

# Southern Nevada and the Colorado River



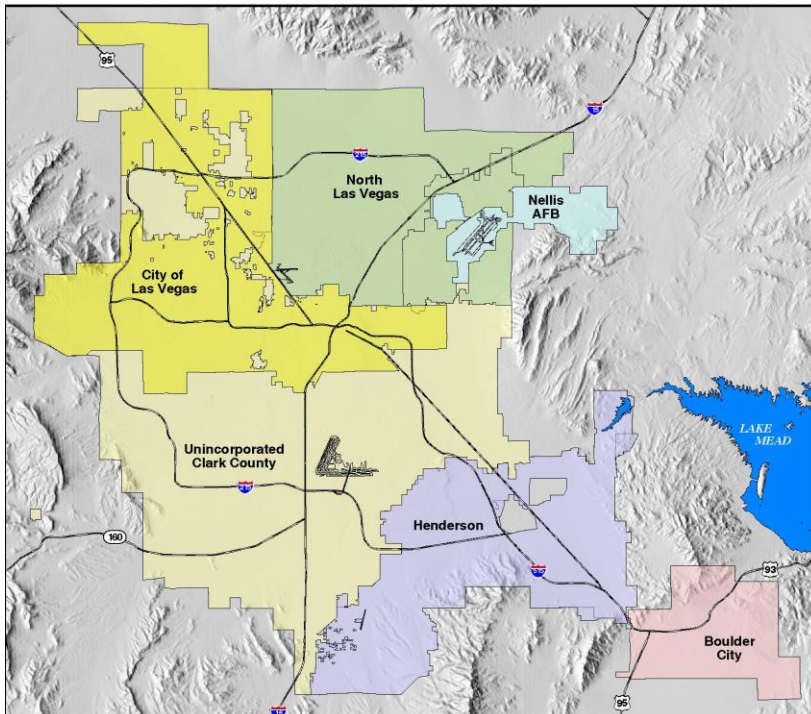
Tom Maher  
Senior Resource Analyst  
Southern Nevada Water Authority

February 26, 2014

# Southern Nevada Water Authority

The SNWA is a cooperative agency formed in 1991.

SNWA's mission is to manage the region's water resources and develop solutions that will ensure adequate future water supplies for the Las Vegas Valley.



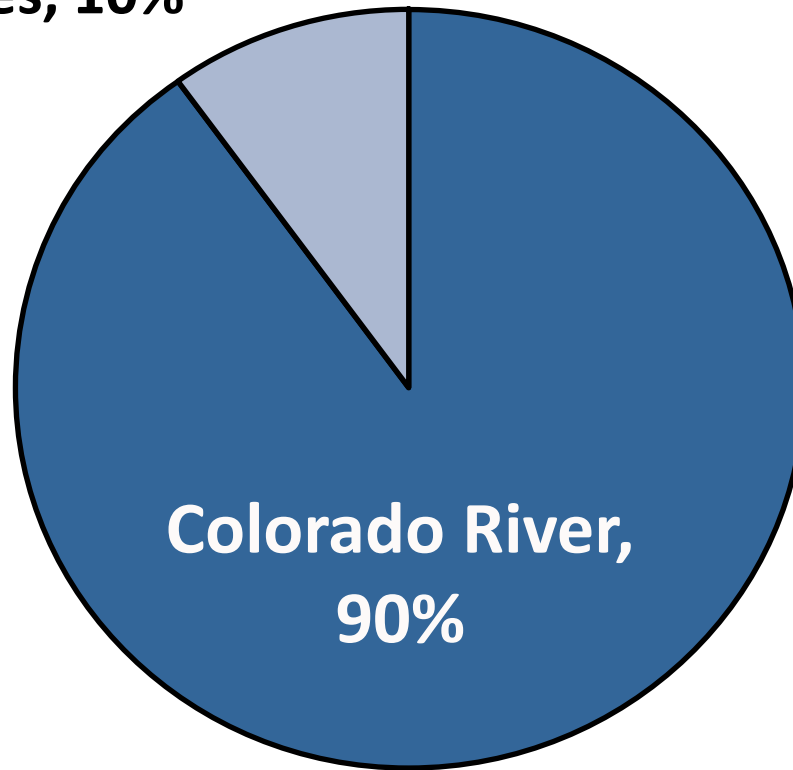
## Member Agencies

- Big Bend Water District
- City of Boulder City
- City of Henderson
- City of Las Vegas
- City of North Las Vegas
- Clark County Water Reclamation District
- Las Vegas Valley Water District

# Southern Nevada's Water Resources

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**Other Water  
Resources, 10%**

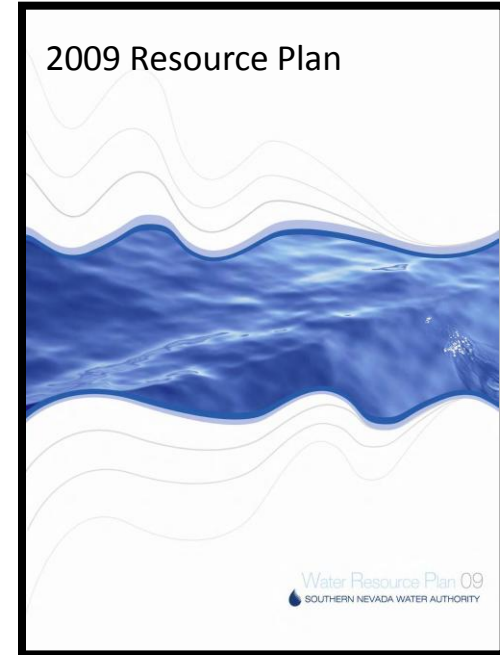
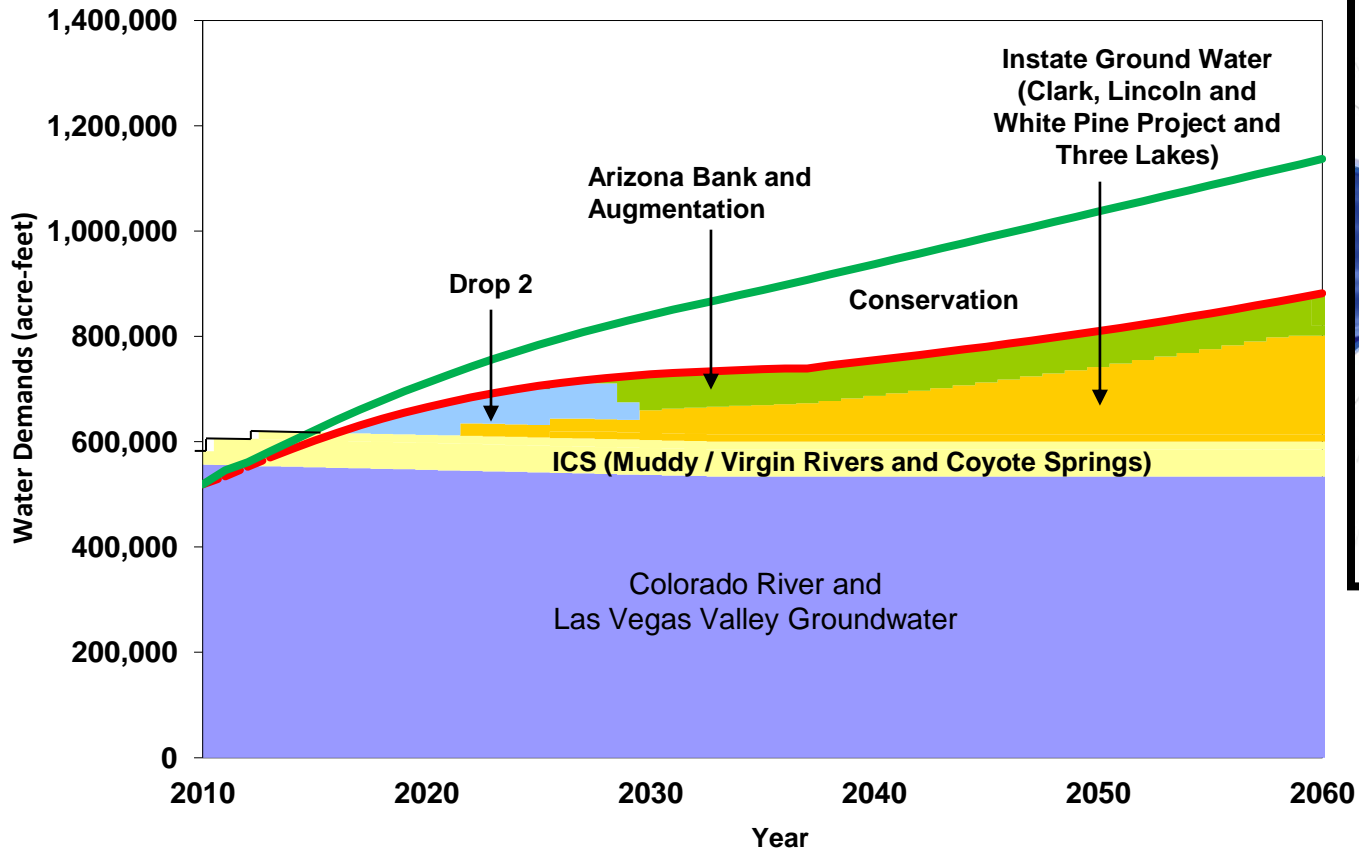


# SNWA Perspective

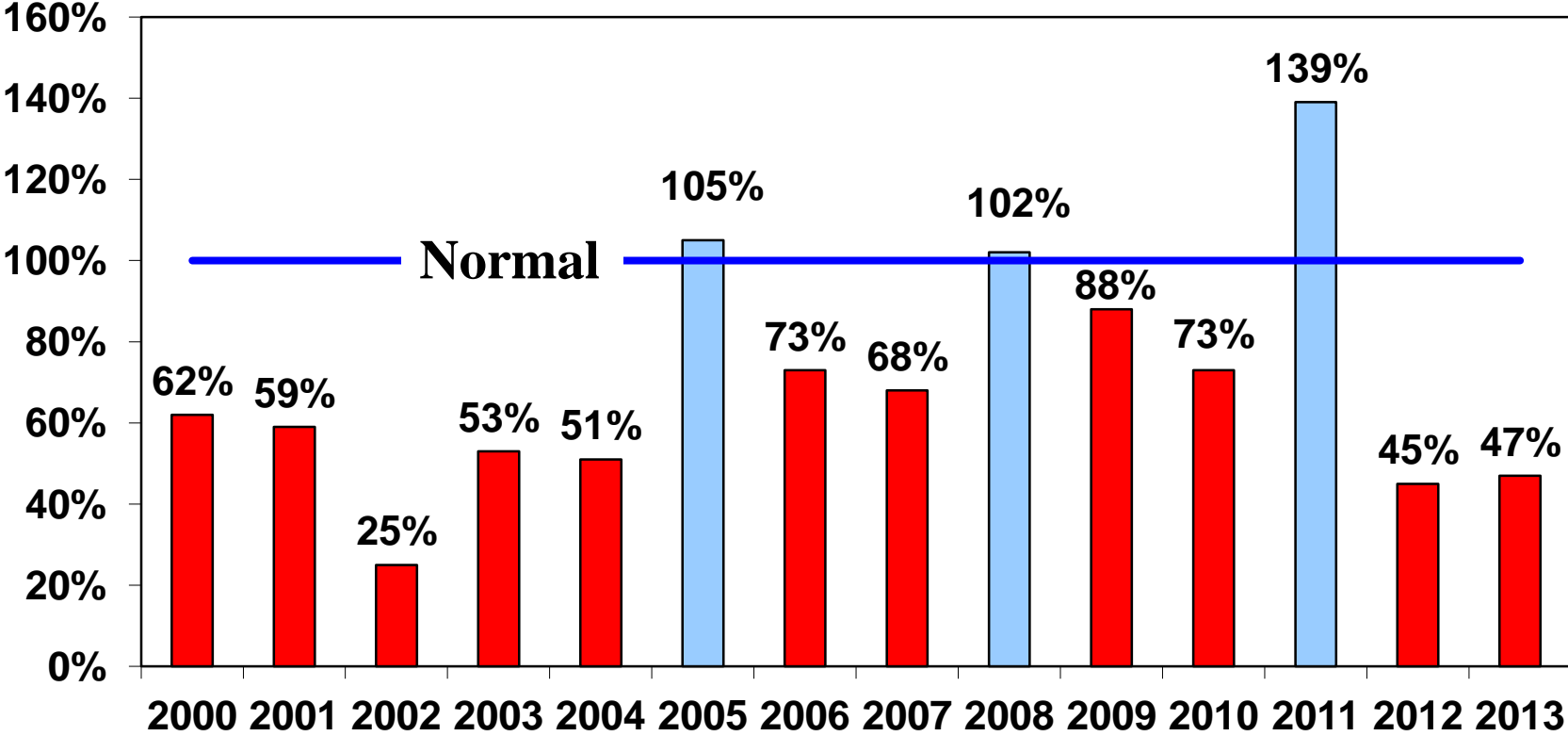
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- **Water Resources**
- **Operations**
- **Infrastructure**

# SNWA Water Resource Plan

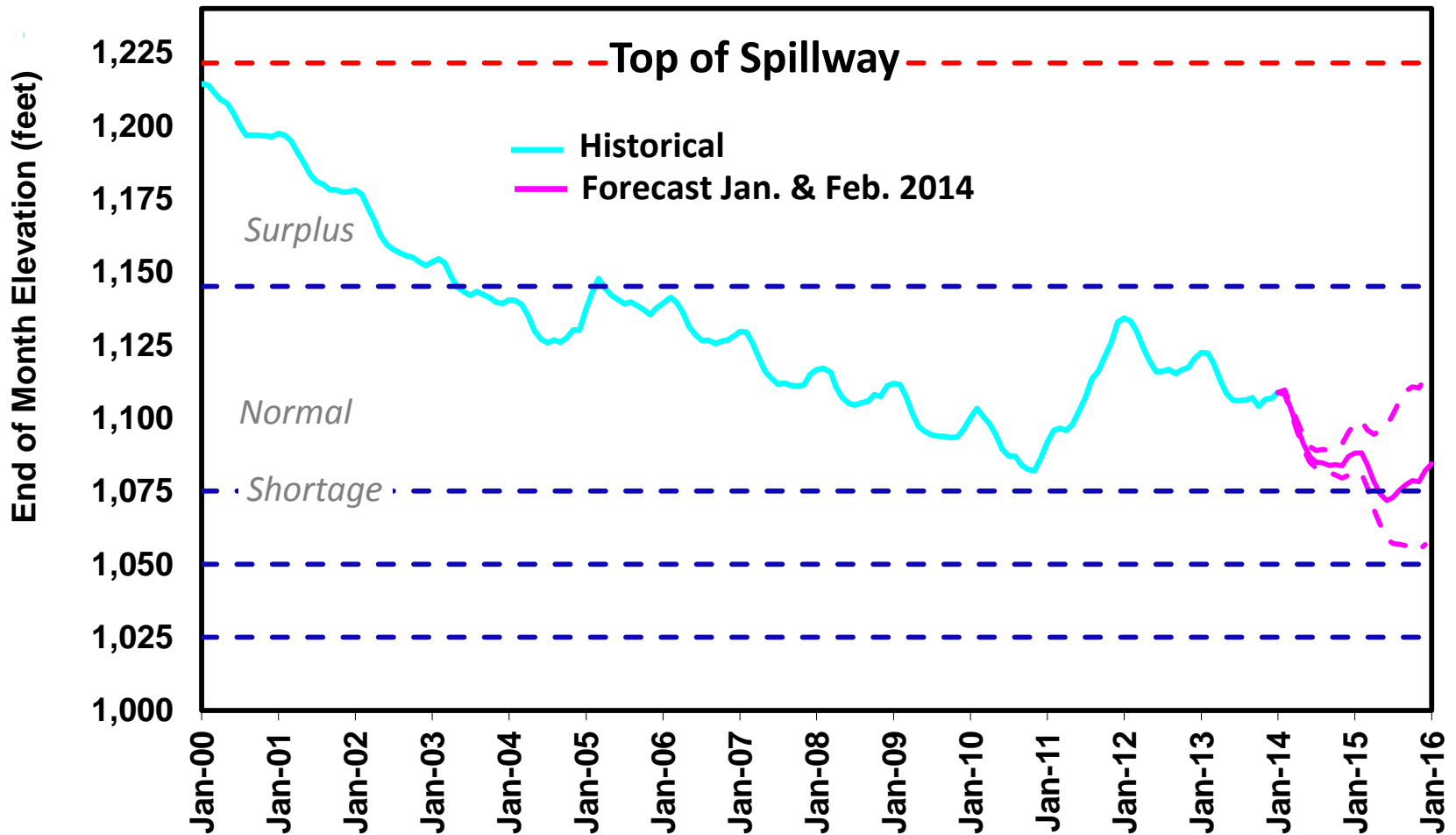


# Monitoring Drought - Historical Lake Powell Annual Inflows



Historical 14-Year Average Inflow: 71% of normal

# Monitoring Projected Lake Mead Elevation

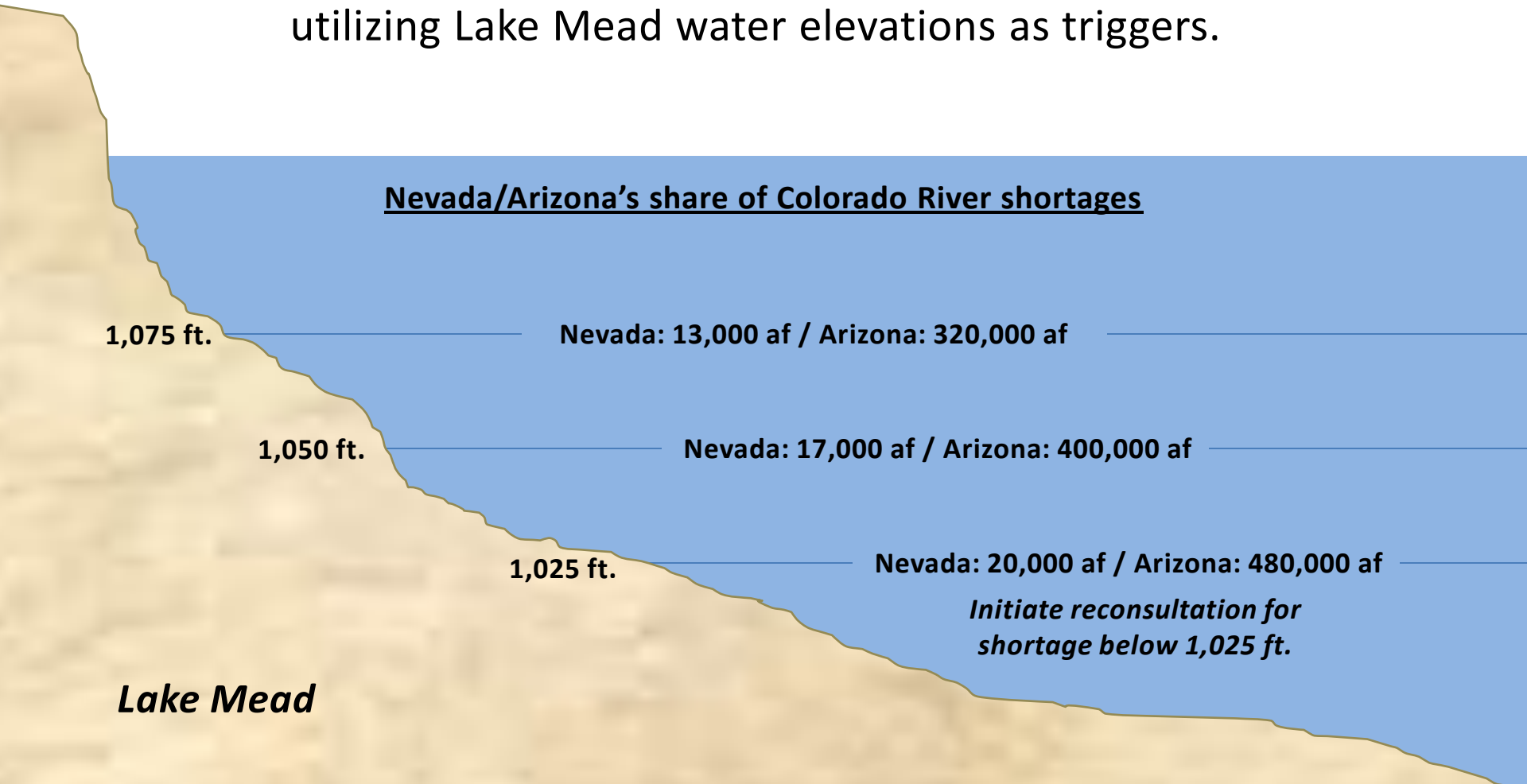


WY2014 release - 7.48 maf; WY2015 projected release: - 9.0 maf

Source: Bureau of Reclamation, January and February 2014 24-Month Study.

# Colorado River Shortage

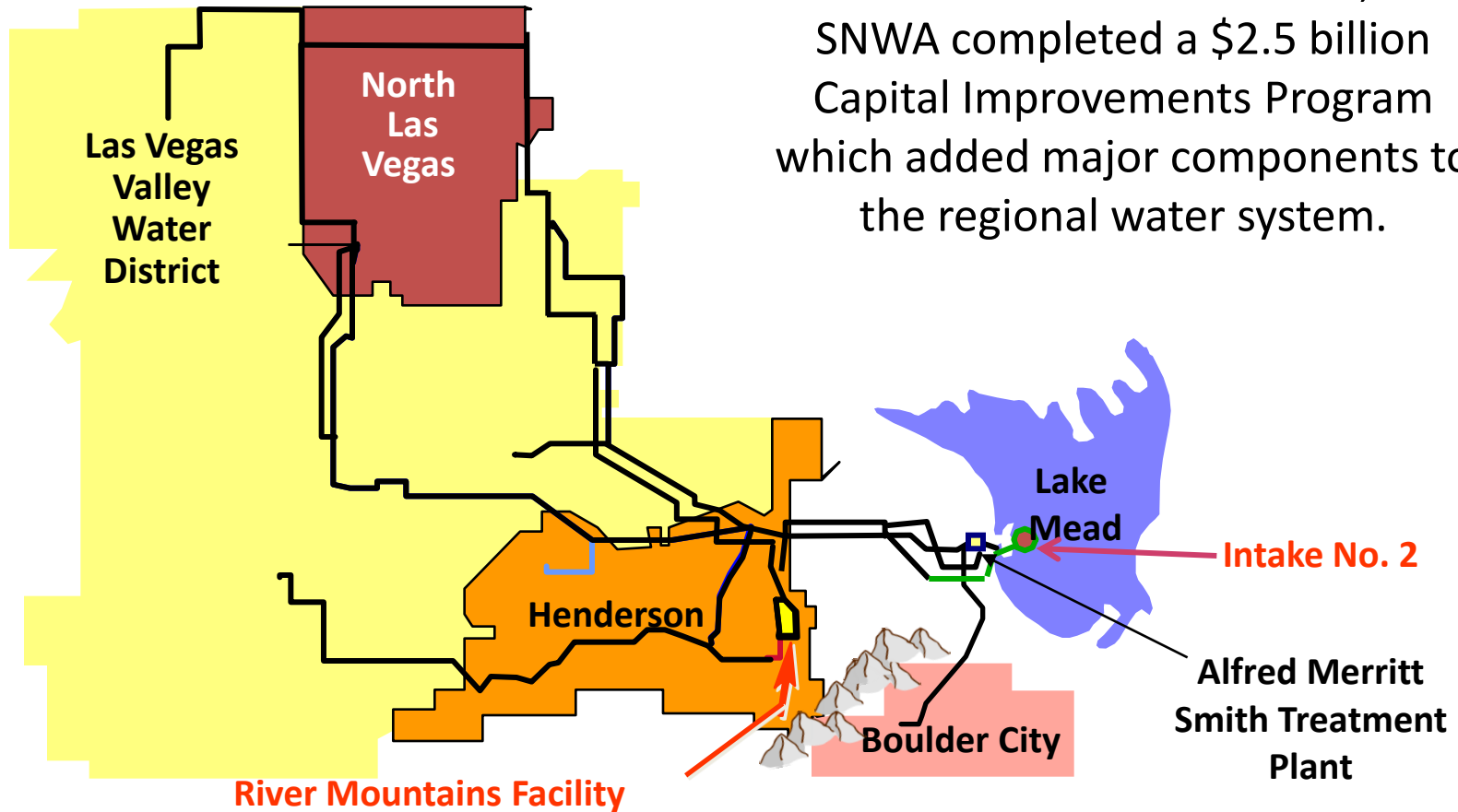
The Basin States developed a framework to manage shortages, utilizing Lake Mead water elevations as triggers.



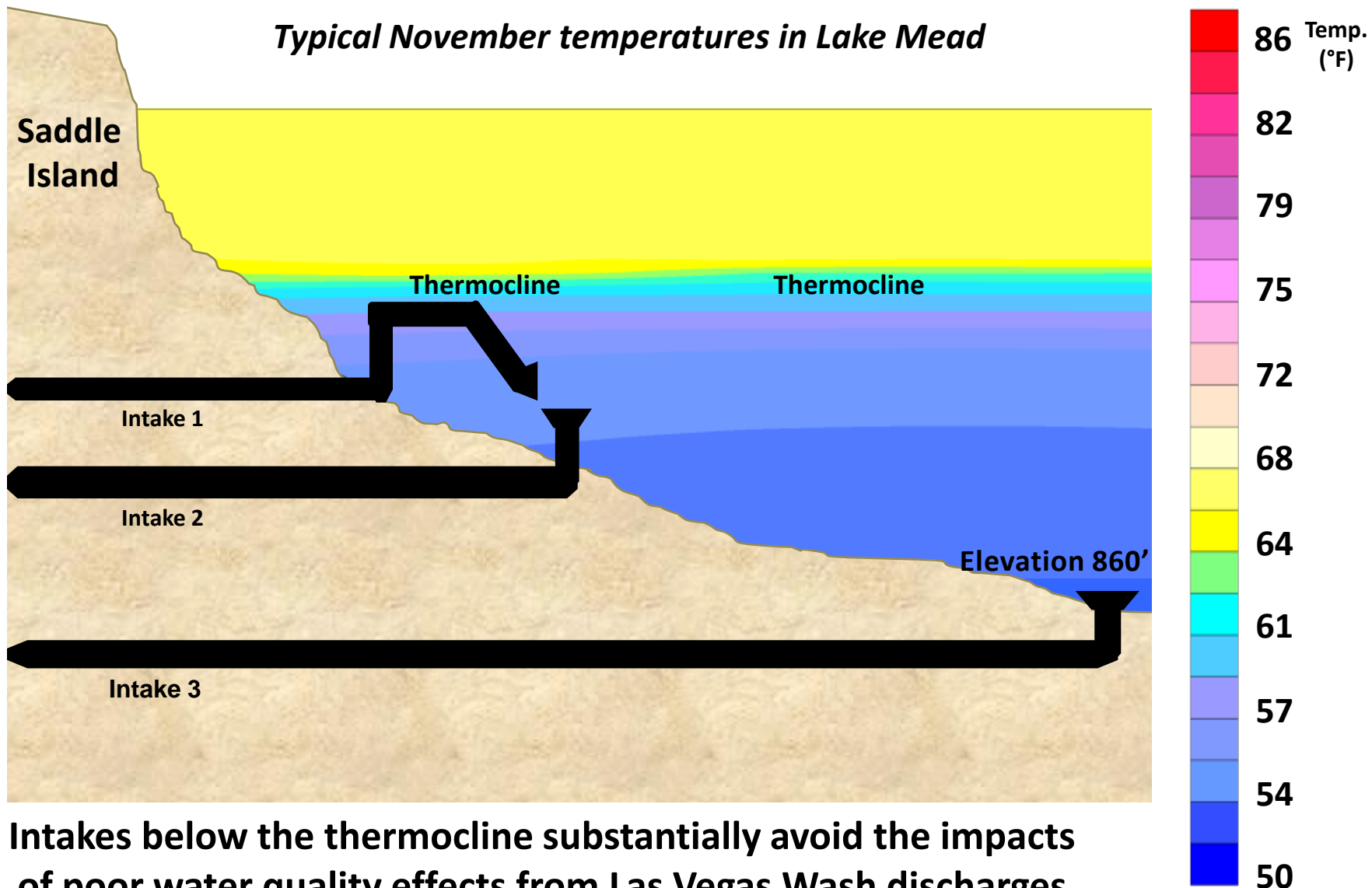


# Regional Water System

Between 1995 and 2008, SNWA completed a \$2.5 billion Capital Improvements Program which added major components to the regional water system.



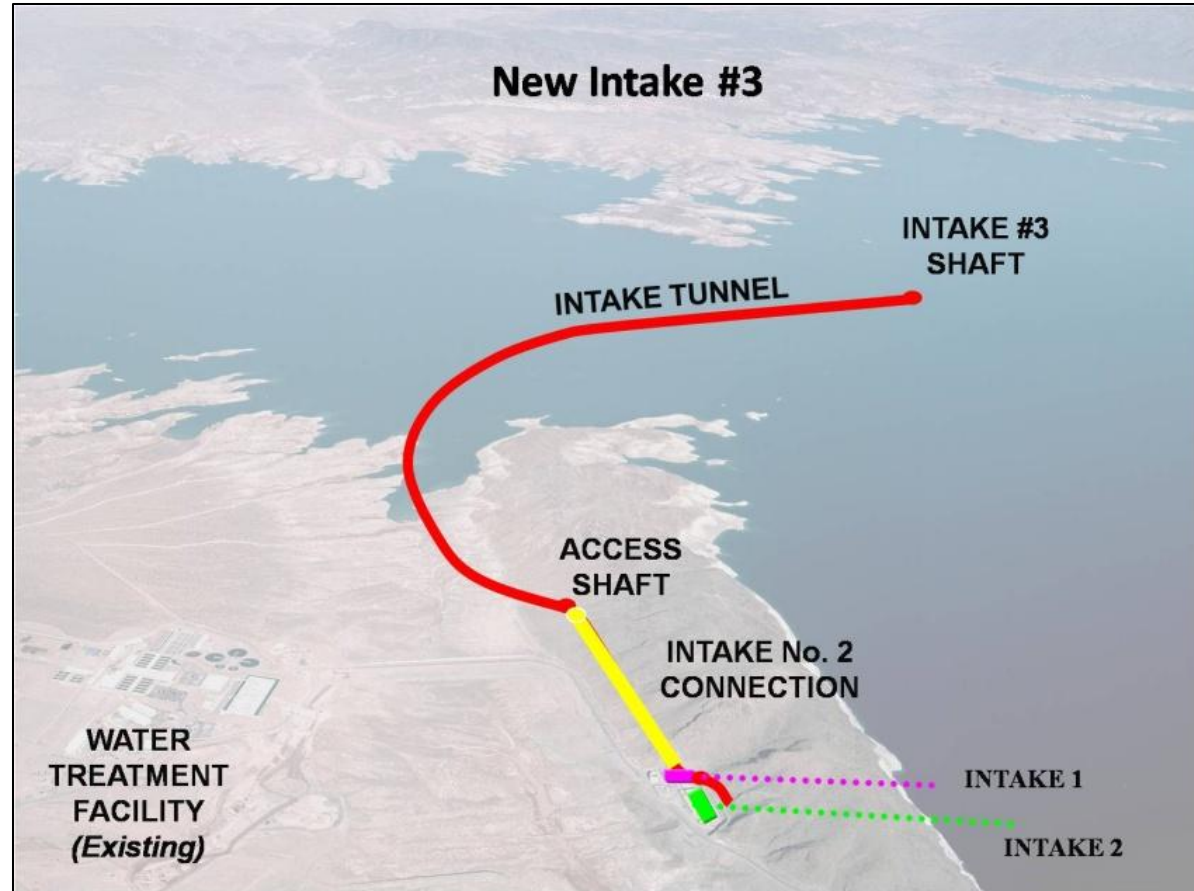
# Lake Mead Infrastructure, Intake No. 3



**Intakes below the thermocline substantially avoid the impacts of poor water quality effects from Las Vegas Wash discharges**

# Lake Mead Intake No. 3

- Existing Drinking Water Intakes at elevations 1,050 ft and 1,000 ft
- Loss of Intake #1 between elevation 1,065 – 1,050 ft
- Completion of Intake No. 3 at elevation 860 ft

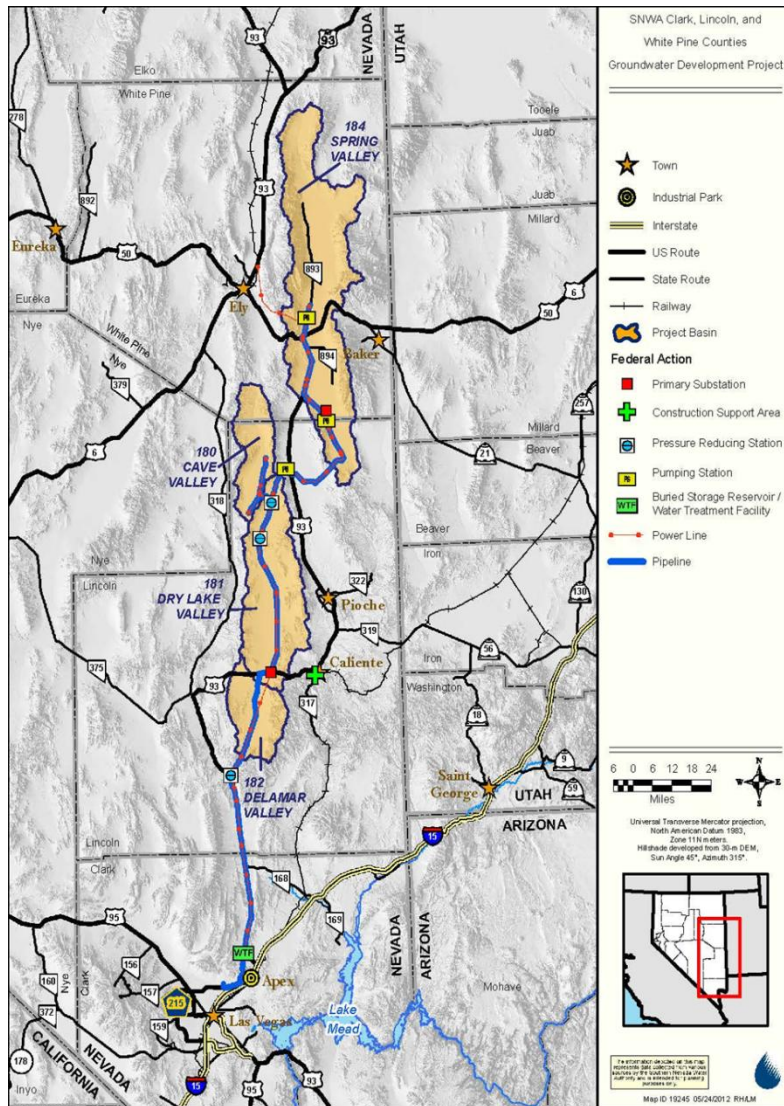


# In-State Groundwater Resources



**In 2012, the Nevada State Engineer granted nearly 84,000 acre-feet per year of permitted groundwater rights from four groundwater basins located in eastern Nevada.**

# Groundwater Development

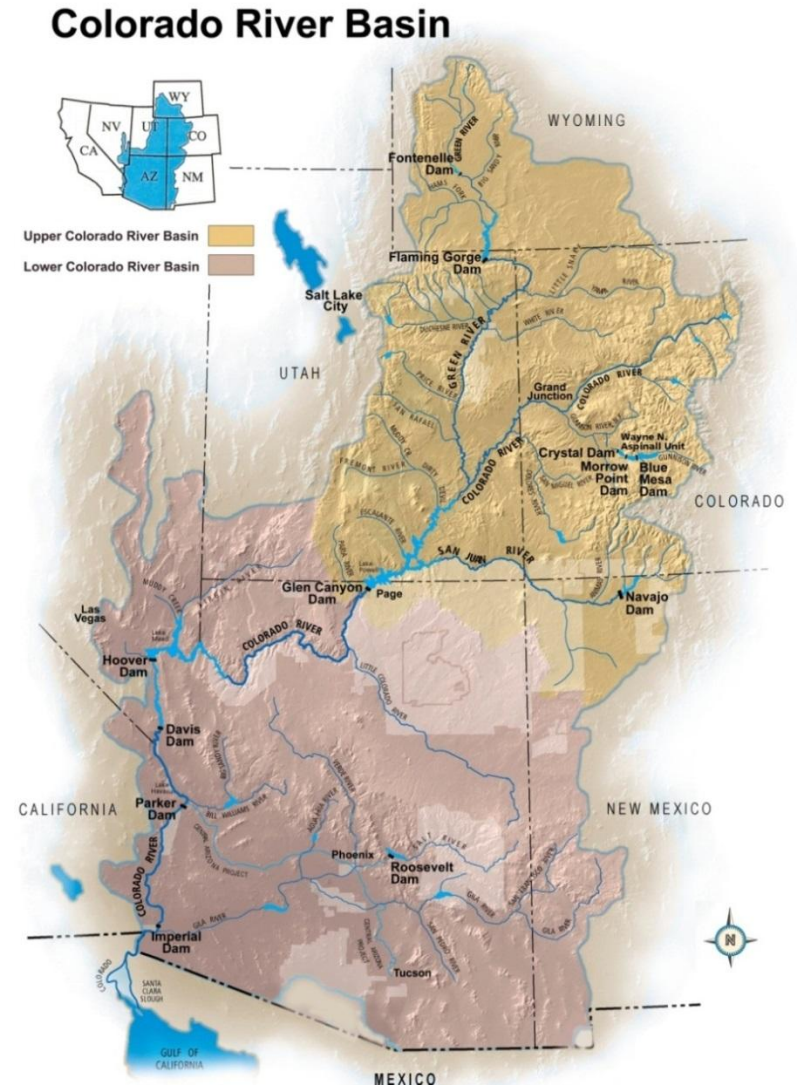


- 120,000 afy of groundwater from 5 basins
- 8-year public environmental analysis process
- 500 environmental measures, including over 35 separate environmental plans
- Additional data collection and environmental analysis will be required



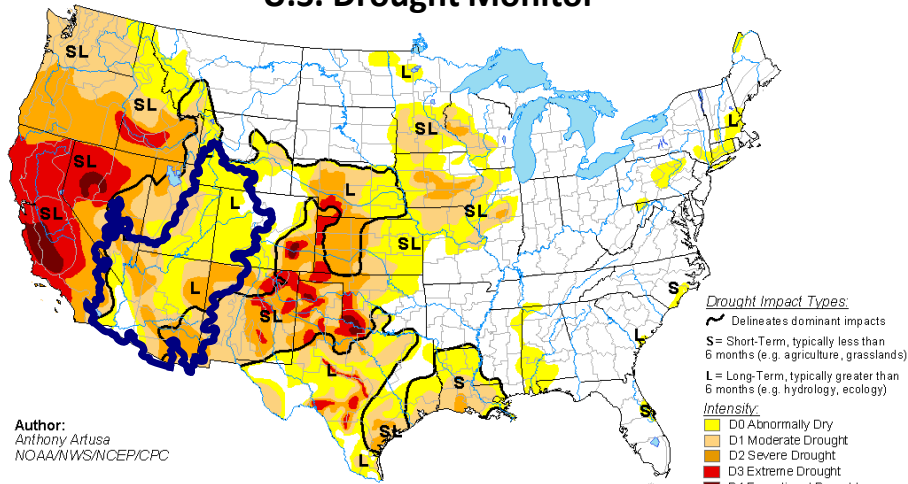
# CBRFC Forecasting – Water Supply Perspective

- **Colorado River Water Supply**
  - Inflows into the System (Lake Powell)
- **Lake Mead conditions**
- **Federal/State/CBRFC Stakeholder Collaboration**

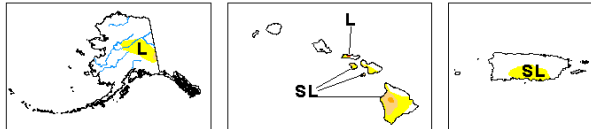


# Monitoring Drought Conditions

## U.S. Drought Monitor



Author:  
 Anthony Artusa  
 NOAA/NWS/NCEP/CPC

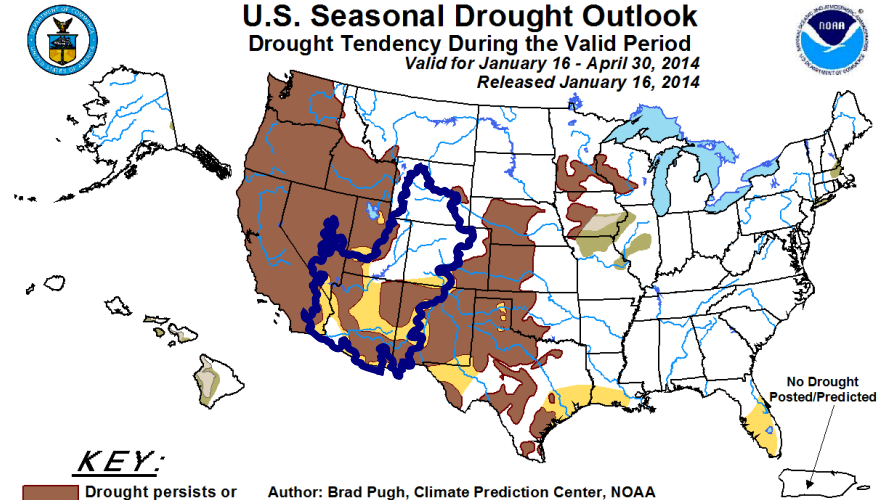


<http://droughtmonitor.unl.edu/>

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

## U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period  
 Valid for January 16 - April 30, 2014  
 Released January 16, 2014



Author: Brad Pugh, Climate Prediction Center, NOAA  
[http://www.cpc.ncep.noaa.gov/products/expert\\_assessment/season\\_drought.html](http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.html)  
 Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity).  
 For weekly drought updates, see the latest U.S. Drought Monitor.  
 NOTE: The tan area areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain.  
 The Green areas imply drought removal by the end of the period (D0 or none)

# Monitoring Colorado River Basin Conditions

## Monthly Precipitation

## Monthly Min/Max Temperature Deviation

Monthly Precipitation for January 2014  
(Averaged by Hydrologic Unit)

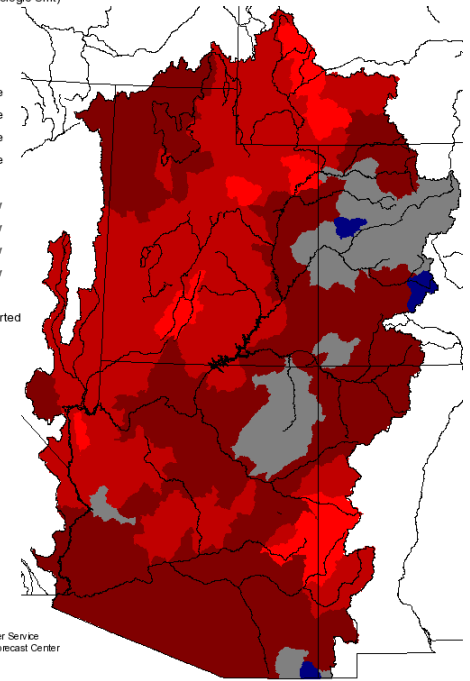
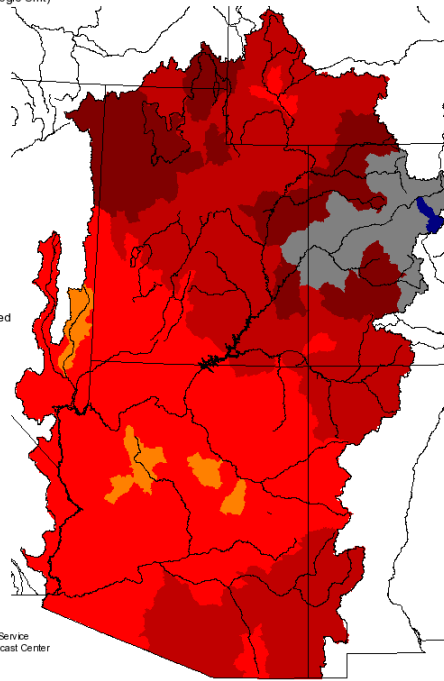
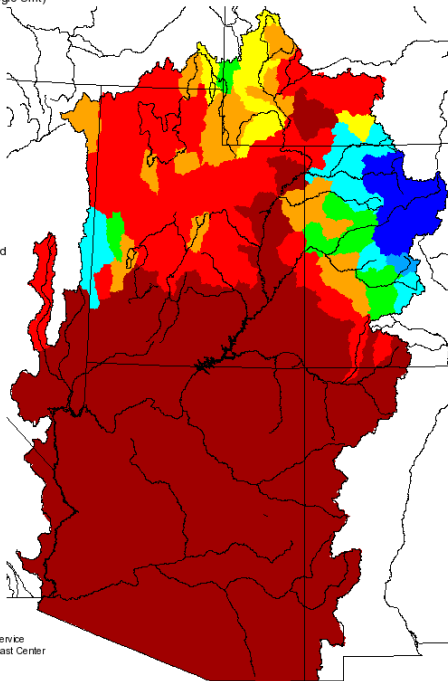
Monthly Max Temp Deviation for January 2014  
(Averaged by Hydrologic Unit)

Monthly Min Temp Deviation for January 2014  
(Averaged by Hydrologic Unit)

- % Average
- > 150%
  - 129 - 150%
  - 110 - 129%
  - 100 - 109%
  - 90 - 99%
  - 70 - 89%
  - 50 - 69%
  - < 50%
  - Not Reported

- Degrees (F)
- Above 9
  - 7-9 Above
  - 5-7 Above
  - 3-5 Above
  - 1-3 Above
  - Normal
  - 1-3 Below
  - 3-5 Below
  - 5-7 Below
  - 7-9 Below
  - Below 9
  - Not Reported

- Degrees (F)
- Above 9
  - 7-9 Above
  - 5-7 Above
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  - 1-3 Above
  - Normal
  - 1-3 Below
  - 3-5 Below
  - 5-7 Below
  - 7-9 Below
  - Below 9
  - Not Reported



Prepared by  
NOAA, National Weather Service  
Colorado Basin River Forecast Center  
Salt Lake City, Utah  
www.cbafc.noaa.gov

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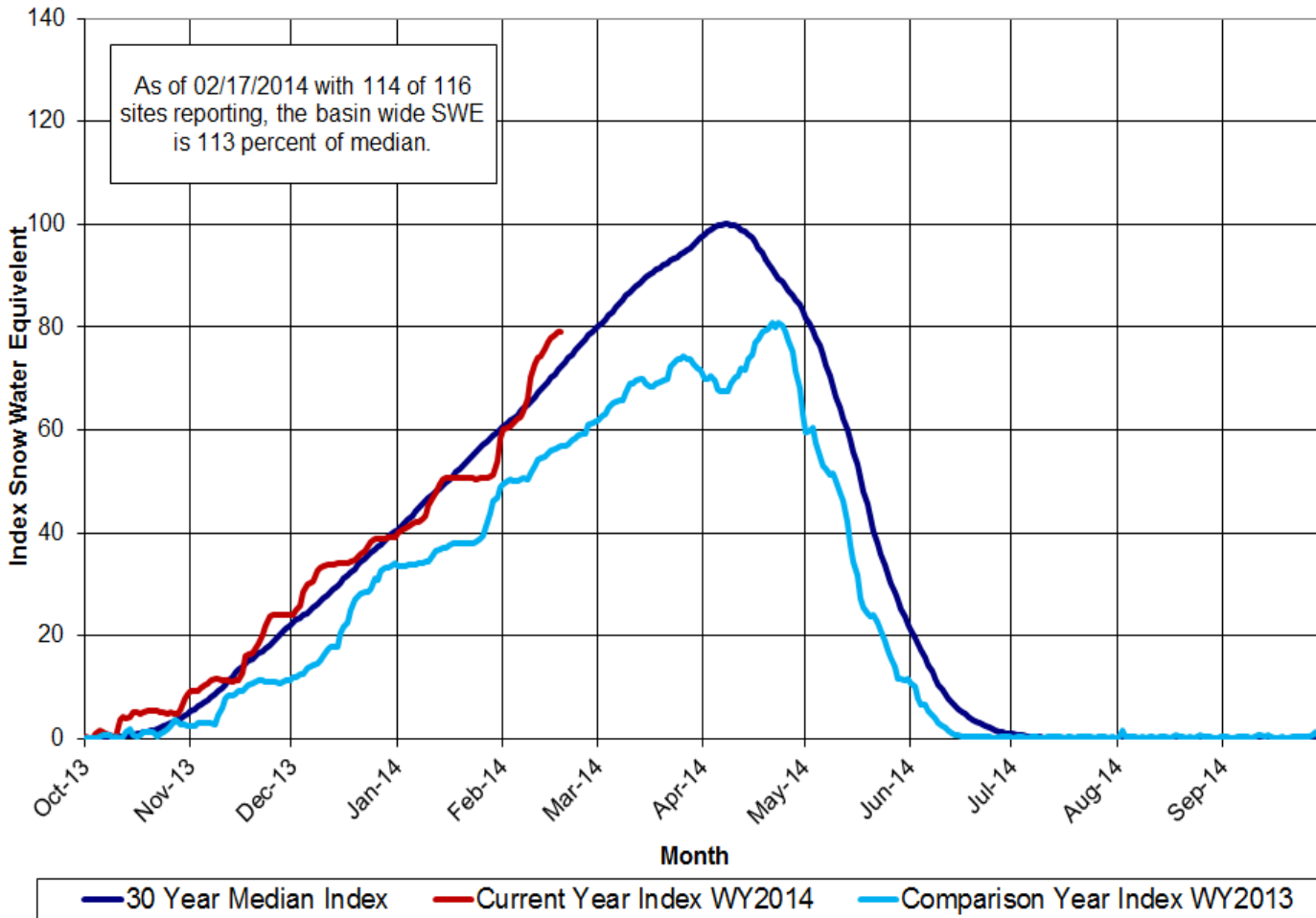
Prepared by  
NOAA, National Weather Service  
Colorado Basin River Forecast Center  
Salt Lake City, Utah  
www.cbafc.noaa.gov

Source: NOAA / NWS / CBRFC



# Monitoring Colorado River Basin Conditions

**Upper Colorado River Basin Snotel Tracking**  
Aggregate of 116 Snotel Sites above Lake Powell



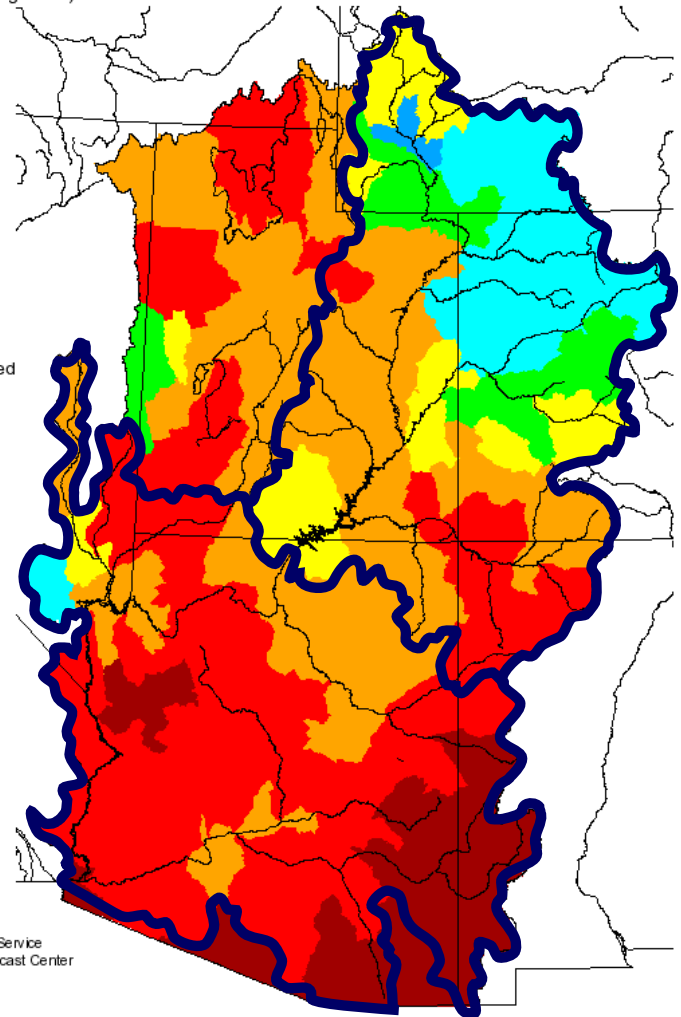
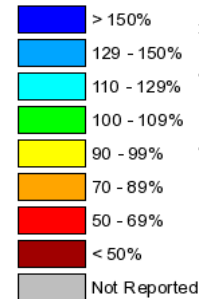
Data Provided by the Natural Resource Conservation Service

# Monitoring Colorado River Basin Conditions

- **January inflow to Lake Powell:**  
75% of average
- **Snow Pack:** 112% of average
- **Water Year 2014 Precipitation:**  
103% of average
- **Forecasted Water Year 2014  
Inflow to Lake Powell:**  
101% of average

Seasonal Precipitation, October 2013 - January 2014  
(Averaged by Hydrologic Unit)

% Average



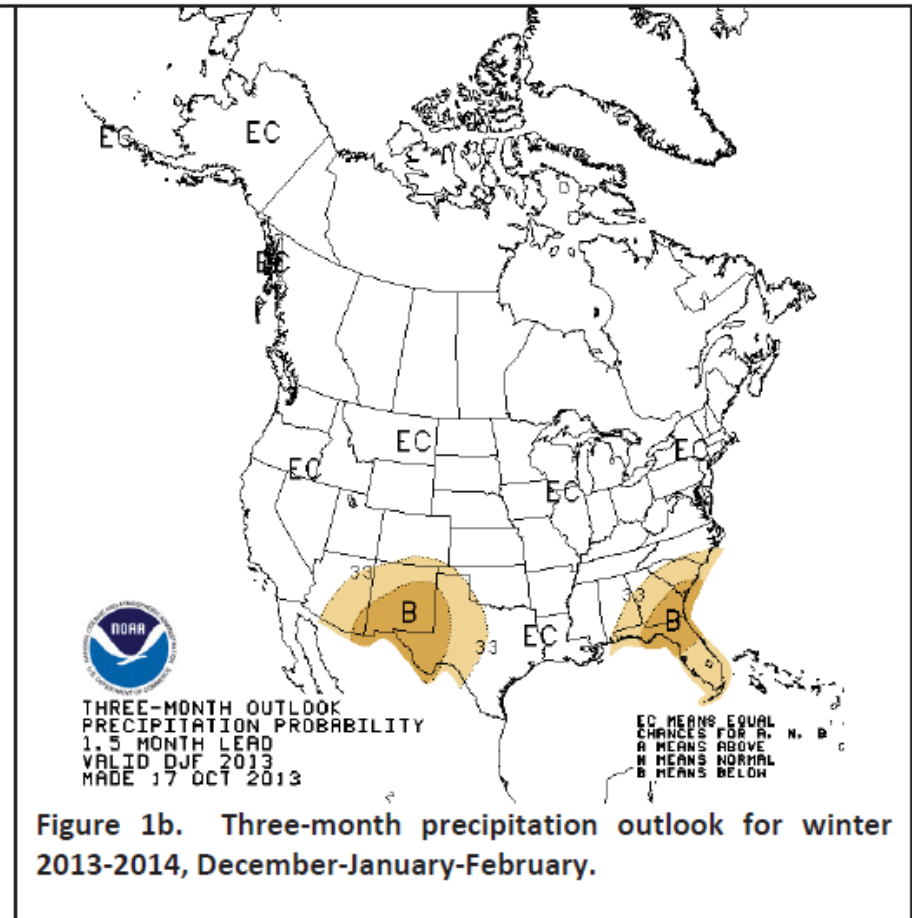
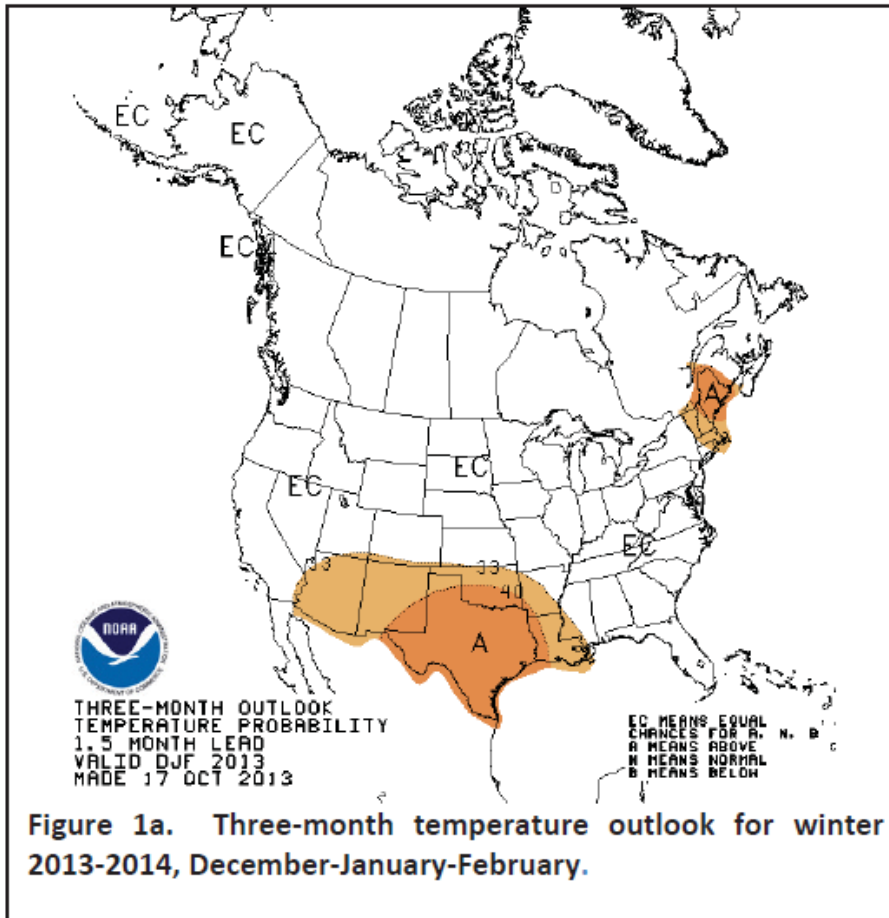
Prepared by  
NOAA, National Weather Service  
Colorado Basin River Forecast Center  
Salt Lake City, Utah  
[www.cbrfc.noaa.gov](http://www.cbrfc.noaa.gov)

# Monitoring Colorado River Basin Conditions

## U.S. Winter Outlook (December – February)

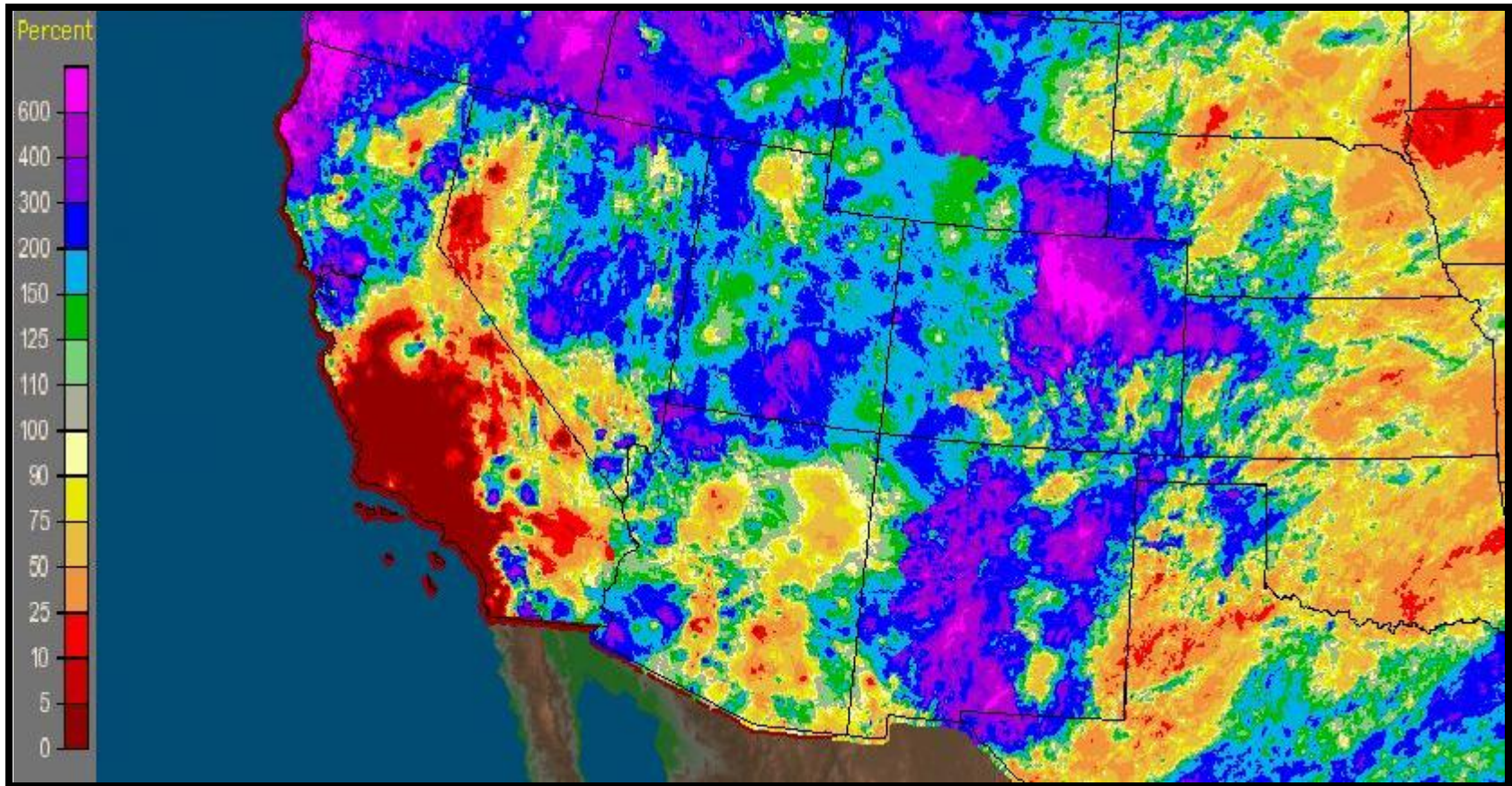
No clear signal in the Upper Basin

(equal chance of above- and below-normal temperature and precipitation)



# Monitoring Colorado River Basin Conditions

## September 2013 Precipitation

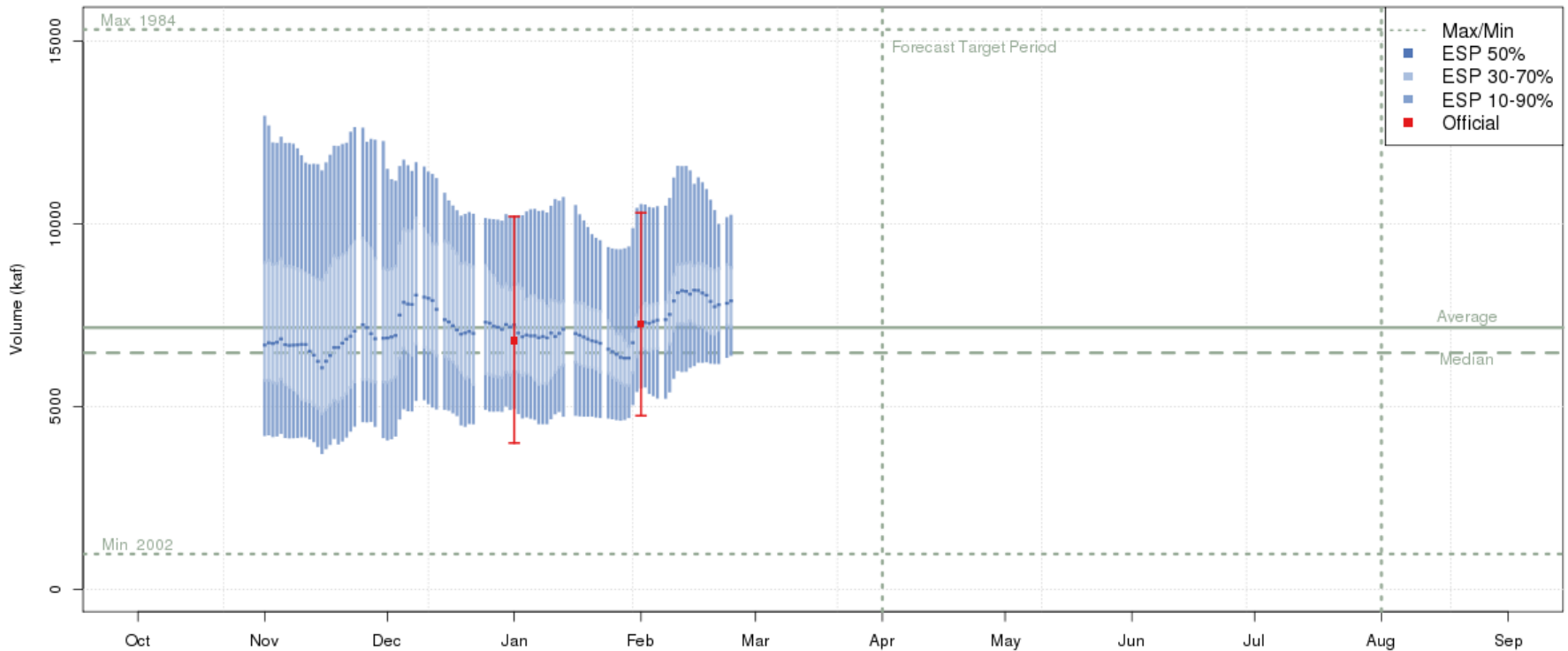


**The observed inflow into Lake Powell was 210% of normal**

Source: NOAA / NWS / CBRFC

# Lake Powell Evolution Plot

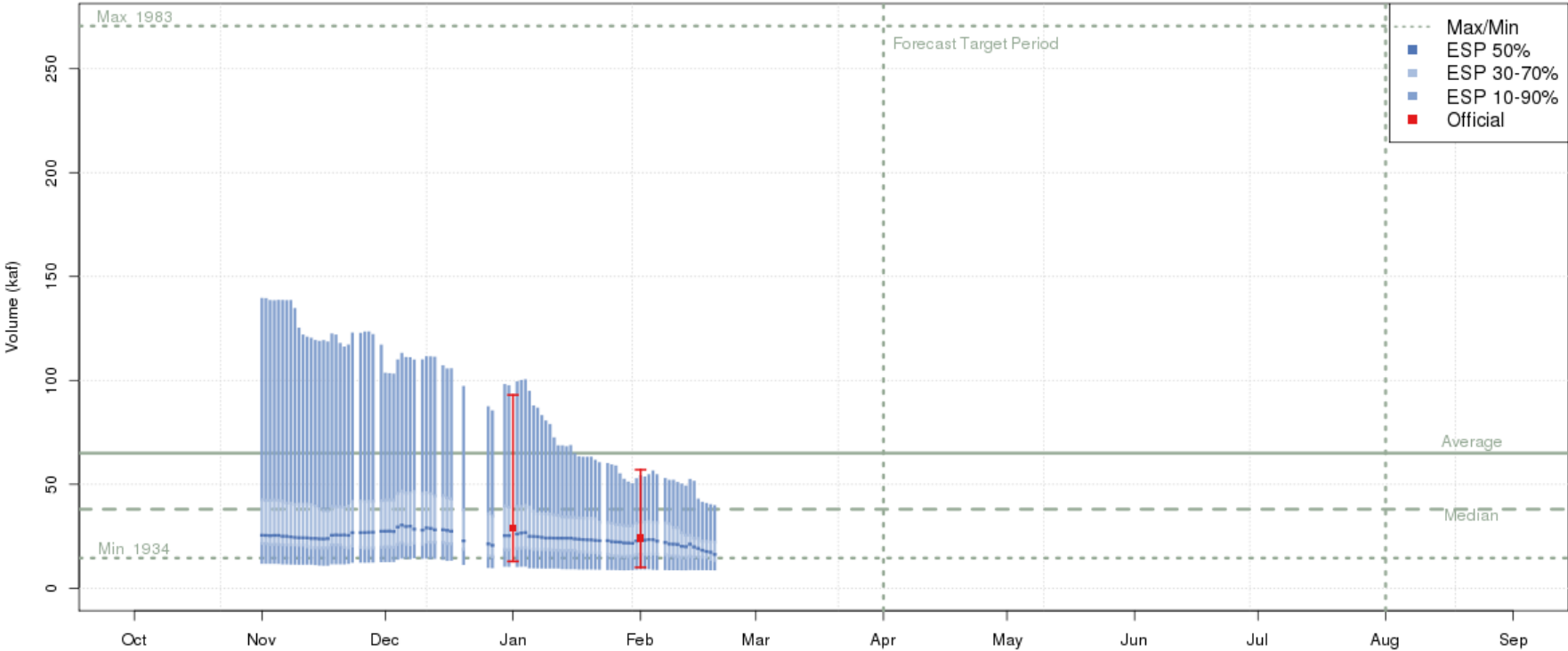
Colorado - Lake Powell- Glen Cyn Dam- At (GLDA3) Apr-Jul 2014 Runoff Forecast  
2014-02-01 Official 50% Forecast: 7250kaf (101% of average)



Plot Created 2014-02-23 13:43:43, Lastest ESP Run from 2014-02-23, NOAA / NWS / CBRFC  
Today's 50% ESP forecast changed 0.8 % from yesterday and 17% from February 1  
Forecasts in the observed period include observed values.

# Lower Virgin River Evolution Plot

Virgin - Littlefield (VLT A3) Apr-Jul 2014 Runoff Forecast  
 2014-02-01 Official 50% Forecast: 24kaf (37% of average)



Plot Created 2014-02-19 16:15:44, Lastest ESP Run from 2014-02-19, NOAA / NWS / CBRFC  
 Today's 50% ESP forecast changed -6.6 % from yesterday and -28.8 % from February 1  
 Forecasts in the observed period include observed values.

# Questions

