

Summary of Pacific Salmon Escapement Goals in Alaska with a Review of Escapements from 2008 to 2016

by

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and

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Alaska Department of Fish and Game

Divisions of Sport Fish and Commercial Fisheries



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Weights and measures (metric)		General		Mathematics, statistics		
centimeter	cm	Alaska Administrative Code	AAC	all standard mathematical signs, symbols and abbreviations		
deciliter	dL	all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.	alternate hypothesis	H _A	
gram	g	all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.	base of natural logarithm	e	
hectare	ha			catch per unit effort	CPUE	
kilogram	kg			coefficient of variation	CV	
kilometer	km	at	@	common test statistics	(F, t, χ^2 , etc.)	
liter	L			confidence interval	CI	
meter	m			correlation coefficient		
milliliter	mL	compass directions:		(multiple)	R	
millimeter	mm	east	E	correlation coefficient		
Weights and measures (English)		north	N	(simple)	r	
	cubic feet per second	ft ³ /s	south	S	covariance	cov
	foot	ft	west	W	degree (angular)	°
	gallon	gal	copyright	©	degrees of freedom	df
	inch	in	corporate suffixes:		expected value	E
	mile	mi	Company	Co.	greater than	>
	nautical mile	nmi	Corporation	Corp.	greater than or equal to	≥
	ounce	oz	Incorporated	Inc.	harvest per unit effort	HPUE
	pound	lb	Limited	Ltd.	less than	<
	quart	qt	District of Columbia	D.C.	less than or equal to	≤
yard	yd	et alii (and others)	et al.	logarithm (natural)	ln	
Time and temperature		et cetera (and so forth)	etc.	logarithm (base 10)	log	
		exempli gratia		logarithm (specify base)	log ₂ , etc.	
	day	d	(for example)	e.g.	minute (angular)	'
	degrees Celsius	°C	Federal Information Code	FIC	not significant	NS
	degrees Fahrenheit	°F	id est (that is)	i.e.	null hypothesis	H ₀
	degrees kelvin	K	latitude or longitude	lat or long	percent	%
	hour	h	monetary symbols		probability	P
	minute	min	(U.S.)	\$, ¢	probability of a type I error	
	second	s	months (tables and figures): first three		(rejection of the null hypothesis when true)	α
	Physics and chemistry		letters	Jan,...,Dec	probability of a type II error	
all atomic symbols		registered trademark	®	(acceptance of the null hypothesis when false)	β	
alternating current	AC	trademark	™	second (angular)	"	
ampere	A	United States		standard deviation	SD	
calorie	cal	(adjective)	U.S.	standard error	SE	
direct current	DC	United States of America (noun)	USA	variance		
hertz	Hz	U.S.C.	United States Code	population sample	Var var	
horsepower	hp					
hydrogen ion activity (negative log of)	pH					
parts per million	ppm	U.S. state	use two-letter abbreviations			
parts per thousand	ppt, ‰		(e.g., AK, WA)			
volts	V					
watts	W					

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by
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TABLE OF CONTENTS

	Page
LIST OF TABLES.....	i
LIST OF FIGURES.....	ii
LIST OF APPENDICES	ii
ABSTRACT	1
INTRODUCTION.....	1
METHODS.....	2
RESULTS AND DISCUSSION.....	3
ACKNOWLEDGEMENTS.....	5
REFERENCES CITED	6
TABLES	15
FIGURES	67
APPENDIX A. ESCAPEMENT GOAL MEMO FOR 2015/2016 BOARD OF FISHERIES MEETING CYCLE ...	75

LIST OF TABLES

Table	Page
1. Southeast Region Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2008 to 2016.....	16
2. Central Region (Bristol Bay, Cook Inlet, and Prince William Sound/Copper River) Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2008 to 2016.	19
3. Arctic-Yukon-Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2008 to 2016.....	25
4. Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2008 to 2016.	29
5. Summary of salmon escapement goal changes in Bristol Bay, Arctic-Yukon-Kuskokwim, Alaska Peninsula and Aleutian Islands, and Chignik management areas, 2016.....	32
6. Assessment of whether escapements met, exceeded, or did not meet the escapement goal in place at the time of enumeration for salmon stocks in Southeast Region.....	33
7. Assessment of whether escapements met, exceeded, or did not meet the escapement goal in place at the time of enumeration for salmon stocks in Central Region	35
8. Assessment of whether escapements met, exceeded, or did not meet the escapement goal in place at the time of enumeration for salmon stocks in Arctic-Yukon-Kuskokwim Region.	40
9. Assessment of whether escapements met, exceeded, or did not meet the escapement goal in place at the time of enumeration for salmon stocks in Westward Region.....	43
10. Southeast Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2008 to 2016.	46
11. Central Region (Bristol Bay, Cook Inlet, Prince William Sound/Copper River) Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2008 to 2016.	47
12. Arctic-Yukon-Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2008 to 2016.	48
13. Westward Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2008 to 2016.	50
14. Summary of Southeast Region salmon escapements compared against escapement goals for the years 2008 to 2016.....	51

LIST OF TABLES (Continued)

Table	Page
15. Summary of Central Region (Bristol Bay, Cook Inlet, Prince William Sound/Copper River) salmon escapements compared against escapement goals for the years 2008 to 2016.	51
16. Summary of Arctic-Yukon-Kuskokwim Region salmon escapements compared against escapement goals for the years 2008 to 2016.	51
17. Summary of Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) salmon escapements compared against escapement goals for the years 2008 to 2016.	52
18. Statewide summary of salmon stocks of concern in Alaska.	52
19. Methods used to enumerate and develop escapement goals for Southeast Region Chinook, chum, coho, pink, and sockeye salmon stocks.	53
20. Methods used to enumerate and develop escapement goals for Central Region (Bristol Bay, Cook Inlet, and Prince William Sound/Copper River) Chinook, chum, coho, pink, and sockeye salmon stocks.	55
21. Methods used to enumerate and develop escapement goals for Arctic-Yukon-Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon stocks.	60
22. Methods used to enumerate and develop escapement goals for Westward Region Chinook, chum, coho, pink, and sockeye salmon stocks.	63

LIST OF FIGURES

Figure	Page
1. Statewide summary of the 287 escapement goals in effect during the 2016 spawning season for the 4 Division of Commercial Fisheries regions and by species.	68
2. Proportion of escapement goal types by species for the 52 escapement goals in Southeast Region.	69
3. Proportion of escapement goal types by species for the 119 escapement goals in Central Region.	69
4. Proportion of escapement goal types by species for the 63 escapement goals in Arctic-Yukon-Kuskokwim Region.	70
5. Proportion of escapement goal types by species for the 53 escapement goals in Westward Region.	70
6. Southeast Region salmon escapements compared against escapement goals for the years 2008 to 2016.	71
7. Central Region salmon escapements compared against escapement goals for the years 2008 to 2016.	71
8. Arctic-Yukon-Kuskokwim Region salmon escapements compared against escapement goals for the years 2008 to 2016.	72
9. Westward Region salmon escapements compared against escapement goals for the years 2008 to 2016.	72
10. Statewide summary by year of percentage of escapements that a) met the escapement goal, b) were below lower bound of goal, or c) exceeded upper bound of goal range for the years 2008 to 2016.	73

LIST OF APPENDICES

Appendix	Page
A. ESCAPEMENT GOAL MEMO FOR 2015/2016 BOARD OF FISHERIES MEETING CYCLE.	75

ABSTRACT

This report summarizes statewide Pacific salmon escapement goals in effect in 2016 and documents escapements for all species and stocks with goals from 2008 through 2016. Annual escapements are compared against escapement goals in place at the time to assess outcomes, with summaries by the Division of Commercial Fisheries regions. We list methods used to enumerate escapements and to develop current escapement goals (with brief descriptions) for each monitored stock. Escapement goals were reviewed for Bristol Bay, Arctic-Yukon-Kuskokwim, Alaska Peninsula/Aleutian Islands, and Chignik management areas leading up to the 2015/2016 Board of Fisheries meeting cycle. As a result of these reviews, there were 25 escapement goal changes in 2016, including the elimination of 12 goals and the establishment of 3 new goals. In 2016, 72% of the escapement goals were met or exceeded, and 28% of the stocks did not meet minimum escapement goals.

Key words: escapement, escapement goals, Chinook salmon, sockeye salmon, coho salmon, pink salmon, chum salmon, Alaska Board of Fisheries, BOF, statewide, Alaska

INTRODUCTION

Scientifically defensible Pacific salmon escapement goals are a central tenet of fisheries management in Alaska. Escapement goals are founded in the sustained yield principle highlighted in the State of Alaska Constitution (Article VIII, section 4) and in state statute (AS 16.05.020). Several policies in Alaska Administrative Code also provide guidance for establishing escapement goals including the policy for the management of sustainable salmon fisheries (5 AAC 39.222), the policy for statewide salmon escapement goals (5 AAC 39.223) and the policy for the management of mixed stock fisheries (5 AAC 39.220). These policies provide detailed definitions of specific escapement goal types, outline the responsibilities of the Alaska Department of Fish and Game (ADF&G) and the Alaska Board of Fisheries (BOF) in establishing goals, and provide general direction for development and application of escapement goals in Alaska. Currently, there are 287 active salmon stock escapement goals throughout the state of Alaska (Figure 1).

It is the responsibility of ADF&G to document, establish, and review escapement goals; prepare scientific analyses in support of escapement goals; notify the public when escapement goals are established or modified; and notify the BOF of allocative implications associated with escapement goals. The foundation for this effort is the regional or area escapement goal review teams that are assembled every 3 years to review goals, recommend changes, establish new goals, or eliminate goals. The teams have broad expertise in biological characteristics of salmon stocks and technical approaches for establishing goals. Scientific staff from headquarters may assist regional teams to address issues of general importance for escapement goal development and application in Alaska. A detailed regional report of escapement goal recommendations is presented to the BOF and the public at tri-annual BOF meetings for that region or area. Following the BOF meeting, recommended goals are presented to the directors of the Divisions of Commercial Fisheries and Sport Fish for approval.

Although development of regional escapement goals is exhaustively detailed in regional reports and supporting documents, this statewide summary report allows readers to examine the goals and escapements for salmon stocks in a single document. It provides an overview of salmon stocks with escapement goals, a numerical description of the escapement goal, type of escapement goal, year the current escapement goal was first implemented, and recent years' escapement data for each stock. In addition, statistics documenting work done to achieve escapement goals is summarized and presented, and a statewide summary of stocks with yield or management concerns is included, as recommended by the ADF&G and established by the BOF.

Data presented in this document are the most recently available at the time of publication and supersede data in previous annual statewide escapement reports. This report will be a useful resource for ADF&G staff, stakeholders, and the public.

METHODS

We reviewed ADF&G escapement goal reports and supporting documents to catalog current escapement goals in each region for all 5 species of Pacific salmon, including information on stock name, type of goal, numerical description of the goal, and the year it was implemented (i.e., the first season that the goal was used to manage escapements). Regional and area staff from the Divisions of Commercial Fisheries and Sport Fish provided the most current escapement estimates from 2008 through 2016 for each stock with an established escapement goal. The escapement goals listed are those in effect during the 2016 spawning season, including escapement goals that were established or updated during the 2015/2016 BOF meeting cycle (Appendix A).

Escapements from 2008 through 2016 were compared against escapement goals in place at the time of enumeration to assess outcomes in achieving goals. Escapements for a particular stock were classed as *Under* if escapement for a given year was less than the lower bound of the escapement goal. If escapement fell within the escapement goal range or was greater than a lower-bound goal, we considered the goal *Met*. Where escapement exceeded the upper bound of an escapement goal range, it was classed as *Over*. Where escapement goals or enumeration methods changed between 2008 and 2016 for a stock, we assessed outcomes by comparing escapement estimates with the goals and methods in place at the time of the fishery. Information on previous escapement goals and methods came from a detailed review of regional escapement goal reports, supporting documents, and conversations with regional and area biologists.

A variety of methods are used to develop escapement goals in Alaska and brief descriptions of each are summarized below. The most commonly used methods are listed first, followed by the less common methods.

Percentile Method: A method for establishing sustainable escapement goals (SEG) was originally developed by Bue and Hasbrouck¹ and recently evaluated by Clark et al. (2014). Contrast of the observed annual escapements (largest escapement divided by smallest escapement), measurement error in escapements, and exploitation rate of the stock are used to select percentiles of observed escapements for estimating lower and upper bounds of the escapement goal.

Spawner–Recruit Analysis (SRA): Analysis of the relationship between escapement (number of spawners) and subsequent production of recruits (i.e., adults) in the next generation. There are several SRA models, but the Ricker production model (Ricker 1954) is almost exclusively used for salmon populations in Alaska.

Risk Analysis: Risks of management error, an unneeded management action, or mistaken inaction in future years are estimated based on a precautionary reference point established using past observations of escapement (Bernard et al. 2009). This method is primarily used to guide establishment of a lower-bound SEG for nontargeted stocks of salmon.

¹ Bue, B. G., and J. J. Hasbrouck. Escapement goal review of salmon stocks of Upper Cook Inlet. Alaska Department of Fish and Game, Report to the Alaska Board of Fisheries, November 2001 (and February 2002), Anchorage, unpublished document.

Yield Analysis: Graphical or tabular examination of yields produced from observed escapement indices from which the escapement range with the greatest yields is identified in Hilborn and Walters (1992).

Theoretical Spawner–Recruit Analysis (Theoretical SRA): Used in situations where there are few or no stock-specific harvest estimates and/or age data. Information from nearby stocks, or generalizations about the species, are used in a spawner–recruit production model to estimate the number of spawners needed to achieve maximum sustained yield, e.g., Clark (2005).

Empirical Observation: Goal development methods classified as *Empirical Observation* are generally *ad hoc* methods for stocks with limited or sparse data. Goals are based on observed escapements over time and may be calculated as the average escapement or the value of a low escapement for which there is evidence that the stock is able to recover, e.g., Norton Sound pink salmon escapement goals (ADF&G 2004).

Zooplankton Model: This model estimates the number of sockeye salmon *Oncorhynchus nerka* smolts of a threshold or optimal size that a lake can support based upon measures of zooplankton biomass and surface area of the lake (Koenings and Kyle 1997). Adult production is then estimated from predicted smolt production by applying marine survival rates for a range of smolt sizes.

Spawning Habitat Model: Estimates of spawning capacity or number of spawners that produce maximum sustained yield are based on the relationship with the watershed area, available spawning habitat in a drainage, or stream length. Spawning habitat models have been developed for sockeye salmon (Burgner et al. 1969), coho salmon *O. kisutch* (Bradford et al. 1999; Bradford et al. 1997), and Chinook salmon *O. tshawytscha* (Parken et al. 2004).

Euphotic Volume (EV) Model: Measurement of the volume of a lake where enough light penetrates to support primary production (i.e., euphotic volume) is used to estimate sockeye salmon smolt biomass (Koenings and Burkett 1987) from which adult escapement is then estimated using marine survival rates.

Lake Surface Area: Similar to spawning habitat models, the relationship between the lake surface area and escapement are used to estimate adult sockeye salmon production (Honnold et al. 1996; Nelson et al. 2006).

Conditional Sustained Yield Analysis: Observed escapement indices and harvest are used to estimate if, on average, surplus production (yield) results from a particular goal range (Nelson et al. 2005). Estimated expected yields are conditioned on extreme values of measurement error in the escapement indices.

Brood Interaction Simulation Model: This model simulates production using a spawner–recruit relationship that modifies the simulated production for the year of return using an age-structured submodel, and estimates resulting catches and escapements under user-specified harvest strategies (Carlson et al. 1999). This is a hybrid of a theoretical SRA and yield analysis that has only been used to develop the escapement goal for Kenai River sockeye salmon.

RESULTS AND DISCUSSION

Summaries of estimated escapements and escapement goals for each monitored salmon stock from 2008 to 2016 are presented by region and species in Tables 1–4. Although most information was available through regional escapement goal reports, 2016 data were primarily

obtained directly from area and regional biologists. Data for 2016 are often preliminary estimates because complete data regarding subsistence and sport harvests are often not available immediately following the season.

During the 2015/2016 BOF meeting cycle, Bristol Bay, Arctic-Yukon-Kuskokwim, Alaska Peninsula/Aleutian Islands, and Chignik management areas reviewed their escapement goals (Conitz et al. 2015; Erickson et al. 2015; Schaberg et al. 2015a, 2015b). There were 25 escapement goal changes (Table 5), which included the elimination of 12 goals (Bristol Bay, 1; Arctic-Yukon-Kuskokwim, 9; Alaska Peninsula/Aleutian Islands, 2). Three of the eliminated goals were replaced with new goals: Niukluk River coho salmon tower-based goal was replaced with an aerial survey-based goal for Niukluk River/Ophir Creek, and the South Peninsula odd- and even-year pink salmon goals were replaced with a single goal.

A summary of escapement goal types for all species by region indicate that the majority of goals in Central, Westward, and Arctic-Yukon-Kuskokwim regions are SEGs, including lower-bound SEGs, with biological escapement goals (BEGs) making up a smaller proportion of goals (Figure 1a). The reverse is true for Southeast Region, where most goals are BEGs. Escapement goals for sockeye and Chinook salmon make up about 50% of all escapement goals statewide, with the majority of goals for each species being SEGs (Figure 1b). Optimal escapement goals (OEG) and inriver goals imposed by the BOF, and goals based upon international agreements, collectively represent a small proportion of escapement goals in Alaska.

Use of different escapement goal types for each salmon species is summarized by Division of Commercial Fisheries regions (Figures 2–5). Among the 4 regions, there are some distinct differences in the distribution of goal types by salmon species. In Southeast Region, the majority of goals are BEGs, which include all but 1 pink salmon *O. gorbuscha* goal, and all but 1 Chinook salmon goal, as well as 71% of the coho salmon goals, and 43% of the sockeye salmon goals (Figure 2). This is sharply contrasted with Central Region, where the majority of all goals are SEGs, with 2 sockeye salmon stocks representing the only BEGs (Figure 3). Arctic-Yukon-Kuskokwim Region has the only BEGs for chum salmon in the state, with additional BEGs for 3 Chinook and 1 sockeye salmon stock (Figure 4). All Chinook salmon stocks in Westward Region are BEGs, but compared to Southeast, a much smaller proportion of coho and sockeye salmon goals are BEGs (Figure 5). These are broad generalizations that are immediately apparent, but there are many reasons why the distribution of goal types would be different between regions, including fishery structure, stock assessment capacity, and technical approaches.

Summary comparisons of actual estimated escapements with escapement goals in place at the time are shown in Tables 6–9, highlighting whether the goal was exceeded, met, or not met. Numerous footnotes in Tables 1–4 and 6–9 contain important information about changes in stock assessment methods or goal ranges during that time, and are essential for a thorough understanding of the escapement estimates and evaluations of outcomes against goals. Summaries of outcomes in achieving goals are presented by species (Tables 10–13) and region (Tables 14–17; Figures 6–9). Patterns in achieving escapement goals from year to year have varied within each region (Tables 14–17; Figures 6–9). In 2016, 48% of the stocks assessed had escapements that were within the goal range (or above the lower bound if a lower-bound SEG), which is the same as 2015 and within the observed range for recent years (48–59%; Figure 10a). The percentage of goals where minimum escapement was not achieved in 2016 was 28%—an increase from 12% in 2015, but within the range of recent years (12–31%; Figure 10b). The

remaining 24% of the goals were exceeded in 2016, which was a decrease from 40% in 2015 but within the recent range (13–40%; Figure 10c).

It is important to document outcomes for meeting these goals because meeting escapement goals is fundamental to ADF&G efforts to manage for sustainable salmon stock productivity. Where escapements chronically (4–5 years) fail to meet expectations for harvestable yield or spawning escapements, ADF&G may recommend—and the BOF may adopt—a *stock of concern* designation for those underperforming salmon stocks. The policy for the management of sustainable salmon fisheries (5 AAC 39.222) provides specific definitions for stocks of concern. *Yield concerns* arise from a chronic inability to maintain expected yields or harvestable surpluses above escapement needs. *Management concerns* are precipitated by a chronic failure to maintain escapements within the bounds, or above the lower bound of the established goal. A *conservation concern* may arise from a failure to maintain escapements above a sustained escapement threshold (SET). Methods to develop stock-specific SETs, as defined in the sustainable salmon fisheries policy, are not well developed for Pacific salmon, and no SETs or stocks of conservation concern exist in Alaska. In 2016, there were 13 stocks of concern in the state with the only change being the delisting of Norton Sound Subdistrict 1 chum salmon as a stock of concern (Table 18).

The array of methods used to enumerate salmon for each of the stocks with escapement goals, as well as methods used to assist ADF&G staff in developing the escapement goal for a given stock, are summarized by region in Tables 19–22.

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TABLES

Table 1.—Southeast Region Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2008 to 2016.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
CHINOOK SALMON ^a													
Blossom River	150	300	BEG	2012	257	123	363	147	205	255	171	166	135
Keta River	175	400	BEG	2012	363	219	475	223	241	493	439	304	446
Unuk River	1,800	3,800	BEG	2009	3,104	3,157	3,835	3,195	956 ^b	1,135 ^b	1,691 ^b	2,623	1,463
Chickamin River	450	900	BEG	1997	1,111	611	1,156	853	444	468	652	567	203
Andrew Creek	650	1,500	BEG	1998	981	628	1,205	936	587	920	1,261	796	402
Stikine River	14,000	28,000	BEG	2000	18,352	12,803 ^c	15,116 ^c	14,482 ^c	22,327 ^c	16,783 ^c	24,366 ^c	23,236 ^c	10,344 ^c
King Salmon River	120	240	BEG	1997	120	109	158	192	155	94	68	50	149
Taku River	19,000	36,000	BEG	2009	26,645 ^c	22,761 ^c	28,769 ^c	27,523 ^c	19,538 ^c	18,002 ^c	23,532 ^c	28,827 ^c	12,381 ^c
Chilkat River	1,850	3,600	inriver ^d	2003	2,905	4,429	1,815	2,688	1,744 ^c	1,730 ^c	1,534 ^c	2,453 ^c	1,373 ^c
	1,750	3,500	BEG	2003									
Klukshu (Alsek) River	800	1,200	BEG	2013	466	1,518	2,259	1,610	693 ^c	1,227 ^c	832 ^c	1,388	646 ^c
Alsek River ^e	3,500	5,300	BEG	2013	1,885	6,239	9,526	6,850	3,027 ^c	4,992 ^c	3,357 ^c	5,697 ^c	2,504 ^c
Situk River	450	1,050	BEG	2003	413	902	166 ^f	240	322	912	475	174	329
CHUM SALMON													
Southern Southeast Summer	62,000		LB SEG	2015	13,000	46,000	51,000	179,000	155,000	86,000	47,000	115,000	90,000
Northern Southeast Inside Summer	119,000		LB SEG	2012	99,000	107,000	77,000	125,000	177,000	278,000	93,000	166,000	66,000
Northern Southeast Outside Summer	25,000		LB SEG	2015	56,000	17,000	28,000	25,000	38,000	23,000	28,000	26,000	26,000
Cholmondeley Sound Fall	30,000	48,000	SEG	2009	50,000	39,000	76,000	93,000	54,000	13,000	48,000	73,000	30,000
Port Camden Fall	2,000	7,000	SEG	2009	1,400	1,700	5,400	1,800	3,800	2,400	4,300	7,300	4,700
Security Bay Fall	5,000	15,000	SEG	2009	11,700	5,100	6,500	5,100	9,800	2,800	6,300	21,500	14,300
Excursion River Fall	4,000	18,000	SEG	2009	8,000	1,400	6,100	3,000	2,000	7,600	10,800	12,000	1,400
Chilkat River Fall	75,000	250,000	SEG	2015	441,000	329,000	89,000	360,000	287,000	166,000	142,000	207,000	218,000
COHO SALMON													
Hugh Smith Lake	500	1,600	BEG	2009	1,741	2,281	2,878	2,137	1,908	3,048	4,110	956	979
Klawock River	4,000	9,000	SEG	2013 ^g	6,210	5,415	9,707	5,572	7,507	8,323	7,698	12,780	24,242
Taku River ^h	50,000	90,000	BEG	2015	95,226 ^c	103,950 ^c	126,830 ^c	70,871 ^c	70,775 ^c	68,117 ^c	124,171 ^c	60,178 ^c	87,704 ^c
Auke Creek	200	500	BEG	1994	600	360	417	517	837	736	1,533	577	204
Montana Creek	400	1,200	SEG	2006	405	698	630	709	394	367	911	1,204	746
Peterson Creek	100	250	SEG	2006	660	123	467	138	190	126	284	202	52
Ketchikan Survey Index	4,250	8,500	BEG	2006	16,752	8,710	4,563	5,098	11,960	11,295	16,675	9,750	13,420
Sitka Survey Index	400	800	BEG	2006	1,117	1,156	1,273	2,222	1,157	1,414	2,161	2,244	2,943
Ford Arm Lake	1,300	2,900	BEG	1994	5,173	2,181	1,610	1,908	2,282	1,573	3,025	3,281	NA
Berners River	4,000	9,200	BEG	1994	6,870	4,230	7,520	6,050	5,480	6,280	15,480	9,940	6,733

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Table 1.–Page 2 of 3.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
Chilkat River	30,000	70,000	BEG	2006	56,369	47,911	84,909	61,099	36,961	51,324	130,200	47,342	26,280
Lost River	eliminated			2015	NA	3,581	2,393	1,221	2,200	2,593	3,555		
Tawah Creek (Lost River)	1,400	4,200	SEG	2015	NA	3,581	2,393	1,221	NA	2,593	3,555	2,015	746
Situk River	3,300	9,800	BEG	1994	NA	5,814	11,195	3,652	3,007	14,853	8,226	7,062	6,177
Tsiu/Tsivat Rivers	10,000	29,000	BEG	1994	25,200	28,000	11,000	21,000	10,500	47,000	27,000	19,500	31,000
PINK SALMON													
Southern Southeast	3,000,000	8,000,000	BEG	2009	6,290,000	7,200,000	5,940,000	5,500,000	6,470,000	14,450,000	9,650,000	4,300,000	6,600,000
Northern Southeast Inside	2,500,000	6,000,000	BEG	2009	1,470,000	3,650,000	3,210,000	6,030,000	2,110,000	5,400,000	1,380,000	5,250,000	1,700,000
Northern Southeast Outside	750,000	2,500,000	BEG	2009	1,730,000	1,820,000	2,010,000	2,730,000	2,470,000	5,340,000	2,750,000	2,840,000	1,780,000
Situk River (even-year)	eliminated			2012	1,232 ⁱ		89,301 ⁱ						
Situk River (odd-year)	eliminated			2012		62,787		169,908					
Situk River	33,000		LB SEG	2012					30,548	133,656	28,238	62,714	24,949
SOCKEYE SALMON													
Hugh Smith Lake	8,000	18,000	OEG ^j	2003	3,588	9,483	15,646	22,029	13,353	5,946	10,397	21,296	12,864
	8,000	18,000	BEG	2003									
McDonald Lake	55,000	120,000	SEG	2009	20,700	51,000	72,500	113,000	57,000	15,400	43,400	70,200	15,600
Mainstem Stikine River	20,000	40,000	SEG	1987	16,178	17,148	24,831	29,393	33,812	27,091	21,179	26,432 ^c	34,588 ^c
Tahltan Lake ^k	18,000	30,000	BEG	1993	10,416	30,324	22,702	34,248	13,463	15,828	39,745	33,159	38,458 ^c
Speel Lake	4,000	9,000	SEG	2015	1,763	3,689	5,640	4,777	5,681	6,426	5,059	4,888	5,571
Taku River	71,000	80,000	SEG	1986	68,059	71,837	88,367	115,383	126,764	81,177	92,189	132,523 ^c	176,417 ^c
Redoubt Lake	7,000	25,000	OEG	2003	10,064	12,569	17,156	22,720	40,944	49,124	19,936	13,983	22,774
	10,000	25,000	BEG	2003									
Chilkat Lake	70,000	150,000	BEG	2009	71,735	150,033	61,906	63,628	107,723	110,979	70,470	135,110	85,421
Chilkoot Lake	38,000	86,000	SEG	2009	33,117	33,705	71,657	65,915	118,166	46,329	105,713	71,515	86,721
East Alsek-Doame River	13,000	26,000	BEG	2003	8,000	12,000	19,500	27,300	21,500	26,500	15,300	15,000	19,200
Klukshu River	7,500	11,000	BEG	2013	2,741	5,528	18,546	20,728	17,176	3,792	12,148	11,363	7,391
Alsek River ^l	24,000	33,500	BEG	2013	NA	NA	NA	83,899	76,598	83,771	87,093	63,709	NA
Lost River	1,000		LB SEG	2009	200	NA	1,525	1,006	453	587	NA	302	449
Situk River	30,000	70,000	BEG	2003	22,520	83,959	47,865 ^f	89,943	62,500	118,635	102,318	95,093	57,693

Note: LB SEG = lower-bound SEG; NA = data not available.

^a Goals are for large (≥ 660 mm MEF, or fish age 1.3 and older) Chinook salmon, except the goals for the Klukshu and Alsek rivers, which are germane to fish age 1.2 and older and can include fish < 660 mm MEF.

^b 2012–2014 Unuk River Chinook salmon escapement estimate based on expanded aerial survey index because mark–recapture studies failed.

^c Preliminary data.

^d Chilkat River Chinook salmon inriver goal accounts for inriver subsistence harvest that average < 100 fish.

^e Klukshu River Chinook salmon escapement is the metric used to manage Chinook salmon for the Alsek River system, which includes the Klukshu River. Alsek River Chinook salmon escapement is estimated using: $[(\text{Klukshu River weir count} + \text{sport harvest}) \times 4.0 - \text{all Canadian inriver harvest}]$.

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Table 1.–Page 3 of 3.

^f Incomplete weir count due to inseason problems with weir (e.g., breach of weir).

^g Klawock coho salmon escapement goal was officially adopted in 2013, but escapement was managed for this goal beginning in 2007.

^h For Taku River coho salmon, the management intent of the U.S. is to ensure a minimum above-border run (i.e., inriver run) of 70,000 fish as detailed in the 2013 Pacific Salmon Treaty management plan (TTC 2014).

ⁱ Situk River weir was removed well before peak of pink salmon run so adequate assessment was not possible.

^j Hugh Smith Lake sockeye salmon OEG includes wild and hatchery fish.

^k Tahltan sockeye salmon escapement count includes fish collected for broodstock.

^l Alsek River sockeye salmon run is not regularly assessed, so escapement numbers for every year are not available. Since 2013, Alsek River sockeye salmon have been managed to meet Klukshu River escapement goal as per the 2013 management plan (TTC 2014).

Table 2.—Central Region (Bristol Bay, Cook Inlet, and Prince William Sound/Copper River) Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2008 to 2016.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
CHINOOK SALMON													
Bristol Bay													
Nushagak River	55,000	120,000	SEG	2013	91,364	74,781	56,088	102,258	167,618	107,602	70,482	98,019	125,368
Togiak River	eliminated			2013	NS	NS	NS	NS	NS				
Naknek River	eliminated			2016	6,559	3,305 ^a	NS	NS	NS	NS	NS	3,060	
Alagnak River	2,700		LB SEG	2007	1,825	1,957	NS	NS	NS	NS	NS	917	1,283
Egegik River	eliminated			2013	162	350 ^b	NS	NS	NS				
Upper Cook Inlet													
Alexander Creek	2,100	6,000	SEG	2002	150	275	177	343	181	588	911	1,117	754
Campbell Creek	380		LB SEG	2011	439	554	290	260	NS	NS	274	654	544
Chuitna River	1,200	2,900	SEG	2002	586	1,040	735	719	502	1,690	1,398	1,965	1,372
Chulitna River	1,800	5,100	SEG	2002	2,514	2,093	1,052	1,875	667	1,262	1,011	3,137	1,151
Clear (Chunilna) Creek	950	3,400	SEG	2002	1,795	1,205	903	512	1,177	1,471	1,390	1,205	NS
Crooked Creek	650	1,700	SEG	2002	879	617	1,088	654	631	1,103	1,411	1,459	1,747
Deshka River	13,000	28,000	SEG	2011	7,533	11,967	18,594	19,026	14,010	18,531	16,335	24,316	22,874
Goose Creek	250	650	SEG	2002	117	65	76	80	57	62	232	NC	NC
Kenai River - Early Run	5,300	9,000	OEG	2005	6,570	6,163	6,393	8,448	5,044	2,148	5,311	6,190	NA
	3,800	8,500	SEG	2013									
Kenai River - Late Run	15,000	30,000	SEG	2013	32,290	21,390	16,210	19,680	27,710	15,395	16,263	22,626	NA
Lake Creek	2,500	7,100	SEG	2002	2,004	1,394	1,617	2,563	2,366	3,655	3,506	4,686	3,588
Lewis River	250	800	SEG	2002	120	111	56	92	107	61	61	5 ^c	0
Little Susitna River	900	1,800	SEG	2002	1,297	1,028	589	887	1,154	1,651	1,759	1,507	1,622
Little Willow Creek	450	1,800	SEG	2002	NC	776	468	713	494	858	684	788	675
Montana Creek	1,100	3,100	SEG	2002	1,357	1,460	755	494	416	1,304	953	1,416	692
Peters Creek	1,000	2,600	SEG	2002	NC	1,283	NC	1,103	459	1,643	1,443	1,514	1,122
Prairie Creek	3,100	9,200	SEG	2002	3,039	3,500	3,022	2,038	1,185	3,304	2,812	3,290	1,853
Sheep Creek	600	1,200	SEG	2002	NC	500	NC	350	363	NC	262	NC	NC
Talachulitna River	2,200	5,000	SEG	2002	2,964	2,608	1,499	1,368	847	2,285	2,256	2,582	4,295
Theodore River	500	1,700	SEG	2002	345	352	202	327	179	476	312	426	68
Willow Creek	1,600	2,800	SEG	2002	1,255	1,133	1,173	1,061	756	1,752	1,335	2,046	1,814
Lower Cook Inlet													
Anchor River	3,800	10,000	SEG	2011	5,806	3,455	4,449	3,545	4,509	4,388	2,497	10,049	7,146 ^d
Deep Creek	350	800	SEG	2002	205	483	387	696	447	475	601	535	NS
Ninilchik River	550	1,300	SEG	2008	586	528	605	668	555	571	891	874	572 ^d
Prince William Sound													
Copper River	24,000		LB SEG	2003	32,487	27,787	16,771	27,994	27,835	29,012	20,710	27,842	NA ^e

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Table 2.–Page 2 of 6.

	2016 Goal Range		Type	Initial Year	Escapement								
System	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
CHUM SALMON													
Bristol Bay													
Nushagak River ^f	200,000		LB SEG	2013	326,300	438,481	273,914	248,278	360,768	602,300	493,821	288,929	419,810
Upper Cook Inlet													
Clearwater Creek	3,800	8,400	SEG	2002	4,630	8,300	13,700	11,630	5,300	9,010	3,110	10,790	5,056
Lower Cook Inlet													
Port Graham River	1,450	4,800	SEG	2002	1,802	1,029	1,395	1,764	699	1,944	3,735	4,030	2,391
Dogfish Lagoon	3,350	9,150	SEG	2002	6,200	4,380	12,703	12,936	8,842	9,300	11,205	13,312	11,260
Rocky River	1,200	5,400	SEG	2002	3,763	2,500	1,271	4,480	3,165	8,148	6,863	3,138	4,620
Port Dick Creek	1,900	4,450	SEG	2002	11,774	5,592	2,439	7,087	8,400	4,133	1,829	13,230	9,323
Island Creek	6,400	15,600	SEG	2002	12,935	9,295	3,408	11,755	14,863	8,772	2,699	18,479	8,210
Big Kamishak River	9,350	24,000	SEG	2002	4,495	15,026	NS	5,532	12,400	3,280	5,676	6,990	9,104
Little Kamishak River	6,550	23,800	SEG	2002	21,265	4,213	18,414	19,310	30,250	6,744	15,069	14,370	11,991
McNeil River	24,000	48,000	SEG	2008	10,617	18,766	10,520	30,977	10,388	9,498	17,475	20,494	26,262
Bruin River	6,000	10,250	SEG	2002	17,535	10,071	6,200	3,486	16,795	8,942	3,583	11,006	26,598
Ursus Cove	6,050	9,850	SEG	2002	6,502	12,946	11,765	10,636	2,840	10,339	5,308	14,783	7,032
Cottonwood Creek	5,750	12,000	SEG	2002	11,561	19,405	15,848	4,730	4,111	5,206	7,079	16,962	1,850
Iniskin Bay	7,850	13,700	SEG	2002	20,042	30,821	19,252	16,522	3,049	5,928	13,020	7,513	1,089
Prince William Sound ^g													
Eastern District	50,000		LB SEG	2006	82,068	150,051	146,613	240,321	97,362	140,806	93,491	105,064	112,142
Northern District	20,000		LB SEG	2006	50,666	30,296	59,530	64,743	23,818	41,058	27,680	41,802	43,179
Coghill District	8,000		LB SEG	2006	48,221	8,290	84,840	19,617	14,075	14,414	9,491	18,767	15,444
Northwestern District	5,000		LB SEG	2006	34,107	15,826	34,300	11,951	9,360	4,995	5,041	7,591	7,321
Southeastern District	8,000		LB SEG	2006	20,300	150,974	138,442	112,507	31,029	43,000	30,177	44,488	26,127
COHO SALMON													
Bristol Bay													
Nushagak River	60,000	120,000	SEG	2013					329,946	207,222	478,198	NS	NS
Upper Cook Inlet													
Fish Creek (Knik)	1,200	4,400	SEG	2011	4,868 ^h	8,214	6,977	1,428 ^h	1,237	7,593 ^h	10,283	7,912	2,484
Jim Creek	450	1,400	SEG	2014	1,890	1,331	242	229	213	663	122	571	106
Little Susitna River	10,100	17,700	SEG	2002	18,485	9,523	9,214	4,826 ^k	6,779	13,583	24,211 ⁱ	12,756	10,049
Lower Cook Inlet													
There are no coho salmon stocks with escapement goals in Lower Cook Inlet													
Prince William Sound													
Copper River Delta	32,000	67,000	SEG	2003	76,892	41,294	41,077	38,495	37,010	34,680	42,530	41,665	40,950
Bering River	13,000	33,000	SEG	2003	28,932	22,141	21,311	18,890	15,605	18,820	26,475	1,550	26,150

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Table 2.–Page 3 of 6.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
PINK SALMON													
Bristol Bay													
Nushagak River	165,000		LB SEG	2013					1,348,606	NA	2,281,831	NS	NS
Upper Cook Inlet													
There are no pink salmon stocks with escapement goals in Upper Cook Inlet.													
Lower Cook Inlet													
Humpy Creek	21,650	85,550	SEG	2002	90,870	5,207	70,686	1,670	67,934	6,749	44,369	38,025	89,673
China Poot Creek	2,900	8,200	SEG	2002	5,086	1,120	2,220	3,462	8,392	7,119	1,409	7,366	698
Tutka Creek	6,500	17,000	SEG	2002	14,144	3,770	2,141	21,974	10,436	9,541	10,152	81,584	33,242
Barabara Creek	1,900	8,950	SEG	2002	16,557	2,583	13,935	8,186	1,412	17,377	3,558	25,203	2,813
Seldovia Creek	19,050	38,950	SEG	2002	53,484	14,619	25,886	46,231	44,722	36,824	35,895	108,793	15,694
Port Graham River	7,700	19,850	SEG	2002	24,720	13,996	16,586	20,883	34,486	11,893	32,295	82,356	14,629
Dogfish Lagoon Creeks	1,200	8,400	SEG	2014	8,000	9,200	6,300	3,900	11,400	26,448	8,848	50,058	2,307
Port Chatham	7,800	21,000	SEG	2002	16,354	25,291	2,992	15,830	5,430	57,447	10,290	42,613	1,140
Windy Creek Right	3,350	10,950	SEG	2002	12,491	15,012	6,408	1,722	5,823	11,704	5,710	17,009	1,400
Windy Creek Left	3,650	29,950	SEG	2002	64,068	57,263	24,241	12,210	11,691	47,849	10,147	33,640	500
Rocky River	9,350	54,250	SEG	2002	90,876	173,583	27,045	22,706	15,684	75,791	17,114	107,931	4,300
Port Dick Creek	18,550	58,300	SEG	2002	34,228	41,681	41,090	16,868	18,057	55,828	48,732	98,002	4,819
Island Creek	7,200	28,300	SEG	2002	49,719	44,527	69,525	10,181	20,079	26,004	50,402	50,387	1,735
S. Nuka Island Creek	2,700	14,250	SEG	2002	12,300	19,934	NS	NS	1,250	8,442	11,000	8,900	10
Desire Lake Creek	1,900	20,200	SEG	2002	9,546	73,926	2,978	600	2,260	56,921	443	46,290	169
Bear & Salmon Creeks	eliminated			2011	NS	NS	NS						
Thumb Cove	eliminated			2011	NS	NS	NS						
Humpy Cove	eliminated			2011	NS	NS	NS						
Tonsina Creek	eliminated			2011	NS	NS	NS						
Bruin River	18,650	155,750	SEG	2002	150,717	1,067,351	40,256	4,534	31,800	15,020	121,569	40,801	86,632
Sunday Creek	4,850	28,850	SEG	2002	20,434	106,296	6,607	844	1,348	6,132	7,665	60,385	2,130
Brown's Peak Creek	2,450	18,800	SEG	2002	17,400	63,605	3,092	2,035	2,800	4,061	4,048	29,141	1,378
Prince William Sound													
All Dist. Combined (even yr) ^j	eliminated			2012	860,944		1,910,357						
All Dist. Combined (odd yr)	eliminated			2012		2,338,923		3,826,378					
Eastern Dist. (even yr)	250,000	580,000	SEG	2012					301,709		270,244		663,113
Eastern Dist. (odd yr)	310,000	640,000	SEG	2012						1,266,783		1,458,005	
Northern Dist. (even yr)	140,000	210,000	SEG	2012					106,568		105,333		150,767
Northern Dist. (odd yr)	90,000	180,000	SEG	2012						329,434		714,301	
Coghill Dist. (even yr)	60,000	150,000	SEG	2012					172,611		63,290		171,362
Coghill Dist. (odd yr)	60,000	250,000	SEG	2012						640,414		803,379	

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Table 2.–Page 4 of 6.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
Northwestern Dist. (even yr)	70,000	140,000	SEG	2012					117,795		67,030		171,633
Northwestern Dist. (odd yr)	50,000	110,000	SEG	2012						203,444		426,421	
Eshamy Dist. (even yr)	3,000	11,000	SEG	2012					1,052		12,400		NA ^k
Eshamy Dist. (odd yr)	4,000	11,000	SEG	2012						12,145		58,943	
Southwestern Dist. (even yr)	70,000	160,000	SEG	2012					90,156		83,581		NA ^k
Southwestern Dist. (odd yr)	70,000	190,000	SEG	2012						348,012		631,506	
Montague Dist. (even yr)	50,000	140,000	SEG	2012					77,756		24,917 ^k		NA ^k
Montague Dist. (odd yr)	140,000	280,000	SEG	2012						411,373		545,619	
Southeastern Dist. (even yr)	150,000	310,000	SEG	2012					258,047		185,072		169,660
Southeastern Dist. (odd yr)	270,000	620,000	SEG	2012						1,472,633		1,510,249	
SCKEYE SALMON													
<i>Bristol Bay</i>													
Kvichak River ^l	2,000,000	10,000,000	SEG	2010	2,757,912	2,266,140	4,207,410	2,264,352	4,164,444	2,088,576	4,458,540	7,341,612	4,462,728
Alagnak River (Tower) ^m	320,000		LB SEG	2007	2,180,502	970,818	1,187,730	883,794	861,747	1,095,950	200,524	5,770,650	NA
Alagnak River (Aerial) ⁿ	125,000		LB SEG	2016									696,400
Naknek River	800,000	2,000,000	SEG ^o	2015	2,472,690	1,169,466	1,463,928	1,177,074	900,312	938,160	1,474,428	1,920,954	1,691,910
Egegik River	800,000	2,000,000	SEG	2015	1,259,568	1,146,276	927,054	961,200	1,233,900	1,113,630	1,382,466	2,160,792	1,837,260
Ugashik River	500,000	1,400,000	SEG	2015	596,332	1,364,338	830,886	1,029,853	670,578	898,110	640,158	1,564,638	1,635,270
Wood River	700,000	1,800,000	SEG	2015	1,724,676	1,319,232	1,804,344	1,098,006	764,202	1,183,348	2,764,614	1,941,474	1,309,707
Igushik River	150,000	400,000	SEG	2015	1,054,704	514,188	518,040	421,380	193,770	387,036	340,590	651,172	469,230
Nushagak River	260,000	760,000	OEG	2012	492,546	484,149	468,696	428,191	432,438	894,172	618,477	796,684	680,513
	370,000	900,000	SEG	2015									
Kulukak Bay	eliminated			2013	NS	NS	NS	NS	NS				
Togiak River	120,000	270,000	SEG	2007	205,680	313,946	188,298	190,970	203,148	128,058	151,934	218,700	200,046
<i>Upper Cook Inlet</i>													
Crescent River	eliminated			2014	62,030	NS	86,333	81,952	58,838	NS			
Fish Creek (Knik)	20,000	70,000	SEG	2002	19,339	83,480	126,836	66,678	18,813	18,912	43,915	102,309	46,202
Kasilof River	160,000	390,000	OEG	2011	324,880	324,783	293,765	243,767	372,523	487,700	438,238	470,677	239,981
	160,000	340,000	BEG	2011									
Kenai River ^p	700,000	1,400,000	OEG	2011	703,979	843,255	1,015,106	1,275,369	1,197,518	964,224	1,151,629	1,325,673	1,042,668
	700,000	1,200,000	SEG	2011									
Packers Creek	15,000	30,000	SEG	2008	25,247	16,473	NS	NS	NS	NA	19,242	28,072	NA
Russian River - Early Run	22,000	42,000	BEG	2011	30,989	52,178	27,074	29,129	24,115	35,776	44,920	50,226	38,739
Russian River - Late Run	30,000	110,000	SEG	2005	46,638	80,088	38,848	41,529	54,911	31,364	52,277	46,223	37,837
Yentna River ^q	eliminated			2009	90,180								
Chelatna Lake	20,000	65,000	SEG	2009	73,469	17,721	37,784	70,353	36,577	70,555	26,212	69,750	60,792

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Table 2.–Page 5 of 6.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
Judd Lake	25,000	55,000	SEG	2009	54,304	44,616	18,361	39,997	18,303	14,088	22,416	47,684	NA
Larson Lake	15,000	50,000	SEG	2009	35,040	40,933	20,324	12,413	16,708	21,821	12,040	23,214	14,333
<i>Lower Cook Inlet</i>													
English Bay	6,000	13,500	SEG	2002	11,993	18,183	12,253	9,920	3,444	10,891	7,832	6,290	7,673
Delight Lake	7,550	17,650	SEG	2011	23,933	12,700	23,775	20,190	10,887	5,961	22,289	3,220	5,110
Desire Lake	8,800	15,200	SEG	2002	10,700	16,000	6,320	9,630	8,840	8,400	11,480	2,830	6,740
Bear Lake	700	8,300	SEG	2002	9,264	10,364	8,880	9,608	8,031	8,999	9,090	9,560	9,011
Aialik Lake	3,700	8,000	SEG	2002	4,200	3,100	5,315	3,480	2,140	3,530	450	3,182	400
Mikfik Lake	3,300	14,000	SEG	2014	10,000 ^f	20,965	5,221	395	3,131	4,042	18,062	3,502	10,180
Chenik Lake	3,500	14,000	SEG	2011	10,653	15,264	17,312	10,330	16,505	11,333	17,797	19,073	19,510
Amakdedori Creek	1,250	2,600	SEG	2002	3,200	2,160	1,210	3,412	770	1,540	4,280	2,910	2,240
<i>Prince William Sound</i>													
Upper Copper River	360,000	750,000	SEG	2012	480,597	468,725	502,995	607,657	953,745	860,829	864,988	930,061	NA ^s
Copper River Delta	55,000	130,000	SEG	2003	67,950	68,622	82,835	72,367	66,850	75,705	64,205	66,195	51,550
Bering River	15,000	33,000	SEG	2012	18,196	13,471	4,367	28,530	18,290	23,900	14,985	21,705	16,290
Coghill Lake	20,000	60,000	SEG	2012	29,298	23,186	24,312	102,359	73,978	17,231	21,836	13,684	8,708
Eshamy Lake ^t	13,000	28,000	BEG	2009	18,495	24,025	16,291	24,129	NA	4,500	7,500	4,400	5,816

Note: NA = data not available; NC = no count; NS = no survey; LB SEG = lower-bound SEG.

^a In 2009, aerial surveys were only flown on Big Creek (2,834 Chinook salmon) and King Salmon River (471 Chinook salmon). Mainstem Naknek River and Paul's Creek were not surveyed in 2009.

^b Aerial surveys were conducted in the Egegik and King Salmon River systems on August 5, 2009, to provide escapement indices for Chinook and chum salmon. Resulting counts were 350 Chinook and 277 chum salmon. Water conditions were poor; high and turbid conditions prevented observation on most of the surveyed systems. Chinook salmon escapement indices were well below average in streams surveyed, but should be considered minimum counts due to the poor water conditions. Based on carcass distribution and observed presence, the survey was likely conducted after peak spawning.

^c Lewis River mouth naturally obstructed.

^d Preliminary escapement estimates.

^e The Copper River Chinook salmon spawning escapement estimate is not available. An inriver estimate is generated from a mark–recapture project run by the Native Village of Eyak and LGL Consulting. The spawning escapement estimate is generated by subtracting the upper Copper River state and federal subsistence, state personal use, and sport fishery harvest estimates from the mark–recapture estimate of the inriver abundance. Estimates for federal and state subsistence and the state personal use fishery harvests are generally not available for about 6 months after the fishery is closed. Additionally, the sport fishery harvest estimate is based on the mailout survey and is generally available about 12 months after the fishery ends.

^f Escapement goal for Nushagak River chum salmon is based on sonar count through July 20.

^g No estimates for chum salmon escapements are included for the Unakwik, Eshamy, Southwestern, or Montague districts because there are no escapement goals for those districts.

^h Incomplete counts for Fish Creek (Knik) coho salmon in 2008, 2011, and 2013 because weir was pulled before end of run.

ⁱ Incomplete counts for Little Susitna River coho salmon in 2011 due to breach of weir and in 2014 because weir was pulled before end of run.

^j The estimates for pink salmon (odd year) do not include Unakwik District escapements, due to absence of an escapement goal and an average escapement estimate of a few thousand fish.

^k Fewer than 3 surveys were flown for almost all the index streams within the district, so they were not used in calculating the area under the curve index.

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- ^l Prior to 2010, Kvichak River had a prepeak/peak-cycle escapement goal of 6–10 million and an off-peak escapement goal of 2–10 million. Between 2001 and 2009 only one year (2004) was classified as either a prepeak or peak year.
- ^m 2009–2015 Alagnak River sockeye salmon escapements for Alagnak River (Tower) escapement goal are expanded aerial surveys.
- ⁿ Alagnak River sockeye salmon aerial survey-based escapement goal will be used in years that the Alagnak River tower is not operated.
- ^o Naknek River has an OEG of 800,000–2,000,000 sockeye salmon when the Naknek River Special Harvest Area is open to fishing.
- ^p Kenai River sockeye salmon uses the best estimate of sport harvest upstream of sonar.
- ^q Yentna River sockeye salmon escapement goal was replaced by SEGs on Chelatna, Judd, and Larson lakes in early 2009.
- ^r 2008 Mikfik Lake sockeye salmon escapement includes 1,000 fish estimated by aerial surveys to have escaped to the lake while the remote video system was not operating.
- ^s The 2016 upper Copper River sockeye salmon spawning escapement estimate is not available until personal use, subsistence, and sport fishery harvests are estimated.
- ^t Eshamy River weir was not operated 2012–2016. A pilot project to assess the use of video for monitoring starting in 2013 has not provided a comparable total escapement estimate, but did provide a minimum estimate of sockeye salmon.

Table 3.—Arctic-Yukon-Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2008 to 2016.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
CHINOOK SALMON													
Kuskokwim Area													
North (Main) Fork Goodnews River	640	3,300	SEG	2005	2,155	NS	NS	853	378	NS	630	991	1,120
Middle Fork Goodnews River	1,500	2,900	BEG	2007	2,223	1,669	2,176	2,045	524	1,187	750	1,494	3,767
Kanektok River	3,900	12,000	SEG	2016	NS	NS	1,208	NS	NS	2,277	1,840	4,919	5,631
Kuskokwim River (entire area)	65,000	120,000	SEG	2013	128,978	118,478	49,073	72,097	76,074	47,315	123,987	155,464	145,718
Kogruklu River	4,800	8,800	SEG	2013	9,750	9,528	5,812	6,731	NA	1,819	3,732	8,081	7,056
Kwethluk River	4,100	7,500	SEG	2013	5,275	5,744	1,667	4,079	NA	845	3,187	8,162	7,619
Tuluksak River	eliminated			2013	701	362	201	284	555				
George River	1,800	3,300	SEG	2013	2,563	3,663	1,498	1,547	2,201	1,292	2,993	2,282	1,663
Kisaralik River	400	1,200	SEG	2005	1,074	NS	235	NS	588	599	622	709	622
Aniak River	1,200	2,300	SEG	2005	3,222	NS	NS	NS	NS	754	3,201	NS	718
Salmon River (Aniak R)	330	1,200	SEG	2005	589	NS	NS	79	49	154	497	810	NS
Holitna River	970	2,100	SEG	2005	NS	NS	NS	NS	NS	532	NS	662	1,157
Cheeneetuk River (Stony R)	340	1,300	SEG	2005	290	323	NS	249	229	138	340	NS	217
Gagaryah River (Stony R)	300	830	SEG	2005	177	303	62	96	178	74	359	19	135
Salmon River (Pitka Fork)	470	1,600	SEG	2005	1,033	632	135	767	670	469	1,865	2,016	1,578
Yukon River													
East Fork Andreafsky River	2,100	4,900	SEG	2010	4,242	3,004	2,413	5,213	2,517	1,998	5,949	5,474	2,676
West Fork Andreafsky River	640	1,600	SEG	2005	NS	1,678	858	1,173	NS	1,094	1,695	NS	NS
Anvik River	1,100	1,700	SEG	2005	992	832	974	642	722	940	1,584	2,616	NS
Nulato River (forks combined)	940	1,900	SEG	2005	922	2,260	711	1,401	1,373	1,118	NS	1,564	NS
Gisasa River	eliminated			2010	487	515							
Chena River	2,800	5,700	BEG	2001	3,208	5,253	2,382	NS	2,200 ^a	1,859	7,192	6,291 ^a	6,665 ^a
Salcha River	3,300	6,500	BEG	2001	5,415	12,774	6,135	7,200 ^b	7,165	5,465	NS	6,287	2,675 ¹
Canada Mainstem	42,500	55,000	agreement ^c	annual	33,883	65,278	32,014	46,307	32,656	28,669	63,327	82,674	68,805
Norton Sound													
Fish River/Boston Creek	eliminated			2016	NS	NS	NS	NS	NS	44	NS	669	
Kwiniuk River	250		LB SEG	2016	237	444	135	57	54	15	429	318	135
North River (Unalakleet R)	1,200	2,600	SEG	2005	903	2,355	1,256	864	996	564	2,328	1,938	513
Shaktoolik River	eliminated			2013	NS	NS	NS	106	NS				
Unalakleet/Old Woman River	eliminated			2016	NS	1,368	NS	105	NS	NS	NS	NS	
CHUM SALMON													
Kuskokwim Area													
Middle Fork Goodnews River	12,000		LB SEG	2005	39,548	19,236	24,789	19,974	9,065	27,682	11,518	11,517	41,815

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Table 3.—Page 2 of 4.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
Kanektok River	eliminated			2013	NS	NS	NS	NS	NA				
Kogruklu River	15,000	49,000	SEG	2005	44,744	82,483	69,258	76,823	NA	65,644	30,763	33,201	45,329
Aniak River	eliminated			2016	427,911	479,531	429,643	345,630	NA	NA	NA	NA	
<i>Yukon River Summer Chum</i>													
Yukon River Drainage	500,000	1,200,000	BEG	2016									1,914,526 ^d
East Fork Andreafsky River	40,000		LB SEG	2010	57,259	8,770	72,839	100,473	56,680	61,234	37,793	48,809	50,362
Anvik River	350,000	700,000	BEG	2005	374,928	193,099	396,173	642,528	483,972	571,690	399,796	374,968	337,821
<i>Yukon River Fall Chum</i>													
Yukon River Drainage ^e	300,000	600,000	SEG	2010	681,000	483,000	527,000	883,000	573,000	884,000	753,000	562,000	828,000
Tanana River ^f	61,000	136,000	BEG	2001	264,000	160,000	213,000	271,000	102,000	275,000	217,000	125,000	200,000
Delta River	6,000	13,000	BEG	2001	23,000	13,000	18,000	24,000	9,000	32,000	32,480	33,401	22,000
Toklat River	eliminated			2010	NA	NA							
Upper Yukon River Tributaries	eliminated			2016	248,000	NA	196,000	406,000	333,000	392,000	297,000	172,000	
Chandalar River	74,000	152,000	BEG	2001	178,000	NA	158,000	295,000	206,000	253,000	226,000	164,000	295,000
Sheenjek River	eliminated			2016	50,000	54,000	22,000	98,000	105,000	113,000 ^g	56,000 ^g	34,000 ^g	
Fishing Branch River (Canada)	22,000	49,000	agreement	2008 ^h	20,000	26,000	16,000	13,000	22,000	33,000 ^h	15,000 ^h	8,000 ^h	29,000
Yukon R. Mainstem (Canada)	70,000	104,000	agreement	2010 ⁱ	176,000	94,000	118,000	206,000	138,000	200,000	156,000	109,000	145,000
<i>Norton Sound</i>													
Subdistrict 1 Aggregate	23,000	35,000	BEG	2001	32,177	21,368	97,798	66,122	51,459	108,120	97,234	92,030	60,749
Sinuk River	eliminated			2010	NS	2,232							
Nome River	2,900	4,300	OEG	2001	2,607	1,565	5,906	3,582	1,982	4,811	5,589	6,216	7,093
	2,900	4,300	SEG	2005									
Bonanza River	eliminated			2010	NS	6,744							
Snake River	1,600	2,500	OEG	2001	1,244	891	6,973	4,343	651	2,755	3,983	4,260	3,666
	1,600	2,500	SEG	2005									
Solomon River	eliminated			2010	NS	918							
Flambeau River	eliminated			2010	11,618	4,075							
Eldorado River	6,000	9,200	OEG	2001	6,746	4,943	42,612	16,227	13,393	26,121	27,054	25,560	18,938
	6,000	9,200	SEG	2005									
Niukluk River	eliminated			2016	12,078	15,879	48,561	23,607	19,576	NS	NS	NS	
Kwiniuk River	11,500	23,000	OEG	2001	9,483	8,739	71,388	31,604	5,577	5,631	39,753	37,831	8,526
	10,000	20,000	BEG	2001									
Tubutulik River	9,200	18,400	OEG	2001	NS	3,161	16,097	14,127	NS	NS	NS	12,714	NS
	8,000	16,000	BEG	2001									
Unalakleet/Old Woman River	eliminated			2016	NS	NS	NS	NS	NS	2,496	NS	NS	

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Table 3.–Page 3 of 4.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
Kotzebue Sound													
Kotzebue Sound Aggregate	196,000	421,000	BEG	2007									
Noatak and Eli Rivers	42,000	91,000	SEG	2007	270,747	69,872	NS	NS	NS	NS	453,284	NS	NS
Upper Kobuk w/Selby River	9,700	21,000	SEG	2007	42,622	45,155	NS	NS	NS	NS	65,653	NS	NS
Salmon River	3,300	7,200	SEG	2007	NS	NS	NS	NS	NS	NS	NS	NS	NS
Tutuksuk River	1,400	3,000	SEG	2007	NS	NS	NS	NS	NS	NS	NS	NS	NS
Squirrel River	4,900	10,500	SEG	2007	NS	NS	NS	NS	NS	NS	NS	NS	NS
COHO SALMON													
Kuskokwim Area													
Middle Fork Goodnews River	12,000		LB SEG	2005	37,690	19,123	26,287	24,668	NA	NA	NA	15,084 ^j	NS
Kogrukluk River	13,000	28,000	SEG	2005	29,237	22,289	14,689	21,800	13,421	21,207	52,975	32,493	NS
Kwethluk River	19,000		LB SEG	2010	48,049	21,911	NA	NA	20,895	NA	43,945	22,443	28,975
Yukon River													
Delta Clearwater River	5,200	17,000	SEG	2005	7,500	16,850	5,867 ^k	8,772	5,230	6,222	4,285	19,553	6,767
Norton Sound													
Kwiniuk River	650	1,300	SEG	2005	2,676	NS	2,925	1,331	NS	NS	NS	NS	1,987
Niukluk River ^l	eliminated			2016	13,779	6,861	9,042	2,405	1,729	NS	NS	NS	
Niukluk River/Ophir Creek	750	1,600	SEG	2016									976
North River (Unalakleet R.)	550	1,100	SEG	2005	2,744	2,830	NS	898	NS	867	NS	NS	NS
PINK SALMON													
Kuskokwim Area													
There are no escapement goals for pink salmon in the Kuskokwim Management Area.													
Yukon River													
There are no escapement goals for pink salmon in the Yukon River drainage.													
Norton Sound													
Nome River (odd year)	3,200		LB SEG	2005		16,490		14,403		10,257		76,640	
Nome River (even year)	13,000		LB SEG	2005	1,186,554		171,760		149,119		96,396		1,175,723
Kwiniuk River	8,400		LB SEG	2005	1,444,213	42,962	634,220	30,913	393,302	13,212	326,522	102,942	1,909,943
Niukluk River	eliminated			2016	669,234	24,204	434,205	15,425	249,412	NS	NS	NS	
North River	25,000		LB SEG	2005	240,286	190,291	150,807	123,892	147,674	46,668	143,658	463,092	1,045,410
SCKEYE SALMON													
Kuskokwim Area													
North (Main) Fork Goodnews River	9,600	18,000	SEG	2016	32,500	NS	NS	14,140	16,710	NS	NS	38,390	90,060
Middle Fork Goodnews River	18,000	40,000	BEG	2007	43,879	27,494	36,574	19,643	29,531	23,545	41,473	57,809	170,574
Kanektok River	15,300	41,000	SEG	2016	NS	NS	16,180	NS	NA	51,517	136,400	39,970	80,160
Kogrukluk River	4,440	17,000	SEG	2010	19,675	22,826	17,139	7,974	NA	7,808	6,413	6,411	20,087

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Table 3.–Page 4 of 4.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
Yukon River													
There are no escapement goals for Sockeye in the Yukon River drainage.													
Norton Sound													
Salmon Lake/Grand Central River	4,000	8,000	SEG	2005	11,672	322	762	5,144	5,830	6,781	5,303	15,250	8,558
Glacial Lake	800	1,600	SEG	2005	540	169	154	NS	NS	1,366	2,330	1,819	1,582

Note: NA = data not available; NS = no survey; LB SEG = lower-bound SEG.

^a 2012, 2015, and 2016 Chena River Chinook salmon escapement estimates include an expansion for missed counting days based on 2 DIDSON sonars used to assess Chinook salmon passage.

^b 2011 Salcha River Chinook salmon escapement is based on an aerial survey because high water prevented tower counting most of the season; therefore, aerial survey represents best estimate of escapement for the year.

^c Canadian Yukon River Mainstem Chinook salmon interim management escapement goal of 42,500–55,000 was implemented for the 2010–2016 seasons by the United States and Canada Yukon River Panel. Estimates represent escapement after subtraction of Canadian harvest.

^d Preliminary data.

^e Starting in 2014, estimates of drainagewide escapement for Yukon River fall chum salmon are based on Bayesian methods. Bayesian estimates are higher than estimates using the former method because the Kantishna River component is included in the Bayesian analysis.

^f Tanana River fall chum salmon escapement estimated using mark–recapture from 1995 to 2007, then based on relationship to either the Delta River or Mainstem Yukon River escapements from 2008 to present.

^g Sheenjek River sonar project was discontinued in 2013; estimate is based on a linear regression between earlier Sheenjek 2 riverbank counts and Fishing Branch River weir counts.

^h Fishing Branch River fall chum salmon interim management escapement goal of 22,000–49,000 was implemented for 2008–2013 by Yukon River Panel. Weir assessment project no longer operated after 2012; 2013–2015 are rough estimates based on border sonar estimate minus community harvest assuming most fish migrate to Fishing Branch River.

ⁱ Yukon River Mainstem fall chum salmon interim management escapement goal of 70,000–104,000 was implemented for the 2010–2016 seasons by Yukon River Panel.

^j Middle Fork Goodnews River coho salmon escapement for 2015 is minimum escapement because weir operations ended early.

^k Delta Clearwater River coho salmon 2010 escapement index is not a peak count.

^l Niukluk River coho salmon numbers (all years) are actual tower counts, and do not take into consideration upstream harvest.

Table 4.—Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2008 to 2016.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
CHINOOK SALMON													
AK Peninsula													
Nelson River	2,400	4,400	BEG	2004	5,012	2,048	2,769	1,704	1,192 ^a	1,421 ^a	3,801 ^a	2,890 ^a	4891 ^a
Chignik													
Chignik River	1,300	2,700	BEG	2002	1,620	1,590	3,845	2,490	1,404	1,185	2,765	2,054 ^b	1,843 ^b
Kodiak													
Karluk River	3,000	6,000	BEG	2011	752	1,306	2,917	3,420	3,197 ^a	1,824 ^a	1,182 ^a	2,777 ^a	3,434 ^a
Ayakulik River	4,000	7,000	BEG	2011	3,071	2,615	5,197	4,251	4,744	2,354	917 ^a	4,594 ^a	2,392 ^a
CHUM SALMON													
AK Peninsula													
Northern District	119,600	239,200	SEG	2007	228,537	154,131	145,310	96,952	140,418	137,251	191,586	182,994	277,674
Northwestern District	100,000	215,000	SEG	2007	241,750	84,460	144,100	151,400	140,000	92,800	54,525	89,800	113,250
Southeastern District ^c	106,400	212,800	SEG	1992	277,450	106,500	62,612	145,300	31,072	184,350	82,300	250,370	150,456
South Central District	89,800	179,600	SEG	1992	140,450	18,600	85,600	169,000	86,190	155,050	95,000	298,800	248,360
Southwestern District	133,400	266,800	SEG	1992	171,250	385,730	142,650	176,425	87,230	163,200	130,745	351,150	220,060
Unimak District	eliminated			2013	2,800	1,400	1,050	7,000	750				
Chignik													
Entire Chignik Area	45,000	110,000	SEG	2016	116,240	108,300	102,625	119,000	93,800	109,900	46,720	123,400	69,900
Kodiak													
Mainland District	104,000		LB SEG	2008	72,000	91,106	124,500	128,700	127,850	107,400	80,961	126,200	68,700
Kodiak Archipelago Aggregate	151,000		LB SEG	2008	83,040	177,490	160,290	192,400	159,825	284,799	116,800	308,376	133,785
COHO SALMON													
AK Peninsula													
Nelson River	18,000		LB SEG	2004	24,000	22,000	15,000	21,000	19,160	22,000	25,000	45,000	45,000
Thin Point Lake	eliminated			2013	3,200	900	NA	200	1,500				
Ilnik River	9,000		LB SEG	2010	27,000	24,000	19,600	18,000	11,800	17,000	33,000	14,000	28,000
Chignik													
There are no coho salmon stocks with escapement goals in Chignik Area													
Kodiak													
Pasagshak River	1,200		LB SEG	2011	3,875	2,385	1,971	1,083	3,132	1,648	4,934	1,790	737
Buskin River	4,700	9,600	BEG	2014	8,176	9,583	6,239	5,298	4,906	4,974	7,335	4,341	2,513
Olds River	1,000		LB SEG	2011	656	697	NA	1,003	624	2,145	1,320	1,357	1,634
American River	400		LB SEG	2011	700	639	NA	1,061	427	841	1,595	530	500

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Table 4.–Page 2 of 3.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
PINK SALMON													
AK Peninsula													
Bechevin Bay Section (odd yr)	eliminated			2013		72,000		2,400					
Bechevin Bay Section (even yr)	eliminated			2013	11,900		13,600		7,603				
South Peninsula Total (odd yr)	eliminated			2016		3,067,000		2,494,950		2,320,790		7,820,800	
South Peninsula Total (even yr)	eliminated			2016	3,338,370		742,912		478,910		1,340,380		
South Peninsula Total	1,750,000	4,000,000	SEG	2016	3,338,370	3,067,000	742,912	2,494,950	478,910	2,320,790	1,340,380	7,820,800	1,038,160
Chignik													
Entire Chignik Area (odd yr)	260,000	450,000	SEG	2016		344,050		272,000		231,800		404,000	
Entire Chignik Area (even yr)	170,000	280,000	SEG	2016	260,800		98,400		111,000		87,240		68,100
Kodiak													
Mainland District	250,000	1,000,000	SEG	2011	236,500	430,100	265,650	273,500	413,325	620,680	254,650	754,600	65,305
Kodiak Archipelago (odd yr)	2,000,000	5,000,000	SEG	2011		4,707,894		2,506,714		4,450,711		5,151,731	
Kodiak Archipelago (even yr)	3,000,000	7,000,000	SEG	2011	2,924,708		3,378,483		5,111,049		2,733,282		1,699,281
SOCKEYE SALMON													
AK Peninsula													
Cinder River ^d	36,000	94,000	SEG	2016	121,800	131,000	106,000	105,500	73,000	90,000	96,000	118,000	200,500
Ilnik River ^e	40,000	60,000	SEG	1991	44,300	66,000	59,000	43,000	61,000	51,000	59,000	26,000	124,000
Meshik River ^f	48,000	86,000	SEG	2016	95,750	125,000	110,700	101,900	50,900	123,600	114,700	171,700	131,800
Sandy River	34,000	74,000	SEG	2007	32,200	36,000	37,000	37,500	27,100	42,000	59,000	116,000	170,000
Bear River Early Run	176,000	293,000	SEG	2004	125,526	216,237	226,534	207,451	173,158	219,074	259,046	304,356	293,280
Bear River Late Run	117,000	195,000	SEG	2004	195,474	133,263	142,966	132,549	116,442	196,926	206,954	210,644	139,720
Nelson River	97,000	219,000	BEG	2004	141,600	157,000	108,000	89,000	103,300	248,000	250,000	257,000	300,000
Christianson Lagoon	25,000	50,000	SEG	1980s	114,000	48,100	27,900	35,200	40,000	16,500	32,600	6,700	111,700
Swanson Lagoon	6,000	16,000	SEG	2007	5,500	1,000	1,700	1,000	3,500	3,000	1,500	3,500	3,000
North Creek	4,400	8,800	SEG	late 1980s	38,000	8,000	18,500	10,200	18,000	8,500	7,500	18,000	21,000
Orzinski Lake	15,000	20,000	SEG	1992	36,839	21,457	18,039	16,764	17,243	17,386	13,600	26,534	21,019
Mortensen Lagoon	3,200	6,400	SEG	late 1980s	5,600	25,000	6,600	500	5,000	4,000	500	NA	13,000
Thin Point Lake	14,000	28,000	SEG	late 1980s	18,900	33,500	12,400	14,500	19,000	5,700	8,600	19,900	36,400
McLees Lake ^g	10,000	60,000	SEG	2010	8,661	10,120	32,842	36,602	15,111	15,687	12,424	20,284	39,892
Chignik													
Chignik River Early Run	350,000	450,000	BEG	2014	377,579	391,476	432,535	488,930	353,441	386,782	360,381	534,088	418,290
Chignik River Late Run ^h	200,000	400,000	SEG	2008	328,479	328,586	311,291	264,887	358,948	369,319	291,228	589,809	354,884
Kodiak													
Malina Creek	1,000	10,000	SEG	2005	3,690	1,400	4,000	3,800	4,100	3,800	4,900	1,000	2,000

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Table 4.–Page 3 of 3.

System	2016 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2008	2009	2010	2011	2012	2013	2014	2015	2016
Afognak (Litnik) River ⁱ	20,000	50,000	BEG	2005	26,874	31,358	52,255	49,193	41,553	42,153	36,345	38,151	32,459
Little River	eliminated			2014	2,300	1,500	3,200	3,900	6,300	17,600			
Uganik Lake	24,000		LB SEG	2008	64,700	53,700	30,700	37,900	22,200	26,000	14,000	9,000	34,100
Karluk River Early Run	110,000	250,000	BEG	2008	82,191	52,798	71,453	87,049	188,085	234,880	252,097	260,758	164,760
Karluk River Late Run	170,000	380,000	BEG	2005	164,299	277,280	276,649	230,273	314,605	336,479	543,469	396,618	324,049
Ayakulik River	eliminated			2011	162,888	315,184	262,327						
Ayakulik River Early Run	140,000	280,000	SEG	2011	96,912	200,648	201,933	177,480	213,501	214,969	210,040	218,178	182,589
Ayakulik River Late Run	60,000	120,000	SEG	2011	65,976	114,536	60,394	83,661	114,753	67,195	87,671	108,257	71,978
Upper Station River Early Run	25,000		OEG ^j	1999	38,800	34,585	42,060	28,759	25,487	27,712	36,823	54,473	48,047
	43,000	93,000	BEG	2011									
Upper Station River Late Run	120,000	265,000	BEG	2005	184,856	161,736	141,139	101,893	149,325	125,573	181,411	132,864	145,013
Frazer Lake	75,000	170,000	BEG	2008	105,363	101,845	94,680	134,642	148,884	136,059	200,296	219,093	122,585
Saltery Lake ^k	15,000	35,000	BEG	2011	47,467	43,468	24,102	27,803	25,155	35,939	29,047	44,796	57,867
Pasagshak River	3,000		LB SEG	2011	14,900	1,400	4,800	8,100	2,600	9,750	350	600	3,200
Buskin Lake	5,000	8,000	BEG	2011	5,900	7,757	9,800	11,982	8,565	16,189	13,976	8,719	11,584

Note: NA = data not available; LB SEG = lower-bound SEG.

^a Chinook salmon sport harvest is assumed to be zero as the fishery was closed to retention.

^b 2015 and 2016 Chinook salmon escapement estimated for Chignik River are preliminary and have not been adjusted for sport harvest because data from surveys and logbooks have not been compiled.

^c Southeastern District chum salmon escapement goal includes Shumagin Islands Section and Southeastern District Mainland.

^d Cinder River sockeye salmon escapement includes Mud Creek.

^e Ilnik River sockeye salmon counts in 2007–2010, 2012, 2013, and 2016 include Ocean River aerial surveys added as a separate component. In all other years Ocean River flows into Ilnik Lagoon and is counted at the Ilnik River weir.

^f Meshik River escapement includes Meshik River, Red Bluff Creek, and Yellow Bluff Creek. It does not include Highland or Charles creeks.

^g McLees Lake sockeye salmon SEG will be in effect if a weir is in place; there will be no goal if a weir is not operated.

^h The Chignik River late-run sockeye escapement objective includes the late-run sockeye salmon SEG (200,000–400,000) plus an additional 25,000 fish in August and 25,000 fish from September 1–15 to ensure inriver harvest opportunities above the weir.

ⁱ Afognak (Litnik) River sockeye salmon escapement does not incorporate egg-take removals.

^j OEG for Upper Station River early-run sockeye salmon was 30,000 for 2014–2016 as part of the interim management plan, and expired after the 2016 season.

^k Saltery Lake sockeye salmon escapements are weir counts minus fish removed for egg takes.

Table 5.—Summary of salmon escapement goal changes in Bristol Bay, Arctic-Yukon-Kuskokwim, Alaska Peninsula and Aleutian Islands, and Chignik management areas, 2016.

Management Area	Species	System	Previous Esc. Goal			Initial Year	New Esc. Goal			Enum. Method	Goal Development	
			Lower	Upper	Type		Lower	Upper	Type		Method	Action
CENTRAL REGION												
Bristol Bay	Chinook	Naknek R.	5,000		LB SEG	2007	—	—	—	—	—	eliminate
	Sockeye	Alagnak R.	—	—	—	—	125,000		LB SEG	SAS	Risk Analysis	new goal
AYK REGION												
Kusk. Area	Chinook	Kanektok R.	3,500	8,000	SEG	2005	3,900	12,000	SEG	SAS	Percentile	change goal range
Norton Sound		Fish R./Boston Creek	100		LB SEG	2005	—	—	—	—	—	eliminate
		Kwiniuk R.	300	550	SEG	2005	250		LB SEG	Tower	Percentile	change goal type
		Unalakleet/Old Woman R.	550	1,100	SEG	2005	—	—	—	—	—	eliminate
Kusk. Area	Chum	Aniak River	220,000	480,000	SEG	2007	—	—	—	—	—	eliminate
Yukon R.	Summer Chum	Yukon R. Drainage	—	—	—	—	500,000	1,200,000	BEG	various	SRA	new goal
	Fall Chum	Upper Yukon R.Tributaries	152,000	312,000	BEG	2001	—	—	—	—	—	eliminate
		Sheenjek R.	50,000	104,000	BEG	2001	—	—	—	—	—	eliminate
Norton Sound	Chum	Niukluk R.	23,000		LB SEG	2010	—	—	—	—	—	eliminate
		Unalakleet/Old Woman R.	2,400	4,800	SEG	2005	—	—	—	—	—	eliminate
	Coho	Niukluk R.	2,400	7,200	SEG	2010	—	—	—	—	—	eliminate
		Niukluk R./Ophir Creek	—	—	—	—	750	1,600	SEG	PAS	Percentile	new goal
	Pink	Niukluk R.	10,500		LB SEG	2005	—	—	—	—	—	eliminate
Kusk. Area	Sockeye	North (Main) Fork Goodnews R.	5,500	19,500	SEG	2005	9,600	18,000	SEG	SAS	Percentile	change goal range
		Kanektok River	14,000	34,000	SEG	2005	15,300	41,000	SEG	SAS	Percentile	change goal range
WESTWARD REGION												
Chignik	Chum	Entire Chignik Area	57,400		LB SEG	2008	45,000	110,000	SEG	PAS	Percentile	change goal range using reduced no. of index streams
	Pink	Entire Chignik Area (odd yr)	500,000	800,000	SEG		260,000	450,000	SEG	PAS	Percentile	change goal range using reduced no. of index streams
		Entire Chignik Area (even yr)	200,000	600,000	SEG		170,000	280,000	SEG	PAS	Percentile	change goal range using reduced no. of index streams
AK Peninsula	Pink	South Peninsula Total (odd yr)	1,637,800	3,275,700	SEG	2007	—	—	—	—	—	eliminate
		South Peninsula Total (even yr)	1,864,600	3,729,300	SEG	2007	—	—	—	—	—	eliminate
		South Peninsula Total	—	—	—	—	1,750,000	4,000,000	SEG	PAS	SRA	consolidate to single goal
	Sockeye	Cinder R.	12,000	48,000	SEG	2007	36,000	94,000	SEG	PAS	Percentile	change goal range
		Meshik R.	25,000	100,000	SEG	2010	48,000	86,000	SEG	PAS	Percentile	change goal range

Note: LB SEG = lower-bound SEG; SAS = single aerial survey; PAS = peak aerial survey; SRA = spawner–recruit analysis.

Table 6.—Assessment of whether escapements met (Met), exceeded (Over), or did not meet (Under) the escapement goal in place at the time of enumeration for salmon stocks in Southeast Region.

Species	System	2008	2009	2010	2011	2012	2013	2014	2015	2016
Chinook Salmon	Blossom River	Met	Under	Met	Under	Met ^a	Met	Met	Met	Under
	Keta River	Met	Under	Met	Under	Met ^a	Over	Over	Met	Over
	Unuk River	Met	Met ^b	Over	Met	Under	Under	Under	Met	Under
	Chickamin River	Over	Met	Over	Met	Under	Met	Met	Met	Under
	Andrew Creek	Met	Under	Met	Met	Under	Met	Met	Met	Under
	Stikine River	Met	Under	Met	Met	Met	Met	Met	Met	Under
	King Salmon River	Met	Under	Met	Met	Met	Under	Under	Under	Met
	Taku River	Under	Met ^a	Met	Met	Met	Under	Met	Met	Under
	Chilkat River	Met	Over	Met	Met	Under	Under	Under	Met	Under
	Klukshu (Alsek) River	Under	Met	Met	Met	Under	Over ^a	Met	Over	Under
	Alsek River						Met	Under	Over	Under
	Situk River	Under	Met	NA	Under	Under	Met	Met	Under	Under
Chum Salmon	Southern Southeast Summer		Under	Under	Met	Met ^c	Met	Under	Met ^c	Met
	Northern Southeast Inside Summer		Under	Under	Under	Met ^c	Met	Under	Met	Under
	Northern Southeast Outside Summer		Under	Met	Met	Met	Under	Met	Met ^c	Met
	Cholmondeley Sound Fall		Met	Over	Over	Over	Under	Met	Over	Met
	Port Camden Fall		Under	Met	Under	Met	Met	Met	Over	Met
	Security Bay Fall		Met	Met	Met	Met	Under	Met	Over	Met
	Excursion River Fall		Under	Met	Under	Under	Met	Met	Met	Under
	Chilkat River Fall		Over	Met	Over	Over	Met	Met	Met ^d	Met
Coho Salmon	Hugh Smith Lake	Over	Over ^a	Over	Over	Over	Over	Over	Met	Met
	Klawock						Met	Met	Over	Over
	Taku River	Met	Met	Met	Met	Met	Under ^e	Met	Met ^f	Met
	Auke Creek	Over	Met	Met	Over	Over	Over	Over	Over	Met
	Montana Creek	Met	Met	Met	Met	Under	Under	Met	Over	Met
	Peterson Creek	Over	Met	Over	Met	Met	Met	Over	Met	Under
	Ketchikan Survey Index	Over	Over	Met	Met	Over	Over	Over	Over	Over
	Sitka Survey Index	Over	Over	Over	Over	Over	Over	Over	Over	Over
	Ford Arm Lake	Over	Met	Met	Met	Met	Met	Over	Over	NA
	Berners River	Met	Met	Met	Met	Met	Met	Over	Over	Met
	Chilkat River	Met	Met	Over	Met	Met	Met	Over	Met	Under
	Lost River	NA	Met ^g	Met	Under	Met	Met	Met	eliminated	
	Tawah Creek (Lost River)								Met	Under
	Situk River	NA	Met	Over	Met	Under	Over	Met	Met	Met
	Tsiu/Tsivat Rivers	Met	Met	Met	Met	Met	Over	Met	Met	Over

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Table 6.–Page 2 of 2.

Species	System	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pink Salmon	Southern Southeast	Met	Met ^h	Met	Met	Met	Over	Over	Met	Met
	Northern Southeast Inside	Under	Met ^h	Met	Over	Under	Met	Under	Met	Under
	Northern Southeast Outside	Met	Met ^h	Met	Over	Met	Over	Over	Over	Met
	Situk River (even year)	NA ⁱ		NA ⁱ						
	Situk River (odd year)		Met		Met					
	Situk River					Under ^j	Met	Under	Met	Under
Sockeye Salmon	Hugh Smith Lake	Under	Met	Met	Over	Met	Under	Met	Over	Met
	McDonald Lake	Under	Under ^a	Met	Met	Met	Under	Under	Met	Under
	Mainstem Stikine River	Under	Under	Met	Met	Met	Met	Met	Met	Met
	Tahltan Lake	Under	Over	Met	Over	Under	Under	Over	Over	Over
	Speel Lake	Under	Under	Met	Met	Met	Met	Met	Met ^k	Met
	Taku River	Under	Met	Over	Over	Over	Met	Over	Over	Over
	Redoubt Lake	Met	Met	Met	Met	Over	Over	Met	Met	Met
	Chilkat Lake	Under	Over ^a	Under	Under	Met	Met	Met	Met	Met
	Chilkoot Lake	Under	Under ^a	Met	Met	Over	Met	Over	Met	Over
	East Alsek-Doame River	Under	Under	Met	Over	Met	Over	Met	Met	Met
	Klukshu River	Under	Under	Over	Over	Over	Under ^d	Over	Over	Under
	Lost River	Under	NA ^g	Met	Met	Under	Under	NA	Under	Under
	Situk River	Under	Over	Met	Over	Met	Over	Over	Over	Met

Note: NA = data not available. Blank cells indicate that there was no official escapement goal for the stock in that particular year.

^a Escapement goal reevaluated, goal range changed.

^b Prior to 2009, goal was based on index count of escapements.

^c Escapement goal reevaluated, lower-bound goal changed.

^d Escapement goal reevaluated, upper-bound goal changed.

^e Management target revised.

^f Management target changed to a goal range.

^g Escapement goal reevaluated, upper-bound goal eliminated, lower-bound goal remained the same.

^h Expansion factor was removed from escapement estimates and escapement goal was reevaluated.

ⁱ Situk River weir was pulled well before peak of pink salmon run; therefore, a valid assessment of whether the goal was met is not possible.

^j Escapement goal reevaluated, odd and even-year goals replaced by single goal, goal range changed to lower-bound goal.

^k Escapement goal reevaluated, goal type and goal range changed.

Table 7.—Assessment of whether escapements met (Met), exceeded (Over), or did not meet (Under) the escapement goal in place at the time of enumeration for salmon stocks in Central Region (Bristol Bay, Cook Inlet, and Prince William Sound/Copper River).

Species	System	2008	2009	2010	2011	2012	2013	2014	2015	2016
Chinook salmon	<i>Bristol Bay</i>									
	Nushagak River	Over	Met	Met	Met	Over	Met ^a	Met	Met	Over
	Togiak River	NS	NS	NS	NS	NS	eliminated			
	Naknek River	Met	Under	NS	NS	NS	NS	NS	Under	eliminated
	Alagnak River	Under	Under	NS	NS	NS	NS	NS	Under	Under
	Egegik River	Under	Under	NS	NS	NS	eliminated			
	<i>Upper Cook Inlet</i>									
	Alexander Creek	Under	Under	Under	Under	Under	Under	Under	Under	Under
	Campbell Creek	Met ^b	Met	Met	Under	NS	NS	Under	Met	Met
	Chuitna River	Under	Under	Under	Under	Under	Met	Met	Met	Met
	Chulitna River	Met	Met	Under	Met	Under	Under	Under	Met	Under
	Clear (Chunilna) Creek	Met	Met	Under	Under	Met	Met	Met	Met	NS
	Crooked Creek	Met	Under	Met	Met	Under	Met	Met	Met	Over
	Deshka River	Under	Under	Met	Met	Met	Met	Met	Met	Met
	Goose Creek	Under	Under	Under	Under	Under	Under	Under	NC	NC
	Kenai River - Early Run	Over	Over	NA ^c	NA ^c	NA ^c	Under ^d	Met	Met	NA
	Kenai River - Late Run	Met	Under	NA ^c	NA ^c	NA ^c	Met ^d	Met	Met	NA
	Lake Creek	Under	Under	Under	Met	Under	Met	Met	Met	Met
	Lewis River	NA	Under	Under	Under	Under	Under	Under	NA	Under
	Little Susitna River	Met	Met	Under	Under	Met	Met	Met	Met	Met
	Little Willow Creek	NC	Met	Met	Met	Met	Met	Met	Met	Met
	Montana Creek	Met	Met	Under	Under	Under	Met	Under	Met	Under
	Peters Creek	NC	Met	NC	Met	Under	Met	Met	Met	Met
	Prairie Creek	Under	Met	Under	Under	Under	Met	Under	Met	Under
	Sheep Creek	NC	Under	NC	Under	Under	NC	Under	NC	NC
	Talachulitna River	Met	Met	Under	Under	Under	Met	Met	Met	Met
	Theodore River	Under	Under	Under	Under	Under	Under	Under	Under	Under
	Willow Creek	Under	Under	Under	Under	Under	Met	Under	Met	Met
	<i>Lower Cook Inlet</i>									
	Anchor River	Met	Under	Under	Under ^e	Met	Met	Under	Over	Met
	Deep Creek	Under	Met	Met	Met	Met	Met	Met	Met	NS
	Ninilchik River	Met ^f	Under	Met	Met	Met	Met	Met	Met	Met
	<i>Prince William Sound</i>									
	Copper River	Met	Met	Under	Met	Met	Met	Under	Met	NA
Chum salmon	<i>Bristol Bay</i>									
	Nushagak River	Met	Met	Met	Met	Met	Met ^a	Met	NS	Met

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Table 7.–Page 2 of 5.

Species	System	2008	2009	2010	2011	2012	2013	2014	2015	2016
36	<i>Upper Cook Inlet</i>									
	Clearwater Creek	Met	Met	Over	Over	Met	Over	Under	Over	Met
	<i>Lower Cook Inlet</i>									
	Port Graham River	Met	Under	Under	Met	Under	Met	Met	Met	Met
	Dogfish Lagoon	Met	Met	Over	Over	Met	Over	Over	Over	Over
	Rocky River	Met	Met	Met	Met	Met	Over	Over	Met	Met
	Port Dick Creek	Over	Over	Met	Over	Over	Met	Under	Over	Over
	Island Creek	Met	Met	Under	Met	Met	Met	Under	Over	Met
	Big Kamishak River	Under	Met	NS	Under	Met	Under	Under	Under	Under
	Little Kamishak River	Met	Under	Met	Met	Over	Met	Met	Met	Met
	McNeil River	Under ^g	Under	Under	Met	Under	Under	Under	Under	Met
	Bruin River	Over	Met	Met	Under	Over	Met	Under	Over	Over
	Ursus Cove	Met	Over	Over	Over	Under	Over	Under	Over	Met
	Cottonwood Creek	Met	Over	Over	Under	Under	Under	Met	Over	Under
	Iniskin Bay	Over	Over	Over	Under	Under	Under	Met	Under	Under
	<i>Prince William Sound</i>									
	Eastern District	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Northern District	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Coghill District	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Northwestern District	Met	Met	Met	Met	Met	Under	Met	Met	Met
	Southeastern District	Met	Met	Met	Met	Met	Met	Met	Met	Met
Coho salmon	<i>Bristol Bay</i>									
	Nushagak River						Over	Over	NS	NS
	<i>Upper Cook Inlet</i>									
	Fish Creek (Knik)				Met ^b	Met	Over	Over	Over	Met
	Jim Creek	Over	Over	Under	Under	Under	Over	Under ^h	Met	Under
	Little Susitna River	Over	Under	Under	Under	Under	Met	Over	Met	Under
	<i>Prince William Sound</i>									
Pink salmon	Copper River Delta	Over	Met	Met	Met	Met	Met	Met	Met	Met
	Bering River	Met	Met	Met	Met	Met	Met	Met	Under	Met
	<i>Bristol Bay</i>									
	Nushagak River						NA	Met	NS	NS
	<i>Lower Cook Inlet</i>									
	Humpy Creek	Over	Under	Met	Under	Met	Under	Met	Met	Over
	China Poot Creek	Met	Under	Under	Met	Over	Met	Under	Met	Under
	Tutka Creek	Met	Under	Under	Over	Met	Met	Met	Over	Over

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Table 7.–Page 3 of 5.

Species	System	2008	2009	2010	2011	2012	2013	2014	2015	2016
	Barabara Creek	Over	Met	Over	Over	Under	Over	Met	Over	Met
	Seldovia Creek	Over	Under	Met	Over	Over	Met	Met	Over	Under
	Port Graham River	Over	Met	Met	Over	Over	Met	Over	Over	Met
	Dogfish Lagoon Creeks							Over	Over	Met
	Port Chatham	Met	Over	Under	Met	Under	Over	Met	Over	Under
	Windy Creek Right	Over	Over	Met	Under	Met	Over	Met	Over	Under
	Windy Creek Left	Over	Over	Met	Met	Met	Over	Met	Over	Under
	Rocky River	Over	Over	Met	Met	Met	Over	Met	Over	Under
	Port Dick Creek	Met	Met	Met	Under	Under	Met	Met	Over	Under
	Island Creek	Over	Over	Over	Met	Met	Met	Over	Over	Under
	S. Nuka Island Creek	Met	Over	NS	NS	Under	Met	Met	Met	Under
	Desire Lake Creek	Met	Over	Met	Under	Met	Over	Under	Over	Under
	Bear & Salmon Creeks	NS	NS	NS	eliminated					
	Thumb Cove	NS	NS	NS	eliminated					
	Humpy Cove	NS	NS	NS	eliminated					
	Tonsina Creek	NS	NS	NS	eliminated					
	Bruin River	Met	Over	Met	Under	Met	Under	Met	Met	Met
	Sunday Creek	Met	Over	Met	Under	Under	Met	Met	Over	Under
	Brown's Peak Creek	Met	Over	Met	Under	Met	Met	Met	Over	Under
	<i>Prince William Sound</i>									
	All Districts Combined (even year)	Under		Met		eliminated				
	All Districts Combined (odd year)		Met		Over	eliminated				
	Eastern District (even year)					Met		Met		Over
	Eastern District (odd year)						Over		Over	
	Northern District (even year)					Under		Under		Met
	Northern District (odd year)						Over		Over	
	Coghill District (even year)					Over		Met		Met
	Coghill District (odd year)						Over		Over	
	Northwestern District (even year)					Met		Under		Over
	Northwestern District (odd year)						Over		Over	
	Eshamy District (even year)					Under		Over		NA
	Eshamy District (odd year)						Over		Over	
	Southwestern District (even year)					Met		Met		NA
	Southwestern District (odd year)						Over		Over	
	Montague District (even year)					Met		Under		NA
	Montague District (odd year)						Over		Over	
	Southeastern District (even year)					Met		Met		Met
	Southeastern District (odd year)						Over		Over	

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Table 7.–Page 4 of 5.

Species	System	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sockeye salmon	<i>Bristol Bay</i>									
	Kvichak River	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Alagnak River	Met	Met	Met	Met	Met	Met	Under	Met	Met
	Naknek River	Over	Met	Over	Met	Met	Met	Over	Met ^h	Met
	Egegik River	Met	Met	Met	Met	Met	Met	Met	Over ^h	Met
	Ugashik River	Met	Over	Met	Met	Met	Met	Met	Over ^h	Over
	Wood River	Over	Met	Over	Met	Met	Met	Over	Over ^h	Met
	Igushik River	Over	Over	Over	Over	Met	Over	Over	Over ^h	Over
	Nushagak River	Met	Met	Met	Met	Met	Over ^a	Met	Over	Met
	Kulukak Bay	NS	NS	NS	NS	NS	eliminated			
	Togiak River	Met	Over	Met ⁱ	Met	Met	Met	Met	Met	Met
	<i>Upper Cook Inlet</i>									
	Crescent River	Met	NS	Over	Over	Met	NS	eliminated		
	Fish Creek (Knik)	Under	Over	Over	Met	Under	Under	Met	Over	Met
	Kasilof River	Over	Over	Met	Met	Met	Over	Over	Over	Met
	Kenai River	Under	Under	Met	Met	Met	Met	Met	Met	Met
	Packers Creek	Met ^b	Met	NS	NS	NS	NA	Met	Met	NA
	Russian River - Early Run	Met	Over	Met	Met	Met	Met	Over	Over	Met
	Russian River - Late Run	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Yentna River	Met								
	Chelatna Lake		Under	Met	Over	Met	Over	Met	Over	Met
	Judd Lake		Met	Under	Met	Under	Under	Under	Met	NA
	Larson Lake		Met	Met	Under	Met	Met	Under	Met	Under
	<i>Lower Cook Inlet</i>									
	English Bay	Met	Over	Met	Met	Under	Met	Met	Met	Met
	Delight Lake	Over	Over	Over	Over	Met	Under	Over	Under	Under
	Desire Lake	Met	Over	Under	Met	Met	Under	Met	Under	Under
	Bear Lake	Over	Over	Over	Over	Met	Over	Over	Over	Over
	Aialik Lake	Met	Under	Met	Under	Under	Under	Under	Under	Under
	Mikfik Lake	Under	Over	Met	Under	Under	Under	Over ^d	Met	Met
	Chenik Lake	Over	Over	Over	Met	Over	Met	Over	Over	Over
	Amakdedori Creek	Over	Met	Under	Over	Under	Met	Over	Over	Met
	<i>Prince William Sound</i>									
	Upper Copper River	Met	Met	Over	Over	Over ^j	Over	Over	NA	NA
	Copper River Delta	Met	Met	Met	Met	Met	Met	Met	Met	Under
	Bering River	Under	Under	Under	Met	Met ^j	Met	Under	Met	Met
	Coghill Lake	Met	Under	Met	Over	Over ^j	Under	Met	Under	Under
	Eshamy Lake	Under	Met ^j	Met	Met	NA	NA	NA	NA	NA

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Table 7.–Page 5 of 5.

Note: NA = data not available; NC = no count; NS = no survey. There are no escapement goals for coho salmon in Lower Cook Inlet and there are no pink salmon escapement goals in Upper Cook Inlet.

^a Escapement goal reevaluated, historic escapements converted from Bendix counts to DIDSON equivalents. Escapements in Table 2 are based on DIDSON counts.

^b Previous escapement goal reinstated.

^c Target strength-based escapement estimate deemed unreliable or not available.

^d Escapements and escapement goal reevaluated, goal range changed. Escapement estimates in Table 2 are based on new methodology.

^e Escapement goal reevaluated, lower-bound goal changed to a range.

^f Escapement goal reevaluated, current goal based on escapement count over longer period during spawning season, escapement numbers in Table 2 are based on longer counting time.

^g Escapement goal reevaluated, escapement goal in place prior to 2002 was reinstated. Escapement goal in place from 2002 to 2007 was based on escapement estimates using a different aerial survey index expansion method (Otis and Szarzi 2007).

^h Escapement goal reevaluated, upper-bound goal changed, lower-bound remained the same.

ⁱ Escapement goal reevaluated, goal range changed to a lower-bound goal.

^j Escapement goal reevaluated, goal range changed.

Table 8.—Assessment of whether escapements met (Met), exceeded (Over), or did not meet (Under) the escapement goal in place at the time of enumeration for salmon stocks in Arctic-Yukon-Kuskokwim Region.

Species	System	2008	2009	2010	2011	2012	2013	2014	2015	2016
Chinook salmon	<i>Kuskokwim Area</i>	Met	NS	NS	Met	Under	NS	Under	Met	Met
	North (Main) Fork Goodnews River	Met	Met	Met	Met	Under	Under	Under	Under	Over
	Middle Fork Goodnews River	NS	NS	Under	NS	NS	Under	Under	Met	Met ^a
	Kanektok River						Under	Over	Met	Over
	Kuskokwim Area (entire area)	Met	Met	Met	Met	NA	Under ^a	Under	Met	Met
	Kogruklu River	Under	Under	Under	Under	NA	Under ^a	Under	Over	Over
	Kwethluk River	Under	Under	Under	Under	Under	eliminated			
	Tuluksak River	Under	Met	Under	Under	Under	Under ^a	Met	Met	Under
	George River	Met	NS	Under	NS	Met	Met	Met	Met	Met
	Kisaralik River	Over	NS	NS	NS	NS	Under	Over	NS	Under
	Aniak River	Met	NS	NS	Under	Under	Under	Met	Met	NS
	Salmon River (Aniak R)	NS	NS	NS	NS	NS	Under	NS	Under	Met
	Holitna River	Under	Under	NS	Under	Under	Under	Met	NS	Under
	Cheeneetnuk River (Stony R)	Under	Met	Under	Under	Under	Under	Met	Under	Under
	Gagaryah River (Stony R)	Met	Met	Under	Met	Met	Under	Over	Over	Met
	Salmon River (Pitka Fork)	Met	NS	NS	Met	Under	NS	Under	Met	Met
	<i>Yukon River</i>									
	East Fork Andreafsky River	Under	Under	Met ^b	Over	Met	Under	Over	Over	Met
	West Fork Andreafsky River	NS	Over	Met	Met	NS	Met	Over	NS	NS
	Anvik River	Under	Under	Under	Under	Under	Under	Met	Over	NS
	Nulato River (forks combined)	Under	Over	Under	Met	Met	Met	NS	Met	NS
	Gisasa River	Met	Met	eliminated						
	Chena River	Met	Met	Under	NS	Under	Under	Over	Over	Over
	Salcha River	Met	Over	Met	Over	Over	Met	NS	Met	Under
	Canada Mainstem	Under ^c	Met	Under ^c	Met	Under	Under	Over	Over	Over
	<i>Norton Sound</i>									
	Fish River/Boston Creek	NS	NS	NS	NS	NS	Under	NS	Met	eliminated
	Kwiniuk River	Under	Met	Under	Under	Under	Under	Met	Met	Under ^d
	North River (Unalakleet R)	Under	Met	Met	Under	Under	Under	Met	Met	Under
	Shaktoolik River	NS	NS	NS	Under	NS	eliminated			
	Unalakleet/Old Woman River	NS	Over	NS	Under	NS	NS	NS	NS	eliminated
Chum salmon	<i>Kuskokwim Area</i>									
	Middle Fork Goodnews River	Met	Met	Met	Met	Under	Met	Under	Under	Met
	Kanektok River	NS	NS	NS	NS	NA	eliminated			
	Kogruklu River	Met	Over	Over	Over	NA	Over	Met	Met	Met

-continued-

Table 8.–Page 2 of 3.

Species	System	2008	2009	2010	2011	2012	2013	2014	2015	2016
	Aniak River	Met	Met	Met	Met	NS	NA	NA	NA	eliminated
	<i>Yukon River Summer Chum</i>									
	Yukon River Drainage									Over
	East Fork Andreafsky River	Under	Under	Met ^d	Met	Met	Met	Under	Met	Over
	Anvik River	Met	Under	Met	Met	Met	Met	Met	Met	Under
	<i>Yukon River Fall Chum</i>									
	Yukon River Drainage	Met	Met	Met ^e	Over	Met	Over	Over	Met	Over
	Tanana River	Over	Over	Over	Over	Met	Over	Over	Met	Over
	Delta River	Over	Met	Over	Over	Met	Over	Over	Over	Over
	Toklat River	NA	NA	eliminated						
	Upper Yukon River Tributaries	Met	NA	Met	Over	Over	Over	Met	Met	eliminated
	Chandalar River	Over	NA	Over	Over	Over	Over	Over	Over	Over
	Sheenjek River	Met	Met	Under	Met	Over	Over	Met	Under	eliminated
	Fishing Branch River (Canada)	Under ^c	Met	Under	Under	Met	Met	Under	Under	Met
	Yukon R. Mainstem (Canada)	Met	Met	Over ^c	Over	Over	Over	Over	Over	Over
	<i>Norton Sound</i>									
	Subdistrict 1 Aggregate	Met	Under	Over	Over	Over	Over	Over	Over	Over
	Sinuk River	NS	Under	eliminated						
	Nome River	Under	Under	Over	Met	Under	Over	Over	Over	Over
	Bonanza River	NS	Over	eliminated						
	Snake River	Under	Under	Over	Over	Under	Over	Over	Over	Over
	Solomon River	NS	Under	eliminated						
	Flambeau River	Over	Under	eliminated						
	Eldorado River	Met	Under	Over	Over	Over	Over	Over	Over	Over
	Niukluk River	Under	Under	Met ^a	Met	Under	NS	NA	NS	eliminated
	Kwiniuk River	Under	Under	Over	Over	Under	Under	Over	Over	Under
	Tubutulik River	NS	Under	Met	Met	NS	NS	NS	Met	NS
	Unalakleet/Old Woman River	NS	NS	NS	NS	NS	Met	NS	NS	eliminated
	<i>Kotzebue Sound</i>									
	Kotzebue Sound Aggregate									
	Noatak and Eli Rivers	Over	Met	NS	NS	NS	NS	Over	NS	NS
	Upper Kobuk w/Selby River	Over	Over	NS	NS	NS	NS	Over	NS	NS
	Salmon River	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Tutuksuk River	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Squirrel River	NS	NS	NS	NS	NS	NS	NS	NS	NS
Coho salmon	<i>Kuskokwim Area</i>									
	Middle Fork Goodnews River	Met	Met	Met	Met	NA	NA	NA	Met	NS

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Table 8.–Page 3 of 3.

Species	System	2008	2009	2010	2011	2012	2013	2014	2015	2016
42	Kogrukluk River	Over	Met	Met	Met	Met	Met	Over	Over	NS
	Kwethluk River			NA	NA	Met	NA	Met	Met	Met
	<i>Yukon River</i>									
	Delta Clearwater River	Met	Met	Met	Met	Met	Met	Under	Over	Met
	<i>Norton Sound</i>									
	Kwiniuk River	Over	NS	Over	Over	NS	NS	NS	NS	Over
	Niukluk River	Over	Over	Over ^a	Met	Under	NS	NS	NS	eliminated
	Niukluk River/Ophir Creek									Met
	North River (Unalakleet R.)	Over	Over	NS	Met	NS	Met	NS	NS	NS
	<i>Pink salmon</i>									
	<i>Norton Sound</i>									
	Nome River (odd year)		Met		Met		Met		Met	
	Nome River (even year)	Met		Met		Met		Met		Met
	Kwiniuk River	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Niukluk River	Met	Met	Met	Met	Met	NS	NS	NS	eliminated
	North River	Met	Met	Met	Met	Met	Met	Met	Met	Met
42	<i>Sockeye salmon</i>									
	<i>Kuskokwim Area</i>									
	North (Main) Fork Goodnews River	Over	NS	NS	Met	Met	NS	NS	Over	Over ^a
	Middle Fork Goodnews River	Over	Met	Met	Under	Met	Met	Over	Over	Over
	Kanektok River	NS	NS	Met	NS	NA	Over	Over	Over	Over ^a
	Kogrukluk River			Met	Met	NA	Met	Met	Met	Met
	<i>Norton Sound</i>									
42	Salmon Lake/Grand Central River	Over	Under	Under	Met	Met	Met	Met	Over	Over
	Glacial Lake	Under	Under	Under	NS	NS	Met	Over	Over	Met

Note: NA = data not available; NS = no survey. There are no escapement goals for pink salmon in Kuskokwim Area and Yukon River and there are no escapement goals for sockeye salmon in Yukon River.

^a Escapement goal reevaluated, goal value changed.

^b Previous escapement goal was based on aerial surveys, replaced with escapement goal-based on weir counts. Escapements in Table 3 are weir counts.

^c Escapement goal revised by The United States and Canada Yukon River Panel.

^d Escapement goal reevaluated, goal range changed to a lower-bound goal.

^e Escapement goal reevaluated, goal type changed but goal value remained the same.

Table 9.—Assessment of whether escapements met (Met), exceeded (Over), or did not meet (Under) the escapement goal in place at the time of enumeration for salmon stocks in Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas).

Species	System	2008	2009	2010	2011	2012	2013	2014	2015	2016
Chinook salmon	<i>AK Peninsula</i>									
	Nelson River	Over	Under	Met	Under	Under	Under	Met	Met	Over
	<i>Chignik</i>									
	Chignik River	Met	Met	Over	Met	Met	Under	Over	Met	Met
	<i>Kodiak</i>									
	Karluk River	Under	Under	Under	Met ^a	Met	Under	Under	Under	Met
	Ayakulik River	Under	Under	Met	Met ^a	Met	Under	Under	Under	Under
Chum salmon	<i>AK Peninsula</i>									
	Northern District	Met	Met	Met	Under	Met	Met	Met	Met	Over
	Northwestern District	Over	Under	Met	Met	Met	Under	Under	Under	Met
	Southeastern District	Over	Met	Under	Met	Met	Met	Under	Over	Met
	South Central District	Met	Under	Under	Met	Under	Met	Met	Over	Over
	Southwestern District	Met	Over	Met	Met	Under	Met	Under	Over	Met
	Unimak District	Met	Met	Met	Met	Under	eliminated			
	<i>Chignik</i>									
	Entire Chignik Area	Met ^b	Met	Met	Met	Met	Met	Met	Met	Met ^c
	<i>Kodiak</i>									
	Mainland District	Under ^d	Under	Met	Met	Met	Met	Under	Met	Under
	Kodiak Archipelago Aggregate	Under ^b	Met	Met	Met	Met	Met	Under	Met	Under
Coho salmon	<i>AK Peninsula</i>									
	Nelson River	Met	Met	Under	Met	Met	Met	Met	Met	Met
	Thin Point Lake	Met	Under	NA	Under	Under	eliminated			
	Ilnik River			Met ^e	Met	Met	Met	Met	Met	Met
	<i>Kodiak</i>									
	Pasagshak River	Over	Met	Met	Under ^f	Met	Met	Met	Met	Under
	Buskin River	Over	Over	Met	Met	Met	Met	Met ^a	Under	Under
	Olds River	Under	Under	NA	Met ^f	Under	Met	Met	Met	Met
	American River	Met	Met	NA	Met ^f	Met	Met	Met	Met	Met
Pink salmon	<i>AK Peninsula</i>									
	Bechevin Bay Section (odd year)		Met		Met		eliminated			
	Bechevin Bay Section (even year)	Under		Under		Under	eliminated			
	South Peninsula Total (odd year)		Met		Met		Met		Over	eliminated
	South Peninsula Total (even year)	Met		Under		Under		Under		eliminated
	South Peninsula Total									Under

-continued-

Table 9.–Page 2 of 3.

Species	System	2008	2009	2010	2011	2012	2013	2014	2015	2016
Pink salmon (cont)	<i>Chignik</i>									
	Entire Chignik Area (odd year)	^a	Over		Over		Over		Over	^c
	Entire Chignik Area (even year)	Over ^a		Met		Met		Met		Under ^c
	<i>Kodiak</i>									
	Mainland District	Under	Met	Met	Met ^g	Met	Met	Met	Met	Under
	Kodiak Archipelago (odd year)		Met		Met ^h		Met		Over	
	Kodiak Archipelago (even year)	Met		Met	^h	Met		Under		Under
Sockeye salmon	<i>AK Peninsula</i>									
	Cinder River	Over	Over	Over	Over	Over	Over	Over	Over	Over ^c
	Ilnik River	Met	Over	Met	Met	Over	Met	Met	Under	Over
	Meshik River	Over	Over	Met ^a	Met	Met	Met	Over	Over	Over ^c
	Sandy River	Under	Met	Met	Met	Under	Met	Met	Over	Over
	Bear River Early Run	Under	Met	Met	Met	Under	Met	Met	Over	Over
	Bear River Late Run	Over	Met	Met	Met	Under	Over	Over	Over	Met
	Nelson River	Met	Met	Met	Under	Met	Over	Over	Over	Over
	Christianson Lagoon	Over	Met	Met	Met	Met	Under	Met	Under	Over
	Swanson Lagoon	Under	Under	Under	Under	Met	Under	Under	Under	Under
	North Creek	Over	Met	Over	Over	Over	Met	Met	Over	Over
	Orzinski Lake	Over	Over	Met	Met	Met	Met	Under	Over	Over
	Mortensen Lagoon	Met	Over	Over	Under	Met	Met	Under	NA	Over
	Thin Point Lake	Met	Over	Under	Met	Met	Under	Under	Met	Over
	McLees Lake			Met ^e	Met	Met	Met	Met	Met	Met
	<i>Chignik</i>									
	Chignik River Early Run	Met	Met	Over	Over	Met	Met	Met ^g	Over	Met
	Chignik River Late Run	Met ^a	Met	Met	Met	Met	Met	Met	Over	Met
	<i>Kodiak</i>									
	Malina Creek	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Afognak (Litnik) River	Met	Met	Over	Met	Met	Met	Met	Met	Met
	Little River	Under	Under	Met	Met	Met	Met	eliminated		
	Uganik Lake	Met	Met	Met	Met	Under	Met	Under	Under	Met
	Karluk River Early Run	Under ^a	Under	Under	Under	Met	Met	Over	Over	Met
	Karluk River Late Run	Under	Met	Met	Met	Met	Met	Over	Over	Met
	Ayakulik River	Under	Met	Met	eliminated					
	Ayakulik River Early Run				Met ⁱ	Met	Met	Met	Met	Met
	Ayakulik River Late Run				Met ⁱ	Met	Met	Met	Met	Met
	Upper Station River Early Run	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Upper Station River Late Run	Met	Met	Met	Under	Met	Met	Met	Met	Met

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Table 9.–Page 3 of 3.

Species	System	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sockeye salmon (cont)	Frazer Lake	Met ^a	Met	Met	Met	Met	Met	Over	Over	Met
	Saltery Lake	Over	Over	Met	Met ^g	Met	Over	Met	Over	Over
	Pasagshak River	Over	Under	Met	Met ^f	Met	Met	Under	Under	Met
	Buskin Lake	Under	Under	Met	Over ^j	Over	Over	Over	Over	Over

Note: There are no coho salmon escapement goals in Chignik Area.

^a Escapement goal reevaluated, goal range changed.

^b Aggregate goal established to replace individual district level goals.

^c Escapement goal reevaluated, number of index streams used to develop escapement goal changed, and goal range changed. Escapements in Table 4 are adjusted for new set of index streams for all years.

^d Escapement goal reevaluated, lower-bound goal changed.

^e Goal reestablished. New analysis.

^f Escapement goal reevaluated, upper-bound goal eliminated, lower-bound goal remained the same.

^g Escapement goal reevaluated, upper-bound of goal changed.

^h Single escapement goal was separated into odd- and even-year escapement goals.

ⁱ Single escapement goal was changed to separate early- and late-run escapement goals.

^j Escapement goal reevaluated, goal type and range changed.

Table 10.—Southeast Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2008 to 2016.

	2008	2009	2010	2011	2012	2013	2014	2015	2016
CHINOOK SALMON									
Number Below	3	5	0	3	6	4	4	2	10
Number Met	7	5	8	8	5	6	7	8	1
Number Above	1	1	2	0	0	2	1	2	1
% Below	27%	45%	0%	27%	55%	33%	33%	17%	83%
% Met	64%	45%	80%	73%	45%	50%	58%	67%	8%
% Above	9%	9%	20%	0%	0%	17%	8%	17%	8%
CHUM SALMON									
Number Below		5	2	3	1	3	2	0	2
Number Met		2	5	3	5	5	6	5	6
Number Above		1	1	2	2	0	0	3	0
% Below		63%	25%	38%	13%	38%	25%	0%	25%
% Met		25%	63%	38%	63%	63%	75%	63%	75%
% Above		13%	13%	25%	25%	0%	0%	38%	0%
COHO SALMON									
Number Below	0	0	0	1	2	2	0	0	3
Number Met	5	10	8	9	7	6	6	7	6
Number Above	6	3	5	3	4	6	8	7	4
% Below	0%	0%	0%	8%	15%	14%	0%	0%	23%
% Met	45%	77%	62%	69%	54%	43%	43%	50%	46%
% Above	55%	23%	38%	23%	31%	43%	57%	50%	31%
PINK SALMON									
Number Below	1	0	0	0	2	0	2	0	2
Number Met	2	4	3	2	2	2	0	3	2
Number Above	0	0	0	2	0	2	2	1	0
% Below	33%	0%	0%	0%	50%	0%	50%	0%	50%
% Met	67%	100%	100%	50%	50%	50%	0%	75%	50%
% Above	0%	0%	0%	50%	0%	50%	50%	25%	0%
SOCKEYE SALMON									
Number Below	12	6	1	1	2	5	1	1	3
Number Met	1	3	10	6	7	5	6	7	7
Number Above	0	3	2	6	4	3	5	5	3
% Below	92%	50%	8%	8%	15%	38%	8%	8%	23%
% Met	8%	25%	77%	46%	54%	38%	50%	54%	54%
% Above	0%	25%	15%	46%	31%	23%	42%	38%	23%

Note: Blank cells indicate that there were no official escapement goals for that species in those particular years.

Table 11.—Central Region (Bristol Bay, Cook Inlet, Prince William Sound/Copper River) Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2008 to 2016.

	2008	2009	2010	2011	2012	2013	2014	2015	2016
CHINOOK SALMON									
Number Below	11	16	15	14	14	6	12	4	7
Number Met	12	12	7	10	8	18	14	20	11
Number Above	2	1	0	0	1	0	0	1	2
% Below	44%	55%	68%	58%	61%	25%	46%	16%	35%
% Met	48%	41%	32%	42%	35%	75%	54%	80%	55%
% Above	8%	3%	0%	0%	4%	0%	0%	4%	10%
CHUM SALMON									
Number Below	2	3	3	4	5	5	7	3	3
Number Met	14	12	10	11	11	10	10	8	13
Number Above	3	4	5	4	3	4	2	7	3
% Below	11%	16%	17%	21%	26%	26%	37%	17%	16%
% Met	74%	63%	56%	58%	58%	53%	53%	44%	68%
% Above	16%	21%	28%	21%	16%	21%	11%	39%	16%
COHO SALMON									
Number Below	0	1	2	2	2	0	1	1	2
Number Met	1	2	2	3	3	3	2	3	3
Number Above	3	1	0	0	0	3	3	1	0
% Below	0%	25%	50%	40%	40%	0%	17%	20%	40%
% Met	25%	50%	50%	60%	60%	50%	33%	60%	60%
% Above	75%	25%	0%	0%	0%	50%	50%	20%	0%
PINK SALMON									
Number Below	1	4	3	7	7	2	5	0	12
Number Met	9	4	12	5	14	9	18	4	7
Number Above	8	10	2	5	4	14	4	22	4
% Below	6%	22%	18%	41%	28%	8%	19%	0%	52%
% Met	50%	22%	71%	29%	56%	36%	67%	15%	30%
% Above	44%	56%	12%	29%	16%	56%	15%	85%	17%
SOCKEYE SALMON									
Number Below	5	5	4	3	6	7	5	4	6
Number Met	17	14	18	20	21	16	14	13	17
Number Above	8	12	9	8	3	6	11	12	4
% Below	17%	16%	13%	10%	20%	24%	17%	14%	22%
% Met	57%	45%	58%	65%	70%	55%	45%	45%	63%
% Above	27%	39%	29%	26%	10%	21%	37%	41%	15%

Table 12.–Arctic-Yukon-Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2008 to 2016.

	2008	2009	2010	2011	2012	2013	2014	2015	2016
CHINOOK SALMON									
Number Below	11	5	12	11	12	19	5	3	7
Number Met	9	10	6	7	4	4	8	12	7
Number Above	1	4	0	2	1	0	7	6	5
% Below	52%	26%	67%	55%	71%	83%	25%	14%	37%
% Met	43%	53%	33%	35%	24%	17%	40%	57%	37%
% Above	5%	21%	0%	10%	6%	0%	35%	29%	26%
SUMMER CHUM SALMON									
Number Below	4	10	0	0	5	1	1	1	1
Number Met	5	3	4	5	0	2	1	2	2
Number Above	3	3	6	5	2	5	7	5	4
% Below	33%	63%	0%	0%	71%	13%	11%	13%	14%
% Met	42%	19%	40%	50%	0%	25%	11%	25%	29%
% Above	25%	19%	60%	50%	29%	63%	78%	63%	57%
YUKON RIVER SUMMER CHUM SALMON									
Number Below	1	2	0	0	0	0	1	0	1
Number Met	1	0	2	2	2	2	1	2	0
Number Above	0	0	0	0	0	0	0	0	2
% Below	50%	100%	0%	0%	0%	0%	50%	0%	33%
% Met	50%	0%	100%	100%	100%	100%	50%	100%	0%
% Above	0%	0%	0%	0%	0%	0%	0%	0%	67%
YUKON RIVER FALL CHUM SALMON									
Number Below	1	0	2	1	0	0	1	2	0
Number Met	4	5	2	1	4	1	2	3	1
Number Above	3	1	4	6	4	7	5	3	5
% Below	13%	0%	25%	13%	0%	0%	13%	25%	0%
% Met	50%	83%	25%	13%	50%	13%	25%	38%	17%
% Above	38%	17%	50%	75%	50%	88%	63%	38%	83%
COHO SALMON									
Number Below	0	0	0	0	1	0	1	0	0
Number Met	2	3	3	5	3	3	1	2	3
Number Above	4	2	2	1	0	0	1	2	1
% Below	0%	0%	0%	0%	25%	0%	33%	0%	0%
% Met	33%	60%	60%	83%	75%	100%	33%	50%	75%
% Above	67%	40%	40%	17%	0%	0%	33%	50%	25%

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Table 12.–Page 2 of 2.

	2008	2009	2010	2011	2012	2013	2014	2015	2016
PINK SALMON									
Number Below	0	0	0	0	0	0	0	0	0
Number Met	4	4	4	4	4	3	3	3	3
Number Above	0	0	0	0	0	0	0	0	0
% Below	0%	0%	0%	0%	0%	0%	0%	0%	0%
% Met	100%	100%	100%	100%	100%	100%	100%	100%	100%
% Above	0%	0%	0%	0%	0%	0%	0%	0%	0%
SOCKEYE SALMON									
Number Below	1	2	2	1	0	0	0	0	0
Number Met	0	1	3	3	3	4	2	1	2
Number Above	3	0	0	0	0	1	3	5	4
% Below	25%	67%	40%	25%	0%	0%	0%	0%	0%
% Met	0%	33%	60%	75%	100%	80%	40%	17%	33%
% Above	75%	0%	0%	0%	0%	20%	60%	83%	67%

Table 13.–Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2008 to 2016.

	2008	2009	2010	2011	2012	2013	2014	2015	2016
CHINOOK SALMON									
Number Below	2	3	1	1	1	4	2	2	1
Number Met	1	1	2	3	3	0	1	2	2
Number Above	1	0	1	0	0	0	1	0	1
% Below	50%	75%	25%	25%	25%	100%	50%	50%	25%
% Met	25%	25%	50%	75%	75%	0%	25%	50%	50%
% Above	25%	0%	25%	0%	0%	0%	25%	0%	25%
CHUM SALMON									
Number Below	2	3	2	1	3	1	5	1	2
Number Met	5	5	7	8	6	7	3	4	4
Number Above	2	1	0	0	0	0	0	3	2
% Below	22%	33%	22%	11%	33%	13%	63%	13%	25%
% Met	56%	56%	78%	89%	67%	88%	38%	50%	50%
% Above	22%	11%	0%	0%	0%	0%	0%	38%	25%
COHO SALMON									
Number Below	1	2	1	2	2	0	0	1	2
Number Met	3	3	3	5	5	6	6	5	4
Number Above	2	1	0	0	0	0	0	0	0
% Below	17%	33%	25%	29%	29%	0%	0%	17%	33%
% Met	50%	50%	75%	71%	71%	100%	100%	83%	67%
% Above	33%	17%	0%	0%	0%	0%	0%	0%	0%
PINK SALMON									
Number Below	2	0	2	0	2	0	2	0	4
Number Met	2	4	3	4	3	3	2	1	0
Number Above	1	1	0	1	0	1	0	3	0
% Below	40%	0%	40%	0%	40%	0%	50%	0%	100%
% Met	40%	80%	60%	80%	60%	75%	50%	25%	0%
% Above	20%	20%	0%	20%	0%	25%	0%	75%	0%
SOCKEYE SALMON									
Number Below	8	5	3	5	4	3	6	5	1
Number Met	12	16	21	21	22	22	15	8	15
Number Above	8	7	5	4	4	5	8	15	13
% Below	29%	18%	10%	17%	13%	10%	21%	18%	3%
% Met	43%	57%	72%	70%	73%	73%	52%	29%	52%
% Above	29%	25%	17%	13%	13%	17%	28%	54%	45%

Table 14.–Summary of Southeast Region salmon escapements compared against escapement goals for the years 2008 to 2016.

Southeast Region		2008	2009	2010	2011	2012	2013	2014	2015	2016
Stocks with Escapement Data		38	48	47	49	49	51	50	51	50
Below Lower Goal	Number	16	16	3	8	13	14	9	3	20
	Percent	42%	33%	6%	16%	27%	27%	18%	6%	40%
Goal Met	Number	15	24	34	28	26	24	25	30	22
	Percent	39%	50%	72%	57%	53%	47%	50%	59%	44%
Above Upper Goal	Number	7	8	10	13	10	13	16	18	8
	Percent	18%	17%	21%	27%	20%	25%	32%	35%	16%

Table 15.–Summary of Central Region (Bristol Bay, Cook Inlet, Prince William Sound/Copper River) salmon escapements compared against escapement goals for the years 2008 to 2016.

Central Region		2008	2009	2010	2011	2012	2013	2014	2015	2016
Stocks with Escapement Data		96	101	92	96	102	103	108	103	94
Below Lower Goal	Number	19	29	27	30	34	20	30	12	30
	Percent	20%	29%	29%	31%	33%	19%	28%	12%	32%
Goal Met	Number	53	44	49	49	57	56	58	47	51
	Percent	55%	44%	53%	51%	56%	54%	54%	47%	54%
Above Upper Goal	Number	24	28	16	17	11	27	20	43	13
	Percent	25%	28%	17%	18%	11%	26%	19%	42%	14%

Table 16.–Summary of Arctic-Yukon-Kuskokwim Region salmon escapements compared against escapement goals for the years 2008 to 2016.

AYK Region		2008	2009	2010	2011	2012	2013	2014	2015	2016
Stocks with Escapement Data		57	55	52	54	45	52	50	52	48
Below Lower Goal	Number	18	19	16	13	18	20	9	6	9
	Percent	32%	35%	31%	24%	40%	38%	18%	12%	19%
Goal Met	Number	25	26	24	27	20	19	18	25	18
	Percent	44%	47%	46%	50%	44%	37%	36%	48%	38%
Above Upper Goal	Number	14	10	12	14	7	13	23	21	21
	Percent	25%	18%	23%	26%	16%	25%	46%	40%	44%

Table 17.—Summary of Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) salmon escapements compared against escapement goals for the years 2008 to 2016.

Westward Region		2008	2009	2010	2011	2012	2013	2014	2015	2016
Stocks with Escapement Data		52	52	51	55	55	52	51	50	51
Below Lower Goal	Number	15	13	9	9	12	8	15	9	10
	Percent	29%	25%	18%	16%	22%	15%	29%	18%	20%
Goal Met	Number	23	29	36	41	39	38	27	20	25
	Percent	44%	56%	71%	75%	71%	73%	53%	40%	49%
Above Upper Goal	Number	14	10	6	5	4	6	9	21	16
	Percent	27%	19%	12%	9%	7%	12%	18%	42%	31%

Table 18.—Statewide summary of salmon stocks of concern in Alaska.

Region	System	Species	Year Designated ^a	Level of Concern	Year Last Reviewed ^a
Central	McNeil River	chum	2016	Management	2016
	Susitna (Yentna) River	sockeye	2007	Yield	2013
	Chuitna River	Chinook	2010	Management	2013
	Theodore River	Chinook	2010	Management	2013
	Lewis River	Chinook	2010	Management	2013
	Alexander Creek	Chinook	2010	Management	2013
	Willow Creek	Chinook	2010	Yield	2013
	Goose Creek	Chinook	2010	Management	2013
	Sheep Creek	Chinook	2013	Management	2013
Westward	Karluk River	Chinook	2010	Management	2013
	Swanson Lagoon	sockeye	2012	Management	2015
AYK	Yukon River	Chinook	2000	Yield	2015
	Norton Sound Subdistrict 5 & 6	Chinook	2003	Yield	2015
	Norton Sound Subdistrict 2 & 3	chum	2000	Yield	2015

^a Indicates start of BOF cycle in which *stock of concern* status was designated or last reviewed (e.g., 2011/2012 BOF cycle = 2011).

Table 19.—Methods used to enumerate and develop escapement goals for Southeast Region Chinook, chum, coho, pink, and sockeye salmon stocks.

System	Enumeration Method	Goal Development Method	References
CHINOOK SALMON			
Blossom River	Peak Aerial Survey ^a	SRA	Fleischman et al. 2011
Keta River	Peak Aerial Survey	SRA	Fleischman et al. 2011
Unuk River	Mark–Recapture	SRA	Hendrich et al. 2008
Chickamin River	Peak Aerial Survey	SRA	McPherson and Carlile 1997
Andrew Creek	Peak Aerial Survey (Expanded)	SRA	Clark et al. 1998
Stikine River	Mark–Recapture	SRA	Bernard et al. 2000
King Salmon River	Peak Aerial Survey (Expanded)	SRA	McPherson and Clark 2001
Taku River	Mark–Recapture	SRA	McPherson et al. 2010
Chilkat River	Mark–Recapture	Theoretical SRA	Ericksen and McPherson 2004; inriver: 5AAC 33.384
Klukshu (Alsek) River	Weir Count	SRA	Bernard and Jones 2010
Alsek River	Weir Count	SRA	Bernard and Jones 2010
Situk River	Weir Count	SRA	McPherson et al. 2005
CHUM SALMON			
Southern Southeast Summer	Peak Aerial Survey	Percentile	Piston and Heintz 2014
Northern Southeast Inside Summer	Peak Aerial Survey	Percentile	Piston and Heintz 2011a
Northern Southeast Outside Summer	Peak Aerial Survey	Percentile	Piston and Heintz 2014
Cholmondeley Sound Fall	Peak Aerial Survey	Percentile	Eggers and Heintz 2008
Port Camden Fall	Peak Aerial Survey	Risk Analysis	Eggers and Heintz 2008
Security Bay Fall	Peak Aerial Survey	Percentile	Eggers and Heintz 2008
Excursion River Fall	Peak Aerial Survey	Percentile	Eggers and Heintz 2008
Chilkat River Fall	Mark–Recapture, Fish Wheel	SRA	Piston and Heintz 2014
COHO SALMON			
Hugh Smith Lake	Weir Count	SRA	Shaul et al. 2009
Klawock River	Weir Count	Theoretical SRA	Der Hovanisian 2013
Taku River	Mark–Recapture	Agreement ^b , SRA	TTC 2015; Pestal and Johnson 2015
Auke Creek	Weir Count	SRA	Clark et al. 1994
Montana Creek	Foot Survey	Theoretical SRA	Clark 2005
Peterson Creek	Foot Survey	Theoretical SRA	Clark 2005
Ketchikan Survey Index	Peak Aerial Survey	Theoretical SRA	Shaul and Tydingco 2006
Sitka Survey Index	Foot Survey	Theoretical SRA	Shaul and Tydingco 2006
Ford Arm Lake	Weir Count	SRA	Clark et al. 1994

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Table 19.–Page 2 of 2.

System	Enumeration Method	Goal Development Method	References
Berners River	Mark–Recapture	SRA	Clark et al. 1994
Chilkat River	Mark–Recapture, Foot Survey	SRA	Ericksen and Fleischman 2006
Tawah Creek (Lost River)	Boat Survey	Percentile	Heinl et al. 2014a
Situk River	Boat Survey	SRA	Clark and Clark 1994
Tsiu/Tsivat Rivers	Peak Aerial Survey	SRA	Clark and Clark 1994
PINK SALMON			
Southern Southeast	Peak Aerial Survey	Yield Analysis	Heinl et al. 2008
Northern Southeast Inside	Peak Aerial Survey	Yield Analysis	Heinl et al. 2008
Northern Southeast Outside	Peak Aerial Survey	Yield Analysis	Heinl et al. 2008
Situk River	Weir Index	Percentile	Piston and Heinl 2011b
SCKEYE SALMON			
Hugh Smith Lake	Weir Count	Risk Analysis, Theoretical SRA	Geiger et al. 2003; OEG: 5 AAC 33.390
McDonald Lake	Expanded Foot Survey	SRA	Eggers et al. 2009a
Mainstem Stikine River	Run Reconstruction	Professional Judgement ^b	TTC 1987; TTC 1990
Tahltan Lake	Weir Count	SRA	Humphreys et al. 1994; TTC 1993
Speel Lake	Weir Count	SRA	Heinl et al. 2014b
Taku River	Mark–Recapture	Professional Judgement ^b	TTC 1986
Redoubt Lake	Weir Count	SRA	Geiger 2003; OEG: 5 AAC 01.760 (a)
Chilkat Lake	Sonar, Mark–Recapture	SRA	Eggers et al. 2010
Chilkoot Lake	Weir Count	SRA	Eggers et al. 2009b
East Alsek-Doame River	Peak Aerial Survey	SRA	Clark et al. 2003
Klukshu River	Weir Count	SRA	Eggers and Bernard 2011
Alsek River	Weir Count	SRA	Eggers and Bernard 2011
Lost River	Foot/Boat Survey	Percentile	Eggers et al. 2008
Situk River	Weir Count	SRA	Clark et al. 2002

Note: SRA = Spawner–recruit analysis.

^a One or more aerial surveys are attempted during the peak of the run. Peak count is used to index the escapement.

^b Transboundary Technical Committee, Pacific Salmon Commission.

Table 20.—Methods used to enumerate and develop escapement goals for Central Region (Bristol Bay, Cook Inlet, and Prince William Sound/Copper River) Chinook, chum, coho, pink, and sockeye salmon stocks.

System	Enumeration Method	Goal Development Method	References
CHINOOK SALMON			
<i>Bristol Bay</i>			
Nushagak River	Sonar	SRA, Yield Analysis	Fair et al. 2012
Alagnak River	Single Aerial Survey	Risk Analysis	Baker et al. 2006; Fair et al. 2004
<i>Upper Cook Inlet</i>			
Alexander Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Campbell Creek	Single Foot Survey	Risk Analysis	Fair et al. 2010
Chuitna River	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Chulitna River	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Clear (Chunilna) Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Crooked Creek	Weir Count	Percentile	Bue and Hasbrouck, unpublished ^b
Deshka River	Weir Count	SRA	Bue and Hasbrouck, unpublished ^b ; Fair et al. 2010
Goose Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Kenai River - Early Run	Sonar	SRA	McKinley and Fleischman 2013; OEG: 5 AAC 57.160 (b)
Kenai River - Late Run	Sonar	SRA	Fleischman and McKinley 2013
Lake Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Lewis River	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Little Susitna River	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Little Willow Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Montana Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Peters Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Prairie Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Sheep Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Talachulitna River	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Theodore River	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Willow Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
<i>Lower Cook Inlet</i>			
Anchor River	Sonar, Weir Count	SRA	Otis et al. 2010; Szarzi et al. 2007
Deep Creek	Single Aerial Survey	Percentile	Bue and Hasbrouck, unpublished ^b
Ninilchik River	Weir Count	Percentile	Otis and Szarzi 2007
<i>Prince William Sound</i>			
Copper River	Mark–Recapture	Empirical Observation	Bue et al. 2002; Saveriede 2001

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Table 20.–Page 2 of 5.

System	Enumeration Method	Goal Development Method	References
CHUM SALMON			
<i>Bristol Bay</i>			
Nushagak River	Sonar	Risk Analysis	Fair et al. 2012
<i>Upper Cook Inlet</i>			
Clearwater Creek	Peak Aerial Survey ^c	Percentile	Bue and Hasbrouck, unpublished ^b
<i>Lower Cook Inlet</i>			
Port Graham River	Multiple Foot Surveys ^d	Percentile	Otis 2001
Dogfish Lagoon	Multiple Foot Surveys	Percentile	Otis 2001
Rocky River	Multiple Foot Surveys	Percentile	Otis 2001
Port Dick Creek	Multiple Aerial or Foot Surveys	Percentile	Otis 2001
Island Creek	Multiple Aerial or Foot Surveys	Percentile	Otis 2001
Big Kamishak River	Multiple Aerial Surveys	Percentile	Otis 2001
Little Kamishak River	Multiple Aerial Surveys	Percentile	Otis 2001
McNeil River	Multiple Aerial Surveys	Percentile	Otis and Szarzi 2007
Bruin River	Multiple Aerial Surveys	Percentile	Otis 2001
Ursus Cove	Multiple Aerial Surveys	Percentile	Otis 2001
Cottonwood Creek	Multiple Aerial Surveys	Percentile	Otis 2001
Iniskin Bay	Multiple Aerial Surveys	Percentile	Otis 2001
<i>Prince William Sound</i>			
Eastern District	Multiple Aerial Surveys	Risk Analysis	Evenson et al. 2008
Northern District	Multiple Aerial Surveys	Risk Analysis	Evenson et al. 2008
Coghill District	Multiple Aerial Surveys	Risk Analysis	Evenson et al. 2008
Northwestern District	Multiple Aerial Surveys	Risk Analysis	Evenson et al. 2008
Southeastern District	Multiple Aerial Surveys	Risk Analysis	Evenson et al. 2008
COHO SALMON			
<i>Bristol Bay</i>			
Nushagak River	Sonar	SRA	Fair et al. 2012
<i>Upper Cook Inlet</i>			
Fish Creek (Knik)	Weir Count	Percentile	Bue and Hasbrouck, unpublished ^b ; Fair et al. 2010
Jim Creek	Single Foot Survey	Percentile	Fair et al. 2013
Little Susitna River	Weir Count	Percentile	Bue and Hasbrouck, unpublished ^b
<i>Lower Cook Inlet</i>			
There are no coho salmon stocks with escapement goals in Lower Cook Inlet			

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Table 20.–Page 3 of 5.

System	Enumeration Method	Goal Development Method	References
<i>Prince William Sound</i>			
Copper River Delta	Peak Aerial Survey	Percentile	Bue et al. 2002
Bering River	Peak Aerial Survey	Percentile	Bue et al. 2002
PINK SALMON			
<i>Bristol Bay</i>			
Nushagak River	Sonar	Percentile	Fair et al. 2012
<i>Upper Cook Inlet</i>			
There are no pink salmon stocks with escapement goals in Upper Cook Inlet			
<i>Lower Cook Inlet</i>			
Humpy Creek	Multiple Foot Surveys	Percentile	Otis 2001
China Poot Creek	Multiple Foot Surveys	Percentile	Otis 2001
Tutka Creek	Multiple Foot Surveys	Percentile	Otis 2001
Barabara Creek	Multiple Foot Surveys	Percentile	Otis 2001
Seldovia Creek	Multiple Foot Surveys	Percentile	Otis 2001
Port Graham River	Multiple Foot Surveys	Percentile	Otis 2001
Dogfish Lagoon Creeks	Multiple Aerial or Foot Surveys	Percentile	Otis et al. 2013
Port Chatham	Multiple Foot Surveys	Percentile	Otis 2001
Windy Creek Right	Multiple Foot Surveys	Percentile	Otis 2001
Windy Creek Left	Multiple Foot Surveys	Percentile	Otis 2001
Rocky River	Multiple Foot Surveys	Percentile	Otis 2001
Port Dick Creek	Multiple Aerial or Foot Surveys	Percentile	Otis 2001
Island Creek	Multiple Aerial or Foot Surveys	Percentile	Otis 2001
S. Nuka Island Creek	Multiple Aerial or Foot Surveys	Percentile	Otis 2001
Desire Lake Creek	Multiple Aerial Surveys	Percentile	Otis 2001
Bruin River	Multiple Aerial Surveys	Percentile	Otis 2001
Sunday Creek	Multiple Aerial Surveys	Percentile	Otis 2001
Brown's Peak Creek	Multiple Aerial Surveys	Percentile	Otis 2001
<i>Prince William Sound</i>			
Eastern District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Eastern District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Northern District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Northern District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Coghill District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Coghill District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Northwestern District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011

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Table 20.–Page 4 of 5.

System	Enumeration Method	Goal Development Method	References
Northwestern District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Eshamy District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Eshamy District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Southwestern District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Southwestern District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Montague District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Montague District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Southeastern District (even year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
Southeastern District (odd year)	Multiple Aerial Surveys	Percentile	Fair et al. 2011
SCKEYE SALMON			
<i>Bristol Bay</i>			
Kvichak River	Tower Count	SRA, Yield Analysis	Baker et al. 2009
Alagnak River	Tower Count	Risk Analysis	Baker et al. 2006
	Single Aerial Survey	Risk Analysis	Erickson et al. 2015
Naknek River	Tower Count	SRA, Yield Analysis	Fair et al. 2012; Erickson et al. 2015, Appendices F2 and F3; OEG: 5 AAC 06.360 (f)
Egegik River	Tower Count	SRA, Yield Analysis	Fair et al. 2012; Erickson et al. 2015, Appendices F2 and F3
Ugashik River	Tower Count	SRA, Yield Analysis	Fair et al. 2012; Erickson et al. 2015, Appendices F2 and F3
Wood River	Tower Count	SRA, Yield Analysis	Fair et al. 2012; Erickson et al. 2015, Appendices F2 and F3
Igushik River	Tower Count	SRA, Yield Analysis	Fair et al. 2012; Erickson et al. 2015, Appendices F2 and F3
Nushagak River	Sonar	SRA, Yield Analysis	Fair et al. 2012; OEG: 5 AAC 06.358 (c) (1) (B)
Togiak River	Tower Count	SRA, Yield Analysis	Baker et al. 2009; Fair et al. 2004
<i>Upper Cook Inlet</i>			
Fish Creek (Knik)	Weir Count	Percentile	Bue and Hasbrouck, unpublished ^b
Kasilof River	Sonar	SRA	Fair et al. 2010; OEG: 5 AAC 21.365 (b)
Kenai River	Sonar	Brood Interaction Simulation Model	Carlson et al. 1999; Clark et al. 2007; Fair et al. 2010 OEG: 5 AAC 21.360 (b) (1)
Packers Creek	Weir Count	Percentile	Bue and Hasbrouck, unpublished ^b ; Fair et al. 2007; Hasbrouck and Edmundson 2007
Russian River - Early Run	Weir Count	SRA	Fair et al. 2010
Russian River - Late Run	Weir Count	Percentile	Hasbrouck and Edmundson 2007
Chelatna Lake	Weir Count	Percentile	Fair et al. 2009
Judd Lake	Weir Count	Percentile	Fair et al. 2009
Larson Lake	Weir Count	Percentile	Fair et al. 2009
<i>Lower Cook Inlet</i>			
English Bay	Peak Aerial Survey, Weir Count	Percentile	Otis 2001
Delight Lake	Peak Aerial Survey, Weir Count	Percentile	Otis et al. 2010

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Table 20.–Page 5 of 5.

System	Enumeration Method	Goal Development Method	References
Desire Lake	Peak Aerial Survey	Percentile	Otis 2001
Bear Lake	Weir Count	Percentile	Otis 2001
Aialik Lake	Peak Aerial Survey	Percentile	Otis 2001
Mikfik Lake	Video	Percentile	Otis et al. 2013
Chenik Lake	Peak Aerial Survey, Video	Percentile	Otis et al. 2010
Amakdedori Creek	Peak Aerial Survey	Percentile	Otis 2001
<i>Prince William Sound</i>			
Upper Copper River	Sonar	Percentile	Fair et al. 2011
Copper River Delta	Peak Aerial Survey	Percentile	Bue et al. 2002
Bering River	Peak Aerial Survey	Percentile	Fair et al. 2011
Coghill Lake	Weir Count	SRA	Fair et al. 2011
Eshamy Lake	Weir Count	SRA	Fair et al. 2008

Note: SRA = Spawner–recruit analysis.

^a Single survey done around time of presumed peak of the run with no expansion of counts.

^b Bue, B. G., and J. J. Hasbrouck. Escapement goal review of salmon stocks of Upper Cook Inlet. Alaska Department of Fish and Game, Report to the Alaska Board of Fisheries, November 2001 (and February 2002), Anchorage, unpublished document.

^c Multiple aerial surveys are attempted throughout the run. Peak count is used to index the escapement.

^d Multiple surveys throughout run (at least 1 per week). Area under the curve method used to estimate annual escapement.

Table 21.—Methods used to enumerate and develop escapement goals for Arctic-Yukon-Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon stocks.

System	Enumeration Method	Goal Development Method	References
CHINOOK SALMON			
<i>Kuskokwim Area</i>			
North (Main) Fork Goodnews River	Single Aerial Survey ^a	Percentile	ADF&G 2004
Middle Fork Goodnews River	Weir Count	SRA	Brannian et al. 2006; Molyneaux and Brannian 2006
Kanektok River	Single Aerial Survey	Percentile	Conitz et al. 2015
Kuskokwim River (entire area)	Run Reconstruction ^b	SRA	Hamazaki et al. 2012
Kogruklu River	Weir Count	Proportion of Kuskokwim River goal	Hamazaki et al. 2012
Kwethluk River	Weir Count	Proportion of Kuskokwim River goal	Hamazaki et al. 2012
George River	Weir Count	Proportion of Kuskokwim River goal	Hamazaki et al. 2012
Kisaralik River	Single Aerial Survey	Percentile	ADF&G 2004
Aniak River	Single Aerial Survey	Percentile	ADF&G 2004
Salmon River (Aniak R)	Single Aerial Survey	Percentile	ADF&G 2004
Holitna River	Single Aerial Survey	Percentile	ADF&G 2004
Cheeneetuk River (Stony R)	Single Aerial Survey	Percentile	ADF&G 2004
Gagarayah River (Stony R)	Single Aerial Survey	Percentile	ADF&G 2004
Salmon River (Pitka Fork)	Single Aerial Survey	Percentile	ADF&G 2004
<i>Yukon River</i>			
East Fork Andreafsky River	Weir Count	Percentile	Volk et al. 2009
West Fork Andreafsky River	Peak Aerial Survey ^c	Percentile	ADF&G 2004
Anvik River	Peak Aerial Survey	Percentile	ADF&G 2004
Nulato River (forks combined)	Peak Aerial Survey	Percentile	ADF&G 2004
Chena River	Tower, Mark–Recapture	SRA	Evenson 2002
Salcha River	Tower, Mark–Recapture	SRA	Evenson 2002
Canada Mainstem	Sonar	Agreement (U.S./Canada Joint Technical Committee)	JTC 2010; JTC 2013
<i>Norton Sound</i>			
Kwiniuk River	Tower Count	Percentile	Conitz et al. 2015
North River (Unalakleet R)	Tower Count	Percentile	ADF&G 2004
CHUM SALMON			
<i>Kuskokwim Area</i>			
Middle Fork Goodnews River	Weir Count	Percentile	ADF&G 2004
Kogruklu River	Weir Count	Percentile	ADF&G 2004

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Table 21.–Page 2 of 4.

System	Enumeration Method	Goal Development Method	References
<i>Yukon River Summer Chum</i>			
Yukon River Drainage	Sonar, Weir Count, Tower Count, Aerial Survey	SRA	Conitz et al. 2015; Hamazaki & Conitz 2015
East Fork Andreafsky River	Weir Count	SRA	Fleischman and Evenson 2010; Volk et al. 2009
Anvik River	Sonar	SRA	ADF&G 2004
<i>Yukon River Fall Chum</i>			
Yukon River Drainage	Calculated - Multiple Surveys	SRA	Fleischman and Borba 2009; Volk et al. 2009
Tanana River	Mark–Recapture	SRA	ADF&G 2004; Eggers 2001
Delta River	Multiple Foot Surveys	Proportion of Tanana River Goal	ADF&G 2004; Eggers 2001
Chandalar River	Sonar	Proportion of Upper Yukon River Tributaries Goal	ADF&G 2004; Eggers 2001
Fishing Branch River (Canada)	Weir Count	Agreement (U.S./Canada Joint Technical Committee) Interim Management Escapement Goal Percentile	JTC 2008; JTC 2013 ^e
Yukon R. Mainstem (Canada)	Mark–Recapture	Agreement (U.S./Canada Joint Technical Committee) Interim Management Escapement Goal SRA	JTC 2010; JTC 2015
<i>Norton Sound</i>			
Subdistrict 1 Aggregate	Calculated - Multiple Surveys	SRA	Clark 2001a
Nome River	Weir Count	Proportion of Aggregate Goal	ADF&G 2004; Clark 2001a; OEG: 5 AAC04.358 (a) (2)
Snake River	Tower/Weir Count	Proportion of Aggregate Goal	ADF&G 2004; Clark 2001a; OEG: 5 AAC04.358 (a) (1)
Eldorado River	Peak Aerial Survey (Expanded)	Proportion of Aggregate Goal	ADF&G 2004; Clark 2001a; OEG: 5 AAC04.358 (a) (3)
Kwiniuk River	Tower Count	SRA	ADF&G 2004; Clark 2001b; OEG: 5 AAC 04.390 (b) (1) (A) (i)
Tubutulik River	Peak Aerial Survey (Expanded)	SRA	ADF&G 2004; Clark 2001b OEG: 5 AAC 04.390 (b) (1) (A) (ii)
<i>Kotzebue Sound</i>			
Kotzebue Sound Aggregate	Peak Aerial Survey (Expanded)	SRA	Brannian et al. 2006; Eggers and Clark 2006
Noatak and Eli Rivers	Peak Aerial Survey	Proportion of Aggregate Goal	Brannian et al. 2006; Eggers and Clark 2006
Upper Kobuk w/Selby River	Peak Aerial Survey	Proportion of Aggregate Goal	Brannian et al. 2006; Eggers and Clark 2006
Salmon River	Peak Aerial Survey	Proportion of Aggregate Goal	Brannian et al. 2006; Eggers and Clark 2006
Tutuksuk River	Peak Aerial Survey	Proportion of Aggregate Goal	Brannian et al. 2006; Eggers and Clark 2006
Squirrel River	Peak Aerial Survey	Proportion of Aggregate Goal	Brannian et al. 2006; Eggers and Clark 2006
COHO SALMON			
<i>Kuskokwim Area</i>			
Middle Fork Goodnews River	Weir Count	Percentile	ADF&G 2004

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Table 21.–Page 3 of 4.

System	Enumeration Method	Goal Development Method	References
Kogruklu River	Weir Count	Percentile	ADF&G 2004
Kwethluk River	Weir Count	Empirical Observation	Volk et al. 2009
<i>Yukon River</i>			
Delta Clearwater River	Boat Survey	Percentile	ADF&G 2004
<i>Norton Sound</i>			
Kwiniuk River	Peak Aerial Survey	Theoretical SRA	ADF&G 2004; Fair et al. 1999, memorandum ^d
Niukluk River/Ophir Creek	Peak Aerial Survey	Percentile	Conitz et al. 2015
North River (Unalakleet R.)	Peak Aerial Survey	Theoretical SRA	ADF&G 2004; Fair et al. 1999, memorandum ^d
PINK SALMON			
<i>Kuskokwim Area</i>			
There are no escapement goals for pink salmon in the Kuskokwim Management Area.			
<i>Yukon River</i>			
There are no escapement goals for pink salmon in the Yukon River drainage.			
<i>Norton Sound</i>			
Nome River (odd year)	Weir Count	Empirical Observation	ADF&G 2004
Nome River (even year)	Weir Count	Empirical Observation	ADF&G 2004; Fair et al. 1999, memorandum ^d
Kwiniuk River	Tower Count	Empirical Observation	ADF&G 2004
North River	Tower Count	Empirical Observation	ADF&G 2004
SOCKEYE SALMON			
<i>Kuskokwim Area</i>			
North (Main) Fork Goodnews River	Single Aerial Survey	Percentile	Conitz et al. 2015
Middle Fork Goodnews River	Weir Count	SRA	Brannian et al. 2006; Molyneaux and Brannian 2006
Kanektok River	Single Aerial Survey	Percentile	Conitz et al. 2015
Kogruklu River	Weir Count	Percentile	Volk et al. 2009
<i>Yukon River</i>			
There are no escapement goals for Sockeye in the Yukon River drainage.			
<i>Norton Sound</i>			
Salmon Lake/Grand Central River	Peak Aerial Survey	Empirical Observation	ADF&G 2004; Fair et al. 1999, memorandum ^d
Glacial Lake	Peak Aerial Survey	Empirical Observation	ADF&G 2004; Fair et al. 1999, memorandum ^d

Note: SRA = Spawner–recruit analysis.

^a Typically single survey done around time of presumed peak of the run with no expansion of counts.

^b Bue et al. (2012).

^c One or more aerial surveys are attempted during the peak of the run. Peak count is used to index the escapement.

^d Fair, L., C. Lean, F. DeCicco, J. Magdanz, and R. McLean. Proposed Salmon BEGs for Norton Sound and Kotzebue Sound. ADF&G Memorandum, March 24, 1999.

^e Assessment project at Fishing Branch weir no longer operated, and JTC has not reached consensus on future of this goal. Will remain same as 2013 by default (JTC 2015).

Table 22.—Methods used to enumerate and develop escapement goals for Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) Chinook, chum, coho, pink, and sockeye salmon stocks.

System	Enumeration Method	Goal Development Method	References
CHINOOK SALMON			
<i>AK Peninsula</i>			
Nelson River	Weir, Peak Aerial Survey ^a	Spawning Habitat Model, SRA	Nelson et al. 2006
<i>Chignik</i>			
Chignik River	Weir Count	SRA	Hasbrouck and Clark, unpublished ^b ; Witteveen et al. 2005
<i>Kodiak</i>			
Karluk River	Weir Count	SRA	Nemeth et al. 2010
Ayakulik River	Weir Count	SRA	Nemeth et al. 2010
CHUM SALMON			
<i>AK Peninsula</i>			
Northern District	Peak Aerial Survey	SRA	Honnold et al. 2007b; Nelson and Lloyd 2001; Nelson et al. 2006
Northwestern District	Peak Aerial Survey	SRA	Honnold et al. 2007b; Nelson et al. 2006
Southeastern District	Peak Aerial Survey	Percentile	Nelson and Lloyd 2001; Nelson et al. 2006
South Central District	Peak Aerial Survey	Percentile	Nelson and Lloyd 2001; Nelson et al. 2006
Southwestern District	Peak Aerial Survey	Percentile	Nelson and Lloyd 2001; Nelson et al. 2006
<i>Chignik</i>			
Entire Chignik Area	Peak Aerial Survey	Percentile	Schaberg et al. 2015b
<i>Kodiak</i>			
Mainland District	Peak Aerial Survey	Percentile, Risk Analysis	Honnold et al. 2007a
Kodiak Archipelago Aggregate	Peak Aerial Survey	Percentile	Honnold et al. 2007a
COHO SALMON			
<i>AK Peninsula</i>			
Nelson River	Peak Aerial Survey	Risk Analysis	Nelson et al. 2006
Ilnik River	Peak Aerial Survey	Risk Analysis	Witteveen et al. 2009
<i>Chignik</i>			
There are no coho salmon stocks with escapement goals in Chignik Area			
<i>Kodiak</i>			
Pasagshak River	Foot Survey	Theoretical SRA	Nemeth et al. 2010
Buskin River	Weir Count	SRA	Sagalkin et al. 2013a; Schmidt et al. 2014
Olds River	Foot Survey	Theoretical SRA	Nemeth et al. 2010
American River	Foot Survey	Theoretical SRA	Nemeth et al. 2010

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Table 22.–Page 2 of 3.

System	Enumeration Method	Goal Development Method	References
PINK SALMON			
<i>AK Peninsula</i>			
South Peninsula Total	Peak Aerial Survey	SRA	Schaberg et al. 2015a
<i>Chignik</i>			
Entire Chignik Area (odd year)	Peak Aerial Survey	Percentile	Schaberg et al. 2015b
Entire Chignik Area (even year)	Peak Aerial Survey	Percentile	Schaberg et al. 2015b
<i>Kodiak</i>			
Mainland District	Peak Aerial Survey	SRA	Nemeth et al. 2010
Kodiak Archipelago (odd year)	Peak Aerial Survey	SRA	Nemeth et al. 2010
Kodiak Archipelago (even year)	Peak Aerial Survey	SRA	Nemeth et al. 2010
SCKEYE SALMON			
<i>AK Peninsula</i>			
Cinder River	Peak Aerial Survey	Percentile	Schaberg et al. 2015a
Ilnik River	Weir Count	Percentile, Euphotic Volume Model, Zooplankton Model	Nelson and Lloyd 2001; Nelson et al. 2006
Meshik River	Peak Aerial Survey	Percentile	Schaberg et al. 2015a
Sandy River	Weir Count	Percentile	Honnold et al. 2007b
Bear River Early Run	Weir Count	Spawning Habitat Model, Percentile, Euphotic Volume Model, Zooplankton Model, Lake Surface Area	Nelson et al. 2006
Bear River Late Run	Weir Count	Spawning Habitat Model, Percentile, Euphotic Volume Model, Zooplankton Model, Lake Surface Area	Nelson et al. 2006
Nelson River	Weir Count	SRA	Nelson et al. 2006
Christianson Lagoon	Peak Aerial Survey	Spawning Habitat Model	Nelson and Lloyd 2001; Nelson et al. 2006
Swanson Lagoon	Peak Aerial Survey	Percentile	Honnold et al. 2007b
North Creek	Peak Aerial Survey	Percentile	Nelson and Lloyd 2001; Nelson et al. 2006
Orzinski Lake	Weir Count	Percentile	Nelson and Lloyd 2001; Nelson et al. 2006
Mortensen Lagoon	Peak Aerial Survey	Spawning Habitat Model, Percentile, Euphotic Volume Model, Zooplankton Model, Lake Surface Area	Nelson and Lloyd 2001; Nelson et al. 2006
Thin Point Lake	Peak Aerial Survey	Spawning Habitat Model, Percentile, Euphotic Volume Model, Zooplankton Model, Lake Surface Area	Nelson and Lloyd 2001; Nelson et al. 2006
McLees Lake	Weir Count	Percentile	Witteveen et al. 2009
<i>Chignik</i>			
Chignik River Early Run	Weir Count	Yield Analysis, Euphotic Volume Model, Zooplankton Model	Sagalkin et al. 2013b
Chignik River Late Run	Weir Count	SRA, Euphotic Volume Model, Zooplankton Model	Witteveen et al. 2007

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Table 22.–Page 3 of 3.

System	Enumeration Method	Goal Development Method	References
<i>Kodiak</i>			
Malina Creek	Peak Aerial Survey	Percentile, Zooplankton Model	Nelson et al. 2005
Afognak (Litnik) River	Weir Count	SRA	Nelson et al. 2005
Uganik Lake	Peak Aerial Survey	Percentile	Honnold et al. 2007a
Karluk River Early Run	Weir Count	SRA	Honnold et al. 2007a
Karluk River Late Run	Weir Count	SRA	Nelson et al. 2005
Ayakulik River Early Run	Weir Count	Zooplankton Model, Empirical Observation	Nemeth et al. 2010
Ayakulik River Late Run	Weir Count	Zooplankton Model, Empirical Observation	Nemeth et al. 2010
Upper Station River Early Run	Weir Count	SRA	Nemeth et al. 2010; OEG: 5 AAC 18.61 (a)(3)
Upper Station River Late Run	Weir Count	SRA	Nelson et al. 2005
Frazer Lake	Weir Count	SRA	Honnold et al. 2007a
Saltery Lake	Weir Count	SRA, Zooplankton Model	Nemeth et al. 2010
Pasagshak River	Peak Aerial Survey	Percentile	Nemeth et al. 2010
Buskin Lake	Weir Count	SRA	Nemeth et al. 2010

Note: SRA = Spawner–recruit analysis.

^a One or more aerial surveys are attempted during the peak of the run. Peak count is used to index the escapement.

^b Hasbrouck, J. J., and R. A. Clark. *Unpublished*. Escapement goal review of Chinook salmon in the Ayakulik, Chignik, and Karluk rivers. Alaska Department of Fish and Game, Report to the Alaska Board of Fisheries, December 2001, Anchorage.

FIGURES

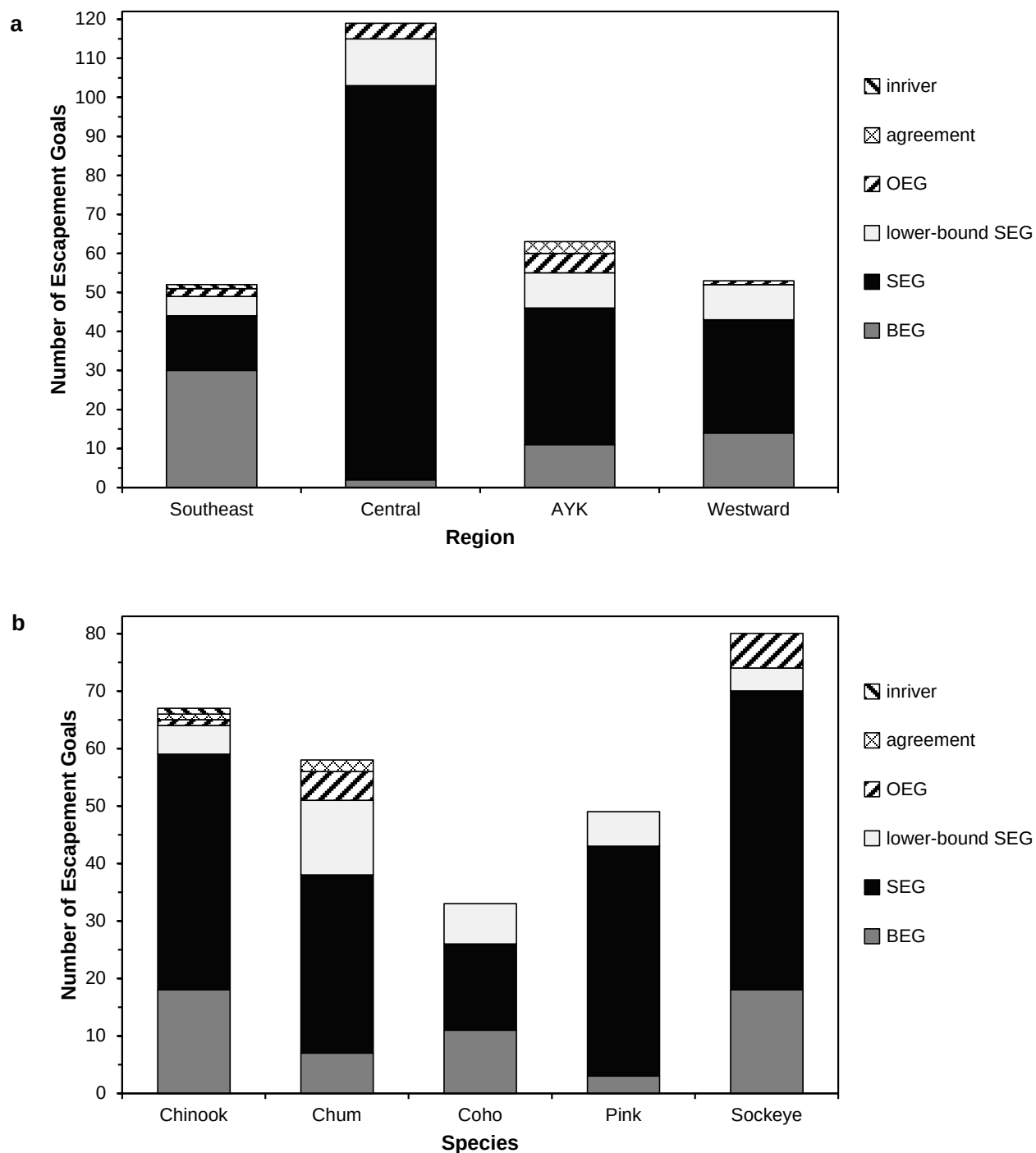


Figure 1.—Statewide summary of the 287 escapement goals in effect during the 2016 spawning season for (a) the 4 Division of Commercial Fisheries regions and (b) by species.

Note: BEG is biological escapement goal, SEG is sustainable escapement goal, OEG is optimal escapement goal (set by the Alaska Board of Fisheries), agreement goals are established through international treaties, and inriver is inriver escapement goal (set by the Alaska Board of Fisheries).

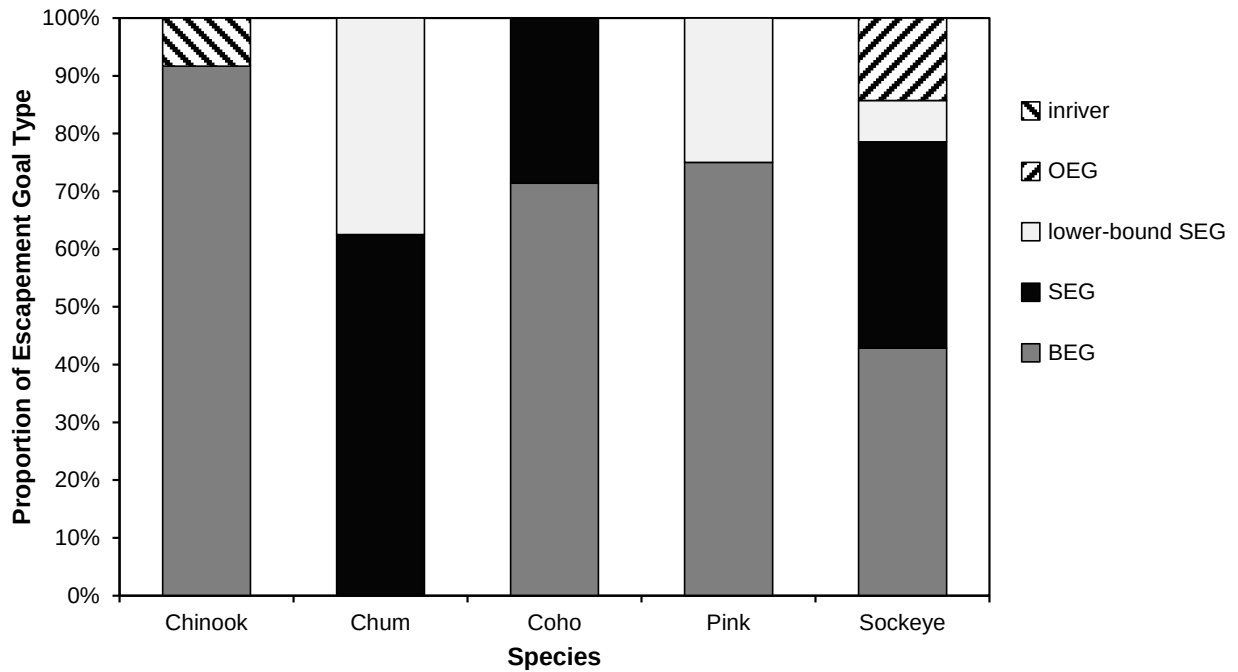


Figure 2.—Proportion of escapement goal types by species for the 52 escapement goals in Southeast Region.

Note: BEG is biological escapement goal, SEG is sustainable escapement goal, OEG is optimal escapement goal (set by the Alaska Board of Fisheries), and inriver is an inriver escapement goal (set by the Alaska Board of Fisheries).

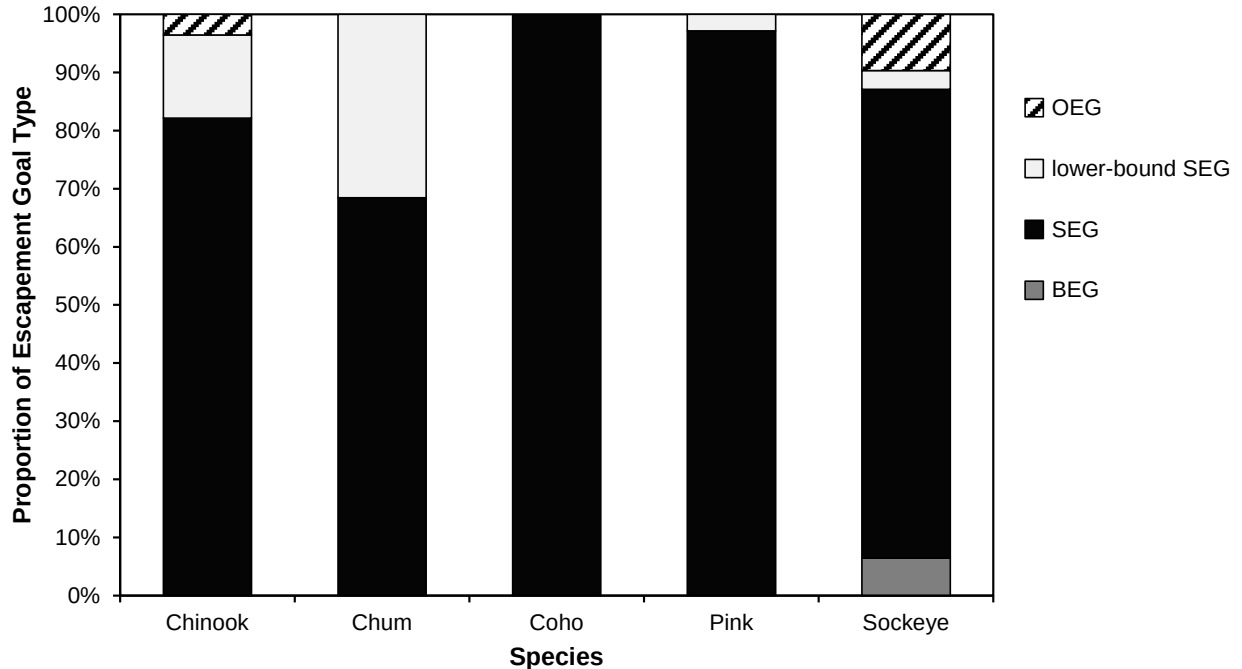


Figure 3.—Proportion of escapement goal types by species for the 119 escapement goals in Central Region (Bristol Bay, Cook Inlet, and Prince William Sound/Copper River).

Note: BEG is biological escapement goal, SEG is sustainable escapement goal, and OEG is optimal escapement goal (set by the Alaska Board of Fisheries).

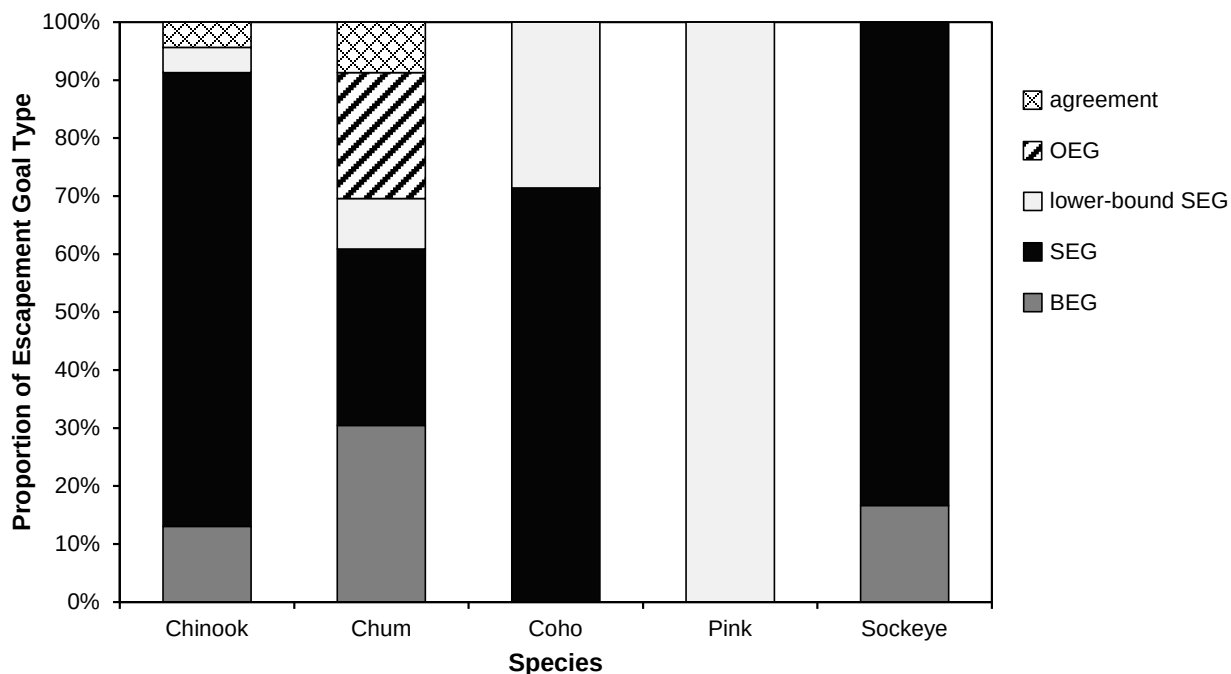


Figure 4.—Proportion of escapement goal types by species for the 63 escapement goals in Arctic-Yukon-Kuskokwim Region.

Note: BEG is biological escapement goal, SEG is sustainable escapement goal, OEG is optimal escapement goal (set by the Alaska Board of Fisheries), and agreement goals are established through international treaties.

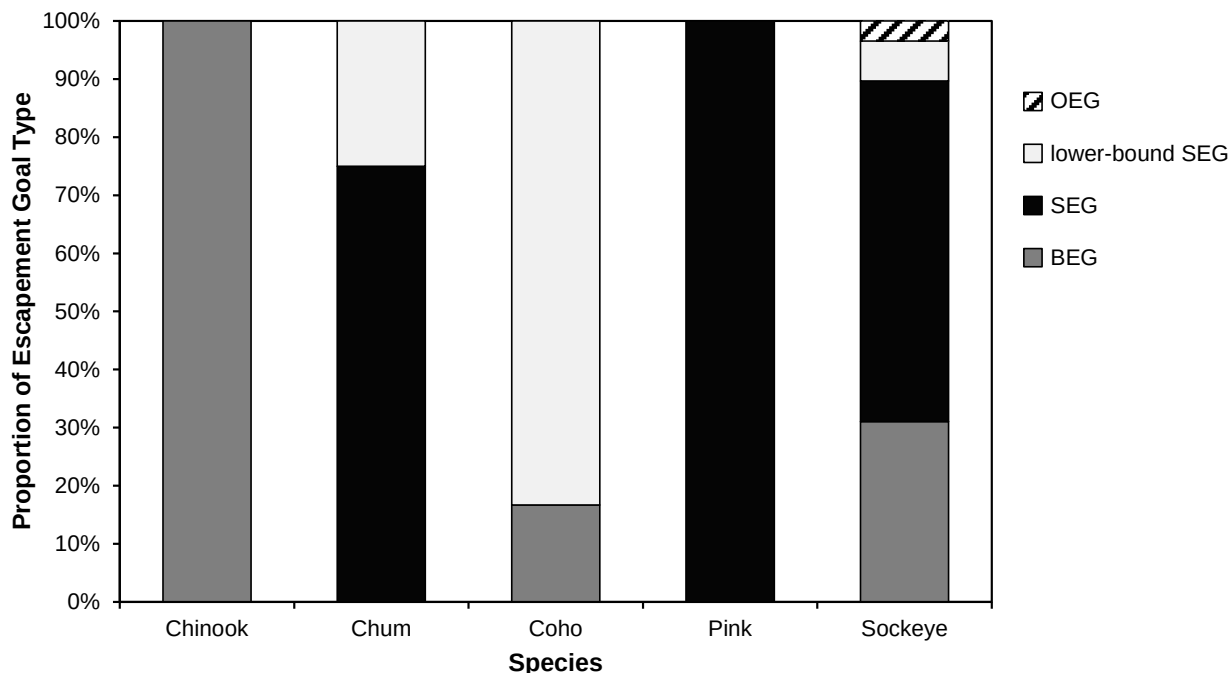


Figure 5.—Proportion of escapement goal types by species for the 53 escapement goals in Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas).

Note: BEG is biological escapement goal, SEG is sustainable escapement goal, and OEG is optimal escapement goal (set by the Alaska Board of Fisheries).

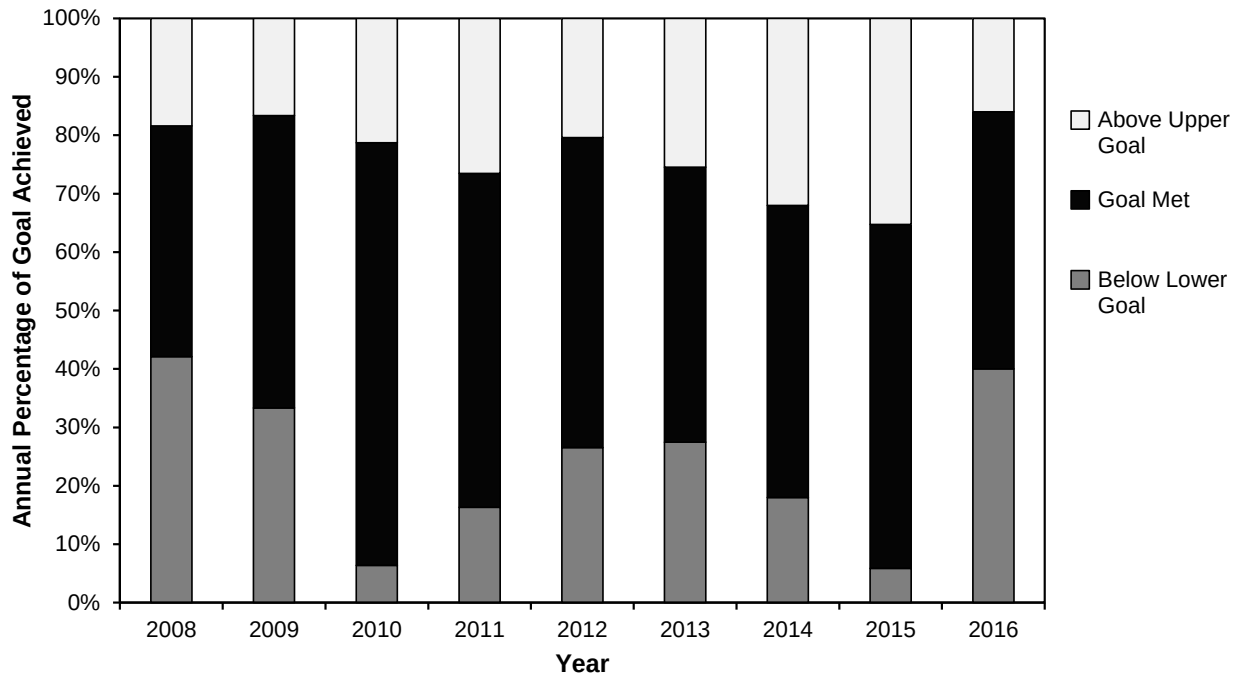


Figure 6.—Southeast Region salmon escapements compared against escapement goals for the years 2008 to 2016.

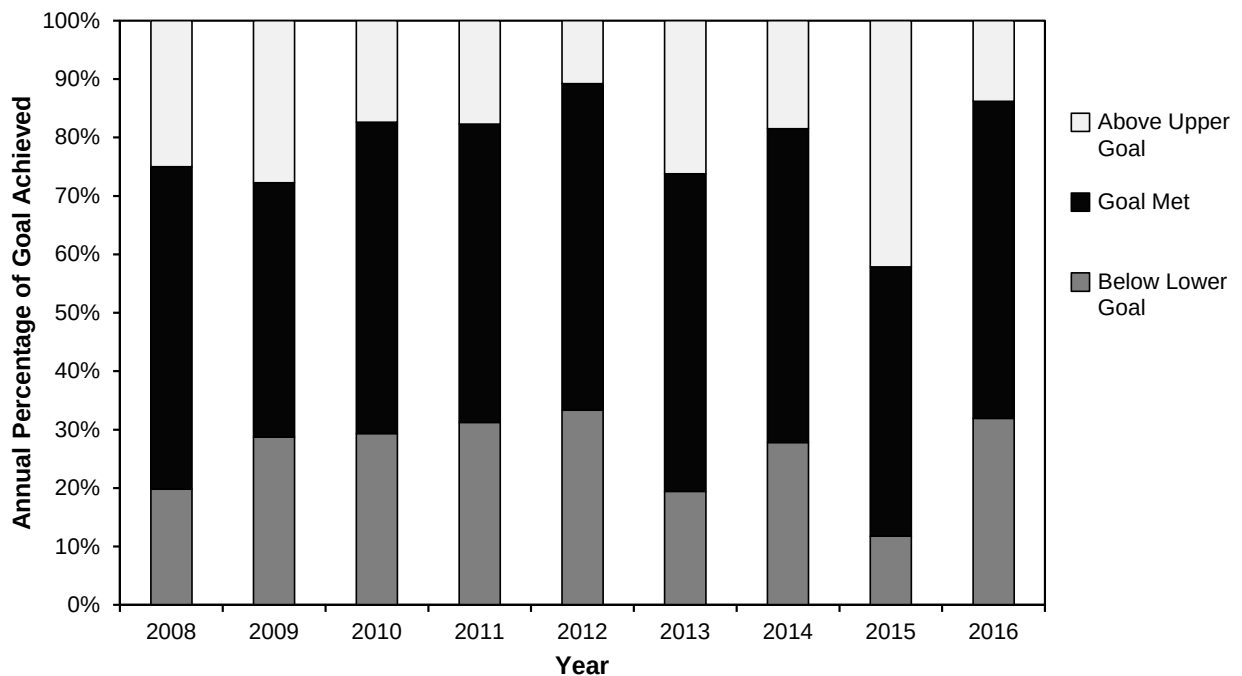


Figure 7.—Central Region (Bristol Bay, Cook Inlet, Prince William Sound/Copper River) salmon escapements compared against escapement goals for the years 2008 to 2016.

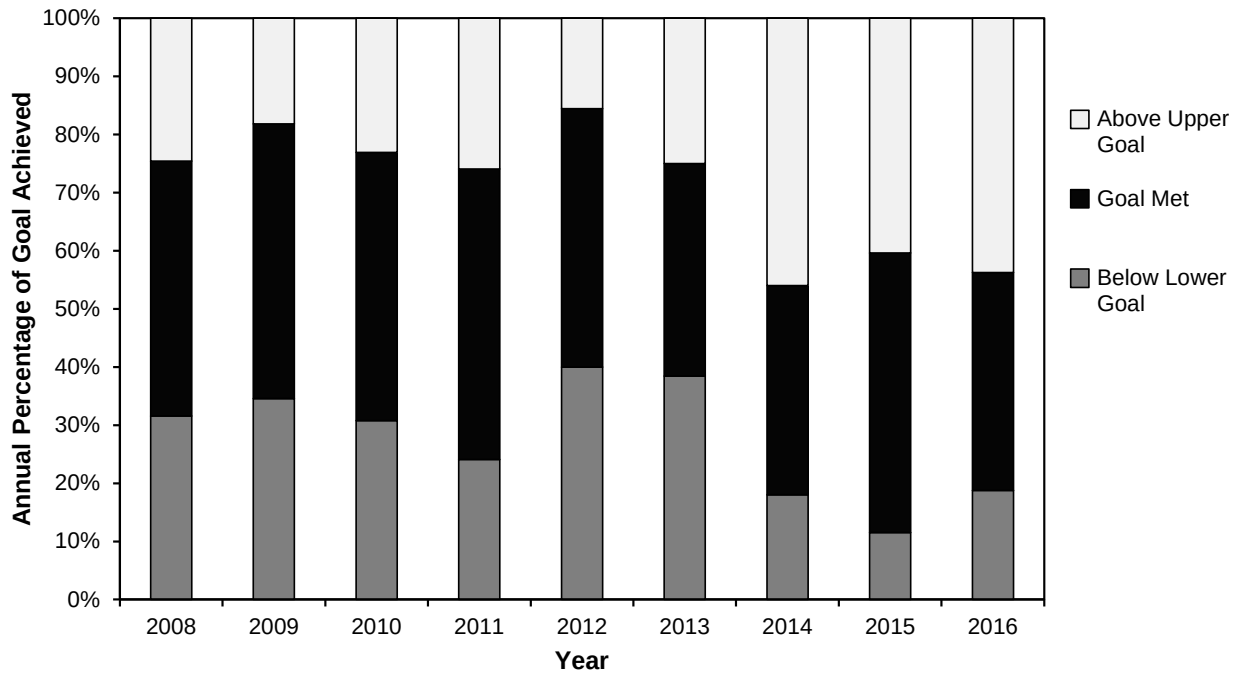


Figure 8.—Arctic-Yukon-Kuskokwim Region salmon escapements compared against escapement goals for the years 2008 to 2016.

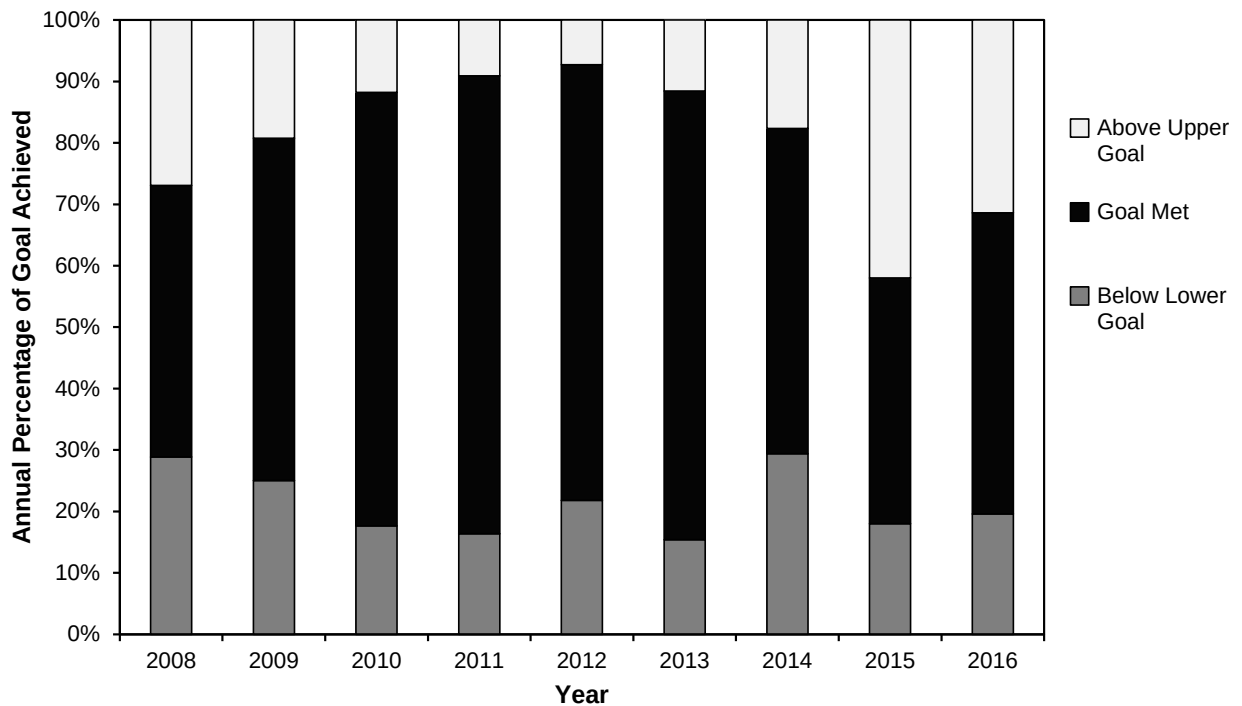


Figure 9.—Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) salmon escapements compared against escapement goals for the years 2008 to 2016.

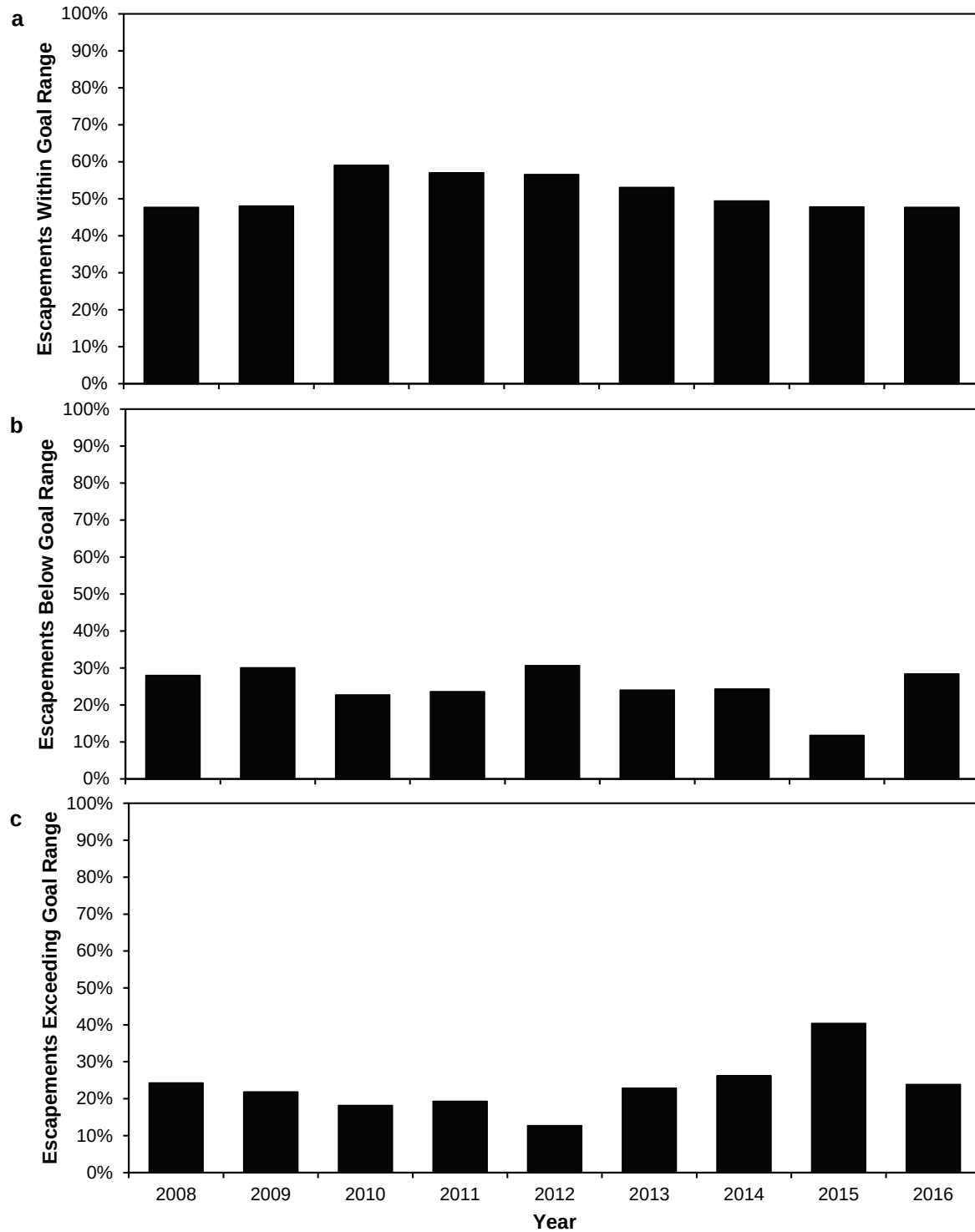


Figure 10.—Statewide summary by year of percentage of escapements that a) met the escapement goal (i.e., within goal range or above lower bound), b) were below lower bound of goal, or c) exceeded upper bound of goal range for the years 2008 to 2016.

APPENDIX A.
ESCAPEMENT GOAL MEMO FOR 2015/2016 BOARD OF
FISHERIES MEETING CYCLE

MEMORANDUM

STATE OF ALASKA DEPARTMENT OF FISH AND GAME Division of Commercial Fisheries and Sport Fish

TO: Distribution

DATE: 7/6/2017

PHONE: 465-4210 (Kelley)
267-2150 (Brookover)

FROM: Scott Kelley, Director 
Division of Commercial Fisheries
Juneau

SUBJECT: Approval of Final
Escapement Goal
Recommendations for
Selected Bristol Bay, Arctic-
Yukon-Kuskokwim, Alaska
Peninsula, Aleutian Islands,
and Chignik Salmon Stocks

Tom Brookover, Director 
Division of Sport Fish
Anchorage

The purpose of this memo is to provide final approval to include the recommendations found in the reports listed below as Alaska Department of Fish and Game (ADF&G) salmon escapement goals for the Bristol Bay, Arctic-Yukon-Kuskokwim, Alaska Peninsula and Aleutian Islands, and Chignik areas with the exception of the Chinook and sockeye salmon goals for the Alagnak River (Bristol Bay) which will remain in place. The Alagnak River sockeye salmon stock has two escapement goals; the tower count lower bound SEG of 320,000, and a recommended aerial survey lower bound SEG of 125,000. The tower-based goal takes precedent unless the tower is not operational in which case the aerial survey goal would be used to assess whether escapements were sufficient.

Erickson, J.W., C.E. Brazil, X. Zhang, T.R. McKinley, and R.A. Clark. 2015. Review of salmon escapement goals in Bristol Bay, Alaska, 2015. Alaska Department of Fish and Game, Fishery Manuscript Series No. 15-06, Anchorage.

Conitz, J. M., K. G. Howard, and M. J. Evenson. 2015. Escapement goal recommendations for select Arctic-Yukon-Kuskokwim Region salmon stocks, 2016. Alaska Department of Fish and Game, Fishery Manuscript No. 15-08, Anchorage.

Schaberg, K. L., D. A. Tracy, M. B. Foster, and M. Loewen. 2015. Review of salmon escapement goals in the Chignik Management Area, 2015. Alaska Department of Fish and Game, Fishery Manuscript Series No. 15-02, Anchorage.

Schaberg, K. L., H. Finkle, M. B. Foster, D. L. Tracy, and M. L. Wattum. 2015. Review of salmon escapement goals in the Alaska Peninsula and Aleutian Islands Management Areas, 2015. Alaska Department of Fish and Game, Fishery Manuscript No. 15-03, Anchorage.

The *Policy for the Management of Sustainable Salmon Fisheries* (SSFP; 5 AAC 39.222) directs the department to provide the Alaska Board of Fisheries with reports on status of salmon stocks and salmon fisheries, and identification of escapement goals, at regular meetings for each management area. Escapement goals were evaluated and recommended based on the SSFP and the *Policy for Statewide Salmon Escapement Goals* (5 AAC 39.223). These recommendations

have been reviewed and accepted by the respective Regional Supervisors. Oral and written reports were presented to the Alaska Board of Fisheries regarding these escapement goal recommendations at the respective area meetings during the 2015–2016 cycle.

This memo signifies approval and acceptance of these recommendations as ADF&G established salmon escapement goals.

cc: Hasbrouck, Templin, Fleishman, Munro, Bowers, Olson, Taube, Linderman, Lingnau, Roach, Sagalkin, Vania, Conitz, Erickson, Evenson, Howard, McKinley, Schaberg