Fishery Management Report No. 16-39

Report on Selected Sport Fisheries of the Kodiak Management Area, 2015

by

Tyler Polum

December 2016

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

FISHERY MANAGEMENT REPORT NO. 16-39

REPORT ON SELECTED SPORT FISHERIES OF THE KODIAK MANAGEMENT AREA, 2015

by
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December 2016

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ABSTRACT

This report provides a detailed summary of the sport fisheries occurring within the Kodiak Management Area and includes a description of the management area and programs related to area management objectives. Included for each sport fishery are an historical overview (dating back to 2006) for comparative purposes, a review of current management strategies, and recent fisheries performance. Escapement information is presented through 2016 for salmon fisheries when available.

Key words: Kodiak Management Area, Kodiak Regulatory Area, Alaska Peninsula–Aleutian Islands Regulatory Area, Kodiak Road Zone, Kodiak Remote Zone, stocked lakes, enhancement projects, escapement, Chinook salmon, *Oncorhynchus tshawytscha*, coho salmon, *O. kisutch*, sockeye salmon, *O. nerka*, steelhead, rainbow trout, *O. mykiss*, halibut, *Hippoglossus stenolepis*, rockfish, *Sebastes* spp., lingcod, *Ophiodon elongatus*, Alaska Board of Fisheries

INTRODUCTION

This report provides a summary of the sport fisheries occurring within the Kodiak Management Area (KMA). Included is a description of the components of the management area and programs related to area management objectives. Fisheries are described and organized by regulatory areas and subunits, species, and specific locations. An historical overview and description of each fishery, historical harvests and salmon escapements, management objectives and implementation strategies, and fishery performance are discussed. Estimates of harvest for all fisheries are presented through 2015 (2016 estimates are unavailable) and estimates of escapement in all salmon fisheries are presented through 2015. Weir counts through 2016 are included to give the most recent information, and estimates of escapement for 2016 are presented in some cases where harvest estimates are unnecessary. Many estimates of escapement rely on harvest estimates and will be presented in future reports. Fisheries occurring in 2016 are only discussed when complete information is available.

DIVISION OF SPORT FISH STRATEGIC PLAN

The guiding document for the Alaska Department of Fish and Game (ADF&G), Division of Sport Fish (SF) continues to be the Strategic Plan (ADF&G), which highlights key issues currently facing SF and acts as a guide for division leaders in decision-making. The plan is also used to communicate internally as well as with the public about the most important issues for SF and the management of Alaska's sport fisheries, and it is updated periodically to reflect future issues and needed changes in strategic direction. Annual work plans and budget submissions are also linked to this plan based on regional needs and priorities.

MANAGEMENT AREA DESCRIPTION

The Kodiak Management Area (KMA) (Figure 1) includes the following: 1) all freshwater drainages and adjacent marine waters of Alaska circumjacent to the Kodiak Archipelago, 2) all waters of Alaska on the south side of the Alaska Peninsula, including Pacific Ocean drainages west of the longitude of Cape Douglas, 3) waters on the north side of the Alaska Peninsula, including Bering Sea drainages south of the latitude of Cape Menshikof, and 4) all waters of Alaska circumjacent to the Aleutian Islands, including the Pribilof Islands. With the exception of a number of road-accessible fisheries located on Kodiak, Unalaska, and Adak islands and near the community of Cold Bay on the Alaska Peninsula, virtually all significant sport fishing opportunities in the KMA are remote and relatively difficult to access. A coastal climate with high precipitation and mild temperatures characterizes much of the KMA.

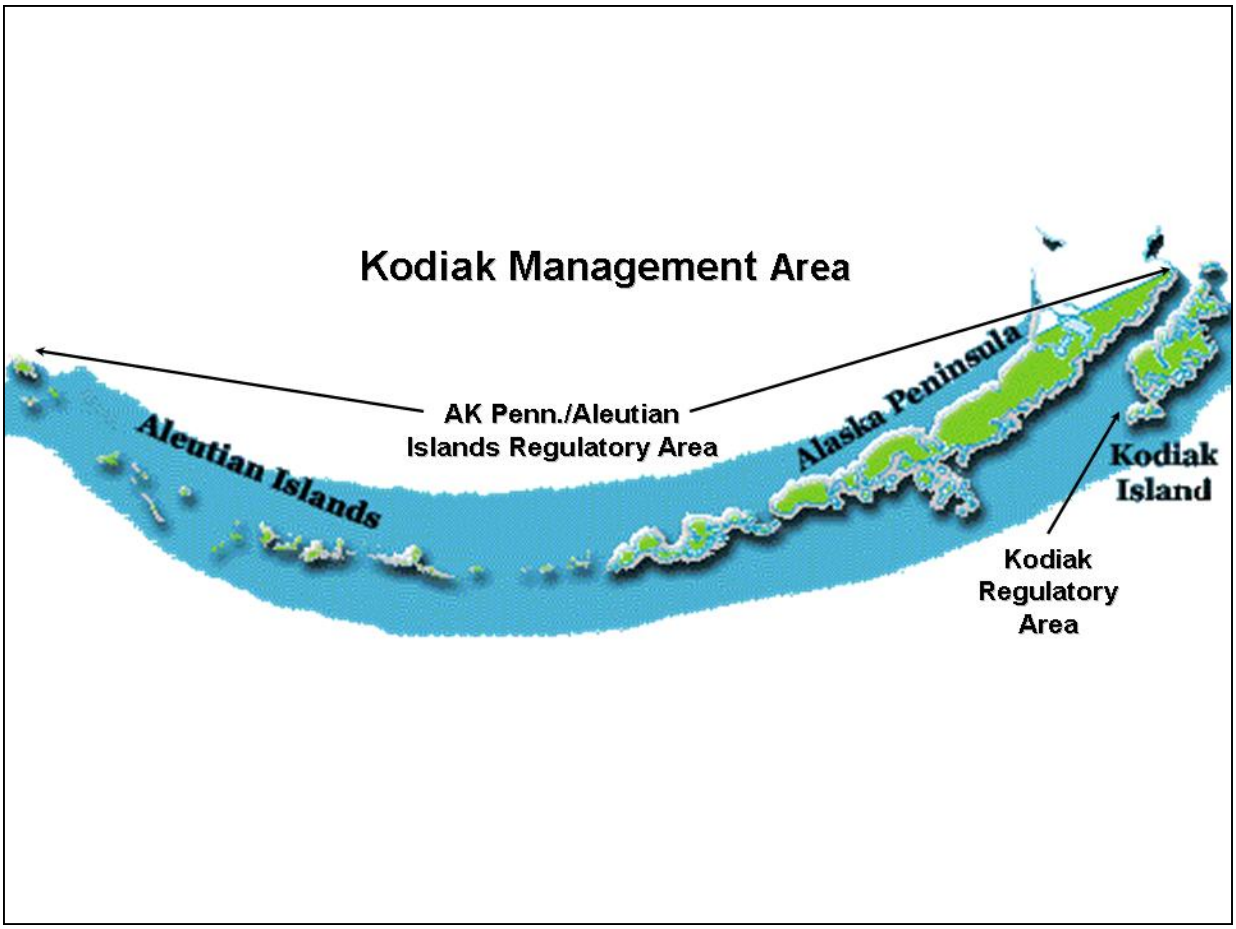

Figure 1.–Map of the Kodiak Management Area.

Principal land managers in the KMA include the United States Fish and Wildlife Service (USFWS), National Park Service (NPS), United States Forest Service (USFS), various Alaska Native corporations, and the State of Alaska.

The communities of Kodiak and Dutch Harbor–Unalaska, with current populations of approximately 13,000 and 4,350 respectively, are the 2 largest communities within the KMA, which also encompasses approximately 20 small villages.

The SF management and research operations within the KMA are administered through ADF&G's Southcentral Region and are based in the Kodiak Area Office. During the time span addressed in this report, area staff members stationed in Kodiak included 2 permanent full-time Fishery Biologists, 1 seasonal Biologist, 1 Program Technician, and several seasonal Fish and Wildlife Technicians. Additional support for the Kodiak office is provided through the regional headquarters office based in Anchorage. Programmatic functions of the Kodiak office include operating salmon counting weirs, collecting and analyzing biological samples, conducting angler creel and salmon escapement surveys, and implementing sport fisheries enhancement projects.

FISHERY DEVELOPMENT AND REGULATION

The KMA is composed of 2 sport fishing regulatory areas: the Kodiak Regulatory Area (KRA) and the Alaska Peninsula–Aleutian Islands Regulatory Area (AP–AIRA). The KRA is further divided by regulation into the "Kodiak Road Zone" and the "Kodiak Remote Zone" (Figures 2

and 3). Codified regulations governing sport fisheries of the KRA are established in Chapter 64, Title 5 of the Alaska Administrative Code. Regulations pertaining to AP–AIRA fisheries are contained in Chapter 65 of the same title. Regulatory provisions of the KMA not specified in these 2 chapters may be found in the Chapter 75 administrative code pertaining to statewide regulation of Alaska sport fisheries.

Fisheries regulations for the KMA are developed within the established Alaska Board of Fisheries (BOF) process. Public input concerning regulation changes and fishery allocation issues is accommodated in this process through various means including submission of proposals, direct testimony to the BOF, and participation in local fish and game advisory committee (AC) meetings. The ACs have been established throughout Alaska specifically to provide a conduit for public access to the BOF, and to assist the BOF in addressing fisheries issues. SF serves as technical advisor both at AC and BOF meetings. In this way, the meetings provide for direct public interaction with ADF&G staff involved with fish resource issues of local concern. Within the KMA, there are 7 ACs: Kodiak, Chignik, King Cove, False Pass, Nelson Lagoon, Sand Point, and Unalaska–Dutch Harbor. Under the current operating schedule, the BOF meets on a 3-year cycle for particular geographic areas and fish resource groupings. Regulatory proposals concerning KMA sport fisheries were most recently addressed in February 2014 (KRA) and February 2016 (AP–AIRA), although no changes were made in the most recent KRA meeting. The next regularly scheduled BOF meeting to address KMA issues is scheduled for January 2017 (KRA). Summaries of recent BOF regulatory actions are provided in Appendix A1.

MANAGEMENT PLANS

In order to resolve allocation conflicts between or within user groups while instituting effective conservation measures, the BOF may institute fishery-specific management plans and policies to guide ADF&G. These plans attempt to assure sustained yield of fish resources in conjunction with the establishment of allocations based on management actions and guidelines. A description of current regulatory management plans specific to sport fisheries occurring within the KMA is provided in Appendix B1.

OVERALL SPORT FISHING EFFORT, HARVEST, AND CATCH

Since 1977, sport angler effort in the KMA has been estimated using the Statewide Harvest Survey (SWHS), an annual mail-out survey that contacts approximately 10% of the state sport fishing license recipients (Jennings et al. 2011). The current SWHS estimates total days of sport fishing effort (referred to as “angler-days”) expended by anglers fishing Alaskan waters, plus angler catch and harvest. Estimates of catch and harvest provide an estimate of numbers released (catch minus harvest). The survey is designed to provide total estimates of effort, catch, and harvest by fishing location, but does not estimate effort directed toward a single species. In addition to the SWHS, on-site creel surveys have been selectively used in the KMA for fisheries that require more detailed information or inseason management. Those statistics are detailed elsewhere in this report where appropriate, whereas the following summary of KMA sport fishing effort, catch, and harvest is based solely on the SWHS results[1].

[1] Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 2016). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

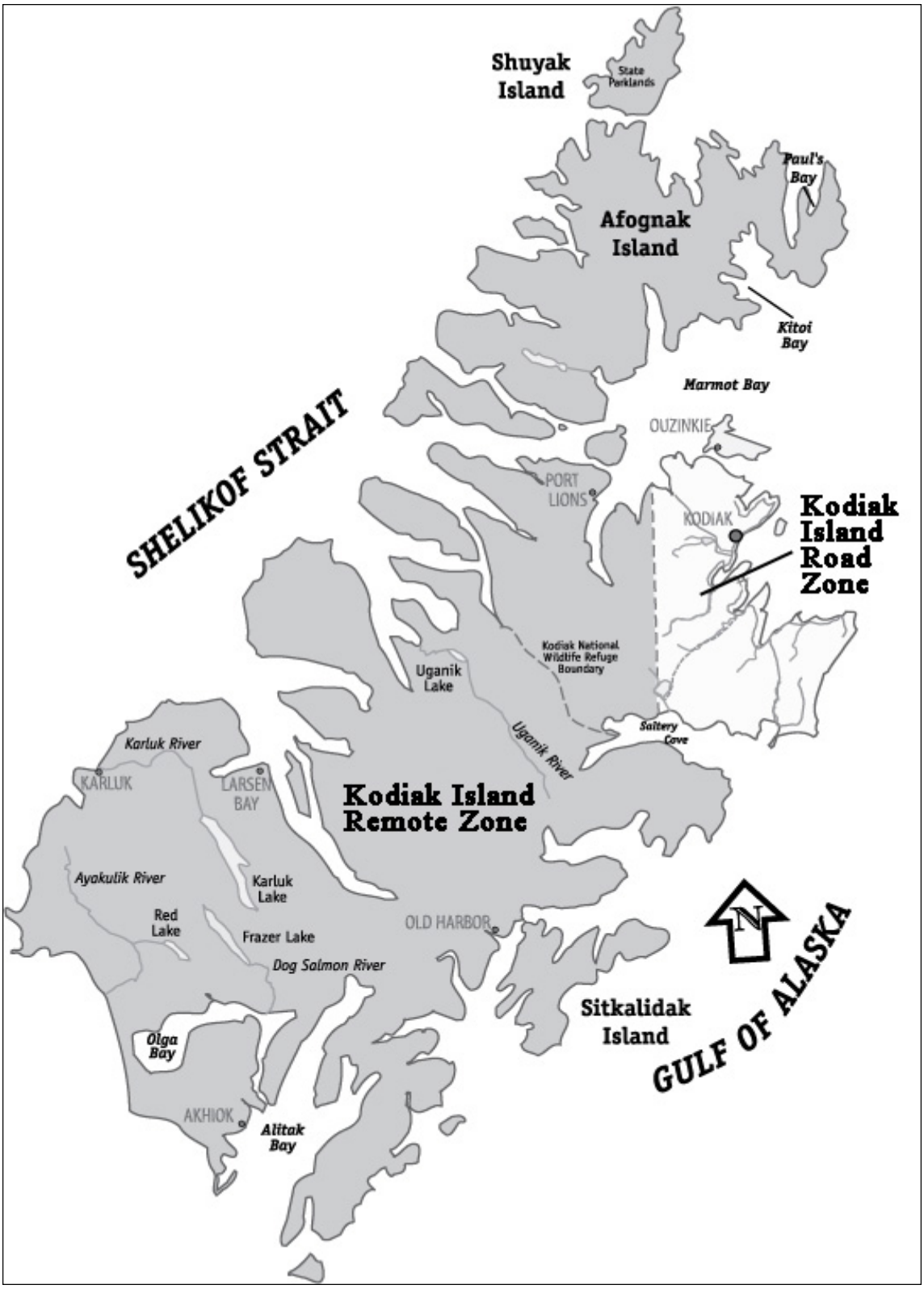

Figure 2.–Kodiak Regulatory Area (KRA) including the Road Zone and the Remote Zone.

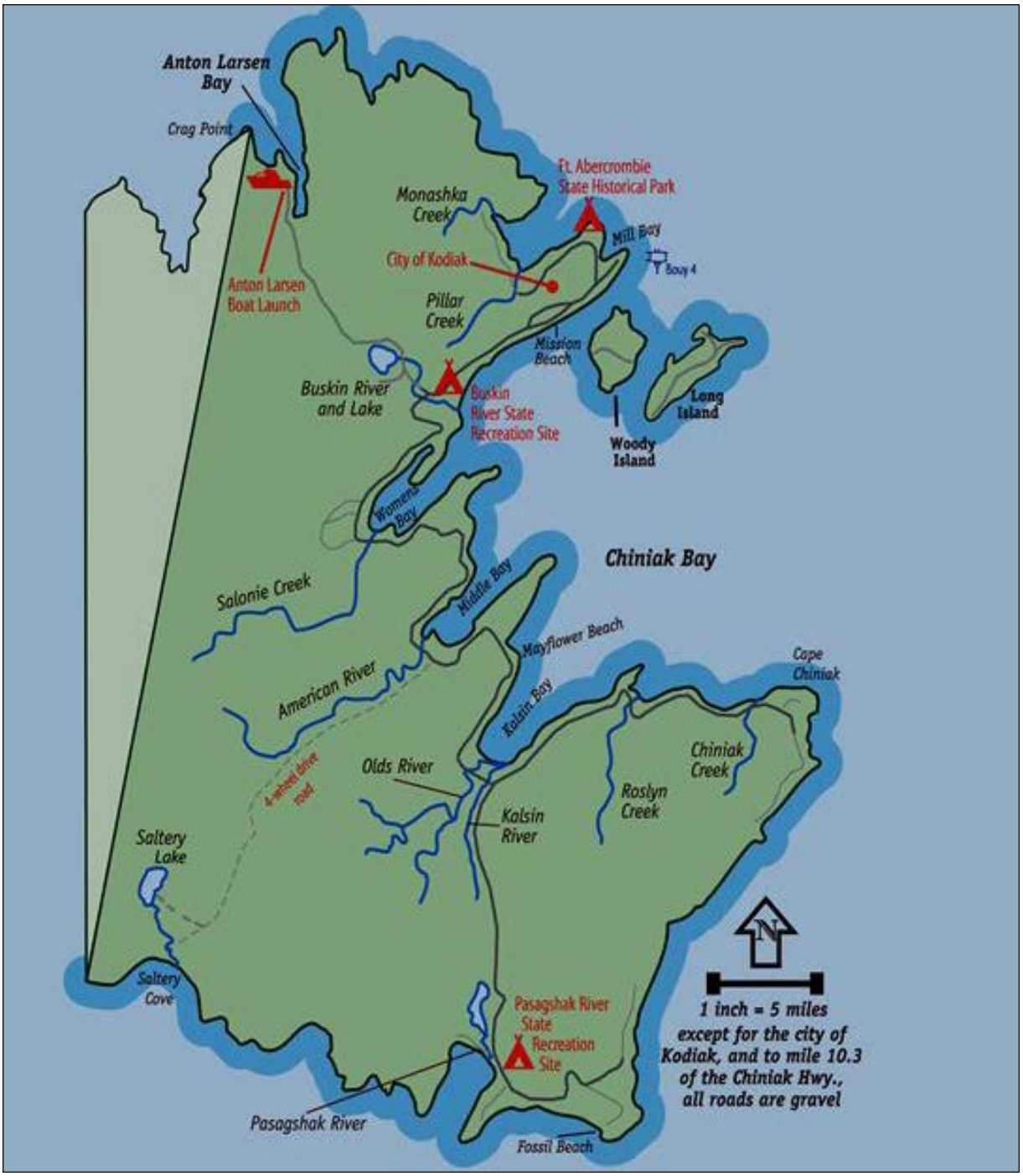

Figure 3.–Kodiak Road Zone.

The KMA is composed of 1 complete SWHS reporting area plus a portion of another. These areas include the following: 1) the entire Kodiak Area reporting unit (Area Q), and 2) part of the Naknek River drainage–Alaska Peninsula reporting unit (Area R). Area R SWHS statistics pertinent to the KMA include those from sport fisheries occurring within and around the Alaska Peninsula south of a line from Cape Douglas to Cape Menshikof and also the Aleutian Islands.

Effort

An average of 113,418angler-days of effort were expended annually by anglers fishing KMA waters from 2006 through 2015 (Table 1). Historically, the effort expended by KMA anglers has represented an average of approximately 4% of the statewide total and 6% of total effort within the Southcentral Region[2]. During this 10-year period, KRA angler effort peaked at 131,709 angler-days in 2007. During 2015, total KMA effort represented about 7% of the total Southcentral Region angling effort and about 5% of the statewide effort.

Anglers fishing the KRA, which includes nearly all major fisheries within the KMA, expended an average of 98,679 angler-days from 2006 through 2015 (Table 1), representing about 87% of the total effort in KMA waters. A total of 102,894 angler-days were spent in this area during 2015.

Major fisheries in the KRA occur in both fresh and salt waters along the Kodiak Road Zone, which typically accounts for about 75% of the area's total effort (Table 2). From 2006 to 2015, drainages within this area supported an average of 72,485 angler-days of fishing effort. The Buskin River, accessible from Kodiak's main roadway, is the most heavily fished drainage in the KRA, averaging 16,632 angler-days of effort for the same period (Table 2). Other major fisheries within the KRA are also road accessible and include the Saltery River and Pasagshak River drainages. Most of the KRA marine waters fishery occurs adjacent to the road system near the community of Kodiak.

Anglers fishing the AP–AIRA from 2006 through 2015 expended an average of 14,739 angler-days of effort (Table 1). This level of effort has represented an average of 13% of the total effort in KMA waters during the same period (Table 1). A total of 14,705 angler-days were expended in the AP–AIRA during 2015. Major AP–AIRA fisheries occur in the Chignik River drainage, rivers in the vicinity of Cold Bay, and on the Unalaska road system. Other relatively significant fisheries consist of several drainages frequented by remote lodge operators based near Port Moller and Nelson Lagoon on the Alaska Peninsula. Due to the remote location and corresponding high cost to access most fishing destinations within the AP–AIRA, overall angler effort is modest by comparison to the remainder of the KMA to the extent that during most years, estimates of effort are unavailable in individual locations due to a lack of respondents.

[2] ADF&G, Division of Sport Fish, Southcentral Region (i.e., Region II) includes the following management areas: Anchorage Area, Bristol Bay, Kodiak–Aleutians, Lower Cook Inlet (Kenai), Northern Cook Inlet (Matanuska–Susitna), Prince William Sound Area, Seward–North Gulf Coast, and Upper Kenai Peninsula.

Table 1.–Total angler-days of sport fishing effort expended in Kodiak Management Area waters, 2006–2015.

Regulatory area	Waters	Parameter	Year 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	10-year average
Alaska Peninsula–Aleutian Islands [a]													
	Salt water												
		Angler-days	7,201	11,944	7,734	7,303	5,297	4,616	9,037	5,342	7,848	7,768	7,409
		Percent	57%	58%	50%	38%	42%	43%	61%	50%	49%	53%	50%
	Fresh water												
		Angler-days	5,431	8,555	7,600	11,990	7,302	6,243	5,809	5,342	8,088	6,937	7,330
		Percent	43%	42%	50%	62%	58%	57%	39%	50%	51%	47%	50%
	Area total		12,632	20,499	15,334	19,293	12,599	10,859	14,846	10,684	15,936	14,705	14,739
	% of KMA		12%	16%	13%	17%	13%	11%	15%	8%	13%	13%	13%
Kodiak Island [a]													
	Salt water												
		Angler-days	45,502	53,222	52,219	47,333	40,377	36,809	42,374	52,867	44,127	51,107	46,594
		Percent	48%	48%	51%	49%	50%	44%	50%	45%	40%	50%	47%
	Fresh water												
		Angler-days	49,722	57,988	49,820	49,619	41,082	47,620	43,032	63,325	66,858	51,787	52,085
		Percent	52%	52%	49%	51%	50%	56%	50%	55%	60%	50%	53%
	Area total		95,224	111,210	102,039	96,952	81,459	84,429	85,406	116,192	110,985	102,894	98,679
	% of KMA		88%	84%	87%	83%	87%	89%	85%	92%	87%	87%	87%
KMA total[a]			107,856	131,709	117,373	116,245	94,058	95,288	100,252	126,876	126,921	117,599	113,418

Source: Statewide Harvest Survey (SWHS) estimates from the Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 2016). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

[a] Does not include the Barren Islands or Ugashik, Naknek, or Egegik drainage streams reported in the SWHS as Alaska Peninsula Drainages.

Table 2.–Total angler-days of sport fishing effort expended in the Kodiak Regulatory Area by drainage, 2006–2015.

		Year										
Regulatory area	Drainage	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average
Kodiak Road System												
	Buskin River & Lake	19,875	17,124	15,068	18,695	13,365	13,879	13,996	21,497	20,015	12,808	16,632
	Pasagshak R & Lk Rose Tead	3,259	7,091	7,733	8,161	5,170	7,372	8,457	6,596	4,782	5,534	6,416
	Olds River [a]	5,247	6,994	3,362	4,826	4,653	4,421	3,829	7,432	10,739	7,977	5,948
	American River	3,648	6,597	4,602	3,760	4,362	4,601	2,850	5,448	5,236	5,947	4,705
	Saltery Cove Freshwater	2,460	2,196	4,127	3,204	3,453	3,947	2,101	5,601	6,644	3,693	3,743
	Other roadside lakes	861	848	496	1,033	651	2,152	847	2,558	2,637	3,556	1,564
	Other roadside streams [b]	5,286	5,642	5,299	3,525	3,634	4,212	5,195	8,391	7,084	7,084	5,535
	Chiniak Bay Boat	18,754	28,480	32,098	23,866	16,006	17,139	17,859	16,017	18,940	24,915	21,407
	Ugak Bay Boat	–	–	–	905	1,133	1,112	3,209	2,839	2,844	2,358	2,057
	Other roadside boat	1,812	1,449	1,964	2,898	384	660	18	228	1,228	3,180	1,382
	Other roadside shoreline [c]	3,101	2,357	1,393	2,840	4,019	2,041	4,085	10,988	1,095	5,210	3,713
	Total	64,303	78,778	76,142	73,713	56,830	61,536	62,446	87,595	81,244	82,262	72,485
Kodiak Remote Area												
	Karluk River System	2,896	5,311	2,302	2,541	1,095	2,125	990	1,167	860	1,621	2,091
	Ayakulik (Red) River System	2,807	1,482	1,905	1,210	960	–	–	–	2,066	–	1,738
	Other remote lakes	149	644	604	322	452	335	-	846	400	143	433
	Other remote streams	3,234	4,059	4,322	1,782	3,287	3,228	3,289	4,329	4,954	3,009	3,549
	Boat- Afognak Island Area	5,488	6,550	6,226	4,521	6,199	3,619	3,629	6,968	5,471	3,413	5,208
	Shuyak Island Boat	1,549	729	–	1,924	–	837	–	–	–	–	1,260
	Uyak Bay Boat	2,417	3,246	3,156	3,415	2,933	1,627	-	3,475	3,389	2,862	2,947
	Other remote boat [d]	6,997	7,779	6,444	4,157	7,871	3,698	6,068	5,899	5,950	6,606	6,147
	Other remote shore	1,027	1,545	742	789	1,632	1,052	505	–	779	–	1,009
	Total	26,564	31,345	25,701	20,661	24,429	16,521	14,481	22,684	23,869	17,654	22,391
Regulatory area total		95,224	111,210	102,039	96,952	81,459	84,429	85,406	116,192	110,985	102,894	98,679

Source: Statewide Harvest Survey (SWHS) estimates from the Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 2016). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

Note: An en dash means insufficient survey responses to generate an estimate.

[a] Olds River includes unidentified Kalsin Bay streams.

[b] Includes Russian River and unspecified streams.

[c] Roadside shoreline includes Chiniak Bay shoreline and unspecified roadside shoreline sites.

[d] Other remote boat includes unspecified remote sites.

Harvest

From 2006 through 2015, an average of 150,827 fish were harvested by anglers fishing KMA waters (Table 3). Halibut (*Hippoglossus stenolepis*), coho salmon (*Oncorhynchus kisutch*), and Chinook salmon (*O. tshawytscha*) accounted for about 19%, 24%, and 7% of the 10-year average harvest, respectively. In 2015, a total of 170,363 fish were harvested by anglers in KMA waters (Table 3). During the same year, the coho salmon harvest (44,421 fish) was above the recent 10-year average (35,299 fish) and harvest of halibut (19,104 fish) was well below the 10-year average (28,877 fish).

Other species harvested in relatively large numbers between 2006 and 2015 included pink salmon (*O. gorbushka*) and sockeye salmon (*O. nerka*), which respectively averaged 11,103 and 17,716 fish (Table 3). During 2015, the total sockeye salmon harvest of 23,068 was above the 10-year average but below the previous year's record-high harvest of 28,884. Pink salmon harvests were slightly above the 10-year average in 2015, at 13,630 fish.

Catch

Estimates available from the SWHS of the total number of fish caught (harvest plus release) by anglers fishing KMA waters indicate that although release to harvest ratios vary substantially by species, overall between 2006 and 2015, an average of 2.65 fish were released for every 1 harvested. Pink salmon, chum salmon (*O. keta*), Dolly Varden (*Salvelinus malma*), and rainbow trout (*O. mykiss*) were the most frequently released fish species during 2015 and also in previous years (Table 4). In both KRA and AP–AIRA waters during 2006–2015, the number of fish caught and released was greater than the number of fish harvested.

CHINOOK SALMON FISHERIES

Chinook salmon runs to the KMA are made up of a relatively small number of stocks and collectively make a minor contribution to total Chinook salmon production in Alaska. KRA stocks are found only in the Karluk River and Ayakulik River drainages but historically have been the most abundant populations within the entire management area. AP–AIRA stocks are more numerous and include populations in the Chignik, King Salmon, Meshik, Nelson, Ilnik, Sandy, and Cinder rivers plus several other drainages. Exploitation rates by anglers on AP–AIRA stocks are low to the extent that during most years, SWHS estimates of catch and harvest by drainage are unavailable. By comparison, angler interest in the stocks of the Karluk and Ayakulik rivers historically has been greater, which is probably a result of lower access costs and more convenient travel logistics.

Although a variety of users have historically harvested KMA Chinook salmon runs, including freshwater and marine sport, commercial, and subsistence fisheries, the primary interest in utilizing these stocks has been from sport fishing anglers. Currently, a formal allocation of the Chinook salmon harvest has been established only for the marine waters sport fishery within the KRA (*Kodiak Area Salt Water King Salmon Sport Fishery Management Plan*, 5 AAC 64.060; Appendix B1).

Table 3.–Numbers of fish harvested by all anglers fishing Kodiak Management Area waters, 2006–2015.

Category	Species	Year 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	10-year average
Salmon												
	Pink	11,533	19,484	9,189	13,856	6,253	7,159	11,676	10,542	7,705	13,630	11,103
	Coho	34,935	38,780	36,927	39,669	30,047	30,843	25,204	32,788	39,376	44,421	35,299
	Sockeye	6,866	16,002	19,477	14,438	14,004	12,087	16,157	26,213	28,844	23,068	17,716
	Chinook	12,437	12,226	10,263	9,354	7,416	8,393	7,957	9,951	9,170	9,938	9,711
	Chum	591	579	773	2,239	901	447	714	702	406	608	796
Marine												
	Clams	1,910	219	2,762	2,401	1,925	918	3,888	939	2,363	1,483	1,881
	Halibut	28,049	38,956	37,718	34,839	25,415	23,089	26,690	28,520	26,387	19,104	28,877
	Rockfish	12,773	14,050	16,884	16,512	20,660	15,907	20,747	21,113	31,177	27,872	19,770
	Lingcod	2,482	4,060	3,665	3,978	4,013	4,248	4,105	4,543	5,022	3,065	3,918
	Black cod[b]					948	871	1,205	1,021	865	2,309	1,203
	Smelt	47	0	629	0	178	1,214	0	346	92	0	251
Freshwater												
	Dolly Varden	8,198	9,988	9,869	6,169	6,198	5,341	2,886	4,786	5,578	6,242	6,526
	Arctic Grayling	**0**	0	0	0	0	0	0	0	40	0	4
	Rainbow trout	84	285	203	85	284	596	66	302	246	541	269
	Steelhead	181	62	52	141	24	6	69	30	27	52	64
Other fish [a]		3,345	6,648	10,694	13,067	13,859	18,664	16,150	14,948	23,824	18,030	13,923
Total		123,431	161,339	159,105	156,748	132,125	129,783	137,514	156,744	181,122	170,363	150,827

Source: Statewide Harvest Survey (SWHS) estimates from the Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 2016). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

[a] Includes shark, shrimp, skate, Pacific cod, Tanner crab, Dungeness crab, landlocked salmon and other unspecified species.

[b] Black cod not included in SWHS prior to 2010.

Table 4.–Numbers of fish caught by all anglers fishing Kodiak Management Area waters, 2006–2015.

Category		Year										10-year average
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
Salmon												
	Pink	82,237	123,907	61,574	83,153	39,001	47,319	65,563	82,822	43,109	76,220	70,491
	Coho	70,482	67,608	73,198	80,133	53,129	55,147	42,028	54,100	77,351	97,046	67,022
	Sockeye	17,132	42,391	48,273	30,668	22,277	25,808	25,855	42,188	44,672	32,418	33,168
	Chinook	23,907	26,037	16,960	16,908	12,184	16,867	15,182	16,066	16,903	20,890	18,190
	Chum	6,414	12,244	10,406	16,013	10,862	9,244	7,802	6,800	10,439	17,777	10,800
Marine												
	Clams	1,910	219	2,762	2,401	1,925	918	3,888	939	2,363	1,483	1,881
	Halibut	48,674	65,174	71,379	59,787	43,589	44,235	43,698	44,874	41,922	31,505	49,484
	Rockfish	29,148	36,791	41,633	42,675	49,729	33,216	40,667	35,429	49,978	47,431	40,670
	Lingcod	4,112	6,497	6,656	7,897	6,369	7,254	6,323	6,353	7,493	6,044	6,500
	Black cod [b]					1,936	1,526	1,958	1,774	1,879	3,680	2,126
	Smelt	47	0	629	0	178	1,339	19	346	301	0	286
Freshwater												
	Dolly Varden	56,689	74,979	76,552	43,189	50,933	47,843	26,238	48,447	57,547	50,581	53,300
	Arctic grayling	307	65	0	0	0	20	56	0	1,650	0	210
	Rainbow trout	3,683	4,900	2,960	2,082	3,679	8,441	1,932	4,570	4,157	5,677	4,208
	Steelhead	3,192	2,307	3,102	1,559	927	2,216	569	717	2,255	3,118	1,996
Other fish[a]		14,258	16,160	28,493	34,080	41,065	46,324	36,591	33,418	49,685	38,793	
Total		362,192	479,279	444,577	420,545	337,783	347,717	318,369	378,843	411,704	432,663	393,367

Source: Statewide Harvest Survey (SWHS) estimates from the Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 2016). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/

[a] Includes Shark, Shrimp, Skate, Pacific Cod, Tanner Crab, Dungeness Crab, landlocked salmon and other unspecified species.

[b] Black cod not included in SWHS prior to 2010.

The primary management objective for KMA Chinook salmon stocks is to achieve established escapement goals (EG). Several of the major Chinook salmon runs are monitored annually for escapement using weirs, whereas spawning assessment of other stocks has been limited to escapement index counts obtained from aerial surveys. To ensure EGs are attained, fishery managers may limit angler harvests by reducing daily and seasonal bag limits, prohibiting bait, and reducing time and areas open to fishing (Appendix C1). Stocks that consistently fall below EG levels may be closed to sport fishing. Conversely, Chinook salmon sport fishing regulations may be liberalized by emergency order (EO) whenever harvestable surpluses are anticipated.

During the last 10 years, KMA Chinook salmon escapements have generally reflected a trend of decreasing abundance and some have fallen to record low levels. Consequently, many Chinook salmon sport fisheries have been restricted in attempts to conserve spawning Chinook salmon populations. Chinook salmon harvests have fluctuated in many areas, with little harvest occurring in many drainages in the last 10 years.

KARLUK RIVER

Fishery Description

The Karluk River, located on the southwest end of Kodiak Island approximately 60 miles from the City of Kodiak, is the second-largest drainage within the KRA. The river spans approximately 22 miles and is generally accessible to anglers only by aircraft. The Karluk River drainage supports 1 of 2 indigenous Chinook salmon populations in KRA waters, and it has historically supported the most popular Chinook salmon sport fishery within the entire KMA.

Chinook salmon typically return to the Karluk River drainage from late May through early July with peak immigration in mid to late June (Appendix D1). Spawning occurs throughout the mainstem but in most years appears to be concentrated within several miles of the Karluk Lake outlet and below a reach known as “The Portage.” Peak spawning typically occurs during mid-August.

Most uplands surrounding the Karluk River are privately owned. An easement agreement between the land owner and state and federal governments, which expired in 2012, contained provisions that capped daily visitor numbers at 70 within this 10-mile reach, and only 40% of these visitors could be unguided. Currently, angler participation elsewhere along the river is directly limited by land status, although fee-based use permits may be acquired for upland access.

The Karluk River Chinook salmon run has seen record low counts during the last 15 years and has also seen a dramatic reduction in fishing effort (Appendix E1). The fishery was at one time the most popular fishery in the KMA and both guided and unguided anglers frequented the river targeting Chinook salmon. Historically low runs to the Karluk River have persisted and restrictions on the fishery have been implemented to varying degrees since 2001. Inconsistent fishing opportunity and generally low runs have caused a dramatic reduction in angler effort and currently few, if any, anglers fish the Karluk River during the Chinook salmon run. Some anglers do target sockeye salmon near the lagoon in other locations, but fishing effort is generally limited and is primarily with guided anglers.

Historical Catch

Information about the Chinook salmon sport fishery is currently available from several sources. Until 2011, inseason surveys of sport harvest and fishing effort were collected annually from on-site angler interviews. Annual estimates of total effort and catch are currently generated from the SWHS, and since 2005, complete guided angler statistics have been available from the ADF&G Freshwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests.])

Between 2006 and 2015, SWHS estimates indicate 875 fish were harvested, all of which were taken in 2006 and 2007 (Table 5). Harvest of Karluk River Chinook salmon has been prohibited entirely since 2008. Freshwater Logbook Program statistics and on-site interviews conducted between 2006 and 2015 also reflect limited harvests (Table 6) in conjunction with lower overall angler effort (Table 2). Occasional poor agreement during this time between SWHS estimates and harvest figures provided by interviews and logbooks is probably the result of SWHS measurement error attributable to relatively low overall angler participation levels in the fishery.

Table 5.–Weir counts through 2016 and Statewide Harvest Survey estimates of Karluk River Chinook salmon sport harvests, 2006–2015.

Year	Weir count	Sport harvest	Harvest above weir	Number released	Escapement
2006	4,112	670	439	2,180	3,673
2007	1,765	205	68	428	1,697
2008	752	0	0	96	752
2009	1,306	0	0	0	1,306
2010	2,917	0	0	16	2,917
2011	3,420	0	0	674	3,420
2012	3,197	0	0	83	3,197
2013	1,824	0	0	161	1,824
2014	1,182	0	0	47	1,182
2015	2,777	0	0	250	2,777
Average 2006–2015	2,325	88	51	394	2,275
2016	3,434	0	0	0	3,434

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/); Fuerst 2015; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

Table 6.–Comparison of harvest and release information obtained from on-site angler interviews and guided angler logbooks to estimates of total harvest and release from the Statewide Harvest Survey for Karluk River Chinook salmon, 2006–2015.

	On-site interviews		Guided logbook		SWHS	
Year[a]	Harvest	Released	Harvest	Released	Harvest	Released
2006	761	1,782	842	1,349	670	3,007
2007	156	262	194	410	205	733
2008	0	31	1	114	0	96
2009	0	22	0	80	0	0
2010	0	0	0	12	0	0
2011	0	0	0	238	0	793
2012			0	342	0	83
2013			0	80	0	161
2014			0	11	0	47
2015			0	8	0	250

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/); Freshwater Logbook Database (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests.])

[a] The last year for on-site angler interviews at the Karluk River was 2011.

Escapement

Escapements of Karluk River Chinook salmon are monitored through operation of a salmon counting weir established in 1976 a short distance above the stream terminus. Harvests in the sport fishery occurring upstream of the weir are subtracted from the total count to estimate escapement in a given year.

Annual weir counts of Karluk River Chinook salmon recorded between 2001 and 2008 show a trend of decreasing abundance and culminate with a total count of just 752 fish in 2008 (Alaska Sport Fishing Survey database; Table 5). Continued poor annual counts through 2015 have resulted in falling short of the current Chinook salmon biological escapement goal (BEG[3]) range of 3,000–6,000 on a total of 7 occasions since 2001, regardless of management measures taken to conserve escapements (Figure 4, Appendices D1 and E1). In 2016, the BEG was achieved with a weir count of 3,434.

[3] The biological escapement goal is an estimate of escapement that most closely approximates the maximum sustainable productivity of a population.

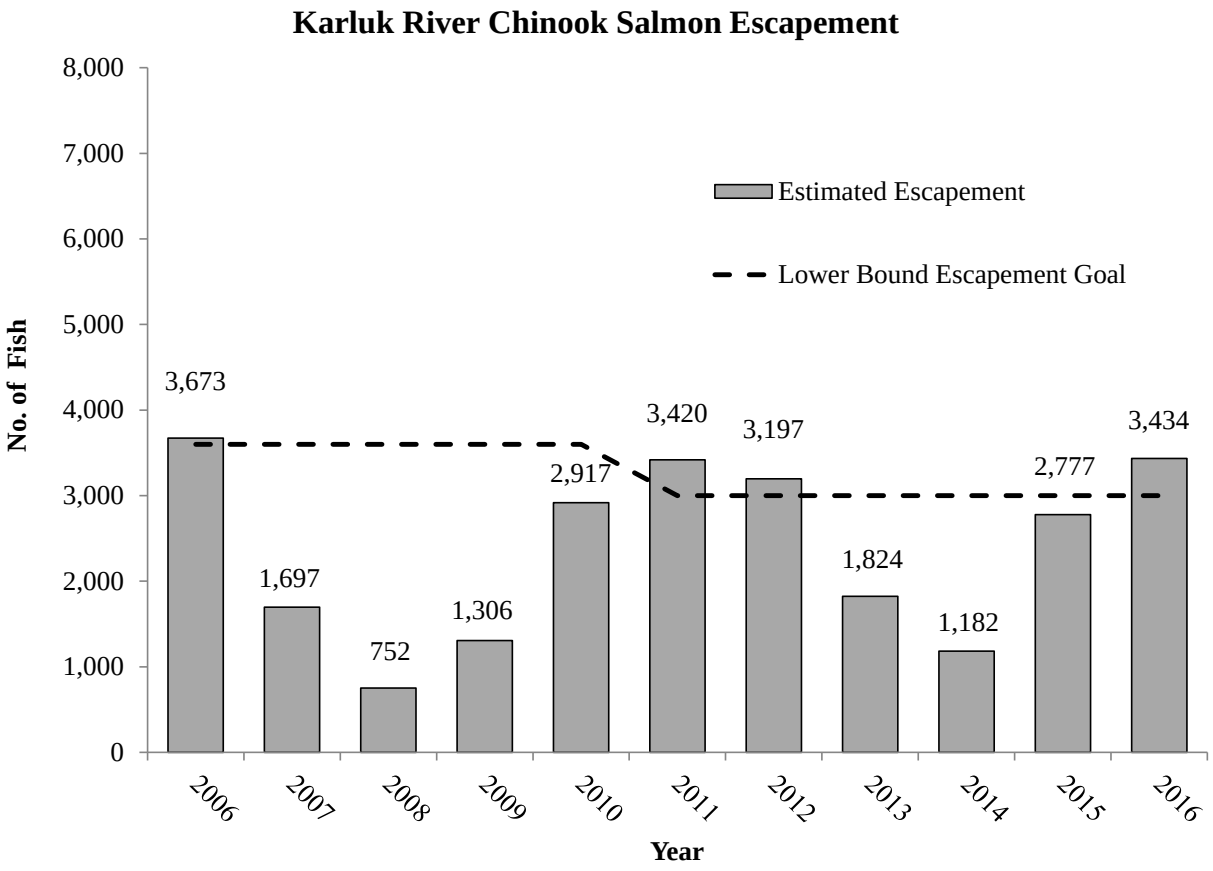

Figure 4.–Estimated escapement of Karluk River Chinook salmon, 2006–2016.

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/); Fuerst 2015; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

Fishery Management and Objectives

The Karluk River Chinook salmon fishing season is open by regulation from 1 January through 25 July with fishing permitted within the entire drainage throughout the season. A complete closure of the drainage to Chinook salmon fishing after 25 July is intended to afford protection for spawning fish from anglers. A bag limit for Karluk River Chinook salmon over 20 inches in length is set at 2 per day with an annual limit of 5.

Management of the Karluk River run is aimed at maximizing angler opportunity while ensuring attainment of the BEG. The current BEG of 3,000–6,000 fish is classified as a "biological escapement goal" which, according to existing regulatory policy, constitutes an estimate of escapement that over time most closely approximates the maximum sustainable productivity of the population. The BEG is based both on historical escapements and estimated age composition of the runs and is expressed as a range of values to account for uncertainty in the precision of the estimate.

In an attempt to meet the BEG, emergency orders (EOs) have been issued for the sport fishery annually since 2005, with complete restrictions on harvest occurring annually since 2008

(Appendix F1). Additionally, in 2011, the BOF designated Karluk River Chinook salmon a "stock of concern" and adopted restrictions pertaining to the commercial fishery aimed at protecting Chinook salmon bound for the Karluk River (Appendix F3). This "action plan" directed ADF&G to issue EOs prohibiting retention of Chinook salmon larger than 28 inches in length in commercial seine fisheries in the Inner and Outer Karluk and Ayakulik sections through 30 July if the Karluk Chinook salmon run is not projected to meet the escapement goal and the sport fishery is either closed or restricted to nonretention. In 2014, the BOF took further action and prohibited the retention of Chinook salmon greater than 28 inches for the whole of the Kodiak Area by regulation. In addition to action by the BOF, the Department of Commercial Fisheries (CF) has issued EOs regarding retention of Chinook salmon greater than 28 inches to attempt to meet the Karluk Chinook BEG since 2005.

2015 and 2016 Sport Fisheries

Consistently poor escapements warranted preseason restrictions in both 2015 and 2016 that closed the sport fishery for the entire drainage (Appendix C1). Consequently, both SWHS estimates and logbook harvests showed zero Chinook salmon harvested during the 2015 season, and it is likely that estimates will be zero for 2016 when available (Table 6). Angler effort in years just prior, as measured by logbook reports and on-site interviews, showed a substantial decrease in interest in the fishery when compared to historical effort levels, and was probably a direct consequence of reduced fishing opportunity.

Even with the preseason restrictions and subsequent closure of the sport fishery, historically low Chinook salmon escapement continued during the 2015 run, when just 2,777 fish were counted through the weir (Table 5). The 2016 weir count of 3,434 was above the lower end of the BEG; however, the BEG was achieved too late in the season to warrant opening the fishery.

AYAKULIK RIVER

Fishery Description

The Ayakulik River drainage is approximately 20 miles south of the Karluk River and is the largest watershed within the KRA. The mainstem, where nearly all sport fishing occurs, extends approximately 13 miles and is accessible via aircraft. The Ayakulik River sustains the second-largest native KRA Chinook salmon population and also the second most popular KMA Chinook salmon sport fishery.

Similar to the Karluk River, Chinook salmon typically return to the Ayakulik River between late May and early July with the peak immigration during mid to late June (Appendix D2). Spawning occurs not only in the mainstem but also in a main tributary stream known as the "East Fork." It is generally believed this spawning habitat is mostly utilized by the early portion of the run, with later-arriving fish preferring to spawn in the lower river. As with the Karluk River run, peak spawning typically occurs during mid-August.

With the exception of a privately owned 1-square-mile section encompassing the river mouth and lagoon, all uplands surrounding the Ayakulik River are within the Kodiak National Wildlife Refuge (KNWR). Unrestricted access to the sport fishery from KNWR lands is available to all unguided anglers, whereas guide operators and their clients are limited in number under the KNWR management policy. Currently, a total of 6 operators guiding as many as 35 anglers are permitted access to the sport fishery from KNWR lands during a single day.

The Ayakulik Chinook salmon run has seen record high and record low counts during the last 15 years and has also seen a dramatic reduction in fishing effort (Appendices E2 and F2). The Ayakulik Chinook salmon fishery was at one time the second most popular fishery in the KMA, next to the Karluk River Chinook salmon fishery, and both guided and unguided anglers frequented the river targeting Chinook salmon until about 2005. Since then, historically low runs to the Ayakulik River have persisted and frequent restrictions in the fishery have resulted in reduced angler interest during the Chinook salmon run. This was also coupled with more limited access due to the lagoon filling in to the point where floatplanes could no longer land to allow anglers to be picked up near the mouth of the river. With low runs, reduced fishing opportunity, and difficult access, angler effort is currently limited to primarily guided anglers who target Chinook salmon when it is allowed during the Chinook salmon run but who are primarily fishing for sockeye salmon in various locations throughout the river. There are occasionally unguided anglers on the river but there is a general lack of interest in the fishery for unguided trips.

Historical Catch

Current angler catch and effort information for Ayakulik River Chinook salmon is only intermittently obtainable from the SWHS and on-site angler interviews. However, guided angler statistics dating to 2005 are available annually from the Freshwater Logbook Database.

Between 2006 and 2015, the SWHS estimated that angler harvests of Chinook salmon averaged 67 fish, although harvest estimates were not available in 2014 and 2015 due to low response rates (Table 7). Declining harvests since 2006 are probably attributable to a concurrent decrease in the abundance of fish, which resulted in the implementation of inseason management measures in most years to conserve escapements (Appendices C1 and F2). On-site angler interviews conducted between 2006 and 2010 and Freshwater Logbook Database statistics through 2015 show decreased harvests and effort (Table 8). Similar to the Karluk River fishery, disparities between SWHS estimates and statistics from interviews and logbooks are probably due to measurement error resulting from relatively low levels of angler effort.

Escapement

Ayakulik River Chinook salmon escapements are monitored through operation of a salmon counting weir established in 1970 a short distance above the lagoon. Harvests in the sport fishery occurring upstream of the weir are subtracted from the total count to estimate escapement in a given year.

Since 2006, the abundances of Ayakulik River Chinook salmon as measured by weir counts include some of the lowest counts on record; the record lowest count of 917 fish occurred in 2014 (Table 7). In 2015, counts improved slightly (2,392 fish); however, the BEG of 4,000 to 7,000 fish was not met. In 2016, the BEG was met with a weir count of 4,594, although it was achieved late in the season. Despite management measures taken to conserve escapements, there has been a failure to achieve the current Chinook salmon BEG on a total of 6 occasions in the last 10-year period (Figure 5; Appendices D2, E2, and F2).

Table 7.–Weir counts through 2016 and Statewide Harvest Survey estimates of Ayakulik River Chinook salmon sport harvests, 2006–2015.

Year	Weir count	Sport harvests[a]	Number released	Escapement
2006	3,106	169	2,914	2,937
2007	6,535	303	3,779	6,232
2008	3,071	0	830	3,071
2009	2,615	0	354	2,615
2010	5,301	104	625	5,197
2011	4,316	64	–	4,252
2012	4,760	16	–	4,744
2013	2,369	15	–	2,354
2014	917	0	96	917
2015	2,392	0	–	2,392
Average 2006–2015	3,538	67	1,433	3,471
2016	4,594			

[a] Sport harvests from 2011-15 from Guided Logbook program and include only fish harvested above the weir.

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/); Freshwater Logbook Database (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests.]); Fuerst 2015; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

Note: An en dash means insufficient survey responses to generate an estimate.

Table 8.–Comparison of harvest and release information obtained from on-site angler interviews and guided angler logbooks to estimates of total harvest and release information from the Statewide Harvest Survey for Ayakulik River Chinook salmon, 2006–2015.

	Creel		Guided logbook		SWHS	
Year[a]	Harvest	Released	Harvest	Released	Harvest	Released
2006	50	544	54	897	169	2,914
2007	59	1,009	116	1,737	303	3,779
2008	12	300	2	329	0	830
2009	0	43	0	83	0	354
2010	2	41	2	185	104	625
2011			65	454	–	–
2012			23	554	–	–
2013			18	299	–	–
2014			0	59	0	96
2015			0	82	–	–

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/); Freshwater Logbook Database (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests.]).

Note: An en dash means insufficient survey responses to generate an estimate.

[a] The last year for on-site angler interviews at the Ayakulik River was 2010.

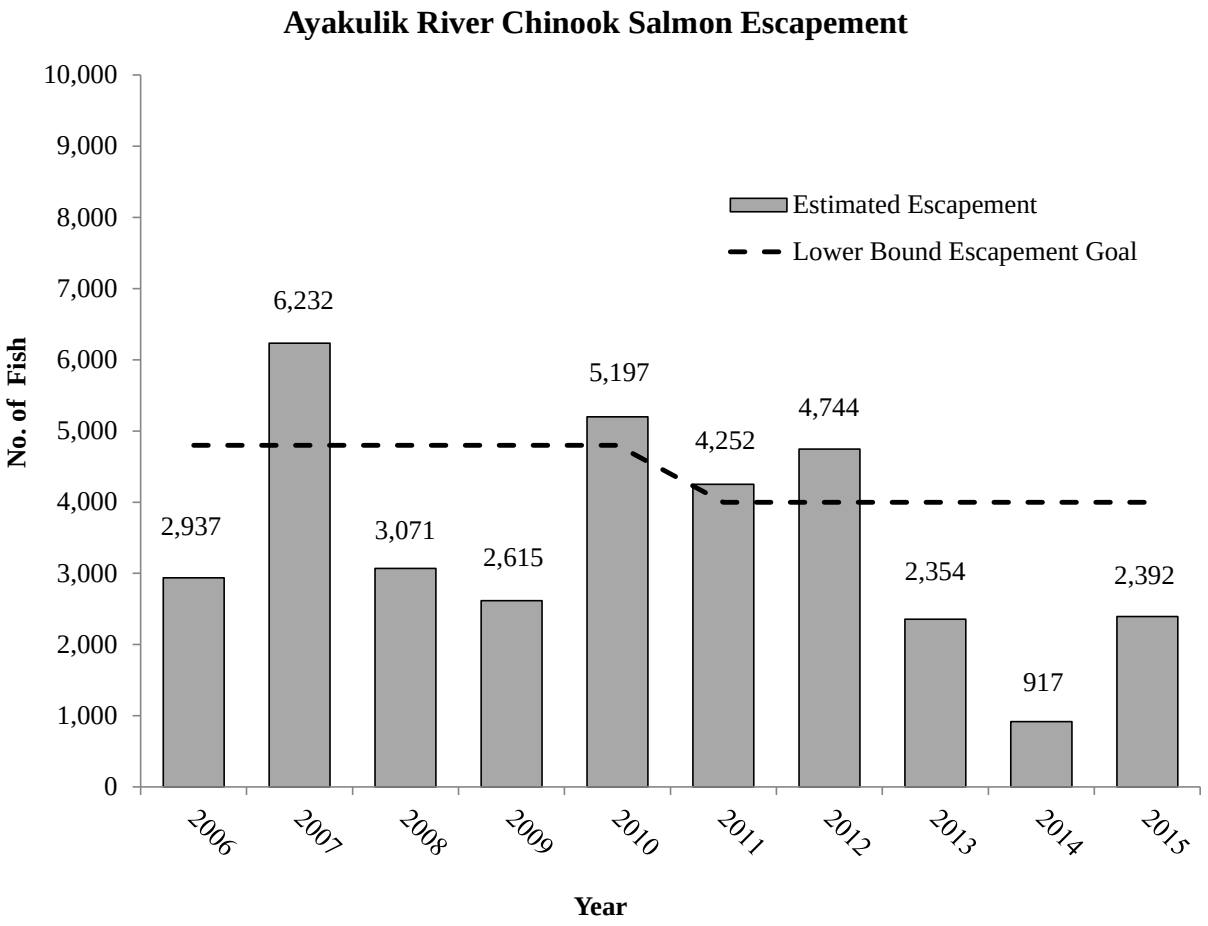

Figure 5.–Estimated escapement of Ayakulik River Chinook salmon, 2006–2015.

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/); Fuerst 2015; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

Fishery Management and Objectives

The Ayakulik River Chinook salmon fishing season is open by regulation from 1 January through 25 July with fishing permitted within the entire drainage throughout the season. A complete closure of the drainage to Chinook salmon fishing after 25 July is intended to afford protection for spawning fish from anglers. The bag limit for Ayakulik River Chinook salmon over 20 inches in length is 2 per day with an annual limit of 5.

The management strategy for the Ayakulik River sport fishery seeks to balance angler opportunity with consistent achievement of the EG. The current escapement objective of 4,000–7,000 fish is considered a BEG and is calculated to approximate the maximum sustainable productivity of the population over time. The Ayakulik River Chinook salmon BEG is based on both historical escapements and estimated age composition of the runs and is expressed as a range of values to account for uncertainty in precision of the estimate.

Similar to the Karluk River, in an attempt to meet the BEG, emergency orders have been issued to restrict the sport fishery every year since 2005, except when the 2-fish bag limit was restored on one occasion (Appendix F2).

2015 and 2016 Sport Fisheries

The 2015 Chinook salmon escapement of 2,392 fish was one of the lowest on record for the Ayakulik River run and fell well short of the lower end of the 4,000–7,000 BEG range (Figure 5). Expected low runs of Chinook salmon in 2015 resulted in preseason restriction in the sport fishery to catch-and-release only (Appendix C1). As a result, the estimated and reported Chinook salmon harvest was zero fish (Tables 7 and 8). The 2016 fishery was closed preseason due to consistently poor escapements in recent years; however, the fishery was reopened with retention of Chinook salmon prohibited and the use of bait restricted when weir counts achieved the lower bound of the BEG. Formerly high levels of angler effort, indicated by onsite interviews and SWHS estimates, have diminished significantly in the last 10 years (Table 2).

CHIGNIK RIVER

Fishery Description

The Chignik River drainage is located within the AP–AIRA on the south side of the Alaska Peninsula, approximately 460 miles southwest of the City of Anchorage and adjacent to the village communities of Chignik Lagoon and Chignik Lake. The mainstem, where the Chinook salmon sport fishery occurs, extends approximately 2.5 miles and is mainly accessible by boat from the villages. Because of its accessibility and proximity to one of the area's larger communities, the Chignik River historically has supported the largest AP–AIRA Chinook salmon sport fishery.

Chinook salmon normally return to the Chignik River between late June and mid-August, with peak immigration during mid to late July (Appendix D3). Spawning reportedly occurs mostly in the mainstem but may also occur in several tributary streams to Chignik Lake. Peak spawning typically occurs during late August and early September.

With the exception of some municipal, state-owned, and individually-owned private lands, most uplands surrounding the Chignik River drainage are under ownership of Alaska Native corporation interests. The entire watershed is bounded within the Alaska Peninsula National Wildlife Refuge (APNWR). Angler access to the sport fishery is generally unrestricted because watercraft are principally used for transportation to and from the river. Permitted access to the fishery may also be available across Alaska Native–owned uplands.

Historical Catch

Due to a relatively low level of angler effort, published catch and harvest estimates for Chignik River Chinook salmon are rarely available from the SWHS. However, since 2005, guided angler statistics have been obtainable from the Freshwater Logbook Database.

Between 2006 and 2015, the average estimated inriver harvest of Chinook salmon was 176 (Table 9). During the same period, anglers released about 2 fish for each 1 harvested. Annual Chignik River Chinook salmon harvests reported in logbooks since 2006 have ranged between 61 and 255 fish (Table 10).

Escapement

Chignik River Chinook salmon escapements are monitored through operation of a salmon counting weir established in 1922 and operated by ADF&G since 1959, just upstream of the intertidal zone. Total daily weir counts are extrapolated from timed visual counts (using underwater video) for the first 10 minutes of each hour the weir is in operation. Harvests in the sport fishery above the weir are subtracted from the total count to estimate escapement in a given year.

Since 2006, Chignik River Chinook salmon weir counts ranged from 3,679 in 2010 to a low of 1,253 in 2013 (Table 9). Even so, final estimates of annual escapement have met or exceeded the current Chinook salmon BEG range of 1,300–2,700 fish in every year except 2013 since 2006 (Figure 6).

Table 9.–Weir counts through 2016 and Statewide Harvest Survey estimates of Chignik River Chinook salmon sport harvest and catch, 2006–2015.

Year [a]	Weir count	Sport harvest[b]	Released	Escapement
2006	3,535	295	857	3,240
2007	2,000	240	586	1,760
2008	1,730	115	250	1,615
2009	1,680	153	401	1,527
2010	3,679	250	586	3,429
2011	2,728	305	461	2,423
2012	1,449	111	216	1,338
2013	1,253	133	165	1,120
2014	2,895	59	168	2,836
2015 [b]	2,054	96	144	1,958
Average 2006–2015	2,300	176	383	2,125
2016	1,843			

Source: Statewide Harvest Survey (SWHS) estimates from the Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 2016). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/; Freshwater Logbook Database (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests.]); Fuerst 2015.

[a] Harvest and numbers released for 2006–2014 were estimated from ADF&G Freshwater Sport Fish Guide Logbook Database and inseason observations of catch and effort for all anglers fishing above the weir.

[b] The harvest and release estimates for 2015 are from the ADF&G Freshwater Logbook Database only; included harvests are above the weir only.

Table 10.–Guided angler harvest and release, Chignik River 2006–2015.

	Salmon									
	Chinook		Coho		Sockeye		Dolly Varden		Rainbow	
Year	Harvest	Released	Harvest	Released	Harvest	Released	Harvest	Released	Harvest	Released
2006	245	562	0	42	0	0	0	10	0	0
2007	190	346	25	12	15	22	0	370	0	7
2008	65	135	71	69	10	20	0	370	0	0
2009	103	248	32	68	23	27	5	69	0	0
2010	200	336	6	0	7	0	4	0	0	0
2011	255	156	0	0	16	31	34	0	0	0
2012	61	105	44	0	6	6	0	558	0	0
2013	83	32	75	20	14	2	4	57	0	0
2014	88	253	75	162	2	0	1	7	0	0
2015	112	208	1	0	3	0	0	0	0	0

Source: Freshwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests])

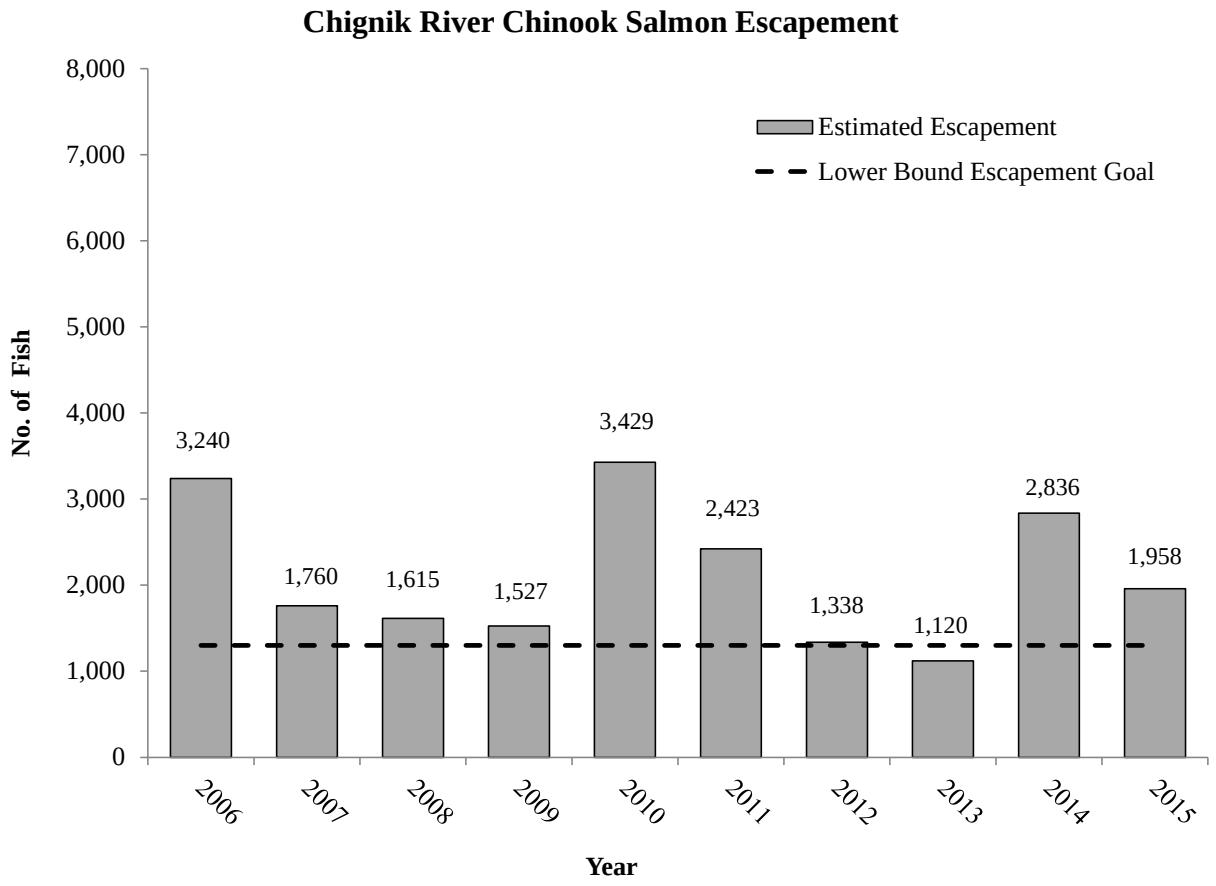

Figure 6.–Estimated escapement of Chignik River Chinook salmon, 2006–2015.

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/); Fuerst 2015. Freshwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests]).

Note: Sport harvest above the weir based on the ADF&G Freshwater Logbook Database as well as angler reports from 2011–2014.

Fishery Management and Objectives

The Chignik River Chinook salmon fishing season is open by regulation from 1 January through 9 August with fishing permitted within the entire drainage throughout the season. A complete closure of the drainage to Chinook salmon fishing after 9 August is intended to afford protection for spawning fish from anglers. A bag limit for Chignik River Chinook salmon over 20 inches in length is set at 2 per day. An annual limit of 5 fish over 20 inches is also in effect.

The primary objective for management of the Chignik River sport fishery is achievement of the BEG in combination with maximized opportunity for anglers. The Chignik River Chinook salmon BEG is derived not only from historical escapements and the estimated age composition of the runs but also a habitat-based model using watershed volume as a measure of population carrying capacity.

2015 and 2016 Sport Fisheries

Using weir counts as an indicator of overall abundance, both the 2015 and 2016 runs of Chignik River Chinook salmon were slightly lower than the recent 10-year average (Table 9). No restriction of the Chignik River Chinook salmon fishery occurred in 2015 or 2016 (Appendix C1). Daily weir counts throughout both runs indicated that the projected escapements would achieve the BEG, but weir counts did not indicate the BEG would be exceeded or warrant liberalization of the fishery. Log-sheets received for guided anglers reported 112 Chinook salmon harvested from the 2015 run (Table 10); guided anglers released nearly 2 Chinook salmon for every 1 harvested. Published SWHS estimates of catch and harvest are available only occasionally due to an inadequate number of responses to the survey. This indicates overall effort on the Chignik River sport fishery is probably low, and has remained relatively stable over time.

The 2015 escapement exceeded the lower end of the BEG of 1,300 fish, and the 2016 weir count of 1,843 fish also exceeded the lower end of the BEG, although both counts are still below the 10-year average escapement of 2,125 fish.

MARINE WATERS

Fishery Description

Over the past 20 years, a marine waters Chinook salmon sport fishery has developed within the KRA, mostly in waters adjacent to the City of Kodiak but more recently from a number of remote lodges and near the community of Old Harbor as well. Waters surrounding the Kodiak Archipelago and Alaska Peninsula provide ocean rearing for Chinook salmon populations across the North Pacific. Previous recoveries of tagged fish harvested around Kodiak Island identified wild and enhanced stocks of origin not only in Alaska but also Canada and the Pacific Northwest (Schwarz et al. 2002). More recently, ADF&G has conducted a study collecting genetics samples from Chinook salmon harvested in marine waters from both the sport and commercial fisheries to attempt to apportion the harvest by stock of origin. Results of this study will be published in late 2016. Most of the marine waters harvest by KRA anglers is taken from the waters of Northeastern Kodiak Island in the vicinity of Chiniak, Marmot, and Ugak bays.

Development of the KRA fishery has coincided with growth of a Kodiak charter vessel fleet, which is primarily based in the City of Kodiak. In recent years, harvests of Chinook salmon by charter vessel clients have averaged 37% of the annual harvest (Figure 7).

The KRA marine waters Chinook salmon fishery occurs under provisions of a regulatory management plan established in 2005 and amended in 2008, which prescribes an annual guideline harvest level (GHL) of 11,000 fish (Appendix B1). Additional provisions stipulate periodic review of the plan by the BOF when a recent harvest trend exceeds this allocation. Achievement of the GHL is measured by the SWHS. Angler effort for marine waters Chinook salmon in the AP–AIRA is not governed by a regulatory management plan. The daily bag and possession limits for Chinook salmon in all marine waters of the KMA are currently set at 2. There is no annual limit established for this fishery.

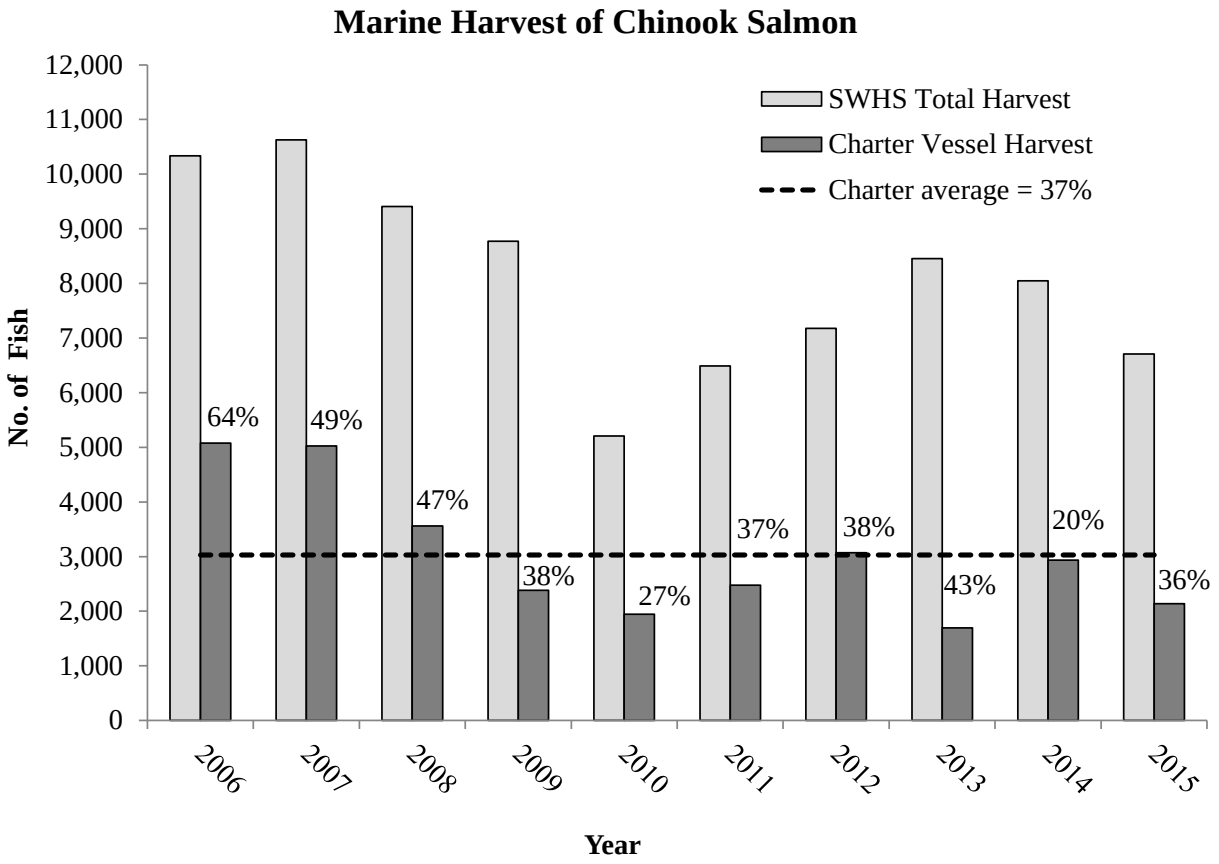

Figure 7.–Comparison of Statewide Harvest Survey estimates of harvest to charter vessel harvest reported in logbooks of Chinook salmon harvested in all KRA marine waters, 2006–2015.

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/); Saltwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests]).

Historical Catch

Overall angler catch and effort information for marine waters Chinook salmon is currently provided by the SWHS. Guided angler statistics for charter vessel trips are also available from ADF&G's Saltwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests])

Between 2006 and 2015, the SWHS estimated that angler harvests of KRA Chinook salmon ranged between 5,208 and 10,626, averaging 8,212 (Table 11). Harvests from AP–AIRA waters were a nominal percentage, averaging just 89 Chinook salmon and never totaling more than 300 in a single year. For the KRA, saltwater logbook statistics showed a clear trend of growth in the charter vessel fishery in earlier years, which led to the establishment of the current regulatory management plan in 2005, but from 2006–2015, the guided sector's harvest dropped as much as 75% from 5,011 in 2006 to 1,687 in 2013 (Table 12).

Table 11.–Statewide Harvest Survey estimates of Kodiak Management Area marine water Chinook salmon harvest and catch, 2006–2015.

	Harvest			Catch		
Year	Alaska Peninsula Regulatory Area	Kodiak Regulatory Area	Kodiak Management Area total	Alaska Peninsula Regulatory Area	Kodiak Regulatory Area	Kodiak Management Area total
2006	27	10,333	10,360	27	13,217	13,244
2007	218	10,626	10,844	283	14,334	14,617
2008	63	9,408	9,471	140	11,499	11,639
2009	10	8,773	8,783	92	11,694	11,786
2010	288	5,208	5,496	338	6,839	7,177
2011	17	6,491	6,508	17	8,122	8,139
2012	0	7,176	7,176	0	10,464	10,464
2013	30	8,452	8,482	45	11,844	11,889
2014	67	8,049	8,116	67	11,648	11,715
2015	172	6,709	6,881	771	9,492	10,263
Average 2006–2015	89	8,123	8,212	178	10,915	11,093

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/).

Fishery Management and Objectives

A primary management objective for the KRA marine waters Chinook salmon sport fishery is to contain harvests within the current GHL level established by the BOF. Due a lack of adequate inseason catch and effort information available to managers, achievement of this objective is assessed on the basis of trends detectable in SWHS results viewed over time. To date, it has not been possible to separate Chinook salmon harvests by stock of origin; however, with results of a genetic analysis study forthcoming, harvests will be able to be identified by at least geographical region. In addition to establishment of the GHL for KRA waters, a relatively conservative daily bag limit established by the BOF for the entire management area is intended to control growth of harvests.

2015 Sport Fishery

The 2015 Chinook salmon KMA harvest of 6,881 was below the most recent 10-year average (8,212 fish; Table 11). The guided angler Chinook salmon harvest reported in logbooks equaled 2,143 fish (Table 12) and was 36 % of the SWHS estimate for all anglers.

Without expansion of effort by unguided anglers, it's uncertain whether future KRA harvest levels will increase. Furthermore, recently implemented federal halibut regulations for charter boat operators limit prospects for additional growth of the charter boat industry within the KRA. In contrast, charter boat operators fishing AP–AIRA waters remain unaffected by these regulations but relatively stable historical Chinook salmon harvest levels indicate that a large increase in catch from this regulatory area is unlikely.

Table 12.–Guided angler harvest and release of Kodiak Management Area marine waters Chinook salmon, 2006–2015.

		Total effort		Chinook salmon	
Location	Year	Vessels	Total clients	Harvest	Released
Chinkiak Bay					
	2006	61	6,589	2,737	21
	2007	59	5,909	3,812	21
	2008	69	5,468	2,705	13
	2009	54	3,573	1,331	264
	2010	51	4,303	601	16
	2011	47	3,488	1,334	23
	2012	47	3,470	1,070	21
	2013	21	1,821	384	26
	2014	20	2,963	377	19
	2015	26	2,039	328	3
Afognak–Shuyak Islands					
	2006	45	2,629	134	2
	2007	51	3,741	232	4
	2008	47	2,903	161	10
	2009	49	2,824	229	70
	2010	50	3,118	363	164
	2011	49	2,126	201	27
	2012	36	1,926	521	12
	2013	41	3,515	513	212
	2014	45	2,968	357	140
	2015	29	2,730	388	22
Kodiak Regulatory Area					
	2006	156	14,312	5,011	68
	2007	158	15,504	4,984	40
	2008	144	13,625	3,527	33
	2009	131	11,250	2,124	259
	2010	123	12,039	1,524	581
	2011	125	15,134	2,230	131
	2012	121	14,268	3,036	193
	2013	104	12,319	1,687	295
	2014	103	12,805	2,925	337
	2015	100	12,249	2,138	48

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Table 12.–Page 2 of 2.

Location	Year	Total effort		Chinook salmon	
		Vessels	Total clients	Harvest	Released
Alaska Peninsula–Aleutians Regulatory Area					
	2006	12	546	146	2
	2007	16	673	225	9
	2008	18	581	176	0
	2009	28	719	23	5
	2010	32	995	38	5
	2011	25	314	20	0
	2012	8	335	1	0
	2013	7	325	10	0
	2014	5	130	12	0
	2015	8	221	5	0
Total Kodiak Management Area					
	2006	168	17,272	5,053	71
	2007	174	17,953	5,003	42
	2008	162	15,471	3,730	36
	2009	159	13,047	2,365	280
	2010	155	14,149	1,969	312
	2011	150	15,448	2,488	159
	2012	129	14,603	3,037	193
	2013	111	12,644	1,697	285
	2014	108	12,935	2,937	337
	2015	106	12,470	2,143	48

Source: Saltwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests]).

ENHANCED CHINOOK SALMON

To increase road-accessible harvest opportunities and ensure sustainability of the area's wild Chinook salmon populations, SF began a cooperative program in 2000 with KRAA to stock Chinook salmon at Monashka Creek (Figure 3) through a formal cooperative agreement. All stocking is conducted in accordance with current guidelines set forth in the SF Statewide Stocking Plan for Recreational Fisheries[4] (SSP), which is a 5-year stocking document updated annually to reflect stocking needs based on funding, changes in land status, or other considerations.

Road system Chinook salmon stocking has occurred since the 1970s and Chignik River Chinook salmon were used as a brood source in the 1970s and 1980s. For the current project, Karluk River Chinook salmon were originally used as a brood source with the purpose of eventually

[4] Available at http://www.adfg.alaska.gov/static/fishing/pdfs/hatcheries/15region2.pdf (Accessed December 2015).

collecting eggs to sustain the project directly from enhanced returns. Since 2005, Chinook salmon egg takes have solely utilized the enhanced Monashka Creek run. Further development of the enhancement project was accomplished in 2007, when Chinook salmon releases were expanded to include the American and Olds rivers, and again in 2014, when the Salonie Creek was designated as an additional release location. Currently, about three-fourths of juvenile Chinook salmon produced annually at KRAA's Pillar Creek Hatchery facility are released into these drainages, and the remainder are used to sustain the Monashka Creek brood source.

All Chinook salmon stocked for the Road Zone project are released as smolt. Current provisions of the SF–KRAA cooperative agreement and SSP goals identify a target release size of 15 g, although actual average smolt size through 2015 has ranged from 11 to 30 g. Smolt are stocked annually during May and June, after 1 year of hatchery rearing. All fish are imprinted in holding pens in their destination drainage for at least 2 weeks prior to release. Adults return in small percentages as ocean-age-1 and -2 males, and both males and females return in larger numbers at ages 3 and 4. Any returning adult Chinook salmon not harvested by the sport fishery or other users either remains reproductively viable before naturally expiring or is collected as alternative broodstock for supplementing runs to Monashka Creek.

Due to annually fluctuating levels of Chinook salmon production resulting from both variable hatchery survival rates and brood stock mortality, smolt releases into Monashka Creek have ranged between 29,153 to approximately 82,000 (Appendix G1). Accordingly, individual releases of smolt at the American and Olds rivers have also varied, from approximately 10,000 to 80,000. First year smolt releases into Salonie Creek during 2014 totaled 62,561 and increased to 71,042 in 2015. Although large adult fish from Monashka Creek have been available for the sport fishery and project egg takes since 2005, runs to the American and Olds rivers did not include full-sized adult fish until 2011. Full-sized adult Chinook salmon will return to Salonie Creek beginning in 2017. For 2016, 29,800 Chinook salmon smolt weighing an average of 24 g were stocked into Salonie Creek; however, no other locations were stocked due to a limited number of smolt available. This was due to poor runs and broodstock survival in 2014. The decision was made to try to continue production in Salonie Creek because it is the newest stocking location. All other locations have overlapping age classes that will cover the 1-year lapse in stocking.

In recent years, SWHS estimates of effort and catch attributable to the enhancement project have been intermittently available for some or all locations of the enhanced Chinook salmon sport fishery. Additionally, anecdotes from both freshwater and marine anglers targeting runs to Monashka Creek indicate that a few hundred of these adult fish have been harvested annually in recent years.

Anglers targeting Chinook salmon within the Kodiak Road Zone are subject to the same freshwater and marine bag, possession, and annual limits in effect for the remainder of the KRA. However, Chinook salmon harvested in Monashka Bay are excluded from the current marine waters guideline harvest level.

OTHER FISHERIES

Although relatively large runs of Chinook salmon are present in several AP–AIRA drainages, the remote location and associated high cost of accessing these fisheries has largely limited current angling effort to a small number of remote lodges offering exclusive services. Very few unguided anglers frequent any of these fisheries. The low effort levels preclude reliable estimates

for catch and harvest from the SWHS. However, statistics available from guided angler logbooks are generally reflective of total effort due to the lack of participation by unguided anglers. The limited number of guide operators utilizing these Chinook salmon stocks requires that logbook catches remain confidential, and therefore are not presented in this report. Drainages in the AP–AIRA supporting Chinook salmon populations currently exploited by sport fisheries include the Nelson (Sapsuk), Ilnik, Cinder, Sandy, Meshik, and King Salmon rivers.

COHO SALMON FISHERIES

Coho salmon runs to the KMA include a substantial number of large and small stocks that together support the area's most popular sport fishery for both resident and nonresident anglers. Because of this abundant resource, the highest angler effort levels are concentrated near population centers where the least expensive access to the sport fishery is available. Accordingly, drainages adjacent to the Kodiak Road Zone are the most heavily exploited and are consequently prioritized for escapement monitoring and responsive management. The marine waters coho salmon sport fishery is also mostly utilized near the Kodiak Road Zone, particularly within the area of Chiniak Bay. In general, angler exploitation rates in the sport fishery outside the Road Zone are relatively light in comparison to the historical abundance of fish. Remotely accessible coho salmon fishing is most popular in nearshore marine waters next to streams draining Shuyak Island and also at several locations along the northern end of nearby Afognak Island. Like the Chinook salmon fisheries, angler effort levels on coho salmon stocks in the AP–AIRA are small to the extent that annual estimates of catch and harvest by individual location are rarely available from the SWHS.

Although KMA coho salmon are also harvested by subsistence fishermen and are a target species in local commercial fisheries, a formal allocation of these stocks through the BOF has not occurred or been deemed necessary by users. Consequently, at the current time there are no coho salmon regulatory management plans pertaining to sport fisheries occurring within the management area.

The primary management objective for KMA coho salmon stocks is to achieve and maintain sustained yield of the stocks through fisheries monitoring and attainment of established escapement goals (EGs). Because of run timing and associated environmental factors as well as budgetary constraints, few KMA coho salmon runs are annually monitored for escapement using weirs. Consequently, spawning assessment is mostly limited to escapement index counts obtained from ground surveys. To ensure stocks are conserved, when necessary, angler harvests can be limited by reducing daily and seasonal bag limits, prohibiting bait, and reducing time and areas open to fishing. Coho salmon sport fishing regulations along the Road Zone have been both liberalized and restricted by emergency order (EO) to attempt to achieve escapement objectives on several occasions.

During the last 10 years, total freshwater harvests of major KMA coho salmon fisheries have ranged from 8,186 to 21,644 fish with an average of 15,280 fish, although harvest statistics varied by an even wider margin in the same period for some individual drainages (Table 13). Some of these locations reported stable to declining harvests, while others showed increases greater than 100% during consecutive years. Any correlated increases or declines in angler participation are hard to detect, due to the fact that SWHS does not measure species-specific effort.

Table 13.–Statewide Harvest Survey estimates of freshwater coho salmon harvest and catch for selected locations within the Kodiak Management Area, 2006–2015.

Location		Year 2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average 2006–2015
Buskin River												
	Harvest	6,567	5,215	4,259	5,207	2,847	3,640	1,926	4,926	5,388	4,889	4,486
	Catch	11,468	8,434	6,469	8,014	4,492	5,376	2,680	7,698	7,385	7,308	6,932
Pasagshak River												
	Harvest	1,121	2,095	2,836	2,257	2,417	3,582	2,125	2,023	2,457	2,849	2,376
	Catch	2,459	4,964	5,588	3,942	4,371	7,211	3,055	3,991	3,962	7,704	4,725
American River												
	Harvest	835	980	799	401	390	710	409	790	1,323	1,268	791
	Catch	1,963	1,910	1,339	659	1,533	1,499	779	1,203	2,245	2,253	1,538
Olds River												
	Harvest	1,617	1,401	696	1,864	1,253	1,351	734	1,047	5,343	2,634	1,794
	Catch	3,453	2,620	1,938	2,427	2,124	2,574	1,230	2,906	8,836	6,237	3,435
Saltery Cove												
	Harvest	1,023	580	823	798	1,142	1,301	533	1,574	2,010	2,344	1,213
	Catch	1,981	909	1,771	1,448	1,683	2,398	856	3,698	4,259	5,051	2,405
Karluk River and Lagoon												
	Harvest	2,903	1,365	1,236	1,881	735	675	736	1,263	505	866	1,217
	Catch	5,670	5,191	4,755	11,038	3,235	3,003	1,183	2,708	1,068	4,995	4,285
Ayakulik River												
	Harvest	752	391	593	236	47	–	–	–	330	–	392
	Catch	2,957	3,828	4,742	2,724	1,723	–	–	–	4,756	–	3,455
Alaska Peninsula–Aleutian Islands												
	Harvest	2,118	2,218	4,641	6,257	3,351	1,892	1,723	1,950	4,288	3,250	3,169
	Catch	7,894	4,206	15,022	12,875	8,608	5,281	9,291	5,299	16,880	20,916	10,627
Total												
	Harvest	16,936	14,245	15,883	18,901	12,182	13,151	8,186	13,573	21,644	18,100	15,280
	Catch	37,845	32,062	41,624	43,127	27,769	27,342	19,074	27,503	49,391	54,464	36,020

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/).

Note: An en dash means insufficient survey responses to generate an estimate.

KODIAK ROAD ZONE

Fishery Description

With logistically convenient access for anglers and a historically high abundance of fish, the freshwaters of the Kodiak Road Zone are a mainstay of the KMA coho salmon sport fishery. Kodiak roads are intersected by at least 14 fishable streams supporting modest to large coho salmon runs, plus 3 nearby drainages accessible by ATV trail routes and aircraft. Some of the more productive road system coho salmon stocks are in the Buskin, Pasagshak, Saltery, Olds, Miam, and American rivers (Figure 3).

Coho salmon runs in Road Zone streams typically begin during mid-August and, in some drainages, continue through early November. Spawning occurs from late October through December and typically peaks in early to mid-November. Spawning areas include both mainstem stream sections above intertidal zones and most tributary creeks. Some shoal spawning reportedly also occurs within the Pasagshak River drainage along the northeastern shoreline of Lake Rose Tead.

Uplands surrounding Road Zone streams targeted by coho salmon anglers include municipal, state, and Alaska Native corporate landownership. Angler access to the sport fishery has historically been mostly unrestricted, due in part to a recently settled 30-year ownership dispute over the majority of Alaska Native controlled lands. Current public access to the fishery across these uplands is on a permit-only basis at this time.

Historical Catch

From 2006 to 2015, published SWHS estimates of freshwater catch and harvest of Road Zone coho salmon have consistently been available only for the Buskin, Pasagshak, American, Olds, and Saltery river drainages. Among these individual locations, most fish were taken from Buskin River waters, with an annual average harvest of 4,486 fish accounting for about 40% of the KMA average harvest of these locations in the same period (Table 13). By comparison, 10-year average harvests for the Pasagshak, American, Olds, and Saltery river drainages ranged between 791 and 2,637 fish. Despite some large fluctuations in annually estimated harvest totals by individual stream between 2006 and 2015, harvest levels for these Road Zone drainages remained relatively stable or even declined. For all 5 locations, anglers reported releasing about 2 coho salmon for each 1 harvested.

Catch reports since 2006 from the ADF&G Freshwater Logbook Database for the Kodiak Road Zone include significant guided angler activity at the Pasagshak and Saltery rivers. At Pasagshak River, annual harvests have been moderate, ranging between 10 and 98 fish (Table 14). Reported Saltery River harvests were much higher, ranging from 236 to 593 fish (Table 14). At both drainages, guided anglers have reportedly released between 1 and 5 coho salmon for each 1 harvested (Table 15).

Table 14.–Guided angler freshwater coho salmon harvest for selected KMA streams, 2006–2015.

Stream	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Ayakulik River	502	984	184	216	199	477	295	289	232	582
Olga Bay streams	90	256	214	272	295	539	398	432	264	176
Karluk River	1,222	511	604	595	100	134	533	320	98	18
Pasagshak River	12	19	50	10	5	98	16	45	23	35
Saltery River	593	294	484	295	236	565	340	347	343	378
Westside Kodiak Streams	358	377	132	166	115	255	115	223	181	453
Alaska Peninsula Streams	1,544	1,726	1,707	1,949	1,431	1,614	1,436	1,293	976	1,228

Source: Freshwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests]).

Table 15.–Guided angler freshwater coho salmon released for selected KMA streams, 2006–2015.

Stream	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Ayakulik River	1,440	3,586	1,743	1,932	1,483	2,000	1,142	1,503	3,313	2,573
Olga Bay streams	61	200	122	236	135	277	76	137	84	76
Karluk River	1,696	410	423	571	196	510	131	380	81	570
Pasagshak River	17	84	209	99	58	50	92	129	122	7
Saltery River	737	523	283	479	94	1,145	366	1,088	562	255
Westside Kodiak Streams	1,813	749	374	361	298	1,590	368	1,308	257	1,164
Alaska Peninsula Streams	6,429	2,980	6,513	6,831	5,709	10,542	6,208	3,606	4,613	6,246

Source: Freshwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests]).

Escapement

Because of high exploitation rates by anglers as well as other users, coho salmon escapements to Road Zone drainages are monitored more closely than those for other stocks within the KMA. Buskin River escapements are monitored by SF through operation of a salmon counting weir established in 1985 approximately one-half mile above the stream terminus. Harvests in the sport fishery occurring upstream of the weir are subtracted from the total count to estimate of escapement in a given year.

From 2006 to 2015, weir counts of Buskin River coho salmon ranged from 5,291 to 13,348 fish and averaged 7,827; more recently in 2016, the Buskin River saw a record low weir count of 2,513 coho salmon (Appendix D4). Estimated escapements from 2006 to 2015 followed a downward trend beginning in 2010 that culminated in 2015 with the lowest escapement since weir counts began of 3,363 (Figure 8). It should be noted that during most years, some proportion of the total Buskin River count is derived from interpolated values to substitute for daily counts lost as a result of periodic high water events that render the weir inoperable. Even with the recent and pronounced downward trend in abundance of spawning fish, Buskin River coho salmon escapements have historically achieved the Buskin River coho salmon BEG range in effect at the time of 4,700 to 8,700 fish.

Coho salmon runs to other Road Zone drainages are annually monitored by late-season ground-based surveys to obtain index counts of escapement. In addition to the Buskin River, coho salmon lower-bound SEG escapement goals have been established for 3 Road Zone drainages: Pasagshak River (1,200), American River (400), and Olds River (1,000). A summary of counts obtained for these and other streams between 2006 and 2015 are provided in Table 16.

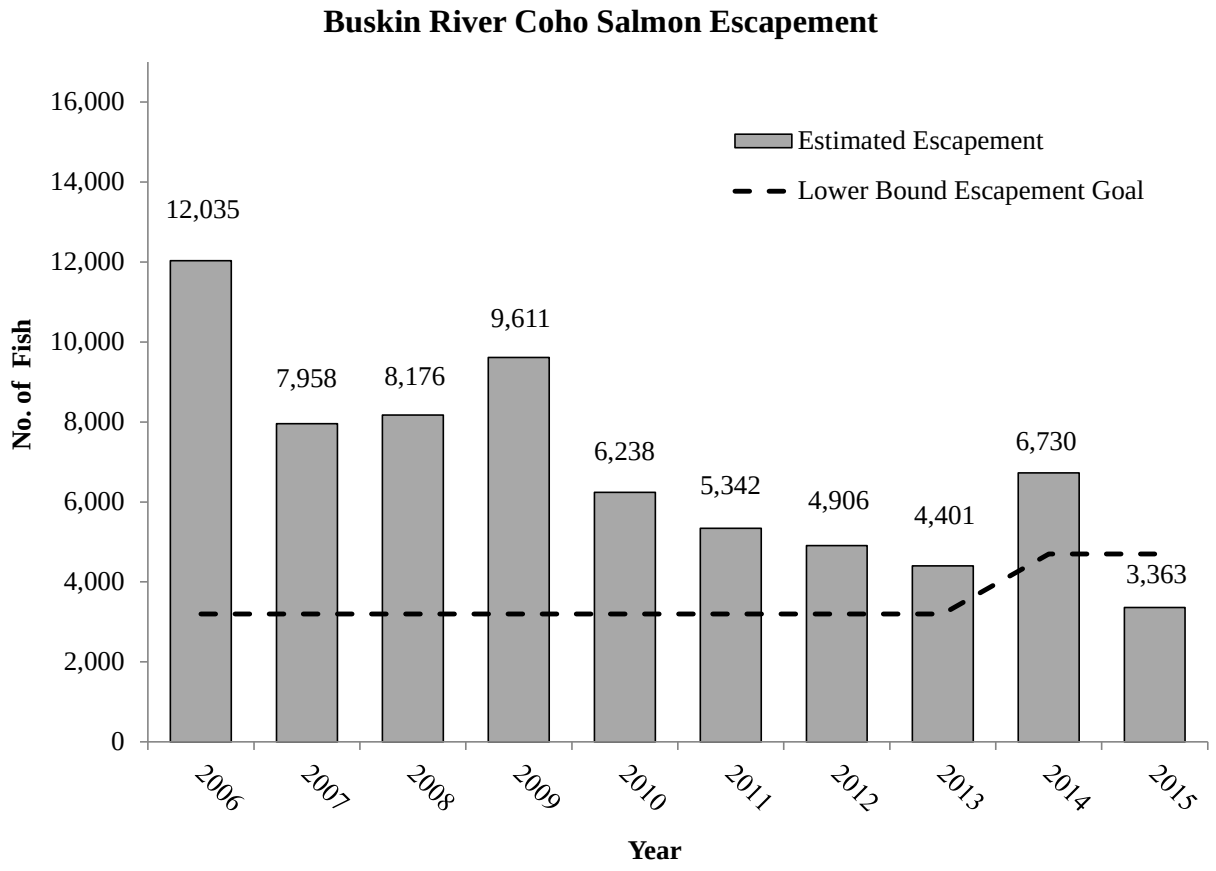

Figure 8.–Estimated escapement of Buskin River coho salmon, 2006–2015.

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/); Fuerst 2015; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

Fishery Management and Objectives

Regulations for the Road Zone coho salmon sport fishery are more restrictive than elsewhere in the KMA due to the relatively high levels of angler effort and associated potential for overharvest. With the exception of the Buskin River, which has more liberalized regulations resulting from a long trend of escapements surplus to the BEG, nearly all streams intersecting Road Zone highways are annually closed to upstream salmon fishing from 1 August to 15 September in order to conserve inriver runs. In addition, Road Zone coho salmon daily bag and possession limits are uniformly set at 2 fish to help limit harvest rates. Because Buskin River runs are monitored by use of the weir, bag limits can be reduced or increased inseason as needed to achieve the BEG. A lack of inseason run strength information for the other Road Zone streams

prescribes a more passive management approach, with regulatory changes to angler methods and means instituted in response to escapement trends over time based on results of the postfishery index surveys.

In an attempt to refine management of the Buskin River coho salmon run, weirs have been operated at both the traditional, lower weir site and at the outlet of Buskin Lake to try to develop an index of escapement of coho salmon into Buskin Lake. The Buskin Lake weir site was added primarily due to frequent flooding of the lower weir site, which makes it necessary to estimate portions of the escapement when counting is impossible. The weir site at Buskin Lake is not as prone to these flood events; however, not all of the coho salmon run passes the Buskin Lake weir and a portion of the run remains in the river to spawn. Operation of both weirs for the duration of the coho salmon run will eventually allow an index to be used to estimate overall escapement of Buskin River coho salmon using counts from the Buskin Lake weir alone. In addition to operating both weirs concurrently, ADF&G has recently undertaken a radiotelemetry study of Buskin River coho salmon to further refine this index of escapement. Coho salmon are tagged with both radio and visual tags at the lower weir site and are tracked throughout the drainage using both fixed and mobile tracking units with the aim to more accurately determine timing and migration patterns of coho salmon as they enter the Buskin River.

Table 16.–Coho salmon escapement survey index counts for selected drainages within the Kodiak Road Zone, 2006–2016.

	Year											
Location	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
American R.	2,033	307	700	639	58	1,061	427	841	1,595	530	819	500
Chiniak C.	127	161	21	17	1	20	66	43	31	ns	54	3
Felton C.	166	83	232	160	ns	633	17	50	22	33	155	27
Monashka C. [a]	238	185	19	132	37	36	300	679	230	100	196	60
Myrtle C.	61	25	ns	0	ns	ns	ns	ns	ns	ns	29	ns
Olds R.	1,912	868	656	697	127	1,003	624	2,145	1,320	1,357	1,071	1,634
Pasagshak R.	937	1,896	3,875	2,385	1,971	1,083	3,132	1,648	4,934	1,790	2,365	737
Pillar C. [a]	300	130	78	89	56	248	858	1,043	750	180	373	116
Roslyn C.	328	198	87	ns	18	293	159	460	3,900	271	635	45
Russian C.	694	463	262	144	97	158	39	214	246	70	239	345
Salonie C.	1,111	326	970	ns	90	942	304	286	509	215	528	218
Sargent C.	334	241	264	74	44	135	90	40	75	39	134	107
Twin C.	37	34	13	27	ns	ns	ns	ns	ns	ns	28	ns
Total	8,278	4,917	7,177	4,364	2,499	5,612	6,016	7,449	13,612	4,585	6,451	3,792

Source: Data archives, ADF&G Division of Sport Fish, Kodiak Area Office.

Note: The abbreviation "ns" means not surveyed.

[a] Monashka and Pillar creeks coho salmon runs were influenced by the release of hatchery fish in 2012–2014.

2015 and 2016 Sport Fisheries

During 2015, a total of 4,889 coho salmon were harvested from the Buskin River, which was near the 2006–2015 average harvest of 4,486 fish (Table 13). Few coho salmon were counted in

the Buskin River until the end of September, probably due to uncommonly low water conditions. The weir was kept in later to accommodate this and virtually all fish were counted in the first week of October until a flood washed the weir out. A postweir estimate was added after this because much of the coho salmon escapement continued to enter the river. Bag and possession limits remained at 2 fish during the entire run due to the expected arrival of more coho salmon returns; however, the final 2015 estimated escapement of 3,363 coho salmon (Figure 8) fell below the lower end of the current 4,700–9,600 BEG range.

In 2016, poor weir counts prompted a closure of the Buskin River coho salmon fishery on 16 September. Despite consistent water levels and some early arrivals of coho salmon, the bulk of the run had been counted by early September and counts trailed off after this. This followed a similar trend seen in many locations throughout Southcentral Alaska. The final weir count on the Buskin River was 2,513 coho salmon, which was well below the BEG. Final escapement estimates are pending 2016 SWHS results.

Anglers reported lower than average inriver catches of coho salmon at other Road Zone drainages throughout the 2015 run; however, harvests near the mouths of the rivers and in nearby saltwaters were reported to be much higher than normal. Guided angler harvests reported for the Pasagshak and Saltery rivers were comparable to those from the preceding 3 years, although guided anglers reported releasing far fewer coho salmon in these drainages than in many years (Tables 14 and 15). Most postfishery escapement indices were lower than average historical counts for each stream surveyed, which could reflect that the surveys were conducted at less than optimal times due to the late entry of returning coho salmon, or the sport harvests could have had a more significant impact due to the inability of coho salmon to migrate upriver during the persistent low water conditions (Table 16). However, survey counts indicated that current sustainable escapement goal (SEG[5]) threshold numbers were achieved in 2015 for the American, Pasagshak, and Olds rivers. In 2016, lower bound SEGs were achieved for the American and Olds rivers but not Pasagshak River according to ADF&G foot surveys (Table 16). Anglers reported higher than average catch at the Olds River but lower than average catch at the American and Pasagshak rivers, and many other drainages. This may be due to lower than average runs but also warmer than normal temperatures throughout September that probably made fish lethargic and less prone to biting.

MARINE WATERS

Fishery Description

Trolling for coho salmon in marine waters of the KMA is a well-established sport fishery which, like the troll fishery for Chinook salmon, largely occurs in nearshore waters adjacent to the City of Kodiak. Angler reports indicate that although the fishery generally lasts from mid-July through mid-September, peak effort occurs during August. Many harvested fish taken later in the season are probably stocks of local origin, whereas those caught earlier may also consist of migratory fish because of the disparity between early season harvests and the typical run timing for most KMA stocks. It’s also possible that as a result of the typical run timing of coho salmon to the Kitoi Bay hatchery facility located on Afognak Island, coho salmon production from this

[5] The sustainable escapement goal is a level of escapement indicated by an index.

facility, which has occurred since the early 1990s, has significantly supplemented the marine waters sport fishery during July and early August[6].

Similar to the KRA marine waters Chinook salmon fishery, increased local interest in trolling for coho salmon has coincided with growth of the guided angler sport fishery. Harvests of coho salmon by charter vessel clients currently make up approximately half of the average total harvest. Angler harvests of coho salmon in marine waters of the AP–AIRA are relatively negligible, typically accounting for less than 10% of the total KMA harvest annually estimated by the SWHS.

Historical Catch

Marine waters KMA coho salmon harvests averaged 15,902 fish in the KMA from 2006 to 2015 (Table 17). The KRA marine waters harvests during this period made up 90% of the overall KMA total. Relatively few caught fish were released during any years reported, averaging less than 1 fish released for every 1 harvested.

Guided angler coho salmon harvests reported in logbooks since 2006 have ranged between 3,418 and 12,571 fish, with the AP–AIRA harvest composing a very small fraction of the annual total (Table 18). The most significant annual fluctuations in harvest have occurred in Chiniak Bay waters adjacent to the Kodiak Road Zone, where 3,404 fish were harvested in 2006 but only 211 were harvested in 2014. Unlike SWHS estimates for all anglers, historical coho salmon catches reported in logbooks show that typically few fish are released. During most years, and regardless of fishing location, virtually every fish caught was subsequently harvested.

Fishery Management and Objectives

The KMA marine waters coho salmon fishery is managed passively through the establishment of regulatory daily bag and possession limits applied uniformly in all waters except within 1 mile of the coastline bordering the Kodiak Road Zone and Spruce Island, where more restrictive limits prevail to provide a conservation buffer for local coho salmon stocks. The daily bag and possession limits for coho salmon outside the 1-mile boundary are 5 fish, whereas inside the Road Zone perimeter, the bag and possession limits are currently set at 2 fish. There is no annual limit established for this fishery.

2015 Sport Fishery

The 2015 coho salmon harvest of 20,189 fish in KMA marine waters was well above the recent 10-year average of 15,902 fish (Table 17). The 2015 SWHS estimated harvest in Chiniak Bay of 8,078 fish increased dramatically over the 2014 estimate (3,186 fish), probably due to increased availability of these fish in late August and September while they waited in marine waters for increased freshwater levels to navigate local streams. Harvest in the AP–AIRA remained virtually the same in 2015 compared to the previous several years, but at 864 fish, this harvest still composed only about 4% of the KMA marine waters total.

[6] Kodiak Regional Aquaculture Association. 2015. Kitoi Bay Hatchery Annual Management Plan. Kodiak Regional Aquaculture Association, Kodiak.

Table 17.–Statewide Harvest Survey estimates of Kodiak Management Area marine waters coho salmon harvest and catch, 2006–2015.

	Chiniak Bay		Afognak and Shuyak islands		Total Kodiak Regulatory Area		Alaska Peninsula and Aleutian Islands		Total Kodiak Management Area	
Year	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
2006	5,992	8,564	3,800	5,922	15,622	24,148	627	1,067	15,622	24,148
2007	8,921	10,334	4,962	7,138	21,925	29,725	1,073	1,365	21,925	29,725
2008	10,820	13,372	3,319	4,568	18,652	24,578	219	1,533	18,652	24,578
2009	8,244	9,821	2,531	4,101	17,612	23,978	838	1,772	17,612	23,978
2010	4,202	4,822	4,152	5,174	14,569	18,591	1,022	1,492	14,569	18,591
2011	5,377	7,433	3,173	4,820	13,735	18,416	582	1,177	13,735	18,416
2012	4,906	5,769	2,522	3,402	12,897	15,328	635	1,278	12,897	15,328
2013	3,311	3,698	4,998	6,126	13,428	17,448	763	1,179	13,428	17,448
2014	3,186	3,586	2,067	2,751	10,391	13,874	646	768	10,391	13,874
2015	8,078	10,421	2,135	3,191	20,189	28,681	864	983	20,189	28,681
Average 2006–2015	6,304	7,782	3,366	4,719	15,902	21,477	727	1,261	15,902	21,477

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/).

Table 18.–Guided angler sport harvest and release of Kodiak Management Area marine waters coho salmon, 2006–2015.

		Total effort		Coho salmon	
Location	Year	Vessels	Clients	Harvest	Released [a]
Chiniak Bay					
	2006	61	6,589	3,404	54
	2007	59	5,909	1,936	62
	2008	69	5,468	3,166	88
	2009	54	3,573	1,551	
	2010	51	4,303	775	
	2011	47	3,488	1,459	
	2012	47	3,470	963	
	2013	21	1,821	339	
	2014	20	2,963	211	
	2015	26	2,039	1,474	
Afognak and Shuyak islands					
	2006	45	2,629	2,477	438
	2007	51	3,741	4,082	513
	2008	47	2,903	2,514	106
	2009	49	2,824	2,876	
	2010	50	3,118	2,858	
	2011	49	2,126	3,012	
	2012	36	1,926	1,611	
	2013	41	3,515	1,652	
	2014	45	2,968	2,112	
	2015	29	2,730	3,510	
Total Kodiak Regulatory Area					
	2006	156	14,312	9,706	1,264
	2007	158	15,504	10,593	903
	2008	144	13,625	8,597	260
	2009	131	11,250	8,010	
	2010	123	12,039	7,734	
	2011	125	15,134	9,144	
	2012	121	14,268	4,323	
	2013	104	12,319	3,382	
	2014	103	12,805	5,262	
	2015	100	12,249	12,496	
Alaska Peninsula and Aleutian Islands Regulatory Area					
	2006	12	546	57	1
	2007	16	673	42	7
	2008	18	581	53	24
	2009	28	719	349	
	2010	32	995	515	
	2011	25	314	312	
	2012	8	335	20	
	2013	7	325	36	
	2014	5	130	130	
	2015	8	221	75	

-continued-

Table 18.–Page 2 of 2.

Location	Year	Total effort		Coho salmon	
		Vessels	Clients	Harvest	Released [a]
Total Kodiak Management Area					
	2006	168	17,272	9,852	1,293
	2007	174	17,953	10,673	903
	2008	162	15,471	9,048	335
	2009	159	13,047	9,442	
	2010	155	14,149	8,996	
	2011	150	15,448	9,987	
	2012	129	14,603	4,343	
	2013	111	12,644	3,418	
	2014	108	12,935	5,392	
	2015	106	12,470	12,571	

Source: Saltwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests]).

[a] The column for released coho salmon was removed from saltwater logbooks in 2009.

ENHANCED COHO SALMON FISHERIES

Releases of anadromous coho salmon have occurred annually at several Road Zone locations since the 1980s until 2014 (Schwarz et al. 2002) but were reinstated in 2016. Since 2005, coho salmon smolt production, substituting for Chinook salmon smolt production shortfalls, has also supplemented coho salmon fingerling releases in 2 drainages and has also been used to supplement wild coho salmon abundance at 2 others.

As a result of changing SSP goals and variable survival rates, total coho salmon fingerling releases between 2006 and 2014 ranged from 27,669 to 68,814 (Appendix G1). Smolt releases have also varied considerably, from zero fish to 289,062 fish, and were reinstituted in 2016 due to shortfalls in Chinook salmon production. Currently, under a revised cooperative agreement with ADF&G and KRAA, coho salmon releases only occur to supplement shortfalls in Chinook salmon production with no regular releases planned for sportfish program enhancement activities. Releases of coho salmon to account for shortfalls in Chinook salmon production have occurred in Pillar and Monashka creeks, and Island and Mission lakes. Returns of anadromous hatchery coho salmon were last seen in 2014, but will return in 2017.

Target release sizes for coho salmon smolt specified in the SF–KRAA cooperative agreement are set at 15 g. Smolt stocking usually occurs between March and May. Unlike the Chinook salmon releases, coho salmon smolt are not generally held artificially for imprinting, although the timing of each stocking is designed to promote a reasonable period of acclimation and natural rearing. Adults return exclusively at ocean-age-1, and some percentage are known to survive long enough to spawn.

Nearly all sport fishing effort in this enhanced fishery has occurred in the nearshore marine waters of Mill Bay and Monashka Bay, as well as waters adjacent to Mayflower and Mission beaches (Figure 3).

Since 2006, up to 6 Road Zone lakes have been selected for enhancement with landlocked coho salmon; however, a renewed cooperative agreement with KRAA has eliminated coho salmon stocking as part of the sport fish enhancement program, except when necessary to make up for shortfalls in Chinook salmon production (Appendix G2). No land-locked coho salmon stocking has occurred since 2014, although coho salmon may still be available for harvest in locations such as Chiniak and Barry lagoons and Southern Lake on Long Island. Stocking efforts have produced populations of spawning, landlocked coho salmon, though the size of these populations is unknown. In landlocked locations, both fingerlings and presmolt probably achieve a harvestable size (6–12 inches) at age 2. Landlocked coho salmon not harvested by age 3 become sexually mature and subsequently die after attempting to spawn. Anecdotal information on declining catch rates in lakes with interrupted stocking suggests that most lakes rely on regular replenishment through hatchery releases to sustain populations.

Road Zone anglers target landlocked coho salmon populations year-round in open water and through the ice. Regulations for this sport fishery include a daily bag and possession limit of 10 fish under 20 inches and 2 fish over 20 inches in length with no annual limit.

OTHER FISHERIES

Although dispersed angler effort for coho salmon occurs annually at or within marine waters adjacent to numerous KMA drainages outside the Kodiak Road Zone, those most significant to the sport fishery overall include the marine waters near the Afognak River, Pauls and Portage river drainages located on the north end of Afognak Island, Shuyak Island streams, and the Uganik, Karluk, and Ayakulik rivers along the west side of Kodiak Island. Individually, these locations rarely support effort levels adequately captured by the SWHS, which indicates that exploitation rates on the affected coho salmon stocks are probably low. Guided angler effort at Afognak Island and Shuyak Island locations appears mostly in Saltwater Logbook Database records, and harvests for these locations have ranged between 1,611 and 4,082 since 2006 (Table 18). Unguided anglers also frequent these and other remote locations, although where available, guided angler logbook harvest statistics generally represent a majority of total effort. In aggregate, annual coho salmon harvests in freshwaters outside the Kodiak Road Zone typically account for less than one-half the number taken within Road Zone lakes and streams.

SOCKEYE SALMON FISHERIES

KODIAK ROAD ZONE

Fishery Description

Although there are approximately 13 individual KMA sockeye salmon stocks that are of interest to anglers, most sport fishing for this species occurs within the Kodiak Road Zone and targets stocks at the Saltery, Pasagshak, and Buskin rivers (Figure 3). Average annual harvests from the Road Zone fishery account for more than one-half of the KMA total. Exploitation rates by anglers fishing these streams are significant enough to warrant formal consideration of sport harvests for inseason fisheries management and stock assessment purposes. All other KMA stocks are lightly exploited by anglers in terms of both harvest magnitude and proportion of harvest to run size.

Historical Catch

Guided and unguided angler combined sport harvests of sockeye salmon from the Saltery, Pasagshak, and Buskin river drainages estimated from the SWHS between 2006 and 2015 ranged from 3,189 to 15,408 fish and averaged 8,240 (Table 19). Saltery River accounted for the single largest proportion of the 10-year average total, at 5,080 fish. The small Saltery River annual harvests in 2006 and 2007 were due to the discontinuation of a counting weir from 2004 to 2007, which accumulated sockeye salmon inriver and made them more available to anglers. Annual weir operations on the Buskin River near the lake outlet have also helped sustain fishing opportunity for sockeye salmon directly downstream, although anglers also target natural aggregations of Buskin River fish at a major tributary confluence.

With a few exceptions, the ratio of sockeye salmon released to those harvested in the Kodiak Road Zone has remained relatively consistent from year to year regardless of drainage, to the extent that generally less than 1 fish has been released for every 1 harvested. Consequently, from 2006 to 2015, an average combined total of 4,734fish were released by anglers fishing the 3 Road Zone drainages (Table 19).

In contrast to harvest statistics reflective of all angling effort, guided sport fishing harvests of sockeye salmon recorded in logbooks indicate that little activity occurs at Road Zone drainages, with Saltery River being the only location where guided anglers harvested more than 150 fish in a given year between 2006 and 2015. In terms of harvest and total catch, annual guided effort on Saltery River sockeye salmon was substantial during these years, ranging as high as 2,278 fish harvested and averaging 1,069 (Table 20).

Escapement

Sockeye salmon runs are monitored mostly to enable management of commercial fisheries in numerous areas throughout the KMA; many of the runs occurring within the KRA have counting weirs installed annually for this purpose. Escapements for some sockeye salmon runs within the AP–AIRA are also censused using weirs, including those within the Chignik, Sapsuk, Ilnik, King Salmon, Sandy, Bear, Orzinski, and McLees river drainages. Monitoring of other stocks in both regulatory areas is accomplished through aerial escapement index surveys.

One of the principal sockeye salmon runs targeted by sport fishing anglers in the KMA is the Buskin River within the KRA. SF annually operates counting weirs on the Buskin River to permit inseason management of this important sport fishery. Annual weir counts and documentation of harvest removals by the sport fishery and other users have allowed establishment and periodic review of a Buskin River sockeye salmon BEG, currently expressed as a range of 5,000 to 8,000 fish. Timing of the Buskin River run typically peaks during the month of June and is historically 95% complete by the end of July (Appendix D5). Since 2006, sockeye salmon escapements have ranged from 17,734 fish in 2006 to just 5,900 in 2008 (Figure 9). During this 10-year period, the lower bound of the current BEG was achieved in each year and in many years, the upper end of the current BEG was exceeded.

Table 19.–Statewide Harvest Survey estimates of freshwater sockeye salmon harvest and release for selected locations within the Kodiak Management Area, 2006–2015.

			Year										
Zone	Location		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average
Kodiak Road													
	Buskin River												
		Harvest	1,577	1,509	1,159	687	332	1,277	1,484	1,310	4,237	3,978	1,755
		Catch	2,642	3,143	1,560	1,417	699	2,285	1,938	2,395	6,165	5,807	2,805
	Pasagshak River												
		Harvest	1,159	1,721	3,218	1,021	1,027	1,592	2,080	1,685	522	31	1,406
		Catch	2,074	2,645	4,527	1,346	1,351	2,616	2,972	2,506	735	255	2,103
	Saltery Cove Drainages												
		Harvest	453	564	5,693	4,916	4,303	3,905	3,339	9,940	10,649	7,035	5,080
		Catch	631	3,574	15,802	7,418	6,082	6,146	4,031	15,103	13,590	8,289	8,067
	Total												
		Harvest	3,189	3,794	10,070	6,624	5,662	6,774	6,903	12,935	15,408	11,044	8,240
		Catch	5,347	9,362	21,889	10,181	8,132	11,047	8,941	20,004	20,490	14,351	12,974
KMA Remote													
	Karluk River and Lagoon												
		Harvest	1,276	5,342	638	719	684	424	256	2,270	1,817	1,052	1,448
		Catch	4,390	12,646	4,145	5,064	2,007	1,608	1,939	4,575	3,470	2,417	4,226
	Ayakulik River												
		Harvest	478	379	1,579	899	617	–	–	–	1,340	–	882
		Catch	1,801	1,290	7,999	5,624	1,849	–	–	–	3,730	–	3,716
	Alaska Peninsula-Aleutian Islands												
		Harvest	374	1,375	1,351	3,311	1,189	1,012	998	179	1,425	1,138	1,235
		Catch	2,157	2,600	3,246	5,309	1,734	4,252	1,780	468	2,609	2,583	2,674
Grand total													
		Harvest	5,317	10,890	13,638	11,553	8,152	8,210	8,157	15,384	19,990	13,234	11,453
		Catch	13,695	25,898	37,279	26,178	13,722	16,907	12,660	25,047	30,299	19,351	22,104

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/).

Note: An en dash means insufficient survey responses to generate an estimate.

Table 20.–Guided angler freshwater sockeye salmon harvest and release for selected locations within the KMA, 2006–2015.

Location		Year										Average
		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2006–2015
Ayakulik River Drainage												
	Harvest	528	661	619	848	434	384	718	396	544	935	607
	Release	1,928	1,811	2,551	2,190	1,061	653	2,185	733	710	1162	1,498
Dog Salmon Creek												
	Harvest	210	516	894	796	782	790	709	679	576	370	632
	Release	403	178	1,181	628	701	761	946	615	439	234	609
Olga Bay												
	Harvest	35	122	175	145	156	13	400	130	132	203	151
	Release	60	280	451	235	107	3	160	23	77	59	146
Karluk River Drainage												
	Harvest	1,113	2,132	611	642	64	8	364	132	54	81	520
	Release	1,053	2,281	892	933	127	56	397	319	50	80	619
Saltery River Drainage												
	Harvest	114	80	1,150	868	1,305	2,278	1,335	1,225	1,207	1,131	1,069
	Release	115	37	894	218	926	1,757	788	620	827	526	671
Alaska Peninsula–Aleutian Islands												
	Harvest	290	304	354	727	664	946	438	294	484	311	481
	Release	851	625	439	424	1,109	772	619	565	782	527	671

Source: Freshwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests]).

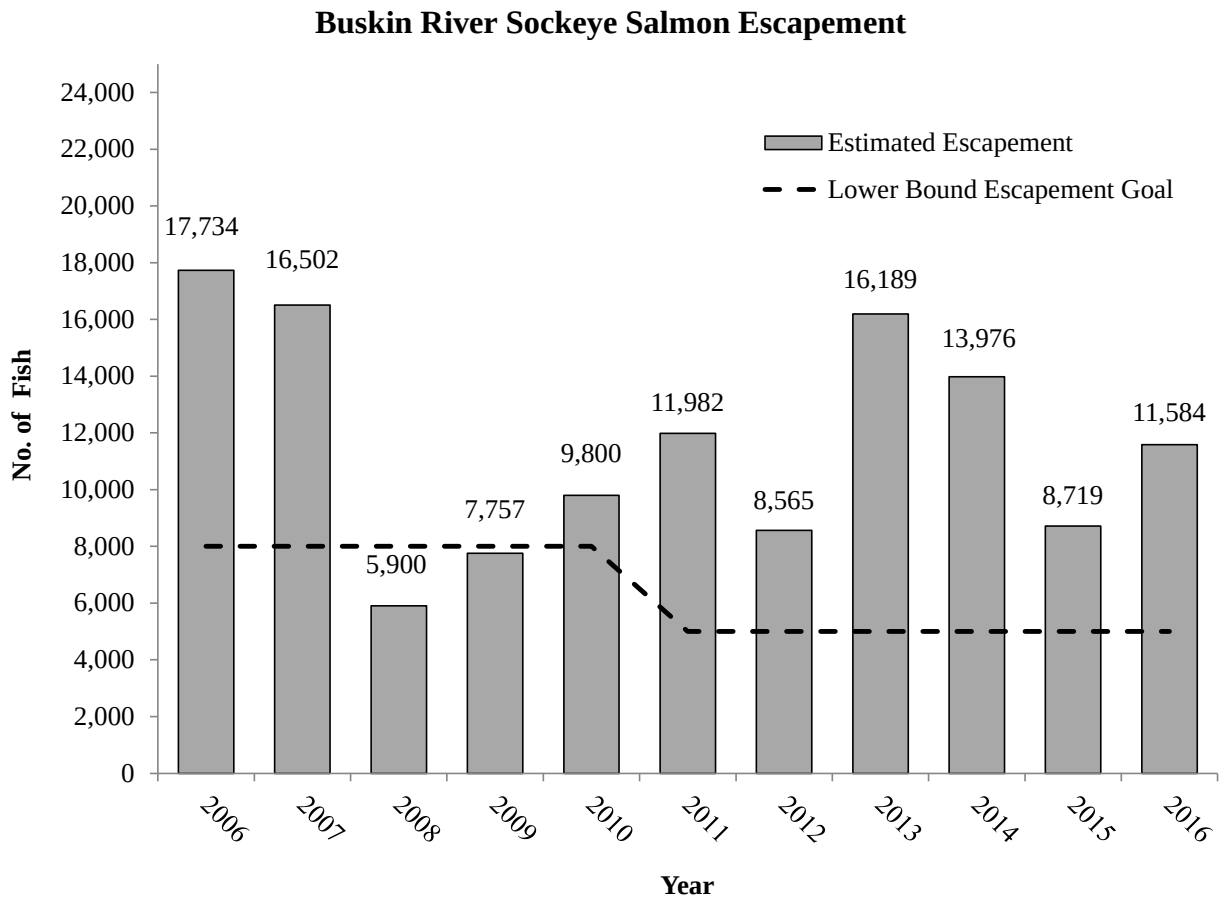

Figure 9.–Estimated escapement of Buskin River sockeye salmon, 2006–2016.

Source: Fuerst 2015; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

Within the last decade, Saltery River sockeye salmon escapements have been monitored both through the operation of a counting weir and the periodic use of aerial-based surveys. The escapement goal for the Saltery River population is based on historical escapement and age information, and is a range of 15,000 to 35,000 fish. Escapements documented using a weir annually from 2008 through 2015 have averaged 36,797 fish (Table 21). The Saltery River run peaks later than that of the nearby Buskin River, usually in late July (Appendix D6). The 2015 Saltery River escapement of 42,468 fish was above the most recent 10-year average (36,797 fish) and above the BEG. The 2016 escapement of 57,867 was the highest count since 2008 and well above the BEG.

The Pasagshak River sockeye salmon run has more recently (since 2011) been monitored by a weir and counts have ranged from 1,582 to 13,402 since the weir was installed. In 2014 and 2015, runs of sockeye salmon fell short of the lower bound SEG of 3,000 fish; however, in 2016, the SEG was met with 7,053 sockeye salmon.

Table 21.–Sockeye salmon weir counts for selected locations within the Kodiak Management Area, 2006–2016.

Year	Buskin River	Saltery River [a]	Karluk River (early run)	Ayakulik River	Dog Salmon Creek	Total
2006	17,734		200,641	87,780	108,343	414,498
2007	16,502		279,390	283,042	139,808	718,742
2008	5,900	49,266	82,071	162,888	153,276	453,401
2009	7,757	45,651	52,466	315,154	147,798	568,826
2010	9,800	26,809	70,544	262,327	135,100	504,580
2011	11,982	30,768	86,642	261,141	180,603	571,136
2012	8,565	28,188	186,810	328,254	154,416	706,233
2013	16,189	39,456	232,936	282,164	136,059	706,804
2014	13,976	31,772	236,144	297,711	217,461	797,064
2015	8,719	42,468	233,036	326,435	235,813	846,471
Average 2006–2015	11,712	36,797	166,068	260,690	160,868	604,587
2016	11,584	57,867	164,760	254,967	150,469	639,647

Source: Fuerst 2015; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

[a] Saltery River weir was not operated from 2004 to 2007.

Fishery Management and Objectives

Regulations for sockeye salmon sport fisheries in the KMA follow general regulations for other salmon species besides Chinook salmon. Due to elevated levels of angler effort and the potential for overexploitation of stocks, the bag and possession limits in Kodiak Road Zone waters are 2 fish over 20 inches in length whereas for all other locations, the limits are increased to 5. The only exception to the more restrictive bag limit for the Kodiak Road Zone is the Saltery Cove drainage, where the bag and possession limit is 5 sockeye salmon. The Saltery Cove sockeye salmon run is able to sustain this level of harvest due to relatively more difficult access as well as being the largest sockeye salmon run in the Kodiak Road Zone. A total of 10 sockeye salmon less than 20 inches in length may be harvested per day in all KMA waters.

With the exception of the 3 sockeye salmon stocks within the Kodiak Road Zone where harvest rates by anglers could deplete the abundance of fish needed for spawning, other populations within the KMA are lightly exploited by anglers so that sport harvests have negligible relevance to sustainability. In nearly all the Remote Zone sockeye salmon fisheries, the biological consequences of sport fishing removals cannot be measured, which simplifies management and minimizes the conservation burden borne by anglers. For stocks monitored through the use of weirs, inseason restrictions can be imposed whenever necessary, and conversely, bag limits can be liberalized to allow additional angling opportunity. Sockeye salmon sport fisheries occurring in KMA waters without inseason escapement monitoring are managed passively; the employment of relatively conservative catch limits coupled with low effort levels generally provides adequate measures for conserving individual stocks.

2015 and 2016 Sport Fisheries

The combined 2015 Kodiak Road Zone sockeye salmon harvest of 11,044 fish was more than the recent 10-year average of 8,240 fish (Table 19). In 2014, Road Zone harvests climbed to 15,408 due entirely to a 3-fold increase of the Saltery River harvest over a 3-year span. Harvests of sockeye salmon in the Saltery River for 2015 were 7,035 fish, well above the 10-year average of 5,080 fish. Harvests of Buskin River sockeye salmon were 3,978 fish in 2015, which was also well above the recent 10-year average of 1,755. Release rates of sockeye salmon in 2015 by anglers were comparable for the Buskin and Saltery rivers, at about 3 fish released for every 2 harvested. The Pasagshak River was closed early in the season due to low returns and both harvest and release of Pasagshak River sockeye salmon was low (Table 19).

The 2015 guided angler harvest of 1,131 sockeye salmon at the Saltery River was near the 10-year average of 1,069 (Table 20). Saltery River sockeye salmon release to harvest ratios by guided anglers have been fairly consistent over time with less than 1 fish released for every fish harvested; the 2015 season was similar.

In 2016, the abundance of sockeye salmon was higher in the Buskin, Pasagshak, and Saltery rivers than in previous years. Both the Buskin and Saltery rivers had weir counts well above the BEGs (11,584 and 57,867 respectively; Table 21). The Pasagshak River had a slower return of sockeye salmon near the beginning of the run that warranted closure of the fishery; however, counts improved to the point where the fishery was reopened and the lower bound SEG of 3,000 sockeye salmon was achieved (7,053 fish).

OTHER FISHERIES

Several streams on the southwest end of Kodiak Island that are also popular with sockeye salmon anglers include the Karluk and Ayakulik rivers and to a lesser extent the Uganik, Dog Salmon, and Olga rivers. Due to the remote locations and lack of access to these fly-in fisheries, most angler effort is guided. Fly-fishing is usually the preferred catch method. The numbers of sockeye salmon that are caught and subsequently released are higher in comparison to rates documented for Road Zone streams. This is probably a result of angler preferences and the inconvenience of processing large numbers of fish in the field.

Although annual SWHS sockeye salmon harvests from the Karluk and Ayakulik rivers have varied considerably since 2006, averages through 2015 respectively totaled 1,448 and 882 fish (Table 19). Harvest at the Karluk River in 2015 was 1,052 fish, slightly less than the 10-year average. Due to low SWHS response rates, annual estimates of sockeye salmon harvests for the Ayakulik River were unavailable in 2015. With few exceptions, the annual ratio of release to harvested fish in both fisheries is relatively high compared to the Kodiak road system, with an average of at least 2 fish released for each 1 retained. In some years as many as 5 fish were released for each harvested.

Since 2006, for both the Karluk and Ayakulik rivers, guided angler harvest statistics from the Freshwater Logbook Database have been available more consistently across years than SWHS estimates; this is true of other locations within the KRA as well. Of all the freshwaters of the KMA, only the Karluk and Saltery rivers have had guided harvests exceeding 1,000 fish, and only the Saltery River has had harvests this large in the past 5 years (Table 20). Although in many years, including 2015, strong sockeye salmon escapements have resulted in inseason liberalization of bag limits at the Karluk, Ayakulik, Saltery, and Dog Salmon rivers, increased

angler opportunity at these locations has not always appeared to have had a direct impact on harvest levels (Table 20).

As mentioned previously, compared to sport harvests, the typical escapements of sockeye salmon to the Karluk and Ayakulik rivers are very large, respectively averaging 166,068 (early run) and 260,690 from 2006 to 2015 (Table 21). Possibly as a result of ideal escapements during parental years, the 2015 Karluk River sockeye salmon escapement has been near the highest levels seen in the last decade. This circumstance triggered the liberalization of the sport fishery mentioned earlier to provide for increased angler opportunity. Ayakulik River sockeye salmon runs followed a similar trend to that of the Karluk River, with the 2015 escapement of 326,435 fish constituting one of the larger on record during the last decade and also warranting liberalized bag limits in the sport fishery. In 2016, sockeye salmon counts at the Karluk and Ayakulik rivers were within the BEGs; however, they did not warrant liberalization of the fisheries as in 2015. Final weir counts for 2016 for the Karluk River early run and Ayakulik River sockeye salmon runs was 164,760 and 254,967, respectively.

Sport fishing effort for sockeye salmon in the AP–AIRA is nominal in comparison to the KRA and typically accounts for less than 10% of the overall annual KMA catch. In 2015, the SWHS estimated a total harvest of 1,138 sockeye salmon, which is similar to the previous year's harvest and close to the 10-year average harvest of 1,235 (Table 19). Similarly, harvest information for guided anglers obtained from the Freshwater Logbook Database for several AP–AIRA drainages, including the Sapsuk (Nelson), Ocean, and King Salmon–Bear rivers, which represent a large majority of overall effort in the AP–AIRA, did not show a departure from the most recent 10-year average. According to the logbooks, combined guided sport fishing harvests for the 3 streams is less than 500 fish on average (Table 20).

STEELHEAD–RAINBOW TROUT FISHERIES

Most angling effort on wild rainbow trout (*Oncorhynchus mykiss*) populations within the KMA target steelhead, although several streams on Kodiak and Afognak islands support some targeted fishing for resident rainbow trout, and anglers that target other species annually produce incidental catches of resident rainbow trout in numerous streams. The Karluk and Ayakulik rivers are the most popular streams for anglers targeting steelhead, and most of the fishing effort occurs during the month of October through early November. Other KRA drainages supporting steelhead sport fisheries include the Uganik, Dog Salmon, Little, Afognak, Buskin, and Saltery rivers. ADF&G Freshwater Logbook Program records indicate that within the AP–AIRA, steelhead are targeted annually by small numbers of guided anglers fishing the Sandy, Sapsuk (Nelson), Cinder, and King Salmon river drainages.

Annual stock assessment of steelhead populations is currently limited to documenting kelts migrating out of drainages where weirs are otherwise used to monitor immigrating salmon. Steelhead research conducted previously on KMA stocks has included mark–recapture experiments to estimate single-year spawning abundance of Ayakulik and Little rivers populations (Kevin VanHatten, Fishery Biologist, Kodiak National Wildlife Refuge; personal communication), and a multiyear study of the Karluk River run in order to estimate total spawning population during any year using kelt age composition and abundance (Begich 1992).

Without more adequate knowledge of steelhead population dynamics, a current management strategy for the sport fishery relies on conservative regulations, which include year-round catch-and-release only fishing within the Kodiak Road Zone and the Sandy River drainage (located

within the AP–AIRA), and an annual harvest limit of 2 fish over 20 inches in all other KMA fresh waters. Where harvesting is allowed, the daily bag limit for steelhead is 2, only 1 of which may be longer than 20 inches. Historical harvest statistics available from logbooks and the SWHS indicate that anglers rarely retain steelhead in waters where it is permissible. Anecdotal information suggests that fly-fishing is the preferred method for catching steelhead in the KMA sport fishery.

Resident rainbow trout are periodically sought by anglers in just a few KMA locations, including the Buskin, Uganik, Saltery, and Afognak rivers. Most angler interest in resident populations within KRA waters is limited to those introduced through enhancement, which is discussed in a subsequent report section.

KARLUK RIVER

The Karluk River steelhead sport fishery is probably better known to anglers than any other steelhead sport fishery within the KMA. The combined guided and unguided effort is extensive enough to be captured annually in SWHS statistics. Guided angler activity is also recorded in the ADF&G Freshwater Logbook Database. Most effort occurs near the Karluk River Portage, approximately 7 miles below Karluk Lake. SWHS estimates from 2006 through 2015 show anglers annually caught and between 274 and 2,196 Karluk River steelhead and averaged 1,049 fish over the last 10 years (Table 22). Estimated catch in 2015 was near the 10-year average, totaling 1,078 fish. Anglers reported harvesting very few steelhead during the same period, with SWHS annual totals from 2006 to 2015 only exceeding 100 fish in 2006 and 2009 and averaging just 36.

Table 22.–Statewide Harvest Survey estimates of freshwater steelhead harvest and catch for selected locations within the Kodiak Management Area, 2006–2015.

	Karluk River		Ayakulik River		Total	
Year	Harvest	Catch [a]	Harvest	Catch	Harvest	Catch
2006	167	1,787	14	930	181	2,717
2007	9	968	0	886	9	1,854
2008	18	2,196	10	329	28	2,525
2009	107	859	0	190	107	1,049
2010	6	553	0	123	6	676
2011	6	1,556	–	–	6	1,556
2012	19	274	–	–	19	274
2013	8	496	–	–	8	496
2014	7	723	0	290	7	1,013
2015	15	1,078	–	–	15	1,005
Average 2006–2015	36	1,049	4	458	41	1,351

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/).

Note: An en dash means insufficient survey responses to generate an estimate.

[a] Total number of fish caught; includes both harvest and release.

ADF&G Freshwater Logbook Program records show that guided anglers annually released between 248 and 740 Karluk River steelhead from 2006 through 2015, and averaged 504 (Table 23). Guided effort reflected in logbooks typically accounts for little of the annual total harvest by all anglers estimated by the SWHS and ranged between 2 and 10 fish per year.

Karluk River steelhead kelt counts since 2006 have fluctuated widely, ranging as high as 3,688 in 2011 and then falling to a low of 836 the next year (Table 24). In general, angler success (measured in terms of harvest and release) appeared to have no correlation to kelt abundance in a particular year. However, kelt counts can be highly unreliable as an index of a particular year's spawning population because timing of weir installation, high water events, and other unanticipated circumstances occasionally allow the unmonitored passage of fish.

Table 23.–Guided angler freshwater steelhead harvest and release within KMA, 2006–2015.

	Year										Average
Location	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2006–2015
Ayakulik River											
Harvest	2	3	0	0	0	3	0	1	0	0	1
Release	550	828	357	135	65	118	54	64	39	74	228
Karluk River											
Harvest	10	10	6	6	2	5	6	2	3	2	5
Release	540	369	342	702	665	447	503	248	485	740	504
Saltery River											
Harvest	0	0	0	0	0	0	0	0	0	0	0
Release	15	54	3	1	0	88	8	1	2	2	17
Alaska Peninsula											
Harvest	0	0	0	0	0	2	0	0	0	0	0
Release	336	425	490	181	0	77	0	0	217	270	200

Source: Freshwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests]).

Table 24.–Steelhead kelt counts through weirs on the Karluk and Ayakulik rivers, 2006–2016.

Year	Karluk River	Ayakulik River
2006	1,685	319
2007	2,285	342
2008	1,429	750
2009	1,879	769
2010	2,203	585
2011	3,688	547
2012	836	459
2013	1,605	673
2014	1,381	259
2015	1,278	111
Average 2006–2015	1,827	481
2016	1,168	132

Source: Fuerst 2015; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

AYAKULIK RIVER

Based on historical SWHS catch levels, the Ayakulik River steelhead fishery is similar to the Karluk River fishery in terms of its importance to anglers. Estimates of the number of steelhead caught annually from the SWHS are only available through 2010 and in 2014 due to low response rates and ranged between 123 and 930, with an annual average of 458 (Table 22). According to logbook records from 2006 to 2015, guided anglers harvested a total of just 9 fish over the 10 years (Table 23). Steelhead released by guided anglers during the same period ranged from a low of 39 in 2014 to a high of 828 in 2007 and averaged 228 from 2006 to 2015.

The number of emigrating steelhead kelt counted annually through the Ayakulik River weir since 2006 fluctuated between a high of 769 fish in 2009 and a low of just 111 in 2015, and averaged 481 fish from 2006 to 2015 (Table 24). Kelt counts fluctuate in a similar manner to the Karluk River and may be reflective of timing of the weir installation, high or low water conditions, and other unanticipated circumstances that could compromise effective counting of emigrating steelhead.

ENHANCED RAINBOW TROUT FISHERIES

KMA rainbow trout stocking became widespread as early as 1953 and at times has extended as far geographically as Adak Island. Historically, the broodstock has come from steelhead from the Karluk River and rainbow trout from various locations in Alaska, as well as rainbow trout from hatcheries located in Montana and Washington. Prior to 2007, all stocked fish were reared at the former SF Fort Richardson hatchery facility in Anchorage and subsequently transported to Kodiak Island shortly before being released. Since then, fertilized eggs from the current Anchorage facility, the William J. Hernandez Sport Fish Hatchery (WJHSFH), have been transported to the KRAA's Pillar Creek Hatchery and the resultant rainbow trout fry have been reared locally. This practice has significantly increased survival rates.

All stocking is conducted in accordance with current guidelines set forth in the SF Statewide Stocking Plan for Recreational Fisheries[7] (SSP), which is a 5-year stocking document updated annually to reflect stocking needs based on funding, changes in land status, or other considerations. Annual hatchery production dictates the numbers of fish by species that are stocked into lakes each year. All enhanced landlocked lakes represent new sport fisheries because stocked species were not present before stocking occurred. A majority of the stocking is directed toward road-accessible lakes that offer alternative opportunity to angling for local wild salmon and Dolly Varden.

Since 2006, up to 20 Road Zone lakes have been stocked at a time with rainbow trout (Appendix G2). Yearly total hatchery production of rainbow trout has roughly varied between 32,000 and 102,000 fish due to occasional losses resulting from transport–release mortality and occasional surpluses of available fish.

All rainbow trout are stocked as fingerlings and, historically, fish have been released as small as 0.5 g, but currently the stocking range is 1–3 g. Releases occur within the egg-take brood year, typically in the month of August. Past age composition studies have shown that fingerlings released at less than 1 g reach catchable size (100 g) within 2–3 years after being released. Fish released at larger sizes may become available to anglers sooner.

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[7] Available at http://www.adfg.alaska.gov/static/fishing/pdfs/hatcheries/15region2.pdf (Accessed December 2015).

Current SSP objectives for nonanadromous hatchery releases along the Kodiak Road Zone include providing anglers at least 1,000 additional days of sport fishing effort annually. Anglers typically harvest Kodiak's enhanced rainbow trout populations both on open water and through the ice. Estimates of total catch from the SWHS are unreliable due to relatively small numbers of respondents captured by the survey. However, anecdotal evidence suggests that most fishing effort is attributable to local residents who frequent the stocked lakes on a regular basis but consequently make up too small of an angler demographic to be adequately represented by SWHS sampling. Current Kodiak sport fishing regulations for enhanced rainbow trout allow a daily bag and possession limit of 10 fish, only 1 of which may exceed 20 inches in length. There is no annual limit.

OTHER FISHERIES

Sport fishing effort for steelhead and rainbow trout elsewhere in the KMA is mostly limited to guided anglers. Unguided effort is minor and sporadic to the extent that SWHS estimates of catch and harvest are generally unavailable. Within AP–AIRA waters, the Sandy River and Sapsuk (Nelson) rivers receive the most effort of which nearly all is guided; for these rivers combined, between 0 and 490 fish were caught between 2006 and 2015 (Table 23). During this 10-year period, a total of 2 steelhead were harvested in these drainages. In the KRA, besides the Karluk and Ayakulik rivers, steelhead catches by guided anglers since 2006 were principally taken at the Dog Salmon, Saltery, and Little rivers, although during most years fewer than 100 steelhead were caught and released at any individual location, and few, if any fish were harvested.

GROUNDFISH FISHERIES

HALIBUT

Fishery Description

As with all other areas of the state, halibut (*Hippoglossus stenolepis*) is the groundfish species mostly commonly targeted by sport fishing anglers in KMA waters. The majority of angler effort occurs between late April and early September, and although halibut are harvested throughout the entire management area, a majority of the catch is taken from waters near the City of Kodiak in Chiniak, Marmot, and Ugak bays. Because of the popularity of this fishery and widespread angler effort, fairly reliable catch statistics for the KMA are available annually from the SWHS. In addition, ADF&G Saltwater Logbook Database records also fully document harvest and numbers released for halibut in the guided angler sector.

Historical Catch

Between 2006 and 2015, halibut catches estimated by the SWHS remained relatively stable throughout the KRA, with total numbers of fish harvested averaging 28,877 (Table 25). Harvest in 2015 was lower than average at 19,104 fish. Within Chiniak Bay, harvests estimated by the SWHS averaged 12,533 from 2006 to 2015, ranging from as high as 18,845 in 2007 to a low of 8,800 in 2015 (Table 25). Annual harvests from Chiniak Bay compose as much as 50% of the KMA total annually, although it is quite variable. Harvest of halibut in the KRA remains fairly stable with some inter-annual variation, though no specific trends have been observed. Like the KRA harvests, AP–AIRA halibut harvests also remained fairly stable over time, with the 2006–2015 harvest ranging from 778 to 3,719 and averaging 2,496 (Table 25).

Table 25.–Statewide Harvest Survey estimates of halibut and other groundfish harvest and catch for selected locations within the Kodiak Management Area, 2006–2015.

		Chiniak Bay		Total Kodiak Regulatory Area		Alaska Peninsula–Aleutian Islands		Total Kodiak Management Area	
Species	Year	Harvest	Catch	Harvest	Catch	Harvest	Catch	Harvest	Catch
Halibut									
	2006	11,541	18,206	25,219	43,802	2,830	4,872	28,049	48,674
	2007	18,845	28,230	35,337	58,503	3,619	6,671	38,956	65,174
	2008	18,145	29,775	33,999	62,591	3,719	8,788	37,718	71,379
	2009	16,865	26,705	31,590	53,756	3,249	6,031	34,839	59,787
	2010	10,669	16,484	23,063	39,910	2,352	3,679	25,415	43,589
	2011	9,814	16,859	21,156	39,856	1,933	4,379	23,089	44,235
	2012	10,000	16,298	23,145	38,032	3,545	5,666	26,690	43,698
	2013	9,227	15,007	26,591	42,462	1,929	2,412	28,520	44,874
	2014	11,424	15,186	25,386	40,488	1,001	1,434	26,387	41,922
	2015	8,800	11,589	18,326	30,459	778	1,046	19,104	31,505
	Average	12,533	19,434	26,381	44,986	2,496	4,498	28,877	49,484
Rockfish									
	2006	5,040	11,781	11,688	23,891	1,085	5,257	12,773	29,148
	2007	7,845	18,399	12,551	31,346	1,499	5,445	14,050	36,791
	2008	9,635	21,674	15,596	38,964	1,288	2,669	16,884	41,633
	2009	10,538	22,494	15,937	40,569	575	2,106	16,512	42,675
	2010	12,310	27,222	19,897	46,404	763	3,325	20,660	49,729
	2011	9,083	20,951	15,539	32,262	368	954	15,907	33,216
	2012	8,372	15,752	18,511	34,202	2,236	6,465	20,747	40,667
	2013	8,229	14,697	19,861	33,739	1,252	1,690	21,113	35,429
	2014	18,570	25,355	29,733	47,182	1,444	2,796	31,177	49,978
	2015	15,334	23,669	25,786	40,974	2,086	6,457	27,872	47,431
	Average	10,496	20,199	18,510	36,953	1,260	3,716	19,770	40,670
Lingcod									
	2006	834	1,148	2,447	3,915	35	197	2,482	4,112
	2007	1,557	2,257	3,203	5,548	857	949	4,060	6,497
	2008	1,748	2,516	3,518	6,201	147	455	3,665	6,656
	2009	1,660	2,520	3,736	6,812	242	1,085	3,978	7,897
	2010	2,419	3,777	3,966	6,274	47	95	4,013	6,369
	2011	2,445	3,509	4,233	7,087	15	167	4,248	7,254
	2012	1,519	2,246	3,969	6,118	136	205	4,105	6,323
	2013	1,416	2,201	4,344	6,137	199	216	4,543	6,353
	2014	2,270	2,681	4,434	6,600	588	893	5,022	7,493
	2015	1,611	2,844	2,945	5,493	120	551	3,065	6,044
	Average	1,748	2,570	3,680	6,019	239	481	3,918	6,500

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/).

Since 2006, Chiniak Bay guided harvests have averaged 3,715 and have ranged from 2,135 to 5,446 (Table 26). Guided angler halibut harvests decreased steadily in Chiniak Bay and also within the KMA overall, to the extent that 9,399 halibut were reported for the entire management area in 2015, which is less than half of the reported harvest in 2006. Of these, 2,135 fish were taken from waters of Chiniak Bay, which is about half of the reported harvest in 2006. Total KRA halibut harvests also declined during the same period, dropping to 9,218 in 2015 from a peak of 20,343 fish reported in 2007. These changes are probably due to changes in federal regulations managing halibut that have restricted both the number of fish guided anglers can harvest as well as the number of boats participating in the fishery. There may also be a shift towards harvest of other species in the guided fishery, such as rockfish (*Sebastes* spp.) and Pacific cod (*Gadus microcephalus*). Increased angler interest in rockfish and Pacific cod have been reported by many charter boat operators to the extent that anglers may forgo harvest opportunity for halibut in exchange for other groundfish species.

Table 26.–Guided angler logbook records of halibut and other groundfish catch for selected locations within the Kodiak Management Area, 2006–2015.

		Halibut		Rockfish		Lingcod	
Location	Year	Harvest	Release	Harvest	Release	Harvest	Release
Chiniak Bay							
	2006	4,741	2,479	2,565	936	321	96
	2007	5,144	4,271	3,825	1,406	396	65
	2008	5,446	4,615	5,018	1,166	618	176
	2009	3,773	3,943	5,099	1,115	361	131
	2010	3,810	2,143	5,123	716	801	112
	2011	4,799	3,334	5,103	756	602	32
	2012	2,305	1,400	2,910	512	232	31
	2013	2,542	911	4,633	385	334	22
	2014	2,453	638	6,025	459	279	17
	2015	2,135	702	7,076	521	266	19
	Average	3,715	2,444	4,738	797	421	70
Afognak–Shuyak Islands							
	2006	2,626	3,798	1,108	842	644	178
	2007	3,636	4,641	751	2,833	1,172	465
	2008	3,402	4,342	2,165	1,456	1,309	556
	2009	3,119	4,192	2,069	1,564	1,073	411
	2010	3,458	3,748	3,189	1,403	1,070	386
	2011	3,402	3,686	1,924	2,417	909	205
	2012	2,531	2,065	2,556	1,340	1,178	328
	2013	2,252	2,324	2,436	1,722	992	411
	2014	2,045	2,768	2,006	2,290	964	213
	2015	1,978	1,384	2,244	1,524	776	383
	Average	2,845	3,295	3,858	1,739	1,009	354

-continued-

Table 26.–Page 2 of 2.

		Halibut		Rockfish		Lingcod	
Location	Year	Harvest	Release	Harvest	Release	Harvest	Release
Total Kodiak Regulatory Area							
	2006	19,842	20,740	6,222	3,733	1,363	433
	2007	20,343	20,823	12,035	8,018	2,165	672
	2008	18,441	21,344	11,531	5,133	2,606	1,046
	2009	14,477	19,430	13,488	4,542	2,031	758
	2010	14,669	15,344	11,361	4,276	2,571	731
	2011	16,058	18,558	12,286	4,747	2,327	544
	2012	14,889	13,866	13,981	3,542	2,458	498
	2013	13,764	11,341	16,195	4,133	2,256	597
	2014	12,912	9,558	18,917	5,444	1,800	327
	2015	9,218	4,779	22,319	4,137	1,437	476
	Average	15,461	15,578	13,834	4,771	2,101	608
Alaska Peninsula–Aleutian Islands Regulatory Area							
	2006	685	925	91	393	0	2
	2007	935	1,350	211	553	7	5
	2008	922	1,336	148	469	24	42
	2009	766	858	45	162	7	8
	2010	877	835	170	80	26	1
	2011	506	547	164	73	32	23
	2012	691	838	134	155	7	13
	2013	634	557	73	99	18	3
	2014	176	143	106	197	4	7
	2015	181	153	73	86	12	0
	Average	637	754	122	227	14	10
Total Kodiak Management Area							
	2006	20,527	21,665	6,313	4,126	1,363	435
	2007	21,278	22,173	12,246	8,571	2,172	677
	2008	19,363	22,680	11,679	5,602	2,630	1,088
	2009	15,243	20,288	13,533	4,704	2,038	766
	2010	15,546	16,179	11,531	4,356	2,597	732
	2011	16,564	19,105	12,450	4,820	2,359	567
	2012	15,580	14,704	14,115	3,697	2,465	511
	2013	14,398	11,898	16,268	14,398	2,274	600
	2014	13,088	9,701	19,023	5,641	1,804	334
	2015	9,399	4,932	22,392	4,223	1,449	476
	Average	16,099	16,333	13,955	5,004	2,115	619

Source: Saltwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests]).

Fishery Management and Objectives

Halibut stocks throughout Alaska are managed by the federal government through an international treaty with Canada. Direct regulatory authority rests with the International Pacific

Halibut Commission and by delegation from the commission to the North Pacific Fishery Management Council. All regulations adopted for the halibut sport fishery by the State of Alaska must reflect those previously established in federal law.

KMA waters fall within 2 of 4 federal management areas which constitute the geographic basis for establishment of regulations. Most of the KRA is included as part of federal Subarea 3A, whereas the AP–AIRA is divided between 3 subareas: 3B, 4A, and 4B. Within these subareas, sport fishing regulations for unguided anglers include a daily bag limit of 2 halibut and a possession limit of 4. Although there are no individual or collective annual harvest limits for unguided anglers, the guided sector of the halibut sport fishery in Subarea 3A is subject to an annual guideline harvest level. Additionally, a limited entry program for Subarea 3A halibut guides became effective in 2011.

2015 Sport Fishery

The SWHS has recorded a 10-year trend of relatively stable halibut harvests from 2006 through 2015, although the estimated KMA total harvest of 19,104 fish in 2015 was lower than the 10-year average 28,877 (Table 25). The total catch of 31,505 in 2015 for the KMA was much lower than the 2006–2015 average but the number of released fish appears more variable between years compared to harvests.

Saltwater Logbook Database records of the 2015 halibut catch reflected a declining trend in harvests in the KMA in most areas, except for the Afognak–Shuyak Islands area, although the 2015 harvest of 1,978 in this area was less than several previous years (Table 26). In 2015, the total KRA guided angler halibut harvest of 9,218 reflected a decrease of almost 4,000 fish from the year before, and represents only about half of the harvest from 10 years ago.

ROCKFISH

Fishery Description

Both pelagic and nonpelagic rockfishes (*Sebastes* spp.) are harvested in KMA waters. Catches of pelagic species consist primarily of black (*S. melanops*) and dusky (*S. ciliates*) rockfish, whereas nonpelagic catches consist mainly of yelloweye rockfish (*S. ruberrimus*). Pelagic species historically have constituted most of the rockfish catch. Although a portion of annual rockfish catches are taken incidentally by anglers targeting halibut and salmon, there is also directed effort for these species, especially pelagic rockfishes.

Current KMA sport fishing regulations for harvesting rockfish are split between the 2 regulatory areas, with those in the KRA consisting of a daily bag limit of 5 and a possession limit of 10, only 2 per day and 4 in possession may be nonpelagic species and only 1 per day or 2 in possession may be a yelloweye rockfish. In AP–AIRA waters, the combined species bag limit is 10 fish and the possession limit is 20. There are no size or annual limits established for either regulatory area, and no annual harvest reporting requirements.

Historical Catch

Throughout the KMA, annual SWHS estimates of rockfish sport catches since 2001 have followed a strong upward trend, although the increases have been disparate within the KRA and the AP–AIRA due to more overall catch in the former area and more releases of caught fish in the latter area. Total estimates of KMA rockfish harvests have almost doubled in magnitude since 2006, reaching a high of 31,177 fish in 2014 (Table 25). Within KRA waters during the

same period, rockfish harvests also doubled and on average composed about 91% of the KMA total harvest. In Chiniak Bay, rockfish harvests increased from 5,040 in 2006 to a high of 18,570 during the 2014 fishery.

Except for Chiniak Bay, catch trends for guided anglers fishing the KRA waters since 2006 as reflected by ADF&G Saltwater Logbook Database records, were consistent with SWHS estimates during the same period. Harvests increased from 6,222 in 2006 to 22,319 in 2015 (Table 26). Within Chiniak Bay, the guided angler harvest during the same period has remained relatively stable with a 10-year average harvest of 4,738 fish. Rockfish catches in the AP–AIRA remained a small percentage of the KMA total, annually totaling less than 200 fish in 8 of the preceding 10 years.

Fishery Management and Objectives

There are no specific fishery management objectives for rockfish in the KMA at this time and there have been no formalized stock assessments completed to date. ADF&G Division of Commercial Fisheries (CF) is currently working on creating a population assessment for KRA rockfish that could be used to aid in management of the species. To date, however, because rockfish are generally long-lived and reproduce slowly, a conservative management approach has been implemented. In 2011, the Alaska Board of Fisheries (BOF) reduced the bag limit for KRA rockfish to the current regulations consisting of a daily bag limit of 5 and a possession limit of 10, of which only 2 per day and 4 in possession may be nonpelagic species and only 1 per day or 2 in possession may be a yelloweye rockfish. The goal of these regulations was to restrain growth in the fishery in response to the rapidly increasing harvest that had been observed from 2001 to 2010 (Figure 10). From 2011 through 2015, the harvest of KRA rockfish has nearly doubled and in response, ADF&G has submitted a proposal to the BOF to reduce the bag limit of pelagic rockfish to 3 per day, 6 in possession within Chiniak and Marmot Bays. This proposal will be deliberated at the 2017 Kodiak BOF meeting with the aim to place further limits on growth of the sport fishery.

Concerns over the growth of the sport fishery stem partially from the limited information about fishery harvest rates relative to population sizes in KRA waters. Long-lived and slow-reproducing species can be prone to overharvest and it may take more than 30 years to replace missing age classes. Further concerns stem from localized depletion and overharvest seen currently in U.S. westcoast rockfish populations. Until a finalized stock assessment is realized and harvests can be compared to population sizes, a conservative management approach is warranted with harvests limited to rates that have been shown to be sustainable.

2015 Sport Fishery

In 2015, the KMA rockfish harvest of 27,872 was less than the record high harvest of 31,177 in 2014, but was still well above the recent 10-year average of 19,770 (Table 25). In 2015, the Chiniak Bay harvest also decreased to 15,334 fish compared to the record high of 18,570 (Table 25). The estimated average harvest of rockfish in Chiniak Bay from 2006 to 2015 was 10,496. The 2015 KMA guided angler harvest of rockfish was 22,392 and was similar to 2014, though it was well above the recent 10-year average of 13,955 (Table 26). The guided angler harvest represented about 75% of the total rockfish harvest in the KMA in 2015 (Table 27). In Chiniak Bay, the 2015 guided angler harvest of rockfish was 7,076 and was above the 2006 to 2015 average of 4,738. The guided angler harvest represented about 46% of the total rockfish harvest in Chiniak Bay in 2015.

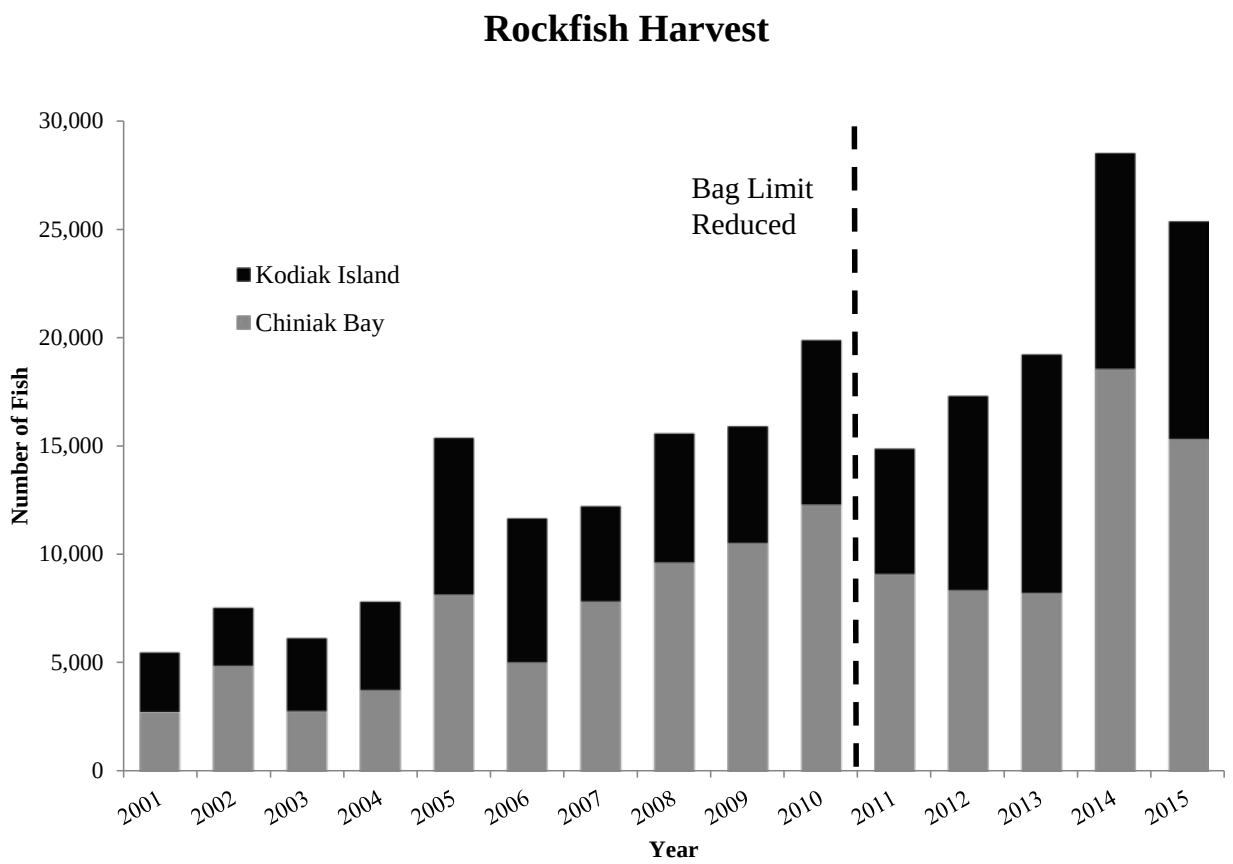

Figure 10.–Harvest of rockfish in Chiniak Bay and the remainder of the Kodiak Regulatory Area, 2001–2015.

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/).

Table 27.–Harvest of rockfish from guided logbooks and SWHS in Chiniak Bay and the Kodiak Regulatory Area 2006–2015.

	Chiniak Bay			Kodiak Regulatory Area		
Year	Guided	SWHS estimate	% Guided	Guided	SWHS Estimate	% Guided
2006	2,565	5,040	51	6,222	11,688	53
2007	3,825	7,845	49	12,035	12,551	96
2008	5,018	9,653	52	11,531	15,596	74
2009	5,099	10,538	48	13,488	15,937	85
2010	5,123	12,310	42	11,361	19,897	57
2011	5,103	9,083	56	12,286	15,539	79
2012	2,910	8,372	35	13,981	18,511	76
2013	4,633	8,229	56	16,195	19,861	82
2014	6,025	18,570	32	18,917	29,733	64
2015	7,076	15,334	46	22,319	25,786	87
Average						
2006–2015	4,738	10,497	47	13,834	18,510	75
2011–2015	5,149	11,918	45	16,740	21,886	77

Source: Statewide Harvest Survey (SWHS) estimates (Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish [cited November 2016]. Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/); Saltwater Logbook Database. (Alaska Department of Fish and Game, Division of Sport Fish. 2006 to present. Accessed September 3, 2016. [URL not publicly available as some information is confidential. Contact Research and Technical Services for data requests]).

OTHER GROUNDFISH

In addition to halibut and rockfish, the other groundfish species primarily targeted in the KMA sport fisheries is lingcod (*Ophiodon elongates*). Although a portion of annual lingcod catches are taken incidentally by anglers targeting halibut and salmon, there is also some directed effort for lingcod.

Lingcod catches in KMA waters historically have remained much lower than those of other groundfish species, averaging 3,918 fish per year between 2006 and 2015 by SWHS estimates (Table 25). However, similar to a recent 10-year trend in the rockfish fishery, SWHS estimates of lingcod catches increased steadily beginning in 2005, and catch in 2014 was a 10-year peak at 5,022. The 2015 harvest of lingcod decreased to 3,065 fish. The ratio of harvest to release was roughly 1:1 in the 10-year average catch and varied little during any individual year through 2015.

Logbook records of lingcod catches since 2005 showed higher retention rates (harvest per catch) than the SWHS estimates. In general, guided anglers retained between 2 and 3 lingcod for each 1 released, but harvest rates have remained similar from 2006 to 2015 with a 10-year average harvest of 2,115 fish (Table 26). The 2015 harvest was below the recent 10-year average and was 1,449 fish.

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APPENDIX A: RECENT BOARD OF FISHERIES REGULATORY ACTIONS FOR THE KODIAK MANAGEMENT AREA

Appendix A1.–Chronology and description of recent Board of Fisheries regulatory actions for the Kodiak Management Area.

2014 Kodiak Regulatory Area Board of Fisheries:

No regulatory changes were made at this meeting for Kodiak Regulatory Area sport fisheries.

2016 Alaska Peninsula–Aleutian Islands Regulatory Area Board of Fisheries:

1) 5AAC 65.020—Bag limits, possession limits, annual limits, and size limits for Alaska Peninsula and Aleutian Islands Area; and 5 AAC 65.022—Special provisions for methods and means in the Alaska Peninsula and Aleutian Islands Area.

   The BOF established a single-hook, no-bait sport fishery for Chinook salmon in the Sandy River drainage with a bag and possession limit of 1 fish per day over 20 inches.

2) 5AAC 65.020—Bag limits, possession limits, annual limits, and size limits Alaska Peninsula and Aleutian Island Area.

   The BOF increased the freshwater possession limit for salmon, other than Chinook salmon, over 20 inches in length to 10 fish per day and established a bag and possession limit for salmon, other than Chinook salmon, under 20 inches in length of 10 fish.

3) 5AAC 65.051—Waters closed to sport fishing in the Alaska Peninsula and Aleutian Islands Area.

   The BOF amended the closed waters in Swanson lagoon to a seasonal closure from January 1 through July 31 and implemented a year-round closure for sport fishing for sockeye salmon.

4) 5AAC 65.020—Bag limits, possession limits, annual limits, and size limits Alaska Peninsula and Aleutian Island Area.

   The BOF reduced the possession limit for Illiuliuk Creek coho salmon from 4 to 2 to bring the limits in line with the remainder of Unalaska Bay.

APPENDIX B: CURRENT FISHERY MANAGEMENT PLANS OF THE KODIAK MANAGEMENT AREA

5 AAC 64.060. *Kodiak Area Salt Water King*[8] *Salmon Sport Fishery Management Plan.*

(a) The purpose of the management plan under this section is to meet the Board of Fisheries' goal of stabilizing the sport harvest of king salmon in the salt waters of the Kodiak Area.

(b) In the Kodiak Area salt water king salmon sport fishery,

(1) the guideline harvest level is 11,000 king salmon;

(2) the sport harvest will be estimated annually by the department's statewide harvest survey;

(3) king salmon taken in Monashka Bay will not count towards the guideline harvest level established in (1) of this subsection;

(4) the bag and possession limit for king salmon is two fish, with no size limit;

(5) the annual limit and harvest record specified in 5 AAC 64.022 and 5 AAC 64.025 do not apply.

(c) If the guideline harvest level is exceeded, the board will consider restrictions that may be necessary to avoid exceeding the guideline harvest level at a regularly scheduled meeting for the Kodiak Area. If the board finds that restrictions are necessary, the board will adopt one or more of the following restrictions in the following order:

(1) reduce the nonresident bag and possession limit for king salmon in salt waters to one fish;

(2) prohibit a sport fishing guide from taking a king salmon while a client is present or is within the guide's control or responsibility;

(3) allow only king salmon 28 inches or greater in length to be retained;

(4) reduce the resident bag and possession limit for king salmon in salt waters to one fish.

[8] In the regulatory language, Chinook salmon are called "king" salmon, "the board" refers to the Alaska Board of Fisheries, and "the department" refers to the Alaska Department of Fish and Game.

APPENDIX C: EMERGENCY ORDERS ISSUED IN 2014–2016 FOR KODIAK MANAGEMENT AREA FISHERIES

Appendix C1.–Kodiak Management Area emergency orders (EOs), 2014–2016.

2014 Emergency Orders:

1) EO 2-KS-4-11-14 prohibited the filleting, mutilating, and removing of heads of Chinook salmon at sea by marine boat anglers returning to Kodiak road system ports from 31 May to 31 August.
2) EO 2-KS-4-12-14 reduced the bag and possession limit of Chinook salmon in the Ayakulik Drainage to 1 fish per day with a 2 fish annual limit, effective 1 June–25 July.
3) EO 2-KS-4-14-14 prohibited the retention of Chinook salmon and prohibited the use of bait for all sport fishing in the Karluk Drainage below Karluk Lake, effective 1 June–25 July.
4) EO 2-KS-4-22-14 closed the Karluk River to retention of Chinook salmon and prohibited the use of bait for all sport fishing in the Karluk Drainage below Karluk Lake, effective 21 June–25 July.
5) EO 2-KS-4-23-14 closed the Ayakulik River to retention of Chinook salmon and prohibited the use of bait for all sport fishing in the Ayakulik Drainage, effective 21 June–25 July.
6) EO 2-KS-4-13-14 reduced the bag and possession limit of Chinook salmon in the Chignik Drainage to 1 fish per day with a 2 fish annual limit, effective 1 June–9 August.
7) EO 2-KS-4-38-14 restored the bag and possession limit of Chinook salmon in the Chignik Drainage to 2 fish per day with a 5 fish annual limit, effective 12 July–9 August.
8) EO 2-RS-4-15-14 increased the Afognak River drainage sockeye salmon daily bag limit from 5 to 10 fish, effective 6 June–31 December.
9) EO 2-RS-4-17-14 increased the Buskin River drainage sockeye salmon daily bag and possession limit from 2 to 5 fish, effective 12 June–31 December.
10) EO 2-RS-4-18-14 increased the Ayakulik River drainage sockeye salmon daily bag limit from 5 to 10 fish, effective 12 June–31 December.
11) EO 2-RS-4-19-14 increased the Karluk River drainage sockeye salmon daily bag limit from 5 to 10 fish, effective 13 June–31 December.
12) EO 2-RS-4-29-14 increased the Dog Salmon River drainage sockeye salmon daily bag limit from 5 to 10 fish, effective 27 June–31 December.
13) EO 2-RS-4-39-15 closed the Pasagshak River drainage to sport fishing for sockeye salmon, effective 18 July–31 December.

2015 Emergency Orders:

1) EO 2-KS-4-13-15 closed the Ayakulik River to retention of Chinook salmon and prohibited the use of bait for all sport fishing in the Ayakulik Drainage, effective 1 June–25 July.
2) EO 2-KS-4-14-15 closed the Karluk River to retention of Chinook salmon and prohibited the use of bait for all sport fishing in the Karluk Drainage below Karluk Lake, effective 1 June–25 July.

-continued-

2015 Emergency Orders (continued):

3) EO 2-KS-4-15-15 prohibited the filleting, mutilating, and deheading of Chinook salmon at sea by marine boat anglers returning to Kodiak road system ports from 31 May to 31 August.

4) EO 2-KS-4-31-15 closed the Monashka Creek drainage and all saltwaters of Monashka Bay inside a line from Miller Point to Termination Point to sport fishing for Chinook salmon. In Monashka Creek, only 1, unbaited single hook was to be used, effective 25 June–1 August.

5) EO 2-RS-4-18-15 increased the Buskin River drainage sockeye salmon daily bag and possession limit from 2 to 5 fish, effective 12 June–31 December.

6) EO 2-RS-4-22-15 increased the Afognak River drainage sockeye salmon daily bag limit from 5 to 10 fish, effective 16 June–31 December.

7) EO 2-RS-4-23-15 increased the Karluk River drainage sockeye salmon daily bag limit from 5 to 10 fish, effective 16 June–31 December.

8) EO 2-RS-4-30-15 increased the Dog Salmon River drainage sockeye salmon daily bag limit from 5 to 10 fish, effective 23 June–31 December.

9) EO 2-RS-4-42-15 closed the Pasagshak River drainage to sport fishing for sockeye salmon, effective 3 July–31 December.

10) EO 2-RS-4-44-15 increased the bag and possession limit for sockeye salmon in the Saltery Creek drainage from 5 to 10 fish, effective 23 July–31 December.

2016 Emergency Orders:

1) EO 2-KS-4-9-16 closed the Ayakulik River to retention of Chinook salmon and prohibited the use of bait for all sport fishing in the Ayakulik Drainage, effective 1 June–25 July.

2) EO 2-KS-4-10-10 closed the Karluk River to retention of Chinook salmon and prohibited the use of bait for all sport fishing in the Karluk Drainage below Karluk Lake, effective 1 June–25 July.

3) EO 2-KS-4-11-16 prohibited the filleting, mutilating, and deheading of Chinook salmon at sea by marine boat anglers returning to Kodiak road system ports from 31 May to 31 August.

4) EO 2-KS-4-12-16 closed the Monashka Creek drainage and all saltwaters of Monashka Bay inside a line from Miller Point to Termination Point to sport fishing for Chinook salmon. In Monashka Creek, only 1, unbaited single hook was to be used, effective 1 June–1 August.

5) EO 2-KS-4-32-16 opened fishing for Chinook salmon in the Ayakulik River drainage but prohibits retention of Chinook salmon and the use of bait for all sport fishing in the Ayakulik Drainage, effective 6 July–25 July.

6) EO 2-RS-4-16-16 increased the Afognak River drainage sockeye salmon daily bag limit from 5 to 10 fish, effective 4 June–31 December.

7) EO 2-RS-4-17-15 increased the Buskin River drainage sockeye salmon daily bag and possession limit from 2 to 5 fish, effective 9 June–31 December.

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2016 Emergency Orders (continued):

8) EO 2-RS-4-27-16 closed the Pasagshak River drainage to sport fishing for sockeye salmon, effective 2 July–31 December.

9) EO 2-RS-4-30-16 increased the bag and possession limit for sockeye salmon in the Saltery Creek drainage from 5 to 10 fish, effective 6 July–31 December.

10) EO 2-RS-4-34-16 reopened the Pasagshak River drainage to sport fishing for sockeye salmon, effective 2 July–31 December.

11) EO 2-SS-4-41-16 closed the Buskin River drainage to sport fishing for coho salmon, effective 16 September–31 December.

APPENDIX D: SELECTED 2006–2016 KODIAK MANAGEMENT AREA DAILY WEIR COUNTS

Appendix D1.–Karluk River Chinook salmon daily cumulative weir counts, 2006–2016.

	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
21 May	1	0	0	0	0	0	0	0	0	0	0	0
22 May	1	0	0	0	0	0	0	0	0	0	0	0
23 May	5	0	0	0	0	1	0	0	0	0	1	0
24 May	17	1	0	0	0	1	0	8	0	0	3	1
25 May	28	3	1	0	0	4	0	30	0	0	7	7
26 May	54	5	2	3	5	7	0	55	5	0	14	12
27 May	73	8	2	4	6	9	8	60	6	1	18	17
28 May	82	18	2	5	12	30	15	60	7	9	24	23
29 May	113	32	2	6	20	34	15	66	23	11	32	37
30 May	113	37	2	9	23	52	24	72	25	14	37	51
31 May	113	38	8	13	25	57	29	118	41	20	46	80
1 Jun	197	42	10	22	44	84	30	129	50	37	65	82
2 Jun	222	64	10	23	55	139	49	207	61	58	89	93
3 Jun	277	75	10	33	88	156	98	210	66	92	111	131
4 Jun	344	112	10	45	135	172	106	305	87	115	143	134
5 Jun	382	118	13	52	150	211	120	463	106	127	174	200
6 Jun	436	132	14	58	196	243	163	521	113	132	201	315
7 Jun	516	145	14	113	246	298	164	588	121	155	236	464
8 Jun	521	156	29	134	264	311	198	604	131	174	252	484
9 Jun	849	300	38	174	302	328	220	632	142	248	323	518
10 Jun	984	427	42	192	337	351	285	689	160	281	375	542
11 Jun	1,202	493	53	250	392	411	304	764	170	299	434	564
12 Jun	1,385	514	63	318	424	517	370	798	195	388	497	752
13 Jun	1,522	576	68	377	526	658	627	867	212	480	591	857
14 Jun	1,540	643	94	415	535	737	936	974	223	592	669	878
15 Jun	1,584	668	126	423	592	873	1,136	1,031	237	773	744	944
16 Jun	1,815	775	134	436	612	1,015	1,163	1,059	244	888	814	1,057
17 Jun	1,872	778	144	442	745	1,134	1,369	1,101	256	994	884	1,287
18 Jun	1,951	780	203	474	806	1,214	1,492	1,128	297	1,013	936	1,523
19 Jun	2,061	841	245	494	1,069	1,414	1,632	1,264	349	1,054	1,042	1,634
20 Jun	2,376	865	288	535	1,296	1,646	1,815	1,332	449	1,254	1,186	1,705
21 Jun	2,615	1,100	320	600	1,570	1,698	1,969	1,350	626	1,279	1,313	1,749
22 Jun	2,732	1,140	320	637	1,637	1,825	2,163	1,356	651	1,393	1,385	1,913
23 Jun	2,864	1,145	343	657	1,714	1,859	2,318	1,439	767	1,487	1,459	1,985
24 Jun	2,886	1,245	364	703	1,794	1,964	2,440	1,475	786	1,626	1,528	2,136
25 Jun	2,906	1,264	394	727	1,949	2,164	2,505	1,495	808	1,670	1,588	2,190
26 Jun	2,928	1,295	411	786	1,990	2,248	2,579	1,522	841	1,743	1,634	2,338
27 Jun	3,002	1,343	453	795	2,072	2,329	2,629	1,530	865	1,845	1,686	2,438
28 Jun	3,037	1,344	453	833	2,088	2,397	2,700	1,558	874	1,997	1,728	2,476
29 Jun	3,049	1,360	475	852	2,134	2,530	2,722	1,594	904	2,056	1,768	2,528
30 Jun	3,050	1,363	520	855	2,221	2,670	2,753	1,598	919	2,169	1,812	2,565

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	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
1 Jul	3,088	1,367	526	946	2,230	2,734	2,891	1,629	930	2,207	1,816	2,602
2 Jul	3,120	1,389	530	990	2,363	2,849	2,894	1,629	955	2,238	1,858	2,782
3 Jul	3,185	1,399	548	994	2,442	2,931	2,935	1,648	963	2,360	1,894	2,806
4 Jul	3,242	1,399	553	994	2,472	3,003	2,953	1,668	973	2,421	1,917	2,874
5 Jul	3,367	1,404	562	1,011	2,531	3,062	2,988	1,675	1,005	2,464	1,956	2,941
6 Jul	3,492	1,409	570	1,014	2,545	3,114	3,020	1,686	1,021	2,475	1,986	2,975
7 Jul	3,630	1,415	573	1,023	2,571	3,140	3,057	1,718	1,040	2,525	2,019	3,026
8 Jul	3,647	1,417	575	1,025	2,635	3,156	3,075	1,721	1,044	2,538	2,033	3,039
9 Jul	3,650	1,423	579	1,028	2,647	3,175	3,082	1,725	1,052	2,559	2,040	3,073
10 Jul	3,668	1,425	582	1,028	2,665	3,186	3,089	1,725	1,076	2,569	2,049	3,121
11 Jul	3,755	1,432	582	1,040	2,671	3,198	3,089	1,726	1,084	2,574	2,064	3,148
12 Jul	3,792	1,432	585	1,071	2,678	3,225	3,099	1,731	1,098	2,580	2,079	3,168
13 Jul	3,797	1,460	585	1,071	2,700	3,248	3,105	1,735	1,133	2,593	2,093	3,180
14 Jul	3,799	1,460	586	1,071	2,708	3,272	3,116	1,735	1,138	2,608	2,098	3,200
15 Jul	3,808	1,461	586	1,071	2,724	3,277	3,122	1,736	1,149	2,620	2,104	3,211
16 Jul	3,830	1,470	586	1,072	2,730	3,288	3,124	1,743	1,157	2,664	2,111	3,214
17 Jul	3,830	1,558	588	1,073	2,743	3,298	3,126	1,745	1,158	2,674	2,124	3,226
18 Jul	3,830	1,558	588	1,073	2,744	3,306	3,128	1,748	1,158	2,678	2,126	3,292
19 Jul	3,830	1,560	590	1,075	2,751	3,314	3,131	1,748	1,159	2,687	2,129	3,307
20 Jul	3,831	1,565	594	1,086	2,757	3,324	3,134	1,750	1,162	2,689	2,134	3,316
21 Jul	3,831	1,568	598	1,086	2,763	3,327	3,138	1,750	1,162	2,697	2,136	3,317
22 Jul	3,831	1,569	598	1,087	2,763	3,330	3,139	1,750	1,163	2,698	2,137	3,326
23 Jul	3,831	1,570	599	1,088	2,763	3,333	3,140	1,754	1,167	2,703	2,138	3,342
24 Jul	3,832	1,570	602	1,088	2,765	3,334	3,145	1,754	1,168	2,704	2,140	3,351
25 Jul	3,833	1,576	683	1,088	2,769	3,335	3,147	1,756	1,168	2,706	2,151	3,353
26 Jul	3,835	1,605	686	1,090	2,791	3,338	3,148	1,759	1,169	2,712	2,158	3,358
27 Jul	3,835	1,605	686	1,098	2,793	3,341	3,153	1,761	1,174	2,718	2,161	3,360
28 Jul	3,837	1,612	688	1,098	2,796	3,343	3,159	1,762	1,174	2,720	2,163	3,361
29 Jul	3,837	1,613	690	1,098	2,815	3,346	3,160	1,766	1,176	2,724	2,167	3,364
30 Jul	3,837	1,618	691	1,098	2,831	3,359	3,166	1,767	1,176	2,726	2,171	3,366
31 Jul	3,837	1,631	692	1,100	2,841	3,365	3,167	1,767	1,177	2,733	2,175	3,371

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	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
1 Aug	3,838	1,632	699	1,100	2,851	3,367	3,167	1,769	1,177	2,737	2,178	3,373
2 Aug	3,838	1,634	704	1,100	2,851	3,378	3,172	1,772	1,177	2,742	2,181	3,377
3 Aug	3,839	1,635	705	1,101	2,853	3,384	3,174	1,772	1,177	2,745	2,182	3,378
4 Aug	3,904	1,635	706	1,104	2,856	3,385	3,177	1,772	1,177	2,751	2,191	3,384
5 Aug	3,906	1,667	707	1,110	2,870	3,385	3,181	1,772	1,178	2,753	2,197	3,385
6 Aug	3,906	1,667	728	1,110	2,875	3,385	3,183	1,787	1,178	2,757	2,202	3,391
7 Aug	3,906	1,667	728	1,112	2,877	3,389	3,184	1,788	1,178	2,761	2,203	3,395
8 Aug	3,910	1,669	733	1,112	2,877	3,390	3,185	1,789	1,178	2,761	2,205	3,396
9 Aug	3,932	1,669	734	1,113	2,893	3,390	3,186	1,795	1,178	2,765	2,210	3,396
10 Aug	3,935	1,669	734	1,122	2,896	3,392	3,187	1,796	1,179	2,765	2,212	3,396
11 Aug	3,954	1,670	734	1,126	2,899	3,398	3,187	1,797	1,179	2,765	2,216	3,396
12 Aug	3,983	1,671	734	1,129	2,901	3,399	3,187	1,800	1,179	2,767	2,220	3,396
13 Aug	3,989	1,671	734	1,145	2,902	3,399	3,187	1,803	1,180	2,768	2,223	3,396
14 Aug	3,995	1,678	734	1,146	2,904	3,402	3,187	1,804	1,180	2,768	2,226	3,398
15 Aug	4,012	1,679	735	1,163	2,906	3,403	3,187	1,805	1,181	2,768	2,230	3,398
16 Aug	4,036	1,684	735	1,165	2,908	3,404	3,188	1,805	1,181	2,768	2,234	3,401
17 Aug	4,067	1,689	736	1,166	2,911	3,407	3,189	1,805	1,181	2,772	2,239	3,409
18 Aug	4,086	1,690	736	1,167	2,911	3,408	3,189	1,809	1,181	2,777	2,242	3,411
19 Aug	4,088	1,695	736	1,167	2,912	3,411	3,189	1,811	1,181	2,777	2,243	3,411
20 Aug	4,100	1,696	739	1,183	2,912	3,413	3,191	1,815	1,182	2,777	2,248	3,411
21 Aug	4,102	1,699	740	1,195	2,913	3,413	3,191	1,817	1,182	2,777	2,250	3,413
22 Aug	4,104	1,699	740	1,197	2,913	3,413	3,191	1,820	1,182	2,777	2,251	3,416
23 Aug	4,106	1,699	740	1,222	2,913	3,414	3,196	1,820	1,182	2,777	2,255	3,418
24 Aug	4,106	1,708	741	1,226	2,914	3,414	3,197	1,820	1,182	2,777	2,256	3,419
25 Aug	4,107	1,710	742	1,253	2,916	3,420	3,197	1,820	1,182	2,777	2,261	3,421
26 Aug	4,108	1,711	743	1,262	2,916	3,420	3,197	1,820	1,182	2,777	2,262	3,424
27 Aug	4,109	1,731	743	1,268	2,916	3,420	3,197	1,820	1,182	2,777	2,265	3,430
28 Aug	4,112	1,736	745	1,269	2,916	3,420	3,197	1,820	1,182	2,777	2,266	3,430
29 Aug	4,112	1,748	745	1,294	2,916	3,420	3,197	1,820	1,182	2,777	2,270	3,430
30 Aug	4,112	1,759	745	1,299	2,916	3,420	3,197	1,820	1,182	2,777	2,272	3,430
31 Aug	4,112	1,759	745	1,299	2,916	3,420	3,197	1,820	1,182	2,777	2,272	3,431
1 Sep	4,112	1,759	745	1,299	2,916	3,420	3,197	1,823	1,182	2,777	2,273	3,431
2 Sep	4,112	1,759	745	1,301	2,916	3,420	3,197	1,824	1,182	2,777	2,273	3,433
3 Sep	4,112	1,759	746	1,302	2,916	3,420	3,197	1,824	1,182	2,777	2,273	3,433
4 Sep	4,112	1,759	746	1,306	2,916	3,420	3,197	1,824	1,182	2,777	2,274	3,434
5 Sep	4,112	1,760	746	1,306	2,916	3,420	3,197	1,824	1,182	2,777	2,274	3,434
6 Sep	4,112	1,760	746	1,306	2,917	3,420	3,197	1,824	1,182	2,777	2,274	3,434
7 Sep	4,112	1,760	746	1,306	2,917	3,420	3,197	1,824	1,182	2,777	2,274	3,434
8 Sep	4,112	1,763	746	1,306	2,917	3,420	3,197	1,824	1,182	2,777	2,274	3,434
9 Sep	4,112	1,765	746	1,306	2,917	3,420	3,197	1,824	1,182	2,777	2,274	3,434
10 Sep	4,112	1,765	746	1,306	2,917	3,420	3,197	1,824	1,182	2,777	2,274	3,434
11 Sep	4,112	1,765	748	1,307	2,917	3,420	3,197	1,824	1,182	2,777	2,275	3,434
12 Sep	4,112	1,765	752	1,307	2,917	3,420	3,197	1,824	1,182	2,777	2,275	3,434

Source: Fuerst 2015: Table 5; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

Appendix D2.–Ayakulik River Chinook salmon daily cumulative weir counts, 2006–2016.

	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
20 May	0	0	0	0	0	0	0	0	0	0	0	0
21 May	0	0	0	0	0	0	0	0	0	0	0	0
22 May	0	14	0	0	0	0	2	0	0	0	2	0
23 May	0	14	0	1	2	0	5	0	0	0	2	0
24 May	0	14	0	1	3	0	19	0	0	0	4	0
25 May	0	14	0	2	3	3	19	0	1	4	5	11
26 May	0	14	0	3	3	17	32	1	4	4	8	48
27 May	0	14	0	3	20	27	33	8	4	8	12	72
28 May	0	14	0	3	20	34	33	15	13	14	15	181
29 May	0	18	0	7	26	44	42	22	21	27	21	256
30 May	0	18	0	7	49	58	54	41	28	35	29	320
31 May	0	25	0	7	58	74	71	47	35	55	37	373
1 Jun	32	27	0	12	93	141	78	60	45	67	56	399
2 Jun	74	31	1	16	111	172	86	80	97	100	77	430
3 Jun	94	52	1	17	112	177	106	87	111	112	87	476
4 Jun	101	61	10	72	137	197	124	123	127	137	109	518
5 Jun	104	71	11	98	265	212	127	135	167	152	134	532
6 Jun	128	192	16	130	338	232	156	198	179	184	175	597
7 Jun	136	222	16	176	368	282	168	361	179	216	212	639
8 Jun	192	365	17	176	392	317	179	363	184	228	241	681
9 Jun	206	438	31	284	514	392	224	476	196	252	301	799
10 Jun	238	438	36	370	668	432	302	488	203	252	343	955
11 Jun	272	477	88	391	773	463	331	562	212	252	382	1,059
12 Jun	319	644	98	478	804	563	392	644	214	283	444	1,251
13 Jun	360	734	122	629	836	980	527	699	238	405	553	1,367
14 Jun	637	988	209	645	866	1,158	755	774	254	469	676	1,454
15 Jun	668	1,346	216	763	904	1,231	812	892	277	560	767	1,542
16 Jun	668	1,637	411	863	934	1,310	957	897	320	638	864	1,740
17 Jun	748	1,702	481	871	960	1,420	1,038	1,078	350	646	929	1,904
18 Jun	750	1,707	499	941	1,110	1,496	1,161	1,110	365	702	984	1,938
19 Jun	951	1,819	547	1,029	1,452	1,687	1,371	1,275	370	743	1,124	2,201
20 Jun	1,574	1,944	920	1,065	1,721	1,893	1,423	1,339	426	795	1,310	2,408
21 Jun	1,583	2,009	1,084	1,127	1,763	2,127	1,679	1,354	449	820	1,400	2,523
22 Jun	1,740	2,103	1,216	1,133	2,183	2,314	1,961	1,363	476	930	1,542	2,649
23 Jun	1,762	2,400	1,248	1,266	2,451	2,389	1,978	1,455	510	1,064	1,652	2,710
24 Jun	1,898	2,482	1,495	1,364	2,555	2,529	2,077	1,573	551	1,211	1,774	2,901
25 Jun	1,925	2,576	1,495	1,430	2,886	2,618	2,135	1,718	592	1,289	1,866	3,094
26 Jun	1,931	2,612	1,588	1,484	3,169	2,885	2,158	1,806	612	1,479	1,972	3,325
27 Jun	1,932	3,081	1,653	1,558	3,285	2,942	2,420	1,821	618	1,664	2,097	3,513
28 Jun	1,935	3,813	1,888	1,631	3,436	3,060	2,673	1,829	636	1,699	2,260	3,661
29 Jun	1,951	4,175	2,128	1,788	3,663	3,107	2,969	1,897	660	1,699	2,404	3,713
30 Jun	1,961	4,475	2,232	1,861	4,006	3,254	3,275	1,900	692	1,708	2,536	3,832

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	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
1 Jul	2,234	5,057	2,346	1,882	4,175	3,410	3,391	1,939	702	1,721	2,686	3,942
2 Jul	2,291	5,128	2,367	2,009	4,217	3,570	3,498	1,964	703	1,756	2,750	4,039
3 Jul	2,424	5,448	2,468	2,058	4,442	3,704	3,702	1,964	713	1,825	2,875	4,079
4 Jul	2,531	5,602	2,490	2,163	4,703	3,774	3,765	1,988	727	1,909	2,965	4,145
5 Jul	2,549	5,801	2,564	2,235	4,840	3,849	3,873	2,009	745	1,940	3,041	4,164
6 Jul	2,568	5,936	2,569	2,250	4,900	3,888	4,273	2,009	820	1,990	3,120	4,198
7 Jul	2,568	6,051	2,572	2,300	5,015	3,910	4,325	2,055	825	2,006	3,163	4,248
8 Jul	2,568	6,164	2,583	2,357	5,061	3,973	4,356	2,096	831	2,034	3,202	4,266
9 Jul	2,576	6,197	2,588	2,396	5,082	4,039	4,389	2,114	849	2,049	3,228	4,285
10 Jul	2,581	6,211	2,605	2,478	5,125	4,061	4,444	2,142	882	2,078	3,261	4,318
11 Jul	2,723	6,291	2,652	2,492	5,184	4,084	4,482	2,249	891	2,100	3,315	4,328
12 Jul	2,831	6,385	2,740	2,516	5,186	4,150	4,539	2,249	895	2,105	3,360	4,361
13 Jul	2,845	6,420	2,823	2,523	5,189	4,160	4,565	2,249	896	2,141	3,381	4,379
14 Jul	2,845	6,451	2,832	2,541	5,240	4,183	4,572	2,255	899	2,168	3,399	4,409
15 Jul	2,847	6,457	2,860	2,561	5,240	4,194	4,620	2,258	901	2,185	3,412	4,430
16 Jul	2,848	6,471	2,910	2,564	5,251	4,215	4,621	2,263	905	2,201	3,425	4,464
17 Jul	2,856	6,472	2,960	2,572	5,259	4,225	4,622	2,283	905	2,253	3,441	4,480
18 Jul	2,866	6,475	2,960	2,576	5,272	4,227	4,623	2,283	907	2,281	3,447	4,491
19 Jul	2,922	6,485	2,974	2,580	5,272	4,227	4,635	2,286	907	2,289	3,458	4,506
20 Jul	2,924	6,492	2,982	2,587	5,274	4,232	4,651	2,299	907	2,299	3,465	4,517
21 Jul	3,007	6,493	2,985	2,589	5,280	4,237	4,655	2,302	908	2,323	3,478	4,519
22 Jul	3,007	6,495	2,985	2,592	5,283	4,248	4,657	2,303	910	2,338	3,482	4,529
23 Jul	3,007	6,497	2,985	2,592	5,283	4,270	4,667	2,307	912	2,361	3,488	4,532
24 Jul	3,056	6,499	2,986	2,596	5,283	4,275	4,689	2,307	913	2,371	3,498	4,532
25 Jul	3,062	6,501	2,989	2,597	5,283	4,280	4,693	2,324	913	2,375	3,502	4,545
26 Jul	3,066	6,508	3,000	2,597	5,287	4,281	4,693	2,337	913	2,380	3,506	4,546
27 Jul	3,066	6,514	3,038	2,597	5,291	4,284	4,696	2,338	914	2,380	3,512	4,550
28 Jul	3,066	6,515	3,048	2,597	5,291	4,289	4,706	2,340	914	2,380	3,515	4,557
29 Jul	3,067	6,515	3,048	2,597	5,292	4,292	4,707	2,340	914	2,384	3,516	4,577
30 Jul	3,067	6,515	3,054	2,602	5,293	4,294	4,716	2,342	914	2,384	3,518	4,578
31 Jul	3,069	6,515	3,054	2,609	5,295	4,297	4,719	2,343	914	2,385	3,520	4,578

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	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
1 Aug	3,069	6,515	3,057	2,609	5,296	4,297	4,719	2,345	914	2,385	3,521	4,591
2 Aug	3,072	6,515	3,060	2,609	5,296	4,299	4,721	2,345	914	2,386	3,522	4,594
3 Aug	3,073	6,517	3,060	2,609	5,298	4,300	4,728	2,345	914	2,387	3,523	4,594
4 Aug	3,079	6,518	3,060	2,612	5,298	4,300	4,728	2,345	914	2,387	3,524	4,594
5 Aug	3,081	6,518	3,062	2,612	5,298	4,300	4,732	2,345	914	2,388	3,525	4,594
6 Aug	3,088	6,518	3,063	2,612	5,300	4,300	4,733	2,357	914	2,388	3,527	4,594
7 Aug	3,088	6,526	3,065	2,612	5,300	4,301	4,737	2,362	914	2,390	3,530	4,594
8 Aug	3,093	6,526	3,066	2,612	5,300	4,301	4,742	2,362	914	2,391	3,531	4,594
9 Aug	3,094	6,526	3,066	2,612	5,300	4,301	4,743	2,362	915	2,391	3,531	4,594
10 Aug	3,094	6,526	3,066	2,613	5,300	4,301	4,746	2,362	915	2,392	3,532	4,594
11 Aug	3,099	6,526	3,067	2,614	5,300	4,301	4,748	2,362	915	2,392	3,532	4,594
12 Aug	3,102	6,526	3,067	2,614	5,300	4,301	4,751	2,362	916	2,392	3,533	4,594
13 Aug	3,104	6,526	3,067	2,614	5,301	4,302	4,751	2,362	916	2,392	3,534	4,594
14 Aug	3,106	6,526	3,067	2,614	5,301	4,315	4,752	2,363	916	2,392	3,535	4,594
15 Aug	3,106	6,526	3,069	2,614	5,301	4,315	4,757	2,365	916	2,392	3,536	4,594
16 Aug	3,106	6,527	3,070	2,614	5,301	4,316	4,758	2,367	916	2,392	3,537	4,594
17 Aug	3,106	6,527	3,071	2,614	5,301	4,316	4,760	2,367	916	2,392	3,537	4,594
18 Aug	3,106	6,527	3,071	2,615	5,301	4,316	4,760	2,369	916	2,392	3,537	4,594
19 Aug	3,106	6,527	3,071	2,615	5,301	4,316	4,760	2,369	916	2,392	3,537	4,594
20 Aug	3,106	6,531	3,071	2,615	5,301	4,316	4,760	2,369	916	2,392	3,538	4,594
21 Aug	3,106	6,531	3,071	2,615	5,301	4,316	4,760	2,369	916	2,392	3,538	4,594
22 Aug	3,106	6,531	3,071	2,615	5,301	4,316	4,760	2,369	916	2,392	3,538	4,594
23 Aug	3,106	6,531	3,071	2,615	5,301	4,316	4,760	2,369	916	2,392	3,538	4,594
24 Aug	3,106	6,531	3,071	2,615	5,301	4,316	4,760	2,369	916	2,392	3,538	4,594
25 Aug	3,106	6,534	3,071	2,615	5,301	4,316	4,760	2,369	916	2,392	3,538	4,594
26 Aug	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
27 Aug	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
28 Aug	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
29 Aug	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
30 Aug	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
31 Aug	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
1 Sep	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
2 Sep	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
3 Sep	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
4 Sep	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
5 Sep	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
6 Sep	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
7 Sep	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
8 Sep	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
9 Sep	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594
10 Sep	3,106	6,535	3,071	2,615	5,301	4,316	4,760	2,369	917	2,392	3,538	4,594

Source: Fuerst 2015: Table 12; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

Appendix D3.–Chignik River Chinook salmon daily cumulative weir counts, 2006–2016.

	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
16 Jun	0	0	0	0	0	6	0	12	12	24	5	12
17 Jun	18	6	0	0	6	6	0	12	36	42	13	12
18 Jun	18	6	0	0	6	18	0	12	42	60	16	18
19 Jun	24	6	6	18	6	18	0	12	60	60	21	18
20 Jun	24	6	6	18	6	18	0	18	66	78	24	18
21 Jun	24	12	6	18	18	18	0	24	72	84	28	30
22 Jun	24	12	6	18	24	24	6	30	90	84	32	66
23 Jun	30	12	6	18	30	31	12	36	103	84	36	90
24 Jun	42	24	6	18	30	43	12	36	127	96	43	108
25 Jun	72	30	18	18	30	43	12	36	165	114	54	144
26 Jun	84	42	18	42	31	61	18	60	195	126	68	186
27 Jun	138	48	18	48	31	85	18	60	267	146	86	198
28 Jun	150	48	18	48	55	115	18	84	291	212	104	228
29 Jun	162	54	24	48	61	115	18	90	339	212	112	276
30 Jun	162	54	30	72	61	139	30	90	405	260	130	306
1 Jul	180	54	30	84	73	181	48	90	465	284	149	372
2 Jul	222	66	36	120	157	248	55	120	561	326	191	450
3 Jul	246	84	66	162	205	302	68	120	633	375	226	498
4 Jul	288	114	108	180	247	350	86	133	723	400	263	576
5 Jul	324	120	114	237	319	398	94	171	875	505	316	636
6 Jul	396	138	144	253	355	494	118	195	1,067	621	378	750
7 Jul	574	156	162	345	463	650	156	219	1,199	759	468	855
8 Jul	745	228	180	387	499	729	181	243	1,283	831	531	933
9 Jul	864	258	228	429	595	738	211	263	1,435	904	593	1,017
10 Jul	921	372	241	543	799	813	241	299	1,554	952	674	1,095
11 Jul	980	440	265	597	895	885	298	347	1,722	1,000	743	1,143
12 Jul	1,034	626	308	706	1,225	990	352	413	1,789	1,144	859	1,198
13 Jul	1,200	668	353	713	1,399	1,259	478	503	1,879	1,216	967	1,246
14 Jul	1,388	718	384	755	1,537	1,393	532	546	1,934	1,294	1,048	1,300
15 Jul	1,448	782	482	773	1,735	1,621	634	612	1,970	1,338	1,140	1,348
16 Jul	1,540	839	560	779	1,759	1,669	652	649	1,994	1,380	1,182	1,390
17 Jul	1,668	876	709	827	1,841	1,771	736	709	2,114	1,410	1,266	1,438
18 Jul	1,720	1,037	829	863	1,944	1,867	838	727	2,190	1,417	1,343	1,450
19 Jul	2,044	1,199	927	989	2,002	1,951	911	781	2,312	1,448	1,456	1,504
20 Jul	2,226	1,321	1,019	1,055	2,170	2,071	929	835	2,397	1,460	1,548	1,516
21 Jul	2,310	1,327	1,110	1,157	2,404	2,150	969	854	2,475	1,467	1,622	1,536
22 Jul	2,424	1,375	1,146	1,229	2,609	2,216	1,017	890	2,493	1,473	1,687	1,560
23 Jul	2,508	1,400	1,172	1,259	2,687	2,276	1,053	927	2,552	1,534	1,737	1,578
24 Jul	2,694	1,462	1,220	1,283	2,759	2,366	1,065	957	2,609	1,576	1,799	1,608
25 Jul	2,795	1,511	1,251	1,301	2,933	2,390	1,113	987	2,628	1,601	1,851	1,626
26 Jul	2,871	1,541	1,288	1,331	3,065	2,420	1,133	1,005	2,630	1,661	1,895	1,632

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	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
27 Jul	2,917	1,545	1,343	1,337	3,141	2,456	1,151	1,035	2,672	1,685	1,928	1,650
28 Jul	2,991	1,559	1,391	1,367	3,207	2,475	1,200	1,053	2,686	1,740	1,967	1,668
29 Jul	3,058	1,589	1,423	1,385	3,243	2,487	1,236	1,065	2,716	1,758	1,996	1,668
30 Jul	3,105	1,610	1,461	1,403	3,328	2,505	1,261	1,101	2,722	1,764	2,026	1,698
31 Jul	3,159	1,622	1,486	1,403	3,358	2,535	1,261	1,119	2,735	1,788	2,047	1,716
1 Aug	3,202	1,651	1,498	1,409	3,382	2,553	1,273	1,155	2,742	1,814	2,068	1,740
2 Aug	3,208	1,677	1,504	1,421	3,406	2,595	1,309	1,162	2,755	1,844	2,088	1,752
3 Aug	3,280	1,684	1,516	1,457	3,412	2,613	1,309	1,162	2,761	1,856	2,105	1,752
4 Aug	3,305	1,720	1,540	1,488	3,442	2,619	1,321	1,174	2,777	1,886	2,127	1,777
5 Aug	3,329	1,732	1,564	1,506	3,454	2,625	1,333	1,174	2,791	1,904	2,141	1,777
6 Aug	3,353	1,732	1,572	1,518	3,454	2,625	1,346	1,180	2,791	1,929	2,150	1,783
7 Aug	3,365	1,732	1,578	1,529	3,479	2,631	1,352	1,180	2,799	1,941	2,159	1,795
8 Aug	3,390	1,750	1,584	1,547	3,497	2,636	1,364	1,186	2,799	1,971	2,172	1,795
9 Aug	3,408	1,768	1,590	1,571	3,515	2,641	1,376	1,192	2,808	1,983	2,185	1,795
10 Aug	3,414	1,808	1,596	1,571	3,533	2,642	1,382	1,216	2,820	2,007	2,199	1,801
11 Aug	3,450	1,808	1,603	1,571	3,539	2,649	1,394	1,223	2,838	2,019	2,209	1,825
12 Aug	3,468	1,809	1,609	1,577	3,539	2,673	1,400	1,223	2,844	2,019	2,216	1,831
13 Aug	3,474	1,827	1,628	1,577	3,539	2,673	1,400	1,223	2,850	2,024	2,222	1,837
14 Aug	3,493	1,830	1,629	1,577	3,551	2,685	1,412	1,229	2,862	2,024	2,229	1,837
15 Aug	3,505	1,831	1,629	1,577	3,569	2,685	1,412	1,235	2,881	2,030	2,235	1,843
16 Aug	3,511	1,843	1,629	1,578	3,581	2,697	1,418	1,235	2,881	2,036	2,241	1,843
17 Aug	3,517	1,856	1,636	1,584	3,599	2,703	1,424	1,235	2,887	2,042	2,248	1,843
18 Aug	3,517	1,862	1,666	1,596	3,623	2,703	1,424	1,235	2,887	2,054	2,257	1,843
19 Aug	3,517	1,910	1,678	1,602	3,629	2,703	1,424	1,241	2,887	2,054	2,265	1,843
20 Aug	3,529	1,913	1,694	1,614	3,629	2,709	1,424	1,247	2,887	2,054	2,270	1,843
21 Aug	3,529	1,931	1,700	1,620	3,629	2,716	1,430	1,247	2,887	2,054	2,274	1,843
22 Aug	3,535	1,939	1,706	1,620	3,629	2,716	1,430	1,247	2,887	2,054	2,276	1,843
23 Aug	3,535	1,957	1,718	1,620	3,629	2,716	1,443	1,247	2,887	2,054	2,281	1,843
24 Aug	3,535	1,957	1,718	1,626	3,647	2,716	1,449	1,247	2,889	2,054	2,284	1,843
25 Aug	3,535	1,963	1,724	1,626	3,649	2,716	1,449	1,247	2,889	2,054	2,285	1,843
26 Aug	3,535	1,969	1,730	1,644	3,661	2,716	1,449	1,247	2,889	2,054	2,289	1,843
27 Aug	3,535	1,976	1,730	1,662	3,661	2,716	1,449	1,247	2,895	2,054	2,293	1,843
28 Aug	3,535	1,982	1,730	1,668	3,661	2,716	1,449	1,247	2,895	2,054	2,294	1,843
29 Aug	3,535	1,994	1,730	1,674	3,661	2,716	1,449	1,247	2,895	2,054	2,296	1,843
30 Aug	3,535	1,994	1,730	1,674	3,679	2,716	1,449	1,247	2,895	2,054	2,297	1,843
31 Aug	3,535	2,000	1,730	1,680	3,679	2,716	1,449	1,247	2,895	2,054	2,299	1,843
1 Sep	3,535	2,000	1,730	1,680	3,679	2,722	1,449	1,247	2,895	2,054	2,299	1,843
2 Sep	3,535	2,000	1,730	1,680	3,679	2,728	1,449	1,253	2,895	2,054	2,300	1,843

Source: Fuerst 2015.

Appendix D4.–Buskin River coho salmon daily cumulative weir counts, 2006–2016.

	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
17 Jul	0	0	0	0	0	0	0	0	0	0	0	0
18 Jul	0	0	0	0	0	0	0	0	0	0	0	0
19 Jul	0	0	0	0	0	0	0	0	0	0	0	0
20 Jul	0	0	0	0	0	0	0	0	0	0	0	0
21 Jul	0	0	0	0	0	0	0	0	0	0	0	0
22 Jul	0	0	0	0	0	0	0	0	0	0	0	0
23 Jul	0	1	0	0	0	0	0	0	0	0	0	0
24 Jul	0	1	0	0	0	0	0	0	0	0	0	0
25 Jul	0	1	0	0	0	0	0	0	0	0	0	0
26 Jul	0	1	0	0	0	0	0	0	0	0	0	0
27 Jul	0	1	0	0	0	0	0	0	0	0	0	0
28 Jul	0	1	0	0	0	0	0	0	0	0	0	0
29 Jul	0	2	0	0	0	0	0	0	0	0	0	0
30 Jul	0	2	0	0	0	0	0	0	0	0	0	0
31 Jul	0	2	0	0	0	0	0	0	0	0	0	0
1 Aug	0	2	1	0	0	0	0	0	0	0	0	0
2 Aug	0	2	1	0	0	0	0	0	0	0	0	0
3 Aug	0	2	2	2	0	0	0	3	0	0	1	0
4 Aug	2	2	3	6	0	0	0	7	0	0	2	0
5 Aug	7	2	8	8	0	0	0	9	0	0	3	2
6 Aug	9	2	8	8	0	0	0	10	0	0	4	3
7 Aug	20	4	8	17	0	0	0	10	0	0	6	10
8 Aug	34	4	16	27	5	0	0	10	0	0	10	12
9 Aug	61	5	26	33	20	0	0	18	3	0	17	12
10 Aug	82	5	34	35	31	0	0	38	3	0	23	16
11 Aug	103	7	50	52	40	0	3	54	4	0	31	16
12 Aug	121	11	85	70	44	0	17	59	6	70	48	18
13 Aug	154	14	103	81	49	0	50	75	7	70	60	21
14 Aug	195	29	210	91	60	0	109	79	463	72	131	51
15 Aug	208	34	251	94	79	0	147	93	463	74	144	63
16 Aug	220	38	392	115	109	0	166	110	473	74	170	69
17 Aug	256	42	476	131	139	0	207	129	511	75	197	86
18 Aug	327	98	512	160	221	10	213	165	521	78	231	121
19 Aug	414	120	571	179	267	13	300	177	540	82	266	137
20 Aug	520	122	653	207	284	21	334	193	573	85	299	160
21 Aug	910	131	741	232	298	31	339	206	573	87	355	189
22 Aug	1,059	160	790	251	398	56	346	280	576	87	400	220
23 Aug	1,138	232	959	260	419	69	347	367	586	88	447	324
24 Aug	1,370	299	1,107	267	461	81	358	486	678	92	520	358
25 Aug	1,554	346	1,185	280	492	255	363	613	762	102	595	410
26 Aug	1,726	415	1,304	297	523	396	368	727	854	108	672	418

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	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
27 Aug	2,038	701	1,380	357	546	679	372	823	1,072	117	809	480
28 Aug	2,318	1,250	1,466	626	561	826	375	855	1,112	133	952	487
29 Aug	2,639	1,450	1,486	894	578	963	384	1,533	1,146	137	1,121	574
30 Aug	3,907	1,700	1,519	1,113	584	1,121	397	2,033	1,203	141	1,372	660
31 Aug	4,270	1,839	1,785	1,253	605	1,250	415	2,439	1,308	144	1,531	669
1 Sep	4,819	2,121	2,006	1,354	612	1,367	428	2,488	1,337	147	1,668	687
2 Sep	5,301	2,205	2,494	1,424	619	1,462	433	2,686	1,417	149	1,819	707
3 Sep	6,028	2,632	2,583	1,678	634	1,583	443	2,745	1,580	151	2,006	745
4 Sep	6,579	3,437	2,861	1,874	719	1,711	450	2,850	2,442	153	2,308	863
5 Sep	7,166	3,670	3,138	2,075	922	1,814	469	3,011	2,779	153	2,520	883
6 Sep	7,705	3,961	3,438	2,317	943	1,907	471	3,354	2,997	153	2,725	970
7 Sep	8,365	4,281	3,738	2,663	1,091	2,022	473	3,697	3,043	158	2,953	975
8 Sep	8,940	4,598	4,038	3,436	1,171	2,148	474	3,840	3,228	160	3,203	992
9 Sep	9,237	4,819	4,528	3,771	1,441	2,309	479	4,073	3,305	165	3,413	1,007
10 Sep	9,467	4,981	5,017	4,041	1,471	2,439	482	4,306	3,427	180	3,581	1,017
11 Sep	9,632	5,327	5,328	4,323	1,475	2,574	506	4,441	3,820	189	3,762	1,285
12 Sep	9,663	5,701	5,662	4,605	1,488	2,720	526	4,560	4,298	196	3,942	1,329
13 Sep	9,697	5,856	6,127	4,777	1,492	2,833	529	4,763	4,917	197	4,119	1,360
14 Sep	10,114	5,999	6,266	5,146	1,538	2,988	532	4,788	5,048	201	4,262	1,377
15 Sep	10,523	6,272	6,406	5,602	1,545	3,109	788	4,840	6,397	209	4,569	1,441
16 Sep	10,729	6,439	6,583	5,602	1,551	3,191	1,023	4,849	6,940	212	4,712	1,483
17 Sep	11,131	6,487	6,614	5,911	1,553	3,312	1,079	4,856	7,403	214	4,856	1,507
18 Sep	11,530	6,536	7,155	6,583	1,556	3,499	1,424	4,890	7,711	217	5,110	1,511
19 Sep	12,518	6,619	7,678	7,248	1,576	3,740	1,974	4,949	7,917	217	5,444	1,530
20 Sep	12,770	6,713	7,962	8,567	1,578	3,934	2,361	5,009	8,044	219	5,716	1,551
21 Sep	13,348	6,810	7,999	8,860	1,598	4,062	2,591	5,124	8,192	220	5,880	1,934
22 Sep	13,348	6,911	8,087	9,390	1,901	4,239	2,891	5,269	8,195	221	6,045	2,114
23 Sep	13,348	7,448	8,312	9,715	1,946	4,399	3,191	5,284	8,214	221	6,208	2,325
24 Sep	13,348	8,171	8,398	9,810	2,819	4,657	3,491	5,285	8,216	221	6,442	2,360
25 Sep	13,348	8,292	8,699	10,244	3,064	4,908	3,791	5,323	8,219	221	6,611	2,451
26 Sep	13,348	8,366	8,834	10,304	3,174	5,073	4,091	5,327	8,222	223	6,696	2,486
27 Sep	13,348	8,444	8,939	10,502	3,260	5,407	4,391	5,386	8,332	226	6,824	2,513
28 Sep	13,348	8,752	9,003	10,573	3,301	5,753	4,691	5,386	8,413	232	6,945	2,513
29 Sep	13,348	9,000	9,028	10,624	3,307	5,915	4,991	5,386	8,413	974	7,099	2,513
30 Sep	13,348	9,001	9,028	10,624	3,309	5,941	5,291	5,386	8,413	987	7,133	2,513
1 Oct	13,348	9,001	9,028	10,624	5,794	5,961	5,291	5,386	8,413	987	7,383	2,513
2 Oct	13,348	9,001	9,028	10,624	6,028	5,969	5,291	5,386	8,413	1,223	7,431	2,513
3 Oct	13,348	9,001	9,028	10,624	6,237	5,982	5,291	5,386	8,413	1,890	7,520	2,513
4 Oct	13,348	9,001	9,028	10,624	6,537	6,026	5,291	5,386	8,413	1,920	7,557	2,513
5 Oct	13,348	9,001	9,028	10,624	6,766	6,026	5,291	5,386	8,413	1,920	7,580	2,513
6 Oct	13,348	9,001	9,028	10,624	6,803	6,026	5,291	5,386	8,413	2,220	7,614	2,513
7 Oct	13,348	9,001	9,028	10,624	6,808	6,026	5,291	5,386	8,413	2,652	7,658	2,513
8 Oct	13,348	9,001	9,028	10,624	6,808	6,026	5,291	5,386	8,413	4,341	7,827	2,513

Source: Fuerst 2015: Table 39; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

Appendix D5.–Buskin River sockeye salmon daily cumulative weir counts, 2006–2016.

	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
17 May	0	0	0	0	0	0	0		0		0	0
18 May	0	0	0	0	0	0	0		0		0	0
19 May	1	0	0	0	0	0	0		10	0	1	0
20 May	1	0	0	0	0	0	0		46	0	5	12
21 May	10	0	0	0	0	0	0	1	48	4	6	125
22 May	20	0	0	2	0	0	0	1	51	43	12	130
23 May	20	10	0	2	0	0	0	2	53	116	20	144
24 May	20	48	0	2	0	0	7	2	191	117	39	144
25 May	20	57	0	2	0	0	80	89	206	117	57	144
26 May	20	61	0	2	0	0	225	89	208	117	72	146
27 May	20	61	0	2	0	0	311	116	374	117	100	224
28 May	20	61	0	2	0	40	313	179	554	141	131	770
29 May	20	61	0	102	288	323	336	251	628	357	237	776
30 May	20	61	0	116	309	495	337	425	1,061	424	325	944
31 May	20	63	0	116	332	677	402	676	1,202	720	421	1,162
1 Jun	20	64	4	116	383	835	544	844	1,422	816	505	1,316
2 Jun	20	112	4	116	650	960	870	1,004	1,455	924	612	1,811
3 Jun	148	380	4	183	662	1,161	870	1,325	1,637	1,045	742	2,236
4 Jun	406	487	13	183	946	1,313	983	1,612	1,738	1,047	873	2,557
5 Jun	434	927	13	428	974	1,479	1,014	1,827	1,877	1,272	1,025	2,785
6 Jun	434	1,319	79	431	976	1,541	1,179	2,050	2,565	1,322	1,190	3,091
7 Jun	723	2,072	81	444	1033	2,340	1,569	2,696	2,565	1,445	1,497	3,317
8 Jun	3,004	2,403	106	448	1337	2,840	1,780	3,382	3,464	1,618	2,038	4,067
9 Jun	4,104	2,707	231	458	1531	2,982	1,870	3,836	4,260	2,113	2,409	4,397
10 Jun	4,607	3,002	289	1,258	1809	3,360	2,027	4,057	4,637	2,194	2,724	4,671
11 Jun	5,188	5,250	467	1,268	1998	3,540	2,489	4,790	4,977	2,299	3,227	4,840
12 Jun	5,976	6,351	680	1,268	2129	3,895	2,592	5,379	5,930	2,387	3,659	4,874
13 Jun	6,268	6,679	764	1,324	2515	4,256	2,813	5,933	6,639	2,387	3,958	4,876
14 Jun	7,091	6,792	805	1,805	2769	4,522	2,923	6,663	6,813	2,450	4,263	4,876
15 Jun	7,512	7,399	964	1,835	3054	5,310	3,080	7,450	7,172	2,593	4,637	4,882
16 Jun	7,812	8,423	1,020	1,860	3,083	5,659	3,344	7,813	7,516	2,647	4,918	4,914
17 Jun	8,665	8,868	1,036	2,937	3,210	6,381	4,286	9,125	7,949	2,734	5,519	4,947
18 Jun	9,116	9,221	1,242	3,107	3,806	6,972	4,395	9,880	8,450	2,734	5,892	5,077
19 Jun	9,337	9,328	1,385	3,143	3,951	7,537	4,472	10,278	8,882	2,735	6,105	5,138
20 Jun	9,635	9,657	1,430	3,556	4,256	7,752	4,494	10,841	9,267	2,761	6,365	5,220
21 Jun	11,091	10,015	1,517	3,821	4,516	8,064	4,666	10,969	9,339	2,769	6,677	5,720
22 Jun	11,148	10,346	1,783	4,129	4,557	8,383	5,317	11,240	9,603	2,796	6,930	5,826
23 Jun	11,154	10,507	1,859	4,237	4,721	8,517	5,624	11,883	9,733	3,012	7,125	6,146
24 Jun	11,388	10,595	1,945	4,352	4,799	8,806	5,632	12,270	9,897	3,025	7,271	6,158
25 Jun	11,626	10,904	2,583	4,476	5,264	9,055	5,885	12,509	10,015	3,195	7,551	6,299

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	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
26 Jun	11,779	11,100	2,608	4,640	5,797	9,183	5,938	12,797	10,144	3,396	7,738	6,352
27 Jun	11,939	11,914	2,830	4,979	6,006	9,273	6,215	13,064	10,208	3,461	7,989	6,453
28 Jun	12,225	11,914	3,008	5,242	6,074	9,562	6,236	13,629	10,353	3,633	8,188	6,456
29 Jun	12,375	12,039	3,069	5,370	6,126	9,619	6,357	13,792	10,470	3,736	8,295	6,456
30 Jun	12,405	12,145	3,648	5,642	6,174	9,773	6,624	13,925	10,547	4,032	8,492	6,573
1 Jul	12,442	12,243	3,745	5,666	6,201	9,791	6,699	14,039	10,631	4,183	8,564	6,865
2 Jul	12,467	12,319	3,802	5,746	6,582	9,810	6,753	14,124	10,680	4,350	8,663	6,881
3 Jul	12,671	12,720	4,150	5,753	7,131	9,822	6,836	14,224	10,746	4,570	8,862	6,881
4 Jul	13,108	12,951	4,235	5,756	7,131	10,059	6,910	14,272	10,825	4,717	8,996	6,924
5 Jul	13,123	13,069	4,235	5807	7,140	10,085	6,933	14,289	10,956	5,133	9,077	7,236
6 Jul	13,136	13,620	4,244	5825	7,310	10,180	6,947	14,318	11,018	5,516	9,211	7,311
7 Jul	13,142	13,659	4,281	5903	7,387	10,221	6,992	14,404	11,185	5,550	9,272	7,377
8 Jul	13,239	13,669	4,302	6,255	7,762	10,270	7,169	14,475	12,151	5,560	9,485	7,407
9 Jul	14,201	13,887	4,401	6,297	8,370	10,328	7,224	14,546	12,195	5,579	9,703	8,053
10 Jul	14,368	14,150	4,402	6,313	8,437	10,460	7,225	14,978	12,242	5,795	9,837	8,056
11 Jul	14,938	14,213	4,403	6,375	8,503	10,477	7,622	15,070	12,276	5,888	9,977	8,090
12 Jul	15,019	14,258	4,587	6,376	8,583	10,530	7,690	15,089	12,294	5,911	10,034	8,113
13 Jul	15,032	14,462	4,658	6,385	8,625	10,539	7,700	15,113	12,310	5,922	10,075	8,147
14 Jul	15,059	14,465	4,658	6,435	8,643	10,771	7,709	15,145	12,388	5,990	10,126	8,475
15 Jul	15,061	14,466	4,664	6,527	9,196	10,774	7,713	15,256	12,416	6,195	10,227	8,521
16 Jul	15,218	14,574	4,680	6,887	9,197	10,779	7,717	15,264	12,698	6,599	10,361	8,620
17 Jul	15,221	14,579	4,770	6,889	9,197	10,780	7,729	15,281	12,743	6,621	10,381	8,684
18 Jul	15,224	14,641	4,777	6,910	9,261	10,782	7,784	15,295	12,795	6,622	10,409	9,204
19 Jul	15,489	14,662	4,777	6,911	9,327	10,782	7,801	15,301	12,810	6,950	10,481	9,272
20 Jul	15,531	14,698	4,777	6,921	9,396	10,783	7,859	15,307	13,078	6,986	10,534	9,279
21 Jul	15,631	14,776	4,785	7,007	9,409	10,786	7,867	15,320	13,101	7,125	10,581	9,281
22 Jul	15,637	14,829	4,787	7,060	9,416	10,851	7,877	15,322	13,106	7,519	10,640	9,296
23 Jul	15,637	14,872	4,787	7,067	9,428	10,856	7,900	15,341	13,111	7,522	10,652	9,357
24 Jul	15,637	15,135	4,990	7,068	9,428	10,865	7,906	15,345	13,118	7,522	10,701	9,383
25 Jul	15,940	15,335	5,043	7,289	9,430	10,871	7,911	15,363	13,120	7,528	10,783	9,389
26 Jul	15,951	15,335	5,044	7,395	9,608	10,872	7,917	15,387	13,124	7,560	10,819	9,417
27 Jul	15,972	15,335	5,045	7,399	9,617	10,878	7,947	15,390	13,145	7,572	10,830	9,505
28 Jul	16,031	15,685	5,050	7,421	9,617	10,887	7,990	15,392	13,148	7,774	10,900	9,522
29 Jul	16,078	15,774	5,412	7,461	9,617	10,914	7,991	15,413	13,149	7,791	10,960	9,579
30 Jul	16,079	15,811	5,441	7,480	9,638	10,915	8,033	15,440	13,196	7,808	10,984	9,826
31 Jul	16,081	15,822	5,466	7,502	9,650	10,915	8,049	15,448	13,198	7,814	10,995	10,351
1 Aug	16,094	15,827	5,486	7,516	9,652	10,916	8,049	15,530	13,200	7,835	11,011	10,369
2 Aug	16,146	15,879	5,503	7,516	9,653	10,933	8,049	15,587	13,201	7,841	11,031	10,369
3 Aug	16,207	15,948	5,521	7,519	9,656	10,935	8,057	15,691	13,419	7,885	11,084	10,371
4 Aug	16,264	15,979	5,538	7,572	9,656	10,935	8,077	15,732	13,425	8,174	11,135	10,378
5 Aug	16,380	16,013	5,562	7,579	9,661	10,965	8,195	15,746	13,438	8,208	11,175	10,452
6 Aug	16,479	16,047	5,570	7,584	9,665	10,965	8,199	15,789	13,447	8,215	11,196	10,611
7 Aug	16,606	16,073	5,578	7,596	9,666	10,965	8,199	15,789	13,450	8,288	11,221	10,632
8 Aug	16,663	16,085	5,589	7,615	9,680	10,965	8,200	15,789	13,466	8,303	11,236	10,635

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	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
9 Aug	16,776	16,104	5,592	7,635	9,680	10,965	8,207	15,809	13,647	8,375	11,279	10,635
10 Aug	16,818	16,132	5,608	7,637	9,682	10,985	8,208	15,833	13,698	8,394	11,300	10,646
11 Aug	16,876	16,146	5,639	7,643	9,682	10,987	8,211	15,837	13,710	8,413	11,314	10,646
12 Aug	16,918	16,162	5,660	7,644	9,682	10,987	8,240	15,844	13,720	8,423	11,328	10,653
13 Aug	16,963	16,175	5,661	7,647	9,683	10,988	8,242	15,848	13,730	8,448	11,339	10,655
14 Aug	17,017	16,197	5,858	7,658	9,698	10,993	8,414	15,851	13,739	8,458	11,388	10,765
15 Aug	17,059	16,217	5,862	7,659	9,709	10,993	8,452	15,858	13,749	8,465	11,402	10,775
16 Aug	17,077	16,219	5,875	7,663	9,710	10,994	8,453	15,859	13,751	8,470	11,407	10,789
17 Aug	17,109	16,226	5,878	7,668	9,720	10,995	8,453	15,893	13,753	8,512	11,421	10,926
18 Aug	17,150	16,269	5,882	7,674	9,739	11,024	8,454	15,936	13,754	8,526	11,441	10,961
19 Aug	17,186	16,285	5,882	7,683	9,751	11,251	8,455	15,947	13,761	8,536	11,474	11,010
20 Aug	17,238	16,286	5,882	7,689	9,755	11,254	8,455	15,955	13,763	8,550	11,483	11,024
21 Aug	17,281	16,295	5,883	7,693	9,761	11,263	8,460	15,957	13,764	8,553	11,491	11,044
22 Aug	17,304	16,303	5,883	7,700	9,761	11,274	8,460	15,962	13,772	8,554	11,497	11,053
23 Aug	17,332	16,314	5,886	7,701	9,764	11,290	8,464	15,972	13,776	8,556	11,506	11,062
24 Aug	17,457	16,328	5,887	7,703	9,766	11,292	8,465	15,998	13,791	8,559	11,525	11,068
25 Aug	17,495	16,339	5,889	7,706	9,766	11,369	8,465	16,001	13,801	8,560	11,539	11,069
26 Aug	17,522	16,347	5,889	7,708	9,769	11,561	8,465	16,003	13,813	8,563	11,564	11,075
27 Aug	17,571	16,380	5,890	7,716	9,769	11,684	8,466	16,013	13,817	8,578	11,588	11,085
28 Aug	17,586	16,380	5,890	7,716	9,771	11,795	8,466	16,013	13,838	8,584	11,604	11,099
29 Aug	17,607	16,380	5,890	7,728	9,771	11,801	8,466	16,023	13,842	8,586	11,609	11,125
30 Aug	17,656	16,394	5,890	7,731	9,771	11,806	8,466	16,024	13,845	8,587	11,617	11,130
31 Aug	17,668	16,400	5,892	7,731	9,772	11,816	8,467	16,024	13,845	8,588	11,620	11,137
1 Sep	17,674	16,408	5,894	7,731	9,772	11,823	8,467	16,049	13,850	8,593	11,626	11,137
2 Sep	17,692	16,413	5,894	7,731	9,774	11,904	8,467	16,050	13,852	8,595	11,637	11,144
3 Sep	17,699	16,424	5,898	7,732	9,775	11,950	8,467	16,064	13,853	8,599	11,646	11,157
4 Sep	17,706	16,461	5,898	7,733	9,779	11,955	8,467	16,071	13,864	8,604	11,654	11,180
5 Sep	17,714	16,463	5,898	7,734	9,780	11,973	8,469	16,077	13,882	8,608	11,660	11,187
6 Sep	17,719	16,473	5,898	7,734	9,780	11,973	8,470	16,142	13,886	8,612	11,669	11,206
7 Sep	17,723	16,477	5,898	7,736	9,780	11,973	8,470	16,160	13,887	8,613	11,672	11,206
8 Sep	17,728	16,480	5,898	7,739	9,780	11,975	8,471	16,168	13,887	8,618	11,674	11,209
9 Sep	17,728	16,480	5,898	7,743	9,780	11,979	8,471	16,175	13,900	8,621	11,678	11,229
10 Sep	17,730	16,484	5,898	7,743	9,781	11,979	8,472	16,178	13,905	8,624	11,679	11,235
11 Sep	17,732	16,486	5,898	7,745	9,781	11,980	8,474	16,179	13,905	8,626	11,681	11,236
12 Sep	17,734	16,488	5,898	7,747	9,781	11,982	8,478	16,179	13,947	8,627	11,686	11,238
13 Sep	17,734	16,491	5,898	7,747	9,783	11,982	8,479	16,180	13,961	8,628	11,688	11,241
14 Sep	17,734	16,491	5,898	7,747	9,785	11,982	8,479	16,180	13,961	8,631	11,689	11,243
15 Sep	17,734	16,491	5,898	7,748	9,787	11,982	8,481	16,180	13,967	8,641	11,691	11,249
16 Sep	17,734	16,492	5,898	7,749	9,787	11,982	8,486	16,180	13,969	8,647	11,692	11,256
17 Sep	17,734	16,493	5,898	7,750	9,787	11,982	8,490	16,180	13,972	8,654	11,694	11,256
18 Sep	17,734	16,494	5,898	7,751	9,788	11,982	8,500	16,183	13,972	8,658	11,696	11,256
19 Sep	17,734	16,495	5,898	7,751	9,788	11,982	8,521	16,186	13,974	8,660	11,699	11,259
20 Sep	17,734	16,496	5,898	7,753	9,788	11,982	8,528	16,186	13,974	8,669	11,701	11,260

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	Year											
Date	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
21 Sep	17,734	16,496	5,898	7,753	9,788	11,982	8,530	16,186	13,974	8,671	11,701	11,561
22 Sep	17,734	16,496	5,898	7,754	9,788	11,982	8,558	16,187	13,976	8,671	11,704	11,569
23 Sep	17,734	16,496	5,898	7,754	9,788	11,982	8,561	16,187	13,976	8,676	11,705	11,577
24 Sep	17,734	16,498	5,899	7,754	9,788	11,982	8,564	16,187	13,976	8,676	11,706	11,580
25 Sep	17,734	16,498	5,899	7,755	9,788	11,982	8,565	16,187	13,976	8,676	11,706	11,583
26 Sep	17,734	16,499	5,900	7,756	9,788	11,982	8,565	16,187	13,976	8,682	11,707	11,583
27 Sep	17,734	16,500	5,900	7,757	9,788	11,982	8,565	16,189	13,976	8,689	11,708	11,583
28 Sep	17,734	16,501	5,900	7,757	9,788	11,982	8,565	16,189	13,976	8,692	11,708	11,584
29 Sep	17,734	16,502	5,900	7,757	9,788	11,982	8,565	16,189	13,976	8,693	11,709	11,584
30 Sep	17,734	16,502	5,900	7,757	9,788	11,982	8,565	16,189	13,976	8,697	11,709	11,584
1 Oct	17,734	16,502	5,900	7,757	9,797	11,982	8,565	16,189	13,976	8,697	11,710	11,584

Source: Fuerst 2015: Table 38; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

Appendix D6.–Saltery River sockeye salmon daily cumulative weir counts, 2002–2003 and 2008–2016.

	Year											
Date	2002	2003	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
19 Jun	0	112	0	0	0	19	0	1,033	24	269	146	1,338
20 Jun	0	1,114	0	0	0	128	0	1,261	104	308	292	1,416
21 Jun	0	1,345	0	0	0	492	246	1,284	172	442	398	1,442
22 Jun	0	1,770	0	0	0	775	451	1,427	275	491	519	1,503
23 Jun	0	2,047	0	0	63	912	860	1,538	375	503	630	2,049
24 Jun	0	2,777	0	141	509	1,175	1,380	2,232	398	558	917	2,393
25 Jun	0	3,319	0	658	610	1,212	2,143	3,043	405	1,434	1,282	3,356
26 Jun	0	3,512	0	1,691	674	1,421	2,974	5,949	507	1,537	1,827	4,724
27 Jun	0	4,306	200	2,222	739	1,624	3,427	7,652	641	1,656	2,247	5,652
28 Jun	0	5,287	399	2,704	1212	2,103	4,024	8,889	760	1,732	2,711	6,022
29 Jun	0	7,663	589	2,950	1494	2,276	4,277	9,347	814	1,886	3,130	6,798
30 Jun	501	9,088	749	3,265	1546	2,426	4,466	10,773	993	1,968	3,578	8,500
1 Jul	3,247	10,106	3,473	3,413	1,586	2,520	4,847	11,807	1,002	2,118	4,412	11,015
2 Jul	5,826	11,896	8,711	3,744	1,607	3,404	5,198	12,292	1,082	2,472	5,623	11,552
3 Jul	11,900	12,589	9,354	4,230	1,673	4,184	5,695	12,915	1,225	2,494	6,626	12,040
4 Jul	14,021	13,544	9,921	4,384	2,693	4,492	6,020	13,596	1,279	2,870	7,282	12,537
5 Jul	14,958	14,116	10,638	4,744	2,770	6,146	6,283	14,651	1,944	3,283	7,953	13,101
6 Jul	15,316	16,243	10,906	5,204	3,651	7,318	6,345	14,964	3,009	5,691	8,865	13,898
7 Jul	15,468	17,250	11,194	6,796	3,933	7,715	6,895	15,422	4,182	7,049	9,590	14,350
8 Jul	15,815	19,095	11,654	8,371	4,033	7,869	7,241	15,940	4,877	7,380	10,228	14,947
9 Jul	15,848	20,520	12,970	9,653	4,855	8,036	7,414	17,253	5,734	7,734	11,002	15,671
10 Jul	15,917	21,403	13,820	10,847	5,799	8,208	7,432	17,876	6,251	8,179	11,573	16,341
11 Jul	16,268	22,529	14,440	11,217	6,236	8,430	7,950	18,281	6,735	8,320	12,041	17,125
12 Jul	16,382	23,679	15,754	11,623	6,489	9,417	8,287	19,333	7,088	8,894	12,695	18,018
13 Jul	16,512	24,501	19,080	12,210	7,009	9,961	9,397	20,229	7,730	10,170	13,680	19,362
14 Jul	16,633	25,752	20,990	13,077	8,083	12,371	10,058	21,366	8,597	11,233	14,816	20,049
15 Jul	16,953	28,244	21,770	14,032	8,815	13,554	10,665	21,794	11,169	11,946	15,894	20,339
16 Jul	17,424	29,989	22,592	14,266	9,584	13,771	11,529	22,461	12,819	13,682	16,812	21,492
17 Jul	17,983	31,278	23,684	14,711	10,574	14,027	12,086	23,068	14,188	15,228	17,683	22,948
18 Jul	18,452	32,953	24,371	15,433	11,562	14,385	12,675	24,227	16,948	16,320	18,733	24,616
19 Jul	20,222	34,169	24,917	16,590	13,034	14,756	13,023	25,853	17,342	18,068	19,797	25,957
20 Jul	20,886	35,960	26,972	17,824	14,535	14,982	14,743	26,380	18,424	19,472	21,018	28,871
21 Jul	21,984	38,824	27,913	20,978	14,702	15,408	16,160	26,927	18,599	22,058	22,355	31,163
22 Jul	22,530	40,998	28,403	21,233	15,250	16,557	17,121	27,733	19,004	24,016	23,285	34,333
23 Jul	23,923	43,423	29,350	21,663	15,990	17,542	17,561	28,132	21,048	25,120	24,375	35,511
24 Jul	24,553	45,168	31,960	24,096	16,834	18,149	17,985	29,354	22,335	25,835	25,627	39,793
25 Jul	25,627	46,697	34,628	27,757	16,905	19,499	19,246	30,078	22,987	26,322	26,975	42,098
26 Jul	27,131	47,630	34,883	29,507	17,234	20,625	19,376	31,352	23,354	28,478	27,957	43,629
27 Jul	27,589	49,353	35,262	30,357	17,565	21,855	20,450	32,086	24,129	30,423	28,907	45,356
28 Jul	28,507	50,410	36,934	32,099	19,874	23,445	21,304	32,456	24,281	31,706	30,102	47,346
29 Jul	29,566	51,512	39,110	34,439	20,901	23,781	21,595	32,826	25,342	33,652	31,272	51,517
30 Jul	30,158	52,610	40,030	35,915	23,219	25,361	22,360	33,271	25,824	34,657	32,341	52,588
31 Jul	31,698	53,197	40,831	37,543	23,247	26,640	22,687	33,470	26,470	35,164	33,095	55,632

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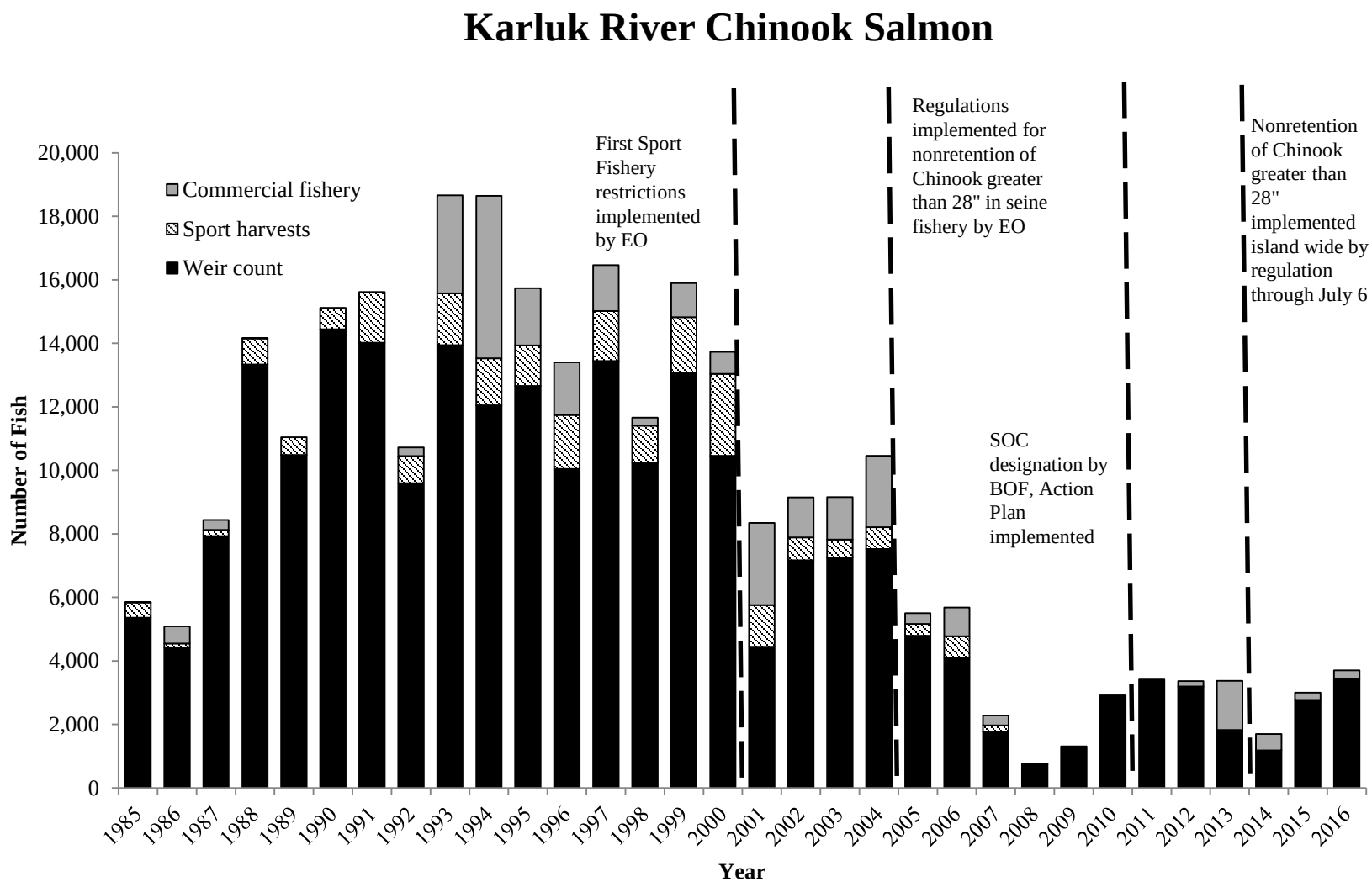
Appendix D6.–Page 2 of 2.

	Year											
Date	2002	2003	2008	2009	2010	2011	2012	2013	2014	2015	Average	2016
1 Aug	32,771	53,591	43,231	38,444	23,297	26,916	23,517	33,519	26,553	35,273	33,711	57,431
2 Aug	33,036	54,312	43,621	39,966	23,458	27,741	23,890	33,914	27,189	37,448	34,458	57,867
3 Aug	33,339	54,707	44,077	40,649	23,876	27,853	24,980	35,518	27,449	39,355	35,180	57,867
4 Aug	33,580	54,959	45,578	42,421	24,287	28,065	25,774	35,952	28,100	40,422	35,914	57,867
5 Aug	33,697	55,324	46,978	43,129	25,332	28,379	26,281	36,097	28,494	42,335	36,605	57,867
6 Aug	33,796	55,638	47,266	43,564	25,781	29,251	26,522	39,697	29,110	42,468	37,309	57,867
7 Aug	34,088	55,926	47,266	44,034	26,466	29,747	26,683	39,697	29,307	42,468	37,568	57,867
8 Aug	34,490	56,178	49,266	44,628	26,798	29,838	27,100	39,697	30,772	42,468	38,124	57,867
9 Aug	34,566	56,446	49,266	45,207	26,809	29,858	27,188	39,697	31,772	42,468	38,328	57,867
10 Aug	34,860	56,548	49,266	45,655	26,809	30,768	28,188	39,697	31,772	42,468	38,603	57,867
11 Aug	34,980	56,853	49,266	45,791	26,809	30,768	28,188	39,697	31,772	42,468	38,659	57,867
12 Aug	35,789	57,090	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,844	57,867
13 Aug	35,822	57,177	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,856	57,867
14 Aug	35,872	57,259	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,869	57,867
15 Aug	35,884	57,294	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,874	57,867
16 Aug	35,910	57,363	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,883	57,867
17 Aug	35,940	57,393	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,889	57,867
18 Aug	35,947	57,458	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,896	57,867
19 Aug	35,959	57,470	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,899	57,867
20 Aug	35,978	57,481	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,902	57,867
21 Aug	35,998	57,498	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,906	57,867
22 Aug	35,999	57,518	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,908	57,867
23 Aug	36,000	57,532	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,909	57,867
24 Aug	36,015	57,536	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,911	57,867
25 Aug	36,062	57,546	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,917	57,867
26 Aug	36,068	57,558	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,919	57,867
27 Aug	36,106	57,590	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,926	57,867
28 Aug	36,116	57,593	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,927	57,867
29 Aug	36,128	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,968	57,867
30 Aug	36,171	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,972	57,867
31 Aug	36,183	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,974	57,867
1 Sep	36,195	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,975	57,867
2 Sep	36,214	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,977	57,867
3 Sep	36,218	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,977	57,867
4 Sep	36,227	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,978	57,867
5 Sep	36,229	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,978	57,867
6 Sep	36,238	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,979	57,867
7 Sep	36,257	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,981	57,867
8 Sep	36,312	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,986	57,867
9 Sep	36,324	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,988	57,867
10 Sep	36,335	57,993	49,266	46,591	26,809	30,768	28,188	39,697	31,772	42,468	38,989	57,867

Source: Fuerst 2015: Table 44; B. Fuerst, Fishery Biologist, ADF&G, Kodiak, unpublished data.

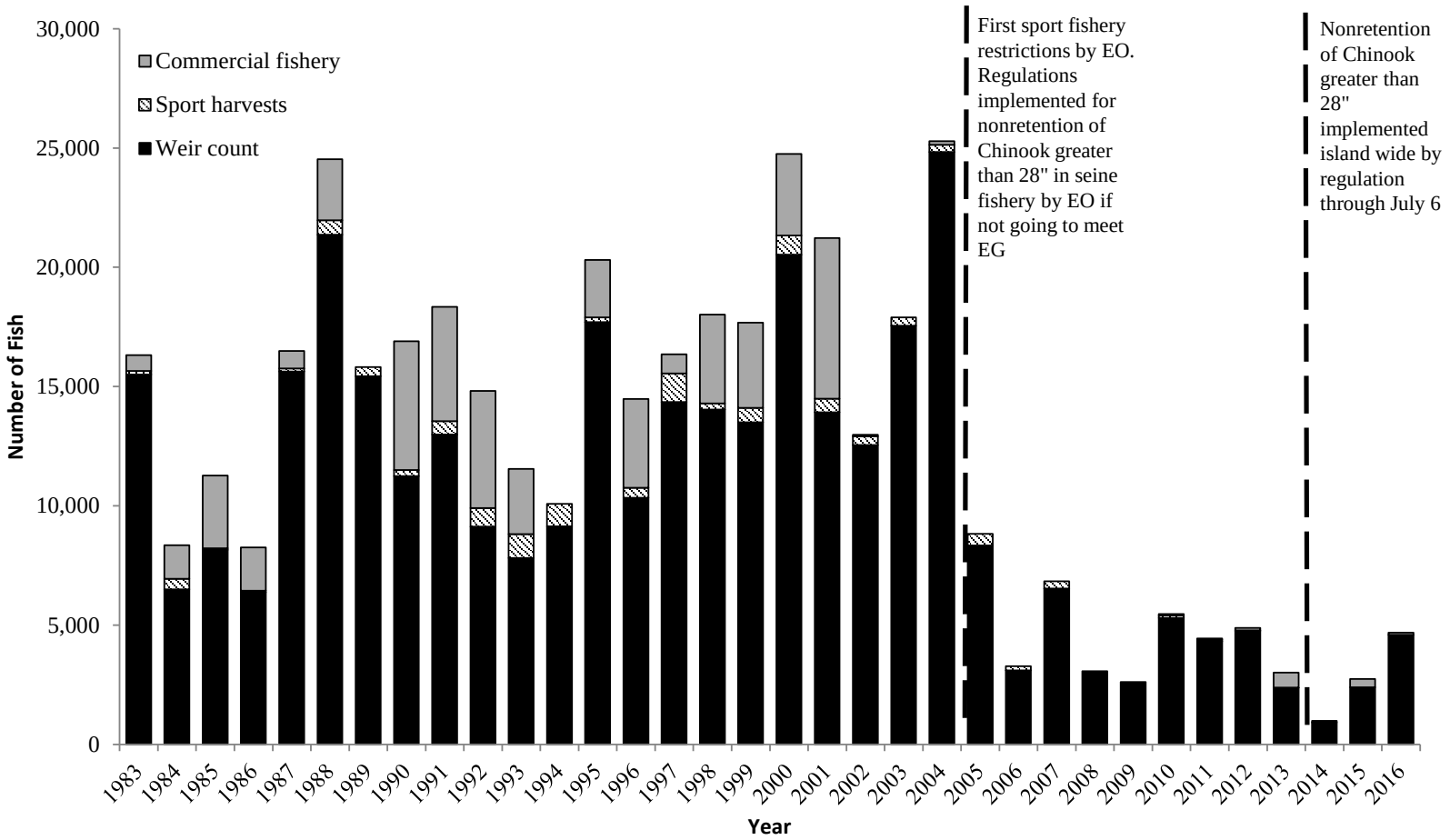
APPENDIX E: KARLUK AND AYAKULIK RIVERS CHINOOK SALMON WEIR COUNTS AND SPORT AND COMMERCIAL HARVESTS, 1985–2016



Appendix E1.–Karluk River Chinook salmon weir counts and sport and commercial harvests, 1985–2016.

Source: Statewide Harvest Survey (SWHS) estimates from the Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 2016). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/. Schwarz et al. 2002.

Note: Sport harvests represent total sport harvests. Commercial harvest from Inner and Outer Karluk sections through 15 July are assumed to be Karluk bound.

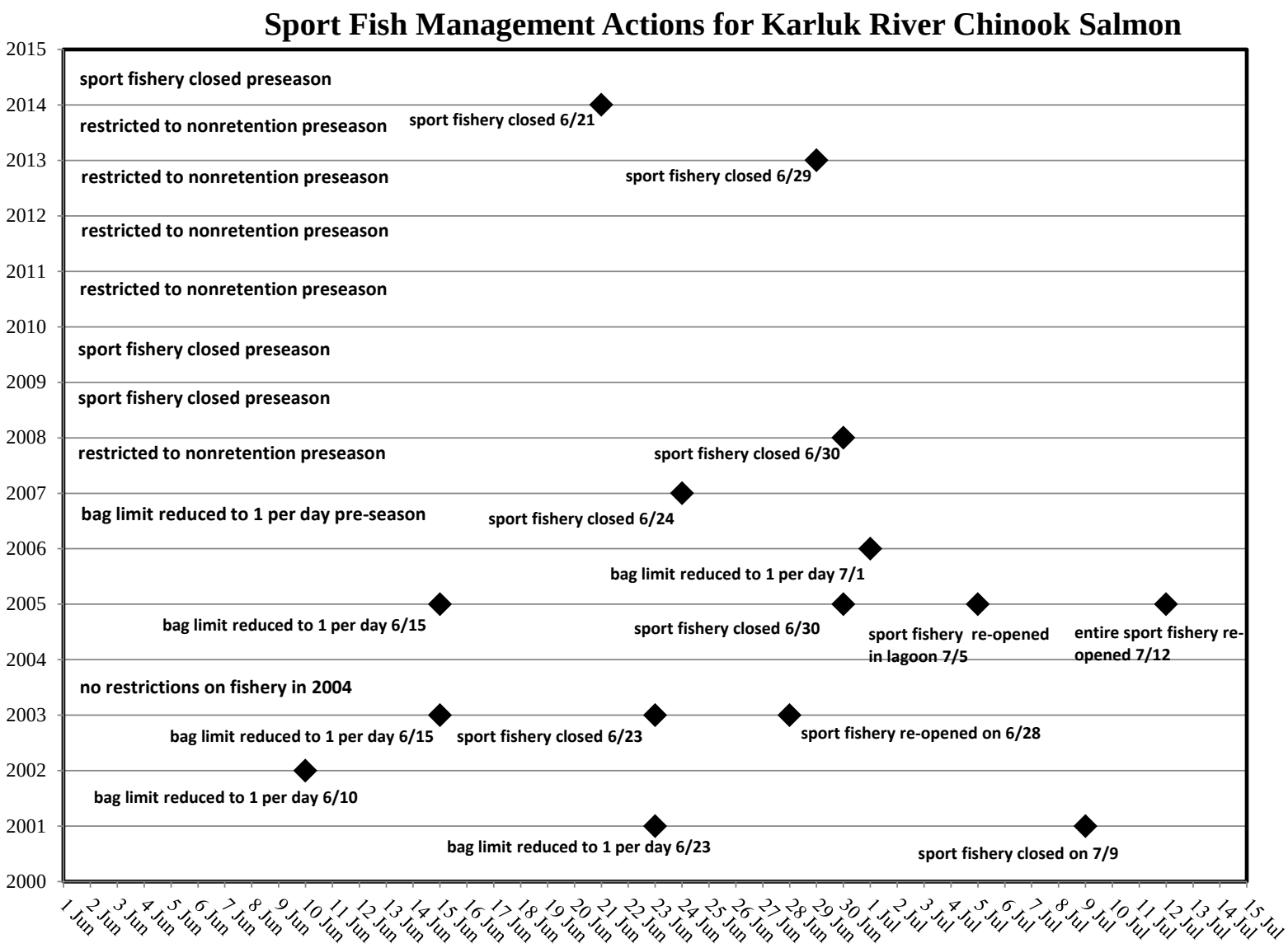


Appendix E2.–Ayakulik River Chinook salmon weir counts and sport and commercial harvests, 1983–2016.

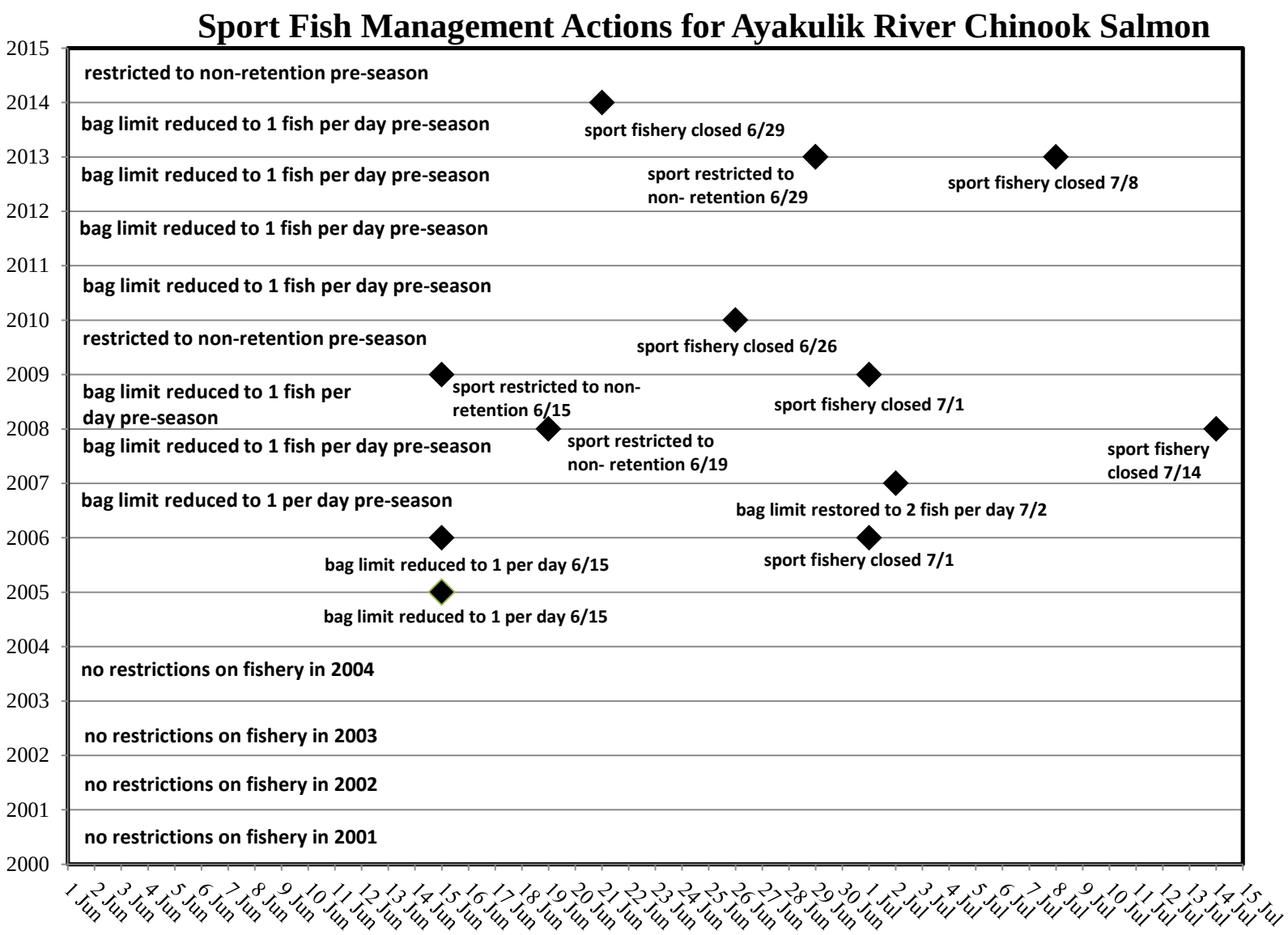
Source: Statewide Harvest Survey (SWHS) estimates from the Alaska Sport Fishing Survey database [Internet]. 1996–present. Anchorage, AK: Alaska Department of Fish and Game, Division of Sport Fish (cited November 2016). Available from: http://www.adfg.alaska.gov/sf/sportfishingsurvey/. Schwarz, et. al. 2002.

Note: Sport harvests represent total sport harvests, unavailable for 2016. Commercial harvest from Inner and Outer Ayakulik sections through July 15 are assumed to be Ayakulik bound.

APPENDIX F: HISTORY OF FISHERY MANAGEMENT OF THE KARLUK AND AYAKULIK RIVERS CHINOOK SALMON RUNS



Appendix F1.–History of management of the Karluk River Chinook salmon sport fishery.



Appendix F2.–History of management of Ayakulik River Chinook salmon sport fishery.

Appendix F3.–Actions taken by the BOF to address declining Chinook salmon runs to the Karluk River and the "stock of concern" designation.

5AAC 18.395. Retention of king[9] salmon taken in a commercial fishery. a) In the Inner Karluk, Outer Karluk, Inner Ayakulik, and Outer Ayakulik Sections, if the department determines that the king salmon runs will not meet seasonal escapement goals, the commissioner may, by emergency order, close the commercial salmon fishery and immediately reopen the commercial salmon fishery, during which king salmon 28 inches or greater in length may not be retained, and king salmon 28 inches or greater in length taken incidentally in the commercial salmon fishery must be returned to the water unharmed.

(b) Before July 30, if the department projects that the Karluk River biological escapement goal will not be met and the sport fishery is restricted in the Karluk watershed to the nonretention of king salmon or the sport fishery for king salmon is closed, the commissioner shall, by emergency order, close the commercial salmon seine fishery season in the waters south of a line from Cape Kuliuk at lat 57° 48.20′N, to the southern boundary of the Inner Ayakulik Section by the latitude of Low Cape, and immediately reopen a commercial salmon seine fishery season during which

(1) king salmon 28 inches or greater in length may not be retained; and

(2) king salmon 28 inches or greater in length taken incidentally must be returned to the water unharmed.

(c) In addition to the other provisions in this section, in the Kodiak Area, from June 1 through July 5, king salmon 28 inches or greater in length taken during the commercial salmon seine fishery may not be retained and must be immediately returned to the water. The provisions of this subsection do not apply after December 31, 2016.

5 AAC 28.450. Closed waters in Kodiak Area.

(e) The waters of Alaska in the Kodiak Area that are approximately three miles on either side of the mouth of the Karluk River bounded on the north by a line from lat 57°36.26′N, lon 154°23.73′W, to a point at the state waters boundary at lat 57°38.51′N, lon 154°27.92′W, and bounded on the south by a line from lat 57°32.34′N, lon 154°32.15′W, to a point at the state waters boundary at lat 57°34.84′N, lon 154°36.80′W are closed to fishing with trawl gear.

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[9] In the regulatory language, Chinook salmon are called "king" salmon, "the board" refers to the Alaska Board of Fisheries, and "the department" refers to the Alaska Department of Fish and Game.

APPENDIX G: ADF&G AND KRAA SPORTFISH ENHANCEMENT RELEASES IN THE KODIAK ROAD ZONE

Appendix G1.–Estimated Kodiak Management Area anadromous waters stockings by species and location, 2006–2016.

		Year										
Species	Location	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Coho salmon fingerling												
	Dark L.	3,976	7,479	7,495	7,491	8,235	7,500	7,500	7,767	7,500	0	0
	Island L.	12,097	30,922	22,495	22,497	24,731	22,500	22,500	25,000	31,481	0	0
	Mayflower L.	0	5,008	6,469	6,836	7,150	6,500	6,500	6,488	6,500	0	0
	Mission L.	6,614	12,487	12,482	12,484	13,724	12,500	12,500	13,394	13,141	0	0
	Potatoe Patch L.	5,012	5,008	9,484	9,483	10,429	9,500	9,500	10,391	10,192	0	0
	Total	27,699	60,904	58,425	58,791	64,269	58,500	58,500	63,040	68,814	0	0
Coho salmon smolt												
	Big–Kings Diner L.	9,534	0	0	0	0	0	0	0	0	0	0
	Dark L.	0	0	0	0	0	0	0	0	0	0	0
	Island L.	22,071	8,451	0	0	0	0	0	0	0	0	30,056
	Mission	0	0	0	0	0	0		0	0	0	20,023
	Monashka Creek	10,000	0	0	0	0	45,216	34,765	28,020	0	0	99,582
	Pillar Creek	0	0	0	0	0	47,014	28,936	28,070	0	0	139,401
	Total	41,605	8,451	0	0	0	92,230	63,701	56,090	0	0	289,062
Chinook salmon smolt												
	Monashka Creek	29,153	46,825	68,100	79,000	82,000	39,000	39,279	51,207	70,000	73,272	0
	American River	0	28,156	40,000	51,000	80,000	10,000	39,740	50,072	70,000	75,272	0
	Olds River	0	28,313	40,000	52,000	80,000	10,000	39,300	40,000	70,000	75,044	0
	Salonie Creek	0	0	0	0	0	0	0	0	62,561	71,042	29,800
	Total	29,153	103,294	148,100	182,000	242,000	59,000	118,319	141,279	272,561	294,630	29,800
Grand Total		98,457	172,649	206,525	240,791	306,269	209,730	240,520	260,409	341,375	294,630	318,862

Source: ADF&G SF Kodiak Area Office data archives.

Appendix G2.–Estimated Kodiak Management Area landlocked lake stockings by species and location, 2006–2016.

		Year										
Species	Location	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Rainbow trout	Abercrombie	2,580	4,700	4,810	5,051	4,656	5,142	4,972	6,162	2,550	7,059	8,403
	Aurel L.	2,145	3,000	3,900	4,095	3,964	4,169	3,975	3,464	0	6,400	7,563
	Big–Kings Diner L.	2,666	4,600	4,680	4,914	4,824	5,003	4,185	4,915	2,747	8,847	10,084
	Bull L.	1,290	3,000	2,600	2,730	2,685	2,779	2,643	3,038	3,312	4,471	5,294
	Caroline L.	975	1,900	1,820	1,911	1,854	1,946	1,865	2,154	2,647	3,700	4,286
	Cicely L.	855	1,700	1,560	1,638	1,587	1,668	1,826	1,138	2,794	4,050	4,538
	Dark L.	0	0	0	0	0	5,003	4,879	6,123	2,535	8,824	10,588
	Dolgoi L.	2,064	3,462	5,200	4,055	5,287	0	0	0	0	0	0
	Dragonfly L.	865	2,100	2,080	2,184	2,110	2,224	2,215	2,215	1,471	4,353	5,294
	Heitman L.	2,150	3,352	4,932	4,455	4,952	4,586	4,457	5,000	5,005	6,824	7,983
	Horseshoe L.	870	1,500	1,300	1,365	1,326	1,390	1,336	1,408	0	2,824	6,723
	Island L.	0	0	0	0	0	5,559	5,378	6,538	2,559	8,941	10,588
	Jack L.	865	1,500	1,300	1,365	1,319	0	0	0	0	0	0
	Jupiter L.	2,322	2,253	3,702	4,860	3,923	0	0	0	0	0	0
	Lee L.	2,159	3,300	3,640	3,822	3,700	3,891	3,668	3,250	0	5,950	6,723
	Lilly Pad L.	946	11,124	1,430	2,184	2,055	2,224	2,102	2,692	3,369	4,176	4,874
	Long L.	2,150	3,791	4,680	3,658	3,556	6,580	4,220	4,398	4,371	7,100	8,403
	Long Lagoon L.	0	0	0	0	0	0	2,451	3,571	4,731	0	0
	Margaret L.	1,032	0	0	0	0	0	0	0	0	0	0
	Mosquito L.	0	0	0	0	0	3,335	1,576	1,490	2,191	2,800	1,681
	Saturn L.	1,548	3,462	3,005	3,240	2,523	0	0	0	0	0	0
	Tanignak L.	2,064	3,736	5,200	4,055	5,283	7,420	6,882	4,872	4,457	7,200	8,403
	Twin L.	2,535	5,000	5,200	5,460	5,447	5,559	5,547	5,363	5,562	8,388	10,756
	Total	32,081	63,480	61,039	61,042	61,051	68,478	64,177	67,791	50,301	101,907	122,184
Coho salmon	Abercrombie	3,486	3,472	3,486	0	3,839	3,500	3,500	3,505	3,465	0	0
	Barry Lagoon	0	0	0	0	0	24,910	30,000	22,059	22,500	0	0
	Big–Kings Diner L.	5,257	5,008	0	0	10,973	0	0	10,916	10,655	0	0
	Chiniak L.	0	11,018	14,557	20,437	22,000	0	0	0	0	0	0
	Margaret L.	3,499	0	0	0	0	0	0	0	0	0	0
	Southern L.	0	3,280	3,485	3,495	3,838	0	0	0	0	0	0
	Total	12,242	22,778	21,528	23,932	40,650	28,410	33,500	36,480	36,620	0	0
Grand total		44,323	86,258	82,567	84,974	101,701	96,888	97,677	104,271	86,921	101,907	122,184

Source: ADF&G SF Kodiak Area Office data archives.