

## Background Information

We met with the City of Gothenburg, NE on June 14, 2011 to discuss flooding concerns. The city showed us their 100 year flood insurance maps. We are expecting flooding this year to be between the 10 and 50 year flood. The flows from the North Platte River are expected to be between 5700 cfs and 9000 cfs. The flows from the South Platte River are expected to be between 5000 cfs and 15,000 cfs. South Platte River flows are dependent on the timing of the melt of the large snow pack in the mountains coupled with the need for irrigation from the river. The flows from the North Platte River will be sustained for weeks due to releases from Lake McConaghy. Coincidental flows between the North Platte and South Platte expected in Gothenburg are expected to range from 11,000 cfs to 24,000 cfs.

The flows recorded at Henderson, CO will take approximately 6 to 7 days to show up in Gothenburg. The flows at the Brady gauge will take approximately 8 to 12 hours to arrive in Gothenburg. The flows from North Platte, NE will take approximately 24 to 36 hours to arrive in Gothenburg.

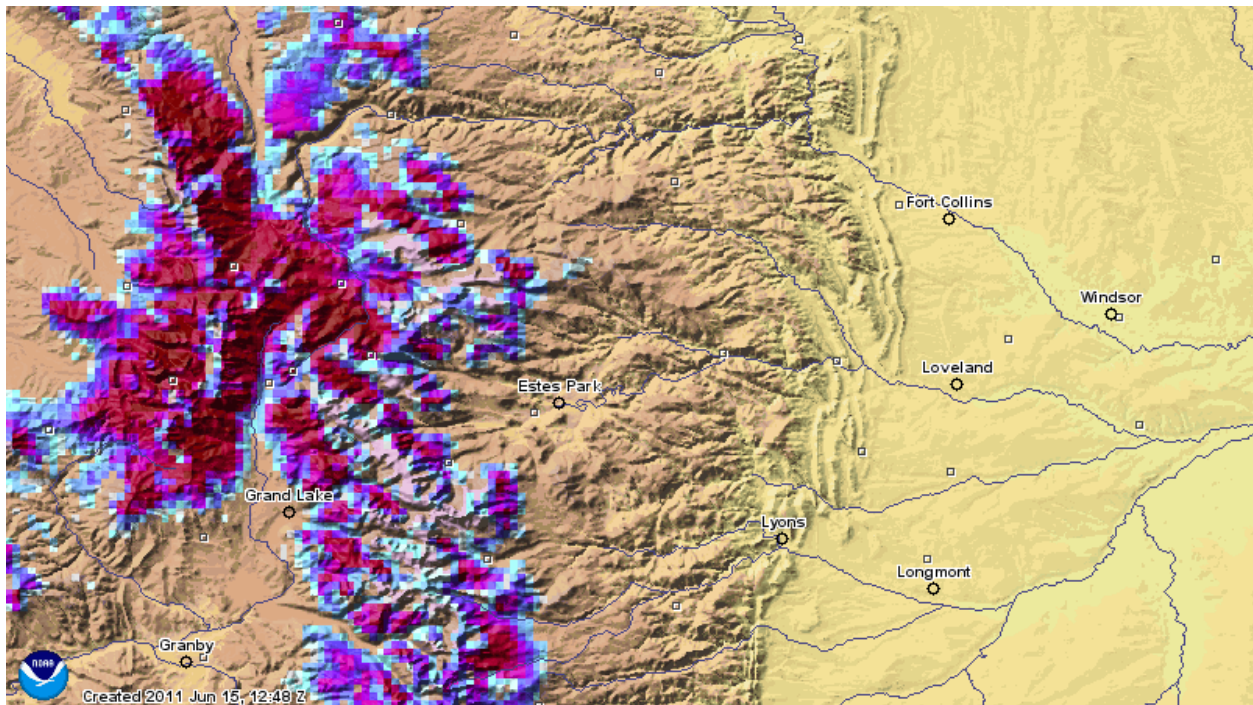
Referencing the FEMA flood insurance mapping dated May 3, 2011, the peak discharges corresponding to the following frequencies are as follows:

|                    |            |                        |
|--------------------|------------|------------------------|
| 10 Year Discharge  | 11,000 cfs | Minimum expected flows |
| 50 Year Discharge  | 25,000 cfs | Maximum expected flows |
| 100 Year Discharge | 34,000 cfs |                        |

## Snowpack information

Figure 1 shows the snow water equivalency of the South Platte River Drainage Area. The principle rivers in the area with the high snowpack are the Cache La Poudre and the Big Thompson. Neither of these rivers have dams or reservoirs to control runoff. The majority of the mountain system has a snow water equivalency greater than 30 inches of water.

Figure 1: Snow Water Equivalency of South Platte Drainage Area



The above figure can be found at <http://www.nohrsc.nws.gov/interactive/html/map.html>

#### Stream Gauging Stations

A series of streams gauges on both the North Platte River and the South Platte river exist. They are available at <http://water.weather.gov/ahps2/index.php?wfo=lbf>. The nearest upstream gauge on the Platte River is located at Brady, NE. Figure 2 shows the hydrograph. The current stage is 7.9 feet with a corresponding flow of 6000 cfs. Most of this flow is from the North Platte River and being released from Lake McConaghy.

Figure 2: Brady, NE Stream Gauge

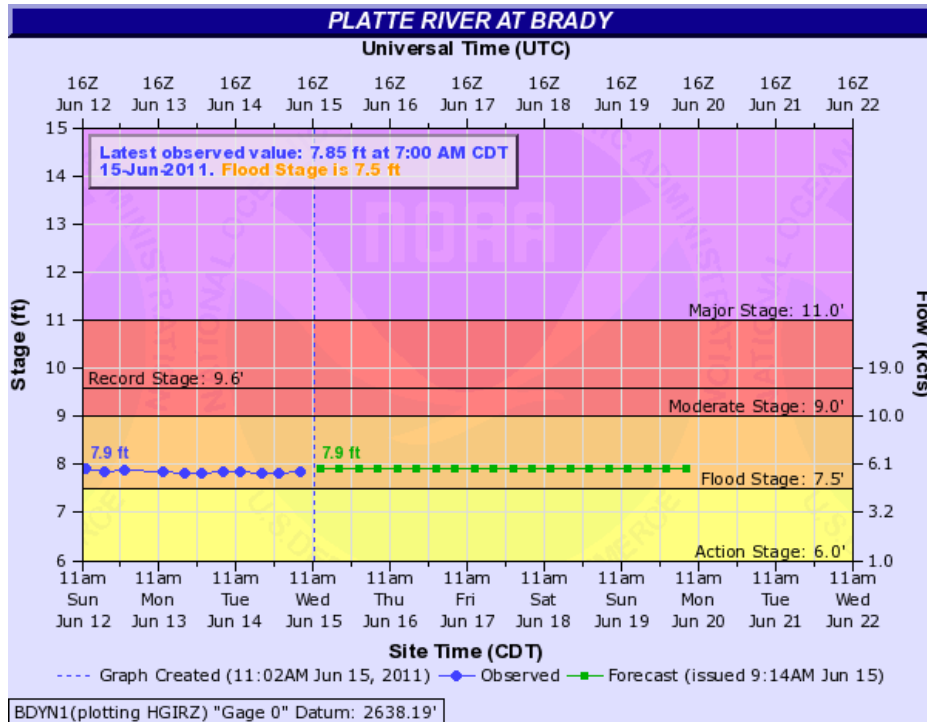
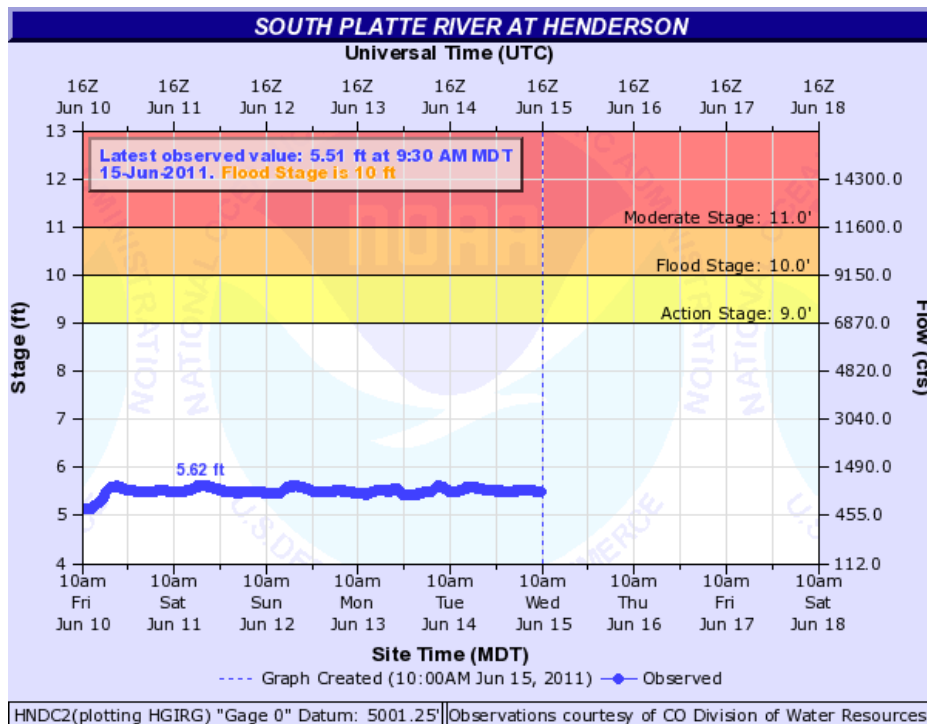
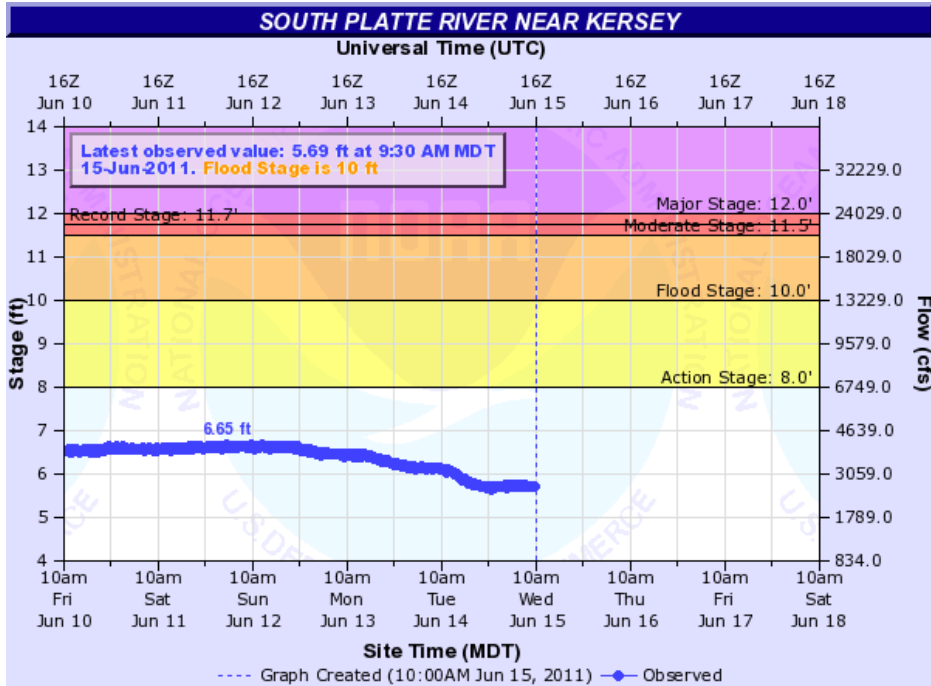
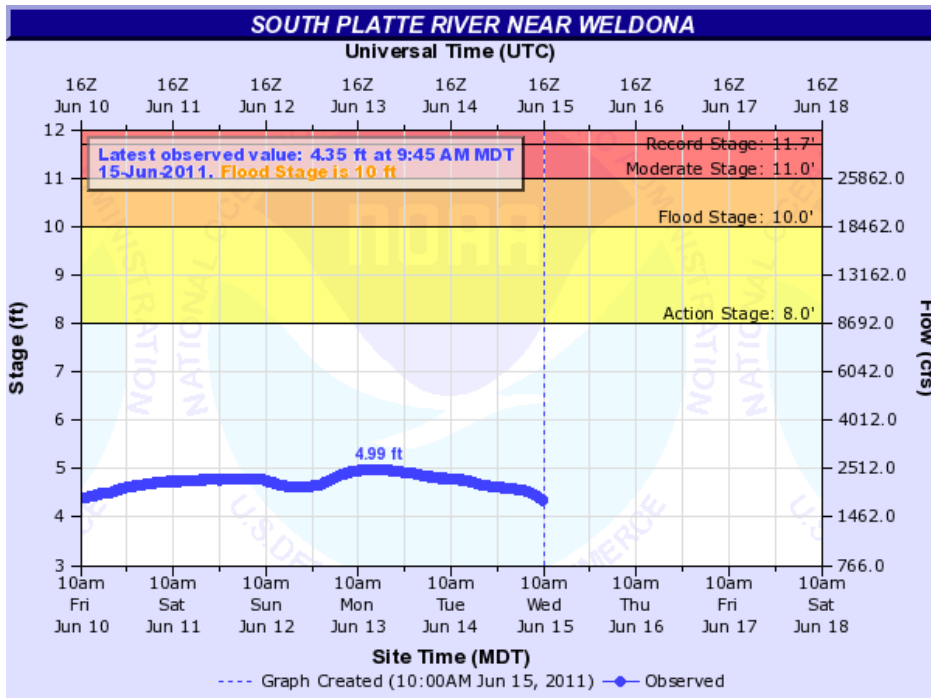


Figure 3: River gauges on the South Platte River From Henderson, CO to Balzac, CO





KERC2(plotting HGIR2) "Gage 0" Datum: 4578.02' | Observations courtesy of CO Division of Water Resources



WNAC2(plotting HGIRG) "Gage 0" Datum: 4309.79' | Observations courtesy of CO Division of Water Resources

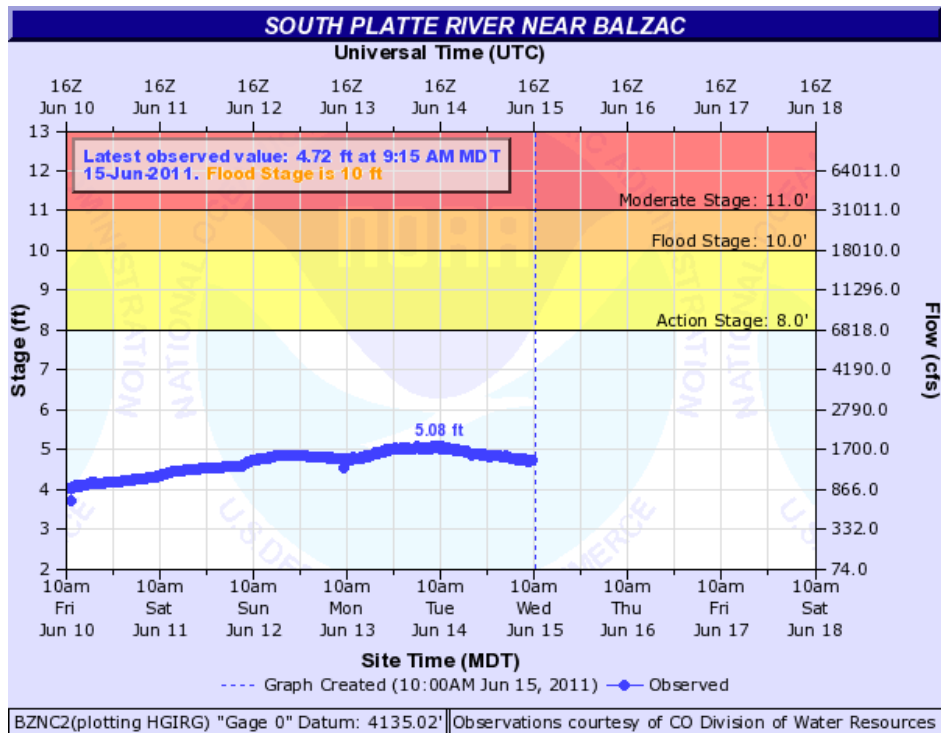
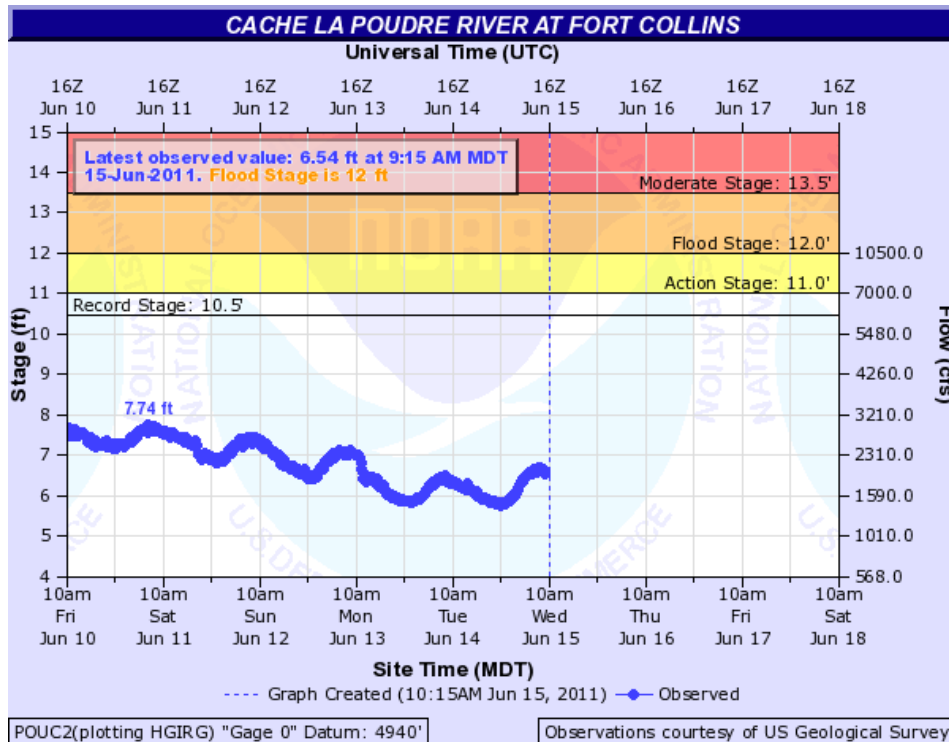
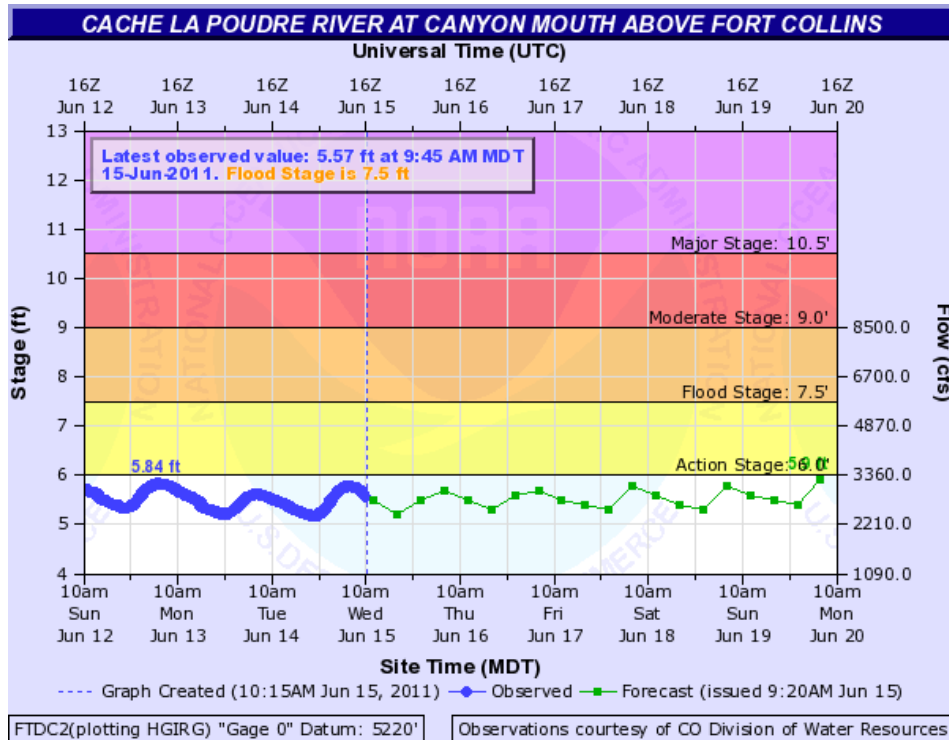


Figure 4: Stream Gauges on the Cache La Poudre River



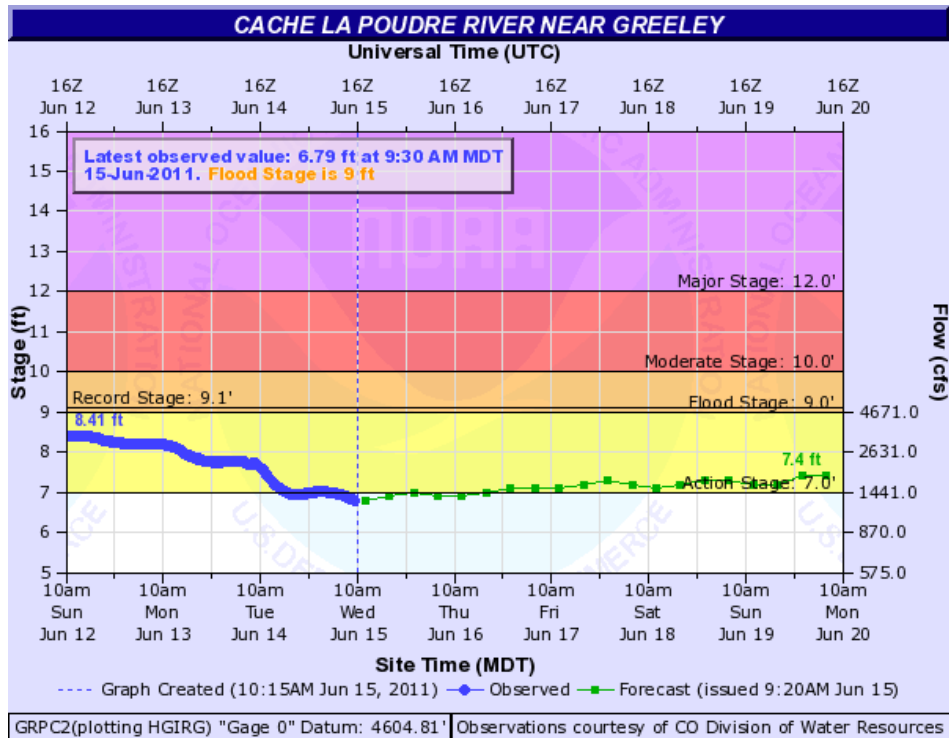
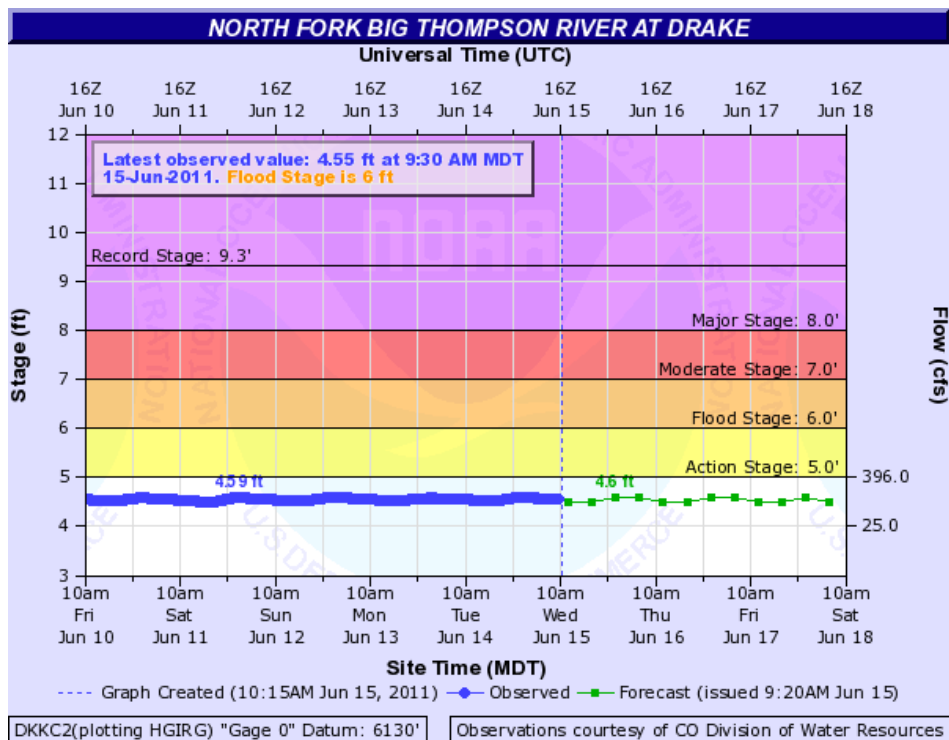
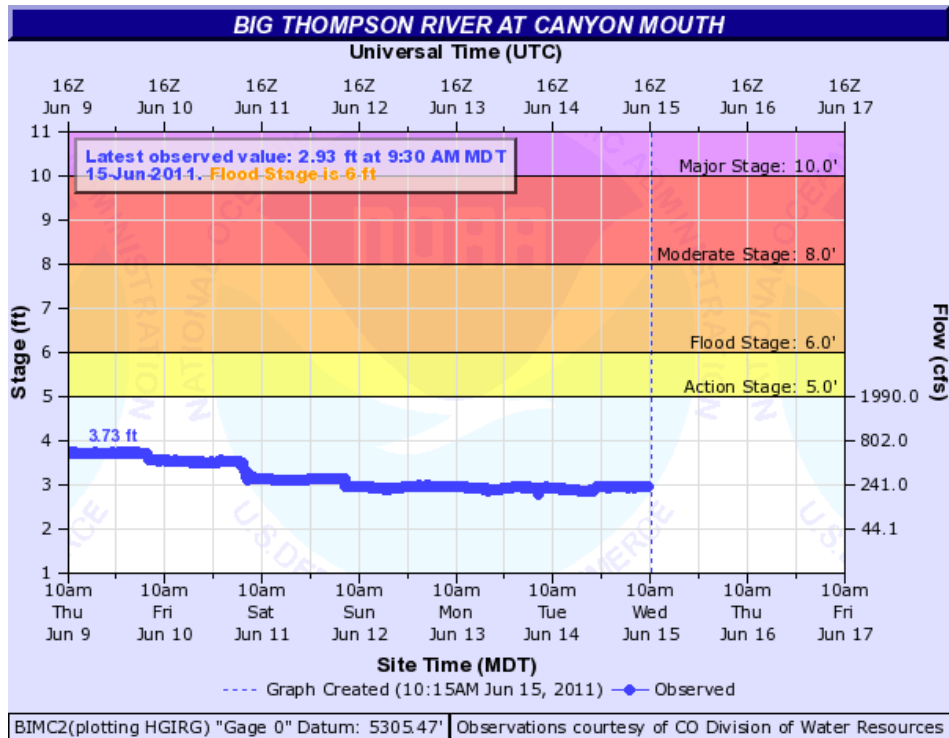


Figure 5: Big Thompson River







Existing Conditions



Figure 6: The existing water surface elevation is 2558.57'. It is expected to rise 2.2 feet to the 10 year flood and possibly 2.8 feet to the 50 year flood elevation.





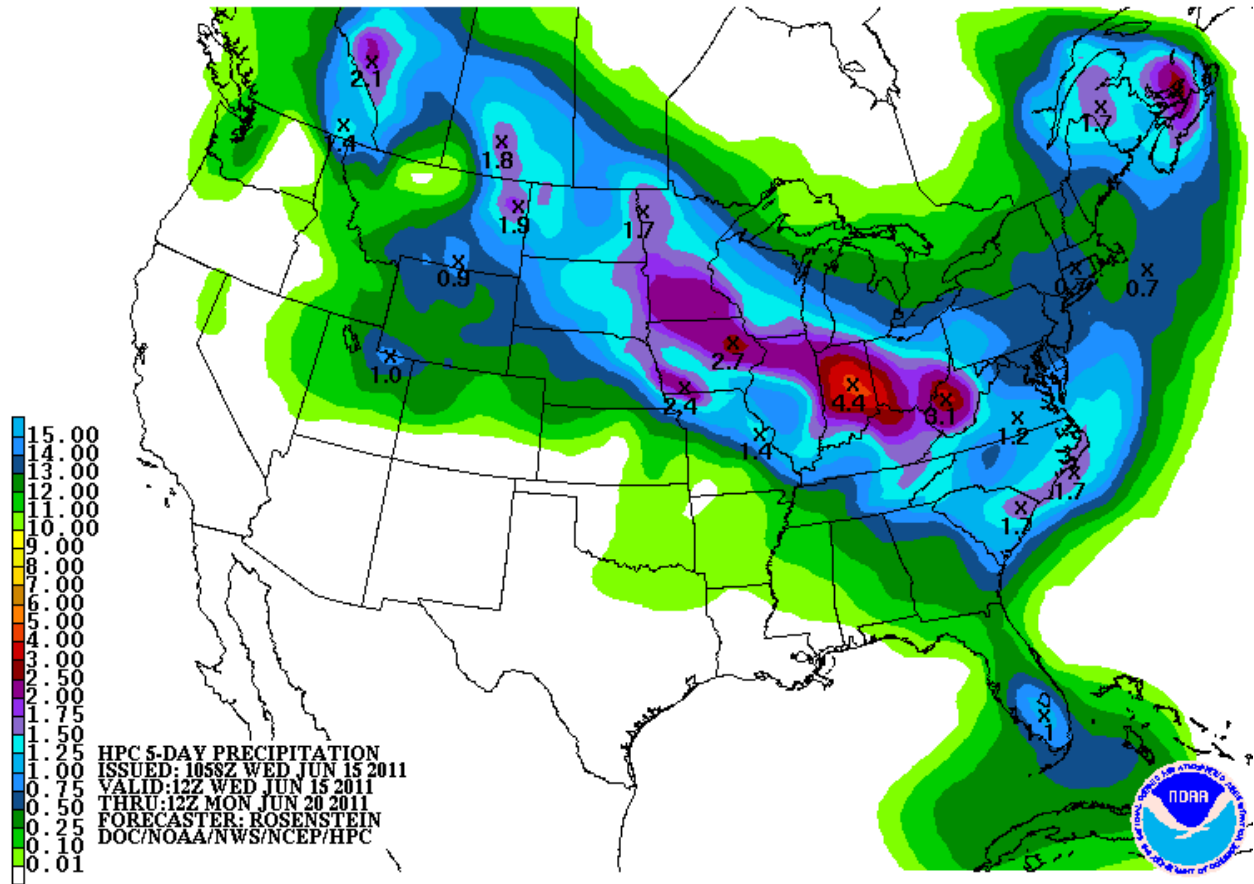
Figure 7: The municipal water well is at elevation 2558.04. It is 0.9' below the 10 year flood and 2.2' below the 50 year flood.



Figure 8: The Nebraska Department of Roads Maintenance yard is at elevation 2560.52 which is .6' above the 10 year flood and .5' below the 50 year flood.

Attached is a spreadsheet showing multiple points of interest (existing elevations) relative to the 10 year, 50 year and 100 year flood elevations.

Figure 9: 5 day future forecast as found on: <http://www.hpc.ncep.noaa.gov/gpf/day1-5.shtml>



The precipitation amounts for the past 7 days can be found at <http://water.weather.gov/precip>.

#### Recommendations

We will meet with the city of Gothenburg to discuss possible actions.

#### Point of Contact for Gothenurg, NE

- Mike Libich, City of Gothenburg – 308-529-1129
- Bruce Clymer, City of Gothenburg – 308-537-3677
- Shane Gruber, City of Gothenburg – 308-529-2481
- Brian Woldt, Dawson County EM – 308-324-2770
- Randy Olson, Chief of Police Gothenburg - 308-529-1160
- Jake Ripp, Dawson County Surveyor – 308-324-3541