

# MEETING SUMMARY

## *Aquatic Resources Working Group* Black Canyon Hydroelectric Project (P-14110)

November 14, 2013

Participants: Daryl Williams (Tulalip), Danny Didricksen (WDFW), Pat Schille (WDFW), Bob Bernard (WDFW), Thomas O’Keefe (American Whitewater), Chris Maynard (ECY), Brock Applegate (WDFW), Steve Kartalia (FERC)(by phone), Shirley Vanderveen (Trout Unlimited), Hal Beecher (WDFW), Stewart Reinbold (WDFW), Kate Miller (Trout Unlimited), Jim Pacheco (ECY), Anne Savery (Tulalip), Chris Spens (BCH), Chris Fairbanks (BCH), Alex Grant (BCH), Brandon Hausmann (BCH), Miranda Eckert (BCH), Paul Schlenger (Confluence Environmental), Mike McDowell (Confluence Environmental), Shane Cherry (Confluence Environmental)

### A. Intake Alternatives Presentation:

1. Review Location of 4 Alternatives using aerials, showing river profile/elevation relative to project features
2. Pictures and Description of Different River Reaches (referenced throughout working group meeting/presentation)
3. Alternatives Description
  - a. Alternate A - Inflatable/Deflatable Rubber Dam, side channel vertical plate screen
  - b. Alternate B – Boulder weir, side channel vertical plate screen
  - c. Alternate C – Boulder weir, off channel vertical plate screen
  - d. Alternate D – Boulder weir, off channel horizontal screen
4. Showed Conceptual Engineering Designs for Alternatives and different major components for each (\*available at [www.blackcanyonhydro.com](http://www.blackcanyonhydro.com) under “Documents” tab)
5. Showed Photographs of Similar Existing Facilities
6. Research Explanation: described process BCH went through in developing alternatives and 18 different screen sites visited in WA, OR, MT
7. Described River Re-Profiling and ability to create a “non-dam” alternative using a roughened channel design
8. Detailed explanation of how existing conditions at Alternative locations might be altered by a roughened channel
9. Showed Preliminary Results of HEC RAS – Modeling of Flood Event
10. Showed Preliminary Results of Intake Reach Stage Model/Profile
11. Design Guidelines:
  - a. Andromous Salmonid Passage Facility Design - National Marine Fisheries Service (NMFS) 2011
  - b. WDFW – Fishway Guidelines for Washington State, April 25, 2000
  - c. National Engineering Handbook – Fish Passage & Screening Design, Technical Supplement 14N, Part 654

### B. Hydrology Update



1. Described historic hydrology efforts and current efforts by BCH
- C. Summarize Preliminary Aquatic Resources Methods & Field Results
2. Periphyton Sampling
  3. Macroinvertebrate Sampling
  4. Habitat Mapping
  5. Fish Population
  6. Habitat Utilization
  7. Habitat Availability
  8. Electro-fishing
- D. Environmental Flows Analysis update
1. Environmental Flow Analysis described in Study Plan
  2. Available Documentation from 1985 Instream Flow Study
  3. Update on Model Calibration Efforts
  4. Next Steps
    - a. Apply updated habitat suitability criteria
    - b. Compare habitat availability in Project Reach under pre- and post-project flow regimes
    - c. Investigate potential effects of different ramping rates
- E. Geomorphology, Large Wood, and Sediment Transport Study Update
1. Key Questions
    - a. What are baseline geomorphic conditions?
    - b. How does sediment move through the study reach?
    - c. How does large woody debris move through the study reach?
    - d. How do these relate to river flow?
  2. Field Study
    - a. Six representative cross sections surveyed
    - b. Project reach, upstream and downstream reference sites
    - c. Recon throughout
  3. Preliminary Findings
    - a. Channel is generally stable with well developed armor layers, and control imposed by bedrock and integrated boulder/cobble features.
    - b. Sand, gravel, and small cobbles move commonly (multiple events per year)
    - c. Larger cobbles move less commonly with large rare flow events
    - d. Large boulders move rarely, and modes of transport limit their movement to short distances

