

NOAA's Colorado Basin River Forecast Center

An Overview of Activities at the CBRFC

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Intermountain West Drought Early Warning System

Drought and Climate Outlook

October 25, 2016



Overview

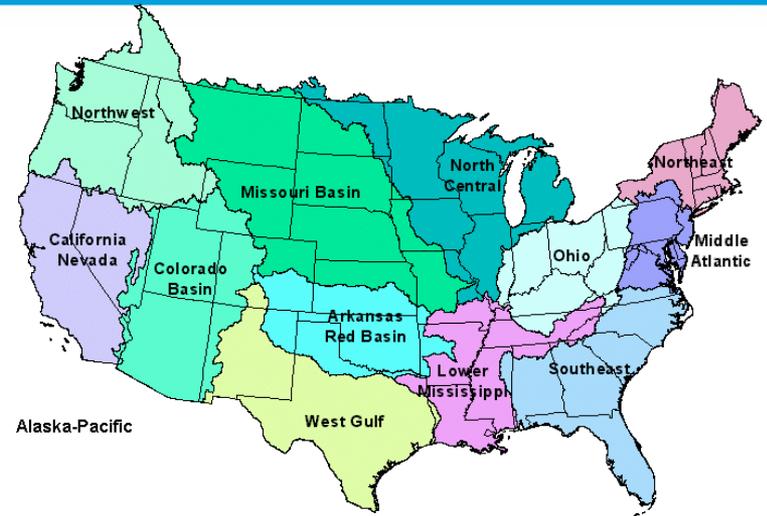
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- Who we are
- Summary of operations
- Products and Services
- How can we help?
- How can you help?





Who Are We?



- Part of NOAA - NWS, one of 13 RFCs nationwide
- An operational field office located in Salt Lake City, UT
- Highly collaborative, reliant on partners and data
- All about decision-support!

Who We Are

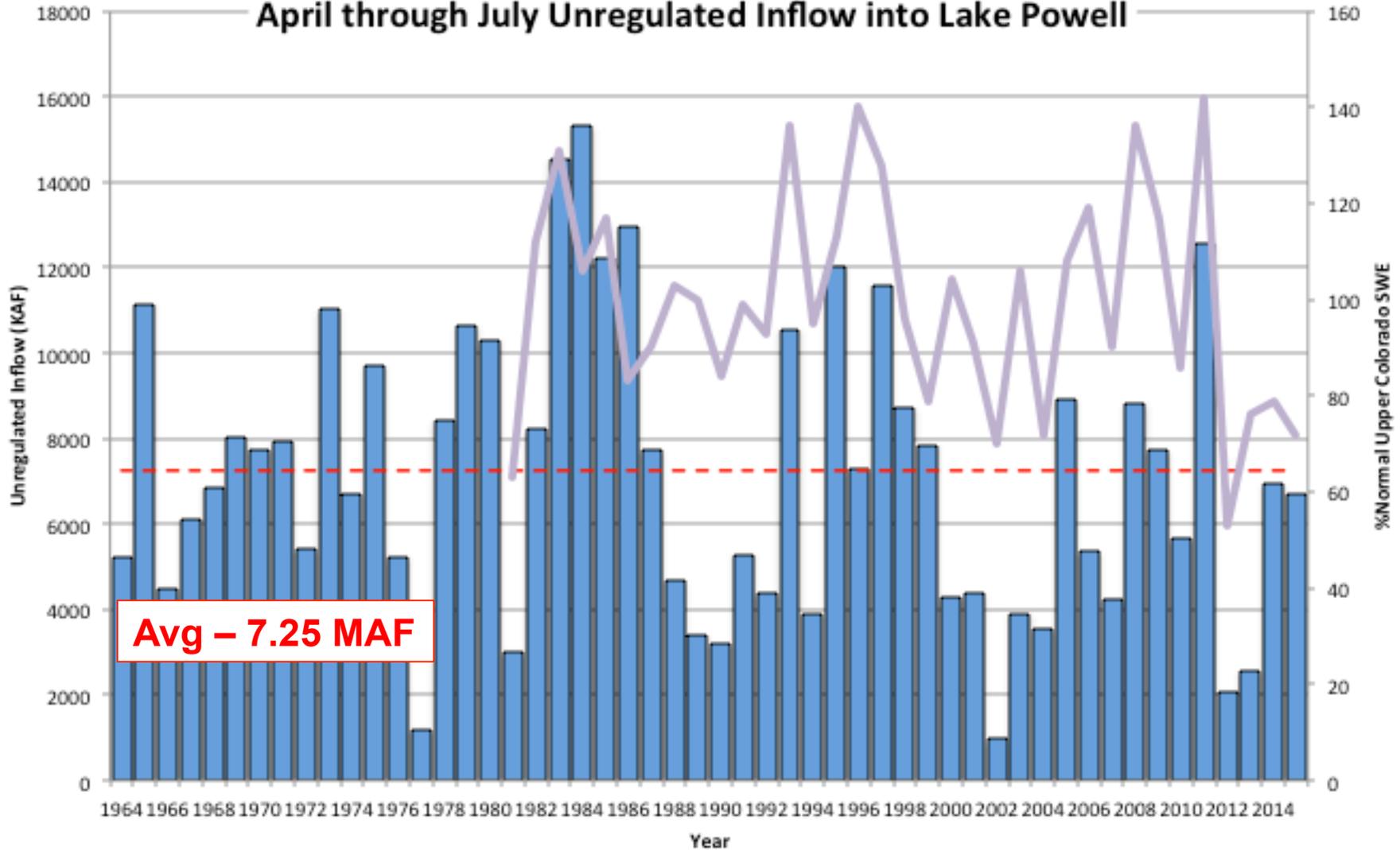
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- Work with a broad and diverse set of stakeholders
 - Weather Forecast Offices
 - US Bureau of Reclamation
 - Municipal and Agricultural Water Users
 - USGS, NRCS, and many other federal agencies
 - State agencies, Academics, NGOs, Tribes
- Receive data from many of these sources



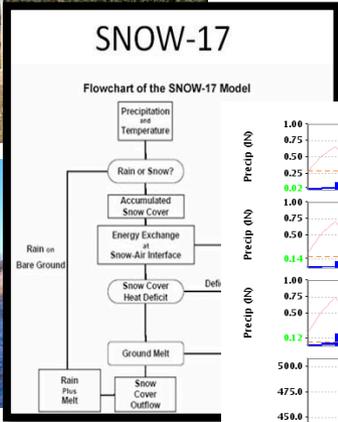
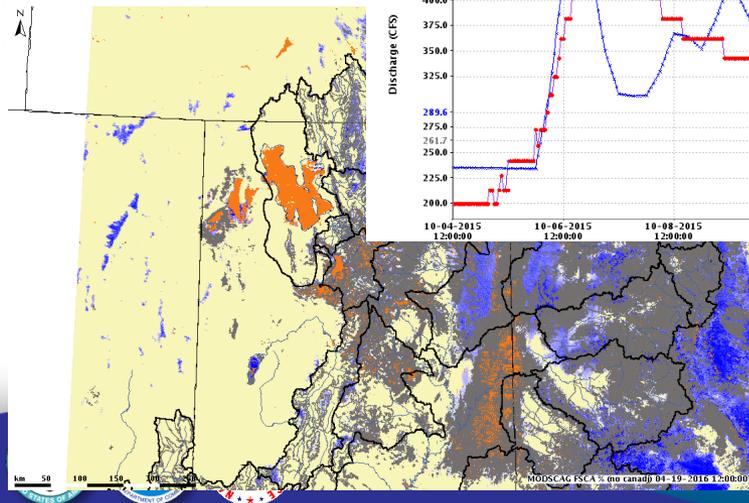
Hydroclimatic Variability over the Colorado River Basin

April through July Unregulated Inflow into Lake Powell

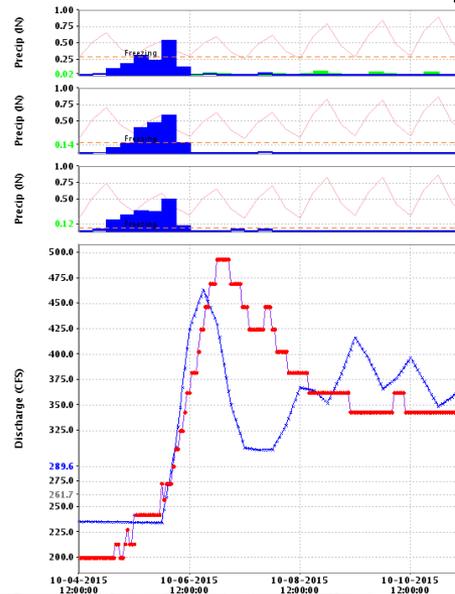
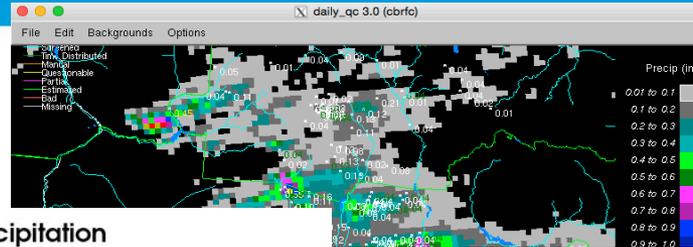


Providing Decision Support

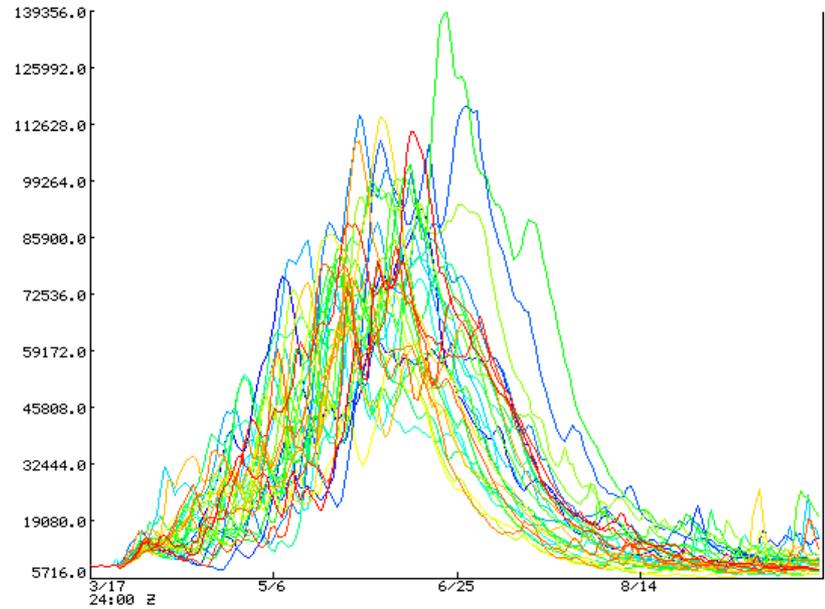
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Evapo-  Precipitation



ESP Trace Ensemble of COLORADO - LAKE POWE
 Latitude: 36.9 Longitude: -111.5
 Forecast for the period 3/17/2014 24h - 10/1/2014 24h
 This is a conditional simulation based on the current conditions as of 3/17/2014



We Know The Climate Is Changing

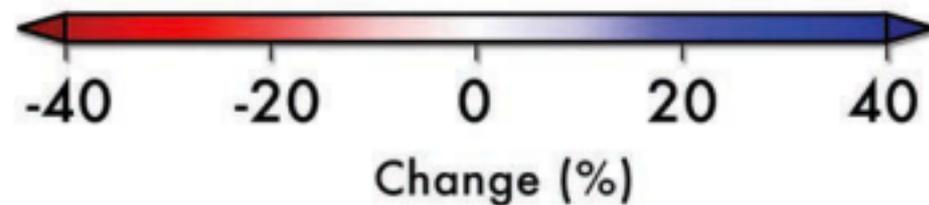
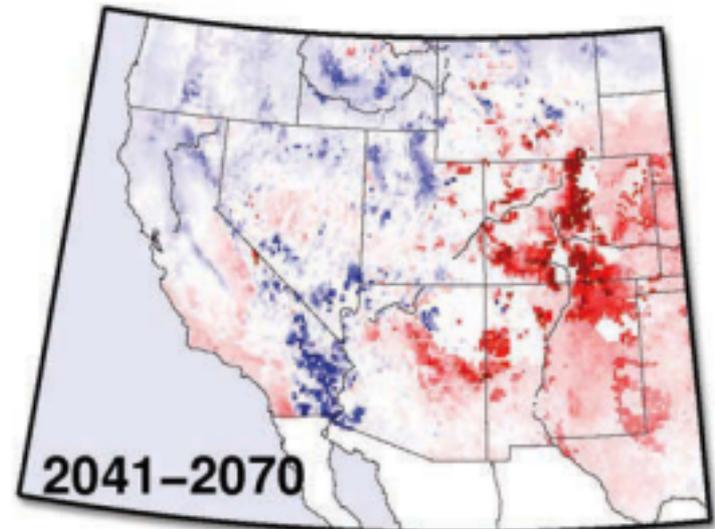
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Temperatures are rising and will continue to rise

Precipitation outlook is uncertain, but we do expect more extreme events

Decreased water supply, particularly for the Southwest and Colorado River Basin

High-emissions scenario



And Needs Are Changing

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- Where we were:
 - What is THE forecast?
 - How much water is there?
 - How much snow is there?
 - Will there be flooding?
- Where we are going:
 - What is the range of forecasts?
 - What is the likelihood of reaching this flow?
 - What if it's a dry/wet year?
 - What is the risk to filling my reservoir?
 - What is your uncertainty?



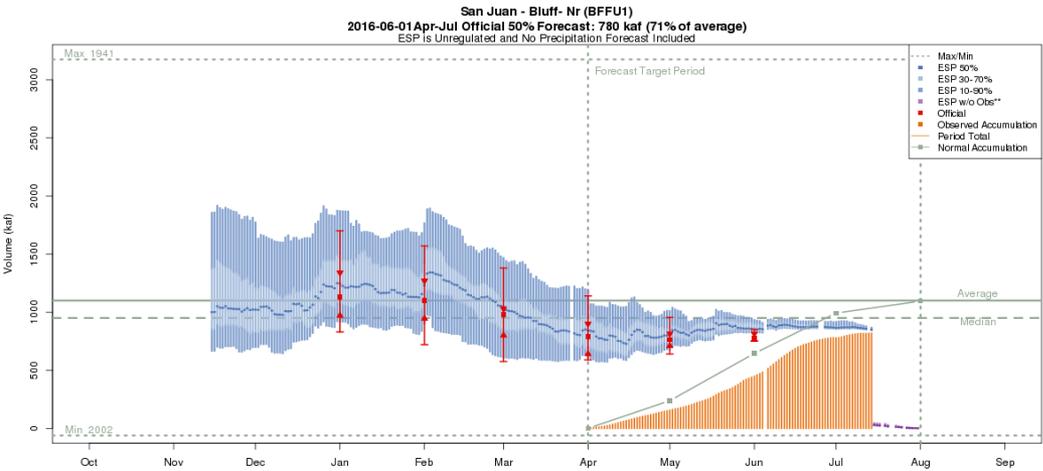
Water Supply

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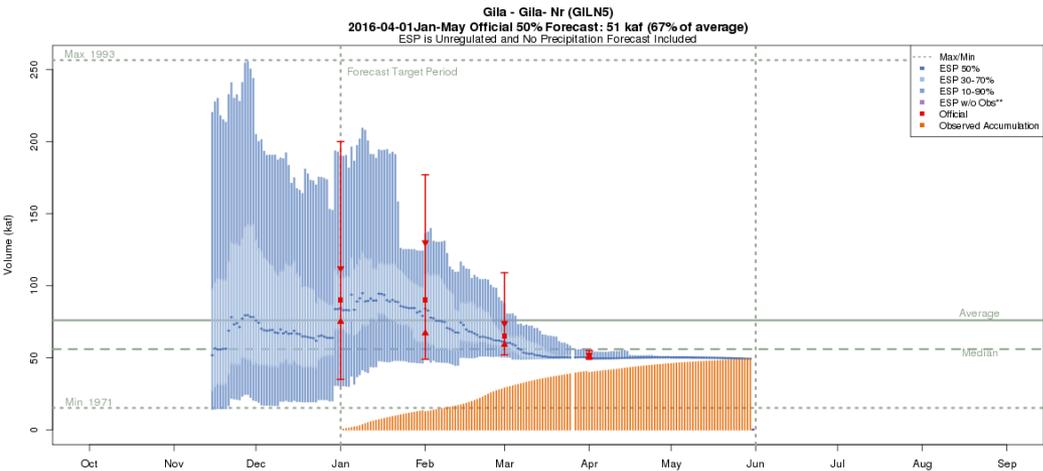
- Water Supply Forecast
 - Probabilistic forecasts of volume expected to pass through a location during the runoff period
 - Updated daily
 - Water managers rely on water supply forecasts to make decisions
 - Provided at 150 locations throughout the Colorado and Great Basins



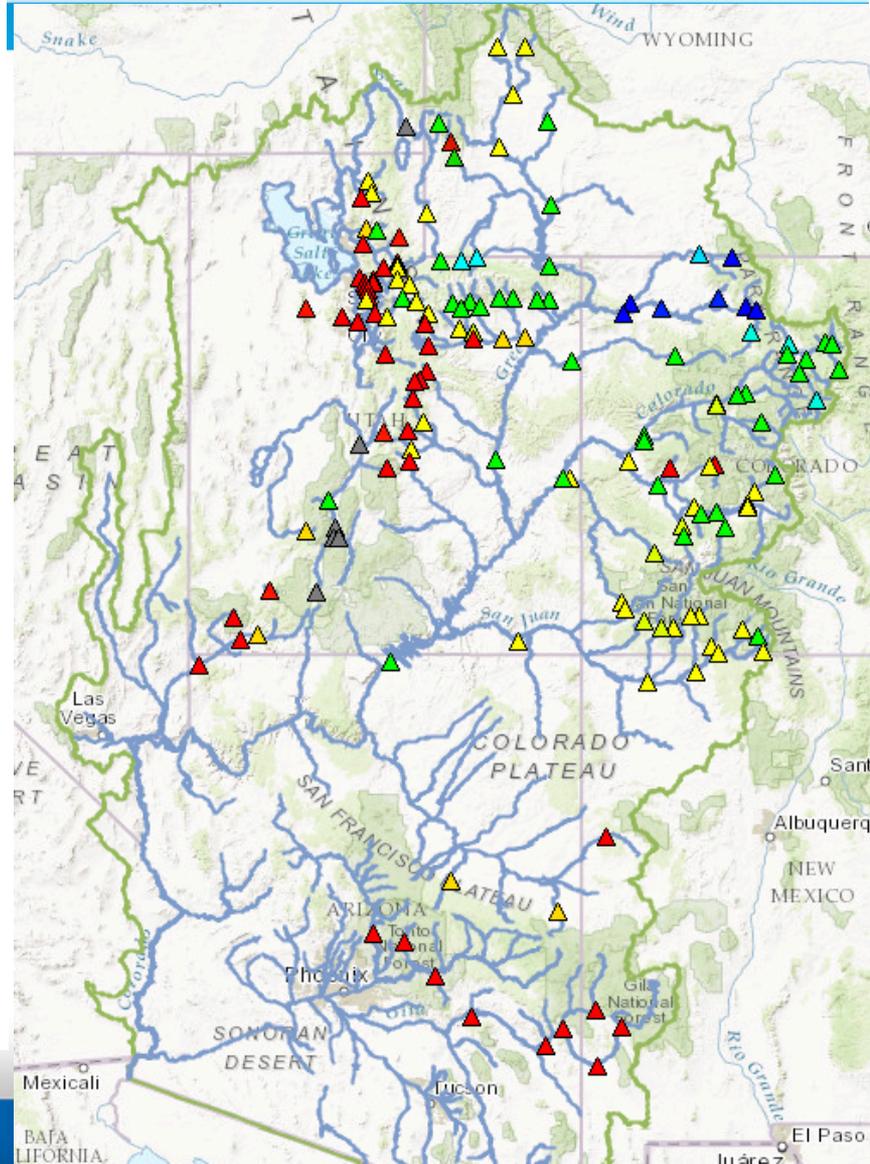
Products and Services



The latest (2016-07-14) 50% ESP forecast is 850 kaf.
 Plot Created 2016-08-17 07:48:57, NOAA / NWS / CBRFC
 **Purple ESP forecasts do not include observed and are not total runoff



The latest (2016-05-30) 50% ESP forecast is 49 kaf.
 Plot Created 2016-08-24 07:21:43, NOAA / NWS / CBRFC
 **Purple ESP forecasts do not include observed and are not total runoff.



Coordination Efforts

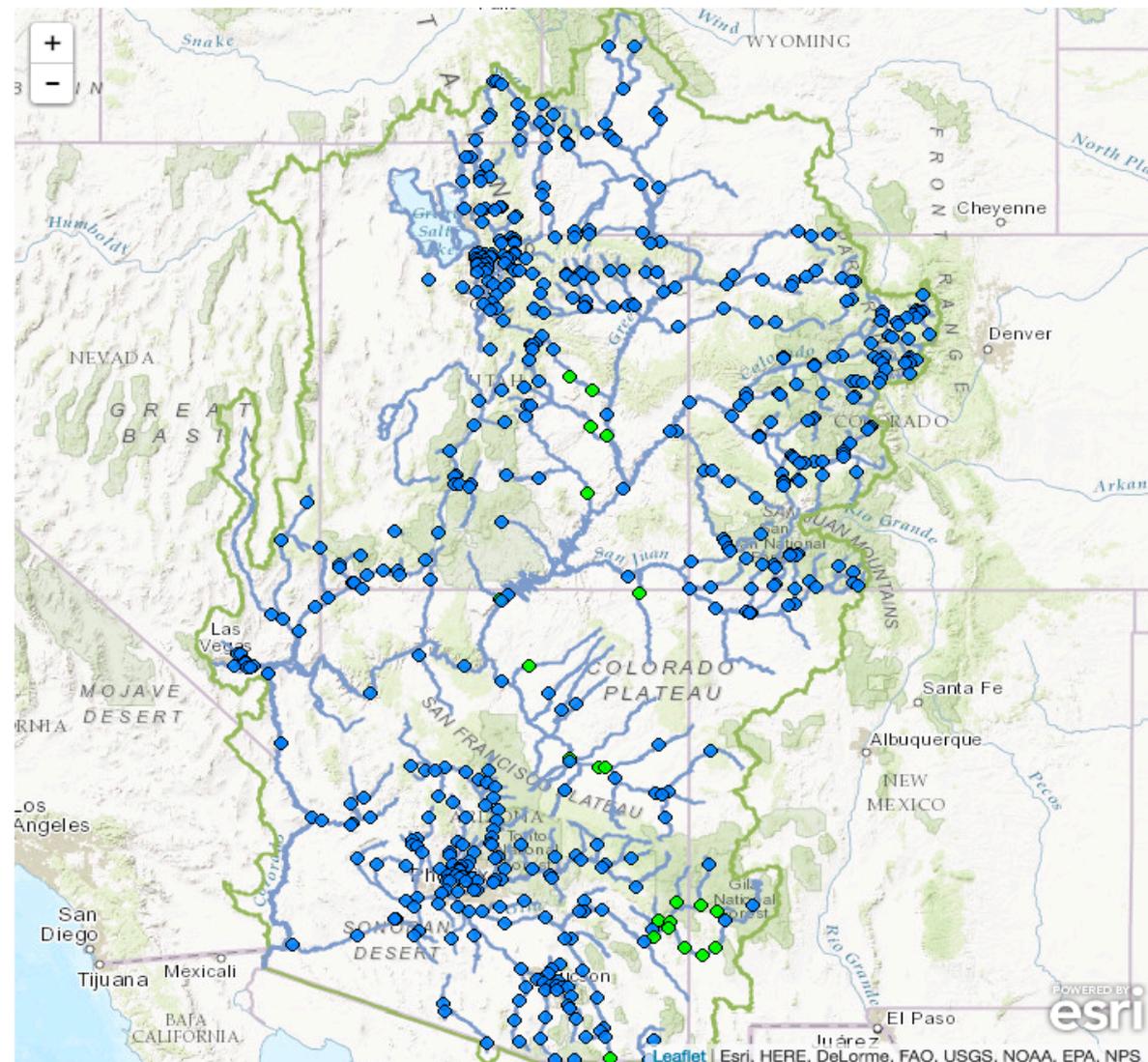
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- Annual Stakeholder Open House
 - Broad range of stakeholders
 - How can we best communicate information?
- Frequent webinars
 - Water supply, peak flows
 - Decision support, including drought
- Participation in stakeholder-run meetings and events
- Participation in multi-agency efforts
 - Landscape Conservation Cooperatives
 - Climate Science Centers
 - NOAA RISAs (like CLIMAS)
 - Others
- Direct contact by phone, e-mail, etc...



News Most recent presentations of Water Supply Briefings can be found here: [Read More...](#)

Conditions Map [Help](#)



River Conditions

Data Updated: 09/30/19Z [Help](#)

Show [Hide Other Types](#)

- Data
- Forecast
- Reservoir Inflow
- Reservoir Outflow
- Official Flood
- Active

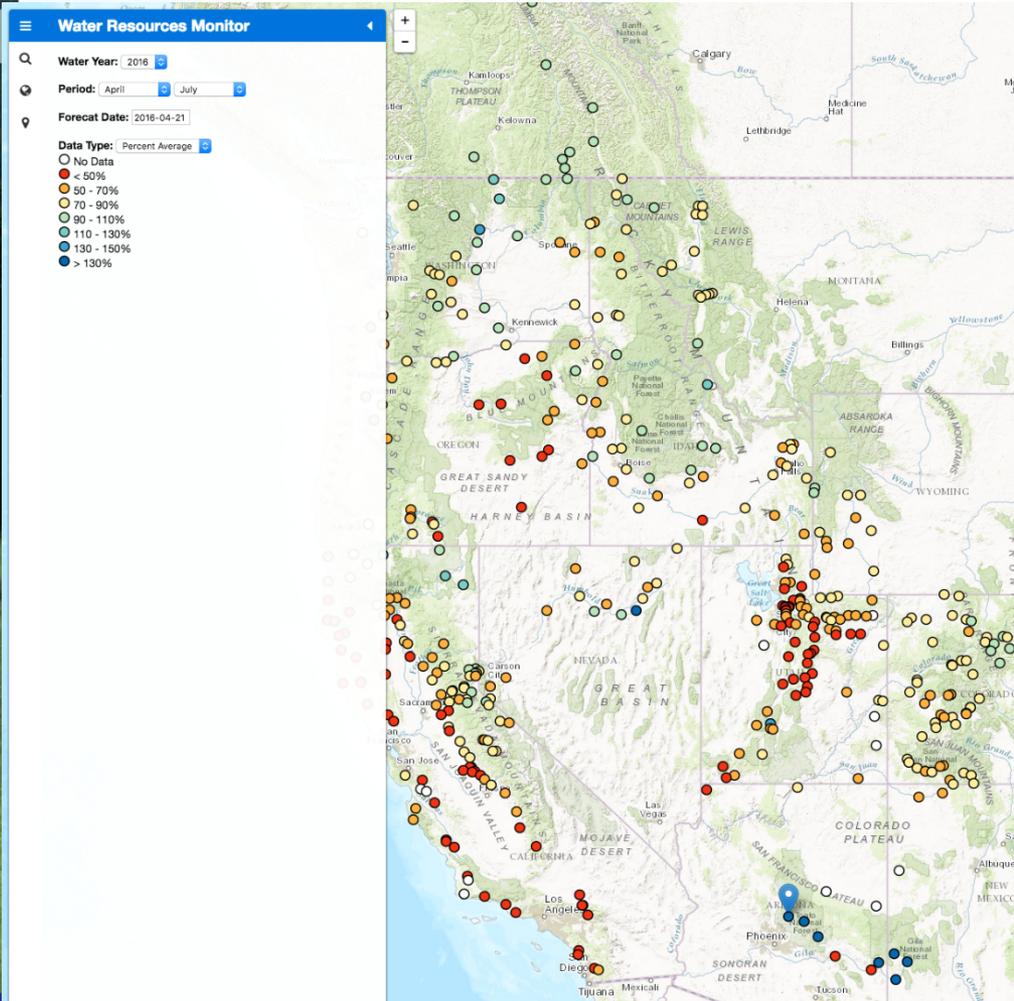
- ◆ Not Available
- ◆ Normal
- ◆ Significant Rise
- ◆ Near Bankfull
- ◆ Above Bankfull
- ◆ Above Flood Stage
- ◆ Outlook (> 3 days)

Pop-up Alerts

- [▶ Snow Conditions](#)
- [▶ Water Supply Forecasts](#)
- [▶ Peak Flood Probability](#)
- [▶ Reservoir Conditions](#)
- [▶ Daily Precipitation](#)
- [▶ Monthly Precipitation](#)
- [▶ Soil Moisture](#)
- [▶ Map Options](#)
- [▶ Search Points](#)

Coordination Efforts

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- Western Region Monitoring and Outlook Page
 - More customizable
 - Lots of information in an intuitive interface
 - West-wide
- Coming Soon!

National Water Center



National Water Model Improving NOAA's Water Prediction Services



In August 2016, NOAA took a giant leap forward in its ability to forecast the flow of rivers and streams throughout the entire continental United States with the launch of the

new high resolution National Water Model (NWM).

The NWM will enhance and expand NOAA's water flow forecasts, which to date have been available for approximately 4,000 river locations with stream gauges operated by the U.S. Geological Survey. This new model will expand forecasts to 2.7 million stream locations nationwide. Leveraging the full network of nearly 8,000 U.S. Geological Service stream gauges and NOAA's investment in atmospheric modeling, the NWM will provide high-resolution forecasts of soil moisture, surface runoff, snow water equivalent, and other parameters.

We all recognize that water is an essential component of sustainable and resilient communities. But its also a stressed natural resource and potential threat to life, property, and livelihoods during extreme weather events.

Improved Water Information Services

The new NWM improves the National Weather Service's ability to deliver impact-based decision support services nationwide by providing "street level" water information and guidance, as well as serve as the foundation for additional private sector water services. At a minimum, the NWM will immediately provide predictive water information for many locations where none previously existed.

Initially, this new NWM-based information will be particularly useful in headwater areas in support of NOAA's flash flood mission.

How it Works

The NWM simulates the water cycle with mathematical representations of the different processes and how they fit together. This complex representation of physical processes such as snowmelt and infiltration and water movement through the soil layers varies significantly with changing elevations, soils, vegetation types and a host of other variables.

Additionally, extreme variability in precipitation over short distances and times can cause the response on rivers and streams to change very quickly. Overall, the processes are so complex that to simulate it with a mathematical model means that it needs a "supercomputer" in order to run in the time frame needed to support decision makers when flooding is threatening.



National Water Model is a new forecasting tool that will help forecasters predict when and where flooding can be expected.

www.water.noaa.gov

National Water Model Image Viewer

The viewer below has been made available to view the pre-generated imagery depicting output from the National Water Model. For direct access to the imagery shown in the viewer, visit the following location: http://www.noahrs.noaa.gov/pub/staff/keicher/WRFH_ppd/web/static_images/

Dataset: Stream Flow Forecast Type: Long Range

2016-09-09 06:00:00 UTC

2016-09-09 12:00:00 UTC

2016-09-09 18:00:00 UTC

2016-09-10 00:00:00 UTC

2016-09-10 06:00:00 UTC

2016-09-10 12:00:00 UTC

2016-09-10 18:00:00 UTC

2016-09-11 00:00:00 UTC

2016-09-11 06:00:00 UTC

2016-09-11 12:00:00 UTC

2016-09-11 18:00:00 UTC

2016-09-12 00:00:00 UTC

2016-09-12 06:00:00 UTC

Contact us!

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