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## MEMORANDUM

TO: Jeff Regnart, Director  
Division of Commercial Fisheries

DATE: September 20, 2014

Charles Swanton, Director  
Division of Sport Fish

THRU: Tracy Lingnau, Regional Supervisor  
Division of Commercial Fisheries, Region II

SUBJECT: Prince William Sound  
Management Area  
Escapement Goal  
Recommendation Memo

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### Escapement Goal Recommendations to the Directors of the Divisions of Commercial Fisheries and Sport Fish

The purpose of this memo is to inform you of our progress reviewing and recommending escapement goals for the Prince William Sound Management Area (PWSMA), which includes Bering River, Copper River, and Prince William Sound. Escapement goals for this area have been set and evaluated at regular intervals since statehood. Because of this effort, many of the stocks have long-term historical databases. PWSMA escapement goals were last reviewed, changes recommended, and subsequently implemented by the department (Fair et al. 2011) during the 2011–2012 Alaska Board of Fisheries (board) cycle.

## Prince William Sound Management Area Escapement Goal Recommendations Memo

On February 28, June 24, August 14, and August 29, 2014, an interdivisional salmon escapement goal review committee, including staff from the divisions of Commercial Fisheries and Sport Fish, met to review existing salmon escapement goals in PWSMA. The 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). Two important terms are:

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

The committee determined the appropriate goal type (BEG or SEG) for each salmon stock with an existing goal and other monitored, exploited stocks without an existing goal. Using available data, we determined the most appropriate methods to evaluate the escapement goal. Due to the comprehensive previous analyses in Bue et al. (2002), Evenson et al. (2008), Fair et al. (2008 and 2011), this review only reanalyzed goals with recent (2011–2013) data that might result in a substantially different escapement goal from the last review, or those that should be eliminated or established. For most PWSMA stocks (with the exception of Eshamy Lake sockeye salmon), the available data were most appropriate for SEG-type goals.

The department estimated most system escapements through multiple aerial and/or foot surveys of stream reaches that can be monitored. However, one PWSMA stock's escapement was measured using sonar, one using mark–recapture techniques, and two using weirs. The committee evaluated escapement goals with various methods: (1) stock-recruitment analyses, (2) yield analyses, and (3) escapement variability information (Bue and Hasbrouck *Unpublished*). Following these analyses, the committee estimated escapement goals for each stock, compared these estimates with the current goal, and agreed on a recommendation to keep the current goal, change the goal, eliminate the goal, or to establish other goals.

There were 29 existing escapement goals evaluated in PWSMA (Table 1). The committee recommends, to the directors of the divisions of Sport Fish and Commercial Fisheries, that no changes be made to existing escapement goals and that no goals be eliminated or created at this time in PWSMA.

In summary, this comprehensive review of the 29 existing salmon escapement goals in PWSMA resulted in no modifications to the existing goals. Oral and written reports (Evenson et al. *In prep*) concerning escapement goals and specific recommendations for numerous stocks in PWSMA will be presented to the board in December 2014. These reports will list all current and recommended escapement goals for PWSMA, as well as detailed descriptions of the methods used to reach these recommendations.

### ***Literature Cited***

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

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- 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 No.08-01, Anchorage.
- 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 No. 08-02, Anchorage.
- 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 No. 11-07, Anchorage.
- Evenson, M. J., S. D. Moffitt, J.W. Erickson, R. Brenner, R. A. Clark, and T. R. McKinley. *In prep.* 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-XX, Anchorage.

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**Table 1.** –Summary of escapement goals for salmon stocks in Prince William Sound Management Area.

System	Current Escapement Goal		
	Range	Type	Year Adopted
<b>King Salmon</b>			
Copper River	> 24,000	SEG	2002
<b>Coho Salmon</b>			
Bering River	13,000 – 33,000	SEG	2002
Copper River Delta	32,000 – 67,000	SEG	2002
<b>Sockeye Salmon</b>			
Eshamy Lake	13,000 – 28,000	BEG	2002
Coghill Lake	20,000 – 60,000	SEG	2011
Bering River	15,000 – 33,000	SEG	2011
Copper River Delta	55,000 – 130,000	SEG	2002
Upper Copper River	360,000 – 750,000	SEG	2011
<b>Pink Salmon (by District)</b>			
Even-Year Broodline			
Eastern	250,000 – 580,000	SEG	2011
Northern	140,000 – 210,000	SEG	2011
Coghill	60,000 – 150,000	SEG	2011
Northwestern	70,000 – 140,000	SEG	2011
Eshamy	3,000 – 11,000	SEG	2011
Southwestern	70,000 – 160,000	SEG	2011
Montague	50,000 – 140,000	SEG	2011
Southeastern	150,000 – 310,000	SEG	2011
Odd-Year Broodline			
Eastern	310,000 – 640,000	SEG	2011
Northern	90,000 – 180,000	SEG	2011
Coghill	60,000 – 250,000	SEG	2011
Northwestern	50,000 – 110,000	SEG	2011
Eshamy	4,000 – 11,000	SEG	2011
Southwestern	70,000 – 190,000	SEG	2011
Montague	140,000 – 280,000	SEG	2011
Southeastern	270,000 – 620,000	SEG	2011
<b>Chum Salmon (by District)</b>			
Coghill	> 8,000	SEG	2005
Eastern	> 50,000	SEG	2005
Northern/Unakwik	> 20,000	SEG	2005
Northwestern	> 5,000	SEG	2005
Southeastern	> 8,000	SEG	2005