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MEMORANDUM

TO: Scott Kelley, Director
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Tom Brookover, Director
Division of Sport Fish

DATE: September 28, 2017

THRU: Lowell Fair, Regional Supervisor
Division of Commercial Fisheries, Region 1
Judy Lum, Regional Supervisor
Division of Sport Fish, Region 1

SUBJECT: Southeast Region Salmon
Escapement Goal Review

FROM: Steve Heintl, Regional Research Biologist
Division of Commercial Fisheries, Region 1
Jeff Nichols, Regional Research Coordinator
Division of Sport Fish, Region 1
Ed Jones, Fish & Game Coordinator
Division of Sport Fish, Region 1

The purpose of this memorandum is to inform you of our progress reviewing and recommending escapement goals for Southeast Alaska. An interdivisional salmon escapement goal review committee consisting of regional staff from the divisions of Commercial Fisheries and Sport Fish, as well as statewide representatives, met on 26 January and 7 September 2017 to review existing escapement goals in Southeast Alaska. These reviews were based on the *Policy for the Management of Sustainable Salmon Fisheries* (5 AAC 39.222) and the *Policy for Statewide Salmon Escapement Goals* (5 AAC 39.223). Escapement goals were classified as either biological or sustainable escapement goals as defined in the Policy for the Management of Sustainable Salmon Fisheries (5 AAC 39.222) under section (f):

5 AAC 39.222 (f)(3) "*Biological Escapement Goal (BEG)*: the escapement that provides the greatest potential for maximum sustained yield (MSY);" and

5 AAC 39.222 (f)(36) "*Sustainable Escapement Goal (SEG)*: a level of escapement, indicated by an index or an escapement estimate, that is known to provide for sustained

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yield over a 5 to 10 year period, used in situations where a BEG cannot be estimated or managed for.”

A total of 52 existing escapement goals (Heinl et al. 2014) were evaluated in the Southeast Region for this review. The committee determined the appropriate goal type (BEG or SEG) for each salmon stock with an existing goal. The committee also considered other monitored, exploited stocks without an existing goal. Based on the quality and quantity of available data, the committee determined the most appropriate methods to evaluate the escapement goals. Due to the thoroughness of previous reviews, the committee considered primarily those goals with recent information that could potentially result in a substantially different escapement goal from the last review, or those goals that should be eliminated or established. The committee also considered management needs—how goals were integrated into fisheries management and how well the goal performed.

The committee recommends, to the directors of the Divisions of Commercial Fisheries and Sport Fish, changes to existing goals as follows:

- convert BEG ranges for Chickamin, Blossom, and Keta river king salmon goals from survey index counts to estimates of total escapement;
- eliminate the Klukshu (Alek) River king salmon BEG;
- eliminate the East Alek-Doame River sockeye salmon BEG range of 13,000–26,000 and replace it with an SEG range of 9,000–24,000 germane only to the East Alek River;
- eliminate the Alek River sockeye salmon BEG;
- eliminate the Lost River sockeye salmon lower-bound SEG;
- change the Berners River coho salmon BEG range of 4,000–9,200 to a range of 3,600–8,100;
- change the Tsiu-Tsivat rivers coho salmon goal from a BEG to an SEG while maintaining the same range of 10,000–29,000;
- eliminate the Ford Arm Creek coho salmon BEG;
- eliminate the Situk River pink salmon lower-bound SEG; and
- change the Northern Southeast Inside summer-run chum salmon goal from the current lower-bound SEG of 119,000 to a lower-bound SEG of 107,000.

A summary of the region’s salmon escapement goals and recommended changes are presented in Tables 1–5. Note that due to the timing of this memo relative to the timing of escapements for some systems and species, information needed to determine if goals were met is not available for many stocks in 2017. Oral and written reports concerning Southeast Alaska escapement goals and specific recommendations will be presented to the board in January 2017. These reports will list all current and recommended goals for Southeast Alaska and provide details on the methods used to reach these recommendations.

References Cited

- 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 Series No. 14-07, Anchorage.
- TTC (Transboundary Technical Committee). 2014. Salmon management and enhancement plans for the Stikine, Taku, and Alek rivers, 2013. Pacific Salmon Commission Report TCTR (14)-1, Vancouver.
- TTC (Transboundary Technical Committee). 2017. Salmon management and enhancement plans for the Stikine, Taku, and Alek rivers, 2017. Pacific Salmon Commission Report TCTR (17)-3, Vancouver.

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Table 1.—Southeast Alaska king salmon escapement goals, 2012–2016 and preliminary 2017 escapements, and escapement goal recommendations.

System	Assessment method	Goal type	Escapement Goal ^a	Year established	Escapement						Escapement goal recommendation
					2012	2013	2014	2015	2016	2017	
Blossom River ^b	HS, IE	BEG	150–300	2012	205	255	217	166	135	88 ^c	Expand to total escapement 500-1,400
	HS expansion	BEG			793	987	840	642	522	341 ^c	
Keta River ^b	HS, IE	BEG	175–400	2012	241	493	439	304	446	222 ^c	Expand to total escapement 550-1,300
	HS expansion	BEG			725	1,484	1,321	915	1,342	668 ^c	
Unuk River	HS/FS expansion	BEG	1,800–3,800	2009	956	1,135	1,691	2,623	1,463	1,203 ^c	No change
Chickamin River ^b	HS/FS, IE	BEG	450–900	1997	444	468	652	581	203	152 ^c	Expand to total escapement 2,150-4,300
	HS/FS expansion	BEG			2,109	2,223	3,097	2,760	964	722 ^c	
Andrew Creek	AS/HS/FS expansion	BEG	650–1,500	1998	587	920	1,261	796	402	349 ^c	No change
Stikine River	MR	BEG	14,000–28,000	2000	22,327 ^c	16,783 ^c	24,366 ^c	21,597 ^c	10,343 ^c	10,000 ^c	No change
King Salmon River	HS expansion	BEG	120–240	1997	155	94	68	50	149	85 ^c	No change
Taku River	MR, HS expansion	BEG	19,000–36,000	2009	19,538 ^{c,d}	18,002 ^{c,e}	23,532 ^{c,d}	28,827 ^{c,d}	12,381 ^{c,d}	7,000 ^{c,d}	No change
Chilkat River ^f	MR	BEG	1,750–3,500	2003	1,723	1,719	1,529 ^c	2,456 ^c	1,380 ^c	1,231 ^c	No change
Alsek River ^g	Weir expansion	BEG	3,500–5,300	2013	3,027	4,992	3,357	5,697 ^c	2,574 ^c	1,762 ^c	No change
Klukshu (Alsek) River ^g	Weir	BEG	800–1,200	2013	693	1,227	832	1,388	646	448 ^c	Eliminate
Situk River	Weir	BEG	450–1,050	2003	322	912	475	174	329	1,187 ^c	No change

Note: AS = aerial survey, FS = foot survey, HS = helicopter survey, IE = index escapement, MR = mark-recapture, BEG= biological escapement goal; gray cells indicate lower bound of the escapement goal not met.

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- ^a Goals and escapement numbers for king salmon are for large fish (≥ 660 mm mid eye to fork length, or fish age 1.3 and older), except Alsek and Klukshu goals which are germane to fish age 1.2 and older and can include fish < 660 mm mid eye to fork length.
- ^b Escapement goals for Blossom, Keta, and Chickamin river king salmon are index counts expanded to estimates of total escapements based on factors developed from mark–recapture studies.
- ^c Preliminary estimate pending publication of final report.
- ^d Estimates are based on mark-recapture studies.
- ^e Estimates are based on expanded peak aerial survey counts.
- ^f The Chilkat River king salmon escapement is the mark–recapture estimate of inriver run minus reported subsistence harvest. The inriver goal of 1,850–3,600 (5 AAC 33.384) is directly measured through mark–recapture and is not discounted for inriver subsistence harvests that average < 100 fish.
- ^g Alsek and Klukshu river king salmon escapement goals were bilaterally agreed upon in 2013 (TTC 2014). Escapement to the Alsek River is calculated through expansion of the Klukshu River inriver run by a factor of 4.0 and subtraction of any inriver harvests above Dry Bay in the lower Alsek River.

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Table 2.—Southeast Alaska sockeye salmon escapement goals, 2012–2016 and preliminary 2017 escapements, and 2017 escapement goal recommendations.

System	Assessment method	Goal type	Escapement goal	Year established	Escapement						Escapement goal recommendation
					2012	2013	2014	2015	2016	2017	
Hugh Smith Lake	Weir	OEG ^a	8,000–18,000	2003	13,353	5,946	10,397	21,296	12,865	Met	No change
McDonald Lake	FS expansion	SEG	55,000–120,000	2009	57,000	15,400	43,400	70,200	15,600	Not met	No change
Mainstem Stikine River	Run reconstruction	SEG	20,000–40,000	1987	33,812	27,091	21,179	26,432	28,646 ^b	Met	No change
Tahltan Lake	Weir	BEG	18,000–30,000	1993	13,463	15,828	39,745	33,159	38,458 ^b	Met	No change
Speel Lake	Weir	SEG	4,000–9,000	2015	5,681	6,426	5,059	4,888	5,538	Not met	No change
Taku River	MR	SEG	71,000–80,000	1986	126,764	81,177	92,189	132,523	176,417 ^b	Met	No change
Redoubt Lake	Weir	OEG ^c	7,000–25,000	2003	40,944	49,124	19,936	13,983	22,774	Met	No change
		BEG	10,000–25,000	2003	40,944	49,124	19,936	13,983	22,774	Met	No change
Chilkat Lake	Sonar	BEG	70,000–150,000	2009	121,810	116,300	70,470	175,874	88,513	Met	No change
Chilkoot Lake	Weir	SEG	38,000–86,000	2009	118,166	46,329	105,713	71,515	86,721	Met	No change
East Alsek-Doame River	AS, IE	BEG	13,000–26,000	2003	21,500	26,500	15,300	15,000	19,200	Met	Eliminate
East Alsek River	AS, IE				16,000	24,000	9,800	12,000	19,200		Establish SEG 9,000–24,000
Alsek River ^d	Run reconstruction	BEG	24,000–33,500	2013	76,598	83,771	87,093	63,709	NA	NA	Eliminate
Klukshu (Alsek) River ^d	Weir	BEG	7,500–11,000	2013	17,176	3,792	12,148	11,363	7,391 ^b	3,064	No change
Lost River ^e	BS, IE	LB SEG	≥1,000	2009	453	587	NA	373	449	NA	Eliminate
Situk River	Weir	BEG	30,000–70,000	2003	62,500	118,635	102,318	95,093	57,693	91,146	No change

Note: AS = aerial survey, FS = foot survey, BS = boat survey, IE = index escapement, MR = mark-recapture, BEG = biological escapement goal, SEG = sustainable escapement goal, LB SEG = lower-bound SEG, OEG = optimal escapement goal, NA = not available; gray cells indicate lower bound of the escapement goal not met.

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- ^a Hugh Smith Lake sockeye salmon OEG was set by the Alaska Board of Fisheries (5 AAC 33.390); the OEG is the same as the BEG (8,000–18,000 fish) but includes wild *and* hatchery-produced fish. No lake stocking has occurred since 2003.
- ^b Preliminary estimate pending publication of final report.
- ^c Redoubt Lake sockeye salmon OEG was set by the Alaska Board of Fisheries (5 AAC 01.760).
- ^d Alsek River escapement estimates are based on an expansion of genetic stock identification information from the U.S. commercial set gillnet fishery in Dry Bay and Klukshu River weir counts (TTC 2017) and are not available on a timely basis. The management approach for the Alsek River continues to be based on meeting the Klukshu River escapement goal, as measured at the Klukshu River weir (TTC 2017).
- ^e Survey method for Lost River sockeye salmon escapement changed since LB-SEG established; annual counts shown here are not comparable across all years.

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Table 3.—Southeast Alaska coho salmon escapement goals, 2012–2016 and preliminary 2017 escapements, and 2017 escapement goal recommendations.

System	Assessment method	Goal type	Escapement goal	Year established	Escapement						Escapement goal recommendation
					2012	2013	2014	2015	2016	2017	
Hugh Smith Lake	Weir	BEG	500–1,600	2009	1,908	3,048	4,110	956	948	Met	No change
Klawock River ^a	Weir	SEG	4,000–9,000	2013	7,507	8,323	7,698	12,780	24,242	NA	No change
Taku River	MR	BEG	50,000–90,000	2015	70,775 ^b	68,117 ^b	124,171 ^b	60,178 ^b	87,704 ^b	NA	No change
Auke Creek	Weir	BEG	200–500	1994	837	736	1,533	517	204	NA	No change
Juneau Roadside	Montana Creek FS, IE	SEG	400–1,200	2006	394	367	911	1,204	717	NA	No change
Index	Peterson Creek FS, IE	SEG	100–250	2006	190	126	284	202	52	NA	No change
Ketchikan Survey Index	HS, IE	BEG	4,250–8,500	2006	11,960	11,295	16,675	10,128	13,420	NA	No change
Sitka Survey Index	FS, IE	BEG	400–800	2006	1,157	1,414	2,161	2,244	2,943	NA	No change
Ford Arm Creek	Weir	BEG	1,300–2,900	1994	2,282	1,573	3,025	3,281	NA	NA	Eliminate Change to BEG 3,600–8,100
Berners River	FS, HS, IE	BEG	4,000–9,200	1994	5,480	6,280	15,480	9,940	6,733	NA	No change
Chilkat River	AS/FS, MR, IE	BEG	30,000–70,000	2006	36,961	51,324	130,200	47,372	26,280	NA	No change
Tawah Creek (Lost River)	BS, IE	SEG	1,400–4,200	2015	NA	2,593	3,555	2,015	746	NA	No change
Situk River	BS, IE	BEG	3,300–9,800	1994	3,007	14,853	8,226	7,062	6,177	NA	No change
Tsiu-Tsivat rivers	AS, IE	BEG	10,000–29,000	1994	10,500	47,000	27,000	19,500	31,000	NA	Change to SEG 10,000–29,000

Note: AS = aerial survey, FS = foot survey, BS = boat survey, HS = helicopter survey, IE = index escapement, MR = mark–recapture, BEG = biological escapement goal,

SEG = sustainable escapement goal, NA = not available; gray cells indicate lower bound of the escapement goal not met.

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

^b Preliminary estimate pending publication of final report.

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Table 4.—Southeast Alaska pink salmon escapement goals, 2012–2016 and preliminary 2017 escapements, and 2017 escapement goal recommendations.

System	Assessment method	Goal type	Escapement goal	Year established	Escapement						Escapement goal recommendation
					2012	2013	2014	2015	2016	2017	
Southern Southeast	AS, IE	BEG	3.0–8.0 million	2009	6.5 million	14.5 million	9.7 million	4.3 million	6.6 million	Met	No change
Northern Southeast Inside	AS, IE	BEG	2.5–6.0 million	2009	2.1 million	5.4 million	1.4 million	5.3 million	1.8 million	Met	No change
Northern Southeast Outside	AS, IE	BEG	0.75–2.5 million	2009	2.5 million	5.3 million	2.8 million	2.8 million	1.7 million	Met	No change
Situk River	Weir, IE	LB SEG	≥33,000	2012	30,557	150,500	28,238	69,635	24,949	166,046	Eliminate

Note: AS = aerial survey, IE = index escapement, BEG = biological escapement goal, LB SEG = lower-bound sustainable escapement goal; gray cells indicate lower bound of the escapement goal not met.

Table 5.—Southeast Alaska chum salmon escapement goals, 2012–2016 and preliminary 2017 escapements, and 2017 escapement goal recommendations.

System	Assessment method	Goal type	Escapement goal	Year established	Escapement						Escapement goal recommendation
					2012	2013	2014	2015	2016	2017	
Chum salmon (summer run)											
Southern Southeast	AS/FS/HS, IE	LB SEG	62,000	2015	155,000	86,000	47,000	115,000	90,000	Met	No change
Northern Southeast Inside	AS/FS, IE	LB SEG	119,000	2012	177,000	278,000	93,000	166,000	66,000	Met	Change to LB SEG 107,000
Northern Southeast Outside	AS/FS, IE	LB SEG	25,000	2015	38,000	23,000	28,000	26,000	26,000	Not met	No change
Chum salmon (fall run)											
Cholmondeley Sound	AS, IE	SEG	30,000–48,000	2009	54,000	13,000	48,000	73,000	30,000	Met	No change
Port Camden	AS, IE	SEG	2,000–7,000	2009	3,800	2,400	4,300	7,300	4,700	Met	No change
Security Bay	AS, IE	SEG	5,000–15,000	2009	9,800	2,800	6,300	21,500	14,300	Met	No change
Excursion River	AS, IE	SEG	4,000–18,000	2009	2,000	7,600	10,800	12,000	1,400	Met	No change
Chilkat River	FW expansion	SEG	75,000–250,000	2015	287,000	166,000	142,000	207,000	218,000	Met	No change

Note: AS = aerial survey, FS = foot survey, HS = helicopter survey, IE = index escapement, FW = fish wheel index, SEG = sustainable escapement goal, LB SEG = lower-bound SEG; gray cells indicate lower bound of the escapement goal not met.