sockeye and early pink salmon fisheries in the Northwest Kodiak District, with peak harvest timing occurring in mid to late July. If there is a harvestable surplus within the THA, fishing periods are 24 hours per day, coordinated when possible with openings in the Northwest Kodiak District.

Crescent Lake Coho Salmon Management Plan (5AAC 18.364)

This plan, as adopted by the BOF in 1990, deals with the subsistence, sport, and commercial harvest of coho salmon stocked into Crescent Lake, near the city of Port Lions (Figure 2). Coho salmon juveniles were first stocked into this lake in 1988 by ADF&G to increase sport and subsistence fishing opportunities (Honnold and Aro 2004). Since returning coho salmon cannot get above a barrier fall in Crescent Creek, this is intended as a put-and-take fishery, with all returning salmon to be harvested. This plan provides for subsistence and sport fisheries and allows commercial fisheries only on coho salmon surplus to those needs. Commercial fishing may be allowed in the area of Crescent Creek in Settler Cove between the Causeway and the normal closed water boundary at the end of the Port Lions breakwater. This management plan covers the time period of July 15 to October 31. Commercial fishing is permissible only after September 10, and then only if there are 500 or more coho salmon in this area available for commercial harvest.

COMMERCIAL SALMON HARVEST STRATEGY

During the first decade of statehood (1960s), weekly fishing periods were set preseason and usually ran from Monday through Friday. As part of a major effort in the early 1970s to rebuild Kodiak's depleted sockeye salmon stocks, the method of adjusting fishing time was changed from emergency order (EO) closures to EO openings. This changed the actual regulatory announcement for fishing time from preseason to inseason, which allowed orderly inseason adjustments of fishing time based on observed run strength. This, along with the refinement of escapement-based management, was a key factor in the success of the Kodiak salmon management program.

Historically, June 1 was the opening date for the Kodiak commercial salmon fishing season. However, years of poor management practices, consecutive severe winters, and overfishing resulted in very poor production from KMA early sockeye stocks, so the department and BOF severely restricted June fishing opportunities beginning in 1971. Through 1984 the earliest possible opening date was June 14.

As the KMA early sockeye salmon runs rebounded, the department began developing a set of consistent harvest strategies for KMA fisheries. The harvest strategies prioritized salmon conservation and created management stability by maintaining the complex allocative schemes that had developed between the various user groups. These plans outlined the primary management species for each area over the entire season. A component of these plans was the use of June 9 as the initial fishery opening date, because prior to June 9 there may not be enough escapement information available to evaluate run strengths.

By regulation, the commercial salmon fishing season in the KMA may extend from June 5 through October 31 (ADF&G 2002). Commercial salmon fisheries are structured around the seasonal abundance of salmon. Salmon run timing by species within the KMA follows a general chronology (Figure 4). Commercial fisheries management is based on the run timing of the four targeted salmon species. Early-run sockeye salmon are targeted from June through mid July, and late-run sockeye salmon from mid July through September. Pink and chum salmon are available from July through August. Coho salmon are generally present from August through October.

Inseason adjustments in fishing time and areas open to fishing are dictated by escapement requirements for the targeted salmon species. Inseason management activities focus around daily evaluations of actual run strength in comparison to preseason expectations (forecasts) by species. Commercial salmon fisheries may be allowed if there appears to be salmon that are surplus to escapement needs.

Providing a preseason plan to structure annual fisheries is essential to the prosecution of orderly fisheries (Brennan et al. 2004). The earliest opening dates for salmon fisheries are listed in the harvest strategy, along with projections of run strength. Also included in this annual harvest strategy are descriptions of the BOF approved regulatory management plans and how they will guide inseason management actions. From the mid 1980s through 2002, June 9 was the opening date for the first commercial test fishery targeting Karluk, Ayakulik, and Alitak sockeye salmon stocks.

KMA harvest strategies emphasizes three management criteria:

- (1) Promote maximum production opportunities for future KMA salmon returns by ensuring salmon escapements of sufficient magnitude and distribution;
- (2) Provide for orderly fisheries while maximizing harvest opportunities on the highest quality salmon;
- (3) Adhere to the biological and allocative requirements of all BOF adopted Management Plans for the KMA.

Another basic element of current management is, whenever possible, to coordinate specific fisheries to occur simultaneously (Figure 5). This provides for less concentrated fishing, which in turn lessens the potential for gear and allocative conflicts.

The majority of KMA commercial sockeye salmon fisheries are dependent on ensuring specific escapement requirements or are based on meeting allocative requirements specified in a regulatory management plan. Management of all major and most minor sockeye salmon runs utilizes daily escapement information to regulate fishing time and areas open to fishing. Establishing fishing time for sockeye salmon based solely on preseason harvest forecasts is not an acceptable method of managing KMA wild sockeye salmon stocks. There are four instances when fishing time may be set preseason:

- (1) Two limited (33 hour) “commercial test fisheries” in June for westside Kodiak and Alitak Bay Districts;
- (2) Two limited (33 hour) fishing periods in June for selected minor sockeye salmon runs;
- (3) Terminal Harvest Area fisheries on supplemental salmon runs; and
- (4) The initial weekly periods of the general pink salmon fisheries, from July 6 through early August.

Pink salmon constitute the bulk of the KMA salmon harvest (Table 4). The KMA harvest strategy for pink salmon also utilizes:

- (1) A fixed opening date of July 6 (in use since 1978);
- (2) A pink salmon forecast to set the length of the initial fishing periods; and
- (3) Coordination of multiple fisheries whenever possible, to disperse the purse seine fleet.

To provide the best quality pink salmon to the market, fisheries are structured to harvest pink salmon as they first migrate into the nearshore waters. Based on the predicted strength of the pink salmon run, fixed weekly fishing periods are planned for July and early August. After surveys of the escapement and inseason catch reports indicate the run strength, then adjustments to the length of fishing periods are announced. An accurate assessment of run strength, which may result in modification of fishing periods, usually occurs after the third weekly period in July (approximately July 25). This harvest strategy has been a major factor in contributing to the successful management of the relatively large KMA pink salmon runs. With the Kodiak Archipelago's deep, protected bays and abundant fresh water runoff, if fish are allowed to build up in terminal areas they quickly darken (they take on the spawning dark color and humped back) and become unmarketable, except for their roe.

Chum and coho salmon management requires a blend of these two approaches. Both species are initially harvested in directed pink or sockeye salmon fisheries. Terminal or near-terminal fisheries targeting chum or coho salmon require an assessment of actual run strength through analysis of run timing and strength, escapement estimation, and current harvest information.

Specific fisheries are not directed toward Chinook salmon. Harvests of Chinook salmon occur during fisheries that are directed toward sockeye and/or pink salmon.

The June 9 initial opening date is specified in the Alitak Bay District MP, Westside Kodiak MP, Eastside Afognak MP, and North Afognak/Shuyak Island Salmon MP. June 9 had also been the earliest opening date for the traditional fishing sections of the Alitak Bay District (the Cape Alitak, Alitak Bay, Moser Bay and Olga Bay Sections), but a modification of the Alitak Bay District MP at the January 1999 BOF meeting specified that fishing in those sections may begin as early as June 5. July 6 is the date of the general pink salmon opening in the Westside Kodiak MP, the North

Shelikof Strait Sockeye Salmon MP, the Eastside Afognak MP, the Eastside Kodiak MP, the Mainland MP and the North Afognak/Shuyak Island Salmon MP.

ESCAPEMENT ESTIMATION

Escapement in all four major sockeye salmon systems, several of the minor sockeye salmon systems, all Chinook salmon systems, and several major pink salmon systems are monitored by ADF&G staff at fish weirs (Figure 2). Weirs are used on up to 15 different spawning systems annually, and the escapements are counted by species. Escapement gates within the weir are closed when ADF&G personnel are not present to count⁸. Escapement counts are transmitted daily from fish counting camps to the Kodiak ADF&G office. Timely and accurate data from weir camps allows for a more precise stock specific management.

The remainder of the KMA sockeye salmon systems and most pink, chum, and coho salmon estimates of buildup and escapement counts are monitored by aerial observation of bays and streams using small fixed-wing aircraft. Foot surveys are also used on a few streams. Aerial and foot survey counts are considered the minimum escapement and are an index of the actual escapement for use inseason to aid fishery management, not an estimate of absolute abundance. Aerial and foot surveys give presence or absence information and, when coupled with run timing information, can give managers a good indication of the relative strength of a run. A “peak indexed-escapement” estimate is calculated postseason for all systems surveyed and, together with weir escapement data, is used to estimate the area-wide escapement (Table 9)⁹.

PROSECUTING AND MONITORING COMMERCIAL FISHERIES

Prior to the mid 1970s, fishing periods were set by regulation and any inseason changes, such as closures, were announced by emergency orders (EO). Since the mid 1970s actual fishing time has been regulated through the use of EO and news releases (NR) that announce specific details of when and which areas will open to fishing. With analysis of all available data, a KMA management biologist writes an EO that describes details for upcoming or continued commercial salmon fishing periods. The EO describes the starting date, time, and duration of the fishery along with the geographical areas (districts, sections, or subsections) that are to be opened or closed to fishing, and in effect creates a new regulation. A NR is issued that publicly announces the fishery. Over 40 EOs may be released in a season, describing hundreds of individual management actions affecting the fisheries within the KMA (Figure 5).

The ADF&G management staff's inseason duties include daily contact with all salmon buyers to obtain current harvest information by area and species. Also, staff has daily contact with fishermen to discuss run strength and distribution along with obtaining feedback concerning inseason management activities. As the season progresses, fish tickets (a harvest report for an individual landing) are collected from processors and tenders, and this information is entered into a computer database. Inseason, fish ticket summaries are made and compared to previous verbal reports to refine the catch estimate to date.

⁸ In 2004, ADF&G biologists experimented with estimation of pink salmon escapement into the Karluk River using timed counts of fish moving through open gates in the Karluk weir.

⁹ Peak indexed escapement for sockeye, chum, and coho salmon is the highest daily aerial or foot survey count for each system for each year. For pink salmon, peak indexed escapement of each stream surveyed is estimated as the larger of either the highest daily survey count or the sum of two counts that are 30 or more days apart. This is done to compensate for the longer stream life of pink salmon. Expansion of aerial or foot survey counts to estimate total run strength can be accomplished by various methods, and may be done postseason by research staff. All escapement values in past Annual Management Reports are total counts from weirs plus peak index counts, and this document follows that method.

Additional inseason information on returning sockeye salmon run strength in the Alitak Bay District (the Frazer and Olga Lake stocks) is obtained from an ADF&G test fishery in Olga Narrows (Foster 2003). A 50 fathom gillnet is fished each day for a set time in a set location. Results are compared with past data on test fishery catches versus actual salmon runs to help predict the number of salmon passing through Olga Narrows.

Subsistence Salmon Fishery

Subsistence salmon permits, available to Alaska residents, are issued annually. Subsistence fishers are requested to return their permits to ADF&G after the salmon season, listing the areas fished by date and salmon harvest by species. Since 1989 Kodiak salmon management staff have mailed out permits, regulations, and a map showing closed water areas to eligible residents. Additional permits are issued at the Kodiak ADF&G office. Beginning in 2001, the Divisions of Subsistence and Commercial Fisheries began a program to collect better subsistence harvest information from village residents. Individuals within village government or corporations were trained in the issuance and collection of subsistence permits. Division of Subsistence also collected past information and entered that data into a statewide database.

With few restrictions, the entire KMA is open to subsistence salmon fishing. Only the freshwater systems of Afognak Island (which are relatively small, easily accessible and at risk of overexploitation) and some areas near heavily exploited salmon systems are closed to subsistence salmon fishing (ADF&G 2004).

Reported harvests have averaged 35,783 salmon for the 10-year period 1994 through 2003 (Table 10). Sockeye salmon accounting for the majority of the harvest (77.6%) followed by coho salmon (16.6%). The most utilized subsistence fishery areas include the north end of Kodiak Island (Buskin, Saltery and Pasagshak) and the southeast side of Afognak Island (Litnik and Kitoi).

Salmon Sport Fishery

Since the early 1980s recreational and commercial sport fishing activities have increased, particularly in remote areas of the KMA. Commercial sport activity includes remote lodge operations, charter vessels, guiding, and directed air charter flights. Charter boat operations, based in the City of Kodiak and remote villages, and remote lodges have increased. Rental cabins are available from the Kodiak National Wildlife Refuge, the Alaska State Parks, and the area Native corporations. Air charter operations from Kodiak and Homer bring sport fishermen to KMA streams, as do aircraft from sport fishing lodges in Bristol Bay, the Alaska Peninsula, and the Kenai Peninsula. Fly-in sport fishing areas include virtually all KMA Chinook and sockeye salmon systems, and most major coho salmon systems, particularly along the north Mainland and northern Afognak.

The ADF&G Division of Sport Fish (SF) manages KMA sport fishing activities. Sport fish harvest statistics are compiled by sport fish regulatory area, which do not correspond to commercial fishery area boundaries. Kodiak Archipelago sport fishery statistics are compiled, but the fisheries that occur in the Mainland District are combined with north and south Alaska Peninsula and Aleutian Island area statistics.

The most popular sport fishery, based on angler effort, is the fresh and marine water fishery adjacent to the Kodiak road system. An increase in effort and harvest of Chinook salmon has

also occurred at both the Karluk and Ayakulik Rivers, and since 1992 a Chinook salmon troll sport fishery has developed in Chiniak Bay (Schwarz and Clapsadl 2000).

The 2004 sport fishing harvest estimates are not available, but harvest estimates are current to 2003. The recent 10-year (1994 to 2003) estimated average annual Kodiak Archipelago sport harvest¹⁰ was 49,936 salmon (Table 11). Sport fish effort, as measured by angler days, has increased in the Kodiak regulatory area (Schwarz et al. 2002). A separate report to the BOF has been prepared to describe Kodiak regulatory area sport fisheries (Schwarz *in prep*).

SALMON STOCK STATUS

CHINOOK SALMON

The Kodiak area has two naturally occurring Chinook salmon populations, in the Ayakulik and Karluk Rivers. There are no directed commercial fisheries targeting these stocks and any commercial harvest occurs as bycatch in fisheries targeting sockeye and pink salmon.

Chinook salmon have been introduced in other KMA systems. A small introduced Chinook salmon run in the Dog Salmon Creek is now self-sustaining. Chinook salmon were stocked into the Pasagshak River (Lake Rose Tead) to begin a Chinook salmon run accessible by road to Kodiak sport fishermen. Currently no sport fishing for Chinook salmon is allowed in either the Dog Salmon or Pasagshak drainages. Beginning in 1989, juvenile Chinook salmon were stocked into Island and Mission Lakes near the city of Kodiak, then into the Buskin River in 1995 and 1996. Chinook salmon produced by these projects undoubtedly contributed in a small way to KMA commercial fishery harvests. A new Chinook stocking project is now underway in Monashka Creek (from Karluk River broodstock).

Kodiak wild Chinook salmon stocks are considered healthy. The Kodiak area Chinook escapements have met the aggregate goal (8,400 to 16,900; Nelson and Lloyd 2001) annually since 1983, and have met or exceeded the upper end of the aggregate escapement goal range each year since 1987 (Tables 2 and 9; Figure 6). Chinook salmon escapements at the Karluk and Ayakulik Rivers have met or exceeded the current individual system escapement goal each year since 1982 (Appendix J.1).

Recent Chinook salmon escapements to the Ayakulik River have been very strong. Since 1995, Ayakulik Chinook escapements have exceeded the current escapement goal (4,800 to 9,600), averaging 15,934 salmon. The 2004 Ayakulik escapement (24,830 Chinook salmon) was the largest recorded. Recent Karluk River Chinook salmon runs have been fair to good. Since 1995, Karluk Chinook escapements have met the current escapement goal (3,600 to 7,300), and averaged 9,632 Chinook salmon. However, the past several years have seen a lower abundance of Karluk Chinook salmon. After a relatively poor run in 2001 (4,453 Chinook salmon), the 2002, 2003, and 2004 escapements (7,175, 7,256, and 7,525 Chinook salmon respectively) have been near the upper goal.

Given the proximity of the Karluk and Ayakulik Rivers, it is unusual that the Karluk Chinook run has been relatively weak compared to the Ayakulik, as these runs have performed somewhat similarly in past years. Environmental conditions for spawning, rearing, and outmigration have been similar. It can be assumed that ocean conditions for these two Chinook stocks were similar,

¹⁰ These represents estimates of fish landed and kept, and does not include estimates of catch and release.

though mixing and ocean migration patterns are not known. There has been concern that large numbers of Karluk Chinook salmon were harvested during commercial fisheries in the Inner and Outer Karluk Sections, which had lengthy fishery openings due to unusually early and strong Karluk sockeye salmon runs. However, the commercial harvest of Chinook salmon from the Inner and Outer Karluk Sections has remained relatively low, especially in comparison to the early-run Karluk sockeye salmon (Appendix D.5).

Chinook salmon harvests have increased in the subsistence, sport, and commercial fisheries (Tables 4, 10, and 11; Figure 7). The KMA commercial harvest of Chinook salmon during 2002 (19,263), 2003 (18,531) and 2004 (28,899) are near or above the 10-year average (1994 to 2003; 18,263). The 2004 harvest was second only to the record 1993 harvest of 41,029 Chinook salmon. The reported subsistence fishery annual harvest averages 349 Chinook salmon (1994 to 2003; 2004 catch estimates are not yet available). The KMA sport harvest of Chinook salmon during 2002 (4,136) and 2003 (9,031) bracket the past 10-year average (1994 to 2003; 5,564 Chinook salmon).

SOCKEYE SALMON

There are 39 known sockeye salmon runs in the KMA (Table 1). Large runs (greater than 500,000 fish) occur in four lake systems: Karluk, Ayakulik (Red Lake), Upper Station (South Olga Lakes), and Frazer (Dog Salmon Creek) systems. The first three support naturally occurring runs, while the Frazer Lake sockeye salmon stock is an introduced run. There is a large set of falls below Frazer Lake that blocks natural migration; this run is maintained through the use of a fish pass.

These systems provide approximately 85% of current KMA sockeye salmon production. Directed fisheries on these stocks occur from June 5 through September 20. The Karluk and Upper Station systems have distinct early (May 25 through July 15) and late runs (July 16 through September 20). Frazer was intended primarily as an early returning stock with most sockeye salmon entering fresh water by July 20. However, the Frazer sockeye salmon run has become more protracted, now extending into early August. The Ayakulik sockeye salmon run starts in June but also has a more protracted run timing that continues into mid August (the late component is only significant when the Ayakulik run is very large). The overall escapement goals for these four major systems have been achieved annually since 1988 (Appendix J.2 to J.7).

Ten other sockeye salmon systems in the KMA have minor runs. These include the Afognak (Litnik), Pauls, Perenosa, Thorsheim, Malina, Uganik, Little, Saltery, Buskin, and Kafli systems. These systems annually account for approximately 5% to 10% of KMA's current sockeye salmon production. Escapement into each system is generally less than 60,000 sockeye salmon. Most of these systems support limited commercial fisheries. The exception is the sockeye salmon run into Buskin Lake, which is not targeted by a commercial fishery. The remaining 23 systems are small and are not usually exploited by directed commercial effort. Several systems, such as Akalura, Pasagshak (Lake Rose Tead), Ocean Beach, and Swikshak, may experience strong sockeye runs in certain years, but are highly variable in annual production.

Overall, KMA sockeye salmon stocks are healthy. The 2002, 2003, and 2004 annual KMA sockeye escapements (1.62 million, 2.22 million, and 1.84 million) met or exceeded the current aggregate escapement goal (1.28 to 1.89 million; Nelson and Lloyd 2001; Tables 2 and 9; Figure 8). The lower aggregate escapement goal for Kodiak sockeye salmon has been met annually

since 1978; the upper aggregate goal has been exceeded only twice (1999 and 2003) in the past 10 years (1995 to 2004).

Karluk sockeye runs have generally been strong. Early-run Karluk sockeye escapement has exceeded the escapement goal (150,000 to 250,000 sockeye salmon by July 15; Nelson and Lloyd 2001) each year since 1998 (Appendix J.2). The 2002, 2003, and 2004 escapements (453,495, 448,001 and 389,041 sockeye salmon respectively) also began significantly earlier than in past years, despite early and extended commercial fisheries in June and July, with closed waters reduced to the Karluk Lagoon outlet (Appendix D.5). The late-run Karluk sockeye escapement goal (400,000 to 550,000 salmon from July 16 through September; Nelson and Lloyd 2001) has been achieved less consistently (Appendix J.3). Late Karluk sockeye salmon hold in Karluk Lagoon, often in large numbers and often for several weeks prior to passing through the Karluk weir and moving upstream. Upstream migration seems to be delayed by low river flow and low lagoon water levels, higher water temperatures, and large numbers of pink salmon in the lagoon, although there are undoubtedly more factors involved. In addition, July and August fisheries along Kodiak's west side (the main harvest area for Karluk-bound salmon) are mixed stock in nature, particularly during even-numbered years when very large runs of pink salmon return to the Karluk River. Estimation of the number of sockeye salmon holding in Karluk Lagoon, which is difficult at best, is a key component in the management of the commercial fisheries from August through September. The late-run Karluk escapement in 2002 was 412,081 sockeye salmon, in 2003 was 630,709 sockeye salmon, and in 2004 was 331,186 sockeye salmon. The 2003 run had a very strong late component, occurring from September 1 through 20, after most commercial fishermen had ceased operations for the season (Wadle *in prep*), while the 2002 and 2004 runs were more normal.

Ayakulik sockeye salmon runs have been somewhat weak. Ayakulik sockeye salmon escapements have met the lower end of the escapement goal range (200,000 to 300,000 salmon by September 7; Nelson and Lloyd 2001) each year since 1995, and exceeded the upper end of the range only in 1996 and 1998 (Appendix J.4). The recent Ayakulik run timing, in contrast to the Karluk sockeye early run, has not seemed particularly early. Little commercial salmon fishing time was allowed in the Inner or Outer Ayakulik Sections in 2002, 2003, or 2004, to maximize sockeye escapement. In 2003 and 2004, there was almost no sockeye escapement into the Ayakulik River during July and August, despite very limited commercial fisheries. The Ayakulik escapement in 2002 was 229,292 sockeye salmon, in 2003 was 197,892 sockeye salmon, and in 2004 was 275,238 sockeye salmon.

Frazer (Dog Salmon Creek) sockeye salmon runs have been variable, and improving. Frazer sockeye escapements have essentially met or exceeded the current goal (140,000 to 200,000 sockeye by July 25; Nelson and Lloyd 2001) each year since 1995, except in 2002 (despite virtually no commercial fishing opportunities; Appendix J.5). The Frazer run timing was very early in 2001 and 2004. In 2003, the Frazer sockeye run began later than normal and was weak through June, but there were good escapements in July. The 2003 Frazer sockeye salmon run was also unusual in that the percentage of jack salmon (1-ocean, predominantly male salmon) was very high, constituting over 50% of the escapement (Wadle *in prep*). The Frazer sockeye salmon escapement, through the Dog Salmon weir, in 2002 was 105,988 sockeye salmon, in 2003 was 262,731 sockeye salmon, and in 2004 was 226,266 sockeye salmon.

Upper Station sockeye salmon runs have also been variable. The 2002 and 2003 runs were weak, with little to no commercial fishing time allowed. The early-run Upper Station sockeye

escapement has met the optimal escapement goal (25,000 through July 15; Nelson and Lloyd 2001) each year since 1995 (Appendix J.6). The upper sustainable escapement goal (75,000 through July 15; Nelson and Lloyd 2001) was achieved in 2003 and 2004. Since 2000, run timing appears to be earlier than normal for the Upper Station early run, similar to Karluk. The early-run Upper Station escapement in 2002 was 36,802 sockeye salmon, in 2003 was 76,175 sockeye salmon, and in 2004 was 78,487 sockeye salmon. The late-run Upper Station sockeye escapement goal (150,000 to 200,000 sockeye salmon from July 16 through September 10; Nelson and Lloyd 2001) is larger than the early-run goal. Only once since 1995, in 2001, has the lower end of the range not been met, and the upper end has been exceeded twice, in 1996 and 1997 (Appendix J.7). Pink salmon runs to Dog Salmon Creek can be large (in excess of 1 million fish) and complicate the management of Upper Station sockeye salmon late runs. The late-run Upper Station escapement in 2002 was 150,349 sockeye salmon, in 2003 was 200,894 sockeye salmon, and in 2004 was 177,108 sockeye salmon.

Minor sockeye runs are generally early to mid season in timing, and escapements are mostly measured by aerial survey. Two minor systems' escapements are monitored by weirs. The Buskin River system has experienced record sockeye runs (Appendix J.8; goal 8,000 to 13,000 through July 25; Nelson and Lloyd 2001). The Buskin escapement in 2002 was 17,174 sockeye salmon, in 2003 was 23,870 sockeye salmon, and in 2004 was 22,023 sockeye salmon. The area near the Buskin River is closed to commercial fishing during June (5 AAC 18.367(a)(3)), because this run has been fully utilized by subsistence and sport fishermen. The Afognak Lake (Litnik) sockeye salmon run has been depressed (Appendix J.9). Escapements in the mid 1990s were very large. Low runs, with escapements approximately half of the lower end of the escapement goal range (40,000 to 60,000 through July 25; Nelson and Lloyd 2001) have occurred each year since 2001, despite commercial, sport, and subsistence fishing restrictions, and over escapement is being investigated as a possible cause. The Afognak Lake escapement in 2002 was 19,520 sockeye salmon, in 2003 was 27,766 sockeye salmon, and in 2004 was 15,181 sockeye salmon. Strong early sockeye runs have also been seen recently in the Saltery, Pasagshak, Uganik, and Little River systems, though there has been a lot of annual variability.

Commercial sockeye salmon harvests have increased since 2002, which had the lowest sockeye harvest since the late 1980s (Table 4; Figure 9). The commercial harvest in 2002 was 1,824,848 sockeye salmon, in 2003 was 4,041,886 sockeye salmon, and in 2004 was 4,165,880 sockeye salmon. The previous 10-year (1994 to 2003) average KMA commercial sockeye salmon harvest was 3,454,033 fish.

The KRPT established sockeye salmon as the priority species for supplemental production. Currently, KRAA, in conjunction with ADF&G, is providing additional sockeye salmon production, both by introducing sockeye runs into previously unutilized lakes and by rehabilitating natural runs. In 2002 the supplemental production of sockeye salmon from all projects (stockings and hatchery returns) contributed an estimated 565,422 sockeye salmon, 796,359 sockeye salmon in 2003, and 266,150 sockeye salmon in 2004 (Table 5; exact harvests are not known as many supplemental salmon may be harvested in mixed stock fisheries, and some supplemental production comes from systems with naturally occurring sockeye salmon populations).

Commercial salmon harvest strategies have not limited sockeye salmon subsistence or sport fishing opportunities in the KMA. The Buskin, Barabara, Litnik, Pasagshak, and Saltery sockeye stocks receive substantial subsistence effort due to their proximity to communities. The Buskin

and Barabara systems, in some years, have seen near maximum exploitation from subsistence effort alone. Sport fish interest in Barabara is low, while the Buskin is seeing increasing effort.

The reported subsistence harvests were 33,844 sockeye salmon in 2002 and 32,193 sockeye salmon in 2003 (Table 10). The recent 10-year average annual subsistence harvest for the Kodiak area was 27,753 sockeye salmon (1994-2003; 2004 catch estimates are not yet available). In addition, fish taken legally in commercial fisheries may be kept by commercial fishermen as “home pack”. In 2002 the number of sockeye reported as home pack was 5,447 sockeye salmon, in 2003 was 11,025 sockeye salmon and in 2004 was 3,052 sockeye salmon (Table 12). The estimated annual sport fish harvest has averaged 10,949 sockeye salmon (1994 to 2003; 2004 catch estimates are not yet available), and the sport catch for 2002 (9,672 sockeye salmon) and 2003 (12,562 sockeye salmon) bracket this average (Table 11).

COHO SALMON

Approximately 174 systems support coho salmon runs in the KMA (Table 1). Twenty percent of KMA coho salmon systems (35 streams) produce most of the Kodiak Area coho production. The other 80% of Kodiak coho systems (139 streams) support coho runs that are relatively small with significant annual variability.

Coho salmon stocks of the KMA are considered healthy. Obtaining consistent escapement estimates for coho salmon is difficult. This is mainly due to late run timing; stormy fall weather washes out fish counting weirs and limits aerial surveys. Budget constraints also limit late season escapement estimation. In recent years, because of increased costs and declining budgets, many of the KMA fish counting weir projects have been closed for the season much earlier (mid August) than previously (mid September). Coho salmon escapement goals are established for some representative streams as well as for heavily exploited systems along the Kodiak road system (Nelson and Lloyd 2001). Most goals only represent a portion of the total escapement; that is, it is known that coho salmon will continue to enter systems to spawn late into the fall, beyond the department’s ability to monitor the escapements. Current goals represent the desired escapement level by mid to late September. Taken in aggregate, KMA coho salmon escapement estimates have met or exceeded the current escapement goal (55,300 to 94,275; Nelson and Lloyd 2001) each year since 1981 (Tables 2 and 9; Figure 10). The KMA coho salmon escapement was estimated in 2002 at 168,271 coho salmon, 122,824 coho salmon in 2003, and 71,456 coho salmon in 2004. The trend of decreasing escapement is related to fewer late season escapement surveys and reduced weir operational time, not a decline in production. The 10-year (1994 to 2003) average escapement was 188,094 coho salmon.

In recent years, coho salmon harvests have been relatively stable or increasing (Tables 4, 10, and 11; Figure 11). During the 2002 season the commercial harvest was 496,073 coho salmon (the highest on record), in 2003 was 339,457 coho salmon, and in 2004 was 489,871 coho salmon (a new record). The recent 10-year average (1994-2003) commercial catch was 348,557 coho salmon. The Kitoi Bay Hatchery contributed approximately 209,259 coho salmon in 2002, 144,389 coho salmon in 2003, and 128,291 coho salmon in 2004 to the commercial catch in fisheries associated with the Kitoi Bay Hatchery (Table 5). The number of coho salmon reported as home pack from commercial fisheries in 2002 was 7,542 coho salmon, in 2003 was 12,310 coho salmon and in 2004 was 290 coho salmon (Table 12).

The reported subsistence harvests were 6,175 coho salmon in 2002 and 6,098 coho salmon in 2003 (Table 10). The recent 10-year average annual subsistence harvest for the Kodiak area was

5,948 coho salmon (1994-2003; 2004 catch estimates are not yet available). The estimated annual sport fish harvest has averaged 24,042 coho salmon (1994 to 2003; 2004 catch estimates are not yet available), and the sport catch for 2002 (29,957 coho salmon) and 2003 (31,976 coho salmon) were above this average (Table 11).

PINK SALMON

All salmon streams within the KMA support pink salmon runs. Pink salmon represent the foundation of Kodiak salmon production, and may constitute over 80% of the total annual harvest (Table 4). Primarily due to the cyclic production from Ayakulik and Karluk Rivers, KMA wild pink salmon runs are usually larger during the even numbered years. From 1989 to 1997 odd-year wild stock pink salmon production surpassed even-year production, but recent odd-year production has diminished¹¹. In 1998 a new record for even-year pink salmon harvests was set (22,062,465 pink salmon), which was nearly exceeded by the 2004 commercial harvest (21,440,641 pink salmon).

Except for occasional local variations, KMA pink salmon stocks are considered very healthy. Pink salmon survival and subsequent returns are strongly influenced by environmental factors (Groot and Margolis 1991). Wild stock pink salmon production should remain above average as long as the basic management plans are retained (to ensure adequate escapement) and adverse environmental conditions do not persist. Pink salmon escapement goals are expressed as district-wide aggregates, though management may have individual objectives for some streams (Nelson and Lloyd 2001). The odd-year goal (1.0 million to 3.0 million) is smaller than the even-year goal (2.4 million to 6.0 million). Area-wide, pink salmon escapement objectives have been met or exceeded each year since 1975 (Tables 2 and 9; Figure 12). The KMA pink salmon escapement was estimated in 2002 at 8,396,402 pink salmon, 5,096,962 pink salmon in 2003, and 8,786,518 pink salmon in 2004.

Pink salmon harvests have been at historically high levels in the commercial fisheries, with 5 of the top 10 commercial harvests occurring since 1995 (Tables 4; Figure 13). The Kitoi Bay Hatchery has become very successful at producing pink salmon, and contributes significantly to the KMA pink salmon harvest. The total KMA pink salmon commercial harvest in 2002 was 18,327,818 pinks, in 2003 was 14,065,615 pink salmon, and in 2004 was 21,440,641 pink salmon. The average of the past five odd-year (1995 to 2003) commercial harvests is 19,883,058 pink salmon (this average includes the highest annual harvest on record, 42,849,294 pink salmon in 1995). The past five even-year average (1994 to 2002) commercial harvest is 12,393,430 pink salmon. The Kitoi Bay Hatchery contribution to the 2002 commercial catch was 6,696,774 pink salmon (a new even-year record), in 2003 was 5,533,522 pink salmon, and in 2004 was 3,962,421 pink salmon (Table 5).

The reported subsistence harvests were 1,665 pink salmon in 2002 and 1,509 pink salmon in 2003 (Table 10). The recent 10-year average annual subsistence harvest for the Kodiak area was 1,384 pink salmon (1994-2003; 2004 catch estimates are not yet available). The estimated annual sport fish harvest has averaged 8,805 pink salmon (1994 to 2003; 2004 catch estimates are not yet available), and the sport catch for 2002 (9,022 pink salmon) and 2003 (6,842 pink salmon) bracket this average (Table 11).

¹¹ Kodiak odd year pink salmon production was generally greater than even year production prior to 1948. The mechanisms that have led to switches in odd vs. even year dominance are not known.

CHUM SALMON

Chum salmon are present in at least 150 streams of the KMA (Table 1). Kodiak chum salmon production has been variable, and has been slowly increasing after many years at low levels. Directed fishing on specific chum salmon stocks combined with a harvest strategy for better quality fish (bright vs. dark fish) has required the development of more intensive chum salmon stock management. Except for occasional local variations, KMA chum salmon stocks are healthy.

In the KMA, chum salmon may be the most difficult salmon for which to obtain consistent escapement estimates from year to year. This is mainly due to the variable survey conditions (visibility) due to the murky water of slough and side channels that chum salmon may spawn in. In addition, chum salmon intermingle with pink salmon, and in years of large pink runs it is much more difficult to distinguish the chum salmon. Chum salmon escapement goals are expressed as district-wide aggregates, though management may have individual objectives for some streams (Nelson and Lloyd 2001). The area-wide chum salmon escapement objective (273,000 to 819,000 chum salmon; Nelson and Lloyd 2001) has been met or exceeded each year since 1993 (Tables 2 and 9; Figure 14). The KMA chum escapement was estimated in 2002 at 530,591 chum salmon, 380,523 chum salmon in 2003, and 533,091 chum salmon in 2004. The average escapement from the previous 10-year period (1994 to 2003) is 549,966 chum salmon.

Chum salmon harvests have been variable in the commercial fisheries, and remain at low levels in the subsistence and sport fisheries (Tables 4, 10, and 11; Figure 15). The Kitoi Bay Hatchery has become very successful at producing chum salmon, and contributes significantly to the KMA commercial harvest. The total KMA chum salmon commercial harvest in 2002 was 650,144 fish, in 2003 was 1,151,757 chum salmon, and in 2004 was 1,121,855 chum salmon. The 10-year average (1994 to 2003) commercial harvest is 860,556 chum salmon. The Kitoi Bay Hatchery contribution to the 2002 commercial catch was 88,724 chum salmon, in 2003 was 466,205 chum, and in 2004 was 239,610 chum salmon.

The reported subsistence harvests were 350 chum salmon in 2002 and 388 chum salmon in 2003 (Table 10). The recent 10-year average annual subsistence harvest (1994-2003) for the Kodiak area was 349 chum salmon (2004 catch estimates are not yet available). The estimated annual sport fish harvest has averaged 577 chum salmon (1994 to 2003; 2004 catch estimates are not yet available), and the sport catch for 2002 (104 chum salmon) and 2003 (548 chum salmon) were below this average (Table 11).

2002 TO 2004 COMMERCIAL SALMON FISHERY SUMMARIES

Escapement and harvest is contained in the previous section concerning salmon stock status. Brief summaries of the inseason activities for the 2002, 2003, and 2004 seasons, along with additional information such as effort and exvessel values, are below.

2002

The 2002 KMA commercial salmon fishery began on June 9; the last set gillnet landing occurred on August 29 and the last purse seine landing occurred on September 22. Commercial fishing effort, declining since 1990, reached a record low (Table 6; Figure 3). Of 608 available Kodiak commercial salmon fishing permits, only 242 were fished. Ninety-six permits were not renewed for the 2002 season. By gear type, a total of 149 purse seine and 93 set gillnet permit holders fished; there was no participation by beach seine fishermen in 2002. An additional 70 to 80 set

gillnet permit holders were at their sites on the fishing grounds, ready to fish, in the Alitak Bay District but were not allowed to fish due to poor salmon runs.

The sockeye salmon harvest (1.82 million; Table 4) was below forecast (2.20 million; Eggers, editor. 2002). Particularly low were the commercial sockeye harvests associated with the Ayakulik and Alitak runs. Virtually no commercial fishing time was directed towards these major systems. The Alitak runs support the commercial fishery for approximately 40% of KMA set gillnet fishers. The Afognak Lake (Litnik) sockeye salmon run was almost a complete failure for the second consecutive year. No commercial or sport fisheries were allowed and, for the first time, the subsistence fishery in the adjacent marine waters was closed. Karluk early-run sockeye salmon were strong and came in early. The initial commercial fishing period was June 9, however due to price disputes only limited fishing occurred through June 16. Karluk sockeye salmon escapement quickly surpassed the early-run escapement goal (150,000 to 250,000 sockeye salmon by July 15; Nelson and Lloyd 2001). Continuous fishing was allowed along the westside and in the Outer Karluk Section from June 9 through July 9 (the end of the first pink salmon period) and the terminal Inner Karluk Section was opened to continuous fishing from June 15 through July 15.

The total pink salmon harvest (18.3 million; Table 4) exceeded the forecast (11.0 million). Wild stock pink salmon harvests were much higher than expected, and the Kitoi Bay Hatchery contributed a new even-year record of approximately 6.7 million pink salmon to the common property harvest, well above the forecast (5.0 million). For all species, commercial salmon harvests in 2002 were reduced by 1) a price dispute between fishermen and processors that delayed the onset of fishing for the majority of the fleet, 2) harvest restrictions imposed on fishermen by salmon processors due to production limitations, and 3) poor sockeye salmon runs to Alitak Bay.

The estimated total exvessel value of the 2002 fishery was approximately \$13.6 million (Table 13). Purse seine fishermen accounted for 87.2% of the total number of salmon harvested and averaged an estimated \$71,882 per fished permit. Set gillnet fishermen accounted for 12.8% of the total number of salmon harvested and averaged an estimated \$31,223 per fished permit.

Fish counting weirs were operated on 15 systems in 2002, with projects operated by the department and the US Fish and Wildlife Service. In addition, five different observers flew 26 aerial surveys, and eight observers made foot survey escapement estimates. Reduced commercial fishing effort generally led to increased escapements (Table 9). For sockeye salmon systems there were significant deviations from desired escapements. Early-run Karluk, Saltery, and Buskin sockeye escapements were well above the upper ends of their escapement goal ranges, but Ayakulik, Frazer, early and late Upper Station, Litnik, and Akalura sockeye salmon escapements were at or below the lower ranges of their goals.

2003

The 2003 KMA commercial salmon fishery began on June 5 and the last commercial landing occurred on September 19, 2003. Commercial fishing effort was low again, although slightly higher than the record low participation in 2002 (Table 6; Figure 3). Of the 608 eligible Kodiak commercial salmon permits, only 305 made commercial landings. Ninety-six permits were not renewed for the 2003 season. By gear type, a total of 145 purse seine and 160 set gillnet permit holders fished; there was no participation by beach seine permit holders in 2003.

Most sockeye salmon runs were early and strong. The sockeye salmon harvest (4.04 million; Table 4) was almost twice the point forecast (2.14 million; Eggers, editor. 2003) though within the forecast range (approximately 0.95 to 4.76 million sockeye salmon). Karluk early-run sockeye salmon were again strong and early. In an attempt to slow early escapement, the initial commercial fishing period was June 5, four days earlier than the traditional June 9 opening date. However, Karluk sockeye salmon escapement met the early-run lower escapement goal (150,000 sockeye salmon by July 15; Nelson and Lloyd 2001) on June 5, and by June 8 exceeded the upper goal (250,000 sockeye salmon by July 15; Nelson and Lloyd 2001). Continuous fishing was allowed along the westside and in the Outer and Inner Karluk Sections through early July, when the management focus turned to pink salmon. Alitak systems produced better than expected sockeye runs (overall forecast 204,000, actual harvest approximately 345,800 sockeye salmon). The Saltery Lake sockeye run was strong again. Also above projections were harvests associated with supplemented sockeye production from KRAA stocking projects.

While most sockeye salmon runs in 2003 were strong, there were notable exceptions. The Ayakulik sockeye run was expected to be weak, and it was. For the second year, there was little harvestable surplus. The Litnik sockeye salmon run was weak for the third consecutive year. No commercial or sport fisheries were allowed and, as occurred in 2002, the subsistence fishery in the adjacent marine waters was closed.

The 2003 KMA commercial harvests for other species were less than what they could have been, given run strengths. Harvests were reduced by many factors, including early or unusual run timing, strong runs and low effort, poor market conditions for some species (low prices or suspended buying), limited tender service to some areas, poundage limits, required daily delivery, and processors restricting their fleets to specific areas. The Kitoi Bay Hatchery harvests included a record 466,205 chum salmon. There was a cost recovery fishery at the Kitoi Bay Hatchery, with Kitoi pink salmon harvested and sold by KRAA. The cost recovery fishery took approximately 1.6 million (5.8 million pounds) of the approximately 5.5 million pink salmon harvested near the Kitoi Bay Hatchery.

The estimated total exvessel value of the 2003 fishery was approximately \$16.7 million¹². Purse seine fishermen accounted for 85.2% of the total number of salmon harvested and averaged \$81,420 per fished permit, an increase from the 2002 estimated exvessel value. Set gillnet fishermen accounted for 14.8% of the total number of salmon harvested and averaged \$31,223 per fished permit, again an increase from 2002.

Fish counting weirs were operated on 12 systems, with projects operated by the department and the US Fish and Wildlife Service. In addition, 4 different observers flew 25 aerial surveys, and 4 observers made foot survey escapement estimates. Lower fishery effort led to large escapements for most species in most areas (Table 9). Budget constraints limited aerial surveys and reduced late season operation of fish counting weirs. In many cases, this reduced the department's ability to accurately estimate or index the total escapement. Particularly deficient were late season chum and coho salmon escapement estimates and Mainland District estimates for all species.

¹² This estimate is based on inseason price estimates and will increase as final processor reports are submitted. Inseason values may not reflect additional payments made to fishermen for dock deliveries, RSW, iced fish, or other settlements. Additional post-season payments may add over \$1 million to the 2003 KMA exvessel value.

2004

The 2004 KMA commercial salmon fishery began on June 5 and the last commercial landing occurred on September 20, 2004. Commercial fishing effort was low for the seventh consecutive year, though slightly higher than the record low participation in 2002 (Table 6; Figure 3). Of the 608 eligible Kodiak commercial salmon permits, only 305 made commercial landings. Ninety one permits were not renewed for the 2004 season. By gear type, a total of 141 purse seine and 164 set gillnet permit holders fished; there was no participation by beach seine permit holders again in 2004.

Sockeye run strength and timing was extremely variable. Some of the sockeye salmon runs were early and strong, while others were weak. The sockeye salmon harvest (4.2 million) was almost twice the point forecast (2.6 million; Table 7; Plotnick and Eggers, editors. 2004). Karluk early-run sockeye salmon again were abundant and early. Similar to 2003, in an attempt to slow early escapement, the initial commercial fishing period was June 5, four days earlier than the traditional June 9 opening date. However, Karluk sockeye salmon escapement met the lower early-run escapement goal (150,000 sockeye salmon by July 15; Nelson and Lloyd 2001) on June 6, and by June 11 exceeded the upper goal (250,000 sockeye salmon by July 15; Nelson and Lloyd 2001). Continuous fishing was allowed along the westside and in the Outer and Inner Karluk Sections through early July, when the management focus turned to pink salmon. Alitak systems produced better than expected runs (overall forecast 605,000 sockeye salmon, actual harvest approximately 1.2 million sockeye salmon; Table 7). The Saltery Lake sockeye salmon run was strong again, but commercial effort in the area was low due to limited tender coverage. The sockeye salmon harvests associated with supplemented production from KRAA stocking projects were below projections (Table 7). The Ayakulik sockeye salmon run was expected to be weak, and fishing time was limited, but sockeye salmon harvests were better than projected. The Litnik sockeye salmon run was very weak for the fourth consecutive year. No commercial or sport fisheries were allowed and, as occurred in 2002 and 2003, the subsistence fishery in the adjacent marine waters was closed.

There was another cost recovery fishery near the Kitoi Bay Hatchery, with Kitoi pink salmon harvested and sold by KRAA. The cost recovery fishery took approximately 1.9 million pink salmon (7.0 million pounds), about half of the Kitoi Bay Hatchery pink salmon return. There was a marked increase in directed effort to harvest wild stock pink salmon compared to 2003, mainly from fishermen associated with processors that were not involved in cost-recovery fisheries.

The estimated total exvessel value of the 2004 fishery was approximately \$19.9 million¹³, below the 1994 to 2003 average exvessel value of \$27.4 million (Table 13). Purse seine fishermen accounted for 83.2% of the total number of salmon harvested and averaged an estimated \$97,397 per fished permit. This is an increase from the 2003 estimated exvessel value, and is more than the previous 10-year average exvessel value for purse seine permit holders of \$87,928. Set gillnet fishermen accounted for 16.8% of the total number of salmon harvested and averaged an estimated \$37,583 per fished permit. This was an increase from last year, but still less than the 1994 to 2003 set gillnet exvessel average of \$44,084.

¹³ This estimate is based on inseason price estimates and will increase as final processor reports are submitted. Inseason values may not reflect additional payments made to fishermen for dock deliveries, RSW, iced fish, or other settlements. Additional post-season payments may add over \$1 million to the 2003 KMA exvessel value.

Fish counting weirs were operated on 10 systems this year. In addition, 3 different observers flew 20 aerial surveys, and 5 observers made foot and skiff survey escapement estimates. Market conditions or a lack of fishing effort led to large escapements for most species in most areas (Tables 2 and 9). Budget constraints limited aerial surveys and reduced late season operation of fish counting weirs, which reduced the department's ability to accurately estimate or index the total escapement.

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TABLES & FIGURES

Table 1.-Estimated number of anadromous streams with significant salmon production by district, with species distribution, in the Kodiak Management Area.

Management District	Number of Streams ^a	Number of Streams with Each Species ^b				
		Chinook	Sockeye	Coho	Pink	Chum
Afognak	102	0	13	48	102	5
Northwest Kodiak	63	0	4	22	63	23
Southwest Kodiak	11	2	2	10	11	6
Alitak	30	1	5	15	30	14
Eastside Kodiak	116	1	8	32	116	47
Northeast Kodiak	26	0	1	20	26	9
Mainland	92	0	6	27	92	46
TOTAL	440	4	39	174	440	150

^a The State of Alaska's Habitat Division identifies over 800 streams in the Kodiak Management Area that have documented use by anadromous fish (ADF&G 1993). Many of these streams are very small and may only be used by pink salmon in years with very large returns. The streams identified in this table are depicted on the Kodiak Area Salmon Statistical Map (Revised May 2003), and have documented annual use.

^b These estimates are based on current knowledge and are expected to change as more system specific data is collected.

Table 2.-Salmon escapement goals versus 2004 estimated escapement, by species and district, in the Kodiak Management Area, 2004.

DISTRICT	CHINOOK ESCAPEMENT		SOCKEYE ESCAPEMENT		COHO ESCAPEMENT		PINK ESCAPEMENT		CHUM ESCAPEMENT	
	AGGREGATE GOAL	DISTRICT ESTIMATE	AGGREGATE GOAL	DISTRICT ESTIMATE	AGGREGATE GOAL	DISTRICT ESTIMATE	EVEN-YEAR DISTRICT GOAL	DISTRICT ESTIMATE	DISTRICT GOAL	DISTRICT ESTIMATE
	Lower		Lower		Lower		Lower		Lower	
	Upper		Upper		Upper		Upper		Upper	
AFOGNAK		2	70,000	90,480	12,950	17,672	145,000	266,888		4,541
			120,000		22,500		435,000			
NORTHWEST		0	55,000	102,100		8,050	315,000	1,158,200	46,000	41,200
			85,000				945,000		138,000	
SOUTHWEST	8,400	32,355	750,000	995,441	22,000	15,924	1,250,000	3,781,904	25,000	10,643
	16,900		1,100,000		38,000		2,550,000		75,000	
ALITAK		577	380,000	489,061	8,500	9,397	162,000	1,008,986	26,000	34,406
			535,000		14,500		486,000		78,000	
EASTSIDE		0	16,000	110,400	4,500	6,402	150,000	1,258,555	35,000	75,750
			35,000		8,000		450,000		105,000	
NORTHEAST		5	8,000	24,109	7,350	14,011	120,000	600,430	8,000	2,156
			13,000		11,275		360,000		24,000	
MAINLAND		0		24,500		0	256,000	711,555	133,000	364,395
							768,000		399,000	
TOTAL	8,400	32,939	1,279,000	1,836,091	55,300	71,456	2,398,000	8,786,518	273,000	533,091
	16,900		1,888,000		94,275		5,994,000		819,000	

Table 3.-Potential versus actual salmon production (wild stock) in the Kodiak Management Area, 2004.

SPECIES	PRODUCTION POTENTIAL			HARVEST		
	LONG TERM AVERAGE			POTENTIAL	ACTUAL	
	Targeted Escapement Goal ^a	Return Per Spawner ^b	Potential Total Return	Long Term Average (Total Return Minus Targeted Escapement)	56 Year Average (1948 - 2004) ^c	10 Year Average (1995 - 2004)
CHINOOK	15,000	2.5	37,500	22,500	7,315	18,896
SOCKEYE	1,710,000	3.7	6,327,000	4,617,000	1,616,670	3,582,933
COHO	90,000	2.5	225,000	135,000	150,884	367,913
PINK						
<i>Odd year</i>	3,000,000	3.0	9,000,000	6,000,000	9,894,700	19,883,058
<i>Even year</i>	4,500,000	3.0	13,500,000	9,000,000	10,455,797	15,049,046
CHUM	550,000	2.8	1,540,000	990,000	803,811	898,856
TOTAL						
<i>Odd year</i>	-	-	17,129,500	11,764,500	12,473,380	24,751,656
<i>Even year</i>	-	-	21,629,500	14,764,500	13,034,477	19,917,644

^a The expected indexed escapement within the escapement goal range. KMA fisheries are normally managed to achieve this level of escapement.

^b Return per spawner (R/S) will vary each year. These values are averages around which natural survival and return will fluctuate. R/S for sockeye salmon from Prokopowich (1995), for pink salmon from Swanton et al (1993), and all others from Barrett (personal communication, October 1993).

^c 1989 harvest data not included in averages. Commercial fisheries were severely restricted in 1989 due to the M/V Exxon Valdez oil spill.

Table 4.-Commercial salmon harvest by species in the Kodiak Management Area, 1882 to 2004.

Year ^a	Number of Salmon					
	Chinook	Sockeye	Coho	Pink	Chum	Total
1882		58,800				58,800
1883		188,706				188,706
1884		282,184				282,184
1885		468,580				468,580
1886		646,100				646,100
1887		1,004,500				1,004,500
1888		2,781,100				2,781,100
1889		3,754,735				3,754,735
1890		3,592,707				3,592,707
1891		3,846,388				3,846,388
1892		3,126,459				3,126,459
1893		3,244,609				3,244,609
1894		3,830,336				3,830,336
1895		2,246,966	8,321			2,255,287
1896		3,328,846				3,328,846
1897		2,785,515	1,500			2,787,015
1898		2,033,094	19,175			2,052,269
1899	1,104	1,934,771	32,475			1,968,350
1900	4,838	3,450,480	32,239			3,487,557
1901	3,838	4,826,159		2,015		4,832,012
1902	2,932	3,868,101	34,972			3,906,005
1903	1,187	1,826,163	119,541	10,000		1,956,891
1904	3,190	2,875,118	103,136	5,180		2,986,624
1905	2,496	2,142,367	86,913			2,231,776
1906	3,640	3,980,462	23,738			4,007,840
1907	4,015	4,232,454	38,059			4,274,528
1908	3,028	2,487,848	73,789	286,374		2,851,039
1909	3,907	1,915,230	51,500	153,595		2,124,232
1910	1,598	1,954,717	44,291	215,382		2,215,988
1911	689	2,685,949	21,870	229,551	6,492	2,944,551
1912	686	2,246,467	17,491	547,171	24,588	2,836,403
1913	1,082	1,663,163	27,634	590,039	3,822	2,285,740
1914	1,329	1,255,444	32,063	1,726,411	13,094	3,028,341
1915	939	1,664,426	51,819	252,073	20,331	1,989,588
1916	1,038	3,373,055	49,683	3,181,890	28,962	6,634,628
1917	1,457	3,645,914	30,485	225,335	15,961	3,919,152
1918	2,021	1,894,466	78,169	2,467,325	81,699	4,523,680
1919	1,831	1,619,101	104,233	282,715	60,102	2,067,982
1920	1,637	1,957,636	88,970	1,977,421	55,175	4,080,839
1921	660	2,857,922	45,764	67,688	24,779	2,996,813
1922	703	1,097,359	119,724	2,766,257	223,970	4,208,013
1923	1,915	1,090,117	77,554	928,510	38,653	2,136,749
1924	1,002	1,407,525	120,686	5,435,091	117,883	7,082,187
1925	1,911	1,693,057	92,960	2,673,675	212,492	4,674,095
1926	596	3,015,366	174,475	4,606,694	324,706	8,121,837
1927	4,358	1,155,202	151,548	5,297,305	417,956	7,026,369
1928	2,546	1,592,003	290,645	1,535,313	726,480	4,146,987
1929	3,200	712,126	144,226	6,108,402	1,057,662	8,025,616
1930	4,991	466,409	228,800	1,651,398	419,011	2,770,609

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Table 4.-(page 2 of 3)

Year ^a	Number of Salmon					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1931	1,541	1,183,074	170,075	6,839,906	183,737	8,378,333
1932	1,873	1,058,446	52,192	4,719,939	237,023	6,069,473
1933	1,140	1,428,373	91,428	6,573,660	536,935	8,631,536
1934	1,300	1,828,953	89,588	7,641,891	661,341	10,223,073
1935	1,393	1,613,519	76,849	10,780,612	381,753	12,854,126
1936	2,548	2,657,195	183,903	5,647,726	328,218	8,819,590
1937	1,257	1,881,304	164,902	16,787,150	346,238	19,180,851
1938	1,232	1,965,943	154,959	8,397,981	640,119	11,160,234
1939	2,272	1,786,445	112,171	11,741,218	641,693	14,283,799
1940	1,233	1,318,233	148,016	9,997,899	673,265	12,138,646
1941	2,571	1,730,201	199,515	7,601,531	444,521	9,978,339
1942	1,329	1,281,529	106,865	6,092,526	564,924	8,047,173
1943	1,133	1,990,557	59,661	12,479,608	454,205	14,985,164
1944	668	1,817,875	51,675	4,955,354	506,703	7,332,275
1945	2,021	2,041,090	60,122	9,044,544	559,332	11,707,109
1946	129	838,863	56,425	9,545,871	298,486	10,739,774
1947	99	993,394	76,230	8,856,666	294,518	10,220,907
1948	1,401	1,260,465	32,364	5,968,487	330,795	7,593,512
1949	851	892,336	53,737	4,927,779	699,548	6,574,251
1950	2,127	920,885	40,653	5,304,701	685,109	6,953,475
1951	2,402	467,875	48,792	2,100,377	483,057	3,102,503
1952	1,081	603,677	51,567	4,576,726	1,243,227	6,476,278
1953	2,991	317,150	41,681	5,174,645	547,574	6,084,041
1954	942	325,157	66,430	8,439,231	1,250,833	10,082,593
1955	2,428	164,482	34,582	10,794,164	482,425	11,478,081
1956	1,123	271,249	52,844	3,318,841	705,047	4,349,104
1957	1,030	234,253	34,995	4,716,482	1,208,472	6,195,232
1958	1,942	288,014	20,555	4,038,938	930,698	5,280,147
1959	1,837	330,087	14,512	1,967,058	733,784	3,047,278
1960	1,238	362,525	54,308	6,737,817	1,300,386	8,456,274
1961	864	407,979	28,579	3,926,023	518,935	4,882,380
1962	1,095	784,664	54,583	14,113,851	794,727	15,748,920
1963	286	407,040	57,011	5,480,158	305,061	6,249,556
1964	1,306	498,488	35,535	12,044,341	1,134,163	13,713,833
1965	786	346,237	26,672	2,886,831	431,340	3,691,866
1966	599	631,646	67,700	10,755,582	762,766	12,218,293
1967	1,753	308,756	10,354	187,813	226,681	735,357
1968	1,936	760,393	56,629	8,768,122	750,428	10,337,508
1969	2,469	591,481	48,759	12,500,823	534,933	13,678,465
1970	1,089	917,045	66,421	12,035,549	919,102	13,939,206
1971	920	478,479	22,844	4,334,492	1,541,444	6,378,179
1972	1,300	222,408	16,587	2,478,064	1,163,426	3,881,785
1973	800	167,341	3,573	511,708	317,921	1,001,343
1974	545	418,761	13,631	2,647,196	249,294	3,329,427
1975	101	136,418	23,659	2,942,801	84,431	3,187,410
1976	766	641,484	23,714	11,077,992	740,495	12,484,451
1977	585	623,468	27,920	6,252,405	1,072,313	7,976,691
1978	3,228	1,071,782	48,795	15,004,065	814,345	16,942,215

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Table 4.-(page 3 of 3)

Year	Number of Salmon					
	Chinook	Sockeye	Coho	Pink	Chum	Total
1979	1,907	630,756	140,629	11,285,809	358,336	12,417,437
1980	529	651,394	139,154	17,290,615	1,075,557	19,157,249
1981	1,418	1,288,949	121,544	10,336,747	1,345,313	13,093,971
1982	1,214	1,203,787	344,823	8,089,780	1,262,587	10,902,191
1983	3,839	1,231,989	157,612	4,603,371	1,085,165	7,081,976
1984	4,657	1,950,439	229,524	10,844,293	649,092	13,678,005
1985	4,970	1,842,731	284,166	7,334,825	430,757	9,897,449
1986	4,381	3,188,046	168,690	11,807,727	1,134,372	16,303,216
1987	4,613	1,794,224	192,433	4,920,365	680,994	7,592,629
1988	22,374	2,698,349	303,267	14,262,355	1,426,400	18,712,745
1989 ^a	106	1,289,511	2,599	6,825,124	19,972	8,137,312
1990	18,808	5,247,569	293,819	5,983,812	577,748	12,121,756
1991	22,234	5,702,754	324,860	16,642,836	1,029,057	23,721,741
1992	24,299	4,166,762	280,085	3,310,639	679,540	8,461,325
1993	41,029	4,377,523	313,467	34,019,390	588,328	39,339,737
1994	22,576	2,876,878	296,311	8,162,564	738,851	12,097,180
1995	18,704	4,487,568	307,795	42,849,294	1,522,786	49,186,147
1996	13,071	4,968,954	201,836	3,486,930	543,729	9,214,520
1997	18,728	2,503,423	381,005	11,035,023	520,264	14,458,443
1998	17,341	3,623,031	425,143	22,062,465	316,107	26,444,087
1999	18,299	4,650,738	296,979	11,898,307	913,817	17,778,140
2000	12,293	2,905,403	332,998	9,927,374	1,194,414	14,372,482
2001	23,827	2,657,601	407,977	19,567,052	1,053,691	23,710,148
2002	19,263	1,824,848	496,073	18,327,818	650,144	21,318,146
2003	18,531	4,041,886	339,457	14,065,615	1,151,757	19,617,246
2004	28,899	4,165,880	489,871	21,440,641	1,121,855	27,247,146
<u>Averages^a</u>						
1994-2003	18,263	3,454,033	348,557	16,138,244	860,556	20,819,654
Even Years, 1994-2002				12,393,430		
Odd Years, 1995-2003				19,883,058		
1882-2004	4,797	1,814,620	123,976	7,378,743	609,035	9,438,745
1948-2004	7,315	1,616,670	150,884	9,635,156	803,811	12,213,835
Even Years, 1948-2004				10,455,797		
Odd Years, 1949-2003				9,894,700		

Source: 1882-1947 data is from processors case pack information. 1948-2004 data is from ADF&G fish ticket summaries and is considered more accurate than previous data.

^a Averages do not include 1989. Commercial fisheries were severely limited due to the M/V Exxon Valdez oil spill.

Table 5.-Estimated commercial harvest of salmon from Kodiak Regional Aquaculture Association projects in the Kodiak Management Area, 1995 to 2004.

Year	Number of Salmon ^a				Total
	Sockeye	Coho	Pink	Chum	
1994	277,884	46,984	2,051,375	10,799	2,387,042
1995	186,371	42,235	4,519,885	215,351	4,963,842
1996	487,900	57,200	979,143	14,189	1,538,432
1997	248,336	110,334	1,213,615	11,029	1,583,314
1998	315,109	148,333	6,272,029	38,118	6,773,589
1999	582,218	116,513	4,057,093	140,896	4,896,720
2000	287,387	133,238	3,659,698	303,783	4,384,106
2001	244,761	151,732	13,126,761	216,266	13,739,520
2002	565,422	209,259	6,696,774	88,724	7,560,179
2003	796,359	144,389	5,533,522	466,205	6,940,475
2004	266,150	128,291	3,962,421	239,610	4,596,472
<hr/>					
<u>Average</u>					
1994-2003	399,175	116,022	4,810,990	150,536	5,476,722

Source: Honnold and Schrof (2001) and ADF&G fish ticket summaries.

^a Includes harvests from fisheries targeting returns to the Kitoi Bay Hatchery and Terminal Harvest Areas (THAs). The Kitoi Bay Hatchery harvests are from the Izhut Bay, Duck Bay, and Kitoi Bay Sections (statistical areas 252-30 to -32). THA harvests are from the returns to the Spiridon Lake project (in the Spiridon THA, 254-50, and adjacent Sections), the Foul Bay THA (251-41), the Waterfall Bay THA (251-84), and the Settlers Cove THA (259-35)

Table 6.-Summary of limited entry permit activity in the commercial salmon fishery, by gear type, in the Kodiak Management Area, 1975-2004.

Year	Purse Seine		Beach Seine		Set Gillnet		Total		Percent
	Available	Fished	Available	Fished	Available	Fished	Available	Fished	
1975	468	280	26	8	229	116	723	404	56
1976	394	325	23	17	187	140	604	482	80
1977	378	336	32	24	186	147	596	507	85
1978	389	372	34	29	188	160	611	561	92
1979	387	362	34	28	186	164	607	554	91
1980	387	370	35	33	187	168	609	571	94
1981	387	325	35	30	187	169	609	524	86
1982	386	345	35	30	187	170	608	545	90
1983	383	342	35	27	188	174	606	543	90
1984	384	296	35	25	188	168	607	489	81
1985	384	270	35	21	188	169	607	460	76
1986	385	287	35	14	187	174	607	475	78
1987	386	297	35	18	188	173	609	488	80
1988	387	323	35	21	188	179	610	523	86
1989 ^a	387	7	35	0	189	86	611	93	15
1990	388	354	35	21	189	184	612	559	91
1991	388	348	35	17	189	185	612	550	90
1992	387	335	35	12	189	178	611	525	86
1993	387	324	36	9	190	176	613	509	83
1994	387	285	36	5	190	169	613	459	75
1995	386	312	36	8	189	173	611	493	81
1996	384	261	36	6	189	172	609	439	72
1997	384	261	36	5	188	174	608	440	72
1998	384	217	36	2	188	171	608	390	64
1999	384	220	36	4	188	173	608	397	65
2000	384	223	36	2	188	173	608	398	65
2001	385	182	36	0	184	172	605	354	59
2002	384	149	36	0	188	93	608	242	40
2003	384	145	36	0	188	160	608	305	50
2004	384	141	36	0	188	164	608	305	50
Average - Previous 10 Years:									
1994-2003	385	226	36	3	188	163	609	392	64
Average - Previous Decades:									
1990-1999	386	292	36	9	189	176	611	476	75
1980-1988	385	317	35	24	188	172	608	513	85
1975-1979	403	335	30	21	195	145	628	502	81
Average^a - Overall									
1975-2004	388	286	35	14	189	165	612	465	76

Source: Commercial Fisheries Entry Commission records and ADF&G fish ticket summaries.

^a Commercial fisheries were severely restricted in 1989 due to the M/V Exxon Valdez oil spill. 1989 data is not included in averages.

Table 7.-Projected versus actual 2004 commercial salmon harvest, by species and fishery, for the Kodiak Management Area.

	Chinook	Sockeye	Coho	Pink	Chum	Total
Projected Harvest 2004 ^a	20,000	2,611,400	495,200	19,545,000	1,219,400	23,891,000
Actual Harvest 2004 ^a	28,899	4,165,880	489,871	21,440,641	1,121,855	27,247,146

FISHERY	2004 Harvest	
	Projection ^b	Actual ^c
Early Sockeye Salmon Fisheries (6/5-7/15)		
Kitoi Bay Hatchery ^d	0	20,100
Cape Igvak ^e	151,700	178,500
Karluk ^f	510,000	1,284,400
Ayakulik ^g	91,000	197,400
Alitak Bay District ^h	222,000	642,800
Minor Systems ⁱ	45,000	11,100
Minor Enhancement ^j	73,800	43,100
Spiridon ^k	239,000	120,200
Other	130,000	118,100
Subtotal	1,462,500	2,615,700
Late Sockeye Salmon Fisheries (7/16-10/31)		
Kitoi Bay Hatchery ^d	0	18,000
Cape Igvak ^e	106,900	0
Karluk ^f	481,000	836,800
Ayakulik ^g	20,000	62,900
Alitak Bay District ^h	383,000	514,200
Minor Systems ⁱ	10,000	15,400
Spiridon ^k	98,000	61,000
Other	50,000	41,900
Subtotal	1,148,900	1,550,200
TOTAL SOCKEYE	2,611,400	4,165,900
Pink Salmon Fisheries (7/6-10/31)		
Kitoi Bay Hatchery ^d	7,545,000	3,962,400
Afognak (Wild) ^l	350,000	2,513,600
Westside Kodiak ^m	8,400,000	12,634,900
Alitak ⁿ	2,100,000	1,420,200
Eastside/Northend Kodiak ^o	700,000	625,900
Mainland ^p	450,000	283,600
Subtotal	19,545,000	21,440,600

-Continued-

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FISHERY	2004 Harvest	
	Projection ^b	Actual ^c
Chum Salmon Fisheries (6/5-10/31)		
Kitoi Bay Hatchery ^d	393,000	239,600
Afognak (Wild) ^l	16,500	71,100
Westside Kodiak ^m	371,900	518,700
Alitak ⁿ	66,100	38,400
Eastside/Northend Kodiak ^o	165,300	104,700
Mainland ^p	206,600	149,400
Subtotal	1,219,400	1,121,900
Coho Salmon Fisheries (8/1-10/31)		
Kitoi Bay Hatchery ^d	159,000	128,300
Afognak (Wild) ^l	33,600	67,800
Westside Kodiak ^m	201,700	208,900
Alitak ⁿ	33,700	15,900
Eastside/Northend Kodiak ^o	50,400	50,800
Mainland ^p	16,800	18,200
Subtotal	495,200	489,900
GRAND TOTAL ^q	23,891,000	27,247,100

- ^a In number of salmon (rounded to nearest hundred). Does not include subsistence, sport, homepack, or ADF&G test fish harvests.
- ^b Projected harvests for enhanced and major sockeye systems are based on the formal forecasts for that individual stock (total run minus escapement) and the projected harvest from minor sockeye systems and other salmon species are based on less formal escapement to return relationships.
- ^c Actual harvest is the number taken in a particular geographic area, not the catch assigned to an individual salmon stock.
- ^d From the Duck Bay, Izhut Bay, and Kitoi Bay Sections only. An additional 165,600 fish harvested in parts of the Southeast Afognak Section(252-33) and Northeast Afognak Section (252-10 and 252-20) likely were bound for the Kitoi Bay hatchery, but are listed under Afognak (Wild).
- ^e From the Cape Igvak Section. Early run is from the beginning of season through June 26. Late run is from July 8 through 25.
- ^f From the Southwest Afognak Section, Northwest Kodiak District (except for Spiridon and Settler Cove Terminal Harvest Areas), Inner and Outer Karluk Sections, plus 50% of Halibut Bay Section from June 21 through July 15 and 100% after July 31.
- ^g From the Outer and Inner Ayakulik Sections, plus 50% of Halibut Bay Section from June 21 through July 15 and 100% from July 16 through 31.
- ^h From the Alitak Bay District.
- ⁱ From minor systems at Inner and Outer Ugak Bay (Saltery), Buskin River, Perenosa Bay (Portage), Northwest Afognak (Thorsheim & Long Lagoon), Big River (Swikshak), and Outer Kukak Bay (Kaflia & Kuliuk) Sections.
- ^j From the Foul Bay, Waterfall Bay, and Settler Cove Terminal Harvest Areas. Enhancement project sockeye salmon production is expected from the Malina and Laura Lakes (Pauls Bay) systems, but is mixed with wild stock production from these minor systems.
- ^k From the Spiridon Lake Terminal Harvest Area, plus an estimate of Spiridon-bound sockeye taken in adjacent areas.
- ^l From the Afognak District except for the Duck, Izhut, and Kitoi Bay Sections.
- ^m From the Southwest Kodiak District (256- and 255-) and the Northwest Kodiak District (254- and 253-) except for the North Cape, Anton Larson, Sharatin, and Kizhuyak Section, and part of the Central Section (259-35 to 259-39).
- ⁿ From the Alitak Bay District.
- ^o From the Eastside Kodiak District, Northeast Kodiak District, and the North Cape, Anton Larson, Sharatin, and Kizhuyak Sections, plus part of the Central Section (258- and 259-).
- ^p From the Mainland District.
- ^q Includes a projected 2004 harvest of 20,000 chinook salmon, and the actual harvest of 28,900 chinook salmon.

Table 8.-Alaska Board of Fisheries approved salmon management plans for the Kodiak Management Area, 2004.

Management Plan	Year Initiated	Management Units Affected	Dates in Effect
Cape Igvak Salmon Management Plan	1978	Cape Igvak Section Wide Bay Section	6/5 - 7/25
Alitak Bay District Salmon Management Plan	1987	Alitak Bay District	6/5 - 10/31
Westside Kodiak Management Plan	1990	NW Kodiak District SW Kodiak District SW Afognak Section	6/9 - 10/31
North Shelikof Strait Sockeye Salmon Management Plan	1990	SW Afognak Section NW Afognak Section Shuyak Island Section Big River Section Hallo Bay Section Inner and Outer Kukak Bay Sections Dakavak Bay Section	7/6 - 7/25
Crescent Lake Coho Salmon Management Plan	1990	Terminal Harvest Area in the Central Section near Port Lions	7/15 - 10/31
Spiridon Lake Sockeye Salmon Management Plan	1993	Terminal Harvest Area in Spiridon Bay Section	6/9 - 10/31
Eastside Afognak Management Plan	1993	Southeast Afognak Section Kitoi Bay Section Izhut Bay Section Duck Bay Section Raspberry Strait Section	6/9 - 10/31
Eastside Kodiak Salmon Management Plan	1995	Eastside Kodiak District NE Kodiak District	6/14 - 10/31
North Afognak / Shuyak Island Salmon Management Plan	1995	NE Afognak Section Perenosa Bay Section Shuyak Island Section NW Afognak Section	6/9 - 10/31
Mainland District Salmon Management Plan	1999	Mainland District	6/14 - 10/31

Table 9.-Indexed salmon escapements, by species, in the Kodiak Management Area, 1975-2004.

Year	Number of Salmon					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1975	3,059	704,801	29,634	1,100,555	156,761	1,994,810
1976	8,413	1,075,226	36,083	3,105,320	312,914	4,537,956
1977	13,804	1,269,374	59,095	2,212,488	742,384	4,297,145
1978	14,677	1,000,353	37,479	5,006,273	482,956	6,541,738
1979	14,445	1,410,800	93,940	3,067,647	607,430	5,194,262
1980	5,853	1,831,748	27,290	6,492,822	830,070	9,187,783
1981	15,657	1,391,593	58,729	3,188,869	741,981	5,396,829
1982	10,773	1,603,692	86,402	5,370,049	1,023,923	8,094,839
1983	27,445	1,304,233	101,950	2,090,104	824,754	4,348,486
1984	14,411	1,467,730	123,779	4,520,344	682,936	6,809,200
1985	13,877	2,554,067	191,406	3,204,316	723,390	6,687,056
1986	11,046	2,001,279	170,000	4,068,615	655,817	6,906,757
1987	23,744	1,551,543	153,000	2,978,510	641,579	5,348,376
1988	35,152	1,661,532	96,140	3,236,931	558,531	5,588,286
1989 ^a	26,131	3,022,886	166,622	14,642,587	1,432,609	19,290,835
1990	25,972	2,006,241	151,420	6,024,900	474,620	8,683,153
1991	27,306	2,515,659	259,850	4,317,610	934,336	8,054,761
1992	19,013	1,968,058	289,592	3,515,624	530,128	6,322,415
1993	22,113	1,705,440	159,996	4,291,581	234,381	6,413,511
1994	21,591	2,041,511	206,418	3,994,020	545,391	6,808,931
1995	30,843	1,840,112	231,175	10,498,232	469,856	13,070,218
1996	21,089	1,813,256	189,618	3,351,011	394,784	5,769,758
1997	28,534	1,787,611	225,938	3,217,075	454,980	5,714,138
1998	24,654	1,775,759	234,734	7,088,975	374,456	9,498,578
1999	26,872	2,119,169	133,398	4,081,686	882,257	7,243,382
2000	31,400	1,599,000	124,200	4,501,800	908,900	7,165,300
2001	18,753	1,580,660	244,360	3,393,620	557,925	5,795,318
2002	20,115	1,621,090	168,271	8,396,402	530,591	10,736,469
2003	25,538	2,220,092	122,824	5,096,962	380,523	7,845,939
2004	32,939	1,836,091	71,456	8,786,518	533,091	11,260,095
<u>Average - Previous 10 Years:</u>						
1994-2003	24,939	1,839,826	188,094	5,361,978	549,966	7,964,803
Odd Years Only				5,257,515		
Even Years Only				5,466,442		
<u>Average - Previous Decades:</u>						
1990-1999	24,799	1,957,282	208,214	5,038,071	529,519	7,757,885
1980-1989	18,409	1,839,030	117,532	4,979,315	811,559	7,765,845
1975-1979	10,880	1,092,111	51,246	2,898,457	460,489	4,513,182
<u>Average - Overall</u>						
1975-2004	20,507	1,742,687	141,493	4,828,048	620,808	7,353,544

Note: Data includes peak counts from aerial and foot surveys, plus end of season totals from weired systems.

^a Commercial fisheries were severely restricted in 1989 due to the M/V Exxon Valdez oil spill.

Table 10.-Subsistence salmon fishery harvest from ADF&G permit reports, by species, for the Kodiak Management Area, 1970-2003.

Year	Permits Issued	Permits Returned	Percent Returned	Subsistence Harvest in Number of Salmon					
				Chinook	Sockeye	Coho	Pink	Chum	TOTAL
1970	213	49	23	1	959	939	797	265	2,961
1971	267	131	49	5	3,442	1,720	1,276	472	6,915
1972	329	176	53	11	3,633	1,531	2,516	2,729	10,420
1973	400	149	37	7	4,453	2,289	1,393	1,166	9,308
1974	367	90	25	1	1,909	846	1,094	128	3,978
1975	508	90	18	1	1,141	922	947	221	3,232
1976	536	243	45	4	4,338	962	2,275	370	7,949
1977	739	451	61	54	8,119	2,508	2,849	317	13,847
1978	860	539	63	50	7,239	3,699	2,747	572	14,307
1979	1,085	697	64	111	10,376	3,840	3,300	333	17,960
1980	1,239	756	61	67	13,746	4,407	2,755	566	21,541
1981	1,166	658	56	49	12,924	4,029	2,458	484	19,944
1982	1,276	993	78	110	16,615	7,192	3,558	667	28,142
1983	1,307	1,082	83	111	15,526	6,283	2,536	800	25,256
1984	1,240	1,061	86	265	17,620	5,808	1,877	720	26,290
1985	1,476	1,196	81	172	16,231	8,873	2,756	855	28,887
1986	1,244	996	80	90	14,391	6,998	2,371	605	24,455
1987	1,124	878	78	101	13,198	6,463	2,421	1,299	23,482
1988 ^a	-	2,066	N/A	108	10,081	4,291	1,320	371	16,171
1989 ^{a,b}	-	1,994	N/A	43	12,638	4,123	1,553	419	18,776
1990 ^a	-	2,340	N/A	131	17,959	8,627	1,605	655	28,977
1991 ^a	-	2,660	N/A	177	21,835	8,208	1,743	714	32,677
1992 ^a	-	2,614	N/A	318	20,684	8,643	1,646	643	31,934
1993 ^a	-	1,774	N/A	243	19,471	7,176	2,696	838	30,424
1994 ^c	2,550	1,518	60	205	17,962	7,491	1,758	440	27,856
1995	1,950	1,218	62	175	19,416	5,603	1,548	293	27,035
1996	1,567	1,429	91	253	28,287	5,117	1,125	381	35,163
1997	2,098	1,648	79	383	33,293	6,369	1,458	234	41,737
1998	1,845	1,145	62	350	20,459	5,348	1,412	214	27,783
1999	1,845	1,437	78	397	26,534	4,974	1,229	388	33,522
2000	1,711	1,679	98	351	31,667	6,383	977	375	39,753
2001	2,378	2,009	84	273	33,878	5,920	1,158	427	41,656
2002	2,277	2,068	91	588	33,844	6,175	1,665	350	42,622
2003	2,272	2,052	90	510	32,193	6,098	1,509	388	40,698
<u>Average - Previous 10 Years:</u>									
1994-2003	2,049	1,620	80	349	27,753	5,948	1,384	349	35,783
<u>Averages^b - Previous Decades:</u>									
1990-1999	1,976	1,778	90	263	22,590	6,756	1,622	480	31,448
1980-1988	1,259	1,076	85	119	14,481	6,038	2,450	707	23,677
1970-1979	530	262	49	25	4,561	1,926	1,919	657	9,063
<u>Average^b - Overall</u>									
1970-2003	1,281	1,148	66	172	16,164	5,022	1,902	584	23,845

Source: 1981 and 1986 to 2003 data is from the ADF&G subsistence permit database. Data from all other years is from Area Management Reports (AMR). In some cases, AMRs may show slightly higher harvests than the permit database, likely due to late permits that may not have been entered into the system. The harvest information is only from those permits that were returned, so may not represent the total KMA subsistence salmon harvest.

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- ^a Permits were mailed to all previous applicants, totaling approximately 2,800. Many were returned as undeliverable. Those names were removed from subsequent mailing lists. Accurate counts of the number of permits issued were not kept.
- ^b In 1989 harvest patterns were unusual due to the M/V Exxon Valdez oil spill. 1989 data is not included in averages. There was also an Exxon sponsored subsistence fishery in Karluk Lagoon, and those harvests are not included. Harvest totaled an additional 1 Chinook, 13,329 sockeye, 523 coho, 47 pink, and 19 chum salmon.
- ^c The salmon and shellfish subsistence permitting programs were merged. The total number of permits includes permits mailed to all previous permit holders and permits issued by ADF&G staff in the City of Kodiak and Kodiak Island villages.
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Table 11.-Estimated sport fish salmon harvest in the Kodiak regulatory area of the Kodiak Management Area, 1977-2003.

Year	Sport Harvest in Number of Salmon ^a					Total
	Chinook	Sockeye	Coho	Pink	Chum	
1977	483	1,255	4,716	14,519	1,645	22,618
1978	350	1,776	4,927	17,739	1,287	26,079
1979	752	2,436	11,522	15,871	500	31,081
1980	327	2,178	12,692	18,969	525	34,691
1981	789	1,620	10,584	12,259	637	25,889
1982	1,120	3,055	13,329	18,850	1,324	37,678
1983	729	3,150	7,823	8,936	816	21,454
1984	921	5,385	14,612	12,779	1,321	35,018
1985	762	7,536	13,625	13,423	865	36,211
1986	520	5,259	20,873	14,509	336	41,497
1987	379	4,165	16,912	11,662	560	33,678
1988	1,564	6,222	18,809	19,044	1,546	47,185
1989	1,087	6,789	19,802	17,794	631	46,103
1990	996	6,056	13,728	7,464	191	28,435
1991	2,508	5,049	17,691	12,106	1,517	38,871
1992	2,217	6,240	13,668	5,904	625	28,654
1993	5,092	7,849	21,241	12,324	504	47,010
1994	3,166	12,502	12,406	5,336	290	33,700
1995	2,662	7,994	13,236	11,926	981	36,799
1996	2,407	10,158	16,822	6,917	692	36,996
1997	5,221	8,259	23,763	5,873	235	43,351
1998	4,052	8,763	24,850	12,226	547	50,438
1999	6,791	10,405	27,781	12,813	426	58,216
2000	9,629	16,972	30,975	10,599	955	69,130
2001	8,541	12,199	28,654	6,498	991	56,883
2002	4,136	9,672	29,957	9,022	104	52,891
2003	9,031	12,562	31,976	6,842	548	60,959
<u>Average - Previous 10 Years:</u>						
1994-2003	5,564	10,949	24,042	8,805	577	49,936
<u>Average - Previous Decades:</u>						
1990-1999	3,511	8,328	18,519	9,289	601	40,247
1980-1989	820	4,536	14,906	14,823	856	35,940
<u>Average - Recent 5 Year Periods</u>						
1998-2002	6,630	11,602	28,443	10,232	605	57,512
1993-1997	3,710	9,352	17,494	8,475	540	39,571
1988-1992	1,674	6,071	16,740	12,462	902	37,850
<u>Average - All Years</u>						
1977- 2003	2,823	6,871	17,666	11,933	763	40,056

Source: Schwarz et al. (in prep)

^a The Kodiak regulatory area encompasses only the Kodiak Archipelago. Estimated harvests from the Mainland District of the Kodiak Management Area are summarized in Alaska Peninsula/Aleutian Islands regulatory area statistics. Includes harvest from both marine and freshwater fisheries; does not include the number of salmon caught and released.

Table 12.-Retention of salmon taken in commercial salmon fisheries but not sold, by species, for the Kodiak Management Area, 1997-2004.

Year	Permits	Landings	Home Pack in Number of Salmon ^a					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1997	10	10	7	678	91	6	2	784
1998	4	5	8	26	9	0	0	43
1999	1	1	0	96	0	0	0	96
2000	1	1	0	75	50	0	0	125
2001	9	14	16	465	1,215	0	33	1,729
2002	33	56	57	5,447	7,542	566	0	13,612
2003 ^b	36	87	72	11,025	12,310	1,492	86	24,985
2004	13	39	8	3,052	290	253	10	3,613
Average:								
1997-2004	13	27	21	2,608	2,688	290	16	5,623

Source: ADF&G fish ticket data base

^a This is the number of salmon taken by CFEC permit holders with commercial gear during commercial fishing periods that was not sold, but instead was kept for the crew's own use. Prior to 1997 this data was not recorded on ADF&G fish tickets.

^b In 2003 there was concern that salmon taken as home pack were being custom processed for later sale for consumptive use. In response the Alaska Board of Fisheries passed a regulation clearly stating that these fish were not to be sold or bartered (5 AAC 39.010).

Table 13.-Estimated commercial salmon harvest and value, by gear type, in the Kodiak Management Area, 1970-2004.

Year	Total Catch ^a	Total Value ^b	Average Exvessel Value		
			Purse Seine	Gillnet	Beach Seine
1970	13,949,206	\$21,658,000	\$41,880	\$21,083	\$10,470
1971	6,378,179	\$4,973,000	\$13,397	\$3,015	\$2,919
1972	3,883,197	\$3,909,000	\$9,233	\$1,451	\$647
1973	1,001,343	\$2,094,000	\$5,075	\$852	\$251
1974	3,329,427	\$4,808,000	\$15,993	\$4,828	\$4,406
1975	3,187,410	\$3,831,000	\$13,300	\$3,849	\$5,600
1976	12,484,451	\$16,976,000	\$43,017	\$14,481	\$11,035
1977	7,976,691	\$18,873,142	\$46,942	\$19,117	\$12,107
1978	16,942,215	\$30,357,179	\$70,685	\$22,711	\$14,772
1979	12,420,260	\$22,958,317	\$51,263	\$23,363	\$20,348
1980	19,157,249	\$27,410,296	\$62,363	\$21,215	\$23,385
1981	13,094,099	\$32,647,230	\$79,877	\$34,785	\$26,946
1982	10,891,952	\$18,803,822	\$39,309	\$28,889	\$11,038
1983	7,081,976	\$13,405,578	\$30,239	\$16,689	\$5,918
1984	13,678,005	\$25,948,012	\$71,560	\$26,552	\$12,341
1985	9,897,903	\$20,428,111	\$57,782	\$27,517	\$8,405
1986	16,304,165	\$38,723,961	\$92,693	\$68,700	\$11,885
1987	7,746,980	\$31,107,864	\$79,812	\$41,163	\$15,664
1988	19,009,757	\$103,816,936	\$252,388	\$119,013	\$47,017
1989 ^c	26,455,944	\$61,046,024	\$146,502	\$72,955	\$28,288
1990	12,122,389	\$52,611,882	\$113,302	\$66,715	\$10,424
1991	23,723,008	\$37,019,293	\$77,511	\$53,817	\$5,257
1992	8,462,464	\$40,498,352	\$98,379	\$41,984	\$5,436
1993	39,341,025	\$38,554,977	\$94,927	\$43,889	\$8,230
1994	12,098,324	\$27,103,339	\$67,545	\$46,189	\$9,392
1995	49,187,163	\$53,921,533	\$135,769	\$66,165	\$14,388
1996	9,215,978	\$27,627,620	\$71,080	\$52,632	\$2,954
1997	14,460,978	\$21,017,587	\$54,940	\$38,135	\$8,419
1998	26,444,750	\$34,797,884	\$119,346	\$52,048	\$3,649
1999	17,780,488	\$34,090,487	\$108,951	\$57,744	\$7,342
2000	14,373,531	\$23,096,064	\$74,618	\$36,711	\$15,251
2001	23,711,870	\$22,134,956	\$93,727	\$29,515	\$0
2002	21,319,153	\$13,614,159	\$71,882	\$31,223	\$0
2003 ^d	19,617,246	\$16,681,878	\$81,420	\$30,475	\$0
2004 ^d	27,247,146	\$19,869,794	\$97,397	\$37,583	\$0
Average - Previous 10 Years:					
1994-2003	20,820,948	\$27,408,551	\$87,928	\$44,084	\$6,139
Average ^e - Previous Decades:					
1990-1999	21,283,657	\$36,724,295	\$94,175	\$51,932	\$7,549
1980-1988 ^f	12,984,676	\$34,699,090	\$85,114	\$42,725	\$18,067
1970-1979	8,155,238	\$13,043,764	\$31,079	\$11,475	\$8,256
Average ^e - Overall					
1970-2004	15,221,176	\$26,628,507	\$71,694	\$34,826	\$9,879

Source: ADF&G Annual Management Reports and Commercial Fisheries Entry Commission reports.

^a Number of fish. Includes commercial harvest, test fisheries, and Kitoi Bay Hatchery cost recovery harvests.

-Continued-

Table 13.-(page 2 of 2)

- ^b Exvessel values for 1970-1976 and 2003-2004 are based on inseason price estimates, and do not include postseason adjustments. Values from 1977-88 and 1990-00 are from Commercial Fisheries Entry Commission reports.
- ^c In 1989 due to the presence of oil from the M/V Exxon Valdez spill there were extensive fishery closures. Harvest figures include actual and projected harvest of wild stocks and actual harvest of hatchery stocks from a supplemental cost recovery fishery. The 1989 exvessel value is estimated by multiplying price information from CFEC records for the limited fisheries that did occur by the projected total harvest had there been no oil spill. The 1989 exvessel value by gear type is estimated by using 1988 gear levels and proportional harvest by gear type, as if a normal fishery had occurred on a normal distribution of fish (Barrett et al 1990).
- ^d Exvessel value is based on fish ticket information. These average values do not reflect payments made to fishers for iced fish, dock deliveries, and postseason settlements.
- ^e 1989 data not included in averages.

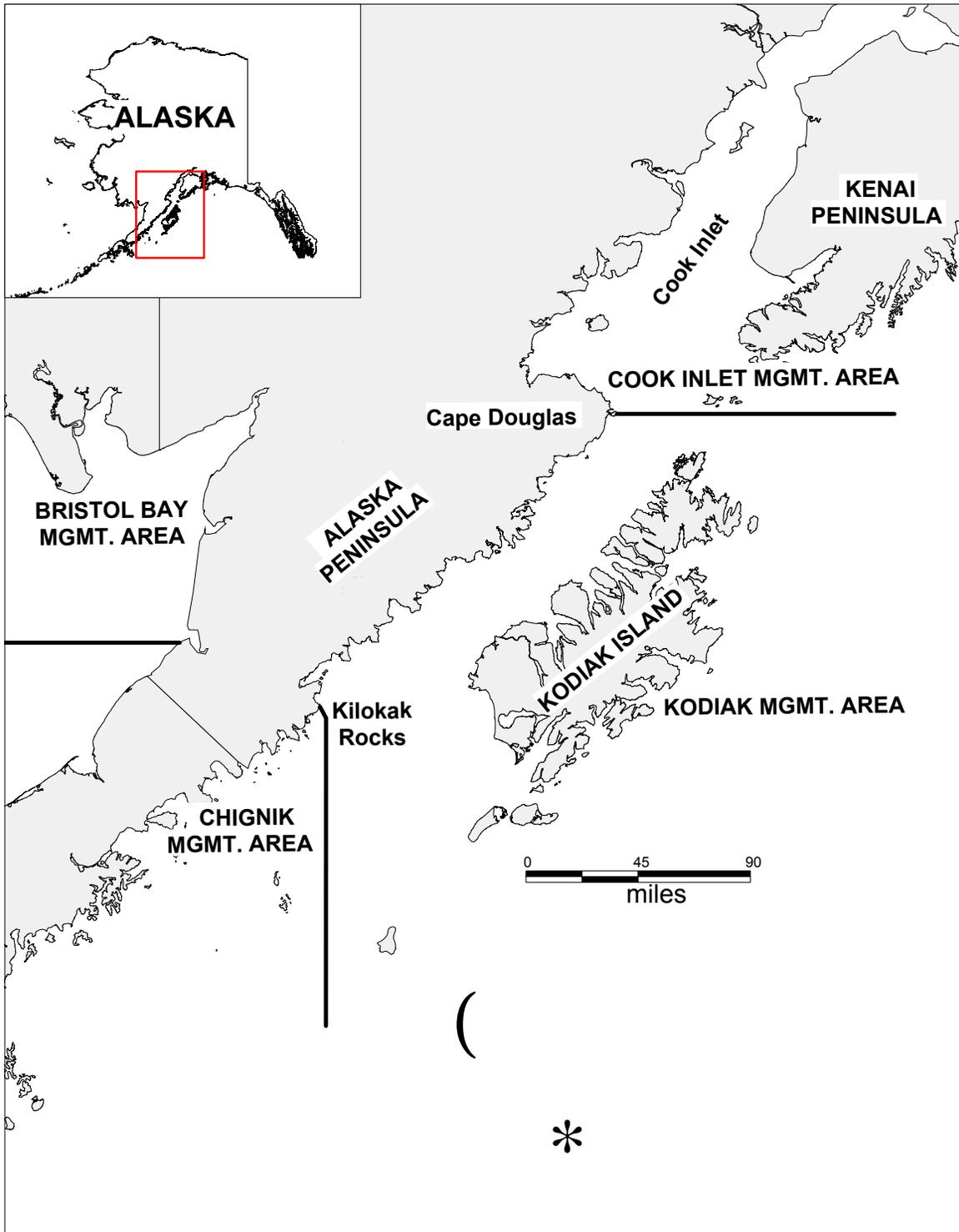


Figure 1.-Map of the location of the Kodiak Management Area and neighboring management areas, 2004.

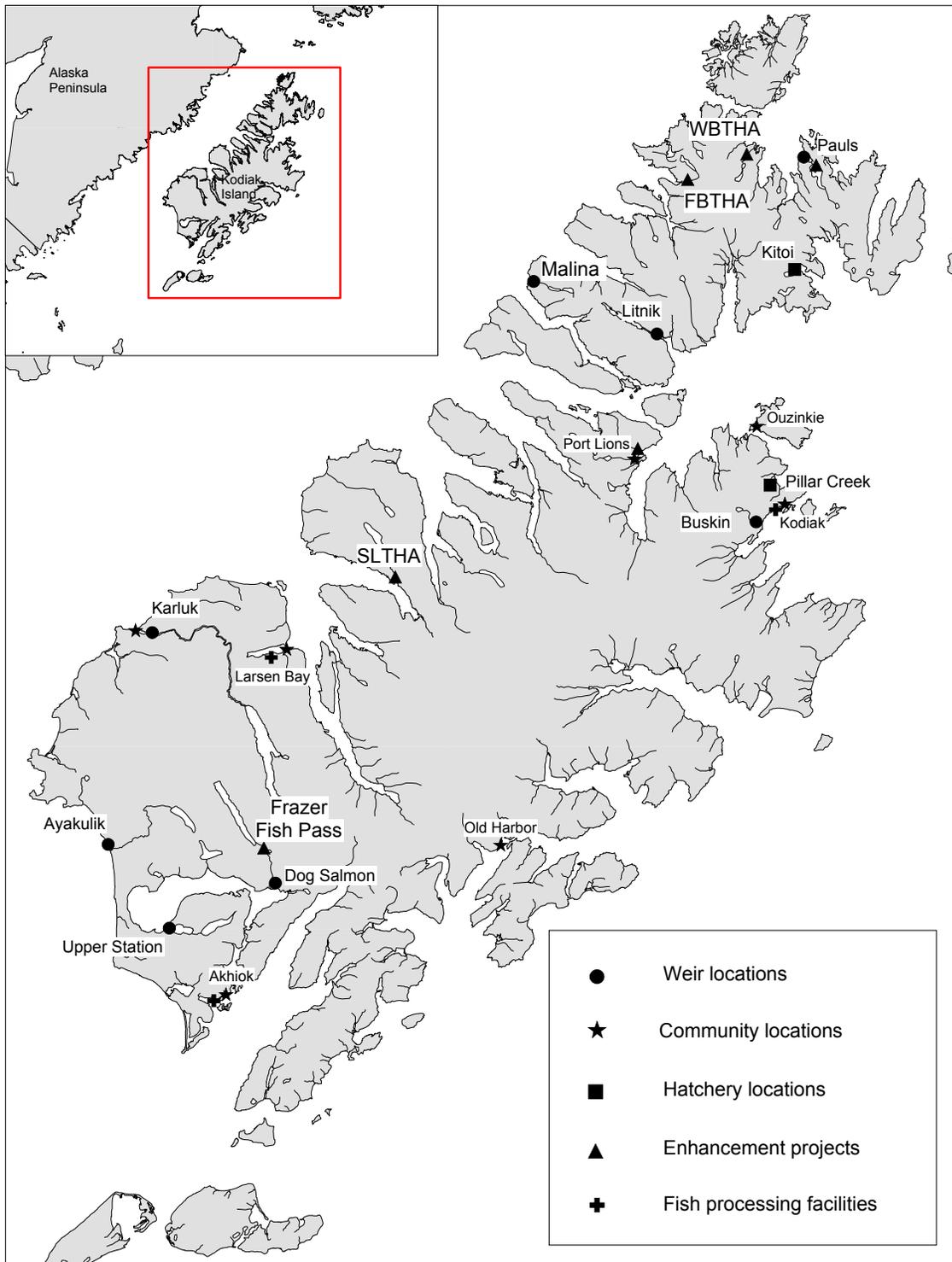


Figure 2.-Map of the Kodiak Archipelago showing communities, canneries, sockeye salmon enhancement, weir, and hatchery locations in the Kodiak Management Area, 2004.

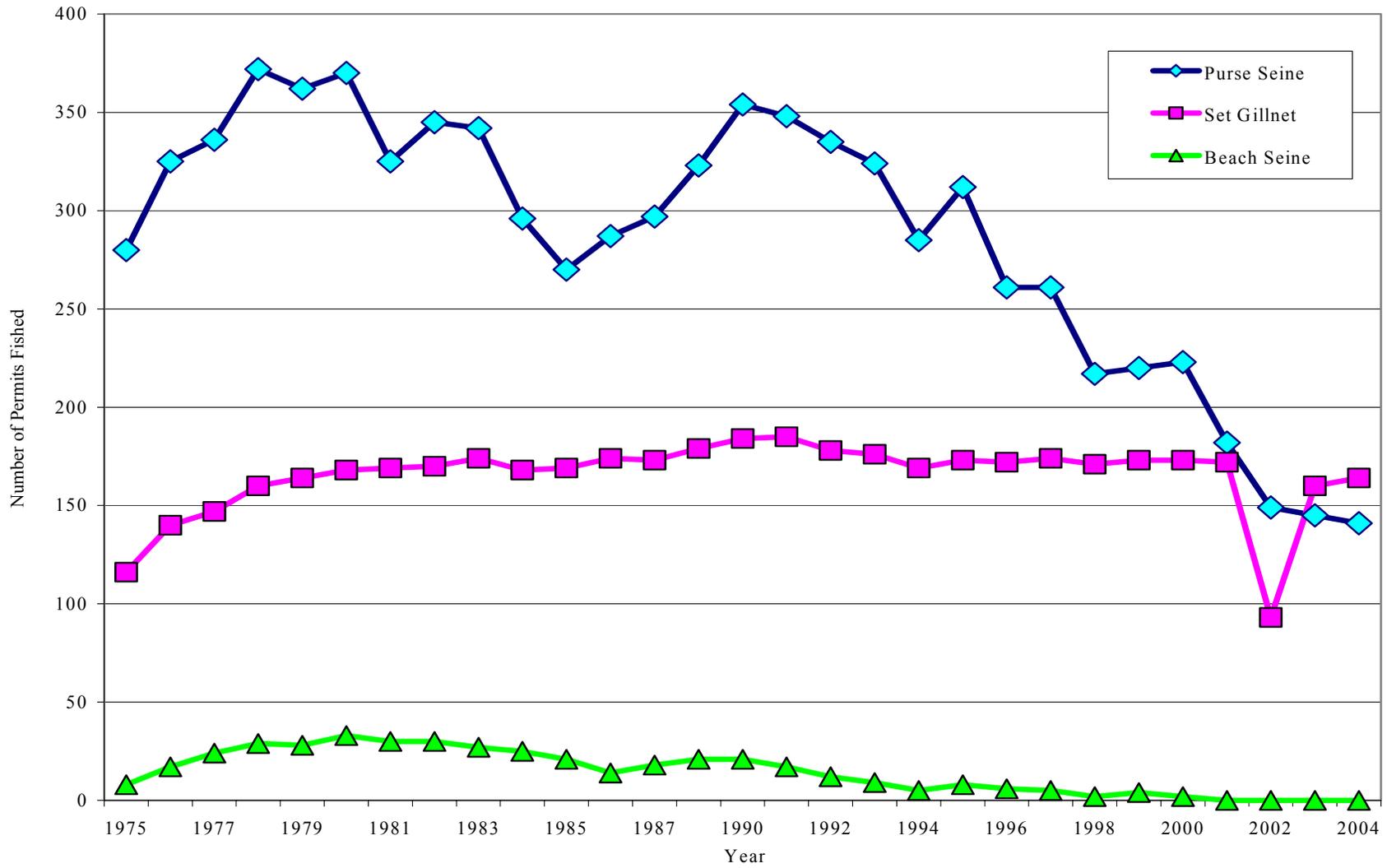


Figure 3.-Number of commercial salmon fishing permits fished by gear type, in the Kodiak Management Area, 1975-2004.

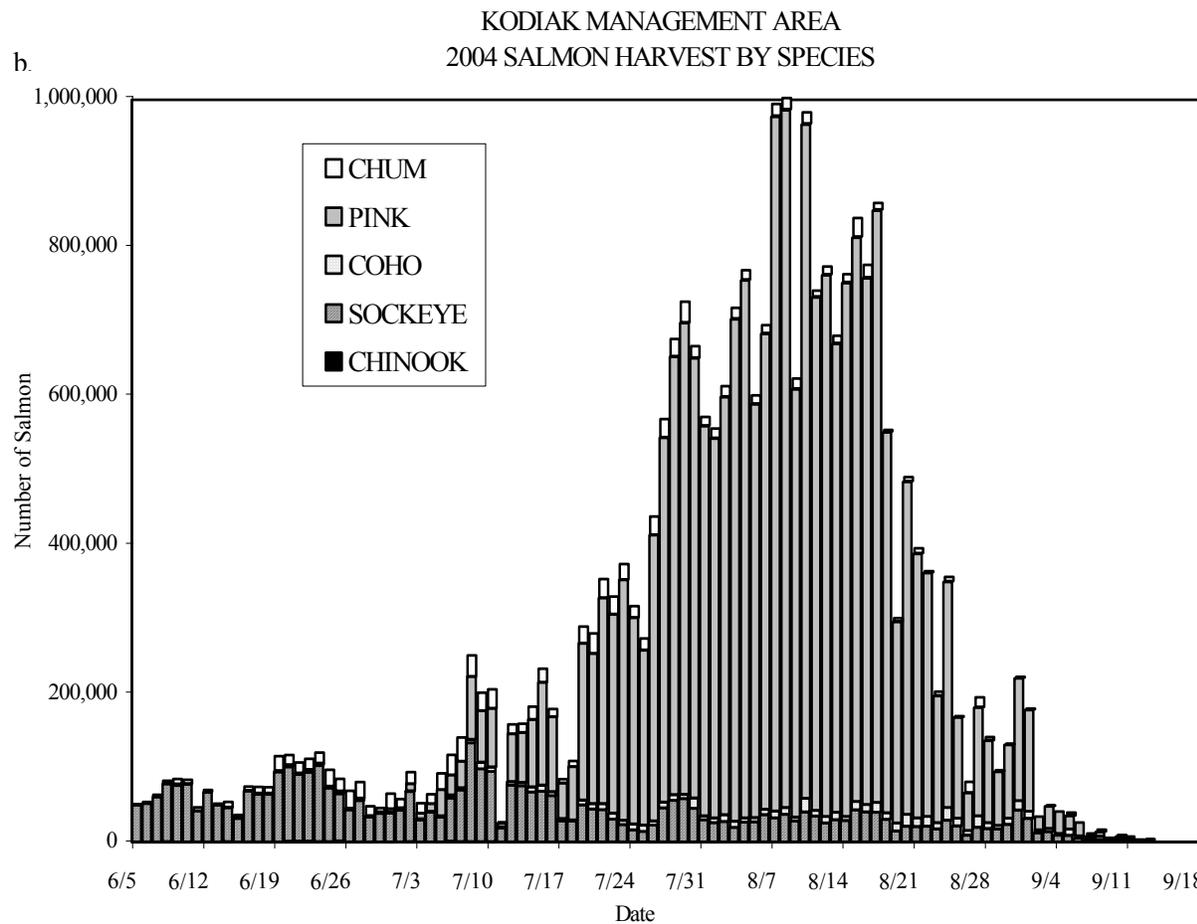
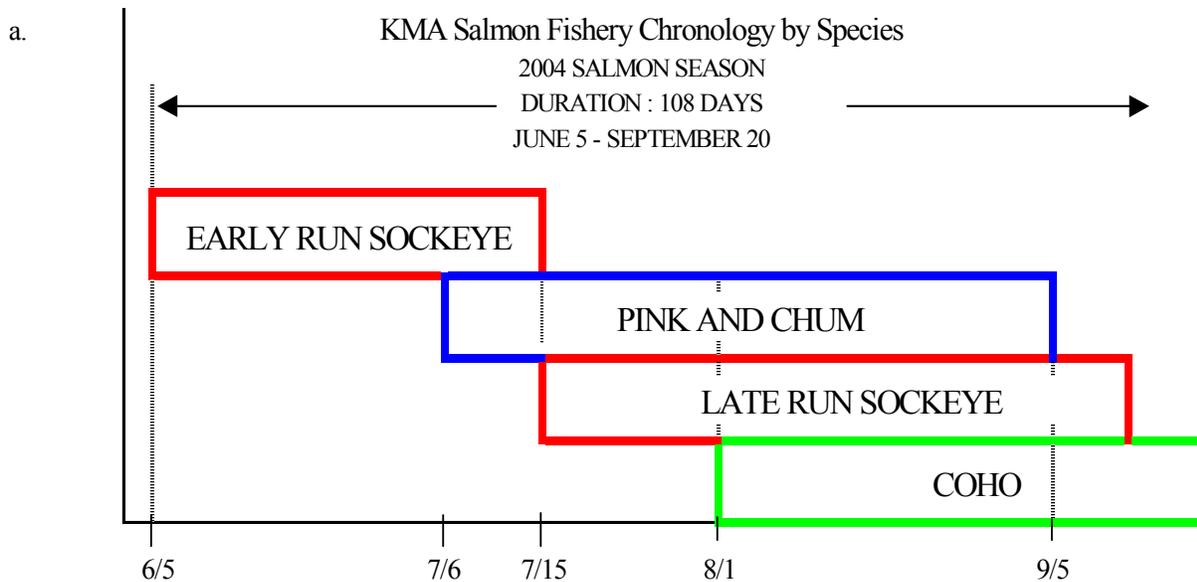


Figure 4.-Commercial salmon fishery chronology (a) and commercial harvest (b) by species, for the Kodiak Management Area, 2004.

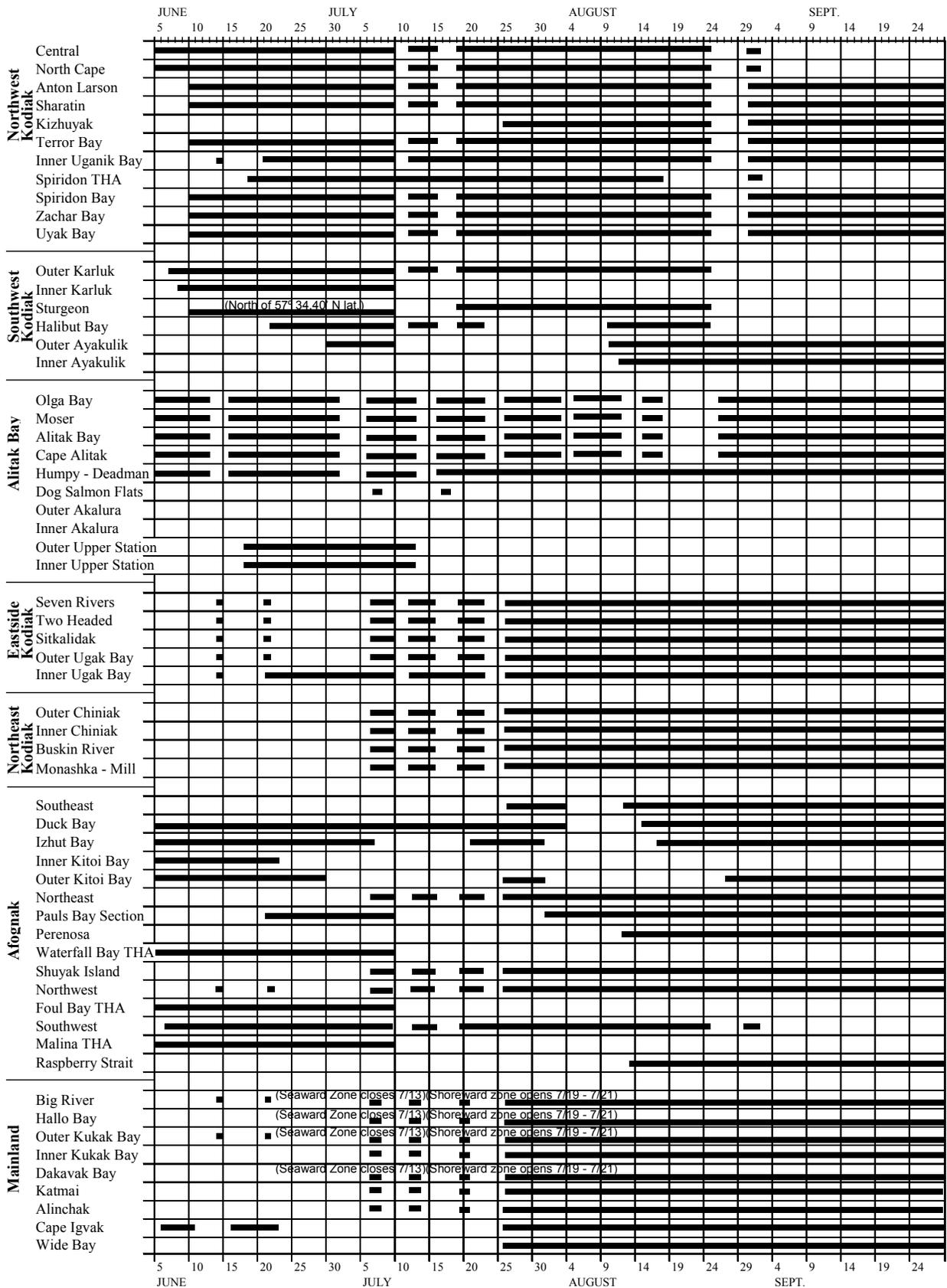


Figure 5.-Commercial salmon fishing time, by district and section, in the Kodiak Management Area, 2004.

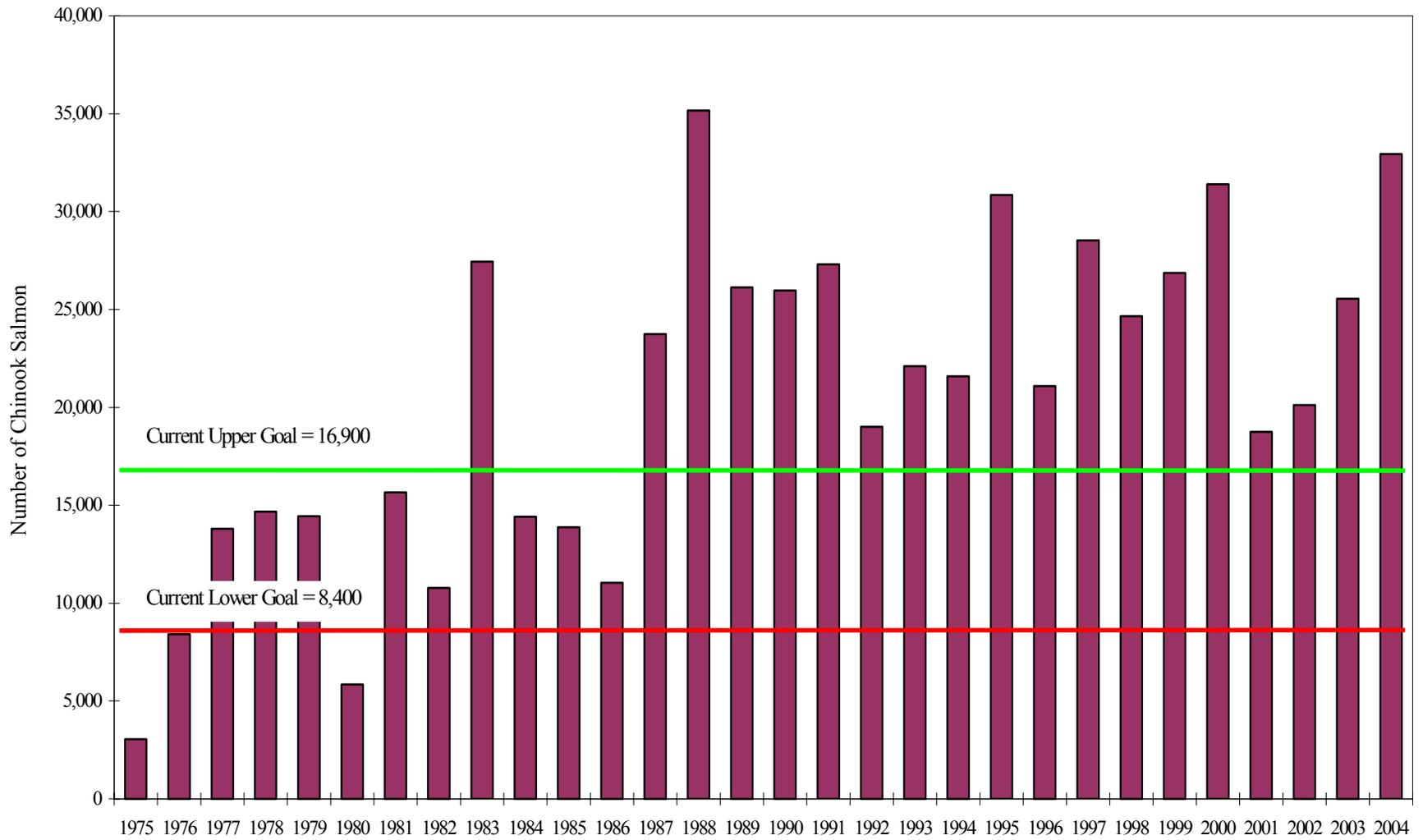


Figure 6.-Chinook salmon escapements in the Kodiak Management Area, 1975-2004.

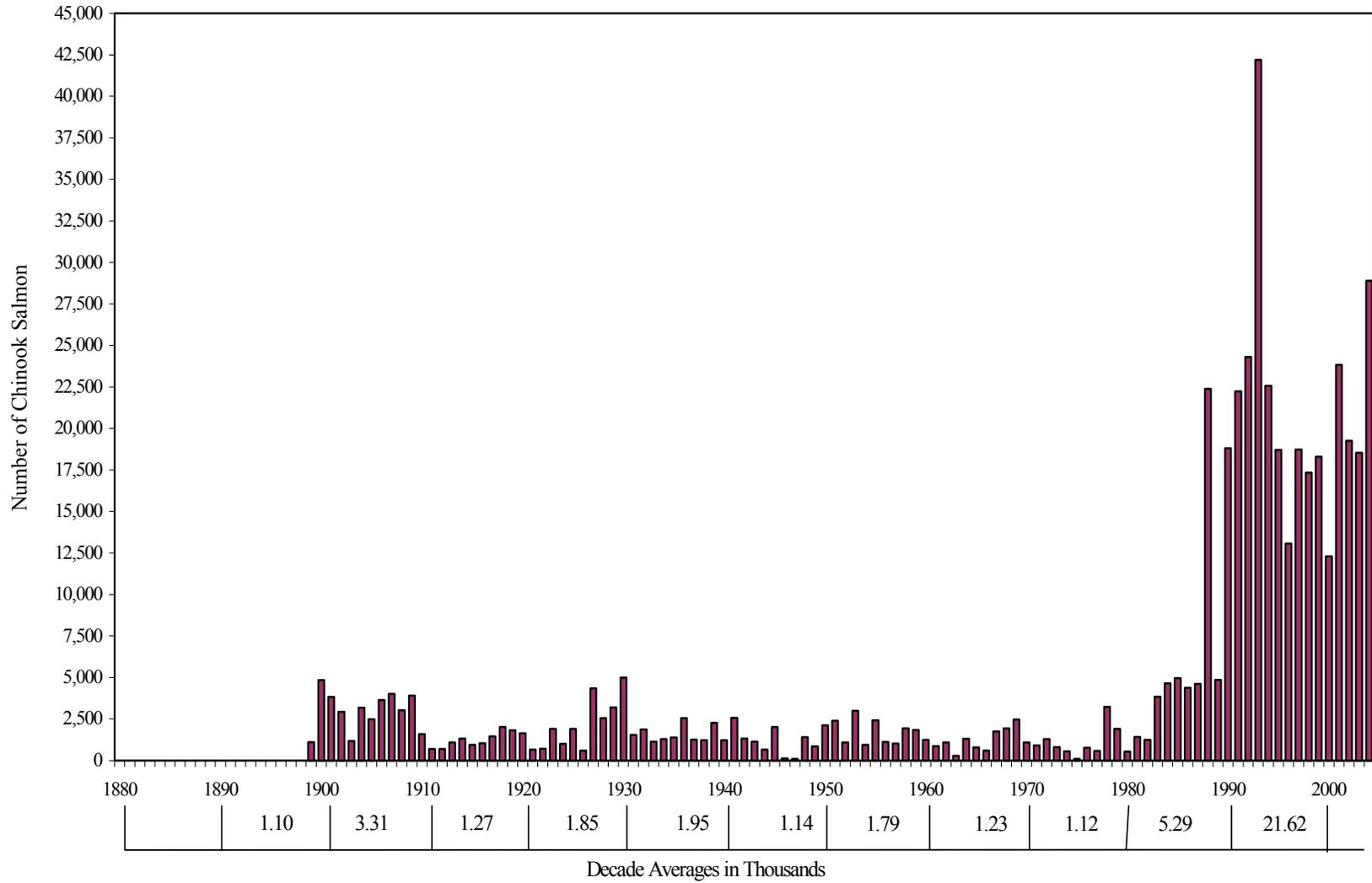


Figure 7.-Chinook salmon commercial harvest, all gear combined, in the Kodiak Management Area, 1899-2004.

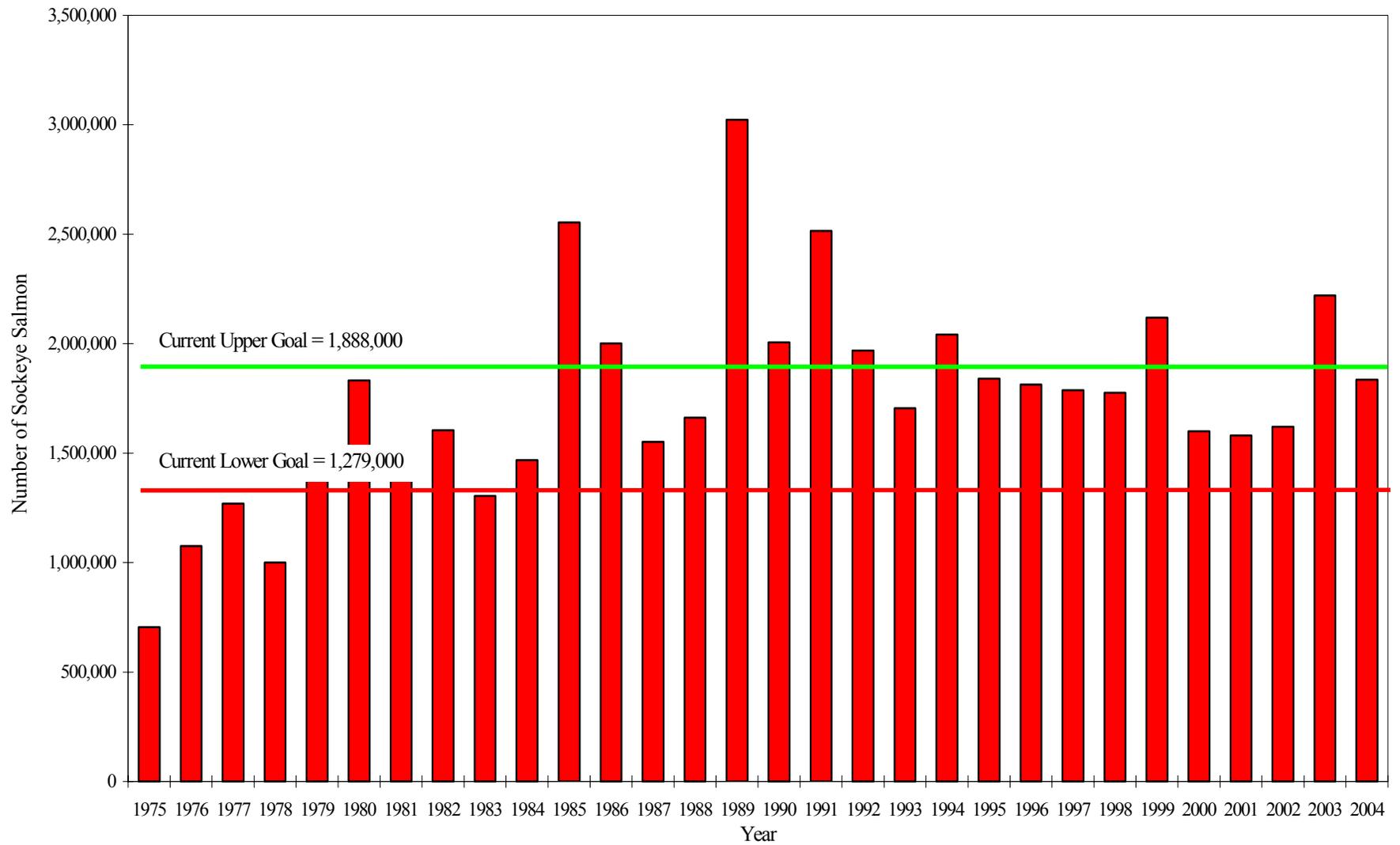


Figure 8.-Sockeye salmon escapements in the Kodiak Management Area, 1975-2004.

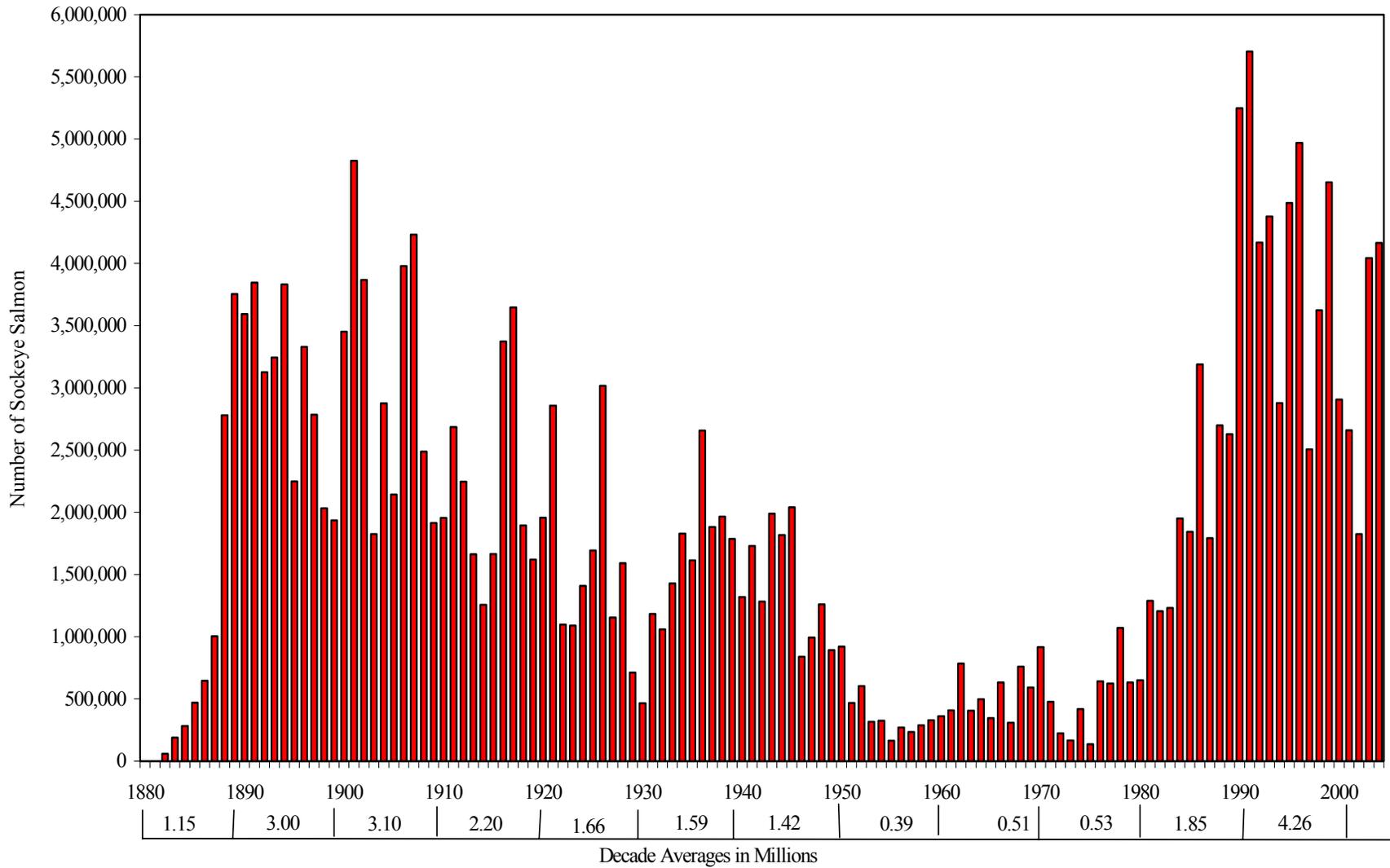


Figure 9.-Sockeye salmon commercial harvest, all gear combined, in the Kodiak Management Area, 1882-2004.

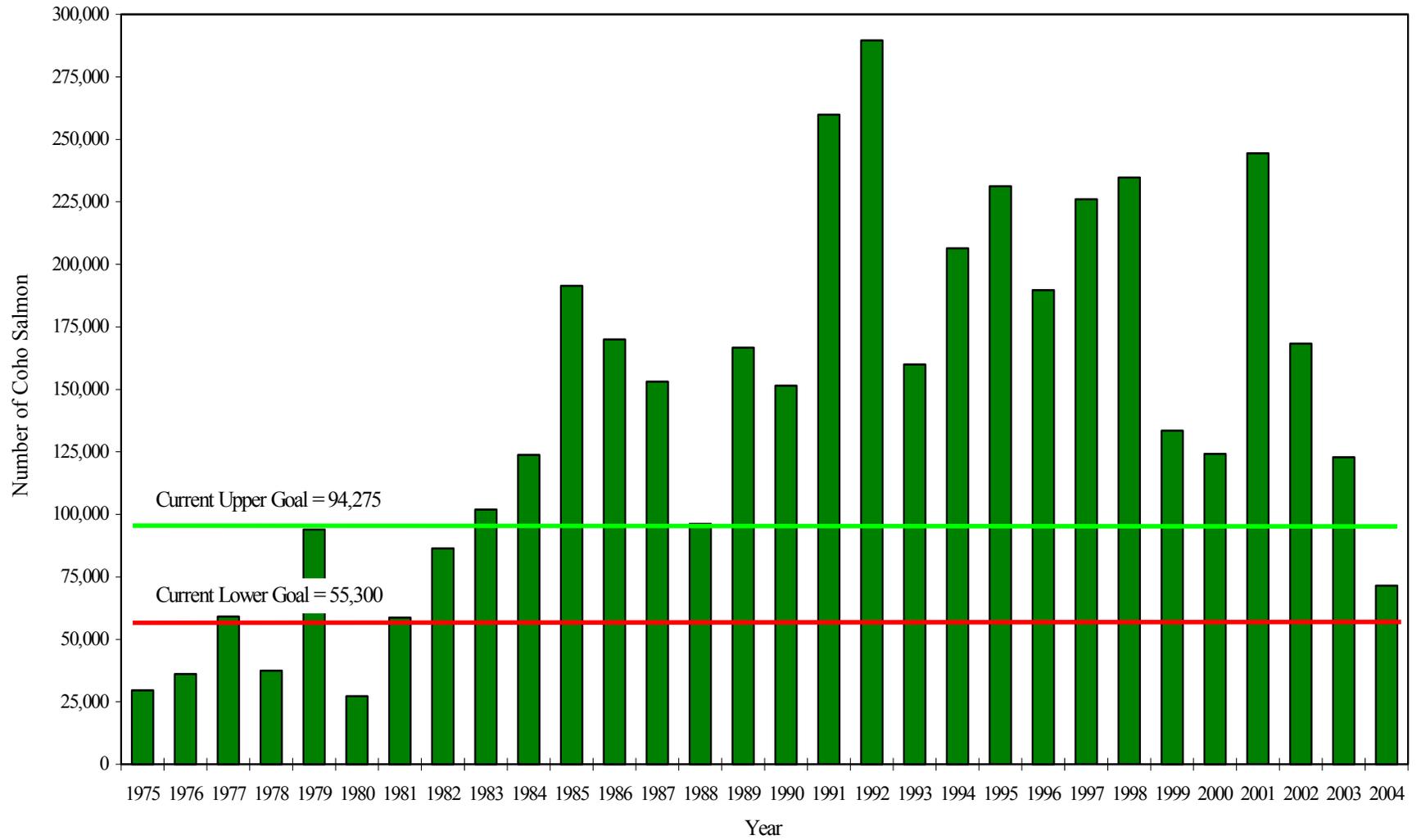


Figure 10.-Coho salmon escapements in the Kodiak Management Area, 1975-2004.

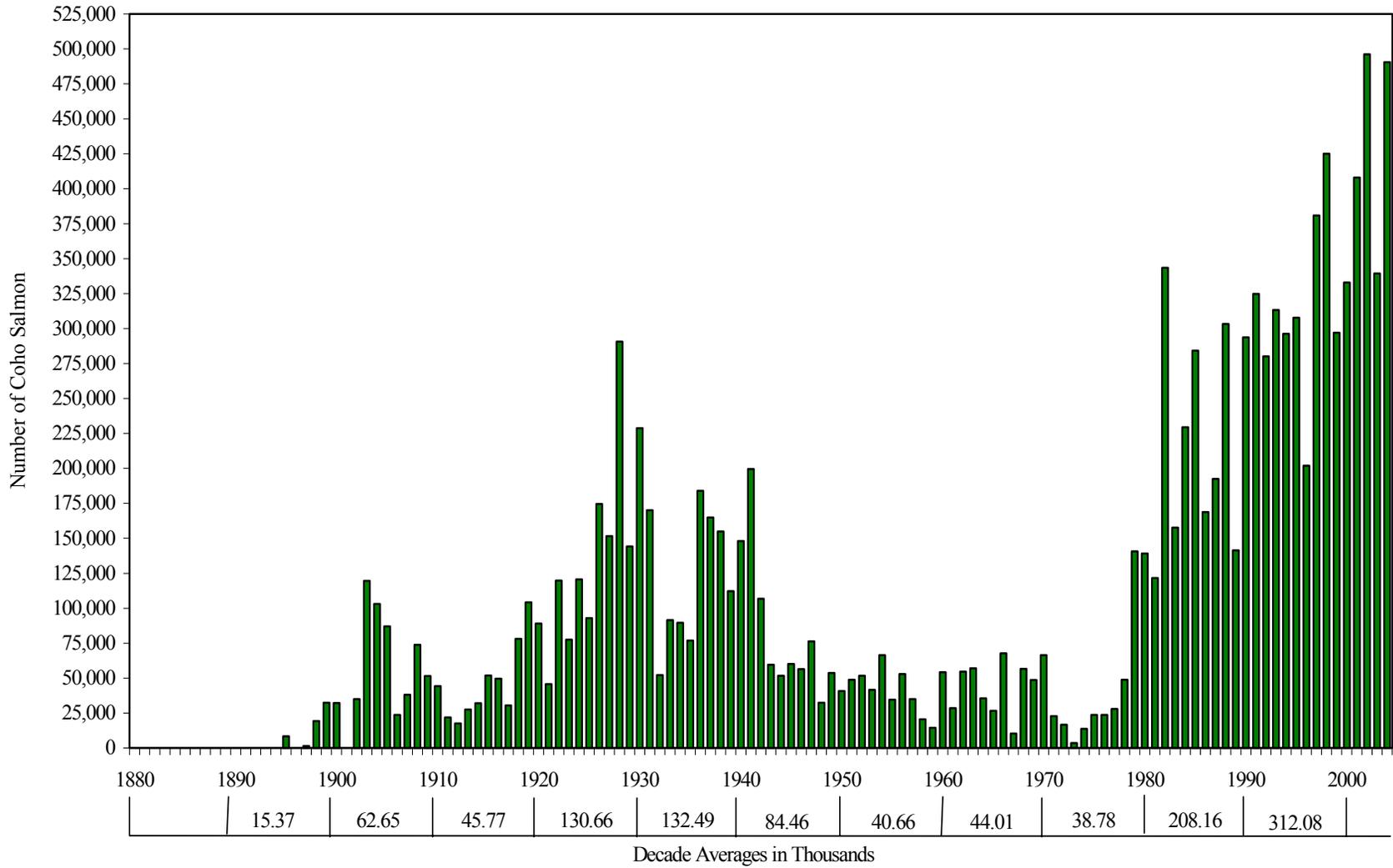


Figure 11.-Coho salmon commercial harvest, all gear combined, in the Kodiak Management Area, 1895-2004.

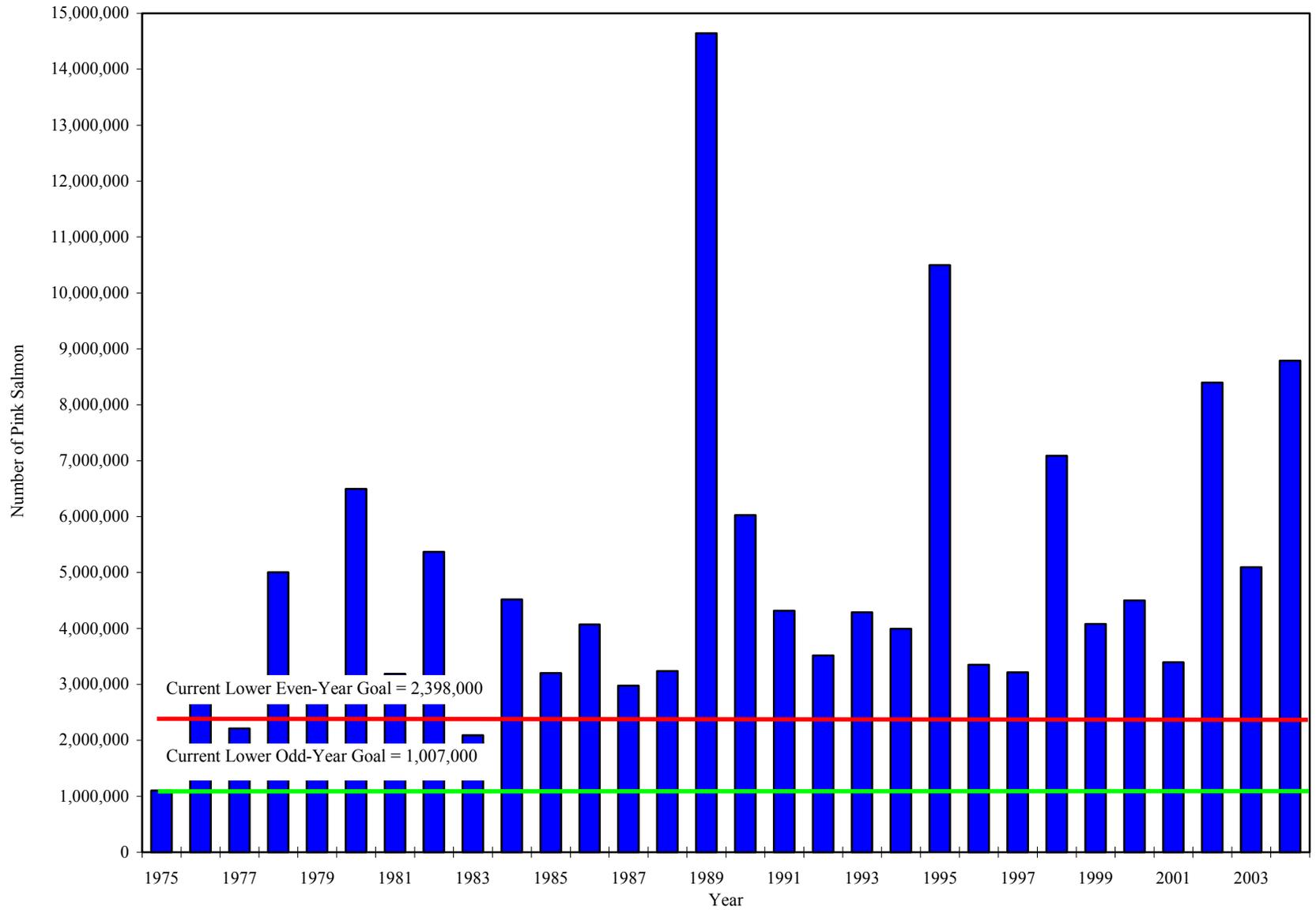


Figure 12.-Pink salmon escapements in the Kodiak Management Area, 1975-2004.

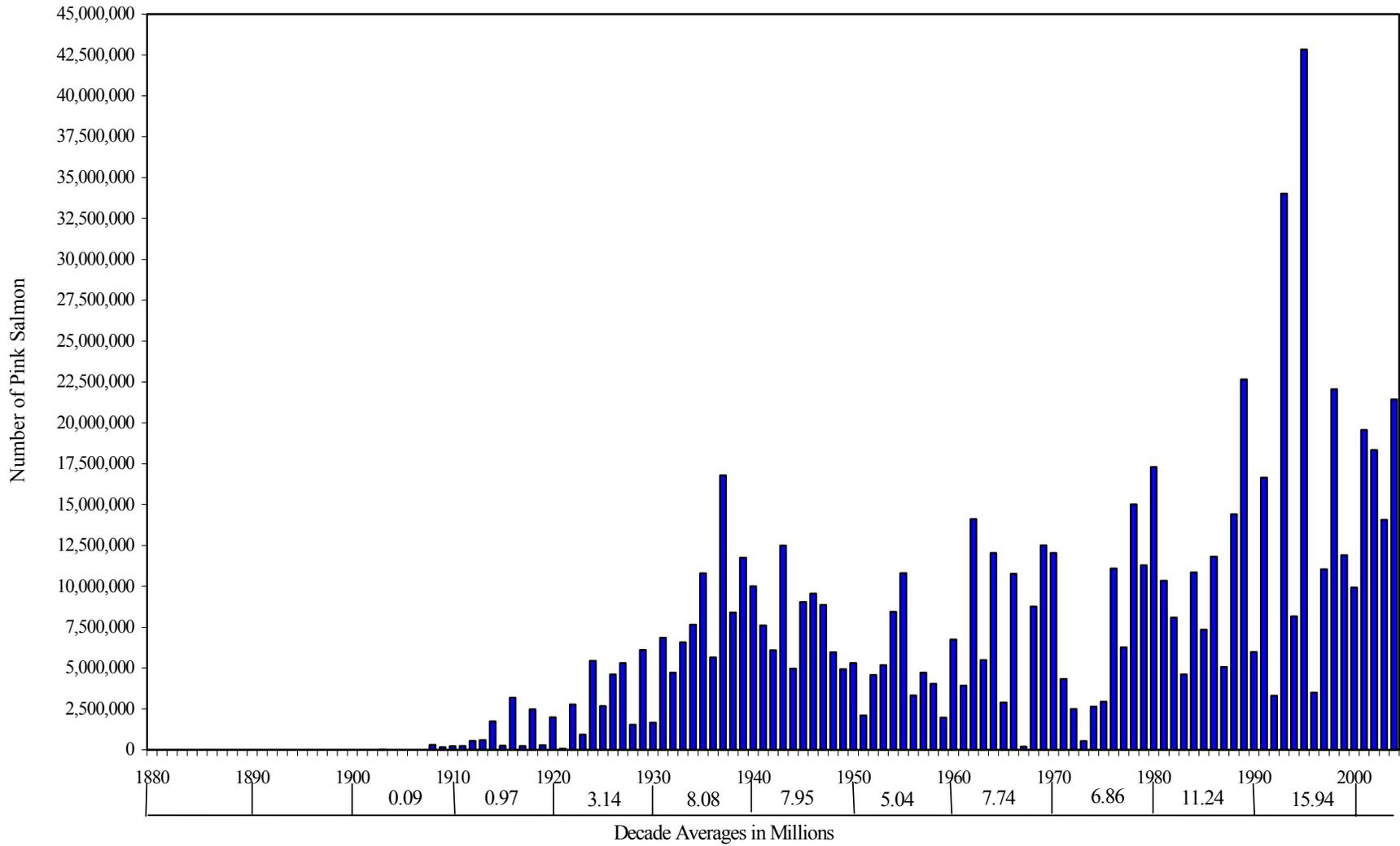


Figure 13.-Pink salmon commercial harvest, all gear combined, in the Kodiak Management Area, 1901-2004.

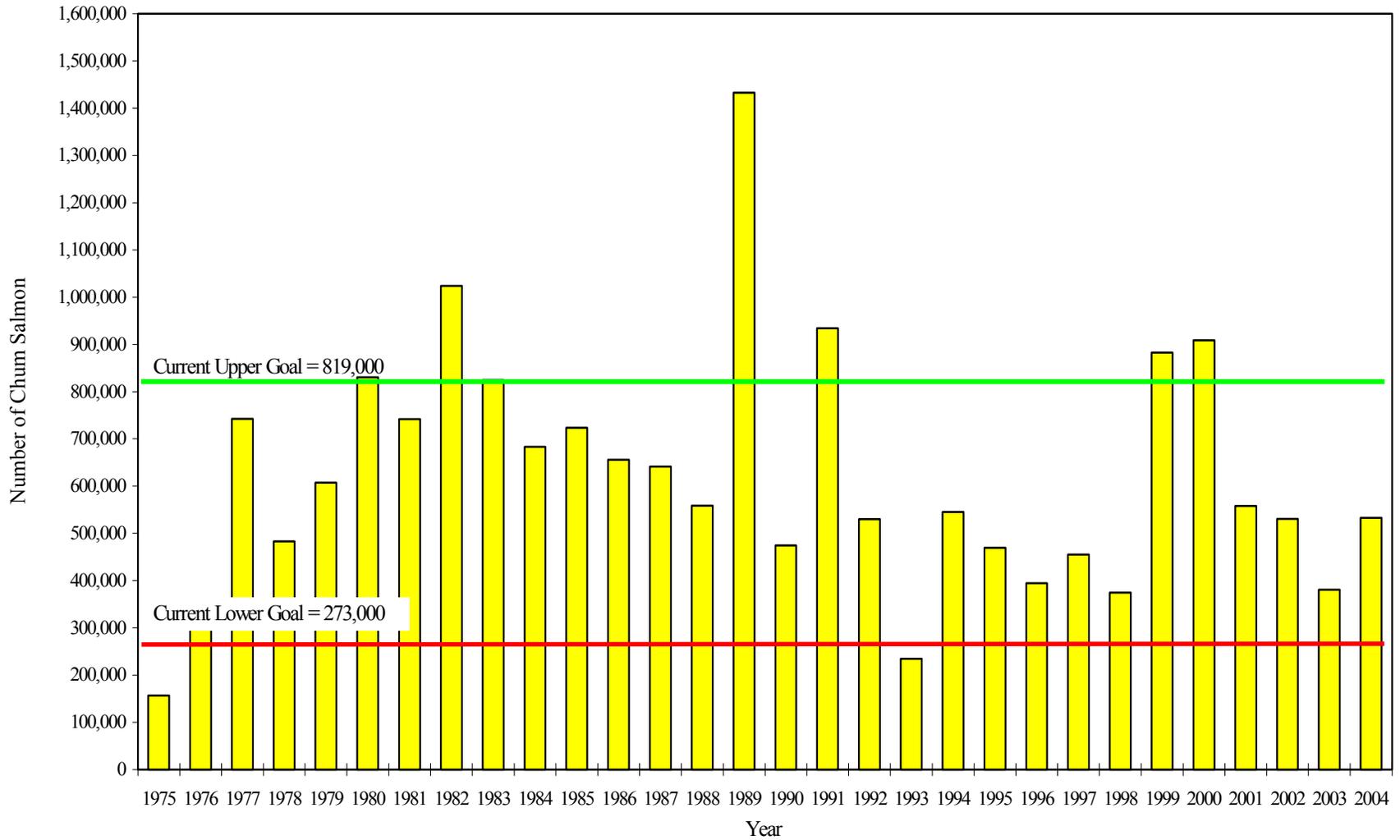


Figure 14.-Chum salmon escapements in the Kodiak Management Area, 1975-2004.

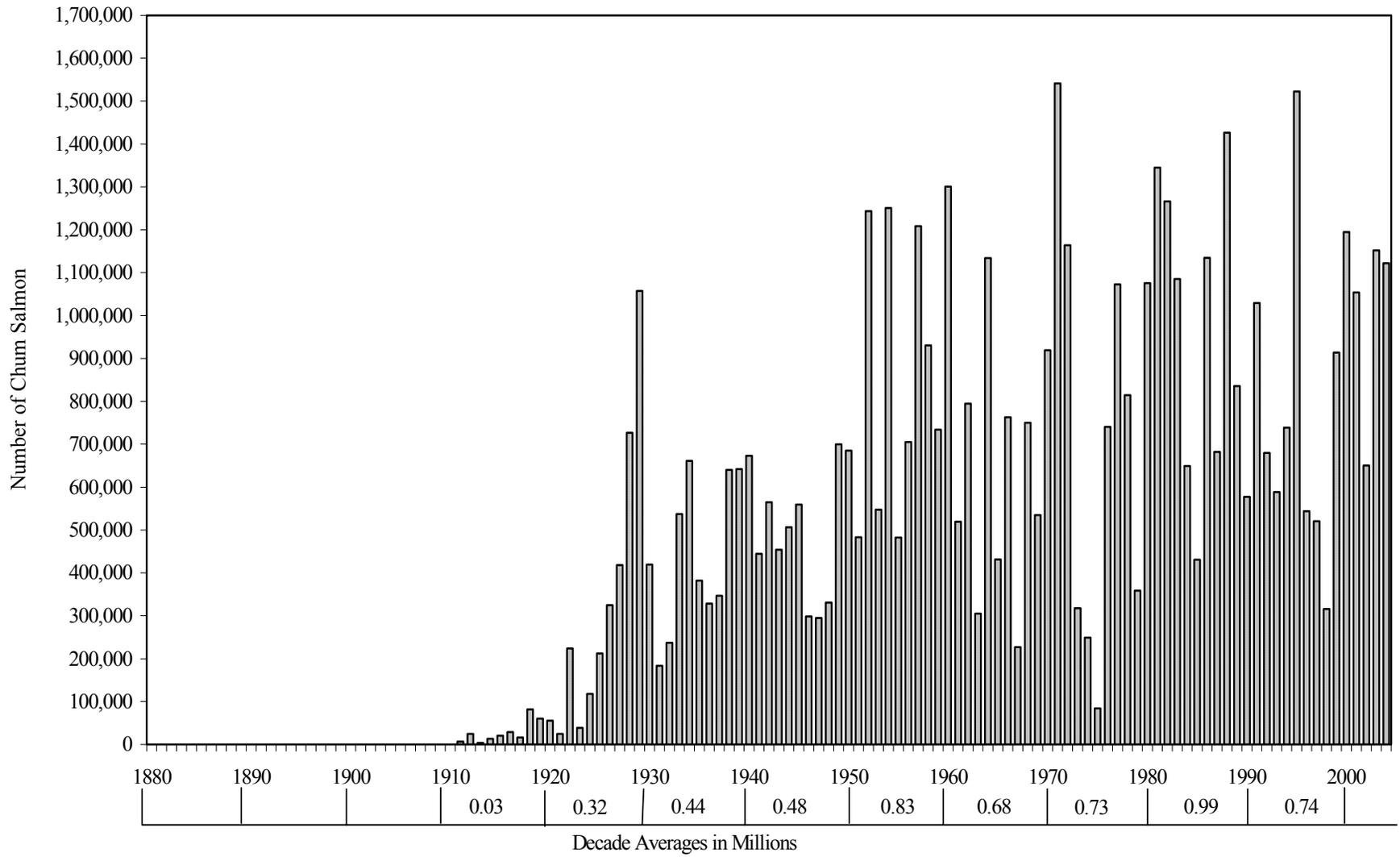
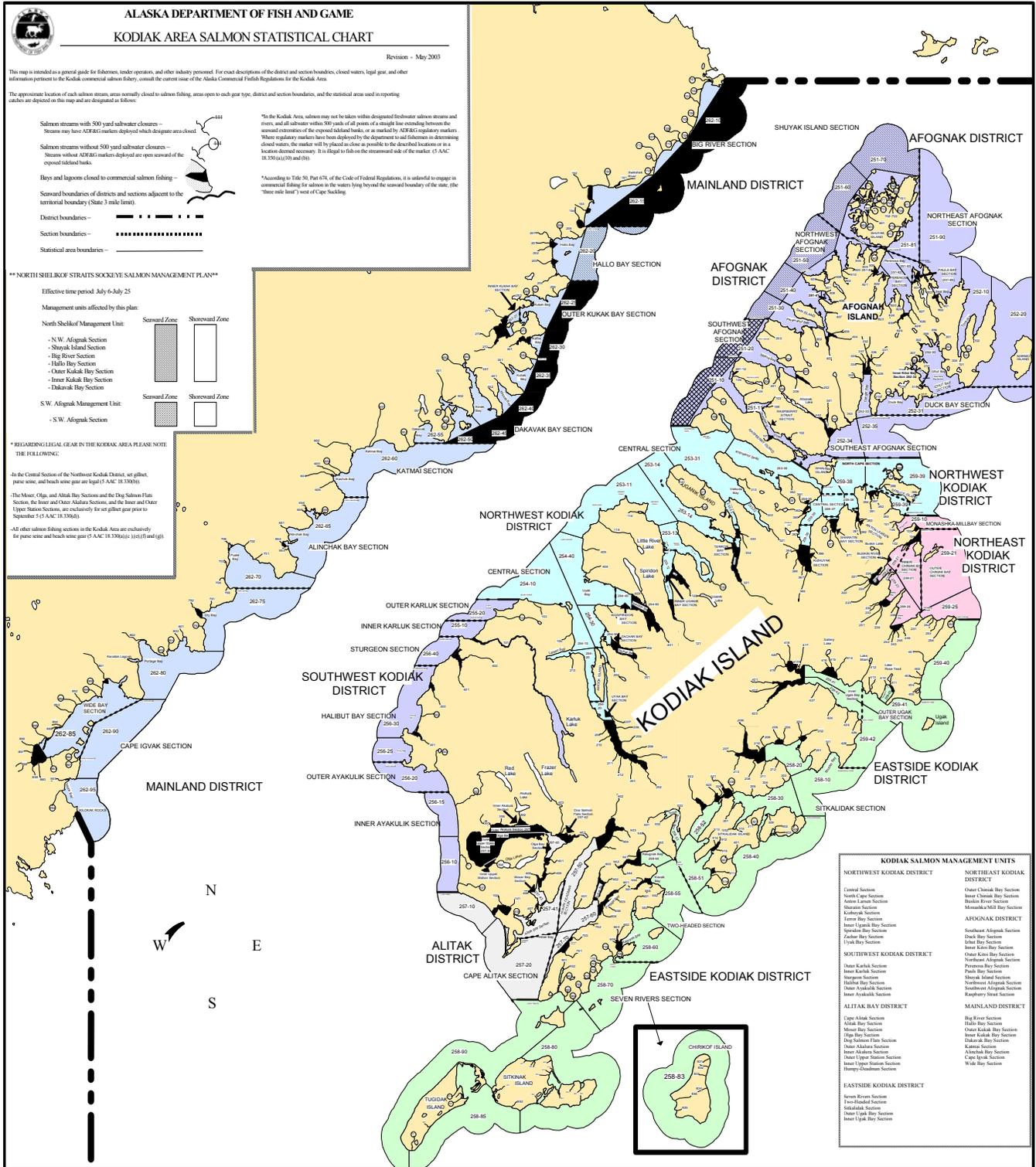
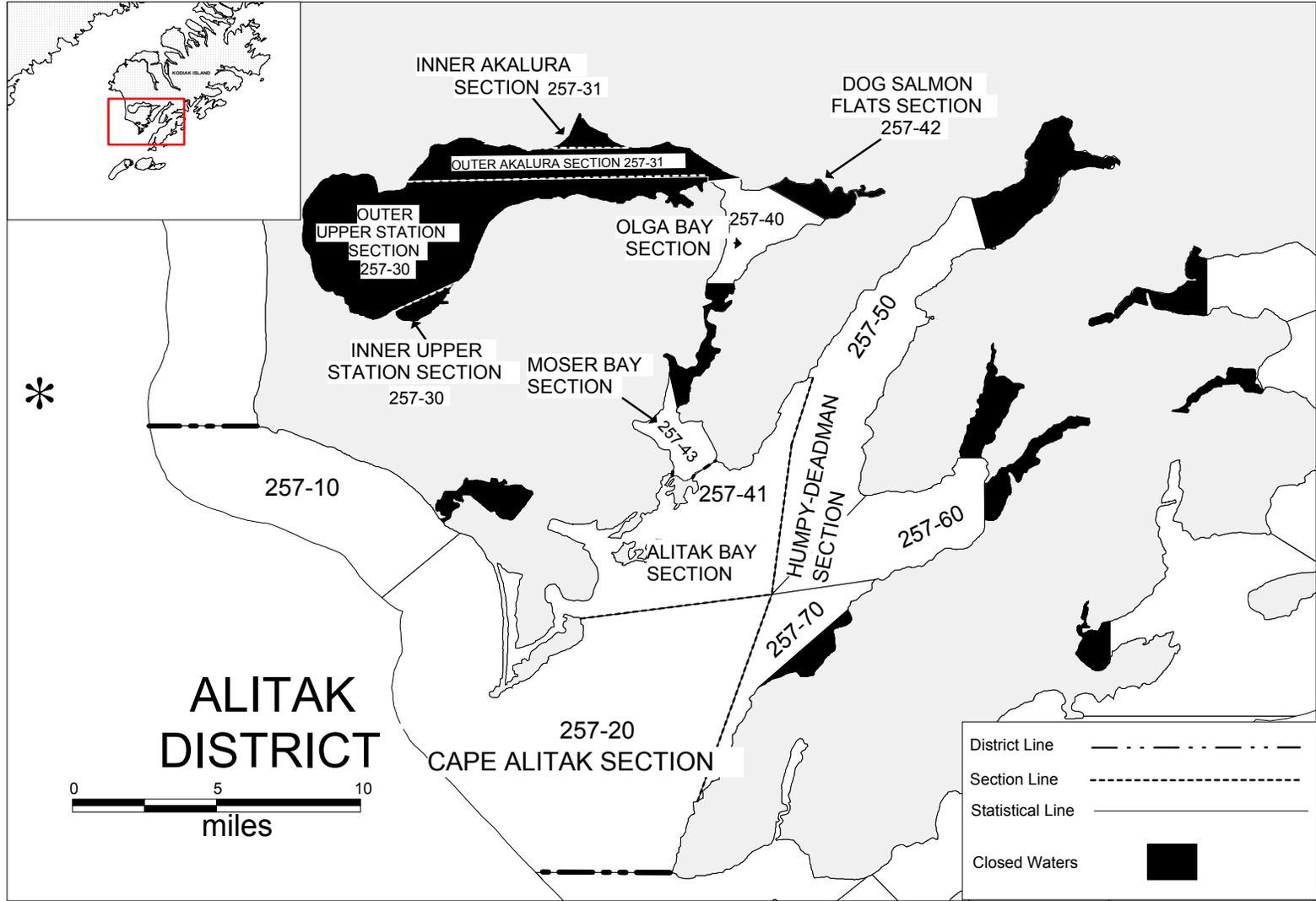


Figure 15.-Chum salmon commercial harvest, all gear combined, in the Kodiak Management Area, 1911-2004.

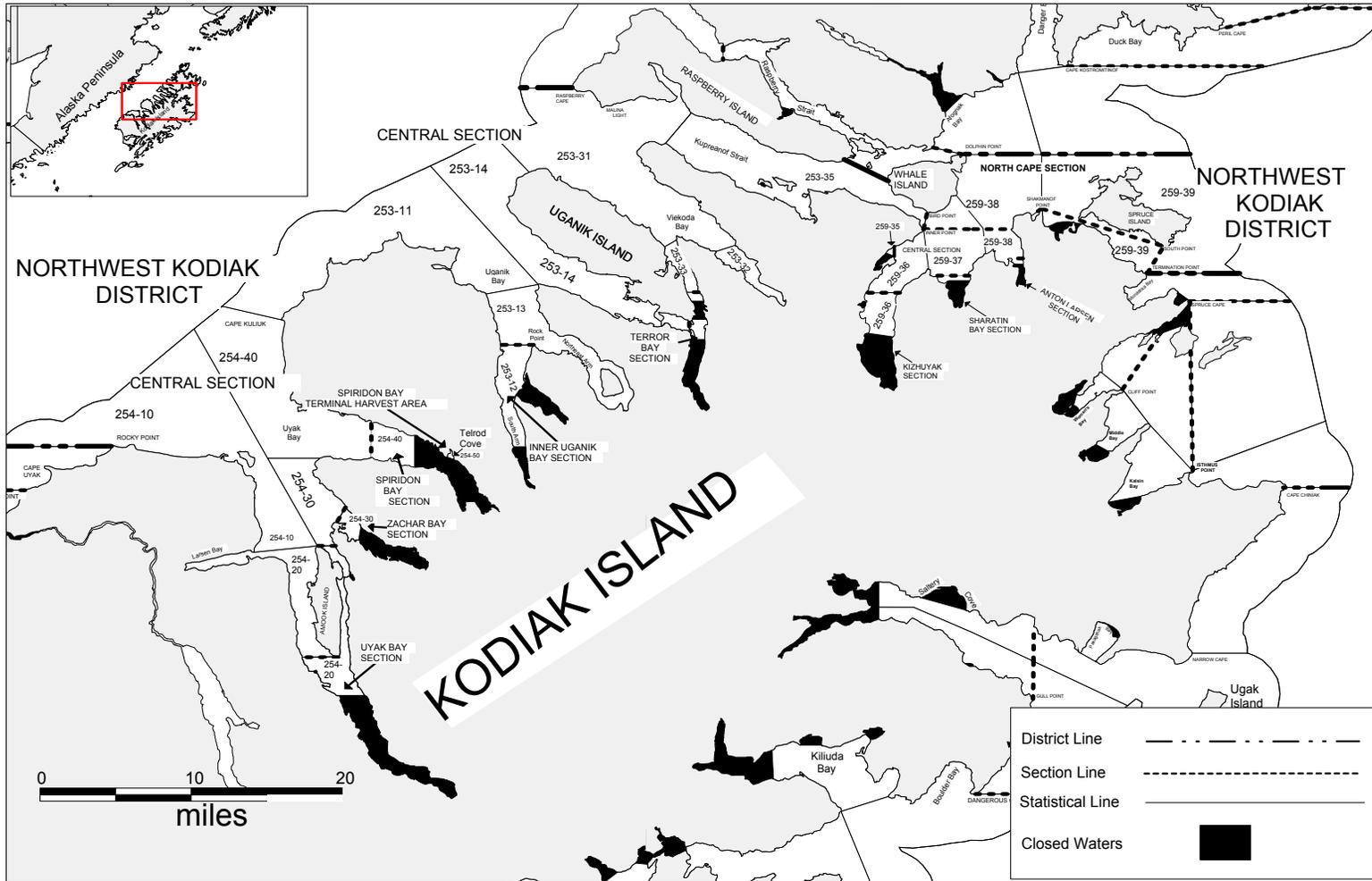
APPENDIX A: MAPS OF FISHING DISTRICTS



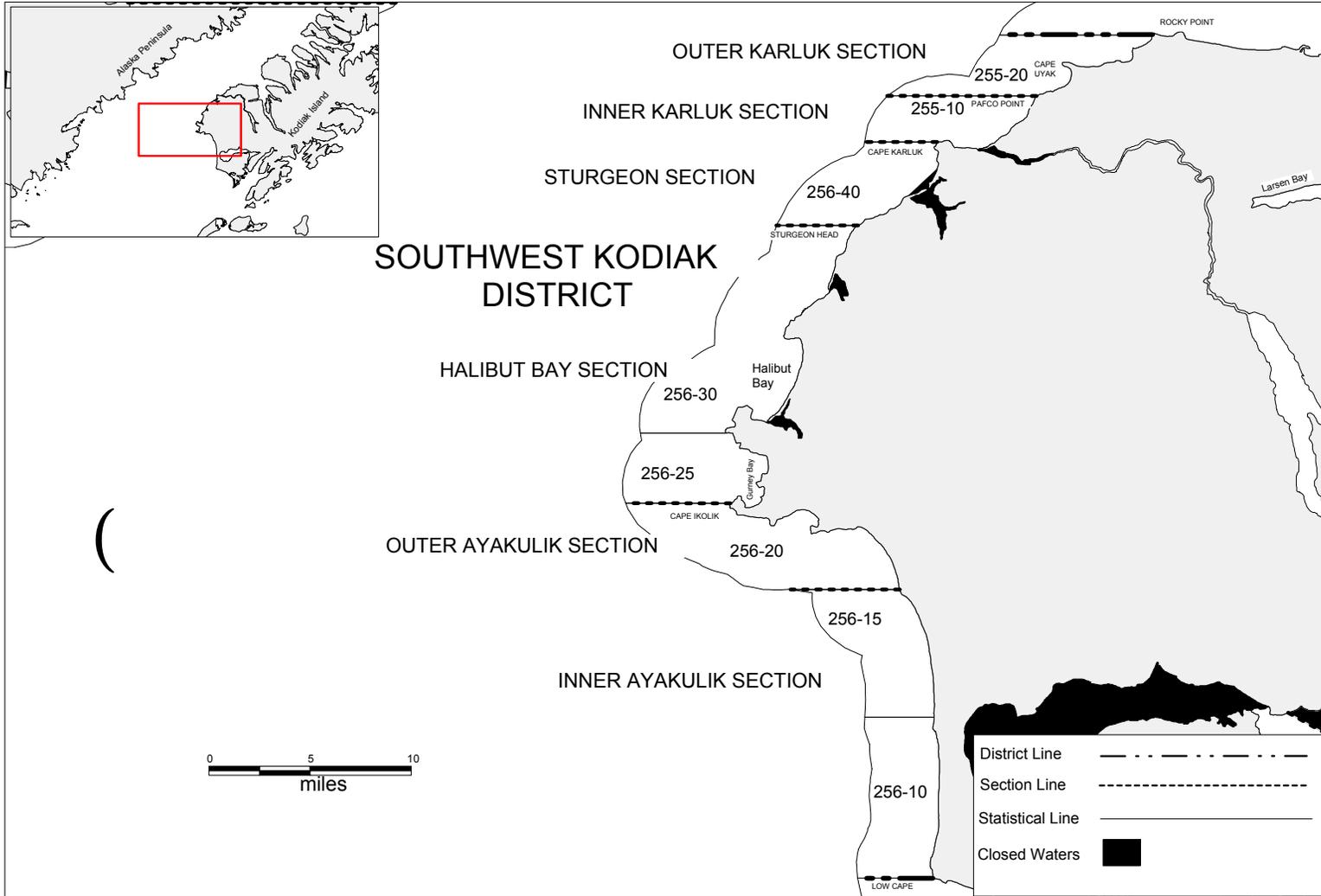
Appendix A1.-Map of the Kodiak Management Area, showing commercial salmon fishing districts, sections, and closed waters, 2004.



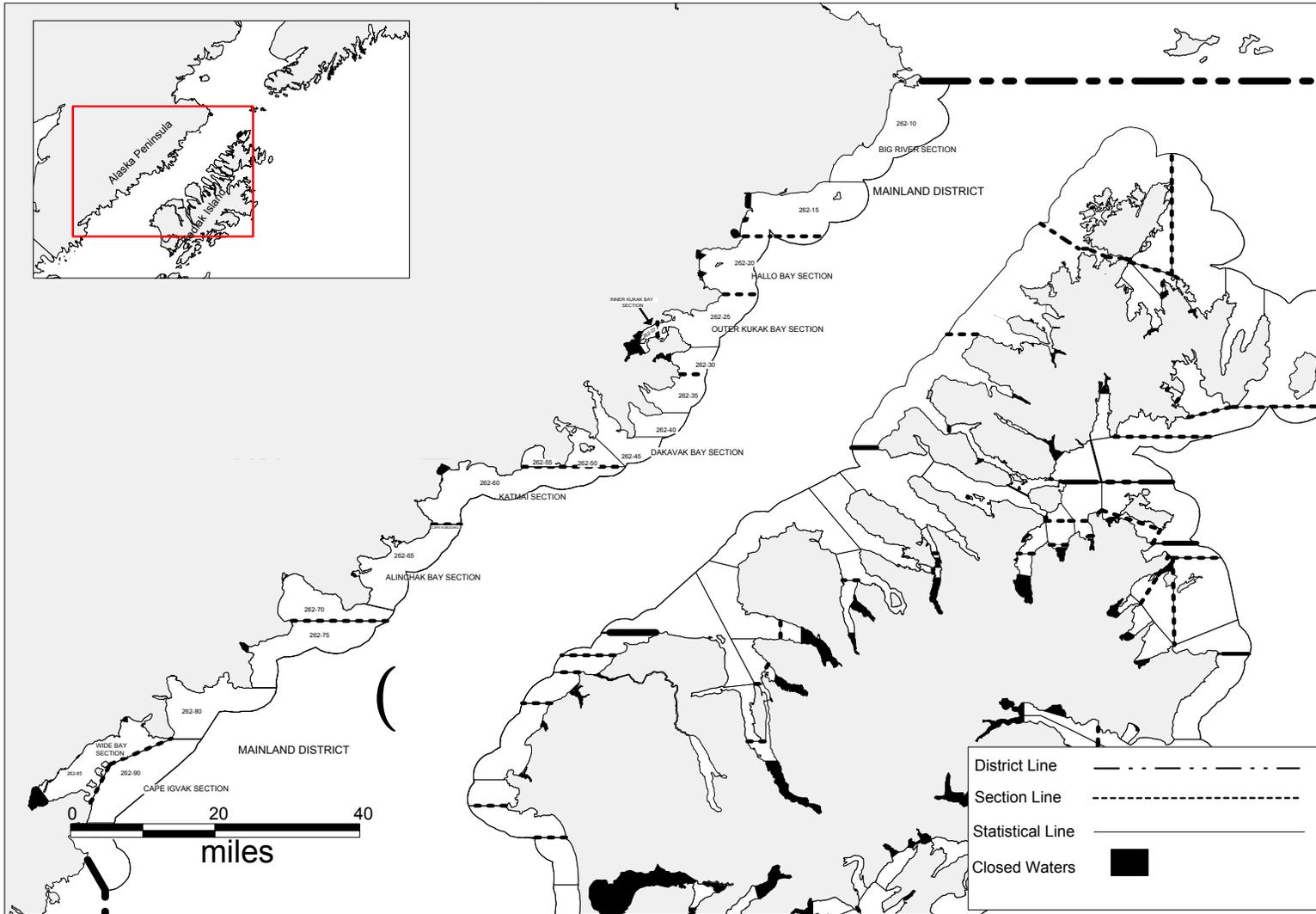
Appendix A2.-Map of the Alitak Bay District identifying commercial salmon fishing sections and statistical areas.



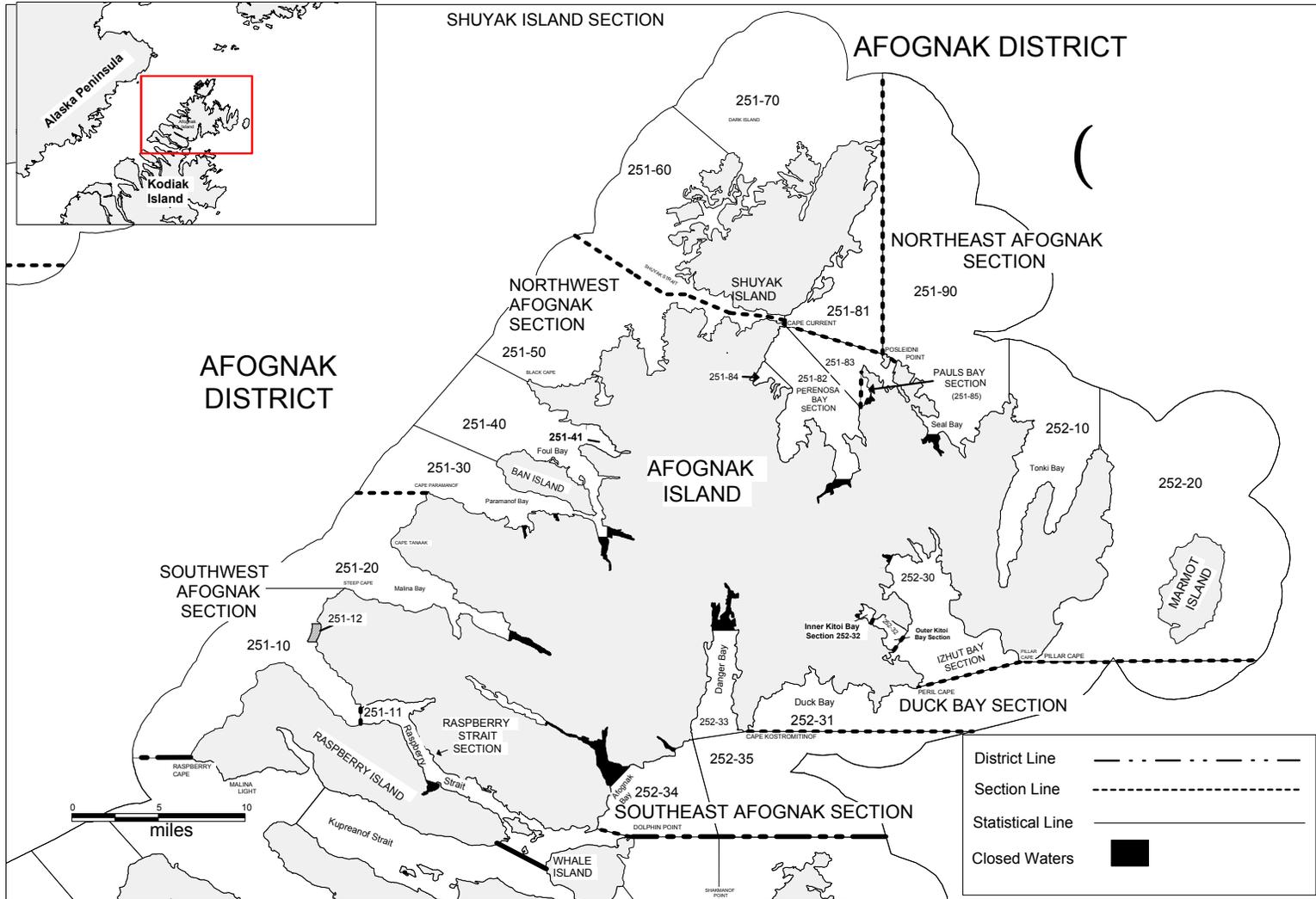
Appendix A3.-Map of the Northwest Kodiak District identifying commercial salmon fishing sections and statistical areas.



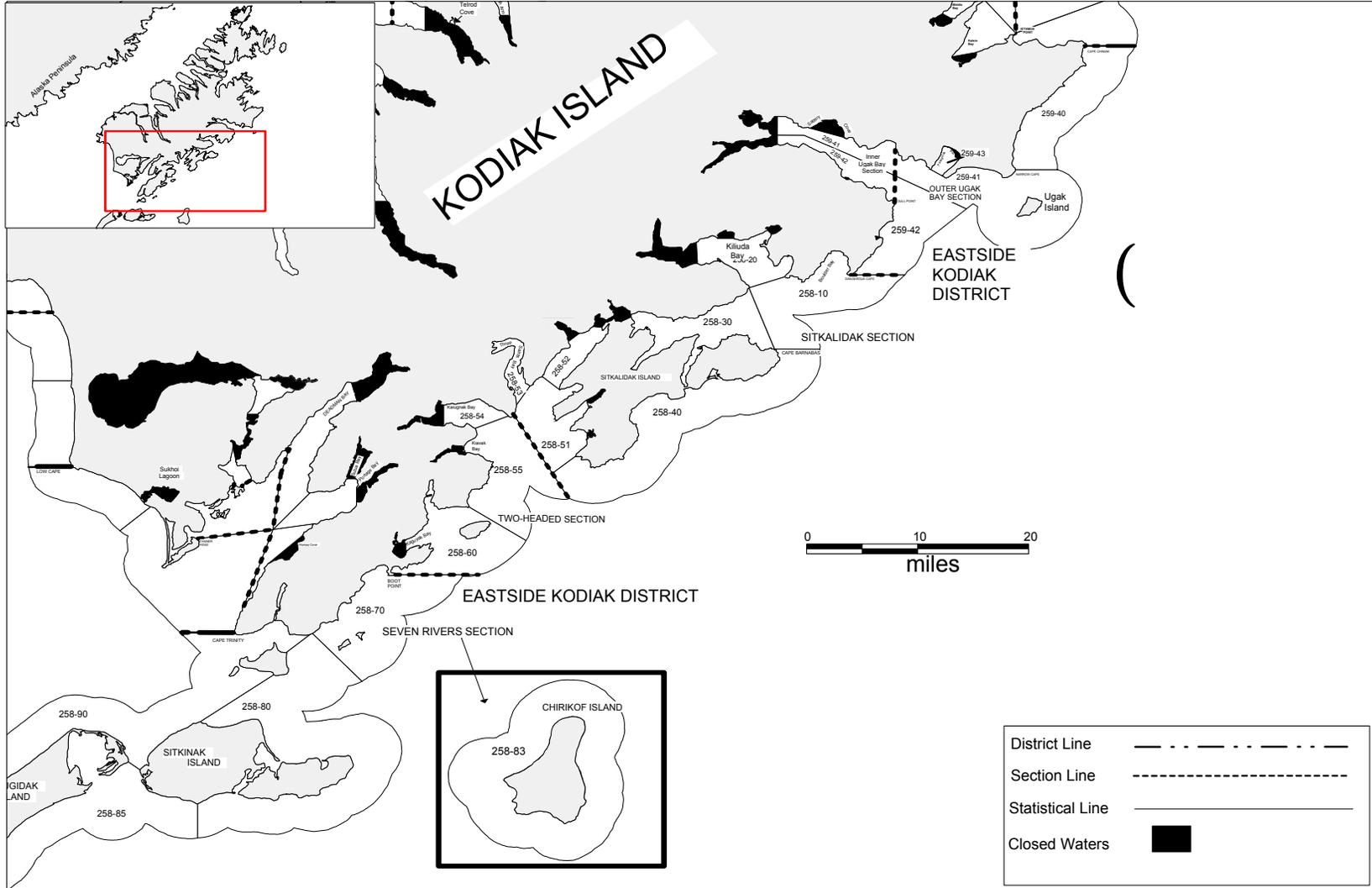
Appendix A4.-Map of the Southwest Kodiak District identifying commercial salmon fishing sections and statistical areas.



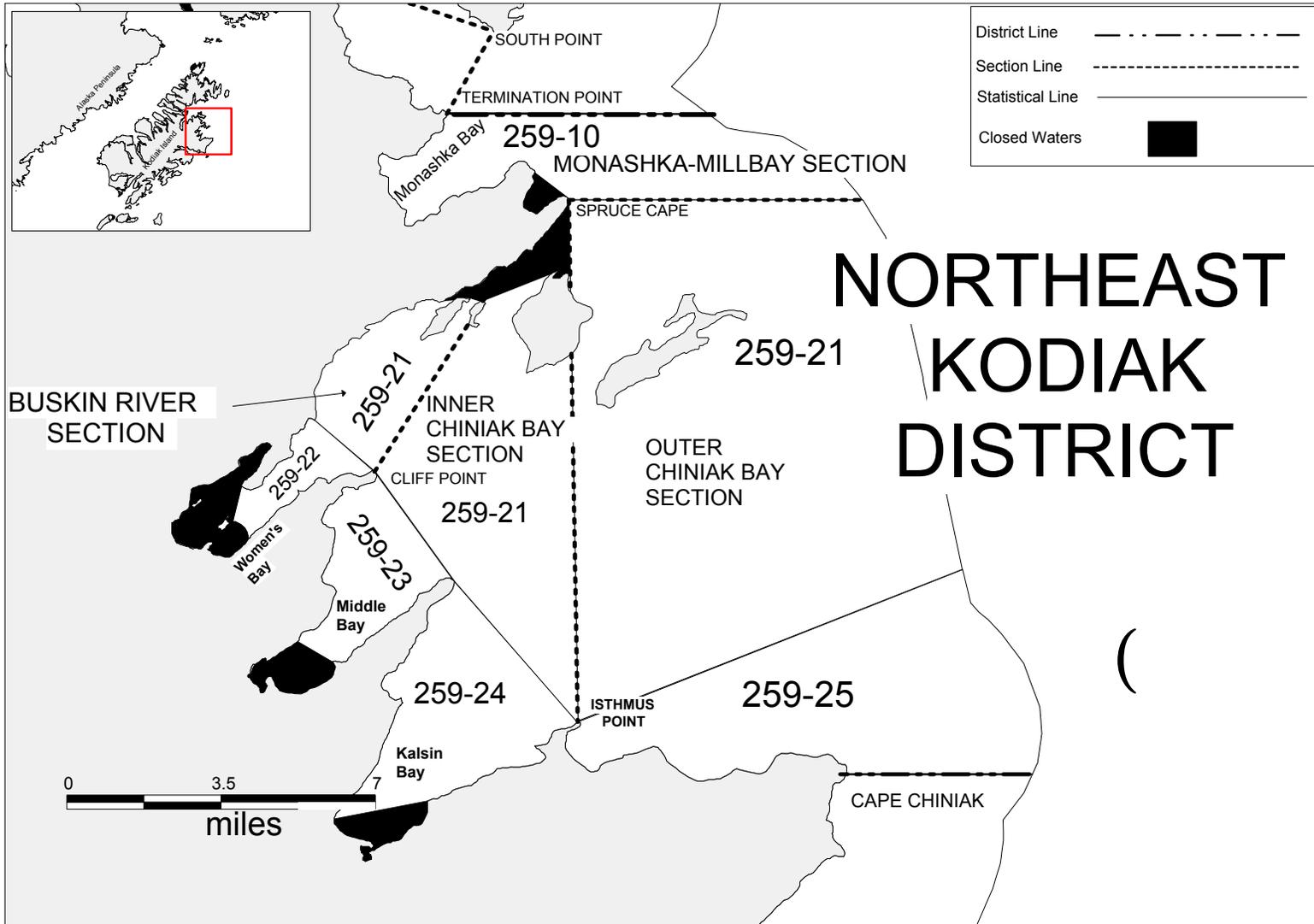
Appendix A5.-Map of the Mainland District identifying commercial salmon fishing sections and statistical areas.



Appendix A6.-Map of the Afognak District identifying commercial salmon fishing sections and statistical areas.

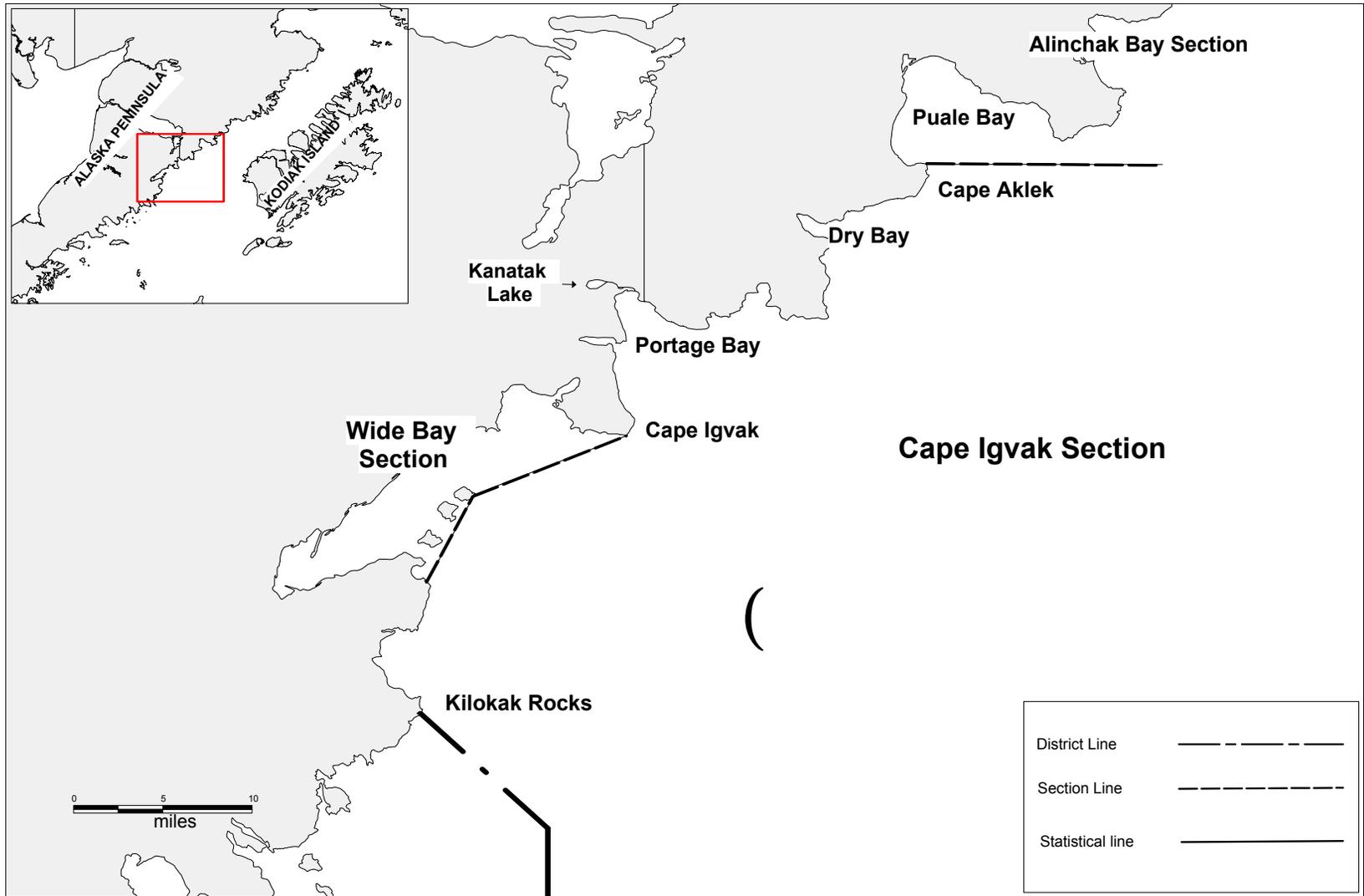


Appendix A7.-Map of the Eastside Kodiak District identifying commercial salmon fishing sections and statistical areas.



Appendix A8.-Map of the Northeast Kodiak District identifying commercial salmon fishing sections and statistical areas.

APPENDIX B: CAPE IGVAK MANAGEMENT PLAN



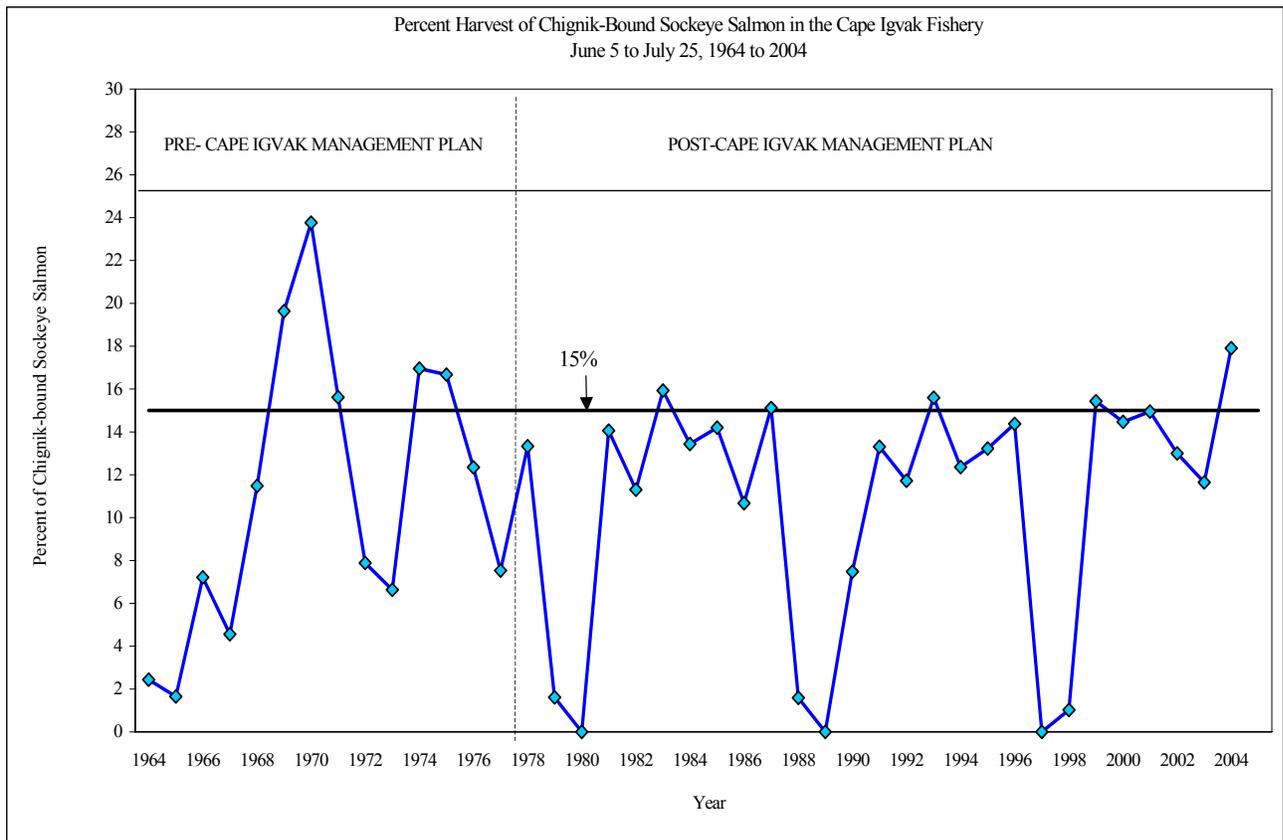
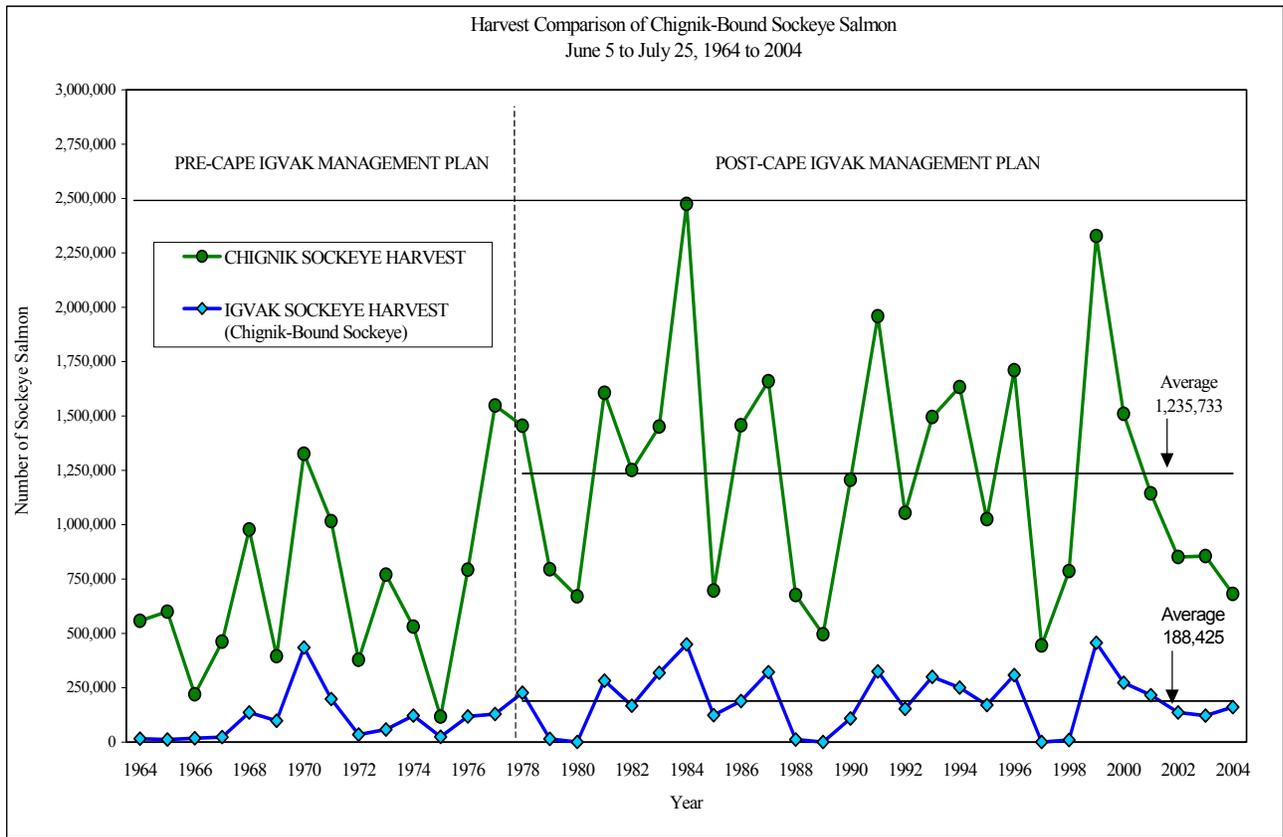
Appendix B1.-Map of the Cape Igvak Section of the Kodiak Management Area, 2004.

BIOLOGICAL REQUIREMENTS			ALLOCATIVE REQUIREMENTS		
REGULATION 5 AAC 18.360	ESCAPEMENT NEEDS		REGULATION 5 AAC 18.360	CHIGNIK MINIMUM HARVEST	IGVAK %
	FIRST RUN CHIGNIK	SECOND RUN CHIGNIK			
(a) (b) (c)	THROUGH 6/30 350,000-400,000	-	(a)	EXPECTATION OF LESS THAN 600,000	CLOSED
-	-	-	(b)	EXPECTATION OF 600,000 IS IN DOUBT	CLOSED
(a) (b) (c)	-	THROUGH 7/31 195,000-200,000	(c)	EXPECTATION OF 600,000 OR MORE OCCUR	OPEN TO ACHIEVE 15%
-	-	-	(d)	CHIGNIK SALMON % INTERCEPTION CALCULATIONS	90% OF SOCKEYE CATCH AT IGVAK ARE CONSIDERED CHIGNIK SOCKEYE
-	-	-	(e)	ALLOCATION PERIOD 6/5 - 7/25	CHIGNIK FISHES FIRST
(f)	JUNE 26 - JULY 9 CAPE IGVAK SECTION CLOSED OR SEVERELY LIMITED UNTIL CHIGNIK SOCKEYE RUN EVALUATED		-	-	-
-	-	-	(g)	-	ONE DAY ADVANCE NOTICE
	400,000	250,000		600,000 MINIMUM	15%

MANAGEMENT CHRONOLOGY FOR CHIGNIK BOUND SOCKEYE AND KODIAK SALMON

CLOSED	CHIGNIK SOCKEYE STOCKS (FIRST RUN)	CLOSED OR SEVERELY LIMITED	CHIGNIK SOCKEYE STOCKS (SECOND RUN)	LOCAL KODIAK STOCKS
	6/1 6/5	6/26	7/9	7/25 9/5

Appendix B2.-Biological and allocative criteria and the management chronology of the Cape Igvak Management Plan for the Kodiak Management Area, 2004.



Appendix B3.-Impact of the Cape Igvak Salmon Management Plan, 1964-2004.

Appendix B4.-Harvest of sockeye salmon considered by regulation to be Chignik bound in the Chignik, Cape Igvak, and Southeastern District Mainland commercial salmon fisheries, 1964-2004.

Year	Chignik		Cape Igvak ^a		Southeastern District Mainland ^a		Total
	Catch ^b	Percent	Catch ^b	Percent	Catch ^b	Percent	
1964 ^c	556,890	90.57	14,980	2.44	43,021	7.00	614,891
1965	599,553	89.94	11,021	1.65	56,020	8.40	666,594
1966	219,794	87.99	18,003	7.21	12,011	4.81	249,808
1967	462,000	91.48	23,014	4.56	20,021	3.96	505,035
1968	977,382	82.53	135,951	11.48	70,959	5.99	1,184,292
1969	394,135	78.96	97,982	19.63	7,013	1.41	499,130
1970	1,325,734	72.51	434,394	23.76	68,181	3.73	1,828,309
1971	1,016,136	80.33	197,614	15.62	51,272	4.05	1,265,022
1972	378,218	87.99	33,865	7.88	17,752	4.13	429,835

1964 to 1972 catch and percentage figures are totals for the entire season. Catch figures and percentages after 1972 are only through July 25.

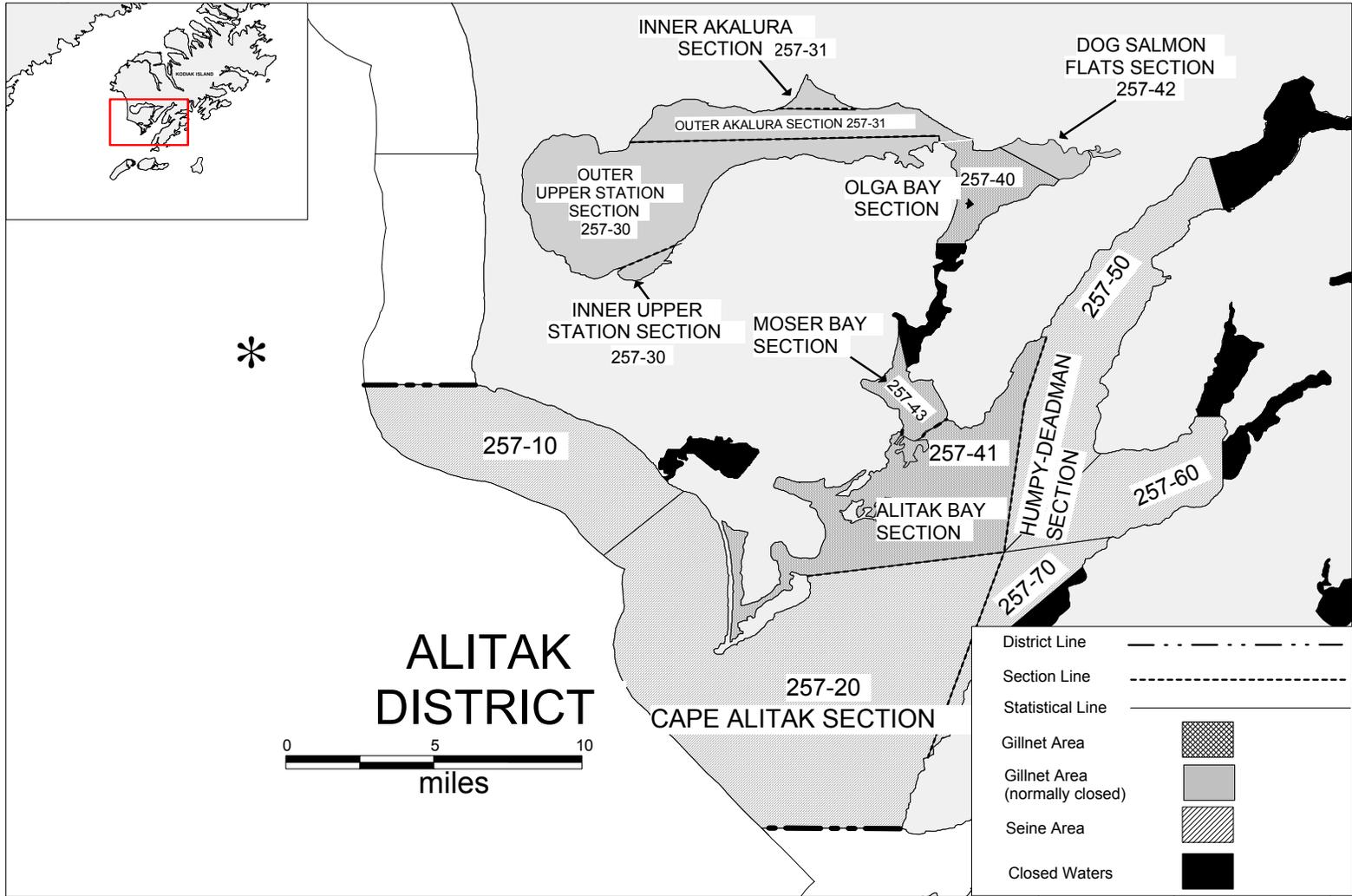
1973 ^d	769,258	88.97	57,348	6.63	37,983	4.39	864,589
1974	530,278	73.61	122,071	16.95	68,029	9.44	720,378
1975	115,984	81.78	23,635	16.67	2,205	1.55	141,824
1976	792,024	82.96	117,926	12.35	44,730	4.69	954,680
1977	1,547,285	90.40	128,852	7.53	35,502	2.07	1,711,639
1978 ^{e,f}	1,454,389	85.38	227,014	13.33	22,064	1.30	1,703,467
1979 ^g	794,504	91.81	13,950	1.61	56,878	6.57	865,332
1980	670,001	91.31	32	0.00	63,724	8.68	733,757
1981	1,606,300	79.85	282,727	14.06	122,533	6.09	2,011,560
1982	1,250,768	84.46	167,401	11.30	62,767	4.24	1,480,936
1983	1,450,832	72.68	318,048	15.93	227,392	11.39	1,996,272
1984	2,474,405	73.93	449,372	13.43	423,068	12.64	3,346,845
1985 ^h	696,169	79.91	123,627	14.19	51,421	5.90	871,217
1986	1,456,729	82.64	188,017	10.67	118,006	6.69	1,762,752
1987	1,659,615	77.99	321,506	15.11	146,886	6.90	2,128,007
1988	675,487	95.67	11,218	1.59	19,320	2.74	706,025
1989	496,044	99.10	0	0.00	4,485	0.90	500,529
1990	1,205,575	83.61	107,706	7.47	128,599	8.92	1,441,880
1991 ⁱ	1,958,954	80.42	324,329	13.31	152,714	6.27	2,435,997
1992 ^j	1,054,309	81.07	152,358	11.72	93,845	7.22	1,300,512
1993	1,495,098	77.72	300,055	15.60	128,536	6.68	1,923,689
1994 ^k	1,632,435	80.61	250,230	12.36	142,350	7.03	2,025,015
1995	1,024,785	79.90	169,530	13.22	88,302	6.88	1,282,617
1996 ^l	1,710,249	79.70	308,327	14.37	127,201	5.93	2,145,777
1997	443,892	100.00	0	0.00	0	0.00	443,892
1998 ^m	786,466	91.22	8,813	1.02	66,893	7.76	862,172
1999	2,326,811	78.70	456,147	15.43	173,621	5.87	2,956,579
2000	1,509,652	80.05	272,808	14.47	103,419	5.48	1,885,879
2001 ⁿ	1,143,990	79.54	215,214	14.96	79,037	5.50	1,438,241
2002 ^o	851,031	81.01	136,488	12.99	63,026	6.00	1,050,545
2003	855,179	81.68	121,887	11.64	69,935	6.68	1,047,001
2004	681,120	75.94	160,665	17.91	55,123	6.15	896,908

-Continued-

Appendix B4.-(page 2 of 2)

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- ^a Through 2001, the Cape Igvak and Southeastern District Mainland figures represent 80% of the total sockeye salmon catch for those areas, based on the premise that only 80% of the sockeye caught in those areas are destined for Chignik (excluding sockeye caught in the Northwest Stepovak Section from 1964 to 1991 and during July 1996, and Orzinski Bay from 1992 to 1995). In 2002 for the Cape Igvak fishery, the BOF increased the percentage of sockeye salmon harvest considered Chignik bound from 80% to 90%.
- ^b Catch numbers were last modified from the ADF&G computerized historical fish ticket data base in 2003.
- ^c The data from 1964 to 1972 are based on total yearly catches. Prior to 1973 the Cape Igvak and Southeastern District Mainland fisheries were weekly fishing periods set by regulation, usually 5 days per week. Time modifications were implemented when poor escapements occurred at Chignik.
- ^d From 1974 through 1977 all three fisheries were managed on a day by day basis.
- ^e Beginning in 1978 the Cape Igvak Salmon Management Plan allocated up to 15% of the total catch of Chignik bound sockeye salmon to Kodiak Management Area fishers.
- ^f In 1978 seining prior to July 11 was disallowed in the Southeastern District Mainland. Set gillnet fisheries were allowed for 3 days per week through July 10, after which the fishery was based on local stock abundance.
- ^g From 1979 through 1984 fishing in the Southeastern District Mainland was allowed for 5 days per week prior to July 11, with an estimated ceiling of 60,000 Chignik bound sockeye. If the Chignik Management Area catch was 1,000,000 or more before July 11 then the ceiling was removed.
- ^h Beginning in 1985 the Southeastern District Mainland (excluding the Northwest Stepovak Section and Orzinski Bay) was allowed an allocation of 6.2% of the total harvest of Chignik bound sockeye salmon through July 25. After July 25 the Southeast District Mainland was managed based on local stock abundance. The allocation level changed to 6.0% beginning in 1988, with seining still not allowed prior to July 11.
- ⁱ Includes over escapement of 208,305 sockeye salmon, counted through the Chignik weir during a Chignik Area Seiners strike (June 23 to July 4).
- ^j Beginning in 1992, after Board of Fisheries review of historical records, the allocation of Chignik bound sockeye to the Southeastern District Mainland fishery (excluding Orzinski Bay) was increased to 7.0%, through July 25.
- ^k Includes over escapement of 208,921 sockeye salmon, counted through the Chignik weir during a Chignik Area Seiners strike (June 2 to June 25).
- ^l In January 1996 the BOF increased the area managed for local Orzinski Lake sockeye salmon from only Orzinski Bay to the entire Northwest Stepovak Section. Prior to July 1 the entire Northwest Stepovak Section will be managed by allocation based on Chignik sockeye salmon run strength. Beginning July 1 the Northwest Stepovak Section is managed entirely on local stocks. The BOF also decreased the percentage of Chignik bound sockeye salmon allocated to the Southeastern District Mainland fishery from 7.0 percent to 6.0 percent.
- ^m Includes 7,714 sockeye salmon caught on June 18 by the Chignik Seiners Association (CSA), and an overescapement of 52,131 sockeye salmon counted past the weir during the CSA boycott (June 16 to June 29).
- ⁿ Includes 176,605 sockeye salmon caught June 16-29 by the Chignik Seiners Association, and foregone harvest due to overescapement of 398,887 in the CMA and 27,896 in the SEDM during the fishermen's strike (June 14 to July 2).
- ^o In 2002, the Board of Fisheries changed the regulations such that 90% of the sockeye salmon harvested in the Cape Igvak Section from June 5 through July 25 are to be considered Chignik bound.

APPENDIX C: ALITAK BAY DISTRICT MANAGEMENT PLAN

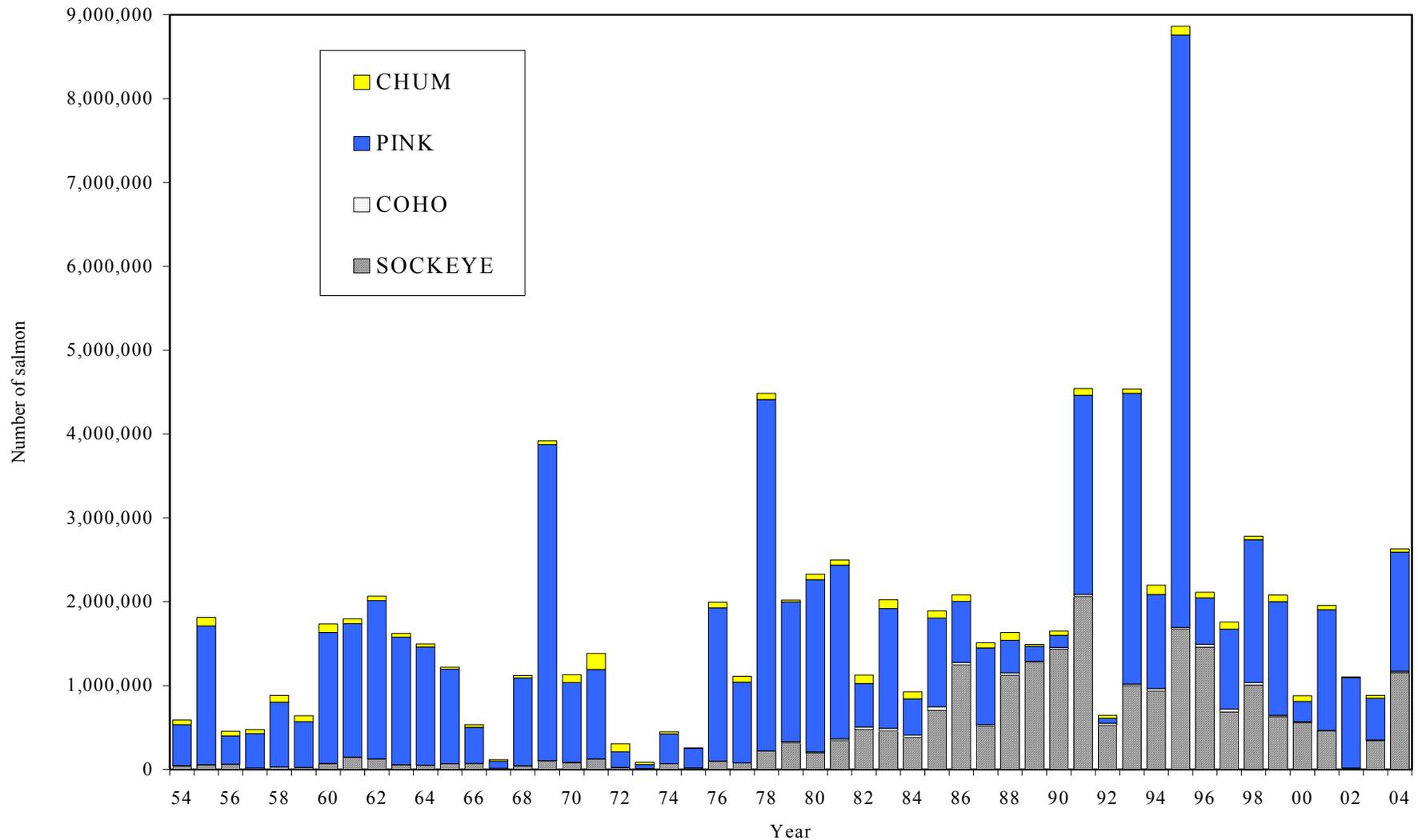


Appendix C1.-Map of the Alitak Bay District showing sections and gear use areas, 2004.

Appendix C2.-Primary management species and management chronology of the Alitak Bay District Salmon Management Plan for the Kodiak Management Area.

Alitak Bay District Salmon Management Plan

	6/5	6/14	7/16	8/10	8/21	8/26	
HUMPY-DEADMAN SECTION (SEINE)	33 HOUR COMMERCIAL TEST FISHERY	FRAZER AND EARLY UPPER STATION SOCKEYE SALMON		ALITAK BAY PINK, CHUM, AND COHO SALMON			
CAPE ALITAK SECTION (SEINE)		FRAZER AND EARLY UPPER STATION SOCKEYE SALMON		<u>ODD-YEAR CYCLE</u> FRAZER PINK SALMON	<u>ODD-YEAR CYCLE</u> LATE-RUN UPPER STATION SOCKEYE	ALL ALITAK DISTRICT COHO SYSTEMS	
				<u>EVEN-YEAR CYCLE</u> LATE-RUN UPPER STATION SOCKEYE SALMON	<u>EVEN-YEAR CYCLE</u> LATE-RUN UPPER STATION SOCKEYE & FRAZER PINK SALMON		
ALITAK BAY, MOSER BAY, & OLGA BAY SECTIONS (GILLNET) (TRADITIONAL)		FRAZER AND EARLY UPPER STATION SOCKEYE SALMON		<u>ODD-YEAR CYCLE</u> FRAZER PINK SALMON	<u>ODD-YEAR CYCLE</u> UPPER STATION SOCKEYE (LATE RUN)	ALL OLGA BAY COHO SYSTEMS	
				<u>EVEN-YEAR CYCLE</u> LATE-RUN UPPER STATION SOCKEYE SALMON	<u>EVEN-YEAR CYCLE</u> LATE-RUN UPPER STATION SOCKEYE & FRAZER PINK SALMON		
SECTIONS LISTED BELOW ARE NORMALLY CLOSED WATERS, EXCEPT FOR MOP-UP FISHERIES BASED ON:							
OUTER UPPER & INNER UPPER STATION (GILLNET) (NON-TRADITIONAL)	EARLY-RUN UPPER STATION SOCKEYE SALMON		LATE-RUN UPPER STATION SOCKEYE SALMON		UPPER STATION SOCKEYE & COHO	UPPER STATION COHO SALMON	
OUTER AKALURA & INNER AKALURA SECTIONS (GILLNET) (NON-TRADITIONAL)	AKALURA SOCKEYE SALMON				AKALURA SOCKEYE & COHO	AKALURA COHO SALMON	
DOG SALMON FLATS SECTION (GILLNET) (NON-TRADITIONAL)	FRAZER SOCKEYE SALMON		FRAZER PINK SALMON		FRAZER AND HORSE MARINE COHO SALMON		
	6/5	6/14	7/16	8/10	8/21	8/26	



Appendix C3-Annual commercial salmon harvest, by species, all gear combined, for the Alitak Bay District of the Kodiak Management Area, 1954-2004.

Appendix C4.-Commercial salmon harvest, by species, with percent harvest by gear type, in the Alitak Bay District of the Kodiak Management Area, 1954-2004.

YEAR	CHINOOK			SOCKEYE			COHO			PINK			CHUM			TOTAL		
	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%
1954	3	33%	67%	44,448	94%	6%	1,118	93%	7%	490,038	47%	53%	55,788	19%	81%	591,395	48%	52%
1955	38	74%	26%	56,058	89%	11%	410	68%	32%	1,656,363	15%	85%	100,031	17%	83%	1,812,900	18%	82%
1956	10	10%	90%	62,673	77%	23%	904	25%	75%	335,669	30%	70%	55,967	11%	89%	455,223	34%	66%
1957	7	14%	86%	15,365	88%	12%	378	31%	69%	410,620	12%	88%	49,661	27%	73%	476,031	16%	84%
1958	11	0%	100%	30,542	79%	21%	488	33%	67%	770,851	29%	71%	81,255	8%	92%	883,147	29%	71%
1959	11	18%	82%	24,888	59%	41%	378	30%	70%	544,592	23%	77%	70,589	8%	92%	640,458	23%	77%
1960	29	17%	83%	68,472	77%	23%	2,129	77%	23%	1,561,476	25%	75%	102,432	13%	87%	1,734,538	26%	74%
1961	23	4%	96%	145,781	67%	33%	1,470	49%	51%	1,589,027	14%	86%	60,600	18%	82%	1,796,901	19%	81%
1962	5	20%	80%	124,496	75%	25%	1,792	79%	21%	1,886,769	23%	77%	54,115	26%	74%	2,067,177	26%	74%
1963	30	7%	93%	54,992	60%	40%	1,202	31%	69%	1,522,856	14%	86%	42,836	10%	90%	1,621,916	15%	85%
1964	29	10%	90%	50,167	72%	28%	2,324	76%	24%	1,408,731	46%	54%	34,460	13%	87%	1,495,711	46%	54%
1965	16	6%	94%	68,876	68%	32%	688	16%	84%	1,129,185	11%	89%	20,604	17%	83%	1,219,369	14%	86%
1966	2	50%	50%	70,526	91%	9%	585	78%	22%	429,204	40%	60%	33,153	18%	82%	533,470	46%	54%
1967	6	0%	100%	14,227	82%	18%	50	0%	100%	84,918	66%	34%	17,377	55%	45%	116,578	66%	34%
1968	16	44%	56%	40,662	86%	14%	3,701	79%	21%	1,046,221	21%	79%	29,450	35%	65%	1,120,050	24%	76%
1969	27	37%	63%	98,722	54%	46%	7,240	7%	93%	3,768,917	8%	92%	45,134	15%	85%	3,920,040	10%	90%
1970	8	50%	50%	81,528	76%	24%	4,540	73%	27%	949,488	27%	73%	93,306	15%	85%	1,128,870	30%	70%
1971	33	30%	70%	124,480	55%	45%	2,261	66%	34%	1,066,180	10%	90%	191,437	7%	93%	1,384,391	14%	86%
1972	15	40%	60%	22,127	70%	30%	1,270	51%	49%	187,154	17%	83%	93,236	6%	94%	303,802	18%	82%
1973	4	50%	50%	10,338	62%	38%	125	70%	30%	49,932	35%	65%	24,408	19%	81%	84,807	34%	66%
1974	19	16%	84%	66,605	52%	48%	1,284	49%	51%	363,389	9%	91%	22,220	9%	91%	453,517	16%	84%
1975	0	0%	0%	16,515	72%	28%	1,627	3%	97%	235,720	11%	89%	2,855	40%	60%	256,717	15%	85%
1976	18	28%	72%	96,668	71%	29%	3,518	53%	47%	1,804,003	26%	74%	66,183	14%	86%	1,970,390	28%	72%
1977	20	40%	60%	78,805	69%	31%	1,343	57%	43%	961,673	23%	77%	70,978	12%	88%	1,112,819	26%	74%
1978	694	58%	42%	218,165	59%	41%	2,788	52%	48%	4,191,756	12%	88%	72,166	16%	84%	4,485,569	14%	86%
1979	108	24%	76%	317,906	50%	50%	15,007	54%	46%	1,664,249	7%	93%	22,454	32%	68%	2,019,724	14%	86%
1980	34	21%	79%	208,200	83%	17%	12,972	34%	66%	2,033,236	12%	88%	67,471	12%	88%	2,321,913	18%	82%
1981	45	13%	87%	346,073	74%	26%	17,011	55%	45%	2,073,629	13%	87%	61,513	37%	63%	2,498,271	22%	78%
1982	43	30%	70%	476,862	86%	14%	29,378	40%	60%	519,880	27%	73%	101,543	22%	78%	1,127,706	52%	48%
1983	159	12%	88%	460,087	59%	41%	28,953	45%	55%	1,318,526	7%	93%	107,786	21%	79%	1,915,511	21%	79%
1984	290	11%	89%	382,729	67%	33%	25,299	51%	49%	433,806	25%	75%	84,924	24%	76%	927,048	43%	57%

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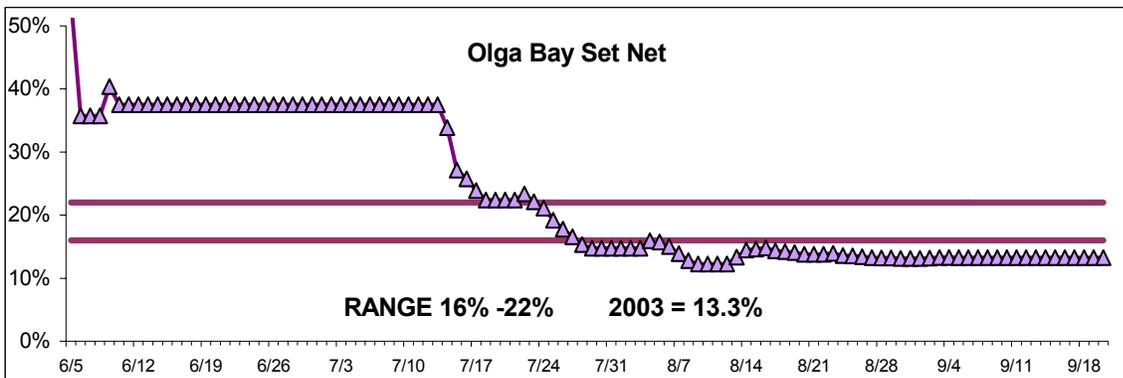
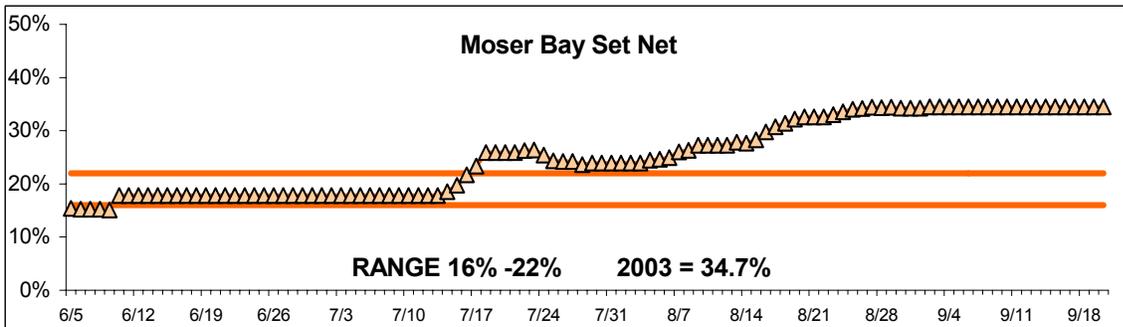
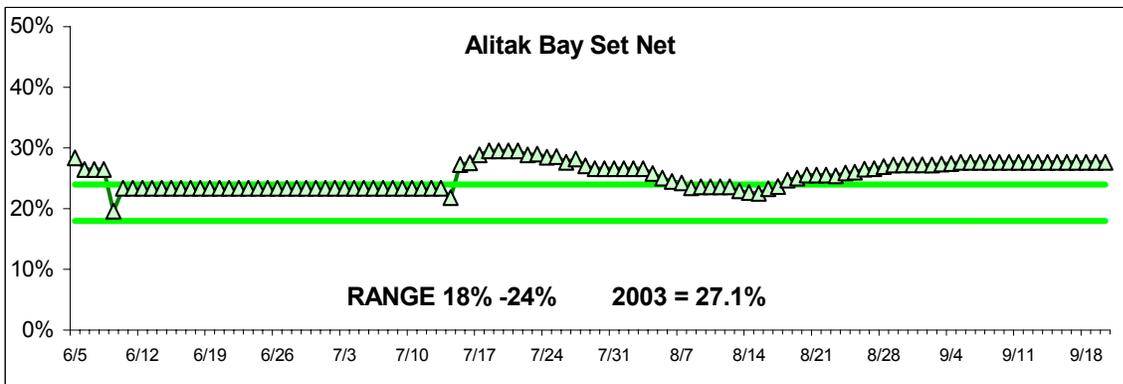
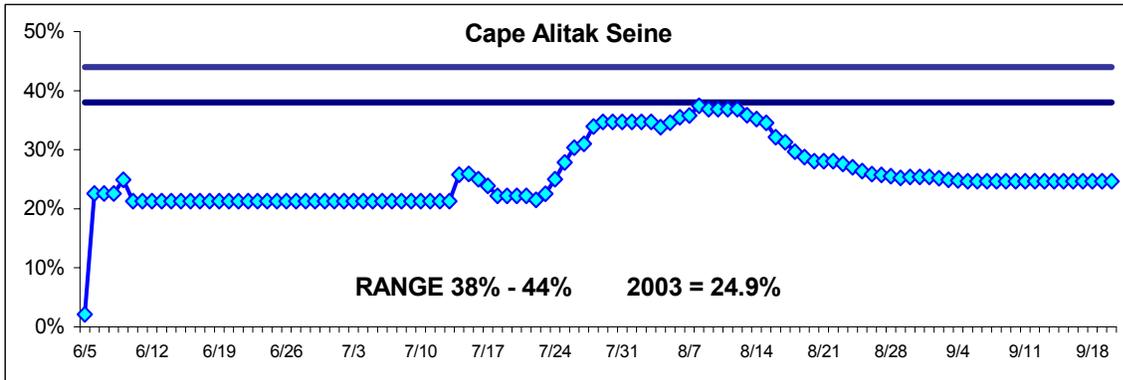
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YEAR	CHINOOK			SOCKEYE			COHO			PINK			CHUM			TOTAL		
	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%
1985	199	21%	79%	703,186	63%	37%	43,914	48%	52%	1,057,912	14%	86%	84,760	33%	67%	1,889,971	34%	66%
1986	134	17%	83%	1,247,976	58%	42%	30,548	44%	56%	728,205	17%	83%	75,643	16%	84%	2,082,506	42%	58%
1987	105	11%	89%	515,410	63%	37%	17,959	53%	47%	916,875	9%	91%	59,723	37%	63%	1,510,072	29%	71%
1988	624	11%	89%	1,123,474	58%	42%	30,001	38%	62%	385,735	35%	65%	93,391	35%	65%	1,633,225	51%	49%
1989 ^a	106	100%	0%	1,284,174	100%	0%	1,613	100%	0%	182,217	100%	0%	19,911	100%	0%	1,488,021	100%	0%
1990	807	17%	83%	1,435,461	52%	48%	18,176	65%	35%	144,927	13%	87%	50,304	36%	64%	1,649,675	48%	52%
1991	821	10%	90%	2,062,718	58%	42%	24,601	52%	48%	2,373,516	5%	95%	83,003	24%	76%	4,544,659	30%	70%
1992	1,056	9%	91%	525,158	53%	47%	24,548	55%	45%	59,268	28%	72%	34,580	43%	57%	644,610	50%	50%
1993	1,828	10%	90%	998,751	53%	47%	19,271	40%	60%	3,465,473	6%	94%	53,636	27%	73%	4,538,959	17%	83%
1994	1,946	8%	92%	931,328	54%	46%	32,312	44%	56%	1,120,832	9%	91%	112,191	18%	82%	2,198,609	29%	71%
1995	848	15%	85%	1,674,169	47%	53%	19,000	47%	53%	7,065,939	6%	94%	105,224	17%	83%	8,865,180	14%	86%
1996	569	18%	82%	1,458,215	54%	46%	35,529	47%	53%	553,424	39%	61%	65,250	29%	71%	2,112,987	49%	51%
1997	291	31%	69%	685,635	59%	41%	33,549	41%	59%	955,253	15%	85%	85,710	34%	66%	1,760,438	33%	67%
1998	1,487	6%	94%	1,003,245	57%	43%	32,185	47%	53%	1,704,581	26%	74%	40,554	40%	60%	2,782,052	37%	63%
1999	271	12%	88%	633,579	70%	30%	13,126	74%	26%	1,353,933	12%	88%	79,000	16%	84%	2,079,909	30%	70%
2000	433	10%	90%	558,674	57%	43%	10,131	51%	49%	243,161	30%	70%	67,189	17%	83%	879,588	47%	53%
2001	651	11%	89%	461,785	64%	36%	2,471	24%	76%	1,439,930	7%	93%	52,521	21%	79%	1,957,358	26%	74%
2002	13	0%	100%	14,575	0%	100%	1,060	0%	100%	1,078,120	0%	100%	10,164	0%	100%	1,103,932	0%	100%
2003	298	3%	97%	341,402	67%	33%	10,592	45%	55%	497,822	18%	82%	31,866	22%	78%	881,980	38%	62%
2004	1,316	4%	96%	1,156,539	61%	39%	15,897	54%	46%	1,420,188	24%	76%	38,348	40%	60%	2,632,288	41%	59%
Averages: ^a																		
1994-2003	681	11%	89%	776,261	53%	47%	18,996	42%	58%	1,601,300	16%	84%	64,967	21%	79%	2,462,203	30%	70%
1954-2004	309	20%	78%	428,185	65%	35%	11,742	48%	52%	1,261,063	20%	80%	63,180	22%	78%	1,764,479	29%	71%

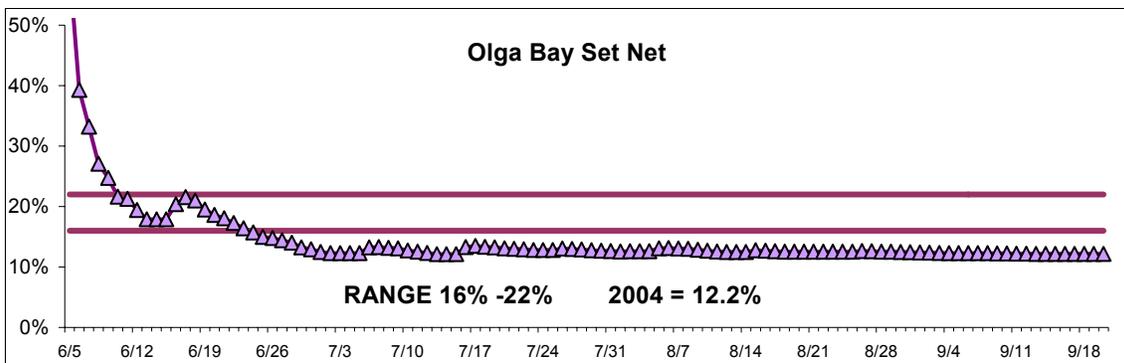
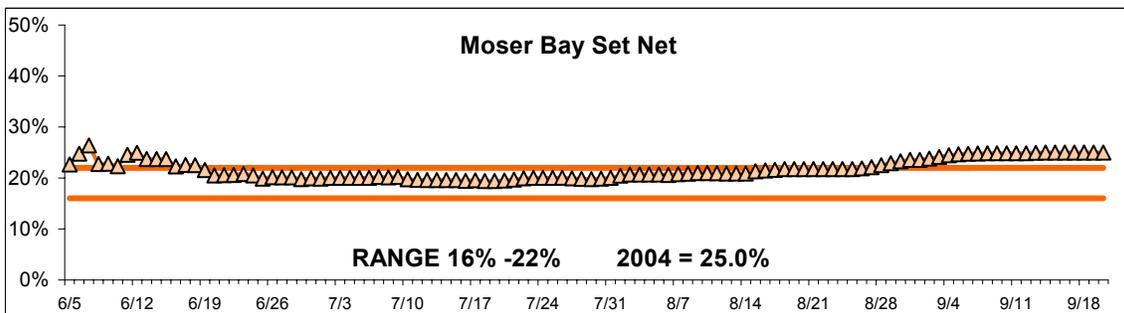
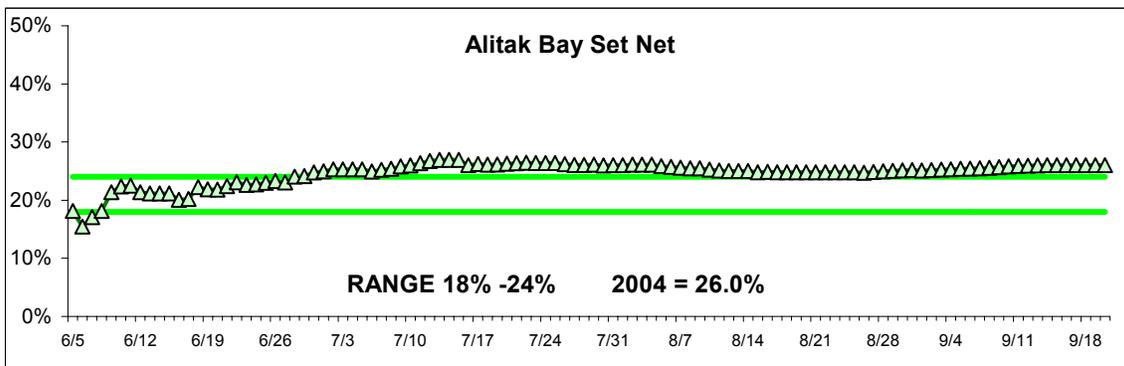
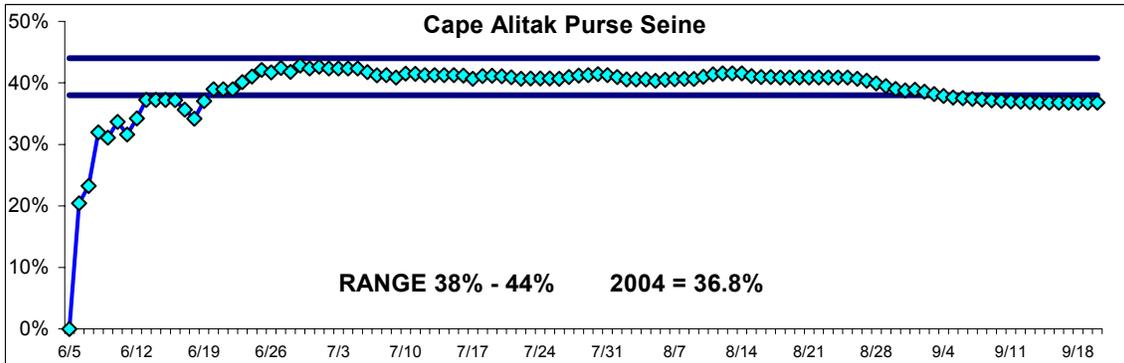
Note: Commercial harvest only. Test-fishery or home pack harvests are not included.

^a In 1989, commercial fisheries were severely restricted due to the *M/V Exxon Valdez* oil spill. 1989 data is not included in averages.

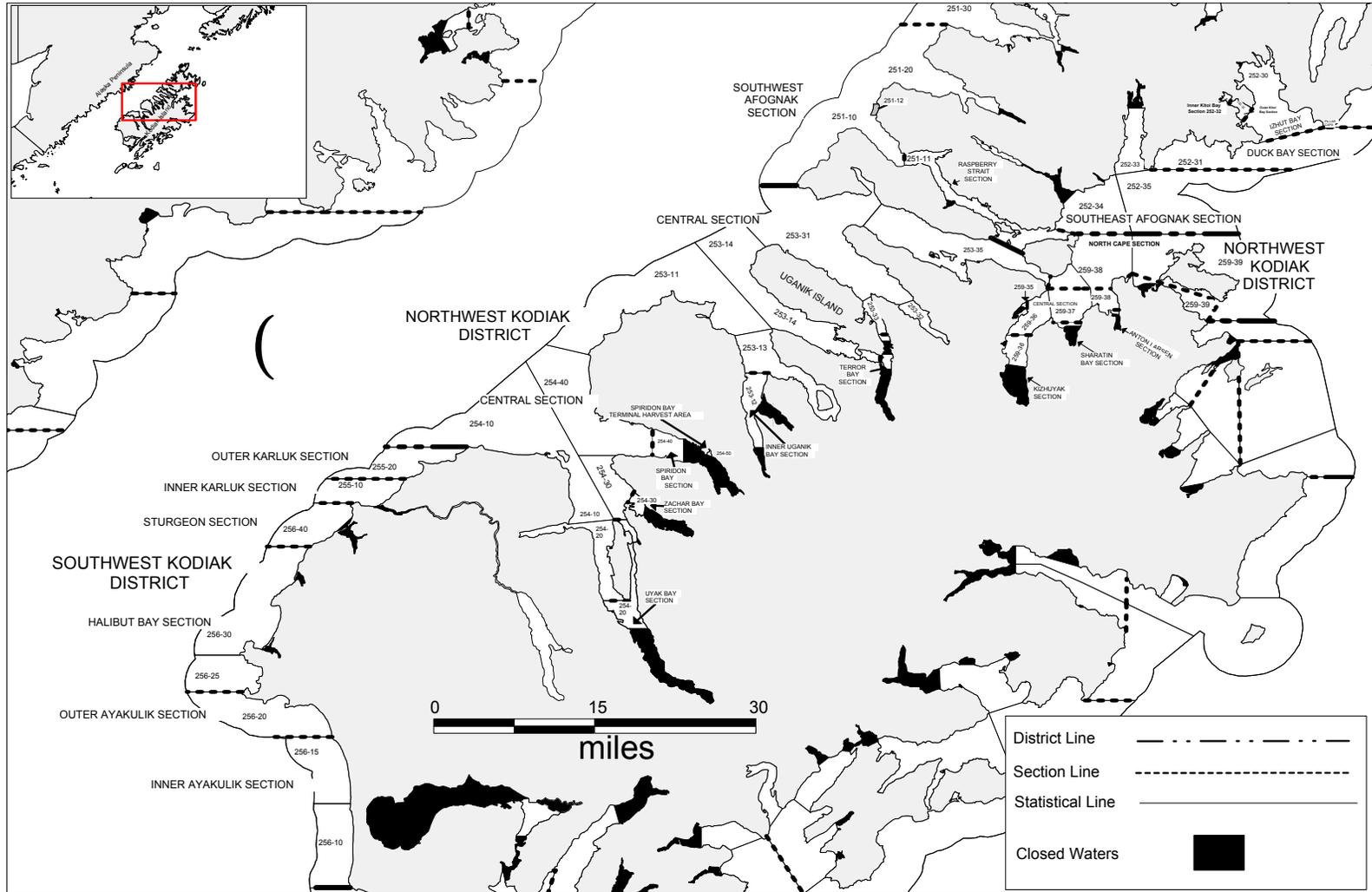
Appendix C5.- Commercial sockeye salmon harvest percentage versus the allocative guidelines, by gear area, in the Alitak Bay District of the Kodiak Management Area, 2003.



Appendix C6.-Commercial sockeye salmon harvest percentage versus the allocative guidelines, by gear area, in the Alitak Bay District of the Kodiak Management Area, 2004.



APPENDIX D: WESTSIDE MANAGEMENT PLAN



Appendix D1.-Map of Westside Kodiak including Southwest and Northwest Kodiak Districts and the Southwest Afognak Section of the Afognak District.

Appendix D2.-Primary management species and management chronology of the Westside Kodiak Management Plan for the Kodiak Management Area, 2004.

WESTSIDE KODIAK MANAGEMENT PLAN

DISTRICT & SECTIONS		6/9	6/16	6/23	7/6	7/16	8/1	8/16	8/25	9/6
NORTHWEST KODIAK DISTRICT	SOUTHWEST AFOGNAK	CLOSED	33 HOUR COMMERCIAL TEST FISHERY	EARLY-RUN KARLUK SOCKEYE SALMON	LOCAL & MIXED PINK SALMON			LATE-RUN KARLUK SOCKEYE LOCAL & MIXED PINK	LOCAL COHO	
	NORTH CAPE CENTRAL	CLOSED		EARLY-RUN KARLUK SOCKEYE SALMON	LOCAL & MIXED PINK SALMON			LATE-RUN KARLUK SOCKEYE LOCAL & MIXED PINK	LOCAL COHO	
	ANTON LARSEN SHARATIN KIZHUYAK TERROR IN. UGANIK SPIRIDON ZACHAR UYAK	CLOSED		LOCAL SOCKEYE & EARLY CHUM SALMON	LOCAL SOCKEYE & EARLY CHUM SALMON	LOCAL PINK & LATE CHUM SALMON		LOCAL PINK, LATE CHUM, & COHO SALMON	LOCAL COHO SALMON	
SOUTHWEST KODIAK DISTRICT	OUTER KARLUK	EARLY-RUN KARLUK SOCKEYE SALMON			ODD-YEAR: LATE-RUN KARLUK SOCKEYE SALMON EVEN-YEAR: LATE-RUN KARLUK SOCKEYE & PINK			LATE KARLUK SOCKEYE	KARLUK COHO SALMON	
	INNER KARLUK	EARLY-RUN KARLUK SOCKEYE SALMON			ODD-YEAR: LATE-RUN KARLUK SOCKEYE SALMON EVEN-YEAR: LATE-RUN KARLUK SOCKEYE & PINK			LATE KARLUK SOCKEYE	KARLUK COHO SALMON	
	STURGEON	CLOSED	EARLY-RUN KARLUK & AYAKULIK SOCKEYE & STURGEON CHUM		ODD-YEAR: LATE-RUN KARLUK SOCKEYE SALMON EVEN-YEAR: LATE-RUN KARLUK SOCKEYE & PINK			LATE RUN KARLUK SOCKEYE	LOCAL COHO SALMON	
	HALIBUT BAY	CLOSED	EARLY-RUN KARLUK & AYAKULIK SOCKEYE		ODD-YEAR: LATE AYAKULIK SOCKEYE		ODD-YEAR: LATE-RUN KARLUK SOCKEYE		LATE RUN KARLUK SOCKEYE SALMON	LOCAL COHO SALMON
					EVEN-YEAR: LATE AYAKULIK SOCKEYE & PINK		ODD YEAR:LATE-RUN KARLUK SOCKEYE & AYAKULIK PINK			
	OUTER AYAKULIK	EARLY AYAKULIK SOCKEYE SALMON			ODD-YEAR: LATE AYAKULIK SOCKEYE SALMON EVEN-YEAR: LATE AYAKULIK SOCKEYE & PINK			AYAKULIK COHO SALMON		
	INNER AYAKULIK	EARLY AYAKULIK SOCKEYE SALMON			ODD-YEAR: LATE AYAKULIK SOCKEYE SALMON EVEN-YEAR: LATE AYAKULIK SOCKEYE & PINK			AYAKULIK COHO SALMON		

Appendix D3.-Commercial salmon harvest, by species, for Westside management units in the Kodiak Management Area, 1975-2004.

Year	Permits	Landings	Number of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1975	274	2,001	50	75,983	14,439	1,441,658	36,358	1,568,488
1976	346	4,678	253	350,403	10,412	4,786,866	91,524	5,239,458
1977	324	3,462	454	363,690	12,619	2,107,769	115,435	2,599,967
1978	385	6,001	1,352	491,503	20,216	6,245,588	134,794	6,893,453
1979	399	5,121	611	185,363	47,043	3,860,734	59,469	4,153,220
1980	413	6,913	397	412,418	44,674	11,347,713	133,117	11,938,319
1981	374	4,810	911	415,405	36,672	3,188,599	247,097	3,888,684
1982	408	6,077	858	427,454	128,718	5,538,196	450,819	6,546,045
1983	398	5,141	2,353	297,330	49,418	1,730,453	374,319	2,453,873
1984	390	8,065	3,634	925,236	104,347	9,291,637	166,069	10,490,923
1985	365	6,097	4,306	920,143	97,516	1,981,000	226,819	3,229,784
1986	392	12,070	3,728	1,632,227	102,304	9,472,330	584,538	11,795,127
1987	380	6,360	2,268	754,943	85,055	1,643,187	261,601	2,747,054
1988	416	11,700	11,848	998,895	141,115	8,574,478	609,946	10,336,282
1989 ^a	5	10	0	3,489	986	1,005	53	5,533
1990	455	12,604	12,090	3,383,351	176,475	3,674,278	218,883	7,465,077
1991	434	11,957	11,780	2,842,802	179,852	5,588,982	346,193	8,969,609
1992	429	11,121	17,238	2,306,791	128,737	1,538,305	302,779	4,293,850
1993	406	12,106	21,019	2,426,540	124,497	10,344,080	300,571	13,216,707
1994	350	8,024	16,930	1,236,314	135,365	3,873,574	329,281	5,591,464
1995	369	13,104	13,819	2,071,281	147,204	21,025,711	722,649	23,980,664
1996	328	7,808	10,437	2,536,733	71,984	1,780,755	365,034	4,764,943
1997	334	7,752	11,152	1,412,061	108,459	6,520,085	214,730	8,266,487
1998	290	9,623	13,886	2,220,631	163,102	12,335,360	176,636	14,909,615
1999	317	8,497	12,795	2,734,413	104,836	4,114,567	267,471	7,234,082
2000	306	7,555	9,382	1,600,262	111,908	5,343,309	379,444	7,444,305
2001	265	6,815	18,317	1,617,700	143,681	3,687,193	381,098	5,847,989
2002	228	5,369	14,921	1,179,697	166,377	9,445,914	250,153	11,057,062
2003	227	7,511	13,775	2,975,163	156,308	5,406,727	329,543	8,881,516
2004	225	8,919	23,744	2,413,242	259,500	14,756,880	604,428	18,057,794
<hr/>								
Average ^a								
1994-2003	301	8,206	13,541	1,958,426	130,922	7,353,320	341,604	9,797,813
1975-2004	353	7,837	8,769	1,420,965	105,960	6,229,170	299,338	8,064,201

Note: The Westside Kodiak Management Plan commercial harvest includes the Southwest Afognak Section, the Northwest Kodiak District (except for the Spiridon Lake Terminal Harvest Area), and the Southwest Kodiak District.

^a Commercial salmon fisheries were severely restricted in 1989 due to the presence of oil from the *M/V Exxon Valdez* spill. Averages do not include 1989 data.

Appendix D4.-Commercial salmon harvest by species, with percent harvest by gillnet (GN) and seine (S) gear, in the Southwest Afognak Section, Northwest Kodiak District, and Outer and Inner Karluk Sections of the Kodiak Management Area, 1970-2004.

YEAR	CHINOOK			SOCKEYE			COHO			PINK			CHUM			TOTAL		
	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%
1970	657	5%	95%	189,608	33%	67%	33,570	6%	94%	2,650,571	16%	84%	131,910	29%	71%	3,006,316	18%	82%
1971	96	71%	30%	66,199	60%	42%	5,596	34%	68%	752,869	17%	86%	128,747	36%	64%	953,507	23%	80%
1972	672	9%	91%	58,003	49%	51%	4,872	37%	63%	489,167	26%	74%	189,132	34%	66%	741,846	30%	70%
1973	66	24%	76%	31,901	63%	37%	1,401	21%	79%	284,880	18%	82%	49,558	17%	83%	367,806	22%	78%
1974	203	67%	33%	127,357	26%	74%	4,812	6%	94%	714,855	22%	78%	32,099	33%	67%	879,326	23%	77%
1975	49	20%	80%	75,285	62%	38%	14,439	5%	95%	1,440,526	13%	87%	36,354	26%	74%	1,566,653	16%	84%
1976	204	22%	78%	197,201	41%	59%	9,184	12%	88%	3,104,217	21%	79%	83,310	22%	78%	3,394,116	22%	78%
1977	74	41%	59%	189,055	80%	20%	11,527	16%	84%	2,101,738	26%	74%	114,654	24%	76%	2,417,048	30%	70%
1978	479	33%	67%	276,970	44%	56%	17,912	11%	89%	4,164,216	22%	78%	126,214	27%	73%	4,585,791	23%	77%
1979	541	27%	73%	149,655	68%	32%	41,090	35%	65%	3,855,871	20%	80%	59,427	38%	62%	4,106,584	22%	78%
1980	362	69%	31%	190,063	46%	54%	34,904	20%	80%	8,071,703	13%	87%	113,606	33%	67%	8,410,638	14%	86%
1981	437	55%	45%	206,411	81%	19%	26,913	17%	83%	3,181,355	36%	64%	245,612	34%	66%	3,660,728	38%	62%
1982	582	51%	49%	269,837	73%	27%	88,429	25%	75%	3,142,008	37%	63%	427,137	34%	66%	3,927,993	39%	61%
1983	1,691	42%	58%	265,370	64%	36%	30,040	37%	63%	1,729,957	28%	72%	373,668	24%	76%	2,400,726	31%	69%
1984	1,904	35%	65%	422,581	42%	58%	58,805	18%	82%	7,242,761	18%	82%	152,308	35%	65%	7,878,359	20%	80%
1985	1,178	29%	71%	335,462	59%	41%	51,635	24%	76%	1,895,336	33%	67%	216,497	29%	71%	2,500,108	36%	64%
1986	1,663	18%	82%	1,076,425	42%	58%	74,895	25%	75%	8,811,177	22%	78%	551,585	26%	74%	10,515,745	24%	76%
1987	1,156	19%	81%	581,857	37%	63%	53,540	34%	66%	1,439,559	31%	69%	251,802	42%	58%	2,327,914	34%	66%
1988	8,002	13%	87%	527,756	39%	61%	122,095	20%	80%	8,363,942	23%	77%	586,348	26%	74%	9,608,143	24%	76%
1989 ^a	0	0%	100%	3,489	0%	100%	986	0%	100%	1,005	0%	100%	53	0%	100%	5,533	0%	100%
1990	5,695	19%	81%	1,381,585	45%	55%	145,981	28%	72%	2,691,118	20%	80%	187,542	41%	59%	4,411,921	29%	71%
1991	5,582	20%	80%	1,404,144	48%	52%	153,623	37%	63%	4,213,750	24%	76%	312,655	49%	51%	6,089,754	31%	69%
1992	11,332	30%	70%	1,196,748	47%	53%	117,368	31%	69%	1,221,392	42%	58%	250,322	50%	50%	2,797,162	44%	56%
1993	17,649	23%	77%	1,837,959	48%	52%	124,326	47%	53%	10,283,775	19%	81%	277,432	45%	55%	12,541,141	24%	76%
1994	16,629	12%	88%	1,258,077	39%	61%	127,090	31%	69%	3,750,250	28%	72%	326,265	31%	69%	5,478,311	31%	69%
1995	10,905	16%	84%	1,257,298	58%	42%	121,623	28%	72%	18,020,824	21%	79%	653,909	33%	67%	20,064,559	24%	76%
1996	6,628	33%	67%	1,571,055	56%	44%	63,865	46%	54%	1,480,342	30%	70%	301,616	35%	65%	3,423,506	43%	57%
1997	9,803	20%	80%	1,131,986	55%	45%	108,992	38%	62%	6,373,449	19%	81%	206,209	45%	55%	7,830,439	26%	74%
1998	8,587	25%	75%	937,195	54%	46%	127,213	48%	52%	9,271,882	28%	72%	130,579	48%	52%	10,475,456	31%	69%
1999	8,607	18%	82%	1,990,010	54%	46%	99,022	47%	53%	3,704,413	26%	74%	227,779	43%	57%	6,029,831	36%	64%
2000	5,681	20%	80%	1,330,653	54%	46%	108,137	39%	61%	4,792,230	23%	77%	348,964	38%	62%	6,585,665	30%	70%

-Continued-

Appendix D4.-(page 2 of 2)

YEAR	CHINOOK			SOCKEYE			COHO			PINK			CHUM			TOTAL		
	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%
2001	11,035	19%	81%	1,212,240	56%	44%	138,960	44%	56%	3,468,292	34%	66%	347,991	44%	56%	5,178,518	40%	60%
2002	15,248	15%	85%	1,357,176	44%	56%	159,200	32%	68%	9,420,343	21%	79%	245,556	30%	70%	11,197,523	24%	76%
2003	13,813	17%	83%	3,230,112	40%	60%	155,190	36%	64%	5,459,709	20%	80%	340,105	37%	63%	9,198,929	28%	72%
2004	23,370	18%	82%	2,048,548	51%	49%	229,733	32%	68%	12,762,445	17%	83%	564,097	34%	66%	15,628,193	22%	78%
Averages: ^a																		
1994-2003	10,694	20%	80%	1,527,580	51%	49%	120,929	39%	61%	6,574,173	25%	75%	312,897	38%	62%	8,546,274	31%	69%
1954-2004	5,605	28%	72%	834,758	52%	48%	78,411	29%	71%	4,716,204	24%	76%	252,676	34%	66%	5,887,655	28%	72%

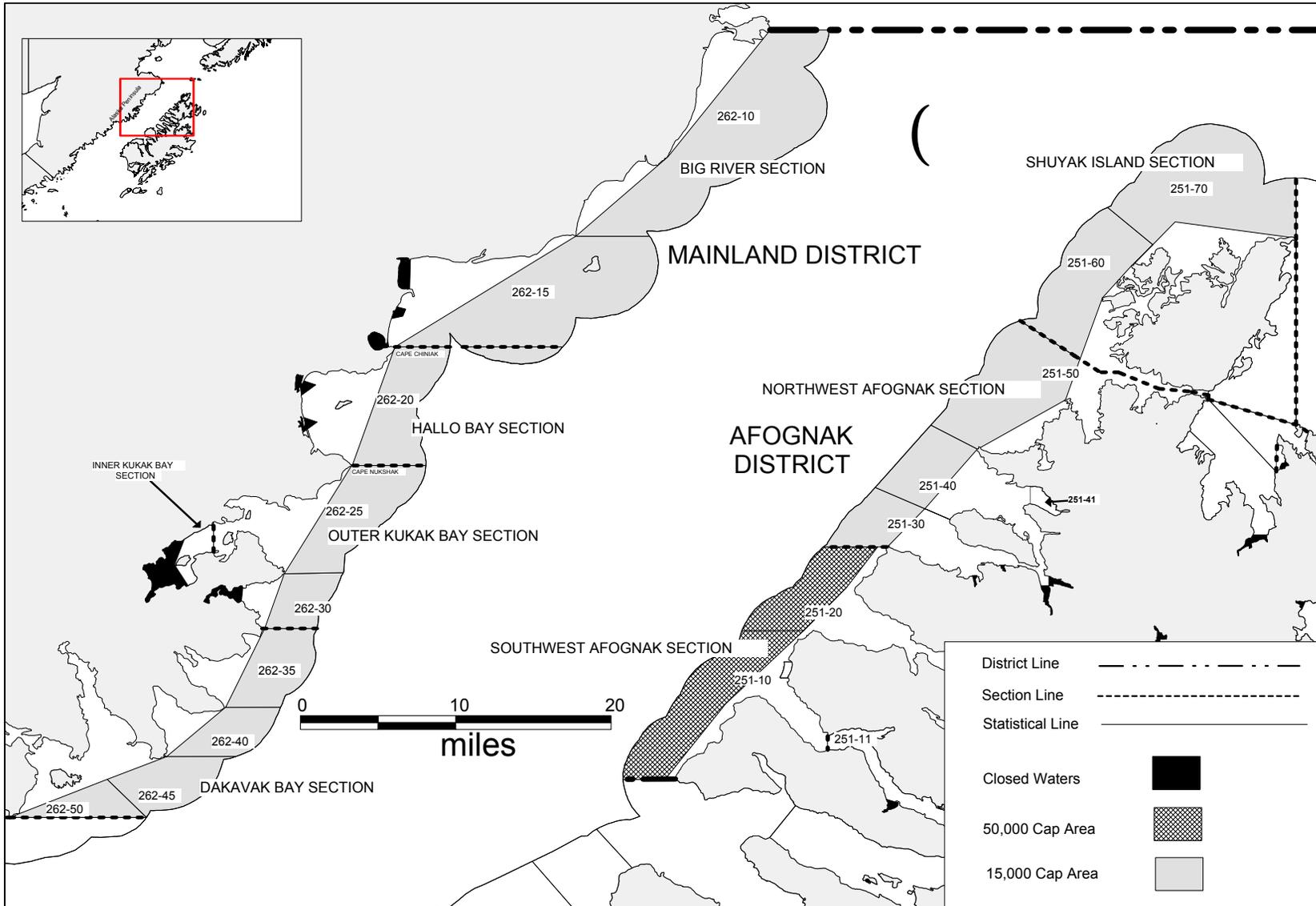
Note: Commercial harvest only. Test-fishery or home pack harvests are not included.

^a In 1989, commercial fisheries were severely restricted due to the *M/V Exxon Valdez* oil spill. 1989 data is not included in averages.

Appendix D5.-Commercial fishing statistics for the Inner and Outer Karluk Sections of the Kodiak Management Area, 1995-2004.

Year	Dates of Commercial Fisheries		Permits	Landings	Harvest		Early-Sockeye Escapement
	Outer Karluk	Inner Karluk			Chinook	Sockeye	
1994	6/16-7/8, 7/19-22	6/16-7/15	124	615	5,247	192,955	253,590
1995	6/15-7/15	6/23-7/15	105	396	1,794	120,887	230,066
1996	6/9-10, 6/15-7/8	6/9-10, 6/16-7/17	93	404	1,670	150,527	246,144
1997	6/14-7/9	6/20-7/9	61	241	1,445	97,203	243,619
1998	6/19-7/8		22	56	295	21,323	251,669
1999	6/14-7/10	6/21-7/16	64	226	1,071	109,180	386,972
2000	6/14-7/8	6/19-7/16	75	358	697	145,148	288,634
2001	6/12-7/9	6/12-7/9	60	328	2,588	166,937	337,098
2002	6/9-7/9	6/15-7/17	65	227	1,297	107,878	453,495
2003	6/5-7/10	6/6-7/13	72	330	1,336	220,089	448,001
2004	6/7-7/10, 7/12-16	6/8-7/10	54	203	2,249	146,813	389,041
Average: 1994-2003			74	318	1,744	133,213	313,929

APPENDIX E: NORTH SHELIKOF MANAGEMENT PLAN



Appendix E1.-Map showing the North Shelikof management area.

Appendix E2.-Summary of fishing time, zone closures, effort, and harvest by species, for the North Shelikof management units of the Kodiak Management Area, 1990-2004.

North Shelikof Units (15,000 Sockeye Harvest Trigger)														
YEAR	MAINLAND		N. AFOGNAK		Zone Closure		Sockeye Harvest Time of Zone Closure	Number of Vessels	Total Harvest By Species - July 6 through July 25					Upper Cook Inlet Sockeye Harvest
	# of days open to Fishing	# of days Seaward Zone closed	# of days open to fishing	# of days Seaward Zone closed	Date	Time			CHINOOK	SOCKEYE	COHO	PINK	CHUM	
1990	7.1	2.4	9.1	4.4	7/15	9 PM	36,800	69	140	57,700	3,900	18,600	19,400	3.6 MILLION
1991	7.1	0	13.1	0	none	none	No Closure	42	2,500	18,800	2,700	44,800	3,800	2.2 MILLION
1992	7.1	5.1	9.1	7.1	7/8	1 PM	13,500	77	900	128,400	3,100	24,300	12,000	8.9 MILLION
1993	7.1	4.7	13.8	8.9	7/10	5 PM	15,220	89	1,200	78,400	2,000	75,600	4,200	4.7 MILLION
1994	7.1	2.8	9.1	4.8	7/14	11AM	22,830	58	165	38,800	2,400	52,000	10,500	3.5 MILLION
1995	7.1	3.3	13.3	8.5	7/13	10PM	15,770	77	150	37,400	1,260	178,800	16,590	2.9 MILLION
1996	7.1	4.3	7.1	4.3	7/15	10PM	11,675	77	260	73,720	1,820	30,050	14,585	3.9 MILLION
1997	7.1	4.9	10.1	7.9	7/8	5 PM	19,850	80	1,940	59,140	1,840	38,190	4,550	4.1 MILLION
1998	7.1	2.4	10.1	4.4	7/16	9 PM	17,812	39	140	40,630	5,380	59,535	6,370	1.2 MILLION
1999	7.1	3.3	10.1	6.3	7/13	10PM	13,021	45	310	30,830	230	31,920	7,795	2.7 MILLION
2000	7.1	0	10.1	0	none	none	No Closure	31	68	9,225	1,045	20,215	22,155	1.3 MILLION
2001	7.1	2.7	10.1	4.7	7/16	1 PM	14,729	26	245	22,321	9,943	33,534	10,348	1.8 MILLION
2002	7.1	2.4	10.1	4.7	7/15	5 PM	16,600	35	295	35,290	13,181	238,734	13,708	2.8 MILLION
2003	7.1	5.1	13.1	11.1	7/8	NOON	16,448	37	120	33,122	1,054	35,151	6,500	3.5 MILLION
2004	7.1	3.5	13.1	7.5	7/13	5 PM	16,000	36	533	53,334	3,756	44,886	14,710	4.9 MILLION

Note: In 1988, the Upper Cook Inlet sockeye salmon run was very strong; the Upper Cook Inlet commercial harvest was approximately 6,800,000 sockeye salmon. In the Kodiak Area, within the North Shelikof Units from 7/6-25, 1988, with 6.9 days open to fishing, 392,000 sockeye salmon were harvested. This led to adoption of regulations to limit the sockeye salmon harvest in the North Shelikof and Southwest Afognak Units (5 AAC 18.363).

Appendix E3.-Summary of fishing time, zone closures, effort, and harvest by species, for the Southwest Afognak management unit of the Kodiak Management Area, 1990-2004.

Southwest Afognak Section (50,000 Sockeye Harvest Trigger)													
YEAR	# of Days Open to Fishing	# of Days Seaward Zone closed	Zone Closure		Sockeye Harvest at Time of Zone Closure	Number of Vessels	Total Harvest By Species July 6 through July 25					Upper Cook Inlet Sockeye Harvest	
			Date	Time			CHINOOK	SOCKEYE	COHO	PINK	CHUM		
1990	9.1	0	none	none	No Closure	64	300	22,900	3,600	53,800	6,000	3.6 MILLION	
1991	13.1	0	none	none	No Closure	55	300	34,200	3,600	100,700	4,000	2.2 MILLION	
1992	9.1	4.7	7/14	1 PM	48,200	84	300	50,600	600	30,000	6,800	8.9 MILLION	
1993	13.6	7.7	7/14	1 PM	45,900	87	860	74,000	7,100	243,000	7,400	4.7 MILLION	
1994	9.6	0	none	none	No Closure	45	360	13,600	1,000	64,300	3,100	3.5 MILLION	
1995	13.6	0	none	none	No Closure	64	760	21,360	1,750	490,510	22,220	2.9 MILLION	
1996	7.6	0	none	none	No Closure	32	185	10,510	803	79,205	10,785	3.9 MILLION	
1997	10.6	0	none	none	No Closure	61	1,500	18,120	1,760	62,730	8,440	4.1 MILLION	
1998	10.6	0	none	none	No Closure	22	240	10,340	2,290	82,685	1,900	1.2 MILLION	
1999	10.6	0	none	none	No Closure	38	700	18,725	375	41,960	4,720	2.7 MILLION	
2000	10.6	0	none	none	No Closure	31	90	17,810	1,220	37,340	7,225	1.3 MILLION	
2001	10.6	0	none	none	No Closure	48	517	33,289	7,139	191,947	15,913	1.8 MILLION	
2002	10.6	0	none	none	No Closure	32	502	23,691	3,742	122,892	4,821	2.8 MILLION	
2003	13.1	6.4	7/16	8 PM	66,000	41	125	119,490	6,006	238,088	15,829	3.5 MILLION	
2004	13.1	0	none	none	No Closure	25	3,048	24,515	7,918	227,062	19,315	4.9 MILLION	

Note: In 1988, the Upper Cook Inlet sockeye salmon run was very strong; the Upper Cook Inlet commercial harvest was approximately 6,800,000 sockeye salmon. In the Kodiak Area, within the North Shelikof Units from 7/6-25, 1988, with 6.9 days open to fishing, 392,000 sockeye salmon were harvested. This led to adoption of regulations to limit the sockeye salmon harvest in the North Shelikof and Southwest Afognak Units (5 AAC 18.363).

**APPENDIX F: EASTSIDE KODIAK AFOGNAK MANAGEMENT
PLAN**

Appendix F1.-Primary management species and management chronology of the Eastside Afognak Management Plan for the Kodiak Management Area, 2004.

EASTSIDE AFOGNAK MANAGEMENT PLAN

	6/9	7/6	7/18	7/26	8/24
RASPBERRY STRAIT SECTION	CLOSED	LOCAL AND MIXED KODIAK PINK SALMON			LOCAL COHO SALMON
SE AFOGNAK SECTION	AFOGNAK LAKE (LITNIK) SOCKEYE SALMON	LOCAL PINK SALMON			LOCAL COHO SALMON
DUCK BAY SECTION	HATCHERY CHUM OR SOCKEYE SALMON		HATCHERY AND LOCAL PINK SALMON		LOCAL COHO SALMON
IZHUT BAY SECTION	EARLY HATCHERY CHUM OR SOCKEYE SALMON			HATCHERY AND LOCAL PINK SALMON	LOCAL COHO & LATE HATCHERY SOCKEYE SALMON
INNER & OUTER KITOI BAY ^a SECTIONS	EARLY HATCHERY CHUM & SOCKEYE SALMON			HATCHERY PINK SALMON (BROODSTOCK COLLECTION)	LATE HATCHERY SOCKEYE & COHO SALMON
	6/9	7/6	7/18	7/26	8/24

^a Throughout the season, fishing time may be restricted in order to meet broodstock goals for hatchery bound chum, sockeye, pink, or coho salmon.

Appendix F2.—Commercial salmon harvest, by species, for the Duck, Izhut, and Kitoi Bay Sections of the Eastside Afognak management unit, Kodiak Management Area, 1975-2004.

Year	Permits	Landings	Number of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1975	10	23	6	2,233	591	13,012	1,689	17,531
1976	18	65	40	5,154	720	53,783	4,765	64,462
1977	19	41	1	1,465	837	49,682	5,097	57,082
1978	81	299	133	15,777	4,752	234,409	13,674	268,745
1979	96	351	64	10,278	6,603	417,505	5,722	440,172
1980	79	455	4	3,098	15,864	886,837	19,617	925,420
1981	115	554	20	10,555	10,833	880,276	19,261	920,945
1982	79	268	24	3,340	12,070	321,989	6,942	344,365
1983	89	288	86	9,308	3,336	192,281	2,767	207,778
1984	83	226	19	5,773	6,603	401,178	3,301	416,874
1985	177	1,025	33	13,940	30,268	3,581,761	5,747	3,631,749
1986	41	122	3	3,148	3,477	317,753	1,670	326,051
1987	146	512	34	12,826	9,884	897,639	5,212	925,595
1988	100	236	23	4,927	8,097	397,067	4,001	414,115
1989 ^a	0	0	0	0	0	0	0	0
1990	119	393	128	9,914	7,220	619,518	6,322	643,102
1991	108	467	148	10,103	9,359	1,390,681	31,719	1,442,010
1992	136	384	295	25,407	7,681	845,395	9,868	888,646
1993	219	2,306	409	31,221	32,517	12,076,738	11,886	12,152,771
1994	185	818	421	14,134	45,884	2,051,375	10,799	2,122,613
1995	181	1,248	678	31,326	42,235	4,519,885	215,351	4,809,475
1996	62	255	120	21,981	57,200	979,143	14,189	1,072,633
1997	140	603	127	50,115	110,344	1,213,615	11,029	1,385,230
1998	122	1,438	277	75,506	148,333	6,272,029	38,118	6,534,263
1999	126	967	183	63,342	116,513	4,057,093	140,896	4,378,027
2000	154	1,267	139	50,749	133,238	3,659,698	303,783	4,147,607
2001	147	2209	830	48,516	151,732	13,126,761	216,266	13,544,105
2002	107	1237	435	28,984	209,259	6,696,774	88,724	7,024,176
2003	95	888	786	28,155	135,049	5,532,445	466,205	6,162,640
2004	88	756	1,289	38,151	128,269	3,962,421	239,610	4,369,740
<hr/>								
Average ^a								
1994-2003	132	1,093	400	41,281	114,979	4,810,882	150,536	5,118,077
1975-2004	108	679	233	21,704	49,958	2,608,577	65,663	2,746,135

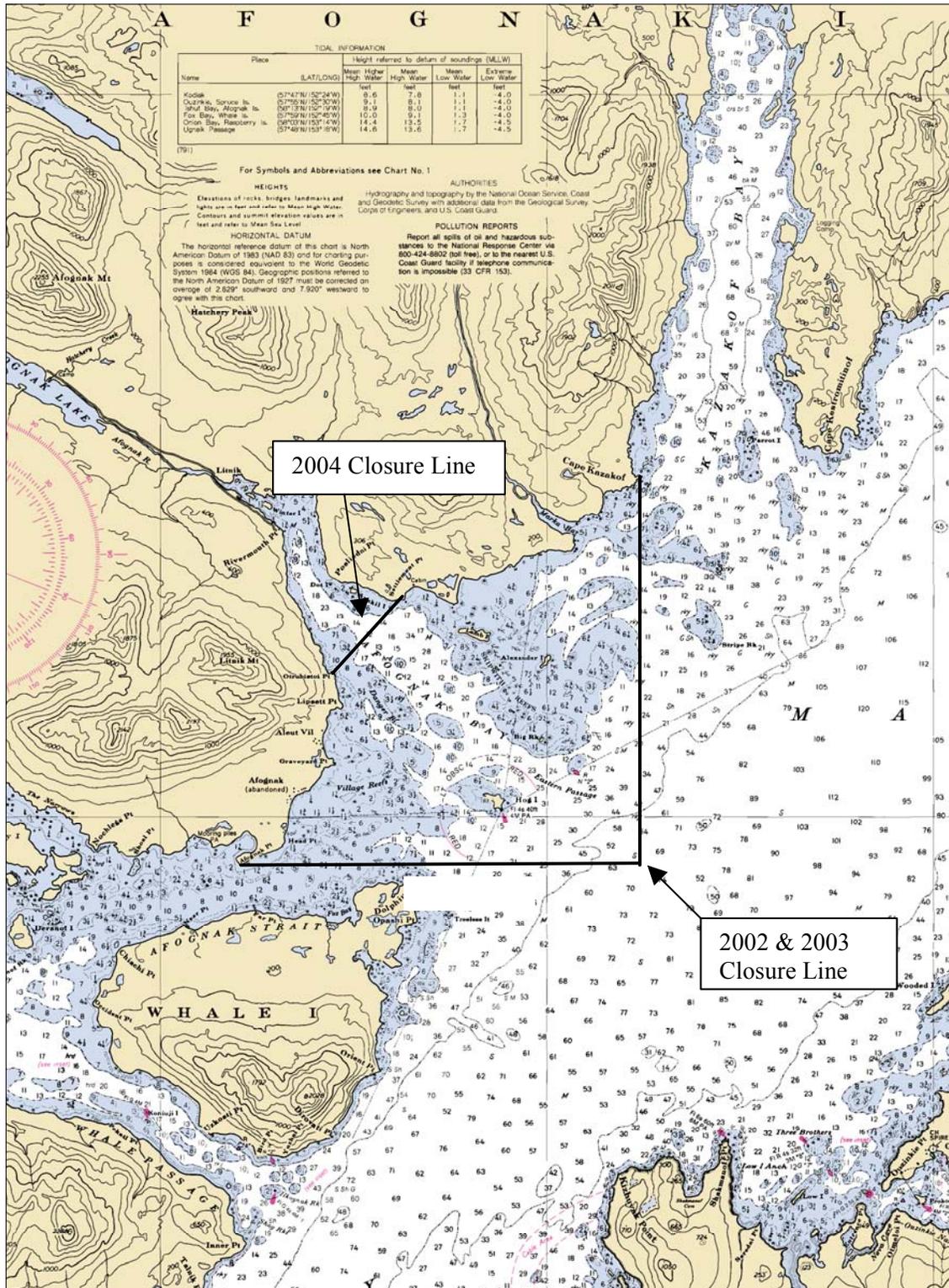
^a Commercial salmon fisheries were severely restricted in 1989 due to the presence of oil from the *M/V Exxon Valdez* spill. Averages do not include 1989 data.

Appendix F3.—Commercial salmon harvest, by species, for the Southeast Afognak and Raspberry Strait Sections of the Eastside Afognak management unit, Kodiak Management Area, 1975-2004.

Year	Permits	Landings	Number of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1975	22	101	1	2,330	1,017	29,454	660	33,462
1976	25	186	5	4,509	85	98,645	2,171	105,415
1977	25	157	5	6,787	1,949	67,028	2,688	78,457
1978	83	409	48	14,097	2,563	218,687	6,963	242,358
1979	82	439	23	11,577	9,997	245,935	3,947	271,479
1980	87	499	1	6,882	9,492	310,393	12,645	339,413
1981	113	618	25	29,169	6,526	467,015	19,405	522,140
1982	103	303	6	22,994	24,581	243,166	14,111	304,858
1983	78	290	203	11,112	3,979	56,028	6,674	77,996
1984	53	97	10	7,300	10,009	39,920	2,095	59,334
1985	42	61	11	5,303	5,379	36,548	824	48,065
1986	30	64	15	4,913	920	48,954	1,666	56,468
1987	55	88	27	7,247	3,039	91,824	1,655	103,792
1988	53	170	40	3,539	8,994	309,805	4,511	326,889
1989 ^a	0	0	0	0	0	0	0	0
1990	70	165	64	24,190	2,873	42,356	2,911	72,394
1991	60	237	80	48,894	265	19,928	1,543	70,710
1992	30	68	27	12,495	2,051	24,268	1,142	39,983
1993	70	153	220	18,900	3,033	536,912	2,609	561,674
1994	34	92	181	22,693	1,614	47,857	2,096	74,441
1995	100	336	261	73,051	3,590	618,899	5,069	700,870
1996	72	193	10	106,417	135	348	5,492	112,402
1997	43	84	64	20,195	1,423	96,000	4,415	122,097
1998	47	177	135	31,908	6,010	220,256	1,963	260,272
1999	53	141	62	40,130	1,230	49,268	1,892	92,582
2000	52	93	26	24,328	1,575	30,516	5,392	61,837
2001	17	24	4	1,609	1,983	151,226	708	155,530
2002	11	17	1	944	3,518	95,598	839	100,900
2003	22	56	1	740	1,895	393,666	531	396,833
2004	8	15	0	566	4,178	99,935	185	104,864
Average^a								
1994-2003	45	121	75	32,202	2,297	170,363	2,840	207,776
1975-2004	53	184	54	19,477	4,273	161,739	4,028	189,569

^a Commercial salmon fisheries were severely restricted in 1989 due to the presence of oil from the *M/V Exxon Valdez* spill. Averages do not include 1989.

Appendix F4.—Map of the closed waters areas used for the 2002-2004 Southeast Afognak subsistence fisheries.



APPENDIX G: EASTSIDE KODIAK MANAGEMENT PLAN

Appendix G1.—Primary management species and management chronology of the Eastside Kodiak Management Plan for the Kodiak Management Area, 2004.

EASTSIDE KODIAK MANAGEMENT PLAN

DISTRICTS & SECTIONS		6/9	6/14	6/21	7/6	7/10	8/25	9/6	
NORTHEAST KODIAK DISTRICT	OUTER CHINIAK BAY	CLOSED			LOCAL & MIXED PINK SALMON		LOCAL PINK & COHO SALMON	LOCAL COHO SALMON	
	INNER CHINIAK BAY	CLOSED			LOCAL & MIXED PINK SALMON		LOCAL PINK & COHO SALMON	LOCAL COHO SALMON	
	BUSKIN RIVER	CLOSED			LOCAL PINK & BUSKIN SOCKEYE	LOCAL PINK & CHUM SALMON	LOCAL PINK, COHO, & CHUM SALMON	LOCAL COHO SALMON	
	MONASHKA / MILL BAY	CLOSED			LOCAL & MIXED PINK SALMON		LOCAL PINK & COHO SALMON	LOCAL COHO SALMON	
EASTSIDE KODIAK DISTRICT	SEVEN RIVERS	CLOSED	33 HOURS-LOCAL/MIXED SOCKEYE	CLOSED	33 HOURS-LOCAL/MIXED SOCKEYE	CLOSED	LOCAL & MIXED PINK SALMON	LOCAL PINK & COHO SALMON	LOCAL COHO SALMON
	TWO HEADED	CLOSED	33 HOURS-LOCAL/MIXED SOCKEYE	CLOSED	33 HOURS-LOCAL/MIXED SOCKEYE	CLOSED	LOCAL & MIXED PINK SALMON	LOCAL PINK & COHO SALMON	LOCAL COHO SALMON
	SITKALIDAK	CLOSED	33 HOURS-LOCAL/MIXED SOCKEYE	CLOSED	33 HOURS-LOCAL/MIXED SOCKEYE	CLOSED	LOCAL & MIXED PINK SALMON	LOCAL PINK, CHUM & COHO	LOCAL COHO SALMON
	OUTER UGAK BAY	CLOSED	33 HOURS-LOCAL/MIXED SOCKEYE	CLOSED	PASAGSHAK SOCKEYE	LOCAL & MIXED PINK SALMON	LOCAL PINK, CHUM & COHO	LATE CHUM & COHO	
	INNER UGAK BAY	CLOSED	33 HOURS-LOCAL/MIXED SOCKEYE	CLOSED	SALTERY SOCKEYE	LOCAL PINK & CHUM, SALTERY SOCKEYE	LOCAL PINK & CHUM SALMON	LOCAL PINK & COHO SALMON	LOCAL COHO SALMON
		6/9	6/14	6/21	7/6	7/10	8/25	9/6	

Appendix G2.—Commercial salmon harvest, by species, for the Eastside Kodiak District of the Kodiak Management Area, 1975-2004.

Year	Permits	Landings	Number of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1975	89	456	11	2,277	468	382,177	18,418	403,351
1976	181	2,220	198	14,142	2,815	3,089,492	251,937	3,358,584
1977	223	1,857	33	4,796	3,148	2,215,285	322,497	2,545,759
1978	217	2,497	174	17,629	2,925	3,242,535	349,116	3,612,379
1979	251	2,927	881	47,420	16,166	3,685,457	172,886	3,922,810
1980	166	1,223	41	3,974	10,732	1,676,680	348,124	2,039,551
1981	172	1,895	130	35,604	13,760	2,456,641	479,621	2,985,756
1982	114	863	101	9,468	21,090	318,402	321,418	670,479
1983	198	1,346	280	15,235	10,993	783,039	304,875	1,114,422
1984	97	496	231	22,664	10,966	126,717	158,942	319,520
1985	76	236	84	15,807	12,706	81,673	43,858	154,128
1986	69	355	204	36,207	9,407	234,617	57,267	337,702
1987	104	614	418	18,025	18,557	817,847	90,606	945,453
1988	102	1,081	1,643	75,570	20,494	1,525,787	216,093	1,839,587
1989 ^a	0	0	0	0	0	0	0	0
1990	80	649	1,930	95,061	19,602	270,214	86,743	473,550
1991	188	1,811	4,428	255,664	50,529	5,650,427	306,857	6,267,905
1992	204	1,063	2,360	584,127	59,938	523,578	184,350	1,354,353
1993	178	1,736	7,795	348,841	89,439	4,666,493	107,900	5,220,468
1994	127	569	1,130	110,361	22,751	476,031	168,128	778,401
1995	171	1,852	1,463	249,893	53,625	6,193,275	321,838	6,820,094
1996	89	203	663	111,303	7,703	23,144	42,924	185,737
1997	100	549	1,686	55,477	59,371	1,302,296	134,584	1,553,414
1998	63	268	756	104,192	36,752	376,601	27,138	545,439
1999	96	702	1,411	214,185	26,321	1,208,994	179,946	1,630,857
2000	119	587	1,412	157,200	22,939	361,377	218,195	761,123
2001	74	370	752	101,924	44,287	615,791	179,601	942,355
2002	57	319	1,498	121,769	60,679	378,042	181,857	743,845
2003	46	357	1,931	139,635	17,220	1,145,852	80,898	1,385,536
2004	48	174	728	155,584	24,533	192,342	51,869	425,056
<hr/>								
Average ^a								
1994-2003	94	578	1,270	136,594	35,165	1,208,140	153,511	1,534,680
1975-2004	128	1,009	1,185	107,725	25,859	1,517,959	186,500	1,839,228

^a Commercial salmon fisheries were severely restricted in 1989 due to the presence of oil from the *M/V Exxon Valdez* spill. Averages do not include 1989.

Appendix G3.—Commercial salmon harvest, by species, for the Northeast Kodiak District of the Kodiak Management Area, 1975-2004.

Year	Permits	Landings	Number of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1975	74	278	8	588	24	218,793	2,230	221,643
1976	107	697	87	807	457	743,311	34,515	779,177
1977	81	312	4	10	3,412	135,921	42,714	182,061
1978	89	454	260	840	1,008	229,783	31,757	263,648
1979	95	539	109	462	3,434	458,116	6,324	468,445
1980	79	393	40	30	8,235	301,468	35,397	345,170
1981	90	490	75	495	4,633	416,920	41,887	464,010
1982	91	396	73	753	11,505	423,773	36,488	472,592
1983	83	321	221	1,514	6,737	193,880	11,805	214,157
1984	49	218	17	1,735	14,548	129,001	10,804	156,105
1985	65	208	14	609	2,908	203,409	20,364	227,304
1986	30	125	3	1,846	1,841	102,300	11,223	117,213
1987	89	386	19	3,754	13,585	276,657	29,413	323,428
1988	95	453	135	731	4,129	419,245	71,680	495,920
1989 ^a	0	0	0	0	0	0	0	0
1990	24	74	27	514	100	31,440	5,683	37,764
1991	55	193	283	14,405	6,507	296,438	27,217	344,850
1992	59	95	159	53,307	7,115	35,787	17,226	113,594
1993	43	128	45	6,836	1,633	448,882	2,994	460,390
1994	37	70	308	3,888	3,624	91,787	18,631	118,238
1995	82	335	14	986	7,019	988,077	33,595	1,029,691
1996	7	8	6	1,070	94	4,512	2,333	8,015
1997	40	70	623	8,252	15,339	31,871	29,741	85,826
1998	17	51	19	106	368	174,062	902	175,457
1999	32	72	200	3,224	2,981	235,754	15,077	257,236
2000	12	19	38	10,114	914	5,697	10,075	26,838
2001	12	20	22	3,361	7,077	15,210	1,334	27,004
2002	20	37	455	12,865	5,723	37,825	16,519	73,387
2003	12	30	12	371	213	67,591	15,112	83,299
2004	21	45	261	15,753	9,069	59,756	24,638	109,477
<hr/>								
Average ^a								
1994-2003	27	71	170	4,424	4,335	165,239	14,332	188,499
1975-2004	55	225	122	5,146	4,974	233,699	20,954	264,894

^a Commercial salmon fisheries were severely restricted in 1989 due to the presence of oil from the *M/V Exxon Valdez* spill. Averages do not include 1989.

APPENDIX H: NORTH AFOGNAK MANAGEMENT PLAN

Appendix H1.—Primary management species and management chronology for the North Afognak/Shuyak Island Salmon Management Plan for the Kodiak Management Area, 2004.

NORTH AFOGNAK/SHUYAK ISLAND SALMON MANAGEMENT PLAN

	6/9	7/6	7/21	8/1	8/21	8/25	9/6
NORTHEAST AFOGNAK SECTION	CLOSED	LOCAL AND MIXED PINK SALMON			LOCAL PINK & COHO SALMON		LOCAL COHO SALMON
PERENOSA BAY SECTION ^a	PORTAGE AND PAULS SOCKEYE SALMON	LOCAL AND MIXED PINK SALMON, AND PORTAGE & PAULS SOCKEYE SALMON	LOCAL & MIXED PINK SALMON		LOCAL PINK & COHO SALMON		LOCAL COHO SALMON
PAULS BAY SECTION	PAULS BAY SOCKEYE SALMON	LOCAL AND MIXED PINK SALMON, AND PAULS BAY SOCKEYE SALMON	LOCAL COHO SALMON				
SHUYAK ISLAND SECTION ^b	CLOSED	LOCAL AND MIXED PINK SALMON			LOCAL COHO SALMON		
NORTHWEST AFOGNAK SECTION ^c	THORSHEIM & LONG LAGOON SOCKEYE SALMON	LOCAL AND MIXED PINK SALMON			LOCAL COHO SALMON		
	6/9	7/6	7/21	8/1	8/21	8/25	9/6

^a Additional fishing time to harvest enhanced sockeye bound to Waterfall Lake will occur only in the Waterfall Lake Terminal Harvest Area.

^b From July 6 to 25 this section must also be managed in accordance with the North Shelikof Strait Sockeye Salmon Management Plan.

^c Additional fishing time to harvest enhanced sockeye bound to Hidden Lake will only occur in the Foul Bay Terminal Harvest Area. From July 6 to 25 this section must also be managed in accordance with the North Shelikof Strait Sockeye Salmon Management Plan.

Appendix H2.—Commercial salmon harvest, by species, from the Perenosa Bay Section of the Kodiak Management Area, 1975-2004.

Year	Permits	Landings	Number of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1975	7	16	16	42	3,168	1,771	35	5,032
1976 ^a	*	*	0	420	0	0	0	420
1977 ^a	*	*	0	0	80	0	0	80
1978	20	37	6	6,200	3,742	18,885	1	28,834
1979	33	62	31	12,520	10,126	18,527	110	41,314
1980	25	50	0	714	13,509	29,771	2,250	46,244
1981	38	146	15	30,015	10,482	135,254	3,360	179,126
1982	73	184	0	22,898	40,942	103,038	13,523	180,401
1983	36	58	20	5,186	7,808	9,337	260	22,611
1984	28	47	0	5,965	14,307	12,532	84	32,888
1985	36	60	0	2,095	21,155	83,953	4	107,207
1986	11	17	0	3,281	2,200	62,594	640	68,715
1987	14	23	1	476	4,201	22,361	31	27,070
1988	32	146	34	1,388	20,865	343,386	1,166	366,839
1989 ^b	0	0	0	0	0	0	0	0
1990	18	48	0	435	4,282	61,819	134	66,670
1991	7	7	1	35	251	10,037	30	10,354
1992 ^a	*	*	0	4	336	2,349	0	2,689
1993	6	16	24	82	466	137,500	62	138,134
1994	12	16	6	139	2,516	23,368	169	26,198
1995	25	127	7	18,397	6,299	491,990	397	517,090
1996	23	59	1	41,481	1,608	319	45	43,454
1997	31	48	11	27,905	23,071	13,809	40	64,836
1998	24	47	141	11,135	12,528	3,374	131	27,309
1999	15	46	21	25,645	2,752	17,369	360	46,147
2000	22	39	5	9,016	12,302	11,964	90	33,377
2001	11	36	3	16,049	21,518	5,481	25	43,076
2002 ^c	5	11	78	15,132	5	20	1,469	16,704
2003 ^c	16	57	12	50,871	110	59,494	98	110,585
2004 ^c	8	32	11	23,467	5,102	21,305	71	49,956
Averages: ^a								
1994-2003	18	49	29	21,577	8,271	62,719	282	92,878
1975-2004	20	50	15	11,414	8,473	58,676	848	79,426

^a Confidential data.

^b Commercial salmon fisheries were severely restricted in 1989 due to the presence of oil from the *M/V Exxon Valdez* spill. Averages do not include 1989 data.

^c Pauls Bay was designated as a separate section in 2002, and catch from the Pauls Bay Section is not included after 2001.

Appendix H3.—Commercial salmon harvest, by species, from the Pauls Bay Section of the Kodiak Management Area, 1982-2004.

Year	Permits	Landings	Number of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1982	49	86	0	19,667	20,591	16,510	12,307	69,075
1983	23	32	3	4,195	5,976	1,082	33	11,289
1984	13	21	0	3,146	4,691	1,671	3	9,511
1985	22	27	0	1,242	7,704	10,602	0	19,548
1986	0	0	0	0	0	0	0	0
1987	4	4	1	183	390	5,804	0	6,378
1988	20	67	23	740	6,527	145,130	868	153,288
1989 ^a	0	0	0	0	0	0	0	0
1990	12	21	0	290	1,788	18,605	78	20,761
1991 ^b	*	*	1	34	14	3,532	30	3,611
1992 ^b	*	*	0	4	336	2,349	0	2,689
1993	4	7	3	55	371	48,203	53	48,685
1994	4	5	4	102	591	12,154	127	12,978
1995	10	15	4	783	1,356	73,387	228	75,758
1996	16	18	0	4,921	1,483	287	30	6,721
1997	9	9	0	15	12,823	2,165	1	15,004
1998	4	5	0	6	2,396	62	0	2,464
1999	11	25	7	14,669	2,285	1,041	287	18,289
2000	13	17	3	268	6,286	11,106	90	17,753
2001	5	9	0	26	17,215	5,127	22	22,390
2002	14	27	4	5,905	20,620	10,588	50	37,167
2003	8	16	2	9,699	2,006	66	65	11,838
2004	10	15	17	4,987	7,585	28,198	65	40,852
Averages: ^a								
1994-2003	9	15	2	3,639	6,706	11,598	90	22,036
1975-2004	12	20	3	3,224	5,592	18,076	652	27,548

Source: ADF&G fish ticket summaries. From 1982 to 2001, this is the commercial harvest from statistical area 251-83. In 2002, the area at Pauls Bay was separated and designated as statistical area 251-85.

^a Commercial salmon fisheries were severely restricted due to the *M/V Exxon Valdez* oil spill. 1989 is not included in averages.

^b Confidential data.

Appendix H4.—Commercial salmon harvest, by species, for the Shuyak Island Section of the Kodiak Management Area, 1975-2004.

Year	Permits	Landings	Number of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1975	6	7	0	118	1,623	0	0	1,741
1976	*	*	0	0	1,527	0	0	1,527
1977	7	7	0	0	1,363	15	2	1,380
1978	19	28	0	0	6,272	3,940	7	10,219
1979	31	73	0	8	20,549	471	16	21,044
1980	16	22	0	0	6,682	2,971	69	9,722
1981	15	22	0	98	15,129	3,641	1,252	20,120
1982	16	21	0	1,520	12,096	4,480	532	18,628
1983	19	27	0	113	15,355	5,383	8	20,859
1984	13	19	0	23	13,896	6,083	139	20,141
1985	13	13	0	42	8,622	28	1	8,693
1986	12	14	0	50	4,109	4,347	24	8,530
1987	17	19	4	152	7,258	1,314	194	8,922
1988	75	126	112	56,884	3,792	62,900	11,255	134,943
1989 ^a	0	0	0	0	0	0	0	0
1990	24	42	11	1,078	7,627	102,207	1,050	111,973
1991	5	7	0	144	5,851	363	18	6,376
1992	19	26	24	700	9,985	5,471	723	16,903
1993	12	17	0	3	7,154	65	0	7,222
1994	13	21	1	258	13,534	26,666	70	40,529
1995	4	4	0	220	2,144	9,445	576	12,385
1996	13	21	2	1,435	11,406	11,819	384	25,046
1997	7	9	0	836	6,482	1,798	5	9,121
1998	7	7	0	4	5,749	0	0	5,753
1999	*	*	0	0	506	562	0	1,068
2000	9	15	1	54	13,015	9,680	3	22,753
2001	5	11	2	487	9,584	1,104	100	11,277
2002	4	5	0	102	5,662	1,829	0	7,593
2003	*	*	0	0	1,790	4,866	0	6,656
2004	*	*	0	0	3,945	441	0	4,386
<hr/>								
Average ^a								
1994-2003	7	10	1	340	6,987	6,777	114	14,218
1975-2004	13	21	5	2,218	7,680	9,375	566	19,845

Note: The Westside Kodiak Management Plan commercial harvest includes the Southwest Afognak Section, the Northwest Kodiak District (except for the Spiridon Lake Terminal Harvest Area), and the Southwest Kodiak District.

^a Commercial salmon fisheries were severely restricted in 1989 due to the presence of oil from the *M/V Exxon Valdez* spill. Averages do not include 1989 data.

Appendix H5.—Subsistence salmon harvest, by species, from Pauls and Perenosa Bays, in the Kodiak Management Area, 1986-2003.

Year	Permits With Catch	Number of Salmon ^a					Total
		Chinook	Sockeye	Coho	Pink	Chum	
1986	8	0	22	114	0	0	136
1987	2	0	65	15	0	0	80
1988	3	0	143	6	17	0	166
1989	8	0	276	59	2	0	337
1990	8	0	71	46	0	0	117
1991	3	0	182	0	0	0	182
1992	8	0	159	40	0	0	199
1993	5	0	179	0	0	0	179
1994	5	0	4	10	4	0	18
1995	7	0	211	0	0	0	211
1996	5	0	132	0	0	0	132
1997	4	0	222	25	2	0	249
1998	4	0	126	8	0	0	134
1999	7	1	283	3	2	0	289
2000	9	0	210	55	0	0	265
2001	6	0	142	10	0	0	152
2002	16	0	765	30	4	0	799
2003	19	0	1,038	22	0	2	1,062
Average:							
1994-2003	8	0	313	16	1	0	331
1986-2003	7	0	235	25	2	0	262

Source: ADF&G subsistence permit database

^a This is only the harvest for individuals returning permits to ADF&G, and so may not represent the total subsistence salmon harvest.

APPENDIX I: MAINLAND DISTRICT MANAGEMENT PLAN

Appendix II.—Primary management species and management chronology of the Mainland District Management Plan for the Kodiak Management Area, 2004.

MAINLAND DISTRICT SALMON MANAGEMENT PLAN

	6/5	6/14	6/21	7/6	7/26	8/15	8/21	8/25
BIG RIVER SECTION ^a	CLOSED	33 Hr	CLOSED	33 Hr	CLOSED	LOCAL & MIXED KODIAK PINK & CHUM SALMON		LOCAL COHO SALMON
HALLO BAY SECTION ^a	CLOSED				LOCAL & MIXED KODIAK PINK & CHUM SALMON		LOCAL COHO SALMON	
OUTER KUKAK SECTION ^a	CLOSED	33 Hr	CLOSED	33 Hr	CLOSED	LOCAL & MIXED KODIAK PINK & CHUM SALMON		LATE CHUM & COHO SALMON
INNER KUKAK SECTION	CLOSED				LOCAL & MIXED KODIAK PINK & CHUM SALMON		LATE CHUM & COHO SALMON	
DAKAVAK SECTION ^a	CLOSED				LOCAL & MIXED KODIAK PINK & CHUM SALMON			LATE PINK & COHO SALMON
KATMAI & ALINCHAK SECTIONS	CLOSED				LOCAL & MIXED KODIAK PINK & CHUM SALMON			LATE PINK & COHO SALMON
CAPE IGVAK SECTION	CAPE IGVAK SALMON MANAGEMENT PLAN (5AAC 18.360)				LOCAL & MIXED KODIAK PINK & CHUM SALMON		LATE PINK & COHO SALMON	
WIDE BAY SECTION	CLOSED				LOCAL PINK & CHUM SALMON		LATE PINK & COHO SALMON	
	6/5	6/14	6/21	7/6	7/26	8/15	8/21	8/25

^a During the time period July 6 through July 25 these management sections must also be managed in accordance with the North Shelikof Strait Sockeye Salmon Management Plan (5AAC 18.363).

33 Hr A 33 hour fishing period for local sockeye salmon.

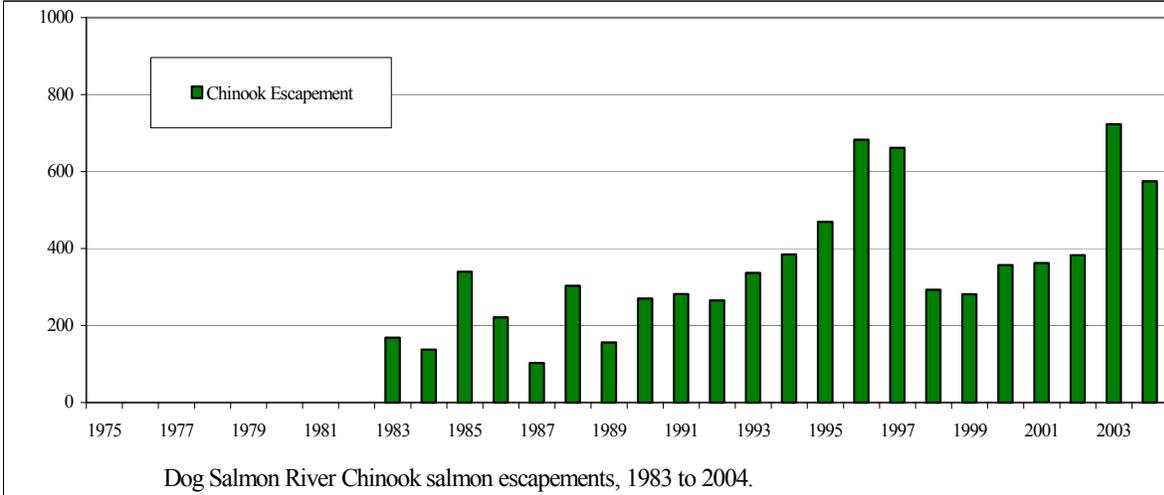
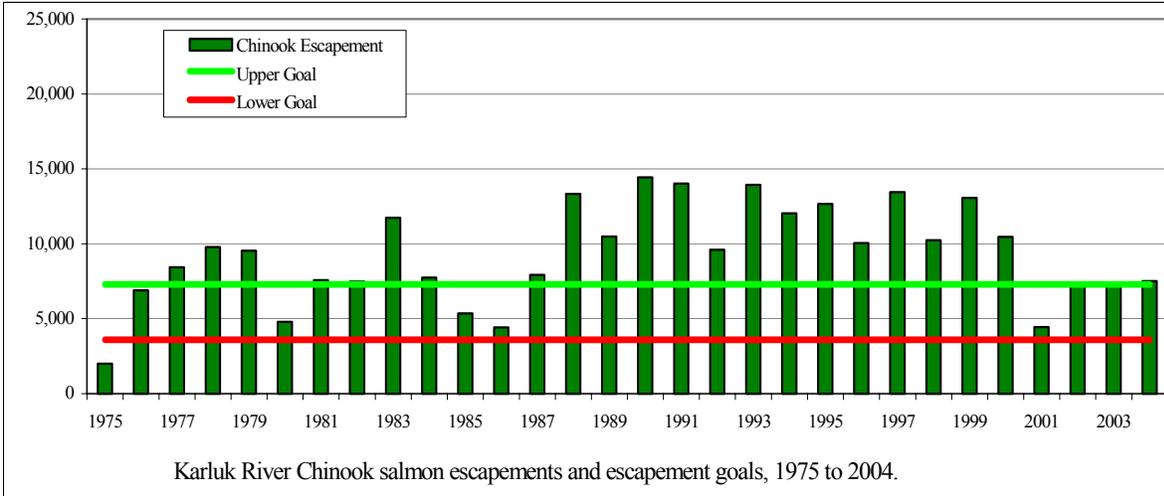
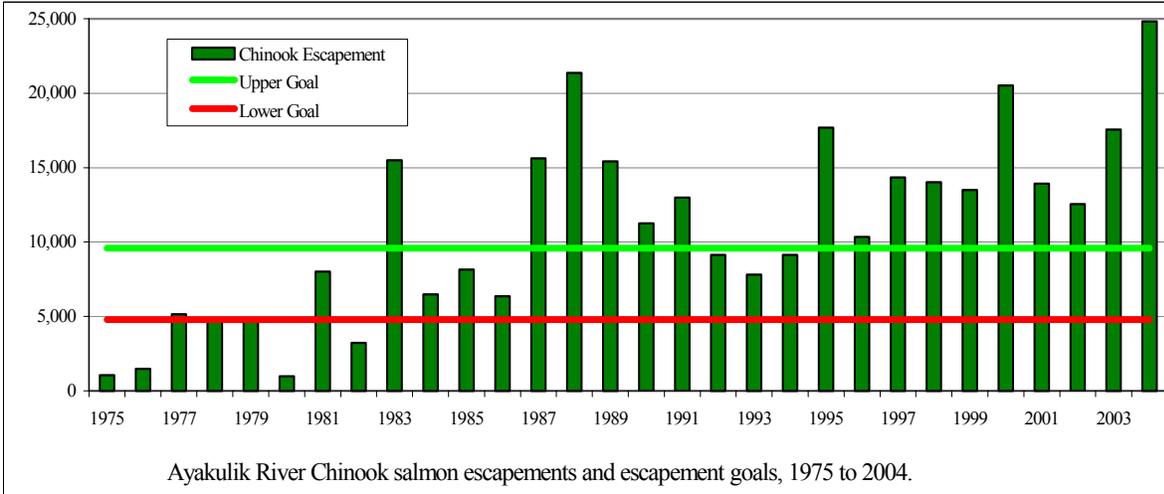
Appendix 12.—Commercial salmon harvest, by species, for the Mainland District of the Kodiak Management Area, 1975-2004.

Year	Permits	Landings	Number of Salmon					Total
			Chinook	Sockeye	Coho	Pink	Chum	
1975	79	180	1	33,075	108	270,804	9,423	313,411
1976	126	572	122	151,177	2,404	50,283	214,567	418,553
1977	146	715	29	161,258	1,343	343,295	426,419	932,344
1978	160	900	454	285,606	1,169	236,796	152,548	676,573
1979	156	489	35	32,356	3,042	623,117	73,137	731,687
1980	92	471	5	17,648	3,122	286,809	413,884	721,468
1981	154	1,414	189	409,844	1,357	271,758	437,784	1,120,932
1982	193	1,173	109	233,553	43,061	591,091	316,010	1,183,824
1983	184	1,340	496	416,038	26,616	183,735	273,858	900,743
1984	186	2,211	446	589,673	20,851	344,742	220,760	1,176,472
1985	171	920	323	175,829	53,243	261,059	48,189	538,643
1986	137	1,240	291	252,555	13,067	806,328	400,469	1,472,710
1987	201	2,098	1,722	471,846	29,868	226,913	230,754	961,103
1988	169	1,162	7,602	299,014	54,764	1,748,420	392,154	2,501,954
1989 ^a	0	0	0	0	0	0	0	0
1990	176	1,153	3,683	270,377	47,698	875,577	200,648	1,397,983
1991	172	1,031	4,505	453,122	41,860	1,166,188	222,548	1,888,223
1992	208	970	2,848	630,476	31,885	189,557	114,080	968,846
1993	150	953	9,146	501,464	25,497	1,365,710	84,237	1,986,054
1994	140	668	1,285	415,322	20,802	193,739	90,965	722,113
1995	149	585	1,315	293,430	19,726	695,745	100,874	1,111,090
1996	152	542	1,160	478,182	10,817	49,824	40,358	580,341
1997	118	399	3,405	153,885	9,116	727,628	34,928	928,962
1998	49	177	393	59,934	10,711	558,457	25,264	654,759
1999	130	851	2,967	678,933	19,550	383,459	210,072	1,294,981
2000	135	684	813	381,644	24,027	116,948	195,024	718,456
2001	90	490	3,090	313,168	17,751	398,338	208,445	940,792
2002	75	313	1,141	205,109	20,076	322,886	89,677	638,889
2003	82	434	1,515	166,754	5,736	172,711	204,526	551,242
2004	53	263	978	238,950	18,193	283,560	149,393	691,074
Average^a								
1994-2003	112	514	1,708	314,636	15,831	361,974	120,013	814,163
1975-2004	139	841	1,726	302,421	19,912	473,982	192,448	990,490

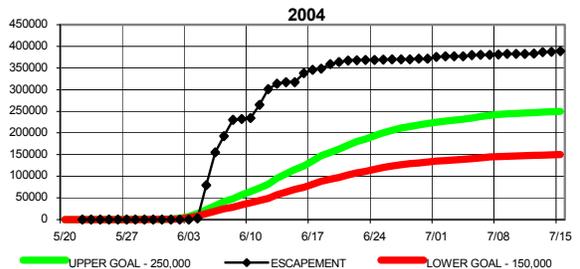
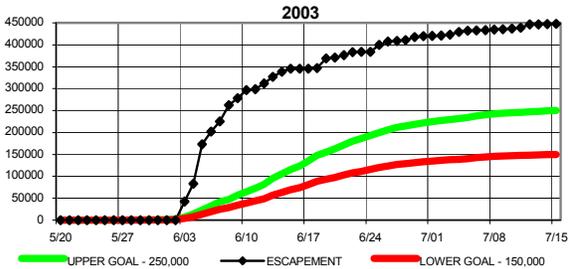
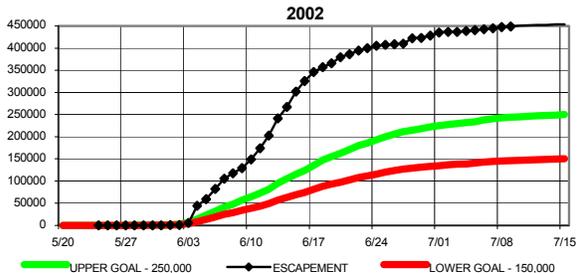
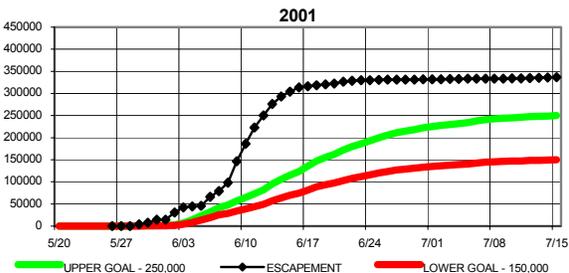
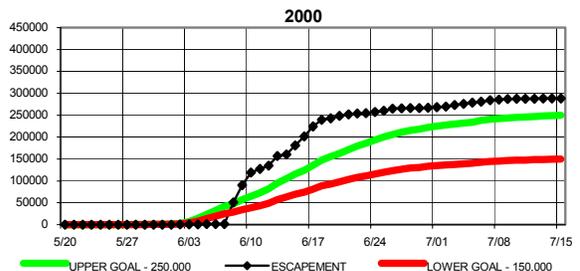
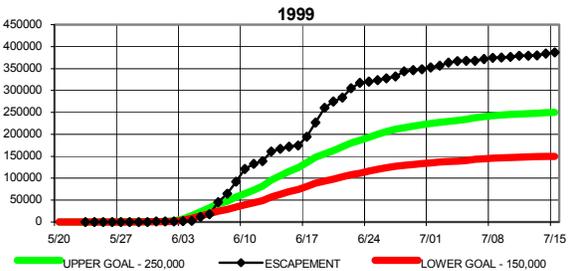
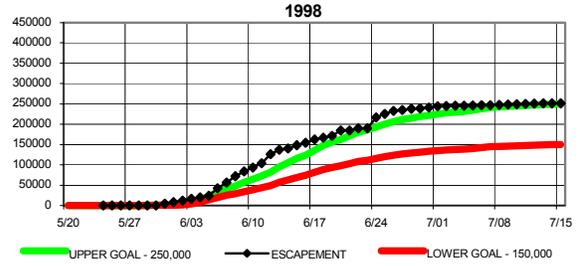
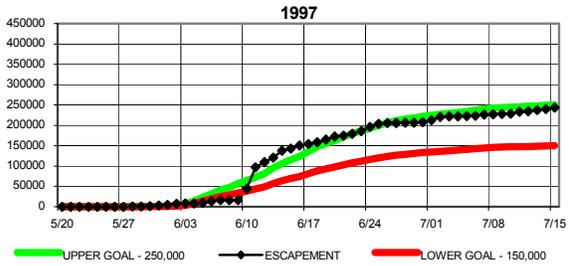
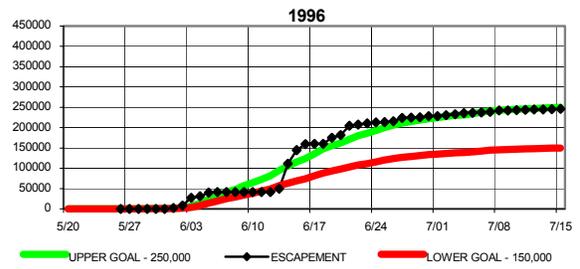
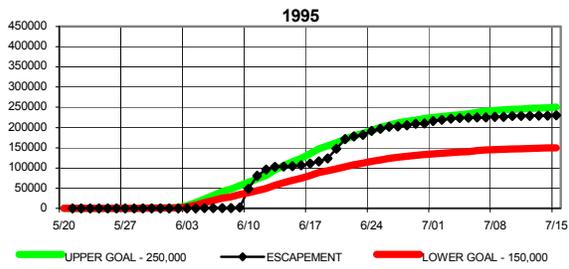
Note: This is the commercial harvest only from all sections for the entire season, including salmon taken during the Cape Igvak and North Shelikof Strait fisheries.

^a Commercial salmon fisheries were severely restricted in 1989 due to the presence of oil from the M/V Exxon Valdez spill. Averages do not include 1989 data.

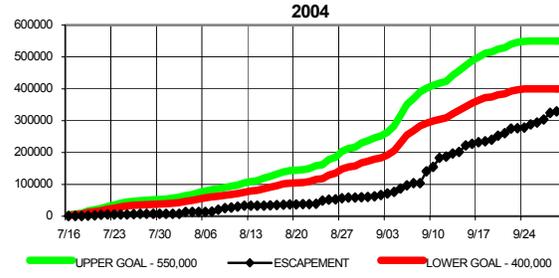
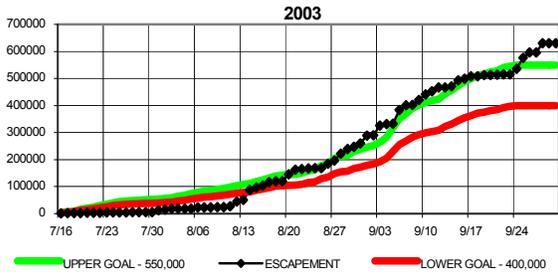
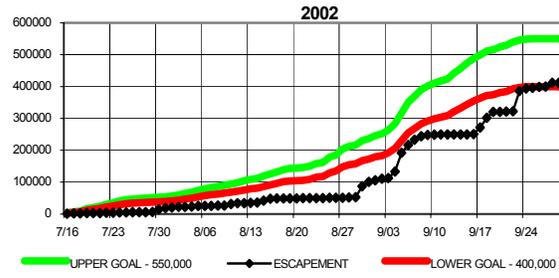
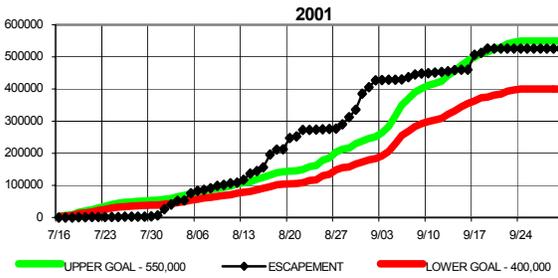
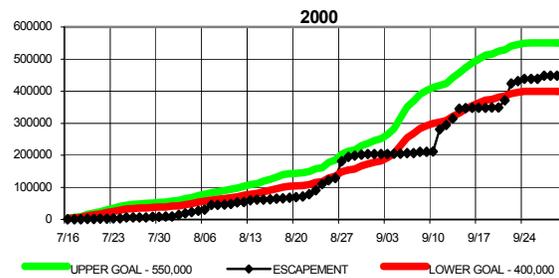
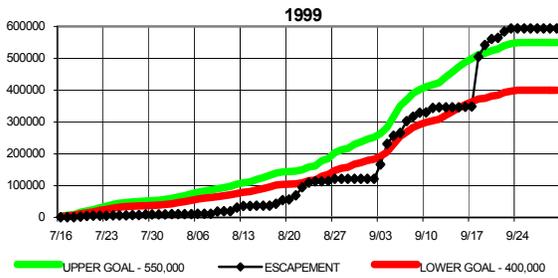
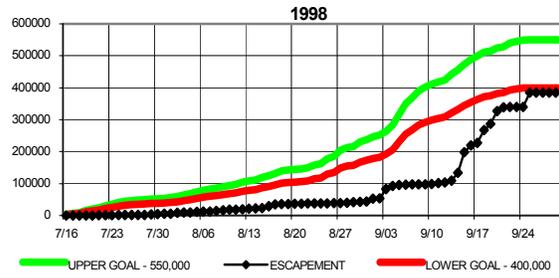
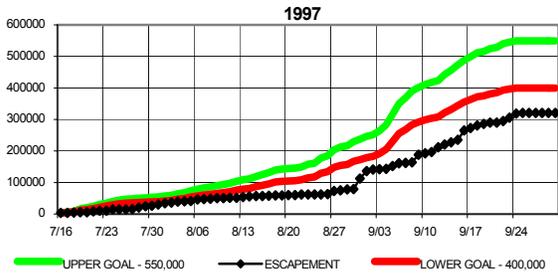
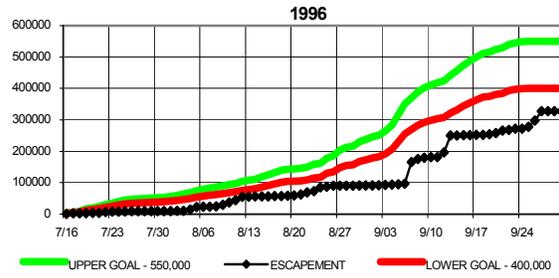
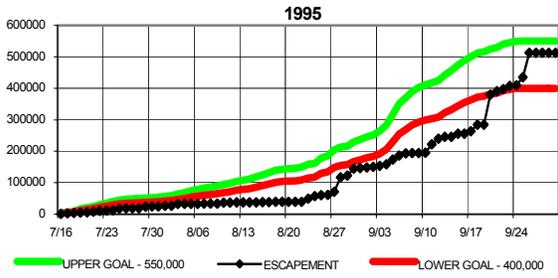
APPENDIX J: ESCAPEMENTS



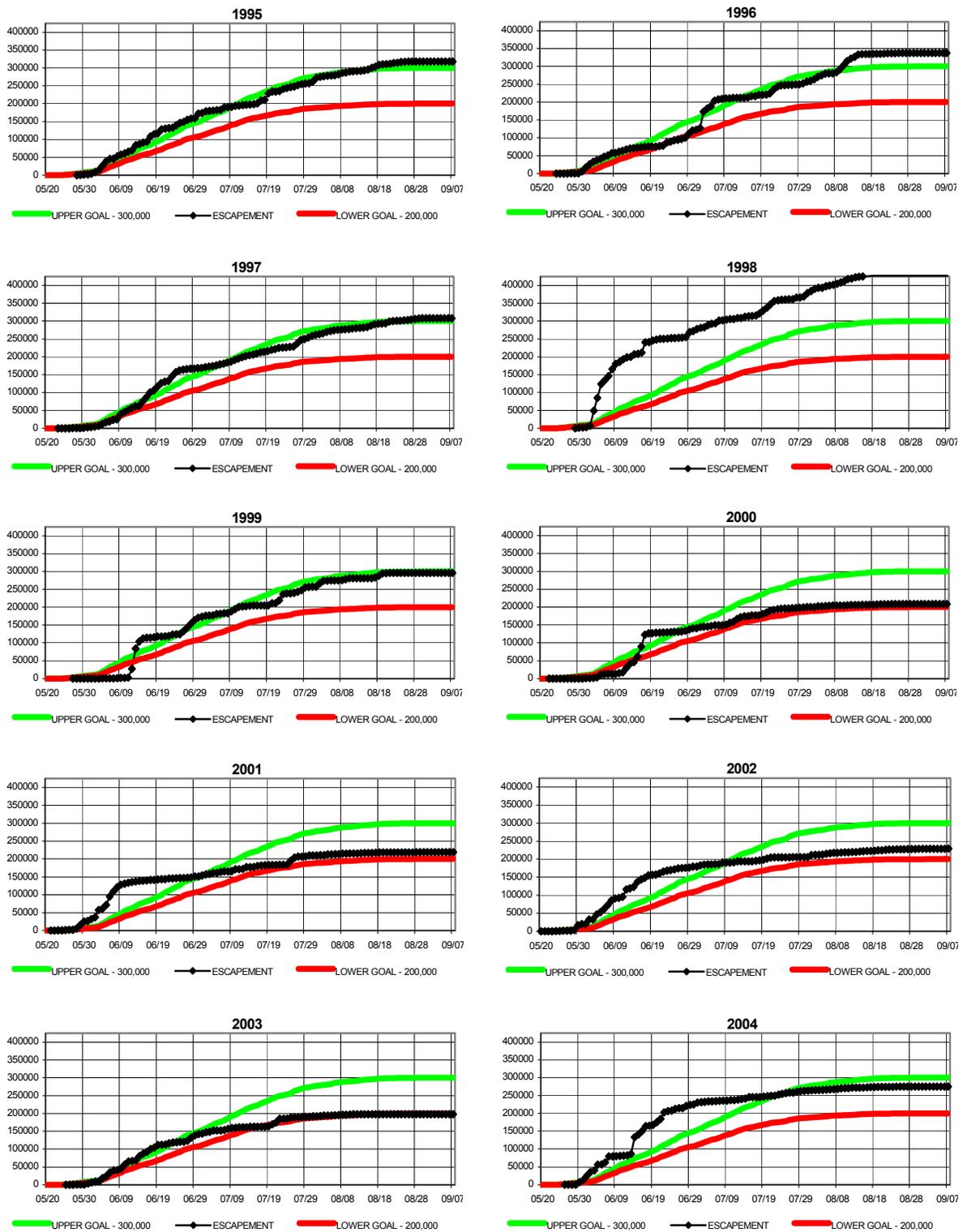
Appendix J1.—Ayakulik and Karluk Rivers, and Dog Salmon Creek Chinook salmon escapements and current escapement goals, Kodiak Management Area, 1975-2004.



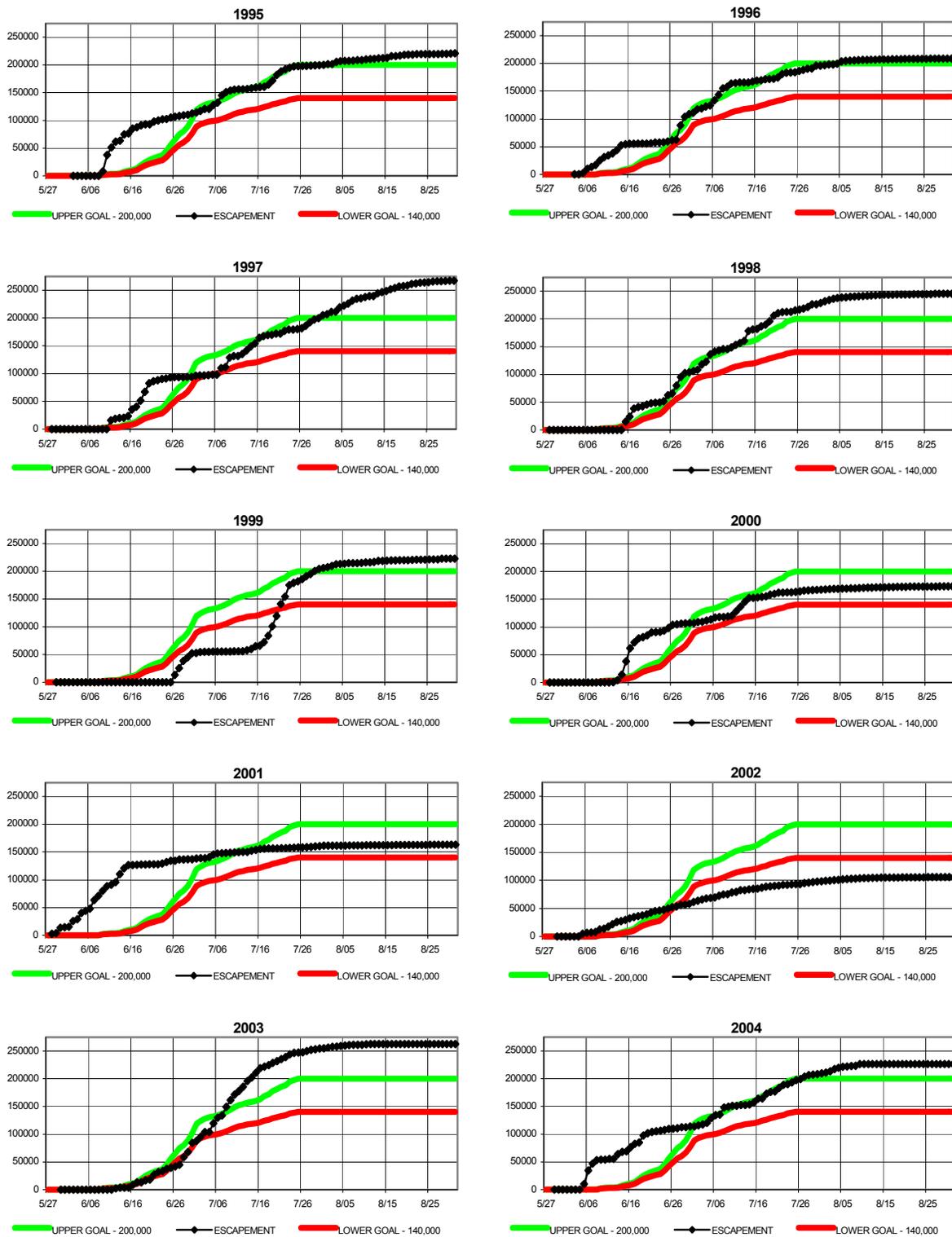
Appendix J2.—Comparison of the early-run Karluk sockeye escapement goal to actual sockeye escapements, Kodiak Management Area, 1995-2004.



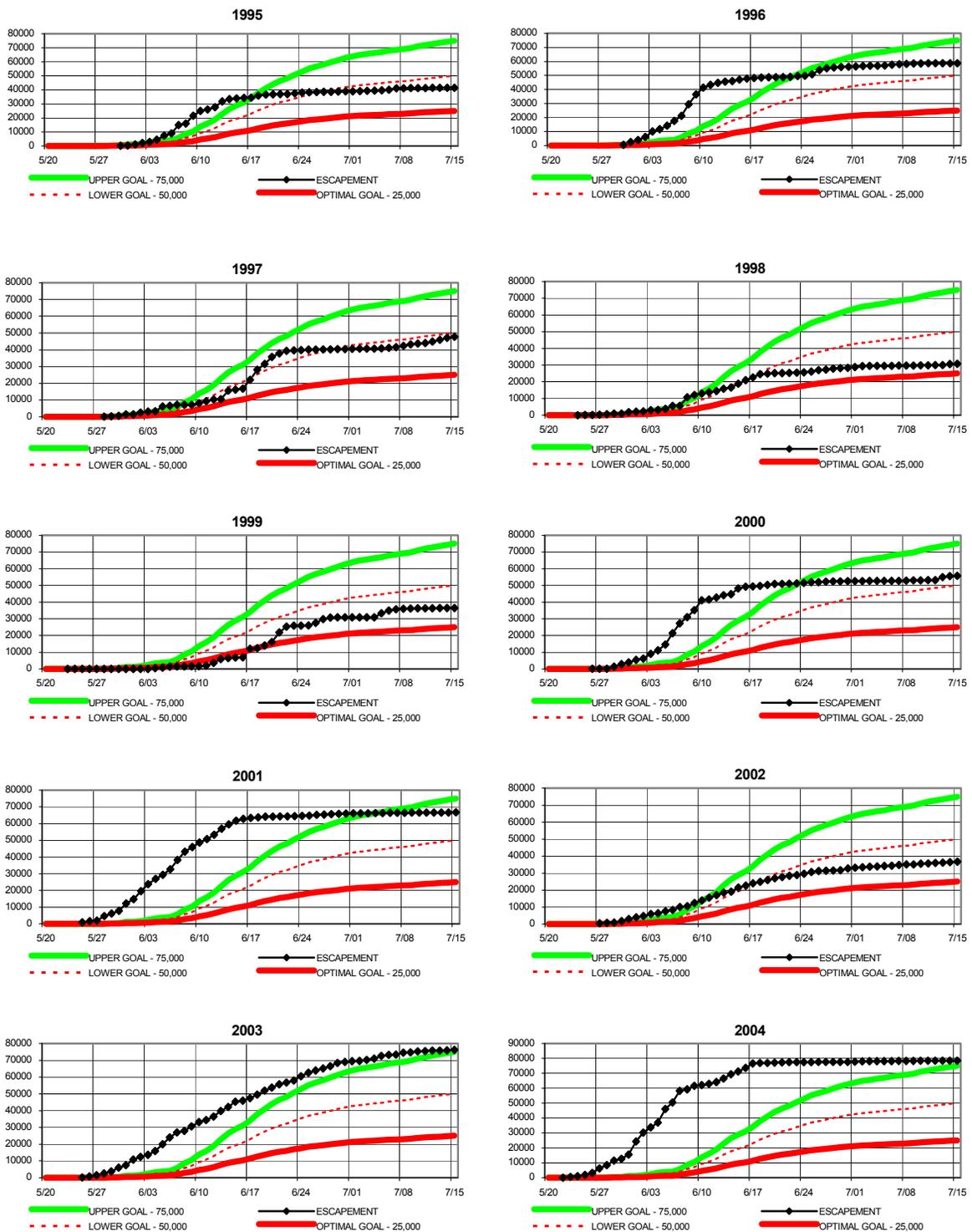
Appendix J3.—Comparison of the late-run Karluk sockeye salmon escapement goal to actual sockeye escapements, Kodiak Management Area, 1995-2004.



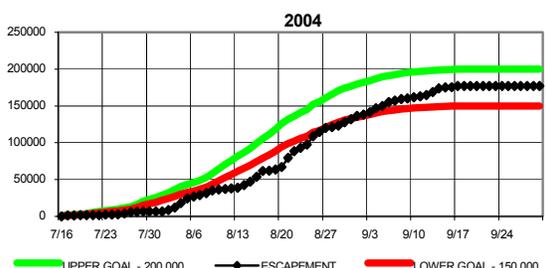
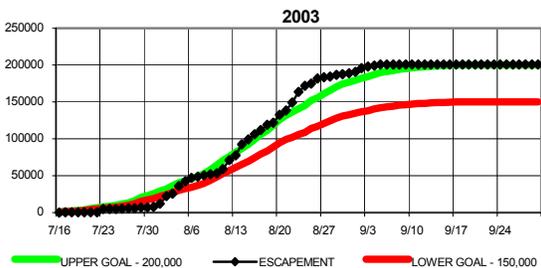
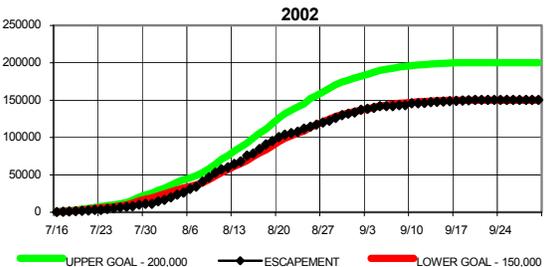
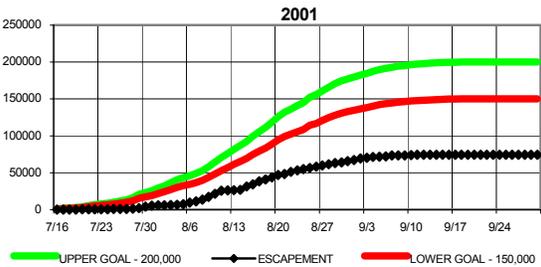
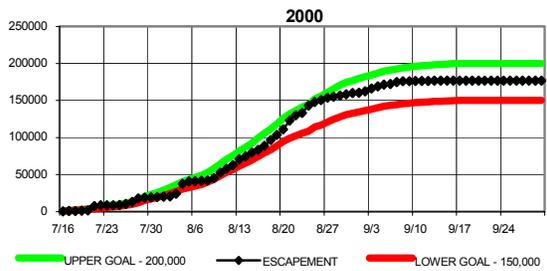
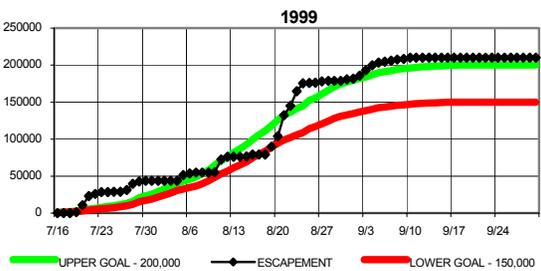
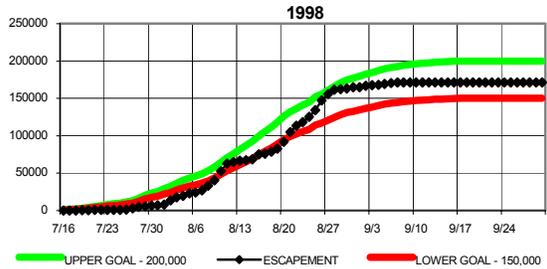
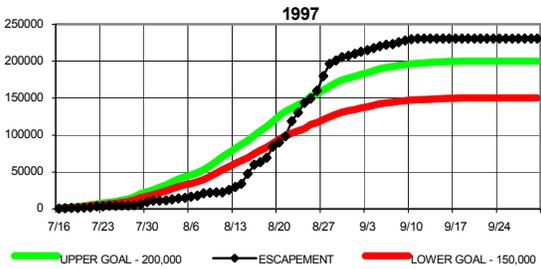
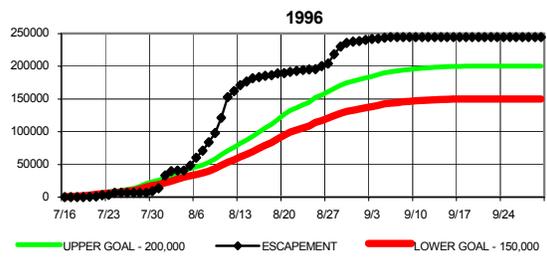
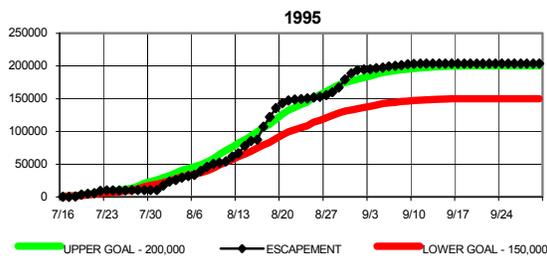
Appendix J4.—Comparison of the Ayakulik sockeye salmon escapement goal to actual sockeye escapements, Kodiak Management Area, 1995-2004.



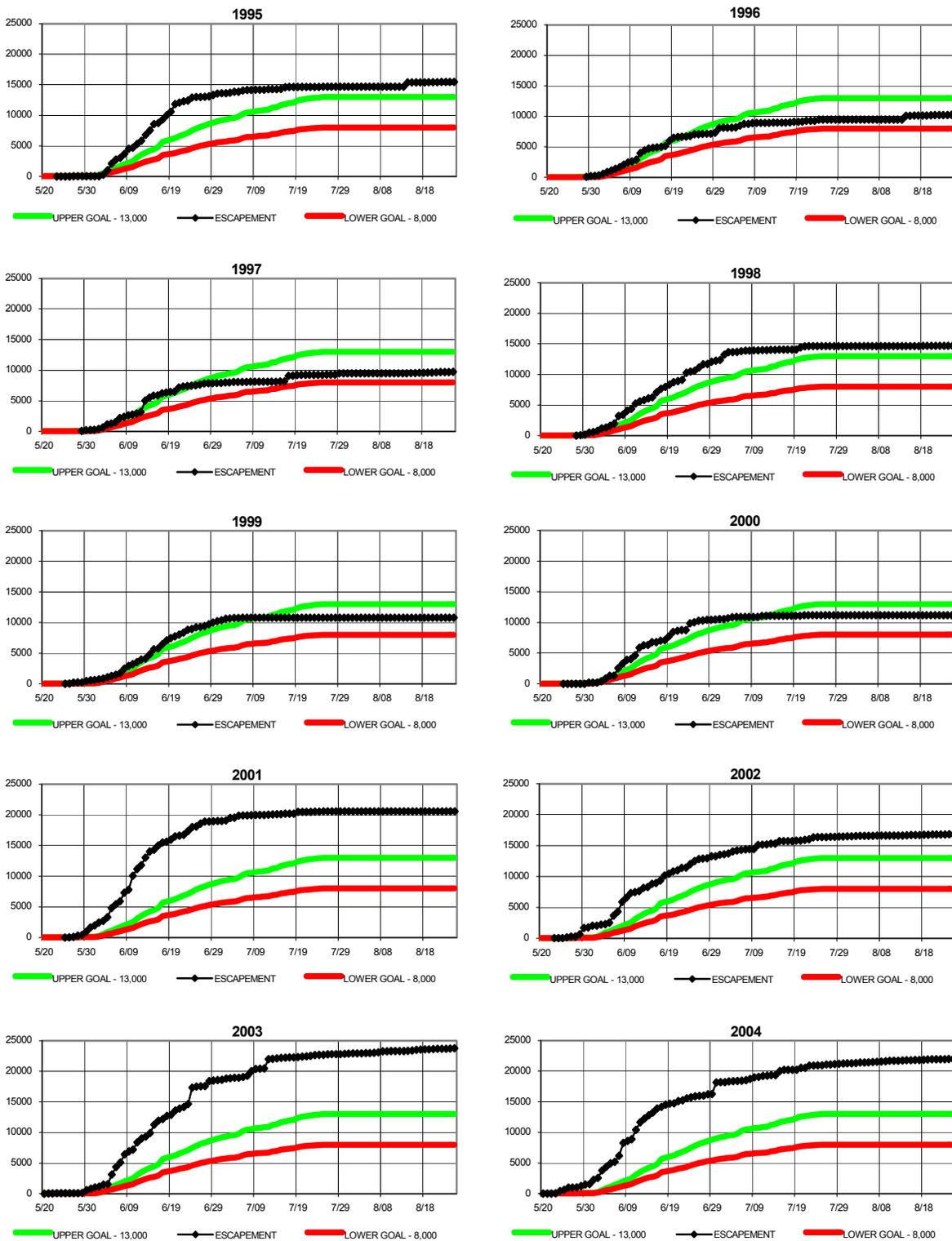
Appendix J5.—Comparison of the Frazer sockeye salmon escapement goal to actual sockeye escapements through the Dog Salmon Creek weir, Kodiak Management Area, 1995-2004.



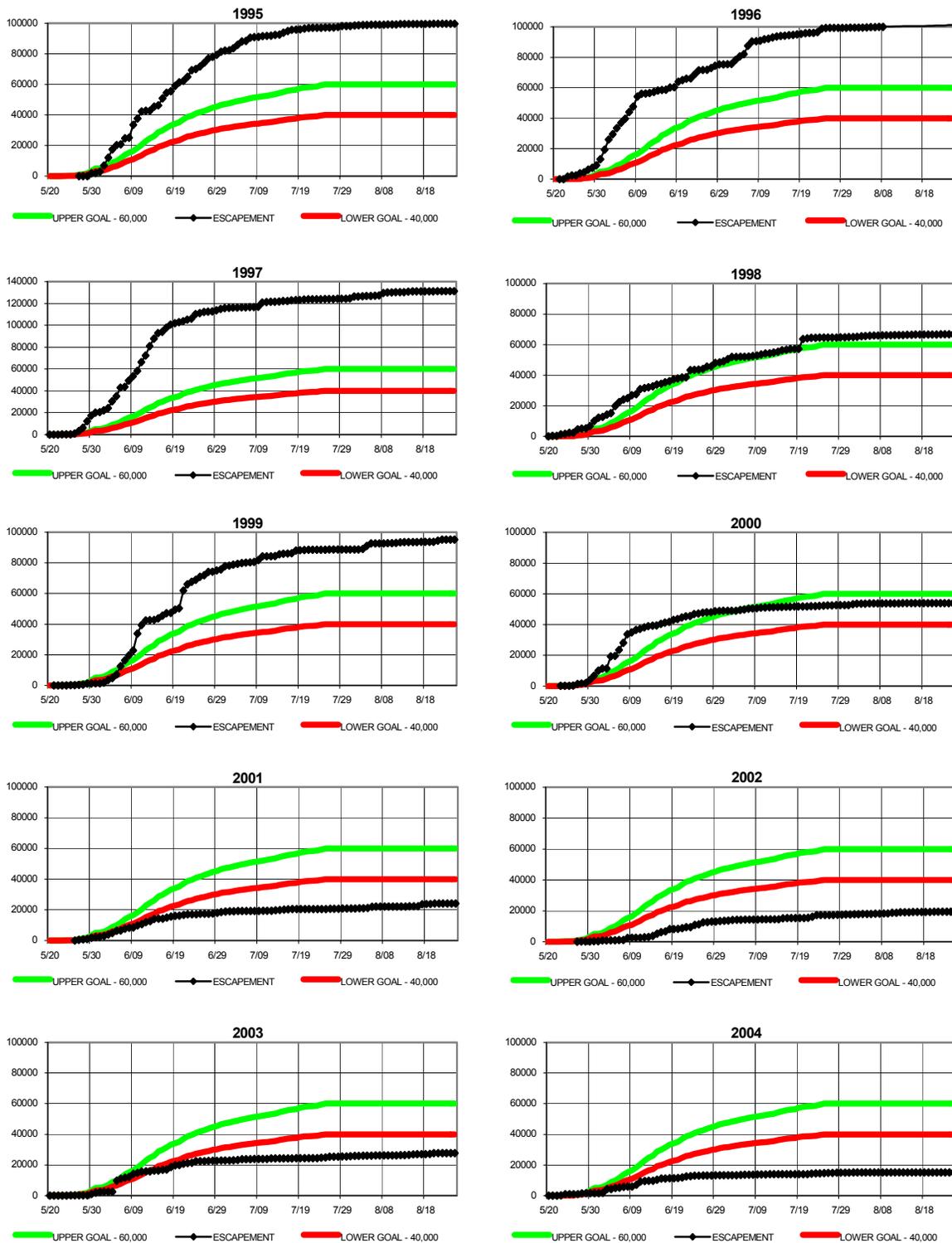
Appendix J6.—Comparison of the early-run Upper Station sockeye salmon escapement goal to actual sockeye escapements, Kodiak Management Area, 1995-2004.



Appendix J7.—Comparison of the late-run Upper Station sockeye salmon escapement goal to actual sockeye escapements, Kodiak Management Area, 1995-2004.



Appendix J8.—Comparison of the Buskin sockeye salmon escapement goal to actual sockeye escapements, Kodiak Management Area, 1995-2004.



Appendix J9.—Comparison of the Afognak (Litnik) sockeye salmon escapement goal to actual sockeye escapements, Kodiak Management Area, 1995-2004.