



## Hydrologic Forecasting in Colorado River Basin: Methods and Products

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**(passcode: water)**

### **Abstract:**

The NOAA National Weather Service has thirteen River Forecast Centers (RFCs) located within major river basins throughout the U.S. The mission of the RFCs is to produce the Nation's river, flood and water supply forecasts in support of saving lives and property and to enhance the economy and environment of the country. As one of the thirteen RFC's, the Colorado Basin River Forecast Center (CBRFC) provides impact-based decision support services for a broad range of stakeholders within the Colorado River Basin and the eastern half of the Great Basin. These services include a suite of both deterministic and probabilistic hydrologic forecasts over 400+ river basins for a range of lead times.

Forecasts are developed using the National Weather Service Community Hydrologic Prediction System (CHPS) which includes three main parts: Calibration System, Operational Forecast System, and Ensemble Streamflow Prediction. CHPS is an interactive platform that specifies hydrologic models and operations within a workflow to run both short-range streamflow and flood forecasts and seasonal (mid-range) ensemble streamflow prediction forecasts. The primary hydrologic models used within CHPS include the following: Sac-SMA for modeling precipitation-runoff process, and SNOW-17 for modeling snow accumulation and ablation. Other models accounting for agricultural water use, unit hydrograph implementation, reservoir operations, and other hydrologic processes are also included.

Streamflow forecasts and water supply information developed by the CBRFC is particularly critical to reservoir operations, planning, and management decisions made by numerous state and federal agencies throughout the Colorado River Basin.

**Speaker Bio:** Ashley Nielson is a Senior Hydrologist at the Colorado Basin River Forecast Center where her current focus is on model calibration and operational forecasting which includes both long term water supply forecasting and short term flood forecasting. She is currently the primary forecaster for the Gunnison, San Juan, Dolores River basins, and Lake Powell. Previously she was the primary forecaster for the Upper Green, Yampa, and Duchesne River basins. She holds a BS in Watershed Science from Utah State University and MS in Geography with a certificate in Hydrologic Sciences from University of Colorado.