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MEMORANDUM

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DATE: February 23, 2025

SUBJECT: Arctic-Yukon-Kuskokwim
Escapement Goal Memorandum

The purpose of this memo is to report on our progress reviewing and summarizing escapement goal committee findings for escapement goals for Arctic-Yukon-Kuskokwim (AYK) Region. The *Policy for statewide salmon escapement goals* (5 AAC 39.223) recognizes the establishment of salmon escapement goals as a joint responsibility of the Alaska Department of Fish and Game (department) and the Alaska Board of Fisheries (board) and describes the concepts, criteria, and procedures for establishing and modifying salmon escapement goals. Under the policy, the board recognizes the department's responsibility for establishing and modifying biological escapement goals and sustainable escapement goals. During the escapement goal review process, the department evaluates new methodologies and concepts and utilizes the best available data to establish or update escapement goals.

Escapement goals consistent with the *Policy for statewide salmon escapement goals* throughout the AYK Region have been set and evaluated at regular intervals since the 2003/2004 board cycle (ADF&G 2004). AYK escapement goals were last reviewed by the department during the 2022/2023 board cycle (Liller and Savereide 2022).

Between January 30, 2024, and December 10, 2024, an interdivisional salmon escapement goal review committee, including staff from the divisions of Commercial Fisheries and Sport Fish, reviewed existing salmon escapement goals throughout the AYK Region. 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" or "(BEG)" means the escapement that provides the greatest potential for maximum sustained yield . . .;" and
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> 5 AAC 39.222(f)(36) "sustainable escapement goal" or "(SEG)" means 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. . .;"

There are currently 47 escapement goals in the AYK Region established by ADF&G and 3 goals established by U.S./Canada Yukon River Panel (YRP). The committee reviewed the available data and escapement goal structure for all exploited salmon stocks throughout the AYK Region, except for the goals established by the YRP. Based on the quality and quantity of available data, the committee used the most appropriate methods to evaluate the escapement goals and made determinations to retain, revise, or discontinue existing goals. Escapement goals for AYK Region have typically been reviewed every 3 years aligned with the 2004, 2007, 2010, 2013, 2016, 2019, and 2023 cycles (ADF&G 2004; Brannian et al. 2006; Molyneaux and Brannian 2006; Volk et al. 2009; Conitz et al. 2012; Conitz et al. 2015; Liller and Savereide 2018; Liller and Savereide 2022). Escapement goal review priorities for the 2025 review were influenced, in part, by prior-year review activities.

Escapement goal findings for each management area are summarized below.

Norton Sound-Port Clarence and Kotzebue Management Areas

A total of 18 escapement goals exist across the Norton Sound-Port Clarence and Kotzebue Management Areas (Table 1). All escapement goals are SEGs. Within the Norton Sound-Port Clarence Area there are 16 goals: 2 king salmon; 5 chum salmon; 3 coho salmon; 4 pink salmon, and 2 sockeye salmon. Within the Kotzebue Management Area there are 2 chum salmon escapement goals. The review team found that the following revisions to existing escapement goals were warranted.

Unalakleet River (including North River) King Salmon

The review team determined that replacing the existing North River SEG with a new SEG representing the entire Unalakleet River drainage is appropriate. This decision builds upon guidance provided in prior-year reviews (e.g., Liller and Savereide 2022) and incorporates newly available information. In 2005, the percentile method was used to establish a SEG of 1,200–2,600 North River king salmon, based on 9 years of tower counts. In 2010, the department established a weir on the mainstem Unalakleet River, located upriver from the North River confluence. Paired escapement data indicates that neither assessment project alone provides an adequate index of king salmon escapement, due to high annual variability in spawner distribution. However, combined, the North River tower and Unalakleet River weir provide a more complete count of king salmon escapement to the Unalakleet River drainage. The review committee determined establishing a drainagewide SEG of 1,500–3,500 Unalakleet River king salmon, based on the 15^{th}–65^{th} percentile of the combined North River tower and Unalakleet River weir escapements for years 2010–2022

is appropriate. If adopted, references to the SEG range should be updated in the *Subdistricts 5 and 6 King Salmon Management Plan* (5 AAC 04.395).

Tubutulik River Chum Salmon

The review team found that discontinuing the Tubutulik River chum salmon SEG in lieu of management based on the chum salmon SEG established for the Kwiniuk River tower is appropriate. The Tubutulik River and Kwiniuk River are the primary salmon spawning tributaries that drain into Norton Sound, Subdistrict 3. In 2019, the percentile method was used to revise the Tubutulik River chum salmon SEG of 3,100–9,000 based on peak aerial surveys (Liller and Savereide 2018). The escapement goal has only been assessed once since 2013 due to logistical constraints. Without annual aerial survey assessments within the Tubutulik River, management relies on Kwiniuk River tower counts and the associated chum salmon escapement goal of 9,100–32,600. The Kwiniuk River tower is the longest running assessment project in Norton Sound, provides high-quality annual estimates of chum salmon abundance, and is believed to provide a reliable index of chum salmon escapement to Subdistrict 3. Removal of the Tubutulik River chum salmon aerial survey SEG more accurately reflects the existing management decision framework and escapement monitoring capabilities in the Norton Sound Management Area.

Pilgrim River (Salmon Lake) Sockeye Salmon

The review team found that revising the Pilgrim River (Salmon Lake) sockeye salmon SEG range to a lower bound SEG is appropriate. The Pilgrim River (Salmon Lake) sockeye salmon SEG of 6,800–36,000 was established in 2019 based on the 15th–65th percentiles of historical weir-based escapement estimates (Liller and Savereide 2018). Alternative escapement goal ranges were considered based on results of Ricker spawner-recruitment production analyses. The nature of the fishery and current harvest management strategies were considered by the review team. The department manages the runs to provide the maximum subsistence opportunity above the lower bound of escapement goal and there is no commercial fishery to harvest large surpluses. It was determined that a lower bound SEG was most appropriate for this fishery, and the review team found that a lower bound SEG of >6,400 Pilgrim River sockeye salmon is appropriate. In river run size will be monitored with the Pilgrim River weir, and harvest management actions to achieve the lower bound SEG will consider subsistence harvest that occurs upriver of the weir.

Kwiniuk River Coho Salmon

The review team found that a lower bound SEG of >4,400, based on the 15th percentile of the 2001–2024 Kwiniuk River coho salmon tower estimates is appropriate. An SEG range was established for Kwiniuk River coho salmon in 2005 based on percentiles of historical peak aerial survey counts (ADF&G 2004). Aerial surveys have occurred infrequently since 2005 due to a variety of logistical challenges. The Kwiniuk River tower is the longest running escapement project in Norton Sound and has provided a minimum coho salmon spawning index annually since 2001. Small-scale commercial fishery harvest occurs for coho salmon in marine waters of Norton Sound, subdistrict 3, and subsistence harvest occurs in both marine and freshwater areas. The small-scale nature of the fisheries limits the utility of an upper bound for the escapement goal.

Yukon Management Area

There are 12 escapement goals for the Yukon River drainage within Alaska: 6 king salmon, 3 summer chum salmon, and 3 fall chum salmon (Table 2). Of these, 4 goals are BEGs and 8 are SEGs. Not included in this list are 3 goals for Canadian stocks that were established as part of the

Yukon River Salmon Agreement: 1) mainstem Yukon River king salmon, 2) mainstem Yukon River fall chum salmon, and 3) Fishing Branch River fall chum salmon. Escapement targets for these Canadian stocks are set by the Yukon River Panel. The review team determined that no revisions to existing escapement goals were warranted.

Kuskokwim Management Area

The Kuskokwim Management Area, which includes the Kuskokwim River and Kuskokwim Bay drainages, has 17 established escapement goals: 8 king salmon, 2 chum salmon, 3 coho salmon, and 4 sockeye salmon (Table 3). All escapement goals are SEGs. The review team found the following revisions to existing escapement goals were warranted.

Middle Fork Goodnews River Salmon

The review team determined that the SEGs for king, chum, sockeye, and coho salmon in the Middle Fork Goodnews River should be discontinued because of a lack of available funding for continued escapement assessment. SEGs were established or revised for Middle Fork Goodnews River chum and coho salmon in 2005 and king and sockeye salmon in 2019. The Middle Fork Goodnews River weir was collaboratively funded by the State of Alaska, federal grants, and commercial fishing industry contributions. Beginning in 2012, seasonal operations were shortened due to funding reductions and total coho salmon escapements were no longer being enumerated by the weir. No funding has been available to operate the Middle Fork Goodnews River weir since 2019. The department has unsuccessfully explored options to secure alternative funding to reestablish weir operations. Given the length of time that the weir has not operated, the low probability of future funding, and the absence of directed commercial fishing, it is prudent to discontinue the existing goals. Kuskokwim Area staff will continue to monitor salmon escapement to the Goodnews River drainage using aerial survey methods, and peak aerial survey SEGs established for North Fork Goodnews River king and sockeye salmon will continue to be evaluated.

Summary

In summary, the escapement goal committee reviewed 47 salmon escapement goals for the AYK Region with findings to:

- discontinue the North River king salmon SEG and replace it with a new SEG for the entire Unalakleet River drainage;
- discontinue Tubutulik River chum salmon SEG in lieu of management based on the chum salmon SEG established for the Kwiniuk River tower;
- revise the Pilgrim River (Salmon Lake) sockeye salmon SEG range to a lower bound SEG;
- revise the Kwiniuk River coho salmon SEG range based on aerial surveys to a lower bound SEG based on tower counts; and
- discontinue Middle Fork Goodnews River SEGs for king, chum, sockeye, and coho salmon due to inadequate funding to operate the Middle Fork Goodnews River weir required to assess the goals.

An oral report will be given to the board at the October 2025 Work Session. A more detailed oral report concerning escapement goals will be presented to the board at the AYK Region regulatory meeting in November 2025. These reports will list all current and updated escapement goals for the AYK Region, as well as a detailed description of the methods used to reach determinations on escapement goal changes.

Salmon stock of concern recommendations will be finalized after the 2025 salmon season to include the most recent year's escapements. These recommendations will be formalized in a memo and presented at the board Work Session in October 2025.

Literature Cited

ADF&G. 2004. Escapement goal review of select AYK Region salmon stocks. Alaska Department of Fish and Game, Regional Information Report No. 3A04-01, Anchorage.

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 No. 06-07, Anchorage.

Conitz, J. M., K. G. Howard, and M. J. Evenson. 2012. Escapement goal recommendations for select Arctic-Yukon-Kuskokwim Region salmon stocks, 2013. Alaska Department of Fish and Game, Fishery Manuscript No. 12-07, Anchorage.

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

Hamazaki, T., and J.M. Conitz. 2015. Yukon River summer chum salmon run reconstruction, spawner-recruitment analysis, and escapement goal recommendation. Alaska Department of Fish and Game, Fishery Manuscript Series No. 15-07, Anchorage.

Liller, Z. W., and J. W. Savereide. 2018. Escapement goal recommendations for select Arctic-Yukon-Kuskokwim Region salmon stocks, 2019. Alaska Department of Fish and Game, Fishery Manuscript No. 18-08, Anchorage.

Liller, Z. W., and J. W. Savereide. 2022. Escapement goal review for select Arctic–Yukon–Kuskokwim Region salmon stocks, 2023. Alaska Department of Fish and Game, Fishery Manuscript No. 22-08, Anchorage.

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 No. 06-08, Anchorage.

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 No. 09-08, Anchorage.

Table 1.–Summary of current escapement goals and 2025 committee findings for salmon stocks in the Norton Sound/Port Clarence and Kotzebue Areas.

		Current escapement goal			Escapement goal finding		
Stock unit	Assessment method	Goal	Type	Year established or last revised	Action	New or revised goal	Type
Norton Sound and Port Clarence Area							
King Salmon							
Kwiniuk River	Tower	>250	SEG	2016	No change	NA	NA
North River [a]	Tower	1,200–2,600	SEG	2005	Discontinue	NA	NA
Unalakleet River	Tower/Weir	NA	NA	NA	Establish	1,500–3,500	SEG
Chum Salmon							
Eldorado River	Weir	4,400–14,200	SEG	2019	No change	NA	NA
Nome River	Weir	1,600–5,300	SEG	2019	No change	NA	NA
Snake River	Tower/weir	2,000–4,200	SEG	2019	No change	NA	NA
Kwiniuk River	Tower	9,100–32,600	SEG	2019	No change	NA	NA
Tubutulik River	Peak aerial survey	3,100–9,900	SEG	2019	Discontinue	NA	NA
Coho Salmon							
Kwiniuk River	Peak aerial survey	650–1,300	SEG	2005	Revise method	4,400	SEG
Niukluk River/Ophir Creek[b]	Peak aerial survey	750–1,600	SEG	2016	No change	NA	NA
North River [a]	Peak aerial survey	550–1,100	SEG	2005	No change	NA	NA
Pink Salmon							
Kwiniuk River (all years)	Tower	>8,400	SEG	2005	No change	NA	NA
Nome River (even year)	Weir	>13,000	SEG	2005	No change	NA	NA
Nome River (odd-year)	Weir	>3,200	SEG	2005	No change	NA	NA
North River [a] (all years)	Tower	>25,000	SEG	2005	No change	NA	NA
Sockeye Salmon							
Pilgrim River (Salmon Lake)	Weir	6,800–36,000	SEG	2019	Revise	6,400	LB SEG
Glacial Lake	Peak aerial survey	800–1,600	SEG	2005	No change	NA	NA
Kotzebue Area							
Chum Salmon							
Noatak / Eli / Kelly Rivers	Peak aerial survey	43,000–121,000	SEG	2019	No change	NA	NA
Upper Kobuk / Selby Rivers	Peak aerial survey	12,000–32,100	SEG	2019	No change	NA	NA

Note: NA stands for not applicable.

[a] Unalakleet River drainage.

[b] Fish River drainage

Table 2.– Summary of current escapement goals and 2025 committee findings for salmon stocks in the Yukon Area.

		Current escapement goal			Escapement goal finding		
Stock unit	Assessment method	Goal	Type	Year established or last revised	Action	New or revised goal	Type
King salmon							
East Fork Andreafsky River	Weir	2,100–4,900	SEG	2010	No change	NA	NA
Andreafsky River (West Fork)	Peak aerial survey	640–1,600	SEG	2005	No change	NA	NA
Nulato River (forks combined)	Peak aerial survey	940–1,900	SEG	2005	No change	NA	NA
Anvik River	Peak aerial survey	1,100–1,700	SEG	2005	No change	NA	NA
Chena River	Tower/sonar	3,300–5,700	BEG	2023	No change	NA	NA
Salcha River	Tower/sonar	3,300–6,500	BEG	2001	No change	NA	NA
Chum Salmon, Summer							
Yukon River Drainage	Reconstruction [a]	500,000–1,200,000	BEG	2016	No change	NA	NA
East Fork Andreafsky River	Weir	>40,000	SEG	2010	No change	NA	NA
Anvik River	Sonar	350,000–700,000	BEG	2005	No change	NA	NA
Chum Salmon, Fall							
Yukon River Drainage	Reconstruction [a,b]	300,000–600,000	SEG	2010	No change	NA	NA
Delta River	Foot surveys	7,000–20,000	SEG	2019	No change	NA	NA
Teedriinjik (Chandalar) River	Sonar	85,000–234,000	SEG	2019	No change	NA	NA

Note: NA stands for not applicable. Not included in this table are goals set by the Yukon River Panel for Canadian-origin mainstem king salmon (71,000 international border passage), mainstem fall chum salmon (70,000–104,000), and Fishing Branch fall chum salmon (22,000–49,000).

[a] Run reconstruction is conducted postseason and uses a model to estimate total return from a variety of harvest and escapement monitoring projects.

[b] This goal includes all U.S. (Alaska) and Canada stocks.

Table 3.– Summary of current escapement goals and 2025 committee findings for salmon stocks in the Kuskokwim Area.

		Current escapement goal			Escapement goal finding		
Stock unit	Assessment method	Goal	Type	Year established or last revised	Action	New or revised goal	Type
King Salmon							
Kuskokwim River	Reconstruction [a]	65,00–120,000	SEG	2013	No change	NA	NA
George River	Weir	1,800–3,300	SEG	2013	No change	NA	NA
Kogrukluk River	Weir	4,800–8,800	SEG	2013	No change	NA	NA
Kwethluk River	Weir	4,100–7,500	SEG	2013	No change	NA	NA
Pitka Fork Salmon River	Peak aerial survey	470–1,600	SEG	2005	No change	NA	NA
Kanektok River	Peak aerial survey	3,900–12,000	SEG	2016	No change	NA	NA
Middle Fork Goodnews River [b]	Weir	1,500–3,600	SEG	2019	Discontinue	NA	NA
North Fork Goodnews River [b]	Peak aerial survey	640–3,300	SEG	2005	No change	NA	NA
Chum Salmon							
Kogrukluk River	Weir	15,000–49,000	SEG	2005	No change	NA	NA
Middle Fork Goodnews River [b]	Weir	>12,000	SEG	2005	Discontinue	NA	NA
Coho Salmon							
Kogrukluk River	Weir	13,000–28,000	SEG	2005	No change	NA	NA
Kwethluk River	Weir	>19,000	SEG	2010	No change	NA	NA
Middle Fork Goodnews River [b]	Weir	>12,000	SEG	2005	Discontinue	NA	NA
Sockeye Salmon							
Kogrukluk River	Weir	4,400–17,000	SEG	2010	No change	NA	NA
Kanektok River	Peak aerial survey	15,300–41,000	SEG	2016	No change	NA	NA
North Fork Goodnews River [b]	Peak aerial survey	9,600–18,000	SEG	2016	No change	NA	NA
Middle Fork Goodnews River [b]	Weir	22,000–43,000	SEG	2019	Discontinue	NA	NA

Note: NA stands for not applicable.

[a] Run reconstruction is conducted postseason and uses a model to estimate total return from a variety of harvest and escapement monitoring projects.

[b] Kuskokwim Bay. All other stock units are within the Kuskokwim River drainage.