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## **BAKER RIVER PROJECT RELICENSE**

### **Technical Scenario Teamlet Conference Call**

**April 9, 2003**

**1:00 p.m. – 2:00 p.m.  
Dial in: (866) 280-6429  
Guest #: 144995**

### **AGENDA**

1. Review Agenda	1:00 – 1:05
2. Review Draft Memorandum	1:05 – 1:20
3. Discuss Refinements to Functions	1:20 – 1:30
4. Priorities and Action Items	1:30 – 1:50
5. Facilitation	1:50 – 1:55
6. Schedule Next Meeting or Conference Call	1:55 - 2:00

*April 9, 2003*

## BAKER RIVER PROJECT RELICENSE

### Technical Scenario Teamlet

April 9, 2003  
PSE Office Building  
Mt. Vernon, WA

### DRAFT MEETING NOTES

**Teamlet Leader:** Paul Wetherbee, 425-462-3746, [paul.wetherbee@pse.com](mailto:paul.wetherbee@pse.com)

**PRESENT:** Paul Wetherbee and Lloyd Pernela (PSE), Ruth Mathews on phone (The Nature Conservancy), Stan Walsh (Skagit System Cooperative), Margaret Beilharz and Scott Lentz on phone (USFS), Mark Killgore (The Louis Berger Group – developing the PDEA), Bob Helton (interested citizen), Jerry Louthain (City of Anacortes, Skagit Co. PUD and Town Concrete) Gary Sprague (WDFW) on phone, Chuck Howard, (Consultant), Phil Hilgert on phone and Stuart Beck, (R-2), and Lyn Wiltse, (PDSA Consulting, Inc.).

### FUTURE REGULAR WORKING GROUP DATES/LOCATIONS

April 17, April 25, May 2, May 9 from 10:00-noon at PSE Office in Bellevue. These meetings will mostly be by conference call: Dial 1-866-280-6429. Enter participant code 144995#. For those planning to attend in person, the meetings will be in the conference room of OBC (One Bellevue Center) on the 12<sup>th</sup> floor. The exception will be the May 2<sup>nd</sup> meeting which will be in the east conference room on the 11<sup>th</sup> floor. Questions? Call Paul.

### AGENDA

1. Review draft memo
2. Refinements to teamlet functions
3. Set priorities and Action Items
4. Set next agenda—Is facilitation needed?

### NEW ACTION ITEMS

Paul: Send out sample scenarios (proposed base-case) run and results.

Paul: Update TST diagram and distribute to teamlet members.

ALL: Review HYDROPS request form on PSE website.

ALL: Send suggestions for Input/Output package to Paul by April 14.

Paul: Create a draft template of inputs/outputs and send to teamlet members to review prior to our next meeting (April 17 from 10:00 to noon).

Lloyd: Send to Paul HYDROPS technical information/articles to distribute to teamlet members.

## **REVIEW DRAFT MEMORANDUM-DETERMINE TEAMLET FUNCTION**

Paul sent out a memo in response to a request from the Aquatics Working Group outlining the functions of the TST. He proposed the main functions be:

1. Standardize and document modeling definitions and assumptions.
2. Define and standardize model input and output formats.
3. Provide QA/QC on analysis requests and modeling output.
4. Coordinate modeling requests so that analyses are reduced.
5. Maintain a database of analysis results.
6. Standardize methods of communication with Working Groups. (added 4/9/03)
7. *Initiate simulation requests. (added 4/9/03)*

Scott suggested we ensure that *we provide interpretations along with results of model runs. These would take into account* integrating different resource concerns.

Ruth suggested that we track specific requirements that are developed in each of the Resource Working Groups. The format for doing this – which would allow others to participate in the analysis.

Under #2, (see above). For in input/ out put formats, it would be nice to include graphical scales to allow for overlays.

Under #4, (see above). Check with initiators to be sure the intent is not lost when morphing studies together.

Where would the analysis/synthesis be done? We would provide the format for doing this - which would allow others to participate in the analysis. We would be informing the negotiations, but not where the negotiations take place.

Do we generate our own requests or simply react to requests of others? The consensus was that we do both.

There will likely be back and forth between this group and the individual Working Groups. We will probably ask for additional input or scenario runs based on preliminary findings from initial runs (interests, commonalities, etc.)

We need a standardized way for us to communicate back to the Working Groups the results. We would be providing analysis/synthesis functions in addition to the technical output of the runs. We would actively solicit feedback and post results on the PSE website. We could also take requests from the Solution Team.

## **HYDROPS UPDATE**

Paul reported that he is traveling to Victoria to pick up the new HYDROPS model (including modifications requested by the USFS)

## **FUTURE ISSUES TO ADDRESS**

Hydro Climate Analysis Scenario

Fisheries Definition

Others?

## **AGENDA FOR APRIL 17, 2003**

10:00 – noon at PSE Office in Bellevue **\*\*Specify room\*\***

**OBJECTIVE:** Firm up input/output templates- Consider: How would we do the synthesis?

1. Review notes
2. Review Action Items
3. Review/revise templates
  - Standard HYDROPS output
  - R2 Model Output
  - IHA package
  - Post process statistics
4. Define assumptions (If we don't have time for this will move to the top of April 25 agenda)
  - Economic price factors, etc.
5. Set agenda for April 25 meeting



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**INTEGRATION OF HYDROPOWER OPERATIONS AND HABITAT ASSESSMENT MODELS**

**BAKER RIVER PROJECT RELICENSING ANALYSIS**

**PRELIMINARY REVIEW DRAFT**

**Prepared by:  
Puget Sound Energy**

**April 2003**

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### ***Introduction***

Computer simulations, or models, of system operations and hydrologic and biologic time series are currently being developed and used in the Baker River Project Relicensing effort to evaluate a spectrum of potential consequences associated with various environmental constraints and operational strategies. The models are used to predict the economic and environmental effects of alternative project configurations developed by the Baker Project Relicensing Workgroups. By evaluating the model output, workgroup members are able to verify assumptions, check operational and biological performance criteria, and consider the implications of proposed system configurations.

Baker River Project generation and economic operations are simulated by the HYDROPS model, developed by Powel Engineering, Inc. HYDROPS is a hydroelectric system optimization model that predicts project generation and economics and downstream hydrologic conditions given project inflows. Using weighting functions for various operational constraints such as reservoir levels, downstream ramping rates, and instream flow, the HYDROPS model optimizes simulated Project operations.

Potential environmental effects associated with simulated Project operations will be evaluated using several models developed by R2 Resource Consultants (R2). (See Attachment 1) These models route output from the HYDROPS model simulation and associate the hydrologic signal with downstream aquatic habitat features. For example, using the R2 models, alternative ramping rate strategies can be evaluated in terms of instream habitat indicators.

Currently the HYDROPS and R2 models are separate and unique pieces of software, and it is anticipated that they will remain distinct through the relicensing process. HYDROPS model output has been formatted for one-step import to the R2 models. At some time, PSE may integrate the modeling systems. To facilitate and coordinate the integrated modeling effort, we propose the formation of the Technical Scenario Teamlet (TST).

### ***Technical Scenario Teamlet (TST)***

PSE proposes to form a technical teamlet to coordinate the modeling effort and to make the most efficient use of the time and resources of all the interested stakeholders. As currently proposed, the Technical Scenario Teamlet (TST) would perform the following functions:

1. Standardize and document modeling definitions and assumptions.
2. Define and standardize model input and output formats.
3. Provide QA/QC on analysis requests and modeling output.
4. Coordinate modeling requests so that redundant analyses are reduced.
5. Maintain a database of analysis results.

As proposed, the TST would consist of representatives from the working groups with a strong interest in the modeling analysis. The intent is for the TST to be a cross-resource group to ensure that modeling requests contain well-formed input sets and model results are produced with a high level of confidence and understanding.

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One of the early tasks envisioned for the TST is to standardize input and output formats for the integrated modeling tasks. For example, output format may be standardized as shown in Attachment 1.

A flow diagram showing the general function of the TST is shown in Figure 1. The TST would receive input in the form of modeling requests from the work groups via the modeling requests form already in use or with some modification. Using standardized definitions for input parameters and scenario nomenclature, the TST would ensure that the modeling request contains a well-formed input set for analysis.

The principal piece of data by which operational conditions simulated by HYDROPS are communicated to the R2 Habitat Analysis models is the simulated hourly Skagit River streamflow near Concrete (below the Baker River confluence). The downstream habitat models developed by R2 do not evaluate conditions upstream of project or above the Lower Baker facility.

As proposed, the TST would provide QC for the HYDROPS and R2 Habitat Analysis modeling output. The intent of the quality control effort would be to check to assure that analysis results are consistent with the input assumptions prior to the transmittal of the results to the workgroups.

Figure 1.





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ATTACHMENT 1. R2 Fish Habitat Model of the Skagit River

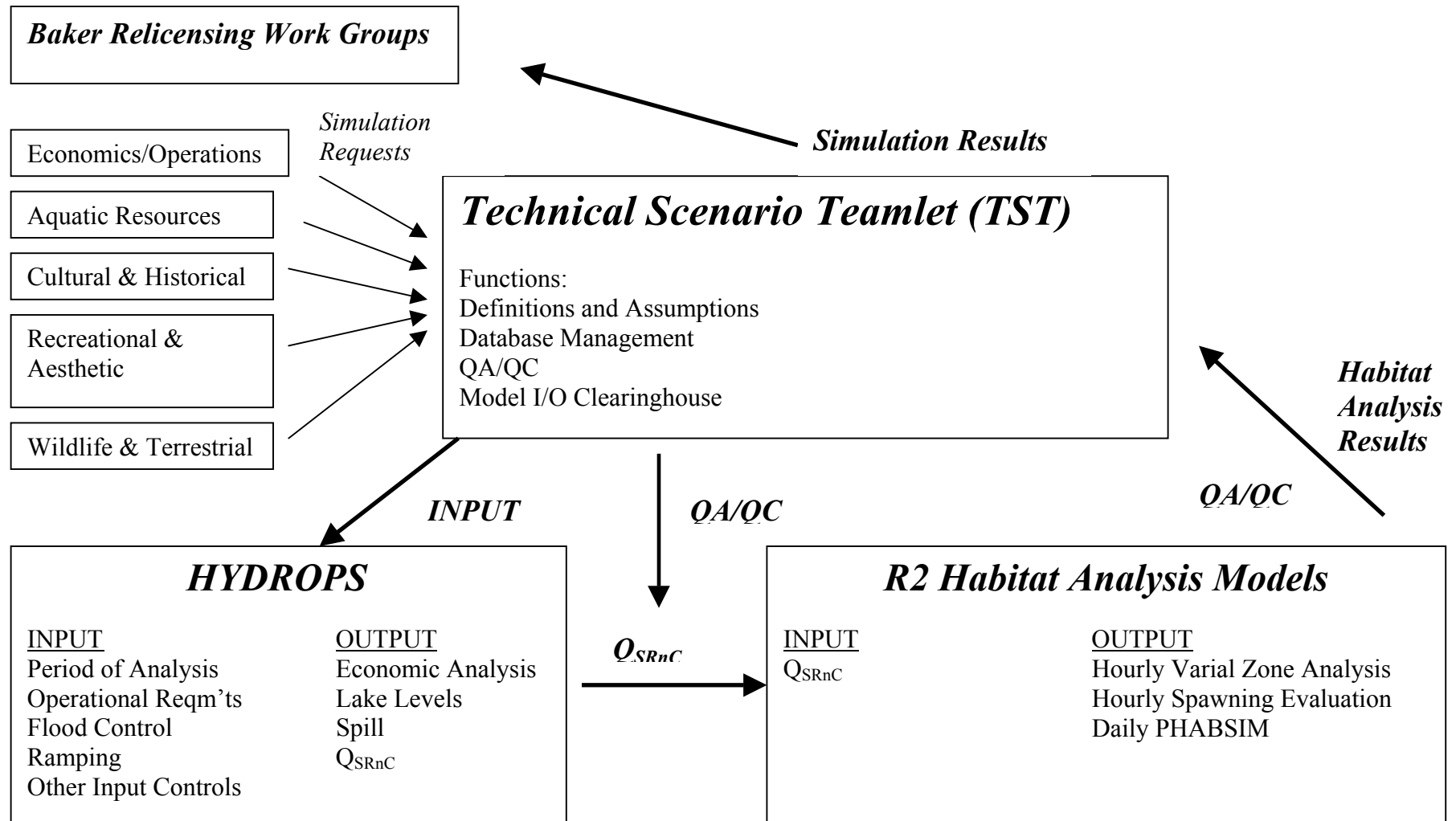




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ATTACHMENT 2. Example Output Format for HYDROPS Model Simulations





# R2 Fish Habitat Model of Middle Skagit River

