Overview of the Colorado Basin River Forecast Center

Michelle Stokes, Hydrologist in Charge
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Pima County Local Drought Impact Group Meeting
Tucson, May 9th, 2018
National Weather Service River Forecast Centers

- Provide streamflow forecasts for the next few hours to seasons
- 10 day forecasts for flood warnings, recreational use, etc.
- Develop probabilistic forecast of volume of water expected during the snow melt season for reservoir operations and planning - Water Supply Forecasts
Streamflow forecasts - Routine & Flood
Streamflow forecasts - Hydrographs

Clicking on a pop-up hydrograph will direct you to a page that allows for more interactive features and options for plotting.
Flash floods

- Flooding in Arizona is most often caused by local, intense convective storms that lead to flash flooding
  - Too rapid for RFC to model
  - Weather Forecast Office issues warnings based on precipitation rate and location
  - RFC provides tools to help locate areas where flash floods are most likely (GIS based)
Water Supply Forecasts

- Probabilistic volumetric seasonal forecast
- Driven by current snowpack, soil moisture, and future precipitation, temperatures, and potential weather scenarios
CBRFC Role in Colorado River Management

- CBRFC’s water supply forecasts drive Reclamation’s operational planning model (24-Month Study)
  - Determine operations of Lakes Powell and Mead
  - Determine shortage declarations
  - Direct impact to State, municipal, agricultural, water and energy managers and Mexico
Data and developing a forecast
Precipitation Information

- **Observed:**
  - Daily, monthly, water year, month to date, water year to date for the month, water year, and month to date.

- **Forecast:**
  - Next 5 days
Temperature Information

- Observed:
  - Daily, monthly, for minimum and maximum temperatures, water year, month to date, water year to date for the month, water year, and month to date.

- Forecast:
  - Next 10 days
Snow Information

Gila River Snotel Group

Colorado Basin River Forecast Center
Gila River Group

Missing Data Alerts
median
avg
2018
CNA23 in 2018 only has 149212 69%
2017
CNA23 in 2017 only has 233236 63%
PRD65 in 2017 only has 233236 63%

Group plots show a simple average of the individual stations.
Select multiple years and/or stations. Be sure to use your system's key-click combination to avoid inadvertent deselection.

Years | Stations | Y axis | Station Links | Percent Seasonal Median | Percent Median to Date |
----- | -------- | ------ |-------------- |------------------------ |----------------------- |
      |          |       |              |                        |                       |
1991-2010 | CNA23 | Off | Closest Pattern | 98.11 | 84.41 |
1991-2010 | CNA23 | Closest Pattern | Closest Pattern | 98.11 | 84.41 |
1991-2010 | CNA23 | Current Observation | Current Observation | 98.11 | 84.41 |
1991-2010 | CNA23 | Highest Year | Highest Year | 98.11 | 84.41 |
1991-2010 | CNA23 | Lowest Year | Lowest Year | 98.11 | 84.41 |

NRCS
Natural Resources Conservation Service

National Oceanic and Atmospheric Administration’s
National Weather Service

Colorado Basin River Forecast Center
Salt Lake City, Utah
Other Information

- Modeled soil moisture
- Reservoir information
- Peak Flow forecasts
- Verification
Providing Decision Support Services

- **Resource Management**
  - Adaptive Management Program (Peak Flow Forecasts)
  - Day to day decisions, especially during times of active weather

- **Technical Support and Communication**
  - Meeting participation
  - Custom products and outreach

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May showers bring better outlook for Colorado River, but no miracle

A group of hikers prepare to head downstream while adorning the 'Black Canyon' with t-shirts at the Upper Colorado River-Lake Mead National Recreation Area on the Nevada and Arizona border east of Las Vegas, Nev., May 7, 2014. Water levels in Lake Mead, the nation's largest reservoir, are hovering near record low levels, with many experts saying it could potentially be stretched through a current drought (Las Vegas Review-Journal).

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1. "May" showers are a bit of an overstatement, but the unusually wet May did have a positive impact on water levels.
Our Arizona partners

CBRFC Stakeholder Engagement meeting on **November 6th** at the Salt River Project offices in Phoenix.
Last year’s Water Supply Conditions

Lake Powell inflow - 114% of average
Current Conditions

Water Year Precipitation, October 2017 - April 2018
(Averaged by Basins)

5th driest on record
Thank you!

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