Upper Snake River Basin Forecast System

IDAHO POWER COMPANY

PROJECT SUMMARY

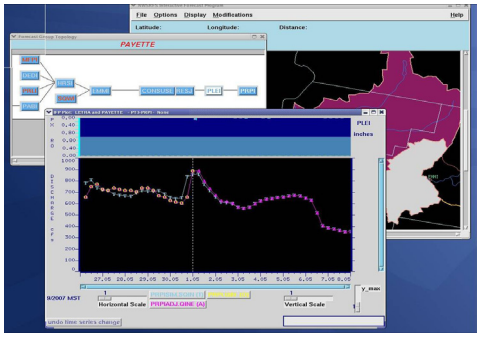
Idaho Power Company required an integrated system to produce forecasts of inflows to and operations of reservoirs in the Snake River Basin upstream of Brownlee Dam for hydropower, water supply, and environmental flows. Riverside Technology, inc. developed a customized streamflow forecasting system for Idaho Power Company including enhancements to the Joint Reservoir Regulation Operation model to account for reservoir operations derived from water supply forecasts.

LOCATION
Idaho, U.S.A.

PERIOD
2002 – 2009

PROJECT DETAILS

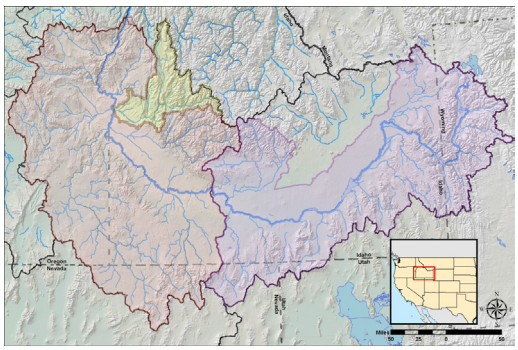
Riverside Technology, inc. (Riverside) developed and implemented for the Idaho Power Company (IPCo) an enhanced river forecasting system based on the National Weather Service River Forecast System (NWSRFS) for the Upper Snake River in southwestern Idaho. The system accounts for snow accumulation and melt, soil moisture, consumptive use of water for irrigation, and reservoir operations in the 72,000 square mile basin above Brownlee Dam.



Forecast Displays

Models to simulate operations at 28 reservoirs in the basin account for environmental flows to augment fish populations and are also linked with consumptive use models for nearly 3 million acres of agriculture.

As part of the project, Riverside enhanced the Joint Reservoir Regulation Operation (RES-J) reservoir model within NWSRFS to simulate the operations of reservoirs in the basin based on seasonal water supply forecasts. The system was further modified to generate probabilistic versions of these water supply forecasts, allowing IPCo to compare them with the official basin forecasts provided by the Natural Resources Conservation Service (NRCS).



Upper Snake River Basin Map

IPCo uses the system to not only compute inflows to their hydropower projects, but also to identify when reservoir releases may be needed to meet environmental flow requirements for fish spawning and other aquatic life. IPCo also uses the system to determine the impacts of the IPCo cloud seeding program, and to produce multi-year streamflow traces for reservoir operations planning.

Since initial system delivery, Riverside has continued providing technical and software support to IPCo as the forecast system is used to enhance IPCo operations on a daily basis.

Brownlee Dam on the Snake River

RELATED PROJECTS

Columbia River Basin Streamflow Forecast System

Reservoir Operations Study for the Tennessee and Cumberland River Basins

Hydrometeorological Data Analysis and Processing for the Arkansas Red-Basin

RIVERSIDE
global science solutions

CORPORATE
2950 E. Harmony Rd.
Suite 390
Fort Collins, CO 80528
(970) 484-7573

D.C. AREA OFFICE
1010 Wayne Ave.
Suite 500
Silver Spring, MD 20910
(240) 638-3345

www.riverside.com