

NOAA's Colorado Basin River Forecast Center

An Overview of the CBRFC

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Service Coordination Hydrologist

2016 Stakeholder Open House



Overview

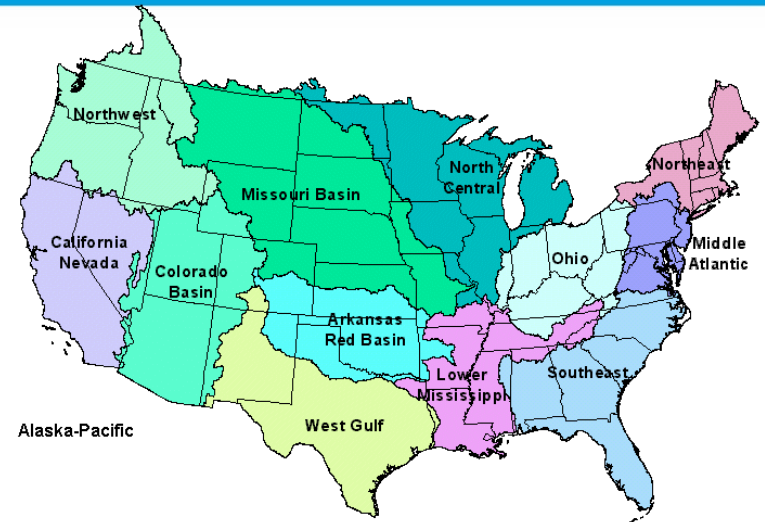
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- Who we are
- Summary of operations
- Products and Services





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

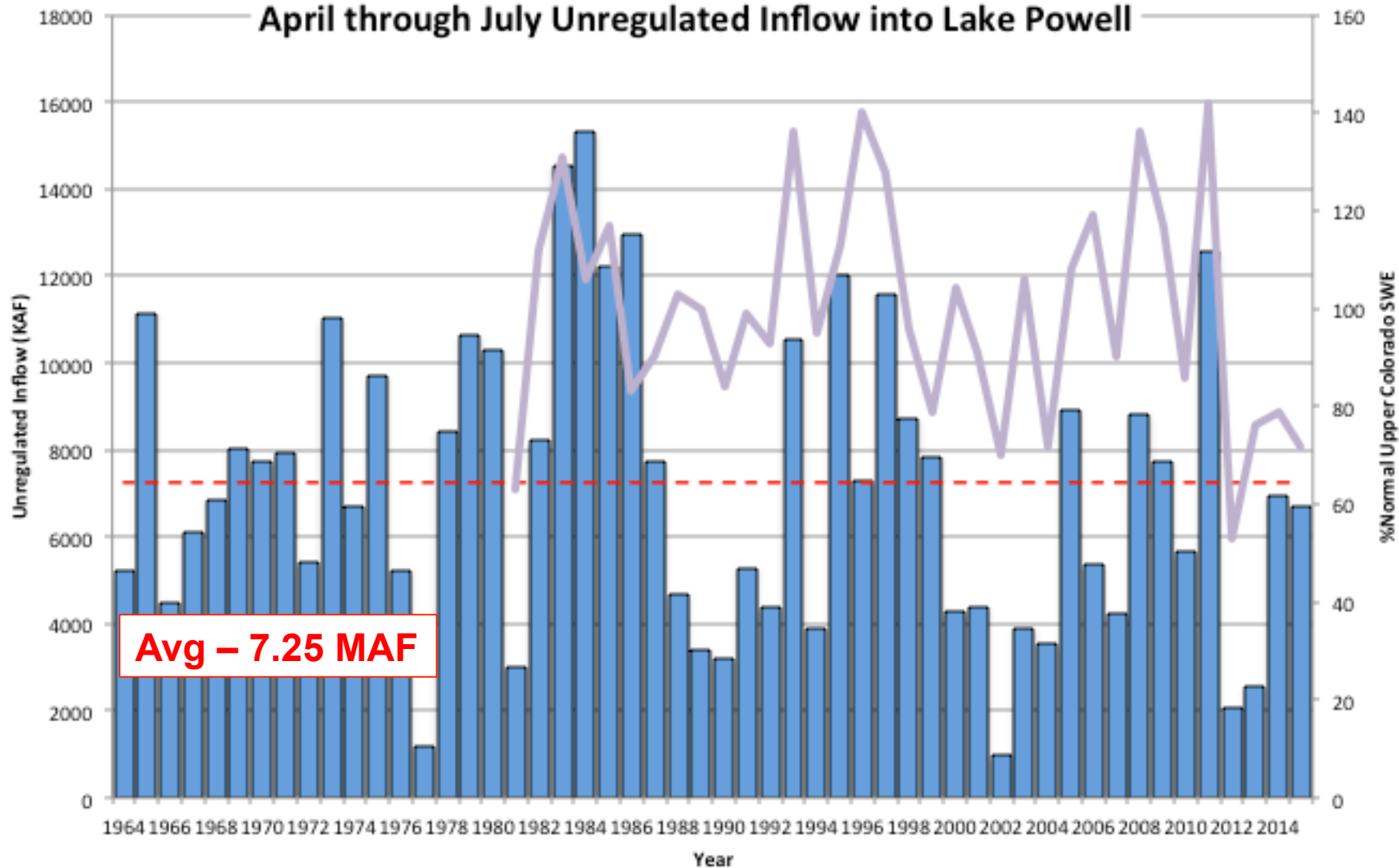
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- Work with a broad and diverse set of stakeholders
 - Weather Forecast Offices and Reclamation
 - Municipal and Agricultural Water Users
 - USGS, NRCS, and many other federal agencies
 - State agencies, Academics, NGOs, Tribes
- Receive data from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



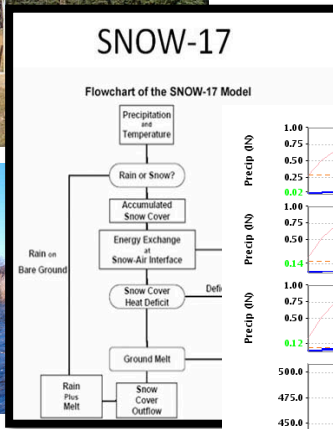
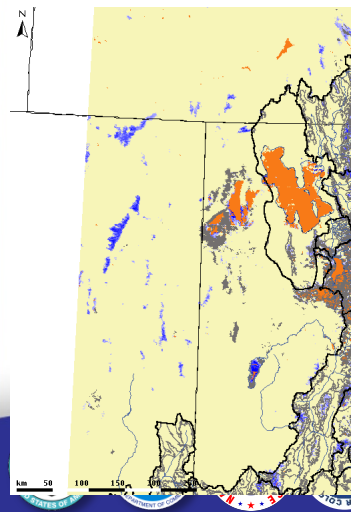
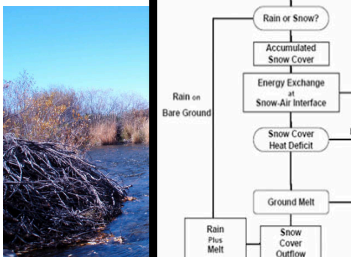
Hydroclimatic Variability over the Colorado River Basin


April through July Unregulated Inflow into Lake Powell

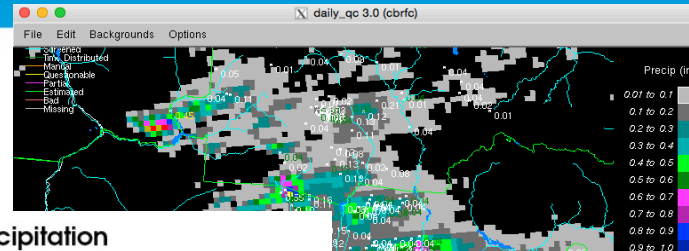


Providing Decision Support

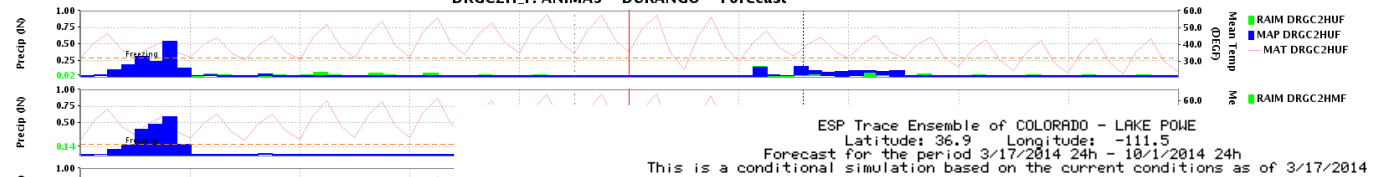
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Evapo-  Precipitation



DRGC2H_F: ANIMAS - DURANGO - Forecast

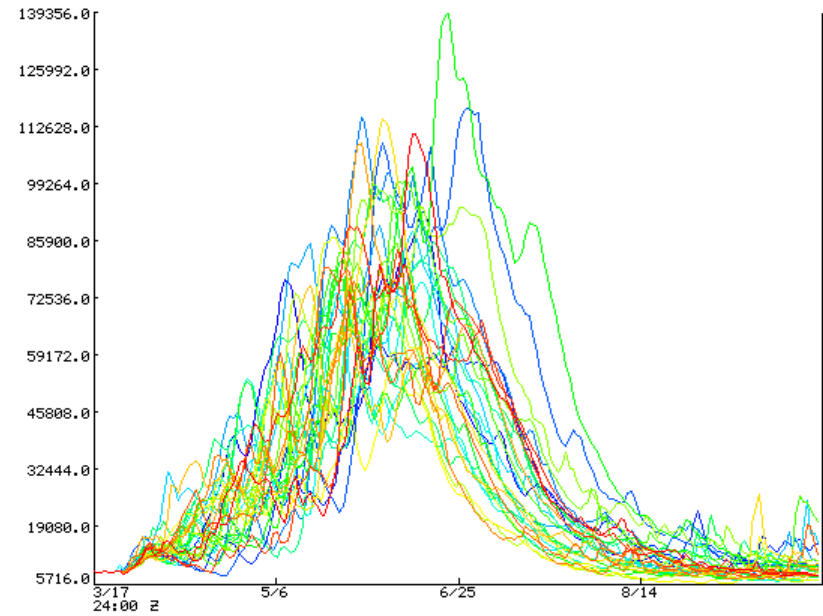


ESP Trace Ensemble of COLORADO - LAKE POWE

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



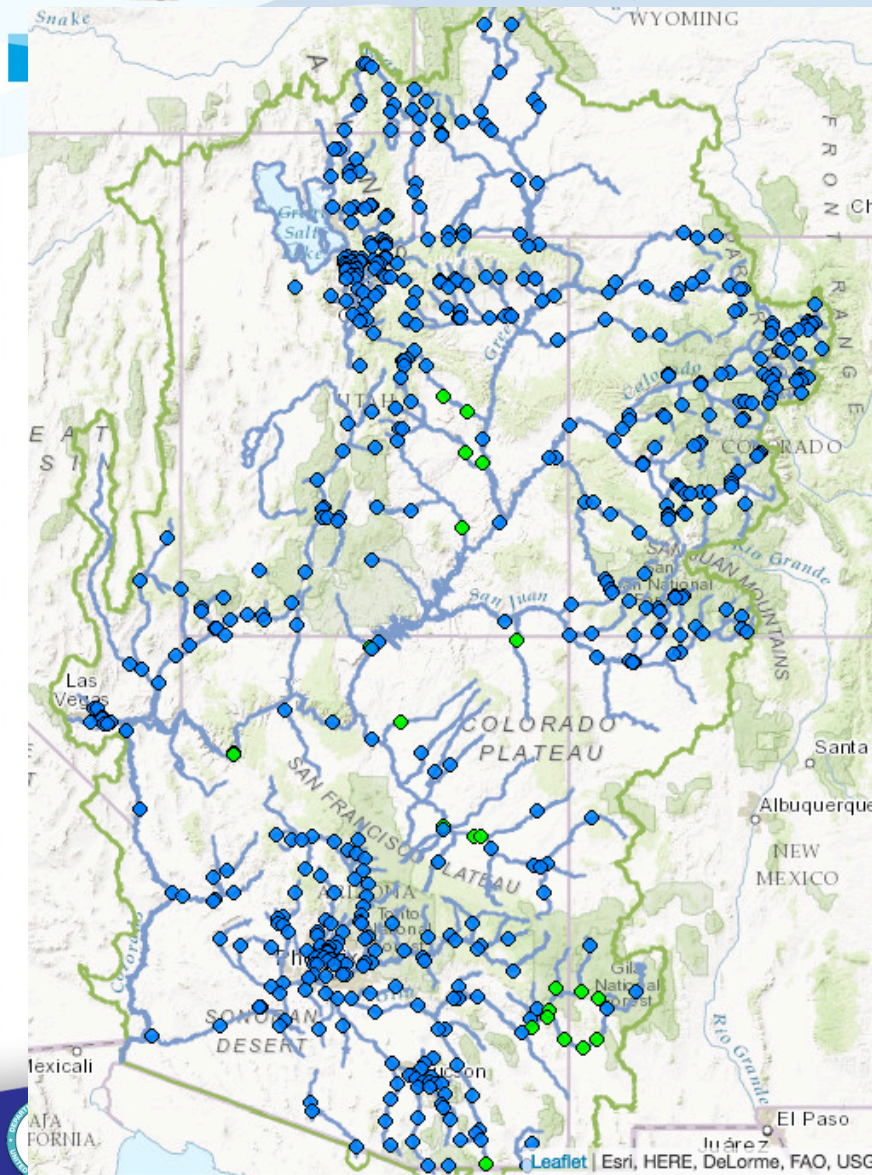
Stakeholder Needs Are Changing

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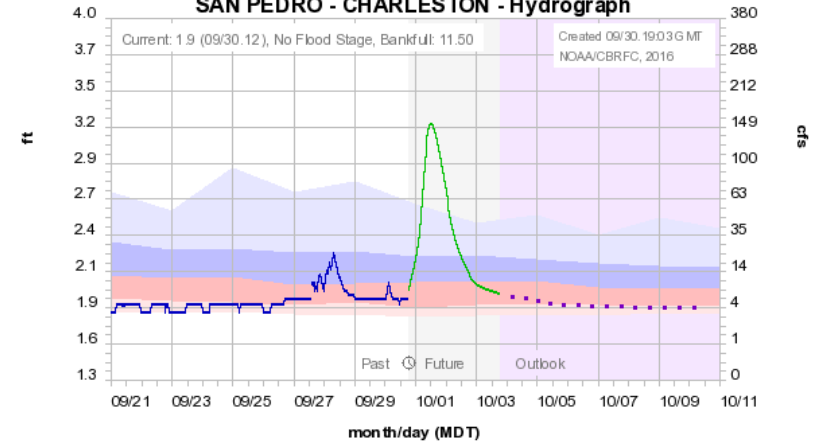
- Where we were:
 - What is THE forecast?
 - How much water is there?
 - How much snow is there?
 - Will there be flooding?
- Where we are going:
 - What is the range of forecasts?
 - What is the likelihood of reaching this flow?
 - What if it's a dry/wet year?
 - What is the risk to filling my reservoir?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

Products and Services

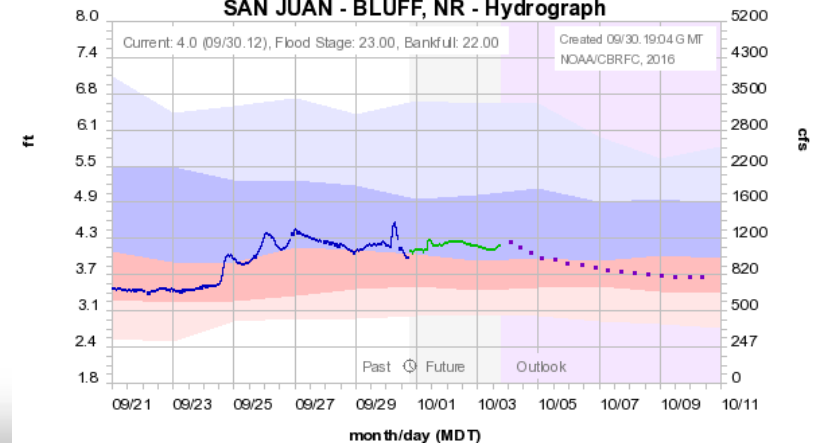
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Colorado Basin River Forecast Center
SAN PEDRO - CHARLESTON - Hydrograph



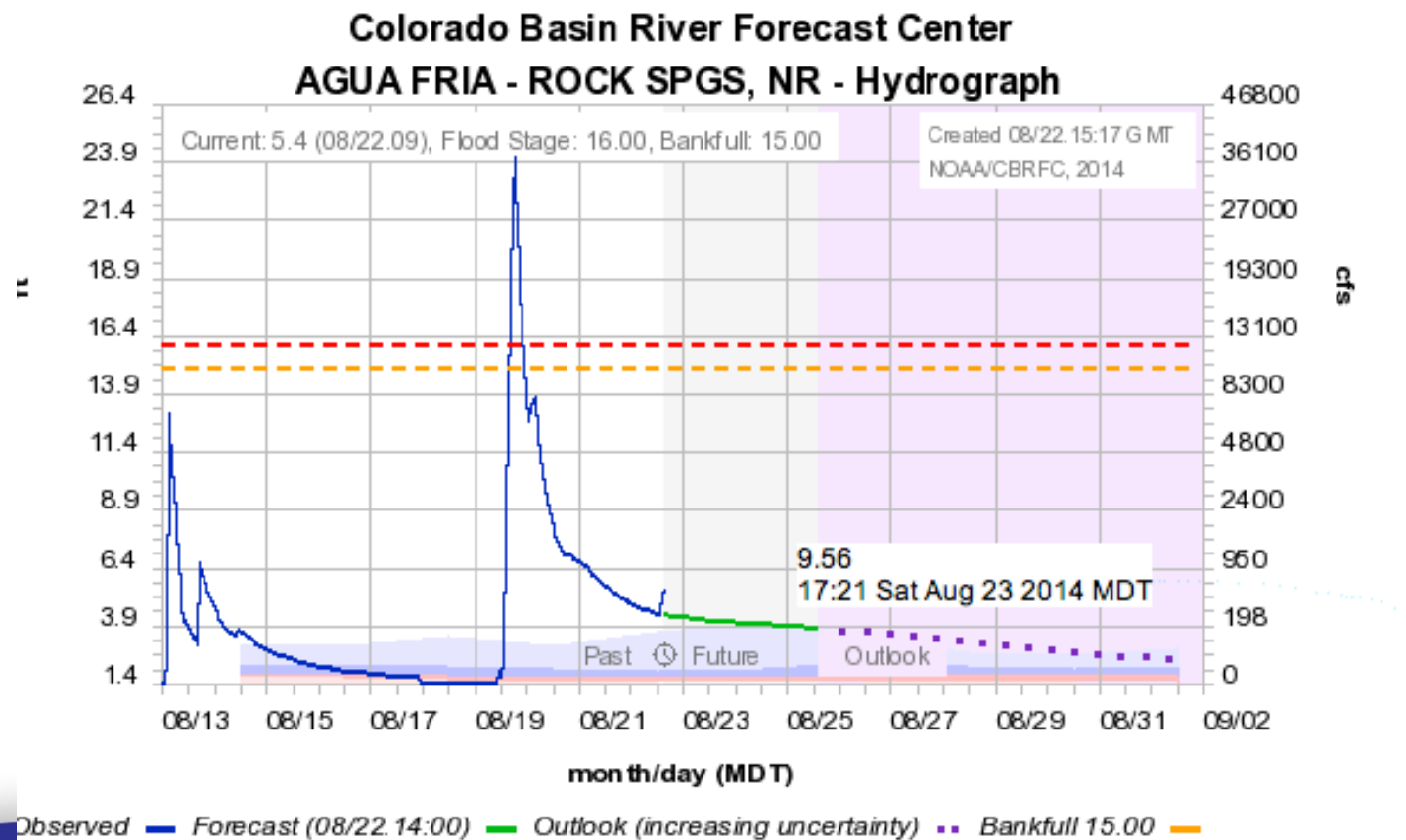
Colorado Basin River Forecast Center
SAN JUAN - BLUFF, NR - Hydrograph



Products and Services

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Support flood warning efforts by weather forecast offices

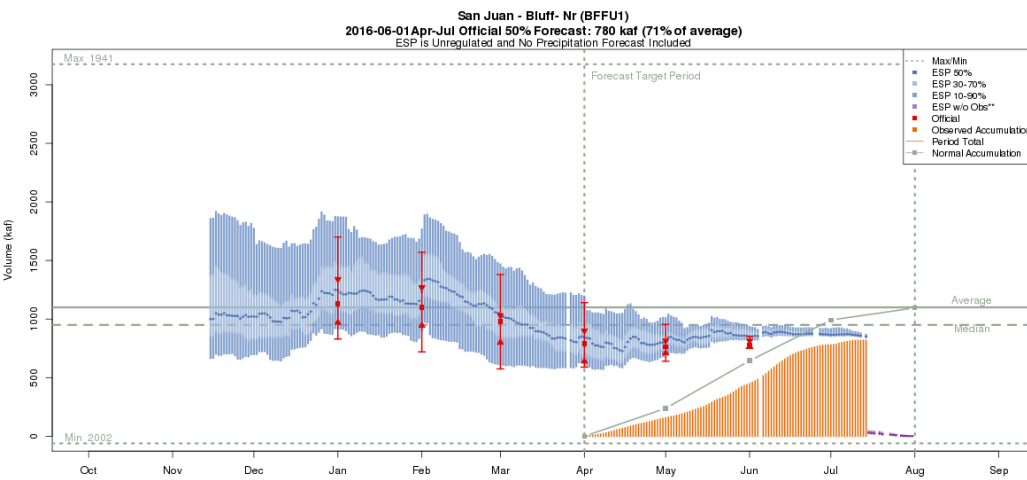


Products and Services

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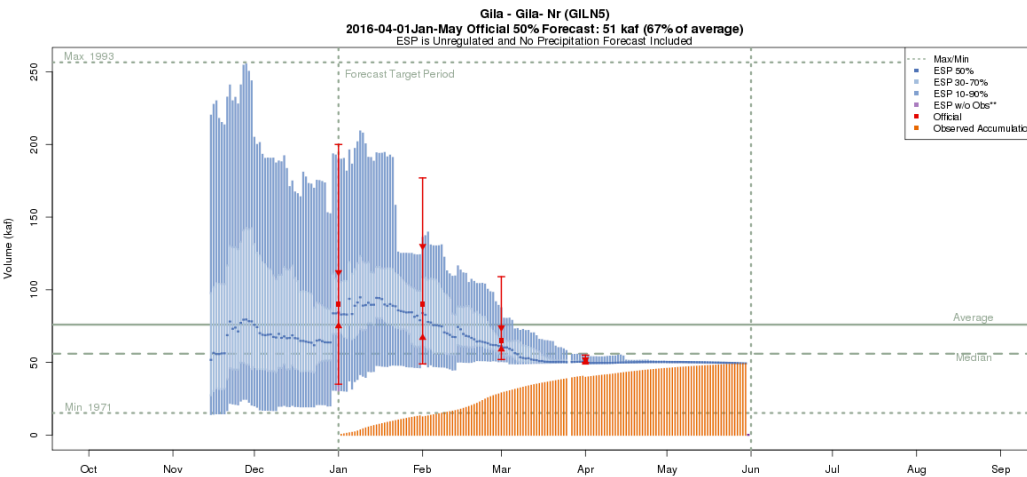
- Water Supply Forecast
 - Utilize an ensemble of future climate to generate possible streamflow futures
 - Dependent on precipitation information during the runoff season – we pay close attention to snowpack
 - Model soil moisture component is very important
- The more information we have the better!

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

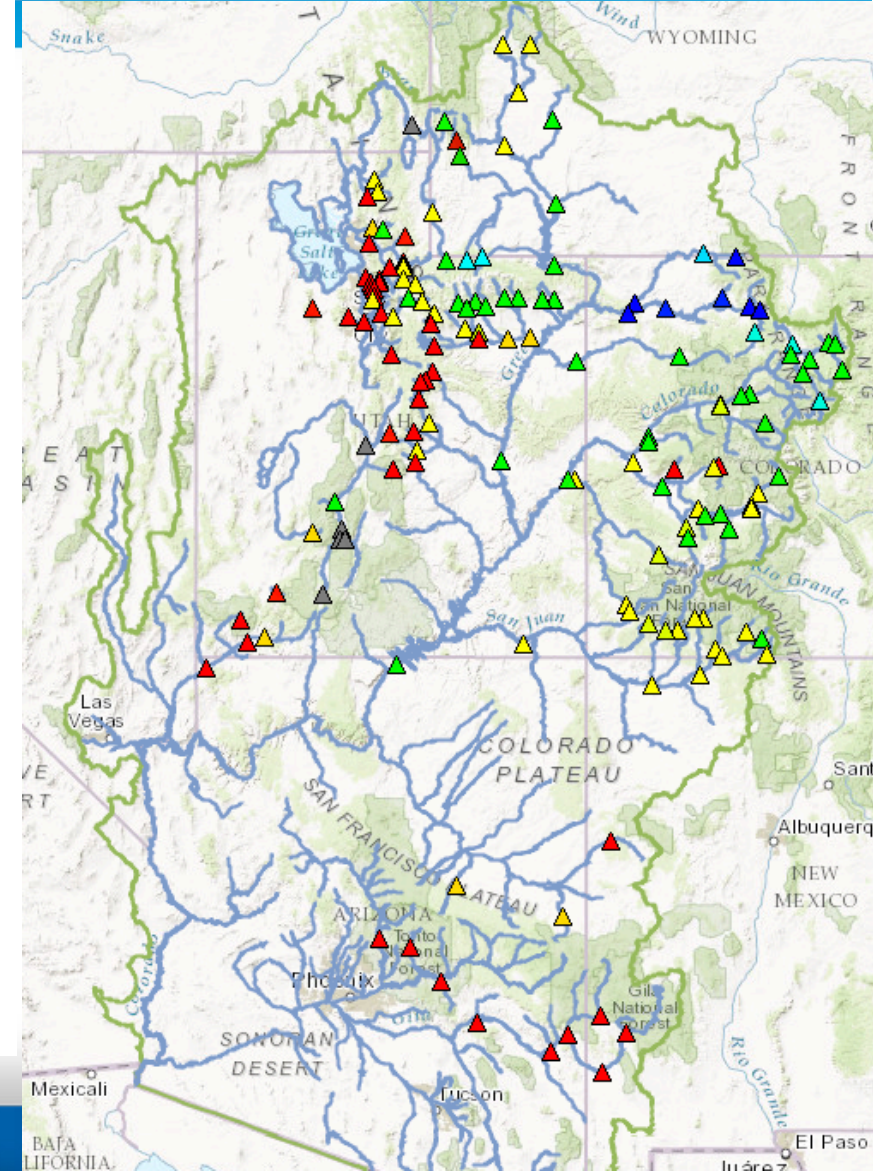
**Purple ESP forecasts do not include observed and are not total runoff.



The latest (2016-05-30) 50% ESP forecast is 49 kaf.

Plot Created 2016-08-24 07:21:43, NOAA / NWS / CBRFC

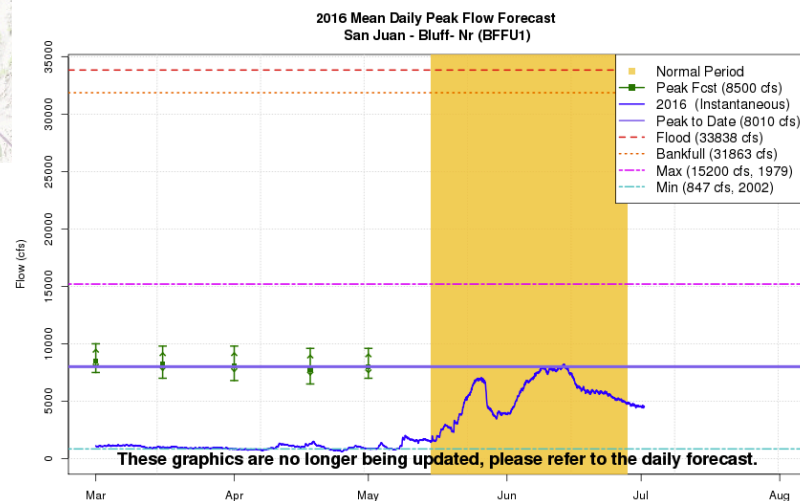
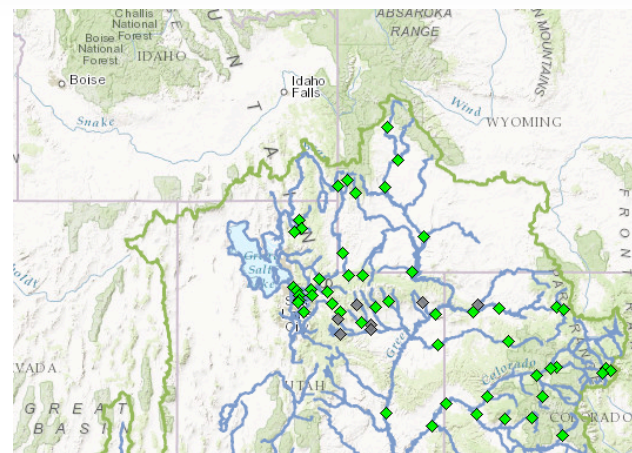
**Purple ESP forecasts do not include observed and are not total runoff.



Products and Services

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- Peak Flow Forecasts
 - Mean Daily Peak Flow
 - Helpful for environmental resource managers
 - Meet environmental targets



Plot Created 2016-07-01 11:40:14
CBRFC / NWS / NOAA

Coordination Efforts

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- Stakeholder Open House (Like this one!)
 - Broad range of stakeholders
 - Introduce new products and services
 - Reinforce traditional products and services
 - Important for us to get feedback
- Frequent webinars
 - Water supply, peak flows
 - Custom Webinars for your group
 - WFO Coordination



Coordination Efforts

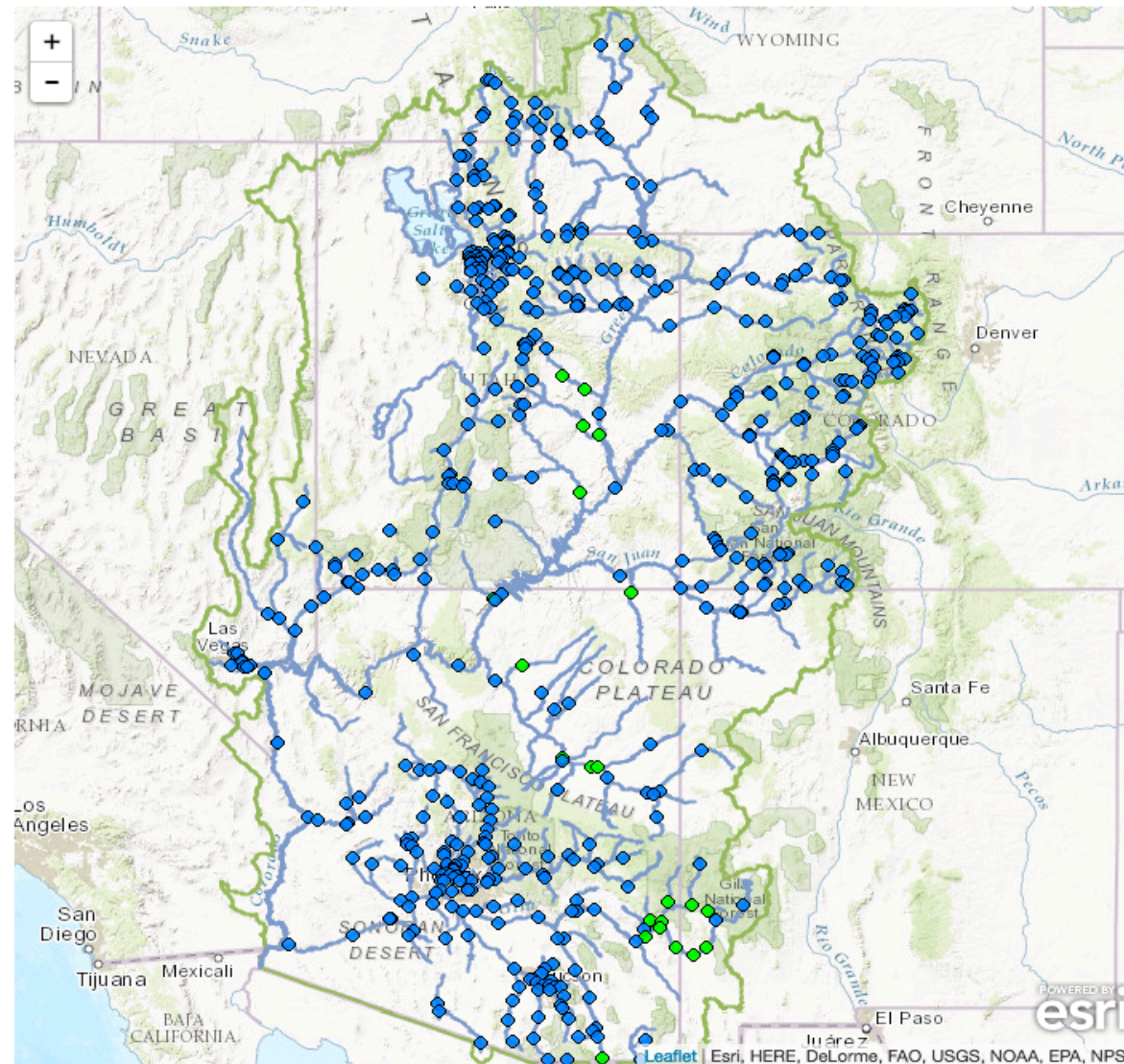
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- Participation in stakeholder-run meetings and events
- Participation in multi-agency efforts
 - Landscape Conservation Cooperatives
 - Climate Science Centers
 - NOAA RISAs (like CLIMAS)
 - Others
- Direct contact by phone, e-mail, etc...



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)

☐ Popup Alerts

► [Snow Conditions](#)

► [Water Supply Forecasts](#)

► [Peak Flood Probability](#)

► [Reservoir Conditions](#)

► [Daily Precipitation](#)

► [Monthly Precipitation](#)

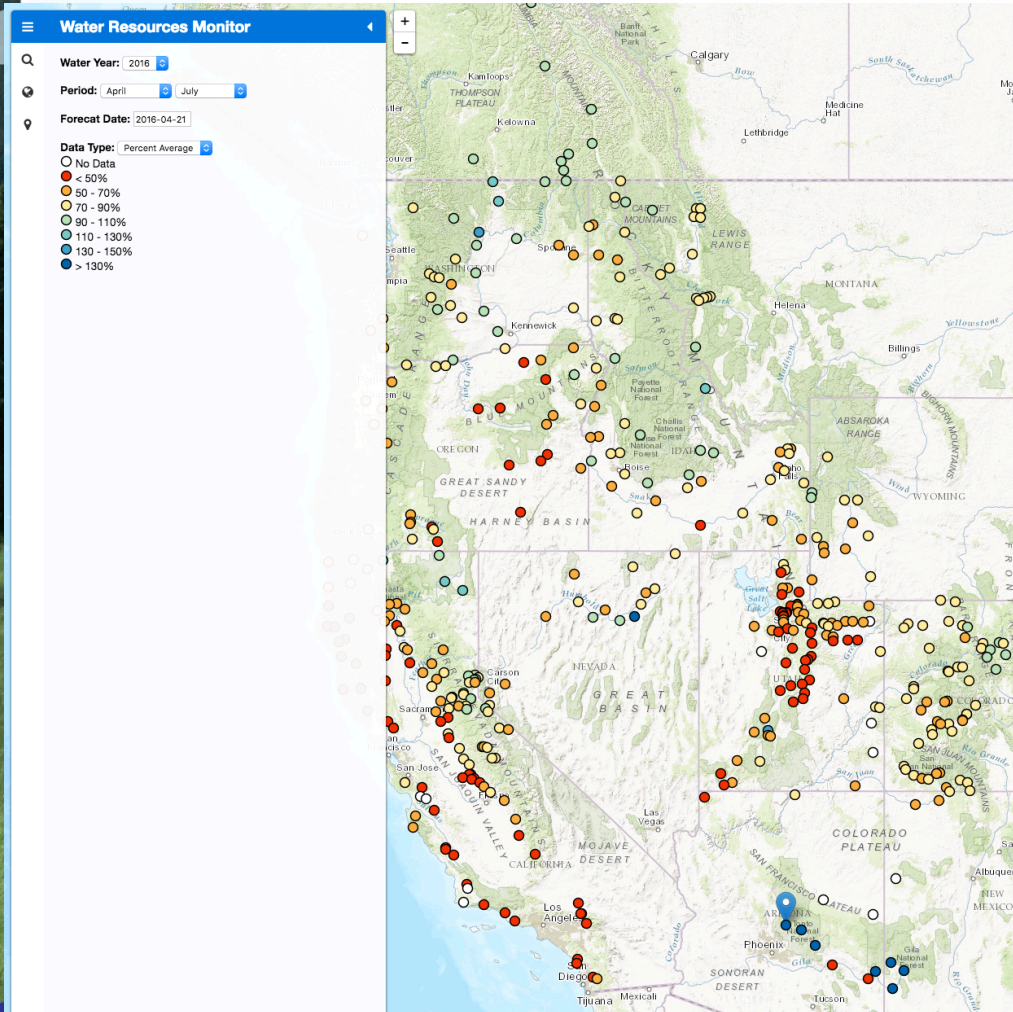
► [Soil Moisture](#)

► [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 it's also a stressed natural resource and potential threat to life, property, and livelihoods during extreme weather events.

Improved Water Information Services

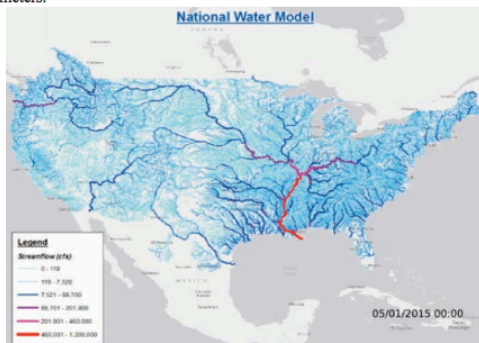
The new NWM improves the National Weather Service's ability to deliver impact-based decision support services nationwide by providing "street level" water information and guidance, as well as serve as the foundation for additional private sector water services. At a minimum, the NWM will immediately 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.nohrsc.noaa.gov/pub/staff/keicher/WRFH_ppd/web/static_images/

Dataset:

Stream Flow

Forecast Type:

Long Range



5.0 s

Apply

2016-09-09 06:00:00 UTC

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

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2016-09-11 00:00:00 UTC

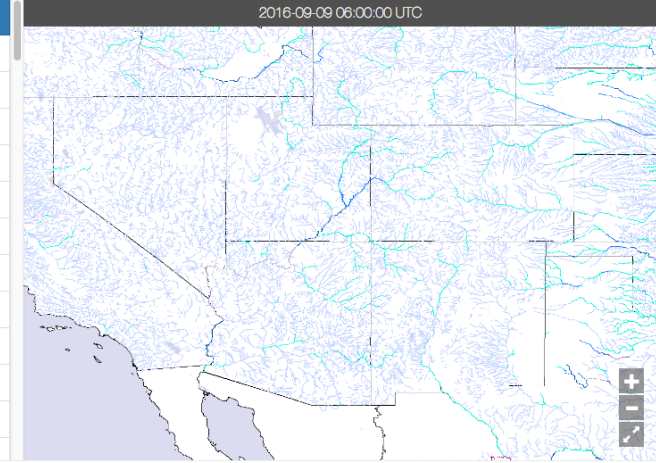
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2016-09-11 12:00:00 UTC

2016-09-11 18:00:00 UTC

2016-09-12 00:00:00 UTC

2016-09-12 06:00:00 UTC



How can we help?

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- What sites, areas are important to you?
- Is there a site or area that you would like us to add?
- What are your major concerns and decisions? What kind of information can we provide to help with decision support?



How can you help?

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- We always need data and can work with you to get us the information in a way that is convenient to you
 - If there's enough data, we can add points
 - Changes to operations
- What are your major decision points?
- Let us know how we can help!



Contact us!

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- Michelle Stokes – Hydrologist In Charge
 - John Lhotak – Development and Operations Hydrologist
 - Paul Miller – Service Coordination Hydrologist
 - Brenda Alcorn – Upper Colorado Focal Point
 - Greg Smith – San Juan and Gunnison Focal Point
 - Ashley Nielson – Green River Basin Focal Point
 - Brent Bernard – Great Basin Focal Point
 - Tracy Cox – Lower Basin Focal Point
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