

Proposals 41, 42, 43 and the Nushagak-Mulchatna King Salmon Management Plan

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Recommendation: 1) Adopt RC 51 (strike two provisions from the NMKSMP) to address proposal 41 and 42; 2) take “No Action” on proposal 43; 3) in conjunction with the Department, Board of Fisheries, and stakeholders, conduct an examination of the the Nushagak-Mulchatna King Plan and the information and assessment programs that it is based on; and 4) use results from this analysis to consider changes to the Plan in 15 months that will better provide for the conservation and sustainable use of Nushagak King Salmon by subsistence, sport, and commercial fisheries users.

Rationale

The Nushagak-Mulchatna King Salmon Management Plan is a highly prescriptive plan with multiple precise management triggers for action based on the King Salmon passage estimates derived from the Nushagak River Sonar Project. Unfortunately, there is a mismatch between the precision of the Plan and the precision and accuracy of escapement information managers must use. The mismatch regularly makes it difficult for the fishery manager to simultaneously adhere to the letter of the Plan, conserve the stock, and, when warranted, provide sustainable use by subsistence, sport, and commercial users. The problem is double-edged. Most importantly, issues with the sonar can mask the need for conservation actions but they also can lead to foregone harvest by all users.

ADF&G acknowledged in its October 3, 2018 Bristol Bay Escapement Goal Memo “... a substantial number of kings are not enumerated by the existing sonar assessment.” and they recommend updating the Nushagak King Salmon escapement goal for the next Bristol Bay regulatory meeting in 3 years. This is progress. However, updating the escapement goal using similarly imprecise estimates of historical escapement and inserting revised numbers as new triggers in the existing Plan will not improve the plan and management of the stock. Nor will small tweaks and/or further refinements to the Plan (e.g., proposals 41, 42, 43), at least without first considering the Plan’s limitations and various opportunities to augment and improve the information it is built on. With this, users can then work together to build a better Plan.

Background

The Nushagak River Sonar Project was initiated in 1980 to enumerate sockeye salmon amidst all species of salmon. Apportionment of sonar targets to each fish species, necessary to estimate the sockeye passage, eventually led to the indexing of the daily King Salmon passage. Large and small runs of this valuable King Salmon stock in the 1980s led to allocation conflicts and intensified the need for a management plan. In 1991, the Board, working closely with subsistence, sport, and commercial fisheries stakeholders over two years, created the Nushagak-Mulchatna King Salmon

Management Plan¹ (5 AAC 06.361). The Plan's triggers were added over the years and were based on the King Salmon passage estimates from the sonar project. Since it was developed, much has been learned over 27 seasons about the precision and accuracy of sonar-based Nushagak King Salmon estimates. Shifts in the run sizes of Chinook and sockeye, and changes in the sport and commercial fishery over time have also affected the utility of the Plan developed in 1991.

Comparisons between the annual sonar-based estimates and upriver post-season aerial survey counts identified issues with the sonar years ago (e.g., 1997 and 1999). More recently, acoustic tagging (2011-2014) and mark-recapture (2014-2016) studies also showed that the sonar underestimates annual King Salmon passage, and most importantly, by a variable degree. In 2017, low early-season sonar-based King Salmon passage estimates triggered restrictions on harvest opportunities; subsequent examination of all information suggested that estimates were probably about 50% lower than actual. Although the restrictions helped increase King Salmon escapement, skepticism grew among users about misplaced certainty in the assessment information. Finally, due to a lack of quality age-specific escapement information for Nushagak King Salmon, ADF&G abandoned attempts to prepare preseason forecasts and that has further hindered managers' ability to provide sustainable harvests for all users.

Suggested Actions include (but are not limited to):

Escapement monitoring

1. Fully quantify and make explicit the uncertainty in daily and annual King Salmon passage and escapement estimates for setting and/or revising triggers in the Plan, setting an escapement goal range, and making preseason forecasts.
2. Identify/develop methods to detect inseason problems with the current sonar-based estimates.
3. Examine other existing sources of information available to the fishery manager to determine whether any could be integrated into the Plan to increase managers' ability to take corrective actions inseason that would otherwise be precipitated by erroneous sonar-based estimates.
4. Explore ways to improve inseason assessments from the sonar to develop post-season, age-specific escapement estimates in the short- and long-term.

King Plan Elements

5. Explore several options to better provide for the conservation and sustainable use of Nushagak King Salmon by subsistence, sport, and commercial fisheries users.
6. Consider use of additional metrics to assess in-season abundance.
7. Consider utility of preseason forecasts to guide early season management.

¹ 91-131-FB. Nushagak Chinook Salmon Management Plan, findings of the Board of Fisheries, Jan. 1992; attached and available www.adfg.alaska.gov/static/regulations/regprocess/fisheriesboard/pdfs/findings/ff91131x.pdf

Based on the above analyses, develop a suite of recommendations for updating the Nushagak-Mulchatna King Salmon Management Plan, and for improving information the plan is based on.

This effort could be accomplished by a work group with technical support and completed prior to the 2020 season. Users and the Board of Fisheries should be integral to this process because they are either responsible for changes to the Plan or must be able to operate under it; stakeholders bring useful perspectives and ideas on ways to manage this valuable and fully exploited fish stock. Ideally, the work group should involve one or two Board of Fisheries members, ADF&G Commercial and Sport Fisheries Divisions staff, and stakeholders from the subsistence, sport, and commercial fisheries. The work group would be supported by technical experts.

Recommendations for the Plan could be brought before the Board in time to be “noticed” and considered at the March 2020 Statewide meeting (i.e., in ~15 months).

There are precedents for similar approaches elsewhere in the State. Something similar, but not the same, was successfully applied in Bristol Bay with the sockeye escapement goal analysis initiated at the 2012 Board of Fisheries². The Bristol Bay Science and Research Institute (BBSRI), which designed and led the Board-directed Bristol Bay sockeye escapement goal analysis, is willing to lead the effort proposed here.

² See Executive Summary, Analysis of Escapement Goals for Bristol Bay Sockeye Salmon taking into Account Biological and Economic Factors, available at: <https://www.bbsri.org/escapement-goal-analysis>