

## Overview of the Yakima Basin Storage Study Joel Hubble, BOR

The Yakima Basin Feasibility Storage Study commenced in 2003 at the request of Congress (Public Law 108-7). With support from local interest groups Congress was asked to fund a feasibility study to address the present and future water needs in the basin with an emphasis on the Black Rock storage alternative. This is a joint study between the Bureau of Reclamation and the Washington State Department of Ecology. Reclamation is focusing on storage related alternatives while Ecology is focusing on non-storage alternatives. The Storage Study mandate is to address the three following water issues in the basin, 1) to improve instream flows for salmonids, 2) provide at least a 70% water supply during drought years to irrigators with junior water rights and 3) provide for future municipal and industrial water needs.

My presentation this afternoon will focus on the modeling effort necessary to conduct the fisheries instream flow assessment for each proposed alternative. The Riverware model provides a daily average flow for each EDT (Ecosystem Diagnostic & Treatment) reach in the mainstem Yakima and Naches Rivers below the reservoirs. The period of record for the analysis is 1981-2005. Because the Storage Study is primarily dealing with changes in flow which will affect the suite of habitat types and amounts especially on the floodplains, 2-dimensional habitat models were constructed for the Easton, Kittitas, Union Gap, Wapato and lower Naches floodplains. These models will provide a means to track the changes in habitat across time and flow for each alternative, and this information is a key input to the EDT model. In addition 1-dimensional habitat models were developed from Town Dam to Wilson Creek in the upper Yakima River and from Roza Dam to near the Benton City Bridge. These models are being used primarily for the temperature and/or sediment transport models. The temperature model is being developed by USGS-Tacoma and the modeled reach extends from Roza to Prosser dams and for the irrigation season (April – October). This reach was selected because it was deemed the reach most likely to be effected by changes in the flow regime. Upstream of Roza water temperatures are influenced most by reservoir releases and downstream of Prosser water temperature is correlated to air temperature. The sediment transport model is being constructed by Reclamation's Technical Service Center and will extend across the 1-dimensional modeled reaches. Data from both the temperature and sediment transport models will be used as input to the EDT model for each alternative.

I would like to introduce Jim Hatten with USGS-Cook Lab who will present his work on development of the Wapato 2-dimensional model. Jeff Thomas with USFWS will follow Jim Hatten and present an overview of the Decision Support System (DSS) model that is being developed for the Storage Study. Briefly the DSS summarizes key output parameters (biological and irrigation) from the other support models for each alternative which provides the user with a quick understanding gains and losses for each modeled alternative.