EXPERT PANEL PROCESS

Presentation to CRITFC Habitat Evaluation Workshop
March 3rd, 2015

RPA 35 and Table 5 Populations

- The FCRPS BiOp identified performance standards (HQI targets) for 56 populations of Chinook and steelhead to be achieved through tributary habitat improvement actions by 2018.
- RPA 35 Table 5 lists 56 populations and their performance standards; 18 of these populations are designated as priority populations.
- The 2011 court order on the 2008 BiOp required the Action Agencies to identify specific actions for implementation through 2018 as needed to meet the Table 5 performance standards for all populations.

2008 FCRPS Biological Opinion

- Expert Panel concept outcome of the Habitat Collaboration Workgroup (HCW), convened by NOAA and included the Action Agencies and Pacific Northwest Sovereign states and tribes.
- The HCW was initially convened by NOAA Fisheries in 2006.
- The HCW researched methods for correlating the effects of habitat improvement actions with survival.
- The process represents a cause-and-effect linkage of habitat improvement actions to changes in habitat condition; and changes in habitat condition to changes in survival.

HCW Method

- Relies on Expert Panels to identify limiting factors for assessment units/populations; estimate the current status or condition of each limiting factor; estimate the potential status or condition of each limiting factor; and estimate change in limiting factors as a result of implementing habitat improvement actions.
- Relies on Action Agencies to combine limiting factors into a single habitat condition score; combine habitat condition scores into a single habitat quality score for the population; and translate habitat quality changes into survival. The Action Agencies calculate survival using a formula developed by the HCW.

HCW Assumptions

- Limiting factors are known for each population
- Habitat actions directly affect habitat variables that limit the population
- Habitat variables can be combined to describe local habitat conditions
- Local habitat conditions can be combined to describe overall habitat quality for the entire population
- Changes in overall habitat quality are directly linked to changes in freshwater survival

Expert Panels

- Seven Expert Panels assembled for the 2008/2010 FCRPS BiOp.
- Six address salmon and steelhead populations in the upper Columbia, lower Snake, Wallowa, and Imnaha rivers; the upper Grande Ronde, lower Salmon, and upper Salmon rivers.
- A seventh panel addresses steelhead in the Clearwater River.
- Expert Panels include federal, tribal, state and local stakeholders with knowledge and experience planning and implementing habitat improvement projects and evaluating the affect of habitat improvement actions on salmon and steelhead.
- Expert Panel workshops are convened by the Action Agencies.
- Expert Panels convene once every three years.
- The most recent Expert Panel workshops were convened in 2012.

Expert Panel Sub-basins

Seven Expert Panels were assembled for the FCRPS BiOp. Six panels address salmon and steelhead populations in the Upper Columbia, Lower Snake, Wallowa and Imnaha rivers; the Upper Grande Ronde, Lower Salmon, and Upper Salmon rivers. A seventh panel addresses steelhead in the Clearwater river.

Expert Panel Outcomes

- For the populations evaluated by Expert Panels, *best available science* is combined with *professional knowledge and judgment* to estimate how habitat improvement actions will address limiting factors.
- The Expert Panels focus on key limiting factors that affect spawning, redd distribution, fry emergence, summer and winter growth and survival, and smolting.
- NOAA and the Action Agencies made a deliberate decision that the Expert Panels would not convert the results of habitat improvement actions to estimates of survival.

Key Limiting Factors - Valuation

- The Expert Panels "value" limiting factors relative to each factor's Proper Functioning Condition.
- Low values indicate "poor" condition. High values indicate a somewhat improved relative condition.
- Expert Panels evaluate the current condition of a limiting factor and numerically establish a "low bookend."
- Two additional values bookend the "potential" of each limiting factor projected at 2018 (the end of the 2010/2018 BiOp) and 2033 (25 years after the end of the 2008/2010 FCRPS BiOp). These values establish the "high bookends."
- High bookends gage the potential improvement of a habitat action relative to the low bookend.
- The potential improvement varies based on the limiting factor.

Key Limiting Factors - Valuation

- For example, for “riparian condition” that may be assessed a low bookend of 40% , a 2018 high bookend of 50%, and a 2033 high bookend of 80% the bookends account for the limited potential of the treatment to deliver immediate improvements.
- Conversely, for improvements to a limiting factor like “access” that is assessed a low bookend of 40% the 2018 and 2033 high bookends will be valued at 80% to represent the immediate improvement resultant of a treatment.

Limiting Factor Weights

- Some limiting factors might affect conditions for salmon and steelhead more than others.
- Based on the "relative" contribution of a factor to conditions for salmon and steelhead, Expert Panels assign a weight between zero and 1 to each limiting factor.
- Limiting factor weights are combined for each assessment unit and for all factors in a unit will total "1".
- So, an Expert Panel might assign a weight of 0.6 to streamflow and 0.2 each to riparian condition and in-stream channel complexity if streamflow has a greater relative effect on conditions for salmon and steelhead than the other two factors.

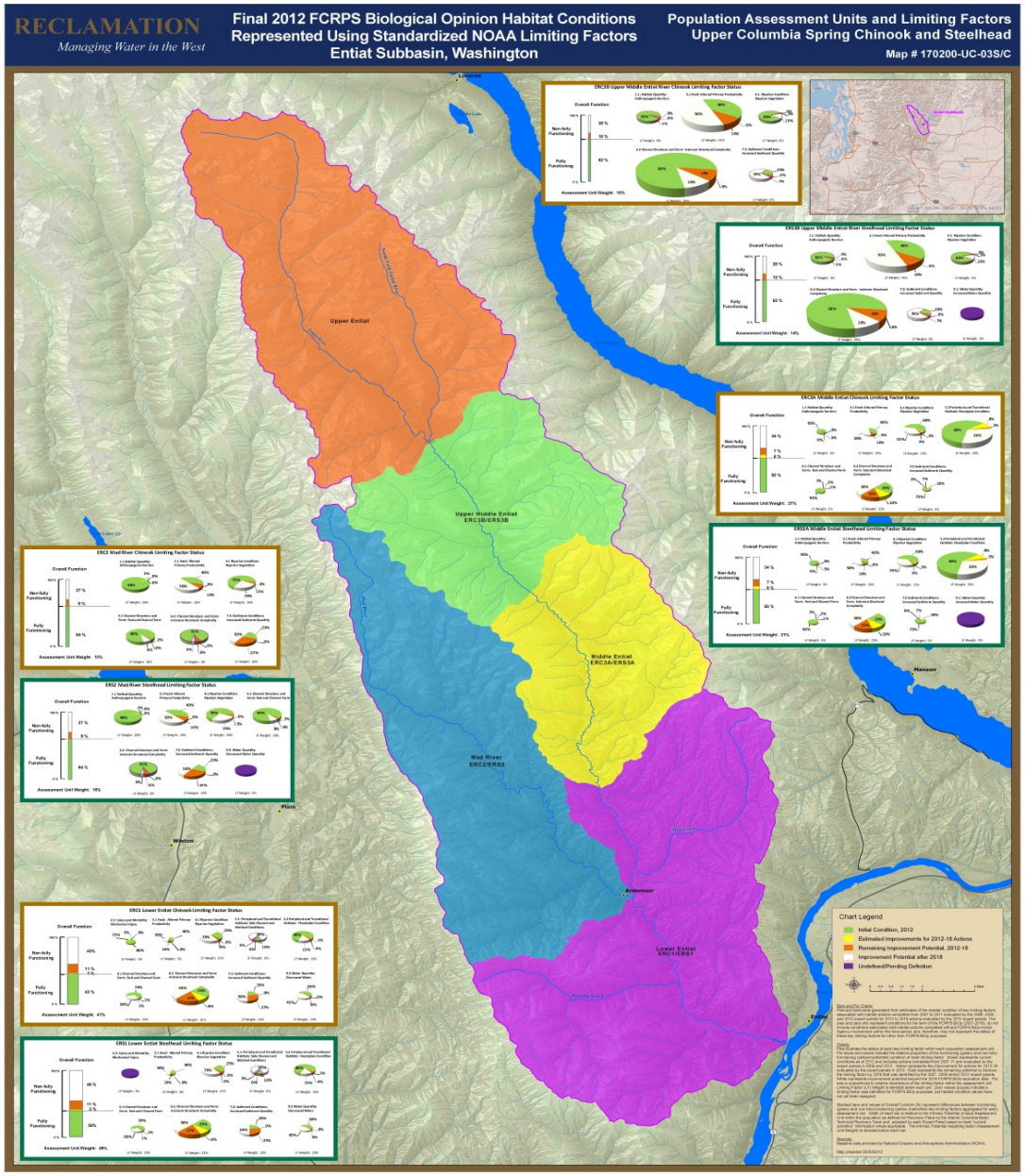
Assessment Units/Assessment Unit Weights

The parts of tributaries with common key limiting factors are designated as assessment units.

- Like limiting factors, assessment units are weighted based on the potential of the unit and its contribution to species life history.
- Expert Panels can adjust assessment unit weights based on supplemental data or information that was not used when the assessment unit weights were reconciled.
- These are all rolled up into a visual display in the limiting factor pie maps.

Expert Panel Pie Maps

To improve on the efforts of Expert Panels, the Action Agencies developed Expert Panel Pie Maps that enhance the panel's ability to document and evaluate the effect of habitat actions on limiting factors.



Putting it all Together

So with this as background…during the workshop the Expert Panels review a list of habitat improvement actions for current and out-year implementation that are brought forward by entities, which can include but are not limited to Expert Panel members.

For example, in the Upper Columbia, the Upper Columbia SRF Board will have reviewed, selected, and advanced a list of projects for Expert Panel evaluation that were evaluated by the UCTRT.

“Look Back”

- Before the Expert Panels convene, the panel determines whether planned projects were a) completed as planned, b) completed with additions or subtractions, c) not completed, or d) completed although they were not planned at the earlier workshop.

- The Expert Panel “look back” examines projects that were planned for construction and determines what was gained in terms of metric* improvements for each limiting factor in an assessment unit for every population that occupies a tributary.

*Panels establish the metrics associated with each limiting factor (cfs or ac ft of flow, number of screens, miles of habitat accessed, habitat complexity, etc.) that are addressed by a project.

“Look Forward”

- The Expert Panel “look forward” process examines projects and associated metrics for the next implementation cycle. Projects are evaluated for each limiting factor in each assessment unit and for each population occupying a tributary.
- At a subsequent workshop the Expert Panel will determine whether projects on the “look forward” list were completed or not, valued appropriately, or need valuation.
- The “look forward” list becomes the basis for the “look back” at the next workshop.

HQIs

- The Action Agencies use input from the Expert Panels to convert changes in limiting factors to cumulative changes in HQIs that address FCRPS BiOp RPA 35 Table 5 requirements.
- The procedure compares the low bookend with the status of the limiting factors associated with completed (look back) or planned (look forward) projects evaluated by the Expert Panels.
- The procedure incorporates limiting factors and weights, assessment units and weights, and converts changes in habitat condition to HQIs.

Derivation of HQIs for Analysis of Effects

- 2007 Federal Columbia River Power System Comprehensive Analysis

Appendix C: Analysis of Effects of Tributary Habitat Actions

Understanding the Habitat Workgroup Approach to Estimating Habitat Quality and Freshwater Survival

2014 BiOp

Expert Panel Recommendations

Improve Documentation

Incorporate Science Findings

Convene Panels in 2016

Action Agencies Planning

Contract for Coordination and Project Management Support

EP Pre-Workshops Fall – Winter 2015 (Project Lists “look back”)

EP Workshops Winter 2016 (Project Summaries “look forward”)

EP Data Summary Early Summer to Support CE/IP

Detailed Schedule

- **January – August 2015: Planning**
  - Assemble Project (action) Lists
  - Inventory of RME data relevant for Ex Panel process
  - Complile RME information into usable displays to be presented at Workshops in 2016

- **Sept – Dec 2015: Pre-Meetings**
  - Pre-Meetings to lay out framework and process
  - Changes to AU, Limiting Factors (Ecological Concerns) and bookend values

- **January – May 2016: Ex Panel Workshops**
  - Evaluation of Look Back list of constructed projects (actions) 2012-2015
  - Estimate of habitat changes of 2016-2018 Look Forward Project (action) Lists

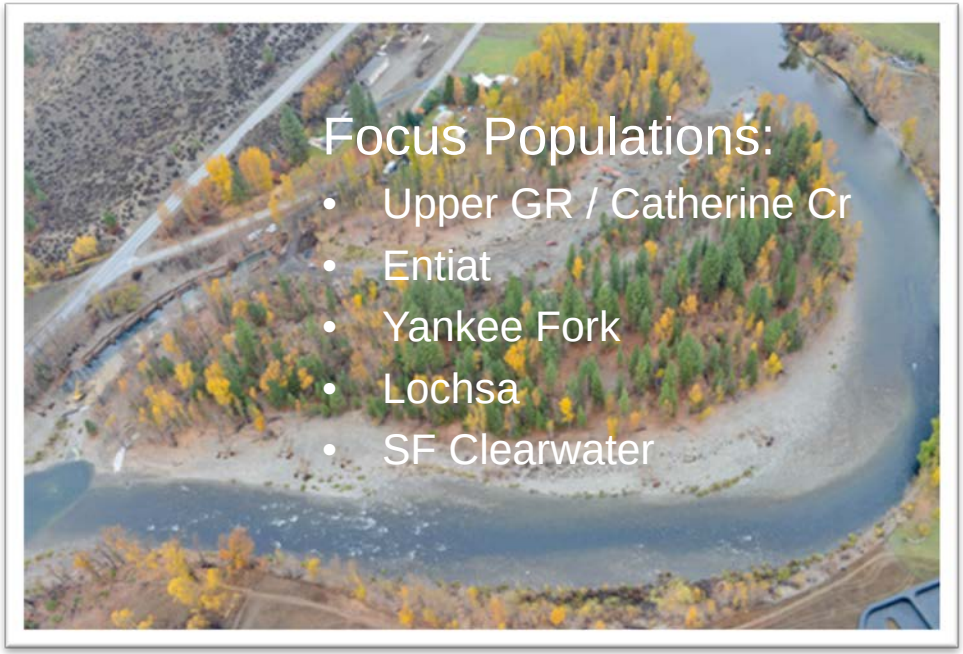
Overall Schedule

Process	Calendar Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Tributary Habitat RPA Implementation Cycle		2007-09			2010-12			2013-15			2016-18		
Annual Progress Report (due by 9/30 of next calendar year)		06-07 included in 2008 APR		★	★	★	★	★	★	★	★	★	★
Expert Panel					Timeframe = 2010 - 2012 (Planning occurs in 2008 & 2009)			Timeframe = 2013 - 2015 (Planning occurs in 2011 & 2012)			Timeframe = 2016 - 2018 (Planning occurs in 2015 & 2016)		
Implementation Plan		Included in the 2007 BA ★			**Timeframe = 2010 - 2012 (Due 12/31/09)** ★			**Timeframe = 2013 - 2015 (Due 12/31/12)** ★			**Timeframe = 2016 - 2018 (Due 12/31/15)**		
Comprehensive Evaluation Report		Timeframe = **2007 - 2012** (Due 6/30/13)						Timeframe = **2007 - 2015** (Due 6/30/16) ★			No Report Due ★		

2014 Litigaton

Achieve 2018 BiOp habitat targets

- Emphasis remains on “Focus Populations” identified in 2014 BiOp as having highest biological need
- Reasonable certainty
- Incorporation of science findings



CHaMP-ISEMP

- The CHaMP and ISEMP projects are RME efforts looking at fish and habitat status and trends.
- The projects evaluate changes in habitat and fish response to changes in habitat, respectively.

CHaMP – Columbia Habitat Monitoring Program

https://www.champmonitoring.org/

ISEMP – Integrated Status and Effectiveness Monitoring Program

http://www.isemp.org/

AEM

- In 2014 the Action Agencies implemented Action Effectiveness Monitoring (AEM) in coordination with other regional monitoring efforts.
- AEM is intended as a programmatic framework for evaluating the effectiveness of tributary habitat treatment types.

Roni_et_al_2013_DRAFT_BPA_columbia_river_restoration_monitoring_plan.pdf

Supporting Documents

- Bureau of Reclamation

http://www.usbr.gov/pn/fcrps/habitat/panels/index.html

- Taurus (cbfish.org) – Expert Panel Resources as of 2012

http://www.cbfish.org/ExpertPanel.mvc/PreWorkshopFiles

- Taurus (cbfish.org) – Excel workbook step by step

http://www.cbfish.org/Content/ExpertPanel/Expert_Panel_Prep_Workbook Step-by-Step_Guide.pdf

- RPA's for Tributary Habitat and Table 5 Priority Population Groups

http://www.salmonrecovery.gov/Files/BiologicalOpinions/2008/2008%20BiOp.pdf

HCW Evaluation and Conversion Process (Prepared by T. Hillman)

http://www.usbr.gov/pn/fcrps/habitat/panels/reference/1C-RemandHabitatApproachforExpertPanels.pdf

Further Background Information

Derive Current & Potential Habitat Condition

Step 1: Calculate the weighted status of each limiting habitat factor. This equals the status of the habitat factor (as a % of optimal condition) x its associated weight (relative weight of the factor on fish survival)

Step 2: Combine the weighted status scores into a composite local habitat conditions score for each assessment unit. Calculated by adding together the weighted habitat status scores.

Derive Current and Potential Habitat Quality

Step 3: Multiply the habitat condition scores for each assessment unit by their assessment unit weights.

Step 4: Total the weighted habitat condition scores to estimate overall habitat quality score for the population.

Derive Survival Benefits

- There are published relationships between habitat variables and survival.
- There are functional relationships between habitat quality and survival

Chinook egg-smolt survival = 0.0018 x (HQI)

Steelhead egg-smolt survival = 0.0004 x (HQI)

Chum egg-fry survival = 0.0035 x (HQI)

Adult pre-spawn survival = 1.00 x (HQI)

Estimate of Benefits

$$\text{Habitat Change} = HQI_{potential}/HQI_{current}$$

$$\text{Survival Change} = S_{potential}/S_{current}$$

Tyee Habitat Restoration Project

Structure Summary

River Mile 22.26 (Element 6-7): Floodplain Connection ELJ

Objective	• Increase the complexity at the outlet of the backchannel on river right • Maintain the hydraulic connection between the backchannel and the river • Recruit additional wood
Design Notes	• Intended to function during annual snowmelt runoff through peak flow events, may provide limited habitat at low summer flow • 2, 60' long key members placed at grade • Piles buried 6' below grade • Cabled rocks and native backfill used as ballast

Project Summary Sheet Example