RECLAMATION
Managing Water in the West

**Contact: Wendy Christensen, Columbia-Cascades Area Office, (509) 575-5848, ext. 203**
**Derek Sandison, Washington Department of Ecology, (509) 457-7120**

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

## Meeting Notes, October 15, 2010, Yakima Basin Fish and Wildlife Recovery Board office in Yakima, Washington

### Introductions

Ben Floyd, Anchor QEA, led introductions and reviewed the agenda with the subcommittee. There were no questions or comments.

**Ecosystem Diagnosis & Treatment (EDT) & All-H Analyzer (AHA) Modeling Results** *by Joel Hubble, Reclamation & Chris Fredricksen, Yakama Nation*
Joel and Chris provided an overview of the EDT and AHA model runs for the Integrated Plan. They first reviewed recent changes and updates made to the models, and then provided results for each fish species within the basin for restoration, and restoration with passage scenarios. The following was discussed under each category:

- Recent Changes & Model Updates
  - Based on comments from the previous habitat subcommittee meeting edits to the EDT restoration and restoration with passage scenarios for selected stream reaches and Level 2 attributes. These edits were made to better reflect proposed restoration actions in the scenarios.

- Summary of Estimated Species Abundance
  - Results included benefits from Bumping enlargement and Joel will double check if the two reaches above Bumping were also added to the model.
  - Are there less favorable Coho environment conditions in the higher gradients? *Suspect increasing Coho production results are from some fish taking up occupancy in the expanded reservoir, which might be offsetting lack of production in areas of higher gradient.*
  - Would there be changes in territory size if there are changes in carcasses? *Manually changed carcass numbers in each stream, walking through species by species, and changes by reach. Accounted for nutrient loading changes and carcass changes.*

- Spring Chinook
  - Results do not include harvest numbers.
  - The models do a good job at identifying minimum and maximum values for each species.
  - SAR stands for ‘smolt to adult return rates’.

- Steelhead

- Natural production is not bolstered by hatchery production like spring Chinook in the Yakima Basin.
- Rainbow trout are not included because resident and anadromous fish compete, so the model assumes habitat is consumed by only anadromous fish. Subsequently, the model is over estimating the anadromous portion of the population.
- Discussed pros and cons of having two model sets (anadromous and resident) to characterize the benefits to resident fish populations. For rainbow, does that mean the model assumes all the benefits of restoration go to anadromous? *Model does assume production goes to anadromous in EDT.*
- Fish are a significant resource for the Basin. Should address and list benefits for additional production for as many fish as we can.
- There are density dependent factors that come into play between resident and anadromous salmonids. Having these resident fish competing with all other anadromous fish where they exist is not necessarily good for anadromous productivity of the reach.

- Coho
  - The model encompasses several factors that affect predation. Does SAR assume adaptation? *No, EDT is static (snapshot in time). It includes temperature changes, but is not cross-generational.*
  - Why are steelhead numbers so high versus other fish species? *Starting point for other fish (e.g. Coho) are way lower. The gain in productivity is lower versus populations with higher intrinsic productivity.*

- Fall Chinook
  - In AHA, the genetic fitness parameter is knocked down 10 percent to try to account for the harvest regime in the model being static.
  - Late yearlings that over-winter and emerge in spring make huge contributions to the evolving migration patterns.
  - There is concern that predation is not adequately captured in the modeling or Integrated Plan.
  - Predation numbers won't change significantly in lower Yakima unless the Columbia River is addressed as well.
  - The subcommittee recommended an aggressive predation action be included in the habitat program.

- All Species Combined
  - Sockeye numbers are in the 30,000-50,000 range.
  - Working on extracting smolt production at Roza and at the mouth to get survival between scenarios. This could bolster these numbers (for outmigration survival).
  - It would be good to model how hatchery run sizes benefit from restoration.
  - We have restoration, and restoration with passage; maybe add a third scenario: restoration and passage at all five reservoirs? *This will be modeled after the October Workgroup meeting.*
  - Restoration includes tributary passage

- Upper Yakima Steelhead
  - We should include preservation with restoration, and this is assuming no degradation.

    - We will need key assumptions for the Workgroup right up front as orientation (context).
    - In presenting improvements, acknowledge that modeling results does not account for degradation currently occurring.

- Upper Yakima Steelhead: Summary of Scenario Effects on Survival Factors and Overall Performance
    - Habitat is key to increased production.
    - Channel width is a function of more water (flow) so model accounts for flow, but shows up as habitat quantity (Chris Fredricksen to verify). Flow manifests in different attributes in EDT.
    - Do you think the model adequately captured the flow expectations for the Basin? *Changes were made and additional review will be conducted to touch up flow attributes in the mainstem. This will increase numbers but not dramatically. Predation is where we really need to focus. Most sensitive areas to flow attributes were changed.*
    - What are you actually changing with changes in flow and fish? What is flow doing that affects survival? *For instream flow restoration, first priority is to get fish back to spawning areas and then to get smolts out. Second priority is "in reach", showing what improvements would be realistically expected.*
    - How is EDT linked to AHA? *Capacity and raw abundance estimates come out of EDT then go into AHA (plug EDT results into AHA). AHA has no stream reaches; it rolls all life stages together based on an algorithm to get a cumulative result.*

**Workgroup Meeting Preparation** *by Joel Hubble, Reclamation, Chris Fredricksen, Yakama Nation, and Keith Underwood, HDR*
Joel, Chris and Keith reviewed what remains to be done in preparation for next week's Workgroup meeting. The following items were discussed:

- In addressing flow, we need to add a 'next steps' slide with information on what has been completed and additional analysis remaining.
- Share results with the Workgroup, and let them know that we can isolate and change flow and other attributes, if necessary.
- If we don't have the ability to model all desired outputs, we can still make qualitative estimates.
- The USGS Decision Support System (DSS) model accounts for flow improvements to habitat, which is something EDT doesn't do directly.
- It is difficult to link flow and predation.
- Need to make additional tweaks to models:
    - Add Rimrock
    - Improved scenarios for smolt survivals for Yakima
    - Results interpretation (i.e. what are benefits to inflow changes, and how do they affect different life histories?) Benefits will drive funding. We need to address that we did this for a reason, and describe the benefits.
- Add sockeye results from fish passage studies.

**Meeting Notes**
Ben addressed meeting notes from the last Habitat Subcommittee meeting in September. No comments on the notes.

**Mainstem Floodplain Restoration – Present Reach Results and Cost Information** *by Ben Floyd, Anchor QEA*
Ben reviewed materials from the Mainstem Floodplain subgroup meetings held September 14th and 24th. He also presented the mainstem restoration template that was drawn up with input from the subgroup. Maps for each reach are not yet available, but will be developed. Alex reported details of the floodplain subgroup meeting held October 8th for Kittitas Reach. The group addressed the mainstem floodplain actions, modifying cost estimates and adding information to categories to complete each table. A table for the Naches needs to be developed. The revised tables will be sent out next week for subcommittee review and comment.

**Update Habitat Subcommittee Tributaries Enhancement and Mainstem Floodplain Restoration Recommendation** *by Ben Floyd, Anchor QEA*
Ben revisited with the subcommittee recommendations in the updated tributary and mainstem floodplain restoration table (*the updated Program Elements Table will be included in the meeting materials*). The following items were discussed:

- The group decided to update costs in several areas.
- The group decided to add Bull Trout recommendations.
    - Yuki added that Upper Bumping River passage opens up 3+ miles. This should be incorporated into mitigation for Bumping.
- The group added an action to reduce predation in the Lower Yakima.

**Next Steps and Follow up Activities**
The group decided on the following:

- Update program costs
- Update mainstem floodplain restoration tables
- Update habitat program description

Add Yuki Reiss to the email distribution list

**Attendance**

Alex Conley, Yakima Basin Fish & Wildlife Recovery Board
Stuart Crane, Yakama Nation Water Resources
Tom Elliot, Yakama Nation
Ben Floyd, Anchor QEA
Chris Fredricksen, Yakama Nation
Joel Freudenthal, Yakima County
Kristi Geris, Anchor QEA
Sean Gross, National Marine Fisheries Service
Perry Harvester, Washington Department of Fish and Wildlife
Joel Hubble, Reclamation
Anna Lael, Kittitas Conservation District
Yuki Reiss, Yakima Basin Fish & Wildlife Recovery Board
Tom Ring, Yakama Nation – Natural Resources
Mike Tobin, North Yakima Conservation District

Keith Underwood, HDR Engineering, Inc.

**Where to Find Additional Information**

Meeting materials, notes, and presentations from the Workgroup meetings and subcommittee meetings will be posted on the project website (http://www.usbr.gov/pn/programs/yrbwep/index.html). A bibliography of information sources, many of which are available online, is also posted on the website. If anyone needs help finding an information source, contact those listed at the top of page 1 or Ben Floyd at Anchor QEA, Richland office, (509) 392-4548, or bfloyd@anchorqea.com.