

State, Federal and Tribal Fishery Agencies Joint Technical Staff Memo

*Oregon Department of Fish and Wildlife
Nez Perce Tribe*

TO: Ritchie Graves, NOAA Fisheries
Paul Wagner, NOAA Fisheries



FROM: Erick VanDyke, ODFW



Dave Statler, NPT

SUBJECT: Proposed change to an earlier start date for smolt transportation

DATE: April 8, 2014

The purpose of this memorandum is to summarize technical concerns regarding the NOAA Fisheries proposal to start transportation of smolts from Snake River transportation and collection sites as early as April 21. The NOAA proposal and the supporting data and analyses were presented and discussed in detail at a meeting of the Fish Passage Advisory Committee on February 18, 2014. Subsequent to these discussions the state, tribal and federal fishery managers attended the Technical Management Team Transportation Workshop in which the supporting data and analyses for the proposal to start smolt transportation early was discussed with action agencies representatives. We have carefully reviewed historical transportation data, recent transportation data, Comparative Survival Study results, all of the data presented by NOAA fisheries, and the NOAA fisheries analyses and reviews presented to the FPAC by the Fish Passage Center. Our technical conclusions regarding the earlier start date of transportation are listed below followed by detailed discussion of each point.

- **The historical data do not support an earlier start date of smolt transportation.**
- **Recent data do not support the earlier start date of smolt transportation.**
- **The data and analyses presented by NOAA do not support the NOAA proposal to start transportation earlier.**
- **The ISAB did not recommend a 50/50 transport proportion.**

Historical Data do not support an earlier start date

In 2007 the Action Agencies developed a pre-decisional document that reflected the current understanding of available information and analyses (Hydro Proposed Action Summary, May 21, 2007). The document states that: “As a result of the existing data, the Federal Action Agencies are proposing an interim juvenile salmonid transportation program that relies less on early spring transportation, more on later spring transportation, and a mixture of transportation and inriver migration (i.e. spread the risk) when data is less certain. In most years, we would initiate transportation in late April with a staggered start date for downstream projects, increase the reliance on transportation during May, but adaptively manage for spill and transportation in early June when more subyearling Chinook were present.”

The rationale for the proposed transportation operation was based on consideration of the best available data regarding transportation and inriver migration, information gathered in the April 2006 meetings of the transportation technical group meeting of the Biological Opinion remand process, and COMPASS model results. The Action Agencies also considered other relevant information including some of the uncertainties surrounding transport that may be affecting other species. The transportation technical work group discussed spring transport, including the trigger to begin transport, data sufficiency, spreading the risk and potential alternative spring transport operations.

The Action Agencies recommended that as hydro system conditions change, due to the effects of operations and configurations, the existing data may become less reliable and future operations for transportation should be based on adaptive management using the results from more recent data.

Recent data do not support the earlier start date

Our review of Smith et al. 2013 and recent PPT presentations by NOAA suggests that the benefit of earlier April transport for wild steelhead is questionable. And, the data NOAA has presented do not support the change as proposed in the 2014 Supplemental BiOp.

After our initial review for FPAC, NOAA responded, making changes that appeared to address some of the criticisms regarding model fitting methods. However, the data were still sparse for wild Chinook and wild steelhead (in April) and although the models appeared to fit the data better, the fits were still poor--especially for the two years when transportation SAR data were available in April to inform an earlier start date (2006 and 2010). In those two years NOAA showed a transport benefit (not statistically significant) based on their data curves. However, the curves showed poor fit to the SAR data, particularly for the transported fish, and subsequently the difference between the curves which predicts the ratio of predicted transport in-river SAR were not representative of weekly SAR ratios. Further, for both wild steelhead and wild Chinook the curves were flat (no slope) and had wide confidence intervals (indicative of poor fit to the model) which suggests no relation between T:B ratios and transportation time period therefore making the curves uninformative for understanding seasonal changes in T:B ratios. Wide confidence intervals around the curves suggest low confidence in the modeled T:B ratios. For

example, the predictive curve for wild steelhead in 2006 had a confidence interval that ranged from less than 0.2 to greater than 5 (Figure 1). This broad interval, coupled with the poor fit, shows both that the model does not predict the T:B ratio well and that a seasonal pattern is not detectable given the noisy data from which the model was fit. It is not clear how these data (and similar data for 2010) can be used to support an earlier start date to transport as was concluded by NOAA.

Similar curves for wild yearling Chinook were shown at the TMT transport workgroup meeting (Figure 2). In the case of Chinook, the curves were also flat – showing no seasonal trend. Furthermore, the curve aligned near 1 and yet NOAA depicted this in subsequent slides as a non-significant transport benefit. This is misleading as the wide confidence intervals around this flat curve should not be characterized as a transport benefit since the line fell very near to no benefit and might have been better portrayed as such.

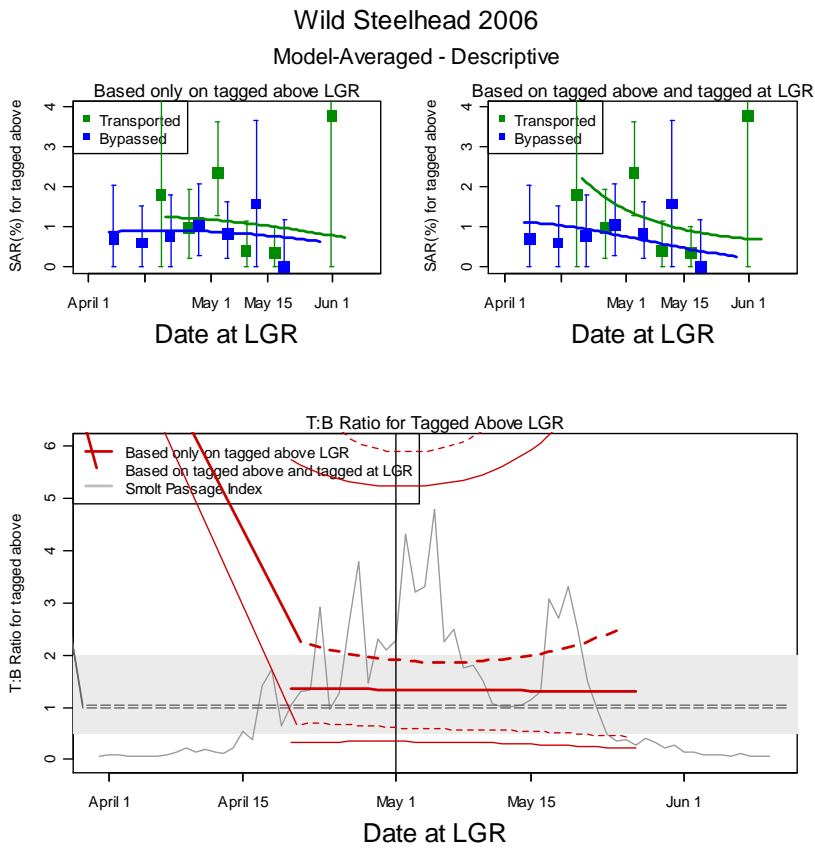


Figure 1. NOAA figure showing seasonal SAR and predicted T:B curve with 95% confidence intervals. The above figure was originally presented by NOAA at the March 19, 2014 TMT Transportation Workgroup.

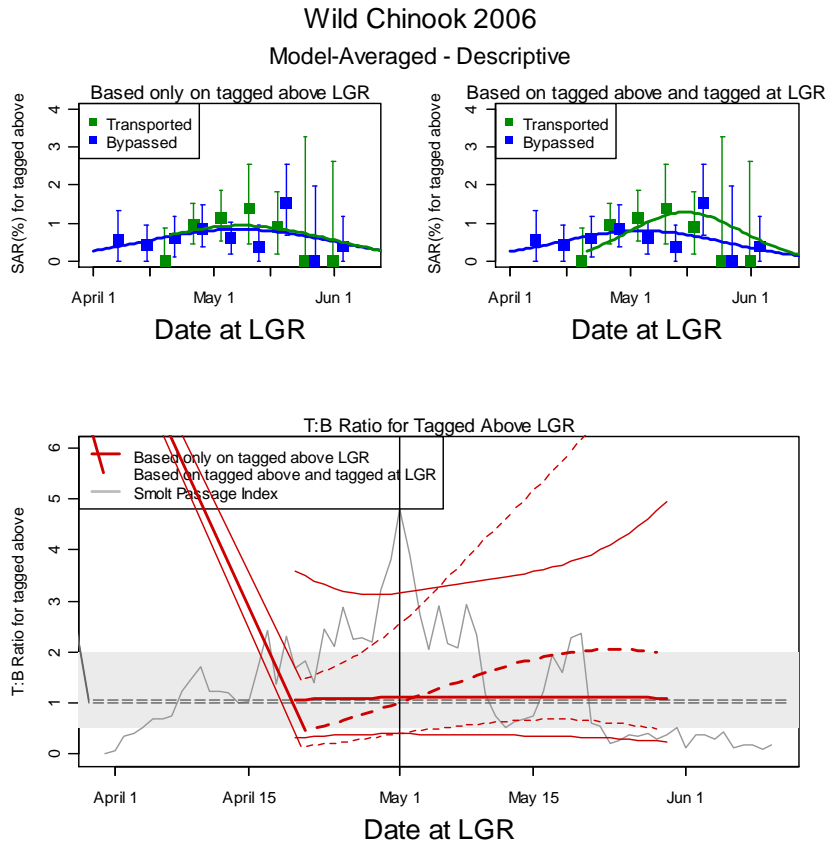


Figure 2. NOAA figure for wild yearling Chinook SARs and T:B prediction curve with 95% confidence intervals. . The above figure was originally presented by NOAA at the March 19, 2014 TMT Transportation Workgroup.

The ISAB did not recommend a 50/50 transport proportion

One justification provided for the earlier fixed transportation start date is the ISAB’s advice to continue a spread the risk strategy. However, the 2014 Supplemental BiOp misinterprets this spread the risk recommendation to mean the maintenance of a specific 50%/50% split between transport and in-river migration. The ISAB was convened in February of 2010 to determine whether the cessation of spill from May 7-21, as outlined in the 2008 BiOp, was warranted, given that flows were predicted to be low in 2010. Data from out-migration years 2005 (no spring spill) versus 2007 (spring spill provided) were presented as a justification for providing spill in May, even in a low flow year. In their report, the ISAB concluded: “...using combinations of transport and in-river migration with spill spreads the risk across species, stocks, and the ecosystem, while offering an approach that can shed light on uncertainties in the longer-term dataset” (ISAB 2010). This statement clearly indicates what the ISAB meant by a spread the risk strategy, one that involves a combination of transportation and in-river migration with spill. Nowhere in the ISAB’s conclusions is there any mention of a specific transport to in-river migration ratio that is needed to meet a spread the risk strategy.

Literature Cited:

ISAB (Independent Scientific Advisory Board). 2010. ISAB Review of NOAA Fisheries' 2010 Low Flow Fish Transport Operations Proposal. ISAB, Report 2010-2, Portland, Oregon, April 9, 2010.

Hydro Proposed Action Summary, May 21, 2007.

http://www.salmonrecovery.gov/Files/BiologicalOpinions/2004/Hydro_052107_Final%5b1%5d.pdf