



# NORTH PACIFIC FISHERY MANAGEMENT COUNCIL

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## Action Memo

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**Dan Hull, Chairman**  
**David Witherell, Executive Director**

### SUBJECT:

Kuskokwim River model review for three-river index - Report

STAFF CONTACT: Diana Stram (NPFMC)

### ACTION REQUIRED:

- Review model; action as necessary

### BACKGROUND:

Amendment 110, implemented in July 2016, modified the Chinook and chum salmon bycatch avoidance program in the Bering Sea pollock fishery. In addition to other measures, this amendment identified additional management actions that would be taken when a three-river index of Western Alaska inriver run abundance (Unalakleet River, Upper Yukon River, and Kuskokwim River) falls below a 250,000 Chinook salmon threshold, based on the State of Alaska's post-season inriver Chinook salmon run size assessment.

Since 2015, ADF&G has generated postseason abundance estimates for the three rivers that comprise the index using methods consistent with the analysis for Amendment 110. This year, ADF&G is recommending changes to the data and model used to estimate total inriver abundance of Kuskokwim River Chinook salmon. Kuskokwim River run reconstruction model changes were developed, in part, to address changing harvest patterns when significant harvest restrictions were implemented. Between 2014 and 2017, annual Chinook salmon harvest in the Kuskokwim River was among the lowest on record in this river. The previous model overestimated the total Chinook salmon runs in those years.

Following final action on Amendment 110, during responses to proposed and final rulemaking by NMFS, it was understood that NMFS and the State would work with the Council to ensure that any modifications to the methods used by ADF&G to generate the post-season estimates would be reviewed and approved by the SSC before they would be used by the Council in the Three System Index that determines salmon bycatch management for the BS pollock fishery. This is consistent with the Council process; whereby new assessment models are reviewed by the SSC at a meeting prior to their use in setting harvest specifications. As such, the Kuskokwim River model revisions are described in the **attached** document for SSC review.

The relationship upon which the threshold was adopted in Amendment 110 was based on the AEQ estimation for Western AK Chinook salmon caught as bycatch in the BS pollock fishery (through 2012), and salmon post season run abundance as estimated from the inriver run reconstruction for the Kuskokwim as well as the post season inriver run size estimates for the other two rivers that comprise the Three System Index. There is new data available for these components, including:

- (1) Revised Western AK Chinook salmon AEQ estimates through to 2017 including revised estimates (from the Amendment 110 analysis) for 2009-2012. (**attached**; this is a corrected version from the document presented to the Council in April 2018);
- (2) revisions to the Kuskokwim River inriver run estimates based on the revised run reconstruction model, which forms one component of the 3 System Index; and
- (3) updated data on run abundance from the Unalakleet and Yukon Rivers (which form the other two components of the 3 System Index)

An additional **attachment**, also prepared by ADF&G, updates the relationship of the three-river index and total western Alaskan AEQ. Under the previous model, the 3 System Index total run estimates were determined to be greater than 250,000 for each year since 2015. Using the revised Kuskokwim River run reconstruction model, which corrects for overestimates in the total Chinook salmon run on the Kuskokwim, the revised estimates (postseason and final) indicate that the Three System Index was less than the 250,000 fish threshold in each year since 2010. Under Amendment 110, this would constitute a determination of low Chinook abundance, and would trigger adherence by the Bering Sea pollock fishery to a lower Chinook salmon hard cap and associated performance standard.

At this meeting, the SSC will review the revised Kuskokwim model of total run estimates contributing to the three-river index, for use in 2019 groundfish specifications. The companion document is provided for understanding the implications of the model revisions on the relationship of the three-river index to western Alaskan AEQ, which was the basis for the 250,000 fish threshold that was set in Amendment 110. The Council will consider this information, together with SSC recommendations regarding the model, and consider if additional action is warranted. Note, any change to the salmon bycatch management provisions in Amendment 110, including the threshold of 250,000 fish, would necessitate an FMP amendment.