

Colorado River Storage Project Fontenelle Working Group

2010 Water Supply Forecast Verification And Water Year Review

8/24/2010

William B. Reed
Colorado Basin River Forecast Center



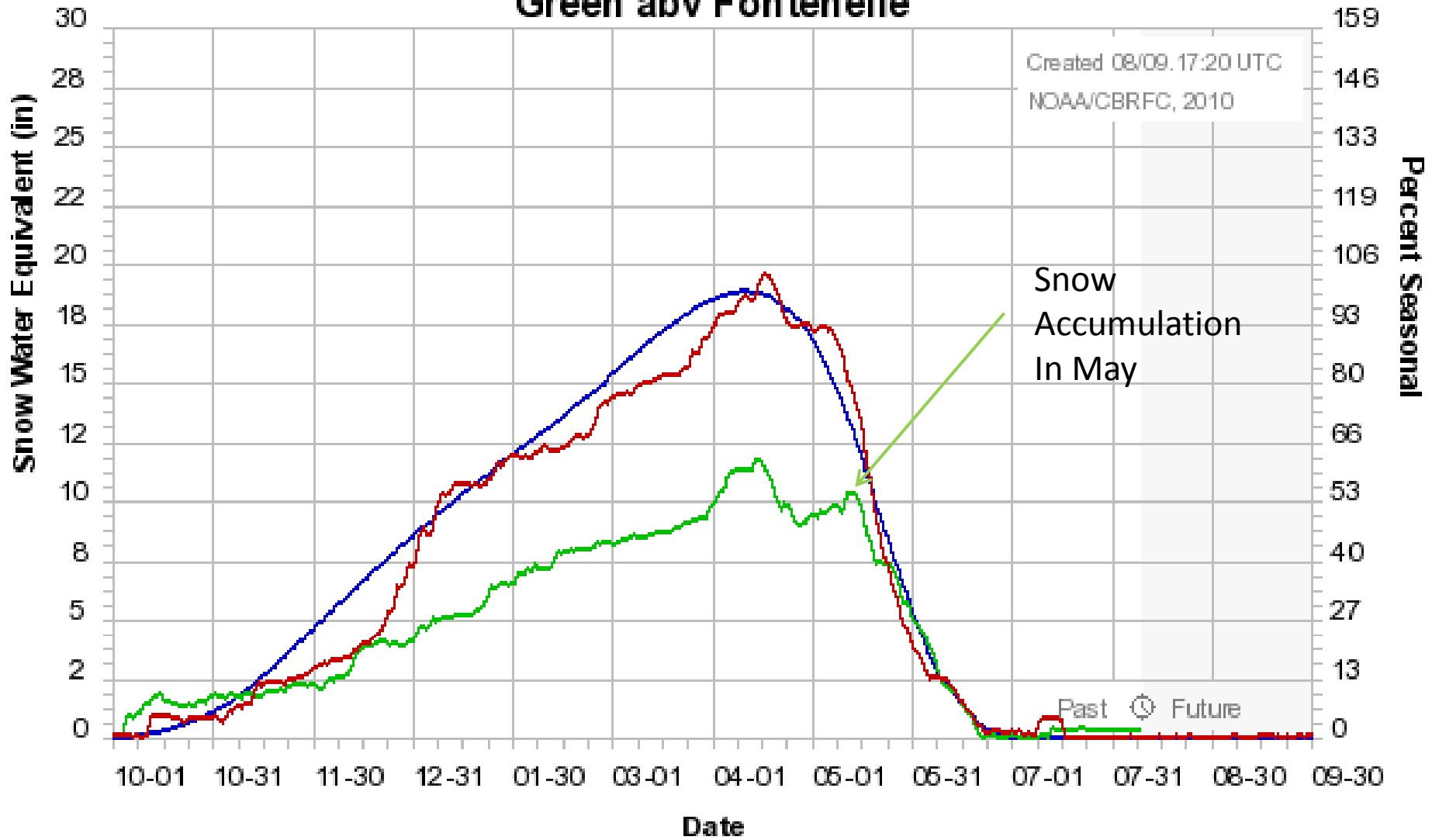


CBRFC Slides for Fontenelle

2010 Water Year Review and Verification

- SNOTEL Accumulation
- Seasonal and Monthly Precipitation
- Seasonal Forecasts
- Monthly Forecasts
- Daily Forecasts

Colorado Basin River Forecast Center Green abv Fontenelle

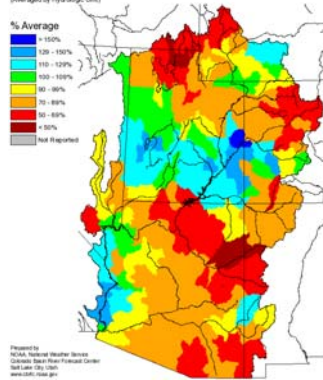


avg — 2010 — 2009 —

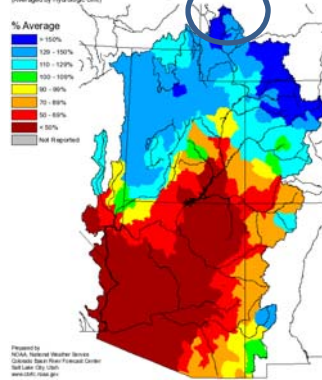
Nine gages, none above 9,400 feet.

Monthly: Above Average Precipitation (April, May, and June) During The Runoff Season.

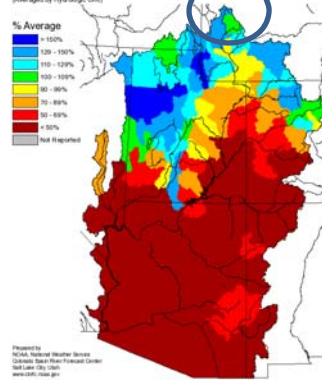
Monthly Precipitation for March 2010



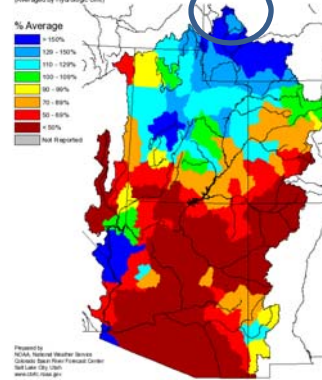
Monthly Precipitation for April 2010



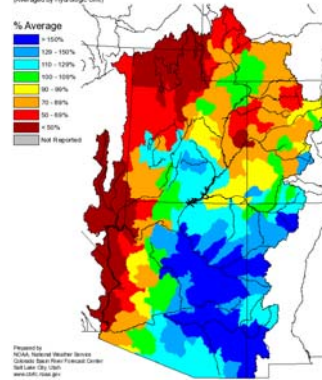
Monthly Precipitation for May 2010



Monthly Precipitation for June 2010

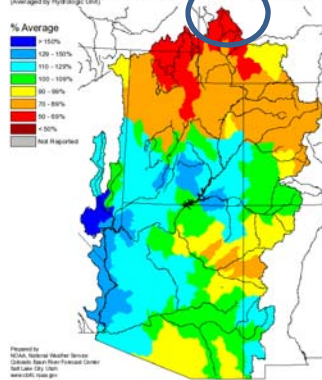


Monthly Precipitation for July 2010

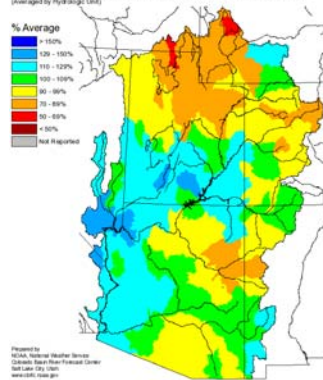


Seasonal: April 1st Dry

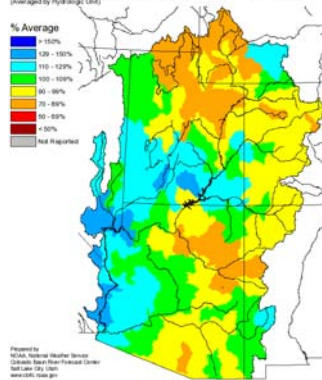
Seasonal Precipitation, October 2009 - March 2010



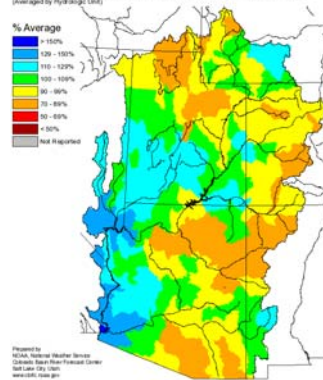
Seasonal Precipitation, October 2009 - April 2010



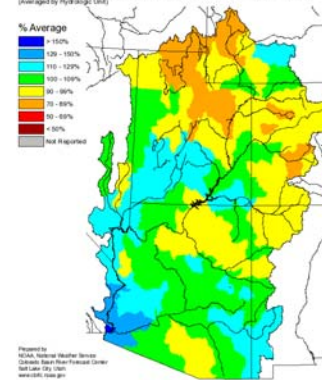
Seasonal Precipitation, October 2009 - May 2010



Seasonal Precipitation, October 2009 - June 2010



Seasonal Precipitation, October 2009 - July 2010



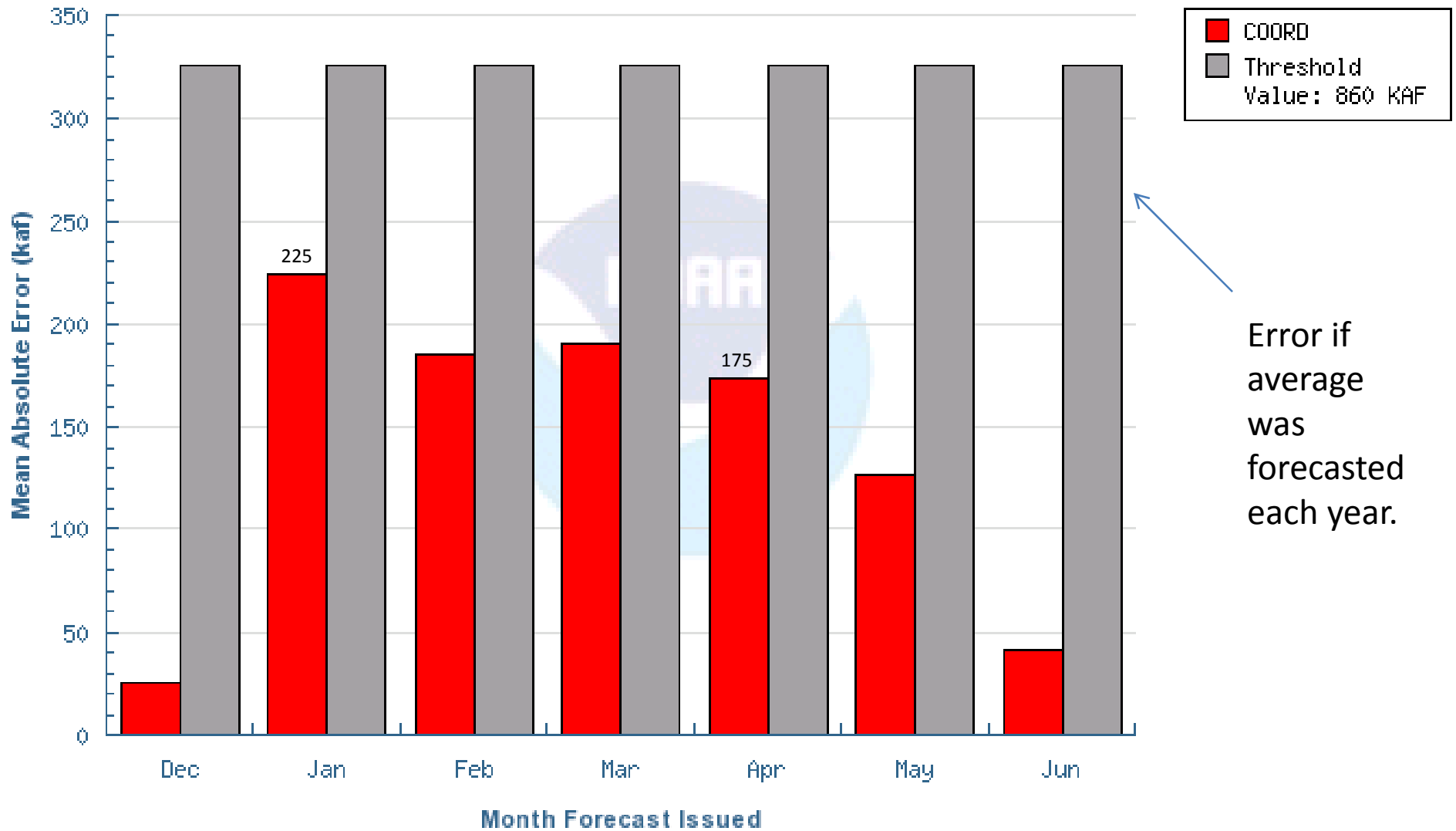
GREEN - FONTENELLE RES, FONTENELLE NR (GBRW4)

Water Year 2010, Forecast Period Apr-Jul (highlighted)

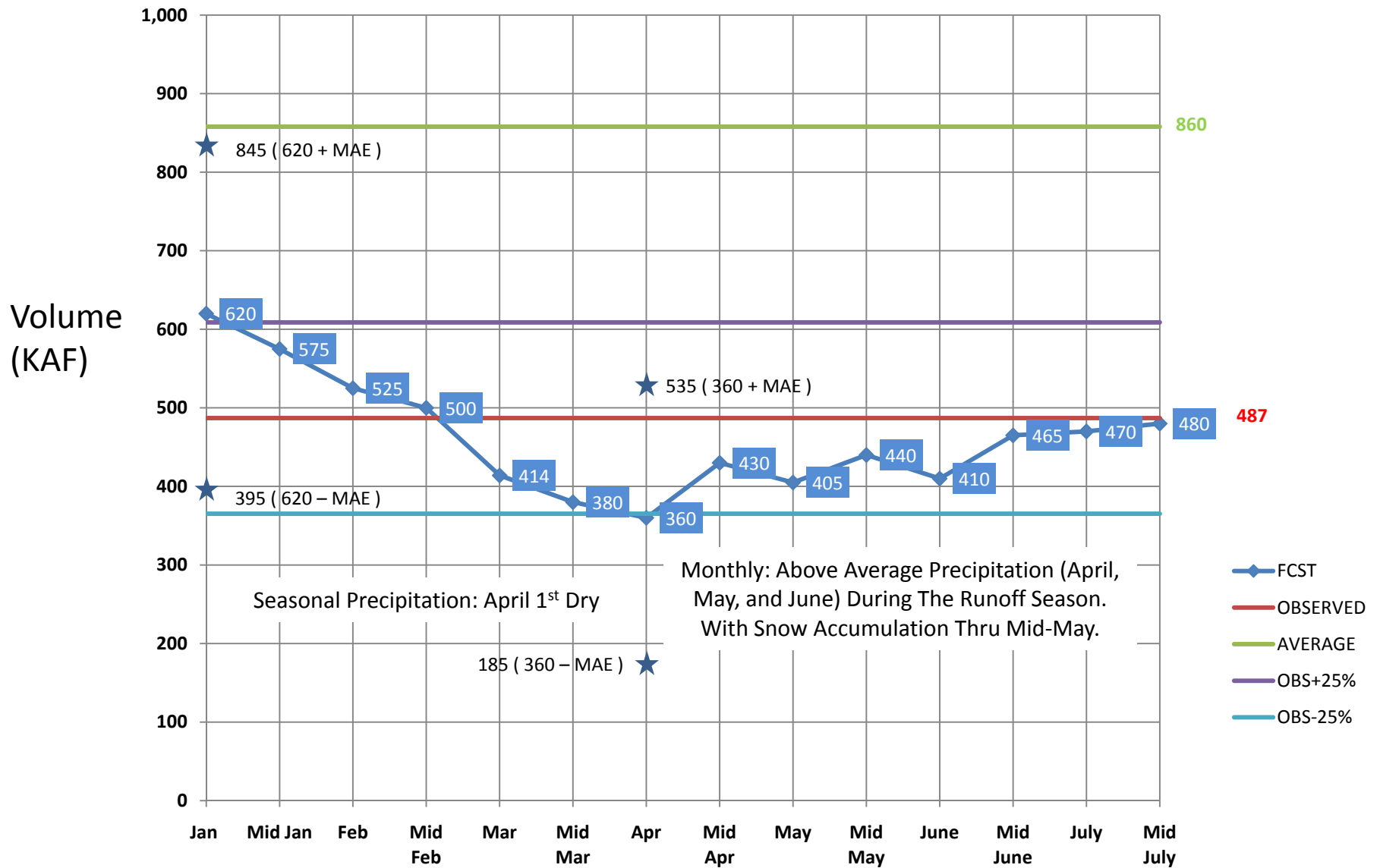


Mean Absolute Error - GREEN - FONTENELLE RES, FONTENELLE NR (GBRW4)

Forecast Period: Apr - Jul



Data: 1979-2009

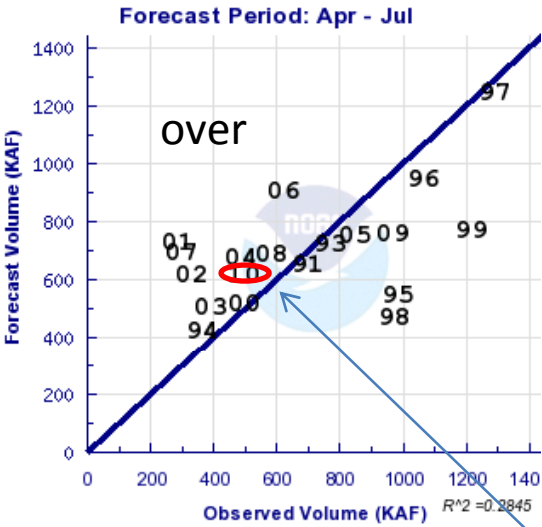


Fontenelle 50% Values -2010

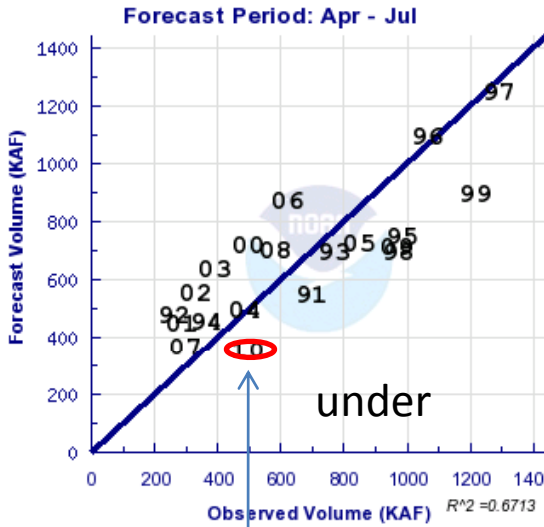
Streamflow Scatterplot for Fontenelle Forecast

1991-2010

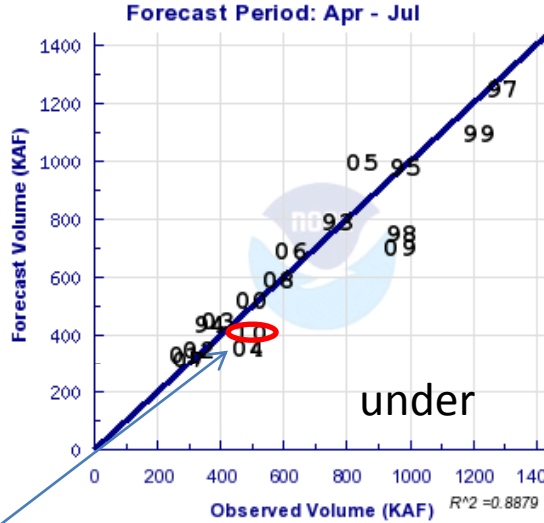
January Forecast



April Forecast



June Forecast

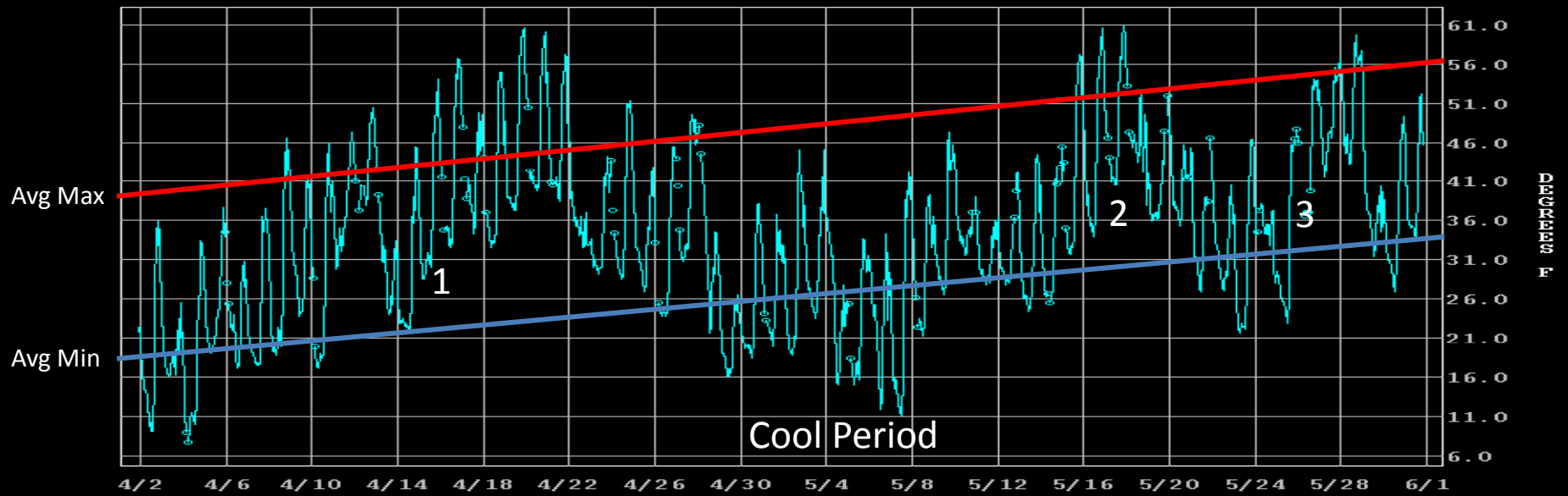


2010

ELKHART PARK G.S.
 EKPW4 SWIRMZZ SNOW WATER EQUIVALENT, INSTANTANEOUS, OBSERVED, METEOR
 Max= 9.5 at 04/15/2010 03Z
 Min= 0.4 at 05/31/2010 21Z



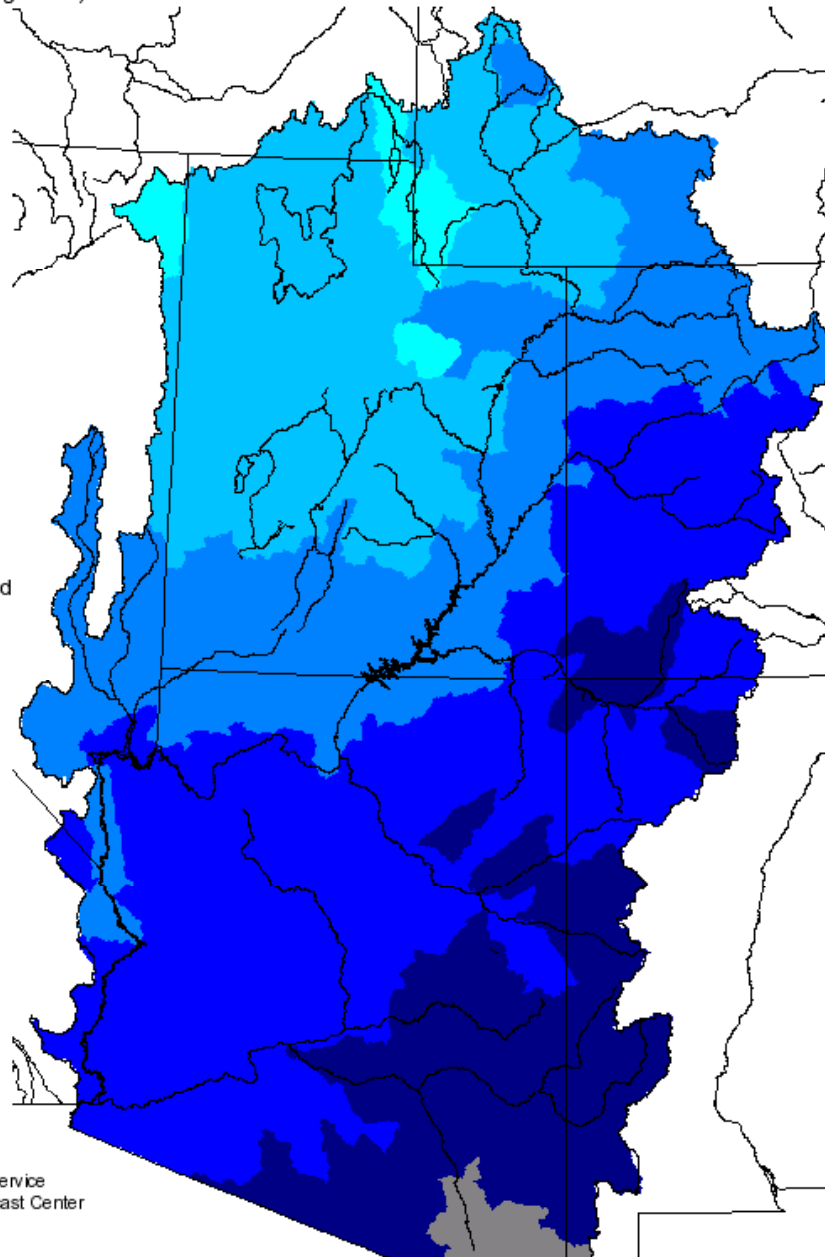
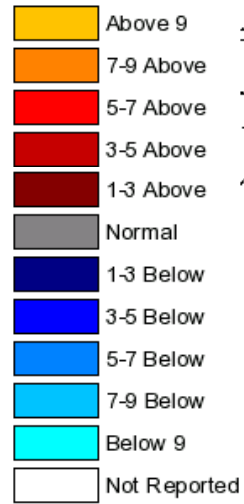
ELKHART PARK G.S.
 EKPW4 TAIRMZZ AIR TEMPERATURE, INSTANTANEOUS, OBSERVED, METEOR
 Max= 60.8 at 05/17/2010 20Z
 Min= 7.7 at 04/04/2010 06Z



Monthly Max Temp Deviation for May 2010

(Averaged by Hydrologic Unit)

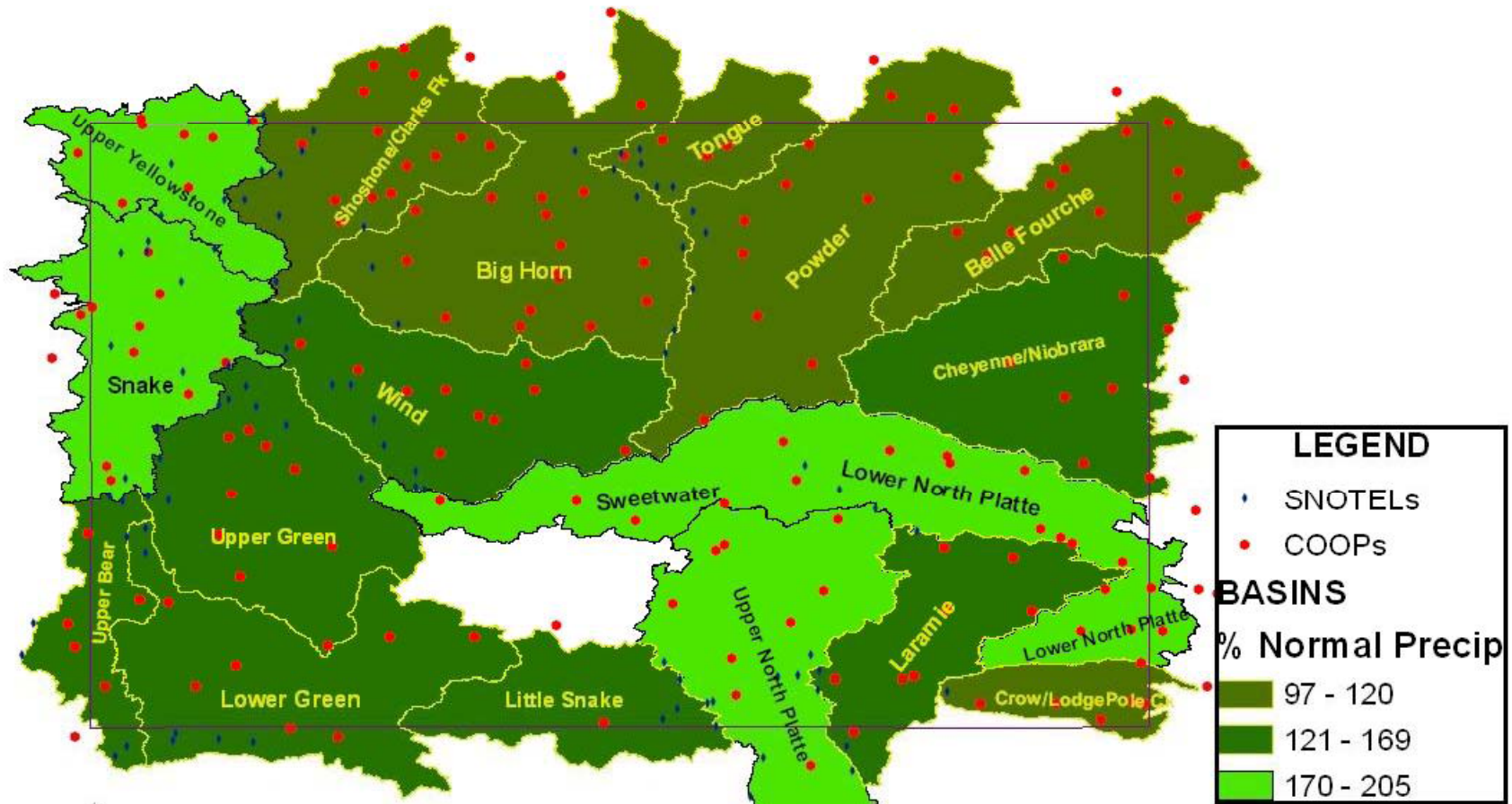
Degrees (F)



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

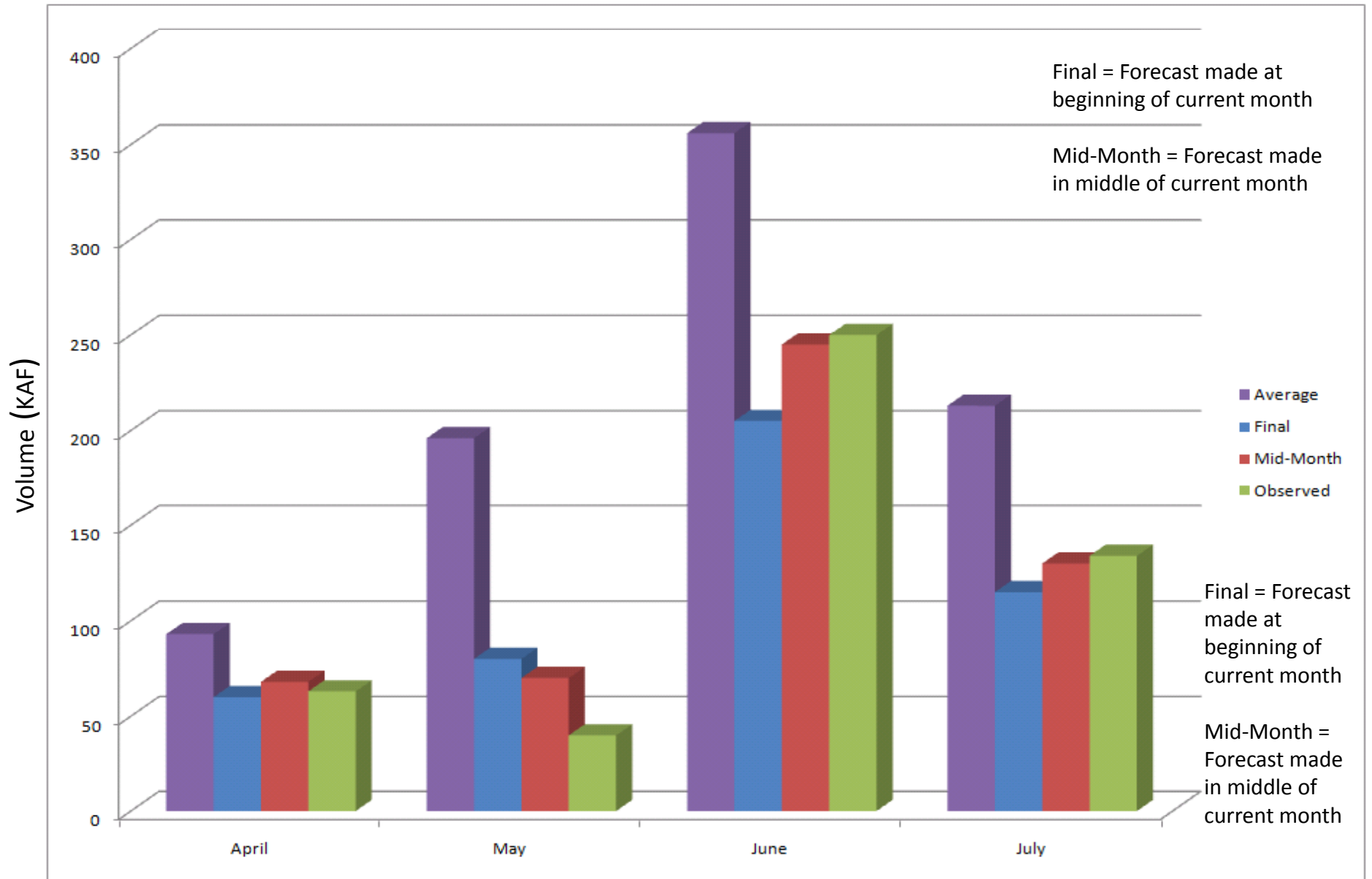


Percent of Normal Precipitation by Basin June 2010



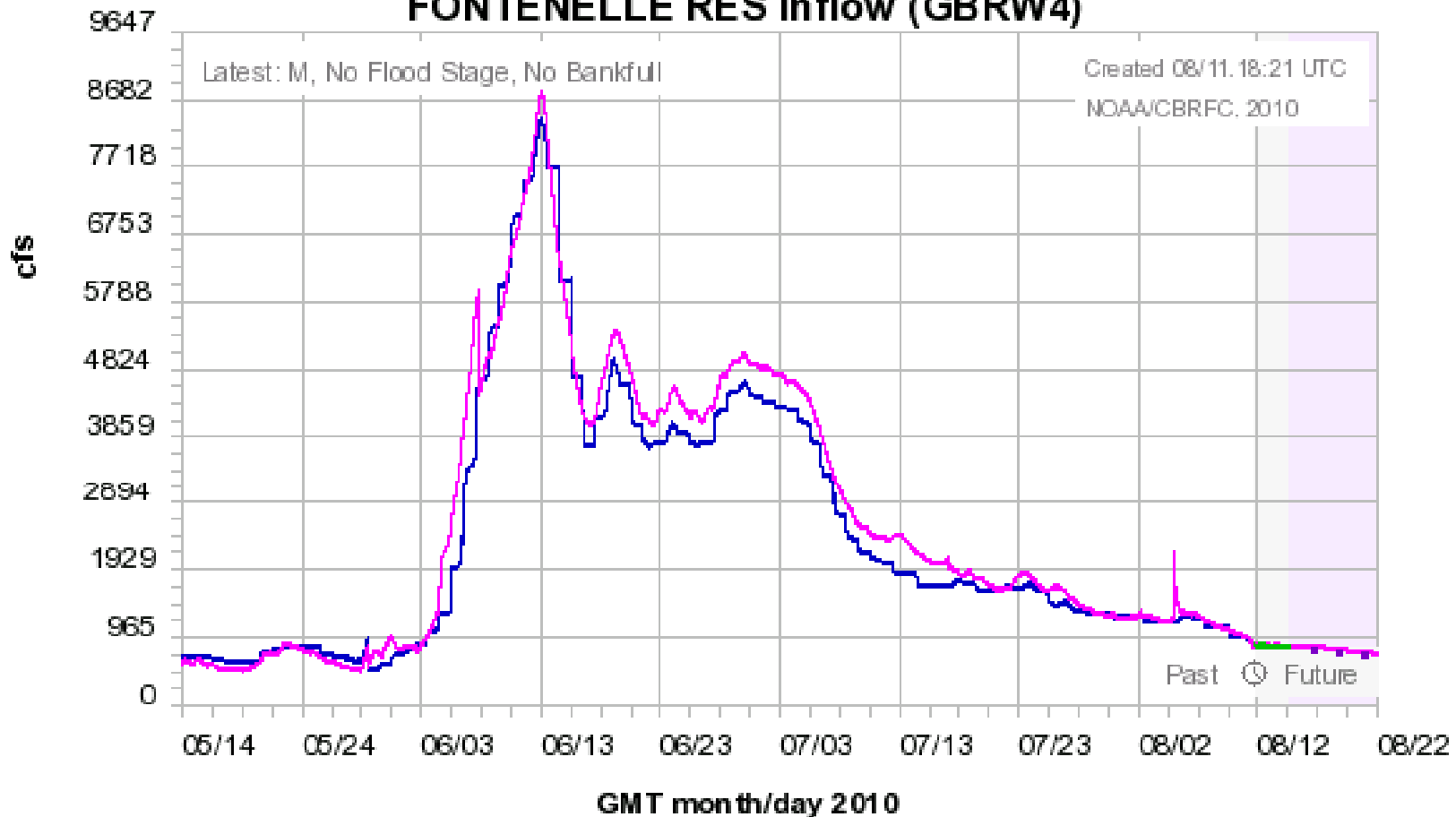
Jim Fahey
Wyoming NOAA hydrologist
Riverton, Wy
857-3898 ext 493

Fontenelle Monthly Forecasts Verification



Fontenelle Daily Forecasts Verification

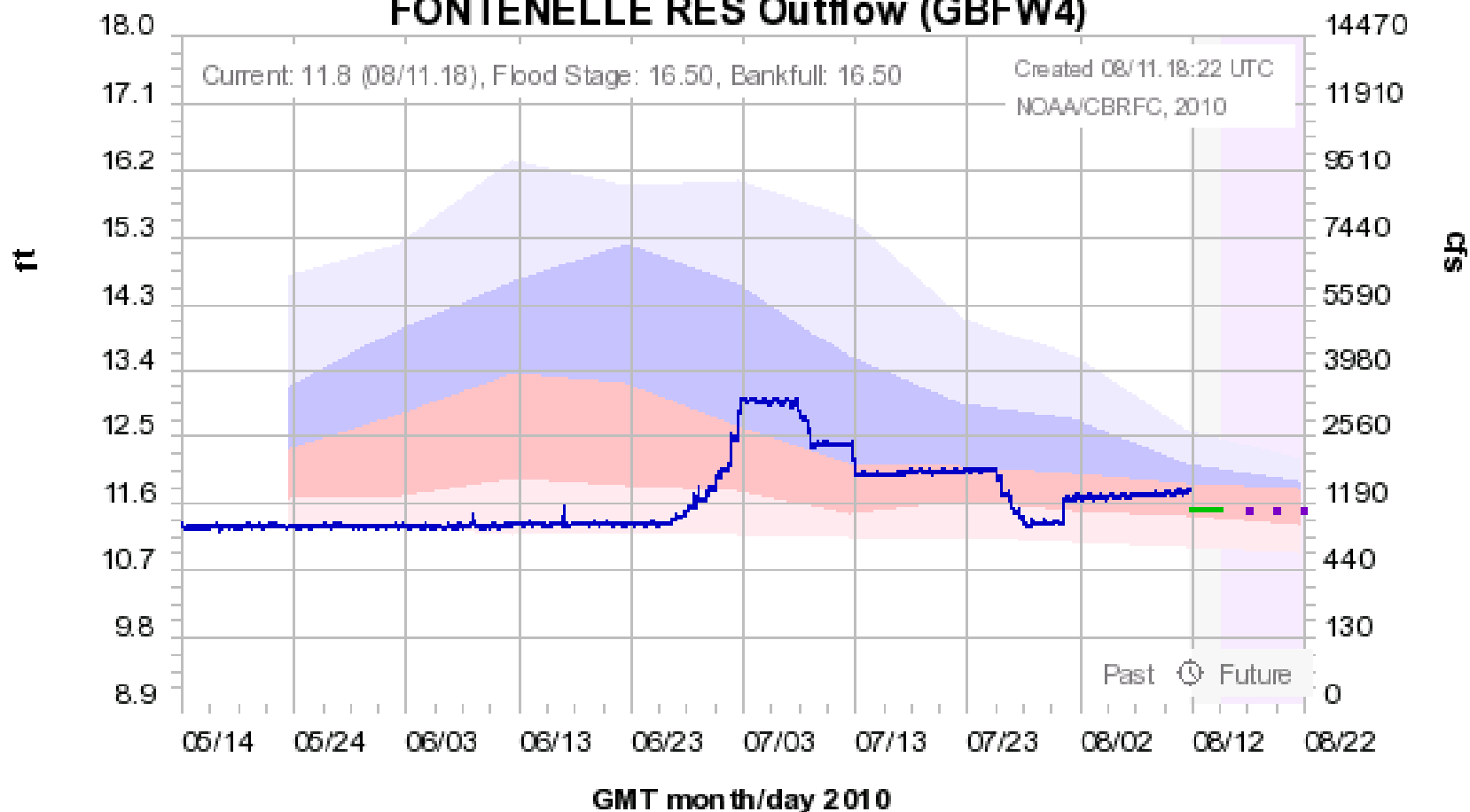
Colorado Basin River Forecast Center FONTENELLE RES Inflow (GBRW4)



Observed — Simulated — Forecast (08/11. 14:00) — Outlook (increasing uncertainty) - -

Historical Exceedance Probability (USGS): 90-75% 75-50% 50-25% 25-10%

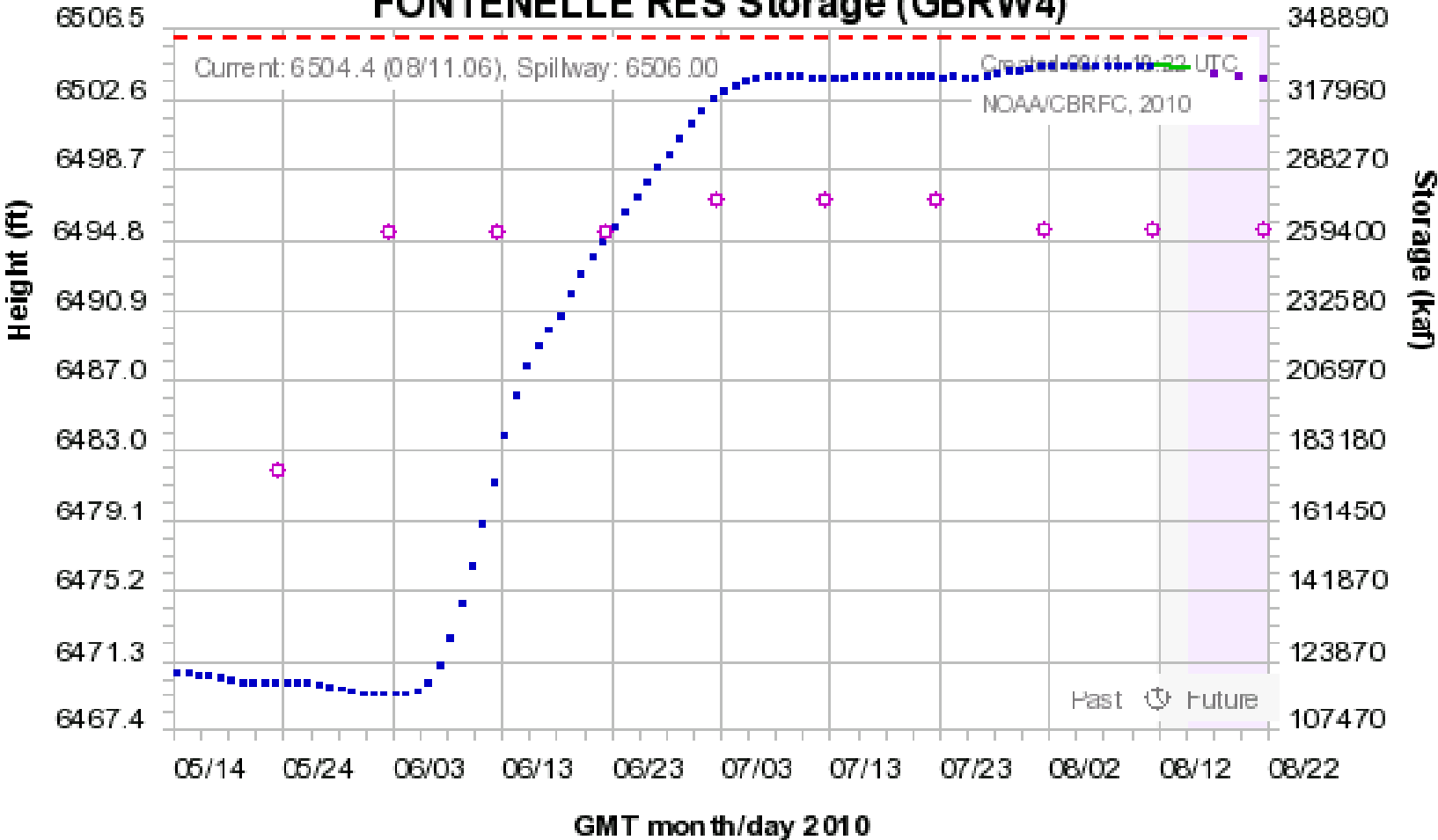
Colorado Basin River Forecast Center FONTENELLE RES Outflow (GBFW4)



Observed — Forecast (08/11.14:00) — Outlook (increasing uncertainty) - - -

Historical Exceedance Probability (USGS): 90-75% 75-50% 50-25% 25-10%

Colorado Basin River Forecast Center FONTENELLE RES Storage (GBRW4)



Observed ■ Forecast (08/11.14:00) ■ Outlook (increasing uncertainty) ■ Spill 6506.0 ■ Average ○

Colorado Basin River Forecast Center (CBRFC) - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.cbrfc.noaa.gov

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Colorado Basin River Forecast Cente...

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Old SDM

Rivers
0-14 days
Text Products
Peak Flows
Recreational Forecasts
5 Day Flood Outlook
Hydro Data
AHPS

Reservoirs
0-14 days
Damcrit
Webcat
DamBreak

Current Conditions
Snow
Snow Groups
Precipitation
Temperature
Freezing Level
Soil Moisture
Radar
Satellite

Water Supply
Map
Current Publication
Weekly ESP
Weekly ESP Sandbox
Publication Archive
Documentation
Westwide
Precipitation
Temperature
Soil Moisture
Verification
Western Water Supply
Maps

Climate
Hydroclimatology

Seasonal Information
Data and Indices
Forecasts
ENRice and MJO

News: CBRFC Open House Aug 18

CBRFC Conditions Upper Green , group.13 Search Points

River Snow Water Supply Peaks

Show: [Point Groups](#) or [Recreation Points](#)
Find: [All Points](#) or [Active Points](#)
Find points in state: [AZ](#), [CO](#), [ID](#), [NV](#), [NM](#), [UT](#), [WY](#)

Upper Green , group,13

19 River Points Found
Data from Thu, 12 Aug 2010 14:15:00 -0600

[Big Sandy , Big Sandy Res. Farson, Nr - zoom to point - find nearby points - view hydrograph >>](#)
BIGW4, GN_F, River Reservoir Point, Normal 0 cfs, 0.00 ft, observed at 12Z on 12

[Big Sandy , Farson, Nr - zoom to point - find nearby points - view hydrograph >>](#)
BSRW4, GN_F, River Forecast Point, Normal 34 cfs, 2.28 ft, observed at 20Z on 12

[Big Sandy , Gasson Bridge, Nr, Eden - zoom to point - find nearby points - view hydrograph >>](#)
EDNW4, GN_F, River Forecast Point, Normal 43 cfs, 2.89 ft, observed at 12Z on 12

[Blacks Fork , Little America, Nr - zoom to point - find nearby points - view hydrograph >>](#)
LTAW4, GN_F, River Forecast Point, Normal 78 cfs, 3.69 ft, observed at 20Z on 12

[Blacks Fork , Robertson, Nr - zoom to point - find nearby points - view hydrograph >>](#)
BNRU1, GN_F, River Forecast Point, Normal 128 cfs, 2.22 ft, observed at 20Z on 12

[Ef Smiths Fork , Robertson, Nr - zoom to point - find nearby points - view hydrograph >>](#)
SFRW4, GN_F, River Forecast Point, Normal e81 cfs, e4.56 ft, observed at 20Z on 12

[Ef Smiths Fork , Stateline Res - zoom to point - find nearby points - view hydrograph >>](#)
SLRW4, GN_F, River Forecast Point, Normal e25 cfs, e0.00 ft, observed at Z on

Map **Satellite** **Terrain**

Click here to drag area for zoom

Overlays
 Rivers
 RFC
 Basins
 Active Basins
 Grids (Precip etc.)

Display Options
 Show NWS ID
 Show Data

River Point Condition
 No Data
 Normal
 Significant Rise
 Near Bankfull
 Above Bankfull
 Above Flood Stage
 Outlook (> 3 days)

River Point Options
 All
 Data Points
 Forecast Points
 Reservoir Points
 Active Points

Water Supply Point %Avg/Median
 < 70
 70-90
 90-110
 110-130
 >130
 Regulated

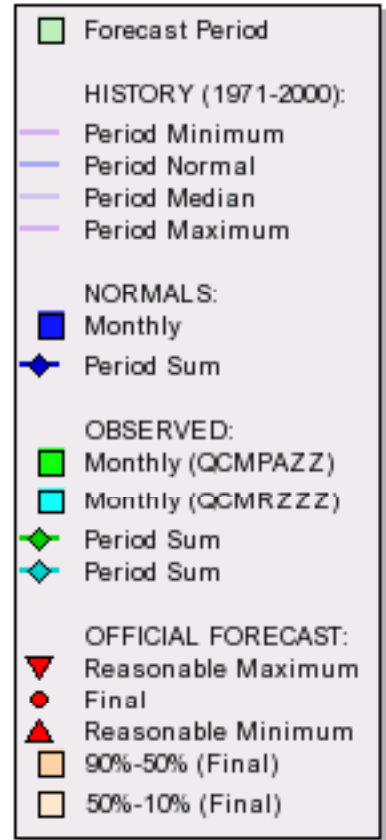
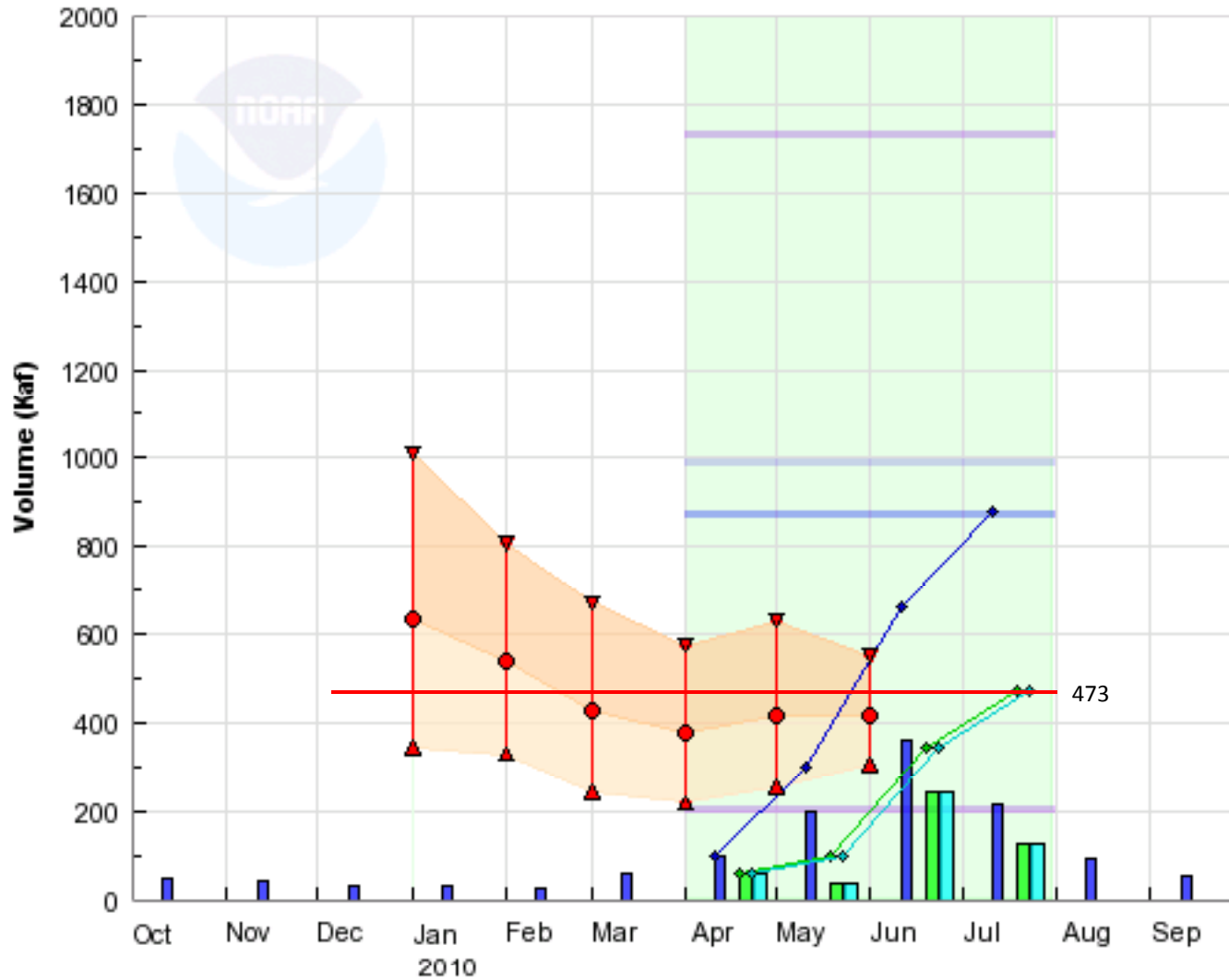
Water Supply Point Options
 All
 < 70
 70-90
 90-110
 110-130
 >130

lat: 41.96 lng: -110.08, 8, Data from Mon, 07 Jun 2010 10:45:30 -0600
Goto the [Old Map](#) or [Give Feedback](#) on New Map.

www.cbrfc.noaa.gov

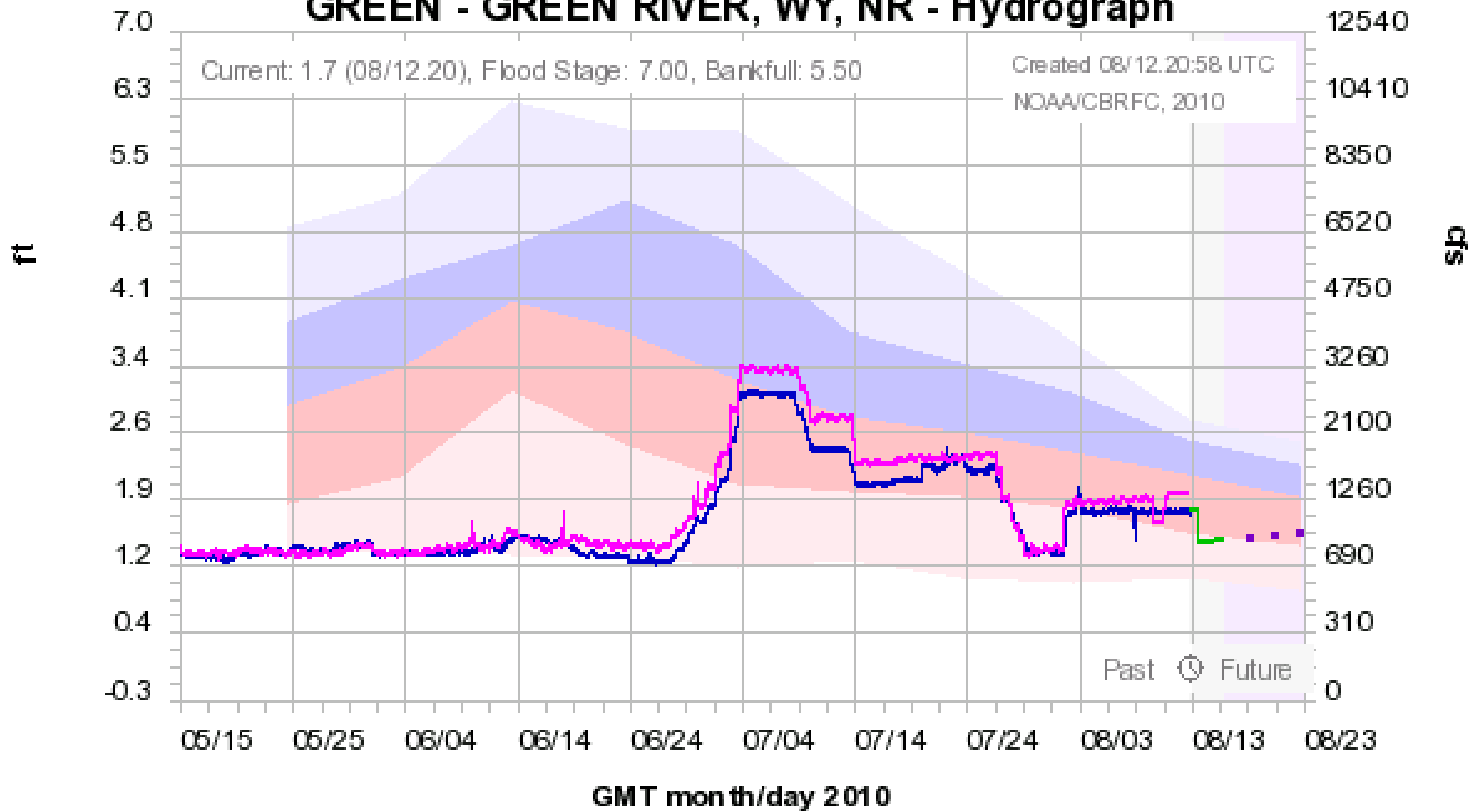
GREEN - GREEN RIVER, WY, NR (GRRW4)

Water Year 2010, Forecast Period Apr-Jul (highlighted)



Colorado Basin River Forecast Center

GREEN - GREEN RIVER, WY, NR - Hydrograph



Observed — Simulated — Forecast (08/12. 14:00) — Outlook (increasing uncertainty) - -
 Historical Exceedance Probability (USGS): 90-75% 75-50% 50-25% 25-10%

Called NWS (local office) with dam break concerns and issues before during and after events so they can issue a watch or warning to the public as needed.

CBRFC DAMBREAK PROCEDURES

1. COORDINATE WITH THE WFO

FIRST ACTION: DETERMINE IF THERE IS A ***WARNING OR WATCH*** OUT

Broken: Determine if the WFO has issued a generic Warning.

If not, advise that they do.

Not Broken: Determine if the WFO has issued a generic Watch.

If not, advise that they do.

SECOND ACTION: DETERMINE IF THE WFO HAS AN EMERGENCY ACTION PLAN (EAP) AVAILABLE

BY CHECKING DAM CATALOG FOR A 1 OR 2 IN EMERGENCY ACTION BOX

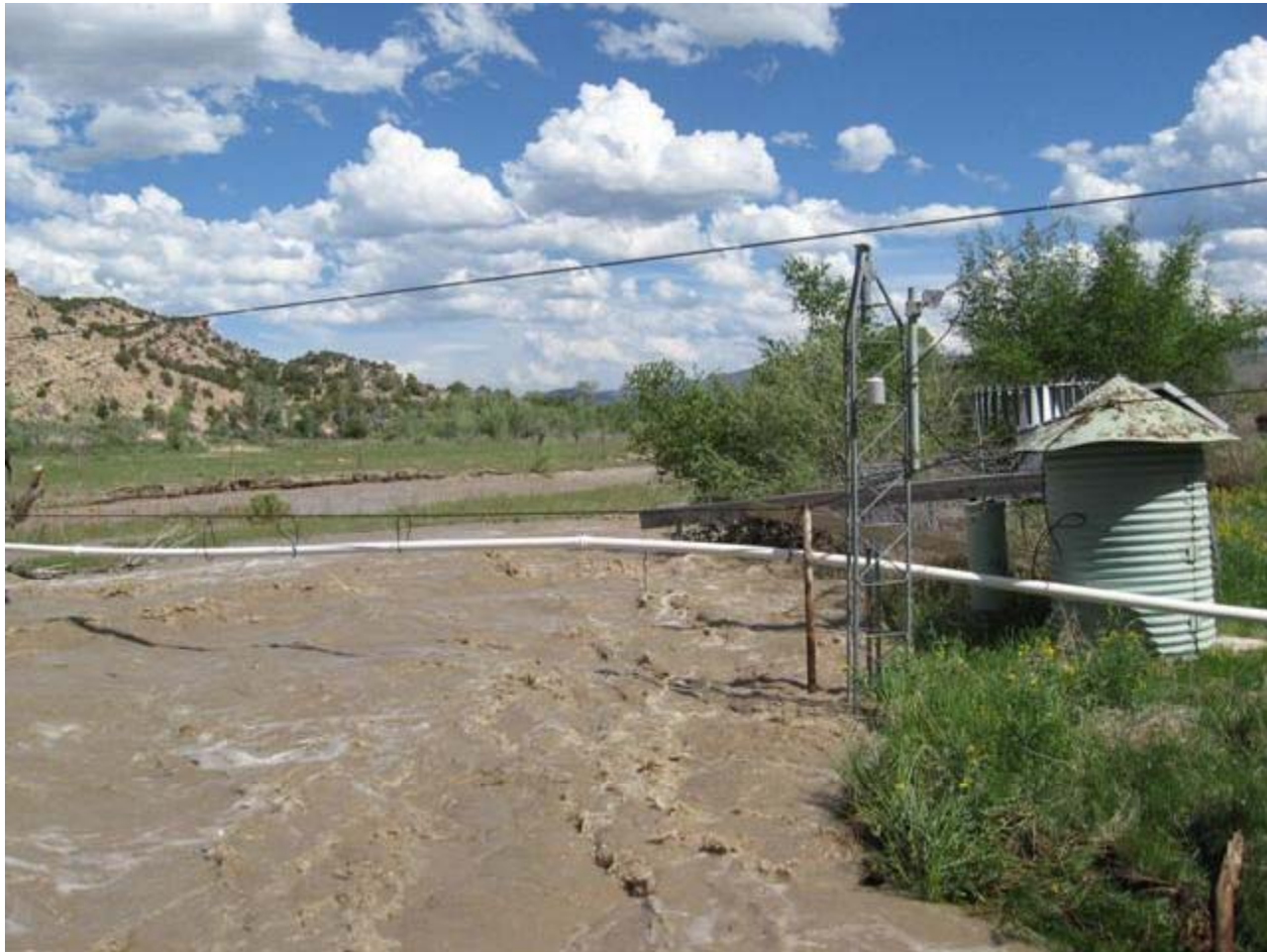
1=EAP AT WFO AND CBRFC, 2=EAP AT WFO ONLY, 0=NO EAP

******STOP! REFER TO EAP FOR ALL INFORMATION, DO NOT USE***

SIMPLIFIED DAM BREAK FORECASTS

2. IF EAP IS NOT AVAILABLE, GATHER INFORMATION FROM THE WFO OR OTHER CONTACT

Jim Fahey
Wyoming NOAA hydrologist
Riverton, Wy
857-3898 ext 493



River gage/rain gage site along Henrys Fork before the flood waters swallowed up the site.

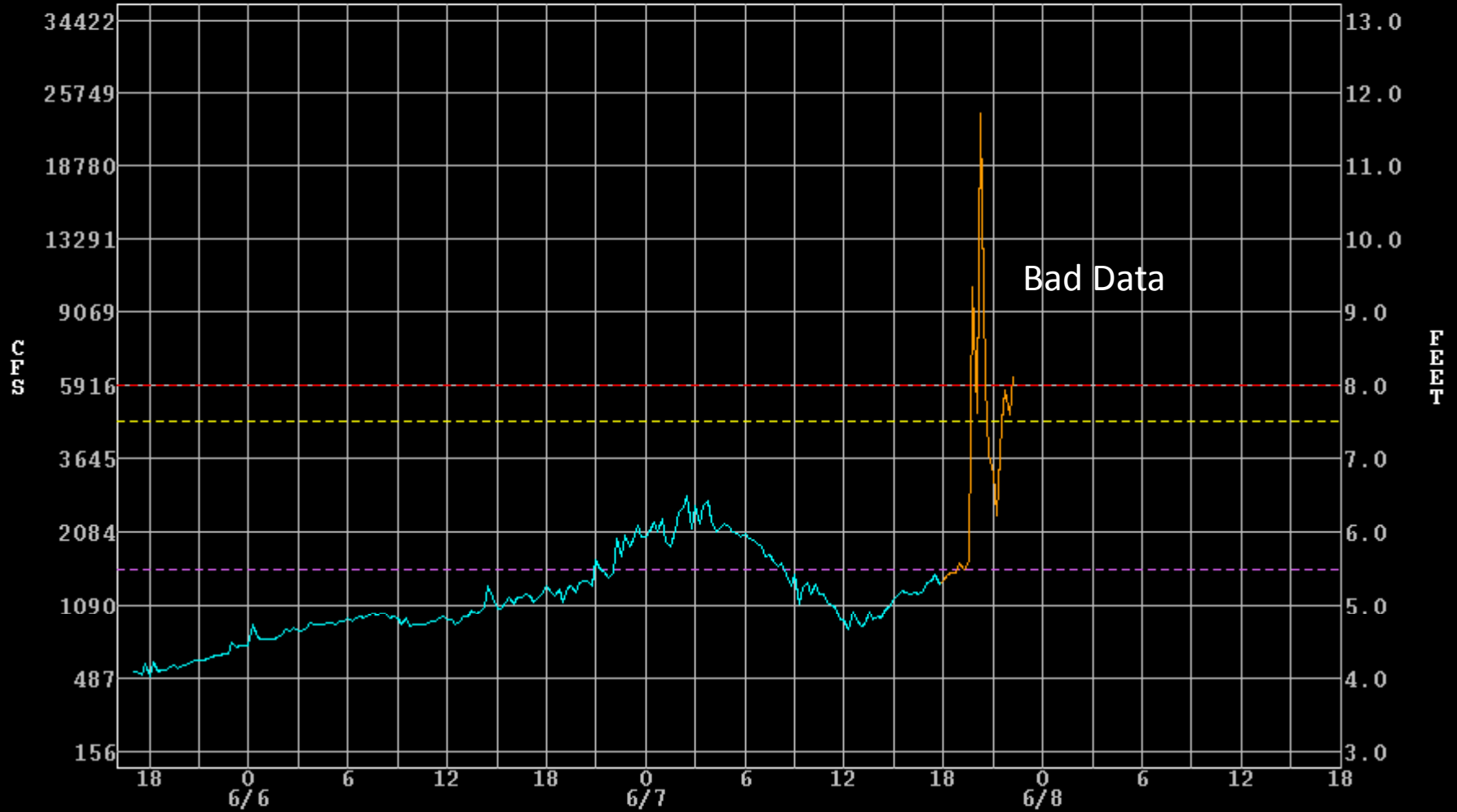
Jim Fahey
Wyoming NOAA hydrologist
Riverton, Wy
857-3898 ext 493



River gage/rain gage site along the Henrys Fork after flood waters swallowed up the site--Gone!!!

Jim Fahey
Wyoming NOAA hydrologist
Riverton, Wy
857-3898 ext 493

HENRYS FORK - MANILA, NR
HFMW4 HGIRGZZ RIVER STAGE, INSTANTANEOUS, OBSERVED, GOES
Max= 11.7 23562 at 06/07/2010 20Z
Min= 4.0 497 at 06/05/2010 18Z



2010 Water Supply Forecast Summary

- It was a much below average SWE year (seasonal peak 58% of average)
- With cooler temperatures from end of April thru mid-May
- And above average precipitation (April, May, and June) during the runoff period
- Measured snow gone by June 1st below 9,400 feet
- Forecasts began on January 1st approx. 25% above observed (observed within MAE of January forecast)
- Forecasts fell to approx. 25% below observed on April 1st (observed within MAE of April forecast) at that time seasonal conditions were dry
- Forecasts then rose during runoff period as above average precipitation occurred during runoff period
- 2010 April-July runoff volume (487 kaf) was 57% of average.
- Called NWS (local office) with dam break concerns and issues before during and after events so they can issue a watch or warning as needed.



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