SECURE Reservoir Operations Pilots

Pacific Northwest: *Crooked River Project*

Photo: Prineville Reservoir, Courtesy of Reclamation.

Background: The Crooked River Project located in central Oregon provides storage for irrigation, flood control, fish and wildlife, and recreation. The Crooked River basin is a sub-basin of the larger Deschutes River Basin and is characterized as a semi-arid region of central Oregon (See Photo). The watershed is considered a transitional basin due to it being fed by a combination of both rainfall and snowmelt. The transitional climate of the basin makes the watershed highly susceptible to climate change, not only from a change in flow regime, but also from the potential shift to lower summer flows due to less snowpack accumulation.

Study Area: The Crooked River Project stores water in both Prineville Reservoir (148,633 ac-ft) and Ochoco Reservoir (44,214 ac-ft) with project irrigated lands totaling 20,062 acres and producing a combination of grain, hay, potatoes, mint, garlic, alfalfa, pasture, and seed for grass, carrots and radishes. Besides the two reservoirs, the project includes two large main canals (Feed Canal and Ochoco Canal), two large pumping stations, numerous smaller pumping stations, approximately 130 miles of small feeder canals and drains, and approximately 200,000 feet of closed conduit pipe. Prineville Reservoir State Park and Smith Rocks State Park located near the project are two of the more heavily used parks in Oregon. The section of the Crooked River located downstream of the dam is characterized as a "Recreational River" under the Wild and Scenic Rivers Act and is regarded as one of the finest trout fisheries in the state.

Pilot Objectives: The first objective of the pilot study will be to update the existing RiverWare reservoir operations model to include the provisions of the "Crooked River Collaborative Water Security and Jobs Act of 2014". The study will also investigate water supply forecast improvement opportunities through "hindcast" modeling, modeling of climate change scenarios to identify impacts to the project mission, and identification of operational flexibility or modifications to current practices to mitigate climate change impacts.

Coordination: The pilot study will leverage the ongoing Upper Deschutes Basin Study and includes coordination with the U.S. Army Corps of Engineers (USACE), National Center for Atmospheric Research (NCAR), and the Northwest River Forecast Center (NWRFC).