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## **Yakima River Basin Study– Fish Benefits (Task 7) - Habitat Subcommittee**

**Meeting Notes, August 4, 2010, Yakima Basin Fish and Wildlife Recovery Board office in Yakima, Washington**

### **Introductions**

Ben Floyd, Anchor QEA and meeting facilitator, led introductions and reviewed the agenda with the subcommittee. Alex Conley suggested additional discussion topics for the meeting, including 1) better characterizing existing bull trout habitat limitations and including actions in the Integrated Plan, 2) status on characterizing floodplain restoration/benefits, 3) using GIS analysis in Basin Study to support local management efforts, and 4) identifying how to manage and implement the habitat restoration program to be included in the Integrated Plan.

### **Objectives and Approach Overview**

Joel Hubble, Chris Fredricksen and Alex Conley shared their objectives and approach for the fish benefits analysis to support the Yakima River Basin Study. The methodology is to use the 2004 Ecosystem Diagnosis and Treatment (EDT) model to estimate habitat benefits and improvements in fish populations. The improvements include fish passage at reservoirs and habitat enhancements. The Steelhead Salmon Recovery plan (August 2009) was used to characterize projects and actions in EDT. A question was raised about how low flows and barriers on systems such as Wilson and Naneum will be addressed? Passage barriers or other applicable attributes will be adjusted to reflect the expected improvements.

Bull trout and sockeye will not be addressed through EDT approach. For bull trout, a matrix and accompanying narrative is being developed discussing population status, limiting factors and current impacts, changes to populations, actions completed in recent years and information gaps. Additional actions will also be identified beyond what is already included in the habitat program recommendations, focused on management actions to further mitigate existing operational impacts, and potential impacts from Integrated Plan actions. An example of an existing problem to address is a passage issue at Box Creek in the Kachess reservoir.

### **EDT Modeling Methodology in More Detail**

Joel Hubble, Chris Fredricksen and Yuki Reiss described the methodology in more detail. The technical team faced an initial choice between using a capacity-based approach v habitat based approach. After coordination with members of the Habitat Subcommittee, made the decision to go with a habitat based approach using EDT the EDT model. A challenge with EDT is how to keep the process manageable.

The modeling team focused in on steelhead recovery plan actions and incorporating them into EDT by adjusting Level 2 attributes in the model. Level 2 attributes include riparian function, wood, channel width, off channel habitat, hydrologic confinement, bed scour, fine sediment and maximum temperature.



Applied actions by adjusting how much an action would improve the applicable attributes. Discussed sensitivity analysis and whether it could inform which attributes to focus in on and improve. Modeling team developed a scenario by reach for percent of improvement, and which attributes would be improved.

EDT outputs are adult and smolt production and capacity by geographic-based populations by species: spring Chinook, coho and steelhead. Results should not be taken as absolutes but rather are used to illustrate relative effects for comparative purposes.

The following items were discussed:

- How does flow improvement get incorporated? Spring pulses will be addressed through All H's Analyzer model (Hatchery, Hydropower, Habitat and Harvest) (AHA), Reclamation 2D model and IFIM to characterize improvements to habitat.
- What about frequency in flows – high flows v drought flows? EDT doesn't address variation in flow conditions. If we have increasing low flow years does EDT account for that? No. Have to be handled more qualitatively. Also, fish passage improves upper tributaries access as a mitigation strategy for climate change. May be able to create a scenario that is customized to drought year conditions.
- Need updated operating rules as part of this process. How will this be included or addressed? The approach at this point is to focus in more on large blocks of water that can be used down the road to figure out operational flow scenarios. Operating rules are being addressed, in part, through the hydrologic modeling effort.

### **Integration of Hatcheries and Natural Stocks Using AHA Model**

Chris Fredricksen, Yakama Nation, presented how the AHA model can be used to supplement the EDT analysis. Outputs will be put into AHA model to integrate natural and hatchery stocks.

- 50 – 70% of stocks (other than steelhead) are comprised of hatchery fish
- AHA includes economic benefits analysis module partitioned into various fisheries that can be used to connect inputs to economic analysis being performed under the Basin study task 2.2.

### **Sample Results for Fish Passage at Cle Elum and Bumping**

Joel Hubble, Reclamation, shared some very preliminary results. These are being refined and updated results will be shared at the next meeting.

### **Yakama Nation Restoration Actions**

Tom Elliott and others presented information on the Toppenish Creek restoration plan. The Yakama Nation would like a specific line item in the Integrated Plan with funding for approximately \$80 million. This estimate may be refined to characterize what components are water conservation projects versus habitat enhancements, but it may be difficult to cleanly delineate these.

### **Other Actions to Include in EDT**

If the committee members have other actions to include in the EDT analysis, please send suggestions to Yuki Reiss, Chris Fredricksen or Joel Hubble by August 13.

## **Next Meeting**

The next Habitat Subcommittee meeting will be held September 9, 1 – 4 PM the Recovery Board office. Alex Conley and Ben Floyd also shared an update on the mainstem floodplain restoration mapping work underway, and that a coordination meeting with Kittitas County was being targeted for August 13.

## **Attendance**

Tom Ring, Yakama Nation – Natural Resources

Stuart Crane, Yakama Nation Water Resources

Keith Underwood, HDR

Ben Floyd, Anchor QEA

Joel Freudenthal, Yakima County

Chris Fredricksen, Yakama Nation

Dave Fast, YKFP

Yuki Reiss, YBFWRB

Alex Conley, YBFWRB

Tom Elliott, Yakama Nation

Dave Lind, Yakama Nation

Jason McCormick, Washington Water Trust

David Child, Yakima Basin Joint Board

Joel Hubble, Bureau of Reclamation