STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

Division of Commercial Fisheries
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TO: John Hilsinger, Director
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and

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DATE: September 21, 2009

THRU: Steve Honnold, Regional Supervisor
Division of Commercial Fisheries
Region IV - Kodiak

and

James Hasbrouck, Regional Supervisor
Division of Sport Fish
Region II - Anchorage

SUBJECT: Alaska Peninsula Escapement Goal Report

FROM: Mark Witteveen, Acting Regional Finfish Supervisor
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The following is an update of our progress in reviewing and recommending salmon escapement goals for the Alaska Peninsula and Aleutian Islands Management Area.

The Area M salmon escapement goals [biological escapement goal (BEG) or sustainable escapement goal (SEG) as defined in the *Policy for the Management of Sustainable Salmon*

Fisheries] were last reviewed by the department in 2006 (Honnold et al. 2007). The review of the 27 escapement goals resulted in consensus to leave 17 goals unchanged, change 5 goals, reclassify 4 goals (from BEGs to SEGs), and eliminate 1 goal. This resulted in 26 escapement goals for Area M including: 1 BEG for Chinook salmon, 1 BEG and 13 SEGs for sockeye salmon, 2 SEGs for coho salmon, 4 aggregate SEGs for pink salmon, and 6 aggregate SEGs for chum salmon.

In February 2009, an interdivisional team, including staff from the Divisions of Commercial Fisheries and Sport Fish, was formed to review existing salmon escapement goals in Area M. This review was 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). This memorandum summarizes the preliminary results of the salmon escapement goal review and subsequent recommendations. The team has reached consensus on all recommendations outlined below.

The review team determined the appropriate goal type for each Area M salmon stock with an existing goal, based on the quality and quantity of available data, and then determined the most appropriate methods to evaluate the escapement goal ranges. If a sufficient time series of escapement and total return estimates were available and the data contained sufficient information to provide a scientifically defensible, accurate estimate of the spawning escapement with the greatest potential to produce maximum sustained yield (S_{msy}), then the data were considered sufficient to attempt to develop a BEG. If return estimates were not available and/or the data were not sufficient to estimate S_{msy}, the data were used to establish a SEG. Methods used to develop BEGs included spawner-recruit analysis and a habitat based model. Methods used to develop SEGs included the percentile approach (Bue and Hasbrouck unpublished) and risk analysis (Bernard et al. 2009)

For the current review, we examined stock assessment data for one North Peninsula Chinook salmon stock, four South Peninsula sockeye salmon stocks, 10 North Peninsula sockeye salmon stocks (including early and late runs for Bear Lake sockeye salmon), one Aleutian Islands sockeye salmon stock, one South Peninsula coho salmon stock, two North Peninsula coho salmon stocks, two South Peninsula pink salmon aggregate stocks, two North Peninsula pink salmon aggregate stocks, four South Peninsula chum salmon aggregate stocks, and two North Peninsula chum salmon aggregate stocks (Table 1; Figure 1). We conducted our review similarly to the 2006 review, primarily updating previous analyses including stock assessment data from 2006 to 2008.

We did not review or analyze data for most stocks in which goals were eliminated in 2003 and 2006 reviews. We reviewed the McLees Lake sockeye salmon stock data even though the goal was eliminated in 2003 because the U.S. Fish and Wildlife Service (USFWS) has operated a weir at this system the last several years and are interested in having the department develop an escapement goal if the data warrant it.

After analyzing available data for each stock, the team estimated escapement goals, compared these estimates with the current goals, and then made recommendations to establish new goals or maintain (no change), change, or eliminate the current goals. The methods used to evaluate Area M escapement goals as well as the rationale used to make subsequent recommendations will be described in detail in a department Fishery Manuscript report which will be published prior to the February Board of Fisheries (board) meeting.

The team proposes the following recommendations which will be presented to the board and the public at the February 2010 Alaska Peninsula and Aleutian Islands board meeting. Current Area M salmon escapement goals, escapements from 2006 to 2008, and the team's recommendations are presented in Table 1.

Chinook salmon

The team recommends that the current Nelson River Chinook salmon BEG of 2,400 to 4,400, as established in 2003, should remain unchanged. Recent escapements were similar to historical counts and the team concluded that further analysis was not necessary.

Sockeye salmon

Of the 13 Area M sockeye salmon escapement goals, the team recommends that 12 should remain unchanged and one goal should be changed. The current Meshik River sockeye salmon escapement goal of 20,000 to 60,000 fish does not consider escapement to Red Bluff and Yellow Bluff creeks, which contribute a substantial number of fish to this system and cannot be managed separately from Meshik River sockeye salmon escapement. Therefore, the Meshik River sockeye salmon escapement goal was reanalyzed with the inclusion of the escapement data for Red Bluff and Yellow Bluff creeks using the percentile approach. The team recommends that the SEG be changed to 25,000 to 100,000 fish.

After examining the McLees Lake sockeye salmon weir data and historical aerial survey data, the team decided that there were sufficient data to develop a goal based on weir counts. The United States Fish and Wildlife Service (USFWS) has operated a weir at McLees Lake since 2001; however, it is unknown if funding for a weir will continue. The team agreed that if a counting weir was in place a SEG of 10,000 to 60,000 fish (determined based on the percentile method) would be implemented. Since McLees Lake escapement estimated by aerial surveys has been found to be inconsistent with weir counts, the team agreed that if a weir was not in place, there would be no goal.

Coho salmon

The team recommends that the current Thin Point Lake coho SEG of 3,000 and the current Nelson River coho salmon SEG of 18,000 remain unchanged. There is not any recent information that would warrant changing the current SEGs for these stocks. Due to increased sport fishing pressure and continued commercial fishing pressure, the team agreed to develop a goal for Ilnik River coho using risk analysis. The team recommends a lower-bound SEG of 9,000 coho salmon for the Ilnik River.

Pink salmon

Four South Peninsula pink salmon escapement goals (even- and odd-year goals for two aggregate stocks) were evaluated during this review. The team recommends that the current South Peninsula pink salmon SEG ranges of 1,864,600 to 3,729,300 for even years and 1,637,800 to 3,275,700 for odd years remain unchanged. The team also recommends the Bechevin Bay pink salmon SEG for even years of 31,000 fish and the SEG for odd years of 1,600 fish remain unchanged. Recent escapements were similar to historical counts and the team concluded that further analysis was not necessary.

Chum salmon

The team recommends that the current South Peninsula chum salmon SEG ranges of 106,400 to 212,800 for the Southeastern District, 89,800 to 179,600 for the South Central District, 133,400 to 266,800 for the Southwestern District, and SEG thresholds of 800 fish for the Unimak District should remain unchanged. The team also recommends that the North Peninsula chum salmon SEG ranges of 100,000 to 215,000 fish for the Northwestern District and 119,600 to 239,200 fish for the Northern District remain unchanged. Recent escapements were similar to historical counts and the team concluded that further analysis was not necessary.

In summary, the Area M Escapement Goal Review Team comprehensively reviewed 26 existing salmon escapement goals in Area M resulting in consensus to leave 25 goals unchanged, change 1 goal, and establish 2 goals. This would result in 28 escapement goals for Area M including: 1 BEG for Chinook salmon, 1 BEG and 13 SEGs for sockeye salmon, 3 SEGs for coho salmon, 4 aggregate SEGs for pink salmon, and 6 aggregate SEGs for chum salmon. Staff are now ready to finalize reports and prepare for the February 2010 board meeting. An oral and written report concerning escapement goals and specific recommendations for numerous stocks will be presented to the board in February 2010. These reports will list all current and recommended escapement goals as well as detailed descriptions of the analyses performed. After the board meeting, a memorandum to division directors will be prepared describing these recommendations and seeking their approval for changes.

References Cited

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.

Bue, B.G., and J.J. Hasbrouck. Unpublished. Escapement goal review of salmon stocks of Upper Cook Inlet. Alaska Department of Fish and Game, Report to the Board of Fisheries, 2001, Anchorage.

Honnold, S.G., M.J. Witteveen, I. Vining, H. Finkle, M.B. Foster, and J.J. Hasbrouck. 2007. Review of salmon escapement goals in the Alaska Peninsula and Aleutian Islands Management, 2006. Alaska Department of Fish and Game, Fishery Manuscript No. 07-02, Anchorage.

Table 1. Current escapement goals, escapements observed from 2006 through 2008, Chinook, sockeye, coho, pink, and chum salmon stocks of the Alaska Peninsula Management and Aleutian Islands Areas.

System	Escapement Data[a]	Current Escapement Goal Type (BEG, SEG)	Range			Escapements 2006	2007	2008	2009 Recommendation
Chinook Salmon									
Nelson River	WC/PAS	BEG	2,400	to	4,400	2,516	2,492	5,012	No change
Sockeye Salmon									
Orzinski Lake	WC	SEG	15,000	to	20,000	18,000	10,643	36,839	No change
Thin Point Lake	PAS	SEG	14,000	to	28,000	11,510	21,550	18,900	No change
Mortensens Lagoon	PAS	SEG	3,200	to	6,400	14,688	6,200	5,600	No change
Christianson Lagoon	PAS	SEG	25,000	to	50,000	41,505	48,075	114,000	No change
Swanson Lagoon	PAS	SEG	6,000	to	16,000	376	9,200	5,500	No change
North Creek	PAS	SEG	4,400	to	8,800	7,530	16,800	38,000	No change
Nelson River	WC	BEG	97,000	to	219,000	215,000	180,000	141,600	No change
Bear Lake									
Early	WC	SEG	176,000	to	293,000	262,995	206,233	125,526	No change
Late	WC	SEG	117,000	to	195,000	182,005	224,767	195,474	No change
Sandy River	WC	SEG	34,000	to	74,000	48,000	44,700	32,200	No change
Ilnik River	WC	SEG	40,000	to	60,000	75,000	79,000	44,300	No change
Meshik River	PAS	SEG	20,000	to	60,000	114,010	45,400	61,250	Change: SEG 25,000-100,000
Cinder River	PAS	SEG	12,000	to	48,000	101,100	142,000	96,800	No change
McLees Lake	WC/PAS	None				12,936	21,428	8,661	Create: SEG 10,000 - 60,000[b]
Coho Salmon									
Thin Point Lake	PAS	SEG	3,000			9,750	9,000	3,200	No change
Nelson River	PAS	SEG	18,000			19,000	19,000	24,000	No change
Ilnik River	PAS	None				27,000	19,000	22,000	Create: SEG Threshold 9,000

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Table 1. (Page 2 of 2)

System	Escapement Data[a]	Escapement Goal Type (BEG, SEG)	Range			Escapements 2006	2007	2008	2009 Recommendation
Pink Salmon									
South Peninsula Total -even years	PAS	SEG	1,864,600	to	3,729,300	2,862,250		3,338,370	No change
South Peninsula Total -odd years	PAS	SEG	1,637,800	to	3,275,700		2,680,213		No change
Bechevin Bay Section-even years	PAS	SEG	31,000			116,075		11,900	No change
Bechevin Bay Section-odd years	PAS	SEG	1,600				16,800		No change
Chum Salmon									
Southeastern District	PAS	SEG	106,400	to	212,800	405,300	201,451	277,450	No change
South Central District	PAS	SEG	89,800	to	179,600	119,600	126,000	140,450	No change
Southwestern District	PAS	SEG	133,400	to	266,800	231,935	398,010	171,250	No change
Unimak District	PAS	SEG	800			7,915	1,200	2,800	No change
Northwestern District	PAS	SEG	100,000	to	215,000	193,460	335,450	241,750	No change
Northern District	PAS	SEG	119,600	to	239,200	382,583	243,334	228,537	No change

[a] PAS = Peak Aerial Survey, WC= Weir Count.

[b] 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.

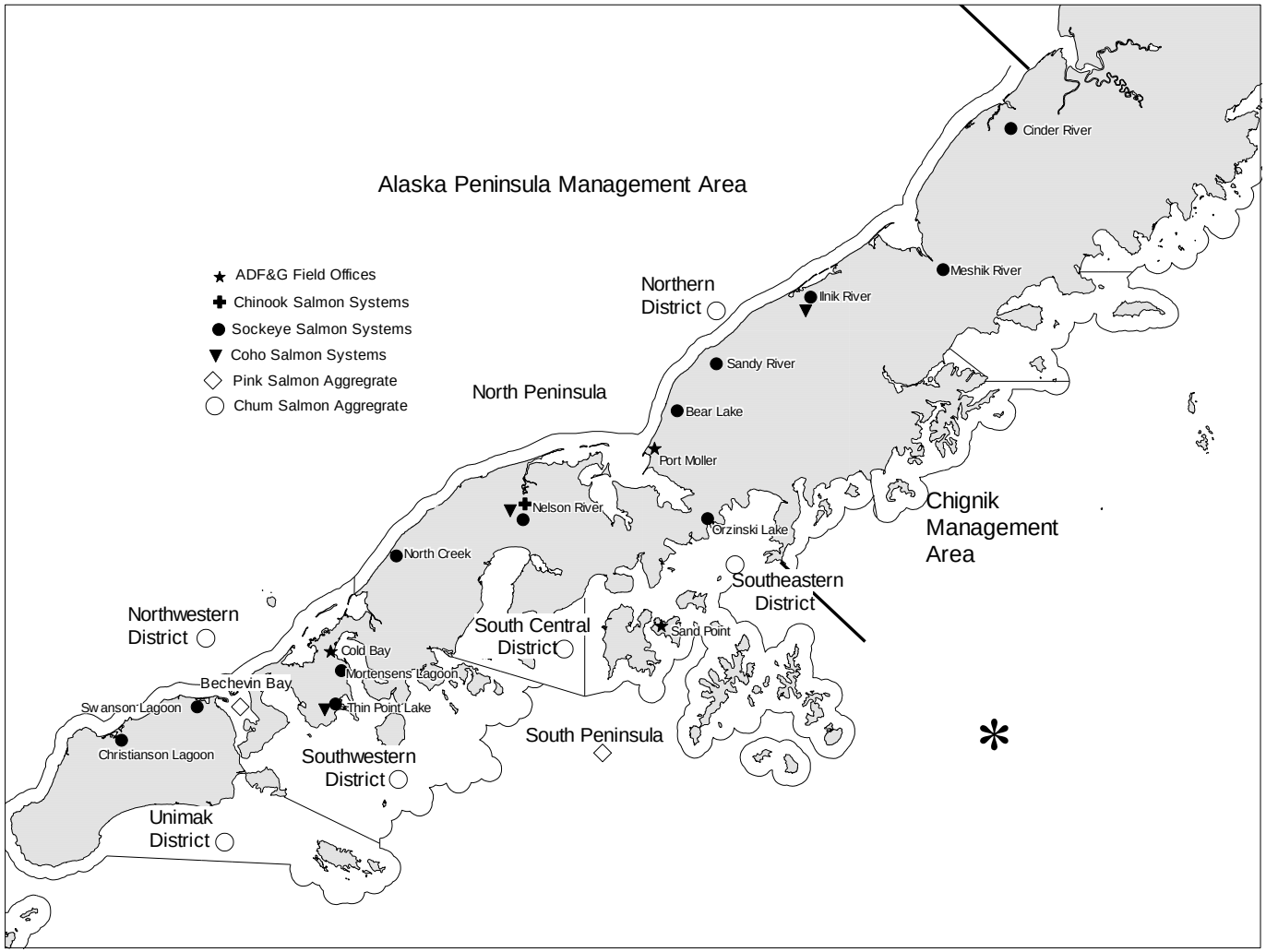

Figure 1. Map of the Alaska Peninsula Management Area with the major sockeye, coho, and Chinook salmon systems depicted.