

Spring 2010

June 15, 2010

NIDIS - UPPER COLORADO BASIN PILOT PROJECT

Weekly Climate, Water & Drought Assessment

Today's Agenda

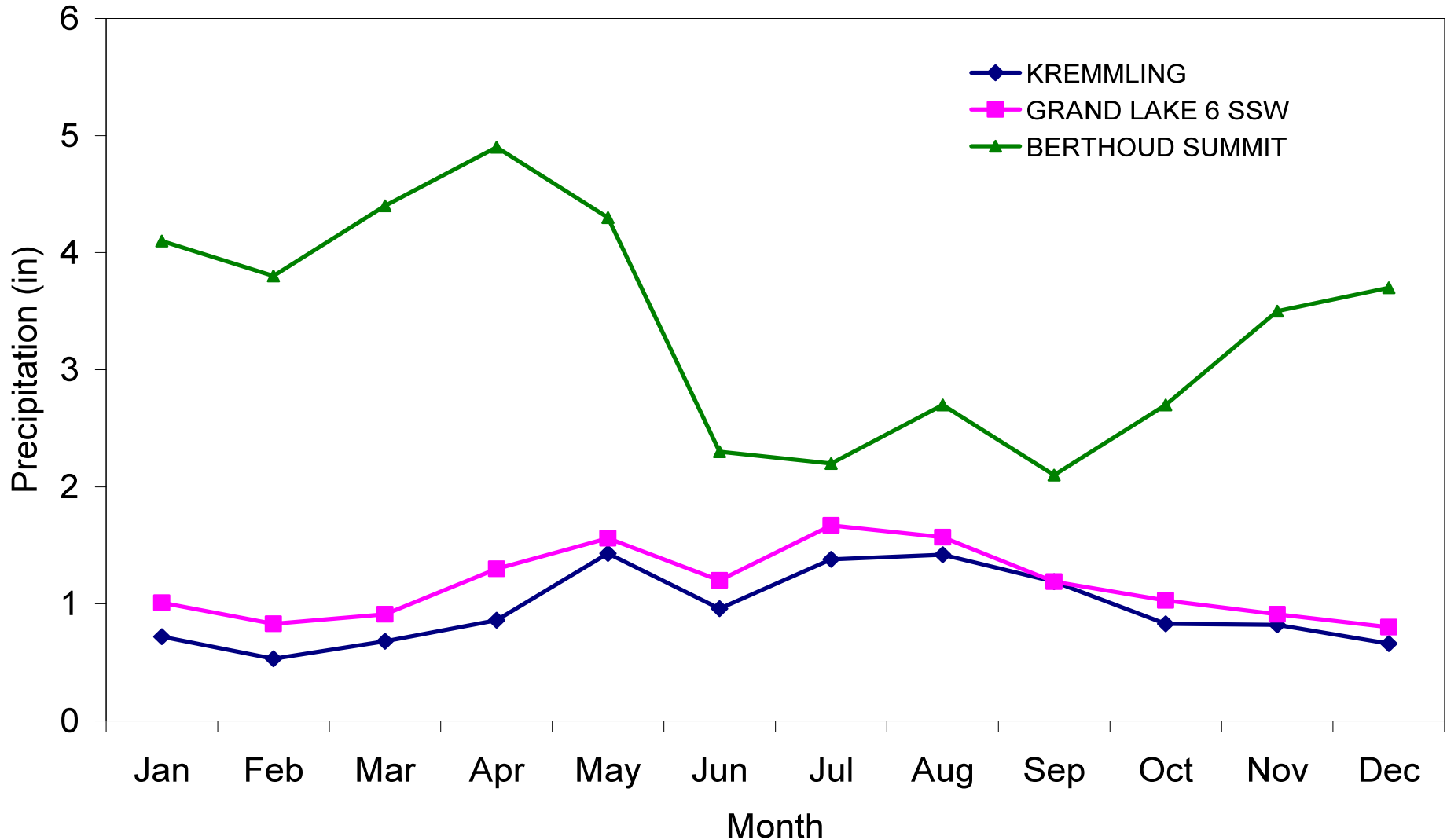
- Assessment of current water conditions
- Precipitation Forecast
- Recommendations for Drought Monitor

Precipitation/Snowpack Update

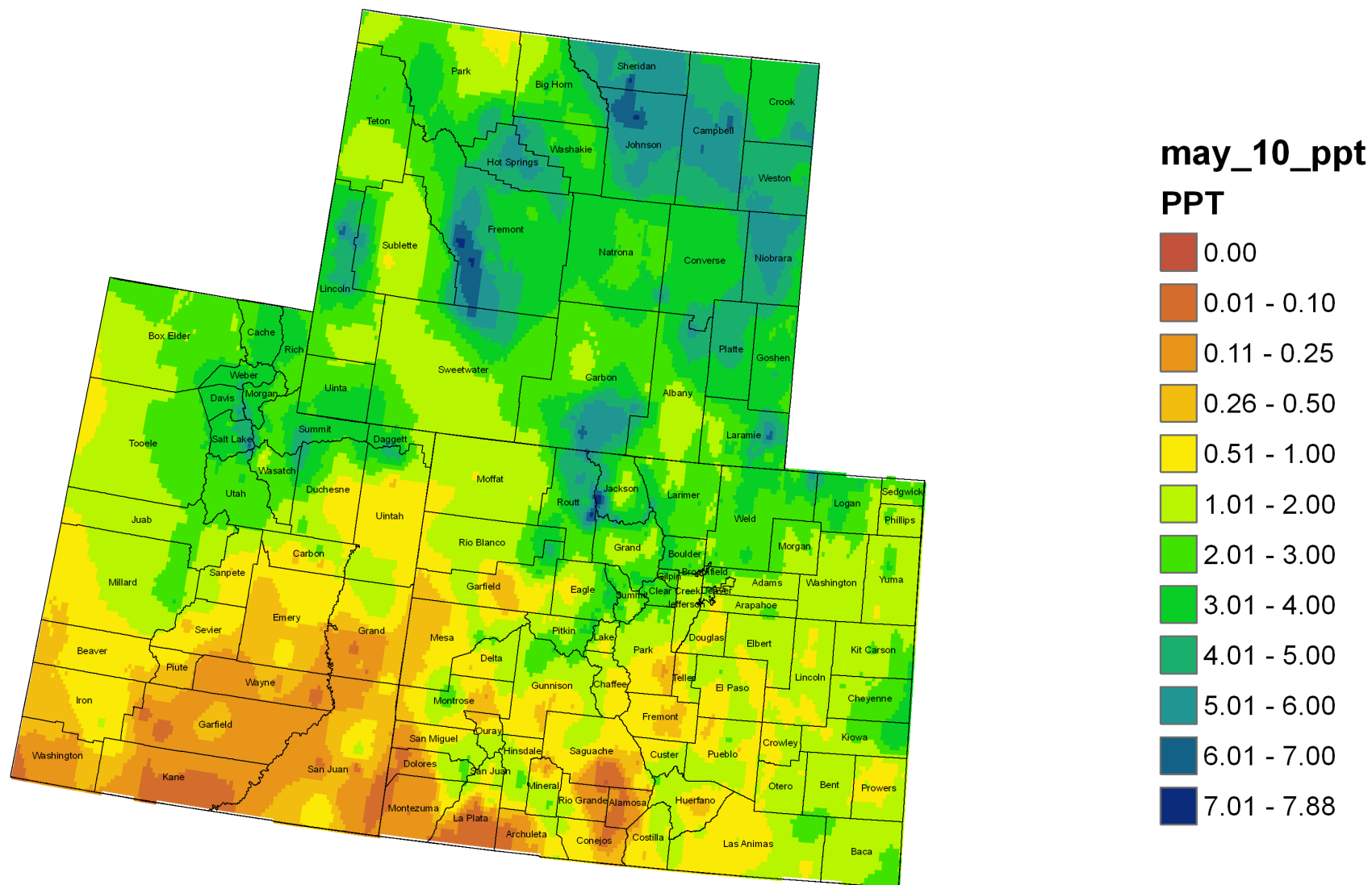


Upper Colorado Normal Precipitation

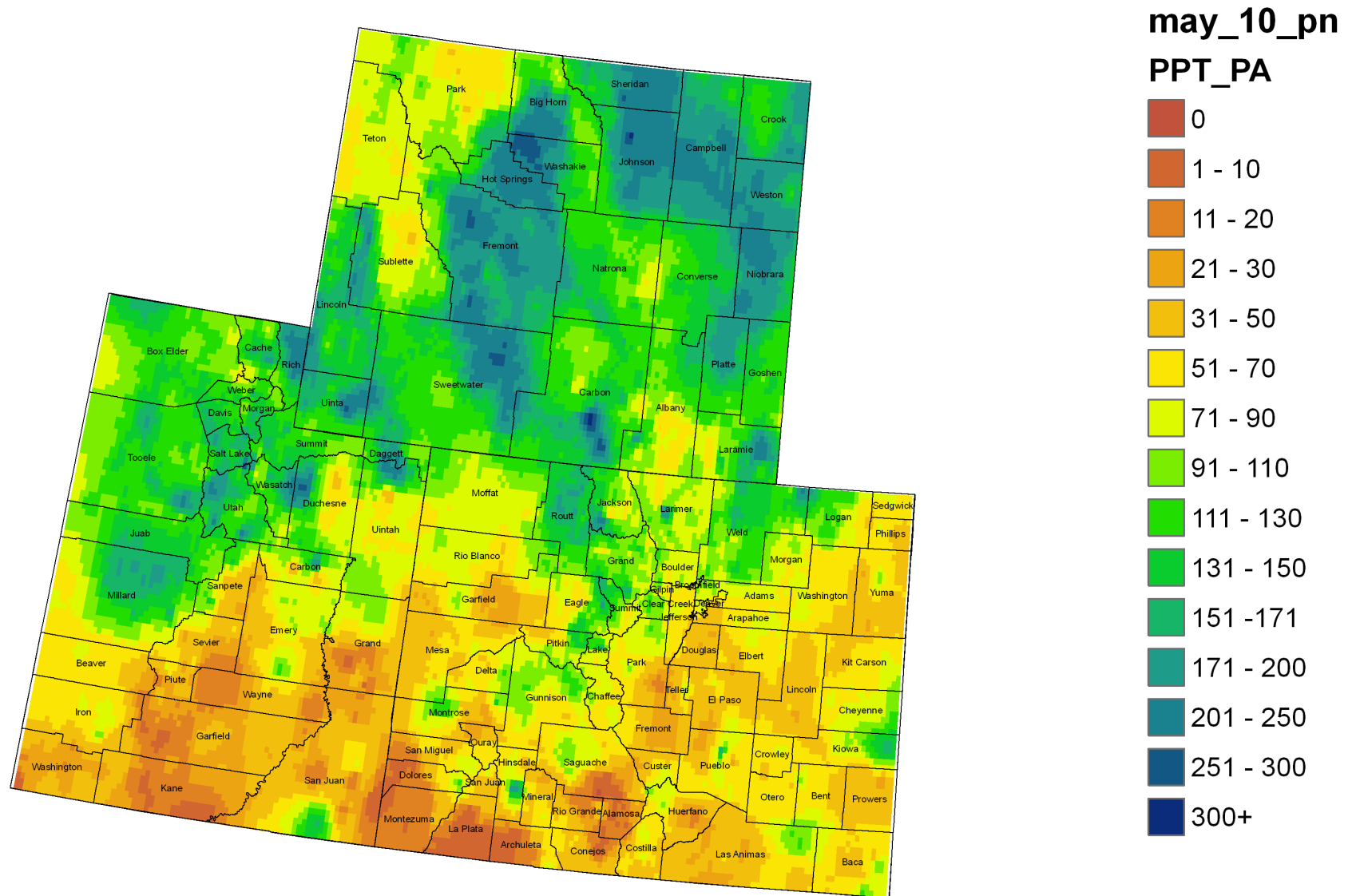
Upper Colorado River Basin Normal Monthly Precipitation



Colorado, Utah and Wyoming May Precipitation (in)



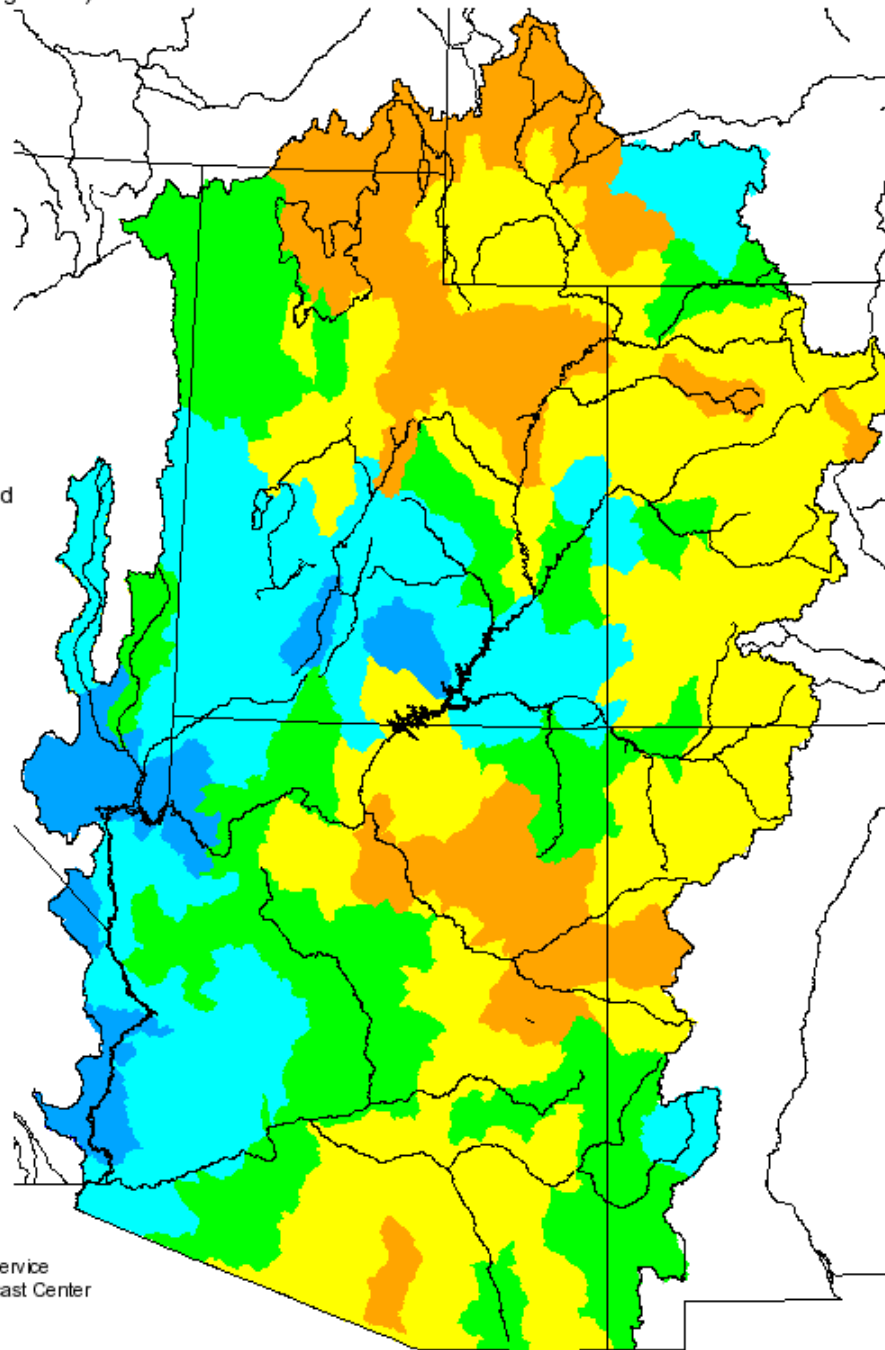
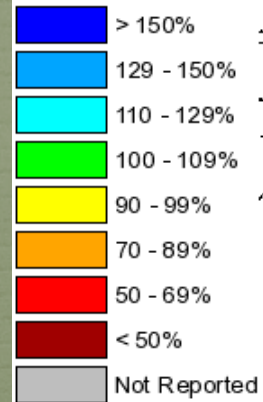
Colorado, Utah and Wyoming May Precipitation as Percent of Average



Seasonal Precipitation, October 2009 - May 2010

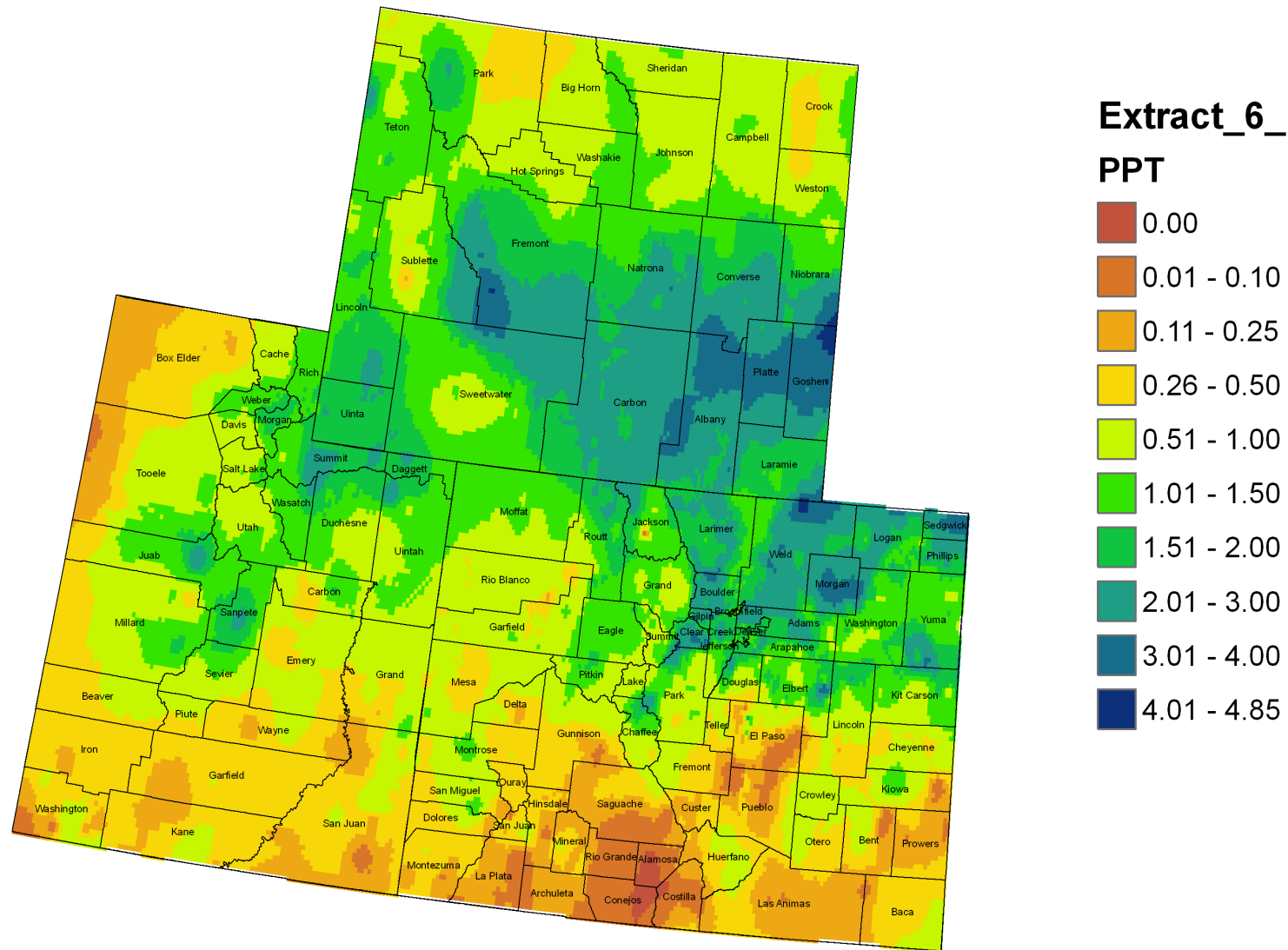
(Averaged by Hydrologic Unit)

% Average



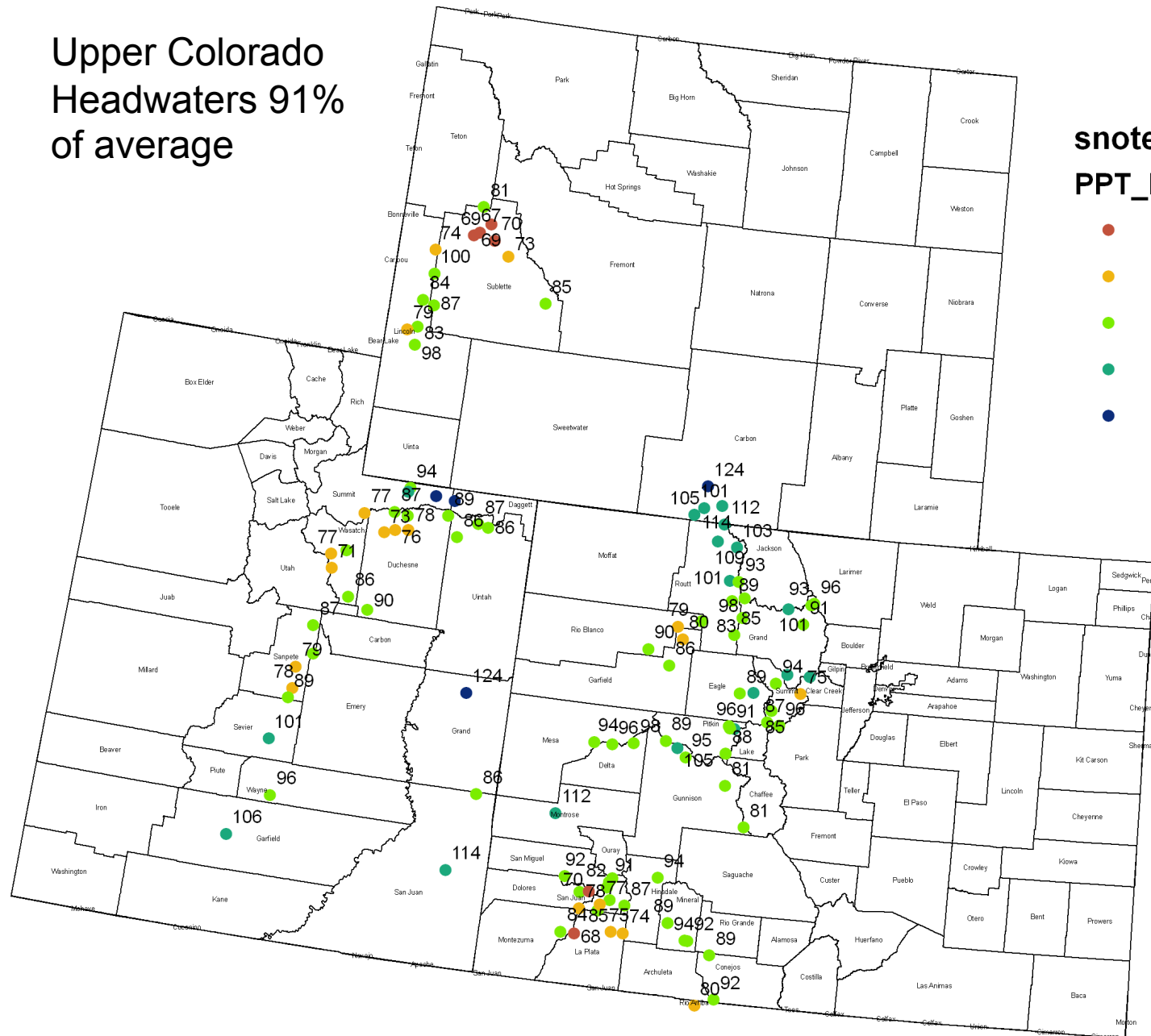
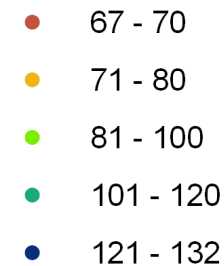
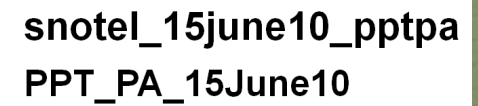
Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

Colorado, Utah and Wyoming 7 Day Precipitation (in) 6 -12 June 2010

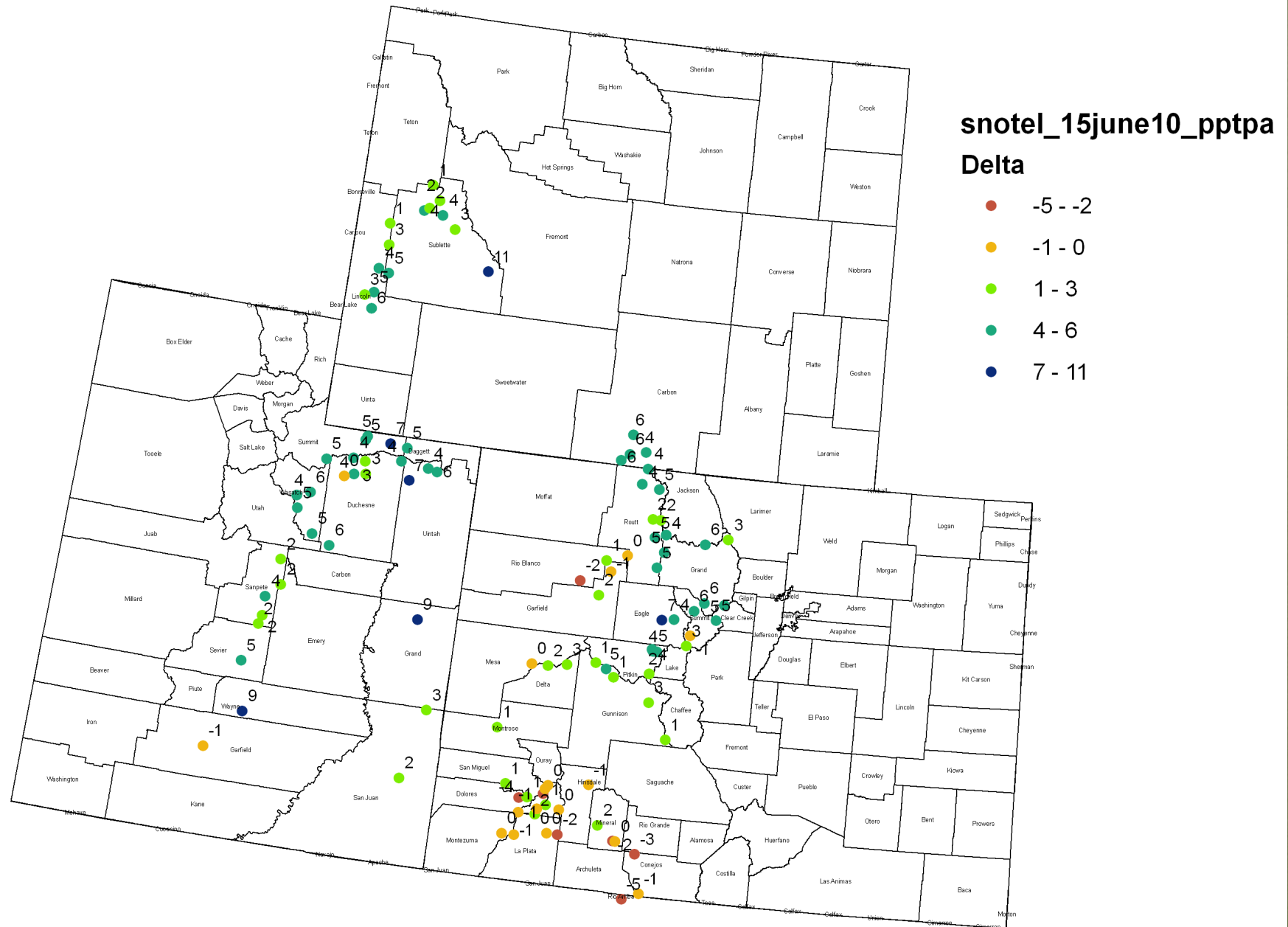


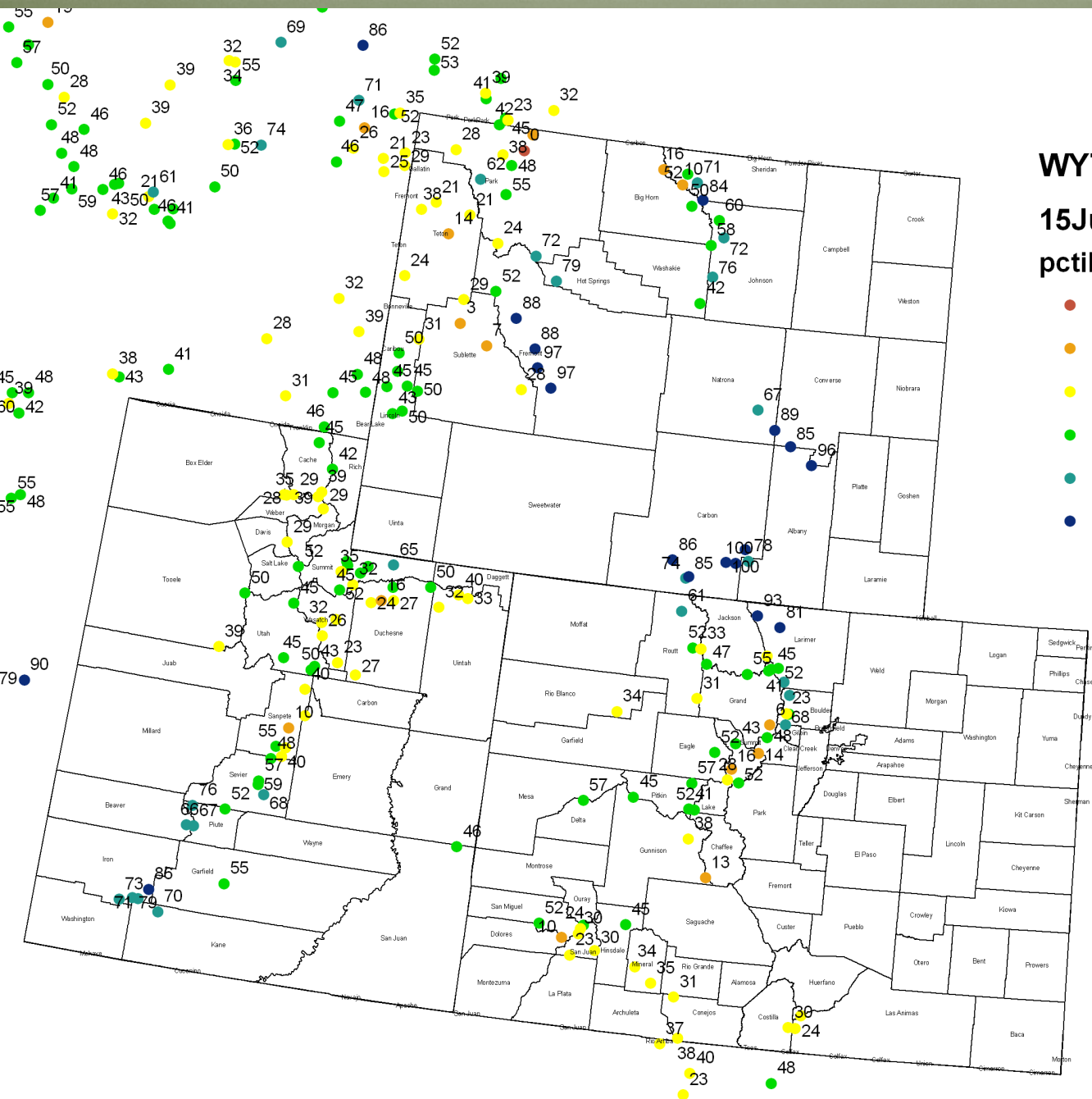
Snotel WYTD Precipitation as Percentage of Average

Upper Colorado
Headwaters 91%
of average



1 Week Change in Snotel WYTD Precipitation % Average



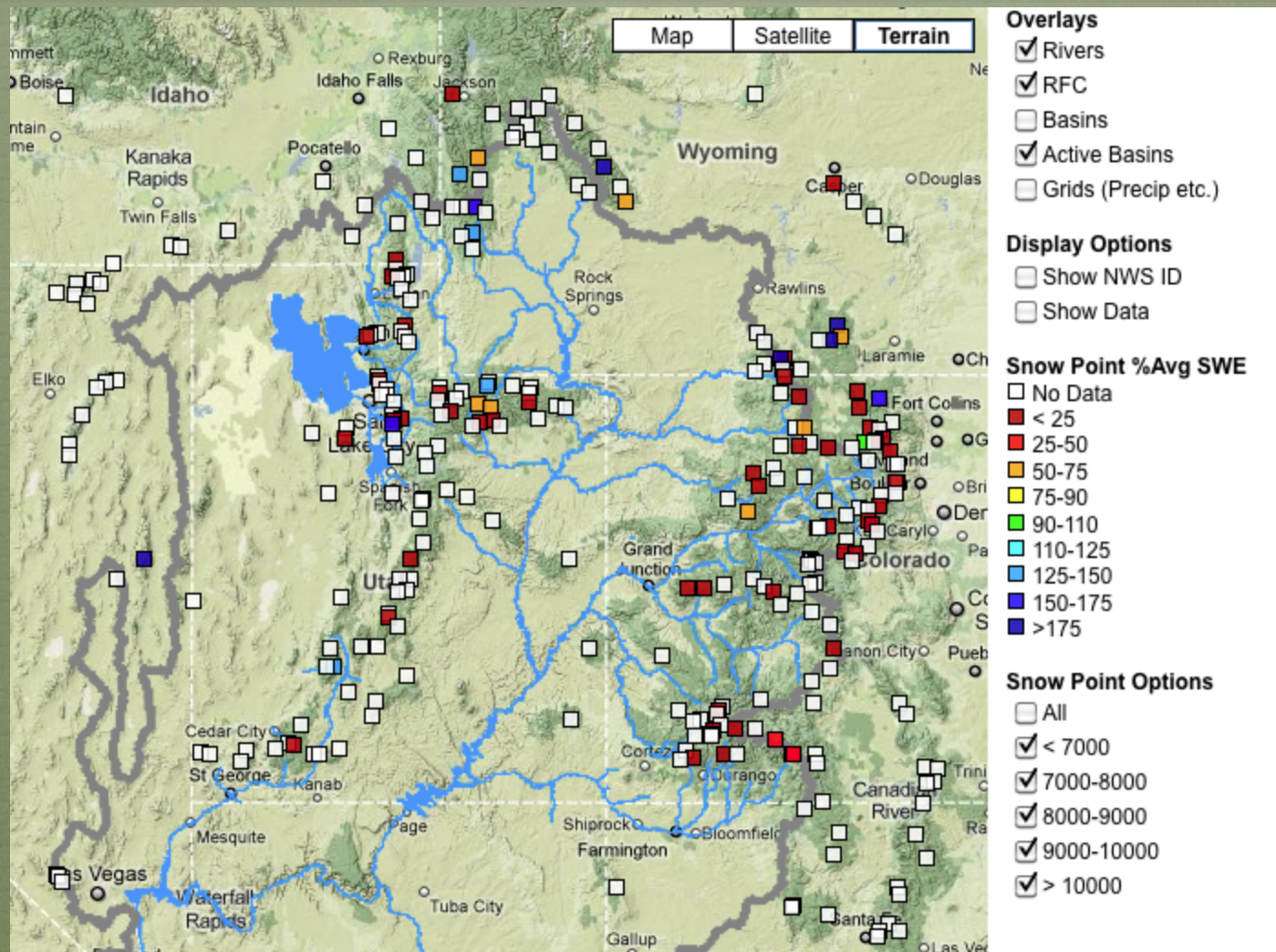


WYTD Percentile 15June10_ptile.tab ptile

- 0.00
- 0.01 - 20.00
- 20.01 - 40.00
- 40.01 - 60.00
- 60.01 - 80.00
- 80.01 - 100.00

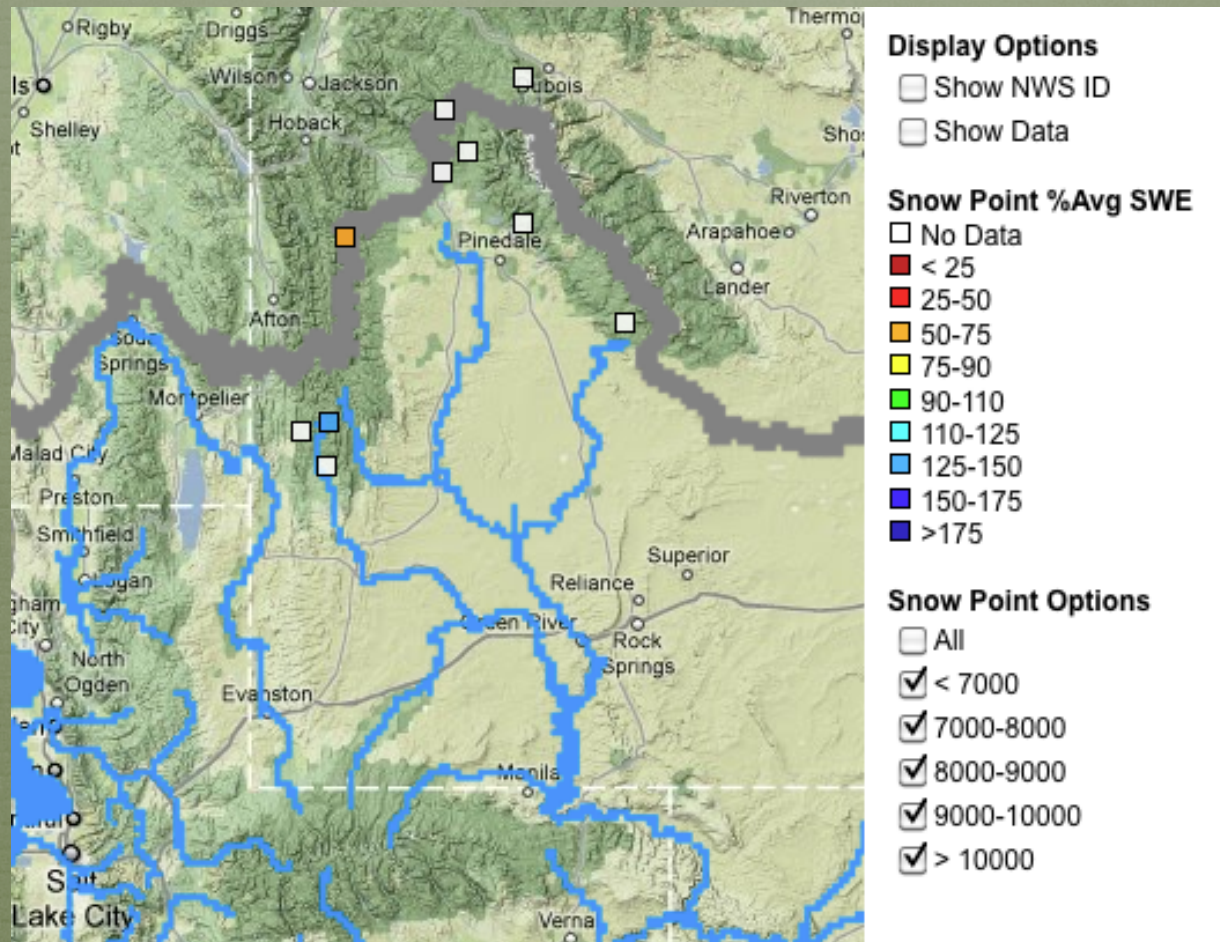
Snotel
Percentile
Rankings
(at least 25
years of
data)

Upper Colorado River Basin



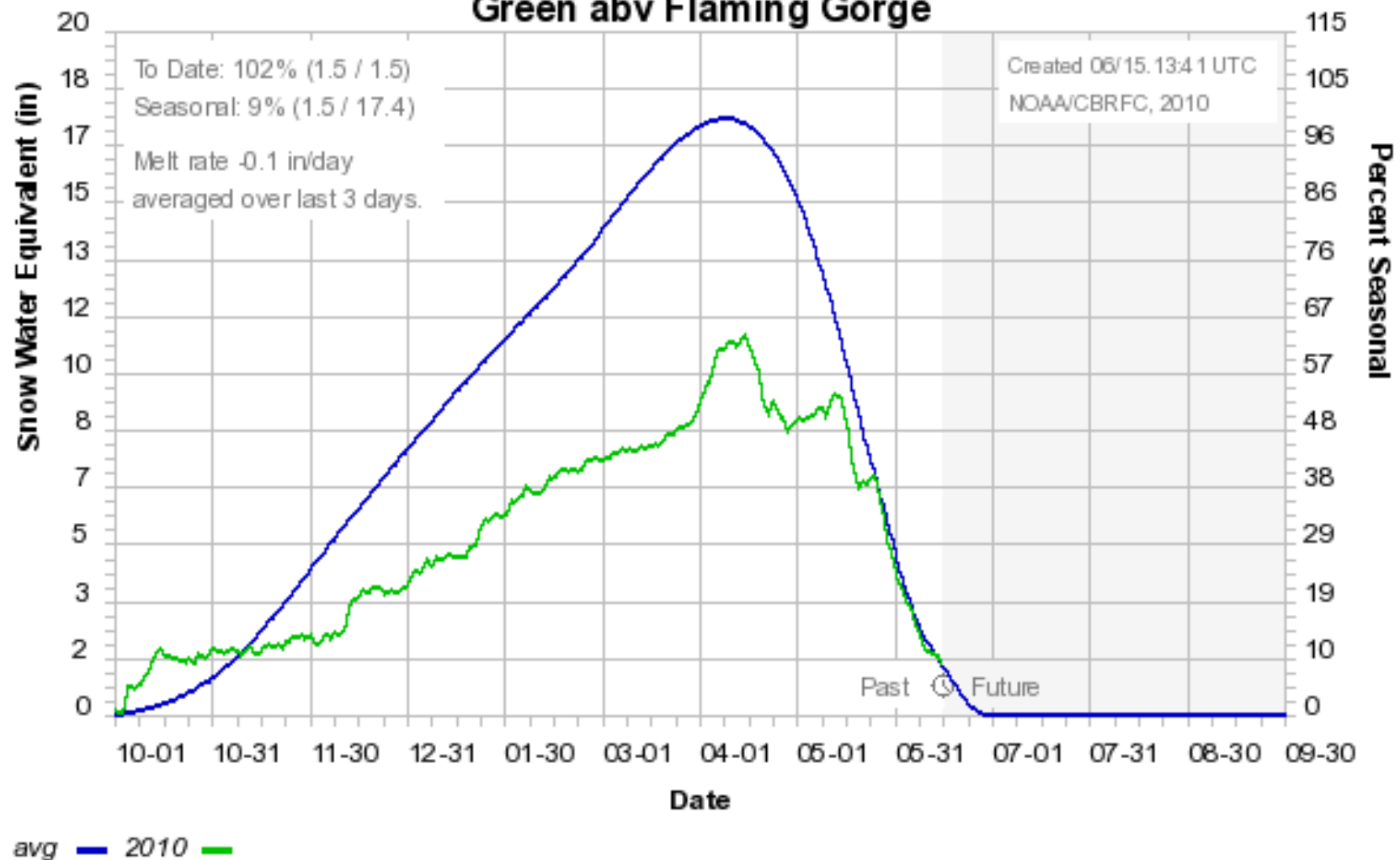
NATIONAL WEATHER SERVICE
Colorado Basin River Forecast Center

Green River Basin above Flaming Gorge



NATIONAL WEATHER SERVICE
Colorado Basin River Forecast Center

Colorado Basin River Forecast Center Green abv Flaming Gorge

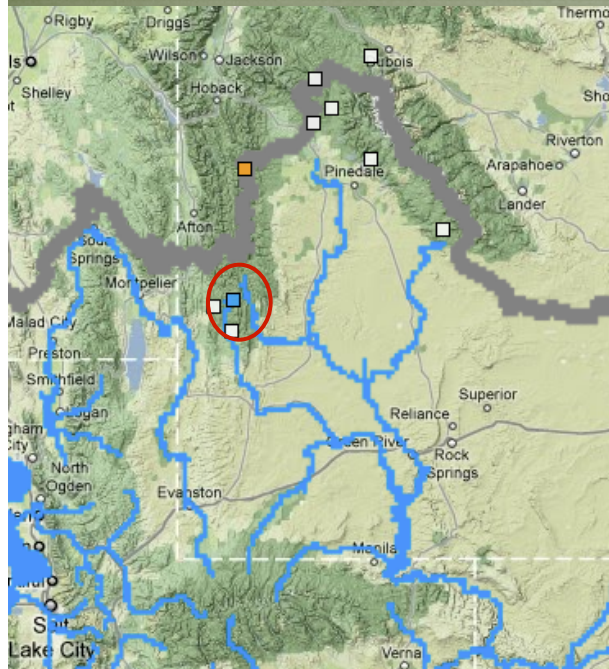


Basin Snowpack: 102%

Peak snowpack: 64% of average peak

WYTD Precipitation percent of average: 86%

Indian Creek



Display Options

- ☐ Show NWS ID
- ☐ Show Data

Snow Point %Avg SWE

☐ No Data

☐ < 25

☐ 25-50

☐ 50-75

☐ 75-90

☐ 90-110

☐ 110-125

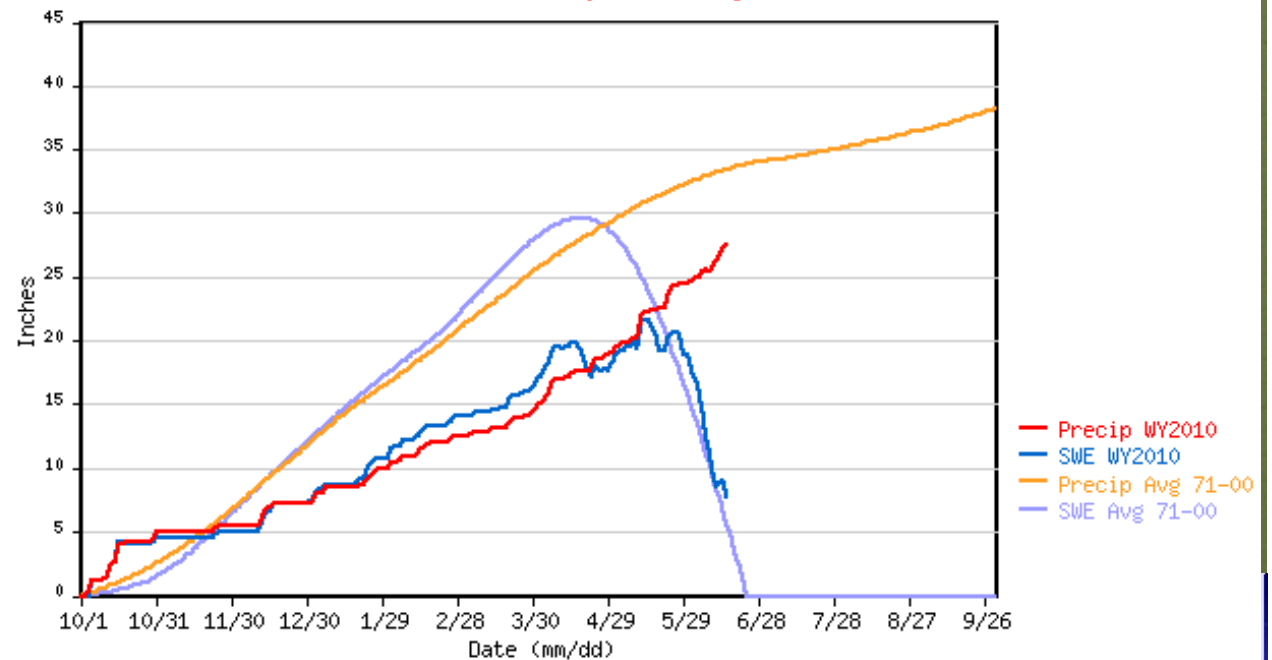
☐ 125-150

☐ 150-175

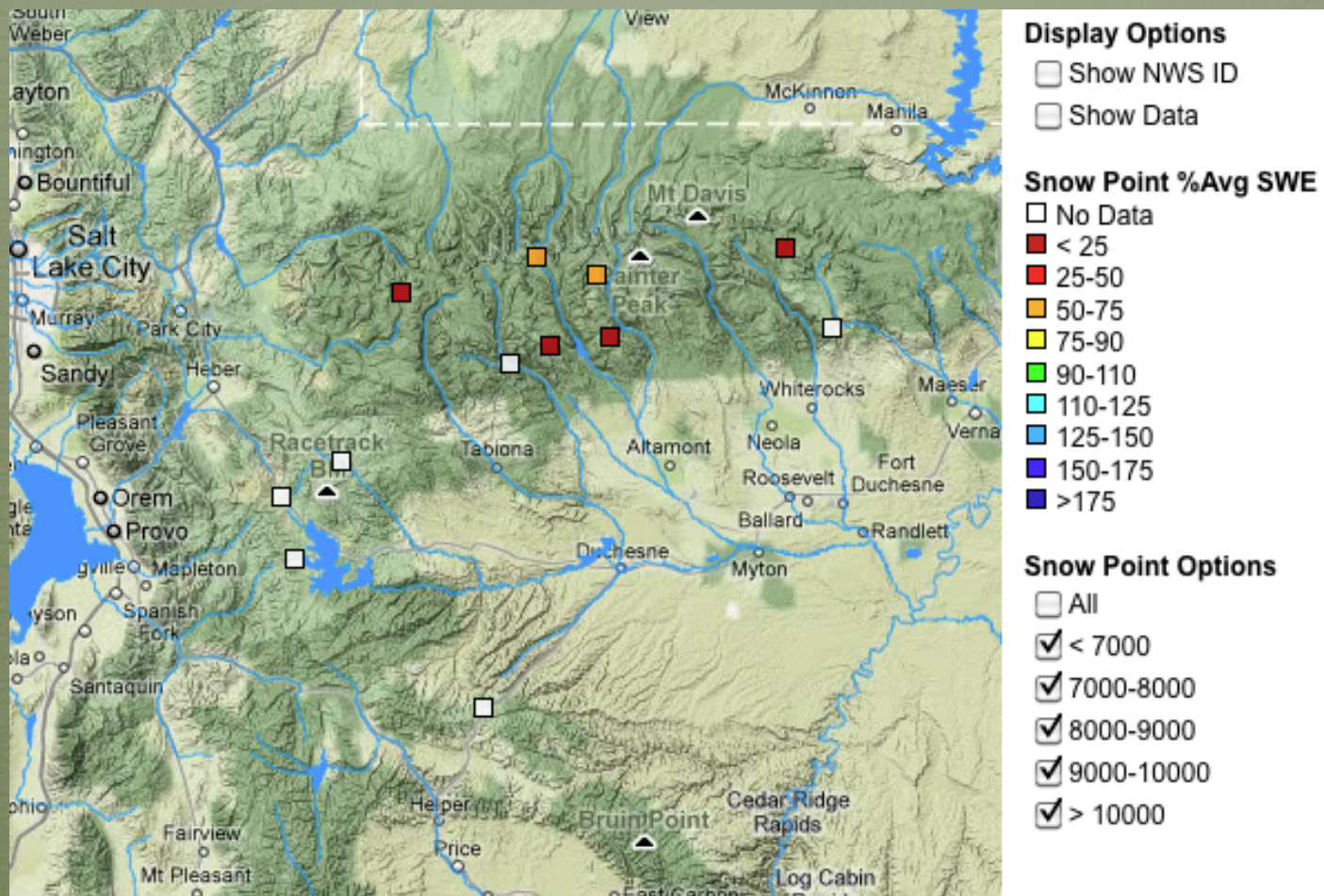
☐ >175

INDIAN CREEK SNOTEL for Water Year 2010

*** Provisional Data, Subject to Change ***

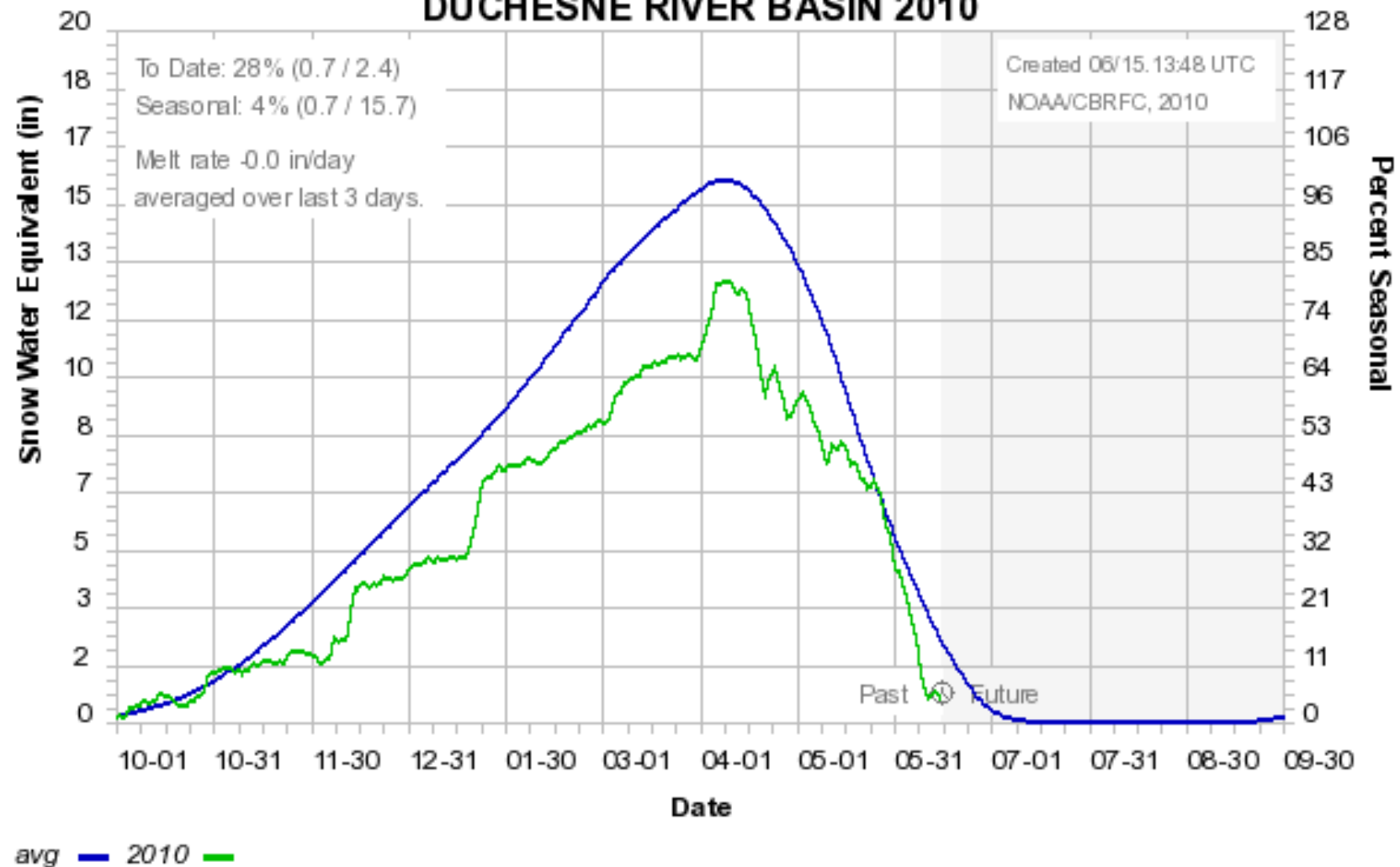


Duchesne River Basin



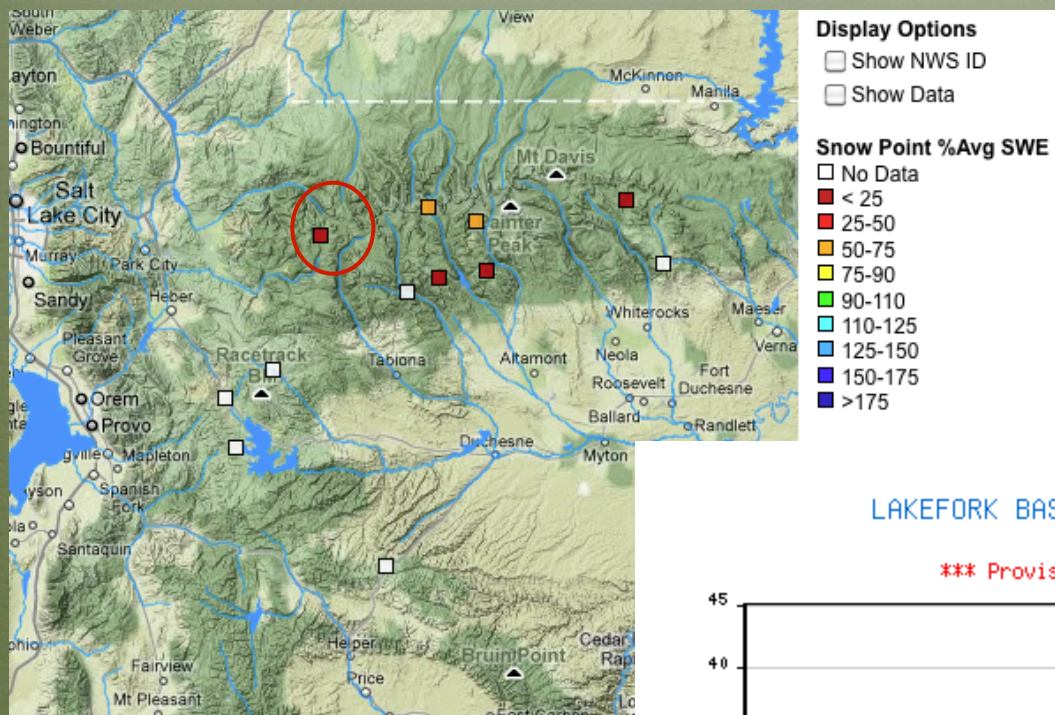
NATIONAL WEATHER SERVICE
Colorado Basin River Forecast Center

Colorado Basin River Forecast Center DUCHESNE RIVER BASIN 2010



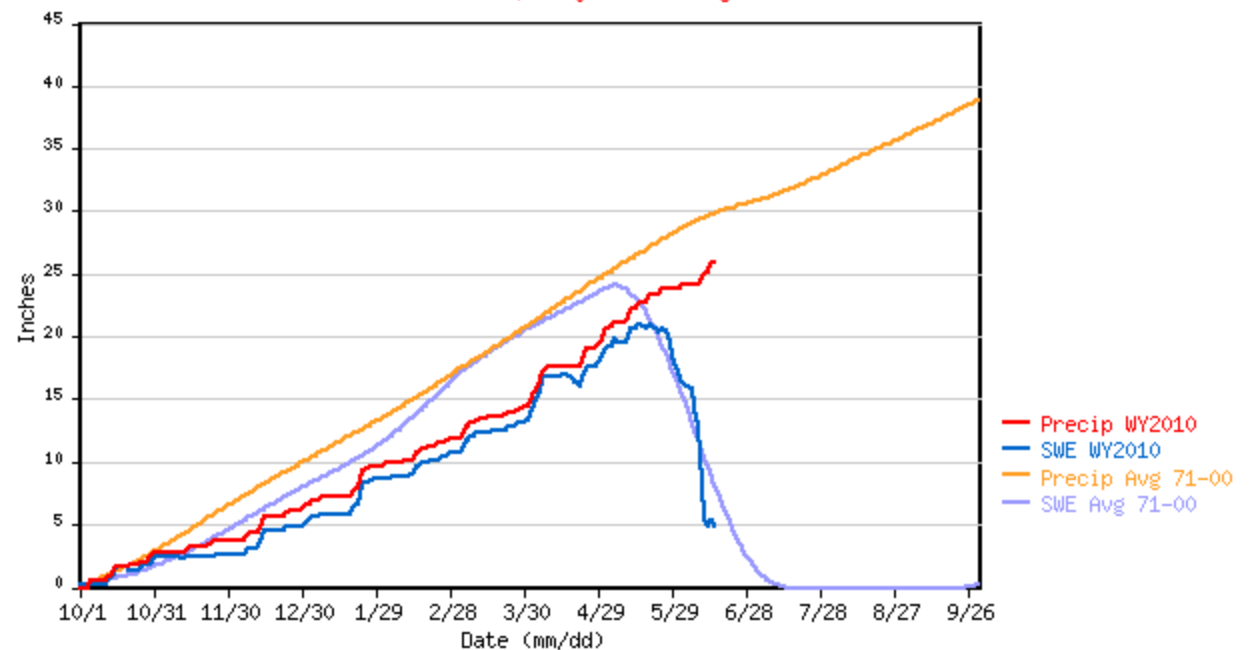
Basin snowpack: 28%
Peak snowpack: 81% of average peak
WYTD Precipitation percent of average: 82%

Lakefork Basin

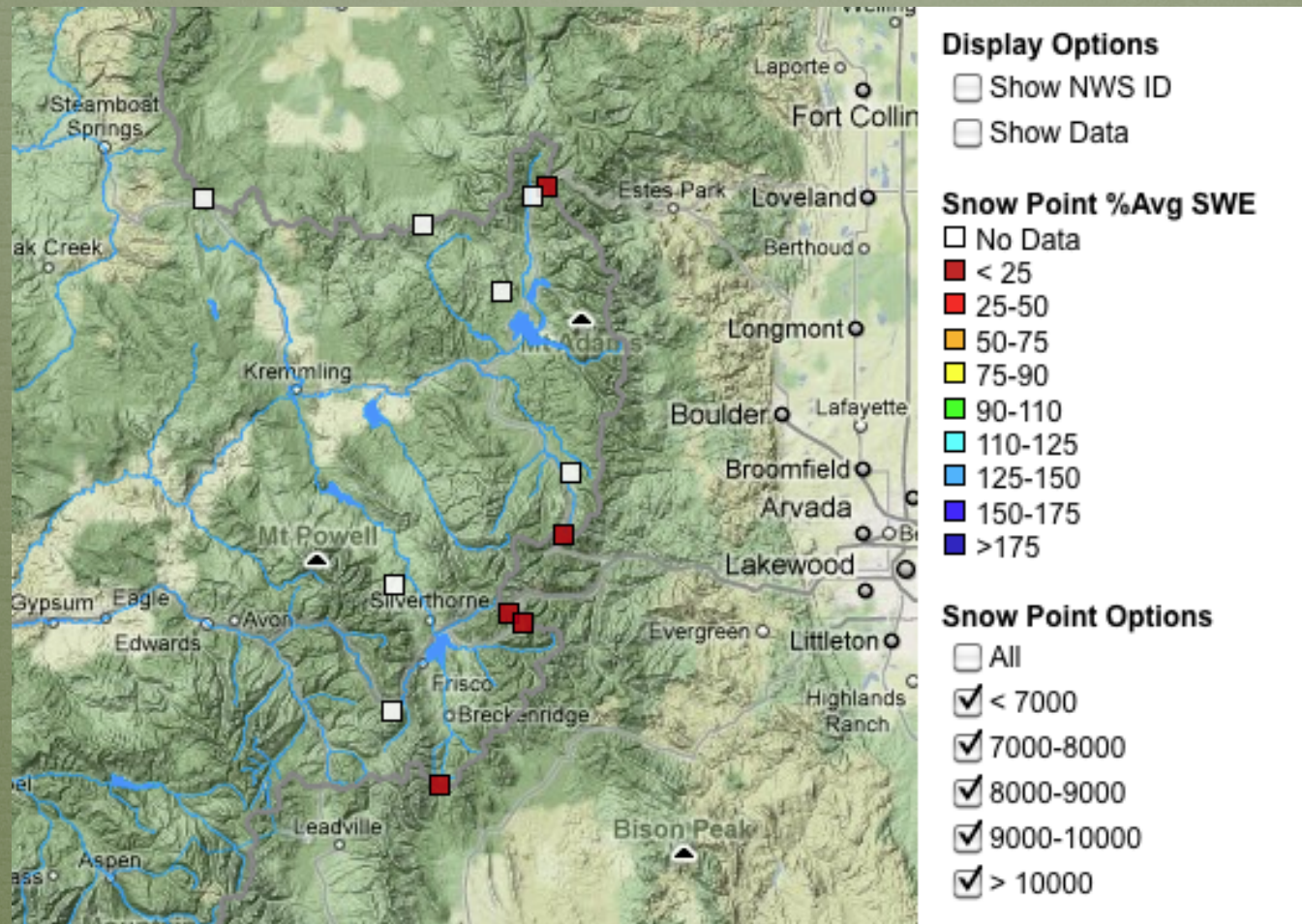


LAKEFORK BASIN SNOTEL for Water Year 2010

*** Provisional Data, Subject to Change ***



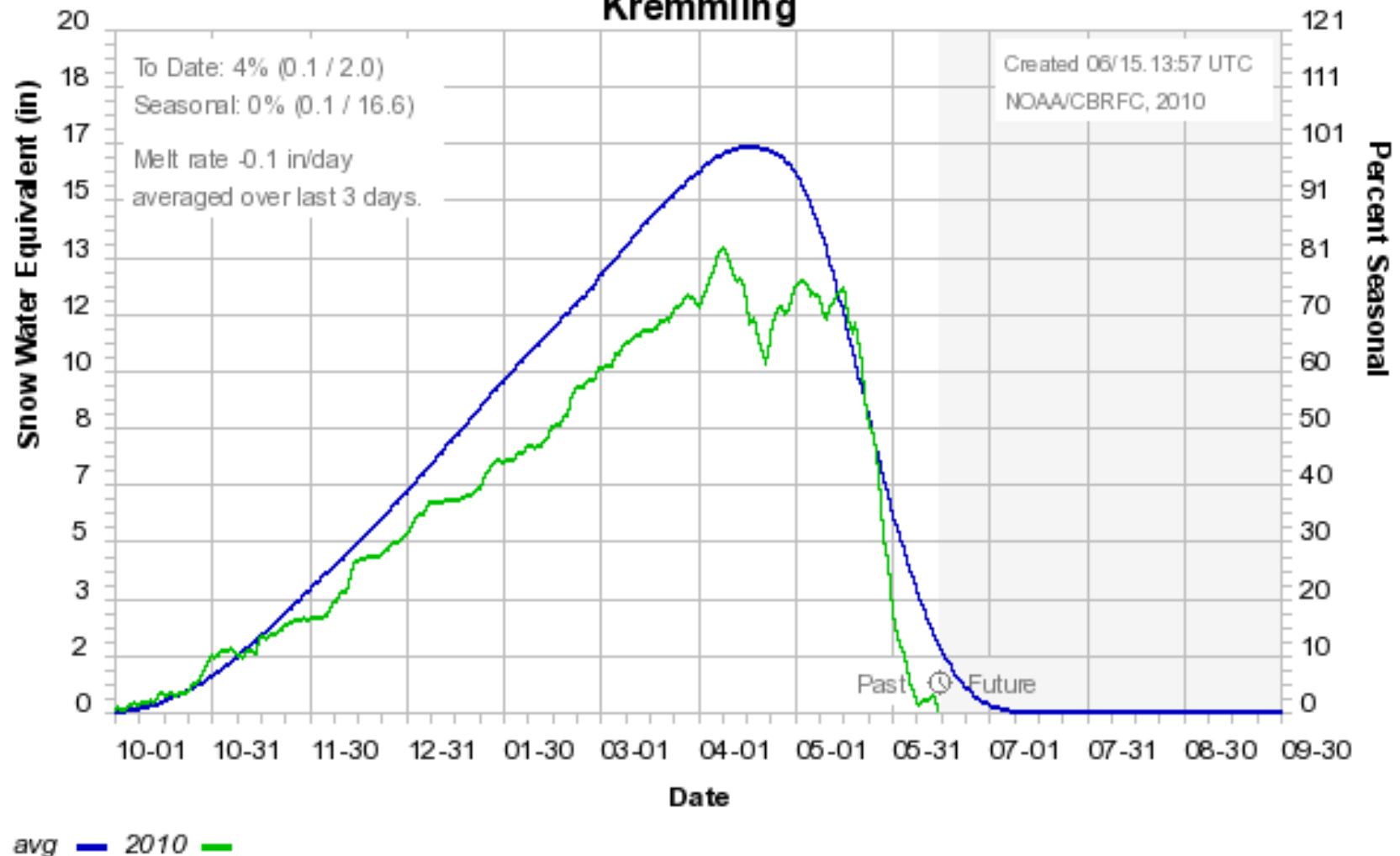
Upper Colorado above Kremmling



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Colorado Basin River Forecast Center

Colorado Basin River Forecast Center

Kremmling

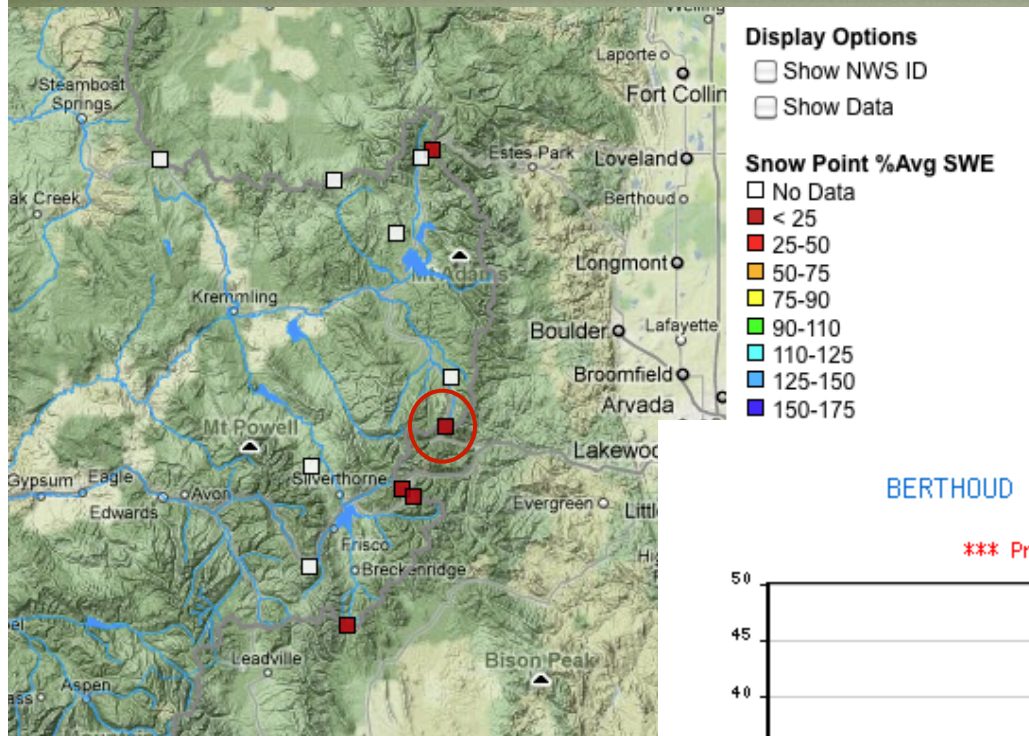


Basin Snowpack: 4%

Peak snowpack: 79% of average peak

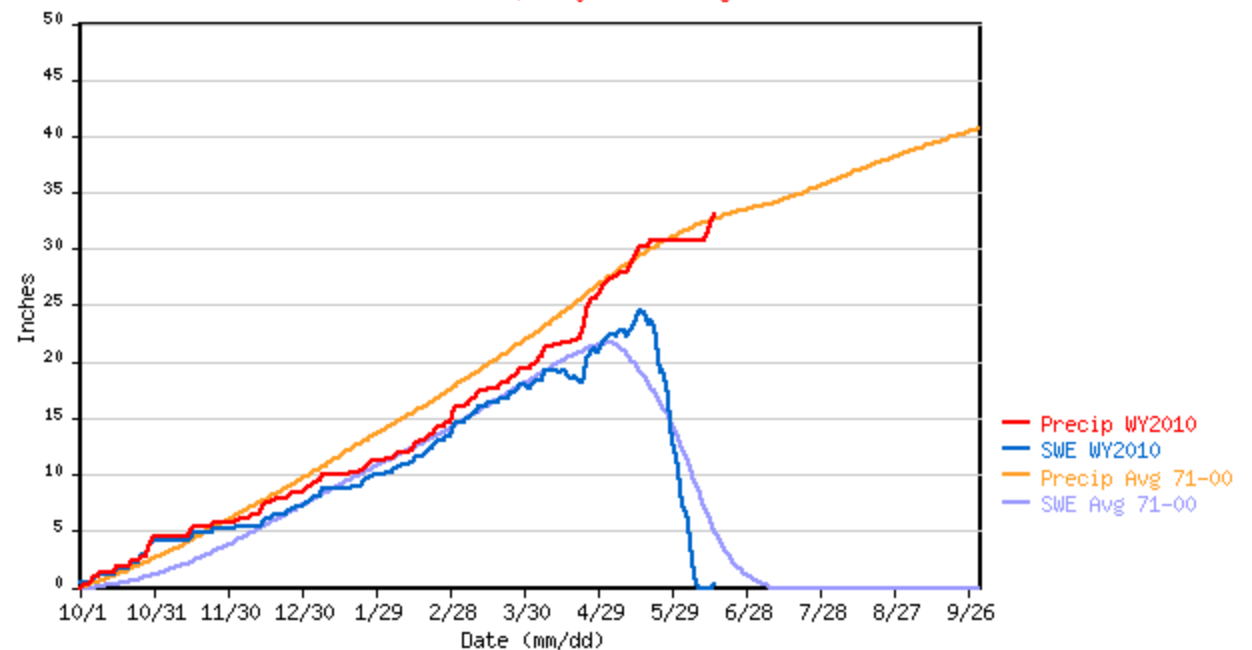
WYTD Precipitation percent of average: 91%

Berthoud Summit

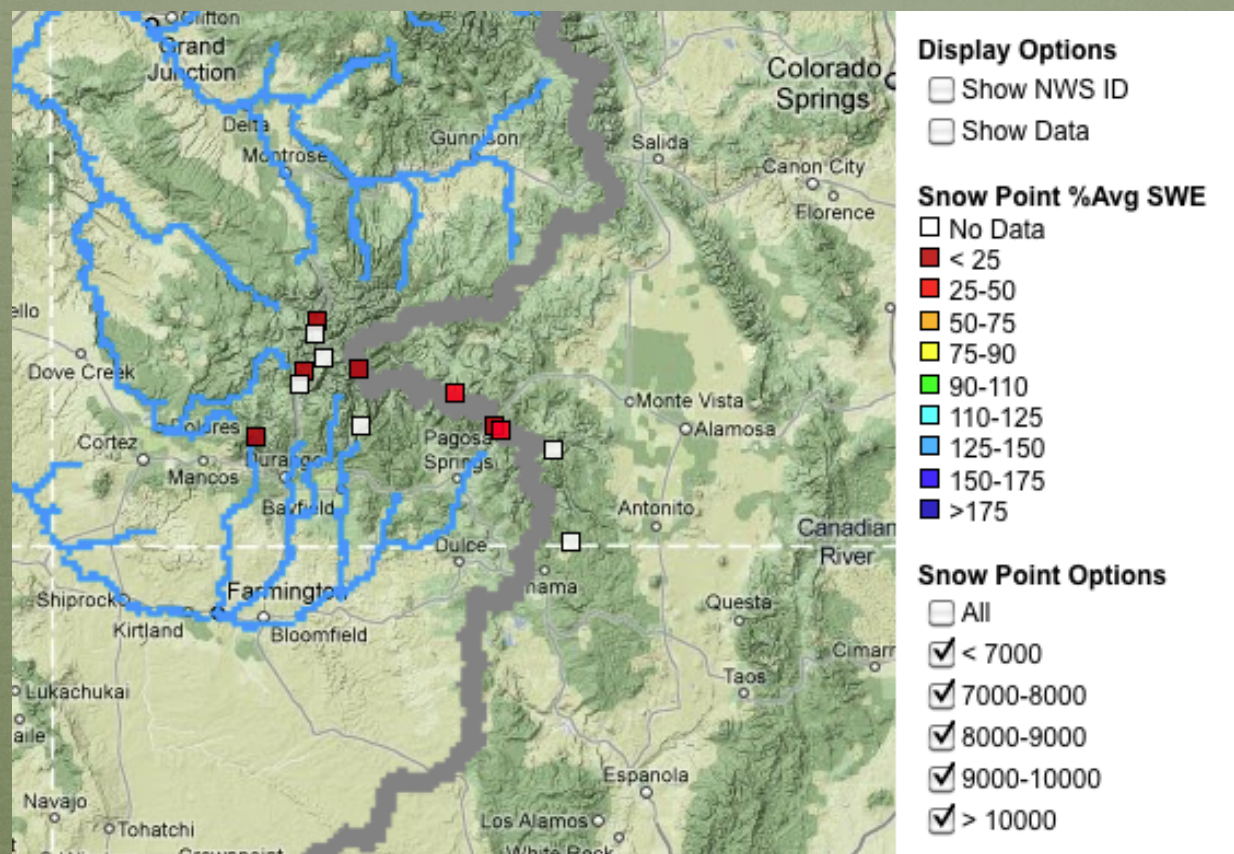


BERTHOUD SUMMIT SNOTEL for Water Year 2010

*** Provisional Data, Subject to Change ***

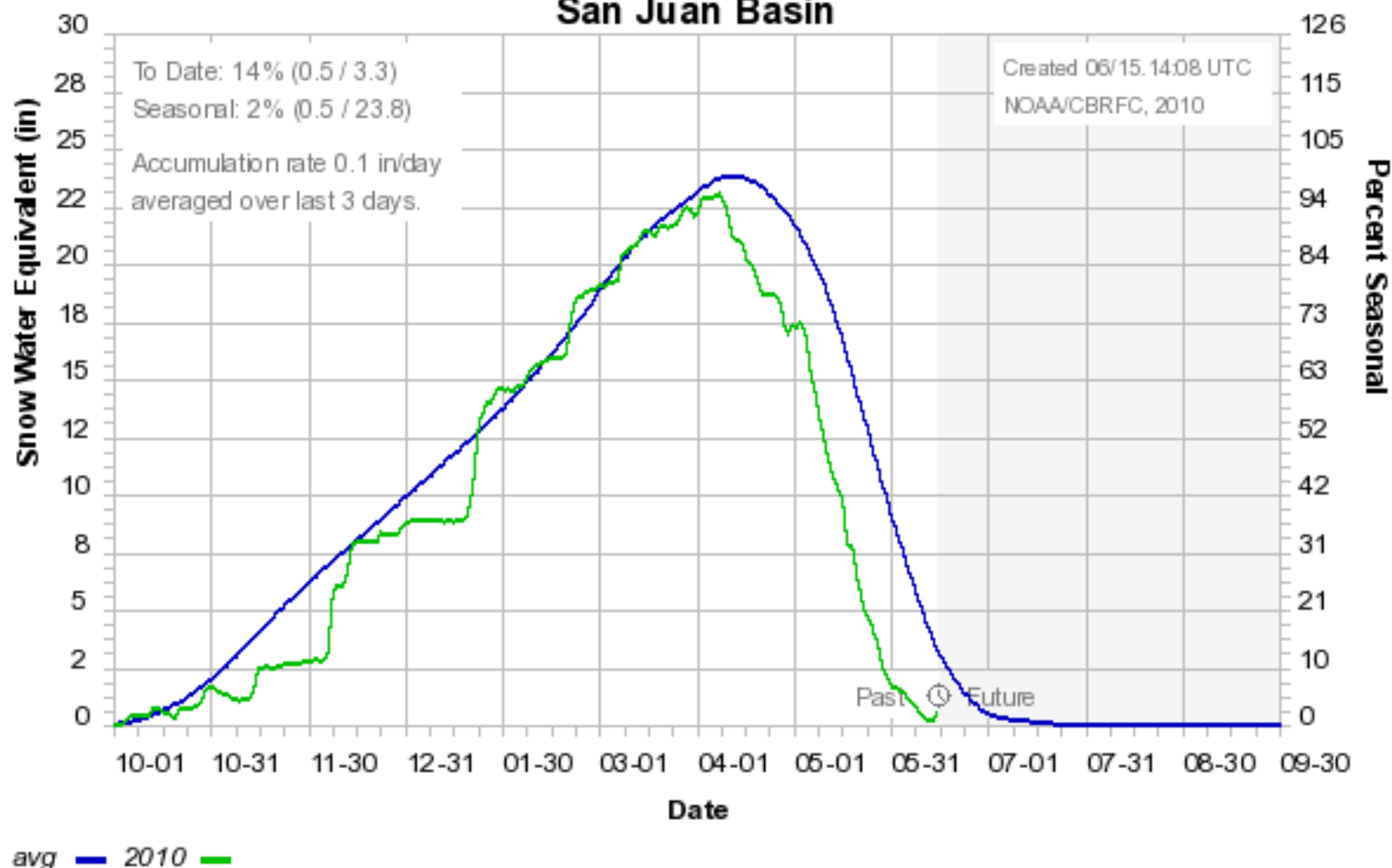


San Juan Basin



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Colorado Basin River Forecast Center San Juan Basin



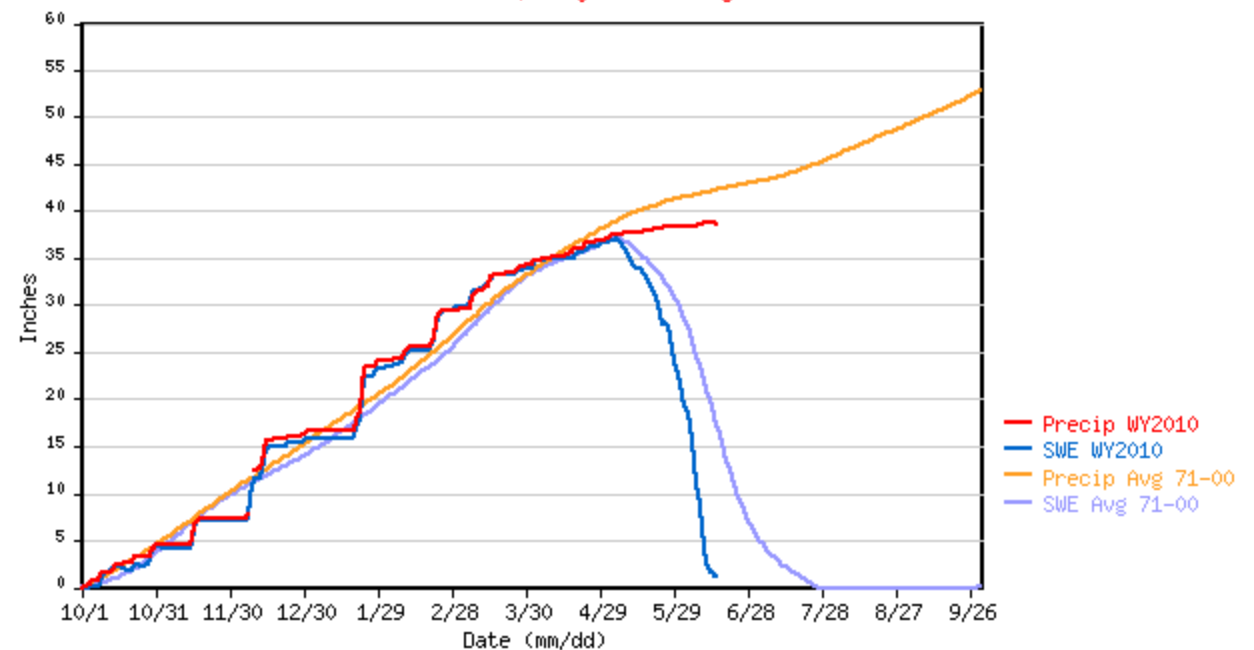
Basin Snowpack: 14%
Peak snowpack: 97% of average peak
WYTD Precipitation percent of average: 92%

Wolf Creek Summit



WOLF CREEK SUMMIT SNOTEL for Water Year 2010

*** Provisional Data, Subject to Change ***



Streamflow Update

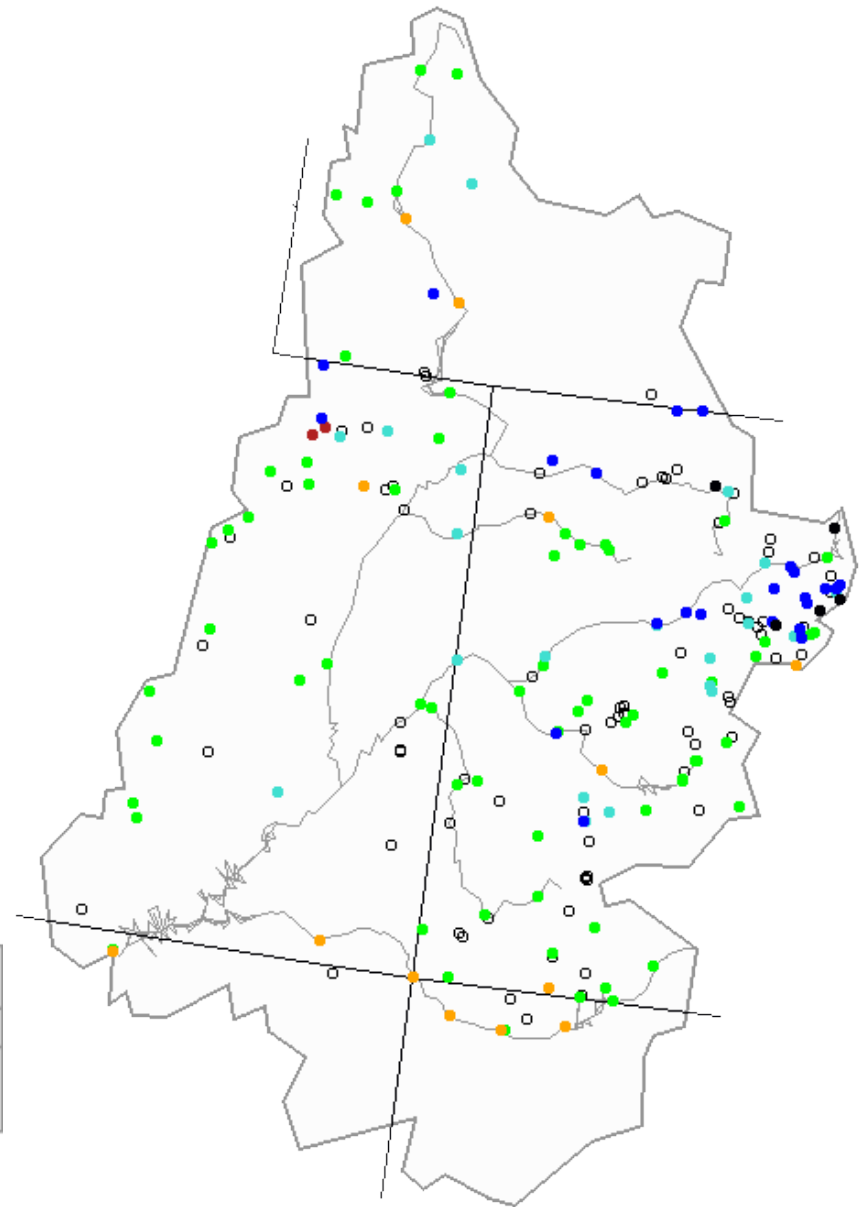
Michael Lewis USGS



Monday, June 14, 2010

7-day average streamflow compared to historical streamflow for the day of the year (Upper Colorado)

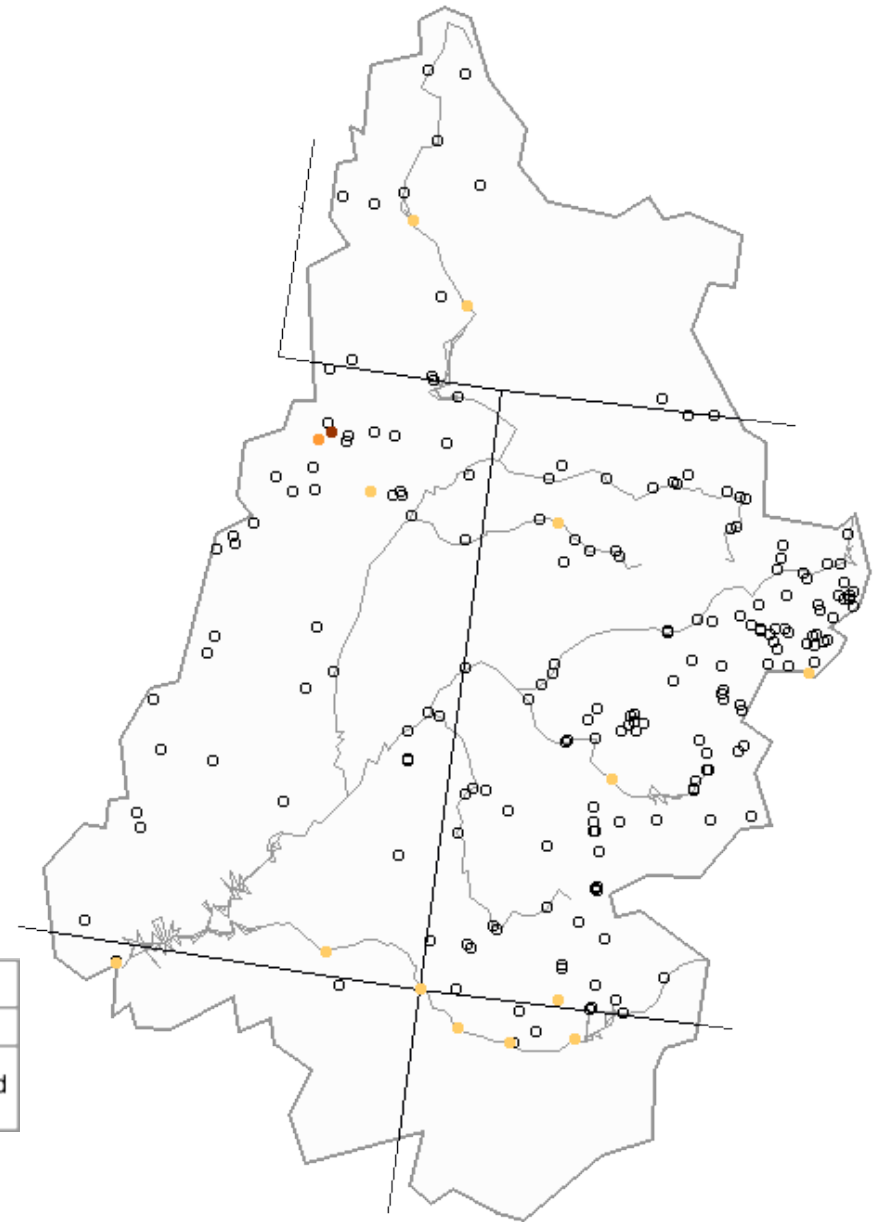
Explanation - Percentile classes							
							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked



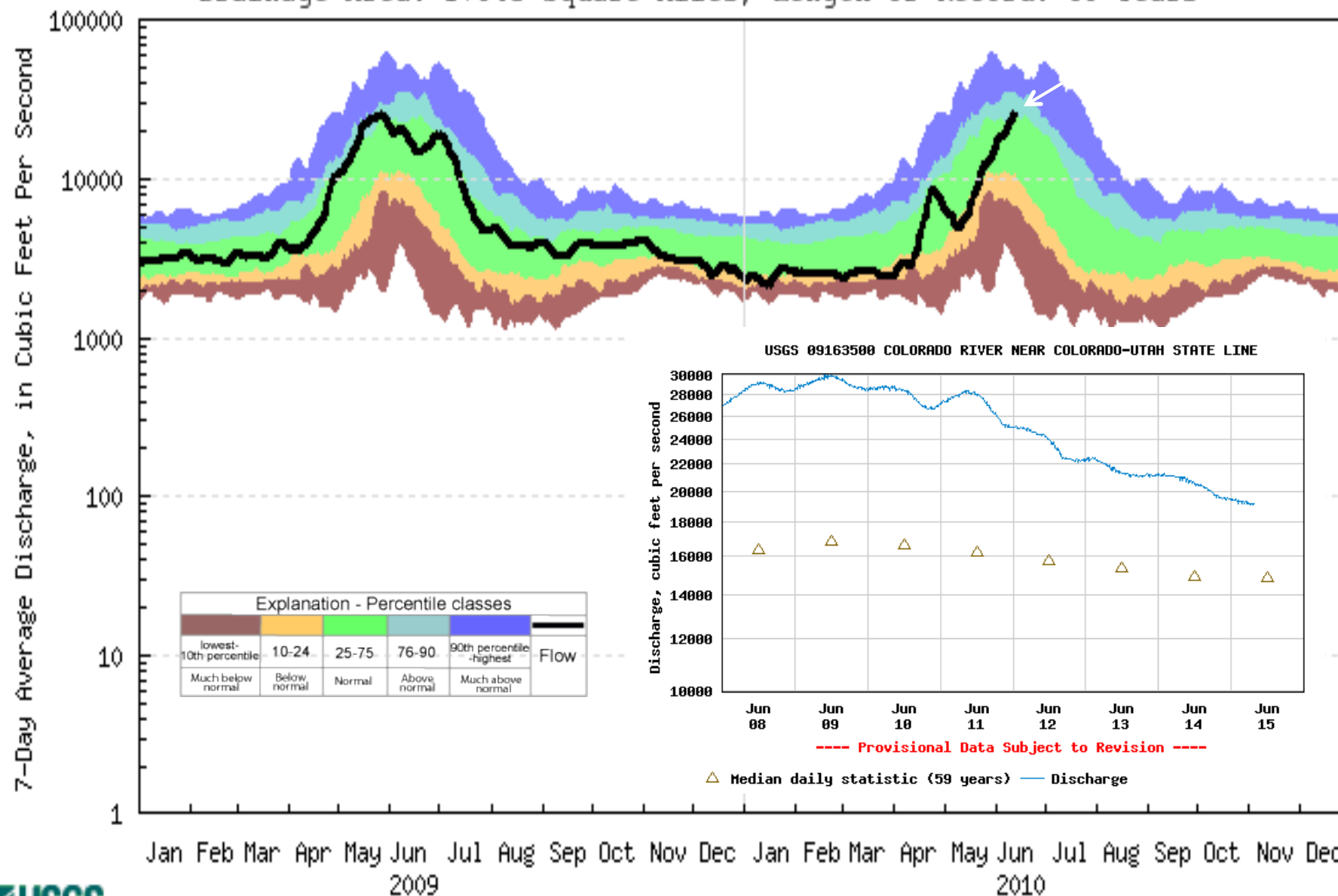
Monday, June 14, 2010

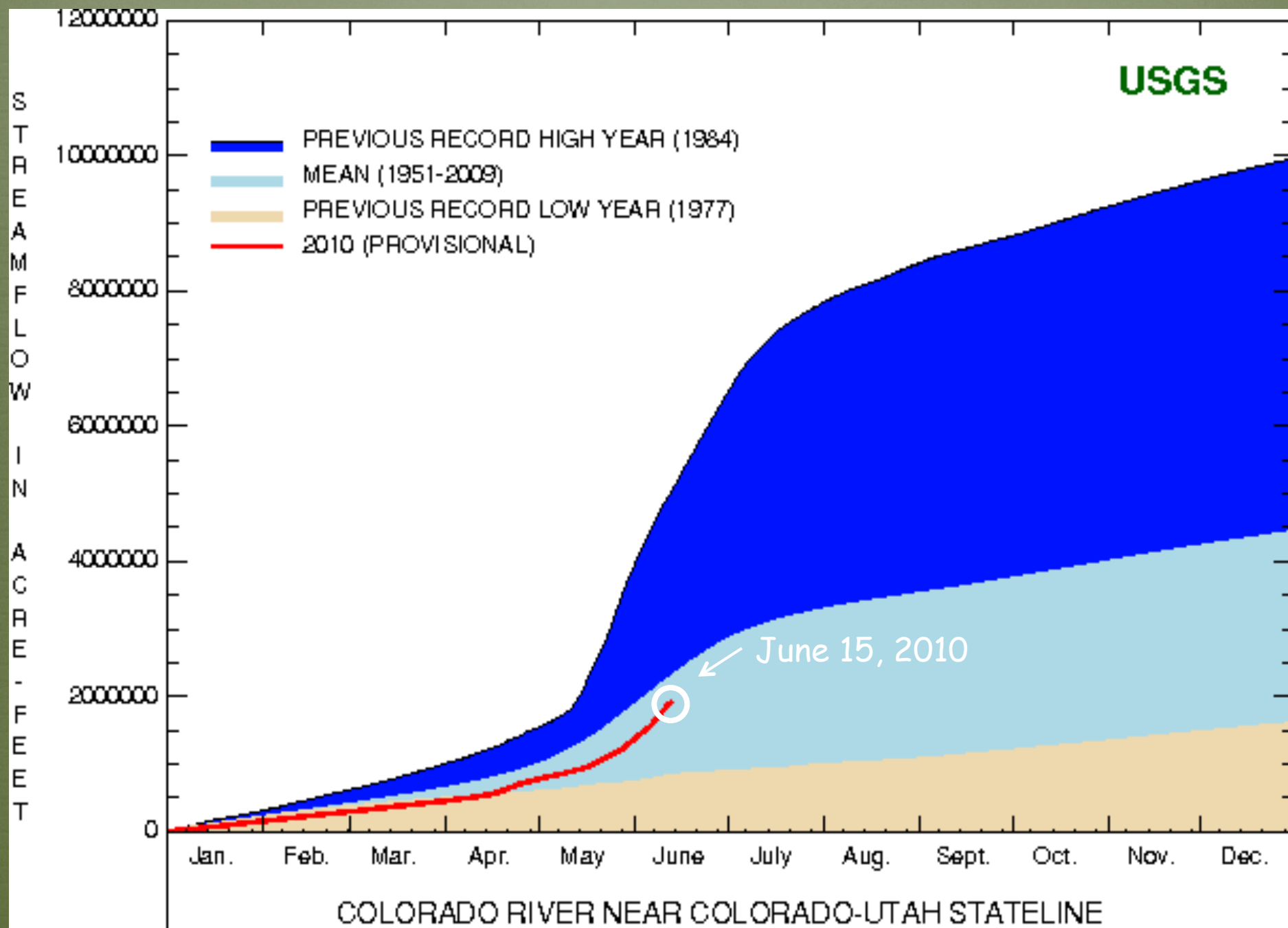
Below normal 7-day average streamflow compared to historical streamflow for the day of the year (Upper Colorado)

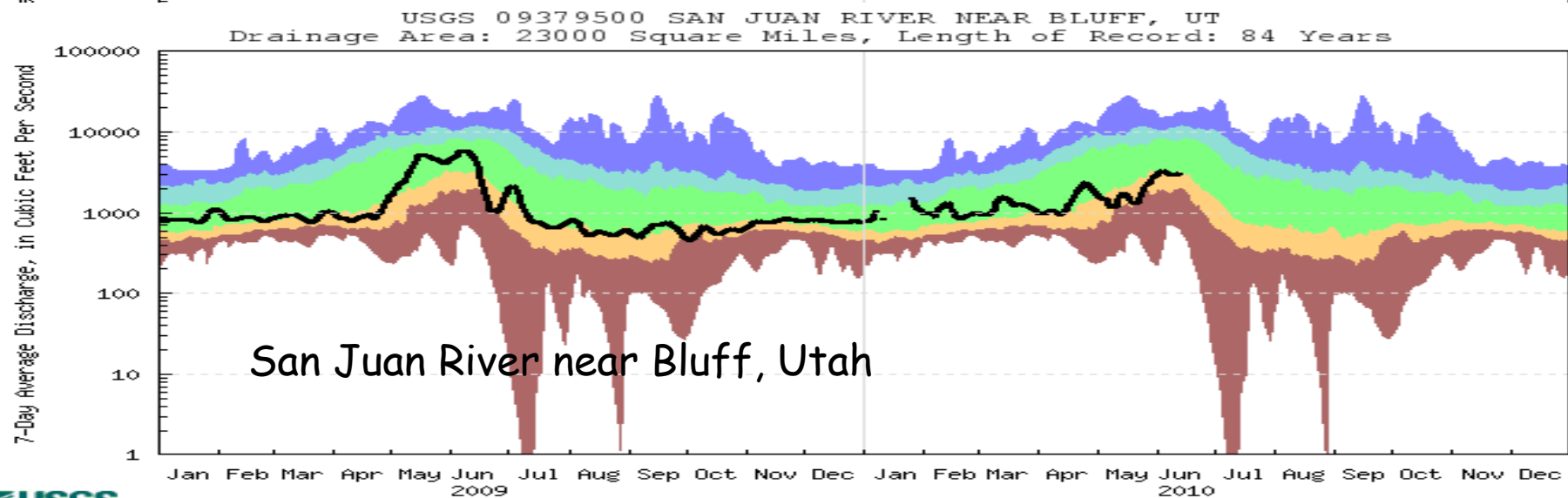
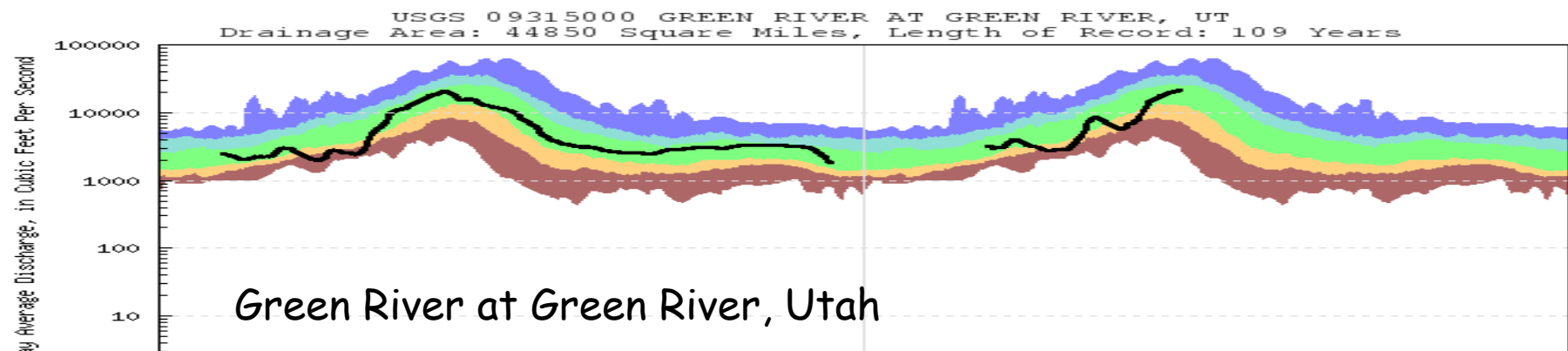
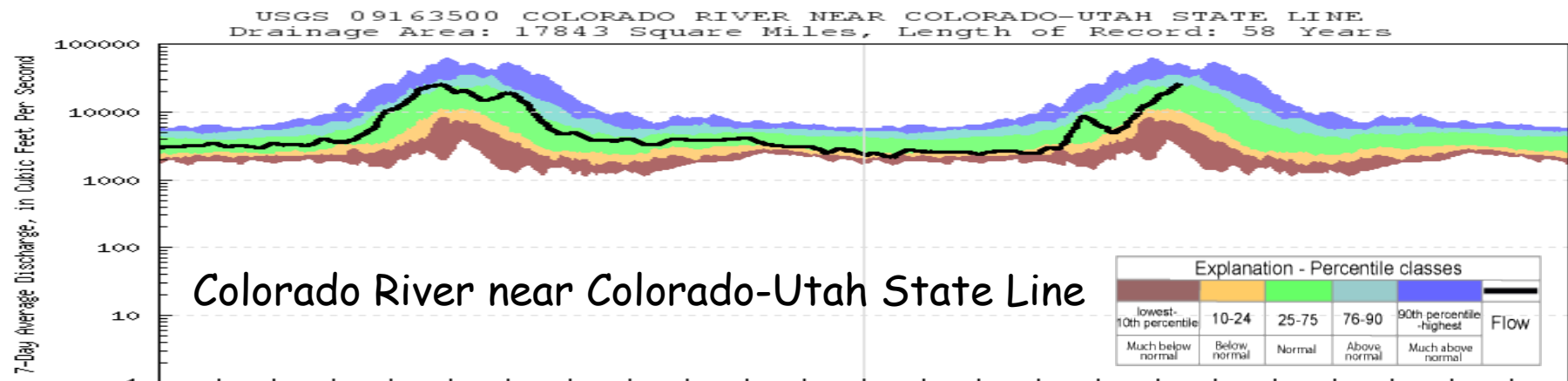
Explanation - Percentile classes				
				
New low	≤ 5	6-9	10-24	Not ranked
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	



USGS 09163500 COLORADO RIVER NEAR COLORADO-UTAH STATE LINE
 Drainage Area: 17843 Square Miles, Length of Record: 58 Years

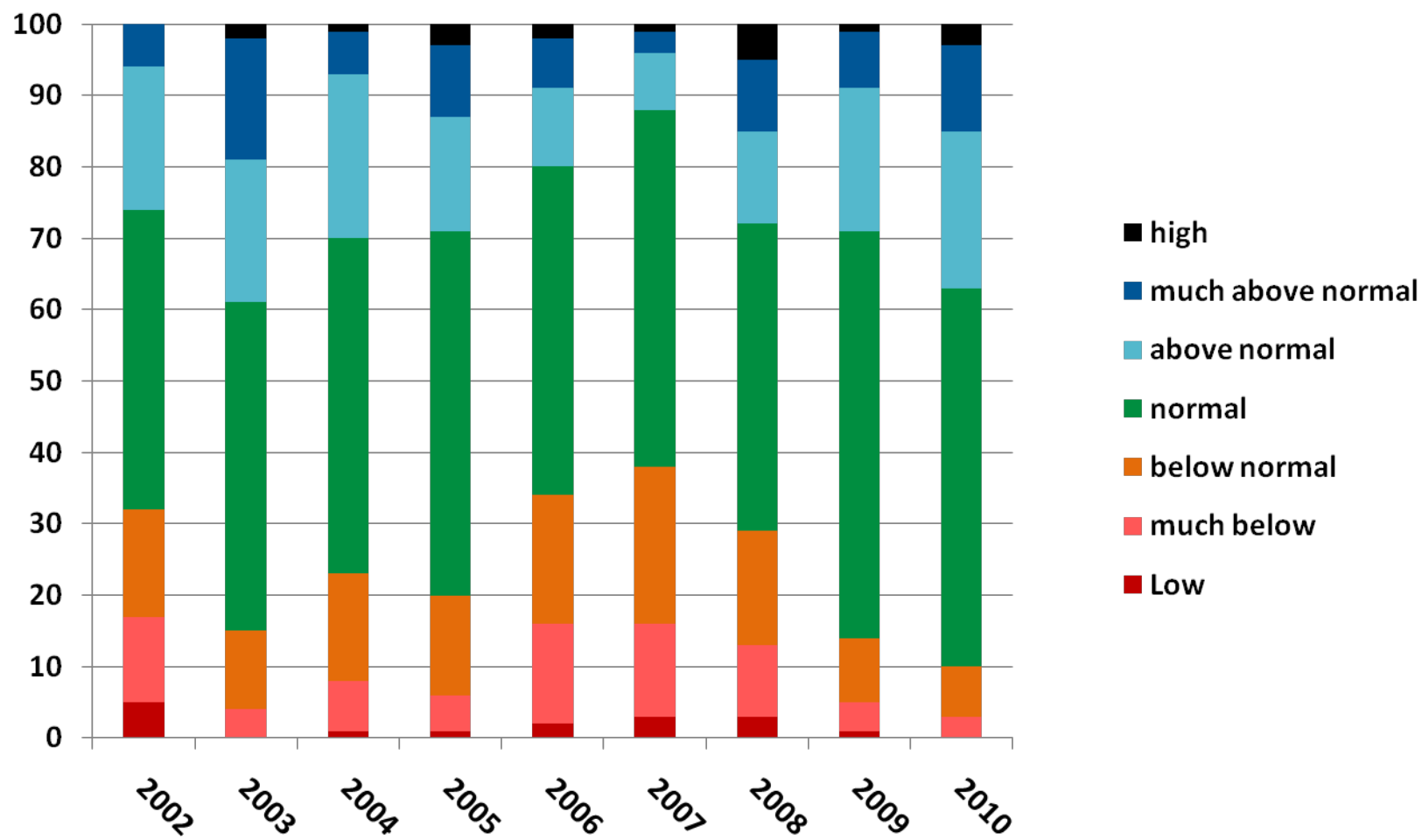






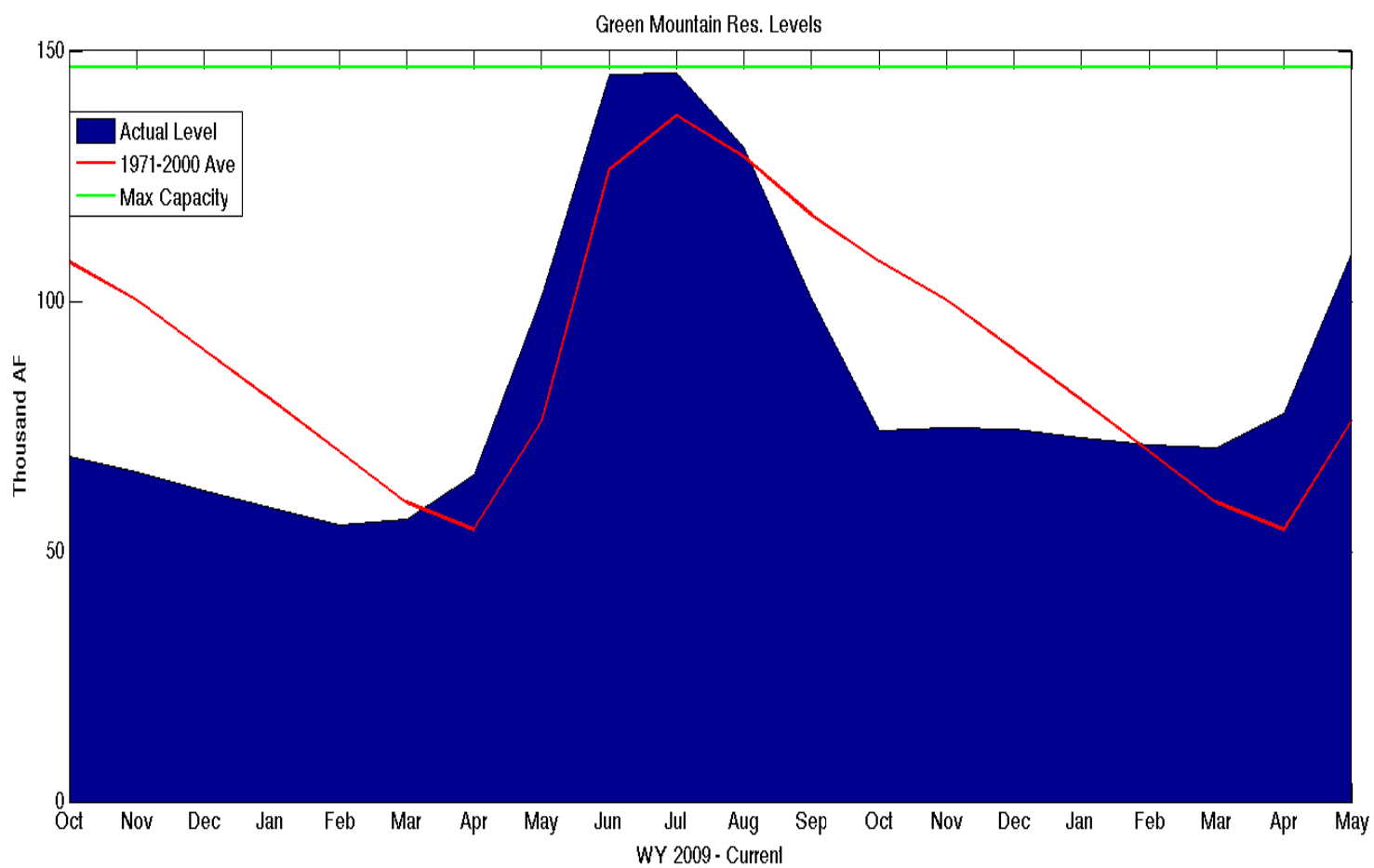
June 13

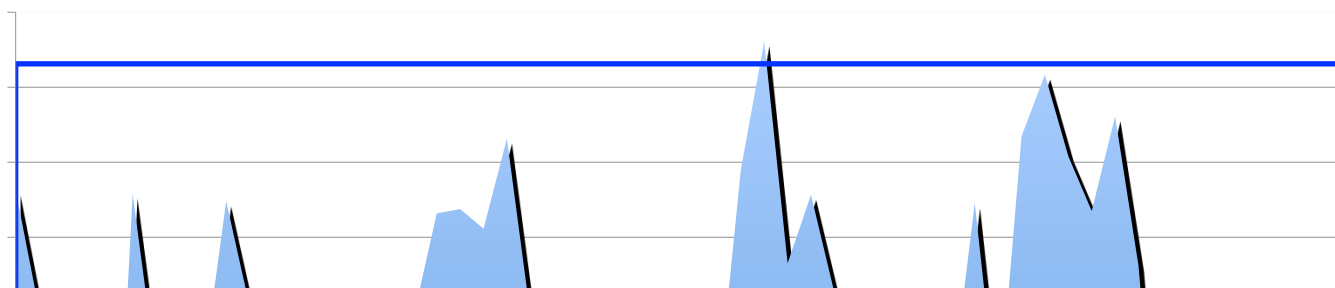
Percentage of Streamgages per Percentile Class 7-day Average Streamflow



Reservoir Update

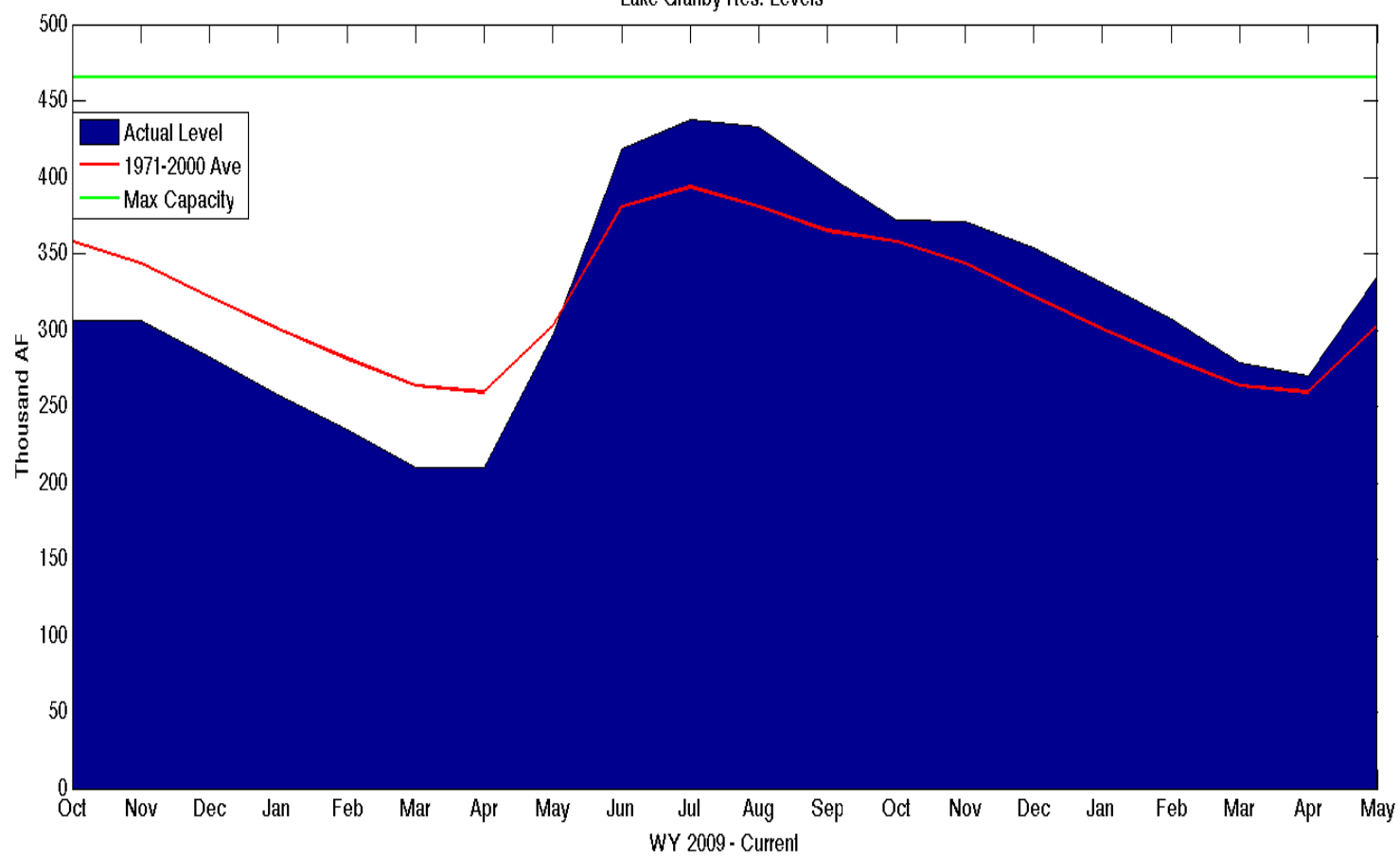






Max Capacity

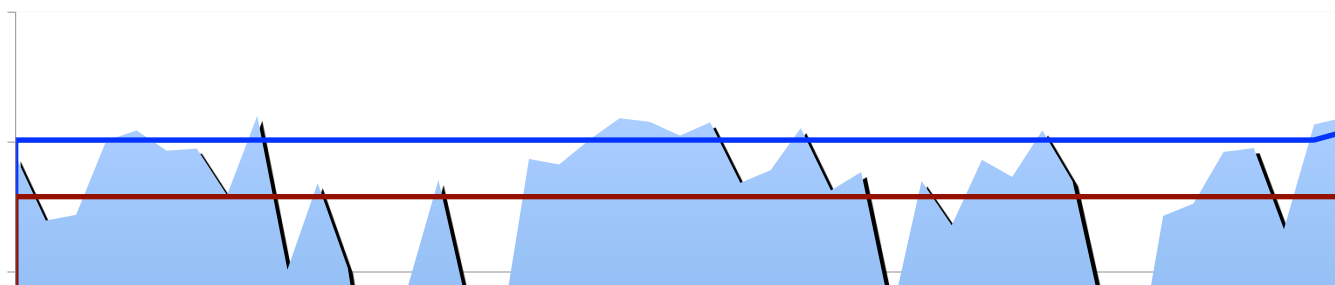
Lake Granby Res. Levels



Thousand AF

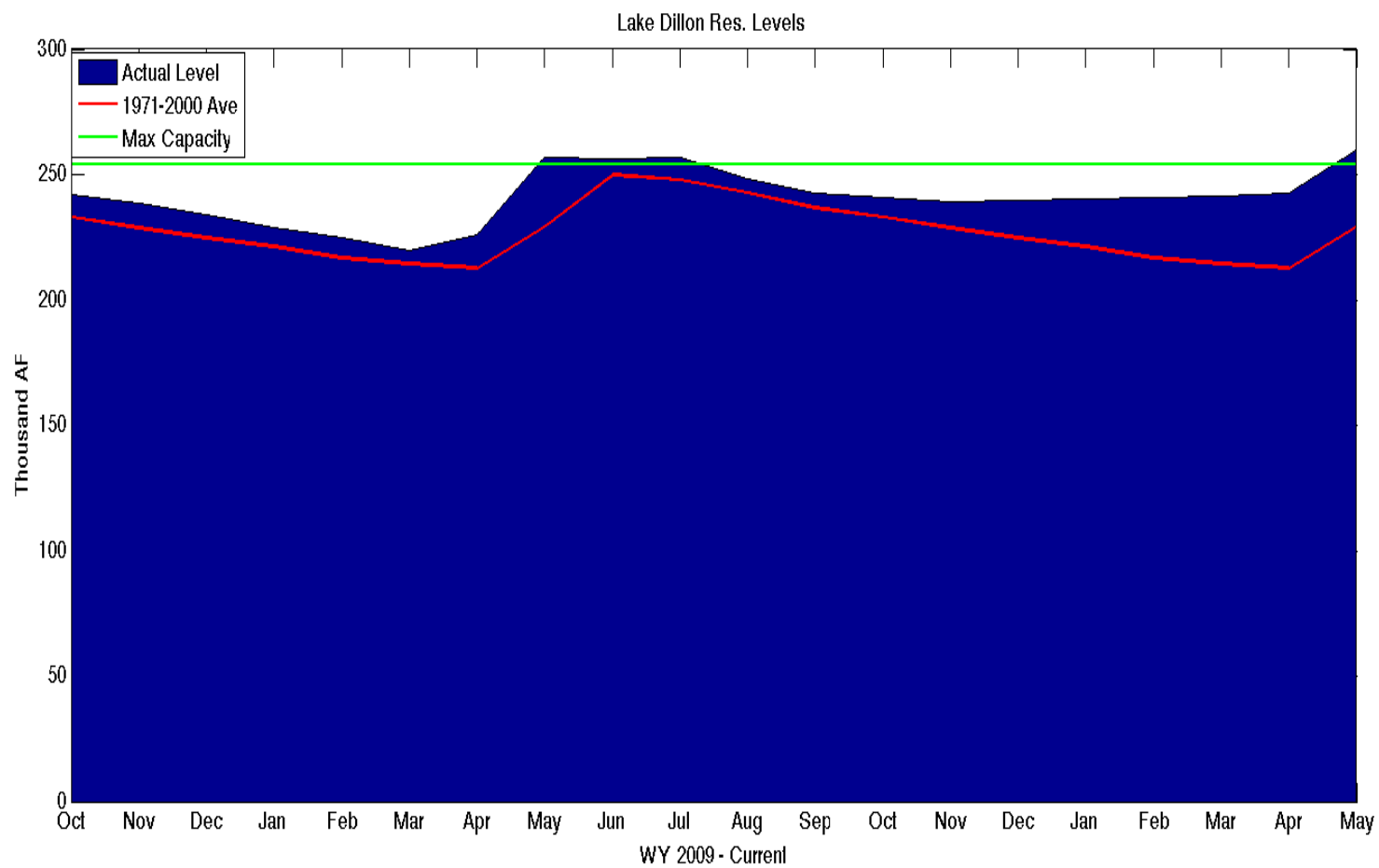
Actual Level
1971-2000 Ave
Max Capacity

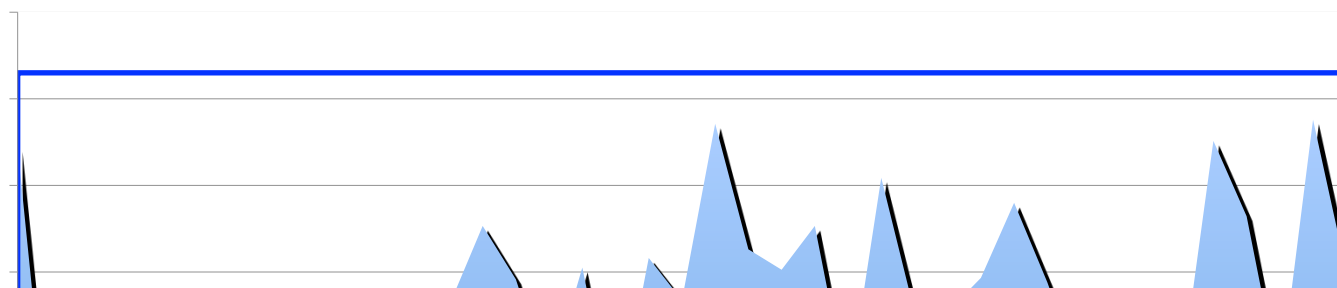
Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May
WY 2009 - Current



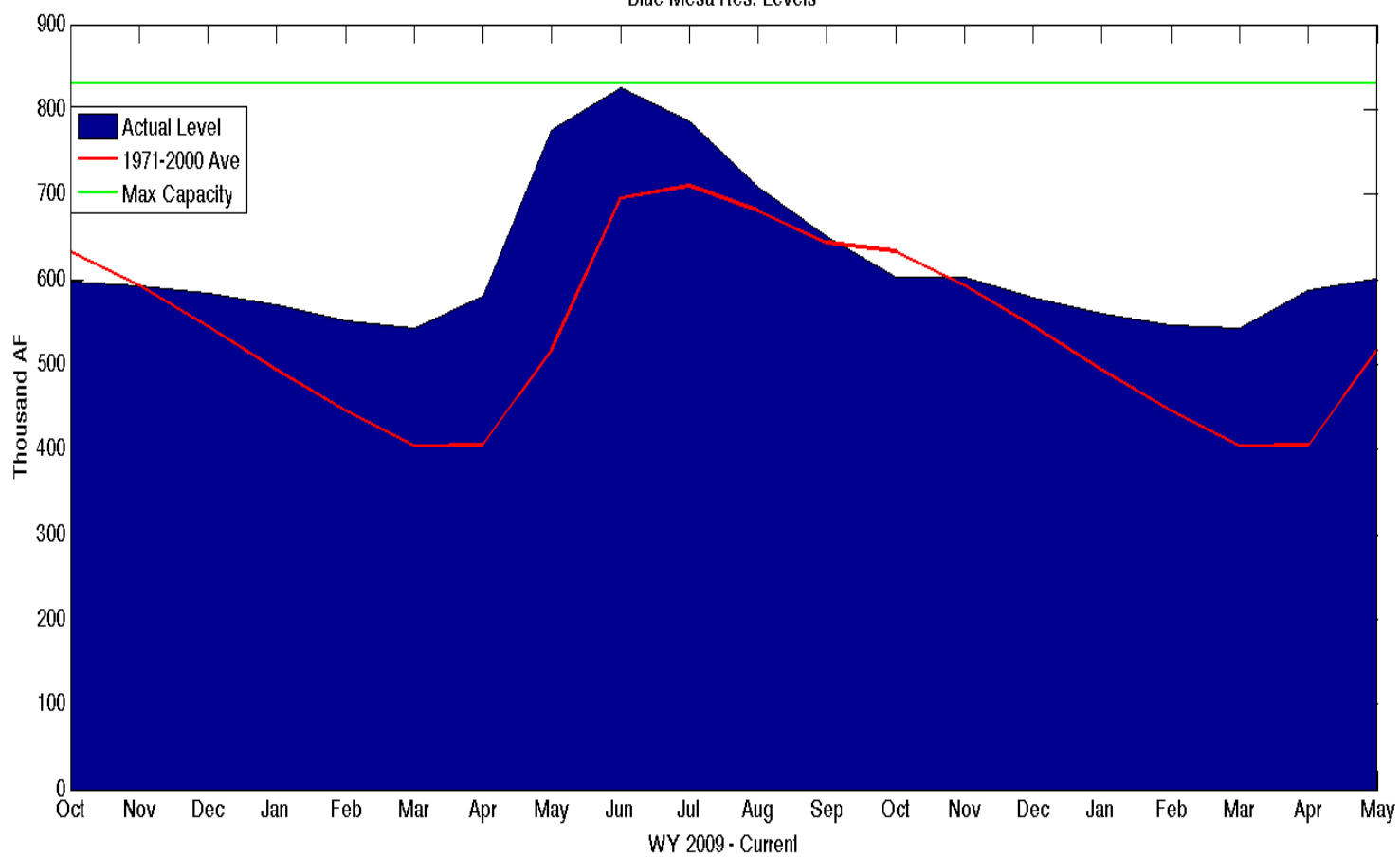
Max Capacity

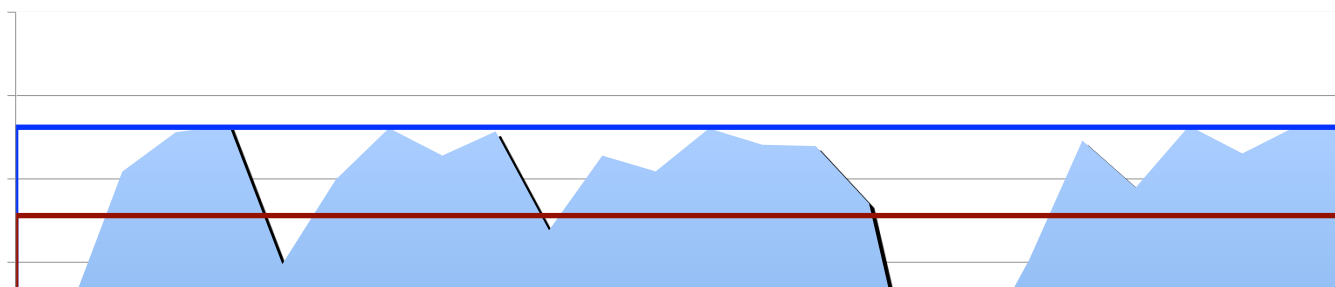
1971-2000 Average



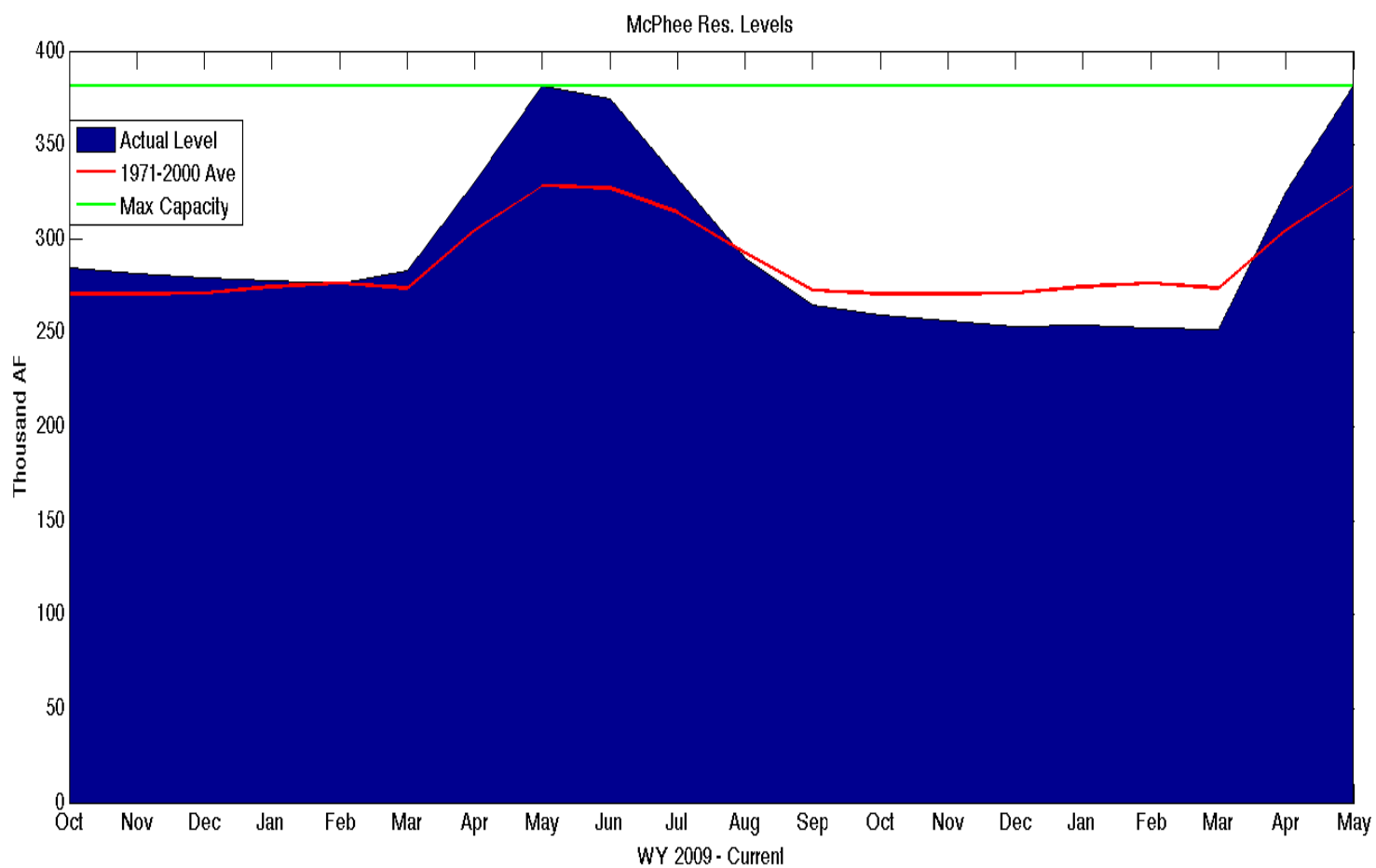


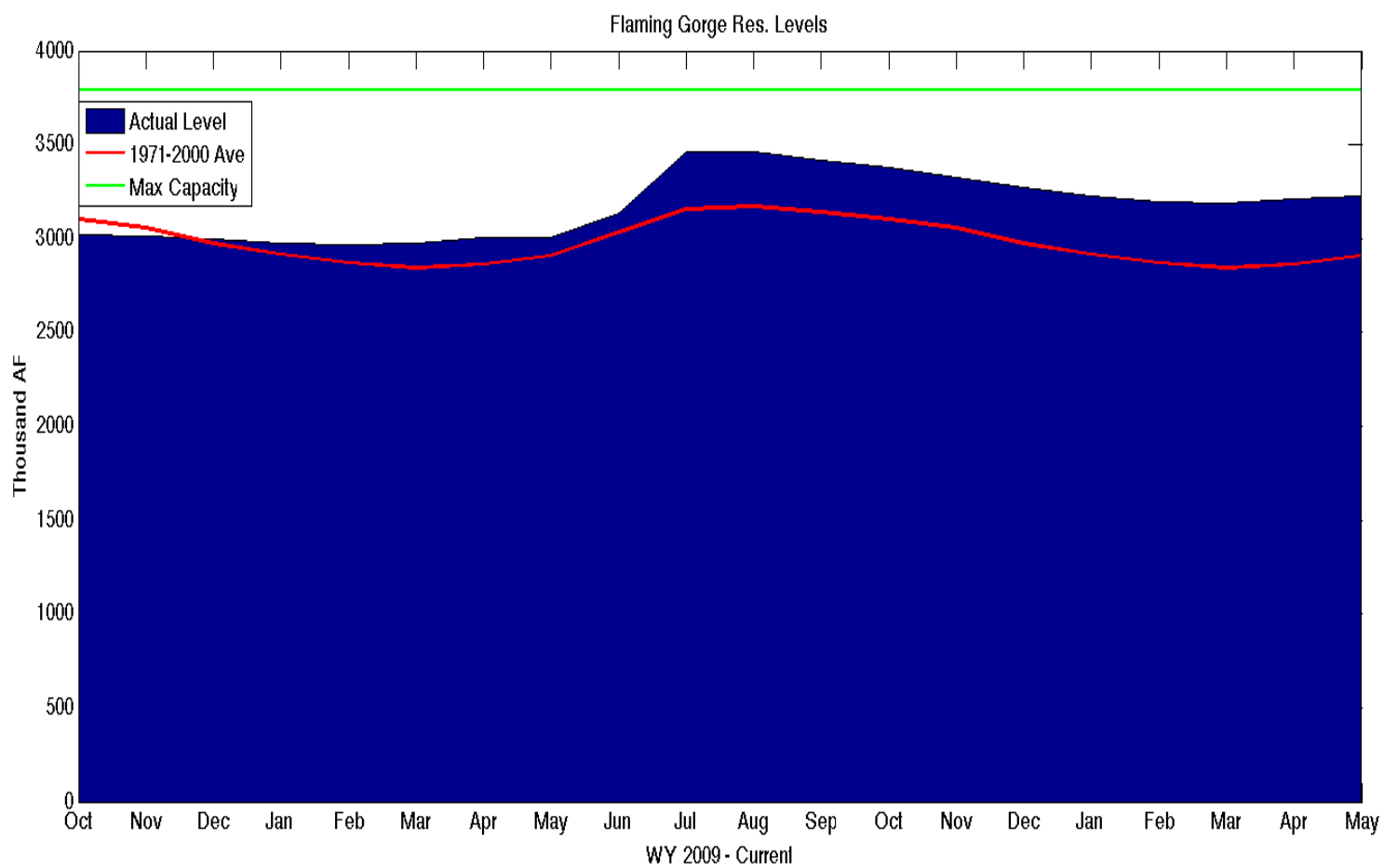
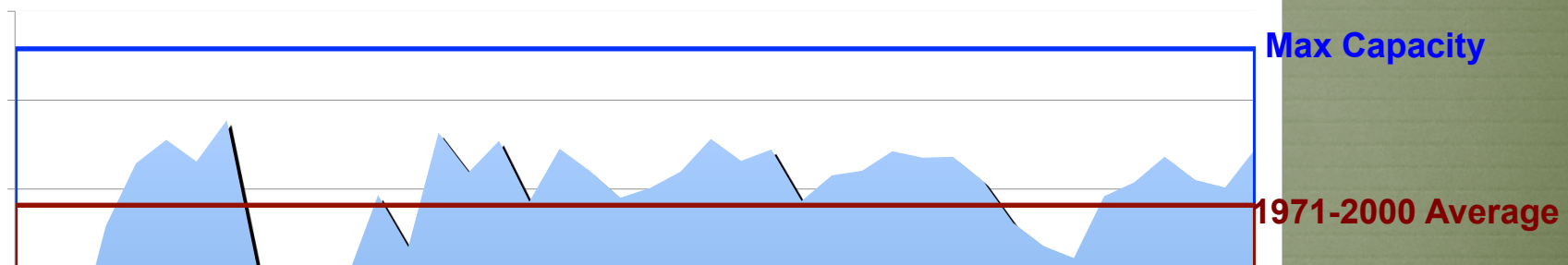
Max Capacity



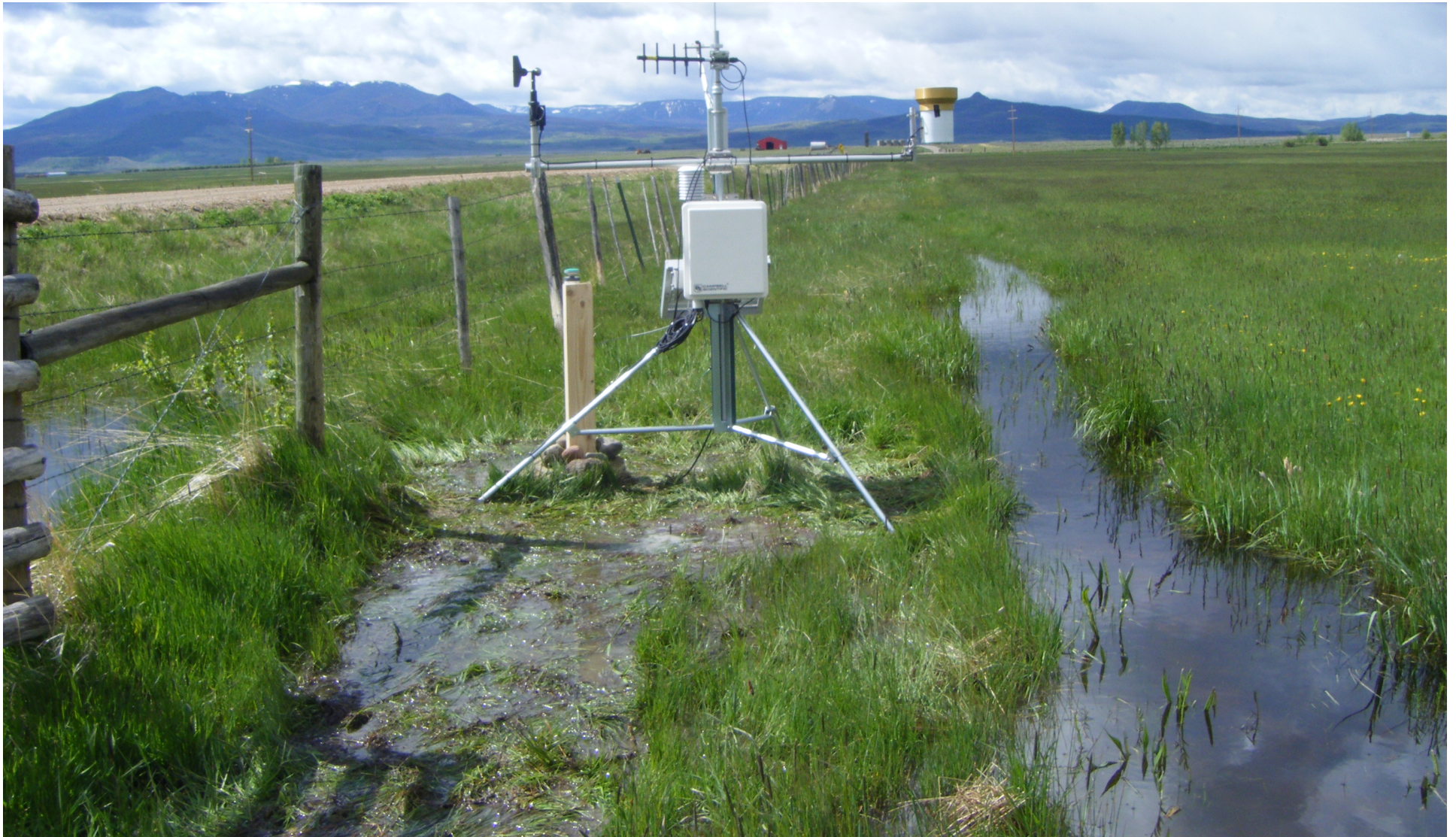


Max Capacity
1971-2000 Average

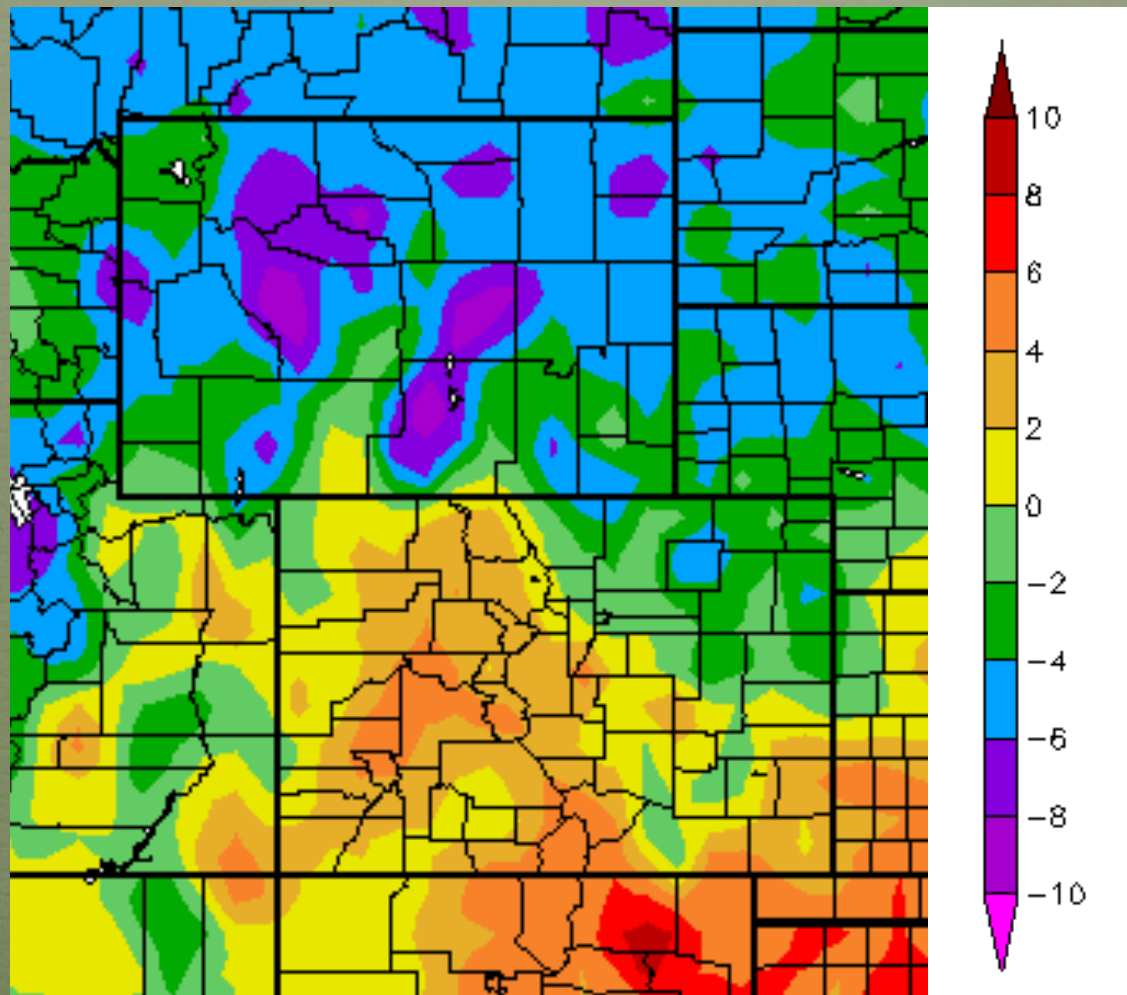




Water Demand

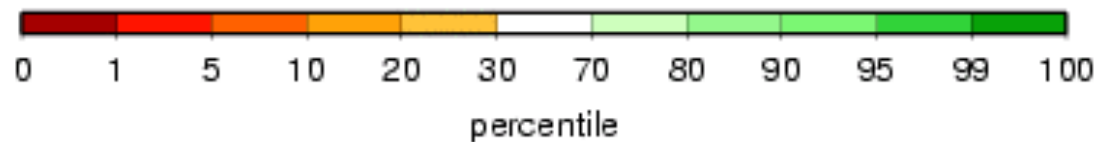
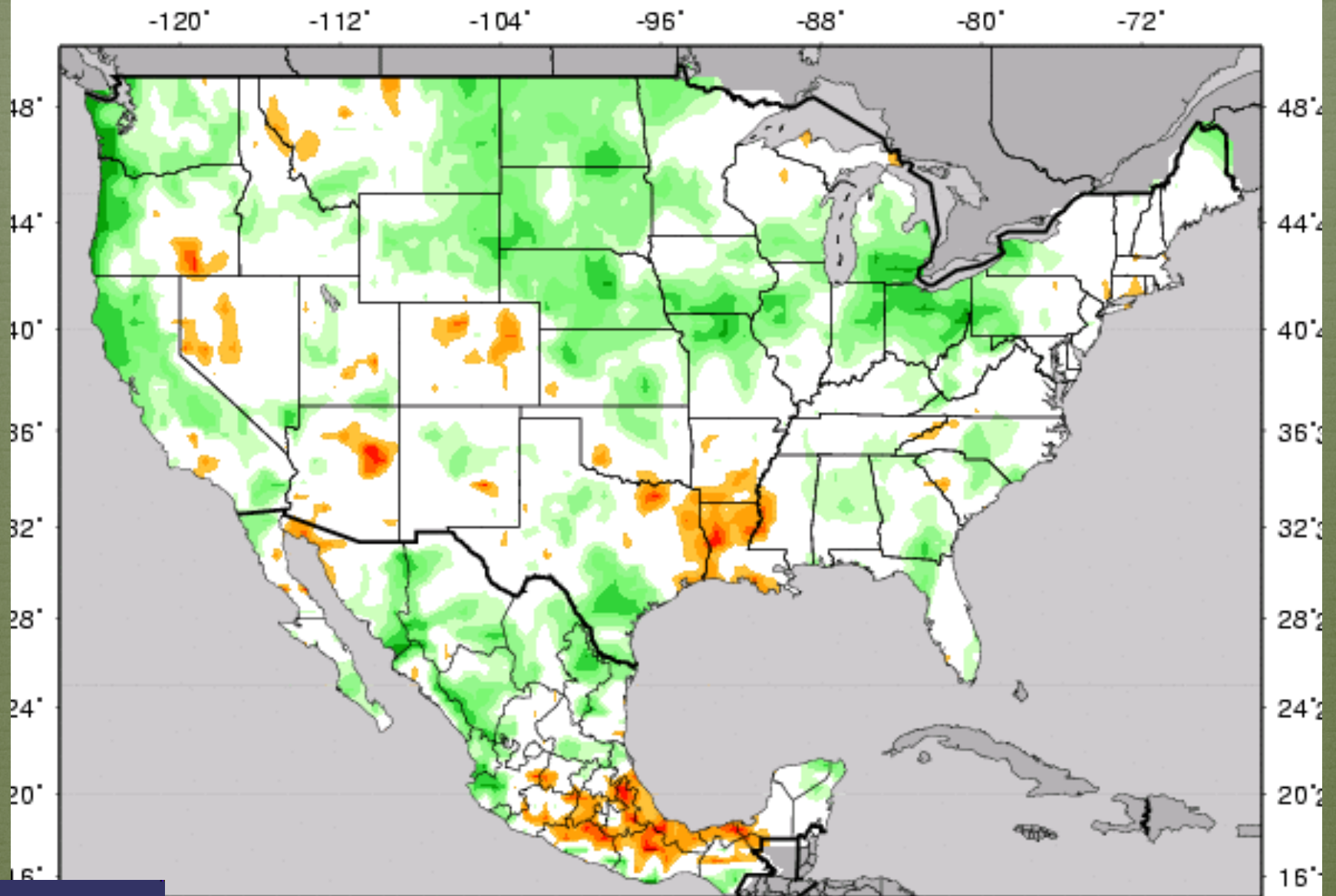


Temperature Departure from Normal 6/8/2010 – 6/14/2010

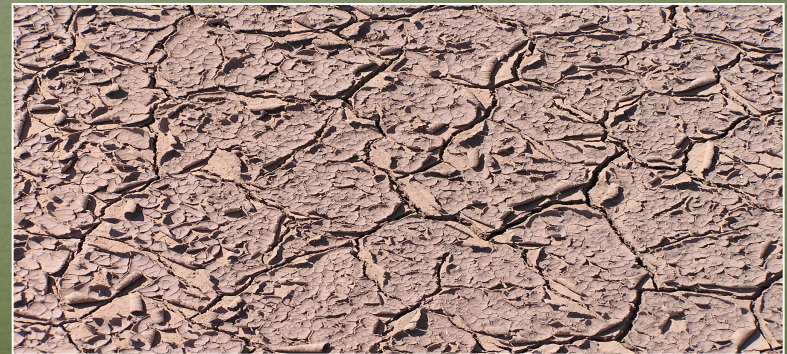


VIC Total Moisture Storage Percentiles (wrt/ 1916-2004)

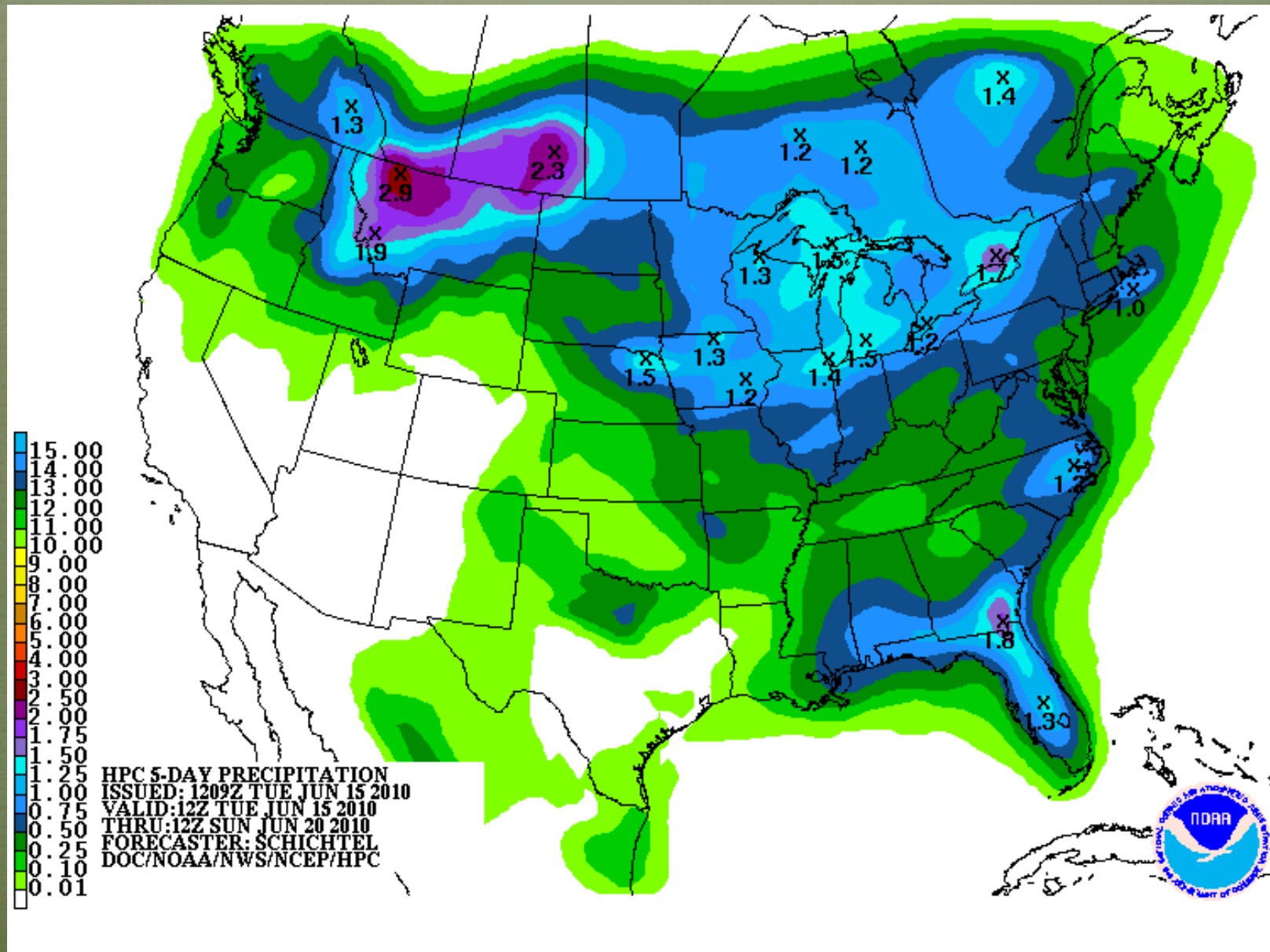
20100613



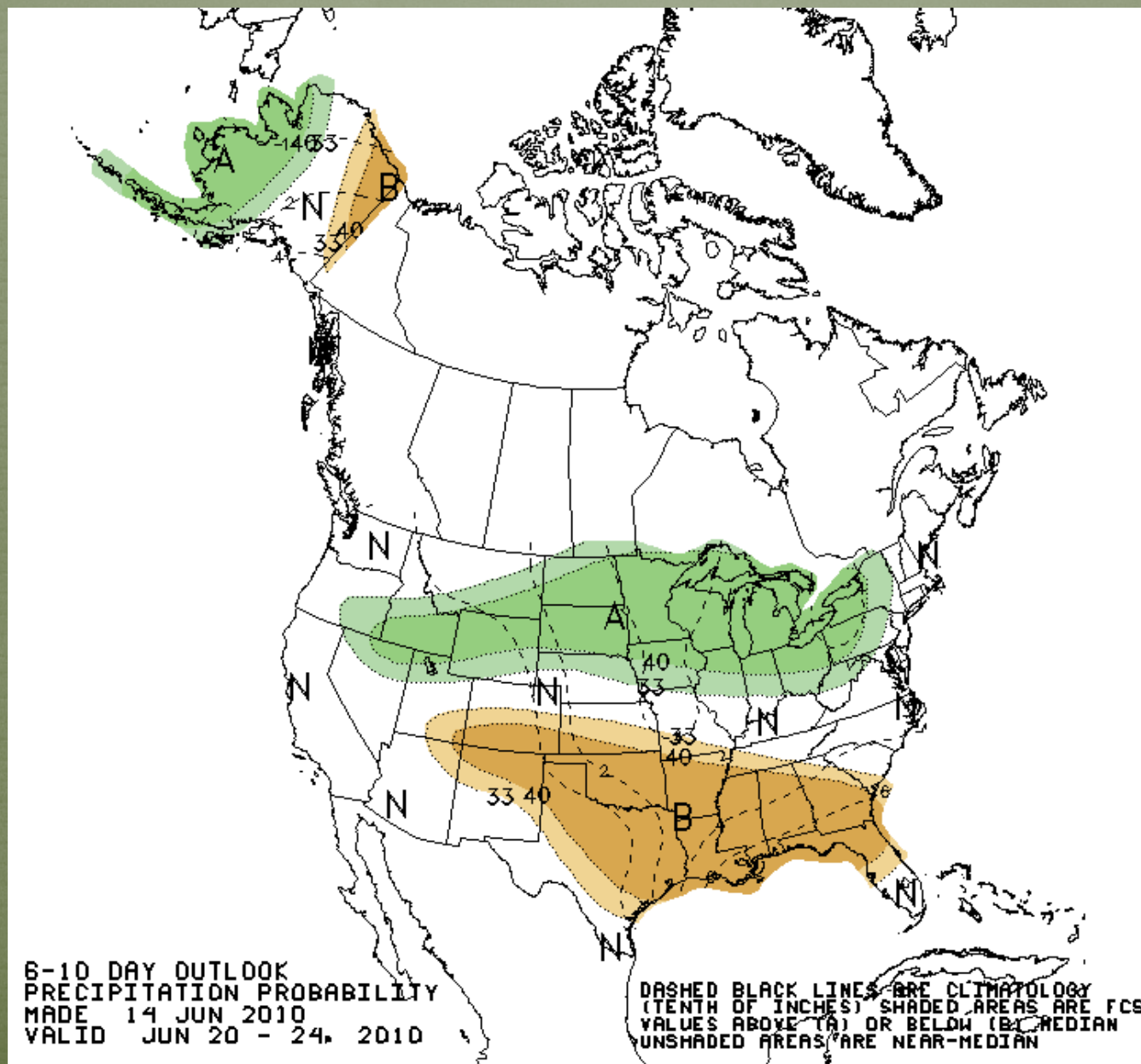
Precipitation Forecast



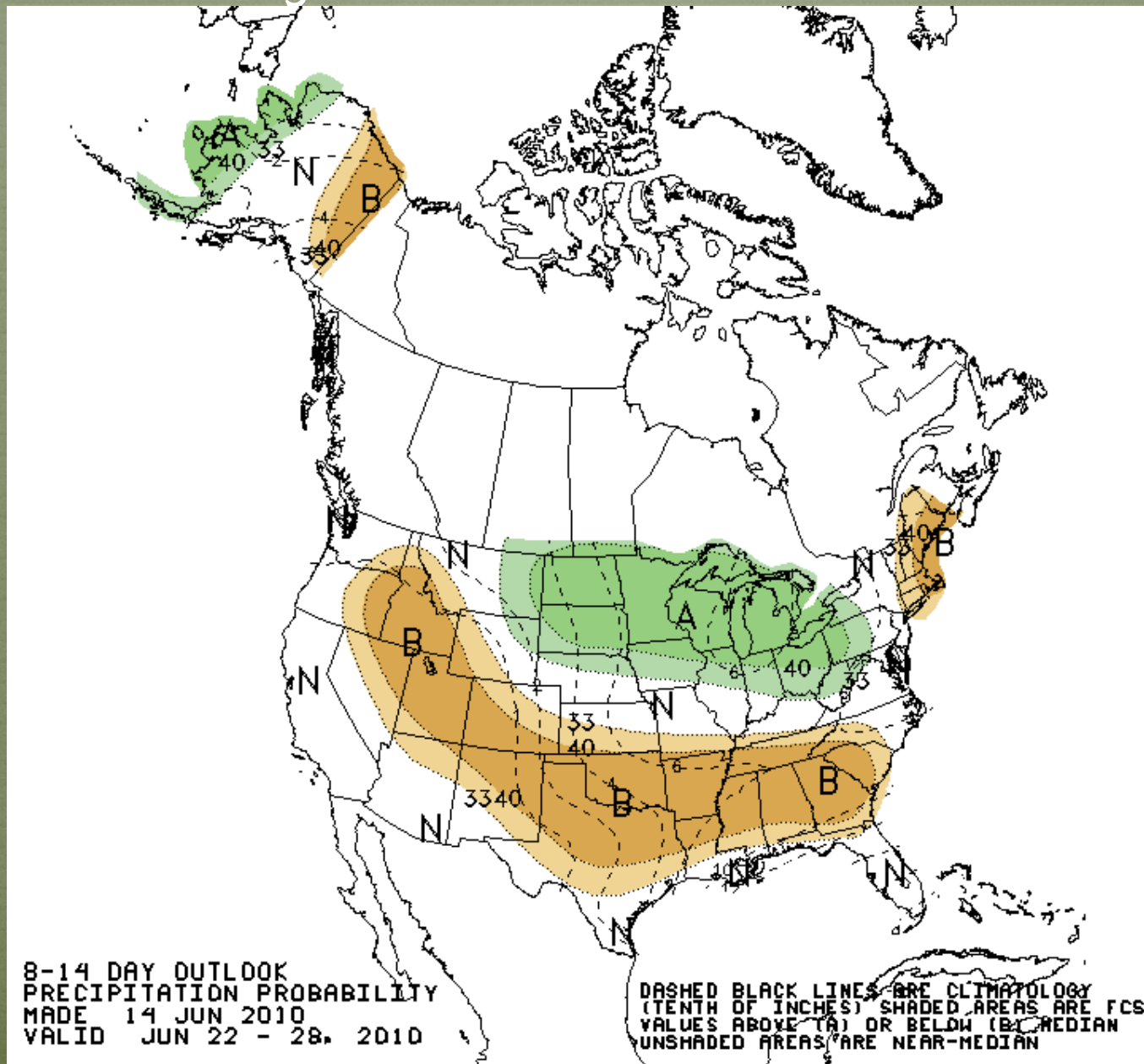
5 Day QPF 15-20 June



6-10 Day Outlook 20-24 June



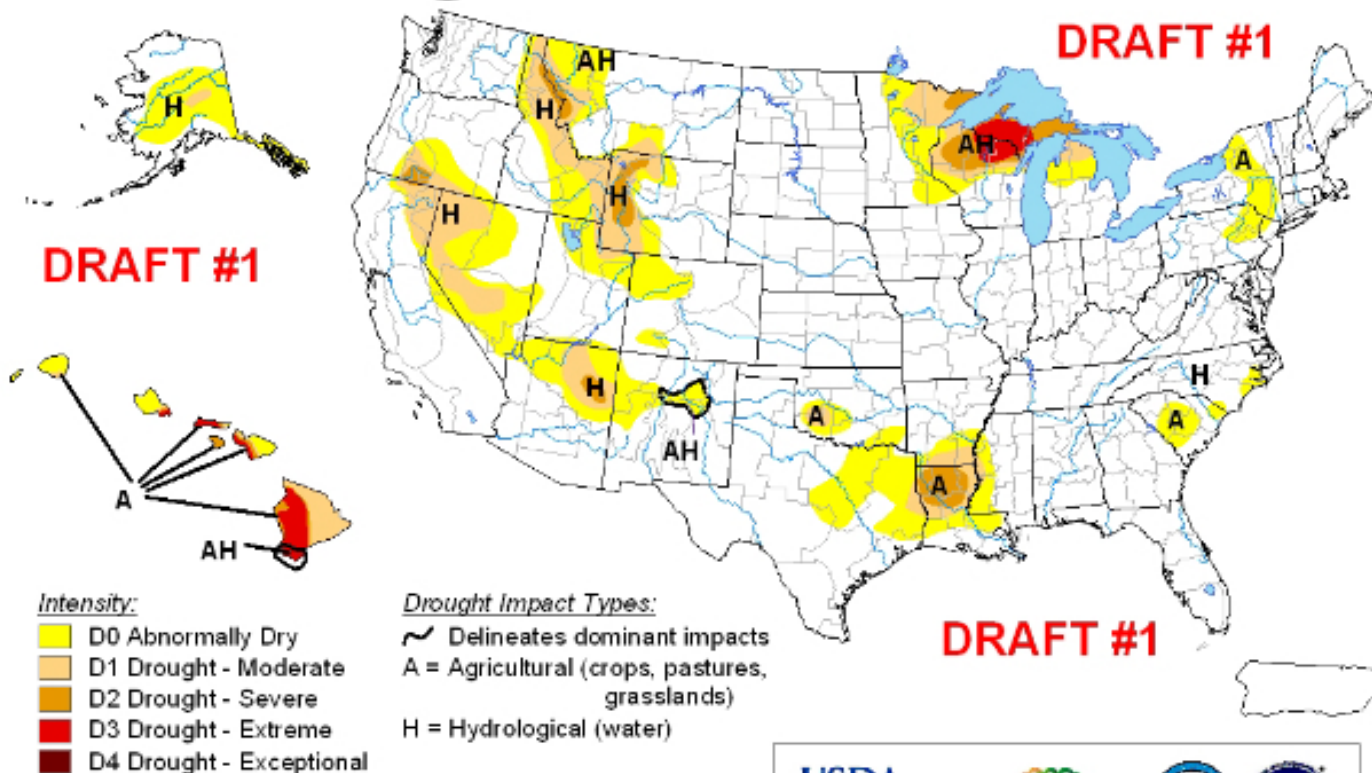
8-14 Day Outlook 22-28 June



Recommendations

U.S. Drought Monitor

June 15, 2010
Valid 8 a.m. EDT



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

<http://drought.unl.edu/dm>



Released Thursday, June 17, 2010
Author: Laura Edwards, Western Regional Climate Center

OPEN

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COLORADO STATE UNIVERSITY
FORT COLLINS, CO 80523
970 - 491 - 8545

NIDIS - UPPER COLORADO BASIN PILOT PROJECT

For more information

NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

June 15, 2010

Precipitation and Snowpack

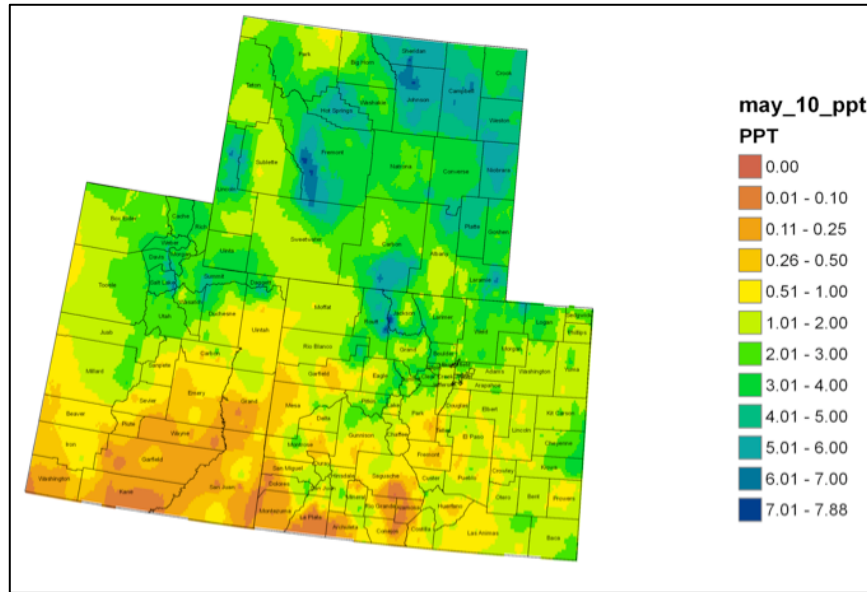


Fig. 1: May precipitation in inches

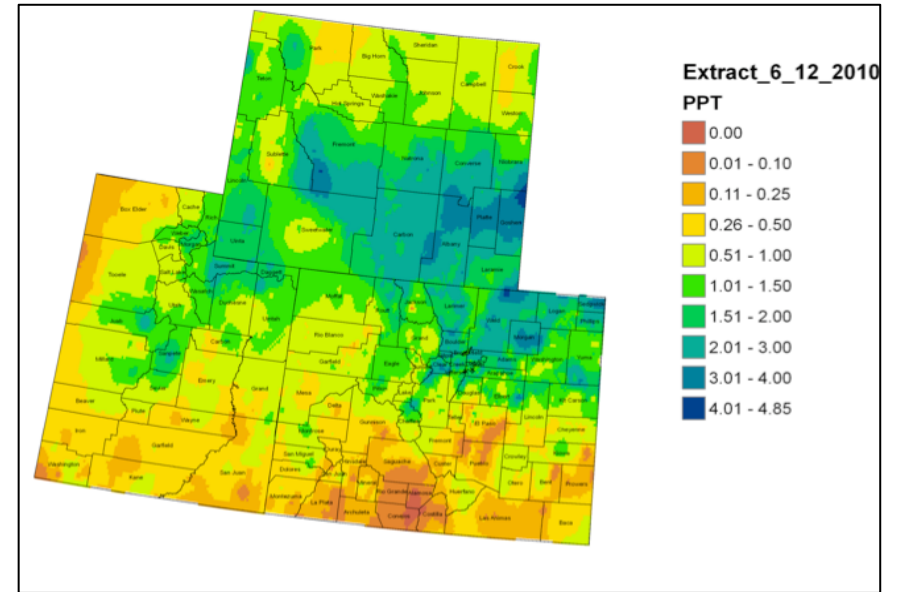


Fig. 2: June 6 – 12 precipitation in inches

For the last week, much of the northern part of the Upper Colorado River Basin (UCRB) received good amounts of moisture, primarily from the last two days of the week (Fig. 2). The southern portion of the basin (southern Utah and southern Colorado) continued to dry out and missed the majority of the storms that passed.

After a very warm beginning to last week, most of the basin saw very quick snow melt-off, with the majority of stations now reporting very little to no snowpack. Thanks to the extended period of widespread precipitation last week, the Green River basin in Utah and Wyoming and the Colorado and Yampa-White basins in Colorado all saw significant increases in their water-year-to-date (WYTD) precipitation percent of averages from last week (Fig. 4).

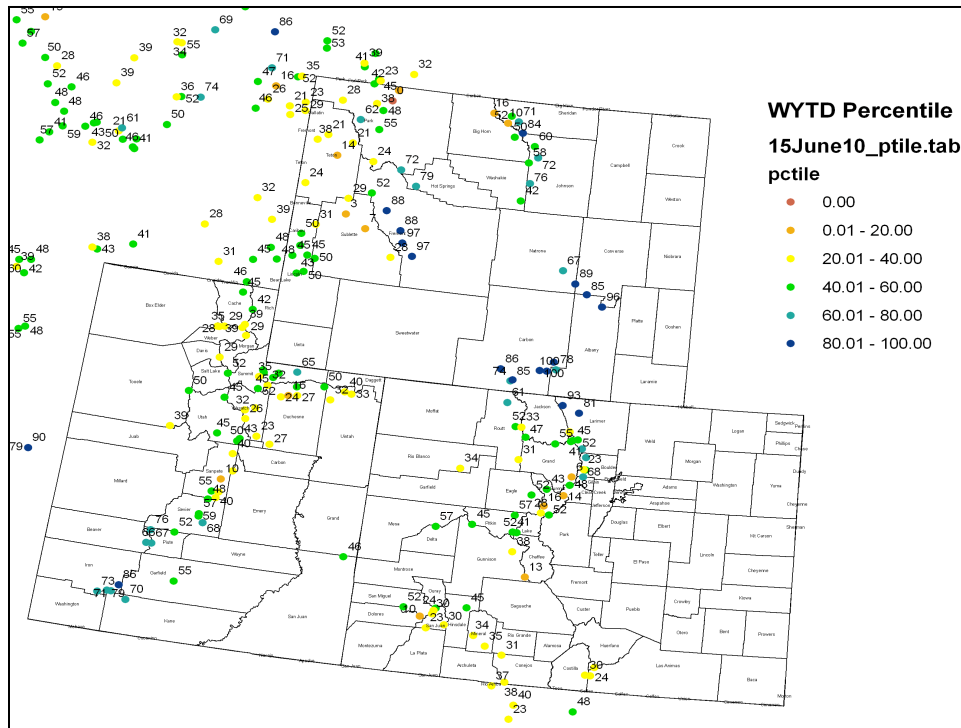


Fig. 3: Snotel WYTD precipitation percentiles (50% is median, 21-30% is Drought Monitor's D0 category).

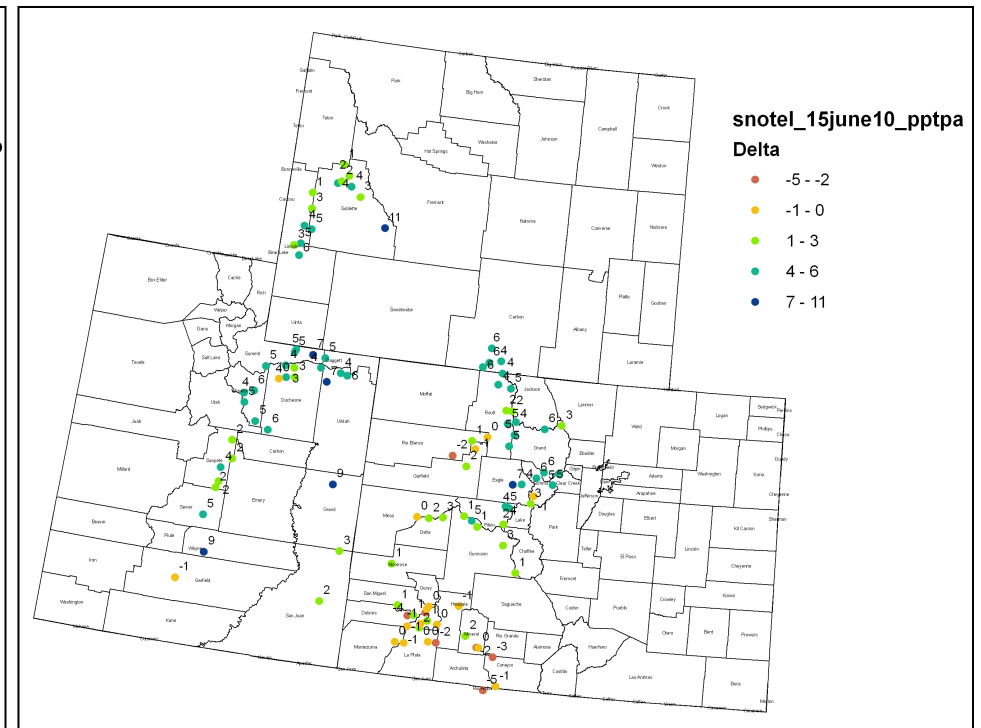


Fig. 4: Snotel WYTD precipitation percent of average change from last week.

The San Juan-Dolores basin in southwest Colorado continued to see decreases in its WYTD precipitation percent of averages (Fig. 4), with several of the stations showing percentile rankings in the D0 category (Fig. 3). Percentile rankings across the rest of the basin have improved, though some of the percentiles are still fairly low.

Streamflow

Most of the sites in the UCRB reached their peak flows by Wednesday of last week, with many of the stations recording record flows. The Colorado River at the Colorado-Utah state line peaked on June 9th with a peak streamflow around 30,000 cfs, which is above the normal peak. The record peak for that station is near 70,000 cfs in 1984. The 7-day averages across the basin show 90% of the sites are at normal (25-75% range) or above normal, with only 15 stations recording below normal flows (Fig. 5).

This however is likely to change over the next couple of weeks as rivers return to base flow. Real-time data already show many of the stations returning to below normal flows, especially in Utah, Wyoming and in the San Juans. Also, the total accumulated runoff on the Colorado River at the Colorado-Utah state line is only at 78% of normal.

Explanation - Percentile classes							
							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

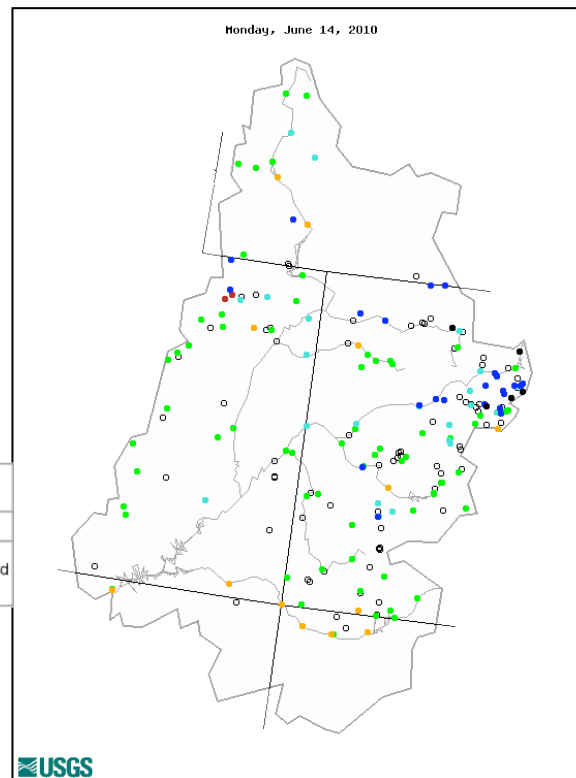


Fig. 5: USGS 7-day average streamflow compared to historical streamflow for June 14th.

Water Supply and Demand

All of the major reservoirs in the UCRB remain above average levels for this time of year (though Lake Powell in the lower part of the basin is below average), and the majority of the reservoirs saw increases in their levels over the past two weeks. Outflow into the Blue River from Lake Dillon has been increased in the last week to compensate for the spillage that has been occurring (after it reached maximum capacity in late May). Flaming Gorge, which had previously experienced a large release to match the peak flows of the Yampa River, has begun to rise again as the Yampa River flows return to normal.

Temperatures across southwestern WY remained cooler than average for last week, while across western CO, conditions were warmer than average. However, with several days of steady rain and below normal temperatures in the northern part of the basin, soils are being replenished and demand for west slope water were reduced.

Precipitation Forecast

Over the next five days, southwesterly flow will prevail, moving very warm and dry air into the region. The next storm system from the west will move in our direction around Wednesday or Thursday, but will be too far north to bring moisture to the most of the basin. Long range forecasts from the Climate Prediction Center (CPC) show good possibility for below normal precipitation over the next two weeks.

Drought and Water Discussion

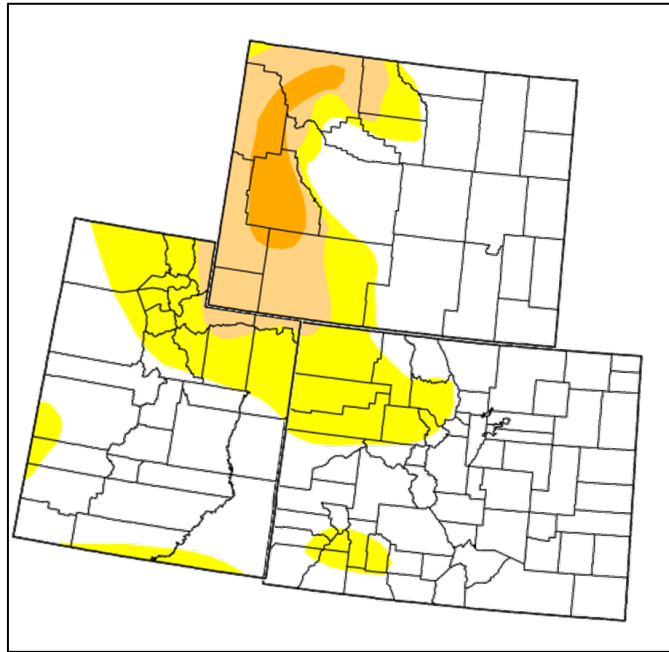


Fig. 6: June 10 release of U.S. Drought Monitor

Very wet conditions throughout much of the region has led to flooding in Utah and Colorado. There are definite signs of improvement in northern Utah and the Colorado headwaters region. However, while considering long term impacts, and low peak snowpack numbers, D0 will remain throughout most of the region. Any category changes made in Utah and Wyoming should be coordinated with those state experts. In Colorado, it was recommended to remove the D0 around the headwaters of the Yampa River in Routt County and parts of Moffat County, as flows have made an excellent recovery and have been doing well for nearly a month now. It has also been suggested to remove D1 from Moffat County as some nearby stations are reporting slightly below normal precipitation, but possibly not low enough to warrant D1. Conditions continue to deteriorate in southwest Colorado, but as this is their dry season, status quo has been recommended for that region.