

Memorandum

To: Steve Klein, EPA ORD

From: Hope Herron, Tetra Tech

Date: Friday, June 17, 2016

Subject: Comment Reconciliation Memorandum: Peer Review Comments for the Qualitative Assessment

1. Comment Reconciliation Memorandum Objective

The objective of this memorandum is to summarize the peer review reconciliation process conducted for the *Qualitative Assessment: Evaluating the Impacts of Climate Change on Endangered Species Act Recovery Actions for the South Fork Nooksack River, WA* (Qualitative Assessment), identify those comments determined by the assessment authors to be the most critical, and to describe the approach used to address those critical comments.

The Qualitative Assessment is one of the key research components in the *EPA Region 10 Climate Change and TMDL Pilot Research Project*. The U.S. Environmental Protection Agency (EPA) Region 10 and EPA's Office of Water (OW) and Office of Research and Development (ORD) launched the Pilot Research Project to explore how projected climate change impacts could be considered in the implementation of a Clean Water Act (CWA) 303(d) temperature Total Maximum Daily Load (TMDL,) and influence restoration actions in an Endangered Species Act (ESA) Salmonid Recovery Plan. The Qualitative Assessment is expected to be released along with a companion assessment (the Quantitative Assessment), in support of the regulatory South Fork Nooksack River (South Fork), WA temperature TMDL published by the Washington Department of Ecology in summer 2016.

2. Peer Review Process

The Qualitative Assessment (Draft-Final September 15, 2015 version) was distributed by EPA ORD for external review and comment to five reviewers. The purpose of the peer review process was to ensure that the Qualitative Assessment met EPA ORD's standards of quality, as well as to improve quality and provide credibility for the assessment.

3. Peer Review Comments and Reconciliation

All peer review comments were compiled in a comment inventory in March 2016 (included as a separate excel attachment to this memorandum). A total of 122 comments were provided by the 5 peer reviewers. Each comment was evaluated and addressed by the Qualitative Assessment authors from March to June 2016. The comment inventory identifies the location of each comment within the assessment (e.g., Index, Section, Page, Line, Figure #, Table #), the responsible author who addressed the comment (from the Nooksack Indian Tribe or Tetra Tech), and whether and how the comment was addressed (e.g., action).

This section will identify those comments determined by the assessment authors to be the most critical, or those comments requiring a higher level of critical thinking and assessment to address, and to describe the approach and action taken to reconcile those comments in the final pre-publication draft.

Peer Review Comments (considered as most critical)

1. Comment 28 in comment matrix, overall comment

Comment: The only link I had some trouble finding was the exact path from the discussion of each topic to the specific priority ranking. They do a wonderful job laying out the climate change risk and how each recovery action would or would not address that concern. This is probably plenty to ask for. However, a big deal is made about this translating specifically into prioritization of recovery actions. Recovery actions operate on something like 10-year, 3-year, and funding year time scales. All 3 of these time scales are relevant here. It just was not exactly clear to me how the general concerns translated into specific priorities at any of these time scales. And in the end I couldn't easily summarize how the prioritization changes, except in relation to logjams. Given that this is a pilot project, I think the changes (or not) should be emphasized. There are many other factors besides climate change that affect restoration priorities, which are perfectly valid. I just would have appreciated a more transparent explanation of these various priorities, and a discussion about where climate change fits in to the big picture. Most of the limiting factors that are already recognized will be exacerbated by climate change. Thus the recovery actions would not be expected to change when climate change is added to the discussion, necessarily. However, if there were any recovery actions that now are recognized to achieve multiple aims that might push them up on the list. Did this happen? Would there be any benefit to reducing some of the short-term actions (logjams) in favor of longer-term actions? That was not clear. So you have laid out very clearly why you might want to do each of these actions, what their benefit is in terms of climate change risk.

- **Response:** Section 5.3 was substantially revised to better tie the analysis in previous sections to the project recommendations. An additional table was developed to show restoration actions, expected timescales, and certainty of success. The changes in priorities that resulted from the qualitative assessment were also highlighted in the revised section.

2. Comment 49 in comment matrix, Section 5.2 Per Salmonid Species

Comment: In general this section needs more clarity and distinction about what is known vs. the uncertainty in the biological response of species to the projected changes in the climate and hydrologic conditions. Much of the biological responses of individual species to climate changes are still unknown. The assumptions and hypotheses identified in this section are useful for a qualitative assessment, but it

would be beneficial to provide more transparency as to what responses are “expert opinion”, “hypotheses”, or directly supported by studies of species response to climatic variability or other surrogates for climate change impacts. It is important to avoid having the biological responses become assumed “truths” simply because they are repeated frequently. Providing this distinction would also be useful for indicating where the important gaps are in this information to support further studies and monitoring. This critical uncertainty is mentioned in section 5.3.3, but could also be discussed where relevant throughout Section 5.2.

- **Response:** Revised/added last 2 sentences in first paragraph in 5.2.2. to indicate that we discuss hypothesized impacts and that monitoring is needed to test hypotheses.

3. Comment 50 in comment matrix, Section 5.3 Restoration and Protection Actions

Comment: This section is difficult to review because it is so specific to local conditions and restoration actions. One general concern I have for this section is that the recommended actions are very broad and the link to climate change impacts is not clear for many of them. This section reads more as recommendations for revising the recovery plan in general, rather than revisions to consider in light of climate change. It would be beneficial to highlight the actions that are new recommendations resulting directly from the analysis of climate change impacts or recommendations regarding changes in locations or priorities of existing restoration actions to minimize climate change impacts. How are these recommendations different because of the preceding analysis? Or are they the recommended actions regardless of climate change.

- **Response:** Substantially revised Section 5.3 to highlight new priorities based on the qualitative assessment and better tied the recommendations to the Qual2kw analysis.

4. Comment 75 in comment matrix, Section 5

Comment: But going from 5.1, 5.2 and 5.3 to 5.4 seems to have a missing step. Can you explain more clearly the management process that is at work?

- **Response:** Significantly strengthened and expanded discussion of management, roles and responsibilities throughout Section 5.

5. Comment 76 in comment matrix, Section 5

Comment: Also, it seems relevant that there was a switch from spatial organization (by reach) to process organization (by restoration action type). Can you explain whether this achieves the same goal?

- **Response:** Added additional geographic specificity to the action types. Tied priorities to reaches and watersheds.

6. Comment 77 in comment matrix, Section 5

Comment: How do the different recovery action types compare with each other in the priorities? What process do you use to decide this? I can imagine this exercise would be much more simply achieved with a quantitative sensitivity analysis, assuming you could find some way to quantify cost and opportunity, in terms of do-ability. This would have made the final product much more transparent.

- **Response:** Relative action priorities by type are shown in Tables 5.7 and 5.8. Added sentence to describe how action priorities determined. "Action priority integrates the potential to implement the action in the analysis unit, ability of the action to ameliorate climate impacts,

and the time scale of benefit (Table 5-10)." In section 5.7, added language under each action type to reference qual2k modeling (if applicable).

7. Comment 105 in comment matrix, Section 5 (comments 110 and 107 similar)

Comment: "Recommendations" - Who has authority to implement these recommendations? Or are different recommendations for different entities? Can this be specified? Otherwise, these all sounds like great ideas, but no one feels like it's their responsibility to take on. This comment can be applied to all the following sections with recommendations...

- **Response:** Revised Section 5.3 to include responsible partners for implementing the recommendation.

8. Comment 125 in comment matrix, Section 6

Comment: This section is off to a good start, and I realize that this will be updated based on future evaluations. The authors seem aware that there is still some work to do.

- **Response:** Section was significantly expanded and strengthened to specifically identify next steps.