Fishery Management Report No. 07-59

Kodiak Management Area Commercial Salmon Fisheries, Report to the Alaska Board of Fisheries, January 2008

by

Jeff Wadle

December 2007

Alaska Department of Fish and Game **Divisions of Sport Fish and Commercial Fisheries**

Symbols and Abbreviations

The following symbols and abbreviations, and others approved for the Système International d'Unités (SI), are used without definition in the following reports by the Divisions of Sport Fish and of Commercial Fisheries: Fishery Manuscripts, Fishery Data Series Reports, Fishery Management Reports, and Special Publications. All others, including deviations from definitions listed below, are noted in the text at first mention, as well as in the titles or footnotes of tables, and in figure or figure captions.

Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail-fork	METF
standard length	SL
total length	TL

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	*e*
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	*E*
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

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KODIAK MANAGEMENT AREA COMMERCIAL SALMON FISHERIES, REPORT TO THE ALASKA BOARD OF FISHERIES, JANUARY 2008

by

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The Division of Sport Fish Fishery Management Reports series was established in 1989 for the publication of an overview of Division of Sport Fish management activities and goals in a specific geographic area. Since 2004, the Division of Commercial Fisheries has also used the Fishery Management Report series. Fishery Management Reports are intended for fishery and other technical professionals, as well as lay persons. Fishery Management Reports are available through the Alaska State Library and on the Internet: http://www.sf.adfg.state.ak.us/statewide/divreports/html/intersearch.cfm. This publication has undergone regional peer review.

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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 early October. 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.

The Kodiak area Chinook salmon escapements for the Ayakulik and Karluk systems have met current escapement goals in most years since 1983. However, recent returns have been below average. Overall, KMA sockeye salmon stocks have had relatively lower returns in recent years. Coho salmon stocks of the KMA are considered healthy. The trend of decreasing coho salmon escapement is related to fewer late-season escapement surveys and reduced weir operational time, not a necessarily decline in production. Areawide, pink salmon escapement objectives have been met or exceeded each year since 1975. Current chum salmon escapement goals have been met in most years.

Key words: Chinook salmon, *Oncorhynchus tshawytscha*, sockeye salmon, *O. nerka*, coho salmon, *O. kisutch*, pink salmon, *O. gorbuscha*, chum salmon, *O. keta*, 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 (CFD) is to manage, protect, maintain, and improve the fish, game, and aquatic plant resources of Alaska. The primary goals are to ensure that Alaska's renewable fish and wildlife resources and their habitats are conserved and managed on the sustained yield principle and the use and development of these resources are in the best interest of the economy and well-being of the people of the state.

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 (MP) 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 (2005, 2006, and 2007). In addition, this report describes recent and historical harvests and effort levels, and identifies some of the issues that have developed recently in the KMA.

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 KMA (Appendix A1). 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 (5 AAC 18.100).[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.

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.

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

[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.

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 moderate to heavy precipitation (averaging over 68 inches per year in the City of Kodiak, 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 (Mecklenburg et al. 2002). 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 13,500 people currently reside within the boundaries of the KMA. The majority of area residents reside in the city of Kodiak (approximately 6,200) and along the connecting road system (approximately 6,500; including the U.S. Coast Guard Base adjacent to town, and outlying communities of Monashka Bay, Bells 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 (Brennan 2004).

Commercial fishing and processing is the largest employer in Kodiak. The seafood industry employs approximately 27% of Kodiak's private sector work force, while approximately 55% of all businesses are "somewhat" related to area fisheries. 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 2004).

SALMON RESOURCES

SALMON PRODUCING STREAMS

There are approximately 800 streams within the KMA in which salmon migration or spawning has been documented (Johnson and Weiss 2007). Of these, 440 streams have been documented to support yearly spawning populations of salmon (Table 1). The remaining small streams are usually used by pink salmon only in years with very large returns. Three 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 A1).

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 or a minimum single goal. Depending on the species, these goals can be for some individual systems, by district, or island-wide. Both the Karluk and Ayakulik rivers have established biological escapement goal (BEG) ranges for Chinook salmon; both systems have weirs (Figure 2; Table 2; Nelson et al. 2005). Individual systems with established BEGs or sustainable escapement goal (SEG) ranges for sockeye salmon include the Karluk, Ayakulik, Upper Station, Malina, Pauls, Afognak, Frazer, Buskin, Pasagshak, and Saltery systems (Figure 2; Table 2; Nelson et al. 2005). Most of these systems have had weirs in place for some period of time which allowed the department to establish escapement goals. Coho salmon have established SEGs ranges on the Buskin, American, Olds, and Pasagshak rivers (Table 2; Nelson et al. 2005). Coho salmon counts are conducted in late fall by conducting foot surveys. Pink salmon have two SEGs in the KMA and include the Kodiak Archipelago and the Mainland District (Table 2; Nelson et al. 2005). Chum salmon escapement goals do not have a range but rather a single SEG threshold and are designated by KMA districts including the Northwest Kodiak, Northeast Kodiak, Eastside Kodiak, Alitak, and Southwest Kodiak districts (Nelson et al. 2005; Table 2).

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 reared at the hatchery (Schrof and Aro 2007). 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 harvest (in 2003-2007, 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 (Schrof and Byrne 2007).

The Kodiak Regional Planning Team[2] (KRPT) identified sockeye salmon as the priority species for supplemental production (Kodiak Regional Planning Team 1992). 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 (Figure 2). 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 (SFD), in conjunction with KRAA, stock coho salmon fingerlings and Chinook salmon smolt to produce put-and-take sport fisheries and enhance sport

[2] The KRPT is a group consisting of representatives of ADF&G, regional aquaculture associations, and the public, mandated by Alaska Statute 16.10.375-470) to develop and amend comprehensive salmon production plans for salmon production regions.

fishing opportunities along the Kodiak road system. Currently SFD, in conjunction with KRAA annually stocks Chinook salmon into Monashka Creek.

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 (Kodiak Regional Planning Team 1992). To date, the peak years of supplemental production have contributed an undetermined number of Chinook salmon and an estimated additional 796,359 sockeye (2003), 209,259 coho (2002), 13,603,742 pink (2005), and 466,205 chum (2003) to the annual harvest (Table 3).

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 (Bevan 1959;Bowe 1941; Nicholson 1978;Simon et al. 1969; 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 (Eggers et al. 1987; Noerenberg and Calkins 1959).

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 included).

There are 608 commercial salmon permits available for the KMA: 384 purse seine, 188 set gillnet, and 36 beach seine (Table 5). Actual numbers of permits issued and fished varies annually, and there has been a downward trend in the number of active seine permits (Figure 3). In 2007, only 141 purse seine, 157 gillnet, and 3 beach seine permit holders actually fished (Table 5). 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 56 sections (Appendices A1 through A8). 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 (5 AAC 18.330). Both purse and beach seine gear are allowed to operate in the entire management area except in the Alitak Bay, Moser Bay, and Olga Bay sections of the Alitak District where set gillnets are the only legal gear[3] (Appendix A2). In the Central Section of the Northwest Kodiak District, both set gillnet and seine gear are allowed

[3] 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 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.

(Appendix A3). 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 A4) 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 District. The common boundary between the Moser-Olga Bay Section (now divided into the Alitak Bay, Moser Bay, 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 A2).

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 A3).

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 located within the State of Alaska territorial sea boundary (three-mile limit; Appendix A1). 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 stating 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-product 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.

Approximately 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 processing capacity of Kodiak shorebased processors has been estimated at

approximately 27,380,000 salmon annually. A summary of the processor capacity report can be found at http://www.cf.adfg.state.ak.us/geninfo/pubs/capacity/07capacity.pdf (accessed November 2007).

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 CFD staff responsible for the management of the KMA commercial salmon fishery consists of an Area Management Biologist (AMB), two Assistant AMBs, one Fishery Biologist I and approximately 11 seasonal employees. The Kodiak salmon research staff includes six Research Biologists, and approximately 19 seasonal employees. A Regional Finfish Management Supervisor and a Regional Finfish Research Supervisor oversee these staff. Biologists and Technicians from the SFD, 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 CFD 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. Projected harvests are estimated by fishery and geographic area (Table 6). 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 salmon stocks including Karluk (early and late runs), Ayakulik, Frazer, and Upper Station (early and late runs; Eggers 2007). 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 salmon 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.

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 (Eggers 2007) (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.

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 developed using survival rates from past releases.

REGULATORY MANAGEMENT PLANS

Guiding the KMA salmon fishery are 10 BOF-approved MPs that ADF&G management staff follow when structuring commercial salmon fisheries and directing management activity in specific portions of the KMA (Table 7). These MPs were developed from the 1970s through 1990s and are now part of KMA commercial salmon fishery regulations. 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 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 56 sections of the KMA are covered by one of these six 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 (5 AAC 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 A5 and B1). 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 MP for the Cape Igvak fishery was adopted by the BOF.

The Cape Igvak Salmon MP regulates fishing activity in the Cape Igvak Section of the Mainland District from June 1 through July 25. This MP stipulates that 90%[4] 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 harvest[5]. 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 MP states that commercial fishing will be restricted or disallowed in the Cape Igvak Section from approximately June 26 to July 9.

Since this plan was adopted in 1978, the catch of Chignik-bound sockeye salmon from the Cape Igvak Section has ranged from 0% to 17.9% of the total Chignik sockeye salmon harvest and has averaged 10.7%, of the total CMA sockeye salmon harvest (Appendix B3). The Cape Igvak harvest has met or exceeded the 15% allocation level seven times (1983, 1987, 1993, 1999, 2001, 2004 and 2005). The Cape Igvak harvest has been below the 15% allocation level 20 times (1978-1982, 1984-1986, 1988-1992, 1994-1998, 2000, 2002-2003, and 2006-2007) and there were three years (1980, 1989, and 1997) where a Cape Igvak fishery did not occur due to not meeting biological or allocative criteria or fishing was curtailed due to the *Exxon Valdez* oil spill.

Alitak District Salmon Management Plan (5 AAC 18.361).

Historically, the salmon fisheries of the Alitak 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 (Blackett 1979). 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 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 A2 and C1). Prior to the mid 1980s various strategies were applied in the Alitak 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

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[4] 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 1 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.

[5] 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.

coho, pink, and chum salmon stocks. In 1987 the existing harvest strategy was formalized into a regulatory MP 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.

The MP was modified in 1999, 2002, and 2005 to address concerns for small stocks and the allocation of sockeye salmon harvests. Minimum closure times were instituted (69 hours 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.

A separate BOF report has been prepared to describe this MP and the Alitak District fishery (Dinnocenzo 2007 *in prep*). Additional information regarding this MP can be found in Appendices C1 through C4.

Westside Kodiak Salmon Management Plan (5 AAC 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. 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 and the lack of fisheries management, 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 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 MP 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 MP is to harvest salmon bound to local systems in traditional fisheries located in the westside sections (Appendix D1). 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 A3, A4, and A6). 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 Appendices D1 through D4.

North Shelikof Strait Sockeye Salmon Management Plan (5 AAC 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 E1). 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 Cook Inlet-bound (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 MP was adopted into regulation.

The North Shelikof Strait Sockeye Salmon MP, subsection (a), states "The purpose of the North Shelikof Strait Sockeye Salmon MP 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 MP restricts fishing opportunities by creating Shoreward Zones and Seaward Zones within the affected sections (basically divided by a line that runs from cape to cape[6]). Should the sockeye salmon harvest exceed the established harvest cap in either of two areas, then further fisheries in the effected sections must move inside the defined Shoreward Zones. The Seaward Zones are then closed through July 25. This eliminates most cape fishing and all offshore fishing within the north Shelikof Strait.

The North Shelikof Strait Sockeye Salmon MP 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

[6] 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.

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 from July 6 through July 25. The Seaward Zone of the North Shelikof unit will close to fishing if 15,000 sockeye salmon are harvested from 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 Mainland districts. 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 MP can be found in Appendices E1 through E3.

Eastside Afognak Salmon Management Plan (5 AAC 18.365).

The commercial fisheries conducted along the east side of the Afognak District (Appendix A6) 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 MP 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 on hatchery fish in the Southeast Afognak, Duck Bay, Izhut Bay, and Kitoi Bay sections, while assuring sufficient broodstock for the hatchery. 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 (Schrof and Aro 2007). 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.

KRAA has implemented a cost recovery program in recent years. The cost recovery program supersedes the common property fishery and in effect closes the commercial salmon fishery for those sections surrounding the Kitoi Bay Hatchery (Inner Kitoi Bay, Outer Kitoi Bay, Izhut, and Duck Bay sections) until the harvest goal is met.

Within the Southeast Afognak Section, the Afognak Lake system can produce significant runs of wild sockeye, pink, and coho salmon. The Eastside Afognak MP 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. Since 2001, however, 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 2005, subsistence fishing was allowed throughout the season. While sockeye salmon escapement was low, sufficient numbers of fish were counted through the Litnik River weir and the lower range of the escapement goal was met. In 2006, initial sockeye salmon escapements were again very low, and State and Federal managers were again prompted to close a portion of the Afognak Bay to subsistence fishing on July 1, 2006. In 2007, closed waters were again increased in order to allow sufficient escapement of sockeye salmon. Additional information regarding this MP can be found in Appendices F1 through F3.

Eastside Kodiak Salmon Management Plan (5 AAC 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 MP into regulation, governing the commercial salmon fisheries of the Eastside Kodiak (Appendix A7) and Northeast Kodiak districts (Appendix A8). 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. 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 Sportfish Division maintains a weir on the Buskin River from May through September, so an accurate record of escapements is made each year. The Saltery system sockeye salmon run is targeted by commercial and sportfisheries. Sportfishing on the Saltery system was experiencing a marked increase in sport fishing effort up to 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. Since 2004, escapements have been documented using aerial surveys.

Sportfish harvests have declined since the Saltery Creek weir was no longer funded. KRAA also utilizes the Saltery sockeye salmon stock to procure eggs for stocking projects. Additional information regarding this MP can be found in Appendices G1 through G3.

North Afognak/Shuyak Island Salmon Management Plan (5 AAC 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 A6) 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 251-41) 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 MP, 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 MP from July 6 to 25). Though no comprehensive regulatory MP 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. 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, coho, and pink 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. The Little Waterfall system is stocked with sockeye salmon. The Waterfall Bay Special Harvest Area (SHA; 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 SHA (statistical area 251-41; 5 AAC 18.375) to harvest sockeye salmon returning from stocking of Hidden Lake. Additional information regarding this MP can be found in Appendices H1 through H4.

Mainland District Salmon Management Plan (5 AAC 18.369).

The streams of the Alaska Peninsula portion of the KMA (the Mainland District; Appendix A5) 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 MPs). 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 MP. 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 the sections throughout the fishing season, while also recognizing that the Cape Igvak Salmon MP is in effect from June 1 through July 25 and the North Shelikof Strait Sockeye Salmon MP is in effect from July 6 through 25. Additional information regarding this MP can be found in Appendices I1 and I2.

Spiridon Bay Sockeye Salmon Management Plan (5 AAC 18.366).

Within the Northwest Kodiak District, juvenile sockeye salmon have been stocked into Spiridon Lake (Figure 2; Appendix A3) 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. The BOF adopted the Spiridon Bay Sockeye Salmon MP in January of 1993. This plan defines a SHA 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 SHA to include only those waters in Telrod Cove. The Spiridon Lake Sockeye Salmon MP provides for the full utilization of sockeye salmon returns from the Spiridon Bay 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 2007 (Honnold and Schrof 2001; Schrof and Byrne 2007). Currently, the timing of the run has coincided with the late-run sockeye 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 SHA, fishing periods are 24 hours per day, coordinated when possible with openings in the Northwest Kodiak District.

Crescent Lake Coho Salmon Management Plan (5 AAC 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 (Schrof and Aro 2007). Since returning coho salmon aren’t able to traverse above a barrier fall in Crescent Creek, this fishery 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 MP 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.

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. 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 MPs 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. Beginning in 2003, earlier sockeye

salmon run timing along with strong returns prompted KMA managers to open commercial salmon fishing at an earlier date (June 5). In 2005, the board changed the potential opening date to June 1, allowing managers more flexibility in an attempt to control the early-run sockeye salmon to the Karluk system (Wadle 2007).

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 MPs for the KMA.

Another basic element of current management is, whenever possible, to coordinate specific fisheries to occur simultaneously to distribute effort (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 is dependent on ensuring specific escapement requirements or based on meeting allocative requirements specified in a regulatory MP. 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 Districts;

(2) Two limited (33 hour) fishing periods in June for selected minor sockeye salmon runs;

(3) Special 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 8). 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 incidentally during fisheries that are directed toward sockeye and/or pink salmon.

The June 1 initial potential opening date is specified in the Alitak District MP, Westside Kodiak MP, Eastside Afognak MP, and North Afognak/Shuyak Island Salmon MP. June 9 had been the earliest opening date for the traditional fishing sections of the Alitak District (the Cape Alitak, Alitak Bay, Moser Bay and Olga Bay Sections), but a modification of the Alitak District MP at the January 2003 BOF meeting specified that fishing in those sections may begin as early as June 1 (5 AAC 18.361 (b)). 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, two of the minor sockeye salmon systems, all Chinook salmon systems, and few major pink salmon systems are monitored by ADF&G staff at fish weirs (Figure 2). Weirs are used on only six 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 count[7]. 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 areawide escapement[8] (Caldentey 2007 a).

PROSECUTING AND MONITORING COMMERCIAL FISHERIES

[7] Beginning in 2004, ADF&G biologists have used timed counts to estimate pink salmon escapement into the Karluk River.

[8] 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 shorter stream life of pink salmon and successive waves of escapement. 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.

Prior to the mid 1970s, fishing periods were set by regulation and any inseason changes, such as closures, were announced by 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 authors 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. Fish ticket summaries are made inseason and compared to previous verbal reports in order to refine the catch estimate to date.

Additional inseason information on returning sockeye salmon run strength in the Alitak District (the Frazer and Olga Lake stocks) was obtained from an ADF&G test fishery in Olga Narrows through 2006 after which the project was discontinued due to lack of funding. While the project was in operation, a 50 fathom gillnet was fished each day for a set time in a set location. Results were then compared with past data on test fishery catches versus actual salmon runs to help predict the number of salmon passing through Olga Narrows (M. B. Foster, Fishery Research Biologist, ADF&G, Kodiak, personal communication.) This was a valuable management tool as well as an important research project and an unfortunate loss of another project.

Subsistence Salmon Fishery

Subsistence salmon permits, available to Alaska residents, are issued annually. Subsistence users 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 (5 AAC 01.525).

Reported harvests have averaged 37,709 salmon for the previous 10-year period 1997 through 2006 (Table 9). Sockeye salmon accounting for the majority of the harvest (78%) followed by coho salmon (16%). The most utilized subsistence fishery areas include the north end of Kodiak Island (Buskin, Saltery and Pasagshak). The southeast side of Afognak Island (Litnik) was a large producer; however poor runs since 2004 have since reduced subsistence opportunity.

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 SFD 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 2007 sport fishing harvest estimates are not available, but harvest estimates are current to 2006. The recent 10-year (1997 – 2006) estimated average annual Kodiak Archipelago sport harvest[9] was 60,140 salmon (Table 10). Sport fish effort, as measured by angler days, has increased in the Kodiak regulatory area (Schwarz et al. 2002).

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 incidentally in fisheries targeting sockeye and pink salmon.

Beginning in 2005, Chinook salmon escapements into the Ayakulik River have suffered a significant decline when compared to the previous ten year average (1995 – 2004; 16,705 fish). In 2005, Chinook salmon escapement (8,340 fish) met the established goal range (4,800 – 9,600 fish; Nelson et al. 2005); however, it was about one-third the previous year escapement (24,830 fish). The 2006 season represented the lowest Chinook salmon escapement (3,106 fish) since 1980 and was below the current escapement goal range. Chinook salmon escapement improved in 2007 (6,535 fish) and once again met the escapement goal range (Appendix J1). During years of low Chinook salmon returns to the Karluk and Ayakulik systems, KMA managers implement the regulation 5 AAC 18.395 which directs commercial fishermen to release unharmed all Chinook salmon over 28 inches in length. This provision affects the Inner and Outer Karluk sections and the Inner and Outer Ayakulik sections.

[9] These represents estimates of fish landed and kept, and does not include estimates of catch and release.

The Karluk River Chinook salmon escapement has also seen a general decline (Appendix J1). In 2005, the Chinook salmon escapement through the Karluk weir (4,798 fish; Figure 6) was within the current escapement goal range (3,600 – 7,300 fish; Nelson et al. 2005). The Karluk River Chinook salmon have had two consecutive years of poor escapement. In 2006, sufficient escapement was counted through the Karluk weir (4,112 fish; Figure 6). However, the subsequent sportfish harvest of 564 Chinook salmon (includes hook and release mortality) above the Karluk River weir resulted in the total escapement of Chinook salmon (3,548 fish) falling below the current lower escapement goal (3,600 fish). In 2007, it was apparent that the Chinook salmon return was weak. A total of 1,765 Chinook salmon were counted through the Karluk River weir and with an estimated sport fish harvest of 221 fish, the resulting spawning escapement totaled 1,544 fish, well below current escapement goals.

Chinook salmon harvests have remained relatively stable for the subsistence and commercial fisheries (Tables 4 and 11; Figure 7). The sportfish harvest of Chinook salmon has increased substantially (Table 10). The KMA commercial harvest of Chinook salmon during 2005 was 14,411 fish, in 2006 20,283 fish were harvested and in 2007 a total of 17,222 fish were delivered. The reported subsistence fishery annual harvest averages 395 Chinook salmon (1997-2006; 2007 catch estimates are not yet available; Table 9). The KMA sport harvest of Chinook salmon during 2005 (9,300 fish) and 2006 (11,821 fish) are well above the previous 10-year average (1997-2006; 7,979 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 (Blackett 1979). 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 1 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 mid August. The Ayakulik sockeye salmon run starts in June but also has a more protracted run timing that continues into mid August. With few exceptions, the overall escapement goals for these four major systems have been achieved annually since 1988 (Appendices J2 to J7).

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 Kaflia 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 but rather by subsistence and sport fisheries. 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 salmon runs in certain years, but are highly variable in annual production.

In recent years, KMA sockeye salmon stocks have had relatively lower returns than the recent ten year average. The 2005, 2006, and 2007 annual KMA sockeye salmon escapements (1,529,881 fish, 984,658 fish, and 1,280,535 fish) are below the 1998-2007 average of 1,654,694 fish (Table 8; Figure 8).

In 2005, the Karluk River sockeye salmon escapement run timing began significantly earlier than in past years. Early-run escapements have exceeded the escapement goal from 1998-2005 and 2007 (Appendix J2). Early and extended commercial fisheries have been implemented in June and July; however, the upper escapement goal (210,000 fish; Nelson et al. 2005) was ultimately exceeded on June 23. By July 15, the 2005 early-run sockeye salmon escapement totaled 268,301 fish (Table 2; Spalinger 2006). The 2006 early-run Karluk sockeye salmon escapement of 200,641 fish is the only year to fall within the current escapement goals since 1989, the escapement typically exceeds the upper escapement goal. The 2007 sockeye salmon run timing was later than the previous two years. However, the minimum escapement goal of 100,000 fish was met and exceeded by June 11 (Caldentey 2007 a). The upper escapement goal was exceeded ten days later on June 21. The 2007 early-run total escapement of 279,390 sockeye salmon was well below the previous ten year average (1997-2006) of 326,747 fish but still exceeded the upper escapement goal (Caldentey 2007 a)

The late-run Karluk sockeye salmon escapement goal (170,000 to 380,000 salmon from July 16 through September; Nelson et al. 2005) has been consistently met or exceeded since 1985. For most years, the upper escapement goal has been exceeded including 2005 (433,661 fish). However, both the 2006 (289,732 fish) and 2007 (267,185 fish) escapements were within the escapement goal ranges (Appendix J3). Late Karluk sockeye salmon hold in the 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.

Ayakulik sockeye salmon runs have been somewhat weak in recent years. Ayakulik sockeye salmon escapements have met the lower end of the escapement goal range (200,000 to 500,000 fish; Nelson et al. 2005) eight out of the previous ten years (1998 - 2007), and has not exceeded the upper end of the escapement goal since 1998 (Appendix J4). The recent Ayakulik run timing, appears to be more protracted and later than previous years. There was no commercial salmon fishing time targeting sockeye salmon in the Inner or Outer Ayakulik Sections in 2005 or 2006. Some incidental harvests of sockeye salmon occurred in 2006 during a late season coho salmon targeted fishery. In 2007, sockeye salmon came back stronger than forecast with sufficient escapement to allow short commercial openings. The total Ayakulik sockeye salmon escapement was estimated at 251,906 fish in 2005, 87,780 fish in 2006, and 283,042 fish in 2007 (Table 2; Caldentey 2007 a).

Frazer (Dog Salmon Creek) sockeye salmon runs have been variable. Frazer sockeye salmon escapements have essentially met or exceeded the current goal (70,000 to 150,000 sockeye by July 25; Nelson et al. 2005) each year since 1998 (Appendix J5). Frazer sockeye salmon run timing was very early in 2005. In 2006 and 2007, the Frazer sockeye run began later than normal and was weak through June; however, escapements picked up in July allowing for limited commercial fishing time. The 2007 Frazer sockeye salmon run had an unusually high percentage of jack salmon (1-ocean, predominantly male salmon), constituting over 50% of the escapement (Dinnocenzo *in prep*). The Frazer sockeye salmon escapement was estimated at 136,948 fish in 2005, 89,516 fish in 2006, and 120,186 fish in 2007 (Table 2).

Upper Station sockeye salmon runs have also been variable. The 2005 early-run sockeye salmon escapement was strong and liberal fishing time was allowed in the Alitak District. However, the 2006 and 2007 early-run Upper Station sockeye salmon escapement was weak and little to no fishing time was prosecuted. The optimal escapement goal (25,000 through July 15; Nelson et al. 2005) has been met for the last ten years (Table 2; Appendix J6). The run timing appeared to be later than recent previous years in both 2006 and 2007 for the Upper Station early-run sockeye salmon. The early-run Upper Station sockeye salmon escapement was estimated at 60,349 fish in 2005, 24,997 fish in 2006, and 31,895 fish in 2007. In the previous 10 years (1998-2007) the late-run Upper Station sockeye salmon escapement goal (120,000 to 265,000 sockeye salmon after July 16; Nelson et al. 2005) has been met, except in 2001 (Appendix J7). Likewise the 2005, 2006, and 2007 late-run sockeye salmon escapements through the Upper Station weir (156,402, 153,153, and 149,709 fish) met escapement goals (Appendix J7; Caldentey 2007 a).

Minor sockeye runs are generally early to mid season in timing, and escapements are mostly measured by aerial survey. There are two minor systems, the Buskin and Litnik rivers, which are monitored by weirs. The Buskin River system has experienced strong sockeye salmon runs in recent years (Table2; Appendix J8). The Buskin River sockeye salmon escapement through the weir, in 2005 was 15,468 sockeye salmon, in 2006 was 17,734 sockeye salmon, and in 2007 was 16,502 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 J9). Escapements in the mid 1990s were very large. Beginning in 2001, sockeye salmon escapements began to return in numbers much lower than average. While the lower escapement goal (20,000 fish; Nelson et al. 2005) has been met in most years, except 2002 (19,520 fish) and 2004 (15,181 fish), fishing restrictions to commercial, sport, and subsistence fishing were necessary to achieve the lower goal. The Afognak Lake sockeye salmon escapement was estimated at 21,577 fish in 2005, 22,933 fish in 2006, and 21,070 fish in 2007. Strong sockeye salmon runs have also been documented in the Saltery, Pasagshak, Uganik, and Little River systems, though escapements have annual variability (Caldentey 2007 a).

KMA commercial sockeye salmon harvests have declined since 2005 (3,047,142 fish, Table 4; Figure 9). The estimated commercial harvest in 2006 was 1,583,816 sockeye salmon, which is the lowest harvest since the early 1980s. Commercial harvests increased in 2007 with 2,012,564 sockeye salmon which were still well below the previous 10-year (1998-2007) average commercial sockeye salmon harvest of 3,051,291 fish.

The supplemental production of sockeye salmon from KRAA projects (stockings and hatchery returns) contributed an estimated 206,860 sockeye salmon in 2005, 113,869 sockeye salmon in 2006, and 207,309 sockeye salmon in 2007 (Table 3; 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; KRAA does not mark any of their salmon).

The reported subsistence harvests were 27,664 sockeye salmon in 2005 and 22,985 sockeye salmon in 2006 (Table 9). The recent 10-year average annual subsistence harvest for the Kodiak area was 29,302 sockeye salmon (1997-2006; 2007 catch estimates are not yet available). In addition, fish taken legally in commercial fisheries may be kept by commercial fishermen as "home pack". The sockeye salmon reported as home pack was estimated at 4,432 sockeye salmon in 2005, 1,442 sockeye salmon in 2006, and 1,577 sockeye salmon in 2007 (Table 11). The estimated annual sport fish harvest has averaged 10,341 sockeye salmon (1997 to 2006; 2007 catch estimates are not yet available). The sport catch was estimated at 10,375 sockeye salmon in 2005 and 6,317 sockeye salmon in 2006 (Table 10).

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; however 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 heavily exploited systems along the Kodiak road system (Nelson et al. 2005). Most escapement surveys 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. Currently, coho salmon escapement goal ranges are in place in only a few KMA systems and include the Buskin (3,200 – 7,200 fish), American (400 – 900 fish), Olds (Sid Olds; 1,000 – 2,200 fish), and Pasagshak (1,200 – 3,300 fish), systems (Table 2). These systems are located on the Kodiak road system and escapements are annually estimated using walking stream surveys. The current goals were established in 2005 and since then, goals have been met in most years although with annual variability some systems have been under the escapement goal (Table 2).

The total KMA coho salmon escapement was estimated at 107,764 coho salmon in 2005, 64,864 coho salmon in 2006, and 49,273 coho salmon in 2007 (Table 8). The trend of decreasing escapement is related to fewer late season escapement surveys, fewer weirs, and reduced weir operational time, not necessarily a decline in production (Figure 10). The 10-year (1998-2007) average escapement was 132,114 coho salmon (Table 8).

Coho salmon harvests have been variable in recent years (Tables 4, 9, 10, and 11; Figure 11). During the 2005 season the commercial harvest was 396,030 coho salmon; in 2006, a total of 553,524 coho salmon were harvested (the highest harvest on record), and in 2007 356,063 coho salmon were harvested (Table 4). The recent 10-year average (1998-2007) commercial catch was 409,412 coho salmon. Increased late season harvests may in part be attributed to higher exvessel values and improved markets for coho salmon. Commercial harvests in fisheries associated with

the Kitoi Bay Hatchery contributed approximately 151,729 coho salmon in 2005, 168,205 coho salmon in 2006, and 125,781 coho salmon in 2007 (Table 3). The number of coho salmon reported as home pack from commercial fisheries was estimate at 811 fish in 2005, 2,786 fish in 2006, and 520 fish in 2007 (Table 11).

The reported subsistence harvests were 7,703 coho salmon in 2005 and 6,640 coho salmon in 2006 (Table 9). The recent 10-year average annual subsistence harvest for the Kodiak area was 6,147 coho salmon (1997-2006; 2007 catch estimates are not yet available). The estimated annual sport fish harvest has averaged 31,920 coho salmon (1997 to 2006; 2007 catch estimates are not yet available), the sport catch for 2005 (42,950 coho salmon) and 2006 (32,190 coho salmon) were above this average (Table 10).

PINK SALMON

All salmon streams within the KMA support pink salmon runs. Pink salmon represent the foundation of Kodiak salmon production, and in some years 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 have been larger during even numbered years.

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 MPs are retained (to ensure adequate escapement) and adverse environmental conditions do not persist. Pink salmon escapement goals are expressed as areawide aggregates, and include the Kodiak Archipelago (all districts for both Kodiak and Afognak islands) and the Mainland District (Table 2; Nelson et al. 2005). Management may have individual objectives for some streams and apply those objectives for specific management concerns. The Kodiak Archipelago pink salmon escapement goals have been within the SEG range for the previous three years (2005-2007; Table 2). The total pink salmon escapements for the Kodiak Archipelago were estimated at 3,688,158 fish in 2005 , 5,086,372 pink salmon in 2006, and 2,208,678 pink salmon in 2007 (Figure 12). The 2005 escapement estimate for pink salmon within the Mainland District was slightly under the current escapement goal range. The total pink salmon escapements were estimated at 226,450 fish in 2005, 778,200 fish in 2006, and 315,000 fish in 2007 (Table 2).

Pink salmon harvests have been at historically high levels in the commercial fisheries, with seven of the top 10 commercial harvests occurring since 1998 (Tables 4; Figure 13). The 2005 pink salmon harvest (30,139,434 fish) was the fourth highest pink salmon harvest on record. In 2006 a new record for even-year pink salmon harvests was set (31,693,347 fish; Table 4) and was the third highest harvest documented in the KMA. The 2007 pink salmon harvest was another exceptional year with 24,809,213 landed pink salmon (Table 4). The average of the past five odd-year (1999-2007) commercial harvests was 20,095,924 pink salmon. The most recent five even-year average (1998-2006) commercial harvest was 20,690,329 pink salmon (Table 4). The Kitoi Bay Hatchery has become very successful at producing pink salmon, and contributes significantly to the KMA pink salmon harvest. The Kitoi Bay Hatchery pink salmon contribution to the KMA commercial harvest was estimated at 13,603,742 fish (a new record) in 2005, 4,153,109 fish in 2006, and 7,884,867 fish in 2007 (Dinnocenzo et al. 2006).

The reported subsistence harvests were 2,350 pink salmon in 2005 and 1,827 pink salmon in 2006 (Table 9). The recent 10-year average annual subsistence harvest for the Kodiak area was

1,499 pink salmon (1997-2006; 2007 catch estimates are not yet available). The estimated annual sport fish harvest has averaged 9,334 pink salmon (1997-2006; 2007 catch estimates are not yet available), and the sport catch for 2005 (11,500 pink salmon) and 2006 (10,495 pink salmon) were above this average (Table 10).

CHUM SALMON

Chum salmon are present in at least 150 streams of the KMA (Table 1). Kodiak chum salmon production has been variable, and within the previous 10 years (1998-2007) the KMA harvest has seen chum harvests as low as 477,416 fish (2005) and as high as 1,194,414 fish (2000; Table 4; Figure 14). 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 considered 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 by district, though management may have individual objectives for some streams (Nelson et al. 2005). Currently, there are six chum salmon escapement goals and include all districts, except the Afognak District (Table 2; Nelson et al. 2005).

The total KMA chum salmon commercial harvest in 2005 was 477,416 fish, in 2006 was 1,081,989 chum salmon, and in 2007 was 728,912 chum salmon (Table 4; Figure 15) The 10-year average (1998-2007) commercial harvest is 869,010 chum salmon. The Kitoi Bay Hatchery has become very successful at producing chum salmon, and contributes significantly to the KMA commercial harvest. The Kitoi Bay Hatchery chum salmon contribution to the KMA commercial harvest was estimate at 91,814 fish in 2005, 177,548 fish in 2006 , and 210,699 fish in 2007 (Dinnocenzo et al. 2006).

The reported subsistence harvests were 592 chum salmon in 2005 and 441 chum salmon in 2006 (Table 9). The recent 10-year average annual subsistence harvest (1997-2006) for the Kodiak area was 367 chum salmon (2007 catch estimates are not yet available). The estimated annual sport fish harvest has averaged 567 chum salmon (1997-2006; 2007 catch estimates are not yet available), and the sport catch for 2005 (780 chum salmon) and 2006 (482 chum salmon) bracketed this average (Table 10).

2005 TO 2007 COMMERCIAL SALMON FISHERY SUMMARIES

Escapement and harvest are contained in the previous sections describing salmon stock status. Brief summaries of the inseason activities for the 2005, 2006, and 2007 seasons, along with additional information such as effort and exvessel values, are below.

2005

The 2005 KMA commercial salmon fishery began on June 1 and the last commercial landing occurred on September 29. Commercial salmon fishing effort was again low (Table 5; Figure 3). Of 608 available Kodiak commercial salmon fishing permits, only 300 were fished. By gear

type, a total of 135 purse seine and 165 set gillnet permit holders fished; there was no participation by beach seine fishermen in 2005.

The sockeye salmon harvest (3,047,142 fish; Table 4) was above forecast (2,611,000 fish; Dinnocenzo et al. 2006; Brennan et al. 2005). Karluk early-run sockeye salmon were strong and came in early. The initial commercial fishing period was June 1. Karluk sockeye salmon escapement quickly surpassed the early-run escapement goal (100,000-210,000 sockeye salmon by July 15; Nelson et al. 2005). Continuous fishing was allowed along the westside and in the Outer Karluk Section from June 1 through July 10 (the end of the first pink salmon period) and the terminal Inner Karluk Section was opened to continuous fishing from June 22 through July 10. The sockeye salmon run to the Ayakulik system experienced another weak return. Virtually no commercial fishing time was directed towards this major system. Both the early-run Upper Station and Frazer systems had sufficient escapement of sockeye salmon to allow commercial fishing periods through July 15.

In 2005, the total pink salmon harvest (30,139,434 fish; Table 4) exceeded the forecast (18,185,100 fish) and was the third largest recorded pink salmon harvest in the KMA (Brennan 2005). Wild stock pink salmon harvests (16,535,152 fish) were much higher than expected, and the Kitoi Bay Hatchery contributed approximately 13,603,742 (Table 3) pink salmon to the common property harvest, well above the forecast (10,185,100 fish).

The estimated total exvessel value of the 2005 fishery was approximately $24.96 million (Table 12). Purse seine fishermen accounted for 90.4% of the total number of salmon harvested and averaged an estimated $136,088 per fished permit. Set gillnet fishermen accounted for 9.6% of the total number of salmon harvested and averaged an estimated $40,172 per fished permit (Dinnocenzo 2006).

Fish counting weirs were operated on seven systems in 2005 (Spalinger 2006). In addition, four different observers flew 23 aerial surveys, and seven observers made foot survey escapement estimates. For sockeye salmon systems nearly all of the desired escapements goals were met with the exception of the Pauls Lake system (Table 2). Because the Pauls Lake weir was discontinued, escapement estimates of sockeye salmon are acquired with aerial surveys. The Pauls system is exceedingly difficult to survey due to water conditions and dense vegetation along spawning streams. In effect, sockeye salmon escapements are likely much higher than the aerial survey estimates indicate.

2006

The 2006 KMA commercial salmon fishery began on June 1 and the last commercial landing occurred on September 27, 2006. Commercial fishing effort was again low, with less active permits than 2005 (Table 5; Figure 3). Of the 608 eligible Kodiak commercial salmon permits, only 285 made commercial landings. By gear type, a total of 131 purse seine and 153 set gillnet permit holders fished; there was one active beach seine permit in 2006 (Table 5).

Most sockeye salmon runs were weaker than expected. The sockeye salmon harvest (1,583,816 fish; Table 4) was less than the point forecast (2,099,200; Dinnocenzo et al. 2007; Wadle 2006). While the Karluk early-run sockeye salmon was stronger than forecast, the run appeared to be later than previous years. Intermittent commercial salmon fishing periods were employed early in the season until it became apparent the run was sufficiently strong enough for continuous fishing. Karluk sockeye salmon escapement met the early-run lower escapement goal on June 21

and was within escapement goal ranges (100,000-210,000 sockeye salmon by July 15; Nelson et al. 2005). The Alitak District systems were weaker than forecast and very little commercial fishing time was allowed throughout much of the commercial salmon season. The Ayakulik sockeye salmon run was very weak and did not achieve the minimum escapement goal. For the 2006 KMA season, there were no commercial fishing periods directed towards Ayakulik sockeye salmon.

While sockeye salmon did not return as predicted for 2006, pink and coho salmon harvests were at record levels and chum salmon harvests were well above average (Table 4).

The estimated total exvessel value of the 2006 fishery was approximately $25.78 million[10] (Table 12). Purse and beach seine fishermen accounted for 88.6% of the total number of salmon harvested and averaged $157,080 per fished permit (Dinnocenzo et al. 2007). The exvessel value for 2006 is the second highest value on record for purse seine permit holders (Table 12). Set gillnet fishermen accounted for 11.4% of the total number of salmon harvested and averaged $27,732 per fished permit (Table 12; Dinnocenzo et al. 2007).

Fish counting weirs were operated on six systems. In addition, three different observers flew 25 aerial surveys, and 4 observers made foot survey escapement estimates (Caldentey 2007 b). 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.

2007

The 2007 KMA commercial salmon fishery began on June 5 and the last commercial landing occurred on October 3, 2007. While commercial fishing effort increased slightly for the 2007 season, effort levels were still low (Table 5; Figure 3). Of the 608 eligible Kodiak commercial salmon permits, only 301 made commercial landings. By gear type, a total of 141 purse seine and 157 set gillnet permit holders fished; there were three beach seine permit holders that participated in the 2007 season (Table 5).

The sockeye salmon run strength improved slightly compared to the 2006 season. Most sockeye salmon systems seemed to be late, possibly due to colder than average temperatures early in the season. The sockeye salmon harvest (2,012,564 fish) was slightly above the point forecast (1,923,800 fish; Table 6; Wadle 2007). Karluk early-run sockeye salmon were again abundant. The initial commercial salmon fishing period was June 5. Karluk sockeye salmon escapement met the lower early-run escapement goal (100,000 sockeye salmon by July 15) on June 14, and by June 21 exceeded the upper goal (210,000 sockeye salmon by July 15; Nelson et al. 2005). Continuous fishing was allowed along the westside and in the Central, North Cape, and Outer Karluk sections starting June 12. The Inner Karluk Section opened to continuous fishing on June 16. The continuous fishing period ended in early July when the management focus turned to pink salmon. Alitak systems were weaker than expected. Little commercial fishing time was allowed through most of the season in the Alitak District (overall forecast 259,000 sockeye salmon, actual harvest approximately 85,469 sockeye salmon; Table 6). The sockeye salmon harvests

[10] 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 2007 KMA exvessel value.

associated with supplemental production from KRAA stocking projects were below projections (Table 6). The Ayakulik sockeye salmon run was expected to be weak; however, the sockeye salmon run proved to be stronger than forecast; the stronger than expected returns allowed for late July commercial salmon fishing periods. The Litnik sockeye salmon run was very weak and no commercial or sport fisheries were allowed. The subsistence fishery in the adjacent marine waters was closed for much of the 2007 season.

The estimated total exvessel value of the 2007 fishery was approximately $28.20 million[11], above the 1998-2007 average exvessel value of $24.3 million (Table 12). Purse seine fishermen accounted for 88.4% of the total number of salmon harvested and averaged an estimated $152,153 per fished permit (Table 13). This is a slight decrease from the 2006 estimated exvessel value, but is more than the previous 10-year average exvessel value ($109,266; 1998-2007) for purse seine permit holders. Set gillnet fishermen accounted for 11.5% of the total number of salmon harvested and averaged an estimated $41,068 per fished permit. This was an increase from last year and higher than the 1998-2007 set gillnet exvessel average of $38,427 (Tables 12 and 13).

Fish counting weirs were operated on six systems in 2007 (Figure 2). In addition, four different observers flew 20 aerial surveys, and five observers made foot and skiff survey escapement estimates.

[11] 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.

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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	0	8	32	116	47
Northeast Kodiak	26	0	1	20	26	9
Mainland	92	0	6	27	92	46
Total	440	3	39	174	440	150

[a] The streams identified in this table are depicted on the Kodiak Area Salmon Statistical Map (Revised May 2005), 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 2005-2007 estimated escapement, by species and district, in the Kodiak Management Area.

Species System (or group of systems)	Stream Number	Escapement Goal		Escapement Estimates		
		Lower	Upper	2005	2006	2007
Chinook						
Karluk[a]	255-101	3,600	7,300	4,798	4,112	1,765
Ayakulik[a]	256-201	4,800	9,600	8,340	3,106	6,535
Sockeye						
Malina	251-105	1,000	10,000	1,000	6,400	1,900
Pauls[b]	251-831	10,000	30,000	700	150	300
Afognak	252-342	20,000	50,000	21,557	22,933	21,070
Karluk	255-101					
Early run		100,000	210,000	268,301	200,641	279,390
Late run		170,000	380,000	433,661	289,732	267,185
Ayakulik	256-201	200,000	500,000	251,906	87,780	283,042
Upper Station	257-304					
Early run		30,000	65,000	60,349	24,997	31,895
Late run		120,000	265,000	156,402	153,153	149,709
Frazer	257-403	70,000	150,000	136,948	89,516	120,186
Buskin	259-211	8,000	13,000	15,468	17,734	16,502
Pasagshak	259-411	3,000	12,000	22,000	6,300	14,300
Saltery	259-415	15,000	30,000	28,500	28,000	17,200
Coho						
Buskin	259-211	3,200	7,200	10,976	13,348	9,001
American	259-231	400	900	339	2,033	307
Olds (Sid Olds)	259-242	1,000	2,200	2,495	1,912	868
Pasagshak	259-411	1,200	3,300	3,773	937	1,896
Pink						
index streams of the Mainland District		250,000	750,000	226,450	778,200	315,000
index streams of the Kodiak Archipelago		2,000,000	5,000,000	3,688,158	5,086,372	2,208,678
Chum						
index streams of the N.W. Kodiak District		53,000		49,650	41,800	42,010
index streams of the S.W. Kodiak District		7,300		2,561	21,423	3,387
index streams of the Alitak District		28,000		60,388	25,227	35,736
index streams of the Eastside Kodiak District		50,000		86,400	333,600	104,650
index streams of the N.E. Kodiak District		9,000		7,756	17,859	21,200
index streams of the Mainland District		153,000		37,500	346,140	87,350

[a] Escapement estimate based on weir escapement and does not include above the weir sport fish harvest and hook and release mortality.

[b] Discontinued weir project, subsequent escapement counts are derived from aerial surveys. Aerial surveys are difficult at best in this system.

Table 3.–Estimated commercial harvest of salmon from Kodiak Regional Aquaculture Association projects in the Kodiak Management Area, 1994-2007.

Year	Number of Salmon				
	Sockeye[a]	Coho[b]	Pink[c]	Chum[d]	Total
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
2005	206,860	151,729	13,603,742	91,814	14,054,145
2006	113,869	168,205	4,158,109	177,548	4,617,731
2007	207,309	125,781	7,884,867	210,699	8,428,656
Average					
1998-2007	358,544	147,747	6,895,502	197,366	7,599,159

Source: ADF&G fish ticket summaries.

[a] Includes harvest from the Kitoi Bay Hatchery, including Izhut Bay, Duck Bay, and Kitoi Bay sections (statistical areas 252-30 to -32 and 252-35) SHA harvests are from the returns to the Spiridon Lake project (in the Spiridon THA, 254-50, and adjacent sections), the Foul Bay SHA (251-41), the Waterfall Bay SHA (251-84), and the Settlers Cove SHA (259-35).

[b] Includes harvest from the Kitoi Bay Hatchery, including Izhut Bay, Duck Bay, and Kitoi Bay sections (statistical areas 252-30 to -32 and 252-35) and the Settlers Cove SHA (259-35).

[c] Includes harvest from the Kitoi Bay Hatchery, including Izhut Bay, Duck Bay, and Kitoi Bay sections (statistical areas 252-30 to -32 and 252-35).

[d] Includes harvest from the Kitoi Bay Hatchery, including Izhut Bay, Duck Bay, and Kitoi Bay sections (statistical areas 252-30 to -32 and 252-35).

Table 4.–Commercial salmon harvest by species in the Kodiak Management Area, 1882-2007.

Year	Number of Salmon					
	Chinook[a]	Sockeye[a]	Coho[a]	Pink[a]	Chum[a]	Total[a]
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	Number of Salmon					
	Chinook[a]	Sockeye[a]	Coho[a]	Pink[a]	Chum[a]	Total[a]
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
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

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Table 4.–Page 3 of 3.

Year	Number of Salmon					
	Chinook[a]	Sockeye[a]	Coho[a]	Pink[a]	Chum[a]	Total[a]
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
2005	14,411	3,047,142	396,030	30,139,434	477,416	34,074,433
2006	20,283	1,583,816	553,524	31,693,347	1,081,989	34,932,959
2007	17,222	2,012,564	356,063	24,809,213	728,912	27,923,974
Averages[b]						
1998-2007	19,037	3,051,291	409,412	20,393,127	869,010	24,741,876
Even Years, 1998-2006				20,690,329		
Odd Years, 1999-2007				20,095,924		
1882-2007	5,145	1,875,186	129,347	8,011,153	613,839	9,001,985
1948-2007	7,823	1,647,068	165,341	10,613,741	801,724	13,235,697
Even Years, 1948-2006				11,214,281		
Odd Years, 1949-2007				12,008,109		

Source: 1882-1947 data is from processors case pack information. 1948-2007 data is from ADF&G fish ticket summaries and is considered more accurate than previous data.

[a] Numbers do not include harvest from the ADF&G test fisheries or personal use (home pack).

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

Table 5.–Summary of limited entry permit activity in the commercial salmon fishery, by gear type, in the Kodiak Management Area, 1978-2007.

	Purse Seine		Beach Seine		Set Gillnet		Total		
Year	Available	Fished	Available	Fished	Available	Fished	Available	Fished	Percent
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	383	220	36	4	188	173	607	397	65
2000	384	223	36	2	188	173	608	398	65
2001	384	182	36	0	188	172	608	354	58
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
2005	384	135	36	0	188	165	608	300	49
2006	384	131	36	1	188	153	608	285	47
2007	384	141	36	3	188	157	608	301	49.5
Average - Previous 10 Years:									
1997-2006	384	180	36	1	188	160	608	342	56.2
Average[a] - Overall:									
1978-2007	385	267	35	13	188	168	609	448	74

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 6.–Projected versus actual 2007 commercial salmon harvest, by species and fishery, for the Kodiak Management Area.

	Chinook	Sockeye	Coho	Pink	Chum	Total
Projected Harvest 2007 [a]	20,000	1,923,800	434,500	12,162,000	1,019,400	15,559,700
Actual Harvest 2007 [b]	17,222	2,012,564	355,032	24,809,213	728,912	27,922,943

	2007 Harvest	
FISHERY	Projection [c]	Actual [b]
Early Sockeye Salmon Fisheries (6/1-7/15)		
Kitoi Bay Hatchery [d]	35,950	19,928
Cape Igvak [e]	111,700	58,363
Karluk [f]	355,000	527,704
Ayakulik [g]	20,000	0
Alitak Bay District [h]	186,000	19,322
Minor Systems [i]	30,000	32,330
Minor Enhancement [j]	10,100	703
Spiridon [k]	106,200	92,700
Other	100,000	37,883
Subtotal	954,950	788,933
Late Sockeye Salmon Fisheries (7/16-10/31)		
Kitoi Bay Hatchery [d]	35,950	15,335
Cape Igvak [e]	81,400	0
Karluk [f]	481,000	879,111
Ayakulik [g]	0	98,283
Alitak Bay District [h]	73,000	66,147
Minor Systems [i]	9,700	9,876
Spiridon [k]	247,800	78,641
Other	40,000	76,238
Subtotal	968,850	1,223,631
TOTAL SOCKEYE	1,923,800	2,012,564
Pink Salmon Fisheries		
Kitoi Bay Hatchery [d]	4,712,000	7,884,867
Afognak (non-hatchery) [l]	650,000	2,335,215
Westside Kodiak [m]	3,400,000	7,378,307
Alitak [n]	1,250,000	474,016
Eastside/Northend Kodiak [o]	1,500,000	6,119,466
Mainland [p]	650,000	617,342
Subtotal	12,162,000	24,809,213

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Table 6.–Page 2 of 3.

FISHERY	2007 Harvest Projection [c]	2007 Harvest Actual [b]
Chum Salmon Fisheries		
Kitoi Bay Hatchery [d]	415,000	210,699
Afognak (non-hatchery) [l]	24,200	30,676
Westside Kodiak [m]	235,600	169,797
Alitak [n]	36,300	47,931
Eastside/Northend Kodiak [o]	187,300	217,396
Mainland [p]	121,000	52,413
Subtotal	1,019,400	728,912
Coho Salmon Fisheries		
Kitoi Bay Hatchery [d]	149,400	125,781
Afognak (non-hatchery) [l]	42,800	26,561
Westside Kodiak [m]	145,400	138,773
Alitak [n]	11,400	2,456
Eastside/Northend Kodiak [o]	68,400	45,681
Mainland [p]	17,100	16,811
Subtotal	434,500	356,063
Grand Total [q]	15,559,700	27,923,974

[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.

[e] From the Cape Igvak Section. Early run is from the beginning of season through June 26. Late run is from July 8 through July 25.

[f] From the Southwest Afognak Section, Northwest Kodiak District (except for Spiridon and Settler Cove Special 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 District.

[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.

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[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 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 Special 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 Special 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 sections, and part of the Central Section (259-35 to 259-39).

[n] From the Alitak 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 2007 harvest of 20,000 Chinook salmon, and the actual harvest of 17,222 Chinook salmon.

Table 7.–Alaska Board of Fisheries approved salmon management plans for the Kodiak Management Area.

Management Plan	Year Initiated	Management Units Affected	Dates in Effect
Cape Igvak Salmon Management Plan	1978	Cape Igvak Section Wide Bay Section	6/1-7/25
Alitak District Salmon Management Plan	1987	Alitak District	6/1-10/31
Westside Kodiak Management Plan	1990	NW Kodiak District SW Kodiak District SW Afognak Section	6/1-10/31
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	6/1-10/31
Eastside Afognak Management Plan	1993	Southeast Afognak Section Kitoi Bay Section Izhut Bay Section Duck Bay Section Raspberry Strait Section	6/1-10/31
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	6/1-10/31
Mainland District Salmon Management Plan	1999	Mainland District	6/14 – 10/31

Table 8.–Salmon escapements, by species, in the Kodiak Management Area, 1975-2007.

Year	Number of Salmon					
	Chinook	Sockeye	Coho	Pink	Chum	Total
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
2005	13,488	1,529,881	107,764	3,914,608	244,255	5,809,996
2006	7,473	984,658	64,864	5,864,572	787,549	7,709,116
2007	8,441	1,280,535	49,273	2,523,978	294,342	4,156,569
Average - Previous 10 Years:						
1998-2007	20,967	1,654,694	132,114	5,364,912	549,389	7,722,076
Odd Years Only				3,802,171		
Even Years Only				6,927,653		
Average - Previous Decades:						
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
Average - Overall						
1978-2007	20,645	1,767,543	144,730	5,024,208	624,611	7,581,736

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 9.–Subsistence salmon fishery harvest from ADF&G permit reports, by species, for the Kodiak Management Area, 1978-2006.

Year	Permits Issued	Permits Returned	Percent Returned	Number of Salmon					
				Chinook	Sockeye	Coho	Pink	Chum	Total
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
2004	2,241	2,063	92	379	30,503	5,857	1,403	261	38,403
2005	2,290	1,958	86	434	27,664	7,703	2,350	592	38,743
2006	2,095	1,911	91	280	22,985	6,640	1,827	441	32,173
2007	not yet available								
Recent 10-year Average									
1997-2006	2,105	1,797	85	395	29,302	6,147	1,499	367	37,709
				1%	78%	16%	4%	1%	100%
Averages [b] - Previous Decades:									
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	973	618	64	81	8,808	3,770	3,024	453	16,053
Average [b] - Overall									
1970-2006	1,702	1,516	78	239	20,949	6,222	1,972	532	29,914

Source: 1981 and 1986 to 2006 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.

[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.

Table 10.–Estimated sport fish salmon harvest in the Kodiak regulatory area of the Kodiak Management Area, 1977-2006.

Year	Sport Harvest in Number of Salmon [a]					
	Chinook	Sockeye	Coho	Pink	Chum	Total
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
2004	11,263	7,884	46,101	7,476	599	73,323
2005	9,300	10,375	42,950	11,500	780	74,905
2006	11,821	6,317	32,190	10,495	482	61,305
Average - Previous 10 Years:						
1997-2006	7,979	10,341	31,920	9,334	567	60,140
Average - Previous Decades:						
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
Average - Recent 5 Year Periods						
2000-2004	8,520	11,858	33,533	8,087	639	62,637
1995-1999	4,227	9,116	21,290	9,951	576	45,160
1990-1994	2,796	7,539	15,747	8,627	625	35,334
Average - All Years						
1977- 2006	3,621	7,003	19,941	11,723	749	43,035

[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 11.–Retention of salmon taken in commercial salmon fisheries but not sold, by species, for the Kodiak Management Area, 1997-2007.

Year	Permits	Landings	Home Pack in Number of Salmon [a]					
			Chinook	Sockeye	Coho	Pink	Chum	Total
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
2005	16	37	54	4,432	811	4,385	11	9,693
2006	31	52	100	1,442	2,786	1,140	128	5,596
2007	13	25	26	1,577	520	2,246	8	4,377
Average:								
1997-2006	15	30.2	32.2	2,574	2,329	917	27	6,028

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 12.–Estimated commercial salmon harvest and value, by gear type, in the Kodiak Management Area, 1970-2007.

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 [b]	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	19,618,352	$16,681,878	$81,420	$30,475	$0
2004	27,247,798	$19,869,794	$97,397	$37,583	$0
2005	34,075,061	$24,961,468	$136,088	$40,172	$0
2006	34,933,291	$25,777,256	$157,080	$27,732	Confidential
2007	27,923,974	$28,195,069	$152,153	$41,068	$3,484
Average - Previous 10 Years:					
1998-2007	24,742,827	24,321,902	109,266	38,427	3,303
Average [c] - Previous Decades:					
1990-1999	21,283,657	$36,724,295	$94,175	$51,932	$7,549
1980-1988	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 [c] - Overall					
1970-2007	16,606,867	$26,602,785	$77,917	$34,948	$9,427

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

-continued-

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

[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 occured 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.

Table 13.–Commercial salmon harvest and value, by gear and species, in the Kodiak Management Area, 2007.

	Number of Salmon						
	Chinook	Sockeye	Coho	Pink	Chum	Total	%
Purse Seine							
Total # [a]	15,600	1,237,186	283,270	22,522,755	632,249	24,691,060	88.4
Avg. Wt.	9.38	5.55	7.36	3.61	7.76		
Total Lbs. [a]	146,335	6,869,407	2,084,623	81,329,272	4,909,287	95,338,924	86.7
Avg. $/Lb. [b]	$0.88	$0.88	$0.60	$0.16	$0.30		
Exvessel $	$128,774.80	$6,045,078.16	$1,250,773.80	$13,012,683.52	$1,472,786.10	$21,910,096.38	77.7
# of Permits = 144							
Average Value $	$894.27	$41,979.71	$8,685.93	$90,365.86	$10,227.68	$152,153.45	
Percent %	0.6	27.6	5.7	59.4	6.7	100.0	
Beach Seine							
Total # [a]	0	0	508	9,737	0	10,245	0.0
Avg. Wt.	0	0	7.92	3.9	0		
Total Lbs. [a]	0	0	4,022	37,948	0	41,970	0.0
Avg. $/Lb. [b]	$0.00	$0.00	$0.90	$0.18	$0.00		
Exvessel $	$0.00	$0.00	$3,619.80	$6,830.64	$0.00	$10,450.44	0.0
# of Permits = 3							
Average Value $	$0.00	$0.00	$1,206.60	$2,276.88	$0.00	$3,483.48	
Percent %	0.0	0.0	< 1.0	< 1.0	0.0	0.0	
Set Gillnet							
Total # [a]	1,622	775,378	72,285	2,276,721	96,663	3,222,669	11.5
Avg. Wt.	10.59	5.8	7.45	3.87	7.83		
Total Lbs. [a]	17,183	4,497,484	538,530	8,815,341	757,288	14,625,826	13.3
Avg. $/Lb. [b]	$1.17	$1.04	$0.48	$0.14	$0.34		
Exvessel $	20,104	4,677,383	258,494	1,234,148	257,478	6,447,608	22.9
# of Permits = 157							
Average Value $	$128.05	$29,792.25	$1,646.46	$7,860.81	$1,639.99	$41,067.56	
Percent %	0.3	72.5	4.0	19.1	4.0	100	
Total All Gear							
Total # [a]	17,222	2,012,564	356,063	24,809,213	728,912	27,923,974	100
Avg. Wt.	9.49	5.65	7.38	3.64	7.77		
Total Lbs. [a]	163,518	11,366,891	2,627,475	90,182,561	5,666,575	110,007,020	100
Avg. $/Lb. [b]	$0.89	$0.91	$0.60	$0.16	$0.30		
Exvessel $	$145,531	$10,343,871	$1,576,485	$14,429,210	$1,699,973	$28,195,069	100
% of Total Value	0.5	36.7	5.6	51.2	6.0	100	

[a] Numbers and pounds of fish are derived from ADF&G fish ticket summaries. There were 10,361 fish tickets generated in 2007; each ticket represents a landing. Each gear type had the following landings: Purse-4,805; Beach Seine-15; Set Gillnet-5,541. Does not include commercially harvested salmon retained but not sold, subsistence, or sport fishery harvests.

b Average price per pound figures are based on fish ticket information. Some fish ticket may not show price per pound figures. These average prices may not reflect payments made to fishers for refrigerated or iced fish, dock deliveries, or postseason settlements.

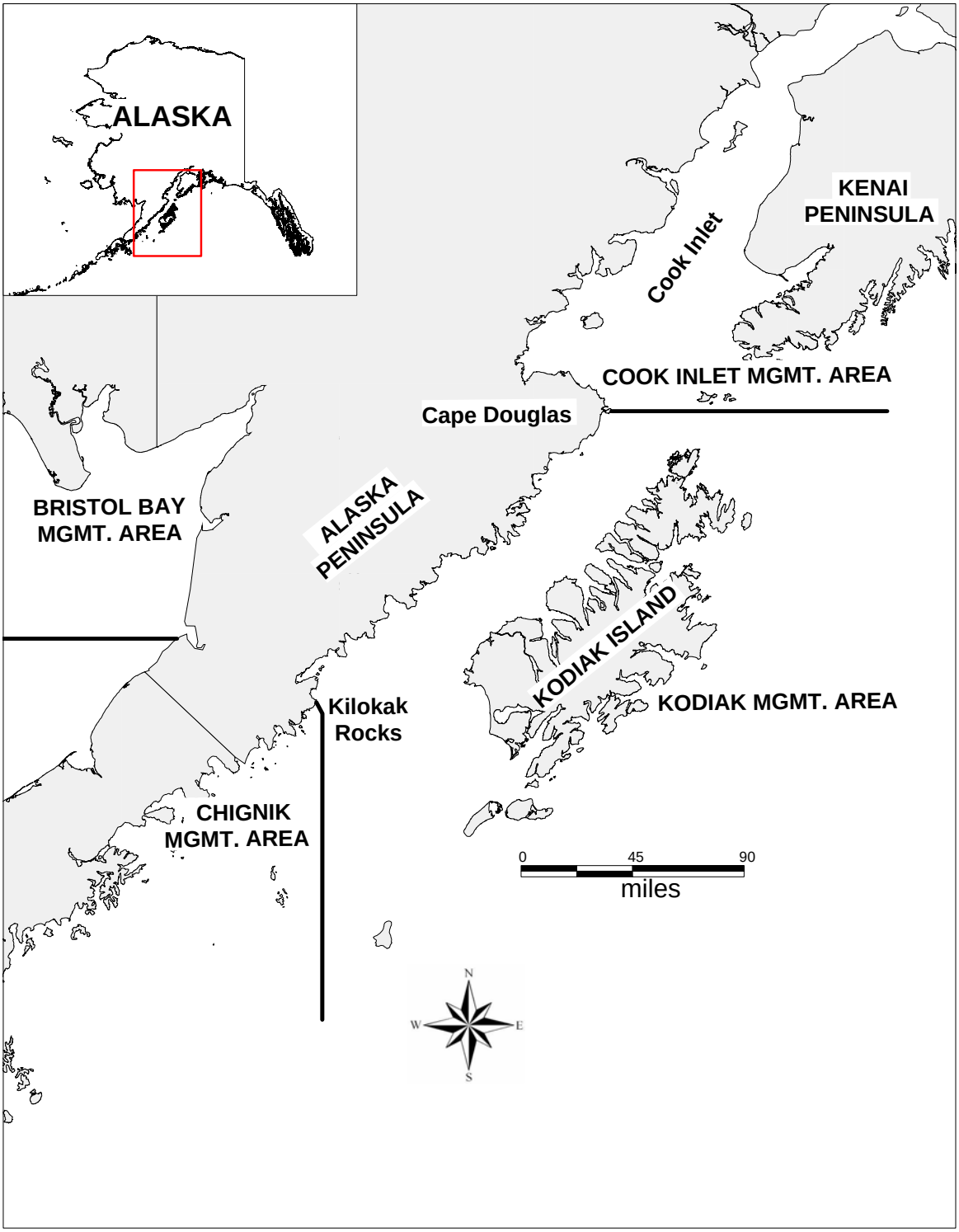


Figure 1.–Map of the location of the Kodiak Management Area and neighboring management areas.

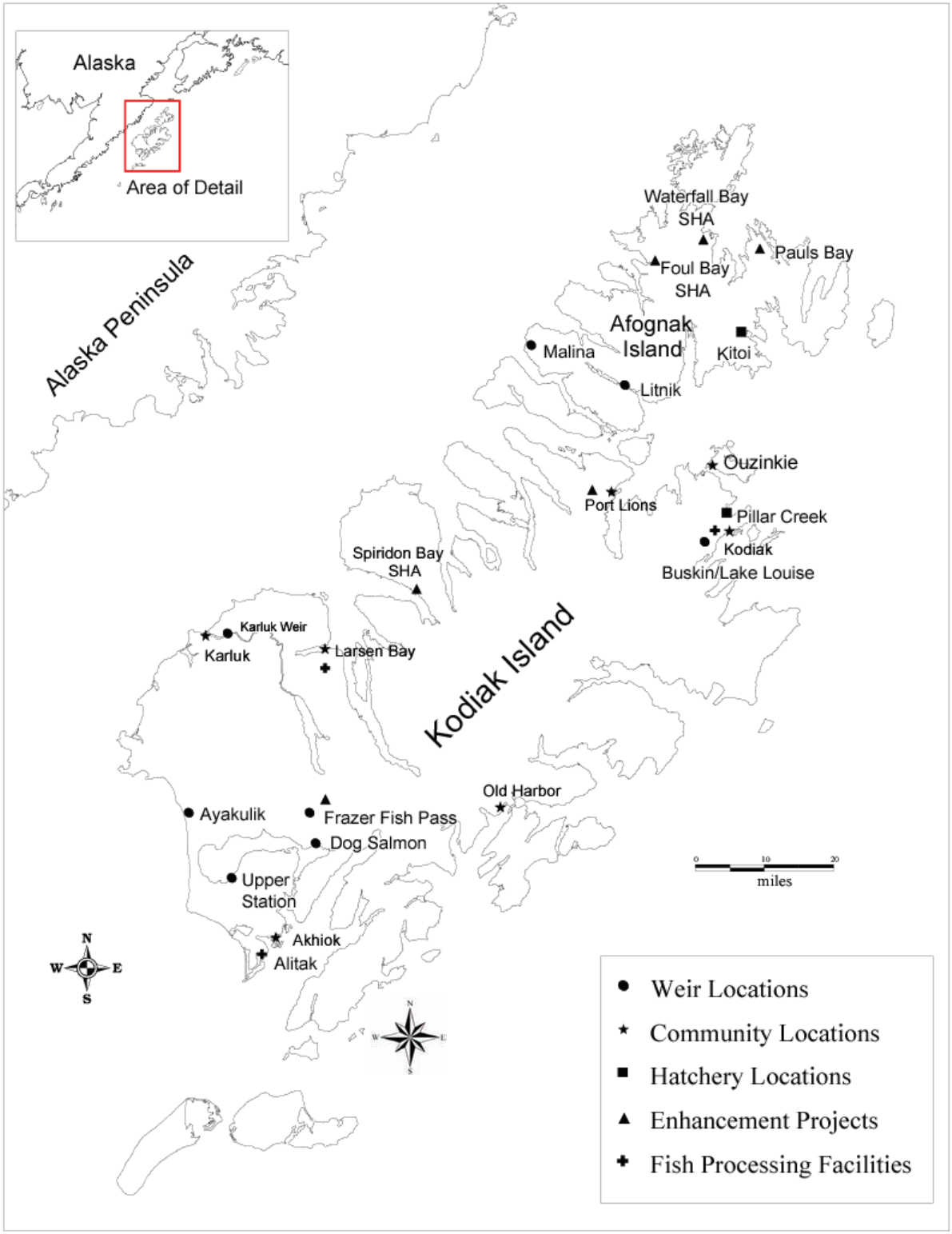


Figure 2.–Map of the Kodiak Archipelago showing communities, canneries, sockeye salmon enhancement, weir, and hatchery locations in the Kodiak Management Area 2005-2007.

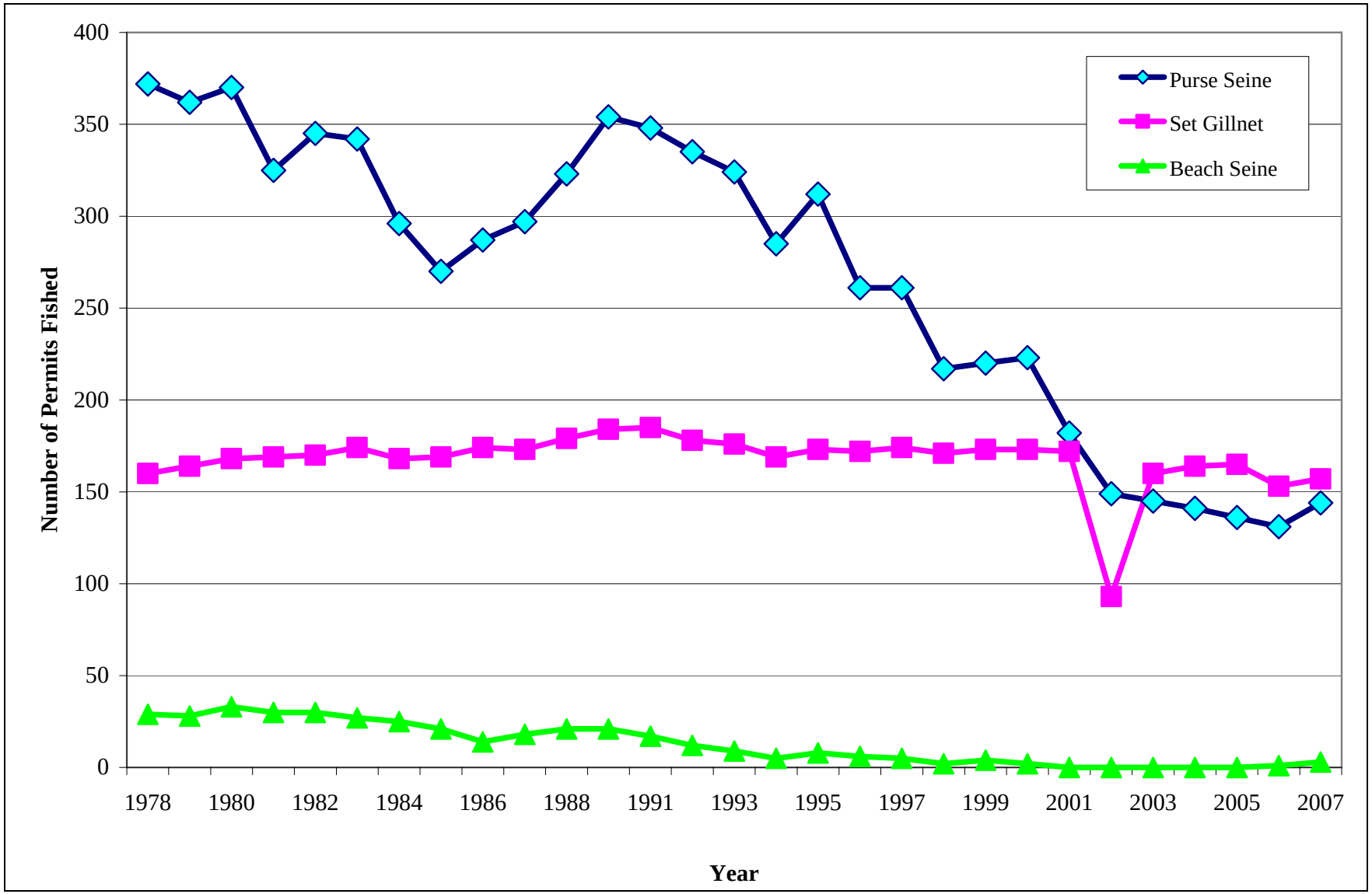


Figure 3.–Number of commercial salmon fishing permits fished by gear type, in the Kodiak Management Area, 1978-2007.

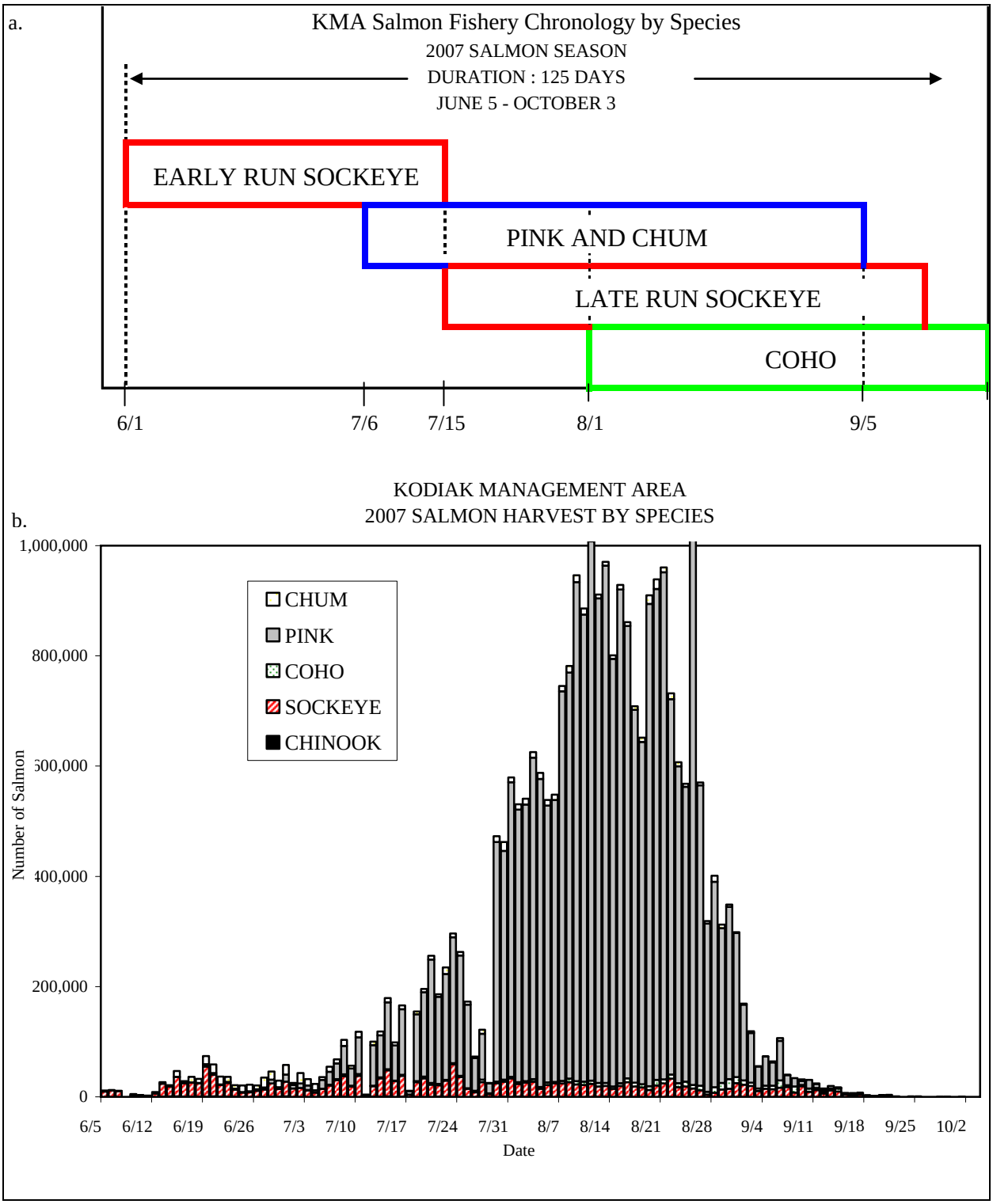


Figure 4.–Commercial salmon fishery chronology (a) and commercial harvest (b) by species, for the Kodiak Management Area.

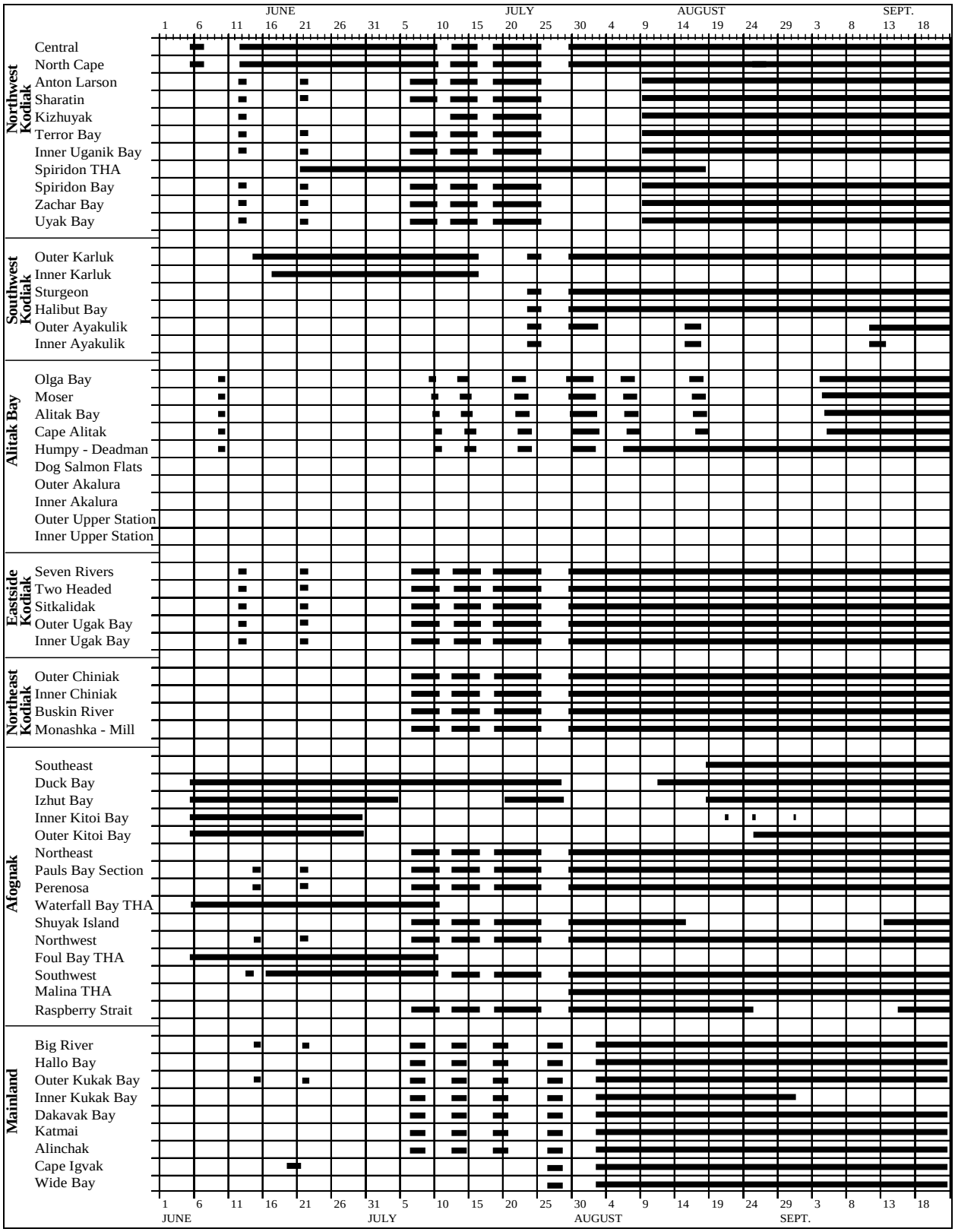


Figure 5.–Commercial salmon fishing time, by district and section, in the Kodiak Management Area, 2007.

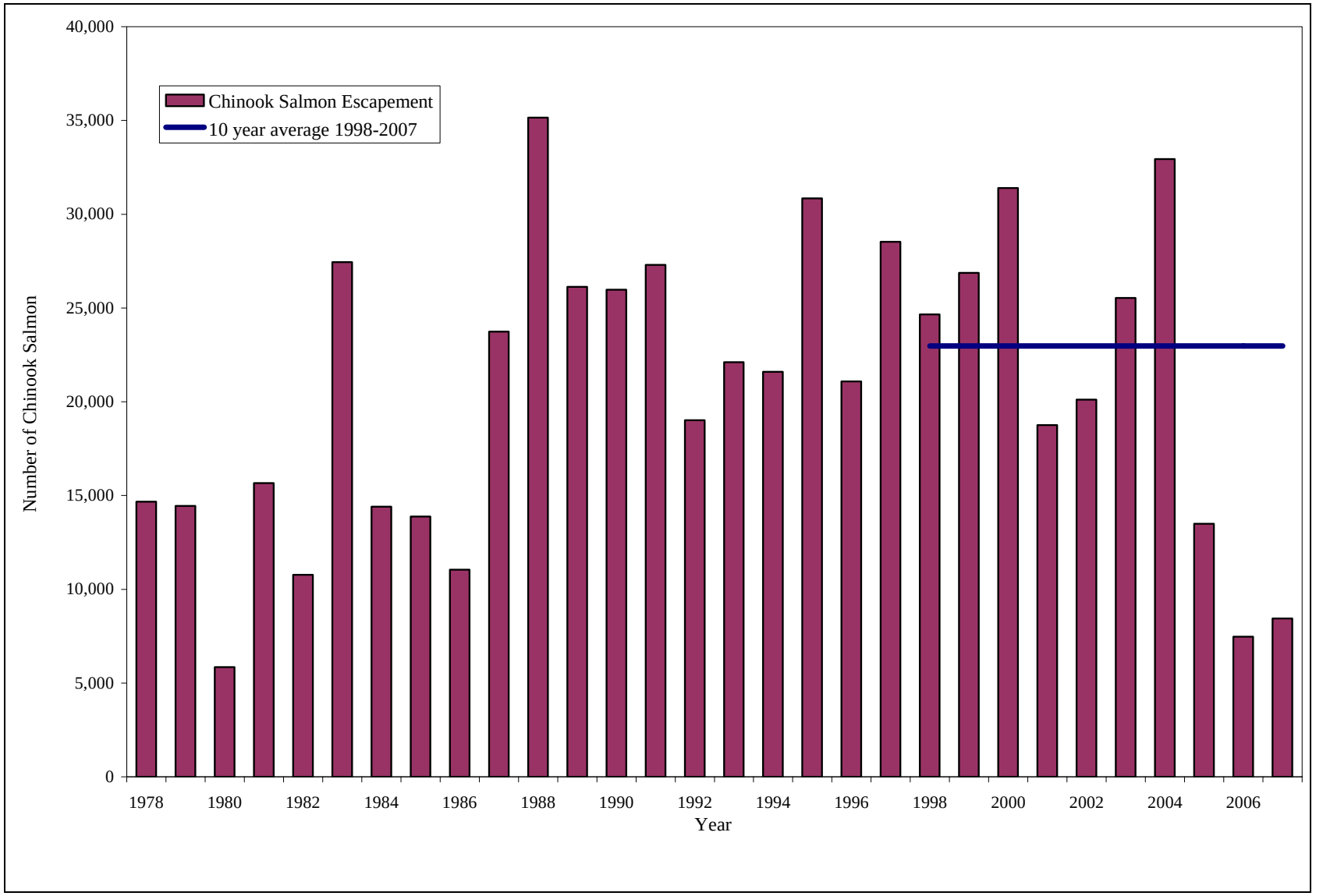


Figure 6.–Chinook salmon escapements in the Kodiak Management Area, 1978-2007.

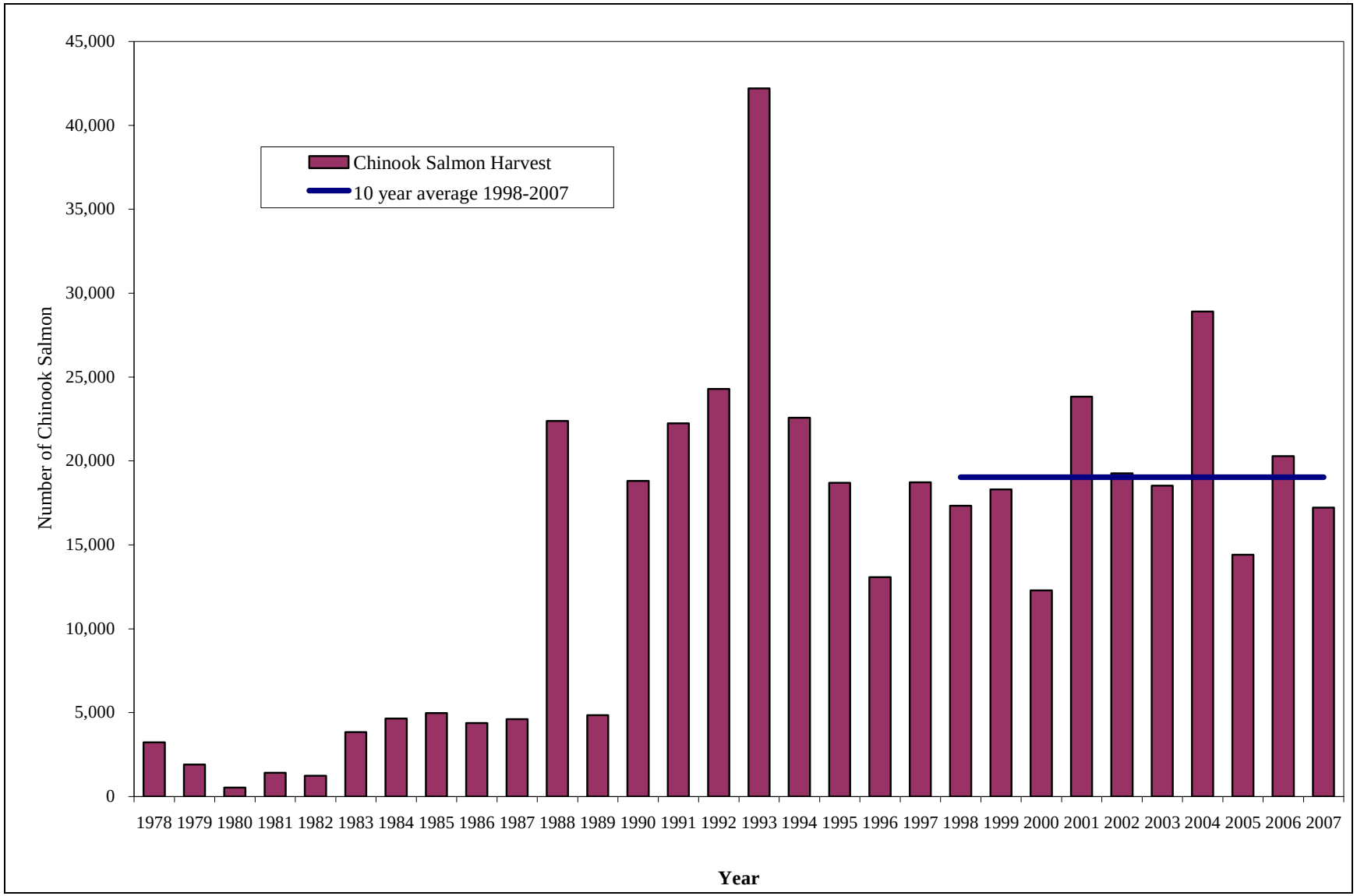


Figure 7.–Chinook salmon commercial harvest, all gear combined, in the Kodiak Management Area, 1978-2007.

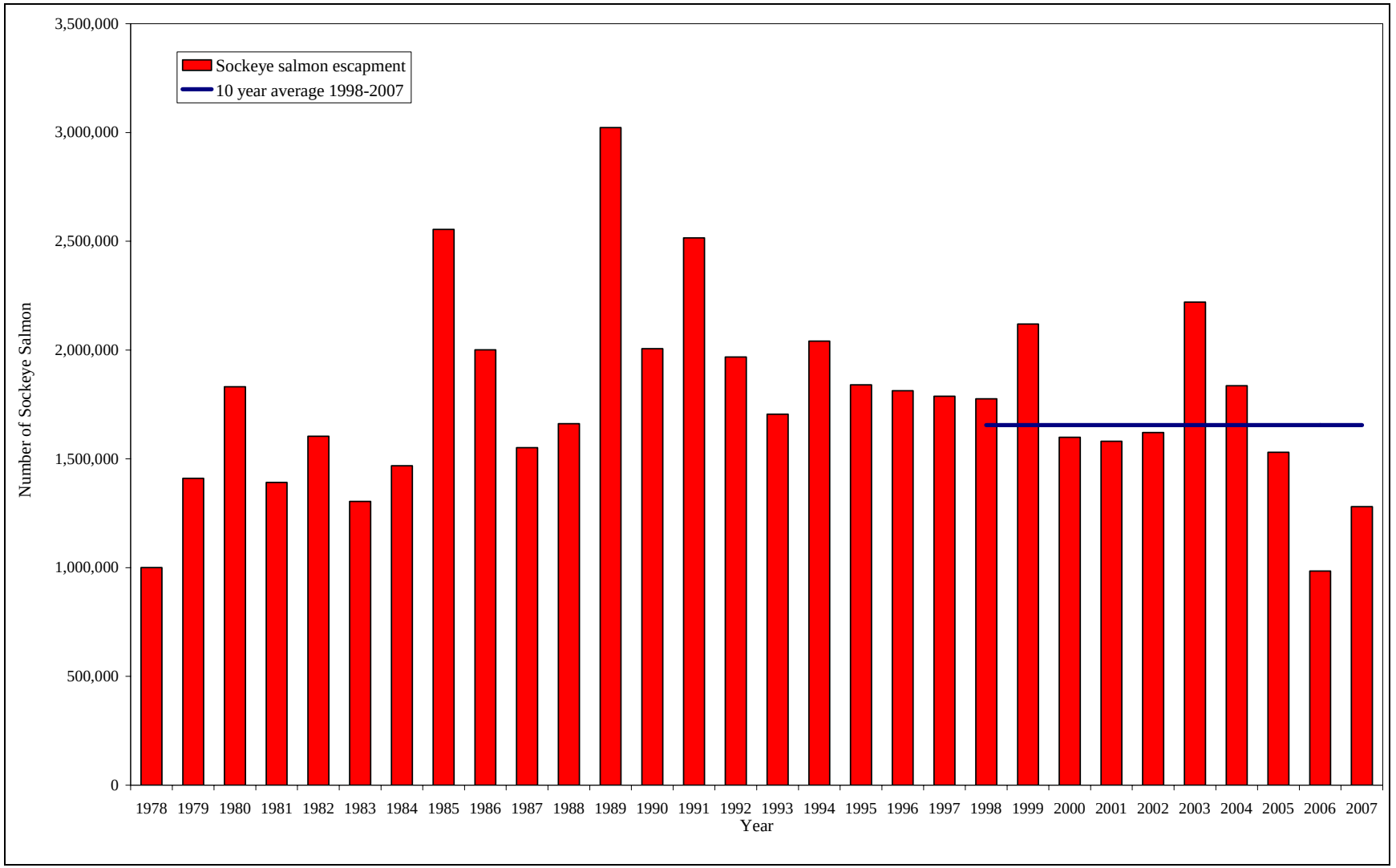


Figure 8.–Sockeye salmon escapements in the Kodiak Management Area, 1978-2007.

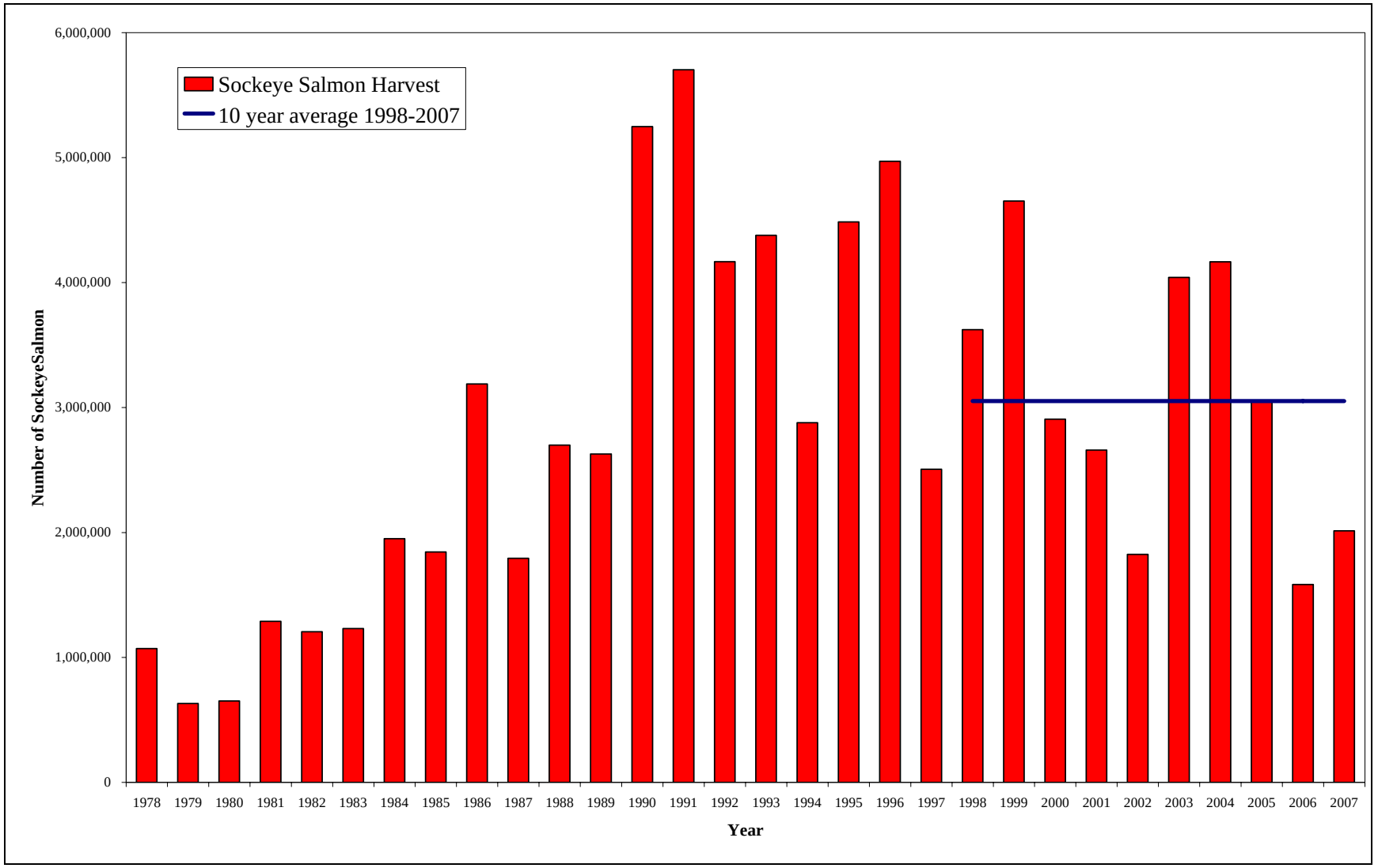


Figure 9.–Sockeye salmon commercial harvest, all gear combined, in the Kodiak Management Area, 1978-2007.

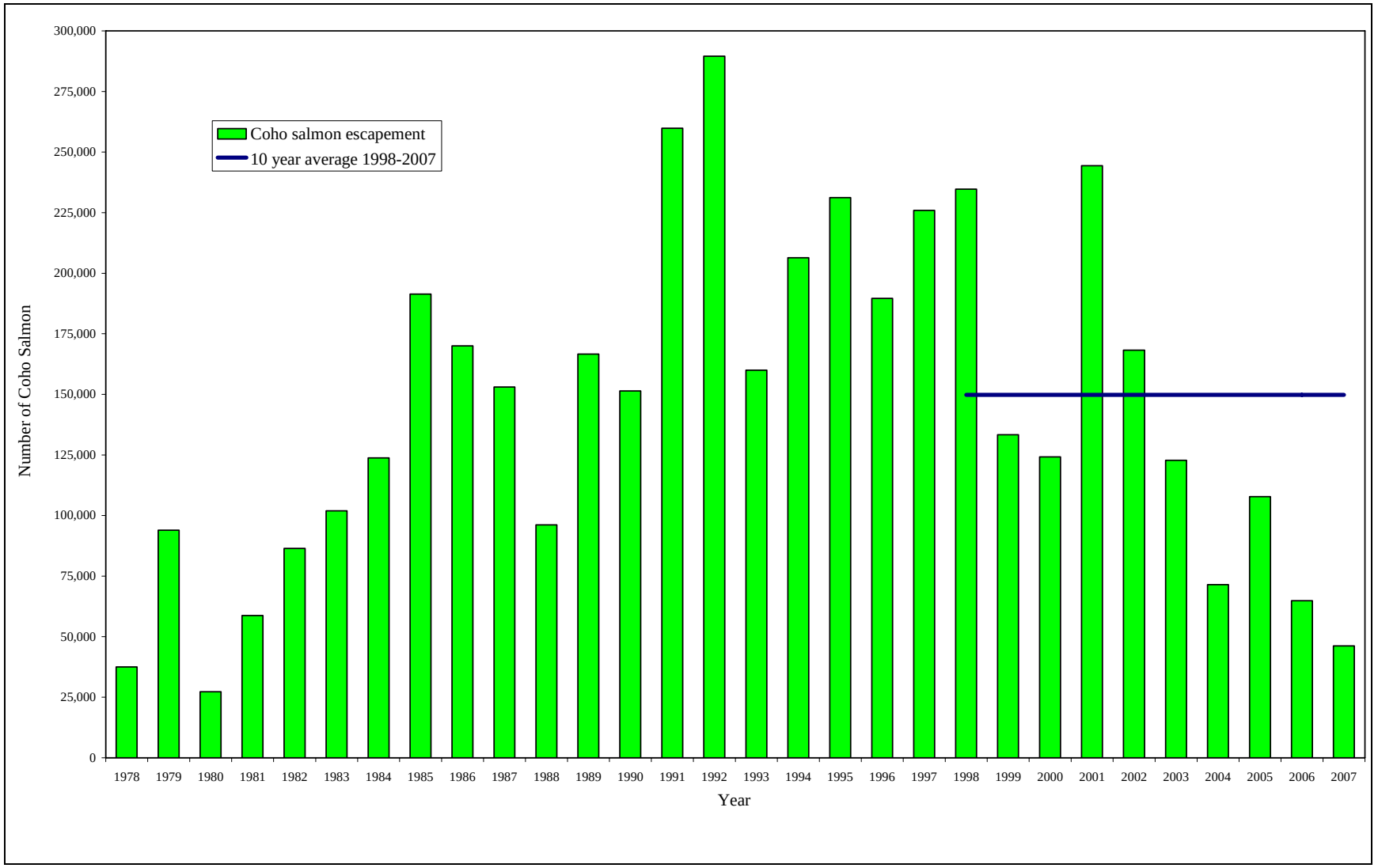


Figure 10.–Coho salmon escapements in the Kodiak Management Area, 1978-2007.

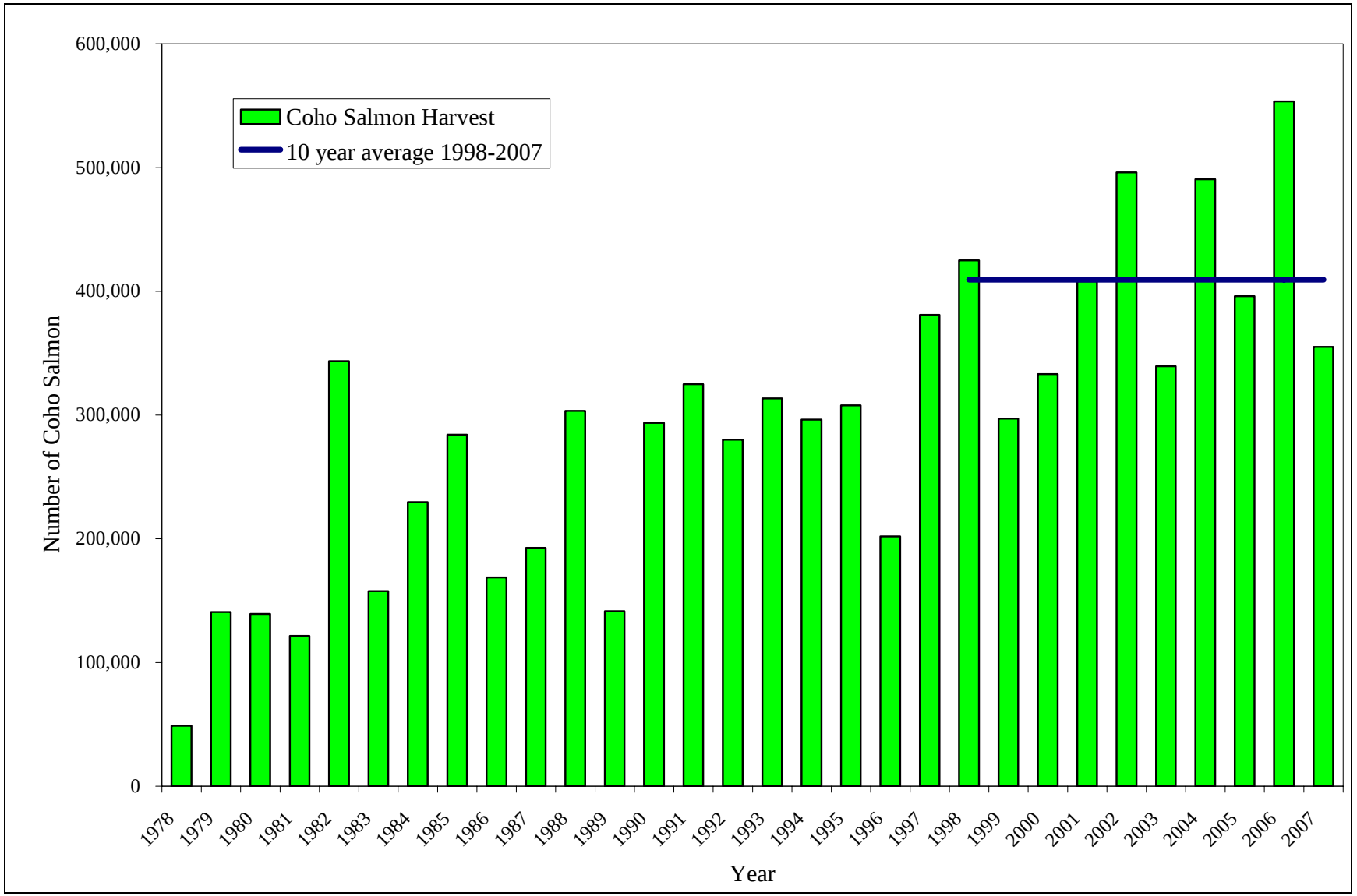


Figure 11.–Coho salmon commercial harvest, all gear combined, in the Kodiak Management Area, 1978-2007.

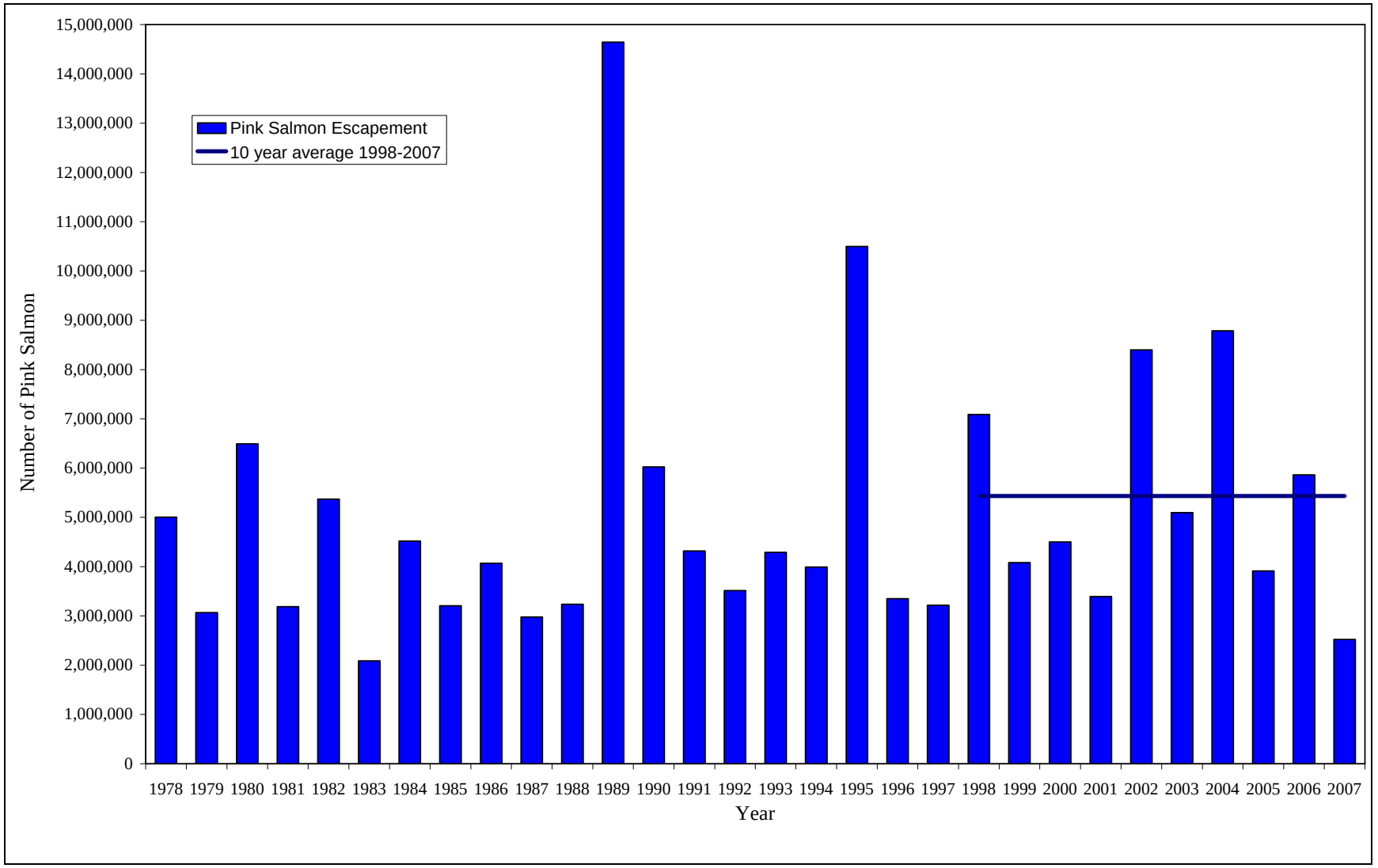


Figure 12.–Pink salmon escapements in the Kodiak Management Area, 1978-2007.

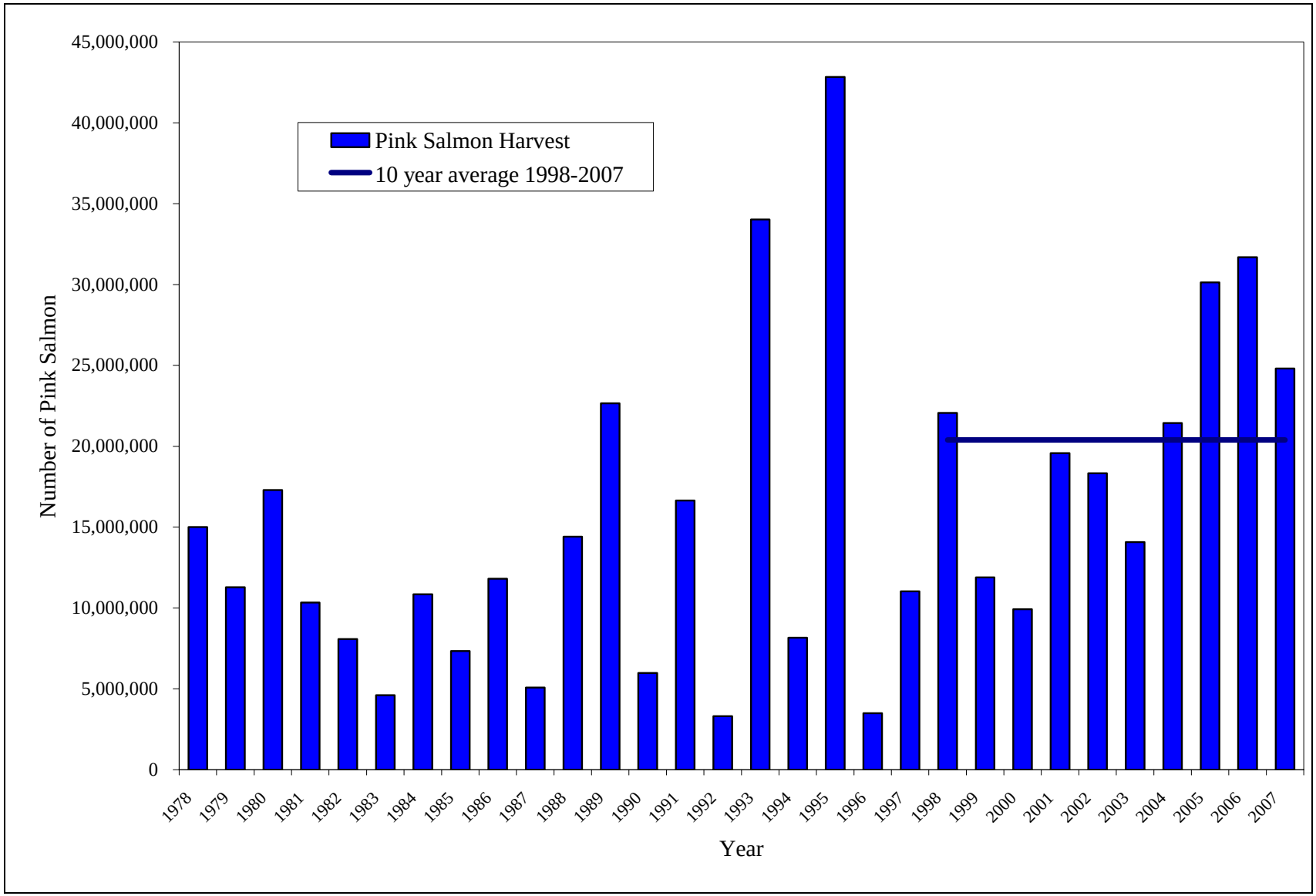


Figure 13.–Pink salmon commercial harvest, all gear combined, in the Kodiak Management Area, 1978-2007.

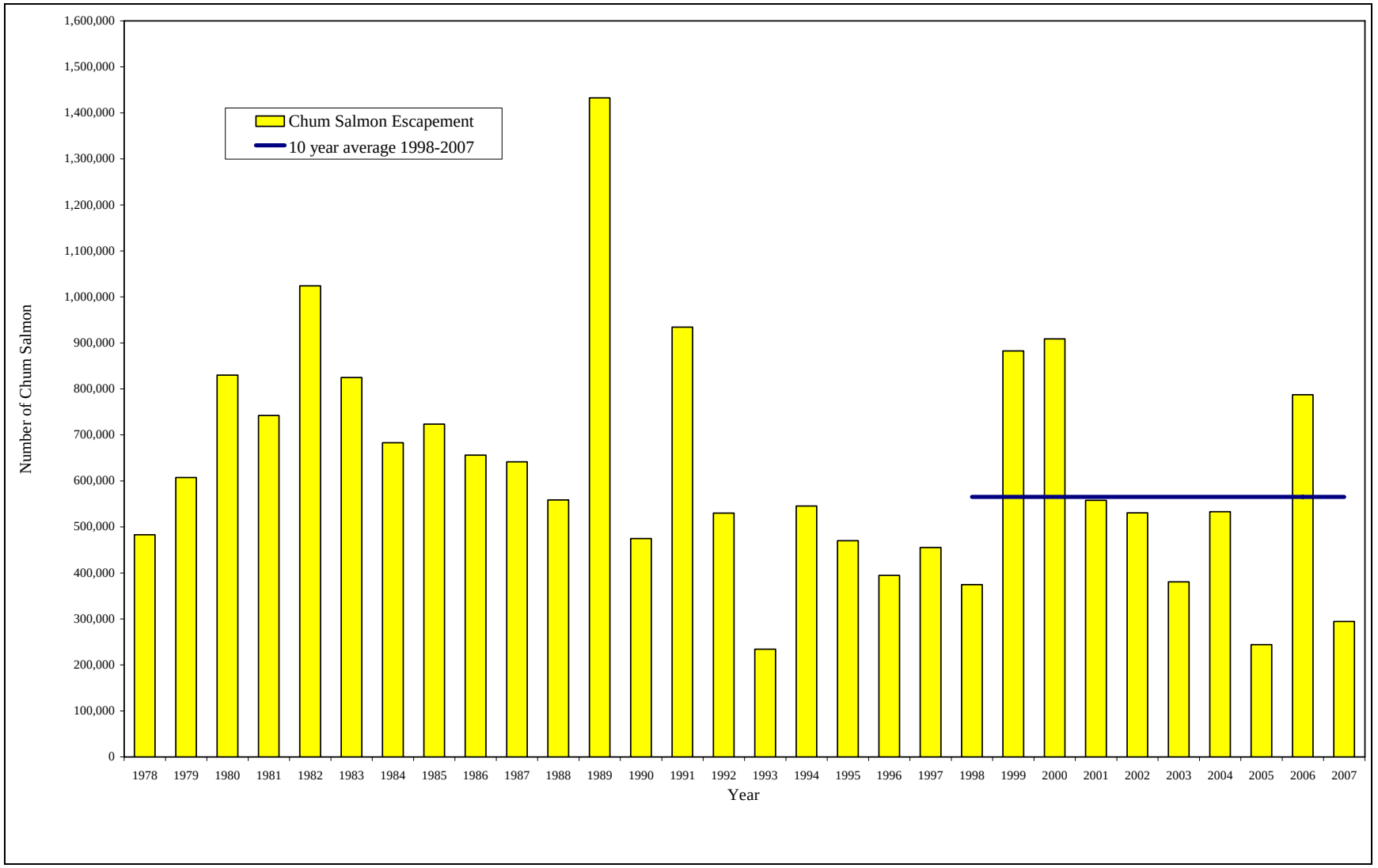


Figure 14.–Chum salmon escapements in the Kodiak Management Area, 1978-2007.

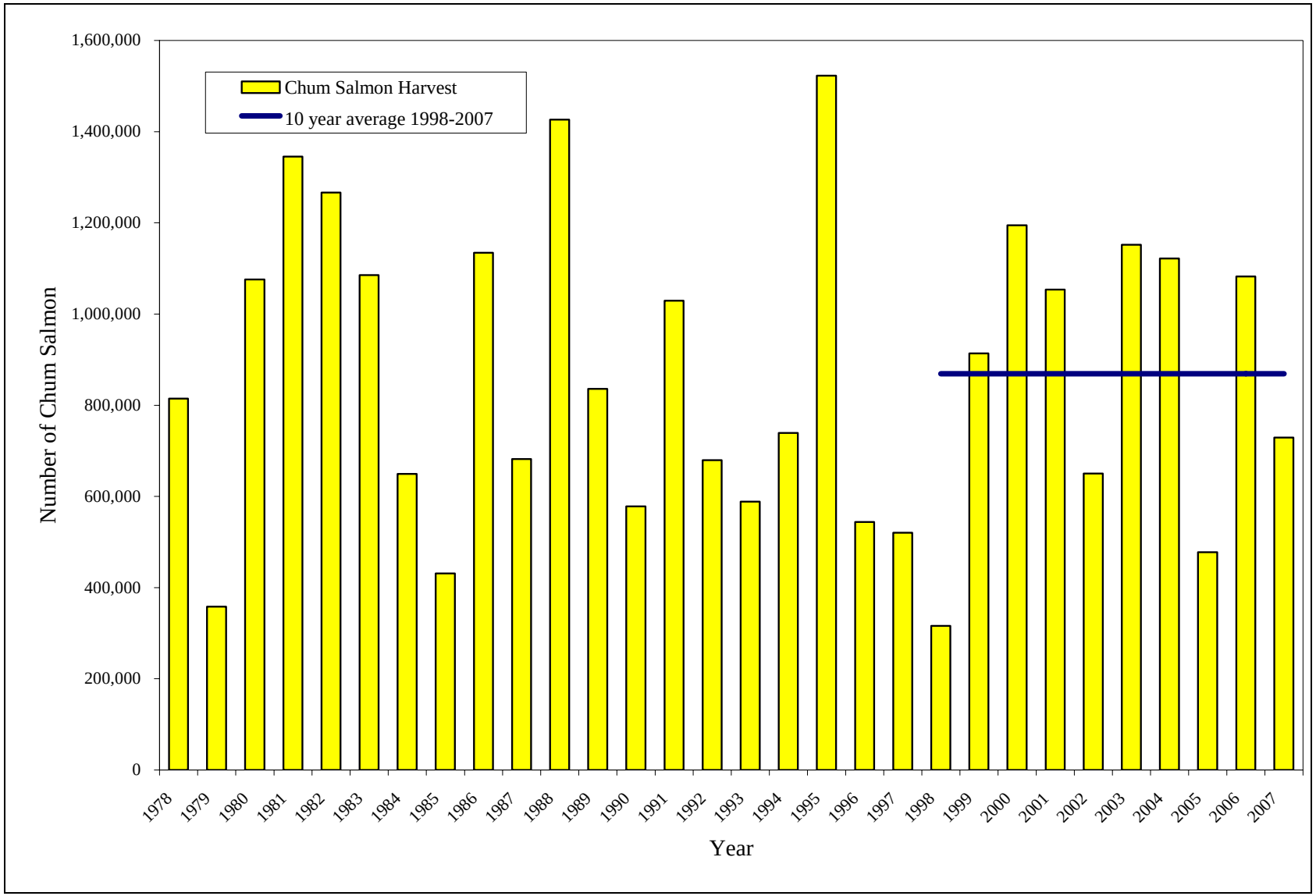
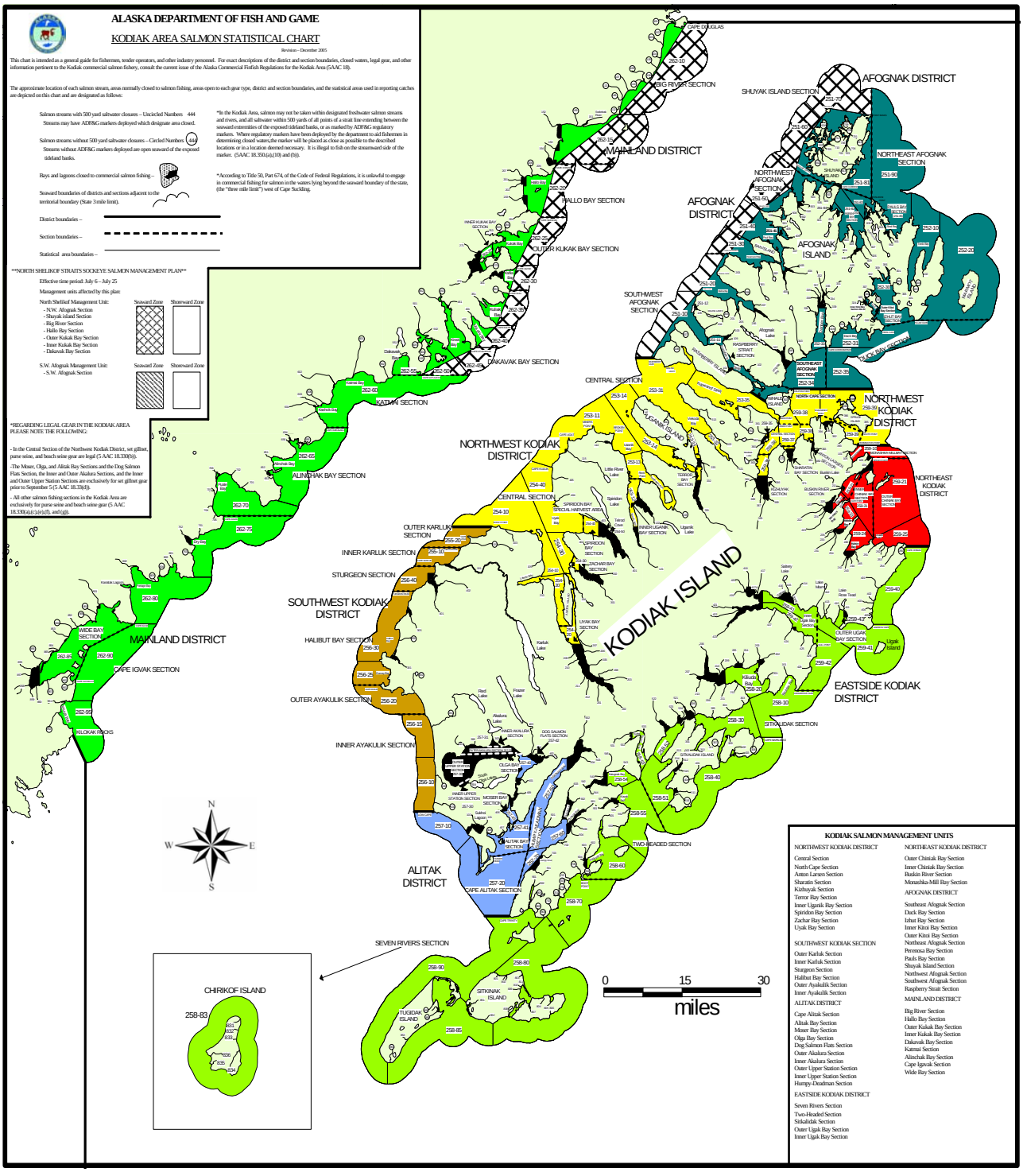
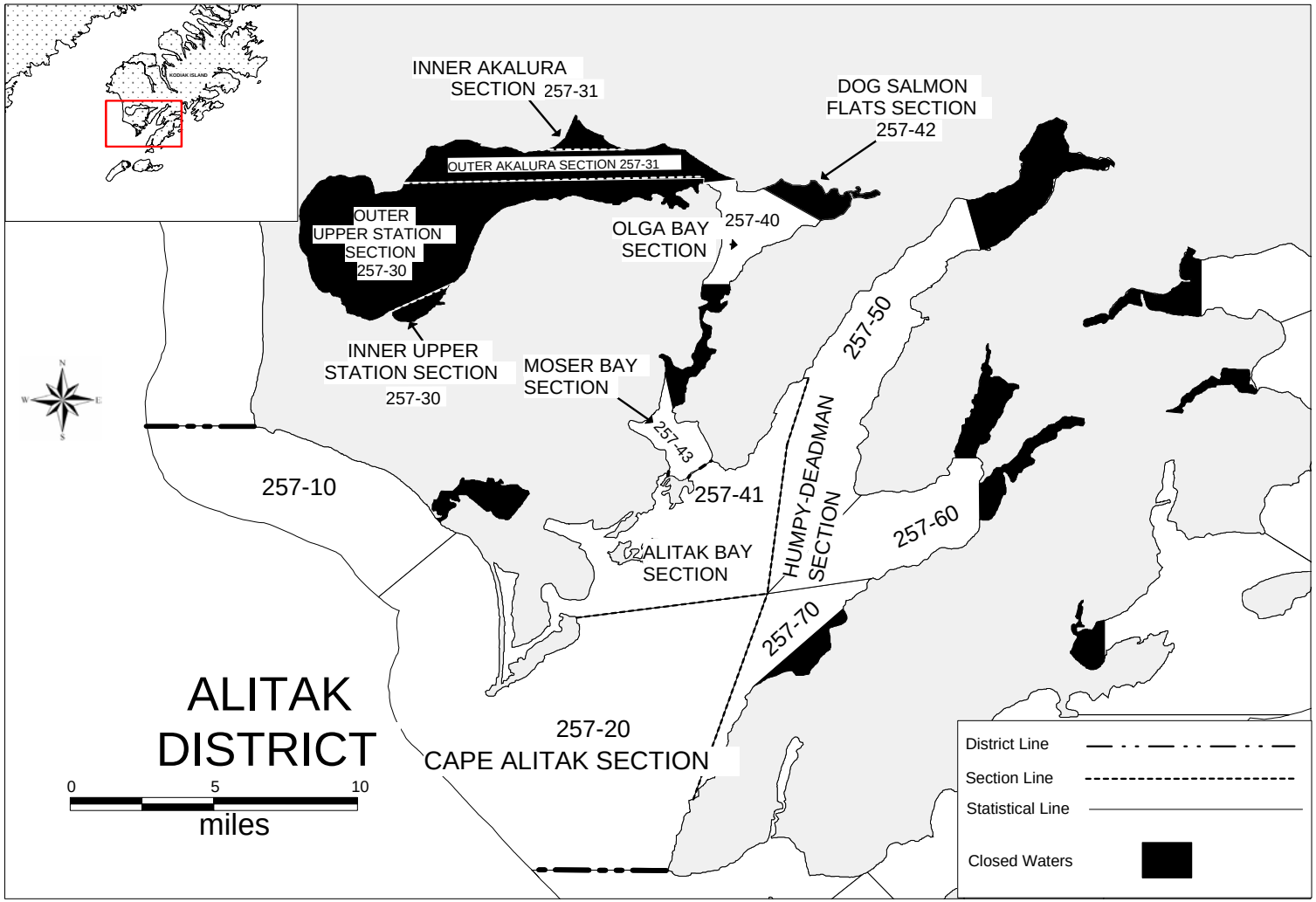


Figure 15.–Chum salmon commercial harvest, all gear combined, in the Kodiak Management Area, 1978-2007.

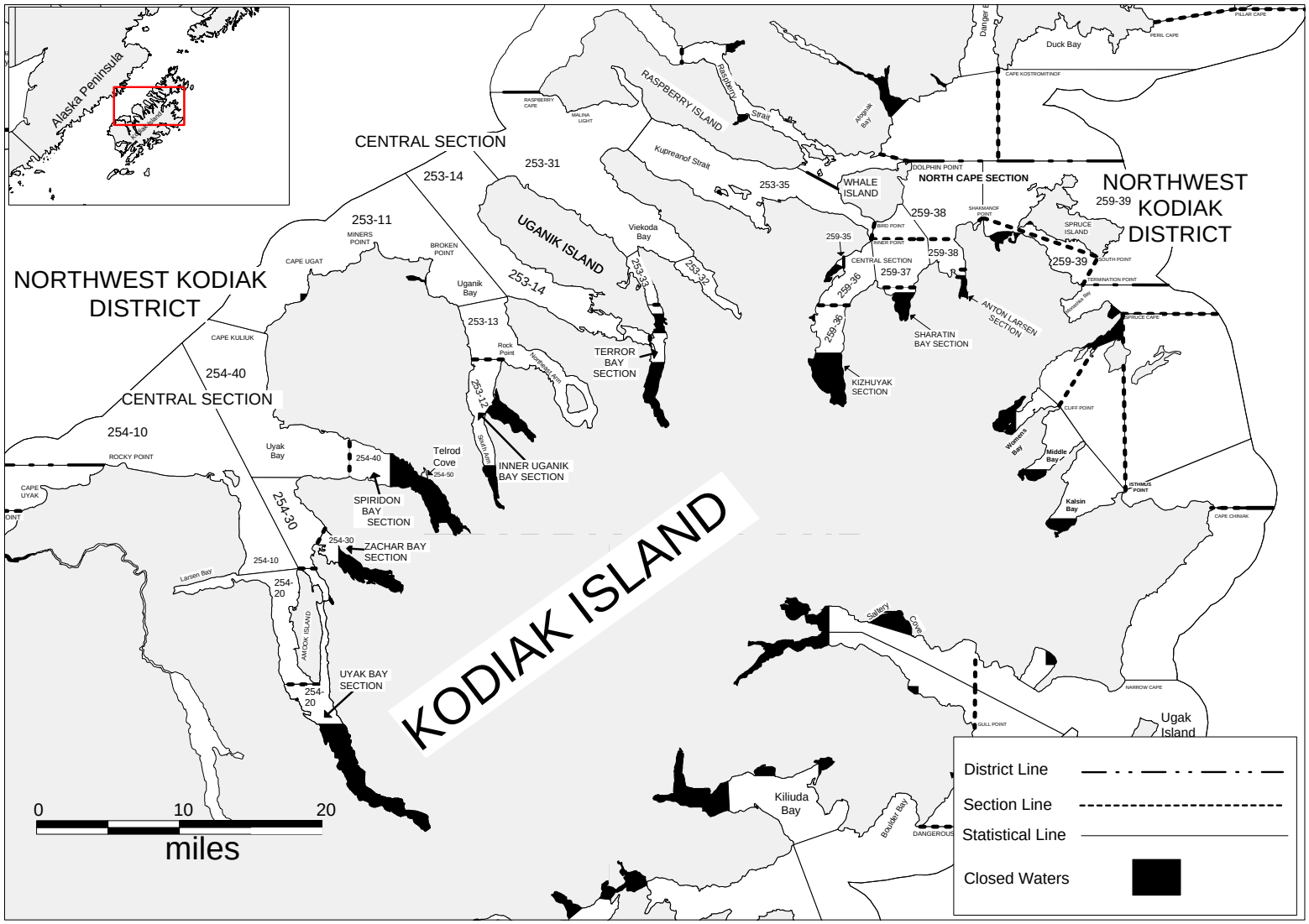
APPENDIX A: MAPS OF FISHING DISTRICTS



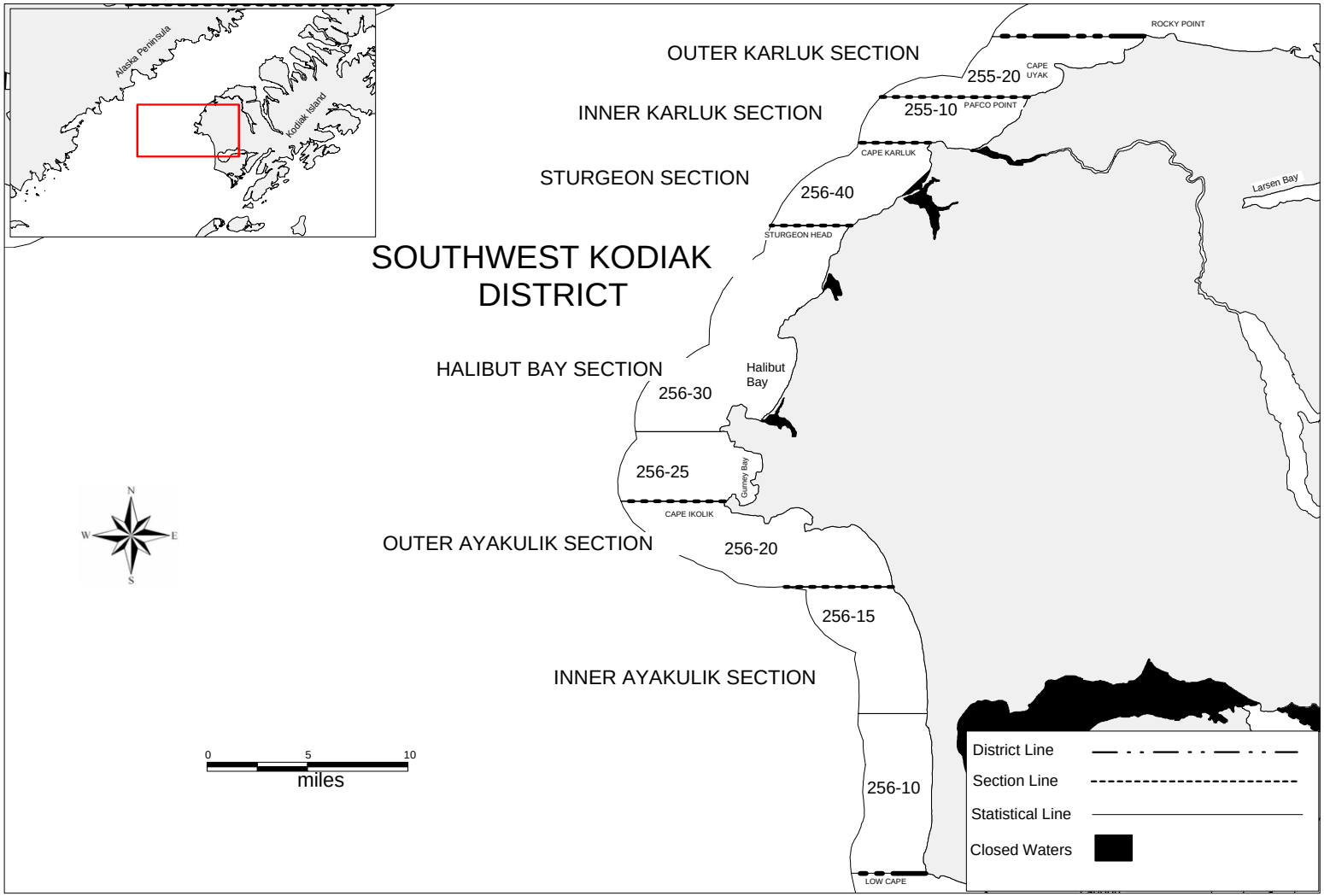
Appendix A1.–Map of the Kodiak Management Area, showing commercial salmon fishing districts, sections, and closed waters.



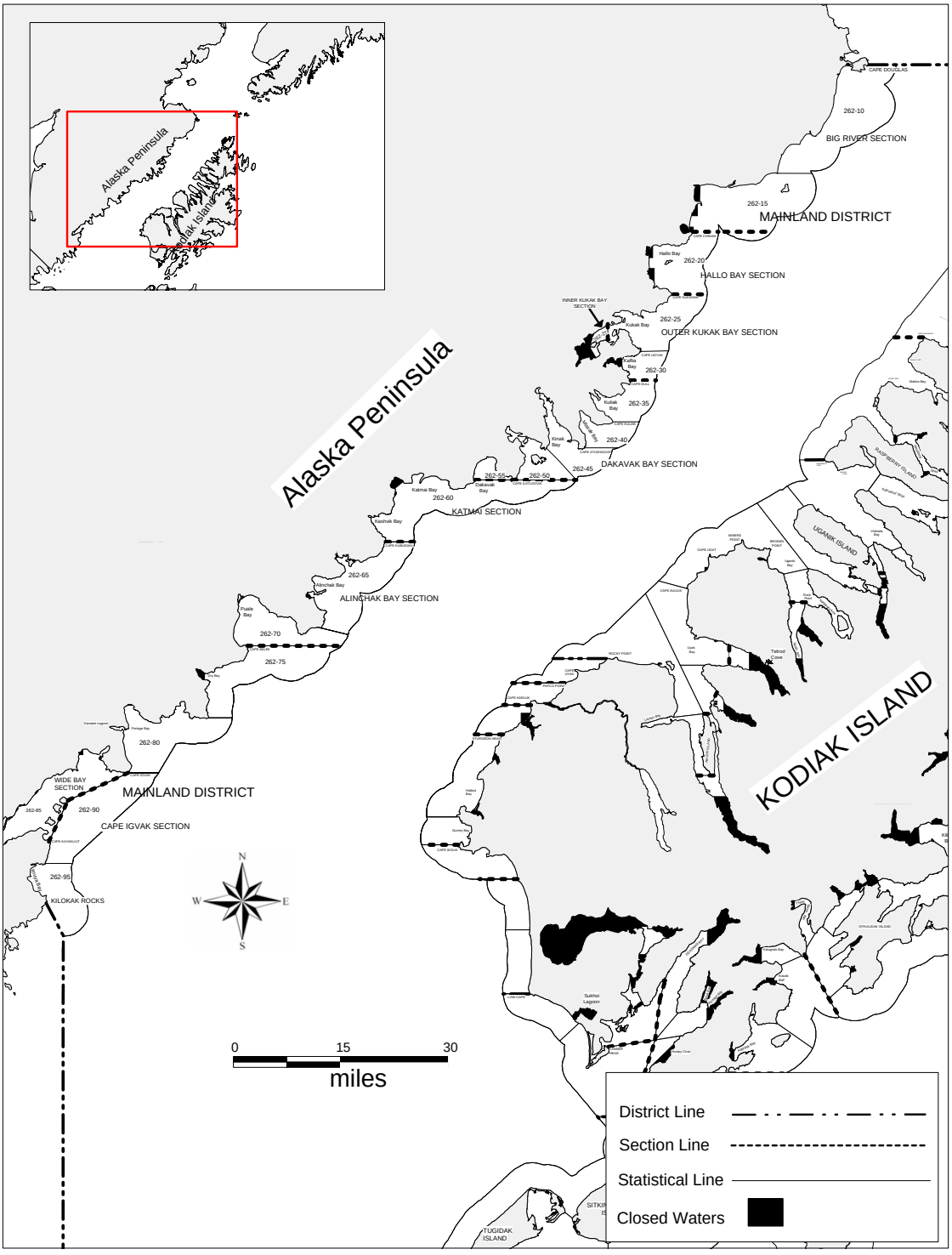
Appendix A2.–Map of the Alitak Bay District identifying commercial salmon fishing sections and statistical areas.



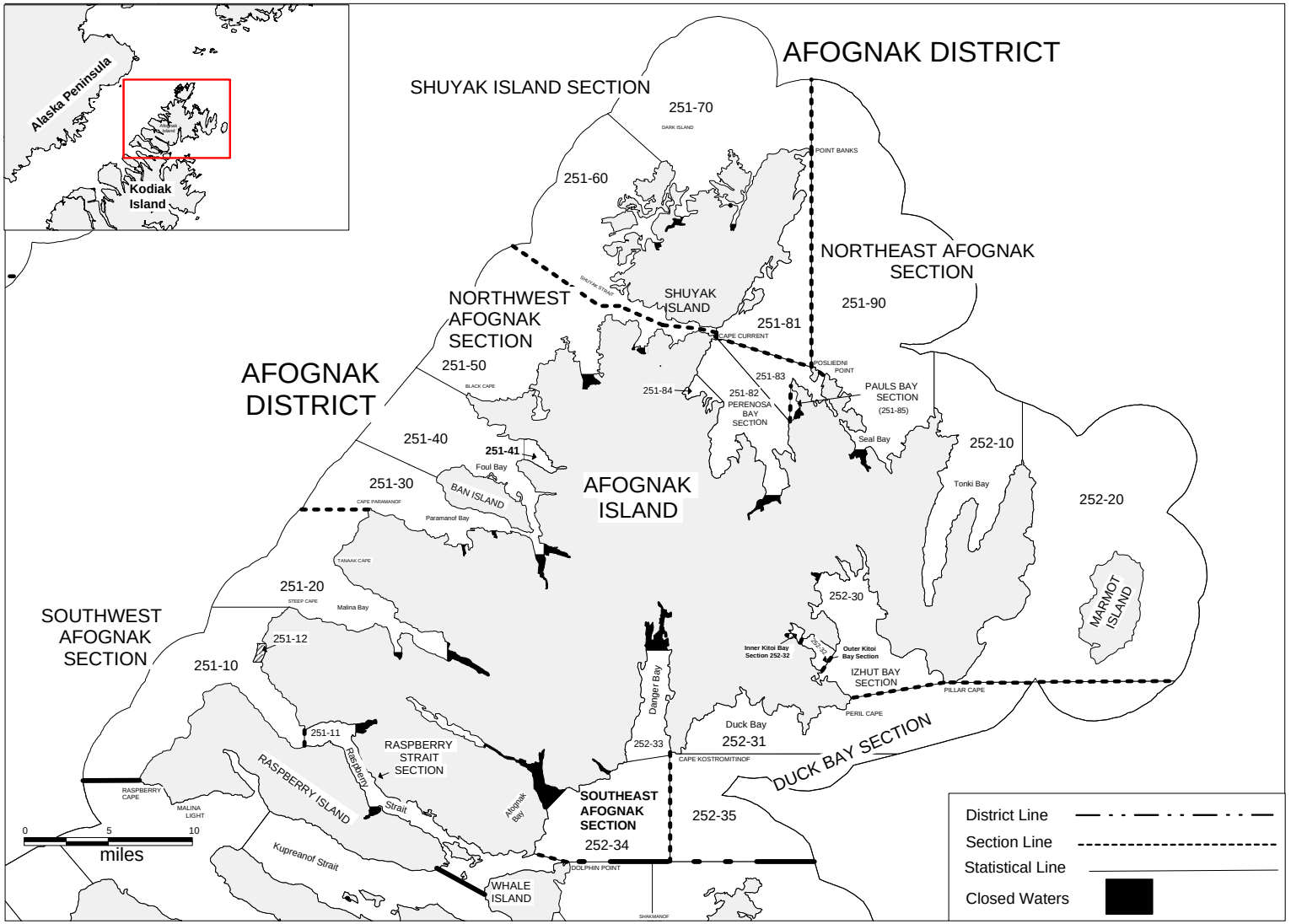
Appendix A3.–Map of the Northwest Kodiak District identifying commercial salmon fishing sections and statistical areas.



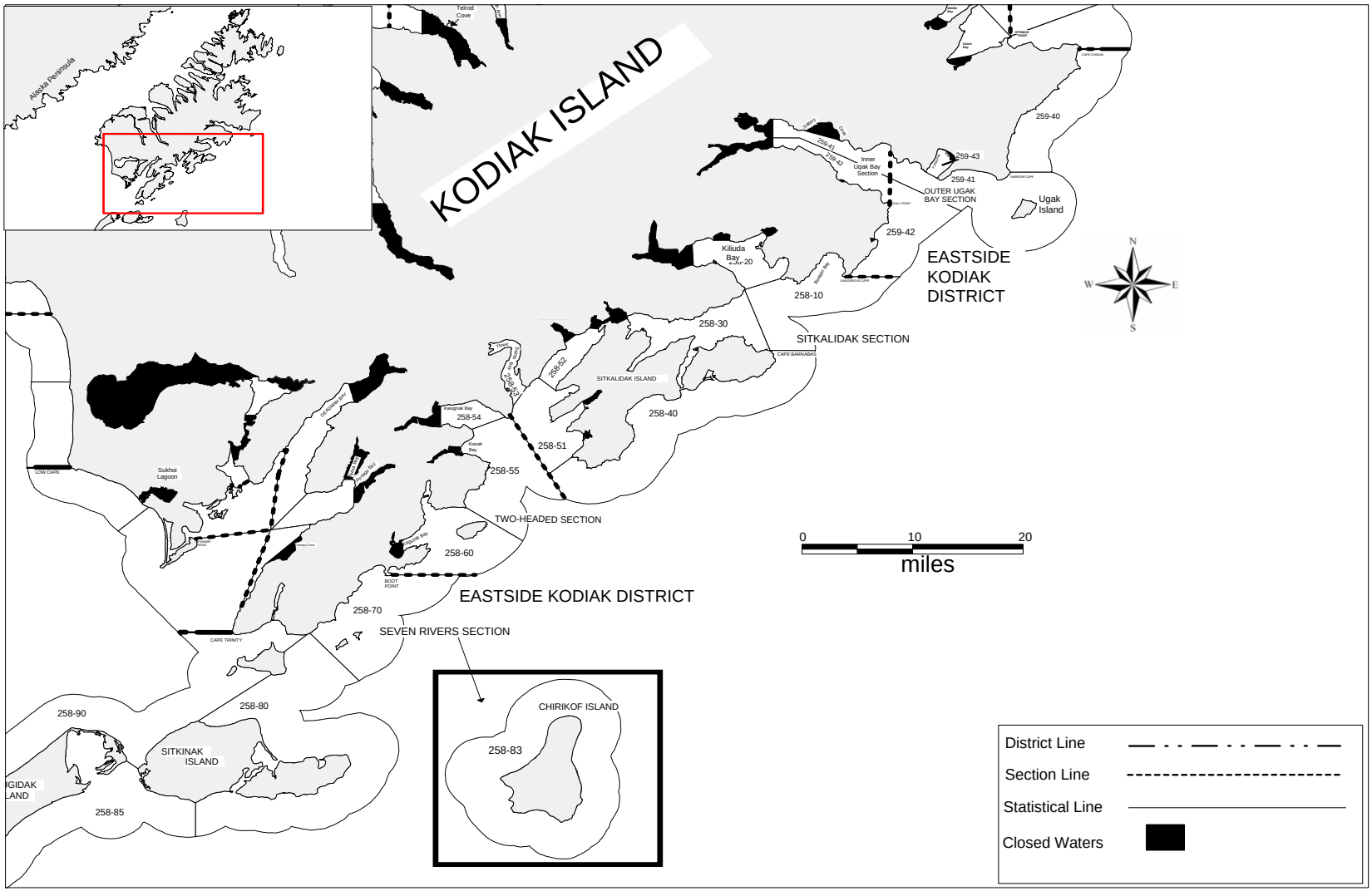
Appendix A4.–Map of the Southwest Kodiak District identifying commercial salmon fishing sections and statistical areas.



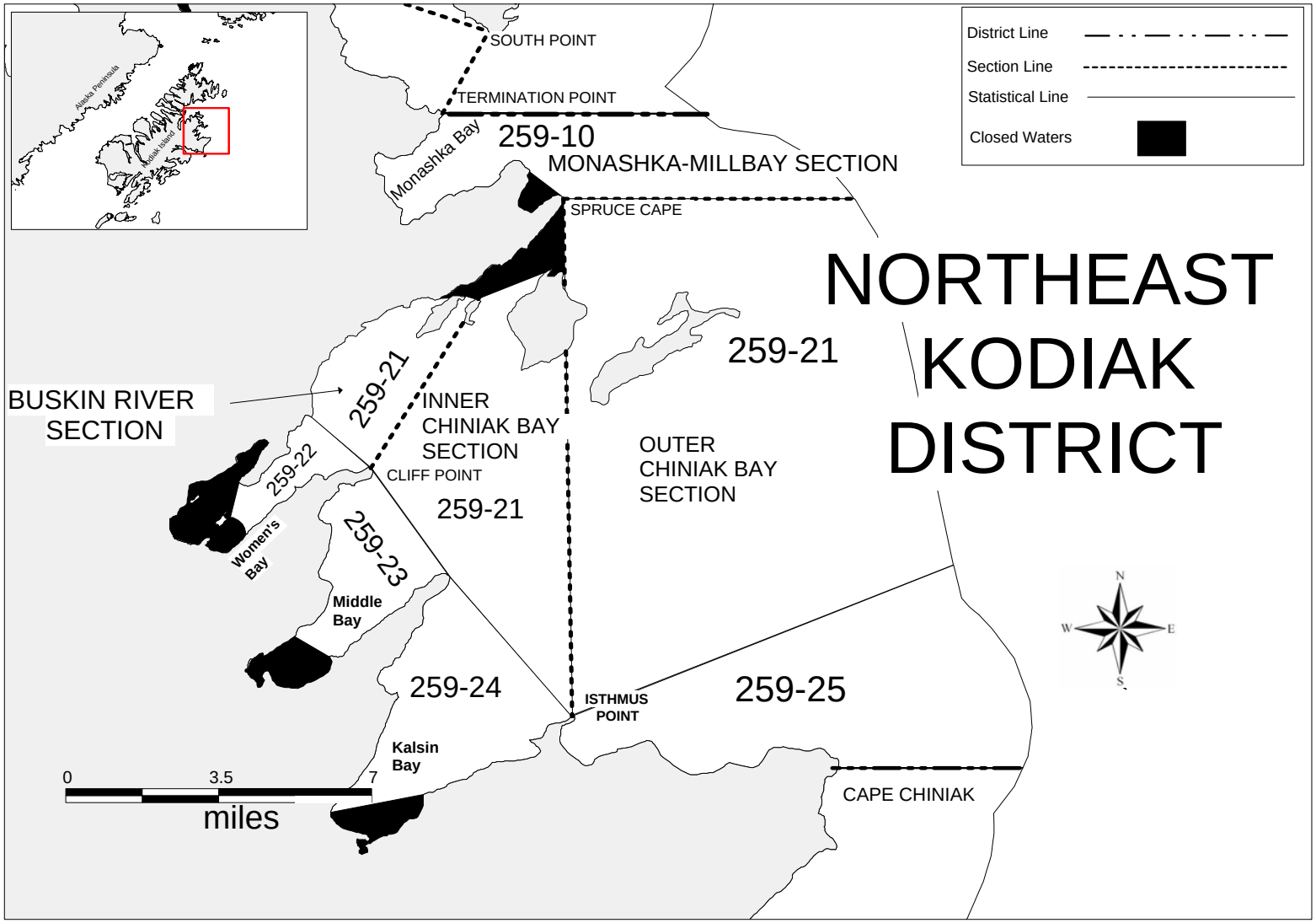
Appendix A5.–Map of the Mainland District identifying commercial salmon fishing sections and statistical areas.



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

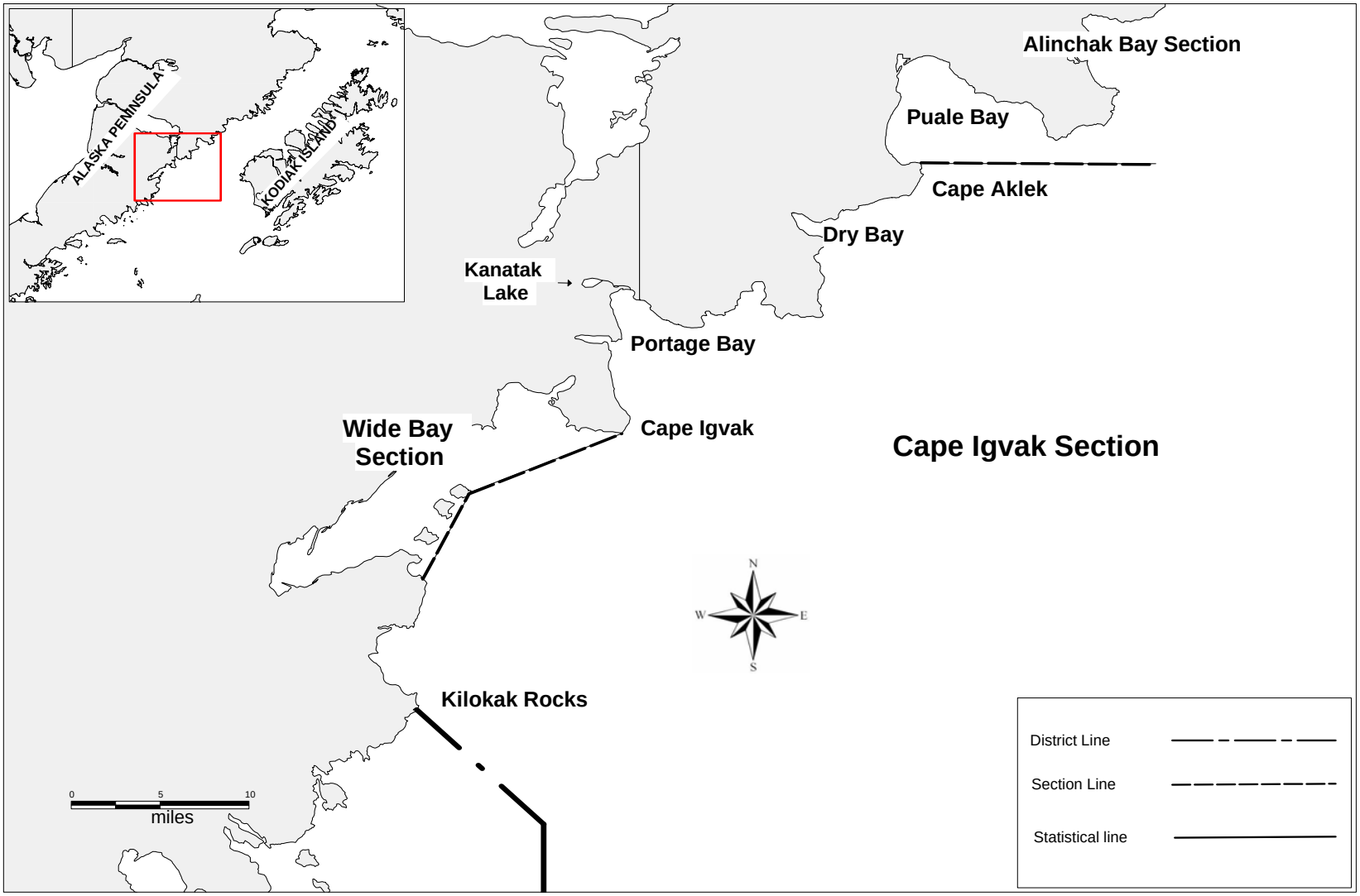


Appendix A7.–Map of the Eastside Kodiak District identifying commercial salmon fishing sections and statistical areas.



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

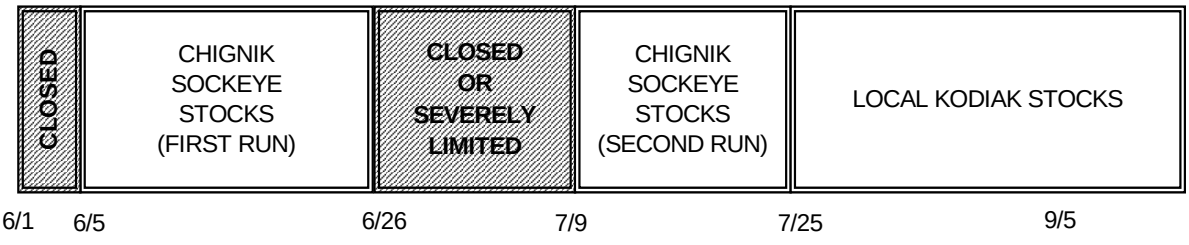
APPENDIX B: CAPE IGVAK MANAGEMENT PLAN



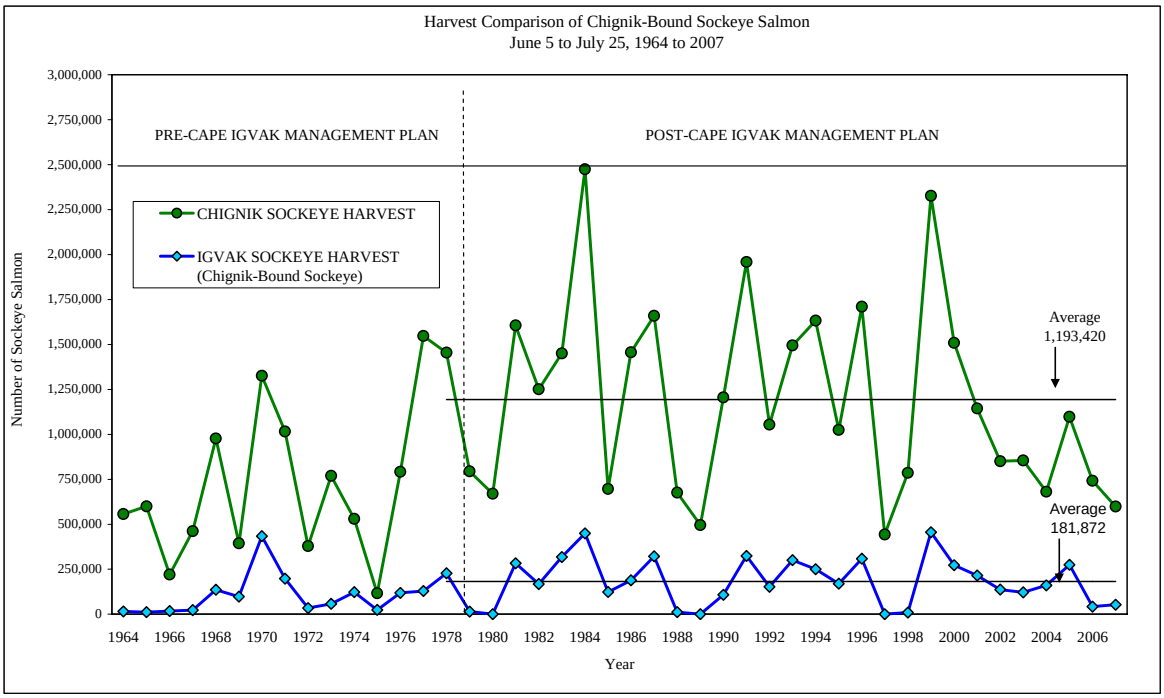
Appendix B1.–Map of the Cape Igvak Section of the Kodiak Management Area.

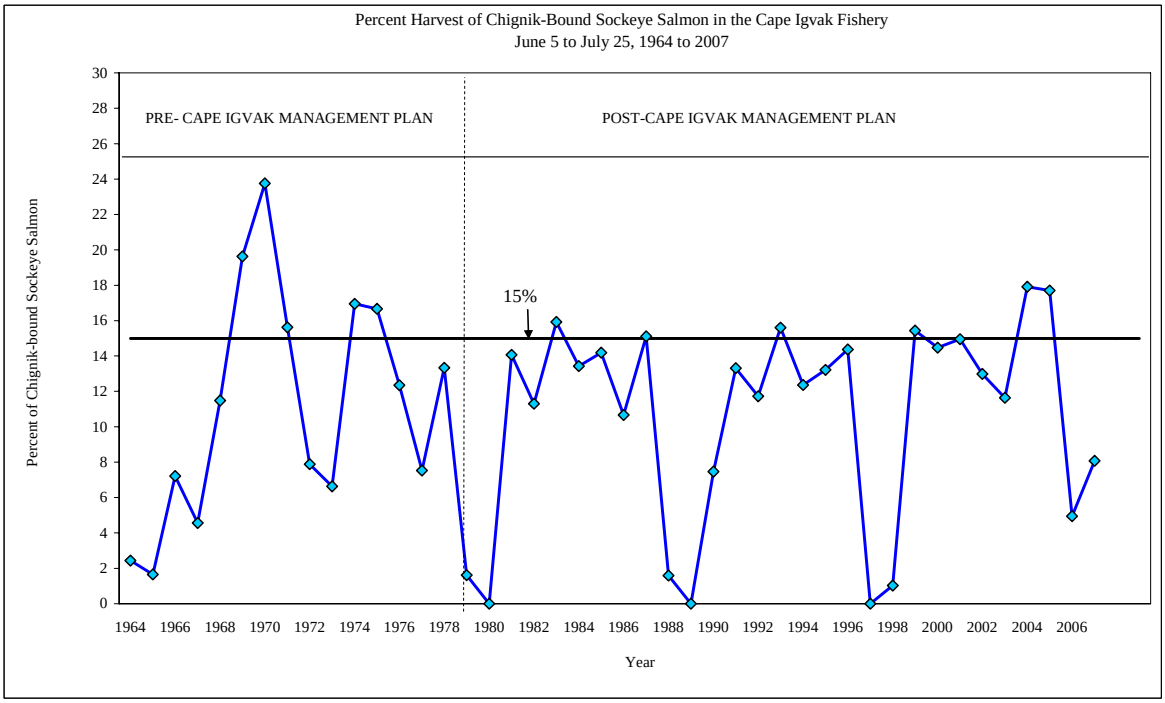
BIOLOGICAL REQUIREMENTS			ALLOCATIVE REQUIREMENTS		
REGULATION 5 AAC 18.360	ESCAPEMENT NEEDS		REGULATION 5 AAC 18.360	CHIGNIK MINIMUM HARVEST	IGVAK %
	FIRST RUN CHIGNIK	SECOND RUN CHIGNIK			
(a) (b) (c)	THROUGH 6/30 350,000-400,000	-	(a)	EXPECTATION OF LESS THAN 600,000	CLOSED
-	-	-	(b)	EXPECTATION OF 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



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





Appendix B3.–Impact of the Cape Igvak Salmon Management Plan, 1964-2007.

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 through July 25, 1978-2007.

	Chignik		Cape Igvak[a]		Southeastern District Mainland[a]		
Year	Catch[b]	Percent	Catch[b]	Percent	Catch[b]	Percent	Total
1978[c,d]	1,454,389	86.60	225,078	13.40	N/A	N/A	1,679,467
1979[e]	794,504	98.27	13,950	1.73	N/A	N/A	808,454
1980	670,001	91.31	32	0.00	63,724	8.68	733,757
1981	1,606,300	79.87	282,727	14.06	122,198	6.08	2,011,225
1982	1,250,768	84.49	166,756	11.26	62,789	4.24	1,480,313
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	423,292	12.65	3,347,069
1985[f]	690,698	79.78	123,627	14.28	51,421	5.94	865,746
1986	1,456,729	82.64	188,017	10.67	118,006	6.69	1,762,752
1987	1,659,236	77.99	321,506	15.11	146,886	6.90	2,127,628
1988	675,487	95.77	10,520	1.49	19,320	2.74	705,327
1989	496,044	99.10	0	0.00	4,485	0.90	500,529
1990	1,205,575	84.29	107,706	7.53	117,065	8.18	1,430,346
1991[g]	1,962,583	80.45	324,195	13.29	152,714	6.26	2,439,492
1992[h]	1,054,309	81.19	150,434	11.58	93,845	7.23	1,298,588
1993	1,495,098	77.72	300,055	15.60	128,536	6.68	1,923,689
1994[i]	1,632,435	80.61	250,230	12.36	142,350	7.03	2,025,015
1995	1,024,785	79.85	169,530	13.21	89,086	6.94	1,283,401
1996[j]	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[k]	786,466	91.22	8,813	1.02	66,893	7.76	862,172
1999	2,326,811	78.70	456,039	15.43	173,621	5.87	2,956,471
2000	1,509,652	80.11	271,344	14.40	103,419	5.49	1,884,415
2001[l]	1,134,991	79.41	215,214	15.06	79,037	5.53	1,429,242
2002[m]	849,980	80.99	136,488	13.01	63,026	6.01	1,049,494
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
2005	1,098,718	70.84	274,328	17.69	177,906	11.47	1,550,952
2006	741,887	87.72	41,834	4.95	62,010	7.33	845,731
2007	601,168	91.96	52,527	8.04	0	0.00	653,695

[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 the sockeye salmon harvest considered to be Chignik bound from 80% to 90%.

[b] Catch numbers were last modified from the ADF&G computerized historical fish ticket data base in 2006.

[c] 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.

[d] 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.

-continued-

[e] 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.

[f] Beginning in 1980, the Southeastern District Mainland (excluding the Northwest Stepovak Section and Orzinski Bay in some years)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.

[g] Includes over escapement of 208,305 sockeye salmon, counted through the Chignik weir during a Chignik Area Seiners strike (June 23 to July 4).

[h] Beginning in 1992, after Alaska Board of Fisheries review of historical records, the allocation of Chignik bound sockeye to the Southeastern District Mainland fishery (excluding Orzinzki Bay) was increased to 7.0%, through July 25.

[i] Includes over escapement of 208,921 sockeye salmon, counted through the Chignik weir during a Chignik Area Seiners strike (June 2 to June 25).

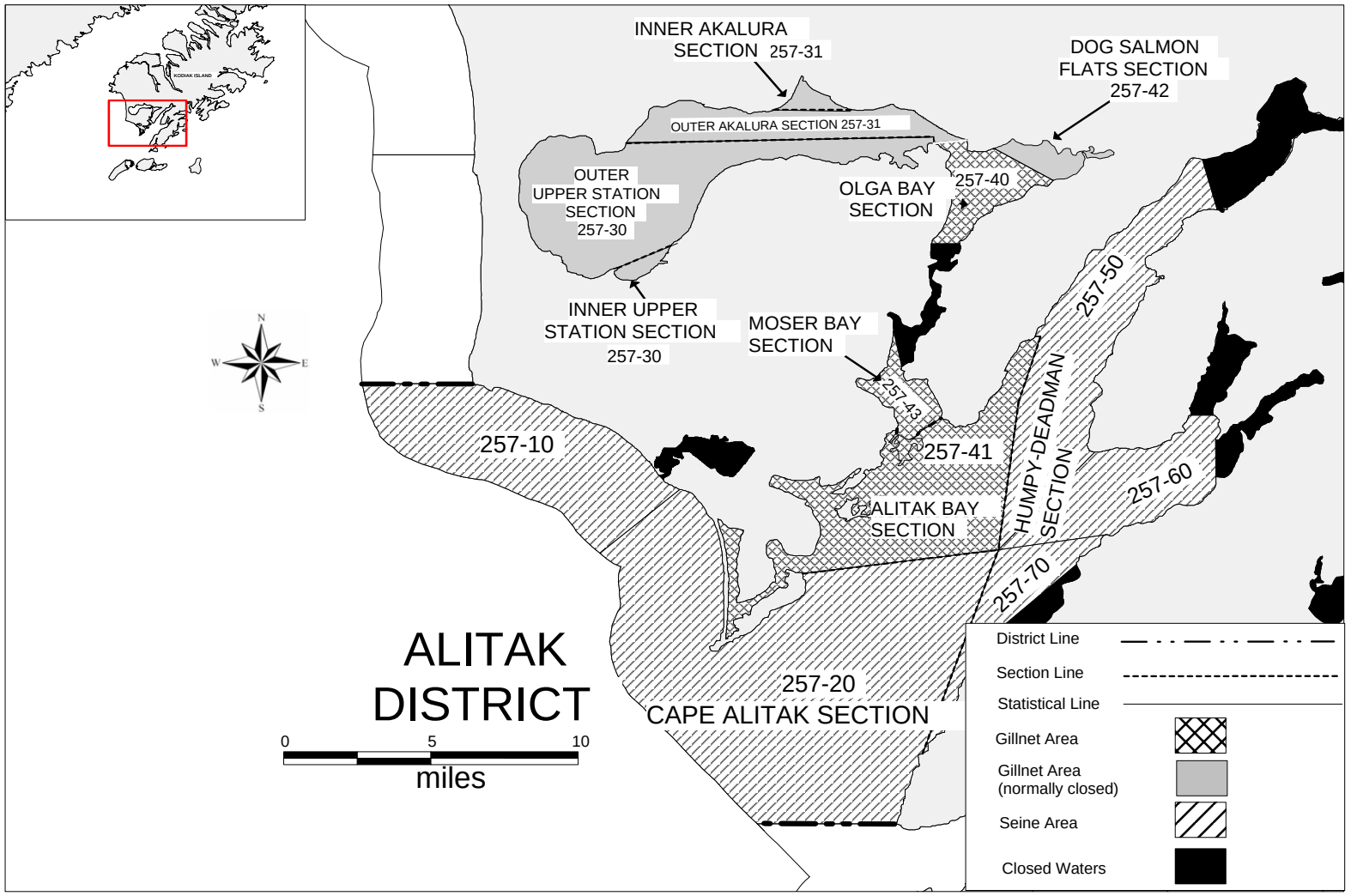
[j] In January 1996 the BOF increased the area managed for local Orzinski Lake sockeye salmon from only Orzinski Bay to the entire Northwest Stepovak Section. Prior to July 1 the entire Northwest Stepovak Section will be managed by allocation based on Chignik sockeye salmon run strength. Beginning July 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.

[k] Includes 7,714 sockeye salmon caught on June 18 by the Chignik Seiners Association (CSA), and an over escapement of 52,131 sockeye salmon counted past the weir during the CSA boycott (June 16 to June 29).

[l] Includes 176,605 sockeye salmon caught June 16-29 by the Chignik Seiners Association, and foregone harvest due to over escapement of 398,887 in the CMA and 27,896 in the SEDM during the fishermen's strike (June 14 to July 2).

[m] In 2002, the Alaska 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.

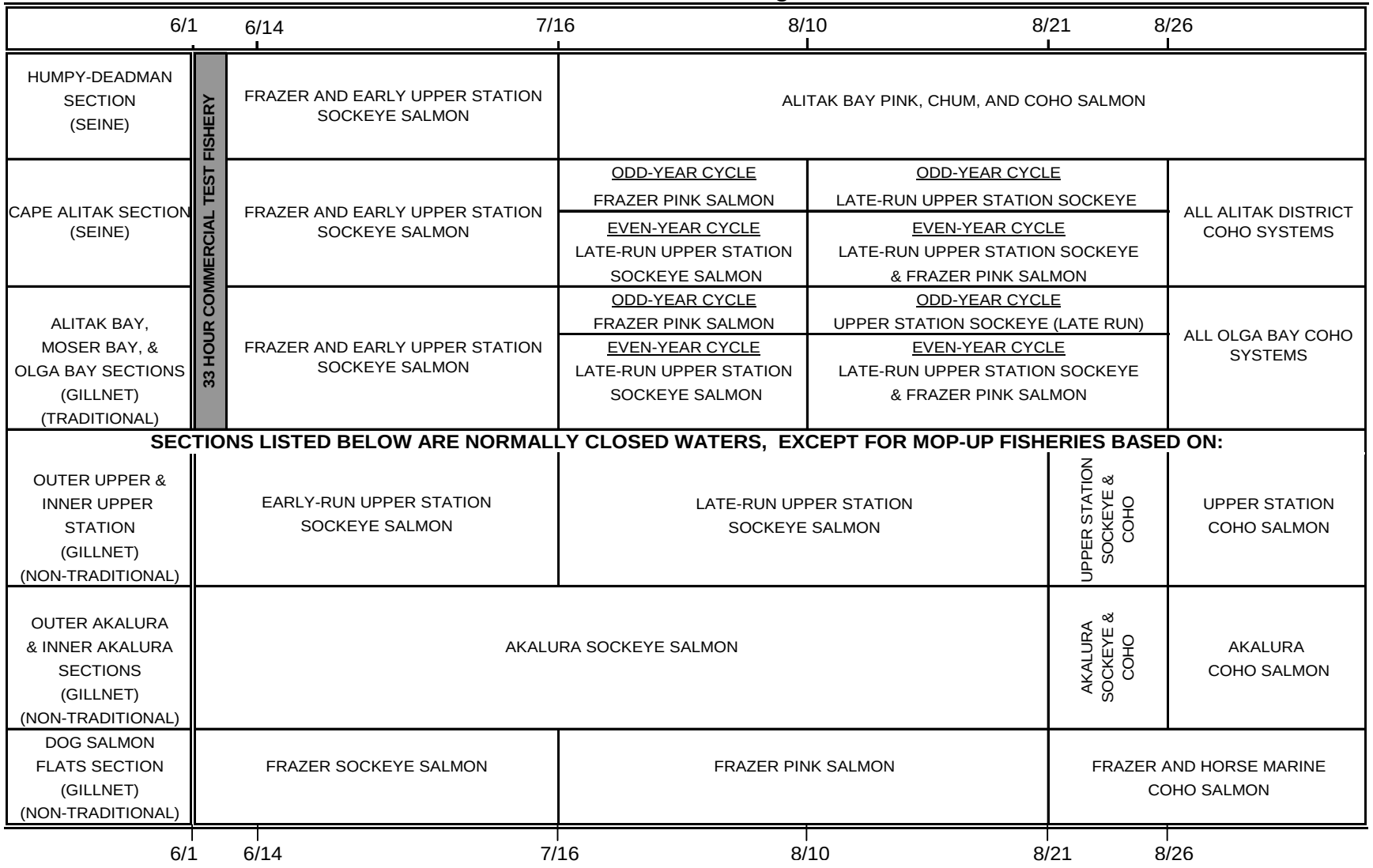
APPENDIX C: ALITAK DISTRICT MANAGEMENT PLAN

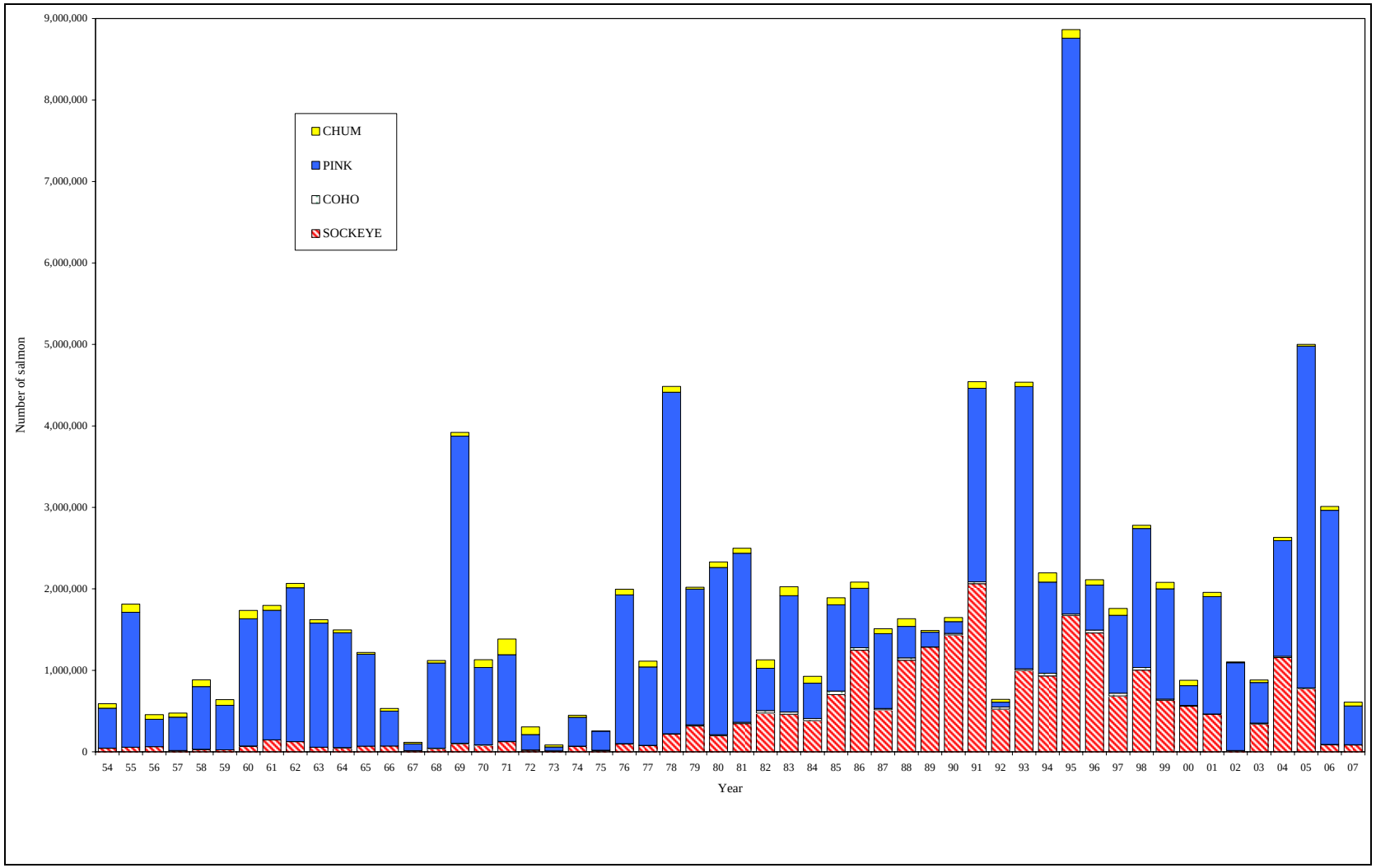


Appendix C1.–Map of the Alitak District showing sections and gear use areas.

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

Alitak District Salmon Management Plan





Appendix C3.–Annual commercial salmon harvest, by species, all gear combined, for the Alitak District of the Kodiak Management Area, 1954-2007.

Appendix C4.–Commercial salmon harvest, by species, with percent harvest by gear type, in the Alitak District of the Kodiak Management Area, 1954-2007

	CHINOOK			SOCKEYE			COHO			PINK			CHUM			TOTAL		
YEAR	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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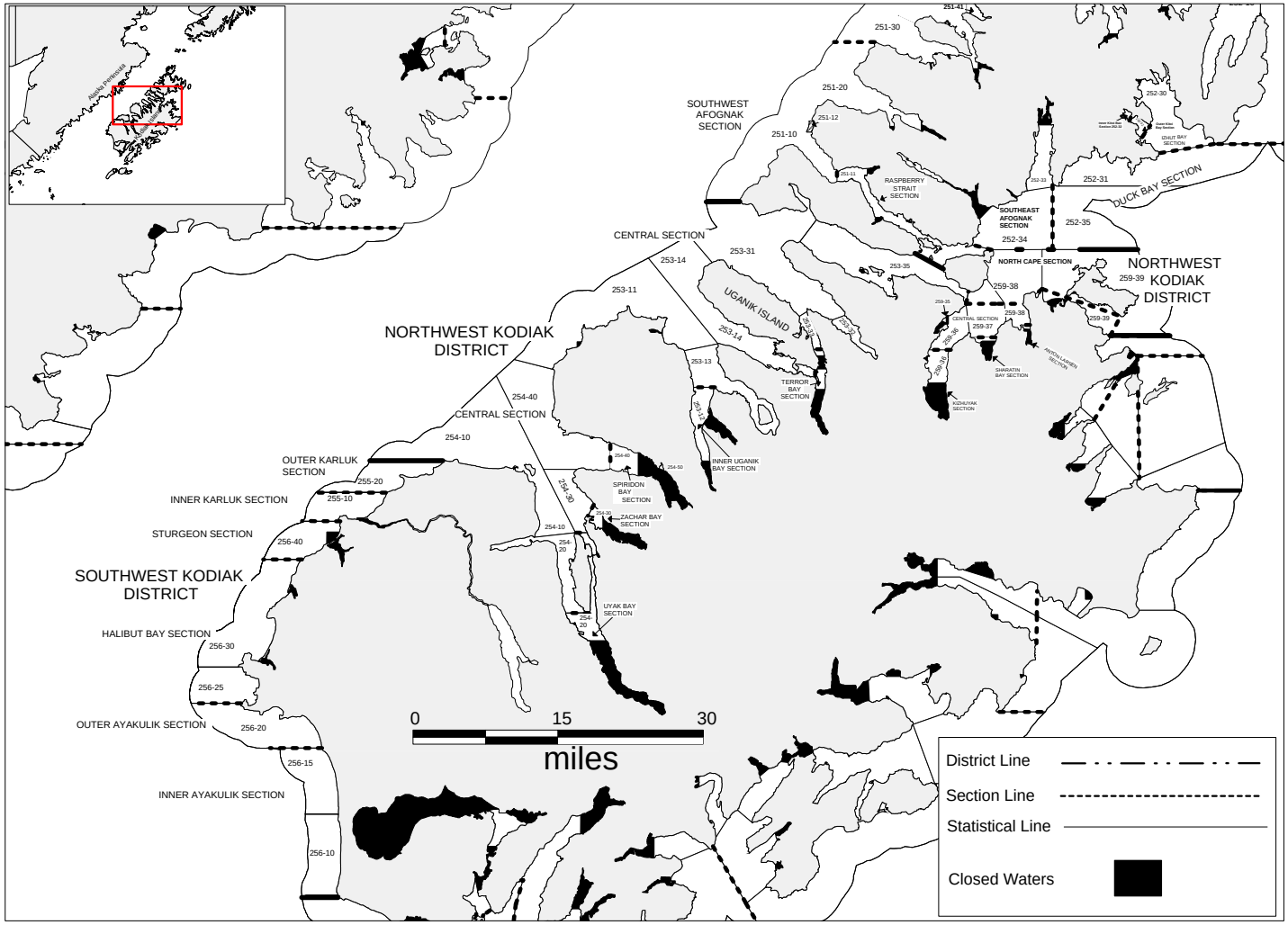
Appendix C4.–Page 2 of 2.

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%
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%
2005	602	8%	92%	777,905	60%	40%	6,977	56%	44%	4,193,022	4%	96%	22,839	40%	60%	5,001,027	87%	13%
2006	55	7%	93%	86,286	76%	24%	4,449	63%	37%	2,872,970	5%	95%	46,904	5%	95%	3,010,664	7%	93%
2007	23	26%	74%	85,469	80%	20%	2,456	62%	38%	474,016	15%	85%	47,931	9%	91%	609,895	24%	76%
Averages: [a]																		
1997-2006	542	9%	91%	571,963	57%	43%	13,044	45%	55%	1,575,898	14%	86%	47,510	24%	77%	2,208,924	35%	65%
1954-2007	304	19%	79%	428,185	66%	34%	11,742	49%	51%	1,261,063	19%	81%	63,180	22%	78%	1,764,479	30%	70%

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 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.

WESTSIDE KODIAK MANAGEMENT PLAN

DISTRICT & SECTIONS		6/1 – 6/16	6/16 – 6/23	6/23 – 7/6	7/6 – 7/16	7/16 – 8/1	8/1 – 8/16	8/16 – 8/25	8/25 – 9/6
AFOGNAK DISTRICT	*SOUTHWEST AFOGNAK*	33 HOUR COMMERCIAL TEST FISHERY	EARLY-RUN KARLUK SOCKEYE SALMON		LOCAL & MIXED PINK SALMON			LATE-RUN KARLUK SOCKEYE LOCAL & MIXED PINK	LOCAL COHO
NORTHWEST KODIAK DISTRICT	*NORTH CAPE CENTRAL*	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	33 HOUR COMMERCIAL TEST FISHERY	CLOSED	33 HOUR COMMERCIAL TEST FISHERY	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 EVEN-YEAR: LATE AYAKULIK SOCKEYE & PINK	ODD-YEAR: LATE-RUN KARLUK SOCKEYE ODD YEAR:LATE-RUN KARLUK SOCKEYE & AYAKULIK PINK		LATE RUN KARLUK SOCKEYE SALMON	LOCAL COHO SALMON
	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, 1978-2007.

Year	Permits	Landings	Number of Salmon					
			Chinook	Sockeye	Coho	Pink	Chum	Total
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
2005	204	6,671	11,034	1,457,611	183,158	6,178,927	243,153	8,073,883
2006	211	8,277	16,139	1,200,357	251,605	20,205,610	402,314	22,076,025
2007	219	6,868	13,384	1,512,091	167,437	8,720,592	219,689	10,633,193
Average [a]								
1998-2007	249	7,611	14,738	1,891,117	170,791	9,019,508	325,393	11,421,546
1978-2007	342	8,239	10,142	1,537,516	125,433	7,152,233	320,781	9,146,104

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, 1978-2007.

	Chinook			Sockeye			Coho			Pink			Chum			Total		
Year	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%	Number	GN%	S%
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%
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%

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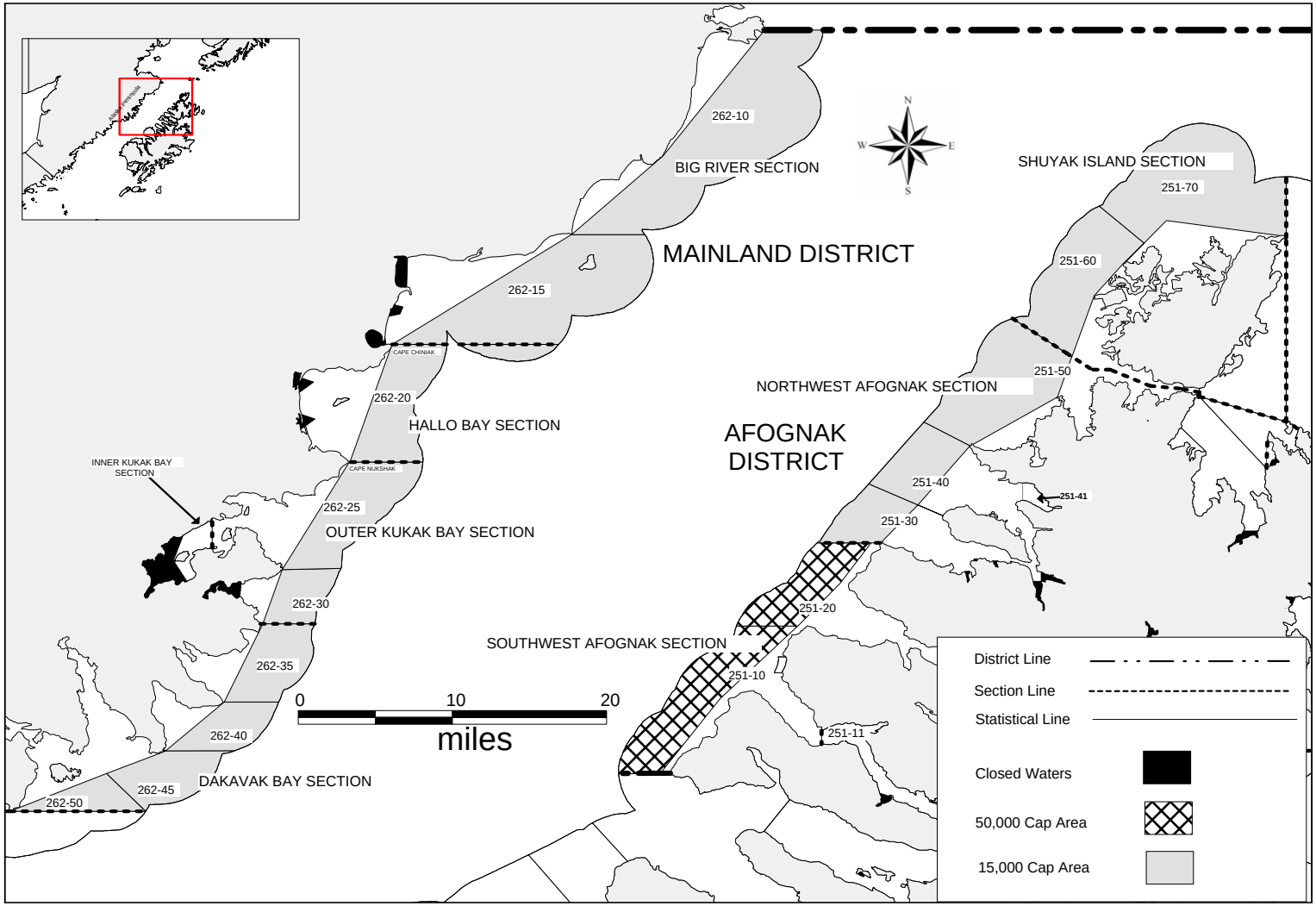
Appendix D4.–Page 2 of 3.

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%
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%	230,021	32%	68%	12,762,445	17%	83%	564,097	34%	66%	15,628,481	22%	78%
2005	10,881	30%	70%	1,453,859	61%	39%	173,922	69%	31%	5,905,494	25%	75%	244,765	53%	47%	7,788,921	34%	66%
2006	16,034	26%	74%	1,191,533	49%	51%	206,941	31%	69%	19,499,630	15%	85%	402,100	32%	68%	21,316,238	18%	82%
2007	13,129	12%	88%	1,376,591	51%	49%	151,483	47%	53%	7,140,350	31%	69%	214,913	43%	57%	8,896,466	35%	65%
Averages[a]:																		
1998-2007	12,639	20%	80%	1,612,792	51%	49%	155,009	43%	57%	8,142,479	24%	76%	306,685	40%	60%	10,229,603	30%	70%
1978-2007	7,883	26%	74%	1,085,143	52%	48%	107,352	34%	66%	6,253,709	25%	75%	299,552	37%	63%	7,753,640	30%	70%

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 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, 1991-2007.

Year	Mainland		N. Afognak		Zone Closure				Total Harvest by Species - July 6 through July 25					
	# of days open to fishing	# of days Seaward Zone closed	# of days open to fishing	# of days Seaward Zone closed	Date	Time	Sockeye Harvest at time of zone closure	Number of Vessels	Chinook	Sockeye	Coho	Pink	Chum	Upper Cook Inlet sockeye harvest (in millions)
1991	7.1	0.0	13.1	0.0	none	none	no closure	42	2,500	18,800	2,700	44,800	3,800	2.2
1992	7.1	5.1	9.1	7.1	7/8	1:00 p.m.	13,500	77	900	128,400	3,100	24,300	12,000	8.9
1993	7.1	4.7	13.8	8.9	7/10	5:00 p.m.	15,220	89	1,200	78,400	2,000	75,600	4,200	4.7
1994	7.1	2.8	9.1	4.8	7/14	11:00 p.m.	22,830	58	165	38,800	2,400	52,000	10,500	3.5
1995	7.1	3.3	13.3	8.5	7/13	10:00 p.m.	15,770	77	150	37,400	1,260	178,800	16,590	2.9
1996	7.1	4.3	7.1	4.3	7/15	10:00 p.m.	11,675	77	260	73,720	1,820	30,050	14,585	3.9
1997	7.1	4.9	10.1	7.9	7/8	5:00 p.m.	19,850	80	1,940	59,140	1,840	38,190	4,550	4.1
1998	7.1	2.4	10.1	4.4	7/16	9:00 p.m.	17,812	39	140	40,630	5,380	59,535	6,370	1.2
1999	7.1	3.3	10.1	6.3	7/13	10:00 p.m.	13,021	45	310	30,830	230	31,920	7,795	2.7
2000	7.1	0.0	10.1	0.0	none	none	no closure	31	68	9,225	1,045	20,215	22,155	1.3
2001	7.1	2.7	10.1	4.7	7/16	1:00 p.m.	14,729	26	245	22,321	9,943	33,534	10,348	1.8
2002	7.1	2.4	10.1	4.7	7/15	5:00 p.m.	16,600	35	295	35,290	13,181	238,734	13,708	2.8
2003	7.1	5.1	13.1	11.1	7/8	12:00 p.m.	16,448	37	120	33,122	1,054	35,151	6,500	3.5
2004	7.1	3.5	13.1	7.5	7/13	5:00 p.m.	16,000	36	533	53,334	3,756	44,886	14,710	4.9
2005	7.1	3.8	13.1	8.3	7/13	12:01 a.m.	17,400	22	87	59,856	1,809	27,269	5,361	5.1
2006	8.6	4.3	17.3	9.9	7/14	noon	15,000	31	482	82,538	8,312	146,445	33,075	2.4
2007	7.1	4.7	13.8	8.9	7/8	9:00 p.m.	12,706	28	266	17,407	566	14,340	5,083	3.3

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, 1991-2007.

Southwest Afognak Section (50,000 Sockeye Harvest Trigger)

Year	Zone Closure					Total Harvest by Species - July 6 through July 25						
	# of days open to fishing	# of days Seaward Zone closed	Date	Time	Sockeye Harvest at time of zone closure	Number of Vessels	Chinook	sockeye	coho	pink	chum	Upper Cook Inlet sockeye harvest (in millions)
1991	13.1	0.0	none	none	no closure	55	300	34,200	3,600	100,700	4,000	2.2
1992	9.1	4.7	7/14	1:00 PM	48,200	84	300	50,600	600	30,000	6,800	8.9
1993	13.6	7.7	7/14	1:00 PM	45,900	87	860	74,000	7,100	243,000	7,400	4.7
1994	9.6	0.0	none	none	no closure	45	360	13,600	1,000	64,300	3,100	3.5
1995	13.6	0.0	none	none	no closure	64	760	21,360	1,750	490,510	22,200	2.9
1996	7.6	0.0	none	none	no closure	32	185	10,510	803	79,205	10,785	3.9
1997	10.6	0.0	none	none	no closure	61	1,500	18,120	1,760	62,730	8,440	4.1
1998	10.6	0.0	none	none	no closure	22	240	10,340	2,290	82,685	1,900	1.2
1999	10.6	0.0	none	none	no closure	38	700	18,725	375	41,960	4,720	2.7
2000	10.6	0.0	none	none	no closure	31	90	17,810	1,220	37,340	7,225	1.3
2001	10.6	0.0	none	none	no closure	48	517	33,289	7,139	191,947	15,913	1.8
2002	10.6	0.0	none	none	no closure	32	502	23,691	3,742	122,892	4,821	2.8
2003	13.1	6.4	7/16	8:00 PM	66,000	41	125	119,490	6,006	238,088	15,829	3.5
2004	13.1	0.0	none	none	no closure	25	3,048	24,515	7,918	227,062	19,315	4.9
2005	13.1	0.0	none	none	no closure	29	492	30,262	1,501	156,150	2,754	5.1
2006	16.7	0.0	none	none	no closure	22	1,858	24,182	3,626	154,352	15,151	2.4
2007	13.1	0.0	none	none	no closure	26	2,222	20,704	2,899	191,203	5,353	3.3

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.

EASTSIDE AFOGNAK MANAGEMENT PLAN

	6/1 – 7/6	7/6 – 7/18	7/18 – 7/26	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

[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, 1978-2007.

Year	Permits	Landings	Number of Salmon					
			Chinook	Sockeye	Coho	Pink	Chum	Total
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	2,209	830	48,516	151,732	13,126,761	216,266	13,544,105
2002	107	1,237	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
2005	98	1,634	175	44,705	151,729	13,603,742	91,814	13,892,165
2006	90	704	800	23,822	168,205	4,158,109	177,548	4,528,484
2007	109	1,155	1,503	35,263	125,781	7,866,293	229,273	8,258,113
Average [a]								
1998-2007	114	1,226	642	47,629	146,811	6,186,746	199,224	6,594,365
1978-2007	116	795	317	23,868	65,253	2,905,087	82,459	3,057,648

[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 F3.–Commercial salmon harvest, by species, for the Southeast Afognak and Raspberry Strait Sections of the Eastside Afognak management unit, Kodiak Management Area, 1978-2007.

Year	Permits	Landings	Number of Salmon					
			Chinook	Sockeye	Coho	Pink	Chum	Total
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
2005	5	5	1	871	110	19,843	286	21,111
2006	11	19	1	420	3,346	71,371	240	75,378
2007	8	12	11	585	739	86,030	186	87,551
Average [a]								
1998-2007	23	56	24	10,210	2,458	121,771	1,222	135,686
1978-2007	51	170	54	19,071	4,312	161,122	3,862	188,421

[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 G: EASTSIDE KODIAK MANAGEMENT PLAN

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

EASTSIDE KODIAK MANAGEMENT PLAN

DISTRICTS & SECTIONS		6/1	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	CLOSED	LOCAL & MIXED PINK SALMON	LOCAL PINK & COHO SALMON	LOCAL COHO SALMON
	TWO HEADED	CLOSED		CLOSED	CLOSED	LOCAL & MIXED PINK SALMON	LOCAL PINK & COHO SALMON	LOCAL COHO SALMON
	SITKALIDAK	CLOSED		CLOSED	CLOSED	LOCAL & MIXED PINK SALMON	LOCAL PINK, CHUM & COHO	LOCAL COHO SALMON
	OUTER UGAK BAY	CLOSED		CLOSED	PASAGSHAK SOCKEYE	LOCAL & MIXED PINK SALMON	LOCAL PINK, CHUM & COHO	LATE CHUM & COHO
	INNER UGAK BAY	CLOSED		CLOSED	SALTERY SOCKEYE	LOCAL PINK & CHUM, SALTERY SOCKEYE	LOCAL PINK & CHUM SALMON	LOCAL PINK & COHO SALMON	LOCAL COHO SALMON
		6/1	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, 1978-2007.

Year	Permits	Landings	Number of Salmon					
			Chinook	Sockeye	Coho	Pink	Chum	Total
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
2005	62	695	476	122,762	39,777	5,367,039	61,844	5,591,898
2006	57	589	1,083	73,331	52,285	3,227,765	245,811	3,600,275
2007	64	884	533	161,307	26,775	5,242,463	180,760	5,611,838
Average [a]								
1998-2007	69	495	1,058	135,189	35,157	1,811,627	140,792	2,123,822
1978-2004	117	928	1,249	119,318	29,735	1,799,004	182,898	2,132,205

[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, 1978-2007.

Year	Permits	Landings	Number of Salmon					
			Chinook	Sockeye	Coho	Pink	Chum	Total
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
2005	10	17	8	282	882	38,243	1,459	40,874
2006	25	73	101	454	18,275	120,532	17,987	157,349
2007	24	94	22	619	6,840	334,956	6,180	348,617
Average [a]								
1998-2007	19	46	114	4,715	5,234	108,963	10,928	129,954
1978-2007	48	187	123	5,144	5,736	212,861	19,098	242,962

[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.

NORTH AFOGNAK/SHUYAK ISLAND SALMON MANAGEMENT PLAN

	6/1 – 7/6	7/6 – 7/21	7/21 – 8/1	8/1 – 8/21	8/21 – 8/25	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	

[a] Additional fishing time to harvest enhanced sockeye bound to Waterfall Lake will occur only in the Waterfall Lake Special 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 Special 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, 1978-2007.

Year	Permits	Landings	Number of Salmon					
			Chinook	Sockeye	Coho	Pink	Chum	Total
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 [a]	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	*	*	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	5	11	78	15,132	5	20	1,469	16,704
2003	16	57	12	50,871	110	59,494	98	110,585
2004	8	32	11	23,467	5,102	21,305	71	49,956
2005	6	27	29	18,188	0	0	4	18,221
2006	0	0	0	0	0	0	0	0
2007	*	*	0	2	3	3,169	1	3,175
Averages: [a]								
1998-2007	11	30	30	16,951	5,432	12,218	225	34,855
1978-2007	20	50	16	12,025	8,362	58,724	847	79,973

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

[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.

* = Confidential data

Appendix H3.–Commercial salmon harvest, by species, from the Pauls Bay Section of the Kodiak Management Area, 1982-2007.

Year	Permits	Landings	Number of Salmon					
			Chinook	Sockeye	Coho	Pink	Chum	Total
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	*	*	1	34	14	3,532	30	3,611
1992	*	*	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
2005	4	5	0	145	745	300	0	1,190
2006	5	8	0	147	10,666	30,076	199	41,088
2007	*	*	1	109	656	24,420	36	25,222
Averages: [a]								
1998-2007	8	14	3	3,596	7,046	11,098	81	21,825
1982-2007	10	16	4	2,211	4,403	17,086	582	24,286

Source: ADF&G fish ticket summaries. From 1982-2001, 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.

* = Confidential data

Appendix H4.–Commercial salmon harvest, by species, for the Shuyak Island Section of the Kodiak Management Area, 1978-2007.

Year	Permits	Landings	Number of Salmon					
			Chinook	Sockeye	Coho	Pink	Chum	Total
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	3	6	0	0	1,790	4,866	0	6,656
2004	3	15	0	0	3,945	441	0	4,386
2005	*	*	0	0	310	0	0	310
2006	5	15	1	1	11,227	981	3	12,213
2007	*	*	0	820	17	0	3,090	3,927
Average [a]								
1998-2007	4	8	0	147	5,181	1,946	320	7,594
1978-2007	13	20	5	2,168	7,658	9,095	651	19,577

Source: ADF&G fish ticket summaries. From 1982-2001, 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 in 1989 due to the presence of oil from the M/V Exxon Valdez spill. Averages do not include 1989 data.

* = Confidential data

APPENDIX I: MAINLAND DISTRICT MANAGEMENT PLAN

Appendix I1.–Primary management species and management chronology of the Mainland District Management Plan for the Kodiak Management Area.

MAINLAND DISTRICT SALMON MANAGEMENT PLAN

	6/1 – 6/5	6/6 – 6/14	6/15 – 6/21	6/22 – 7/6	7/7 – 7/26	7/27 – 8/15	8/16 – 8/21	8/22 – 8/25
BIG RIVER SECTION [a]	NOT MORE THAN TWO 33-HOUR FISHING PERIODS				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]	NOT MORE THAN TWO 33-HOUR FISHING PERIODS				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 (5 AAC 18.360)					LOCAL & MIXED KODIAK PINK & CHUM SALMON		LATE PINK & COHO SALMON
WIDE BAY SECTION	CLOSED					LOCAL PINK & CHUM SALMON		LATE PINK & COHO SALMON

[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 (5 AAC 18.363).

Appendix I2.–Commercial salmon harvest, by species, for the Mainland District of the Kodiak Management Area, 1978-2007**.**

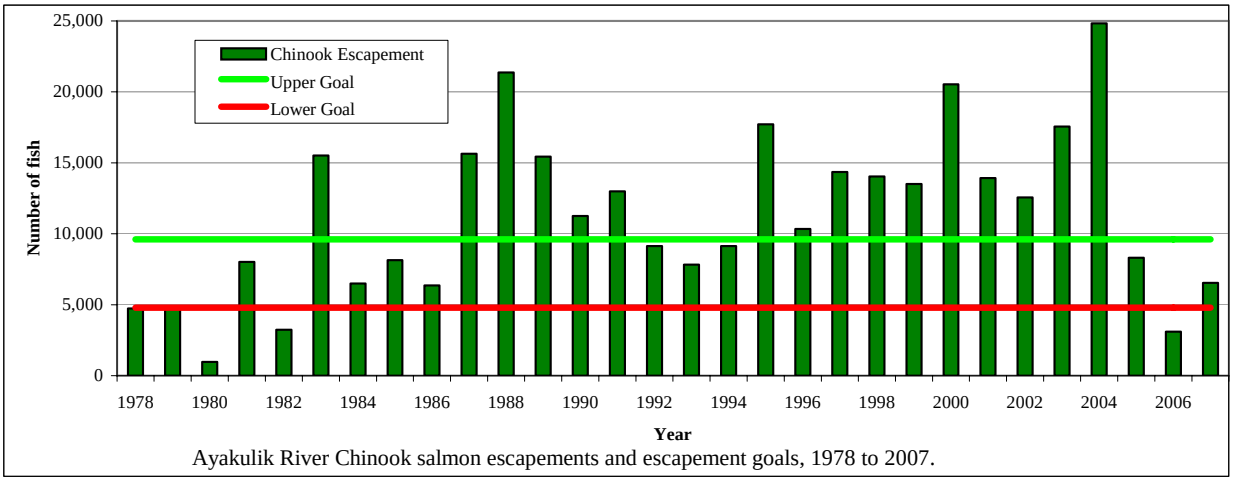
Year	Permits	Landings	Number of Salmon					
			Chinook	Sockeye	Coho	Pink	Chum	Total
1978	160	900	454	285,606	1,169	236,796	152,548	676,573
1979	156	489	35	32,356	3,042	623,117	73,137	731,687
1980	92	471	5	17,648	3,122	286,809	413,884	721,468
1981	154	1,414	189	409,844	1,357	271,758	437,784	1,120,932
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
2005	77	654	1,918	552,751	10,963	473,812	49,902	1,089,346
2006	55	298	1,966	147,731	32,690	899,213	187,139	1,268,739
2007	54	197	1,583	120,329	16,811	617,342	52,413	808,478
Average [a]								
1998-2007	80	436	1,636	286,530	17,651	422,673	137,186	865,676
1978-2007	133	830	1,910	318,811	21,864	519,706	180,001	1,042,292

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.

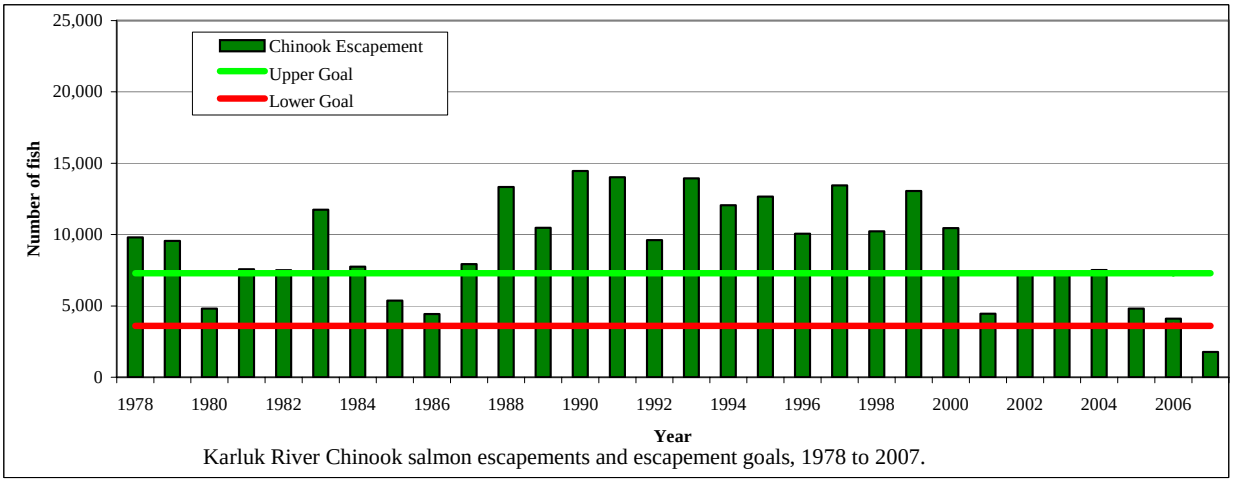
[a] Commercial salmon fisheries were severely restricted in 1989 due to the presence of oil from the M/V Exxon Valdez spill. Averages do not include 1989 data.

APPENDIX J: ESCAPEMENTS

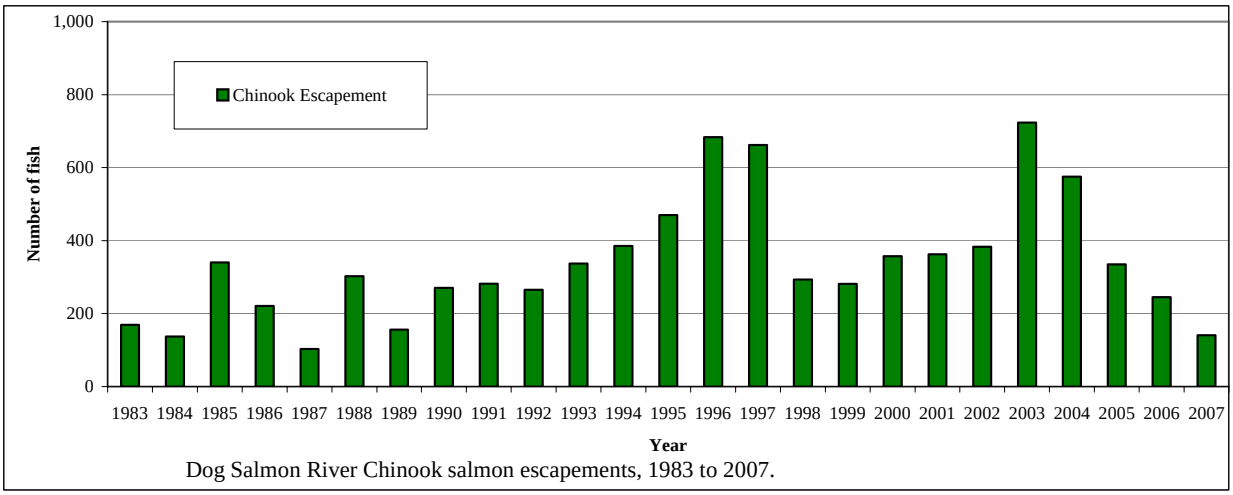
Appendix J1.–Ayakulik and Karluk Rivers, and Dog Salmon Creek Chinook salmon escapements and current escapement goals, Kodiak Management Area, 1978-2007.



Ayakulik River Chinook salmon escapements and escapement goals, 1978 to 2007.

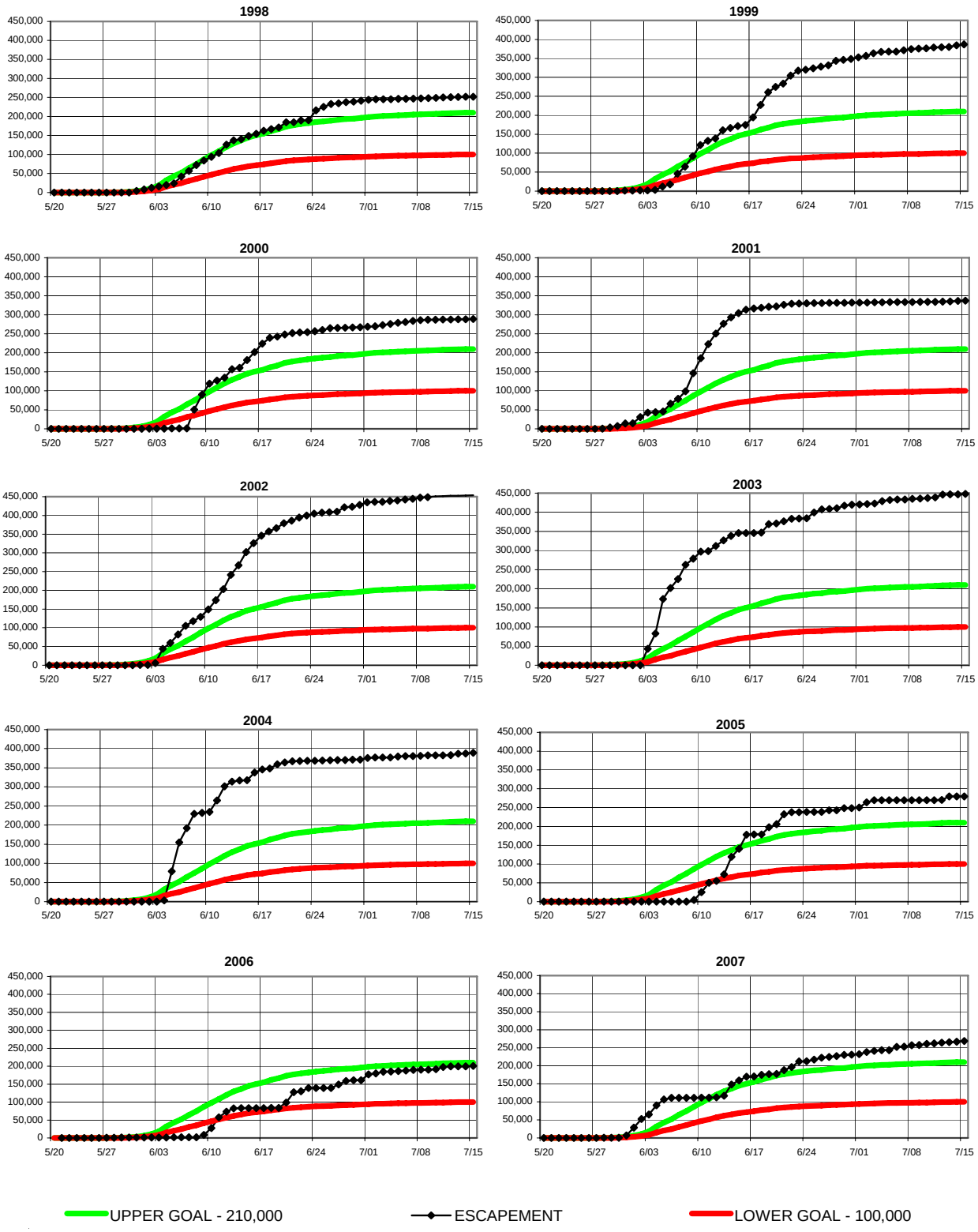


Karluk River Chinook salmon escapements and escapement goals, 1978 to 2007.

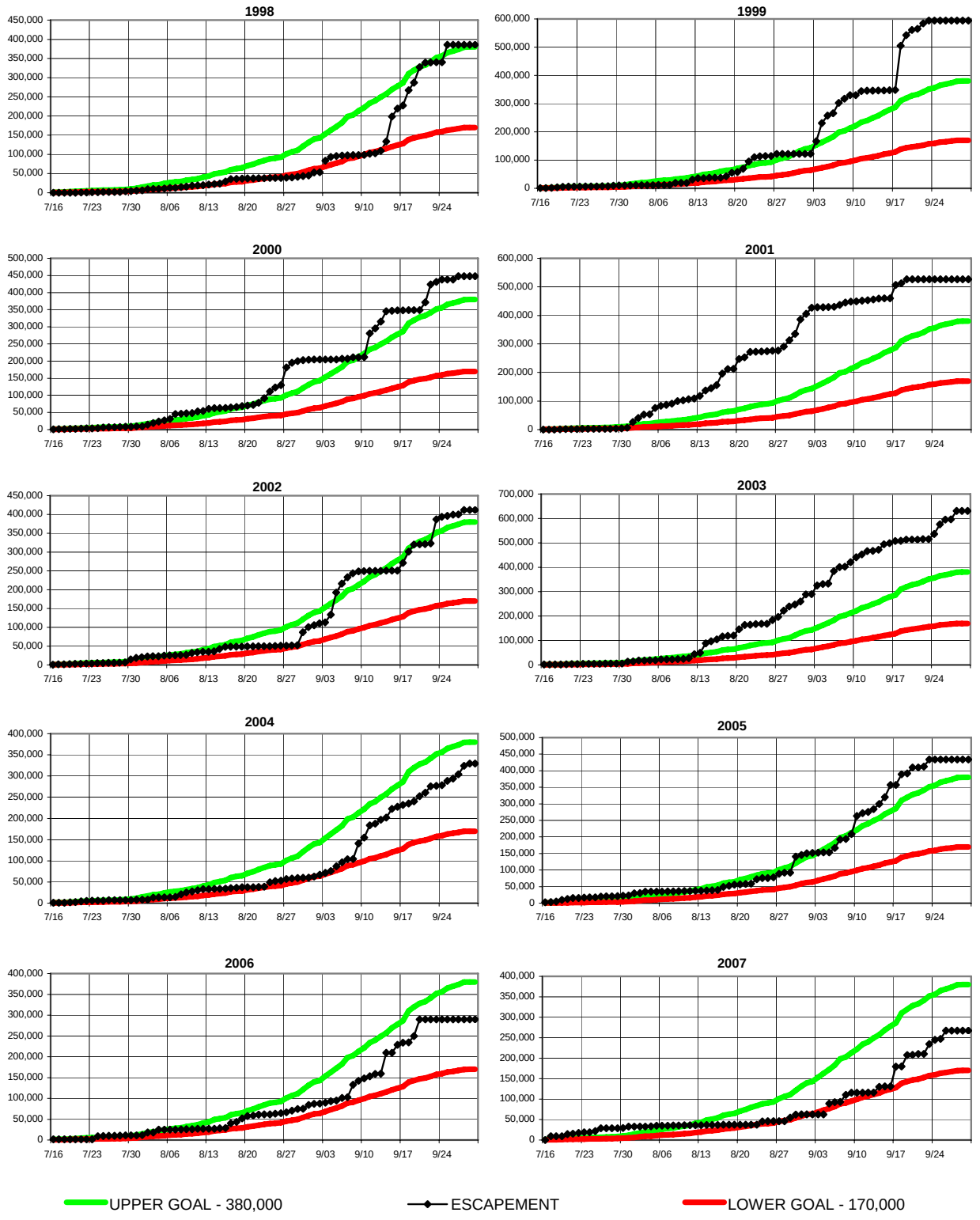


Dog Salmon River Chinook salmon escapements, 1983 to 2007.

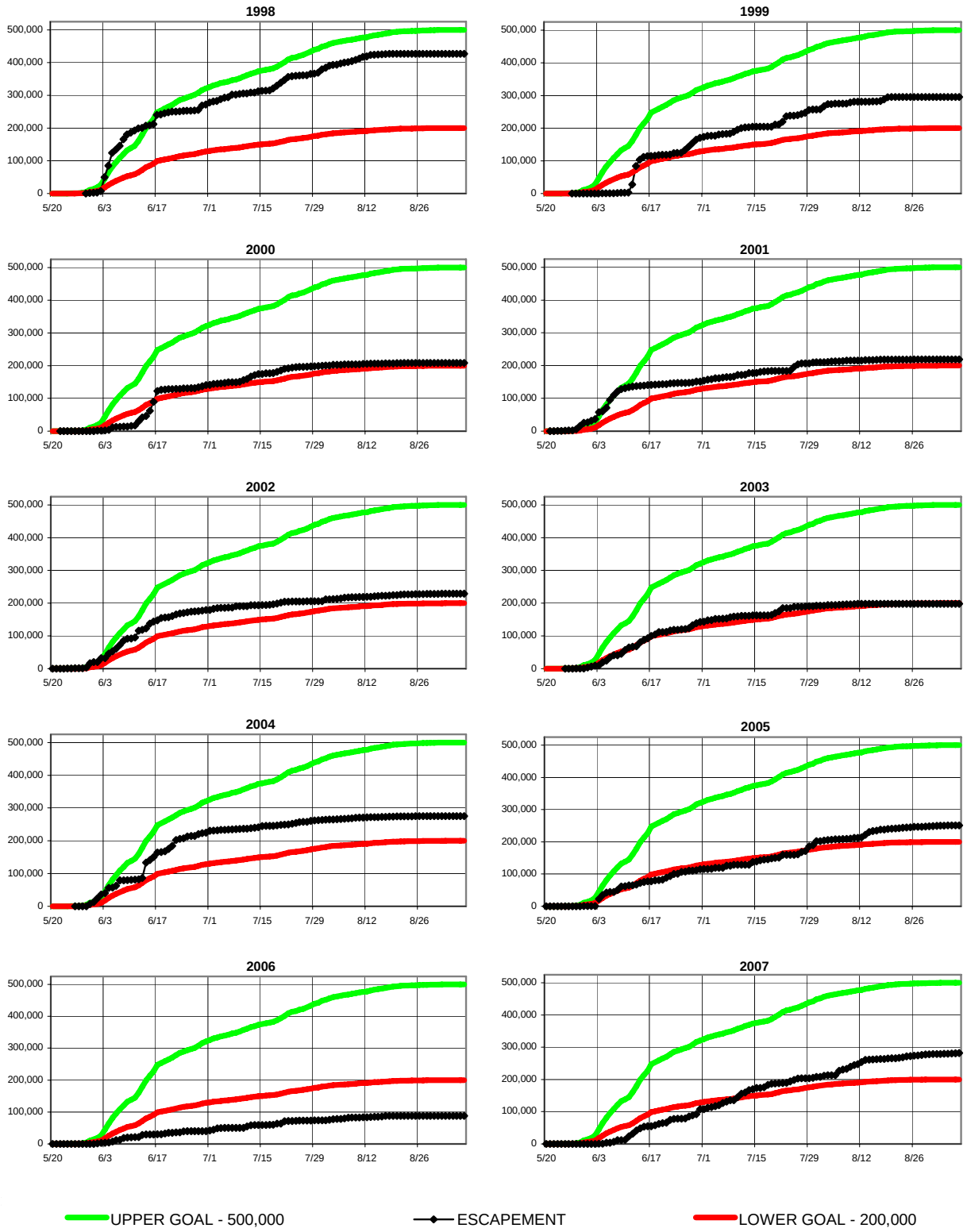
Appendix J2.–Comparison of the early-run Karluk sockeye escapement goal to actual sockeye escapements, Kodiak Management Area, 1998-2007.



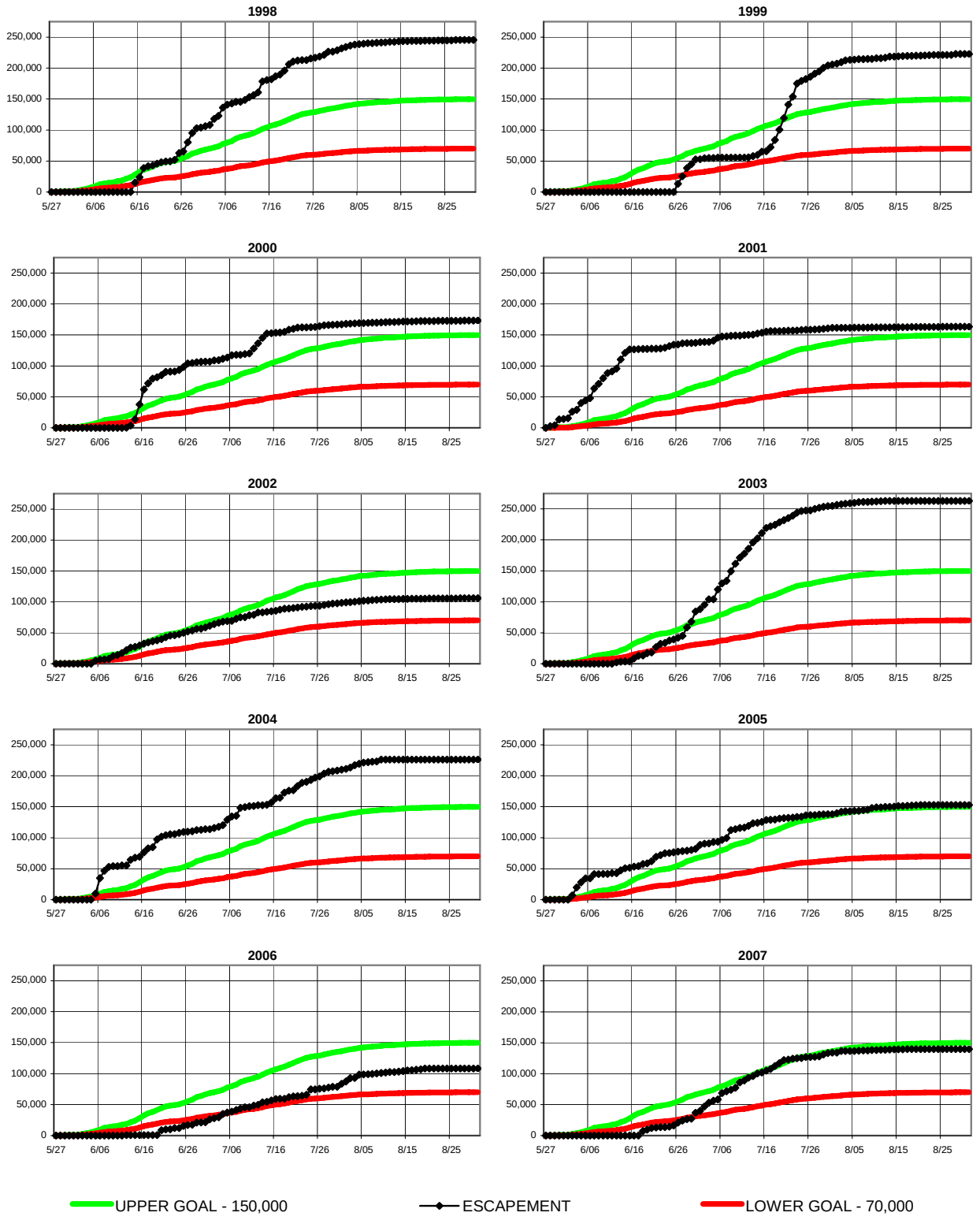
Appendix J3.–Comparison of the late-run Karluk sockeye salmon escapement goal to actual sockeye escapements, Kodiak Management Area, 1998-2007.



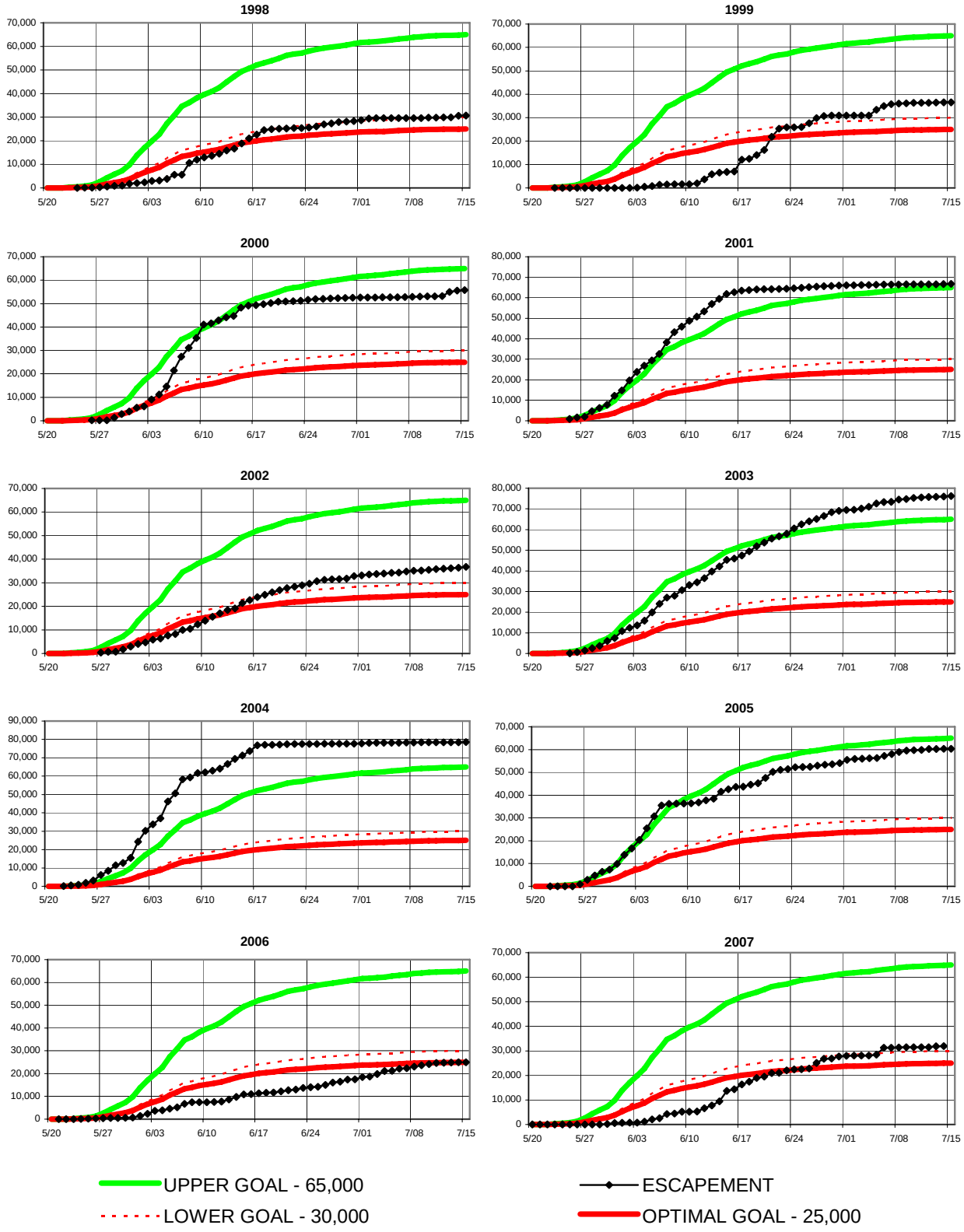
Appendix J4.–Comparison of the Ayakulik sockeye salmon escapement goal to actual sockeye escapements, Kodiak Management Area, 1998-2007.



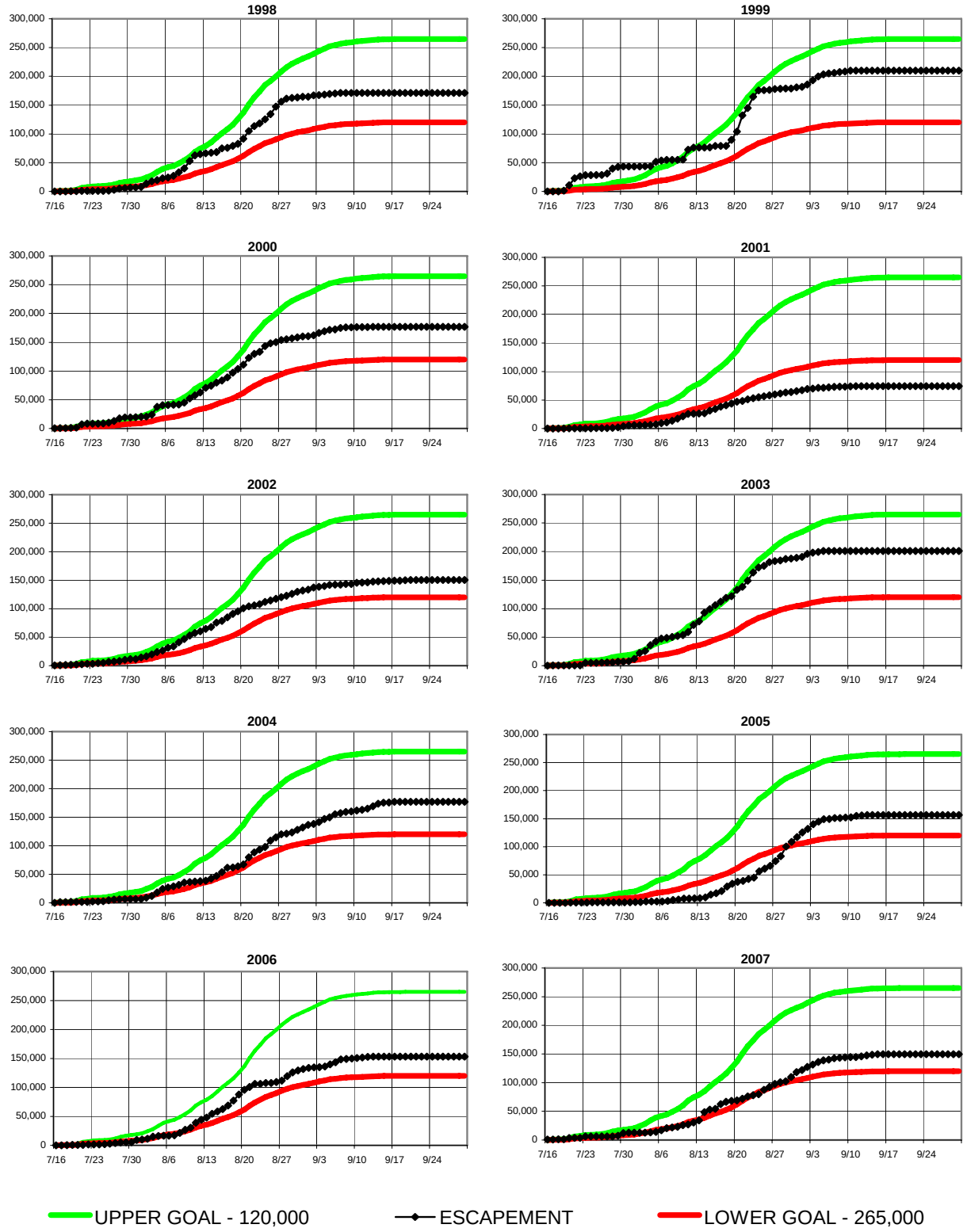
Appendix J5.–Comparison of the Frazer sockeye salmon escapement goal to actual sockeye escapements through the Dog Salmon Creek weir, Kodiak Management Area, 1998-2007.



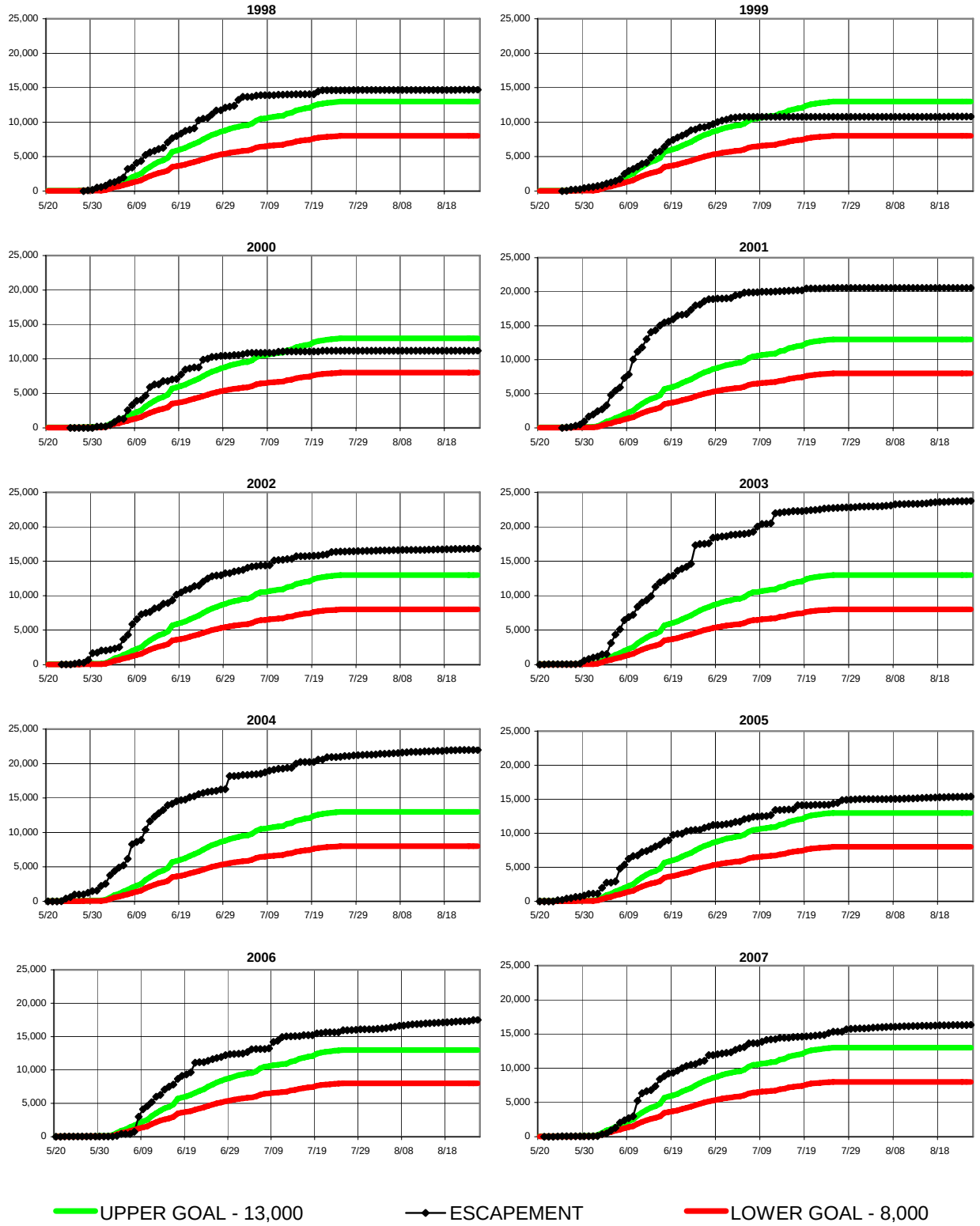
Appendix J6.–Comparison of the early-run Upper Station sockeye salmon escapement goal to actual sockeye escapements, Kodiak Management Area, 1998-2007.



Appendix J7.–Comparison of the late-run Upper Station sockeye salmon escapement goal to actual sockeye escapements, Kodiak Management Area, 1998-2007.



Appendix J8.–Comparison of the Buskin sockeye salmon escapement goal to actual sockeye escapements, Kodiak Management Area, 1998-2007.



Appendix J9.–Comparison of the Afognak (Litnik) sockeye salmon escapement goal to actual sockeye escapements, Kodiak Management Area, 1998-2007.