Daniel J. Daugherty

Editor-In-Chief

The North American Journal of Fisheries Management

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Dear Dr. Daugherty,

Please consider the original research article entitled “State-Space Model to Estimate Salmon Escapement Using Multiple Data Sources” for publication by the North American Journal of Fisheries Management.

In this paper, we present a state-space model that estimates adult escapement past a dam by using window counts, passive integrated transponder (PIT) tag observations and data from an adult fish trap, accounting for issues such as nighttime passage, fallback and re-ascension, potential observation error at the window and uncertainty in the adult trap rate. We tested the model using a simulation framework, and also applied it to ten years of steelhead and spring/summer Chinook data at Lower Granite Dam on the Snake River.

We believe the North American Journal of Fisheries Management is the appropriate journal for this manuscript because it provides a novel approach to estimate escapement, by origin, with appropriate estimates of uncertainty. The results from this model have direct applications to fisheries management, from monitoring of threatened or endangered populations to setting harvest policies. This framework, while developed for data from Lower Granite Dam, could easily be applied to other locations.

The state-space framework we present provides a method to quantity the unknown levels of observer error in window counts and presents estimates with appropriate levels of uncertainty. We tested previous assumptions that passage over the dam while the counting window was closed is offset by fish that fall back and re-ascend the dam to be double counted and present evidence that those assumptions are not being met. The model we describe in this manuscript has recently been adopted by co-managers in the Snake River basin, demonstrating its utility in a management context.

My co-authors and I confirm that this work is original and has not been published elsewhere, nor is it currently under consideration for publication elsewhere. All handling of endangered or threatened Chinook and steelhead was done in accordance with applicable laws. We have no conflicts of interest to disclose.

If you decide to put this manuscript out for review, we suggest the following reviewers (in no particular order):

Thank you for your consideration of this manuscript.

Sincerely,

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