THE STATE of ALASKA
GOVERNOR MICHAEL J. DUNLEAVY

Department of Fish and Game

DIVISION OF COMMERCIAL FISHERIES
Central Region Office

333 Raspberry Road
Anchorage, AK 99518-1565
Main: 907.267.2105
Fax: 907.267.2442

# MEMORANDUM

TO: Forrest Bowers, Acting Director
Division of Commercial Fisheries

Israel Payton, Director
Division of Sport Fish

DATE: March 04, 2025

FROM: Bert Lewis, Regional Supervisor BL
Division of Commercial Fisheries, Region II

Jason Dye, Regional Supervisor JD
Division of Sport Fish, Region II

SUBJECT: Bristol Bay Escapement Goal Memo

The purpose of this memo is to report our progress reviewing and recommending escapement goals for the Bristol Bay Management Area (BBMA). 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 and describes the department's responsibility for establishing and modifying biological escapement goals (BEG) and sustainable escapement goals (SEG).

Beginning in November 2024, an interdivisional salmon escapement goal committee, including staff from the divisions of Commercial Fisheries and Sport Fish, met several times to discuss salmon escapement goals in the BBMA. Escapement goals for this area have been set and evaluated at regular intervals since statehood and many of these stocks have long-term historical datasets. 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 reviewed other monitored stocks that do not have escapement goals. Using available data, we determined the most appropriate methods to develop each escapement goal.

Currently, 13 escapement goals are established in BBMA (Table 1). Due to the comprehensive previous analyses in Cross et al. (1997), Fair (2000), Fair et al. (2004), Baker et al. (2006 and 2009), Fair et al. (2012), Cunningham et al. (2015 a and b), and Erickson et al. (2015 and 2018) the review committee focused its attention on updating and reviewing the stock-recruit analyses for sockeye and king salmon stocks.

**Sockeye salmon**

**The committee recommends no changes to Bristol Bay sockeye salmon SEGs.** These SEGs were developed by a board committee with input from industry, academia, and the department from 2012-2015. In that process sockeye salmon SEGs were developed using an alternative methodology incorporating economics, biology, and theoretical maximum yield (Cunningham et al. 2015 a and b). The committee acknowledged that those SEGs could result in foregone yield. Because these goals are not based on traditional department spawner/recruit or percentile methods they could have been adopted as Optimal Escapement Goals. The current SEGs have proven sustainable and sockeye salmon runs have been highly productive with record or near-record runs and escapements for over 10 years. The committee will continue to monitor these large escapements and gather data that could improve understanding of stock-recruit relationships.

**King salmon**

**The committee recommends no change to the Nushagak king salmon SEG.** The current SEG (55,000–120,000) for Nushagak River king salmon was established in 2013. For this review, the stock-recruit analysis was updated for brood years 1966–2016. We also updated the run-reconstruction with recent data which integrates historical escapement, harvest, inriver run, and age composition data to reconstruct drainagewide historical run and escapement, as well as spawner-recruit parameter estimates from which biological reference points such as number of spawners at maximum sustained yield ($S_{MSY}$) are estimated. The committee found no compelling evidence that the goal should be changed. The department will continue development of the run reconstruction model and stock-recruit analyses, and present results and escapement goal recommendation prior to the next Bristol Bay board cycle.

**Chum salmon**

**The committee recommends no change to the Nushagak chum salmon SEG.** The current lower-bound SEG (200,000) for Nushagak River chum salmon was established in 2013. The committee reviewed the recent escapements and concluded that updating the analysis for this stock would not likely result in a substantially different escapement goal.

**Pink salmon**

**The committee recommends eliminating the Nushagak pink salmon SEG.** The current lower-bound SEG (165,000) for even-year Nushagak River pink salmon was established in 2013. There has been little assessment of pink salmon stock performance since the goal was established. The sonar project has only operated twice (2014 and 2018) during August (the key even-year timeframe for pink salmon passage) since the goal was established. There is also no expectation of future assessment to inform stock assessment or escapement goal analysis. Based on the lack of assessment and basically no directed fisheries, the committee concluded that elimination of the goal was appropriate.

**Coho salmon**

**The committee recommends eliminating the Nushagak coho salmon SEG.** The current SEG (60,000–120,000) for Nushagak River coho salmon was established in 2013. Similar to pink salmon, there has been little assessment of coho salmon stock performance since the goal was established. The Nushagak River sonar has operated during August four times since the goal was established (2013, 2014, 2018, and 2019). There is also no expectation of future assessment to inform stock assessment or escapement goal analysis. There is currently no directed commercial fishery for Nushagak River coho salmon. For the most part, processors cease buying operations in the Nushagak District by the end of July, well before the August 10 historical mid-point of the coho salmon run. Without escapement data the department will not target directed commercial fishing opportunity on Nushagak River coho salmon, while subsistence and sport fisheries will continue to be managed on background regulations.

**Summary**

This comprehensive review of the 13 existing salmon escapement goals in the BBMA resulted in the recommendation to maintain all existing sockeye, chum, and king salmon escapement goals and the elimination of Nushagak pink and coho salmon escapement goals. Oral and written reports concerning BBMA escapement goals, the Nushagak River king salmon run reconstruction, and stock status will be presented to the board in January 2026. These reports will list current escapement goals for BBMA, detailed descriptions of the methods used to evaluate these goals, and recent annual escapements.

Stock of concern recommendations for Bristol Bay salmon will be developed after the 2025 salmon season. These recommendations will be formalized in a memo and presented at the board Work Session in October 2025. A brief oral report concerning escapement goals and stock of concern recommendations will be given to the board at the Work Session.

Table 1.–Summary of current and recommended escapement goals for salmon stocks in Bristol Bay Management Area.

| System | Escapement goal | Enumeration method | Goal type | Initial year | Recommendation |
|---|---|---|---|---|---|
| **KING SALMON** | | | | | |
| Nushagak River | 55,000 – 120,000 | Sonar | SEG | 2013 | No change |
| **CHUM SALMON** | | | | | |
| Nushagak River | 200,000 | Sonar | Lower-bound SEG | 2013 | No change |
| **COHO SALMON** | | | | | |
| Nushagak River | 60,000 – 120,000 | Sonar | SEG | 2013 | ELIMINATE |
| **PINK SALMON** | | | | | |
| Nushagak River (even years only) | 165,000 | Sonar | Lower-bound SEG | 2013 | ELIMINATE |
| **SOCKEYE SALMON** | | | | | |
| Kvichak River | 2,000,000 – 10,000,000 | Tower count | SEG | 2010 | No change |
| Alagnak River | 210,000 | Tower count | Lower-bound SEG | 2019 | No change |
| Naknek River | 800,000 – 2,000,000 | Tower count | SEG | 2015 | No change |
| Egegik River | 800,000 – 2,000,000 | Tower count | SEG | 2015 | No change |
| Ugashik River | 500,000 – 1,400,000 | Tower count | SEG | 2015 | No change |
| Wood River | 700,000 – 1,800,000 | Tower count | SEG | 2015 | No change |
| Igushik River | 150,000 – 400,000 | Tower count | SEG | 2015 | No change |
| Nushagak River | 370,000 – 900,000 | Sonar | SEG | 2015 | No change |
| | 260,000 – 760,000 | Sonar | OEG | 2012 | Not applicable |
| Togiak River | 120,000 – 270,000 | Tower count | SEG | 2010 | No change |

**Literature Cited**


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 No. 06-05, Anchorage.

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 No. 09-05, Anchorage.

Cross, B.A., D.C. Gray, and D.L. Crawford. 1997. Report to the Alaska Board of Fisheries on spawning escapement goal evaluations for Bristol Bay salmon. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A97-30, Anchorage.

Cunningham, C.J., J. Wang, R. Hilborn, and C. Anderson. 2015a. Analysis of Escapement Goals for Bristol Bay Sockeye Salmon taking into Account Biological and Economic Factors. Unpublished draft report prepared for the Bristol Bay Science and Research Institute, Dillingham, and the Bristol Bay Regional Seafood Development Association, Alaska. 110 p.

https://www.bbsri.org/_files/ugd/bc10d6_12bd0cfd623a4c44b4e61f3045c882a6.pdf?index=true

Cunningham, C.J., D. Schindler, and R. Hilborn. 2015b. An evaluation of biological escapement goals for sockeye salmon of Bristol Bay, Alaska. Unpublished draft report prepared for the Bristol Bay Science and Research Institute, Dillingham, and the Bristol Bay Regional Seafood Development Association, Alaska. 48 p.

https://www.bbsri.org/_files/ugd/bc10d6_7f130c433ecb4dc983a9456ed0154097.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 No. 15-06, Anchorage.

Erickson, J.W., G.B. Buck, T.R. McKinley X. Zhang, T. Hamazaki, and A.B. St. Saviour. 2018. Review of salmon escapement goals in Bristol Bay, Alaska, 2018. Alaska Department of Fish and Game, Fishery Manuscript No. 18-06, Anchorage.

Fair, L.F. 2000. Report to the Alaska Board of Fisheries on spawning escapement goal evaluations for Bristol Bay salmon. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report 2A00-38, Anchorage.

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 No. 12-04, Anchorage.

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.