Fishery Management Report No. 12-18

Chignik Management Area Salmon and Herring Annual Management Report, 2011

by

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and

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April 2012

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)

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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April 2012

The Fishery Management Reports series was established in 1989 by the Division of Sport Fish for the publication of an overview of management activities and goals in a specific geographic area, and became a joint divisional series in 2004 with the Division of Commercial Fisheries. 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.adfg.alaska.gov/sf/publications/. This publication has undergone regional peer review.

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This document should be cited as:
Anderson, T. J., and N. W. Nichols. 2012. Chignik Management Area Salmon and Herring Annual Management Report, 2011. Alaska Department of Fish and Game, Fishery Management Report No. 12-18, Anchorage.

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ABSTRACT

This report is a summary of the 2011 commercial Pacific herring *Clupea pallasii* and Pacific salmon *Oncorhynchus* spp. fisheries within the Chignik Management Area (CMA; Area L). The CMA encompasses all coastal waters and inland drainages of the northwest Gulf of Alaska between Kilokak Rocks and Kupreanof Point. There was no commercial herring fishery in the CMA during 2011. All five species of North American Pacific salmon were commercially harvested in the CMA during 2011: Chinook *O. tshawytscha*, sockeye *O. nerka*, coho *O. kisutch*, pink *O. gorbuscha*, and chum *O. keta* salmon. In 2011, the Chinook salmon escapement of 2,728 fish to the Chignik River exceeded the escapement goal range of 1,300 to 2,700 fish. The 2011 Chignik River early-run sockeye salmon escapement of 488,930 fish exceeded the early-run escapement goal range of 350,000 to 400,000 fish. The late-run sockeye salmon escapement of 264,887 fish was within the late-run escapement goal range of 250,000 to 400,000 fish. The early run was above the recent 5-, 10-, and 20-year averages. The late run was below the recent 5-, 10-, and 20-year escapement averages. The 2011 total CMA sockeye salmon harvest of 2,497,004 fish was well above the recent 5-, 10-, and 20-year average harvests. The CMA total coho harvest of 76,792 fish was below recent 5-, 10-, and 20-year average harvests. The area wide chum salmon escapement of 278,145 fish exceeded the lower bound sustainable escapement goal of 57,400 fish. In 2011, 269,503 chum salmon were harvested which was above the recent 5-, 10-, and 20-year average harvests. The 2011 area wide pink salmon escapement of 986,248 fish exceeded the upper bound of the odd-year sustainable escapement goal range of 500,000 to 800,000 fish and was above the recent 5-year average, but below the recent 10-, and 20-year escapement averages. The CMA harvest of 905,166 pink salmon was below the recent 5- and 20-year averages, but above the recent 10-year average harvest. A total of 64 CMA permit holders made deliveries in 2011. The majority of the fishing effort in the 2011 season occurred in the Chignik Bay District. The exvessel value for the 2011 salmon harvest in the CMA totaled approximately $23.8 million.

Key words: Chignik Management Area (CMA), Chignik River, *Oncorhynchus*, *Clupea pallasii*, salmon, herring, Alaska Board of Fisheries (BOF), 2011 commercial fisheries management, Fisheries Management Plan (FMP), harvest statistics, escapement statistics.

INTRODUCTION

The Alaska Department of Fish and Game (ADF&G) manages all Pacific herring *Clupea pallasii* and commercial salmon *Oncorhynchus* spp. fisheries within the Chignik Management Area (CMA; Area L). The CMA encompasses all coastal waters and inland drainages of the northwest Gulf of Alaska between Kilokak Rocks and Kupreanof Point (Figure 1). For management purposes, these waters are divided into five fishing districts: Eastern, Central, Chignik Bay, Western, and Perryville districts. Each district is further broken down into sections and statistical reporting areas (Figure 2).

Five species of North American Pacific salmon are commercially harvested in the CMA: Chinook *O. tschawytscha*, sockeye *O. nerka*, coho *O. kisutch*, pink *O. gorbuscha*, and chum *O. keta* salmon. Of these, sockeye salmon are the primary species targeted and the most important commercial and subsistence salmon species in the CMA. ADF&G manages all CMA commercial salmon resources by emergency order based on inseason evaluation of local stock abundance and escapement objectives. The majority of fishing effort is concentrated on salmon returning to the Chignik River watershed. Commercial salmon fishing is the economic mainstay for five villages: Chignik Bay, Chignik Lagoon, Chignik Lake, Perryville, and Ivanof Bay (Figure 1).

This report provides a summary of commercial herring and salmon management plans, fishing activity, escapements, and harvests in the CMA. This report also provides a chronology of significant regulatory changes that influenced the 2011 commercial salmon season. Most tables in this report have been verified against the Westward Region electronic fish ticket (1970 to

present) and historical escapement databases (1960 to present). The salmon harvest estimates reported in this document were summarized from the fish ticket database on October 1, 2011. Data published in this report supersede any data previously published.

COMMERCIAL HERRING

HERRING MANAGEMENT OVERVIEW

Herring may be harvested in the CMA from April 15 through June 30 (sac roe season) and from August 15 through February 28 (food and bait season), although specific commercial herring fishing periods and areas are allowed only by emergency order (5 AAC 27.560). Herring may be taken only by purse seines not more than 1,000 meshes in depth and 100 fathoms in length (5 AAC 27.575).

There are several distinct locations within the CMA where herring are managed as separate stocks (Table 1). Each individual location is managed on a maximum exploitation rate of 20%, given that a threshold biomass is available for harvest. Threshold biomass levels are determined prior to the fishing season after aerial survey estimates are conducted and potential effort levels are determined.

Historical Data

Commercial herring harvests were not recorded in the CMA until 1980 (Nicholson et al. 1980). In years when fisheries occurred, herring harvests ranged from 6 tons in 1996 to 587 tons in 1980 (Table 2). Due to lack of industry interest, the CMA has not had a herring fishery in 15 over years. The last herring biomass survey and commercial fishery occurred in 1996 (Table 2; Stichert 2007).

2011 Herring Fishery

There was no 2011 herring fishery in the CMA; no guideline harvest levels were set due to the lack of industry interest.

COMMERCIAL SALMON

OVERVIEW OF MANAGEMENT PLANS

Several management plans have been used to manage the CMA commercial salmon fishery in the last decade. The 2011 CMA commercial salmon fishery was managed based on the *Chignik Salmon Management Plan* (5 AAC 15.357). Sockeye salmon bound for the Chignik River watershed were also allocated under two additional management plans: the *Cape Igvak Salmon Management Plan* (5 AAC 18.360) in the Kodiak Management Area (Area K), and the *Southeastern District Mainland (SEDM) Salmon Management Plan* (5 AAC 09.360) in the Alaska Peninsula Management Area (Area M; Figure 1).

Chignik Salmon Management Plan

The *Chignik Salmon Management Plan* (5 AAC 15.357) was originally adopted in 1999. The goal of this plan was to allow traditional salmon fisheries in the CMA while achieving the established escapement goals for both early-run (Black Lake), and late-run (Chignik Lake) sockeye salmon. Purse seines and hand purse seines are the only legal commercial salmon

fishing gear within the CMA. Legal seine gear ranged from 100 to 125 fathoms in length in the Chignik Bay District and from 100 to 225 fathoms in length in all other districts (5 AAC 15.332). To assist management efforts, the management plan is organized into districts or groups of districts: the Chignik Bay and Central districts, the Eastern District, and the Western and Perryville districts (Figure 2).

Cape Igvak Salmon Management Plan

From June 1 through July 25, 90% of the sockeye salmon harvested within the Cape Igvak Section are allocatively considered to be Chignik-bound (5 AAC 18.360(d)). The Cape Igvak Section is the westernmost section of Area K, located directly northeast of the CMA (Figure 1). If the harvestable surplus of sockeye salmon in the CMA is above or expected to be above certain thresholds (5 AAC 18.360 (a-c)), then 15 percent of the total Chignik sockeye salmon harvest (total includes sockeye salmon caught at Cape Igvak and within certain portions of SEDM) is allocated to Area K fishermen. After July 25, there are no allocative ties between the CMA and Area K.

Southeastern District Mainland Salmon Management Plan

From June 1 through July 25, 80 percent of the sockeye salmon harvested within certain SEDM sections during specific times are allocatively considered to be Chignik-bound (5 AAC 09.360). The SEDM is composed of a group of sections at the eastern end of Area M, located directly southwest of the CMA (Figure 1). If the harvestable surplus of sockeye salmon in the CMA is above or expected to be above certain thresholds (5 AAC 09.360 (a-g)), then 7.6 percent of the total estimated CMA sockeye salmon harvest is allocated to SEDM fisherman. After July 25, there are no allocative ties between the CMA and Area M.

2011 CHIGNIK SALMON MANAGEMENT

ADF&G targeted the lower bounds of the sockeye salmon escapement goals during the 2011 season (Table 3; Appendix A) based on limnology data from 2000 through 2007 that suggested the forage base for sockeye salmon was depressed in Chignik Lake (Bouwens and Finkle 2003a, b; Finkle 2005; Finkle 2006a, b; Finkle and Bouwens 2001). ADF&G first adopted this practice in 2002 to improve juvenile sockeye salmon production by relieving grazing pressure on zooplankton in Chignik Lake (Bowens and Finkle 2003b).

The first commercial fishing period began on June 5, and the last commercial fishing period ended on August 29. The commercial salmon fishery was open for a total of 74 days during 2011 (Figure 3). A total of 64 CMA commercial salmon permit holders (excluding the department test fish permit) participated in the 2011 commercial salmon season.

Salmon were delivered to five locations in 2011: floating processors operated by Trident Seafoods in Chignik Bay, Trident Seafoods in Sand Point, and Trident Seafoods, International Seafoods of Alaska, and Ocean Beauty Seafoods in Kodiak. Processors filleted or headed and gutted the majority of Chignik salmon.

Chignik Bay and Central Districts Commercial Salmon Fishery

The majority of the Chignik weir installation was completed by May 26. Heavy rains throughout the month of May delayed completion of the weir until the Chignik River showed signs of cresting. The Chignik weir was completed on May 30 after it was determined that the river levels

where moderating. The first full day of escapement counts (4,069 sockeye salmon) on June 1 was well above the average escapement for that date indicating that the Black Lake run was arriving early and may be relatively strong. After several additional days of high escapement estimates and one of the earliest Chignik Lagoon test fisheries (June 4), the 2011 commercial salmon fishery opened at 6:30 AM, June 5 in the Chignik Bay and Central districts as well as the Inner Castle Cape Subsection of the Western District (Figure 4). Due to high sockeye salmon harvest rates and strong escapement levels, the initial fishing period in the Chignik Bay and Central districts was extended on three occasions and ultimately the fishery remained open until July 11. The CMA then closed for 12 days to achieve late-run sockeye salmon escapement objectives (Table 3 and 4; Figure 3). Sockeye salmon escapement into the Chignik River watershed remained relatively consistent throughout the remaining commercial salmon season. As a result, the Chignik Bay and Central districts remained open from July 23 until the end of the commercial salmon season on August 29. In total, the Chignik Bay and Central districts were open for 74 days during 2011.

The Chignik Lagoon markers alternated between Humes Point, Mensis Point, Pillar Rock, and the Chignik Weir regulatory markers during the 2011 salmon season (Figure 5). Generally, the Humes Point markers were used for the first 24 to 48 hours of a commercial fishing period to allow salmon above these markers to escape the fishery. The Humes Point markers were also used when sockeye salmon escapement was at or just above the lower bound of the late run escapement objectives. This increased escapement into the Chignik River and also allowed the department to assess the magnitude of salmon entering the lagoon by concentrating the effort in the lower lagoon. During periods when sockeye salmon abundance exceeded the upper bounds of the escapement objectives the closed waters in Chignik Lagoon were reduced to Mensis Point, Pillar Rock, and the Chignik Weir regulatory markers to control escapement and provide for additional harvest opportunities. A summary of emergency orders outlining the commercial salmon fisheries in the Chignik Bay and Central districts is located in Appendix B.

Eastern District Commercial Salmon Fishery

The Eastern District, by regulation (5 AAC 15.357 (c)(1)), opened concurrently with the Chignik Bay and Central districts during June (Figures 2 and 3). In 2011, the Eastern District was open from the initial fishing period on June 5 through July 11 because of an exceptionally strong early run. Later in the season a 16-day closure in early August was necessary to ensure local pink salmon escapement, after which a 48-hour and a 96-hour fishing period had limited fishing effort.

Inseason aerial surveys indicated that pink salmon escapement in 2011 was moderate compared to historical averages and chum salmon escapement was above recent averages.

In total, the Eastern District was open to commercial salmon fishing for 48 days during 2011 (Figure 3). A summary of emergency orders outlining the commercial salmon fisheries in the Eastern District is found in Appendix B.

Western and Perryville Districts Commercial Salmon Fishery

The Inner Castle Cape Subsection of the Western District, by regulation (5 AAC 15.357 (b)), opened concurrently with the Chignik Bay and Central districts in June (Figures 2, 3, and 4). Also by regulation (5 AAC 15.357 (e)), the Western District, excluding the Inner Castle Cape Subsection, opened to commercial salmon fishing for two 48-hour periods with a mandatory

48-hour closure between fishing periods through July 5. The first 48-hour fishing period began on June 17 but had no fishing effort due to high sockeye salmon harvest rates in the Chignik Bay and Central districts. The second 48-hour fishing period began on July 1.

Excluding the Inner Castle Cape Section of the Western District, and the two 48-hour fishing periods, the Western and Perryville districts are closed to commercial salmon fishing through July 5 (5 AAC 15.357 (d)). Beginning July 6, these districts can be opened on a catch-per-unit-effort basis targeting migrating pink and chum salmon. Once fish enter local streams, management shifts to an escapement-based strategy.

Due to low Chignik late-run sockeye salmon escapement, the Western and Perryville districts were closed to commercial salmon fishing for most of July (Figure 3). A 54-hour fishing period began on July 8 followed by a 13-day closure. On July 24, the Western and Perryville districts reopened to commercial salmon fishing until the districts closed on July 28 to ensure adequate local pink salmon escapement.

After a 5-day and a 4-day closure in early August, the districts remained open for the remainder of the salmon season (Figure 3). In total, the Western District was open to commercial salmon fishing for 35 days, and the Perryville District for 31 days during 2011 (Figure 3). A summary of emergency orders outlining the commercial salmon fisheries in the Western and Perryville districts is found in Appendix B.

ESCAPEMENT AND HARVEST DATA

Stock Separation Techniques

Two distinct sockeye salmon runs (an early- and late-run) enter the Chignik River watershed and temporally overlap during late June and early July (Templin et al. 1999). Prior to 2004, scale pattern analysis (SPA) was used to differentiate stock composition during this time, and the fishery was managed inseason based on the results of this analysis (Witteveen and Botz 2004). The Chignik SPA program was discontinued prior to the 2004 season due to funding limitations. However, examination of SPA data revealed that, on average, the number of early-run sockeye salmon that passed the Chignik River weir after July 4 was approximately equal to the number of late-run sockeye salmon that passed the weir prior to July 4. The 2011 fishery was managed based on this date, so that through July 4, fishing periods were based on achieving interim early-run escapement objectives, and beginning July 5, fishing periods were based on achieving interim late-run escapement objectives (Table 3).

Escapement Goals

In 2010, a salmon escapement goal review team, including staff from the Division of Commercial Fisheries and the Sport Fish Division, was formed to review salmon escapement goals in the CMA (Nemeth et. al. 2010). The team recommended no change to any of the CMA salmon escapement goals. CMA escapement goals are as follows; the Chignik River Chinook salmon biological escapement goal (BEG) range of 1,300–2,700 fish, the sockeye salmon early-run sustainable escapement goal (SEG) range of 350,000–400,000 fish (Table 3), the late-run sockeye salmon SEG range of 250,000–400,000 fish, the pink salmon even-year SEG range of 200,000–600,000 pink salmon, the odd-year pink salmon SEG range of 500,000–800,000 pink salmon, and the areawide aggregate chum salmon lower bound SEG of 57,400.

The directors of the divisions of Commercial Fisheries and Sport Fish approved the team's escapement goal recommendations, which were implemented for the 2011 season.

2011 Escapement Information

In 2011, salmon escapements to the Chignik River were enumerated through use of a weir. There were two gates in the weir, which were generally always open to allow for unrestricted fish passage. Underwater video equipment was used to count fish passing through the weir gates. At night, lights allowed fish to be counted. The number of fish passing the weir, by species, were counted for the first 10 minutes of each hour, and then multiplied by six to obtain hourly escapement estimates. Hourly estimates were summed to provide an estimate of daily fish passage. Video footage from each 10-minute escapement count was recorded and archived.

The majority of the Chignik River Chinook, sockeye, pink, and chum salmon escapements were counted through the weir. Since Dolly Varden *Salvelinus malma* were not commercially harvested or actively managed in the CMA, their escapements are noted in the tables of this document for historical comparisons, but not discussed in detail in the escapement section below. The first count of the 2011 season was on May 31, and the last full count of the season was on September 2, after which the weir was removed (Table 5). A post-weir sockeye salmon escapement estimate was produced using time series analysis and the results were grouped into two reporting periods: September 3 to 15 and September 16 to 30 (Appendix D). The 2011 coho salmon counts were still increasing when the weir was removed, precluding a postweir analysis. Therefore, the 2011 Chignik River coho salmon escapement total is considered incomplete.

Aerial surveys were flown over the spawning grounds of the Chignik River watershed to assess sockeye salmon spawning escapement levels and distribution. Escapements to other CMA streams were also estimated via aerial surveys.

Chinook Salmon

The Chignik River is the only stream with substantial Chinook salmon production within the CMA. Chinook salmon began entering the Chignik River in mid-June. The run peaked by mid-July, and was over by late August (Table 5; Figure 6). The 2011 Chignik River Chinook salmon escapement of 2,728 fish was above the 5-year average escapement, but below the 10- and 20-year average escapements (Table 6). The 2011 Chignik River Chinook salmon escapement was near the upper bound of the Chignik River Chinook salmon BEG range of 1,300 to 2,700 fish (Figure 7; Nemeth et al. 2010).

Sockeye Salmon

Chignik River watershed sockeye salmon are managed based on daily escapement objectives, by run (Table 3, Nemeth et al. 2010). The Chignik River sockeye salmon early run peaked in mid-June and the late run peaked in mid to late July (Table 6; Figure 8). The 2011 estimated total Chignik River watershed sockeye salmon escapement of 753,817 fish was above the 5- and 10-year average escapement, but below the 20-year average escapement (Table 7). The early-run escapement was estimated at 488,930 sockeye salmon, which exceeded the early-run SEG range of 350,000 to 400,000 fish (Table 7; Figure 9). The late-run escapement was estimated at 264,887 sockeye salmon, which was within the late-run escapement objective range of 250,000 to 400,000 fish (Table 7; Figure 9). Because the weir was removed before the late run was complete, a postweir sockeye salmon escapement estimate was produced using time series analysis. These results were grouped into two reporting periods; September 3 to 15 (5,275 fish)

and September 16 to 30 (1,310 fish), and are included in the late-run estimate of total escapement (Table 6; Appendix D).

Peak aerial survey counts of spawning sockeye salmon in Black Lake tributaries were above the 5-, 10-, and 20-year averages (Table 8). Total peak aerial survey counts of spawning sockeye salmon in the Chignik Lake tributaries were below the 5- and 20-year averages, but above the 10-year average (Table 9).

Sockeye salmon escapements were documented, via aerial survey, in low numbers (generally fewer than 1,000 fish) in several other CMA streams. Due to small run sizes and limited effort, escapement goals for these streams have not been established (Witteveen et al. 2007).

Coho Salmon

Coho salmon enter CMA drainages in mid-August and generally continue through November. The 2011 Chignik River coho salmon escapement estimate through September 2 was 5,293 fish (Table 5), which was lower than the recent 5- and 10-year average escapements (Table 6). Coho salmon escapements were monitored, via aerial survey, in low numbers (generally fewer than 2,000 fish) in several other CMA streams.

Due to late season run timing and limited directed effort, escapement goals for coho salmon have not been established in the CMA (Witteveen et al. 2007).

Pink Salmon

In 2011, pink salmon began entering the Chignik River in early-July and peaked in late-July with a total escapement of 16,298 salmon (Table 5). The 2011 pink salmon escapement into the Chignik River was above the 5- and 10-year average escapements (Table 6).

Escapements into other CMA streams were monitored via aerial surveys. Aerial survey escapement estimates for all streams were summed and compared to the areawide odd-year aggregate SEG for pink salmon. The 2011 overall combined escapement for the CMA was approximately 986,248 pink salmon, which exceeded the upper bound of the areawide aggregate odd-year SEG range of 500,000 to 800,000 fish, but was below the 5-, 10-, and 20-year average escapement estimates (Table 10).

Chum Salmon

A limited number of chum salmon return to the Chignik River, mainly in August (Table 5). The 2011 Chignik River chum salmon escapement was 145 fish, which was above the recent 5-year average escapement and similar to the recent 10-year average escapement (Table 6).

Escapements into other CMA streams were monitored via aerial surveys and compared to the areawide aggregate SEG for chum salmon (Nemeth et al. 2010). The total 2011 CMA chum salmon escapement of 278,145 fish was above the lower bound SEG of 57,400 fish and above the 5- and 10-year escapement averages, but below the 20-year escapement average (Table 11).

Harvest Information

Commercial salmon harvest information for 2011 was organized into 4 categories. The first category included salmon that were commercially harvested but retained for private use (home pack). The second category included salmon that were harvested and sold as part of the department test fishery program. The third category included sockeye salmon commercially harvested within the CMA. The final category included sockeye salmon commercially harvested

under the Cape Igvak and SEDM management plans; for allocative purposes, the Board of Fisheries has determined that specific portions of these harvests were considered bound for the Chignik River.

Salmon harvested under subsistence regulations or the department's Chignik Lagoon test fishery were not included in any of the current harvest allocations. Home pack fish were not included in the Cape Igvak and SEDM allocations. All harvest information in this report was calculated from the ADF&G fish ticket database and supersedes any previously published data. A complete summary of 2011 commercial salmon harvest and effort is found in Appendix E.

Chinook Salmon

A total of 6,586 Chinook salmon were harvested from the CMA in 2011, which was above the recent 5-, 10-, and 20-year average Chinook salmon harvests (Table 12). A total of 4 Chinook salmon were harvested during the department's test fishery program and 142 fish were retained as home pack (Table 13). Most of the CMA Chinook salmon harvest in 2011 came from the Central and Western districts (2,154 and 2,118 fish respectively; Table 14), but a substantial portion of the total harvest also occurred in the Chignik Bay District (1,462 fish). In 2011, Chinook salmon were primarily harvested from late June through mid-August (Table 15).

Sockeye Salmon

A total of 2,497,004 sockeye salmon were harvested in the CMA during 2011, which was well above the 5-, 10-, and 20-year average sockeye salmon harvests (Tables 12 and 16). The department's test fishery program harvested 6,556 of these salmon and a total of 323 fish were reported as retained for home pack (Table 16). The vast majority of the CMA sockeye salmon harvest in 2011 occurred in the Chignik Bay District (Table 17), and most sockeye salmon were harvested from early June through mid-July (Table 18).

An additional 651,175 sockeye salmon allocatively considered Chignik-bound were harvested from June 1 to July 25 as part of the SEDM and Cape Igvak fisheries during 2011 (Table 16). The Chignik-bound component of the SEDM harvest was 156,637 fish and totaled 6.9 percent of the total Chignik-bound harvest (allocation 7.6 percent; Tables 16 and 19). The Chignik-bound portion of the Cape Igvak harvest was 494,538 fish and totaled 16.9 percent of the total Chignik-bound harvest (allocation 15.0 percent; Tables 16 and 19).

The 2011 Chignik River early-run sockeye salmon harvest of 2,594,291 was the second largest harvest since 1970 and well above the 5- , 10-, and 20-year average harvest (Table 20; Figure 10). The 2011 late-run harvest of 553,888 sockeye salmon was below the 5-, 10-, and 20-year average harvests (Table 20; Figure 11). The 2011 total Chignik-bound commercial sockeye salmon harvest was 3,148,179 fish for a total run estimate (harvest + escapement) of 3,901,996 sockeye salmon which was the third largest run since 1954 (Table 20; Figure 12).

In 2011, the early run was above (58% above) the forecast while the late run was 24% below the forecast (Table 21).

Coho Salmon

A total of 76,792 coho salmon were harvested in the CMA during 2011, which was below the 5-, 10-, and 20-year average harvests (Tables 12 and 22). Nearly all commercially harvested coho salmon were sold to processors by fishermen (Table 22). The majority of the 2011 coho salmon harvest occurred in the Central and Western districts during July and August (Tables 23 and 24).

Pink Salmon

A total of 905,166 pink salmon were harvested during 2011, which was below the 5- and 20-year average harvests, but above the 10-year average harvest (Tables 12 and 25). All commercially harvested pink salmon were sold to processors by fishermen (Table 25). The majority of pink salmon harvest occurred in the Western, Perryville, and Central districts (Table 26). Most pink salmon were harvested in August (Tables 27).

Chum Salmon

A total of 269,503 chum salmon were harvested from the CMA during the 2011 season, which was above the 5-, 10-, and 20-year average harvests (Tables 12 and 28). All commercially harvested chum salmon were sold to processors by fishermen (Table 28). The majority of the 2011 chum salmon harvest occurred in the Central, Eastern, and Western districts from mid-June until mid-August (Tables 29 and 30).

Economic Value

In recent years just over half of the CMA's 91 purse seine permits have been active each commercial salmon fishing season. In 2011, 64 CMA permit holders (70% of CMA permits) made deliveries (Table 31). The exvessel value of the 2011 CMA salmon harvest was about $23.8 million, or approximately $371,327 per permit holder, which was more than double the prior 5-, 10-, and 20-year average exvessel values (Table 31; Figure 12). The vast majority (90%) of exvessel revenue was from the sale of sockeye salmon ($335,456 per active permit holder). The 2011 Chinook, coho, pink, and chum salmon harvest provided $899, $4,350 $16,254, and $14,369, respectively, per active permit holder (Table 31).

CHIGNIK LAGOON TEST FISHERIES

The department conducts test fisheries in Chignik Lagoon for multiple purposes. Early-season test fisheries are used to determine buildup of salmon prior to the first commercial fishery, to collect sockeye salmon scale samples to determine age composition, and to generate revenue to pay for the vessels chartered to conduct the test fisheries. Subsequent test fisheries are conducted to assess salmon abundance in Chignik Lagoon during fishery closures, and offset the costs of operations at the Chignik weir (Anderson 2011).

The department conducted three test fisheries during 2011 with a total harvest of 6,556 sockeye salmon (Table 16). The first test fishery occurred on June 4, when 3,615 sockeye salmon were harvested. Two additional test fisheries conducted on July 15 and July 21 harvested 1,654 and 1,287 sockeye salmon, respectively.

CHIGNIK AREA SUBSISTENCE SALMON FISHERIES

In 2010, ADF&G issued 124 subsistence fishing permits in the CMA. Based on the 90 permits returned to the ADF&G Division of Subsistence, the estimated subsistence harvest totaled 8,148 sockeye salmon. This harvest was similar to the previous 5- and 10-year average harvests (Table 32). Sockeye salmon comprised the majority of the 2010 subsistence harvest.

The 2011 Chignik Management Area subsistence harvest will not be available until after subsistence permits are returned and tabulated by the Division of Subsistence in spring 2012.

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TABLES AND FIGURES

Table 1.–List of Chignik Management Area herring management units.

Area	Stat. Area(s)
Chignik Lagoon and Bay	271-10 to 272-40
Kujulik	272-50
Big River	272-60 to 272-70
Cape Kumlik	272-62 to 272-64
Yantarni	272-72 to 272-80
Chiginagak	272-90
Agripina	272-92 to 272-96
Mitrofania	273-70 to 273-74
Dorner Bay	273-82 to 273-84
Castle Cape	273-90 to 273-94
Perryville	275-60
Humpback Bay	275-50
Ivanof Bay	275-40

Table 2.–Chignik Management Area commercial herring harvest, 1980 through 2011.

Year	Harvest (tons)
1980	587
1981	441
1982	190
1983	88
1984	66
1985	0
1986	11
1987	75
1988	59
1989	66
1990	0
1991	0
1992	0
1993	0
1994	0
1995	77
1996	6
1997	0
1998	0
1999	0
2000	0
2001	0
2002	0
2003	0
2004	0
2005	0
2006	0
2007	0
2008	0
2009	0
2010	0
2011	0

Table 3.–Chignik River sockeye salmon interim escapement objectives, 2011.

Date	Escapement Lower	Upper	Date	Escapement Lower	Upper
June 2	1,200 –	1,400	August 3	172,500 –	295,700
June 4	4,000 –	4,500	August 6	178,700 –	306,300
June 6	9,800 –	11,200	August 9	184,600 –	316,300
June 8	17,900 –	20,400	August 12	190,600 –	326,600
June 10	29,500 –	33,700	August 15	196,200 –	336,200
June 12	51,200 –	58,500	August 18	201,900 –	346,000
June 14	83,000 –	94,800	August 21	207,400 –	355,400
June 16	116,000 –	132,600	August 24	213,300 –	365,600
June 18	145,300 –	166,100	August 27	218,800 –	374,900
June 20	170,900 –	195,400	August 31	225,000 –	385,700
June 22	202,100 –	231,000			
June 25	248,900 –	284,600	September 3	228,000 –	391,100
June 28	282,900 –	323,300	September 5	231,000 –	393,000
July 1	323,600 –	369,900	September 7	235,000 –	395,000
July 4	350,000 –	400,000 [a]	September 9	239,000 –	396,800
			September 11	243,000 –	398,100
July 6	7,000 –	11,900	September 13	247,000 –	399,000
July 8	19,900 –	34,100	September 15	250,000 –	400,000
July 10	32,600 –	56,000			
July 12	44,400 –	76,100	**Escapement Objectives**		
July 14	58,900 –	101,000			
July 16	76,400 –	131,000	**Through July 4:**	**350,000 –**	**400,000**
July 19	96,600 –	165,700			
July 23	122,200 –	209,500	**July 5 - September 15:**	**250,000 –**	**400,000** [b]
July 26	141,800 –	243,100			
July 29	158,200 –	271,100			
July 31	165,500 –	283,700			

[a] July 4 is historically the date on which the cumulative inseason escapement most closely approximated the early-run escapement as estimated by postseason scale pattern analysis.

[b] The late-run escapement objective (July 5–September 15) includes the late-run sockeye salmon sustainable escapement goal (SEG; 200,000–400,000), plus an additional 50,000 sockeye salmon inriver run goal (25,000 in August and 25,000 in September) to meet late season subsistence needs.

Table 4.–Estimated Chignik River sockeye salmon escapement, by day and management objective period, 2011.

Early Run			Late Run					
Through July 4			July 5–July 31			August		
Date	Daily	Total	Date	Daily	Total	Date	Daily	Total
5/31	232	232	7/5	4,866	4,866	8/1	1,978	1,978
6/1	4,069	4,301	7/6	8,976	13,842	8/2	3,793	5,771
6/2	10,393	14,694	7/7	5,450	19,292	8/3	3,058	8,829
6/3	9,083	23,777	7/8	2,410	21,702	8/4	2,341	11,170
6/4	17,792	41,569	7/9	637	22,339	8/5	3,141	14,311
6/5	32,487	74,056	7/10	3,593	25,932	8/6	2,318	16,629
6/6	24,724	98,780	7/11	2,201	28,133	8/7	1,442	18,071
6/7	18,688	117,468	7/12	3,113	31,246	8/8	1,790	19,861
6/8	27,297	144,765	7/13	6,009	37,255	8/9	1,050	20,911
6/9	22,680	167,445	7/14	8,282	45,537	8/10	2,307	23,218
6/10	20,922	188,367	7/15	8,989	54,526	8/11	1,325	24,543
6/11	21,928	210,295	7/16	6,463	60,989	8/12	1,331	25,874
6/12	17,877	228,172	7/17	10,103	71,092	8/13	2,502	28,376
6/13	20,926	249,098	7/18	16,290	87,382	8/14	2,170	30,546
6/14	18,828	267,926	7/19	8,123	95,505	8/15	2,452	32,998
6/15	14,956	282,882	7/20	13,226	108,731	8/16	1,450	34,448
6/16	13,014	295,896	7/21	8,498	117,229	8/17	1,952	36,400
6/17	19,896	315,792	7/22	24,080	141,309	8/18	1,355	37,755
6/18	26,553	342,345	7/23	12,451	153,760	8/19	2,768	40,523
6/19	18,543	360,888	7/24	9,172	162,932	8/20	1,470	41,993
6/20	17,413	378,301	7/25	7,286	170,218	8/21	1,785	43,778
6/21	15,827	394,128	7/26	2,802	173,020	8/22	2,397	46,175
6/22	10,409	404,537	7/27	3,963	176,983	8/23	2,488	48,663
6/23	8,784	413,321	7/28	2,796	179,779	8/24	2,027	50,690
6/24	4,331	417,652	7/29	4,317	184,096	8/25	1,819	52,509
6/25	9,724	427,376	7/30	5,249	189,345	8/26	2,260	54,769
6/26	4,273	431,649	7/31	3,445	192,790	8/27	2,800	57,569
6/27	4,242	435,891	**July 5–31 total:**		**192,790**	8/28	1,877	59,446
6/28	4,596	440,487				8/29	1,271	60,717
6/29	5,938	446,425				8/30	1,418	62,135
6/30	10,385	456,810				8/31	1,624	63,759
7/1	12,086	468,896				**August total:**		**63,759**
7/2	7,699	476,595						
7/3	5,668	482,263				**September**		
7/4	6,667	488,930				**Date**		**Total**
May 27–July 4 total: 488,930						9/1	939	939
						9/2[a]	814	1,753
						9/3–9/15 estimate	5,275	7,028
						9/16–9/30 estimate	1,310	8,338
						Early run total:		**488,930**
						Late run total:		**264,887**
						Season total:		**753,817**

[a] The weir was removed after the completion of the 9/2 count.

Table 5.–Estimated Chignik River Chinook, coho, pink, and chum salmon, and Dolly Varden escapement, by day, 2011.

	Chinook		Coho		Pink		Chum		Dolly Varden	
Date	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
5/31	0	0	0	0	0	0	0	0	0	0
6/1	0	0	0	0	0	0	0	0	1	1
6/2	0	0	0	0	0	0	0	0	0	1
6/3	0	0	0	0	0	0	0	0	7	8
6/4	0	0	0	0	0	0	0	0	6	14
6/5	0	0	0	0	0	0	0	0	6	20
6/6	0	0	0	0	0	0	0	0	0	20
6/7	0	0	0	0	0	0	0	0	0	20
6/8	0	0	0	0	0	0	0	0	12	32
6/9	0	0	0	0	0	0	0	0	0	32
6/10	0	0	0	0	0	0	0	0	18	50
6/11	6	6	0	0	0	0	0	0	17	67
6/12	0	6	0	0	0	0	0	0	30	97
6/13	0	6	0	0	0	0	0	0	18	115
6/14	0	6	0	0	0	0	0	0	24	139
6/15	0	6	0	0	0	0	0	0	12	151
6/16	0	6	0	0	0	0	0	0	48	199
6/17	0	6	0	0	0	0	0	0	48	247
6/18	12	18	0	0	0	0	0	0	42	289
6/19	0	18	0	0	0	0	0	0	84	373
6/20	0	18	0	0	0	0	0	0	30	403
6/21	0	18	0	0	0	0	0	0	66	469
6/22	6	24	0	0	0	0	0	0	48	517
6/23	7	31	0	0	0	0	0	0	60	577
6/24	12	43	0	0	0	0	0	0	24	601
6/25	0	43	0	0	0	0	0	0	126	727
6/26	18	61	0	0	0	0	0	0	49	776
6/27	24	85	0	0	0	0	0	0	96	872
6/28	30	115	0	0	0	0	0	0	126	998
6/29	0	115	0	0	0	0	0	0	409	1,407
6/30	24	139	0	0	0	0	0	0	456	1,863
7/1	42	181	0	0	30	30	0	0	903	2,766
7/2	67	248	0	0	157	187	0	0	676	3,442
7/3	54	302	0	0	66	253	0	0	372	3,814
7/4	48	350	0	0	30	283	0	0	498	4,312
7/5	48	398	0	0	18	301	0	0	241	4,553
7/6	96	494	0	0	84	385	0	0	318	4,871
7/7	156	650	0	0	234	619	0	0	426	5,297
7/8	79	729	0	0	150	769	0	0	324	5,621
7/9	9	738	0	0	12	781	0	0	67	5,688
7/10	75	813	0	0	49	830	0	0	1,217	6,905
7/11	72	885	0	0	30	860	0	0	961	7,866
7/12	105	990	0	0	79	939	0	0	881	8,747
7/13	269	1,259	0	0	108	1,047	0	0	2,282	11,029
7/14	134	1,393	0	0	859	1,906	0	0	877	11,906
7/15	228	1,621	0	0	210	2,116	0	0	1,542	13,448

-continued-

Table 5.–Page 2 of 2.

	Chinook		Coho		Pink		Chum		Dolly Varden	
Date	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative	Daily	Cumulative
7/16	48	1,669	0	0	36	2,152	0	0	570	14,018
7/17	102	1,771	0	0	120	2,272	0	0	591	14,609
7/18	96	1,867	0	0	144	2,416	0	0	582	15,191
7/19	84	1,951	0	0	48	2,464	0	0	212	15,403
7/20	120	2,071	0	0	327	2,791	0	0	284	15,687
7/21	79	2,150	0	0	253	3,044	0	0	234	15,921
7/22	66	2,216	0	0	1,156	4,200	0	0	420	16,341
7/23	60	2,276	0	0	508	4,708	0	0	265	16,606
7/24	90	2,366	0	0	560	5,268	0	0	342	16,948
7/25	24	2,390	0	0	580	5,848	0	0	360	17,308
7/26	30	2,420	0	0	446	6,294	0	0	198	17,506
7/27	36	2,456	0	0	833	7,127	0	0	246	17,752
7/28	19	2,475	0	0	956	8,083	6	6	195	17,947
7/29	12	2,487	0	0	1,115	9,198	0	6	168	18,115
7/30	18	2,505	0	0	879	10,077	6	12	156	18,271
7/31	30	2,535	0	0	397	10,474	0	12	108	18,379
8/1	18	2,553	0	0	300	10,774	0	12	78	18,457
8/2	42	2,595	6	6	737	11,511	0	12	54	18,511
8/3	18	2,613	42	48	414	11,925	0	12	24	18,535
8/4	6	2,619	0	48	150	12,075	0	12	18	18,553
8/5	6	2,625	0	48	400	12,475	0	12	70	18,623
8/6	0	2,625	0	48	229	12,704	6	18	66	18,689
8/7	6	2,631	0	48	103	12,807	0	18	18	18,707
8/8	5	2,636	0	48	193	13,000	0	18	6	18,713
8/9	5	2,641	0	48	161	13,161	0	18	30	18,743
8/10	1	2,642	0	48	283	13,444	0	18	12	18,755
8/11	7	2,649	0	48	84	13,528	0	18	18	18,773
8/12	24	2,673	0	48	143	13,671	14	32	0	18,773
8/13	0	2,673	0	48	190	13,861	0	32	18	18,791
8/14	12	2,685	0	48	178	14,039	0	32	19	18,810
8/15	0	2,685	6	54	91	14,130	6	38	18	18,828
8/16	12	2,697	80	134	32	14,162	0	38	6	18,834
8/17	6	2,703	55	189	104	14,266	6	44	12	18,846
8/18	0	2,703	30	219	8	14,274	1	45	12	18,858
8/19	0	2,703	69	288	73	14,347	1	46	30	18,888
8/20	6	2,709	62	350	36	14,383	0	46	12	18,900
8/21	7	2,716	56	406	10	14,393	0	46	0	18,900
8/22	0	2,716	48	454	114	14,507	0	46	84	18,984
8/23	0	2,716	43	497	9	14,516	12	58	36	19,020
8/24	0	2,716	54	551	36	14,552	6	64	42	19,062
8/25	0	2,716	491	1,042	5	14,557	1	65	12	19,074
8/26	0	2,716	245	1,287	192	14,749	7	72	42	19,116
8/27	0	2,716	462	1,749	504	15,253	12	84	42	19,158
8/28	0	2,716	358	2,107	277	15,530	0	84	24	19,182
8/29	0	2,716	466	2,573	150	15,680	0	84	12	19,194
8/30	0	2,716	481	3,054	183	15,863	7	91	7	19,201
8/31	0	2,716	679	3,733	219	16,082	30	121	0	19,201
9/1	6	2,722	690	4,423	156	16,238	12	133	24	19,225
9/2	6	2,728	870	5,293	60	16,298	12	145	0	19,225

Table 6.–Estimated Chignik River Chinook, coho, pink, and chum salmon, and Dolly Varden escapement, 1980 through 2011.

	Escapement [a]				
Year	Chinook [b]	Coho [c]	Pink [c]	Chum [c]	Dolly Varden [c]
1980	876	ND	ND	ND	ND
1981	1,603	ND	ND	ND	ND
1982	2,412	ND	ND	ND	ND
1983	1,943	ND	ND	ND	ND
1984	5,806	ND	ND	ND	ND
1985	3,144	ND	ND	ND	ND
1986	3,612	ND	ND	ND	ND
1987	2,624	ND	ND	ND	ND
1988	4,868	ND	ND	ND	ND
1989	3,316	ND	ND	ND	ND
1990	4,364	ND	ND	ND	ND
1991	4,531	ND	ND	ND	ND
1992	3,806	ND	ND	ND	ND
1993	1,946	ND	ND	ND	ND
1994	2,963	ND	ND	ND	ND
1995	4,288	ND	ND	ND	ND
1996	3,488	16,843	6,030	136	54,726
1997	3,824	10,810	4,880	483	26,657
1998	3,075	14,124	11,490	156	15,235
1999	3,728	2,414	2,524	48	15,025
2000	4,285	7,062	4,284	48	ND
2001	3,028	103	1,464	66	6,416
2002	3,541	9,262	3,417	67	8,179
2003	6,412	7,635	1,897	68	36,397
2004	7,840	18,810	2,243	276	20,086
2005	6,486	18,206	13,637	408	13,940
2006	3,535	37,113	18,401	99	2,031
2007	2,000	10,299	20,464	118	6,993
2008	1,730	13,958	22,341	124	14,776
2009	1,680	7,670	12,873	109	8,618
2010	3,679	5,152	3,670	95	17,578
2011	2,728	5,293	16,298	145	14,133
Averages					
1991–10	3,793	-	-	-	-
2001–10	3,993	12,821	10,041	143	13,501
2006–10	2,525	14,838	15,550	109	9,999

[a] A video monitoring system was installed at the Chignik weir in 1994.

[b] No escapement adjustments are made for Chinook salmon that spawn below the weir, or those removed by the sport fishery. Only Chinook salmon larger than approximately 650 mm were enumerated for escapement estimates from 1980 to 1993.

[c] No reliable escapement estimates were generated for pink, chum, or coho salmon or Dolly Varden from 1980 to 1996. No post-weir estimates are reported here for these species.

Table 7.–Total Chignik River sockeye salmon escapement and escapement goals, based on postseason analysis, by run, 1980 through 2011.

Year	Early Run	Late Run	Total
1980	311,332	352,729	664,061
1981	438,540	392,909	831,449
1982	616,117	221,601	837,718
1983	426,177	409,458	835,635
1984	597,712	267,862	865,574
1985	376,576	369,262	745,838
1986	566,088	207,231	773,319
1987	589,291	214,452	803,743
1988	420,577	255,180	675,757
1989	384,004	557,171	941,175
1990	434,543	335,867	770,410
1991	672,871	367,227	1,040,098
1992	360,681	405,922	766,603
1993	364,261	333,116	697,377
1994	769,462	197,447	966,909
1995	366,163	373,757	739,920
1996	464,461	284,676	749,137
1997	396,667	378,951	775,618
1998	410,659	290,469	701,128
1999	457,429	258,537	715,966
2000	536,141	269,084	805,225
2001	744,013	392,905	1,136,918
2002	380,701	343,616	724,317
2003	350,004	334,119	684,123
2004	363,800	214,459	578,259
2005	355,091	225,366	580,457
2006	366,497	368,996	735,493
2007	361,091	293,883	654,974
2008	377,579	328,479	706,058
2009	391,476	328,586	720,062
2010	432,535	311,291	743,826
2011	488,930	264,887	753,817
Year	Early Run	Late Run	Total
SEG	350,000–400,000	250,000–400,000	600,000–800,000
Averages			
1991–10	446,079	315,044	761,123
2001–10	412,279	314,170	726,449
2006–10	385,836	326,247	712,083

Table 8.–Peak sockeye salmon aerial survey escapement estimates for Black Lake tributaries, 1980 through 2011.

Year	Fan Creek	Milk Creek	Boulevard Creek	Alec River	Conglomerate Creek	Broad Creek	Total
1980	127,000	16,000	75,000	70,500	1,500	68,000	358,000
1981	93,000	4,700	59,000	76,500	20,000	27,000	280,200
1982	50,000	5,500	60,000	43,000	20,000	32,000	210,500
1983	ND	ND	ND	ND	ND	ND	-
1984	50,000	22,200	70,000	30,500	31,000	36,000	239,700
1985	28,000	5,500	36,000	65,000	5,500	17,000	157,000
1986	60,000	15,300	47,000	76,000	39,000	27,000	264,300
1987	52,000	12,200	133,000	88,400	45,900	32,500	364,000
1988	54,000	71,000	83,700	106,500	2,300	26,500	344,000
1989	19,300	21,000	64,000	133,000	1,000	7,500	245,800
1990	32,600	7,400	35,900	49,800	2,200	18,000	145,900
1991	14,600	19,500	48,000	ND	2,000	13,000	97,100
1992	ND	ND	ND	392,000	ND	ND	392,000
1993	40,900	12,600	97,600	8,000	77,000	18,200	254,300
1994	70,000	25,000	125,000	350,000	20,000	51,000	641,000
1995	23,000	10,000	60,000	200,000	40,000	60,000	393,000
1996	40,000	24,000	51,000	100,000	50,000	45,000	310,000
1997	60,000	5,000	48,000	166,000	8,000	20,000	307,000
1998	90,000	14,000	100,000	50,000	9,000	62,000	325,000
1999	70,000	8,100	50,000	226,000	1,000	22,000	377,100
2000	41,000	29,000	126,000	210,000	26,000	93,000	525,000
2001	77,000	19,000	265,000	207,000	4,000	89,000	661,000
2002	43,000	ND	20,000	21,000	11,000	7,000	102,000
2003	17,600	400	2,500	188,000	ND	1,000	209,500
2004	4,290	1,490	15,560	137,700	200	ND	159,240
2005	4,300	ND	ND	ND	7,700	ND	12,000
2006	16,000	500	15,500	46,700	2,500	19,800	101,000
2007	40,200	8,800	23,600	199,000	4,000	1,000	276,600
2008	44,000	7,600	34,800	208,000	6,600	3,200	304,200
2009	34,500	11,500	40,500	182,500	5,000	2,100	276,100
2010	10,000	1,700	24,000	100,000	2,100	7,000	144,800
2011	45,000	5,000	65,000	215,000	12,000	ND	342,000
Averages							
1991–10	38,968	11,658	63,726	166,217	15,339	30,253	293,397
2001–10	29,089	6,374	49,051	143,322	4,789	16,263	224,644
2006–10	28,940	6,020	27,680	147,240	4,040	6,620	220,540

Table 9.–Peak sockeye salmon aerial survey escapement estimates for Chignik Lake and Black River tributaries, 1980 through 2011.

	Black River				Chignik Lake			
Year	Bearskin Creek	West Fork	Chiaktuak Creek	Total	Clark River	Home Creek	Hatchery Beach	Total
1980	3,600	33,000	40,400	77,000	ND	ND	ND	-
1981	950	1,500	18,700	21,150	ND	ND	ND	-
1982	1,066	10,791	5,000	16,857	ND	ND	ND	-
1983	ND	ND	6,000	6,000	ND	ND	ND	-
1984	ND	ND	8,200	8,200	ND	ND	ND	-
1985	350	450	1,200	2,000	ND	ND	ND	-
1986	ND	ND	8,300	8,300	ND	ND	ND	-
1987	ND	ND	1,000	1,000	ND	ND	ND	-
1988	ND	ND	4,600	4,600	ND	ND	ND	-
1989	ND	ND	2,100	2,100	ND	ND	ND	-
1990	300	0	50	350	ND	ND	ND	-
1991	ND	ND	ND	-	ND	ND	ND	-
1992	ND	ND	ND	-	ND	ND	ND	-
1993	ND	ND	16,000	16,000	ND	ND	ND	-
1994	5,000	ND	31,000	36,000	18,000	9,200	ND	27,200
1995	7,100	18,000	31,000	56,100	13,000	6,000	150,000	169,000
1996	1,800	22,000	22,000	45,800	13,000	5,500	70,000	88,500
1997	9,000	9,000	23,500	41,500	25,000	8,000	35,000	68,000
1998	4,700	71,000	27,500	103,200	21,000	6,000	62,000	89,000
1999	8,300	17,500	13,000	38,800	8,500	1,620	15,000	25,120
2000	2,600	3,700	10,600	16,900	18,000	19,700	2,000	39,700
2001	ND	ND	9,500	9,500	23,000	11,000	25,000	59,000
2002	ND	15,000	2,300	17,300	ND	ND	ND	-
2003	ND	ND	2,000	2,000	ND	ND	ND	-
2004	100	600	750	1,450	2,500	2,000	ND	4,500
2005	900	900	5,100	6,900	ND	ND	ND	-
2006	1,400	3,500	6,200	11,100	13,500	3,000	3,000	19,500
2007	400	14,500	30,300	45,200	59,000	9,800	65,000	133,800
2008	13,500	18,000	39,600	71,100	39,500	12,300	106,000	157,800
2009	600	11,100	21,800	33,500	13,000	3,500	ND	16,500
2010	1,700	3,500	5,800	11,000	7,600	0	31,000	38,600
2011	1,000	11,000	11,000	23,000	35,000	2,000	28,000	65,000
Averages								
1991–10	4,079	14,879	16,553	31,297	19,614	6,973	51,273	66,873
2001–10	2,657	8,388	12,335	20,905	22,586	5,943	46,000	61,386
2006–10	3,520	10,120	20,740	34,380	26,520	5,720	51,250	73,240

Table 10.–Estimated pink salmon escapement and objectives in the Chignik Management Area, by district and year, 1980 through 2011.

	District[b]					
Year[a]	Chignik Bay	Central	Eastern	Western	Perryville	Total
1980	3,000	99,400	425,500	139,500	74,800	742,200
1981	1,400	76,500	154,700	249,300	116,000	597,900
1982	2,400	26,100	301,500	45,900	13,400	389,300
1983	1,000	11,000	46,300	36,000	64,500	158,800
1984	123,200	94,000	486,500	188,000	109,800	1,001,500
1985	ND	7,400	212,100	67,500	235,200	522,200
1986	ND	121,900	580,700	43,800	180,500	926,900
1987	ND	65,700	215,600	38,300	65,700	385,300
1988	22,400	216,400	1,005,400	232,400	181,300	1,657,900
1989	13,500	215,000	881,000	57,900	267,400	1,434,800
1990	6,000	131,900	811,400	44,300	88,400	1,082,000
1991	12,200	201,100	125,000	96,800	343,500	778,600
1992	55,800	223,800	1,318,100	38,800	190,400	1,826,900
1993	2,000	160,900	524,700	45,800	448,400	1,181,800
1994	75,800	178,900	863,300	111,600	153,900	1,383,500
1995	180,500	715,500	1,399,300	554,700	582,100	3,432,100
1996	43,100	237,100	1,059,600	220,800	395,700	1,956,300
1997	59,400	594,600	1,287,700	306,300	221,500	2,469,500
1998	24,400	210,900	1,273,200	150,400	222,800	1,881,700
1999	37,300	374,300	615,100	137,900	179,700	1,344,300
2000	27,400	146,100	810,700	130,100	98,700	1,213,000
2001	19,700	460,400	1,470,200	263,000	150,200	2,363,500
2002	16,917	85,755	777,710	85,501	62,170	1,028,053
2003	143,897	576,510	1,408,060	117,650	99,500	2,345,617
2004	27,300	257,000	601,900	94,340	134,320	1,114,860
2005	160,000	473,400	512,350	257,500	188,600	1,591,850
2006	27,401	36,175	195,950	31,800	83,500	374,826
2007	62,464	291,800	565,800	113,000	184,000	1,217,064
2008	69,841	117,650	402,880	99,460	173,200	863,031
2009	28,973	130,700	462,840	130,100	116,450	869,063
2010	8,020	52,650	228,500	22,000	19,400	330,570
2011	32,348	223,500	504,000	86,650	139,750	986,248
Odd Year SEG						500,000 to 800,000
Averages						
1991–10	54,121	276,262	795,145	150,378	202,402	1,478,307
2001–10	56,451	248,204	662,619	121,435	121,134	1,209,843
2006–10	39,340	125,795	371,194	79,272	115,310	730,911
Odd Year Averages						
1991–09	70,643	397,921	837,105	202,275	251,395	1,759,339
2001–09	83,007	386,562	883,850	176,250	147,750	1,677,419
2005–09	83,812	298,633	513,663	166,867	163,017	1,225,992

[a] From 1984 to 2003 aerial survey escapement estimates were computed by area-under-the-curve methods using a 15.0-day average stream life (Johnson and Barrett 1988). Starting in 2004, estimates were computed using peak counts (Witteveen et al. 2005).

[b] All estimates were via aerial survey, with the exception of Chignik River, which was included in the Chignik Bay District estimate.

Table 11.–Estimated chum salmon escapement and objectives in the Chignik Management Area, by district and year, 1980 through 2011.

	District[b]					
Year[a]	Chignik Bay	Central	Eastern	Western	Perryville	Total
1980	300	34,200	107,000	56,500	29,100	227,100
1981	500	26,100	126,000	70,300	19,300	242,200
1982	1,400	49,400	145,400	35,400	23,600	255,200
1983	100	17,000	50,200	20,100	8,200	95,600
1984	300	35,400	214,700	73,800	46,000	370,200
1985	0	9,600	4,900	34,600	12,900	62,000
1986	0	31,000	8,500	5,300	7,700	52,500
1987	100	17,500	38,300	19,700	9,800	85,400
1988	15,300	55,800	221,900	27,400	41,400	361,800
1989	4,200	34,700	74,300	7,400	15,900	136,500
1990	1,500	28,000	139,700	28,800	55,800	253,800
1991	0	18,000	70,400	38,100	343,200	469,700
1992	100	173,100	306,900	53,300	40,300	573,700
1993	300	39,400	135,200	14,000	66,800	255,700
1994	1,500	102,600	129,200	23,000	126,000	382,300
1995	10,300	44,500	112,800	45,700	134,600	347,900
1996	16,400	45,100	130,500	44,500	132,000	368,500
1997	18,500	65,700	290,000	60,500	152,800	587,500
1998	4,500	32,000	97,700	30,600	214,500	379,300
1999	2,300	32,400	167,100	16,300	117,300	335,400
2000	100	22,700	216,000	12,700	51,900	303,400
2001	4,100	36,500	406,900	35,500	67,800	550,800
2002	67	11,615	174,850	17,082	32,020	235,634
2003	899	43,191	152,854	39,050	64,331	300,325
2004	376	30,310	277,240	3,100	38,492	349,518
2005	30,000	159,100	36,350	22,000	61,250	308,700
2006	1,099	3,450	53,940	6,000	29,000	93,489
2007	6,118	25,200	58,000	26,500	122,280	238,098
2008	17,624	17,850	57,120	21,240	83,425	197,259
2009	10,809	20,550	138,900	9,200	35,500	214,959
2010	1,095	17,000	60,525	19,400	79,200	177,220
2011	4,145	32,500	177,000	9,000	55,500	278,145
Area Management Goal						57,400
Averages						
1991–10	6,309	47,013	153,624	26,889	99,635	333,470
2001–10	7,219	36,477	141,668	19,907	61,330	266,600
2006–10	7,349	16,810	73,697	16,468	69,881	184,205

[a] From 1984 to 2003 aerial survey escapement estimates were computed by area-under-the-curve methods using a 15.0-day average stream life (Johnson and Barrett 1988). Starting in 2004, estimates were computed using peak counts (Witteveen et al. 2005).

[b] All estimates were via aerial survey, with the exception of Chignik River, which was included in the Chignik Bay District estimate.

Table 12.–Total commercial salmon harvests, including home pack and the department's test fishery harvests, from the Chignik Management Area by species and year, 1980 through 2011.

	Permits Making		Chignik Management Area Harvest					
Year	Deliveries	Landings	Chinook	Sockeye	Coho	Pink	Chum	Total
1980	104	3,134	2,344	859,966	119,573	1,093,184	252,521	2,327,588
1981	105	4,222	2,694	1,839,469	78,805	1,162,613	580,332	3,663,913
1982	103	3,606	5,236	1,521,686	300,273	873,384	390,096	3,090,675
1983	102	4,357	5,488	1,824,175	61,927	321,178	159,412	2,372,180
1984	100	3,927	4,318	2,660,619	110,128	444,804	63,303	3,283,172
1985	107	3,392	1,887	921,502	191,162	160,128	22,805	1,297,484
1986	102	4,178	3,037	1,645,834	116,633	647,125	176,640	2,589,269
1987	104	3,856	2,651	1,898,838	150,414	246,775	127,261	2,425,939
1988	102	3,895	7,296	795,841	370,420	2,997,159	267,775	4,438,491
1989	101	3,183	3,542	1,159,287	68,233	27,712	1,624	1,260,398
1990	102	5,405	9,901	2,093,650	130,131	550,008	270,004	3,053,694
1991	103	3,856	3,157	1,895,665	165,625	1,169,248	261,096	3,494,791
1992	102	4,172	10,832	1,277,449	310,943	1,554,073	222,134	3,375,431
1993	103	4,241	19,515	1,697,351	229,459	1,648,377	122,360	3,717,062
1994	100	3,707	3,919	1,618,973	237,204	431,063	227,276	2,518,435
1995	101	5,113	5,493	1,724,045	281,518	2,057,998	380,954	4,450,008
1996	101	4,565	3,145	1,958,393	193,246	189,068	120,891	2,464,743
1997	100	3,394	3,120	770,347	90,908	844,431	155,905	1,864,711
1998	86	3,348	4,503	1,054,439	129,539	776,988	128,996	2,094,465
1999	91	4,382	3,507	3,116,527	89,610	1,698,651	140,597	5,048,892
2000	100	3,268	2,612	1,775,225	123,222	428,064	120,957	2,450,080
2001	93	2,906	2,939	1,511,587	131,448	1,281,767	199,003	3,126,744
2002	42	2,432	1,521	1,050,553	49,372	66,050	54,559	1,222,055
2003	44	2,073	3,068	1,100,297	103,896	502,638	64,044	1,773,943
2004	33	1,346	2,520	704,652	37	2,380	505	710,094
2005	97	1,669	3,408	1,152,133	6,956	194,045	8,821	1,365,363
2006	49	2,066	2,256	902,709	39,221	383,574	61,630	1,389,390
2007	56	2,101	1,773	834,547	73,277	2,019,748	78,553	3,007,898
2008	55	2,217	970	687,270	161,536	2,389,958	209,325	3,449,059
2009	56	2,172	3,319	1,198,105	110,373	1,408,339	256,425	2,976,561
2010	66	2,532	10,380	1,379,785	159,198	489,781	581,329	2,620,473
2011	65	2,617	6,586	2,497,004	76,792	905,166	269,503	3,755,051
Averages								
1991–10	79	3,078	4,598	1,370,503	134,329	976,812	169,768	2,656,010
2001–10	59	2,151	3,215	1,052,164	83,531	873,828	151,419	2,164,158
2006–10	56	2,218	3,740	1,000,483	108,721	1,338,280	237,452	2,688,676

Table 13.–Annual Chignik Management Area Chinook salmon harvest, 1980 through 2011.

	Test Fish		Commercial Catch		Home Pack		Total	
Year	Number	Pounds	Number	Pounds	Number	Pounds [a]	Number	Pounds
1980	ND	ND	2,344	32,255	ND	ND	2,344	32,255
1981	ND	ND	2,694	50,832	ND	ND	2,694	50,832
1982	ND	ND	5,236	59,753	ND	ND	5,236	59,753
1983	ND	ND	5,488	96,159	ND	ND	5,488	96,159
1984	ND	ND	4,318	99,567	ND	ND	4,318	99,567
1985	10	249	1,877	44,625	ND	ND	1,887	44,874
1986	ND	ND	3,037	66,772	ND	ND	3,037	66,772
1987	0	0	2,651	49,482	ND	ND	2,651	49,482
1988	0	0	7,296	128,880	ND	ND	7,296	128,880
1989	0	0	3,542	76,698	ND	ND	3,542	76,698
1990	0	0	9,901	134,265	ND	ND	9,901	134,265
1991	3	37	3,154	66,666	ND	ND	3,157	66,703
1992	2	8	10,830	138,082	ND	ND	10,832	138,090
1993	14	65	19,501	234,188	ND	ND	19,515	234,253
1994	16	245	3,903	71,620	ND	ND	3,919	71,865
1995	0	0	5,261	111,187	232	4,903	5,493	116,090
1996	0	0	3,105	62,603	40	806	3,145	63,409
1997	7	149	3,025	47,075	88	1,369	3,120	48,593
1998	21	450	4,374	66,080	108	1,632	4,503	68,162
1999	0	0	3,296	56,706	211	3,630	3,507	60,336
2000	0	0	2,592	34,757	20	268	2,612	35,025
2001	4	120	2,845	39,252	90	1,242	2,939	40,614
2002	3	25	1,441	13,725	77	733	1,521	14,483
2003	2	13	2,757	39,716	309	4,451	3,068	44,180
2004	4	57	2,337	43,652	179	3,343	2,520	47,052
2005	1	23	3,137	55,638	271	6,157	3,409	61,818
2006	1	21	2,187	38,015	68	1,536	2,256	39,572
2007	11	228	1,746	29,745	16	308	1,773	30,281
2008	0	0	955	14,463	15	227	970	14,690
2009	0	0	3,244	30,791	75	1,166	3,319	31,957
2010	0	0	10,262	102,684	118	1,708	10,380	104,392
2011	4	45	6,440	72,305	142	2,486	6,586	74,836
Averages								
1991–10	4	72	4,498	64,832	121	2,116	4,598	66,578
2001–10	3	49	3,091	40,768	122	2,087	3,216	42,904
2006–10	2	50	3,679	43,140	58	989	3,740	44,178

[a] Weights of home pack fish are not reported on fish tickets; therefore, they were calculated from the average weight of the commercial harvest.

Table 14.–Chignik Management Area Chinook salmon harvest (including home pack and the department's test fishery catches), by district and year, 1980 through 2011.

	District					
Year	Chignik Bay	Central	Eastern	Western	Perryville	Total
1980	929	148	169	739	359	2,344
1981	2,006	302	188	99	99	2,694
1982	3,269	41	38	1,354	534	5,236
1983	3,560	161	260	1,390	117	5,488
1984	3,696	63	72	487	0	4,318
1985	1,809	50	7	21	0	1,887
1986	2,592	58	14	350	23	3,037
1987	1,931	60	6	512	142	2,651
1988	4,331	1,094	190	1,216	465	7,296
1989	3,532	9	1	0	0	3,542
1990	3,719	2,175	175	3,190	642	9,901
1991	1,996	775	165	197	24	3,157
1992	3,181	2,010	181	4,300	1,160	10,832
1993	5,240	6,865	2,568	3,113	1,729	19,515
1994	1,808	1,303	43	452	313	3,919
1995	3,219	845	108	897	424	5,493
1996	1,590	1,022	263	162	108	3,145
1997	1,384	1,609	60	60	7	3,120
1998	1,805	1,798	79	567	254	4,503
1999	2,270	852	147	216	22	3,507
2000	598	530	53	1,421	10	2,612
2001	1,235	770	302	627	5	2,939
2002	920	17	0	584	0	1,521
2003	2,834	189	0	45	0	3,068
2004	2,520	0	0	0	0	2,520
2005	2,714	391	0	297	6	3,408
2006	2,009	165	3	79	0	2,256
2007	667	421	152	532	1	1,773
2008	219	195	16	503	37	970
2009	552	552	199	1,987	29	3,319
2010	1,564	2,420	834	5,476	86	10,380
2011	1,462	2,154	639	2,118	213	6,586
Averages						
1991–10	1,916	1,136	259	1,076	211	4,598
2001–10	1,523	512	151	1,013	16	3,215
2006–10	1,002	751	241	1,715	31	3,740

Table 15.–Chignik Management Area Chinook salmon harvest (including home pack and the department's test fishery catches), by district and day, 2011.

	District					
Date	Chignik Bay	Central	Eastern	Western	Perryville	Total
6/4	2	Closed	Closed	Closed	Closed	2
6/5	0	0	0	Closed	Closed	0
6/6	0	12	0	Closed	Closed	12
6/7	0	16	0	Closed	Closed	16
6/8	0	17	1	Closed	Closed	18
6/9	0	26	4	Closed	Closed	30
6/10	0	9	0	Closed	Closed	9
6/11	2	15	0	Closed	Closed	17
6/12	5	29	10	Closed	Closed	44
6/13	1	22	10	Closed	Closed	33
6/14	3	10	8	Closed	Closed	21
6/15	7	34	21	Closed	Closed	62
6/16	3	2	0	Closed	Closed	5
6/17	6	13	2	0	Closed	21
6/18		39	2	0	Closed	41
6/19	3	26	8	Closed	Closed	37
6/20	8	21	3	Closed	Closed	32
6/21	2	24	38	Closed	Closed	64
6/22	10	15	16	Closed	Closed	41
6/23	27	58	10	Closed	Closed	95
6/24	16	22	29	Closed	Closed	67
6/25	52	78	4	Closed	Closed	134
6/26	16	41	0	Closed	Closed	57
6/27	3	26	0	Closed	Closed	29
6/28	14	29	0	25	Closed	68
6/29	25	16	0	Closed	Closed	41
6/30	11	27	0	20	Closed	58
7/1	28	14	0	52	Closed	94
7/2	73	14	0	7	Closed	94
7/3	41	45	0	Closed	Closed	86
7/4	64	9	73	Closed	Closed	146
7/5	75	60	3	Closed	Closed	138
7/6	80	15	23	44	Closed	162
7/7	102	25	6	45	Closed	178
7/8	478	49	0	55	0	582
7/9	40	39	0	69	0	148
7/10	54	17	3	126	0	200
7/11	25	65	0	Closed	Closed	90
7/12	Closed	Closed	Closed	Closed	Closed	0
7/13	Closed	Closed	Closed	Closed	Closed	0
7/14	Closed	Closed	Closed	Closed	Closed	0
7/15	2	Closed	Closed	Closed	Closed	2
7/16	Closed	Closed	Closed	Closed	Closed	0

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Table 15.–Page 2 of 2.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
7/17	Closed	Closed	Closed	Closed	Closed	0
7/18	Closed	Closed	Closed	Closed	Closed	0
7/19	Closed	Closed	Closed	Closed	Closed	0
7/20	Closed	Closed	Closed	Closed	Closed	0
7/21	0	Closed	Closed	Closed	Closed	0
7/22	Closed	Closed	Closed	Closed	Closed	0
7/23	0	0	0	Closed	Closed	0
7/24	60	23	7	173	0	263
7/25	27	133	153	254	6	573
7/26	9	255	0	72	5	341
7/27	9	65	18	287	0	379
7/28	19	104	0	235	10	368
7/29	3	76	Closed	Closed	Closed	79
7/30	12	55	Closed	39	Closed	106
7/31	3	72	Closed	36	Closed	111
8/1	6	61	Closed	137	Closed	204
8/2	4	22	Closed	13	0	39
8/3	2	15	Closed	65	17	99
8/4	2	46	Closed	40	23	111
8/5	0	32	Closed	Closed	Closed	32
8/6	5	32	Closed	18	Closed	55
8/7	4	66	Closed	9	Closed	79
8/8	5	23	Closed	50	Closed	78
8/9	4	28	Closed	39	54	125
8/10	5	20	Closed	48	35	108
8/11	0	0	Closed	40	13	53
8/12	1	1	Closed	32	5	39
8/13	0	0	Closed	13	16	29
8/14	0	20	128	30	9	187
8/15	0	0	59	11	12	82
8/16	0	4	Closed	6	6	16
8/17	0	10	Closed	9	0	19
8/18	0	4	Closed	2	1	7
8/19	0	8	Closed	6	0	14
8/20	0	0	0	0	0	0
8/21	0	0	0	3	1	4
8/22	0	0	0	0	0	0
8/23	3	0	0	0	0	3
8/24	0	0	0	8	0	8
8/25	0	0	Closed	0	0	0
8/26	1	0	Closed	0	0	1
8/27	0	0	Closed	0	0	0
8/28	0	0	Closed	0	0	0
8/29	0	0	Closed	0	0	0
Total	1,462	2,154	639	2,118	213	6,586

Table 16.–Total harvest of sockeye salmon considered by regulation to be Chignik-bound in the Chignik, Cape Igvak, and Southeastern District Mainland commercial salmon fisheries, 1970 through 2011.

	Testfish		Commercial Catch		Home Pack		Total CMA Harvest		Cape Igvak[a]		SEDM[b]		Total Chignik-Bound	
Year	Number	Pounds	Number	Pounds	Number	Pounds [c]	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
1970	ND	ND	1,325,734	9,210,127	ND	ND	1,325,734	9,210,127	ND	ND	ND	ND	1,325,734	9,210,127
1971	ND	ND	1,016,136	7,534,367	ND	ND	1,016,136	7,534,367	ND	ND	ND	ND	1,016,136	7,534,367
1972	ND	ND	378,218	2,863,742	ND	ND	378,218	2,863,742	ND	ND	ND	ND	378,218	2,863,742
1973	ND	ND	870,354	7,023,294	ND	ND	870,354	7,023,294	ND	ND	ND	ND	870,354	7,023,294
1974	ND	ND	662,905	4,756,653	ND	ND	662,905	4,756,653	ND	ND	ND	ND	662,905	4,756,653
1975	ND	ND	399,593	2,773,725	ND	ND	399,593	2,773,725	ND	ND	ND	ND	399,593	2,773,725
1976	ND	ND	1,163,728	8,562,989	ND	ND	1,163,728	8,562,989	ND	ND	ND	ND	1,163,728	8,562,989
1977	ND	ND	1,972,207	17,247,659	ND	ND	1,972,207	17,247,659	ND	ND	ND	ND	1,972,207	17,247,659
1978	ND	ND	1,576,283	12,451,982	ND	ND	1,576,283	12,451,982	225,078	1,583,809	ND	ND	1,801,361	14,035,791
1979	ND	ND	1,049,691	7,862,600	ND	ND	1,049,691	7,862,600	13,950	96,507	ND	ND	1,063,641	7,959,107
1980	ND	ND	859,966	5,795,098	ND	ND	859,966	5,795,098	32	147	63,724	442,601	923,722	6,237,846
1981	ND	ND	1,839,469	13,486,031	ND	ND	1,839,469	13,486,031	282,727	1,876,246	122,198	888,410	2,244,394	16,250,687
1982	ND	ND	1,521,686	11,340,439	ND	ND	1,521,686	11,340,439	166,756	1,162,053	62,789	463,729	1,751,231	12,966,221
1983	ND	ND	1,824,175	11,926,829	ND	ND	1,824,175	11,926,829	318,048	1,926,770	227,392	1,631,668	2,369,615	15,485,267
1984	ND	ND	2,660,619	18,536,287	ND	ND	2,660,619	18,536,287	449,372	2,820,646	423,292	3,053,430	3,533,283	24,410,363
1985	4,875	30,480	916,627	5,415,817	ND	ND	921,502	5,446,297	123,627	637,207	51,421	337,919	1,096,550	6,421,423
1986	ND	ND	1,645,834	11,254,860	ND	ND	1,645,834	11,254,860	188,017	1,153,092	118,006	841,446	1,951,857	13,249,398
1987	679	4,637	1,898,159	13,997,077	ND	ND	1,898,838	14,001,714	321,506	2,146,841	146,886	1,121,094	2,367,230	17,269,649
1988	3,425	24,287	792,416	5,690,165	ND	ND	795,841	5,714,452	10,520	63,641	19,320	140,708	825,681	5,918,801
1989	6,433	46,532	1,152,854	7,922,748	ND	ND	1,159,287	7,969,280	0	0	4,485	32,262	1,163,772	8,001,542
1990	5,522	33,915	2,088,128	13,775,854	ND	ND	2,093,650	13,809,769	107,706	665,309	117,065	783,670	2,318,421	15,258,748
1991	8,106	54,892	1,887,559	12,889,560	ND	ND	1,895,665	12,944,452	324,195	1,886,494	152,714	1,037,726	2,372,574	15,868,672
1992	12,423	80,326	1,265,026	8,292,576	ND	ND	1,277,449	8,372,902	150,434	896,108	93,845	608,765	1,521,728	9,877,775
1993	5,444	34,231	1,691,907	10,228,401	ND	ND	1,697,351	10,262,632	300,055	1,639,082	128,608	847,879	2,126,014	12,749,593
1994	9,139	54,433	1,609,834	10,091,402	ND	ND	1,618,973	10,145,835	250,230	1,423,150	142,350	934,493	2,011,553	12,503,478
1995	9,023	57,674	1,715,022	11,464,647	0	0	1,724,045	11,522,321	169,530	899,572	89,086	547,563	1,982,661	12,969,456
1996	4,317	36,511	1,954,036	14,866,234	40	304	1,958,393	14,903,049	308,327	1,954,430	127,201	884,305	2,393,921	17,741,784
1997	11,299	77,874	758,384	4,782,715	664	4,187	770,347	4,864,776	0	0	0	0	770,347	4,864,776
1998	12,374	66,040	1,041,798	6,372,010	267	1,633	1,054,439	6,439,683	8,813	39,133	66,893	408,902	1,130,145	6,887,718
1999	5,994	42,216	3,110,507	20,527,837	26	172	3,116,527	20,570,225	456,039	2,469,213	173,621	1,086,186	3,746,187	24,125,624
2000	11,604	88,790	1,763,621	13,577,434	0	0	1,775,225	13,666,224	271,344	1,703,875	103,419	737,462	2,149,988	16,107,561

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Table 16.–Page 2 of 2.

	Testfish		Commercial Catch		Home Pack		Total CMA Harvest		Cape Igvak[a]		SEDM[b]		Total Chignik-Bound	
Year	Number	Pounds	Number	Pounds	Number	Pounds [c]	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
2001[d]	14,011	98,197	1,497,359	10,972,234	217	1,590	1,511,587	11,072,021	215,214	1,287,154	51,141	368,970	1,777,942	12,728,145
2002	9,101	61,656	1,040,081	7,176,261	1,371	9,460	1,050,553	7,247,377	136,488	727,894	63,026	502,353	1,250,067	8,477,624
2003	5,582	36,334	1,092,304	7,137,591	2,411	15,755	1,100,297	7,189,680	121,887	599,342	70,044	466,153	1,292,228	8,255,175
2004	5,919	38,317	697,043	4,460,437	1,690	10,998	704,652	4,509,752	160,665	781,265	55,123	355,703	920,440	5,291,017
2005	7,076	43,988	1,143,693	7,468,609	1,364	8,702	1,152,133	7,521,299	274,328	1,681,630	170,662	1,088,207	1,597,123	10,291,136
2006	6,641	42,420	895,801	5,804,939	267	1,625	902,709	5,848,984	41,834	266,483	62,010	398,724	1,006,553	6,514,191
2007	5,152	38,112	829,110	5,769,736	285	1,346	834,547	5,809,194	52,527	325,619	0	0	887,074	6,134,813
2008	5,166	35,271	682,104	4,734,436	0	0	687,270	4,769,707	0	0	0	0	687,270	4,769,707
2009	1,687	12,833	1,196,325	8,248,669	93	631	1,198,105	8,262,133	126,968	811,617	48,322	314,210	1,373,395	9,387,960
2010	6,545	34,237	1,372,267	8,940,207	973	6,490	1,379,785	8,980,934	185,193	1,035,324	85,267	559,226	1,650,245	10,575,484
2011	6,556	48,184	2,490,125	17,841,056	323	1,977	2,497,004	17,891,217	494,538	3,224,966	156,637	1,123,768	3,148,179	22,239,951
Averages														
1991–10	7,830	51,718	1,362,189	9,190,297	-	-	1,370,503	9,245,159	177,704	1,021,369	84,167	557,341	1,632,373	10,806,084
2001–10	6,688	44,137	1,044,609	7,071,312	867	5,660	1,052,164	7,121,108	131,510	751,633	60,560	405,355	1,244,234	8,242,525
2006–10	5,038	32,575	995,121	6,699,597	324	2,018	1,000,483	6,734,190	81,304	487,809	39,120	254,432	1,120,907	7,476,431

[a] The Cape Igvak allocation began in 1978. From 1978 to 2002, 80% of the Cape Igvak sockeye salmon harvest was considered Chignik River-bound. Beginning in 2002, that percentage was changed to 90%.

[b] Beginning in 1980, 80% of the SEDM harvest in specific areas during specific times was considered Chignik River-bound.

[c] Weights of home pack are not reported on fish tickets; therefore, the weights were calculated from the average weight of the commercial harvest for that year.

[d] Due to a strike by Alaska Peninsula fishermen, foregone harvest of 27,896 sockeye salmon was added to the SEDM catch for management purposes; this foregone harvest is not included in this table.

Table 17.–Total annual Chignik Management Area sockeye salmon harvest (including home pack and the department's test fishery catches), by district, 1980 through 2011.

	District					
Year	Chignik Bay	Central	Eastern	Western	Perryville	Total
1980	708,828	74,628	60,947	9,227	6,336	859,966
1981	1,355,524	426,159	36,618	14,751	6,417	1,839,469
1982	1,413,806	66,278	10,209	30,279	1,114	1,521,686
1983	1,597,059	123,590	73,824	25,246	4,456	1,824,175
1984	1,942,822	517,653	184,495	15,470	179	2,660,619
1985	811,956	77,314	18,720	13,175	337	921,502
1986	1,389,172	182,884	6,424	44,362	22,992	1,645,834
1987	1,559,757	255,118	14,498	56,524	12,941	1,898,838
1988	529,540	124,103	25,699	93,070	23,429	795,841
1989	1,156,782	2,473	32	0	0	1,159,287
1990	1,400,069	566,601	51,443	53,192	22,345	2,093,650
1991	1,487,421	315,570	59,751	19,766	13,157	1,895,665
1992	792,889	332,860	12,327	30,004	109,369	1,277,449
1993	762,730	557,020	186,364	54,051	137,186	1,697,351
1994	908,042	573,484	20,041	64,325	53,081	1,618,973
1995	1,083,707	415,436	48,842	79,874	96,186	1,724,045
1996	1,003,683	743,658	145,668	47,529	17,855	1,958,393
1997	407,427	295,084	20,650	44,768	2,418	770,347
1998	622,005	286,643	30,555	87,940	27,296	1,054,439
1999	2,356,146	612,589	79,717	57,859	10,216	3,116,527
2000	1,327,249	358,985	71,572	15,034	2,385	1,775,225
2001	1,082,291	382,172	28,377	17,673	1,074	1,511,587
2002	993,756	44,368	2,835	9,425	169	1,050,553
2003	1,000,247	64,440	1,701	29,069	4,840	1,100,297
2004	704,471	181	0	0	0	704,652
2005	1,039,076	84,879	2	27,927	249	1,152,133
2006	726,749	103,272	3,118	69,570	0	902,709
2007	545,438	138,922	29,882	119,489	816	834,547
2008	527,026	83,111	2,279	68,257	6,597	687,270
2009	869,906	191,611	29,900	102,803	3,885	1,198,105
2010	846,823	371,090	102,587	56,736	2,549	1,379,785
2011	1,649,846	670,348	113,760	40,252	22,798	2,497,004
Averages						
1991–10	954,354	297,769	43,808	50,105	24,466	1,370,503
2001–10	833,578	146,405	20,068	50,095	2,018	1,052,164
2006–10	703,188	177,601	33,553	83,371	2,769	1,000,483

Table 18.–Chignik Management Area sockeye salmon harvest (including home pack and the department's test fishery catches), by district and day, 2011.

	District					
Date	Chignik Bay	Central	Eastern	Western	Perryville	Total
6/4	3,615	Closed	Closed	Closed	Closed	3,615
6/5	67,217	0	0	Closed	Closed	67,217
6/6	50,928	6,242	0	Closed	Closed	57,170
6/7	57,287	14,151	0	Closed	Closed	71,438
6/8	65,673	9,845	2,295	Closed	Closed	77,813
6/9	74,575	8,490	3,184	Closed	Closed	86,249
6/10	57,004	17,433	0	Closed	Closed	74,437
6/11	52,135	23,282	1,980	Closed	Closed	77,397
6/12	59,010	28,799	4,792	Closed	Closed	92,601
6/13	44,893	29,559	3,492	Closed	Closed	77,944
6/14	45,764	16,637	3,897	Closed	Closed	66,298
6/15	57,531	29,970	9,324	Closed	Closed	96,825
6/16	69,158	3,795	0	Closed	Closed	72,953
6/17	88,110	51,712	2,215	0	Closed	142,037
6/18	82,676	44,724	6,354	0	Closed	133,754
6/19	75,816	20,269	4,545	Closed	Closed	100,630
6/20	57,794	11,676	5,325	Closed	Closed	74,795
6/21	37,444	39,654	11,885	Closed	Closed	88,983
6/22	44,297	19,684	9,156	Closed	Closed	73,137
6/23	52,119	16,593	7,868	Closed	Closed	76,580
6/24	31,485	26,201	13,403	Closed	Closed	71,089
6/25	26,014	30,776	1,225	Closed	Closed	58,015
6/26	21,013	14,046	0	Closed	Closed	35,059
6/27	15,614	11,172	0	Closed	Closed	26,786
6/28	14,180	6,095	0	918	Closed	21,193
6/29	16,262	9,620	0	516	Closed	26,398
6/30	21,067	14,890	0	1,305	Closed	37,262
7/1	18,901	12,447	0	3,081	Closed	34,429
7/2	27,223	7,872	0	313	Closed	35,408
7/3	14,539	7,365	0	0	Closed	21,904
7/4	12,071	7,996	8,311	0	Closed	28,378
7/5	22,229	8,072	1,173	0	Closed	31,474
7/6	16,960	4,693	2,318	1,287	Closed	25,258
7/7	17,490	15,412	4,136	738	Closed	37,776
7/8	9,200	16,100	0	4,403	0	29,703
7/9	11,441	14,747	0	5,419	0	31,607
7/10	11,884	8,066	898	3,948	0	24,796
7/11	9,778	10,761	0	Closed	Closed	20,539
7/12	Closed	Closed	Closed	Closed	Closed	Closed
7/13	Closed	Closed	Closed	Closed	Closed	Closed
7/14	Closed	Closed	Closed	Closed	Closed	Closed
7/15	1,654	Closed	Closed	Closed	Closed	1,654
7/16	Closed	Closed	Closed	Closed	Closed	Closed

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Table 18.–Page 2 of 2.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
7/17	Closed	Closed	Closed	Closed	Closed	Closed
7/18	Closed	Closed	Closed	Closed	Closed	Closed
7/19	Closed	Closed	Closed	Closed	Closed	Closed
7/20	Closed	Closed	Closed	Closed	Closed	Closed
7/21	1,287	Closed	Closed	Closed	Closed	1,287
7/22	Closed	Closed	Closed	Closed	Closed	Closed
7/23	Closed	Closed	Closed	Closed	Closed	Closed
7/24	34,237	4,357	703	1,877	0	41,174
7/25	19,603	5,620	3,996	1,470	518	31,207
7/26	24,329	6,766	0	906	626	32,627
7/27	33,692	4,516	1,247	1,877	0	41,332
7/28	10,554	2,669	0	2,122	957	16,302
7/29	6,150	1,934	Closed	Closed	Closed	8,084
7/30	5,853	1,887	Closed	100	Closed	7,840
7/31	5,011	3,631	Closed	136	Closed	8,778
8/1	6,687	3,152	Closed	362	Closed	10,201
8/2	5,132	2,330	Closed	104	35	7,601
8/3	3,536	505	Closed	1,520	977	6,538
8/4	4,108	1,702	Closed	308	647	6,765
8/5	3,657	1,833	Closed	Closed	Closed	5,490
8/6	2,771	2,277	Closed	68	Closed	5,116
8/7	2,518	1,929	Closed	71	Closed	4,518
8/8	2,652	1,378	Closed	288	Closed	4,318
8/9	2,529	2,463	Closed	744	2,163	7,899
8/10	2,361	394	Closed	909	2,408	6,072
8/11	1,336	0	Closed	550	1,750	3,636
8/12	956	59	Closed	684	1,255	2,954
8/13	1,287	0	Closed	228	1,695	3,210
8/14	1,059	79	6	435	2,372	3,951
8/15	994	6	32	313	1,679	3,024
8/16	1,285	268	Closed	1,159	2,166	4,878
8/17	1,317	263	Closed	792	1,705	4,077
8/18	743	622	Closed	493	392	2,250
8/19	682	556	Closed	66	0	1,304
8/20	723	64	0	0	346	1,133
8/21	153	0	0	183	495	831
8/22	0	0	0	0	414	414
8/23	36	0	0	371	198	605
8/24	30	0	0	160	0	190
8/25	208	0	Closed	0	0	208
8/26	196	0	Closed	28	0	224
8/27	123	242	Closed	0	0	365
8/28	0	0	Closed	0	0	0
8/29	0	0	Closed	0	0	0
Total	1,649,846	670,348	113,760	40,252	22,798	2,497,004

Table 19.–Harvest of sockeye salmon considered by regulation to be Chignik-bound in the Chignik, Cape Igvak, and Southeastern District Mainland commercial salmon fisheries from June 1 to July 25, 1978 through 2011.

	Chignik[a]		Cape Igvak[a]		Southeastern District Mainland[a]		
Year	Catch[b]	Percent	Catch[b]	Percent	Catch[c]	Percent	Total
1978	1,454,389	86.6	225,078	13.4	ND	ND	1,679,467
1979	794,504	98.3	13,950	1.7	ND	ND	808,454
1980	670,001	91.3	32	0.0	63,724	8.7	733,757
1981	1,606,300	79.9	282,727	14.1	122,198	6.1	2,011,225
1982	1,250,768	84.5	166,756	11.3	62,789	4.2	1,480,313
1983	1,450,832	72.7	318,048	15.9	227,392	11.4	1,996,272
1984	2,474,405	73.9	449,372	13.4	423,292	12.6	3,347,069
1985	690,698	79.8	123,627	14.3	51,421	5.9	865,746
1986	1,456,729	82.6	188,017	10.7	118,006	6.7	1,762,752
1987	1,659,236	78.0	321,506	15.1	146,886	6.9	2,127,628
1988	675,487	95.8	10,520	1.5	19,320	2.7	705,327
1989	496,044	99.1	0	0.0	4,485	0.9	500,529
1990	1,205,575	84.3	107,706	7.5	117,065	8.2	1,430,346
1991[d]	1,962,583	80.5	324,195	13.3	152,714	6.3	2,439,492
1992	1,054,309	81.2	150,434	11.6	93,845	7.2	1,298,588
1993	1,495,098	77.7	300,055	15.6	128,608	6.7	1,923,761
1994[e]	1,632,435	80.6	250,230	12.4	142,350	7.0	2,025,015
1995	1,024,785	79.8	169,530	13.2	89,086	6.9	1,283,401
1996	1,710,249	79.7	308,327	14.4	127,201	5.9	2,145,777
1997	443,892	100.0	0	0.0	0	0.0	443,892
1998[f]	786,466	91.2	8,813	1.0	66,893	7.8	862,172
1999	2,326,811	78.7	456,039	15.4	173,621	5.9	2,956,471
2000	1,509,652	80.1	271,344	14.4	103,419	5.5	1,884,415
2001[g]	1,134,991	79.4	215,214	15.1	79,037	5.5	1,429,242
2002	849,980	81.0	136,488	13.0	63,026	6.0	1,049,494
2003	855,179	81.7	121,887	11.6	70,044	6.7	1,047,110
2004	681,120	75.9	160,665	17.9	55,123	6.1	896,908
2005	1,098,718	70.8	274,328	17.7	177,906	11.5	1,550,952
2006	741,887	87.7	41,834	4.9	62,010	7.3	845,731
2007	601,213	92.0	52,527	8.0	0	0.0	653,740
2008	445,199	100.0	0	0.0	0	0.0	445,199
2009	871,890	83.3	126,968	12.1	48,322	5.5	1,047,180
2010	1,125,135	80.6	185,193	13.3	85,267	7.6	1,395,595
2011	2,277,681	77.8	494,538	16.9	156,637	6.9	2,928,856
Averages							
1991–10	1,117,580	83.1	177,704	11.2	85,924	5.8	1,381,207
2001–10	840,531	83.2	131,510	11.4	64,074	5.6	1,036,115
2006–10	757,065	88.7	81,304	7.7	39,120	4.1	877,489

-continued-

[a] Through 2001, the Cape Igvak and Southeastern District Mainland figures represent 80% of the total sockeye salmon catch for those areas through July 25, based on the regulations in effect during those years. In 2002 the BOF increased the percentage of sockeye salmon harvest considered Chignik-bound from 80% to 90% in the Cape Igvak fishery. The figures reported in this table are the portion of the catches considered Chignik-bound. These figures do not include Chignik test fishery harvests or fish retained for home pack as they are not included in the allocation scheme.

[b] Beginning in 1978 the *Cape Igvak Salmon Management Plan* allocated up to 15% of the total catch of Chignik-bound sockeye salmon to the Cape Igvak fishery.

[c] Beginning in 1985 the Southeastern District Mainland was allowed an allocation of 6.2% of the total harvest of Chignik-bound sockeye salmon through July 25. Certain areas (which changed frequently) were excluded from the allocation and managed for local (Orzinski Lake) stocks (see regulations from the individual years). After July 25 the entire Southeast District Mainland was managed based on local stock abundance. The allocation level changed to 6.0% beginning in 1988. Beginning in 1992, the allocation of Chignik-bound sockeye to the Southeastern District Mainland fishery was increased to 7.0%. Prior to the 1996 season, the BOF decreased the allocation from 7.0% to 6.0%. The allocation was increased from 6.0% to 7.6% prior to the 2007 season.

[d] Includes a foregone harvest of 278,305 sockeye salmon during a Chignik area strike (June 23 to July 4).

[e] Includes a foregone harvest of 208,921 sockeye salmon during a Chignik area strike (June 2 to June 25).

[f] Includes a foregone harvest of 52,131 sockeye salmon during a Chignik area strike (June 16 to June 29).

[g] Includes a foregone harvest of 389,887 sockeye salmon in Chignik during a Chignik area strike (June 16 to 29), and foregone harvest of 27,896 sockeye salmon in the SEDM during a strike on the South Peninsula (June 14 to July 2).

Table 20.–Chignik sockeye salmon escapement, total harvest considered Chignik-bound, and total run, 1970 through 2011.

	Early Run			Late Run			Total Run [a,b,c]		
Year	Esc.	Harvest	Run	Esc.	Harvest	Run	Esc.	Harvest	Run
1970	536,257	1,566,065	2,102,322	119,952	262,244	382,196	656,209	1,828,309	2,484,518
1971	671,668	555,832	1,227,500	232,501	709,190	941,691	904,169	1,265,022	2,169,191
1972	326,320	43,220	369,540	231,270	386,615	617,885	557,590	429,835	987,425
1973	533,047	610,488	1,143,535	249,144	355,195	604,339	782,191	965,683	1,747,874
1974	351,701	204,722	556,423	326,245	648,283	974,528	677,946	853,005	1,530,951
1975	308,914	7,873	316,787	268,734	417,560	686,294	577,648	425,433	1,003,081
1976	551,254	599,341	1,150,595	279,509	727,043	1,006,552	830,763	1,326,384	2,157,147
1977	482,247	534,198	1,016,445	251,753	1,602,363	1,854,116	734,000	2,136,561	2,870,561
1978	458,660	940,188	1,398,848	223,887	885,173	1,109,060	682,547	1,825,361	2,507,908
1979	385,694	186,537	572,231	352,122	933,788	1,285,910	737,816	1,120,325	1,858,141
1980	311,332	73,742	385,074	352,729	849,980	1,202,709	664,061	923,722	1,587,783
1981	438,540	800,364	1,238,904	392,909	1,444,030	1,836,939	831,449	2,244,394	3,075,843
1982	616,117	1,324,396	1,940,513	221,601	426,835	648,436	837,718	1,751,231	2,588,949
1983	426,177	1,128,246	1,554,423	409,458	1,241,369	1,650,827	835,635	2,369,615	3,205,250
1984	597,712	2,919,984	3,517,696	267,862	613,299	881,161	865,574	3,533,283	4,398,857
1985	376,576	654,431	1,031,007	369,262	442,119	811,381	745,838	1,096,550	1,842,388
1986	566,088	1,364,295	1,930,383	207,231	587,562	794,793	773,319	1,951,857	2,725,176
1987	589,291	1,947,088	2,536,379	214,452	420,142	634,594	803,743	2,367,230	3,170,973
1988	420,577	271,377	691,954	255,180	554,304	809,484	675,757	825,681	1,501,438
1989	384,004	234,237	618,241	557,171	929,535	1,486,706	941,175	1,163,772	2,104,947
1990	434,543	582,520	1,017,063	335,867	1,735,901	2,071,768	770,410	2,318,421	3,088,831
1991	657,511	1,711,549	2,384,420	382,587	661,025	1,028,252	1,040,098	2,372,574	3,412,672
1992	360,681	744,417	1,105,098	405,922	777,311	1,183,233	766,603	1,521,728	2,288,331
1993	364,261	926,892	1,291,153	333,116	1,199,122	1,532,238	697,377	2,126,014	2,823,391
1994	769,462	1,595,176	2,364,638	197,447	416,377	613,824	966,909	2,011,553	2,978,462
1995	366,163	666,799	1,032,962	373,757	1,315,862	1,689,619	739,920	1,982,661	2,722,581
1996	464,461	1,688,264	2,152,725	284,676	705,657	990,333	749,137	2,393,921	3,143,058
1997	396,667	234,824	631,491	378,951	535,523	914,474	775,618	770,347	1,545,965
1998	410,659	313,158	723,817	290,469	816,987	1,107,456	701,128	1,130,145	1,831,273
1999	457,429	2,022,272	2,479,701	258,537	1,723,915	1,982,452	715,966	3,746,187	4,462,153
2000	536,141	1,574,391	2,110,532	269,084	575,597	844,681	805,225	2,149,988	2,955,213
2001	744,013	563,539	1,307,552	392,905	1,214,403	1,607,308	1,136,918	1,777,942	2,914,860
2002	380,701	684,728	1,065,428	343,616	565,339	908,955	724,317	1,250,067	1,974,383
2003	350,004	640,084	990,088	334,119	652,144	986,263	684,123	1,292,228	1,976,351
2004	363,800	727,975	1,091,775	214,459	192,465	406,924	578,259	920,440	1,498,700
2005	355,091	1,109,881	1,464,972	225,366	487,242	712,608	580,457	1,597,123	2,177,580
2006	366,497	436,028	802,525	368,996	570,525	939,521	735,493	1,006,553	1,742,046
2007	361,091	267,805	628,896	293,883	619,269	913,152	654,974	887,074	1,542,048
2008	377,579	253,490	631,069	328,479	433,780	762,259	706,058	687,270	1,393,328
2009	391,476	520,630	912,106	328,586	852,765	1,181,351	720,062	1,373,395	2,093,457
2010	432,535	833,713	1,266,248	311,291	816,532	1,127,823	743,826	1,650,245	2,394,071
2011	488,930	2,594,291	3,083,221	264,887	553,888	818,775	753,817	3,148,179	3,901,996
Averages									
1991–10	445,311	875,781	1,321,860	315,812	756,592	1,071,636	761,123	1,632,373	2,393,496
2001–10	412,279	603,787	1,016,066	314,170	640,446	954,616	726,449	1,244,234	1,970,682
2006–10	385,836	462,333	848,169	326,247	658,574	984,821	712,083	1,120,907	1,832,990

[a] Includes Cape Igvak and SEDM harvests considered Chignik-bound as defined in regulation. However, portions of the harvests from Cape Igvak and SEDM from 1970 to 1979 were not considered Chignik-bound by regulation, but were included in this table for comparison purposes.

[b] Does not include subsistence-caught fish.

[c] Includes harvests from the Chignik Lagoon test fishery and fish retained for home pack.

Table 21.–Chignik sockeye salmon forecasts and actual runs, by run and year, 1994 through 2011, in millions of fish.

	Early Run			Late Run			Total Run		
Year	Forecast	Actual	% Error	Forecast	Actual	% Error	Forecast	Actual	% Error
1994	1.80	2.36	-23.88	1.30	0.61	111.79	3.10	2.98	4.08
1995	1.90	1.03	83.88	0.90	1.69	-46.72	2.80	2.72	2.84
1996	1.40	2.15	-34.97	1.60	0.99	61.61	3.00	3.14	-4.55
1997	1.00	0.63	58.44	1.60	0.91	75.03	2.60	1.55	68.25
1998	0.90	0.72	24.36	1.10	1.11	-0.66	2.00	1.83	9.23
1999	1.05	2.48	-57.66	1.29	1.98	-34.93	2.34	4.46	-47.56
2000	3.90	2.11	84.66	1.09	0.84	29.04	4.99	2.96	68.77
2001	1.00	1.31	-23.49	0.91	1.61	-43.38	1.91	2.91	-34.46
2002	1.03	1.06	-3.24	1.09	0.91	19.85	2.12	1.97	7.40
2003	1.64	0.99	65.62	1.19	1.00	19.00	2.83	1.99	42.20
2004	1.26	1.09	15.60	1.08	0.41	163.41	2.34	1.50	56.00
2005	1.84	1.46	26.03	0.55	0.71	-22.54	2.39	2.17	10.14
2006	1.21	0.78	55.13	0.28	0.96	-70.83	1.49	1.74	-14.37
2007	1.02	0.60	71.14	0.90	0.95	-5.24	1.92	1.55	24.21
2008	1.07	0.60	78.33	0.65	0.79	-17.97	1.72	1.39	23.60
2009	0.85	0.87	-2.30	0.54	1.23	-56.10	1.39	2.10	-33.81
2010	1.08	1.20	-10.00	1.11	1.19	-6.72	2.19	2.39	-8.37
2011	1.30	3.08	-57.82	1.02	0.82	24.39	2.32	3.90	-40.54
Averages									
2001–10	1.20	1.00	27.28	0.83	0.98	-2.05	2.03	1.97	7.25
2006–10	1.05	0.81	38.46	0.70	1.02	-31.37	1.74	1.83	-1.75

Table 22.–Chignik Management Area coho salmon harvest, by year, 1980 through 2011.

	Testfish		Commercial Catch		Home Pack		Total	
Year	Number	Pounds	Number	Pounds	Number	Pounds[a]	Number	Pounds
1980	ND	ND	119,573	771,392	ND	ND	119,573	771,392
1981	ND	ND	78,805	602,603	ND	ND	78,805	602,603
1982	ND	ND	300,273	2,373,268	ND	ND	300,273	2,373,268
1983	ND	ND	61,927	488,203	ND	ND	61,927	488,203
1984	ND	ND	110,128	949,965	ND	ND	110,128	949,965
1985	0	0	191,162	1,709,637	ND	ND	191,162	1,709,637
1986	ND	ND	116,633	867,195	ND	ND	116,633	867,195
1987	0	0	150,414	1,189,803	ND	ND	150,414	1,189,803
1988	0	0	370,420	2,889,427	ND	ND	370,420	2,889,427
1989	0	0	68,233	559,140	ND	ND	68,233	559,140
1990	0	0	130,131	933,745	ND	ND	130,131	933,745
1991	42	253	165,583	1,182,704	ND	ND	165,625	1,182,957
1992	1	8	310,942	2,362,683	ND	ND	310,943	2,362,691
1993	356	2,024	229,103	1,459,220	ND	ND	229,459	1,461,244
1994	103	506	237,101	1,996,320	ND	ND	237,204	1,996,826
1995	0	0	280,605	2,062,086	913	6,709	281,518	2,068,795
1996	0	0	193,226	1,485,947	20	154	193,246	1,486,101
1997	0	0	90,908	756,509	0	0	90,908	756,509
1998	0	0	129,512	1,045,823	27	218	129,539	1,046,041
1999	0	0	89,410	617,320	200	1,381	89,610	618,701
2000	0	0	123,222	943,536	0	0	123,222	943,536
2001	0	0	131,441	1,012,153	7	54	131,448	1,012,207
2002	0	0	49,208	360,781	164	1,202	49,372	361,983
2003	44	287	103,778	857,097	74	611	103,896	857,995
2004	0	0	37	283	0	0	37	283
2005	0	0	6,951	46,970	5	30	6,956	47,000
2006	0	0	39,046	290,720	175	1,312	39,221	292,032
2007	0	0	73,221	543,761	56	416	73,277	544,177
2008	0	0	161,536	1,290,277	0	0	161,536	1,290,277
2009	0	0	110,373	732,346	0	0	110,373	732,346
2010	0	0	159,198	1,137,878	0	0	159,198	1,137,878
2011	0	0	76,776	519,422	16	147	76,792	519,569
Averages								
1991–10	27	154	134,220	1,009,221	103	755	134,329	1,009,979
2001–10	4	29	83,479	627,227	48	363	83,531	627,618
2006–10	0	0	108,675	798,996	46	346	108,721	799,342

[a] Weights of home pack fish are not reported on fish tickets; therefore, the weights were calculated from the average weight of the commercial harvest for that year.

Table 23.–Chignik Management Area coho salmon harvest (including home pack and the department's test fishery catches), by district and year, 1980 through 2011.

	District					
Year	Chignik Bay	Central	Eastern	Western	Perryville	Total
1980	49,784	7,167	13,872	34,631	14,119	119,573
1981	35,578	8,693	6,222	22,047	6,265	78,805
1982	132,262	6,564	31,476	122,707	7,264	300,273
1983	29,519	330	441	27,173	4,464	61,927
1984	72,722	1,705	403	33,263	2,035	110,128
1985	156,553	7,111	3,203	23,357	938	191,162
1986	60,197	3,027	1,033	33,726	18,650	116,633
1987	77,333	3,806	7	58,688	10,580	150,414
1988	94,292	21,628	6,167	207,086	41,247	370,420
1989	68,231	2	0	0	0	68,233
1990	61,260	27,659	32	23,422	17,758	130,131
1991	56,574	9,294	1,187	57,373	41,197	165,625
1992	80,946	19,612	4,260	140,560	65,565	310,943
1993	48,808	36,421	4,240	84,056	55,934	229,459
1994	70,541	19,794	176	110,476	36,217	237,204
1995	54,646	46,975	458	88,116	91,323	281,518
1996	45,361	35,440	33	91,587	20,825	193,246
1997	32,847	45,878	1,801	9,139	1,243	90,908
1998	23,070	32,743	1,227	55,359	17,140	129,539
1999	23,144	24,308	3,095	36,405	2,658	89,610
2000	11,620	37,943	2,555	69,599	1,505	123,222
2001	10,007	31,062	2,303	86,580	1,496	131,448
2002	8,461	4,442	0	36,283	186	49,372
2003	37,800	7,632	0	55,225	3,239	103,896
2004	37	0	0	0	0	37
2005	510	730	12	5,045	659	6,956
2006	7,057	2,170	1	29,993	0	39,221
2007	11,790	12,830	420	47,525	712	73,277
2008	46,400	7,647	1,052	97,153	9,284	161,536
2009	9,570	13,276	2,888	80,395	4,244	110,373
2010	17,469	27,982	3,109	104,886	5,752	159,198
2011	1,801	12,915	354	50,504	11,218	76,792
Averages						
1991–10	29,833	20,809	1,441	64,288	17,959	134,329
2001–10	14,910	10,777	979	54,309	2,557	83,531
2006–10	18,457	12,781	1,494	71,990	3,998	108,721

Table 24.–Chignik Management Area coho salmon harvest (including home pack and the department's test fishery catches), by district and day, 2011.

	District					
Date	Chignik Bay	Central	Eastern	Western	Perryville	Total
6/4	0	Closed	Closed	Closed	Closed	0
6/5	0	0	0	Closed	Closed	0
6/6	0	0	0	Closed	Closed	0
6/7	0	0	0	Closed	Closed	0
6/8	0	0	0	Closed	Closed	0
6/9	0	0	0	Closed	Closed	0
6/10	0	0	0	Closed	Closed	0
6/11	0	0	0	Closed	Closed	0
6/12	0	0	0	Closed	Closed	0
6/13	0	0	0	Closed	Closed	0
6/14	0	0	0	Closed	Closed	0
6/15	0	0	0	Closed	Closed	0
6/16	0	0	0	Closed	Closed	0
6/17	0	0	0	0	Closed	0
6/18	0	0	0	0	Closed	0
6/19	0	0	0	Closed	Closed	0
6/20	0	0	0	Closed	Closed	0
6/21	0	0	0	Closed	Closed	0
6/22	0	0	0	Closed	Closed	0
6/23	0	0	0	Closed	Closed	0
6/24	0	0	0	Closed	Closed	0
6/25	0	1	0	Closed	Closed	1
6/26	0	1	0	Closed	Closed	1
6/27	0	0	0	Closed	Closed	0
6/28	0	0	0	Closed	Closed	0
6/29	0	1	0	Closed	Closed	1
6/30	1	3	0	8	Closed	12
7/1	0	13	0	19	Closed	32
7/2	2	7	0	4	Closed	13
7/3	0	8	0	Closed	Closed	8
7/4	0	5	26	Closed	Closed	31
7/5	0	12	8	Closed	Closed	20
7/6	0	10	7	62	Closed	79
7/7	12	8	11	22	Closed	53
7/8	10	190	0	193	0	393
7/9	22	184	0	469	0	675
7/10	3	104	58	637	0	802
7/11	30	407	0	Closed	Closed	437
7/12	Closed	Closed	Closed	Closed	Closed	Closed
7/13	Closed	Closed	Closed	Closed	Closed	Closed
7/14	Closed	Closed	Closed	Closed	Closed	Closed
7/15	1	Closed	Closed	Closed	Closed	1
7/16	Closed	Closed	Closed	Closed	Closed	Closed

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Table 24.–Page 2 of 2.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
7/17	Closed	Closed	Closed	Closed	Closed	Closed
7/18	Closed	Closed	Closed	Closed	Closed	Closed
7/19	Closed	Closed	Closed	Closed	Closed	Closed
7/20	Closed	Closed	Closed	Closed	Closed	Closed
7/21	0	Closed	Closed	Closed	Closed	0
7/22	Closed	Closed	Closed	Closed	Closed	Closed
7/23	Closed	Closed	Closed	Closed	Closed	Closed
7/24	233	341	31	3,233	150	3,988
7/25	43	335	51	5,015	143	5,587
7/26	37	716	0	2,655	0	3,408
7/27	4	509	71	5,878	0	6,462
7/28	100	214	0	4,131	733	5,178
7/29	23	202	Closed	Closed	0	225
7/30	134	213	Closed	605	0	952
7/31	11	1,485	Closed	551	0	2,047
8/1	11	945	Closed	1,055	0	2,011
8/2	0	309	Closed	558	25	892
8/3	2	68	Closed	3,544	1,823	5,437
8/4	20	663	Closed	1,745	243	2,671
8/5	2	645	Closed	Closed	0	647
8/6	131	1,179	Closed	275	0	1,585
8/7	308	1,012	Closed	256	0	1,576
8/8	36	592	Closed	1,092	0	1,720
8/9	219	961	Closed	1,660	416	3,256
8/10	9	136	Closed	3,190	1,275	4,610
8/11	6	0	Closed	1,324	910	2,240
8/12	123	138	Closed	1,934	476	2,671
8/13	7	0	Closed	600	734	1,341
8/14	19	20	15	885	917	1,856
8/15	9	67	76	713	460	1,325
8/16	19	176	Closed	2,581	805	3,581
8/17	28	113	Closed	2,340	951	3,432
8/18	19	146	Closed	1,033	201	1,399
8/19	21	535	Closed	168	0	724
8/20	43	8	0	0	206	257
8/21	5	0	0	684	414	1,103
8/22	0	0	0	0	211	211
8/23	5	0	0	737	125	867
8/24	2	0	0	517	0	519
8/25	46	0	0	0	0	46
8/26	38	0	Closed	131	0	169
8/27	7	233	Closed	0	0	240
8/28	0	0	Closed	0	0	0
8/29	0	0	Closed	0	0	0
Total	1,801	12,915	354	50,504	11,218	76,792

Table 25.–Chignik Management Area pink salmon harvest, by year, 1980 through 2011.

	Testfish		Commercial Catch		Home Pack		Total	
Year	Number	Pounds	Number	Pounds	Number	Pounds[a]	Number	Pounds
1980	ND	ND	1,093,184	3,635,145	ND	ND	1,093,184	3,635,145
1981	ND	ND	1,162,613	4,479,368	ND	ND	1,162,613	4,479,368
1982	ND	ND	873,384	2,916,671	ND	ND	873,384	2,916,671
1983	ND	ND	321,178	1,200,888	ND	ND	321,178	1,200,888
1984	ND	ND	444,804	1,651,249	ND	ND	444,804	1,651,249
1985	0	0	160,128	643,731	ND	ND	160,128	643,731
1986	ND	ND	647,125	2,374,311	ND	ND	647,125	2,374,311
1987	0	0	246,775	899,560	ND	ND	246,775	899,560
1988	0	0	2,997,159	10,723,505	ND	ND	2,997,159	10,723,505
1989	0	0	27,712	94,269	ND	ND	27,712	94,269
1990	0	0	550,008	1,675,644	ND	ND	550,008	1,675,644
1991	2,660	9,237	1,166,588	3,348,394	ND	ND	1,169,248	3,357,631
1992	114	536	1,553,959	5,798,623	ND	ND	1,554,073	5,799,159
1993	1,826	5,539	1,646,551	5,308,258	ND	ND	1,648,377	5,313,797
1994	14	55	431,049	1,494,604	ND	ND	431,063	1,494,659
1995	0	0	2,057,998	7,350,386	0	0	2,057,998	7,350,386
1996	0	0	183,806	536,218	5,262	15,351	189,068	551,569
1997	0	0	844,431	2,784,333	0	0	844,431	2,784,333
1998	0	0	776,988	2,586,026	0	0	776,988	2,586,026
1999	0	0	1,698,651	4,845,435	0	0	1,698,651	4,845,435
2000	0	0	428,064	1,183,004	0	0	428,064	1,183,004
2001	0	0	1,281,760	4,077,814	7	22	1,281,767	4,077,836
2002	66	276	65,984	206,385	0	0	66,050	206,661
2003	570	2,167	501,661	1,951,928	407	1,584	502,638	1,955,679
2004	0	0	2,380	7,589	0	0	2,380	7,589
2005	8	48	193,803	611,023	234	813	194,045	611,884
2006	0	0	383,574	1,403,428	0	0	383,574	1,403,428
2007	0	0	2,019,748	7,388,012	0	0	2,019,748	7,388,012
2008	0	0	2,389,958	8,192,350	0	0	2,389,958	8,192,350
2009	0	0	1,408,339	4,502,661	0	0	1,408,339	4,502,661
2010	0	0	489,774	1,663,961	7	24	489,781	1,663,985
2011	58	154	905,108	2,882,546	0	0	905,166	2,882,700
Averages								
1991–10	263	893	976,253	3,262,022	370	1,112	976,812	3,263,804
2001–10	64	249	873,698	3,000,515	66	244	873,828	3,001,008
2006–10	0	0	1,338,279	4,630,082	1	5	1,338,280	4,630,087

[a] Weights of home pack fish are not reported on fish tickets; therefore, they were calculated from the average weight of the commercial harvest.

Table 26.–Chignik Management Area pink salmon harvest (including home pack and the department's test fishery catches), by district and year, 1980 through 2011.

	District					
Year	Chignik Bay	Central	Eastern	Western	Perryville	Total
1980	180,912	108,682	472,510	216,460	114,620	1,093,184
1981	121,380	210,023	173,293	433,605	224,312	1,162,613
1982	82,973	80,606	89,074	602,408	18,323	873,384
1983	27,284	7,861	7,817	164,338	113,878	321,178
1984	165,178	47,250	57,715	173,820	841	444,804
1985	14,429	16,087	6,570	80,577	42,465	160,128
1986	191,264	44,127	49,635	200,793	161,306	647,125
1987	13,887	7,769	2,079	187,701	35,339	246,775
1988	119,794	318,370	1,006,366	1,141,382	411,247	2,997,159
1989	27,691	21	0	0	0	27,712
1990	94,528	233,677	40,574	135,810	45,419	550,008
1991	76,163	173,967	27,979	419,264	471,875	1,169,248
1992	178,105	205,750	183,119	628,900	358,199	1,554,073
1993	55,909	205,037	52,755	685,605	649,071	1,648,377
1994	59,425	99,149	12,952	174,641	84,896	431,063
1995	106,939	469,745	8,572	791,718	681,024	2,057,998
1996	1,804	20,717	7,201	100,871	58,475	189,068
1997	39,461	603,575	72,347	118,003	11,045	844,431
1998	26,054	233,732	66,725	343,187	107,290	776,988
1999	59,001	664,208	40,571	771,411	163,460	1,698,651
2000	28,067	271,417	10,500	106,147	11,933	428,064
2001	75,142	641,438	97,438	424,537	43,212	1,281,767
2002	10,253	17,580	0	36,918	1,299	66,050
2003	56,042	88,736	267	326,239	31,354	502,638
2004	2,378	2	0	0	0	2,380
2005	71,438	99,491	21	20,952	2,143	194,045
2006	62,419	79,726	79,465	161,964	0	383,574
2007	187,670	612,921	43,379	1,152,331	23,447	2,019,748
2008	232,444	369,298	416,520	1,062,482	309,214	2,389,958
2009	77,569	317,085	275,791	711,890	26,004	1,408,339
2010	30,683	183,008	43,264	225,716	7,110	489,781
2011	30,707	225,307	54,288	368,351	226,513	905,166
Averages						
1991–10	71,848	267,829	71,943	413,139	152,053	976,812
2001–10	80,604	240,929	95,615	412,303	44,378	873,828
2006–10	118,157	312,408	171,684	662,877	73,155	1,338,280

Table 27.–Chignik Management Area pink salmon harvest (including home pack and the department's test fishery catches), by district and day, 2011.

	District					
Date	Chignik Bay	Central	Eastern	Western	Perryville	Total
6/4	0	Closed	Closed	Closed	Closed	0
6/5	0	0	0	Closed	Closed	0
6/6	0	0	0	Closed	Closed	0
6/7	0	0	0	Closed	Closed	0
6/8	0	0	0	Closed	Closed	0
6/9	0	2	0	Closed	Closed	2
6/10	0	0	0	Closed	Closed	0
6/11	0	0	10	Closed	Closed	10
6/12	0	56	38	Closed	Closed	94
6/13	0	0	48	Closed	Closed	48
6/14	0	14	158	Closed	Closed	172
6/15	2	44	151	Closed	Closed	197
6/16	0	17	0	Closed	Closed	17
6/17	0	355	47	0	Closed	402
6/18	4	360	224	0	Closed	588
6/19	1	121	143	Closed	Closed	265
6/20	0	298	278	Closed	Closed	576
6/21	60	739	527	Closed	Closed	1,326
6/22	65	1,871	391	Closed	Closed	2,327
6/23	47	4,243	391	Closed	Closed	4,681
6/24	4	4,080	775	Closed	Closed	4,859
6/25	7	4,943	401	Closed	Closed	5,351
6/26	15	1,279	0	Closed	Closed	1,294
6/27	10	877	0	Closed	Closed	887
6/28	88	261	0	371	Closed	720
6/29	106	1,233	0	770	Closed	2,109
6/30	170	1,909	0	3,797	Closed	5,876
7/1	303	3,656	0	11,276	Closed	15,235
7/2	2,140	2,221	0	750	Closed	5,111
7/3	244	3,009	0	Closed	Closed	3,253
7/4	2,710	5,928	2,977	Closed	Closed	11,615
7/5	3,786	3,856	255	Closed	Closed	7,897
7/6	478	1,516	627	8,055	Closed	10,676
7/7	719	2,530	690	1,671	Closed	5,610
7/8	583	4,897	0	7,184	0	12,664
7/9	1,398	5,287	0	13,440	0	20,125
7/10	665	2,334	153	8,520	0	11,672
7/11	768	6,012	0	Closed	Closed	6,780
7/12	Closed	Closed	Closed	Closed	Closed	Closed
7/13	Closed	Closed	Closed	Closed	Closed	Closed
7/14	Closed	Closed	Closed	Closed	Closed	Closed
7/15	50	Closed	Closed	Closed	Closed	50
7/16	Closed	Closed	Closed	Closed	Closed	Closed

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Table 27.–Page 2 of 2.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
7/17	Closed	Closed	Closed	Closed	Closed	Closed
7/18	Closed	Closed	Closed	Closed	Closed	Closed
7/19	Closed	Closed	Closed	Closed	Closed	Closed
7/20	Closed	Closed	Closed	Closed	Closed	Closed
7/21	8	Closed	Closed	Closed	Closed	8
7/22	Closed	Closed	Closed	Closed	Closed	Closed
7/23	Closed	Closed	Closed	Closed	Closed	Closed
7/24	1,194	3,730	565	9,922	0	15,411
7/25	841	8,693	3,830	12,076	2,150	27,590
7/26	505	12,201	0	6,685	2,646	22,037
7/27	283	6,300	1,200	10,456	0	18,239
7/28	444	3,818	2,580	14,316	3,553	24,711
7/29	324	2,813	Closed	Closed	Closed	3,137
7/30	862	2,987	Closed	1,346	Closed	5,195
7/31	191	11,123	Closed	1,369	Closed	12,683
8/1	324	7,165	Closed	3,198	Closed	10,687
8/2	215	4,989	Closed	2,071	331	7,606
8/3	263	2,302	Closed	14,001	10,382	26,948
8/4	743	10,131	Closed	8,717	10,967	30,558
8/5	409	10,644	Closed	Closed	Closed	11,053
8/6	669	14,020	Closed	1,407	Closed	16,096
8/7	2,017	15,063	Closed	2,061	Closed	19,141
8/8	818	10,477	Closed	7,563	Closed	18,858
8/9	1,449	13,169	Closed	13,734	15,902	44,254
8/10	463	2,288	Closed	37,660	20,781	61,192
8/11	368	0	Closed	15,989	26,591	42,948
8/12	1,089	1,667	Closed	19,812	11,151	33,719
8/13	338	0	Closed	12,861	25,311	38,510
8/14	273	1,110	12,303	19,246	21,512	54,444
8/15	252	539	13,796	10,547	25,039	50,173
8/16	440	1,703	Closed	42,341	20,395	64,879
8/17	242	992	Closed	19,298	11,120	31,652
8/18	231	5,105	Closed	8,918	3,433	17,687
8/19	186	6,243	Closed	2,091	0	8,520
8/20	236	672	9,838	0	3,011	13,757
8/21	70	0	0	3,282	6,774	10,126
8/22	0	0	1,892	0	3,100	4,992
8/23	18	0	0	6,682	2,364	9,064
8/24	306	0	Closed	4,189	0	4,495
8/25	60	0	Closed	0	0	60
8/26	76	0	Closed	679	0	755
8/27	77	1,415	Closed	0	0	1,492
8/28	0	0	Closed	0	0	0
8/29	0	0	Closed	0	0	0
Total	30,707	225,307	54,288	368,351	226,513	905,166

Table 28.–Chignik Management Area chum salmon harvest, by year, 1980 through 2011.

	Testfish		Commercial Catch		Home Pack		Total	
Year	Number	Pounds	Number	Pounds	Number	Pounds [a]	Number	Pounds
1980	ND	ND	252,521	1,765,287	ND	ND	252,521	1,765,287
1981	ND	ND	580,332	4,502,632	ND	ND	580,332	4,502,632
1982	ND	ND	390,096	3,231,403	ND	ND	390,096	3,231,403
1983	ND	ND	159,412	1,205,266	ND	ND	159,412	1,205,266
1984	ND	ND	63,303	485,967	ND	ND	63,303	485,967
1985	0	0	22,805	145,276	ND	ND	22,805	145,276
1986	ND	ND	176,640	1,304,418	ND	ND	176,640	1,304,418
1987	0	0	127,261	943,941	ND	ND	127,261	943,941
1988	0	0	267,775	2,196,377	ND	ND	267,775	2,196,377
1989	0	0	1,624	11,888	ND	ND	1,624	11,888
1990	0	0	270,004	1,757,019	ND	ND	270,004	1,757,019
1991	607	4,260	260,489	1,671,939	ND	ND	261,096	1,676,199
1992	16	140	222,118	1,592,186	ND	ND	222,134	1,592,326
1993	57	300	122,303	735,747	ND	ND	122,360	736,047
1994	521	3,437	226,755	1,627,574	ND	ND	227,276	1,631,011
1995	0	0	380,949	2,814,987	5	37	380,954	2,815,024
1996	0	0	99,791	779,840	21,100	164,891	120,891	944,731
1997	0	0	155,905	1,196,999	0	0	155,905	1,196,999
1998	0	0	128,841	917,648	155	1,104	128,996	918,752
1999	0	0	140,594	1,064,433	3	0	140,597	1,064,433
2000	0	0	120,957	1,033,665	0	0	120,957	1,033,665
2001	0	0	198,874	1,609,533	129	1,044	199,003	1,610,577
2002	46	334	54,513	406,382	0	0	54,559	406,716
2003	137	1,394	63,907	447,921	0	0	64,044	449,315
2004	0	0	505	3,803	0	0	505	3,803
2005	2	15	8,704	63,379	115	825	8,821	64,219
2006	0	0	61,630	450,686	0	0	61,630	450,686
2007	0	0	78,552	648,355	1	8	78,553	648,363
2008	0	0	209,325	1,726,108	0	0	209,325	1,726,108
2009	0	0	256,424	1,922,522	1	9	256,425	1,922,531
2010	0	0	581,329	4,437,042	0	0	581,329	4,437,042
2011	11	91	269,492	1,857,512	0	0	269,503	1,857,603
Averages								
1991–10	69	494	168,623	1,257,537	1,344	10,495	169,768	1,266,427
2001–10	19	174	151,376	1,171,573	25	189	151,419	1,171,936
2006–10	0	0	237,452	1,836,943	0	3	237,452	1,836,946

[a] Weights of home pack fish are not reported on fish tickets; therefore, they were calculated from the average weight of the commercial harvest.

Table 29.–Chignik Management Area chum salmon harvest (including home pack and the department's test fishery catches), by district and year, 1980 through 2011.

	District					
Year	Chignik Bay	Central	Eastern	Western	Perryville	Total
1980	19,944	38,902	56,805	91,868	45,002	252,521
1981	38,061	160,730	108,668	221,579	51,294	580,332
1982	16,034	33,669	64,513	253,299	22,581	390,096
1983	16,747	9,815	8,250	101,959	22,641	159,412
1984	8,173	8,150	21,134	25,364	482	63,303
1985	4,905	5,242	864	10,704	1,090	22,805
1986	18,167	29,502	17,880	74,070	37,021	176,640
1987	5,163	9,437	8,890	86,898	16,873	127,261
1988	7,013	39,316	77,511	102,730	41,205	267,775
1989	1,587	34	3	0	0	1,624
1990	11,460	113,741	27,463	91,603	25,737	270,004
1991	17,545	51,429	4,925	98,603	88,594	261,096
1992	12,711	45,569	61,209	65,466	37,179	222,134
1993	8,116	43,306	21,157	25,045	24,736	122,360
1994	25,250	69,552	4,333	94,116	34,025	227,276
1995	14,588	107,066	8,074	158,273	92,953	380,954
1996	782	46,993	19,837	36,303	16,976	120,891
1997	20,978	104,259	11,397	16,280	2,991	155,905
1998	7,352	43,191	5,180	41,425	31,848	128,996
1999	12,150	75,495	11,332	37,089	4,531	140,597
2000	8,389	66,904	8,045	34,823	2,796	120,957
2001	11,534	84,132	50,911	37,466	14,960	199,003
2002	3,949	9,643	513	40,337	117	54,559
2003	10,891	11,304	50	39,883	1,916	64,044
2004	499	6	0	0	0	505
2005	2,370	5,329	2	1,054	66	8,821
2006	2,303	9,455	776	49,096	0	61,630
2007	3,829	19,595	7,851	46,943	335	78,553
2008	13,453	40,130	58,925	88,078	8,739	209,325
2009	14,553	62,149	59,800	116,231	3,692	256,425
2010	27,388	226,501	116,336	204,911	6,193	581,329
2011	9,077	116,580	51,989	75,363	16,494	269,503
Averages						
1991–10	10,932	56,100	22,533	61,571	18,632	169,768
2001–10	9,077	46,824	29,516	62,400	3,602	151,419
2006–10	12,305	71,566	48,738	101,052	3,792	237,452

Table 30.–Chignik Management Area chum salmon harvest (including home pack and the department's test fishery catches), by district and day, 2011.

	District					
Date	Chignik Bay	Central	Eastern	Western	Perryville	Total
6/4	0	Closed	Closed	Closed	Closed	0
6/5	0	0	0	Closed	Closed	0
6/6	0	22	0	Closed	Closed	22
6/7	0	278	0	Closed	Closed	278
6/8	0	290	165	Closed	Closed	455
6/9	0	207	1,329	Closed	Closed	1,536
6/10	0	790	0	Closed	Closed	790
6/11	0	1,330	583	Closed	Closed	1,913
6/12	0	2,220	1,634	Closed	Closed	3,854
6/13	0	1,100	764	Closed	Closed	1,864
6/14	0	1,521	625	Closed	Closed	2,146
6/15	42	1,066	1,050	Closed	Closed	2,158
6/16	1	113	0	Closed	Closed	114
6/17	0	1,099	466	0	Closed	1,565
6/18	0	1,702	2,082	0	Closed	3,784
6/19	0	1,847	591	Closed	Closed	2,438
6/20	3	1,181	1,148	Closed	Closed	2,332
6/21	16	1,462	1,885	Closed	Closed	3,363
6/22	302	1,711	2,393	Closed	Closed	4,406
6/23	3	5,461	666	Closed	Closed	6,130
6/24	3	7,172	1,458	Closed	Closed	8,633
6/25	1	5,822	1,902	Closed	Closed	7,725
6/26	9	2,214	0	Closed	Closed	2,223
6/27	3	1,540	0	Closed	Closed	1,543
6/28	15	915	0	154	Closed	1,084
6/29	4	1,159	0	362	Closed	1,525
6/30	6	1,672	0	1,527	Closed	3,205
7/1	44	1,584	0	2,176	Closed	3,804
7/2	529	965	0	276	Closed	1,770
7/3	31	847	0	Closed	Closed	878
7/4	800	1,001	928	Closed	Closed	2,729
7/5	647	1,059	122	Closed	Closed	1,828
7/6	27	1,151	382	1,222	Closed	2,782
7/7	73	2,399	564	733	Closed	3,769
7/8	185	3,307	0	2,868	0	6,360
7/9	385	3,382	0	4,990	0	8,757
7/10	133	1,079	279	3,095	0	4,586
7/11	114	2,488	0	Closed	Closed	2,602
7/12	Closed	Closed	Closed	Closed	Closed	Closed
7/13	Closed	Closed	Closed	Closed	Closed	Closed
7/14	Closed	Closed	Closed	Closed	Closed	Closed
7/15	3	Closed	Closed	Closed	Closed	3
7/16	Closed	Closed	Closed	Closed	Closed	Closed

-continued-

Table 30.–Page 2 of 2.

Date	District					Total
	Chignik Bay	Central	Eastern	Western	Perryville	
7/17	Closed	Closed	Closed	Closed	Closed	Closed
7/18	Closed	Closed	Closed	Closed	Closed	Closed
7/19	Closed	Closed	Closed	Closed	Closed	Closed
7/20	Closed	Closed	Closed	Closed	Closed	Closed
7/21	8	Closed	Closed	Closed	Closed	8
7/22	Closed	Closed	Closed	Closed	Closed	Closed
7/23	Closed	Closed	Closed	Closed	Closed	Closed
7/24	394	2,767	360	4,177	0	7,698
7/25	217	3,581	10,509	6,741	357	21,405
7/26	158	5,386	0	3,524	677	9,745
7/27	44	3,969	956	5,631	0	10,600
7/28	218	1,856	578	4,189	455	7,296
7/29	129	1,928	Closed	Closed	Closed	2,057
7/30	538	1,929	Closed	515	Closed	2,982
7/31	106	4,252	Closed	967	Closed	5,325
8/1	171	4,014	Closed	1,905	Closed	6,090
8/2	135	2,392	Closed	237	16	2,780
8/3	196	769	Closed	4,986	843	6,794
8/4	382	2,444	Closed	1,067	496	4,389
8/5	120	3,174	Closed	Closed	Closed	3,294
8/6	279	2,334	Closed	277	Closed	2,890
8/7	466	2,569	Closed	321	Closed	3,356
8/8	341	1,800	Closed	941	Closed	3,082
8/9	532	3,864	Closed	2,999	1,250	8,645
8/10	273	760	Closed	2,641	2,210	5,884
8/11	137	0	Closed	2,146	928	3,211
8/12	239	228	Closed	1,813	1,093	3,373
8/13	85	0	Closed	607	1,339	2,031
8/14	118	135	8,891	721	1,558	11,423
8/15	70	68	8,675	704	917	10,434
8/16	52	605	Closed	5,965	1,022	7,644
8/17	52	637	Closed	1,911	1,358	3,958
8/18	24	693	Closed	1,302	344	2,363
8/19	81	898	Closed	115	0	1,094
8/20	54	104	717	0	420	1,295
8/21	0	0	0	369	602	971
8/22	0	0	287	0	425	712
8/23	14	0	0	529	184	727
8/24	19	0	Closed	541	0	560
8/25	6	0	Closed	0	0	6
8/26	34	0	Closed	119	0	153
8/27	6	268	Closed	0	0	274
8/28	0	0	Closed	0	0	0
8/29	0	0	Closed	0	0	0
Total	9,077	116,580	51,989	75,363	16,494	269,503

Table 31.–Value of the commercial salmon harvest, by species, and average value per active permit, in dollars, in the Chignik Management Area, 1970 through 2011.

	Chinook		Sockeye		Coho		Pink		Chum			Number of	Value Per
Year	Total[a]	Average[b]	Total[a]	Average[b]	Total[a]	Average[b]	Total[a]	Average[b]	Total[a]	Average[b]	Total Value	Permits[c]	Permit
1970	6,129	77	2,190,272	27,378	18,397	230	635,673	7,946	376,025	4,700	3,226,496	80	40,331
1971	6,472	84	2,034,279	26,419	23,240	302	366,693	4,762	326,760	4,244	2,757,444	77	35,811
1972	2,028	25	825,498	10,319	35,699	446	48,401	605	87,759	1,097	999,385	80	12,492
1973	5,255	67	3,030,057	38,355	73,663	932	20,610	261	10,180	129	3,139,765	79	39,744
1974	2,941	31	3,618,781	38,498	31,933	340	64,069	682	51,125	544	3,768,849	94	40,094
1975	6,561	76	1,384,271	16,096	213,539	2,483	104,115	1,211	61,704	717	1,770,190	86	20,584
1976	13,800	179	4,751,000	61,701	138,000	1,792	568,300	7,381	183,600	2,384	5,654,700	77	73,438
1977	18,828	214	14,553,720	165,383	104,819	1,191	920,881	10,465	368,066	4,183	15,966,314	88	181,435
1978	56,700	597	15,653,500	164,774	116,400	1,225	1,131,500	11,911	404,500	4,258	17,362,600	95	182,764
1979	32,050	311	11,345,503	110,151	710,192	6,895	2,622,269	25,459	126,866	1,232	14,836,880	103	144,047
1980	67,657	651	5,532,290	53,195	520,655	5,006	1,477,060	14,203	1,061,963	10,211	8,659,625	104	83,266
1981	75,231	716	17,262,119	164,401	439,900	4,190	1,881,334	17,917	2,431,421	23,156	22,090,005	105	210,381
1982	75,276	731	13,038,510	126,587	1,782,027	17,301	578,184	5,613	1,356,597	13,171	16,830,594	103	163,404
1983	96,159	943	10,728,088	105,177	219,650	2,153	240,171	2,355	421,713	4,134	11,705,781	102	114,763
1984	114,502	1,145	20,402,076	204,021	759,972	7,600	330,916	3,309	146,024	1,460	21,753,490	100	217,535
1985	67,088	633	7,997,834	75,451	1,471,418	13,881	140,076	1,321	59,475	561	8,735,891	106	82,414
1986	84,800	831	16,882,290	165,513	667,740	6,546	356,147	3,492	456,546	4,476	18,447,523	102	180,858
1987	72,739	706	24,783,033	240,612	1,035,129	10,050	269,868	2,620	339,819	3,299	26,500,588	103	257,287
1988	286,740	2,839	14,350,354	142,083	4,153,424	41,123	6,771,266	67,042	2,189,293	21,676	27,751,077	101	274,763
1989	78,999	790	13,047,378	130,474	436,892	4,369	32,994	330	4,745	47	13,601,008	100	136,010
1990	185,256	1,834	22,509,923	222,871	700,309	6,934	502,693	4,977	878,510	8,698	24,776,691	101	245,314
1991	50,027	490	11,002,784	107,870	650,626	6,379	402,916	3,950	502,860	4,930	12,609,213	102	123,620
1992	193,326	1,914	12,552,025	124,277	1,323,107	13,100	811,882	8,038	414,005	4,099	15,294,345	101	151,429
1993	175,690	1,722	8,210,106	80,491	730,622	7,163	637,666	6,252	184,012	1,804	9,938,096	102	97,432
1994	38,096	385	10,046,245	101,477	1,094,415	11,055	226,504	2,288	430,888	4,352	11,836,148	99	119,557
1995	60,174	602	11,969,210	119,692	834,337	8,343	977,811	9,778	634,780	6,348	14,476,312	100	144,763
1996	25,041	250	12,640,560	126,406	447,228	4,472	24,827	248	32,279	323	13,169,935	100	131,699
1997	20,642	211	4,860,589	49,598	453,905	4,632	348,042	3,551	239,400	2,443	5,922,577	98	60,434
1998	31,934	376	6,631,192	78,014	397,413	4,675	310,323	3,651	137,647	1,619	7,508,509	85	88,335
1999	27,212	302	21,132,550	234,806	170,931	1,899	578,861	6,432	118,547	1,317	22,028,101	90	244,757

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Table 31.–Page 2 of 2.

Year	Chinook		Sockeye		Coho		Pink		Chum		Total Value	Number of Permits[c]	Value Per Permit
	Total[a]	Average[b]	Total[a]	Average[b]	Total[a]	Average[b]	Total[a]	Average[b]	Total[a]	Average[b]			
2000	16,336	165	11,812,368	119,317	283,061	2,859	106,470	1,075	93,030	940	12,311,264	99	124,356
2001	12,205	133	7,419,339	80,645	263,160	2,860	366,714	3,986	209,239	2,274	8,270,657	92	89,898
2002	3,516	36	4,564,214	46,103	36,078	364	10,333	104	40,671	411	4,654,812	99	47,018
2003	20,212	202	5,283,962	52,840	173,625	1,736	182,100	1,821	71,140	711	5,731,039	100	57,310
2004	26,191	262	3,568,350	35,684	59	1	835	8	647	6	3,596,082	100	35,961
2005	36,060	377	6,314,036	64,429	11,280	115	55,070	562	10,917	111	6,427,363	98	65,585
2006	26,895	560	4,703,317	97,986	105,132	2,190	126,309	2,631	81,123	1,690	5,042,776	48	105,058
2007	26,176	476	4,154,210	75,531	195,754	3,559	1,034,322	18,806	162,089	2,947	5,572,550	55	101,319
2008	15,249	282	4,121,611	76,326	778,282	14,413	1,810,965	33,536	533,358	9,877	7,259,465	54	134,435
2009	30,714	558	7,058,058	128,328	220,824	4,015	800,530	14,555	520,791	9,469	8,630,917	55	156,926
2010	160,076	2,463	11,271,976	173,415	566,191	8,711	565,941	8,707	1,774,763	27,304	14,338,947	65	220,599
2011[d]	57,524	899	21,469,153	335,456	278,391	4,350	1,040,264	16,254	919,586	14,369	23,764,918	64	371,327
Averages													
1991–10	49,789	588	8,465,835	98,662	436,801	5,127	468,921	6,499	309,609	4,149	9,730,955	87	115,025
2001–10	35,729	535	5,845,907	83,129	235,038	3,796	495,312	8,472	340,474	5,480	6,952,461	77	101,411
2006–10	51,822	868	6,261,834	110,317	373,237	6,578	867,613	15,647	614,425	10,257	8,168,931	55	143,667

[a] Total value of commercial catch in dollars, by species. Value does not include home pack or department test fishery.

[b] Average value of commercial catch in dollars, by species. Average value does not include home pack or department test fishery.

[c] Includes the number of commercial permits that received income from the harvest. These figures do not include department test fishery harvests.

[d] Values represent the initial price paid, and do not include any postseason adjustments by any processor. The average 2011 exvessel prices per pound were: Chinook - $0.80, sockeye - $1.20, coho - $0.54, pink - $0.36, chum - $0.50.

Table 32.–Historical number of subsistence permits issued and returned and estimated subsistence salmon harvest, by species and year, 1980 through 2010.

	Permits		Estimated Salmon Harvest					
Year	Issued	Returned	Chinook	Sockeye	Coho	Chum	Pink	Total
1980	82	37	6	12,475	32	169	478	13,160
1981	29	7	0	2,049	0	0	0	2,049
1982	59	15	3	8,532	12	0	2	8,549
1983	32	21	0	3,078	1,319	850	1,250	6,497
1984	77	64	23	8,747	464	204	330	9,768
1985	59	48	1	7,177	50	25	26	7,279
1986	74	38	4	10,347	205	77	98	10,731
1987	2	1	0	400	0	0	0	400
1988	80	34	9	9,073	1,455	142	54	10,733
1989	68	23	24	7,551	384	147	81	8,187
1990	72	23	103	8,099	210	115	470	8,997
1991	95	58	42	11,483	13	81	275	11,894
1992	98	19	55	8,648	709	145	305	9,862
1993	201	141	122	14,710	3,765	642	1,265	20,504
1994	219	122	165	13,978	4,055	382	1,720	20,300
1995	111	95	98	9,563	1,191	150	723	11,725
1996	119	104	48	7,357	2,126	355	2,204	12,090
1997	126	103	28	13,442	2,678	840	2,035	19,023
1998	104	72	91	7,750	1,390	186	1,007	10,424
1999	106	88	243	9,040	1,679	136	1,191	12,289
2000	130	112	163	9,561	1,802	517	1,185	13,228
2001	135	122	171	8,633	1,859	213	2,787	13,663
2002	120	86	74	10,092	1,401	23	390	11,980
2003	146	127	267	10,989	2,256	286	1,597	15,395
2004	104	57	88	7,029	1,981	202	1,047	10,357
2005	119	100	224	8,171	2,112	353	730	11,590
2006	113	79	258	8,079	1,539	275	1,035	11,186
2007	128	83	84	10,191	1,936	165	996	13,372
2008	89	69	41	7,189	877	57	619	8,783
2009[a]	95	82	104	6,785	1,174	137	707	8,907
2010[a]	124	90	188	8,148	1,820	222	656	11,034
Averages								
1990-09	122	87	123	9,539	1,738	263	1,114	12,778
2000-09	118	92	147	8,672	1,694	223	1,109	11,846
2005-09	109	83	142	8,083	1,528	197	817	10,768

Source: Alaska Department of Fish and Game, Division of Subsistence, Alaska Subsistence Fisheries Database.

[a] From 1993 through 2008, postseason household surveys were conducted to supplement harvest data collected through returned permits. Limited budgets prevented administering the surveys for 2009 and 2010, likely resulting in an underestimate of subsistence harvests since not all subsistence fishing households obtained a permit. To compensate for this underestimate, the average annual harvest for the period 1999–2008 reported during postseason surveys was added to harvests from returned permits to estimate the total subsistence harvest for 2009 and 2010.

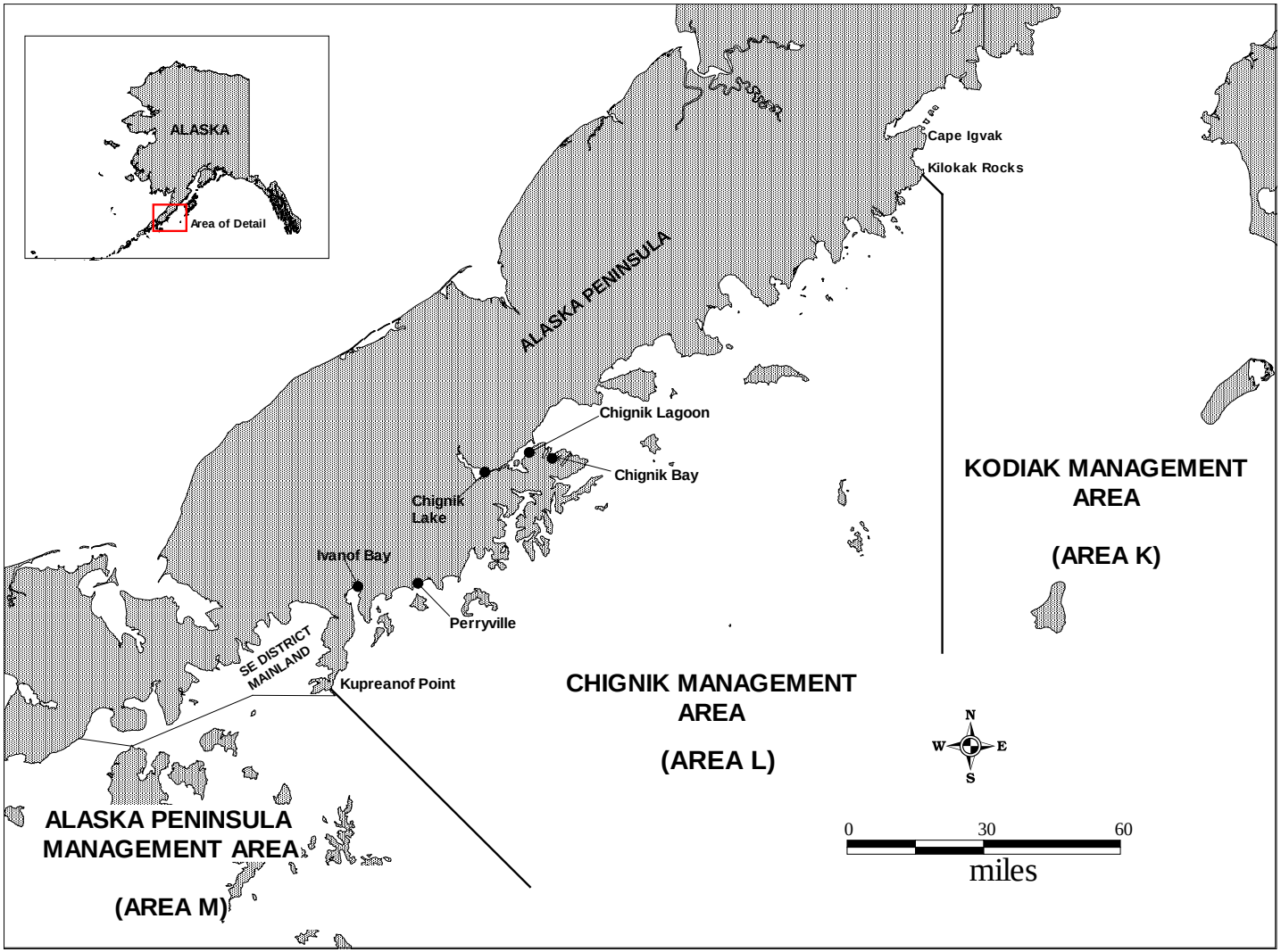

Figure 1.–Map of the Alaska Peninsula illustrating the relative locations of the Chignik, Kodiak, and Alaska Peninsula management areas.

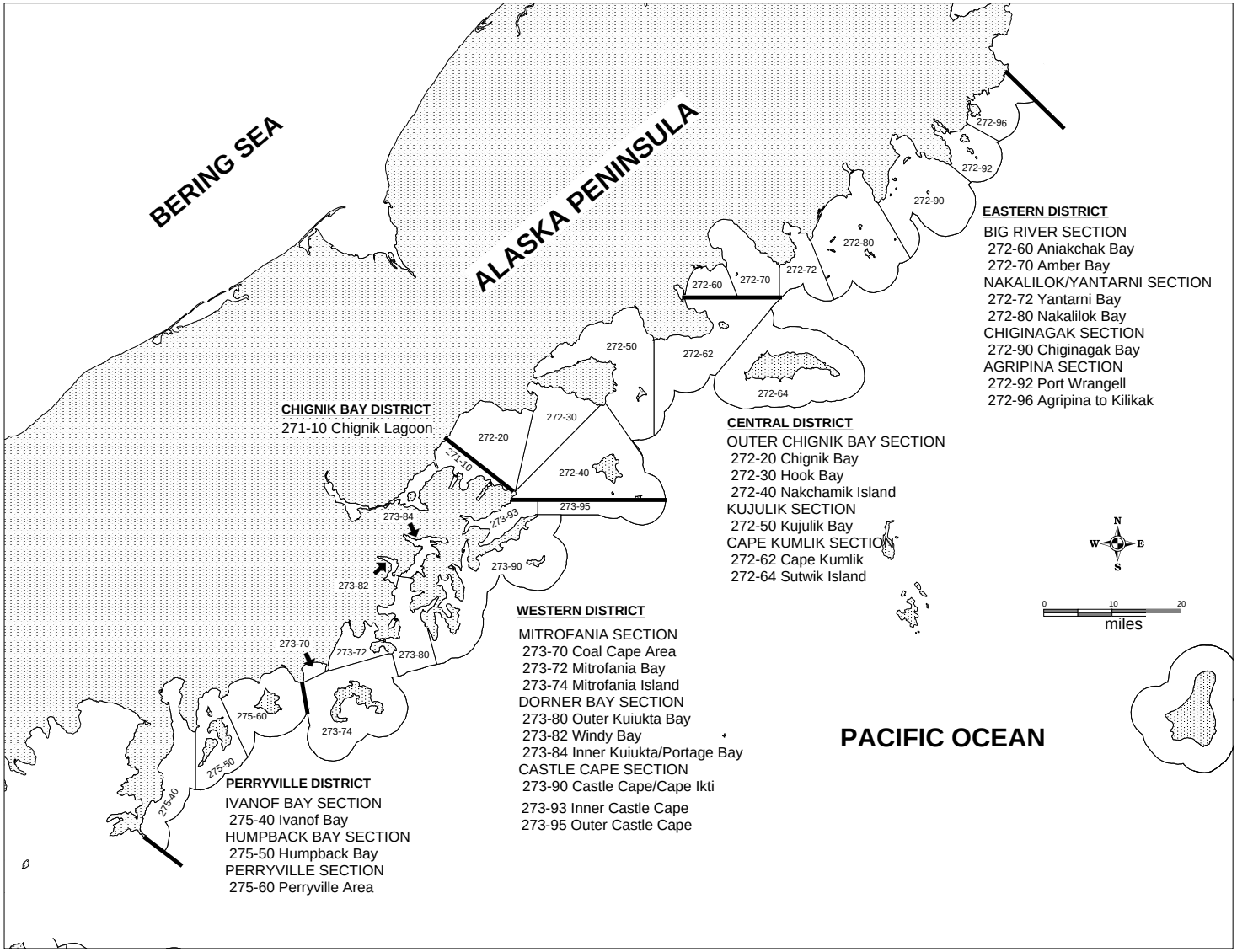

Figure 2.–Map of the Chignik Management Area illustrating district and section boundaries and statistical areas.

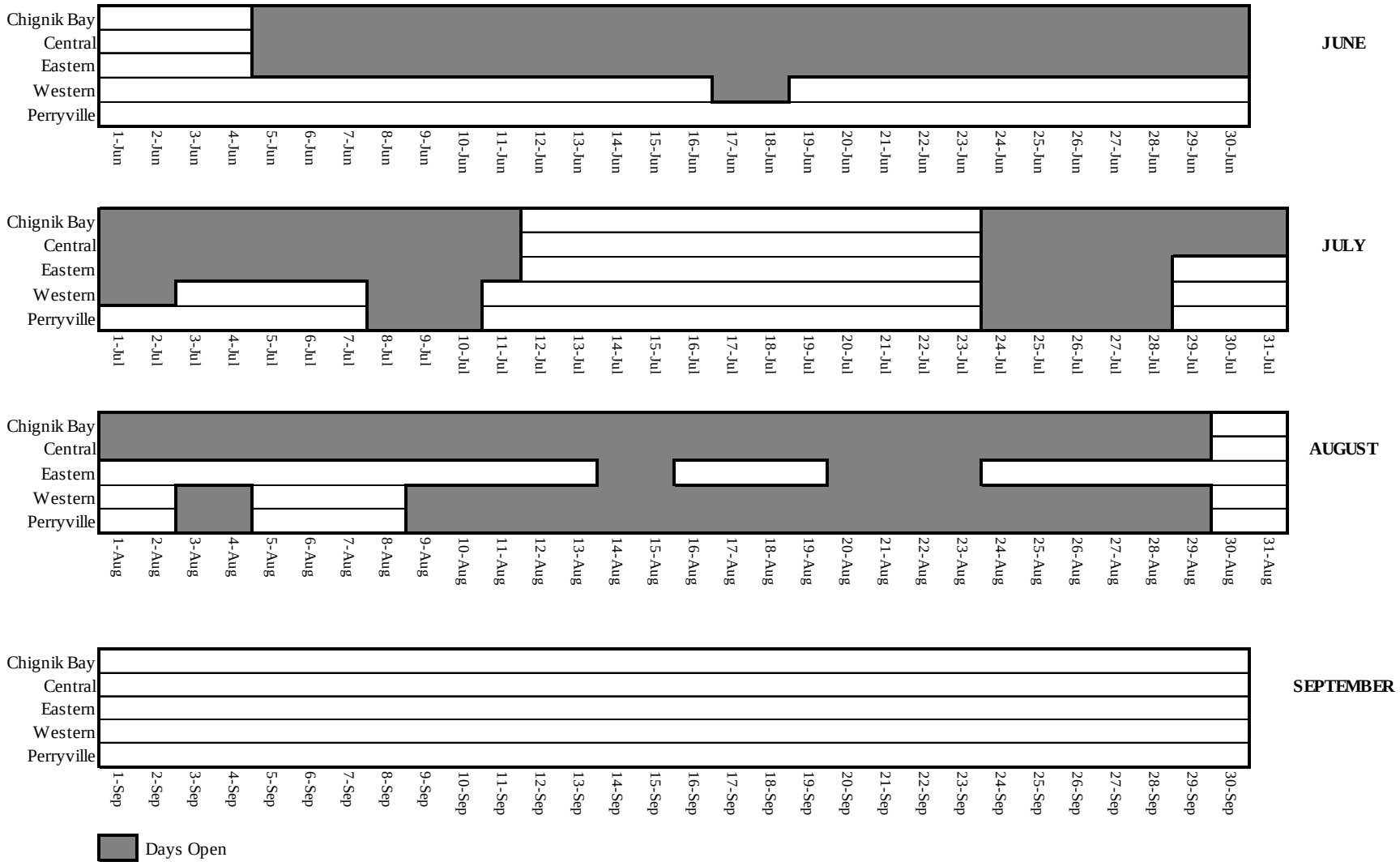

Figure 3.–Representation of days open to commercial salmon fishing, by district and month, 2011.

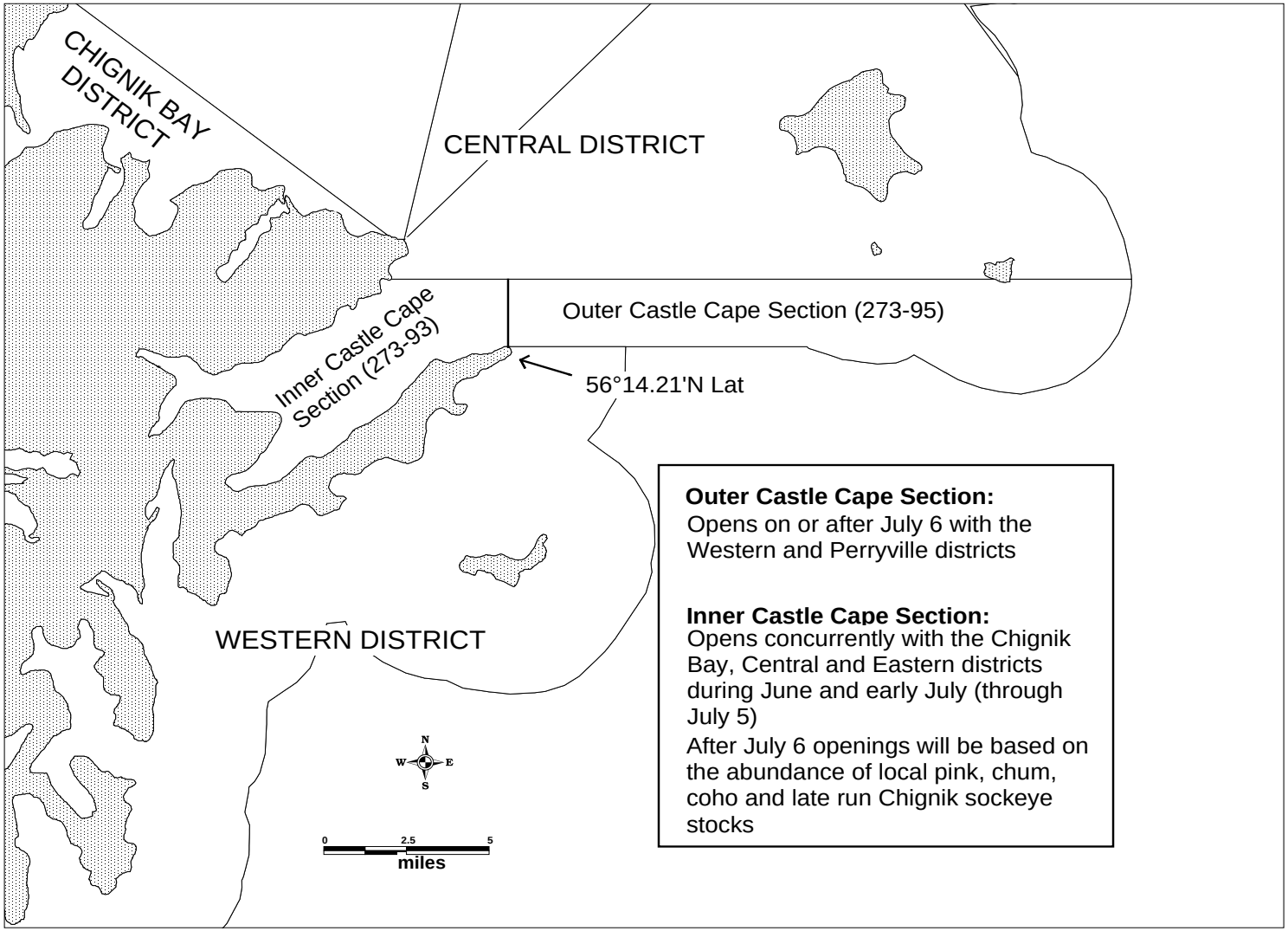

Figure 4.–Map depicting the Inner (273-93), and Outer (273-95) Castle Cape Sections of the Western District.

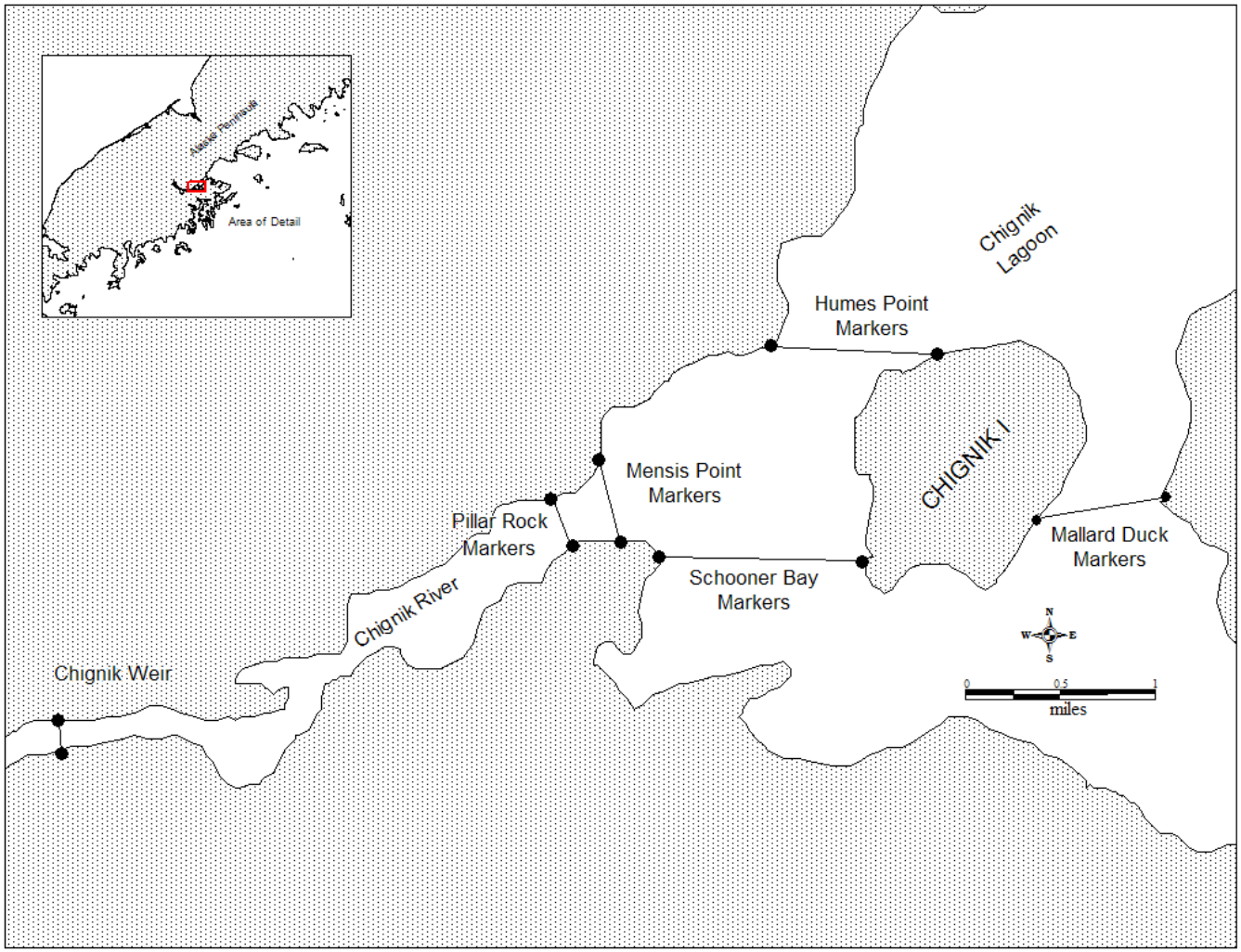

Figure 5.–Map of upper Chignik Lagoon showing the location of the Pillar Rock, Mensis Point, Humes Point, Mallard Duck, and Schooner Bay marker locations.

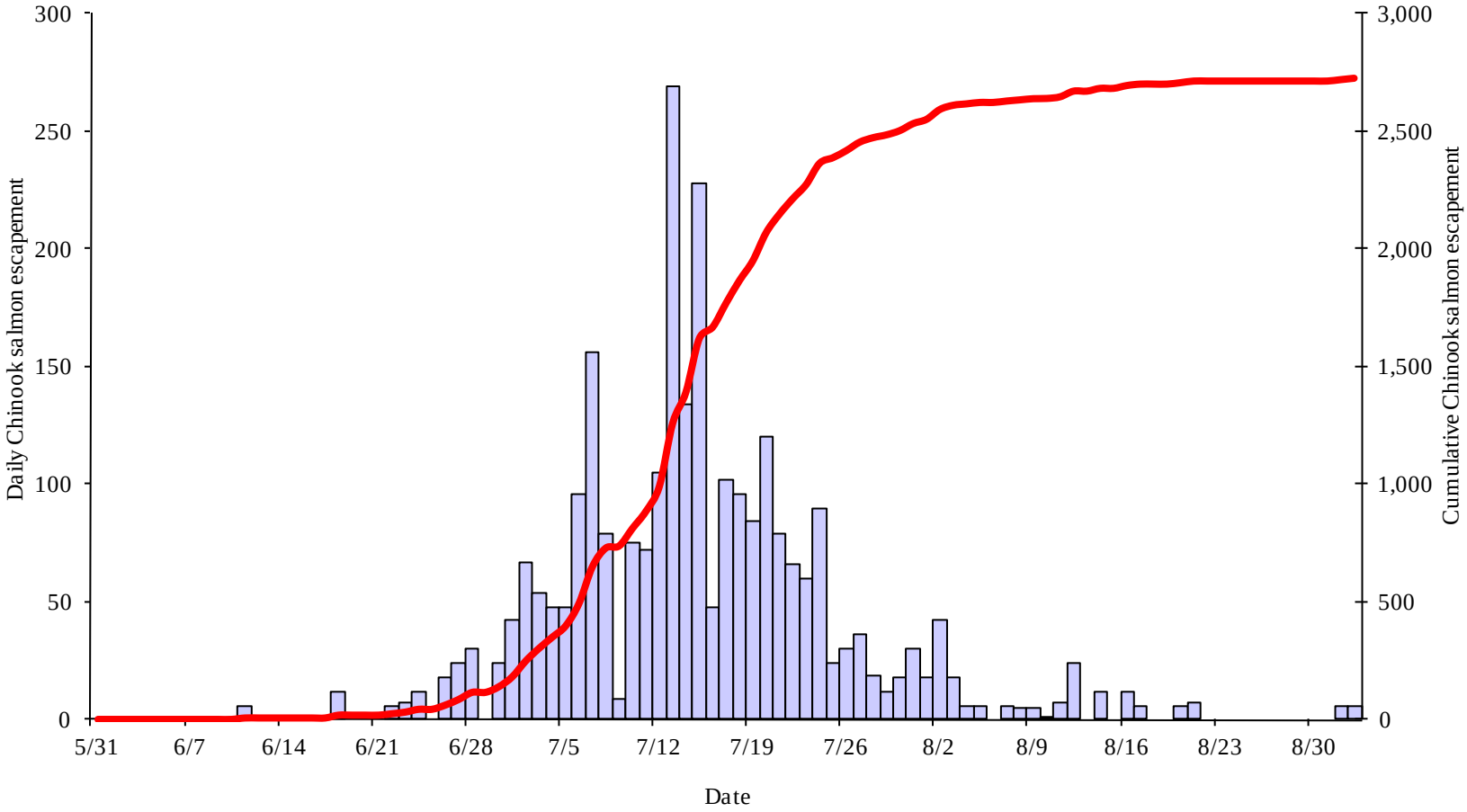

Figure 6.–Chignik River estimated daily and cumulative Chinook salmon escapement, 2011.

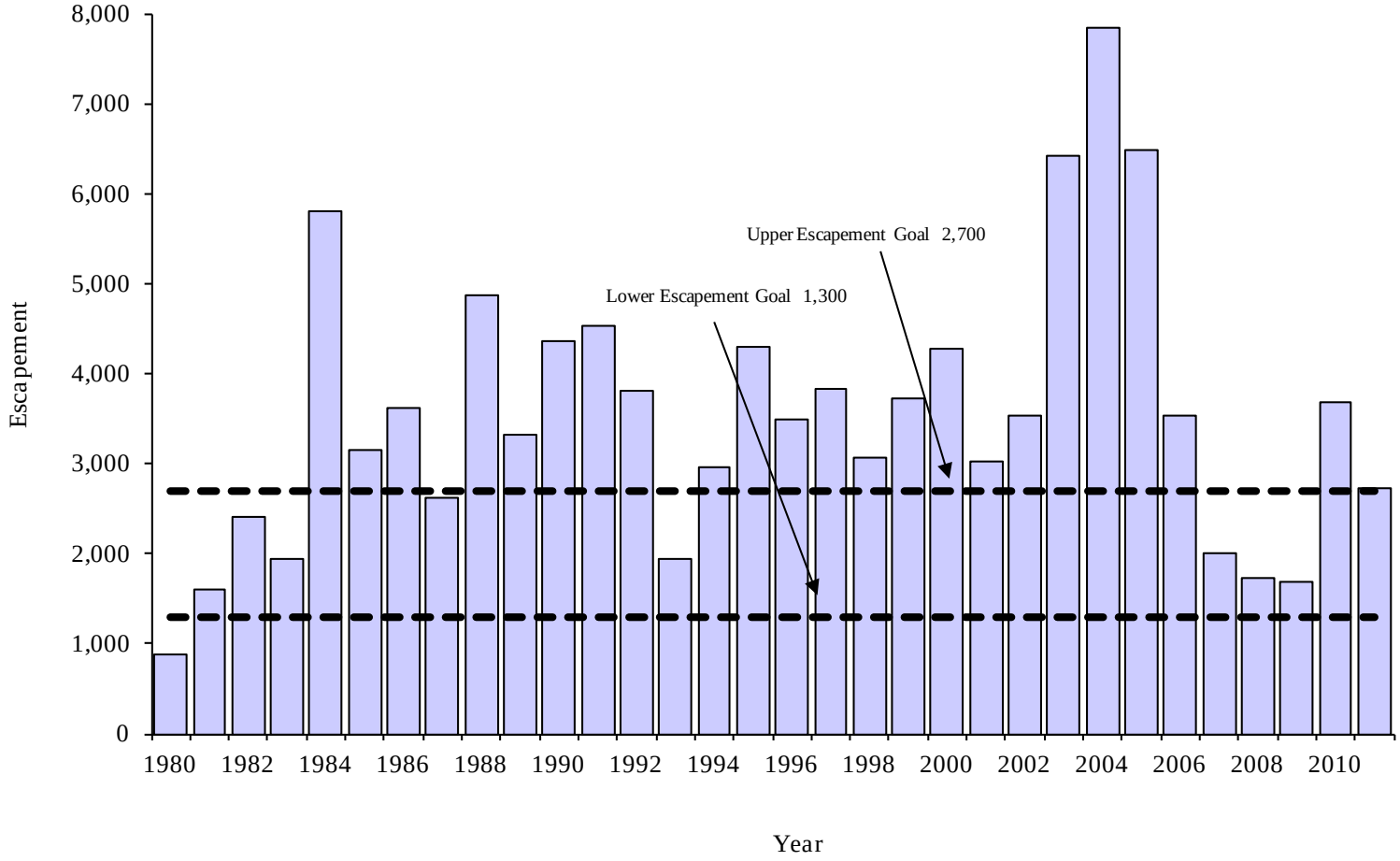

Figure 7.–Chignik River Chinook salmon escapement as compared to the current escapement goal range, by year, 1980 to 2011.

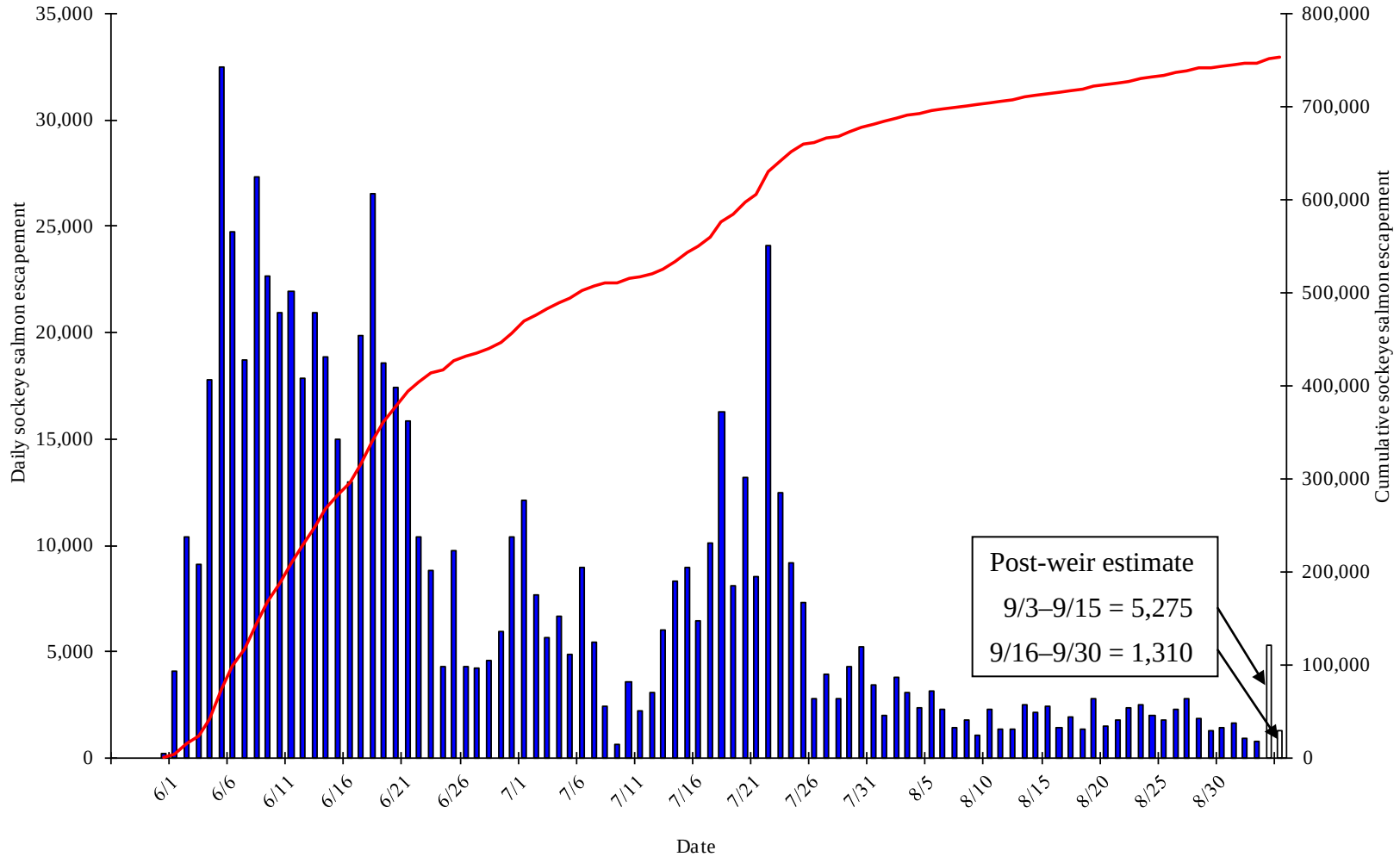

Figure 8.–Chignik River sockeye salmon daily and cumulative escapement, 2011.

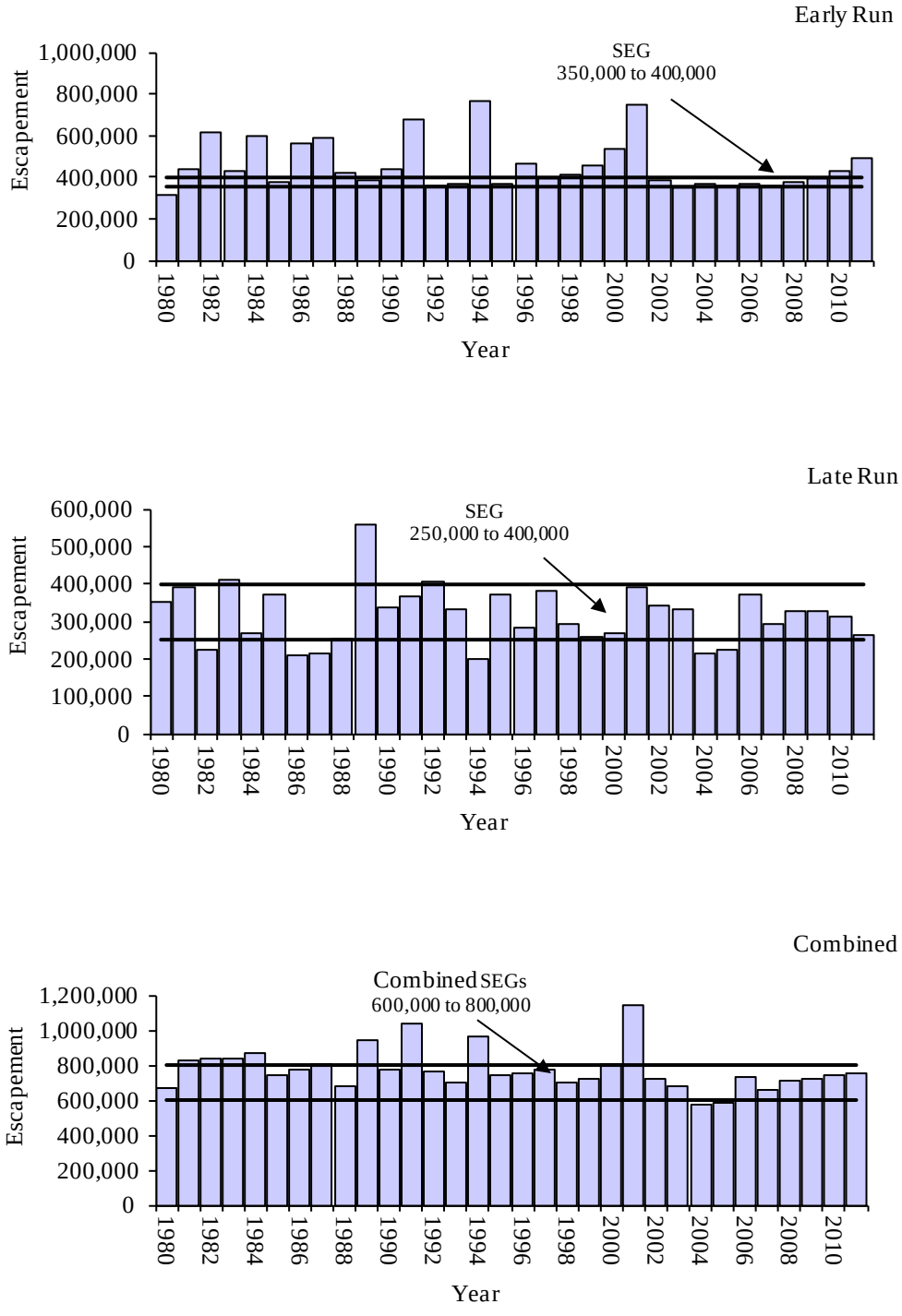

Figure 9.–Chignik River sockeye salmon early, late, and combined run escapements 1970 through 2011, compared to the 2011 sustainable escapement goals (including a late run IRRG of 50,000).

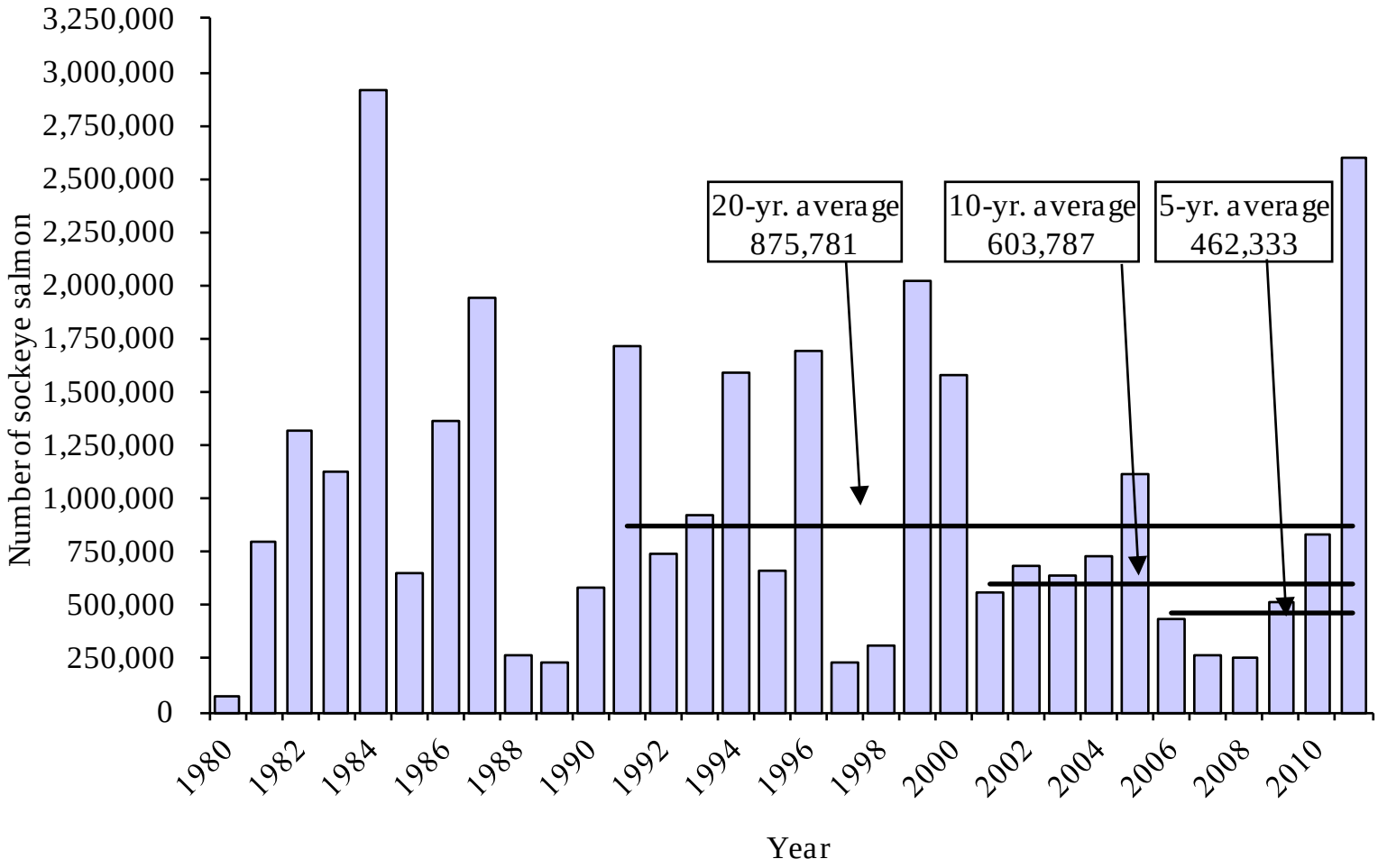

Figure 10.–Chignik-bound sockeye salmon early-run harvest, 1980 through 2011.

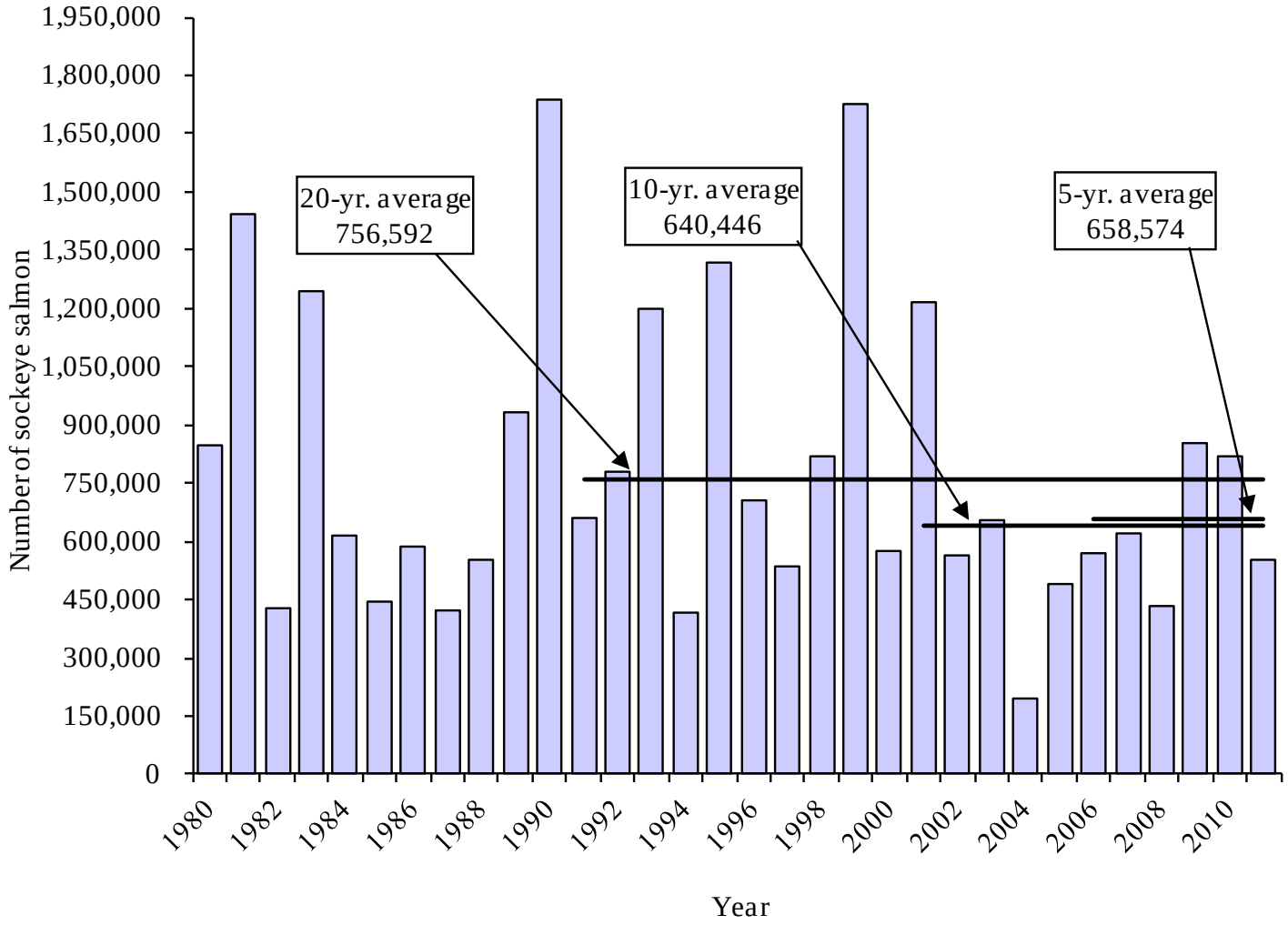

Figure 11.–Chignik-bound sockeye salmon late-run harvest, 1980 through 2011.

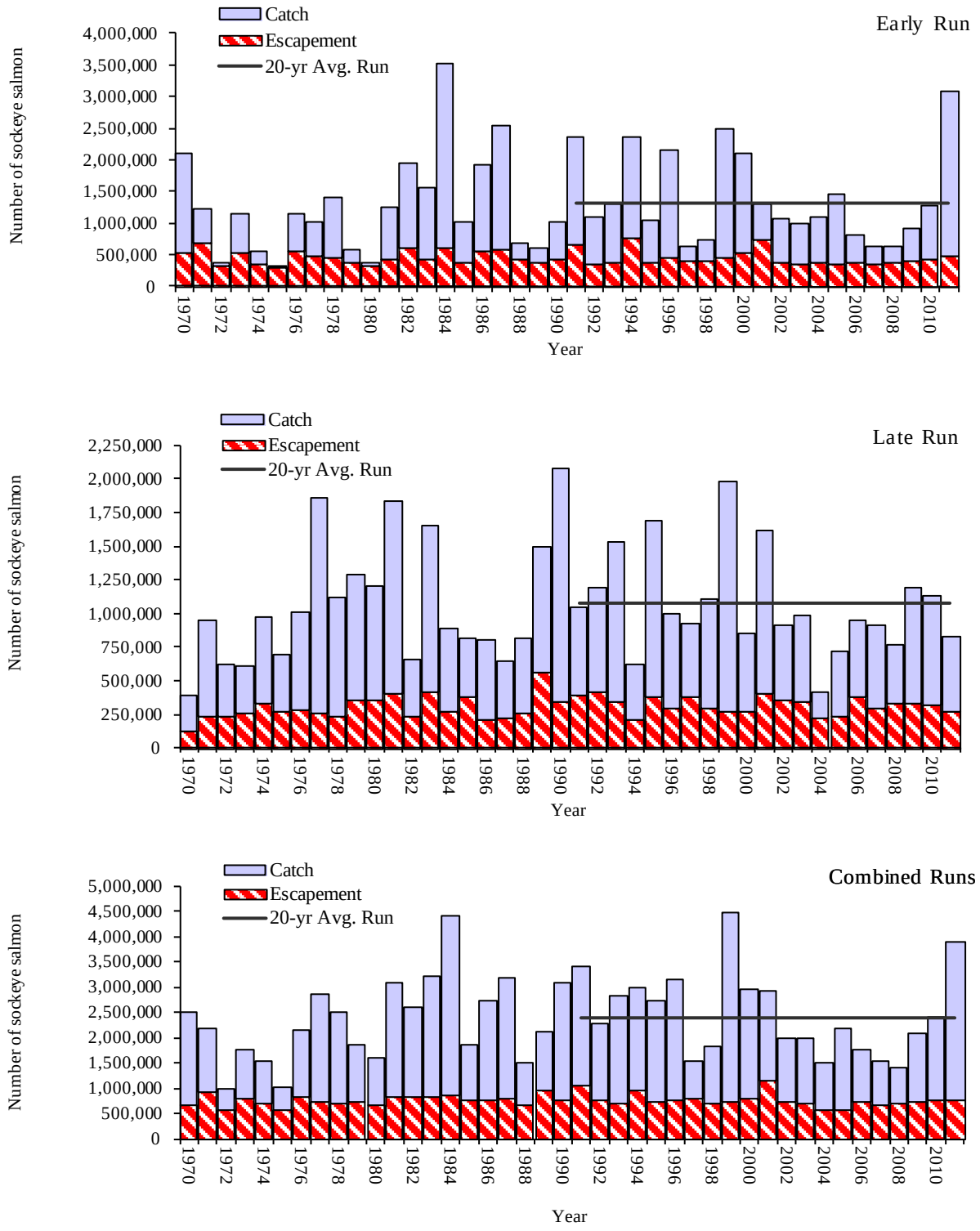

Figure 12.–Total sockeye salmon escapement and catch considered Chignik-bound including home pack, the department's test fishery harvest, and Cape Igvak and SEDM allocations, by year and run, 1970 through 2011.

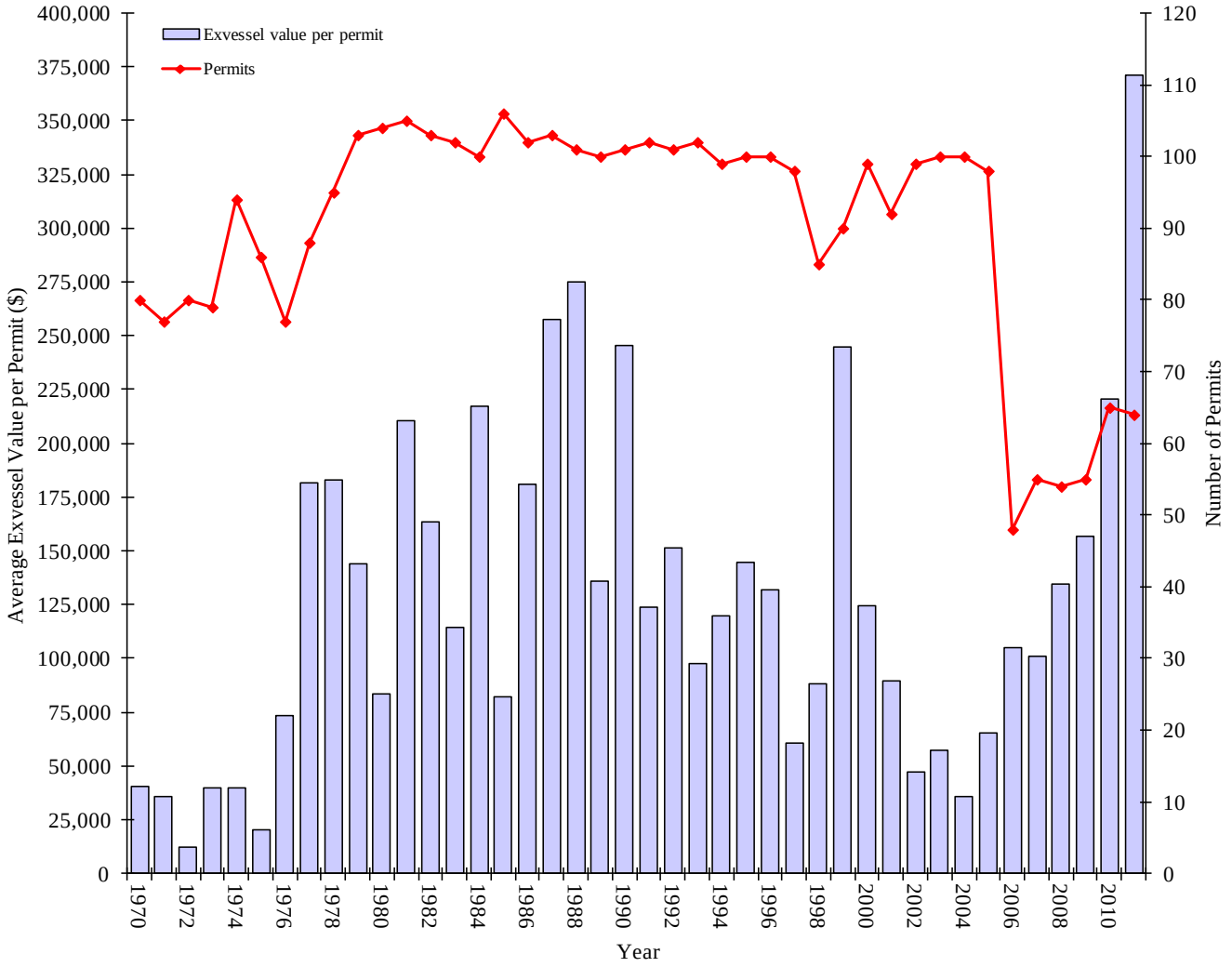

Figure 13.–Average exvessel value, in dollars, per permit and total permits fished by year 1970 through 2011.

APPENDIX A. MEMORANDUM RECOMMENDING TARGETING THE LOWER BOUNDS OF THE CHIGNIK SOCKEYE SALMON ESCAPEMENT GOALS DURING THE 2011 SEASON

Appendix A1.–Memorandum recommending targeting the lower bounds of the Chignik sockeye salmon escapement goals during the 2011 season.

ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

MEMORANDUM

TO: Steve Honnold
Regional Supervisor
Division of Commercial Fisheries
Region IV – Kodiak
and
Matt Nemeth
Regional Finfish Research Supervisor
Division of Commercial Fisheries
Region IV – Kodiak
and
Jeff Wadle
Regional Finfish Management Supervisor
Division of Commercial Fisheries
Region IV – Kodiak

DATE: May 17, 2011
PHONE: (907) 486-1805
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THRU: Todd Anderson
Chignik Area Management Biologist
Division of Commercial Fisheries
Region IV – Kodiak

FROM: Mary Beth Loewen
Finfish Research Biologist
Division of Commercial Fisheries
Region IV - Kodiak

SUBJECT: Chignik Sockeye Salmon Escapement Goal Range Targets

The purpose of this memorandum is to discuss current escapement goals to the Chignik watershed in terms of the condition of sockeye salmon rearing habitat in Chignik and Black lakes. This discussion is based on data from the Chignik Watershed Ecological Assessment Project, the Chignik Smolt Enumeration Project, current management objectives, and recent adult return data.

The current Chignik early-run (Black Lake) sustainable escapement goal (SEG) range is 350,000 to 400,000 fish through July 4. In 2007, goals for the late-run (Chignik Lake) SEG were increased from a range of 200,000 to 250,000 fish, to a range of 200,000 to 400,000 fish from July 5 until the end of the run. Supplemental to the late-run SEG, an Inriver Run Goal for subsistence fishermen of 50,000 yields a total late-run escapement and Inriver Run Goal range of 250,000 to 400,000 sockeye salmon.

Fluctuations in salmon escapements and their subsequent smolt production can greatly affect juvenile fish life history strategies and survival. A high abundance of juvenile sockeye salmon, resulting from high escapement levels, can negatively impact the zooplankton forage base because the zooplankton community is a complex, dynamic web of different species susceptible to different selective pressures. Total sockeye salmon escapement estimates have been in excess of the current SEG ranges for two of the past 16 years (1995 – 2009; Table 1).

Table 1. Sockeye salmon escapements in the Chignik watershed from1995 to 2009.

	Early Run Escapement	Late Run Escapement	Total Run Escapement
Escapement Goals	350,000-400,000	200,000-400,000	550,000-800,000
Inriver Run Goal		50,000	
Year			
1995	366,495	373,425	739,920
1996	464,748	284,389	749,137
1997	396,668	378,950	775,618
1998	410,659	290,469	701,128
1999	457,424	258,542	715,966
2000	536,141	269,084	805,225
2001	744,013	392,905	1,136,918
2002	380,701	344,519	725,220
2003	350,004	334,141	684,145
2004	363,800	214,459	578,259
2005	355,091	225,366	580,457
2006	366,497	368,996	735,493
2007	361,091	293,883	654,974
2008	377,579	328,479	706,058
2009	391,476	328,586	720,062

From 1995 to 2009 the early-run escapements have exceeded the current SEG upper range five times. Although late-run escapements have fluctuated over the past 15 years, they have been within the bounds of current SEG in all years. Since 2002, when the recommendation of targeting the lower range of the escapement goals was implemented, early- and late-run escapements have consistently been within the escapement goal range.

Beginning in 2002, management staff were advised to target the lower ranges of the escapement goals for the two stocks of Chignik sockeye salmon (Bouwens and Poetter 2006). This protocol was initially recommended because limnology data collected in 2000 and 2001 indicated the zooplankton forage bases in Black and Chignik lakes were overgrazed by juvenile sockeye salmon (Bouwens and Finkle 2003; Finkle and Bouwens 2001). Early-run juvenile sockeye salmon, which rear and compete in Chignik Lake (Narver 1966; Parr 1972), can deplete the forage base shared by both stocks, as well as their natal Black Lake. In an effort to improve rearing conditions in the Chignik watershed, and therefore juvenile sockeye salmon survival, the lower ranges of the escapement goals for both lakes were targeted. The objective was to reduce the overgrazing of zooplankton, allowing the zooplankton biomass to

rebound and thereby strengthen the forage base for rearing juvenile sockeye salmon in the watershed. In 2008, to provide for stronger late-run returns and subsistence needs, the middle of the late-run escapement objective range was targeted. However, flooding in the Chignik Lake and River occurred in December of 2007. The scouring and water turnover associated with strong "flush" flooding may have impacted zooplankton communities through alteration of nutrient exchange timing or disruption of the phytoplankton community, causing decreased zooplankton biomass (Elwood and Waters 1969; Paidere et al. 2007; Reynolds 1993). Postseason analysis revealed that 2008 zooplankton population levels were not as robust as anticipated, likely due to flood effects, so the lower third of the late-run escapement was again targeted in 2009.

In the Chignik watershed, the late-summer migration of early-run juvenile sockeye salmon to Chignik Lake can affect the Chignik Lake zooplankton forage base shared by both stocks (Finkle 2007; Narver 1966; Parr 1972). Limnology data collected from both Black and Chignik lakes indicated that the forage base was subject to top-down pressures by overgrazing from 2000 to 2007, but may be improving (Finkle and Bouwens 2001; Bouwens and Finkle 2003; Finkle 2007; Loewen and Bradbury *in press*). Seasonal averages of both copepod and cladoceran densities were greater in 2009 than in the previous four years, with copepod *Cyclops* predominating copepod biomass (although copepod nauplii were also present in high numbers) and *Bosmina* the predominant cladoceran. The average monthly weighted biomass of cladocerans in Black Lake was extremely high relative to recent years. Since cladocerans are a preferred food source for juvenile sockeye salmon, their abundance may be an indicator of potential juvenile sockeye salmon production (Koenings and Burkett 1987; Kyle 1992).

Evidence of overgrazed zooplankton populations can be indicated by reductions in zooplankton length and shifts in species composition (Kyle 1992; Schindler 1992). The continued observed trend of inseason zooplankton composition changes and density fluctuations are indicative of top-down grazing pressure on zooplankton, as the emigration of sockeye salmon juveniles from Black Lake in July and August corresponded to the greatest overall zooplankton densities, and greatest number of *Bosmina* in zooplankton samples from Black Lake. This *Bosmina* spike coincides with the migration of Black Lake juvenile sockeye salmon to Chignik Lake, which suggests that the impact and magnitude of top-down pressures are greater than bottom-up pressures in Black Lake as biomass increases with a reduction in grazing pressure. Observed inseason water nutrient composition changes also suggest top-down limitations occurred, because the nutrients that drove primary production, chlorophyll *a* and phaeophytin *a*, fluctuated minimally over the 2009 sampling season.

Intense grazing pressure on zooplankton can cause a shift in zooplankton abundance and species composition to fewer and less nutritional species of sockeye salmon forage (Kerfoot 1987; Koenings and Burkett 1987). Since 2000, the seasonal zooplankton species composition in both lakes has varied in abundance; the copepods *Cyclops* or *Diaptomus* have been more abundant in June and the cladoceran *Bosmina* has been more abundant in August. Although juvenile salmon do prey on *Cyclops*, *Diaptomus*, and *Bosmina*, these species are inefficient grazers on phytoplankton, and are poor transmitters of energy and nutrients through the food web (Kerfoot 1987). In 2007 and 2009, however, the most abundant cladoceran was *Daphnia*, which is an important primary prey item for juvenile sockeye salmon (Kyle 1992; Honnold and Schrof 2001) and may be a more important indicator of lake forage activity than *Bosmina*, which are smaller and therefore may be more difficult for juvenile sockeye salmon to locate and eat. The seasonal biomass of *Daphnia* in Chignik Lake (34.3 mg/m2) was the greatest in the past five years.

Edmundson and Mazumder (2001) suggested that juvenile sockeye salmon starve when zooplankton biomass levels approach about 100 mg/m2 and are fully satiated at levels above 1,000 mg/m2. Zooplankton biomass had steadily increased from 2003-2007, but dropped again in 2008, likely due to flood effects. Zooplankton biomass levels in 2009 were greater than 2008, but not as high as in 2007, primarily due to the large *Cyclops* population in Chignik Lake in 2007.

Data from the Chignik Smolt Enumeration Project (Finkle and Ruhl 2008; Loewen and Bradbury *in press*) also indicated that the past (1997 to 2002) numbers of juvenile sockeye salmon rearing in the freshwater ecosystem may have taxed the available forage base; from 2003 to 2009 an average of 6.3 million smolt per year emigrated from the watershed compared to a 1994 to 2002 average of 16.8 million smolt per year. The 2003 to 2009 outmigration estimates included five of the six lowest estimates of juvenile sockeye salmon outmigration from the watershed (Finkle and Ruhl 2008), although the 2009 outmigration was the largest in six years. This may indicate that the freshwater survival of juvenile sockeye salmon is improving from recent years, when low food availability due to overgrazing from prior years of rearing juvenile sockeye salmon limited survivorship. Finally, in 2009, only 1.6% of the total estimated outmigrating population were age-0. smolt, suggesting that fish are more able to successfully forage and overwinter in Chignik Lake. In 2005, 2006, and 2008 increased numbers of age-0. fish in smolt trap

catches suggested a downstream migration to Chignik Lagoon to find better rearing conditions than those available in Chignik Lake.

The lower-than-average 2004-2007 adult runs were the recruits of overescaped brood years (1998-2002) that were subject to poor zooplankton forage base conditions from 2000 to 2003. The effects of the targeted lower escapement goal ranges from 2003 to 2007 have begun to be realized starting in 2008, when approximately 1.4 million sockeye salmon returned, and in 2009 when approximately 2.1 million sockeye salmon returned, but will not be fully understood until the runs are fully recruited and more years of adult salmon return information is available. The 2011 forecast is for a return of 2.1 million sockeye salmon to the Chignik Management Area.

The goal of targeting the lower ranges of the escapement objectives was implemented from 2002 to 2009 to relieve the top-down pressure on the zooplankton populations from overescapement to each lake. To date, the general response to this strategy has been an apparent increase in the zooplankton forage base in both lakes. This general protocol is still relevant because the zooplankton populations are susceptible to overgrazing from large juvenile populations as a result of large adult escapements, and also stochastic events such as flooding. Thus, it is recommended that the lower half of the early-run escapement objective (~350,000-375,000 fish) be targeted in 2011. Subsequently, this recommendation is expected to increase the overall ecological health of the system in terms of sockeye salmon production, while reducing the risk of overescaping the system and increasing competition as the forage base in nursery lakes continue to recover. It is recommended to continue to target the lower third of the late-run SEG (~260,000 fish) in order to provide stronger, future late-run returns while allowing subsistence needs to be met without depleting zooplankton levels in each nursery lake, especially Chignik Lake.

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APPENDIX B. SUMMARY OF 2011 EMERGENCY ORDERS

Appendix B1.–Summary of the 2011 Chignik Management Area Emergency Orders.

E.O. Number	Issued	Effective	Action taken
4-FS-L-01-11	1:15 PM 6/4/2011	6:30 AM 6/5/2011	**Opens** the Chignik Bay, Central, and Eastern districts as well as the Inner Castle Cape Subsection of the Western District for 51 hours from 6:30 AM Sunday, June 5 until 9:30 PM Tuesday, June 7. **Closed Waters** Effective 6:30 AM Sunday, June 5 salmon may only be taken northeast of Humes Point.
4-FS-L-02-11	4:00 PM 6/5/2011	9:00 PM 6/5/2011	**Closed Waters** Effective 9:00 PM Sunday, June 5 salmon may only be taken northeast of Mensis Point. **Extends** the current commercial salmon fishing period in the Chignik Bay, Central, and Eastern districts as well as the Inner Castle Cape Subsection of the Western District for 24 hours from 9:30 AM Tuesday, June 7 to 9:30 AM Wednesday, June 8.
4-FS-L-03-11	11:00 AM 6/7/2011	9:30 AM 6/8/2011	**Extends** the current commercial salmon fishing period in the Chignik Bay, Central, and Eastern districts as well as the Inner Castle Cape Subsection of the Western District for 110.5 hours from 9:30 AM Wednesday, June 8 to 11:59 PM Sunday, June 12.
4-FS-L-04-11	6:15 PM 6/10/2011	11:59 PM 6/12/2011	**Extends** the current commercial salmon fishing period in the Chignik Bay, Central, and Eastern districts as well as the Inner Castle Cape Subsection of the Western District for 168 hours from 11:59 PM Sunday, June 12 to 11:59 PM Sunday, June 19.
4-FS-L-05-11	9:00 PM 6/14/2011	9:00 PM 6/14/2011	**Extends** the current commercial salmon fishing period in the Chignik Bay, Central, and Eastern districts as well as the Inner Castle Cape Subsection of the Western District from 11:59 PM Sunday, June 19 until further notice. **Opens** the Western District, excluding the Inner Castle Cape Subsection, for 48 hours from 5:00 AM Friday, June 17 to 5:00 AM Sunday, June 19. **Closed Waters** Effective 5:00 PM Wednesday, June 15 salmon may only be taken northeast of Pillar Rock.
4-FS-L-06-11	12:00 PM 6/21/2011	9:00 PM 6/21/2011	**Closed Waters** Effective 9:00 PM Tuesday, June 21 salmon may only be taken northeast of the markers located 100 yards downstream of the Chignik weir.
4-FS-L-07-11	6:15 PM 6/28/2011	12:01 AM 7/1/2011	**Opens** the Western District, excluding the Inner Castle Cape Subsection, for 48 hours from 12:01 AM Friday, July 1 to 11:59 PM Saturday, July 2.
4-FS-L-08-11	10:30 AM 7/1/2011	Noon 7/1/2011	**Closes** the current commercial salmon fishing period in the Mitrofania Island Section of the Western District at noon Friday, July 1.
4-FS-L-09-11	12:00 PM 7/3/2011	11:59 PM 7/3/2011	**Closed Waters** Effective 11:59 PM Sunday, July 3 salmon may only be taken northeast of Mensis Point.
4-FS-L-10-11	3:00 PM 7/7/2011	6:00 PM 7/8/2011	**Closes** the current commercial salmon fishing period in the Chignik Bay, Central, Eastern districts as well as the Inner Castle Cape Subsection of the Western Districts at 11:59 PM Monday, July 11. **Opens** the Western and Perryville districts, excluding the Inner Castle Cape Subsection of the Western District, for 54 hours from 6:00 PM Friday, July 8 to 11:59 PM Sunday, July 10.
4-FS-L-11-11	7:30 PM 7/22/2011	9:00 PM 7/23/2011	**Opens** the Chignik Bay, Central, Eastern, Western and Perryville districts for 72 hours from 9:00 PM Saturday, July 23 until 9:00 PM Tuesday, July 26. **Closed Waters** Effective 9:00 PM Saturday, July 23 salmon may only be taken northeast of Humes Point.

-continued-

Appendix B1.–Page 2 of 3.

E.O. Number	Issued	Effective	Action taken
4-FS-L-12-11	6:15 PM 7/25/2011	9:00 PM 7/26/2011	**Extends** the current commercial salmon fishing period in the Chignik Bay and Central districts for an additional 120 hours from 9:00 PM Tuesday, July 26 to 9:00 PM Sunday, July 31. **Extends** the current commercial salmon fishing period in the Eastern, Western and Perryville districts for an additional 48 hours from 9:00 PM Tuesday, July 26 to 9:00 PM Thursday, July 28. **Closed Waters** Effective 11:00 PM Tuesday, July 25 salmon may only be taken northeast of Mensis Point.
4-FS-L-13-11	9:15 AM 7/28/2011	9:00 PM 7/31/2011	**Extends** the current commercial salmon fishing period in the Chignik Bay, Central districts as well as the Inner Castle Cape Subsection of the Western Districts from 9:00 PM Sunday, July 31 until 9:00 PM Saturday, August 6.
4-FS-L-14-11	9:15 AM 8/1/2011	6:00 PM 8/2/2011	**Opens** the Western and Perryville districts, excluding the Inner Castle Cape Subsection of the Western District, for 54 hours from 6:00 PM Tuesday, August 2 to 11:59 PM Thursday, August 4.
4-FS-L-15-11	9:15 AM 8/5/2011	9:00 PM 8/6/2011	**Extends** the current commercial salmon fishing period in the Chignik Bay, Central districts as well as the Inner Castle Cape Subsection of the Western Districts from 9:00 PM Saturday, August 6 until 9:00 PM Saturday, August 13.
4-FS-L-16-11	6:15 PM 8/7/2011	9:00 AM 8/9/2011	**Opens** the Western and Perryville districts, excluding the Inner Castle Cape Subsection of the Western District, for 72 hours from 9:00 AM Tuesday, August 9 to 9:00 AM Friday, August 12.
4-FS-L-17-11	6:15 PM 8/10/2011	9:00 AM 8/12/2011	**Extends** the Western and Perryville districts, excluding the Inner Castle Cape Subsection of the Western District, from 9:00 AM Friday, August 12 to 9:00 AM Sunday, August 14.
4-FS-L-18-11	6:15 PM 8/10/2011	9:00 AM 8/12/2011	**Extends** the current commercial salmon fishing period in the Chignik Bay, Central districts as well as the Inner Castle Cape Subsection of the Western Districts from 9:00 PM Saturday, August 13 until further notice. **Extends** the current commercial salmon fishing period in the Western and Perryville districts, excluding the Inner Castle Cape Subsection of the Western District, from 9:00 AM Friday, August 12 to 9:00 PM Wednesday, August 17. **Opens** the Eastern Districts for 36 hours from 9:00 AM Sunday, August 14 until 9:00 PM Monday, August 15.
4-FS-L-19-11	6:15 PM 8/15/2011	9:00 PM 8/17/2011	**Extends** the current commercial salmon fishing period in the Western and Perryville districts, excluding the Inner Castle Cape Subsection of the Western District, from 9:00 PM Wednesday, August 17 to 9:00 PM Sunday, August 21.
4-FS-L-20-11	6:15 PM 8/18/2011	9:00 AM 8/20/2011	**Opens** the Eastern Districts for 96 hours from 9:00 AM Saturday, August 20 until 9:00 AM Wednesday, August 24. **Extends** the current commercial salmon fishing period in the Western and Perryville districts, excluding the Perryville Section of the Perryville District, from 9:00 PM Sunday, August 21 until further notice.
4-FS-L-21-10	9:15 AM 8/29/2011	11:59 PM 8/29/2011	**Closes** the current commercial salmon fishing period in the Chignik Bay, Central, Western, and Perryville districts at 11:59 PM Monday, August 29.

APPENDIX C. MEMORANDUM SUMMARIZING THE DEPLOYMENT OF DIDSON IN THE CHIGNIK RIVER, 2011

ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

MEMORANDUM

TO: Matt Nemeth
Regional Finfish Research Editor
Division of Commercial Fisheries
Region IV - Kodiak

DATE: 4 August, 2011

PHONE: (907) 486-1805
FAX: (907) 486-1841
SUBJECT: 1st Chignik DIDSON deployment

THROUGH: M. Birch Foster
Regional Finfish Research Biologist
Division of Commercial Fisheries
Region IV – Kodiak

FROM: Adam StSaviour
Regional Finfish Research Biologist
Division of Commercial Fisheries
Region IV – Kodiak

Introduction

In the first deployment of the Chignik DIDSON our objectives were to build bottom profiles of potential sonar sites, set up the sonar, collect sonar data at different escapement levels 24 hrs a day, establish site and file processing protocols, compare sonar counts to weir counts, and practice beach seining and age, sex, and length sampling (ASL). We were able to accomplish all of these objectives but recognized a few environmental and technological limitations. Adaptations to the project as a result of these limitations are ongoing.

Site selection

We examined two sites for DIDSON deployment. The first site, identified by the previous principal investigator (PI), Mary Beth Loewen, is 100 m downstream of the Chignik smolt trap site. The second site identified by Chignik manager, Todd Anderson, is 420 m upstream of the weir facility. Fish and wildife tech III, Nyssa Baechler, and current PI, Adam StSaviour, mapped the bathymetry at these sites and modeled the beam pattern using the protocol of Maxwell and Smith (2007) (Fig. 1 and 2). With the help of Anna-Marie Mueller of Aquacoustics Inc., we determined that the second site was the best site for DIDSON deployment. This location was selected for its favorable characteristics for deploying sonar: cobble substrate, a gradually

sloping bottom, and a straight, narrow section of the river. This type of channel allows a large proportion of the water column to be ensonified without acoustic shadowing effects. The river is approximately 70 m wide at this point. It is located on the north side (left) of the river at Latitude: 56.26166° N; Longitude: 158.71148° W (Fig. 3, 4, and 5).

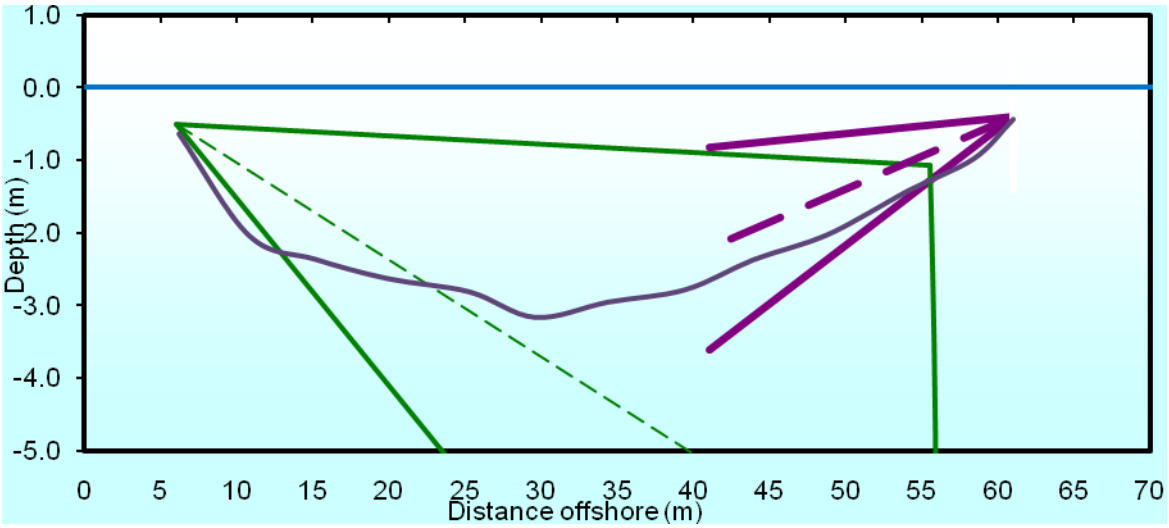

Figure 1.–Bottom profile and modeled beam at Chignik sonar site 1.

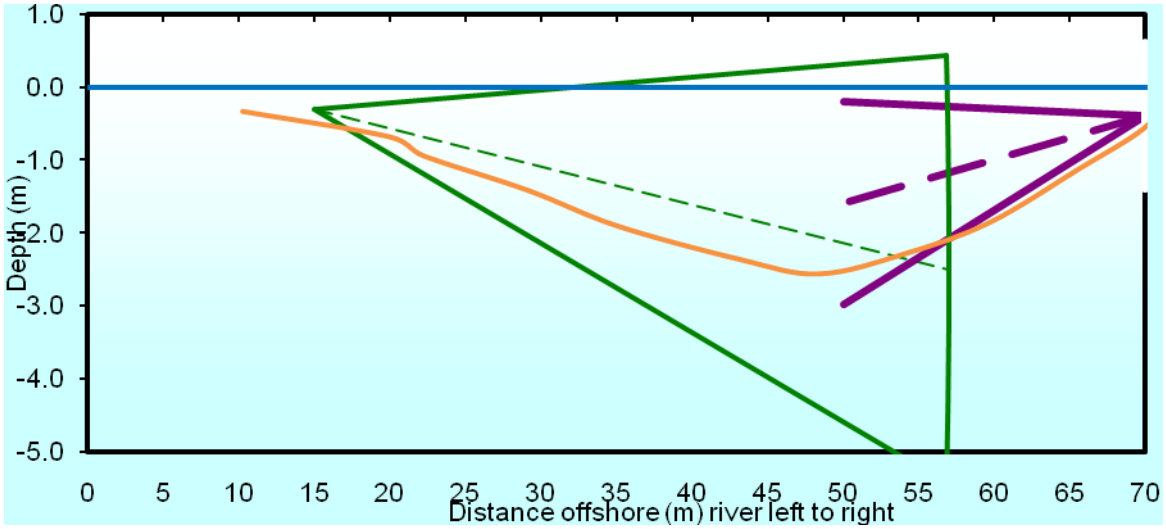

Figure 2.–Bottom profile and modeled beam at Chignik sonar site 2.

Figure 3.–Site map.

Figure 4.–Looking to the shore of the island at the sonar site. The H-mount is in the foreground.

Figure 5.–Looking downstream from the sonar site to the weir.

Sonar deployment

The DIDSON, control box, data collection computer, and power system were set up at site 2 on July 5, 2011. The data collection equipment were initially housed in a large action packer with holes cut out for cables to run through. The power system consists of a 2000 watt-gas powered generator, a charger, four 12 V batteries, and an inverter. The DIDSON was deployed 15 m off shore (Fig. 4) and the rest of the system was initially enclosed by a portable electric fence to discourage bears from damaging the equipment. Once the smolt project was concluded on July 8, the floating weather port was towed down to the DIDSON site where it now houses the data collection equipment and power system.

Different data collection parameters were tested during the first day of deployment including maximum range, optimal viewing windows for detecting fish, timer settings, frequency, and gain. We determined that the DIDSON can effectively detect fish passing out to a maximum of 50 meters and the optimal viewing windows are from 2 to 20 m and 20 to 40 m. The system was set up to alternately record these windows every 10 min. Despite the fact that we cannot ensonify the entire river, based on personal observation, I estimate that we will capture 85% of escapement. Evaluation of the proportion of total escapement captured by sonar will be accomplished by comparisons with weir counts.

Site and file-processing protocols

A technician checks the DIDSON and recording computer three times per day to ensure continuous operation, save data, and maintain the power system. These checks occur at 09:00, 12:00, and 21:00. Date, time, sonar settings, power system information, and environmental data are recorded in a log book. Detailed site instructions are in Appendix A3 of the Chignik DIDSON Operational Plan (StSaviour et al., 2011). Data are copied daily at 09:00 from

D:\DIDSON data to a 16 Gb flash drive and then archived on 1 Tb hard drives at the Chignik field office. Files are stored in a folder by day and file type. Data from the previous day is cleared from the data recording laptop once it has been archived. Two copies of DIDSON files are always maintained to ensure retention of these data.

DIDSON Control and Display software version 5.25.32 is used to track and enumerate fish. Each fish is counted and direction of travel noted. Playback settings are somewhat a matter of personal preference. This author most easily detects fish with intensity set between 65 and 90, threshold set between 4 and 15, and transmission loss turned on. The technician (Nyssa Baechler) prefers an intensity of 47, threshold of 2, and background subtraction turned on. Details of fish counting procedure are in Appendices A3 and A4 of the Chignik DIDSON Operational Plan (StSaviour et. Al 2011). The crew leader will maintain a master spreadsheet that includes log book entries, which 10 min files have been counted, counts for each file, hourly, and daily total counts. The updated master spreadsheet is e-mailed to the PI daily.

Comparisons with weir counts

We had planned to compare DIDSON sonar counts with weir counts by recording both 24 hrs a day for four consecutive days during high, medium, and low escapement periods. Escapement levels are variable and difficult to predict. We started DIDSON recording 24 hrs a day on 7/5 and stopped on 7/10/2011. We recorded a second period from 7/12 through 7/18 and a third period from 7/22 through 7/25/2011. During these periods we captured primarily medium levels of escapement (within the middle 50% of 2011 daily escapement as estimated at the weir or 5,000 to 18,000). We also captured two complete and one partial low escapement day (within the lowest 25% of daily escapement or < 5,000) and one partial high escapement day (within the highest 25% of daily escapement or >18,000). All equipment was not yet procured during this years' highest escapement period (6/4 through 6/20/2011), opportunity for capturing any more high-escapement days this season has likely passed.

The cameras and software used at the weir are old and user-hostile. We were unable to program them to record 24-hr footage without losing the pre-programmed 10-min periods that must be retained by management. Currently we are restricted to making any comparisons with the weir to their 10-min extrapolated counts. Possible solutions to this problem are to set up a camcorder in front of the monitors during periods of interest or better yet, to update this system with new cameras and software that allow us to easily record any periods in 2012. Staff have not yet been identified to go through these recordings.

DIDSON file processing is ongoing. Once four mid-escapement days have been completed, the PI will conduct a preliminary comparison.

Beach seining

Beach seining will be used to obtain species apportionment and age, sex, and length (ASL) data for adult sockeye and coho. Using a 6'x100' beach seine with a purse line, technicians will capture migrating salmon at four Chignik River sites (Fig. 6) upstream of the sonar site, and collect species composition and ASL data from 240 coho and 240 sockeye salmon per statistical week August 23- September 26 (Appendix A6, Chignik DIDSON Operational Plan; StSaviour et al. 2011). These data will be compared to the ASL data collected at the weir to ensure no size or species selectivity exists in the beach seine catches at the DIDSON site. ASL sampling

guidelines are in described in appendices A7-A12 of the Chignik DIDSON Operational Plan (StSaviour et al. 2011).

We completed a trial run of beach seining and ASL sampling on 7/15/2011. We found that a skiff will be required to capture sockeye, lead ropes will be needed for our seine, a live box would be beneficial for holding fish, and three staff will be required to complete the work. Additionally, it may be difficult to procure 240 coho and 240 sockeye salmon per statistical week by this means.

Figure 6.–Beach seine sites one through four.

Conclusion

To summarize major findings and accomplishments of the first Chignik DIDSON deployment, we found site 2 to be the most suitable sonar site based on the bottom profile. The DIDSON was deployed and recorded three multi-day periods of 24-hr recordings at primarily medium and low escapement. Sonar site and data processing procedures were developed and tested. True 24 hr comparisons with weir counts are not possible with the current video system installed at the weir, however, solutions to this problem have been suggested. Currently, comparisons will be made between 10-min extrapolated weir counts and all types of DIDSON counts. Beach seining with

three staff and a skiff will allow for some ASL sampling of coho and sockeye salmon in August and September.

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Cc: Todd Anderson

APPENDIX D. 2011 CHIGNIK SOCKEYE SALMON POSTWEIR ESCAPEMENT ESTIMATE MEMORANDUM

ALASKA DEPARTMENT OF FISH AND GAME

DIVISION OF COMMERCIAL FISHERIES

MEMORANDUM

TO: Todd Anderson
Chignik Area Management Biologist
Commercial Fisheries Division
Region IV - Chignik

DATE: October 26, 2011
PHONE: (907) 486-1805
FAX: (907) 486-1841

And Jeff Wadle
Regional Finfish Management Supervisor
Commercial Fisheries Division
Region IV - Kodiak

SUBJECT: Chignik Post-weir Escapement Estimate

FROM: Adam StSaviour
Finfish Research Biologist
Commercial Fisheries Division
Region IV - Kodiak

The 2001 Chignik sockeye salmon post-weir escapement was estimated using time series analysis of run data collected between July 28 and September 2 (Fig. 1); September 2 was the final day of weir operation. This period occurred primarily after July 31, at which point the Chignik sockeye salmon run is historically composed 100% of late-run fish (Witteveen 2004) and exhibited a declining trend for the overall sockeye salmon run.

Time series analysis estimates the rate of decay in the run and forecasts future escapements after weir removal assuming that the forecast escapement follows the same rate of decay as the run. If fishing occurs during a post-weir period, those harvests must be subtracted from the post-weir estimate. Taking lag time from management districts into consideration, no fishing occurred during the post-weir period in 2011.

The Chignik sockeye salmon time series analysis (Figure 2) followed autoregressive one [AR(1)] type decay (Chatfield 1985), which is typical for Chignik sockeye salmon post-weir estimate analyses. The 2011 analysis resulted in an estimated escapement of 5,275 (AICC= 9.45; 95% prediction interval 1,801 to 18,289) sockeye salmon from September 3 through September 15 and 1,310 (95% prediction interval 138 to 13,146) September 16 through September 30 (Fig. 2).

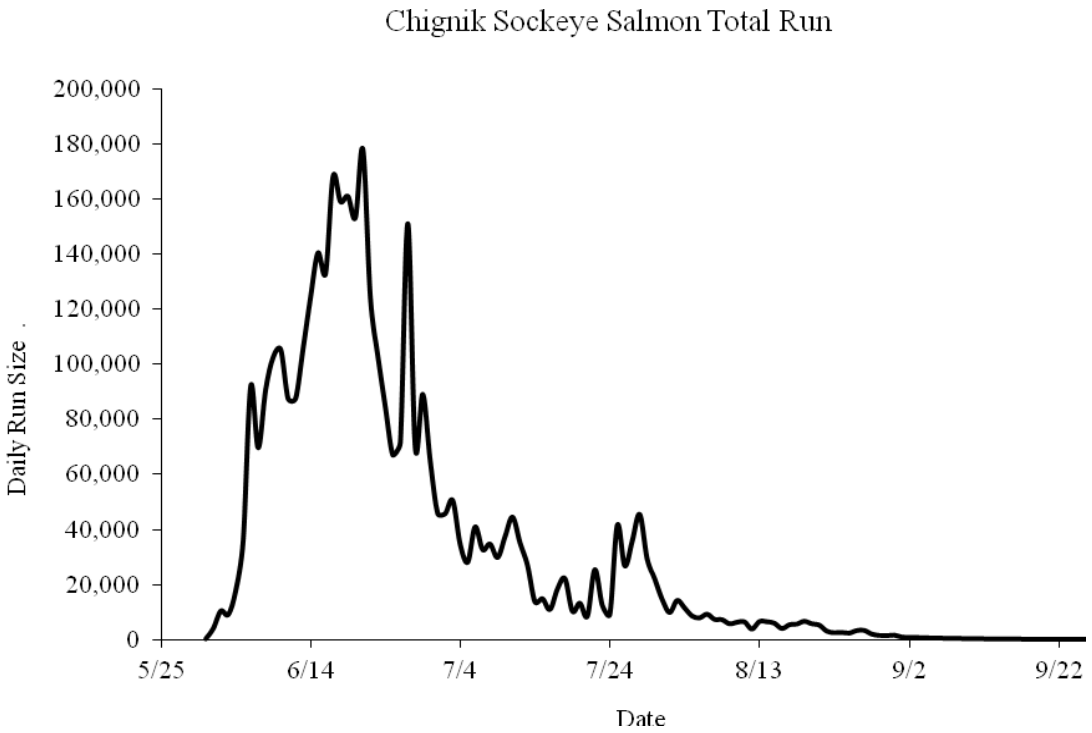

Figure 1.–2011 Estimated Chignik sockeye salmon run by day.

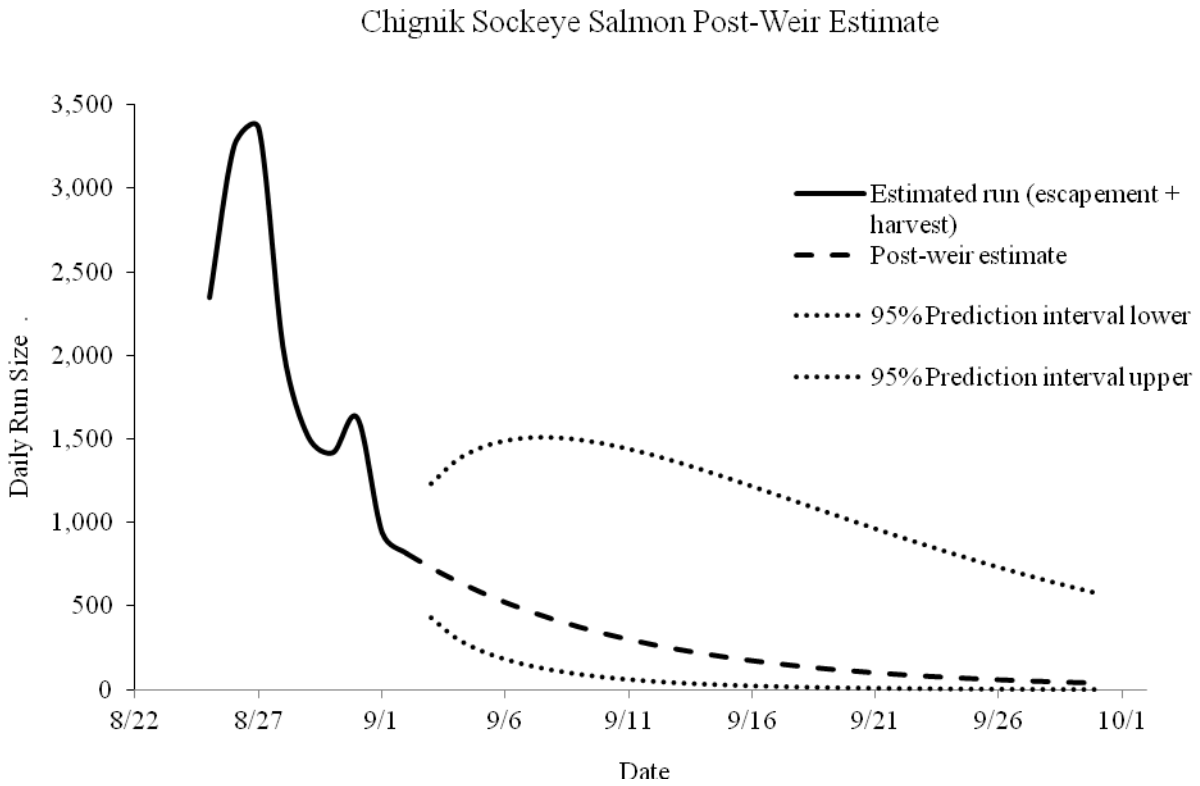

Figure 2.–Chignik sockeye salmon run pre-weir removal and post-weir estimate. Escapement data from July 28 through September 2 were used in the model.

Chatfield, C. 1985. The Analysis of Time Series: An Introduction, 3rd ed. Chatman and Hall, London.

Witteveen, M. J., Regional Finfish Biologist for the ADF&G. [Memorandum to Denby S. Lloyd, Regional Supervisor, ADF&G]. 2004 May 28.

CC: Honnold, Barnard, Nichols, Nemeth, Foster, Finkle

APPENDIX E. COMMERCIAL SALMON FISHERY CATCH AND EFFORT, BY DAY

Appendix E1.–Commercial salmon fishing effort and harvest (including home pack but not including the department's test fishery harvest), by day in the Chignik Management Area, 2011.

	Effort		Chinook		Sockeye		Coho		Pink		Chum		Total	
Date	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
5-Jun	31	35	0	0	67,217	505,639	0	0	0	0	0	0	67,217	505,639
6-Jun	29	36	12	200	57,170	432,879	0	0	0	0	22	173	57,204	433,252
7-Jun	33	36	16	215	71,438	520,165	0	0	0	0	278	2,181	71,732	522,561
8-Jun	37	44	18	200	77,813	603,173	0	0	0	0	455	3,493	78,286	606,866
9-Jun	43	51	30	388	86,249	655,483	0	0	2	8	1,536	12,096	87,817	667,975
10-Jun	43	49	9	165	74,437	579,763	0	0	0	0	790	6,527	75,236	586,455
11-Jun	45	54	17	175	77,397	595,755	0	0	10	37	1,913	13,398	79,337	609,365
12-Jun	51	61	44	785	92,601	710,790	0	0	94	265	3,854	27,192	96,593	739,032
13-Jun	45	51	33	536	77,944	587,994	0	0	48	119	1,864	13,443	79,889	602,092
14-Jun	50	57	21	247	66,298	486,315	0	0	172	263	2,146	14,854	68,637	501,679
15-Jun	46	53	62	747	96,825	720,409	0	0	197	629	2,158	15,464	99,242	737,249
16-Jun	34	38	5	83	72,953	553,385	0	0	17	48	114	796	73,089	554,312
17-Jun	49	57	21	311	142,037	1,002,868	0	0	402	1,232	1,565	10,738	144,025	1,015,149
18-Jun	53	64	41	644	133,754	943,802	0	0	588	1,869	3,784	23,220	138,167	969,535
19-Jun	48	57	37	515	100,630	727,612	0	0	265	832	2,438	17,405	103,370	746,364
20-Jun	54	61	32	493	74,795	523,842	0	0	576	1,373	2,332	14,234	77,735	539,942
21-Jun	47	49	64	937	88,983	634,059	0	0	1,326	4,114	3,363	21,106	93,736	660,216
22-Jun	49	57	41	557	73,137	542,298	0	0	2,327	6,945	4,406	30,278	79,911	580,078
23-Jun	45	50	95	1,457	76,580	536,281	0	0	4,681	15,960	6,130	47,871	87,486	601,569
24-Jun	49	52	67	971	71,089	500,358	0	0	4,859	14,390	8,633	57,523	84,648	573,242
25-Jun	53	55	134	2,031	58,015	422,132	1	6	5,351	15,491	7,725	53,976	71,226	493,636
26-Jun	49	54	57	935	35,059	251,699	1	10	1,294	4,442	2,223	16,804	38,634	273,890
27-Jun	34	35	29	474	26,786	184,934	0	0	887	2,400	1,543	10,744	29,245	198,552
28-Jun	32	35	68	811	21,193	149,882	0	0	720	2,132	1,084	8,278	23,065	161,103
29-Jun	26	28	41	573	26,398	178,397	1	6	2,109	5,136	1,525	9,132	30,074	193,244
30-Jun	36	40	58	845	37,262	258,136	12	84	5,876	16,791	3,205	18,509	46,413	294,365
1-Jul	45	46	94	1,263	34,429	235,052	32	195	15,235	46,833	3,804	25,986	53,594	309,329
2-Jul	45	50	94	1,609	35,408	245,124	13	75	5,111	18,491	1,770	12,706	42,396	278,005
3-Jul	37	40	86	1,442	21,904	147,113	8	54	3,253	9,344	878	6,986	26,129	164,939
4-Jul	41	44	146	1,764	28,378	188,886	31	180	11,615	33,368	1,801	12,467	41,971	236,665
5-Jul	40	43	138	1,852	31,474	214,594	20	106	7,897	26,462	2,634	19,803	42,163	262,817

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	Effort		Chinook		Sockeye		Coho		Pink		Chum		Total	
Date	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
6-Jul	45	47	162	2,957	25,258	170,074	79	552	10,676	29,012	2,522	17,933	38,697	220,528
7-Jul	49	49	178	3,316	37,776	259,447	53	326	5,610	17,759	3,587	26,185	47,204	307,033
8-Jul	40	40	582	4,946	29,703	205,419	393	2,358	12,664	35,597	6,924	49,373	50,266	297,693
9-Jul	46	47	148	1,954	31,607	217,020	675	3,945	20,125	62,991	8,757	58,890	61,312	344,800
10-Jul	48	49	200	2,660	24,796	174,566	802	5,067	11,672	35,400	4,307	31,155	41,777	248,848
11-Jul	41	41	90	1,441	20,539	144,626	437	2,897	6,780	22,160	2,881	21,559	30,727	192,683
12-Jul							Fishery Closed							
13-Jul							Fishery Closed							
14-Jul							Fishery Closed							
15-Jul							Fishery Closed							
16-Jul							Fishery Closed							
17-Jul							Fishery Closed							
18-Jul							Fishery Closed							
19-Jul							Fishery Closed							
20-Jul							Fishery Closed							
21-Jul							Fishery Closed							
22-Jul							Fishery Closed							
23-Jul							Fishery Closed							
24-Jul	45	49	263	2,596	41,174	285,422	3,838	31,047	15,411	45,254	7,698	57,319	68,384	421,638
25-Jul	52	57	573	5,186	31,207	199,209	5,594	37,021	27,590	77,134	21,405	148,137	86,369	466,687
26-Jul	42	49	341	2,924	32,627	219,251	3,551	23,223	22,037	65,248	9,745	64,455	68,301	375,101
27-Jul	40	47	379	3,356	41,332	287,590	6,462	41,883	18,239	55,116	10,600	68,430	77,012	456,375
28-Jul	43	47	368	3,431	16,302	104,363	5,178	37,237	24,711	75,994	7,296	50,796	53,855	271,821
29-Jul	22	25	79	792	8,084	51,182	225	1,559	3,137	10,667	2,057	13,831	13,582	78,031
30-Jul	27	28	106	1,115	7,840	49,410	952	7,264	5,195	16,931	2,982	20,838	17,075	95,558
31-Jul	31	32	111	1,130	8,778	54,513	2,047	14,262	12,683	40,178	5,325	37,790	28,944	147,873
1-Aug	36	37	204	1,889	10,201	63,723	2,011	13,332	10,687	33,053	6,090	40,142	29,193	152,139
2-Aug	32	33	39	365	7,601	46,167	892	6,436	7,606	24,881	2,780	17,826	18,918	95,675
3-Aug	40	40	99	976	6,538	40,406	5,437	34,301	26,948	96,436	6,794	49,909	45,816	222,028
4-Aug	35	35	111	1,146	6,765	41,788	2,671	18,127	30,558	98,332	4,389	28,174	44,494	187,567
5-Aug	24	24	32	312	5,490	31,342	647	4,121	11,053	35,595	3,294	21,702	20,516	93,072
6-Aug	31	31	55	586	5,116	31,990	1,585	11,164	16,096	47,989	2,890	20,471	25,742	112,200
7-Aug	27	27	79	814	4,518	26,977	1,576	10,115	19,141	60,031	3,356	22,784	28,670	120,721

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	Effort		Chinook		Sockeye		Coho		Pink		Chum		Total	
Date	Permits	Landings	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds	Number	Pounds
8-Aug	25	26	78	887	4,318	26,692	1,720	13,128	18,858	57,141	3,082	21,548	28,056	119,396
9-Aug	32	33	125	1,073	7,899	45,900	3,256	21,752	44,254	157,682	8,645	60,177	64,179	286,584
10-Aug	30	30	108	1,092	6,072	35,868	4,610	34,364	61,192	217,368	5,884	41,004	77,866	329,696
11-Aug	22	22	53	656	3,636	22,600	2,240	15,919	42,948	135,906	3,211	23,376	52,088	198,457
12-Aug	22	23	39	267	2,954	16,083	2,671	16,734	33,719	123,055	3,373	20,602	42,756	176,741
13-Aug	17	17	29	300	3,210	18,621	1,341	8,991	38,510	114,787	2,031	13,099	45,121	155,798
14-Aug	20	20	187	1,899	3,951	21,654	1,856	12,701	54,444	175,715	11,423	84,161	71,861	296,130
15-Aug	19	20	82	765	3,024	17,742	1,325	9,082	50,173	140,049	10,434	77,497	65,038	245,135
16-Aug	22	23	16	170	4,878	27,631	3,581	24,758	64,879	189,284	7,644	47,858	80,998	289,701
17-Aug	19	19	19	174	4,077	21,809	3,432	20,173	31,652	108,026	3,958	21,334	43,138	171,516
18-Aug	15	15	7	96	2,250	13,550	1,399	8,530	17,687	64,165	2,363	14,458	23,706	100,799
19-Aug	11	11	14	139	1,304	7,778	724	4,259	8,520	28,449	1,094	6,941	11,656	47,566
20-Aug	8	8	0	0	1,133	6,948	257	1,511	13,757	39,692	1,295	8,128	16,442	56,279
21-Aug	8	8	4	54	831	4,544	1,103	6,529	10,126	31,782	971	6,190	13,035	49,099
22-Aug	5	5	0	0	414	2,068	211	1,254	4,992	16,830	712	4,082	6,329	24,234
23-Aug	5	5	3	50	605	3,946	867	5,818	9,064	40,776	727	5,087	11,266	55,677
24-Aug	5	6	8	36	190	1,267	519	4,145	4,495	16,986	560	3,888	5,772	26,322
25-Aug	Confidential information													
26-Aug	3	3	1	16	224	1,359	169	1,061	755	3,321	153	1,057	1,302	6,814
27-Aug	Confidential information													
28-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29-Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	64	2,614	6,582	74,791	2,490,448	17,843,033	76,791	519,563	905,108	2,882,546	269,492	1,857,512	3,748,421	23,177,445