

Peer Review Summary Document

(8/29/2025)

Peer Review Plan

[Effects of Water Storage and Delivery on Spawning Activity of Endangered Lost River Suckers in Upper Klamath Lake, Oregon](#) [91 KB PDF]

Title and Authorship of Information Product to be Disseminated

Effects of water storage and delivery on spawning activity of endangered Lost River Sucker in Upper Klamath Lake, Oregon. By J. M. Caldwell, S. M. Burdick, and J. R. Krause.

Peer Reviewers Expertise and Credentials

Reviewer 1 has a MS in Fish and Wildlife Science. The reviewer's expertise is in quantitative analysis of tag detection data and fish ecology.

Reviewer 2 has a MS in Fish and Wildlife Science. The reviewer's expertise is in ecology and recovery of western native fishes. The reviewer has also worked with endangered suckers in large rivers of the American West.

Reviewer 3 has a PhD in Ecology. The reviewer's expertise is in fish ecology and mark-recapture modeling. The reviewer has also worked with endangered aquatic species and their responses to river discharge in the American West.

Reviewers 4 and 5 were anonymously selected by the journal for their expertise in the subject matter.

Charge Submitted to Peer Reviewers

The reviewers were asked to make an objective evaluation of survival modeling in relation to water quality and lake surface elevation covariates described in the manuscript.

Summary of Peer Reviewers Comments

Reviewer 1 stated that the paper was well written, will provide information useful to managers, and adds to the knowledge of Lost River Suckers. Reviewer 1 recommended clarifying that both PIT antenna detections along with physical captures were used, additional text clarifying that the Ouxy Spring spawning site was still accessible without spring flow, further explanation about the effect of year in our Cox model and adding discussion about the possible genetic impacts of individual spawning site loss.

Reviewer 2 stated that the manuscript was very well written with appropriate analyses and will add to the knowledge base. Reviewer 2 recommended additional text discussing PIT detection efficiency, further discussion about our definition of dry years, clarifications about analyses methods including further explanation about our model fit measures, and clarifications to our Cox model covariate results.

Reviewer 3 stated that the manuscript was well-written, had appropriate methods and clearly presented results. Reviewer 3 recommended further description of the PIT tag antenna arrays, clarifying how we determined that detections were of live fish and clarifying how we tested for correlation among covariates.

Reviewer 4 specified that the manuscript stated conservation implications well and that the results should benefit Klamath Basin management. Reviewer 4 recommended providing additional information on the spatial arrangement, lake surface elevation, and size of spawning sites by including a map and table. Reviewer 4 suggested inclusion of a covariate for each spawning site to account for differences among site size. Reviewer 4 recommended further clarification in our methods for assigning favored springs along with including information about relative availability of spawning habitat at the individual spawning sites. The reviewer provided recommendations to improve the interpretability of Figure 6. The reviewer also suggested multiple editorial changes and minor additions of information throughout the manuscript.

Reviewer 5 recommended running the GAM analysis separately for each spring. Reviewer 5 suggested including further detail about PIT antenna deployment and made recommendations to improve interpretability of Figure 7. Reviewer 5 recommended rerunning our analysis that determined changes in spawning site use separately for male and females. Reviewer 5 also had several minor comments on improving readability of the manuscript.

Summary of USGS Response to Peer Reviewers Comments

The authors made changes in the manuscript to incorporate many of the suggested recommendations from the reviewers. A summary of specific changes made are as follows:

- Included new text clarifying PIT tag detection types used in analysis, the accessibility of Ouxy Spring to suckers after the spring stopped flowing, and further explanation about covariate effects in the Cox model.
- Included text discussing PIT tag detection efficiency, clarified the definition of dry years, and provided additional explanation about the model fit measures and the effects of Cox model covariates.
- We included additional text explaining how we determined detections were from live fish and how we tested for correlation among covariates.
- We provided additional information on the size and spatial arrangement of spawning sites in the lake by including a map, a figure detailing the available habitat at each site within a range of possible lake levels, and a photograph of a specific spawning site to accompany the site description. The antennae array layout was also indicated in the photo.
- We explained that we originally attempted to include a covariate in our analysis to account for habitat availability differences at each site, but they were correlated with lake surface elevation, and we removed them. We explained that we chose to keep the lake surface elevation covariate because it is the element that is controllable by managers.
- We provided further information clarifying what years were used to determine favored springs.
- We highlighted dry years in Figure 6 to improve interpretability.
- We did not include individual GAMs for each spring because we ran the GAM analysis separately for each spring and determined that the results were similar to the model with combined springs.
- We included further detail about PIT antenna deployment
- We reran our analysis that determined changes in spawning site use by water year separately for males and females and determined that the results did not change. We stated this in the manuscript.

The Dissemination

The information product is published as a peer-reviewed journal article in the *North American Journal of Fisheries Management* at <https://doi.org/10.1093/najfmt/vqaf073>.