Fishery Manuscript Series No. 16-04

Summary of Pacific Salmon Escapement Goals in Alaska with a Review of Escapements from 2007 to 2015

by

Andrew R. Munro

and

Eric C. Volk

June 2016

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

Symbols and Abbreviations

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

Weights and measures (metric)

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

Weights and measures (English)

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

Time and temperature

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

Physics and chemistry

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

General

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

Mathematics, statistics

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

FISHERY MANUSCRIPT SERIES NO. 16-04

SUMMARY OF PACIFIC SALMON ESCAPEMENT GOALS IN ALASKA WITH A REVIEW OF ESCAPEMENTS FROM 2007 TO 2015

by
Andrew R. Munro
and
Eric C. Volk
Alaska Department of Fish and Game, Division of Commercial Fisheries, Anchorage

Alaska Department of Fish and Game
Division of Sport Fish, Research and Technical Services
333 Raspberry Road, Anchorage, Alaska, 99518-1565

June 2016

The Fishery Manuscript Series was established in 1987 by the Division of Sport Fish for the publication of technically-oriented results of several years' work undertaken on a project to address common objectives, provide an overview of work undertaken through multiple projects to address specific research or management goal(s), or new and/or highly technical methods, and became a joint divisional series in 2004 with the Division of Commercial Fisheries. Fishery Manuscripts are intended for fishery and other technical professionals. Fishery Manuscripts are available through the Alaska State Library and on the Internet: http://www.adfg.alaska.gov/sf/publications/ This publication has undergone editorial and peer review.

Andrew R. Munro
Alaska Department of Fish and Game, Division of Commercial Fisheries,
333 Raspberry Road, Anchorage, Alaska 99518, USA

and

Eric C. Volk
Alaska Department of Fish and Game, Division of Commercial Fisheries,
333 Raspberry Road, Anchorage, Alaska 99518, USA

This document should be cited as follows:
Munro, A. R., and E. C. Volk. 2016. Summary of Pacific salmon escapement goals in Alaska with a review of escapements from 2007 to 2015. Alaska Department of Fish and Game, Fishery Manuscript Series No. 16-04, Anchorage.

The Alaska Department of Fish and Game (ADF&G) administers all programs and activities free from discrimination based on race, color, national origin, age, sex, religion, marital status, pregnancy, parenthood, or disability. The department administers all programs and activities in compliance with Title VI of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, Title II of the Americans with Disabilities Act (ADA) of 1990, the Age Discrimination Act of 1975, and Title IX of the Education Amendments of 1972.

If you believe you have been discriminated against in any program, activity, or facility please write:
ADF&G ADA Coordinator, P.O. Box 115526, Juneau, AK 99811-5526
U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, MS 2042, Arlington, VA 22203
Office of Equal Opportunity, U.S. Department of the Interior, 1849 C Street NW MS 5230, Washington DC 20240

The department's ADA Coordinator can be reached via phone at the following numbers:
(VOICE) 907-465-6077, (Statewide Telecommunication Device for the Deaf) 1-800-478-3648,
(Juneau TDD) 907-465-3646, or (FAX) 907-465-6078

For information on alternative formats and questions on this publication, please contact:
ADF&G Division of Sport Fish, Research and Technical Services, 333 Raspberry Road, Anchorage AK 99518 (907) 267-2375

TABLE OF CONTENTS

Page

LIST OF TABLES ii
LIST OF FIGURES iii
LIST OF APPENDICES iii
ABSTRACT 1
INTRODUCTION 1
METHODS 2
Methods of Escapement Goal Development 2
RESULTS AND DISCUSSION 3
ACKNOWLEDGEMENTS 5
REFERENCES CITED 6
TABLES 15
FIGURES 67
APPENDIX A. ESCAPEMENT GOAL MEMO FOR 2014/15 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, 2004 to 2012. 16
2. Central Region Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2004 to 2012. 16
3. Arctic-Yukon-Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2004 to 2012. 19
4. Westward Region Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2004 to 2012. 29
5. 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. 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 Central Region 34
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 Arctic-Yukon-Kuskokwim Region. 39
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 Westward Region. 42
9. Southeast Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2004 to 2012. 45
10. Central Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2004 to 2012 46
11. Arctic-Yukon-Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2004 to 2012. 47
12. Westward Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2004 to 2012. 49
13. Summary of Southeast Region salmon escapements compared against escapement goals for the years 2004 to 2012. 50
14. Summary of Central Region salmon escapements compared against escapement goals for the years 2004 to 2012. 50
15. Summary of Arctic-Yukon-Kuskokwim Region salmon escapements compared against escapement goals for the years 2004 to 2012 51
16. Summary of Westward Region salmon escapements compared against escapement goals for the years 2004 to 2012. 51
17. Statewide summary of salmon stocks of concern in Alaska. 52
18. Methods used to enumerate and develop escapement goals for Southeast Region Chinook, chum, coho, pink, and sockeye salmon stocks. 53
19. Methods used to enumerate and develop escapement goals for Central Region Chinook, chum, coho, pink, and sockeye salmon stocks. 55
20. Methods used to enumerate and develop escapement goals for Arctic-Yukon-Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon stocks. 60
21. Methods used to enumerate and develop escapement goals for Westward Region Chinook, chum, coho, pink, and sockeye salmon stocks. 64

LIST OF FIGURES

Figure **Page**

1. Statewide summary of the 300 escapement goals in effect during the 2012 spawning season for the 4 Division of Commercial Fisheries regions and by species.. 68
2. Proportion of escapement goal types by species for the 49 escapement goals in Southeast Region 69
3. Proportion of escapement goal types by species for the 120 escapement goals in Central Region 69
4. Proportion of escapement goal types by species for the 72 escapement goals in Arctic-Yukon-Kuskokwim Region 70
5. Proportion of escapement goal types by species for the 59 escapement goals in Westward Region 70
6. Southeast Region salmon escapements compared against escapement goals for the years 2004 to 2012..... 71
7. Central Region salmon escapements compared against escapement goals for the years 2004 to 2012..... 71
8. Arctic-Yukon-Kuskokwim Region salmon escapements compared against escapement goals for the years 2004 to 2012. 72
9. Westward Region salmon escapements compared against escapement goals for the years 2004 to 2012. ... 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 2004 to 2012. 73

LIST OF APPENDICES

Appendix **Page**

A. ESCAPEMENT GOAL MEMO FOR 2014/2015 BOARD OF FISHERIES MEETING CYCLE 75

ABSTRACT

This report summarizes statewide Pacific salmon escapement goals in effect in 2015 and documents escapements for all species and stocks with goals from 2007 through 2015. 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.

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 295 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 goals; notify the public when goals are established or modified; and notify the BOF of allocative implications associated with escapement goals. The foundation for this effort is regional or area escapement goal review teams assembled every 3 years to review goals, recommend changes, establish new goals, or eliminate goals. The teams encompass broad expertise in biological characteristics of salmon stocks and technical approaches for establishing goals. Scientific staff from headquarters may assist regional teams and 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.

While development of regional escapement goals are 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 for which goals exist, a numerical description of the goal, type of goal, year the current goal was first implemented, and recent years' escapement data for each stock. In addition, summary statistics documenting performance in achieving goals is presented, including a statewide summary of stocks with yield or management concerns, as recommended by the ADF&G and established by the BOF. Data presented in this document is the most recently available at the time of publication and supersedes 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 2007 through 2015 for each stock with an established escapement goal. The escapement goals listed are those in effect during the 2015 spawning season including escapement goals that were established or updated during the 2014/2015 BOF meeting cycle (Appendix A).

Escapements from 2007 through 2015 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 2007 and 2015 for a stock, we assessed outcomes by comparing escapement estimates with the goal 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.

METHODS OF ESCAPEMENT GOAL DEVELOPMENT

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) originally developed by Bue and Hasbrouck[1] 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, 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 relationship with 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 whether, 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 2007 to 2015 are presented by region and species in Tables 1–4. Although most information was available through regional escapement goal reports, 2015 data were primarily

obtained directly from area and regional biologists. Data for 2015 are often preliminary estimates because complete data regarding subsistence and sport harvests are often not available immediately following the season.

During the 2014/2015 BOF meeting cycle, Southeast Alaska and Prince William Sound management areas reviewed their escapement goals (Heinl et al. 2014a, Moffitt et al. 2014). Escapement goal changes for Southeast Alaska included changing the lower-bound SEGs for Southern Southeast and Northern Southeast Outside summer chum salmon goals, changing the upper bound of the Chilkat River fall chum salmon goal, eliminating the Lost River coho salmon escapement goal and replacing it with a goal for Tawah Creek (a tributary of the Lost River), and revising the Speel Lake sockeye salmon goal. In 2015, the Taku River coho salmon goal was also changed from a management target to a biological escapement goal (BEG) under the Pacific Salmon Treaty (TCC 2015). There were no changes to escapement goals in the Prince William Sound Management Area. In addition, the upper ends of several sockeye salmon escapement goals in Bristol Bay were raised in 2015 (Erickson et al. 2015).

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 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 comprise 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 immediately apparent from our summary. There are many reasons that 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 5–8, highlighting whether the goal was exceeded, met, or not met. Numerous footnotes in Tables 1–8 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 9–12) and region (Tables 13–16; Figures 6–9). Patterns in achieving minimum escapement goals from year to year have varied within each region (Tables 13–16; Figures 6–9). However, 2015 showed an overall increase for all regions with respect to 2014 and the previous 5-year average. Statewide, the percentage of escapement goals within the goal range (or above the lower bound if a lower-

bound SEG) has been between 48% and 59% since 2007 (Figure 10a). In recent years (2007–2014) the percentage of goals not achieved averaged 25%. In 2015, however, the percentage of goals not achieved decreased to 12% (Figure 10b). The percentage of goals exceeded averaged 22% between 2007 and 2014 and increased to 40% in 2015 (Figure 10c). Because meeting escapement goals is fundamental to ADF&G efforts to manage for sustainable salmon stock productivity, it is important to document outcomes for meeting these goals. 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 2015 there were 14 stocks of concern in the state with no changes from the previous 2 years (Table 17).

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 18–21.

ACKNOWLEDGEMENTS

The authors thank the many staff members from the divisions of Commercial Fisheries and Sport Fish who assisted with providing updates to the escapement numbers and for reviewing earlier drafts of the tables for accuracy and completeness. From Southeast Region we thank Steve Heinl. From Central Region we thank Jack Erickson, Steve Moffitt, Ted Otis, and Tim McKinley. From Arctic–Yukon–Kuskokwim Region we thank Jan Conitz, Katie Howard, and Matt Evenson, and from Westward Region we thank Kevin Schaberg, Donn Tracy, and Tyler Polum. Thank you also to Rich Brenner for reviewing a draft of this report.

REFERENCES CITED

ADF&G (Alaska Department of Fish and Game). 2004. Escapement goal review of select AYK Region salmon stocks. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A04-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.3A.2004.01.pdf

Baker, T. T., L. F. Fair, R. A. Clark, and J. J. Hasbrouck. 2006. Review of salmon escapement goals in Bristol Bay, Alaska, 2006. Alaska Department of Fish and Game, Fishery Manuscript Series No. 06-05, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms06-05.pdf

Baker, T. T., L. F. Fair, F. W. West, G. B. Buck, X. Zhang, S. Fleischman, and J. Erickson. 2009. Review of salmon escapement goals in Bristol Bay, Alaska, 2009. Alaska Department of Fish and Game, Fishery Manuscript Series No. 09-05, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/FMS09-05.pdf

Bernard, D. R., J. J. Hasbrouck, B. G. Bue, and R. A. Clark. 2009. Estimating risk of management error from precautionary reference points (PRPs) for non-targeted salmon stocks. Alaska Department of Fish and Game, Special Publication No. 09-09, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/SP09-09.pdf

Bernard, D. R., and E. L. Jones III. 2010. Optimum escapement goals for Chinook salmon in the transboundary Alsek River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-02, Anchorage.

Bernard, D. R., S. A. McPherson, K. A. Pahlke, and P. Etherton. 2000. Optimal production of Chinook salmon from the Stikine River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 00-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms00-01.pdf

Bradford, M. J., R. A. Myers, and J. R. Irvine. 2000. Reference points for coho salmon (*Oncorhynchus kisutch*) harvest rates and escapement goals based on freshwater production. Canadian Journal of Fisheries and Aquatic Sciences 57:677–686.

Bradford, M. J., G. C. Taylor, and J. A. Allan. 1997. Empirical review of coho salmon smolt abundance and the prediction of smolt production at the region level. Transactions of the American Fisheries Society 126:49–64.

Brannian, L. K., M. J. Evenson, and J. R. Hilsinger. 2006. Escapement goal recommendations for select Arctic-Yukon-Kuskokwim region salmon stocks, 2007. Alaska Department of Fish and Game, Fishery Manuscript Series No. 06-07, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms06-07.pdf

Bue, B. G., J. J. Hasbrouck, and M. J. Evenson. 2002. Escapement goal review of Copper River and Bering Rivers, and Prince William Sound Pacific salmon stocks. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A02-35, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.2A.2002.35.PDF

Bue, B. G., K. L. Schaberg, Z. W. Liller and D. B. Molyneaux. 2012. Estimates of the historic run and escapement for the Chinook salmon stock returning to the Kuskokwim River, 1976-2011. Alaska Department of Fish and Game, Fishery Data Series No. 12-49, Anchorage.

Burgner, R. L., C. J. D. Costanzo, R. J. Ellis, G. Y. Harry, Jr., W. L. Hartman, O. E. Kerns, Jr., O. A. Mathison, and W. F. Royce. 1969. Biological studies and estimates of optimum escapements of sockeye salmon in the major river systems of Southwestern Alaska. Fishery Bulletin 67:405–459.

Carlson, S. R., K. E. Tarbox, and B. G. Bue. 1999. The Kenai sockeye salmon simulation model: A tool for evaluating escapement and harvest levels. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A99-08, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.2A.1999.08.pdf

Clark, J. E., J. H. Clark, and L. D. Shaul. 1994. Escapement goals for coho salmon stocks returning to Berners River, Auke Creek, Ford Arm Lake, and Hugh Smith Lake in Southeast Alaska. Alaska Department of Fish and Game, Division of Commercial Fisheries Management and Development, Regional Information Report 1J94-26, Douglas. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.1J.1994.26.pdf

Clark, J. H. 2001a. Biological escapement goals for chum salmon in Subdistrict One of Norton Sound. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A01-09, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.3A.2001.09.pdf

REFERENCES CITED (Continued)

Clark, J. H. 2001b. Biological escapement goals for Kwiniuk and Tubutulik chum salmon. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A01-08, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.3A.2001.08.pdf

Clark, J. H., and J. E. Clark. 1994. Escapement goals for Yakutat area coho salmon stocks. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J94-14, Douglas. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.1J.1994.14.pdf

Clark, J. H., D. M. Eggers, and J. A. Edmundson. 2007. Escapement goal review for Kenai River late-run sockeye salmon: Report to the Alaska Board of Fisheries, January 2005. Alaska Department of Fish and Game, Special Publication No. 07-12, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp07-12.pdf

Clark, J. H., S. A. McPherson, and D. M. Gaudet. 1998. Biological escapement goal for Andrew Creek Chinook salmon. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 5J98-08, Juneau. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.5J.1998.08.pdf

Clark, J. H., S. A. McPherson, and G. F. Woods. 2002. Biological escapement goal for sockeye salmon in the Situk River, Yakutat, Alaska. Alaska Department of Fish and Game, Special Publication No. 02-03, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp02-03.pdf

Clark, J. H., G. F. Woods, and S. Fleischman. 2003. Revised biological escapement goal for the sockeye salmon stock returning to the East Alsek-Doame river system of Yakutat, Alaska. Alaska Department of Fish and Game, Special Publication Series No. 03-04, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp03-04.pdf

Clark, R. A. 2005. Stock status and recommended escapement goals for coho salmon in selected waters along the Juneau road system, 1981-2004. Alaska Department of Fish and Game, Special Publication No. 05-21, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp05-21.pdf

Clark, R. A., D. M. Eggers, A. R. Munro, S. J. Fleischman, B. G. Bue, and J. J. Hasbrouck. 2014. An evaluation of the percentile approach for establishing Sustainable Escapement Goals in lieu of stock productivity information. Alaska Department of Fish and Game, Fishery Manuscript Series No. 14-06, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS14-06.pdf

Der Hovanisian, J. 2013. Escapement goal for Klawock River coho salmon. Alaska Department of Fish and Game, Fishery Manuscript Series No. 13-09, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS13-09.pdf

Der Hovanisian, J. A., and H. J. Geiger. 2005. Stock status and escapement goals for salmon stocks in Southeast Alaska 2005. Alaska Department of Fish and Game, Special Publication No. 05-22, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp05-22.pdf

Eggers, D. M. 2001. Biological escapement goals for Yukon River Fall chum salmon. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A01-10, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.3A.2001.10.pdf

Eggers, D. M., R. L. Bachman, and J. Stahl. 2010. Stock status and escapement goals for Chilkat Lake sockeye salmon in Southeast Alaska. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-05, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/Fms10-05.pdf

Eggers, D. M., and D. R. Bernard. 2011. Run reconstruction and escapement goals for Alsek River sockeye salmon. Alaska Department of Fish and Game, Fishery Manuscript Series No. 11-01 Anchorage.

Eggers, D. M., and J. H. Clark. 2006. Assessment of historical runs and escapement goals for Kotzebue area chum salmon. Alaska Department of Fish and Game, Fishery Manuscript Series No. 06-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms06-01.pdf

Eggers, D. M., J. H. Clark, R. L. Bachman, and S. C. Heinl. 2008. Sockeye salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 08-17, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp08-17.pdf

REFERENCES CITED (Continued)

Eggers, D. M., and S. C. Heinl. 2008. Chum salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 08-19, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/sp08-19.pdf

Eggers, D. M., S. C. Heinl, and A. W. Piston. 2009a. McDonald Lake sockeye salmon stock status and escapement goal recommendations, 2008. Alaska Department of Fish and Game, Fishery Data Series No. 09-31, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/FDS09-31.pdf

Eggers, D. M., X. Zhang, R. L. Bachman, and M. M. Sogge. 2009b. Sockeye salmon stock status and escapement goals for Chilkoot Lake in Southeast Alaska. Alaska Department of Fish and Game, Fishery Data Series No. 09-63, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/FDS09-63.pdf

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. http://www.adfg.alaska.gov/FedAidPDFs/FMS15-06.pdf

Ericksen, R. P., and S. J. Fleischman. 2006. Optimal production of coho salmon from the Chilkat River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 06-06, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms06-06.pdf

Ericksen, R. P., and S. A. McPherson. 2004. Optimal production of Chinook salmon from the Chilkat River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 04-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms04-01.pdf

Evenson, M. J. 2002. Optimal production of Chinook salmon from the Chena and Salcha rivers. Alaska Department of Fish and Game, Fishery Manuscript Series No. 02-1, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms02-01.pdf

Evenson, M. J., J. J. Hasbrouck, S. D. Moffitt, and L. Fair. 2008. Escapement goal review for Copper River, Bering River, and Prince William Sound salmon stocks. Alaska Department of Fish and Game, Fishery Manuscript Series No. 08-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/fms08-01.pdf

Fair, L. F., B. G. Bue, R. A. Clark, and J. J. Hasbrouck. 2004. Spawning escapement goal review of Bristol Bay salmon stocks. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A04-17, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.2A.2004.17.pdf

Fair, L. F., C. E. Brazil, X. Zhang, R. A. Clark, and J. W. Erickson. 2012. Review of salmon escapement goals in Bristol Bay, Alaska, 2012. Alaska Department of Fish and Game, Fishery Manuscript Series No. 12-04, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS12-04.pdf

Fair, L. F., R. A. Clark, and J. J. Hasbrouck. 2007. Review of salmon escapement goals in Upper Cook Inlet, Alaska, 2007. Alaska Department of Fish and Game, Fishery Manuscript Series No. 07-06, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms07-06.pdf

Fair, L. F., S. D. Moffitt, M. J. Evenson, and J. Erickson. 2008. Escapement goal review of Copper and Bering rivers, and Prince William Sound Pacific salmon stocks, 2008. Alaska Department of Fish and Game, Fishery Manuscript Series No. 08–02, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms08-02.pdf

Fair, L. F., S. D. Moffitt, M. J. Evenson, and J. W. Erickson. 2011. Escapement goal review of Copper and Bering rivers, and Prince William Sound Pacific salmon stocks, 2011. Alaska Department of Fish and Game, Fishery Manuscript Series No. 11–07, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS11-07.pdf

Fair, L. F., T. M. Willette, and J. Erickson. 2009. Escapement goal review for Susitna River sockeye salmon, 2009. Alaska Department of Fish and Game, Fishery Manuscript Series No. 09-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms09-01.pdf

Fair, L. F., T. M. Willette, and J. W. Erickson. 2013. Review of salmon escapement goals in Upper Cook Inlet, Alaska, 2013. Alaska Department of Fish and Game, Fishery Manuscript Series No. 13-13, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS13-13.pdf

REFERENCES CITED (Continued)

Fair, L. F., T. M. Willette, J. W. Erickson, R. J. Yanusz, and T. R. McKinley. 2010. Review of salmon escapement goals in Upper Cook Inlet, Alaska, 2011. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-06, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMS10-06.pdf

Fleischman, S. J., and B. M. Borba. 2009. Escapement estimation, spawner-recruit analysis, and escapement goal recommendation for fall chum salmon in the Yukon River drainage. Alaska Department of Fish and Game, Fishery Manuscript Series No. 09-08, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMS09-08.pdf

Fleischman, S. J., and D. Evenson. 2010. Run reconstruction, spawner-recruit analysis, and escapement goal recommendation for summer chum salmon in the East Fork of the Andreafsky River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-04, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMS10-04.pdf

Fleischman, S. J., J. A. Der Hovanisian, and S. A. McPherson. 2011. Escapement goals for Chinook salmon in the Blossom and Keta rivers. Alaska Department of Fish and Game, Fishery Manuscript Series No. 11-05, Anchorage. http://www.adfg.alaska.gov/FedAidpdfs/FMS11-05.pdf

Fleischman, S. J., and T. R. McKinley. 2013. Run reconstruction, spawner–recruit analysis, and escapement goal recommendation for late-run Chinook salmon in the Kenai River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 13-02, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS13-02.pdf

Geiger, H. J. 2003. Sockeye salmon stock status and escapement goal for Redoubt Lake in Southeast Alaska. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J03-01, Juneau. http://www.sf.adfg.state.ak.us/FedAidPDfs/RIR.1J.2003.01.pdf

Geiger, H. J., T. P. Zadina, and S. C. Heinl. 2003. Sockeye salmon stock status and escapement goal for Hugh Smith Lake in Southeast Alaska. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J03-05, Juneau. http://www.sf.adfg.state.ak.us/FedAidPDfs/RIR.1J.2003.05.pdf

Hamazaki, T., M. J. Evenson, S. J. Fleischman, and K. L. Schaberg. 2012. Spawner-recruit analysis and escapement goal recommendation for Chinook salmon in the Kuskokwim River Drainage. Alaska Department of Fish and Game, Fishery Manuscript Series No. 12-08, Anchorage.

Hasbrouck, J. J., and J. A. Edmundson. 2007. Escapement goals for salmon stocks in Upper Cook Inlet, Alaska: report to the Alaska Board of Fisheries, January 2005. Alaska Department of Fish and Game, Special Publication No. 07-10, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp07-10.pdf

Heinl, S. C., D. M. Eggers, and A. W. Piston. 2008. Pink salmon stock status and escapement goals in Southeast Alaska and Yakutat. Alaska Department of Fish and Game, Special Publication No. 08-16, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp08-16.pdf

Heinl, S. C., E. L. Jones III, A. W. Piston, P. J. Richards, and L. D. Shaul. 2014a. Review of salmon escapement goals in Southeast Alaska, 2014. Alaska Department of Fish and Game, Fishery Manuscript Series No. 14-07, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS14-07.pdf

Heinl, S. C., S. Miller, and J. A. Bednarski. 2014b. Speel Lake sockeye salmon stock status and escapement goal review. Alaska Department of Fish and Game, Fishery Manuscript Series No. 14-04, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS14-04.pdf

Hendrich, C. F., J. L. Weller, S. A. McPherson, and D. R. Bernard. 2008. Optimal production of Chinook salmon from the Unuk River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 08-03, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms08-03.pdf

Hilborn, R., and C. J. Walters. 1992. Quantitative fisheries stock assessment: Choice, dynamics and uncertainty. Chapman and Hall, New York.

Honnold, S. G., J. A. Edmundson, and S. Schrof. 1996. Limnological and fishery assessment of 23 Alaska Peninsula and Aleutian area lakes, 1993–1995: An evaluation of potential sockeye and coho salmon production. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division, Regional Information Report 4K96-52, Kodiak. http://www.sf.adfg.state.ak.us/FedAidPDFs/rir.4k.1996.52.pdf

REFERENCES CITED (Continued)

Honnold, S. G., M. J. Witteveen, M. B. Foster, I. Vining, and J. J. Hasbrouck. 2007a. Review of escapement goals for salmon stocks in the Kodiak Management Area, Alaska. Alaska Department of Fish and Game, Fishery Manuscript Series No. 07-10, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/fms07-10.pdf

Honnold, S. G., M. J. Witteveen, I. Vining, H. Finkle, M. B. Foster, and J. J. Hasbrouck. 2007b. Review of salmon escapement goals in the Alaska Peninsula Aleutian Islands Management Areas, 2006. Alaska Department of Fish and Game, Fishery Manuscript Series No. 07-02, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms07-02.pdf

Humphreys, R. D., S. M. McKinnel, D. Welch, M. Stocker, B. Turris, F. Dickson, and D. Ware, editors. 1994. Pacific Stock Assessment Review Committee (PSARC) Annual Report for 1993. Canadian Manuscript, Report of Fisheries and Aquatic Sciences, Number 2227.

JTC (Joint Technical Committee of the Yukon River US/Canada Panel). 2008. Yukon River salmon 2007 season summary and 2008 season outlook. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A08-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDfs/RIR.3A.2008.01.pdf

JTC (Joint Technical Committee of the Yukon River US/Canada Panel). 2010. Yukon River salmon 2009 season summary and 2010 season outlook. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A10-01, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.3A.2010.01

JTC (Joint Technical Committee of the Yukon River US/Canada Panel). 2013. Yukon River salmon 2012 season summary and 2013 season outlook. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A13-02, Anchorage.

JTC (Joint Technical Committee of the Yukon River US/Canada Panel). 2015. Yukon River salmon 2014 season summary and 2015 season outlook. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 3A15-01, Anchorage.

Koenings, J. P., and R. D. Burkett. 1987. Population characteristics of sockeye salmon (*Oncorhynchus nerka*) smolts relative to temperature regimes, euphotic volume, fry density, and forage base within Alaskan lakes. Pages 216–234 [*In*] H. D. Smith, L. Margolis, and C. C. Wood, editors. Sockeye salmon (*Oncorhynchus nerka*) population biology and future management. Canadian Journal of Fisheries and Aquatic Sciences Special Publication No. 96, Canada.

Koenings, J. P., and G. B. Kyle. 1997. Consequences to juvenile sockeye salmon and the zooplankton community resulting from intense predation. Alaska Fishery Research Bulletin 4(2):120–135.

McKinley, T. R., and S. J. Fleischman. 2013. Run reconstruction, spawner–recruit analysis, and escapement goal recommendation for early-run Chinook salmon in the Kenai River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 13-03, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS13-03.pdf

McPherson, S. A., and J. Carlile. 1997. Spawner-recruit analysis of Behm Canal Chinook salmon stocks. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J97-06, Juneau. http://www.sf.adfg.state.ak.us/FedAidpdfs/RIR.1J.1997.06.pdf

McPherson, S., and J. H. Clark. 2001. Biologcial escapement goal for King Salmon River Chinook salmon. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 1J01-40, Juneau.

McPherson, S. A., R. E. Johnson, and G. F. Woods. 2005. Optimal production of Chinook salmon from the Situk River. Alaska Department of Fish and Game, Fishery Manuscript Series No. 05-04, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/Fms05-04.pdf

McPherson, S. A., E. L. Jones III, S. J. Fleischman, and I. M. Boyce. 2010. Optimal production of Chinook salmon from the Taku River through the 2001 year class. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-03, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/Fms10-03.pdf

REFERENCES CITED (Continued)

Moffitt, S. D., R. E. Brenner, J. W. Erickson, M. J. Evenson, R. A. Clark, and T. R. McKinley. 2014. Escapement goal review of Copper and Bering rivers, and Prince William Sound Pacific salmon stocks, 2014. Alaska Department of Fish and Game, Fishery Manuscript Series No. 14-05, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS14-05.pdf

Molyneaux, D. B., and L. K. Brannian. 2006. Review of escapement and abundance information for Kuskokwim area salmon stocks. Alaska Department of Fish and Game, Fishery Manuscript Series No. 06-08, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/fms06-08.pdf

Nelson, P. A., J. J. Hasbrouck, M. J. Witteveen, K. A. Bouwens, and I. Vining. 2006. Review of salmon escapement goals in the Alaska Peninsula and Aleutian Islands Management Areas. Report to the Alaska Board of Fisheries, 2004. Alaska Department of Fish and Game, Fishery Manuscript Series No. 06-03, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms06-03.pdf

Nelson, P. A., and D. S. Lloyd. 2001. Escapement goals for Pacific salmon in the Kodiak, Chignik, and Alaska Peninsula/Aleutian Islands Areas of Alaska. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 4K01-66, Kodiak. http://www.adfg.alaska.gov/FedAidPDFs/RIR.4K.2001.66.pdf

Nelson, P. A., M. J. Witteveen, S. G. Honnold, I. Vining, and J. J. Hasbrouck. 2005. Review of salmon escapement goals in the Kodiak Management Area. Alaska Department of Fish and Game, Fishery Manuscript Series No. 05-05, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms05-05.pdf

Nemeth, M. J., M. J. Witteveen, M. B. Foster, H. Finkle, J. W. Erickson, J. S. Schmidt, S. J. Fleischman, and D. Tracy. 2010. Review of escapement goals in 2010 for salmon stocks in the Kodiak Management Area, Alaska. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-09, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMS10-09.pdf

Otis, E. O., L. F. Fair, and J. W. Erickson. 2013. A review of escapement goals for salmon stocks in Lower Cook Inlet, Alaska, 2013. Alaska Department of Fish and Game, Fishery Manuscript Series No. 13-08, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS13-08.pdf

Otis, E. O., and N. J. Szarzi. 2007. A review of escapement goals for salmon stocks in Lower Cook Inlet, Alaska, 2007. Alaska Department of Fish and Game, Fishery Manuscript Series No. 07-04, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/fms07-04.pdf

Otis, E. O., N. J. Szarzi, L. F. Fair, and J. W. Erickson. 2010. A review of escapement goals for salmon stocks in Lower Cook Inlet, Alaska, 2010. Alaska Department of Fish and Game, Fishery Manuscript Series No. 10-07, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/Fms10-07.pdf

Otis, T. 2001. Report to the Alaska Board of Fisheries on sustainable escapement goals for chum, pink, and sockeye salmon in lower Cook Inlet. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A01-21, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/RIR.2A.2001.21.pdf

Parken, C., R. E. McNicol, and J. R. Irvine. 2004. Habitat-based methods to estimate escapement goals for Chinook salmon stocks in British Columbia. PSARC Working Papers, British Columbia, Canada.

Pestal, G., and S. Johnston. 2015. Estimates of a biologically-based spawning goal and biological benchmarks for the Canadian-Origin Taku River coho stock aggregate. Fisheries and oceans Canada, Canadian Science Advisory Secretariat 2015/048. http://www.dfo-mpo.gc.ca/csas-sccs/publications/resdocs-docrech/2015/2015_048-eng.pdf

Piston, A. W., and S. C. Heinl. 2011a. Chum salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 11-21 Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/SP11-21.pdf

Piston, A. W., and S. C. Heinl. 2011b. Pink salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 11-18, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/SP11-18.pdf

REFERENCES CITED (Continued)

Piston, A. W., and S. C. Heinl. 2014. Chum salmon stock status and escapement goals in Southeast Alaska. Alaska Department of Fish and Game, Special Publication No. 14-13. http://www.adfg.alaska.gov/FedAidPDFs/SP14-13.pdf

Ricker, W. E. 1954. Stock and recruitment. Journal of Fisheries and Research Board of Canada 11:559–623.

Sagalkin, N. H., B. Foster, M. B. Loewen, and J. W. Erickson. 2013a. Review of salmon escapement goals in the Kodiak Management Area, 2013. Alaska Department of Fish and Game, Fishery Manuscript Series No. 13-11, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FMS13-11.pdf

Sagalkin, N. H., A. St. Saviour, J. W. Erickson, and H. Finkle. 2013b. Review of salmon escapement goals in the Chignik Management Area, 2013. Alaska Department of Fish and Game, Fishery Manuscript Series No. 13-06, Anchorage.

Savereide, J. W. 2001. An age structured model for assessment and management of Copper River Chinook salmon. Masters thesis, University of Alaska Fairbanks.

Schmidt, J., T. Polum, and D. Evans. 2014. Stock assessment of Buskin River coho salmon, 2008-2010. Alaska Department of Fish and Game, Fishery Data Series No. 14-41, Anchorage. http://www.adfg.alaska.gov/FedAidPDFs/FDS14-41.pdf

Shaul, L. D., K. F. Crabtree, M. Kemp, and N. Olmsted. 2009. Coho salmon studies at Hugh Smith Lake, 1982–2007. Alaska Department of Fish and Game, Fishery Manuscript Series No. 09-04, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/FMS09-04.pdf

Shaul, L. D., and T. A. Tydingco. 2006. Escapement goals for coho salmon counted in aggregate surveys in the Ketchikan and Sitka areas. Alaska Department of Fish and Game, Special Publication No. 06-11, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/sp06-11.pdf

Szarzi, N. J., S. J. Fleischman, R. A. Clark, and C. M. Kerkvliet. 2007. Stock status and recommended escapement goal for Anchor River Chinook salmon. Alaska Department of Fish and Game, Fishery Manuscript Series No. 07-05, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/fms07-05

TTC (Transboundary Technical Committee). 1986. Report of the Canada/United States Transboundary Technical Committee, Final Report. TCTR (86).

TTC (Transboundary Technical Committee). 1987. Stikine River sockeye salmon management plan, 1987. Pacific Salmon Commission Report TCTR (87)-1, Vancouver.

TTC (Transboundary Technical Committee). 1990. Long-term research plans for the transboundary rivers. Pacific Salmon Commission Report TCTR (90)-3.

TTC (Transboundary Technical Committee). 1993. Salmon management and enhancement plans for the Stikine, Taku, and Alsek rivers, 1993. Pacific Salmon Commission Report TCTR (93)-2, Vancouver.

TTC (Transboundary Technical Committee). 2014. Salmon management and enhancement plans for the Stikine, Taku and Alsek rivers, 2013. Pacific Salmon Commission Report TCTR 14-1. http://www.psc.org/pubs/TCTR14-1.pdf

TTC (Transboundary Technical Committee). 2015. Salmon management and enhancement plans for the Stikine, Taku and Alsek rivers, 2015. http://www.psc.org/pubs/TCTR15-1.pdf

Volk, E., M. J. Evenson, and R. A. Clark. 2009. Escapement goal recommendations for select Arctic-Yukon-Kuskokwim Region salmon stocks, 2010. Alaska Department of Fish and Game, Fishery Manuscript Series No. 09-07, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMS09-07.pdf

Witteveen, M. J., H. Finkle, J. J. Hasbrouck, and I. Vining. 2007. Review of salmon escapement goals in the Chignik Management Area, 2007. Alaska Department of Fish and Game, Fishery Manuscript Series No. 07-09, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/fms07-09.pdf

REFERENCES CITED (Continued)

Witteveen, M. J., H. Finkle, M. Loewen, M. B. Foster, and J. W. Erickson. 2009. Review of salmon escapement goals in the Alaska Peninsula and Aleutian Islands Management Areas; a report to the Alaska Board of Fisheries, 2010. Alaska Department of Fish and Game, Fishery Manuscript Series No. 09-09, Anchorage. http://www.sf.adfg.state.ak.us/FedAidpdfs/FMS09-09.pdf

Witteveen, M. J., H. Finkle, P. A. Nelson, J. J. Hasbrouck, and I. Vining. 2005. Review of salmon escapement goals in the Chignik Management Area. Alaska Department of Fish and Game, Fishery Manuscript Series No. 05-06, Anchorage. http://www.sf.adfg.state.ak.us/FedAidPDFs/fms05-06.pdf

TABLES

Table 1.–Southeast Region Chinook, chum, coho, pink, and sockeye salmon escapement goals and escapements, 2007 to 2015.

	2015 Goal Range			Initial	Escapement								
System	Lower	Upper	Type	Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
CHINOOK SALMON[a]													
Blossom River	150	300	BEG	2012	135	257	123	363	147	205	255	171	166
Keta River	175	400	BEG	2012	311	363	219	475	223	241	493	439	304
Unuk River	1,800	3,800	BEG	2009	5,668	3,104	3,157	3,835[b]	3,195[b]	956[c]	1,135[c]	1,691[c]	2,623[b]
Chickamin River	450	900	BEG	1997	893	1,111	611	1,156	853	444	468	652	567
Andrew Creek	650	1,500	BEG	1998	1,736	981	628	1,205	936	587	920	1,261	796
Stikine River	14,000	28,000	BEG	2000	14,560	18,352	12,803	15,116	14,480[b]	22,327[b]	16,735[b]	24,366[b]	21,342[b]
King Salmon River	120	240	BEG	1997	181	120	109	158	192	155	94	68	50
Taku River	19,000	36,000	BEG	2009	14,749	26,645[b]	29,797[b]	28,769[b]	27,523[b]	19,538[b]	18,002[b]	23,532[b]	28,827[b]
Chilkat River	1,850	3,600	inriver[d]	2003	1,445	2,905	4,429	1,815	2,688	1,744[b]	1,730[b]	1,534[b]	2,453[b]
	1,750	3,500	BEG	2003									
Klukshu (Alsek) River	800	1,200	BEG	2013	676	466	1,518	2,259	1,610	693[b]	1,227[b]	832[b]	1,388[b]
Alsek River[e]	3,500	5,300	BEG	2013	2,827	1,885	6,239	9,526	6,850	3,027[b]	4,992[b]	3,425[b]	5,687[b]
Situk River	450	1,050	BEG	2003	677	413	902	166[f]	240	322	912	475	174
CHUM SALMON													
Southern Southeast Summer	62,000		LB SEG	2015	146,000	13,000	46,000	51,000	179,000	155,000	86,000	47,000	115,000
Northern Southeast Inside Summer	119,000		LB SEG	2012	149,000	99,000	107,000	77,000	125,000	177,000	278,000	93,000	166,000
Northern Southeast Outside Summer	25,000		LB SEG	2015	42,000	56,000	17,000	28,000	25,000	38,000	23,000	28,000	26,000
Cholmondeley Sound Fall	30,000	48,000	SEG	2009	18,000	49,500	39,000	76,000	93,000	54,000	13,000	48,000	73,000
Port Camden Fall	2,000	7,000	SEG	2009	505	1,400	1,711	5,400	1,800	3,750	2,000	4,000	7,000
Security Bay Fall	5,000	15,000	SEG	2009	5,400	11,700	5,100	6,500	5,100	9,800	3,000	6,000	22,000
Excursion River Fall	4,000	18,000	SEG	2009	6,000	8,000	1,400	6,100	3,000	2,000	8,000	11,000	12,000
Chilkat River Fall	75,000	250,000	SEG	2015	320,000	437,000	326,000	88,000	356,000	284,000	165,000	142,000	207,000
COHO SALMON													
Hugh Smith Lake	500	1,600	BEG	2009	1,244	1,741	2,281	2,878	2,137	1,908	3,048	4,110	956
Klawock River	4,000	9,000	SEG	2013[g]	7,426	6,210	5,415	9,707	5,572	7,507	8,323	7,698	12,780
Taku River	50,000	90,000	BEG	2015	74,246	95,226[b]	103,950[b]	126,830[b]	70,745[b]	70,897[b]	68,118[b]	124,171[b]	60,178[b]
Auke Creek	200	500	BEG	1994	352	600	360	417	517	837	736	1,533	577
Montana Creek	400	1,200	SEG	2006	324	405	698	630	709	394	367	911	1,204
Peterson Creek	100	250	SEG	2006	226	660	123	467	138	190	126	284	202
Ketchikan Survey Index	4,250	8,500	BEG	2006	4,316	16,752	8,710	4,563	5,098	11,960	11,295	16,675	9,750
Sitka Survey Index	400	800	BEG	2006	1,066	1,117	1,156	1,273	2,222	1,157	1,414	2,161	2,244
Ford Arm Lake	1,300	2,900	BEG	1994	2,567	5,173	2,181	1,610	1,908	2,282	1,573	3,025	3,281
Berners River	4,000	9,200	BEG	1994	3,915	6,870	4,230	7,520	6,050	5,480	6,280	15,480	9,940

-continued-

Table 1.–Page 2 of 3.

System	2015 Goal Range Lower	2015 Goal Range Upper	Type	Initial Year	Escapement 2007	2008	2009	2010	2011	2012	2013	2014	2015
Chilkat River	30,000	70,000	BEG	2006	24,770	56,369	47,911	84,909	61,099	36,961	51,324	130,200	47,342
Lost River	eliminated			2015	2,542	NA	3,581	2,393	1,221	2,200	2,593	3,555	
Tawah Creek (Lost River)	1,400	4,200	SEG	2015	1,751	NA	3,581	2,393	1,221	NA	2,593	3,555	2,015
Situk River	3,300	9,800	BEG	1994	5,763	NA	5,814	11,195	3,652	3,007	14,853	8,226	7,062
Tsiu/Tsivat Rivers	10,000	29,000	BEG	1994	14,000	25,200	28,000	11,000	21,000	10,500	47,000	27,000	19,500
PINK SALMON													
Southern Southeast	3,000,000	8,000,000	BEG	2009	10,590,000	6,290,000	7,200,000	5,940,000	5,500,000	6,470,000	14,450,000	9,650,000	4,300,000
Northern Southeast Inside	2,500,000	6,000,000	BEG	2009	4,740,000	1,470,000	3,650,000	3,210,000	6,030,000	2,110,000	5,400,000	1,380,000	5,250,000
Northern Southeast Outside	750,000	2,500,000	BEG	2009	2,310,000	1,730,000	1,820,000	2,010,000	2,730,000	2,470,000	5,340,000	2,750,000	2,840,000
Situk River (even-year)	eliminated			2012		1,232[h]		89,301[h]					
Situk River (odd-year)	eliminated			2012	229,033		62,787		169,908				
Situk River	33,000		LB SEG	2012						30,548	133,656	28,238	62,714
SOCKEYE SALMON													
Hugh Smith Lake	8,000	18,000	OEG[i]	2003	33,743	3,588	9,483	15,646	22,029	13,353	5,946	10,397	21,298
	8,000	18,000	BEG	2003									
McDonald Lake	55,000	120,000	SEG	2009	29,086	20,700	51,000	72,500	113,000	57,000	15,400	43,400	70,200
Mainstem Stikine River	20,000	40,000	SEG	1987	20,865	16,178[b]	17,148[b]	24,831[b]	29,393[b]	33,812[b]	27,091[b]	21,179[b]	39,000[b]
Tahltan Lake[j]	18,000	30,000	BEG	1993	20,874	10,416	30,324	22,702	34,248	13,463	15,828	39,745	33,159
Speel Lake	4,000	9,000	SEG	2015	3,099	1,763	3,689	5,640	4,777	5,681	6,426	5,059	4,888
Taku River	71,000	80,000	SEG	1986	87,763	68,059	71,837	88,367[b]	115,383[b]	126,764[b]	81,177[b]	92,189[b]	132,523[b]
Redoubt Lake	7,000	25,000	OEG	2003	66,938	10,064	12,569	17,156	22,720	40,944	49,124	19,936	13,983
	10,000	25,000	BEG	2003									
Chilkat Lake	70,000	150,000	BEG	2009	68,000	71,735	150,033	61,906	63,628	107,723	110,979	70,470	135,110
Chilkoot Lake	38,000	86,000	SEG	2009	72,678	33,117	33,705	71,657	65,915	118,166	46,140	105,713	71,515
East Alsek-Doame River	13,000	26,000	BEG	2003	40,100	8,000	12,000	19,500	27,300	21,500	26,500	15,300	15,000
Klukshu River	7,500	11,000	BEG	2013	8,310	2,741	5,528	18,546	20,728	17,176	3,792	12,148	11,363
Alsek River[k]	24,000	33,500	BEG	2013									
Lost River	1,000		LB SEG	2009	180	200	NA	1,525	1,006	453	587	NA	302
Situk River	30,000	70,000	BEG	2003	61,799	22,520	83,959	47,865[f]	89,943	62,500	118,635	102,318	93,858

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

[a] Goals are for large (≥660 mm from mid eye to tail fork [METF], 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 METF.

[b] Preliminary data.

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

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

-continued-

[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: [(Klukshu River weir count + sport harvest) × 4.0 – all Canadian inriver harvest].

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

[i] Hugh Smith Lake sockeye salmon OEG includes wild and hatchery fish.

[j] Tahltan sockeye salmon escapement count includes fish collected for broodstock.

[k] Alsek River sockeye salmon run is not regularly assessed, so escapement numbers 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, 2007 to 2015.

	2015 Goal Range			Initial	Escapement								
System	Lower	Upper	Type	Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
CHINOOK SALMON													
Bristol Bay													
Nushagak River	55,000	120,000	SEG	2013	50,960	91,364	74,781	56,088	102,258	167,618	107,602[a]	70,482[a]	98,019[a]
Togiak River	eliminated			2013	NS	NS	NS	NS	NS	NS			
Naknek River	5,000		LB SEG	2007	5,498	6,559	3,305[b]	NS	NS	NS	NS	NS	3,060
Alagnak River	2,700		LB SEG	2007	3,455	1,825	1,957	NS	NS	NS	NS	NS	917
Egegik River	eliminated			2013	458	162	350[c]	NS	NS	NS			
Upper Cook Inlet													
Alexander Creek	2,100	6,000	SEG	2002	480	150	275	177	343	181	588	911	1,117
Campbell Creek	380		LB SEG	2011	588	439	554	290	260	NS	NS	274	654
Chuitna River	1,200	2,900	SEG	2002	1,180	586	1,040	735	719	502	1,690	1,398	1,965
Chulitna River	1,800	5,100	SEG	2002	5,166	2,514	2,093	1,052	1,875	667	1,262	1,011	3,137
Clear (Chunilna) Creek	950	3,400	SEG	2002	3,310	1,795	1,205	903	512	1,177	1,471	1,390	1,205
Crooked Creek	650	1,700	SEG	2002	965	879	617	1,088	654	631	1,103	1,411	1,459
Deshka River	13,000	28,000	SEG	2011	18,714	7,533	11,967	18,594	19,026	14,010	18,531	16,335	24,316
Goose Creek	250	650	SEG	2002	105	117	65	76	80	57	62	232	NC
Kenai River - Early Run	5,300	9,000	OEG	2005	9,856	6,570	6,163	6,393	8,448	5,044	2,148	5,311	6,190
	3,800	8,500	SEG	2013									
Kenai River - Late Run	15,000	30,000	SEG	2013	36,950	32,290	21,390	16,210	19,680	27,710	15,395	16,263	22,626
Lake Creek	2,500	7,100	SEG	2002	4,081	2,004	1,394	1,617	2,563	2,366	3,655	3,506	4,686
Lewis River	250	800	SEG	2002	0[d]	120	111	56	92	107	61	61	5[e]
Little Susitna River	900	1,800	SEG	2002	1,731	1,297	1,028	589	887	1,154	1,651	1,759	1,507
Little Willow Creek	450	1,800	SEG	2002	1,103	NC	776	468	713	494	858	684	788
Montana Creek	1,100	3,100	SEG	2002	1,936	1,357	1,460	755	494	416	1,304	953	1,416
Peters Creek	1,000	2,600	SEG	2002	1,225	NC	1,283	NC	1,103	459	1,643	1,443	1,514
Prairie Creek	3,100	9,200	SEG	2002	5,036	3,039	3,500	3,022	2,038	1,185	3,304	2,812	3,290
Sheep Creek	600	1,200	SEG	2002	400	NC	500	NC	350	363	NC	262	NC
Talachulitna River	2,200	5,000	SEG	2002	3,871	2,964	2,608	1,499	1,368	847	2,285	2,256	2,582
Theodore River	500	1,700	SEG	2002	486	345	352	202	327	179	476	312	426
Willow Creek	1,600	2,800	SEG	2002	1,373	1,255	1,133	1,173	1,061	756	1,752	1,335	2,046
Lower Cook Inlet													
Anchor River	3,800	10,000	SEG	2011	9,622	5,806	3,455	4,449	3,545	4,509	4,388	2,497	10,046
Deep Creek	350	800	SEG	2002	553	205	483	387	696	447	475	601	535
Ninilchik River	550	1,300	SEG	2008	543	586	528	605	668	555	571	891	874
Prince William Sound													
Copper River	24,000		LB SEG	2003	34,575	32,487	27,787	16,771	27,994	27,835	29,012	20,710	NA[f]

-continued-

Table 2.–Page 2 of 6.

System	2015 Goal Range Lower	2015 Goal Range Upper	Type	Initial Year	Escapement 2007	2008	2009	2010	2011	2012	2013	2014	2015
CHUM SALMON													
Bristol Bay													
Nushagak River[g]	200,000		LB SEG	2013	161,483	326,300	438,481	273,914	248,278	360,768	602,300	493,821	NS
Upper Cook Inlet													
Clearwater Creek	3,800	8,400	SEG	2002	NS	4,630	8,300	13,700	11,630	5,300	9,010	3,110	10,790
Lower Cook Inlet													
Port Graham River	1,450	4,800	SEG	2002	1,882	1,802	1,029	1,395	1,764	699	1,944	3,735	4,030
Dogfish Lagoon	3,350	9,150	SEG	2002	4,919	6,200	4,380	12,703	12,936	8,842	9,300	11,205	13,312
Rocky River	1,200	5,400	SEG	2002	1,600	3,763	2,500	1,271	4,480	3,165	8,148	6,863	3,138
Port Dick Creek	1,900	4,450	SEG	2002	2,753	11,774	5,592	2,439	7,087	8,400	4,133	1,829	13,230
Island Creek	6,400	15,600	SEG	2002	3,092	12,935	9,295	3,408	11,755	14,863	8,772	2,699	18,479
Big Kamishak River	9,350	24,000	SEG	2002	14,787	4,495	15,026	NS	5,532	12,400	3,280	5,676	6,990
Little Kamishak River	6,550	23,800	SEG	2002	15,569	21,265	4,213	18,414	19,310	30,250	6,744	15,069	14,370
McNeil River	24,000	48,000	SEG	2008	21,629	10,617	18,766	10,520	30,977	10,388	9,498	17,475	20,494
Bruin River	6,000	10,250	SEG	2002	3,055	17,535	10,071	6,200	3,486	16,795	8,942	3,583	11,006
Ursus Cove	6,050	9,850	SEG	2002	20,897	6,502	12,946	11,765	10,636	2,840	10,339	5,308	14,783
Cottonwood Creek	5,750	12,000	SEG	2002	12,522	11,561	19,405	15,848	4,730	4,111	5,206	7,079	16,962
Iniskin Bay	7,850	13,700	SEG	2002	5,340	20,042	30,821	19,252	16,522	3,049	5,928	13,020	7,513
Prince William Sound[h]													
Eastern District	50,000		LB SEG	2006	144,941	82,068	150,051	146,613	240,321	97,362	140,806	93,491	105,064[i]
Northern District	20,000		LB SEG	2006	54,709	50,666	30,296	59,530	64,743	23,818	41,058	27,680	41,802[i]
Coghill District	8,000		LB SEG	2006	14,738	48,221	8,290	84,840	19,617	14,075	14,414	9,491	18,767[i]
Northwestern District	5,000		LB SEG	2006	12,570	34,107	15,826	34,300	11,951	9,360	4,995	5,041	7,591[i]
Southeastern District	8,000		LB SEG	2006	71,595	20,300	150,974	138,442	112,507	31,029	43,000	30,177	44,488[i]
COHO SALMON													
Bristol Bay													
Nushagak River	60,000	120,000	SEG	2013						329,946	207,222	478,198	NS
Upper Cook Inlet													
Fish Creek (Knik)	1,200	4,400	SEG	2011	6,868[j]	4,868[j]	8,214	6,977	1,428[j]	1,237	7593[j]	10,283	7,912
Jim Creek	450	1,400	SEG	2014	725	1,890	1,331	242	229	213	663	122	571
Little Susitna River	10,100	17,700	SEG	2002	17,573	18,485	9,523	9,214	4,826[k]	6,779	13,583	24,211[k]	12,756
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	53,820	76,892	41,294	41,077	38,495	37,010	34,680	42,530	41,665
Bering River	13,000	33,000	SEG	2003	33,062	28,932	22,141	21,311	18,890	15,605	18,820	26,475	1,550

-continued-

Table 2.–Page 3 of 6.

System	2015 Goal Range Lower	2015 Goal Range Upper	Type	Initial Year	Escapement 2007	2008	2009	2010	2011	2012	2013	2014	2015
PINK SALMON													
Bristol Bay													
Nushagak River	165,000		LB SEG	2013						1,348,606	NA	2,281,831	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	53,989	90,870	5,207	70,686	1,670	67,934	6,749	44,369	38,025
China Poot Creek	2,900	8,200	SEG	2002	6,235	5,086	1,120	2,220	3,462	8,392	7,119	1,409	7,366
Tutka Creek	6,500	17,000	SEG	2002	5,664	14,144	3,770	2,141	21,974	10,436	9,541	10,152	81,584
Barabara Creek	1,900	8,950	SEG	2002	25,168	16,557	2,583	13,935	8,186	1,412	17,377	3,558	25,203
Seldovia Creek	19,050	38,950	SEG	2002	69,405	53,484	14,619	25,886	46,231	44,722	36,824	35,895	108,793
Port Graham River	7,700	19,850	SEG	2002	25,595	24,720	13,996	16,586	20,883	34,486	11,893	32,295	82,356
Dogfish Lagoon Creeks	1,200	8,400	SEG	2014	4,100	8,000	9,200	6,300	3,900	11,400	26,448	8,848	50,058
Port Chatham	7,800	21,000	SEG	2002	14,451	16,354	25,291	2,992	15,830	5,430	57,447	10,290	42,613
Windy Creek Right	3,350	10,950	SEG	2002	18,339	12,491	15,012	6,408	1,722	5,823	11,704	5,710	17,009
Windy Creek Left	3,650	29,950	SEG	2002	32,297	64,068	57,263	24,241	12,210	11,691	47,849	10,147	33,640
Rocky River	9,350	54,250	SEG	2002	189,992	90,876	173,583	27,045	22,706	15,684	75,791	17,114	107,931
Port Dick Creek	18,550	58,300	SEG	2002	44,170	34,228	41,681	41,090	16,868	18,057	55,828	48,732	98,002
Island Creek	7,200	28,300	SEG	2002	87,235	49,719	44,527	69,525	10,181	20,079	26,004	50,402	50,387
S. Nuka Island Creek	2,700	14,250	SEG	2002	6,645	12,300	19,934	NS	NS	1,250	8,442	11,000	8,900
Desire Lake Creek	1,900	20,200	SEG	2002	11,820	9,546	73,926	2,978	600	2,260	56,921	443	46,290
Bear & Salmon Creeks	eliminated			2011	NS	NS	NS	NS					
Thumb Cove	eliminated			2011	NS	NS	NS	NS					
Humpy Cove	eliminated			2011	NS	NS	NS	NS					
Tonsina Creek	eliminated			2011	NS	NS	NS	NS					
Bruin River	18,650	155,750	SEG	2002	350,420	150,717	1,067,351	40,256	4,534	31,800	15,020	121,569	40,801
Sunday Creek	4,850	28,850	SEG	2002	394,797	20,434	106,296	6,607	844	1,348	6,132	7,665	60,385
Brown's Peak Creek	2,450	18,800	SEG	2002	249,383	17,400	63,605	3,092	2,035	2,800	4,061	4,048	29,141
Prince William Sound													
All Dist. Combined (even yr)[l]	eliminated			2012		860,944		1,910,357					
All Dist. Combined (odd yr)	eliminated			2012	1,915,040		2,338,923		3,826,378				
Eastern Dist. (even yr)	250,000	580,000	SEG	2012						301,709		270,244	
Eastern Dist. (odd yr)	310,000	640,000	SEG	2012							1,266,783		1,458,005[i]
Northern Dist. (even yr)	140,000	210,000	SEG	2012						106,568		105,333	
Northern Dist. (odd yr)	90,000	180,000	SEG	2012							329,434		714,301[i]
Coghill Dist. (even year)	60,000	150,000	SEG	2012						172,611		63,290	
Coghill Dist. (odd yr)	60,000	250,000	SEG	2012							640,414		803,379[i]

-continued-

Table 2.–Page 4 of 6.

System	2015 Goal Range Lower	2015 Goal Range Upper	Type	Initial Year	Escapement 2007	2008	2009	2010	2011	2012	2013	2014	2015
Northwestern Dist. (even yr)	70,000	140,000	SEG	2012						117,795		67,030	
Northwestern Dist. (odd yr)	50,000	110,000	SEG	2012							203,444		426,421[i]
Eshamy Dist. (even yr)	3,000	11,000	SEG	2012						1,052		12,400	
Eshamy Dist. (odd yr)	4,000	11,000	SEG	2012							12,145		58,943[i]
Southwestern Dist. (even yr)	70,000	160,000	SEG	2012						90,156		83,581	
Southwestern Dist. (odd yr)	70,000	190,000	SEG	2012							348,012		631,506[i]
Montague Dist. (even yr)	50,000	140,000	SEG	2012						77,756		24,917[m]	
Montague Dist. (odd yr)	140,000	280,000	SEG	2012							411,373		545,619[i]
Southeastern Dist. (even yr)	150,000	310,000	SEG	2012						258,047		185,072	
Southeastern Dist. (odd yr)	270,000	620,000	SEG	2012							1,472,633		1,510,249[i]
SOCKEYE SALMON													
Bristol Bay													
Kvichak River[n]	2,000,000	10,000,000	SEG	2010	2,810,208	2,757,912	2,266,140	4,207,410	2,264,352	4,164,444	2,088,576	4,458,540	7,341,612
Alagnak River	320,000		LB SEG	2007	2,466,414	2,180,502	970,818	1,187,730	883,794	861,747[o]	1,095,950[o]	NS	5,770,650
Naknek River	800,000	2,000,000	SEG[p]	2015	2,945,304	2,472,690	1,169,466	1,463,928	1,177,074	900,312	938,160	1,474,428	1,920,954
Egegik River	800,000	2,000,000	SEG	2015	1,432,500	1,259,568	1,146,276	927,054	961,200	1,233,900	1,113,630	1,382,466	2,160,792
Ugashik River	500,000	1,400,000	SEG	2015	2,599,186	596,332	1,364,338	830,886	1,029,853	670,578	898,110	640,158	1,564,638
Wood River	700,000	1,800,000	SEG	2015	1,528,086	1,724,676	1,319,232	1,804,344	1,098,006	764,202	1,183,348	2,764,614	1,941,474
Igushik River	150,000	400,000	SEG	2015	415,452	1,054,704	514,188	518,040	421,380	193,770	387,036	340,590	651,172
Nushagak River	260,000	760,000	OEG	2012	518,041	492,546	484,149	468,696	428,191	432,438	894,172	618,477	796,684
	370,000	900,000	SEG	2015									
Kulukak Bay	eliminated			2013	NS	NS	NS	NS	NS	NS			
Togiak River	120,000	270,000	SEG	2007	269,646	205,680	313,946	188,298	190,970	203,148	128,058	151,934	218,700
Upper Cook Inlet													
Crescent River	eliminated			2014	79,406	62,030	NS	86,333	81,952	58,838	NS		
Fish Creek (Knik)	20,000	70,000	SEG	2002	27,948	19,339	83,480	126,836	66,678	18,813	18,912	43,915	102,309
Kasilof River	160,000	390,000	OEG	2011	364,261	324,880	324,783	293,765	243,767	372,523	487,700	438,238[a]	470,677
	160,000	340,000	BEG	2011									
Kenai River[q]	700,000	1,400,000	OEG	2011	957,430	703,979	843,255	1,015,106	1,275,369	1,197,518	964,224	1,151,629	1,325,673
	700,000	1,200,000	SEG	2011									
Packers Creek	15,000	30,000	SEG	2008	46,637	25,247	16,473	NS	NS	NS	NA	19,242	28,072
Russian River - Early Run	22,000	42,000	BEG	2011	27,298	30,989	52,178	27,074	29,129	24,115	35,776	44,920	50,226
Russian River - Late Run	30,000	110,000	SEG	2005	53,068	46,638	80,088	38,848	41,529	54,911	31,364	52,277	46,223
Yentna River[r]	eliminated			2009	79,901	90,180							
Chelatna Lake	20,000	65,000	SEG	2009	41,290	73,469	17,721	37,784	70,353	36,577	70,555	26,212	69,750
Judd Lake	25,000	55,000	SEG	2009	58,134	54,304	44,616	18,361	39,997	18,303	14,088	22,416	47,684

-continued-

Table 2.–Page 5 of 6.

System	2015 Goal Range Lower	2015 Goal Range Upper	Type	Initial Year	Escapement 2007	2008	2009	2010	2011	2012	2013	2014	2015
Larson Lake	15,000	50,000	SEG	2009	47,736	35,040	40,933	20,324	12,413	16,708	21,821	12,040	23,214
Lower Cook Inlet													
English Bay	6,000	13,500	SEG	2002	16,487	11,993	18,183	12,253	9,920	3,444	10,904	6,995	6,290[a]
Delight Lake	7,550	17,650	SEG	2011	43,963	23,933	12,700	23,775	20,190	10,887	5,961	22,289	3,220
Desire Lake	8,800	15,200	SEG	2002	10,000	10,700	16,000	6,320	9,630	8,840	8,400	11,480	2,830
Bear Lake	700	8,300	SEG	2002	8,575	9,264	10,364	8,880	9,608	8,031	8,999	9,233	9,560
Aialik Lake	3,700	8,000	SEG	2002	5,370	4,200	3,100	5,315	3,480	2,140	3,530	NA	3,182
Mikfik Lake	3,300	14,000	SEG	2014	10,975	10,000[s]	20,965	5,221	395	3,131	4,042	18,062	3,502
Chenik Lake	3,500	14,000	SEG	2011	17,417	10,653	15,264	17,312	10,330	16,505	11,333	17,797	19,073
Amakdedori Creek	1,250	2,600	SEG	2002	3,830	3,200	2,160	1,210	3,412	770	1,540	4,280	2,910
Prince William Sound													
Upper Copper River	360,000	750,000	SEG	2012	612,083	480,597	468,725	502,995	607,657	953,745	860,829	864,988	NA[t]
Copper River Delta	55,000	130,000	SEG	2003	88,285	67,950	68,622	82,835	72,367	66,850	75,705	64,205	66,195
Bering River	15,000	33,000	SEG	2012	21,170	18,196	13,471	4,367	28,530	18,290	23,900	14,985	21,705
Coghill Lake	20,000	60,000	SEG	2012	70,001	29,298	23,186	24,312	102,359	73,978	17,231	21,836	13,684
Eshamy Lake[u]	13,000	28,000	BEG	2009	17,196	18,495	24,025	16,291	24,129	NA	4,500	7,500	NA

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

[a] Preliminary escapement estimates.

[b] 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.

[c] 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 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 probably conducted after peak spawning.

[d] Lewis River diverged into swamp 1/2 mi. below bridge. No water in channel.

[e] Lewis River mouth naturally obstructed.

[f] 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.

[g] Escapement goal for Nushagak River chum salmon is based on sonar count through July 20.

[h] 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.

[i] 2015 Prince William Sound chum and pink salmon indices are based on significantly reduced number of surveyed index streams (n = 130) compared to number in program since 1991 (n = 214). These indices are preliminary and will be adjusted to make them comparable to historical indices.

[j] Incomplete counts for Fish Creek (Knik) coho salmon in 2007, 2008, 2011, and 2013 because weir was pulled before end of run.

-continued-

[k] 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.

[l] 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.

[m] Fewer than 3 surveys were flown in half the index streams in the Montague District in 2014, so they were not used in calculating the area under the curve index.

[n] Prior to 2010, Kvichak River had a pre-peak/peak-cycle escapement goal of 6–10 million sockeye and an off-peak escapement goal of 2–10 million fish. Between 2001 and 2009, only one year (2004) was classified as either a pre-peak or peak year.

[o] 2012 and 2013 Alagnak River sockeye salmon escapements are expanded aerial surveys.

[p] Naknek River has an OEG of 800,000–2,000,000 sockeye salmon when the Naknek River Special Harvest Area is open to fishing.

[q] Kenai River sockeye salmon uses the best estimate of sport harvest upstream of sonar.

[r] Yentna River sockeye salmon escapement goal was replaced by SEGs on Chelatna, Judd, and Larson lakes in early 2009.

[s] 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.

[t] The 2015 upper Copper River sockeye salmon spawning escapement estimate is not available. Final estimates of personal use, subsistence, and sport fishery harvests; and the mark–recapture estimate of upper Copper River Chinook salmon are not available for this calculation.

[u] Eshamy River weir was not operated 2012–2015. A pilot project to assess the use of video for monitoring in 2013 did not provide 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, 2007 to 2015.

	2015 Goal Range			Initial	Escapement								
System	Lower	Upper	Type	Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
CHINOOK SALMON													
Kuskokwim Area													
North (Main) Fork Goodnews River	640	3,300	SEG	2005	NS	2,155	NS	NS	853	378	NS	630	991
Middle Fork Goodnews River	1,500	2,900	BEG	2007	3,914	2,223	1,669	2,176	2,045	524	1,187	750	1,494
Kanektok River	3,500	8,000	SEG	2005	NS	NS	NS	1,208	NS	NS	2,277	1,840	4,919
Kuskokwim River (entire area)	65,000	120,000	SEG	2013	174,943	128,978	118,478	49,073	72,097	76,074	47,315	123,987	155,464
Kogrukluk River	4,800	8,800	SEG	2013	NA	9,750	9,528	5,812	6,731	NA	1,819	3,732	8,081
Kwethluk River	4,100	7,500	SEG	2013	12,927	5,275	5,744	1,667	4,079	NA	845	3,187	8,162
Tuluksak River	eliminated			2013	374	701	362	201	284	555			
George River	1,800	3,300	SEG	2013	4,011	2,563	3,663	1,498	1,547	2,201	1,292	2,993	2,282
Kisaralik River	400	1,200	SEG	2005	692	1,074	NS	235	NS	588	599	622	709
Aniak River	1,200	2,300	SEG	2005	3,984	3,222	NS	NS	NS	NS	754	3,201	NS
Salmon River (Aniak R)	330	1,200	SEG	2005	1,458	589	NS	NS	79	49	154	497	810
Holitna River	970	2,100	SEG	2005	NS	NS	NS	NS	NS	NS	532	NS	662
Cheeneetnuk River (Stony R)	340	1,300	SEG	2005	NS	290	323	NS	249	229	138	340	NS
Gagaryah River (Stony R)	300	830	SEG	2005	1,035	177	303	62	96	178	74	359	19
Salmon River (Pitka Fork)	470	1,600	SEG	2005	943	1,033	632	135	767	670	469	1,865	2,016
Yukon River													
East Fork Andreafsky River	2,100	4,900	SEG	2010	4,504	4,242	3,004	2,413	5,213	2,517	1,998	5,949	5,474
West Fork Andreafsky River	640	1,600	SEG	2005	976	NS	1,678	858	1,173	NS	1,094	1,695	NS
Anvik River	1,100	1,700	SEG	2005	1,529	992	832	974	642	722	940	1,584	2,616
Nulato River (forks combined)	940	1,900	SEG	2005	2,583	922	2,260	711	1,401	1,373	1,118	NS	1,564
Gisasa River	eliminated			2010	593	487	515						
Chena River	2,800	5,700	BEG	2001	3,806	3,208	5,253	2,382	NS	2,200[a]	1,859	7,192	6291[a]
Salcha River	3,300	6,500	BEG	2001	6,425	5,415	12,774	6,135	7,200[b]	7,165	5,465	NS	6,287
Canada Mainstem	42,500	55,000	agreement[c]	annual	34,904	33,883	65,278	32,014	46,307	32,656	28,669	63,331	82,615
Norton Sound													
Fish River/Boston Creek	100		LB SEG	2005	NS	NS	NS	NS	NS	NS	44	NS	669
Kwiniuk River	300	550	SEG	2005	258	237	444	135	57	54	15	429	318
North River (Unalakleet R)	1,200	2,600	SEG	2005	1,948	903	2,355	1,256	864	996	564	2328	1,938
Shaktoolik River	eliminated			2013	412	NS	NS	NS	106	NS			
Unalakleet/Old Woman River	550	1,100	SEG	2005	821	NS	1,368	NS	105	NS	NS	NS	NS
CHUM SALMON													
Kuskokwim Area													
Middle Fork Goodnews River	12,000		LB SEG	2005	50,232	39,548	19,236	24,789	19,974	9,065	27,682	11,518	11,517

-continued-

Table 3.–Page 2 of 4.

System	2015 Goal Range Lower	2015 Goal Range Upper	Type	Initial Year	Escapement 2007	2008	2009	2010	2011	2012	2013	2014	2015
Kanektok River	eliminated			2013	NS	NS	NS	NS	NS	NA			
Kogrukluk River	15,000	49,000	SEG	2005	52,961	44,744	82,483	69,258	76,823	NA	65,644	30,763	33,201
Aniak River	220,000	480,000	SEG	2007	696,801	427,911	479,531	429,643	345,630	NA	NA	NA	NA
Yukon River Summer Chum													
East Fork Andreafsky River	40,000		LB SEG	2010	69,642	57,259	8,770	72,839	100,473	56,680	61,234	37,793	48,809
Anvik River	350,000	700,000	BEG	2005	460,121	374,928	193,099	396,173	642,528	483,972	571,690	399,223	371,633
Yukon River Fall Chum													
Yukon River Drainage	300,000	600,000	SEG	2010	921,000	681,000	483,000	527,000	883,000	573,000	884,000	753,000[d]	562,000[d]
Tanana River[e]	61,000	136,000	BEG	2001	357,000	264,000	160,000	213,000	271,000	102,000	275,000	217,000	125,000
Delta River	6,000	13,000	BEG	2001	19,000	23,000	13,000	18,000	24,000	9,000	32,000	32,480	33,401
Toklat River	eliminated			2010	NA	NA	NA						
Upper Yukon River Tributaries	152,000	312,000	BEG	2001	327,000	248,000	NA	196,000	406,000	333,000	392,000	297,000	172,000
Chandalar River	74,000	152,000	BEG	2001	228,000	178,000	NA	158,000	295,000	206,000	253,000	226,000	164,000
Sheenjek River	50,000	104,000	BEG	2001	65,000	50,000	54,000	22,000	98,000	105,000	113,000[f]	56,000[f]	34,000[f]
Fishing Branch River (Canada)	22,000	49,000	agreement	2008[g]	32,000	20,000	26,000	16,000	13,000	22,000	33,000[g]	15,000[g]	8,000[g]
Yukon R. Mainstem (Canada)	70,000	104,000	agreement	2010[h]	255,000	176,000	94,000	118,000	206,000	138,000	200,000	156,000	109,000
Norton Sound													
Subdistrict 1 Aggregate	23,000	35,000	BEG	2001	76,940	32,177	21,368	97,798	66,122	51,459	108,120	97,234	92,030
Sinuk River	eliminated			2010	16,481	NS	2,232						
Nome River	2,900	4,300	OEG	2001	7,034	2,607	1,565	5,906	3,582	1,982	4,811	5,589	6,216
	2,900	4,300	SEG	2005									
Bonanza River	eliminated			2010	8,491	NS	6,744						
Snake River	1,600	2,500	OEG	2001	8,147	1,244	891	6,973	4,343	651	2,755	3,983	4,260
	1,600	2,500	SEG	2005									
Solomon River	eliminated			2010	3,469	NS	918						
Flambeau River	eliminated			2010	12,006	11,618	4,075						
Eldorado River	6,000	9,200	OEG	2001	21,312	6,746	4,943	42,612	16,227	13,393	26,121	27,054	25,560
	6,000	9,200	SEG	2005									
Niukluk River	23,000		LB SEG	2010	50,994	12,078	15,879	48,561	23,607	19,576	NS	NS	NS
Kwiniuk River	11,500	23,000	OEG	2001	27,756	9,483	8,739	71,388	31,604	5,577	5,631	39,753	37,831
	10,000	20,000	BEG	2001									
Tubutulik River	9,200	18,400	OEG	2001	7,045	NS	3,161	16,097	14,127	NS	NS	NS	12,714
	8,000	16,000	BEG	2001									
Unalakleet/Old Woman River	2,400	4,800	SEG	2005	1,902	NS	NS	NS	NS	NS	2,496	NS	NS

-continued-

Table 3.–Page 3 of 4.

System	2015 Goal Range Lower	2015 Goal Range Upper	Type	Initial Year	Escapement 2007	2008	2009	2010	2011	2012	2013	2014	2015
Kotzebue Sound													
Kotzebue Sound Aggregate	196,000	421,000	BEG	2007									
Noatak and Eli Rivers	42,000	91,000	SEG	2007	NS	270,747	69,872	NS	NS	NS	NS	453,284	NS
Upper Kobuk w/ Selby River	9,700	21,000	SEG	2007	NS	42,622	45,155	NS	NS	NS	NS	65,653	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	19,442	37,690	19,123	26,287	24,668	NA	NA	NA	15,084[i]
Kogrukluk River	13,000	28,000	SEG	2005	26,423	29,237	22,289	14,689	21,800	13,421	21,207	52,975	32,493
Kwethluk River	19,000		LB SEG	2010	19,473	48,049	21,911	NA	NA	20,895	NA	43,945	22,443
Yukon River													
Delta Clearwater River	5,200	17,000	SEG	2005	14,650	7,500	16,850	5,867[j]	8,772	5,230	6,222	4,285	19,553
Norton Sound													
Kwiniuk River	650	1,300	SEG	2005	5,174	2,676	NS	2,925	1,331	NS	NS	NS	NS
Niukluk River[k]	2,400	7,200	SEG	2010	3,498	13,779	6,861	9,042	2,405	1,729	NS	NS	NS
North River (Unalakleet R.)	550	1,100	SEG	2005	2,349	2,744	2,830	NS	898	NS	867	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	24,395		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	
Kwiniuk River	8,400		LB SEG	2005	54,255	1,444,213	42,962	634,220	30,913	393,302	13,212	326,522	102,942
Niukluk River	10,500		LB SEG	2005	43,617	669,234	24,204	434,205	15,425	249,412	NS	NS	NS
North River	25,000		LB SEG	2005	580,935	240,286	190,291	150,807	123,892	147,674	46,668	143,658	463,092
SOCKEYE SALMON													
Kuskokwim Area													
North (Main) Fork Goodnews River	5,500	19,500	SEG	2005	NS	32,500	NS	NS	14,140	16,710	NS	NS	38,390
Middle Fork Goodnews River	18,000	40,000	BEG	2007	73,768	43,879	27,494	36,574	19,643	29,531	23,545	41,473	57,809
Kanektok River	14,000	34,000	SEG	2005	NS	NS	NS	16,180	NS	NA	51,517	136,400	39,970
Kogrukluk River	4,440	17,000	SEG	2010	17,211	19,675	22,826	17,139	7,974	NA	7,808	6,413	6,411

-continued-

Table 3.–Page 4 of 4.

System	2015 Goal Range		Type	Initial Year	Escapement								
	Lower	Upper			2007	2008	2009	2010	2011	2012	2013	2014	2015
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	20,612	11,672	322	762	5,144	5,830	6,781	5,303	15,250
Glacial Lake	800	1,600	SEG	2005	1,505	540	169	154	NS	NS	1,366	2,330	1,819

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

[a] 2012 and 2015 Chena River Chinook salmon escapement estimate includes an expansion for missed counting days based on two 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 2010–2015 seasons by the United States and Canada Yukon River Panel. Estimates from 2007 to 2015 represent escapement after subtraction of Canadian harvest.

[d] Bayesian estimate of drainagewide escapement for Yukon River fall chum salmon. 2014 was the first year of reporting the Bayesian estimate. Bayesian estimates are higher than estimates using the former method because the Kantishna River component is included in the Bayesian analysis.

[e] 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.

[f] Sheenjek River sonar project was discontinued in 2013; estimate is based on a linear regression between earlier Sheenjek 2 bank counts and Fishing Branch River weir counts.

[g] 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.

[h] Yukon River Mainstem fall chum salmon interim management escapement goal of 70,000–104,000 was implemented for the 2010–2015 seasons by Yukon River Panel.

[i] Middle Fork Goodnews River coho salmon escapement for 2015 is minimum escapement because weir operations ended early.

[j] Delta Clearwater River coho salmon 2010 escapement index is not a peak count.

[k] 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, 2007 to 2015.

	2015 Goal Range			Initial	Escapement								
System	Lower	Upper	Type	Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
CHINOOK SALMON													
AK Peninsula													
Nelson River	2,400	4,400	BEG	2004	2,492	5,012	2,048	2,769	1,704	1,192[a]	1,421[a]	3,801[a]	2,890[a]
Chignik													
Chignik River	1,300	2,700	BEG	2002	1,675	1,620	1,590	3,845	2,490	1,404	1,185	2,765	2,054[b]
Kodiak													
Karluk River	3,000	6,000	BEG	2011	1,697	752	1,306	2,917	3,420	3,197[a]	1,824[a]	1,182[a]	2,777[a]
Ayakulik River	4,000	7,000	BEG	2011	6,232	3,071	2,615	5,197	4,251	4,556	2,304	789[a]	2,392[a]
CHUM SALMON													
AK Peninsula													
Northern District	119,600	239,200	SEG	2007	243,334	228,537	154,131	145,310	96,952	140,418	137,251	191,586	182,994
Northwestern District	100,000	215,000	SEG	2007	335,450	241,750	84,460	144,100	151,400	140,000	92,800	54,525	89,800
Southeastern District[c]	106,400	212,800	SEG	1992	201,451	277,450	106,500	62,612	145,300	31,072	184,350	82,300	250,370
South Central District	89,800	179,600	SEG	1992	126,000	140,450	18,600	85,600	169,000	86,190	155,050	95,000	298,800
Southwestern District	133,400	266,800	SEG	1992	398,010	171,250	385,730	142,650	176,425	87,230	163,200	130,745	351,150
Unimak District	eliminated			2013	1,200	2,800	1,400	1,050	7,000	750			
Chignik													
Entire Chignik Area	57,400		LB SEG	2008	238,216	197,259	214,959	177,220	278,145	210,973	335,907	101,378	238,214
Kodiak													
Mainland District	104,000		LB SEG	2008	82,600	72,000	91,106	124,500	128,700	127,850	107,400	80,961	126,200
Kodiak Archipelago Aggregate	151,000		LB SEG	2008	166,060[d]	83,040	177,490	160,290	192,400	159,825	291,250	116,800	257,000
COHO SALMON													
AK Peninsula													
Nelson River	18,000		LB SEG	2004	19,000	24,000	22,000	15,000	21,000	19,160	22,000	25,000	45,000
Thin Point Lake	eliminated			2013	9,000	3,200	900	NA	200	1,500			
Ilnik River	9,000		LB SEG	2010	22,000	27,000	24,000	19,600	18,000	11,800	17,000	33,000	14,000
Chignik													
There are no coho salmon stocks with escapement goals in Chignik Area													
Kodiak													
Pasagshak River	1,200		LB SEG	2011	1,896	3,875	2,385	1,971	1,083	3,132	1,648	4,934	1,790
Buskin River	4,700	9,600	BEG	2014	8,375	8,176	9,583	6,239	5,298	4,906	4,401	6,468	4,341[e]
Olds River	1,000		LB SEG	2011	868	656	697	NA	1,003	624	2,145	1,320	1,357
American River	400		LB SEG	2011	307	700	639	NA	1,061	427	841	1,595	530

-continued-

Table 4.–Page 2 of 3.

System	2015 Goal Range Lower	2015 Goal Range Upper	Type	Initial Year	Escapement 2007	2008	2009	2010	2011	2012	2013	2014	2015
PINK SALMON													
AK Peninsula													
Bechevin Bay Section (odd yr)	eliminated			2013	16,800		72,000		2,400				
Bechevin Bay Section (even yr)	eliminated			2013		11,900		13,600		7,603			
South Peninsula Total (odd yr)	1,637,800	3,275,700	SEG	2007	2,680,213		3,067,000		2,494,950		2,320,790		7,820,800
South Peninsula Total (even yr)	1,864,600	3,729,300	SEG	2007		3,338,370		742,912		478,910		1,340,380	
Chignik													
Entire Chignik Area (odd yr)	500,000	800,000	SEG	2008	1,237,528		869,063		986,248		863,991		1,132,529
Entire Chignik Area (even yr)	200,000	600,000	SEG	2008		863,031		330,570		302,699		235,159	
Kodiak													
Mainland District	250,000	1,000,000	SEG	2011	315,300	236,500	430,100	265,650	273,500	413,325	620,480	254,650	754,600
Kodiak Archipelago (odd yr)	2,000,000	5,000,000	SEG	2011	2,208,678		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	
SOCKEYE SALMON													
AK Peninsula													
Cinder River	12,000	48,000	SEG	2007	142,000	129,800	133,600	108,900	106,000	76,620	95,000	102,000	127,500
Ilnik River[f]	40,000	60,000	SEG	1991	93,000	44,300	66,000	59,000	43,000	61,000	51,000	59,000	26,000
Meshik River[g]	25,000	100,000	SEG	2010	57,400	83,250	88,000	63,700	93,900	50,900	85,400	114,700	171,700
Sandy River	34,000	74,000	SEG	2007	44,700	32,200	36,000	37,000	37,500	27,100	42,000	59,000	116,000
Bear River Early Run	176,000	293,000	SEG	2004	206,233	125,526	216,237	226,534	207,451	173,158	219,074	259,046	304,356
Bear River Late Run	117,000	195,000	SEG	2004	224,767	195,474	133,263	142,966	132,549	116,442	196,926	206,954	210,644
Nelson River	97,000	219,000	BEG	2004	180,000	141,600	157,000	108,000	89,000	103,300	248,000	250,000	257,000
Christianson Lagoon	25,000	50,000	SEG	1980s	48,075	114,000	48,100	27,900	35,200	40,000	16,500	32,600	6,700
Swanson Lagoon	6,000	16,000	SEG	2007	9,200	5,500	1,000	1,700	1,000	3,500	3,000	1,500	3,500
North Creek	4,400	8,800	SEG	late 1980s	16,800	38,000	8,000	18,500	10,200	18,000	8,500	7,500	18,000
Orzinski Lake	15,000	20,000	SEG	1992	10,643	36,839	21,457	18,039	16,764	17,243	17,386	13,600	26,534
Mortensen Lagoon	3,200	6,400	SEG	late 1980s	6,200	5,600	25,000	6,600	500	5,000	4,000	500	NA
Thin Point Lake	14,000	28,000	SEG	late 1980s	21,550	18,900	33,500	12,400	14,500	19,000	5,700	8,600	19,900
McLees Lake[h]	10,000	60,000	SEG	2010	21,428	8,661	10,120	32,842	36,602	15,111	15,687	12,424	20,284
Chignik													
Chignik River Early Run	350,000	450,000	BEG	2014	361,091	377,579	391,476	432,535	488,930	353,441	386,782	360,381	534,088
Chignik River Late Run[i]	200,000	400,000	SEG	2008	293,883	328,479	328,586	311,291	264,887	358,948	369,319	291,228	589,809
Kodiak													
Malina Creek	1,000	10,000	SEG	2005	1,900	3,690	1,400	4,000	3,800	4,100	3,800	4,900	1,000

-continued-

Table 4.–Page 3 of 3.

System	2015 Goal Range Lower	2015 Goal Range Upper	Type	Initial Year	Escapement 2007	2008	2009	2010	2011	2012	2013	2014	2015
Afognak (Litnik) River[j]	20,000	50,000	BEG	2005	21,070	26,874	31,358	52,255	49,193	41,553	42,153	36,345	38,151
Little River	eliminated			2014	8,500	2,300	1,500	3,200	3,900	6,300	17,600		
Uganik Lake	24,000		LB SEG	2008	35,000	64,700	53,700	30,700	37,900	22,200	26,000	14,000	9,000
Karluk River Early Run	110,000	250,000	BEG	2008	294,740	82,191	52,798	71,453	87,049	188,085	234,880	252,097	260,758
Karluk River Late Run	170,000	380,000	BEG	2005	251,835	164,299	277,280	276,649	230,273	314,605	336,479	543,469	396,618
Ayakulik River	eliminated			2011	283,042	162,888	315,184	262,327					
Ayakulik River Early Run	140,000	280,000	SEG	2011	169,596	96,912	200,648	201,933	177,480	213,501	214,969	210,040	218,178
Ayakulik River Late Run	60,000	120,000	SEG	2011	113,446	65,976	114,536	60,394	83,661	114,753	67,195	87,671	108,257
Upper Station River Early Run	25,000		OEG	1999	31,895	38,800	34,585	42,060	28,759	25,487	27,712	36,823	54,473
	43,000	93,000	BEG	2011									
Upper Station River Late Run	120,000	265,000	BEG	2005	149,709	184,856	161,736	141,139	101,893	149,325	125,573	181,411	132,864
Frazer Lake	75,000	170,000	BEG	2008	120,186	105,363	101,845	94,680	134,642	148,884	136,059	200,296	219,093
Saltery Lake[k]	15,000	35,000	BEG	2011	Na[l]	47,467	43,468	24,102	27,803	25,155	35,939	29,047	39,920
Pasagshak River	3,000		LB SEG	2011	14,300	14,900	1,400	4,800	8,100	2,600	9,750	350	600
Buskin Lake	5,000	8,000	BEG	2011	16,502	5,900	7,757	9,800	11,982	8,565	16,189	13,976	8,719

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 Chinook salmon escapement estimated for Chignik is preliminary and has 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] Kodiak chum salmon aggregate goal did not exist prior to 2008 (district goals summed: NW, SW, Alitak, Eastside, NE).

[e] 2015 coho salmon escapement estimated for Buskin River is preliminary because 2015 statewide harvest survey data unavailable. Escapement based on weir count and radio telemetry mark–recapture derived estimate, minus estimated sport harvest above weir.

[f] Ilnik River sockeye salmon counts in 2007–2010, 2012, and 2013 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.

[g] Meshik escapement includes Meshik River, Red Bluff Creek, and Yellow Bluff Creek. It does not include Highland or Charles creeks.

[h] 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.

[i] 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.

[j] Afognak (Litnik) River sockeye salmon escapement does not incorporate egg take removals.

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

[l] Saltery Lake weir was not operated in 2007. Peak aerial survey index for 2007 was 17,200 sockeye salmon.

Table 5.–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	2007	2008	2009	2010	2011	2012	2013	2014	2015
Chinook Salmon	Blossom River	Under	Met	Under	Met	Under	Met[a]	Met	Met	Met
	Keta River	Met	Met	Under	Met	Under	Met[a]	Over	Over	Met
	Unuk River	Met	Met	Met[b]	Over	Met	Under	Under	Under	Met
	Chickamin River	Met	Over	Met	Over	Met	Under	Met	Met	Met
	Andrew Creek	Over	Met	Under	Met	Met	Under	Met	Met	Met
	Stikine River	Met	Met	Under	Met	Met	Met	Met	Met	Met
	King Salmon River	Met	Met	Under	Met	Met	Met	Under	Under	Under
	Taku River	Under	Under	Met[a]	Met	Met	Met	Under	Met	Met
	Chilkat River	Under	Met	Over	Met	Met	Under	Under	Under	Met
	Klukshu (Alsek) River	Under	Under	Met	Met	Met	Under	Over[a]	Met	Over
	Alsek River							Met	Under	Over
	Situk River	Met	Under	Met	NA	Under	Under	Met	Met	Under
Chum Salmon	Southern Southeast Summer			Under	Under	Met	Met[c]	Met	Under	Met[c]
	Northern Southeast Inside Summer			Under	Under	Under	Met[c]	Met	Under	Met
	Northern Southeast Outside Summer			Under	Met	Met	Met	Under	Met	Met[c]
	Cholmondeley Sound Fall			Met	Over	Over	Over	Under	Met	Over
	Port Camden Fall			Under	Met	Under	Met	Met	Met	Met
	Security Bay Fall			Met	Met	Met	Met	Under	Met	Over
	Excursion River Fall			Under	Met	Under	Under	Met	Met	Met
	Chilkat River Fall			Over	Met	Over	Over	Met	Met	Met[d]
Coho Salmon	Hugh Smith Lake	Over	Over	Over[a]	Over	Over	Over	Over	Over	Met
	Klawock							Met	Met	Over
	Taku River	Met	Met	Met	Met	Met	Met	Under[e]	Met	Met[f]
	Auke Creek	Met	Over	Met	Met	Over	Over	Over	Over	Over
	Montana Creek	Under	Met	Met	Met	Met	Under	Under	Met	Over
	Peterson Creek	Met	Over	Met	Over	Met	Met	Met	Over	Met
	Ketchikan Survey Index	Met	Over	Over	Met	Met	Over	Over	Over	Over
	Sitka Survey Index	Over	Over	Over	Over	Over	Over	Over	Over	Over
	Ford Arm Lake	Met	Over	Met	Met	Met	Met	Met	Over	Over
	Berners River	Under	Met	Met	Met	Met	Met	Met	Over	Over
	Chilkat River	Under	Met	Met	Over	Met	Met	Met	Over	Met
	Lost River	Met	NA	Met[g]	Met	Under	Met	Met	Met	
	Tawah Creek (Lost River)									Met
	Situk River	Met	NA	Met	Over	Met	Under	Over	Met	Met
	Tsiu/Tsivat Rivers	Met	Met	Met	Met	Met	Met	Over	Met	Met

-continued-

Table 5.–Page 2 of 2.

Species	System	2007	2008	2009	2010	2011	2012	2013	2014	2015
Pink Salmon	Southern Southeast	Over	Met	Met[h]	Met	Met	Met	Over	Over	Met
	Northern Southeast Inside	Met	Under	Met[h]	Met	Over	Under	Met	Under	Met
	Northern Southeast Outside	Over	Met	Met[h]	Met	Over	Met	Over	Over	Over
	Situk River (even year)		NA[h]		NA[i]					
	Situk River (odd year)	Over		Met		Met				
	Situk River						Under[j]	Met	Under	Met
Sockeye Salmon	Hugh Smith Lake	Over	Under	Met	Met	Over	Met	Under	Met	Over
	McDonald Lake	Under	Under	Under[a]	Met	Met	Met	Under	Under	Met
	Mainstem Stikine River	Met	Under	Under	Met	Met	Met	Met	Met	Met
	Tahltan Lake	Met	Under	Over	Met	Over	Under	Under	Over	Over
	Speel Lake	Under	Under	Under	Met	Met	Met	Met	Met	Met[k]
	Taku River	Over	Under	Met	Over	Over	Over	Met	Over	Over
	Redoubt Lake	Over	Met	Met	Met	Met	Over	Over	Met	Met
	Chilkat Lake	Under	Under	Over[a]	Under	Under	Met	Met	Met	Met
	Chilkoot Lake	Met	Under	Under[a]	Met	Met	Over	Met	Over	Met
	East Alsek-Doame River	Over	Under	Under	Met	Over	Met	Over	Met	Met
	Klukshu River	Met	Under	Under	Over	Over	Over	Under[d]	Over	Over
	Lost River	Under	Under	Naef	Met	Met	Under	Under	NA	Under
	Situk River	Met	Under	Over	Met	Over	Met	Over	Over	Over

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 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 Central Region (Bristol Bay, Cook Inlet, and Prince William Sound/Copper River).

Species	System	2007	2008	2009	2010	2011	2012	2013	2014	2015
Chinook salmon	*Bristol Bay*									
	Nushagak River	Met[a]	Over	Met	Met	Met	Over	Met[b]	Met	Met
	Togiak River	NS[c]	NS	NS	NS	NS	NS	eliminated		
	Naknek River	Met[c]	Met	Under	NS	NS	NS	NS	NS	Under
	Alagnak River	Met	Under	Under	NS	NS	NS	NS	NS	Under
	Egegik River	Met	Under	Under	NS	NS	NS	eliminated		
	Upper Cook Inlet									
	Alexander Creek	Under	Under	Under	Under	Under	Under	Under	Under	Under
	Campbell Creek		Met[d]	Met	Met	Under	NS	NS	Under	Met
	Chuitna River	Under	Under	Under	Under	Under	Under	Met	Met	Met
	Chulitna River	Over	Met	Met	Under	Met	Under	Under	Under	Met
	Clear (Chunilna) Creek	Met	Met	Met	Under	Under	Met	Met	Met	Met
	Crooked Creek	Met	Met	Under	Met	Met	Under	Met	Met	Met
	Deshka River	Met	Under	Under	Met	Met	Met	Met	Met	Met
	Goose Creek	Under	Under	Under	Under	Under	Under	Under	Under	NC
	Kenai River - Early Run	Over	Over	Over	NA[e]	NA[e]	NA[e]	Under[f]	Met	Met
	Kenai River - Late Run	Met	Met	Under	NA[e]	NA[e]	NA[e]	Met[f]	Met	Met
	Lake Creek	Met	Under	Under	Under	Met	Under	Met	Met	Met
	Lewis River	Under	NA	Under	Under	Under	Under	Under	Under	NA
	Little Susitna River	Met	Met	Met	Under	Under	Met	Met	Met	Met
	Little Willow Creek	Met	NC	Met	Met	Met	Met	Met	Met	Met
	Montana Creek	Met	Met	Met	Under	Under	Under	Met	Under	Met
	Peters Creek	Met	NC	Met	NC	Met	Under	Met	Met	Met
	Prairie Creek	Met	Under	Met	Under	Under	Under	Met	Under	Met
	Sheep Creek	Under	NC	Under	NC	Under	Under	NC	Under	NC
	Talachulitna River	Met	Met	Met	Under	Under	Under	Met	Met	Met
	Theodore River	Under	Under	Under	Under	Under	Under	Under	Under	Under
	Willow Creek	Under	Under	Under	Under	Under	Under	Met	Under	Met
	Lower Cook Inlet									
	Anchor River		Met	Under	Under	Under[g]	Met	Met	Under	Over
	Deep Creek	Met	Under	Met	Met	Met	Met	Met	Met	Met
	Ninilchik River	Met	Met[h]	Under	Met	Met	Met	Met	Met	Met
	Prince William Sound									
	Copper River	Met	Met	Met	Under	Met	Met	Met	Under	NA
Chum salmon	*Bristol Bay*									
	Nushagak River	Under	Met	Met	Met	Met	Met	Met[b]	Met	NS

-continued-

Table 6.–Page 2 of 5.

Species	System	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Upper Cook Inlet									
	Clearwater Creek	NS	Met	Met	Over	Over	Met	Over	Under	Over
	Lower Cook Inlet									
	Port Graham River	Met	Met	Under	Under	Met	Under	Met	Met	Met
	Dogfish Lagoon	Met	Met	Met	Over	Over	Met	Over	Over	Over
	Rocky River	Met	Met	Met	Met	Met	Met	Over	Over	Met
	Port Dick Creek	Met	Over	Over	Met	Over	Over	Met	Under	Over
	Island Creek	Under	Met	Met	Under	Met	Met	Met	Under	Over
	Big Kamishak River	Met	Under	Met	NS	Under	Met	Under	Under	Under
	Little Kamishak River	Met	Met	Under	Met	Met	Over	Met	Met	Met
	McNeil River	Met	Under[i]	Under	Under	Met	Under	Under	Under	Under
	Bruin River	Under	Over	Met	Met	Under	Over	Met	Under	Over
	Ursus Cove	Over	Met	Over	Over	Over	Under	Over	Under	Over
	Cottonwood Creek	Over	Met	Over	Over	Under	Under	Under	Met	Over
	Iniskin Bay	Under	Over	Over	Over	Under	Under	Under	Met	Under
	Prince William Sound									
	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	Met	Under	Met	Met
	Southeastern District	Met	Met	Met	Met	Met	Met	Met	Met	Met
Coho salmon	*Bristol Bay*									
	Nushagak River							Over	Over	NS
	Upper Cook Inlet									
	Fish Creek (Knik)					Met[d]	Met	Over	Over	Over
	Jim Creek	Over	Over	Over	Under	Under	Under	Over	Under[j]	Met
	Little Susitna River	Met	Over	Under	Under	Under	Under	Met	Over	Met
	Prince William Sound									
	Copper River Delta	Met	Over	Met	Met	Met	Met	Met	Met	Met
	Bering River	Over	Met	Met	Met	Met	Met	Met	Met	Under
Pink salmon	*Bristol Bay*									
	Nushagak River							NA	Met	NS
	Lower Cook Inlet									
	Humpy Creek	Met	Over	Under	Met	Under	Met	Under	Met	Met
	China Poot Creek	Met	Met	Under	Under	Met	Over	Met	Under	Met
	Tutka Creek	Under	Met	Under	Under	Over	Met	Met	Met	Over

-continued-

Table 6.–Page 3 of 5.

Species	System	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Barabara Creek	Over	Over	Met	Over	Over	Under	Over	Met	Over
	Seldovia Creek	Over	Over	Under	Met	Over	Over	Met	Met	Over
	Port Graham River	Over	Over	Met	Met	Over	Over	Met	Over	Over
	Dogfish Lagoon Creeks								Over	Over
	Port Chatham	Met	Met	Over	Under	Met	Under	Over	Met	Over
	Windy Creek Right	Over	Over	Over	Met	Under	Met	Over	Met	Over
	Windy Creek Left	Met	Over	Over	Met	Met	Met	Over	Met	Over
	Rocky River	Over	Over	Over	Met	Met	Met	Over	Met	Over
	Port Dick Creek	Met	Met	Met	Met	Under	Under	Met	Met	Over
	Island Creek	Over	Over	Over	Over	Met	Met	Met	Over	Over
	S. Nuka Island Creek	Met	Met	Over	NS	NS	Under	Met	Met	Met
	Desire Lake Creek	Met	Met	Over	Met	Under	Met	Over	Under	Over
	Bear & Salmon Creeks	NS	NS	NS	NS	eliminated				
	Thumb Cove	NS	NS	NS	NS	eliminated				
	Humpy Cove	NS	NS	NS	NS	eliminated				
	Tonsina Creek	NS	NS	NS	NS	eliminated				
	Bruin River	Over	Met	Over	Met	Under	Met	Under	Met	Met
	Sunday Creek	Over	Met	Over	Met	Under	Under	Met	Met	Over
	Brown's Peak Creek	Over	Met	Over	Met	Under	Met	Met	Met	Over
	Prince William Sound									
	All Districts Combined (even year)		Under		Met		eliminated			
	All Districts Combined (odd year)	Met		Met		Over	eliminated			
	Eastern District (even year)						Met		Met	
	Eastern District (odd year)							Over		Over
	Northern District (even year)						Under		Under	
	Northern District (odd year)							Over		Over
	Coghill District (even year)						Over		Met	
	Coghill District (odd year)							Over		Over
	Northwestern District (even year)						Met		Under	
	Northwestern District (odd year)							Over		Over
	Eshamy District (even year)						Under		Over	
	Eshamy District (odd year)							Over		Over
	Southwestern District (even year)						Met		Met	
	Southwestern District (odd year)							Over		Over
	Montague District (even year)						Met		Under	
	Montague District (odd year)							Over		Over
	Southeastern District (even year)						Met		Met	
	Southeastern District (odd year)							Over		Over

-continued-

Table 6.–Page 4 of 5.

Species	System	2007	2008	2009	2010	2011	2012	2013	2014	2015
Sockeye salmon	*Bristol Bay*									
	Kvichak River	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Alagnak River	Met[k]	Met	Met	Met	Met	Met	Met	NS	Met
	Naknek River	Over	Over	Met	Over	Met	Met	Met	Over	Met[j]
	Egegik River	Over	Met	Met	Met	Met	Met	Met	Met	Over[j]
	Ugashik River	Over	Met	Over	Met	Met	Met	Met	Met	Over[j]
	Wood River	Over	Over	Met	Over	Met	Met	Met	Over	Over[j]
	Igushik River	Over	Over	Over	Over	Over	Met	Over	Over	Over[j]
	Nushagak River	Met	Met	Met	Met	Met	Met	Over[b]	Met	Over
	Kulukak Bay	NS	NS	NS	NS	NS	NS	eliminated		
	Togiak River	Met[l]	Met	Over	Met[m]	Met	Met	Met	Met	Met
	Upper Cook Inlet									
	Crescent River	Over	Met	NS	Over	Over	Met	NS	eliminated	
	Fish Creek (Knik)	Met	Under	Over	Over	Met	Under	Under	Met	Over
	Kasilof River	Over	Over	Over	Met	Met	Met	Over	Over	Over
	Kenai River	Met	Under	Under	Met	Met	Met	Met	Met	Met
	Packers Creek				Met[d]	Met	NS	NS	NS	NA
	Russian River - Early Run	Met	Met	Over	Met	Met	Met	Met	Over	Over
	Russian River - Late Run	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Yentna River	Under	Met							
	Chelatna Lake			Under	Met	Over	Met	Over	Met	Over
	Judd Lake			Met	Under	Met	Under	Under	Under	Met
	Larson Lake			Met	Met	Under	Met	Met	Under	Met
	Lower Cook Inlet									
	English Bay	Over	Met	Over	Met	Met	Under	Met	Met	Met
	Delight Lake	Over	Over	Over	Over	Over	Met	Under	Over	Under
	Desire Lake	Met	Met	Over	Under	Met	Met	Under	Met	Under
	Bear Lake	Over	Over	Over	Over	Over	Met	Over	Over	Over
	Aialik Lake	Met	Met	Under	Met	Under	Under	Under	NA	Under
	Mikfik Lake	Met	Under	Over	Met	Under	Under	Under	Over[f]	Met
	Chenik Lake	Over	Over	Over	Over	Met	Over	Met	Over	Over
	Amakdedori Creek	Over	Over	Met	Under	Over	Under	Met	Over	Over
	Prince William Sound									
	Upper Copper River	Over	Met	Met	Over	Over	Over[l]	Over	Over	NA
	Copper River Delta	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Bering River	Met	Under	Under	Under	Met	Met[l]	Met	Under	Met
	Coghill Lake	Over	Met	Under	Met	Over	Over[l]	Under	Met	Under
	Eshamy Lake	Under	Under	Met[l]	Met	Met	NA	Under	Under	NA

-continued-

Table 6.–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, point goal changed to a range.

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

[c] Escapement goal reevaluated, point goal changed to a lower-bound goal.

[d] Previous escapement goal reinstated.

[e] Target strength based escapement estimate deemed unreliable or not available.

[f] Escapements and escapement goal reevaluated, goal range changed. Escapement estimates in Table 2 are based on new methodology.

[g] Escapement goal reevaluated, lower-bound goal changed to a range.

[h] 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.

[i] 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).

[j] Escapement goal reevaluated, upper-bound goal changed, lower-bound remained the same.

[k] Escapement goal reevaluated, goal range changed to a lower-bound goal.

[l] Escapement goal reevaluated, goal range changed.

[m] Escapement goal reevaluated, goal type changed but goal range remained the same.

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 Arctic-Yukon-Kuskokwim Region.

Species	System	2007	2008	2009	2010	2011	2012	2013	2014	2015
Chinook salmon	*Kuskokwim Area*									
	North (Main) Fork Goodnews River	NS	Met	NS	NS	Met	Under	NS	Under	Met
	Middle Fork Goodnews River	Over[a]	Met	Met	Met	Met	Under	Under	Under	Under
	Kanektok River	NS	NS	NS	Under	NS	NS	Under	Under	Met
	Kuskokwim Area (entire area)							Under	Over	Met
	Kogrukluk River	NA	Met	Met	Met	Met	NA	Under[a]	Under	Met
	Kwethluk River	Over[b]	Under	Under	Under	Under	NA	Under[a]	Under	Over
	Tuluksak River	Under	Under	Under	Under	Under	Under	eliminated		
	George River	Met	Under	Met	Under	Under	Under	Under[a]	Met	Met
	Kisaralik River	Met	Met	NS	Under	NS	Met	Met	Met	Met
	Aniak River	Over	Over	NS	NS	NS	NS	Under	Over	NS
	Salmon River (Aniak R)	Over	Met	NS	NS	Under	Under	Under	Met	Met
	Holitna River	NS	NS	NS	NS	NS	NS	Under	NS	Under
	Cheeneetnuk River (Stony R)	NS	Under	Under	NS	Under	Under	Under	Met	NS
	Gagaryah River (Stony R)	Over	Under	Met	Under	Under	Under	Under	Met	Under
	Salmon River (Pitka Fork)	Met	Met	Met	Under	Met	Met	Under	Over	Over
	Yukon River									
	East Fork Andreafsky River	Over	Under	Under	Met[b]	Over	Met	Under	Over	Over
	West Fork Andreafsky River	Met	NS	Over	Met	Met	NS	Met	Over	NS
	Anvik River	Met	Under	Under	Under	Under	Under	Under	Met	Over
	Nulato River (forks combined)	Over	Under	Over	Under	Met	Met	Met	NS	Met
	Gisasa River	Met	Met	Met	eliminated					
	Chena River	Met	Met	Met	Under	NS	Under	Under	Over	Over
	Salcha River	Met	Met	Over	Met	Over	Over	Met	NS	Met
	Canada Mainstem	Met[c]	Under[c]	Met	Under[c]	Met	Under	Under	Over	Over
	Norton Sound									
	Fish River/Boston Creek	NS	NS	NS	NS	NS	NS	Under	NS	Met
	Kwiniuk River	Under	Under	Met	Under	Under	Under	Under	Met	Met
	North River (Unalakleet R)	Met	Under	Met	Met	Under	Under	Under	Met	Met
	Shaktoolik River	Met	NS	NS	NS	Under	NS	eliminated		
	Unalakleet/Old Woman River	Met	NS	Over	NS	Under	NS	NS	NS	NS
Chum salmon	*Kuskokwim Area*									
	Middle Fork Goodnews River	Met	Met	Met	Met	Met	Under	Met	Under	Under
	Kanektok River	NS	NS	NS	NS	NS	NA	eliminated		
	Kogrukluk River	Over	Met	Over	Over	Over	NA	Over	Met	Met

-continued-

Table 7.–Page 2 of 3.

Species	System	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Aniak River	Over[d]	Met	Met	Met	Met	NS	NA	NA	NA
	Yukon River Summer Chum									
	East Fork Andreafsky River	Met	Under	Under	Met[e]	Met	Met	Met	Under	Met
	Anvik River	Met	Met	Under	Met	Met	Met	Met	Met	Met
	Yukon River Fall Chum									
	Yukon River Drainage	Over	Met	Met	Met[f]	Over	Met	Over	Over	Met
	Tanana River	Over	Over	Over	Over	Over	Met	Over	Over	Met
	Delta River	Over	Over	Met	Over	Over	Met	Over	Over	Over
	Toklat River	NA	NA	NA	eliminated					
	Upper Yukon River Tributaries	Over	Met	NA	Met	Over	Over	Over	Met	Met
	Chandalar River	Over	Over	NA	Over	Over	Over	Over	Over	Over
	Sheenjek River	Met	Met	Met	Under	Met	Over	Over	Met	Under
	Fishing Branch River (Canada)	Under	Under[c]	Met	Under	Under	Met	Met	Under	Under
	Yukon R. Mainstem (Canada)	Met	Met	Met	Over[c]	Over	Over	Over	Over	Over
	Norton Sound									
	Subdistrict 1 Aggregate	Over	Met	Under	Over	Over	Over	Over	Over	Over
	Sinuk River	Over	NS	Under	eliminated					
	Nome River	Over	Under	Under	Over	Met	Under	Over	Over	Over
	Bonanza River	Over	NS	Over	eliminated					
	Snake River	Over	Under	Under	Over	Over	Under	Over	Over	Over
	Solomon River	Over	NS	Under	eliminated					
	Flambeau River	Over	Over	Under	eliminated					
	Eldorado River	Over	Met	Under	Over	Over	Over	Over	Over	Over
	Niukluk River	Met	Under	Under	Met[a]	Met	Under	NS	NA	NS
	Kwiniuk River	Over	Under	Under	Over	Over	Under	Under	Over	Over
	Tubutulik River	Under	NS	Under	Met	Met	NS	NS	NS	Met
	Unalakleet/Old Woman River	Under	NS	NS	NS	NS	NS	Met	NS	NS
	Kotzebue Sound									
	Kotzebue Sound Aggregate									
	Noatak and Eli Rivers	NS[a]	Over	Met	NS	NS	NS	NS	Over	NS
	Upper Kobuk w/ Selby River	NS[a]	Over	Over	NS	NS	NS	NS	Over	NS
	Salmon River	NS[a]	NS	NS	NS	NS	NS	NS	NS	NS
	Tutuksuk River	NS[a]	NS	NS	NS	NS	NS	NS	NS	NS
	Squirrel River	NS[a]	NS	NS	NS	NS	NS	NS	NS	NS
Coho salmon	*Kuskokwim Area*									
	Middle Fork Goodnews River	Met	Met	Met	Met	Met	NA	NA	NA	Met
	Kogrukluk River	Met	Over	Met	Met	Met	Met	Met	Over	Over

-continued-

Table 7.–Page 3 of 3.

Species	System	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Kwethluk River				NA	NA	Met	NA	Met	Met
	Yukon River									
	Delta Clearwater River	Met	Met	Met	Met	Met	Met	Met	Under	Over
	Norton Sound									
	Kwiniuk River	Over	Over	NS	Over	Over	NS	NS	NS	NS
	Niukluk River	Met[g]	Over	Over	Over[a]	Met	Under	NS	NS	NS
	North River (Unalakleet R.)	Over	Over	Over	NS	Met	NS	Met	NS	NS
Pink salmon	*Norton Sound*									
	Nome River (odd year)	Met		Met		Met		Met		Met
	Nome River (even year)		Met		Met		Met		Met	
	Kwiniuk River	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Niukluk River	Met	Met	Met	Met	Met	Met	NS	NS	NS
	North River	Met	Met	Met	Met	Met	Met	Met	Met	Met
Sockeye salmon	*Kuskokwim Area*									
	North (Main) Fork Goodnews River	NS	Over	NS	NS	Met	Met	NS	NS	Over
	Middle Fork Goodnews River	Over[a]	Over	Met	Met	Under	Met	Met	Over	Over
	Kanektok River	NS	NS	NS	Met	NS	NA	Over	Over	Over
	Kogrukluk River				Met	Met	NA	Met	Met	Met
	Norton Sound									
	Salmon Lake/Grand Central River	Over	Over	Under	Under	Met	Met	Met	Met	Over
	Glacial Lake	Met	Under	Under	Under	NS	NS	Met	Over	Over

Note: NA = data not available; NS = no survey; ND = not determined yet. 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] Previous escapement goal was based on Bendix and Biosonics sonar counts, replaced with escapement goal based on DIDSON sonar counts. Escapements in Table 3 are in DIDSON units (see Molyneaux and Brannian 2006).

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

[f] Escapement goal reevaluated, goal type changed but goal value remained the same.

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 Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas).

Species	System	2007	2008	2009	2010	2011	2012	2013	2014	2015
Chinook salmon	*AK Peninsula*									
	Nelson River	Met	Over	Under	Met	Under	Under	Under	Met	Met
	Chignik									
	Chignik River	Met	Met	Met	Over	Met	Met	Under	Over	Met
	Kodiak									
	Karluk River	Under	Under	Under	Under	Met[a]	Met	Under	Under	Under
	Ayakulik River	Met	Under	Under	Met	Met[a]	Met	Under	Under	Under
Chum salmon	*AK Peninsula*									
	Northern District	Over[b]	Met	Met	Met	Under	Met	Met	Met	Met
	Northwestern District	Over[b]	Over	Under	Met	Met	Met	Under	Under	Under
	Southeastern District	Met	Over	Met	Under	Met	Met	Met	Under	Over
	South Central District	Met	Met	Under	Under	Met	Under	Met	Met	Over
	Southwestern District	Over	Met	Over	Met	Met	Under	Met	Under	Over
	Unimak District	Met[c]	Met	Met	Met	Met	Under	eliminated		
	Chignik									
	Entire Chignik Area		Met[d]	Met	Met	Met	Met	Met	Met	Met
	Kodiak									
	Mainland District	Under	Under[e]	Under	Met	Met	Met	Met	Under	Met
	Kodiak Archipelago Aggregate		Under[d]	Met	Met	Met	Met	Met	Under	Met
Coho salmon	*AK Peninsula*									
	Nelson River	Met	Met	Met	Under	Met	Met	Met	Met	Met
	Thin Point Lake	Met	Met	Under	NA	Under	Under	eliminated		
	Ilnik River				Met[f]	Met	Met	Met	Met	Met
	Kodiak									
	Pasagshak River	Met	Over	Met	Met	Under[c]	Met	Met	Met	Met
	Buskin River	Over	Over	Over	Met	Met	Met	Met	Met[a]	Under
	Olds River	Under	Under	Under	NA	Met[c]	Under	Met	Met	Met
	American River	Under	Met	Met	NA	Met[c]	Met	Met	Met	Met
Pink salmon	*AK Peninsula*									
	Bechevin Bay Section (odd year)	Met		Met		Met		eliminated		
	Bechevin Bay Section (even year)		Under		Under		Under	eliminated		
	South Peninsula Total (odd year)	Met[b]		Met		Met		Met		Over
	South Peninsula Total (even year)	[b]	Met		Under		Under		Under	

-continued-

Table 8.–Page 2 of 3.

Species	System	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Chignik									
	Entire Chignik Area (odd year)	Over	[a]	Over		Over		Over		Over
	Entire Chignik Area (even year)		Over[a]		Met		Met		Met	
	Kodiak									
	Mainland District	Met	Under	Met	Met	Met[g]	Met	Met	Met	Met
	Kodiak Archipelago (odd year)	Met		Met		Met[h]		Met		Over
	Kodiak Archipelago (even year)		Met		Met	[h]	Met		Under	
Sockeye salmon	*AK Peninsula*									
	Cinder River	Over[a]	Over	Over	Over	Over	Over	Over	Over	Over
	Ilnik River	Over	Met	Over	Met	Met	Over	Met	Met	Under
	Meshik River	Met[a]	Over	Over	Met[a]	Met	Met	Met	Over	Over
	Sandy River	Met[a]	Under	Met	Met	Met	Under	Met	Met	Over
	Bear River Early Run	Met	Under	Met	Met	Met	Under	Met	Met	Over
	Bear River Late Run	Over	Over	Met	Met	Met	Under	Over	Over	Over
	Nelson River	Met	Met	Met	Met	Under	Met	Over	Over	Over
	Christianson Lagoon	Met	Over	Met	Met	Met	Met	Under	Met	Under
	Swanson Lagoon	Met[a]	Under	Under	Under	Under	Met	Under	Under	Under
	North Creek	Over	Over	Met	Over	Over	Over	Met	Met	Over
	Orzinski Lake	Under	Over	Over	Met	Met	Met	Met	Under	Over
	Mortensen Lagoon	Met	Met	Over	Over	Under	Met	Met	Under	NA
	Thin Point Lake	Met	Met	Over	Under	Met	Met	Under	Under	Met
	McLees Lake				Met[f]	Met	Met	Met	Met	Met
	Chignik									
	Chignik River Early Run	Met	Met	Met	Over	Over	Met	Met	Met[i]	Over
	Chignik River Late Run	Over	Met[a]	Met	Met	Met	Met	Met	Met	Over
	Kodiak									
	Malina Creek	Met	Met	Met	Met	Met	Met	Met	Met	Met
	Afognak (Litnik) River	Met	Met	Met	Over	Met	Met	Met	Met	Met
	Little River		Under[j]	Under	Met	Met	Met	Met	eliminated	
	Uganik Lake		Met[j]	Met	Met	Met	Under	Met	Under	Under
	Karluk River Early Run	Over	Under[a]	Under	Under	Under	Met	Met	Over	Over
	Karluk River Late Run	Met	Under	Met	Met	Met	Met	Met	Over	Over
	Ayakulik River	Met	Under	Met	Met	eliminated				
	Ayakulik River Early Run					Met[k]	Met	Met	Met	Met
	Ayakulik River Late Run					Met[k]	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	Met	Under	Met	Met	Met	Met

-continued-

Table 8.–Page 3 of 3.

Species	System	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Frazer Lake	Met	Met[a]	Met	Met	Met	Met	Met	Over	Over
	Saltery Lake	NA	Over	Over	Met	Met[g]	Met	Over	Met	Over
	Pasagshak River	Over	Over	Under	Met	Met[c]	Met	Met	Under	Under
	Buskin Lake	Over	Under	Under	Met	Over[l]	Over	Over	Over	Over

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

[a] Escapement goal reevaluated, goal range changed.

[b] Escapement goal reevaluated, goal type changed but goal range remained the same.

[c] Escapement goal reevaluated, upper-bound goal eliminated, lower-bound goal remained the same.

[d] Aggregate goal established to replace individual district level goals.

[e] Escapement goal reevaluated, lower-bound goal changed.

[f] Goal reestablished. New analysis.

[g] Escapement goal reevaluated, upper-bound goal changed.

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

[i] Escapement goal reevaluated, upper-bound goal changed.

[j] Previous escapement goal reestablished.

[k] Single escapement goal was changed to separate early- and late-run escapement goals.

[l] Escapement goal reevaluated, goal type and range changed.

Table 9.–Southeast Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2007 to 2015.

	2007	2008	2009	2010	2011	2012	2013	2014	2015
CHINOOK SALMON									
Number Below	4	3	5	0	3	6	4	4	2
Number Met	6	7	5	8	8	5	6	7	8
Number Above	1	1	1	2	0	0	2	1	2
% Below	36%	27%	45%	0%	27%	55%	33%	33%	17%
% Met	55%	64%	45%	80%	73%	45%	50%	58%	67%
% Above	9%	9%	9%	20%	0%	0%	17%	8%	17%
CHUM SALMON									
Number Below			5	2	3	1	3	2	0
Number Met			2	5	3	5	5	6	6
Number Above			1	1	2	2	0	0	2
% Below			63%	25%	38%	13%	38%	25%	0%
% Met			25%	63%	38%	63%	63%	75%	75%
% Above			13%	13%	25%	25%	0%	0%	25%
COHO SALMON									
Number Below	3	0	0	0	1	2	2	0	0
Number Met	8	5	10	8	9	7	6	6	7
Number Above	2	6	3	5	3	4	6	8	7
% Below	23%	0%	0%	0%	8%	15%	14%	0%	0%
% Met	62%	45%	77%	62%	69%	54%	43%	43%	50%
% Above	15%	55%	23%	38%	23%	31%	43%	57%	50%
PINK SALMON									
Number Below	0	1	0	0	0	2	0	2	0
Number Met	1	2	4	3	2	2	2	0	3
Number Above	3	0	0	0	2	0	2	2	1
% Below	0%	33%	0%	0%	0%	50%	0%	50%	0%
% Met	25%	67%	100%	100%	50%	50%	50%	0%	75%
% Above	75%	0%	0%	0%	50%	0%	50%	50%	25%
SOCKEYE SALMON									
Number Below	4	12	6	1	1	2	5	1	1
Number Met	5	1	3	10	6	7	5	6	7
Number Above	4	0	3	2	6	4	3	5	5
% Below	31%	92%	50%	8%	8%	15%	38%	8%	8%
% Met	38%	8%	25%	77%	46%	54%	38%	50%	54%
% Above	31%	0%	25%	15%	46%	31%	23%	42%	38%

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

Table 10.–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 2007 to 2015.

	2007	2008	2009	2010	2011	2012	2013	2014	2015
CHINOOK SALMON									
Number Below	7	11	16	15	14	14	6	12	4
Number Met	18	12	12	7	10	8	18	14	19
Number Above	2	2	1	0	0	1	0	0	1
% Below	26%	44%	55%	68%	58%	61%	25%	46%	17%
% Met	67%	48%	41%	32%	42%	35%	75%	54%	79%
% Above	7%	8%	3%	0%	0%	4%	0%	0%	4%
CHUM SALMON									
Number Below	4	2	3	3	4	5	5	7	3
Number Met	12	14	12	10	11	11	10	10	8
Number Above	2	3	4	5	4	3	4	2	7
% Below	22%	11%	16%	17%	21%	26%	26%	37%	17%
% Met	67%	74%	63%	56%	58%	58%	53%	53%	44%
% Above	11%	16%	21%	28%	21%	16%	21%	11%	39%
COHO SALMON									
Number Below	0	0	1	2	2	2	0	1	1
Number Met	2	1	2	2	3	3	3	2	3
Number Above	2	3	1	0	0	0	3	3	1
% Below	0%	0%	25%	50%	40%	40%	0%	17%	20%
% Met	50%	25%	50%	50%	60%	60%	50%	33%	60%
% Above	50%	75%	25%	0%	0%	0%	50%	50%	20%
PINK SALMON									
Number Below	1	1	4	3	7	7	2	5	0
Number Met	8	9	4	12	5	14	9	18	4
Number Above	9	8	10	2	5	4	14	4	22
% Below	6%	6%	22%	18%	41%	28%	8%	19%	0%
% Met	44%	50%	22%	71%	29%	56%	36%	67%	15%
% Above	50%	44%	56%	12%	29%	16%	56%	15%	85%
SOCKEYE SALMON									
Number Below	2	5	5	4	3	6	8	4	4
Number Met	13	17	14	18	20	21	16	14	13
Number Above	14	8	12	9	8	3	6	11	12
% Below	7%	17%	16%	13%	10%	20%	27%	14%	14%
% Met	45%	57%	45%	58%	65%	70%	53%	48%	45%
% Above	48%	27%	39%	29%	26%	10%	20%	38%	41%

Table 11.–Arctic–Yukon–Kuskokwim Region Chinook, chum, coho, pink, and sockeye salmon escapements compared to escapement goals for the years 2007 to 2015.

	2007	2008	2009	2010	2011	2012	2013	2014	2015
CHINOOK SALMON									
Number Below	2	11	5	12	11	12	19	5	3
Number Met	12	9	10	6	7	4	4	8	12
Number Above	7	1	4	0	2	1	0	7	6
% Below	10%	52%	26%	67%	55%	71%	83%	25%	14%
% Met	57%	43%	53%	33%	35%	24%	17%	40%	57%
% Above	33%	5%	21%	0%	10%	6%	0%	35%	29%
SUMMER CHUM SALMON									
Number Below	2	4	10	0	0	5	1	1	1
Number Met	2	5	3	4	5	0	2	1	2
Number Above	11	3	3	6	5	2	5	7	5
% Below	13%	33%	63%	0%	0%	71%	13%	11%	13%
% Met	13%	42%	19%	40%	50%	0%	25%	11%	25%
% Above	73%	25%	19%	60%	50%	29%	63%	78%	63%
YUKON RIVER SUMMER CHUM SALMON									
Number Below	0	1	2	0	0	0	0	1	0
Number Met	2	1	0	2	2	2	2	1	2
Number Above	0	0	0	0	0	0	0	0	0
% Below	0%	50%	100%	0%	0%	0%	0%	50%	0%
% Met	100%	50%	0%	100%	100%	100%	100%	50%	100%
% Above	0%	0%	0%	0%	0%	0%	0%	0%	0%
YUKON RIVER FALL CHUM SALMON									
Number Below	1	1	0	2	1	0	0	1	2
Number Met	2	4	5	2	1	4	1	2	3
Number Above	5	3	1	4	6	4	7	5	3
% Below	13%	13%	0%	25%	13%	0%	0%	13%	25%
% Met	25%	50%	83%	25%	13%	50%	13%	25%	38%
% Above	63%	38%	17%	50%	75%	50%	88%	63%	38%
COHO SALMON									
Number Below	0	0	0	0	0	1	0	1	0
Number Met	4	2	3	3	5	3	3	1	2
Number Above	2	4	2	2	1	0	0	1	2
% Below	0%	0%	0%	0%	0%	25%	0%	33%	0%
% Met	67%	33%	60%	60%	83%	75%	100%	33%	50%
% Above	33%	67%	40%	40%	17%	0%	0%	33%	50%

-continued-

Table 11.–Page 2 of 2.

	2007	2008	2009	2010	2011	2012	2013	2014	2015
PINK SALMON									
Number Below	0	0	0	0	0	0	0	0	0
Number Met	4	4	4	4	4	4	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	0	1	2	2	1	0	0	0	0
Number Met	1	0	1	3	3	3	4	2	1
Number Above	2	3	0	0	0	0	1	3	5
% Below	0%	25%	67%	40%	25%	0%	0%	0%	0%
% Met	33%	0%	33%	60%	75%	100%	80%	40%	17%
% Above	67%	75%	0%	0%	0%	0%	20%	60%	83%

Table 12.–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 2007 to 2015.

	2007	2008	2009	2010	2011	2012	2013	2014	2015
CHINOOK SALMON									
Number Below	1	2	3	1	1	1	4	2	2
Number Met	3	1	1	2	3	3	0	1	2
Number Above	0	1	0	1	0	0	0	1	0
% Below	25%	50%	75%	25%	25%	25%	100%	50%	50%
% Met	75%	25%	25%	50%	75%	75%	0%	25%	50%
% Above	0%	25%	0%	25%	0%	0%	0%	25%	0%
CHUM SALMON									
Number Below	1	2	3	2	1	3	1	5	1
Number Met	3	5	5	7	8	6	7	3	4
Number Above	3	2	1	0	0	0	0	0	3
% Below	14%	22%	33%	22%	11%	33%	13%	63%	13%
% Met	43%	56%	56%	78%	89%	67%	88%	38%	50%
% Above	43%	22%	11%	0%	0%	0%	0%	0%	38%
COHO SALMON									
Number Below	2	1	2	1	2	2	0	0	1
Number Met	3	3	3	3	5	5	6	6	5
Number Above	1	2	1	0	0	0	0	0	0
% Below	33%	17%	33%	25%	29%	29%	0%	0%	17%
% Met	50%	50%	50%	75%	71%	71%	100%	100%	83%
% Above	17%	33%	17%	0%	0%	0%	0%	0%	0%
PINK SALMON									
Number Below	0	2	0	2	0	2	0	2	0
Number Met	4	2	4	3	4	3	3	2	1
Number Above	1	1	1	0	1	0	1	0	3
% Below	0%	40%	0%	40%	0%	40%	0%	50%	0%
% Met	80%	40%	80%	60%	80%	60%	75%	50%	25%
% Above	20%	20%	20%	0%	20%	0%	25%	0%	75%
SOCKEYE SALMON									
Number Below	1	8	5	3	5	4	3	6	5
Number Met	16	12	16	21	21	22	22	15	8
Number Above	8	8	7	5	4	4	5	8	15
% Below	4%	29%	18%	10%	17%	13%	10%	21%	18%
% Met	64%	43%	57%	72%	70%	73%	73%	52%	29%
% Above	32%	29%	25%	17%	13%	13%	17%	28%	54%

Table 13.–Summary of Southeast Region salmon escapements compared against escapement goals for the years 2007 to 2015.

Southeast Region		2007	2008	2009	2010	2011	2012	2013	2014	2015
Stocks with Escapement Data		41	41	38	48	47	49	49	51	50
Below Lower Goal										
	Number	11	16	16	3	8	13	14	9	3
	Percent	27%	42%	33%	6%	16%	27%	27%	18%	6%
Goal Met										
	Number	20	15	24	34	28	26	24	25	31
	Percent	49%	39%	50%	72%	57%	53%	47%	50%	61%
Above Upper Goal										
	Number	10	7	8	10	13	10	13	16	17
	Percent	24%	18%	17%	21%	27%	20%	25%	32%	33%

Table 14.–Summary of Central Region (Bristol Bay, Cook Inlet, Prince William Sound/Copper River) salmon escapements compared against escapement goals for the years 2007 to 2015.

Central Region		2007	2008	2009	2010	2011	2012	2013	2014	2015
Stocks with Escapement Data		96	96	96	101	92	96	102	104	107
Below Lower Goal										
	Number	14	19	29	27	30	34	21	29	12
	Percent	15%	20%	29%	29%	31%	33%	20%	27%	12%
Goal Met										
	Number	53	53	44	49	49	57	56	58	47
	Percent	55%	55%	44%	53%	51%	56%	54%	54%	46%
Above Upper Goal										
	Number	29	24	28	16	17	11	27	20	43
	Percent	30%	25%	28%	17%	18%	11%	26%	19%	42%

Table 15.–Summary of Arctic–Yukon–Kuskokwim Region salmon escapements compared against escapement goals for the years 2007 to 2015.

AYK Region		2007	2008	2009	2010	2011	2012	2013	2014	2015
Stocks with Escapement Data		59	57	55	52	54	45	52	50	52
Below Lower Goal										
	Number	5	18	19	16	13	18	20	9	6
	Percent	8%	32%	35%	31%	24%	40%	38%	18%	12%
Goal Met										
	Number	27	25	26	24	27	20	19	18	25
	Percent	46%	44%	47%	46%	50%	44%	37%	36%	48%
Above Upper Goal										
	Number	27	14	10	12	14	7	13	23	21
	Percent	46%	25%	18%	23%	26%	16%	25%	46%	40%

Table 16.–Summary of Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) salmon escapements compared against escapement goals for the years 2007 to 2015.

Westward Region		2007	2008	2009	2010	2011	2012	2013	2014	2015
Stocks with Escapement Data		47	52	52	51	55	55	52	51	50
Below Lower Goal										
	Number	5	15	13	9	9	12	8	15	9
	Percent	11%	29%	25%	18%	16%	22%	15%	29%	18%
Goal Met										
	Number	29	23	29	36	41	39	38	27	20
	Percent	62%	44%	56%	71%	75%	71%	73%	53%	40%
Above Upper Goal										
	Number	13	14	10	6	5	4	6	9	21
	Percent	28%	27%	19%	12%	9%	7%	12%	18%	42%

Table 17.–Statewide summary of salmon stocks of concern in Alaska.

Region	System	Species	Year Designated[a]	Level of Concern	Year Last Reviewed[a]
Central	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
	Norton Sound Subdistrict 1[b]	chum	2006	Yield	2015

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

[b] Norton Sound Subdistrict 1 chum salmon was delisted as a stock of concern during the 2015/2016 BOF meeting cycle.

Table 18.–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 Heinl 2014
Northern Southeast Inside Summer	Peak Aerial Survey	Percentile	Piston and Heinl 2011a
Northern Southeast Outside Summer	Peak Aerial Survey	Percentile	Piston and Heinl 2014
Cholmondeley Sound Fall	Peak Aerial Survey	Percentile	Eggers and Heinl 2008
Port Camden Fall	Peak Aerial Survey	Risk Analysis	Eggers and Heinl 2008
Security Bay Fall	Peak Aerial Survey	Percentile	Eggers and Heinl 2008
Excursion River Fall	Peak Aerial Survey	Percentile	Eggers and Heinl 2008
Chilkat River Fall	Mark–Recapture, Fish Wheel	SRA	Piston and Heinl 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

-continued-

Table 18.–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
SOCKEYE 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 19.–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			
Bristol Bay			
Nushagak River	Sonar	SRA, Yield Analysis	Fair et al. 2012
Naknek River	Single Aerial Survey[a]	Risk Analysis	Baker et al. 2006; Fair et al. 2004
Alagnak River	Single Aerial Survey	Risk Analysis	Baker et al. 2006; Fair et al. 2004
Upper Cook Inlet			
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]
Lower Cook Inlet			
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
Prince William Sound			
Copper River	Mark–Recapture	Empirical Observation	Bue et al. 2002; Savereide 2001

-continued-

Table 19.–Page 2 of 5.

System	Enumeration Method	Goal Development Method	References
CHUM SALMON			
Bristol Bay			
Nushagak River	Sonar	Risk Analysis	Fair et al. 2012
Upper Cook Inlet			
Clearwater Creek	Peak Aerial Survey[c]	Percentile	Bue and Hasbrouck, unpublished[b]
Lower Cook Inlet			
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
Prince William Sound			
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			
Bristol Bay			
Nushagak River	Sonar	SRA	Fair et al. 2012
Upper Cook Inlet			
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]
Lower Cook Inlet			
There are no coho salmon stocks with escapement goals in Lower Cook Inlet			

-continued-

Table 19.–Page 3 of 5.

System	Enumeration Method	Goal Development Method	References
Prince William Sound			
Copper River Delta	Peak Aerial Survey	Percentile	Bue et al. 2002
Bering River	Peak Aerial Survey	Percentile	Bue et al. 2002
PINK SALMON			
Bristol Bay			
Nushagak River	Sonar	Percentile	Fair et al. 2012
Upper Cook Inlet			
There are no pink salmon stocks with escapement goals in Upper Cook Inlet			
Lower Cook Inlet			
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
Prince William Sound			
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

-continued-

Table 19.–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
SOCKEYE SALMON			
Bristol Bay			
Kvichak River	Tower Count	SRA, Yield Analysis	Baker et al. 2009
Alagnak River	Tower Count	Risk Analysis	Baker et al. 2006
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
Upper Cook Inlet			
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
Lower Cook Inlet			
English Bay	Peak Aerial Survey, Weir Count	Percentile	Otis 2001
Delight Lake	Peak Aerial Survey, Weir Count	Percentile	Otis et al. 2010

-continued-

Table 19.–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
Prince William Sound			
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 20.–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			
Kuskokwim Area			
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	ADF&G 2004
Kuskokwim River (entire area)	Run Reconstruction[b]	SRA	Hamazaki et al. 2012
Kogrukluk 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
Cheeneetnuk 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
Yukon River			
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
Norton Sound			
Fish River/Boston Creek	Peak Aerial Survey	Percentile	ADF&G 2004
Kwiniuk River	Tower Count	SRA	ADF&G 2004; Fair et al. 1999, memorandum[d]
North River (Unalakleet R)	Tower Count	Percentile	ADF&G 2004
Unalakleet/Old Woman River	Peak Aerial Survey	Theoretical SRA	ADF&G 2004
CHUM SALMON			
Kuskokwim Area			
Middle Fork Goodnews River	Weir Count	Percentile	ADF&G 2004
Kogrukluk River	Weir Count	Percentile	ADF&G 2004

-continued-

Table 20.–Page 2 of 4.

System	Enumeration Method	Goal Development Method	References
Aniak River	Sonar	Percentile	Brannian et al. 2006; Molyneaux and Brannian 2006
Yukon River Summer Chum			
East Fork Andreafsky River	Weir Count	SRA	Fleischman and Evenson 2010; Volk et al. 2009
Anvik River	Sonar	SRA	ADF&G 2004
Yukon River Fall Chum			
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
Upper Yukon River Tributaries	Sonar & Weir Count	SRA	ADF&G 2004; Eggers 2001
Chandalar River	Sonar	Proportion of Upper Yukon River Tributaries Goal	ADF&G 2004; Eggers 2001
Sheenjek 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
Norton Sound			
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)
Niukluk River	Tower Count	Risk Analysis	Volk et al. 2009
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)
Unalakleet/Old Woman River	Peak Aerial Survey	Empirical Observation	ADF&G 2004
Kotzebue Sound			
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

-continued-

Table 20.–Page 3 of 4.

System	Enumeration Method	Goal Development Method	References
COHO SALMON			
Kuskokwim Area			
Middle Fork Goodnews River	Weir Count	Percentile	ADF&G 2004
Kogrukluk River	Weir Count	Percentile	ADF&G 2004
Kwethluk River	Weir Count	Empirical Observation	Volk et al. 2009
Yukon River			
Delta Clearwater River	Boat Survey	Percentile	ADF&G 2004
Norton Sound			
Kwiniuk River	Peak Aerial Survey	Theoretical SRA	ADF&G 2004; Fair et al. 1999, memorandum[d]
Niukluk River	Tower Count	Percentile	Volk et al. 2009
North River (Unalakleet R.)	Peak Aerial Survey	Theoretical SRA	ADF&G 2004; Fair et al. 1999, memorandum[d]
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)	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
Niukluk River	Tower Count	Empirical Observation	ADF&G 2004
North River	Tower Count	Empirical Observation	ADF&G 2004
SOCKEYE SALMON			
Kuskokwim Area			
North (Main) Fork Goodnews River	Single Aerial Survey	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	ADF&G 2004
Kogrukluk River	Weir Count	Percentile	Volk et al. 2009
Yukon River			
There are no escapement goals for Sockeye in the Yukon River drainage.			
Norton Sound			
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]

-continued-

Table 20.–Page 4 of 4.

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 BEG's for Norton Sound and Kotzebue Sound. Alaska Department of Fish and Game, 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 21.–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			
AK Peninsula			
Nelson River	Weir, Peak Aerial Survey[a]	Spawning Habitat Model, SRA	Nelson et al. 2006
Chignik			
Chignik River	Weir Count	SRA	Hasbrouck and Clark, unpublished[b]; Witteveen et al. 2005
Kodiak			
Karluk River	Weir Count	SRA	Nemeth et al. 2010
Ayakulik River	Weir Count	SRA	Nemeth et al. 2010
CHUM SALMON			
AK Peninsula			
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
Chignik			
Entire Chignik Area	Peak Aerial Survey	Risk Analysis	Witteveen et al. 2007
Kodiak			
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			
AK Peninsula			
Nelson River	Peak Aerial Survey	Risk Analysis	Nelson et al. 2006
Ilnik River	Peak Aerial Survey	Risk Analysis	Witteveen et al. 2009
Chignik			
There are no coho salmon stocks with escapement goals in Chignik Area			
Kodiak			
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

-continued-

Table 21.–Page 2 of 3.

System	Enumeration Method	Goal Development Method	References
PINK SALMON			
AK Peninsula			
South Peninsula Total (odd year)	Peak Aerial Survey	SRA	Honnold et al. 2007b, Nelson and Lloyd 2001
South Peninsula Total (even year)	Peak Aerial Survey	SRA	Honnold et al. 2007b, Nelson and Lloyd 2001
Chignik			
Entire Chignik Area (odd year)	Peak Aerial Survey, Weir Count	Yield Analysis	Witteveen et al. 2007
Entire Chignik Area (even year)	Peak Aerial Survey, Weir Count	Yield Analysis	Witteveen et al. 2007
Kodiak			
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
SOCKEYE SALMON			
AK Peninsula			
Cinder River	Peak Aerial Survey	Percentile	Honnold et al. 2007b
Ilnik River	Weir Count	Percentile, Euphotic Volume Model, Zooplankton Model	Nelson and Lloyd 2001; Nelson et al. 2006
Meshik River	Peak Aerial Survey	Percentile	Witteveen et al. 2009
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
Chignik			
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

-continued-

Table 21.–Page 3 of 3.

System	Enumeration Method	Goal Development Method	References
Kodiak			
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 and historical escapement	Nemeth et al. 2010
Ayakulik River Late Run	Weir Count	Zooplankton Model and historical escapement	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

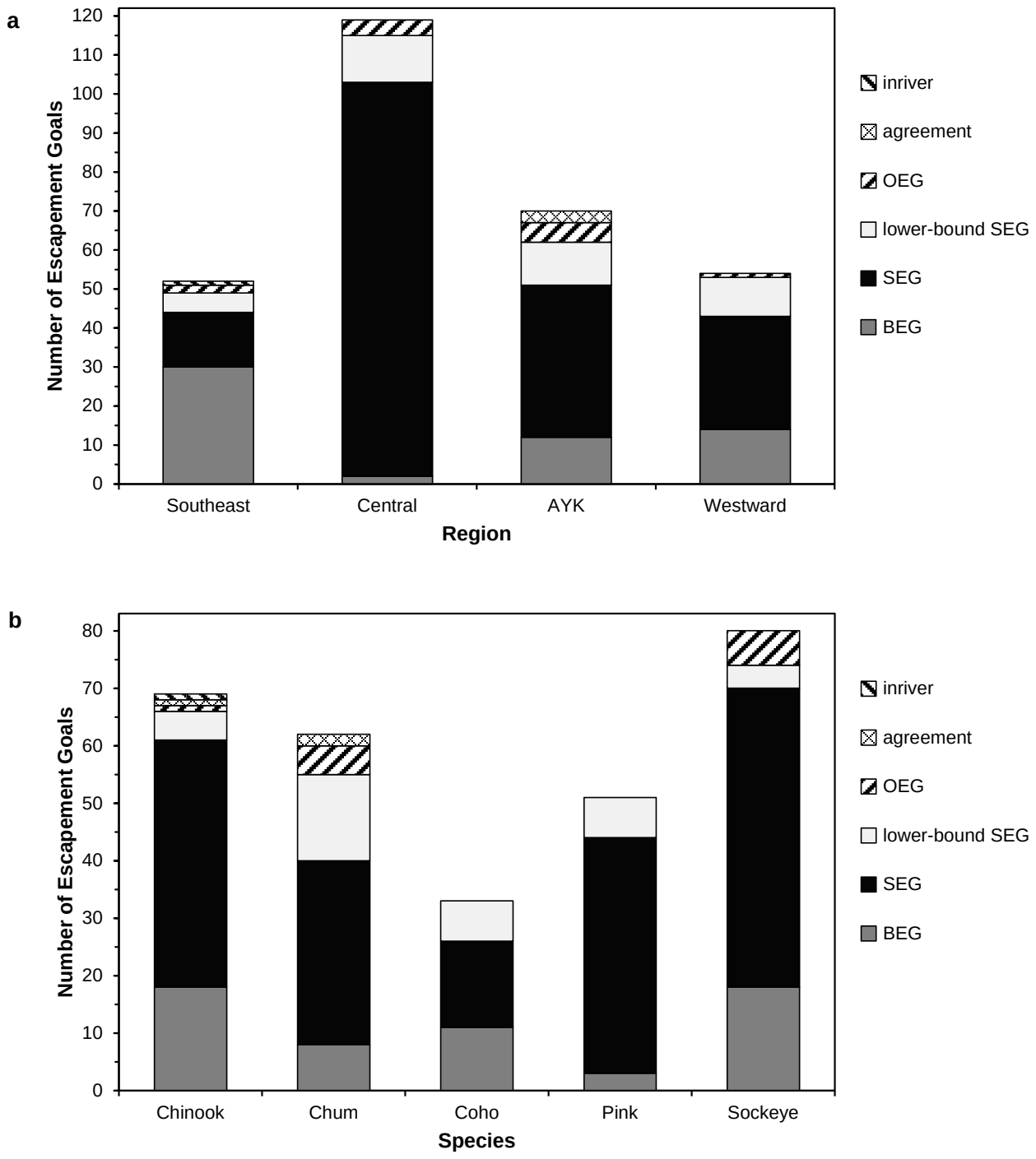

Figure 1.–Statewide summary of the 295 escapement goals in effect during the 2015 spawning season for (a) the 4 Division of Commercial Fisheries regions and (b) by species. BEG is biological escapement goal, SEG is sustainable escapement goal, OEG is optimal escapement goal (set by the Alaska Board of Fisheries), agreement goals are established through international treaties, and *inriver* is inriver escapement goal (set by the Alaska Board of Fisheries).

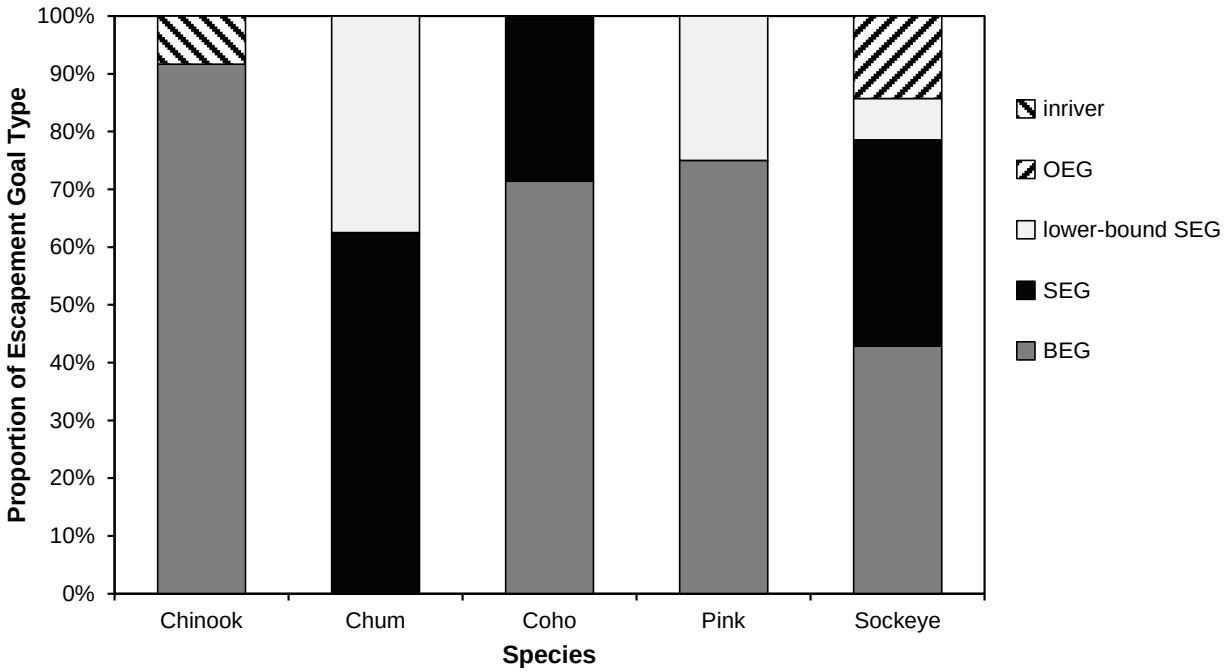

Figure 2.–Proportion of escapement goal types by species for the 52 escapement goals in Southeast Region. BEG is biological escapement goal, SEG is sustainable escapement goal, OEG is optimal escapement goal (set by the Alaska Board of Fisheries), and *inriver* is an inriver escapement goal (set by the Alaska Board of Fisheries).

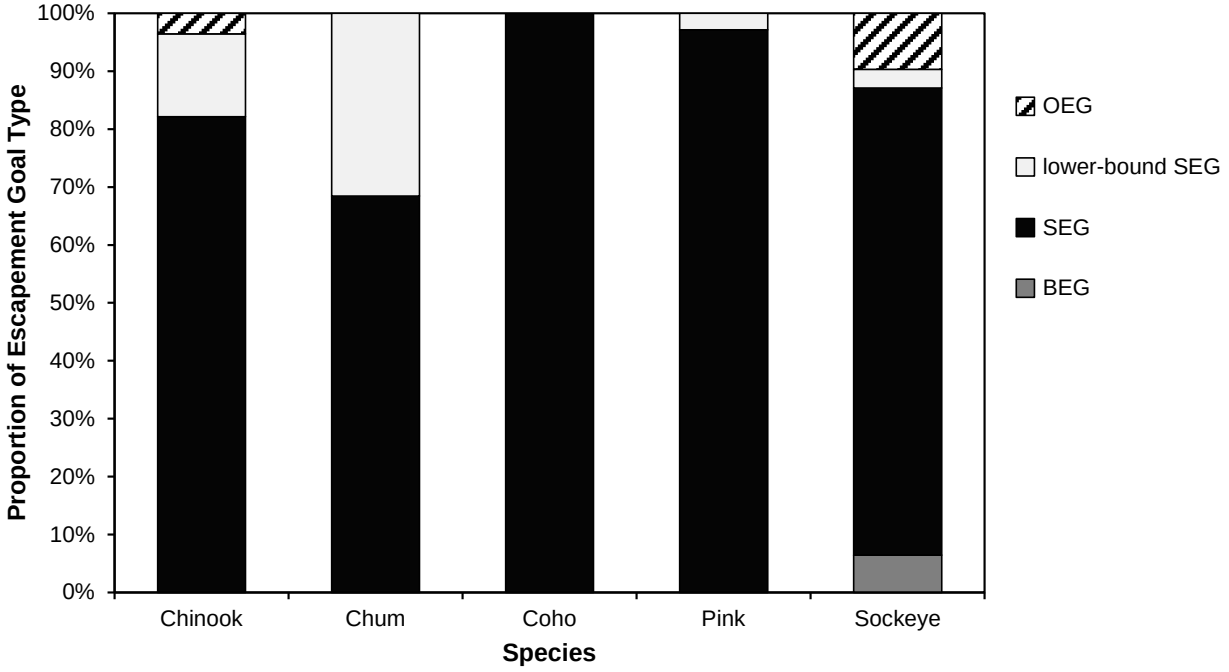

Figure 3.–Proportion of escapement goal types by species for the 119 escapement goals in Central Region (Bristol Bay, Cook Inlet, and Prince William Sound/Copper River). BEG is biological escapement goal, SEG is sustainable escapement goal, and OEG is optimal escapement goal (set by the Alaska Board of Fisheries).

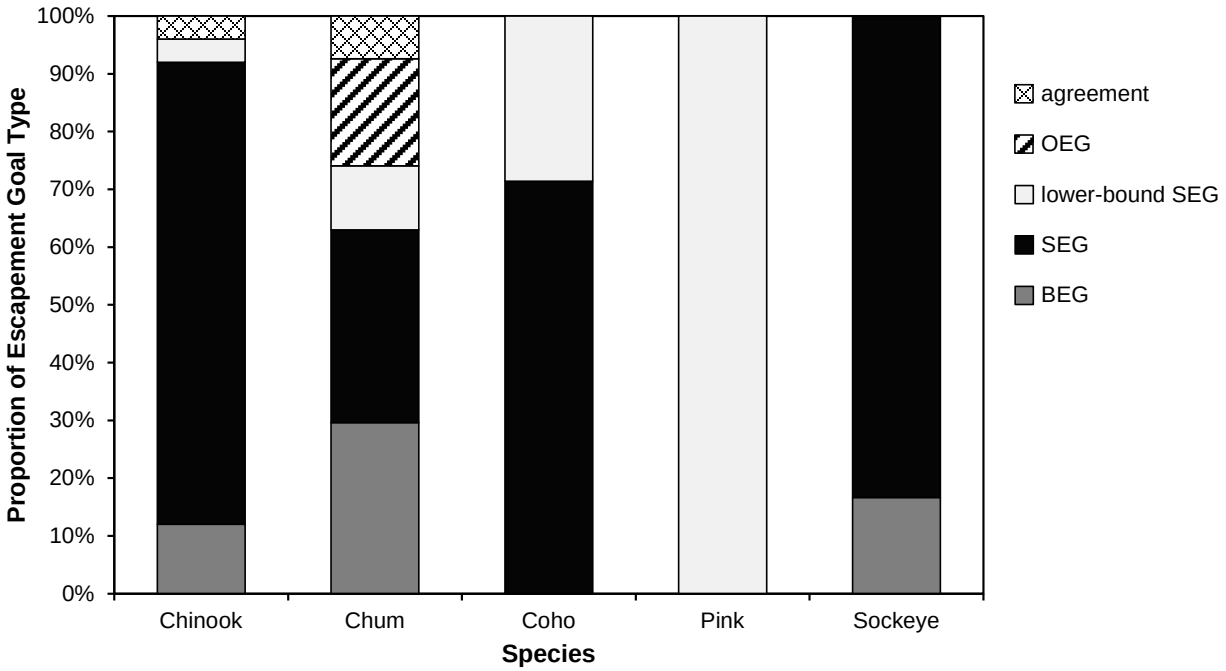

Figure 4.–Proportion of escapement goal types by species for the 70 escapement goals in Arctic-Yukon-Kuskokwim Region. BEG is biological escapement goal, SEG is sustainable escapement goal, OEG is optimal escapement goal (set by the Alaska Board of Fisheries), and agreement goals are established through international treaties.

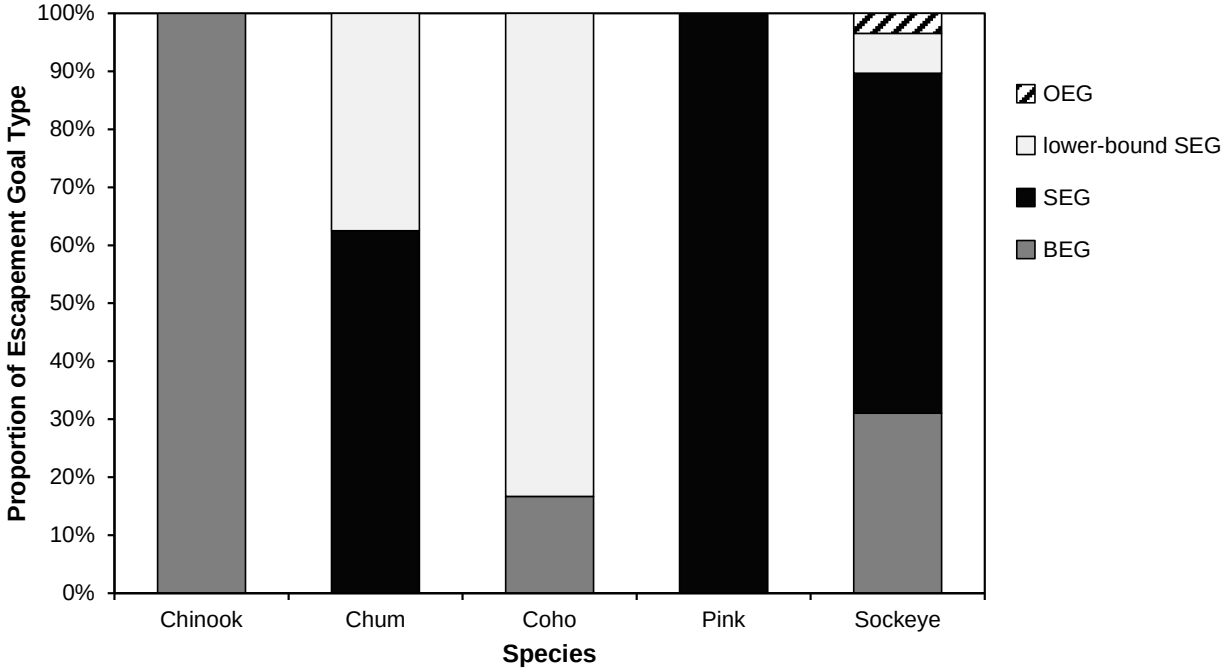

Figure 5.–Proportion of escapement goal types by species for the 54 escapement goals in Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas). BEG is biological escapement goal, SEG is sustainable escapement goal, and OEG is optimal escapement goal (set by the Alaska Board of Fisheries).

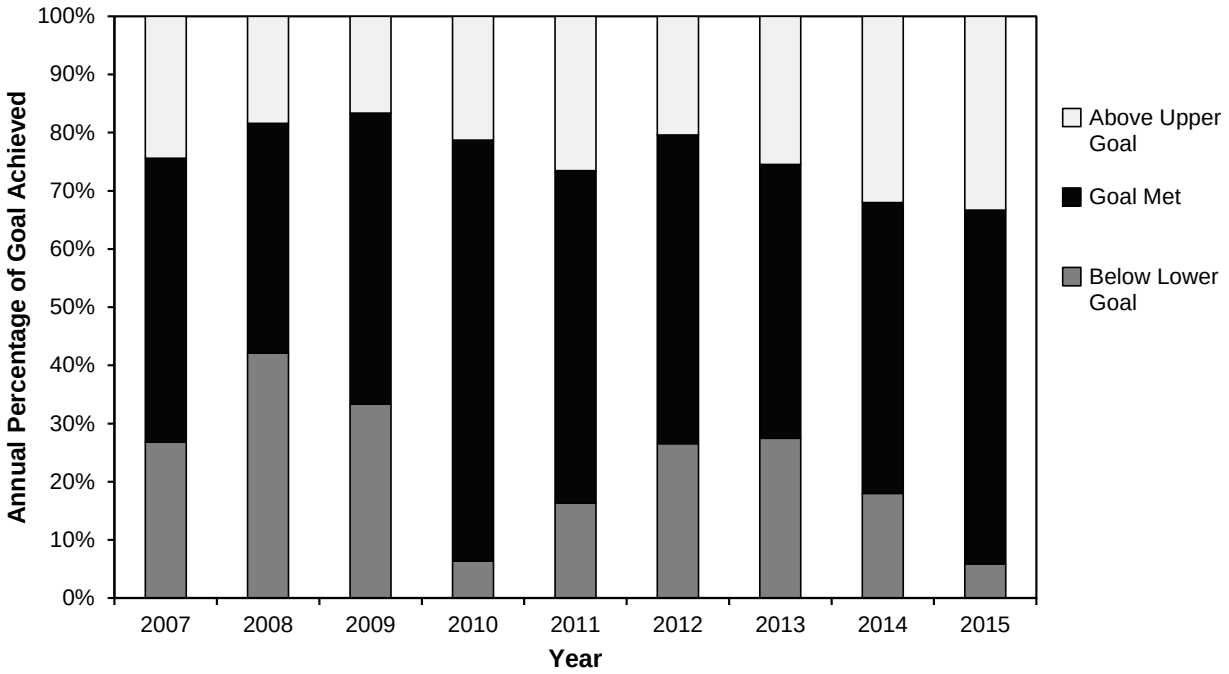

Figure 6.–Southeast Region salmon escapements compared against escapement goals for the years 2007 to 2015.

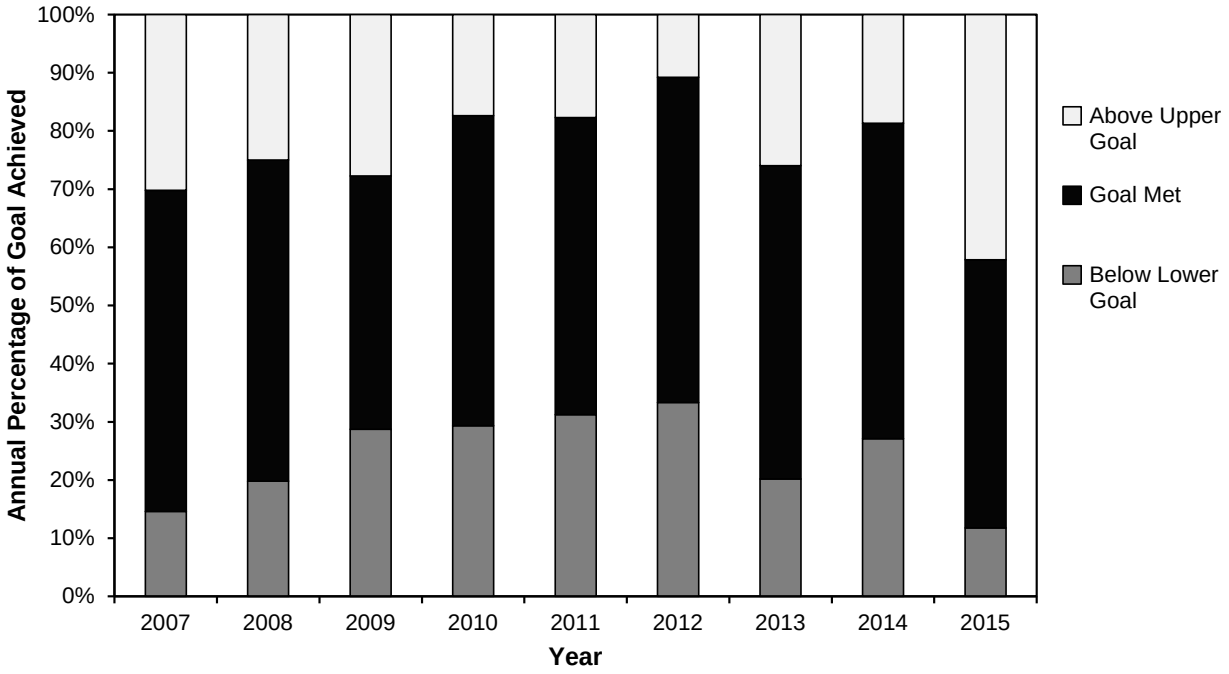

Figure 7.–Central Region (Bristol Bay, Cook Inlet, Prince William Sound/Copper River) salmon escapements compared against escapement goals for the years 2007 to 2015.

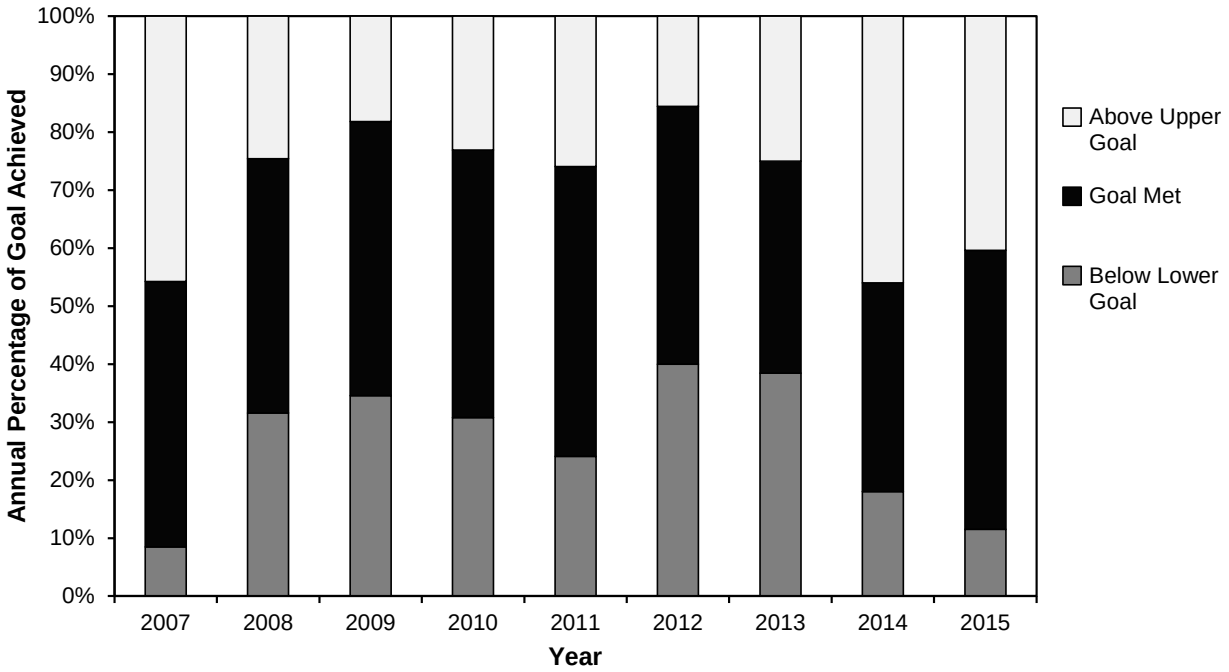

Figure 8.–Arctic–Yukon–Kuskokwim Region salmon escapements compared against escapement goals for the years 2007 to 2015.

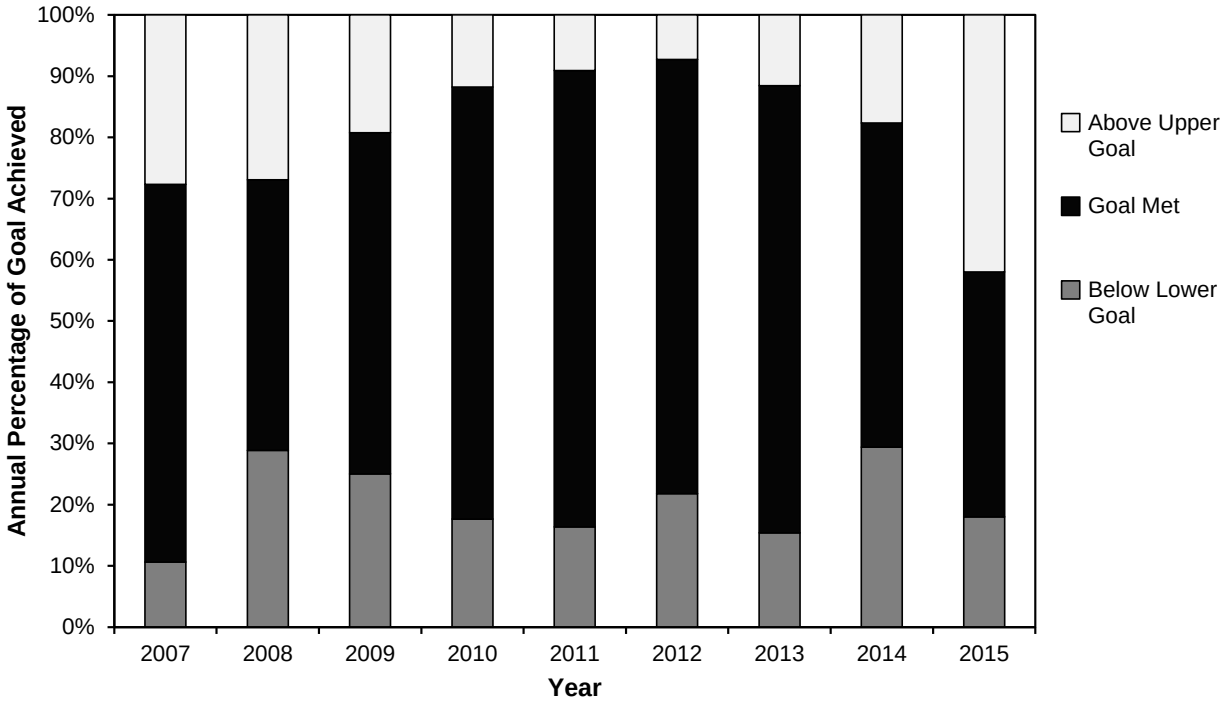

Figure 9.–Westward Region (Alaska Peninsula/Aleutian Islands, Kodiak, and Chignik areas) salmon escapements compared against escapement goals for the years 2007 to 2015.

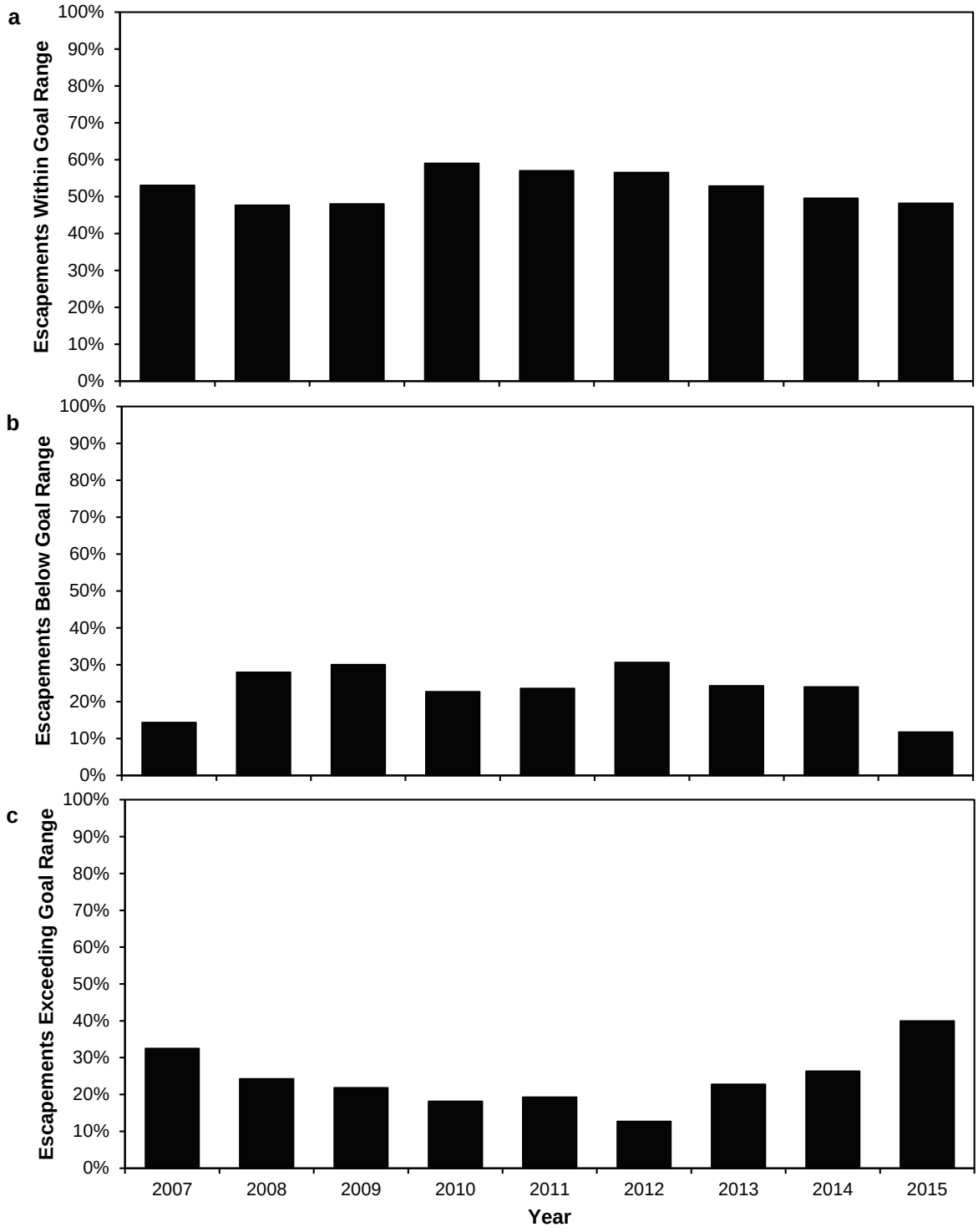

Figure 10.–Statewide summary by year of percentage of escapements that a) met the escapement goal (i.e., within goal range or above lower bound), b) were below lower bound of goal, or c) exceeded upper bound of goal range for the years 2007 to 2015.

APPENDIX A.
ESCAPEMENT GOAL MEMO FOR 2014/2015 BOARD OF FISHERIES MEETING CYCLE

STATE OF ALASKA

BILL WALKER, GOVERNOR

DEPARTMENT OF FISH AND GAME

Divisions of Commercial Fisheries and Sport Fish

MEMORANDUM

TO: Distribution

DATE: March 2, 2015

PHONE: 267-2350 (Regnart)
267-2150 (Brookover)

FROM: Jeff Regnart, Director
Division of Commercial Fisheries
Anchorage

Tom Brookover, Acting Director
Division of Sport Fish
Anchorage

FILE: Final PWS_SEAK EG Recommendation-2015

SUBJECT: Approval of Final Escapement Goal Recommendations For Selected Prince William Sound and Southeast Alaska Salmon Stocks

---

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 Prince William Sound and Southeast Alaska areas.

Heinl, S. C., E. L. Jones III, A. W. Piston, P. J. Richards, and L. D. Shaul. 2014. Review of salmon escapement goals in Southeast Alaska, 2014. Alaska Department of Fish and Game, Fishery Manuscript No. 14-07, Anchorage.

Moffitt, S. D., R. E. Brenner, J. W. Erickson, M. J. Evenson, R. A. Clark, and T. R. McKinley. 2014. Escapement goal review of Copper and Bering rivers, and Prince William Sound Pacific salmon stocks, 2014. Alaska Department of Fish and Game, Fishery Manuscript No. 14-05, 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 2014-2015 cycle.

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

cc: Volk, Hasbrouck, Munro, Bowers, Olson, Taube, Fair, Frenette, Jones, Lingnau, Roach, Vania, Erickson, Evenson, McKinley, Nichols