



CBRFC August 2013 Water Supply Forecast

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Hydrologist in Charge

August 14, 2013



Outline

Forecast Method

Conditions influencing the forecast

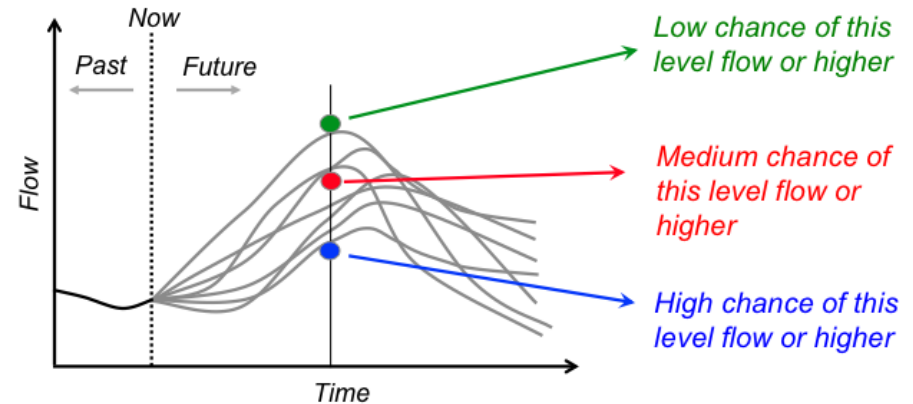
- Antecedent flows (and snow)
- Summer precipitation
- Model states
- Climate forecasts

Lake Powell Unregulated Inflow Forecast

Ensemble Streamflow Prediction - ESP

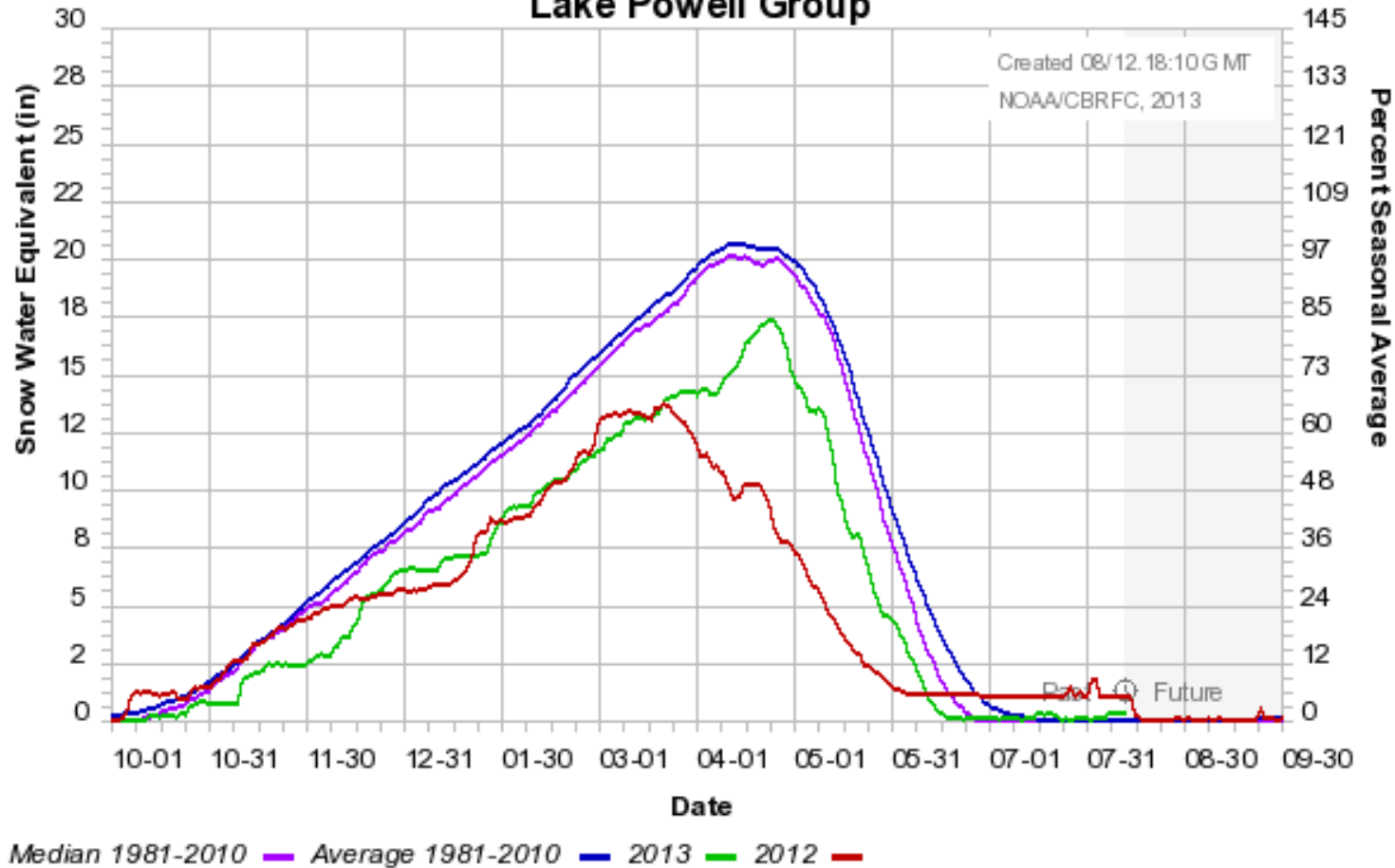
- ESP forecasts based on:
 - (1) initial conditions (snow pack, base flow, soil moisture)
 - (2) Future scenarios (using 1981-2010 temperature and precipitation time series)

- Adjustments made to account for bias based on:
 - Bias correction via statistical regression
 - Past performance (verification)
 - Forecaster expertize



Last season's snow

Colorado Basin River Forecast Center
Lake Powell Group

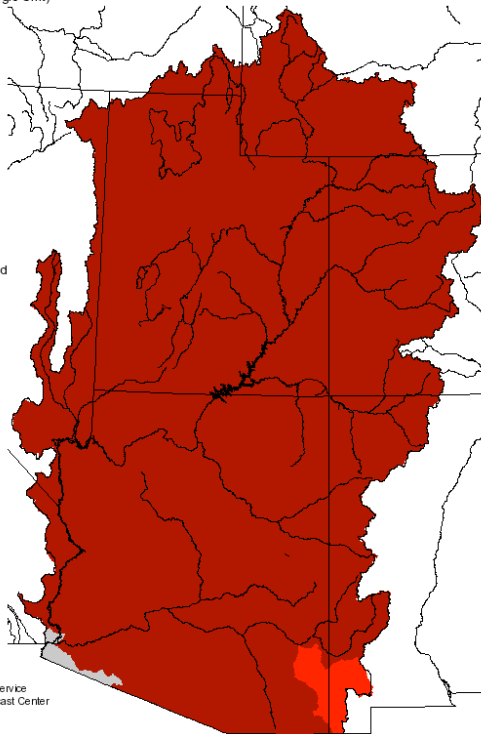
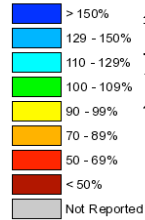


Summer Precipitation

Monthly Precipitation for June 2013

(Averaged by Hydrologic Unit)

% Average

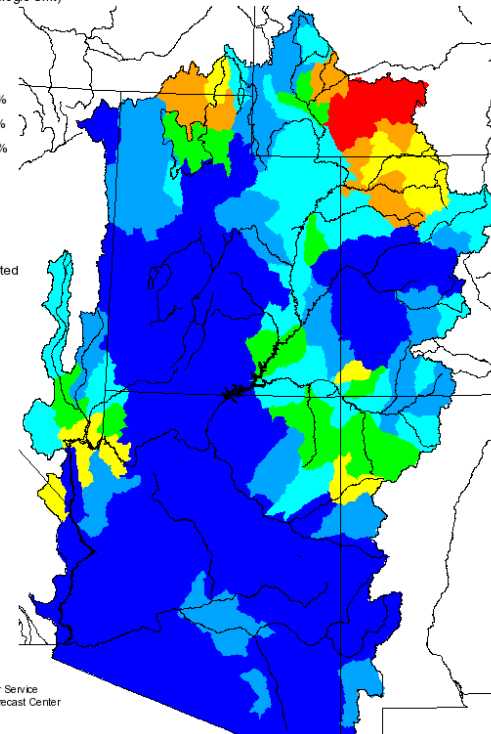
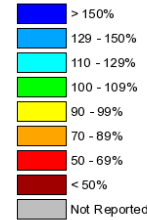


Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

Monthly Precipitation for July 2013

(Averaged by Hydrologic Unit)

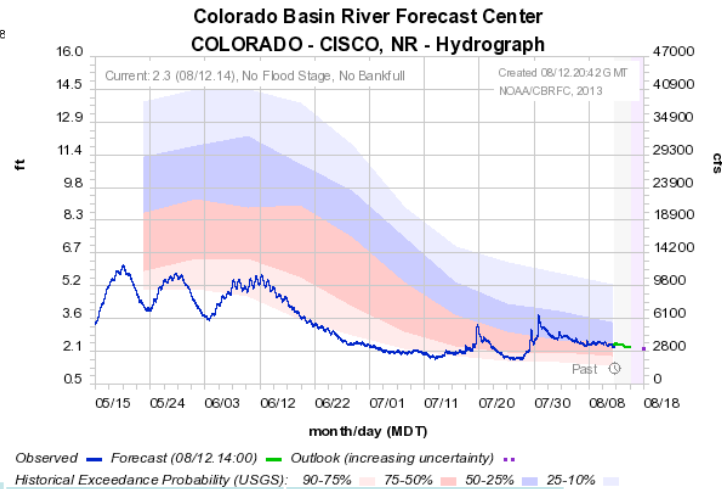
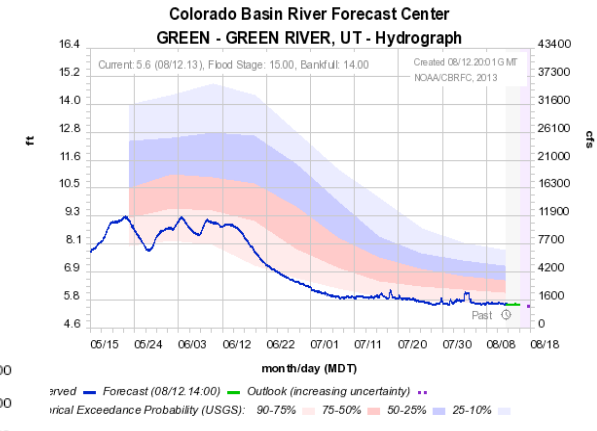
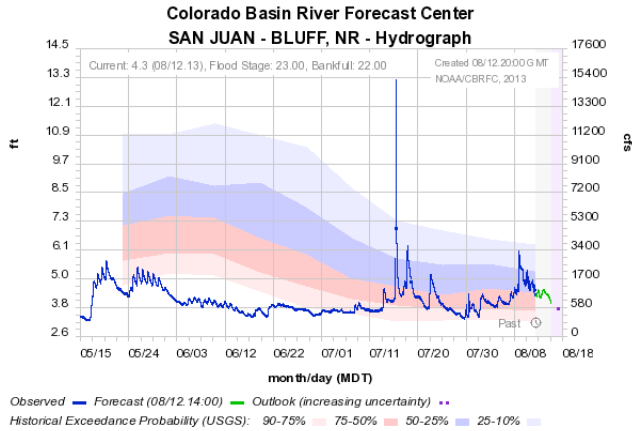
% Average



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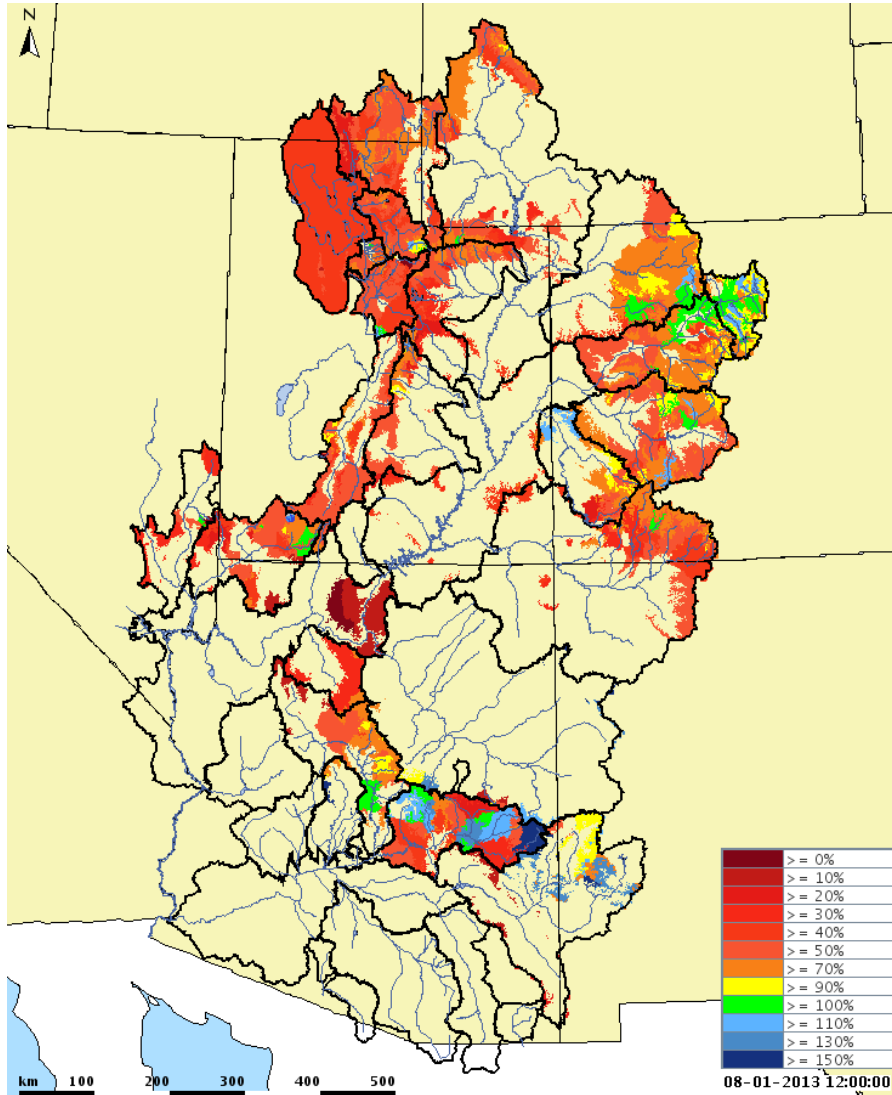
Lake Powell Summer Observed Inflow



| Month | Observed | Average | % Average |
|-------|----------|----------|-----------|
| June | 939 kaf | 2667 kaf | 35% |
| July | 143 kaf | 1091 kaf | 13% |

- Very low summer inflow into Lake Powell
- July precipitation not a big contributor

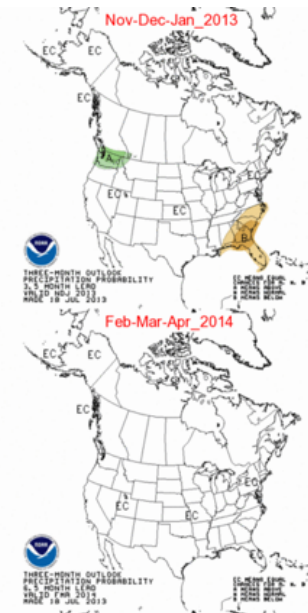
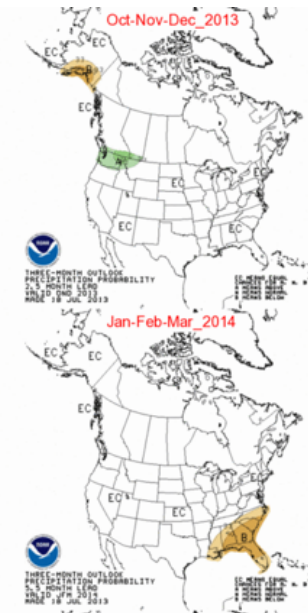
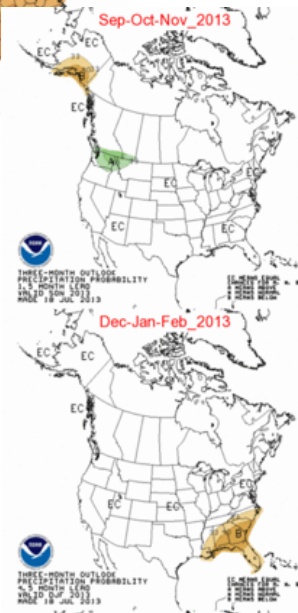
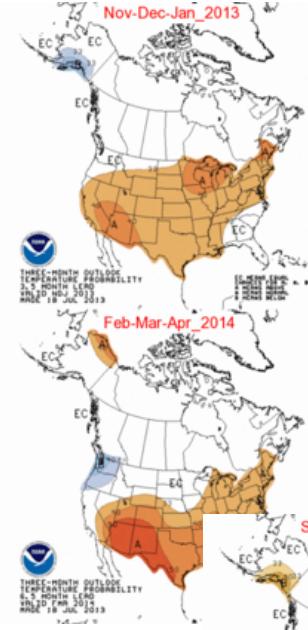
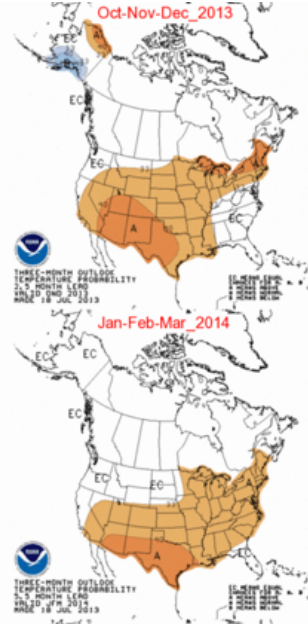
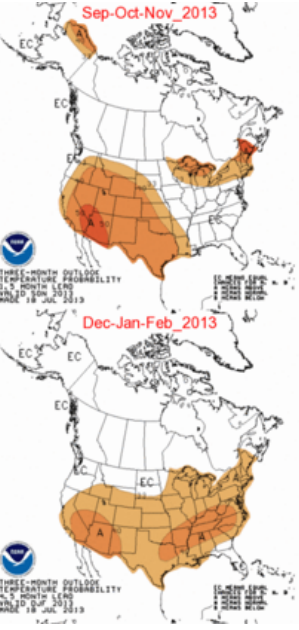
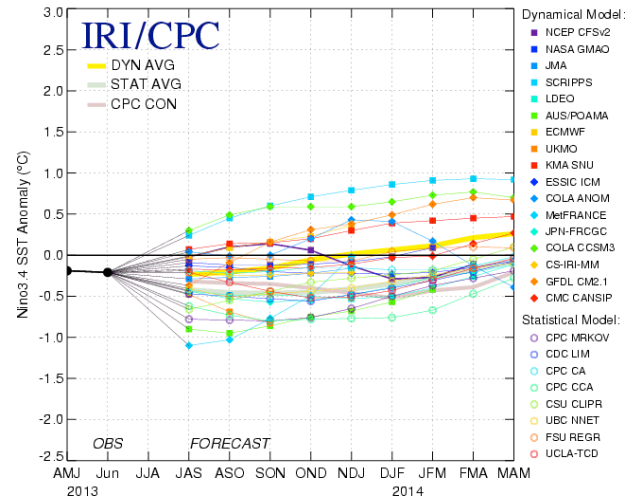
Modeled Soil Moisture



- Overall very dry
- Some areas wetter due to summer monsoon rain

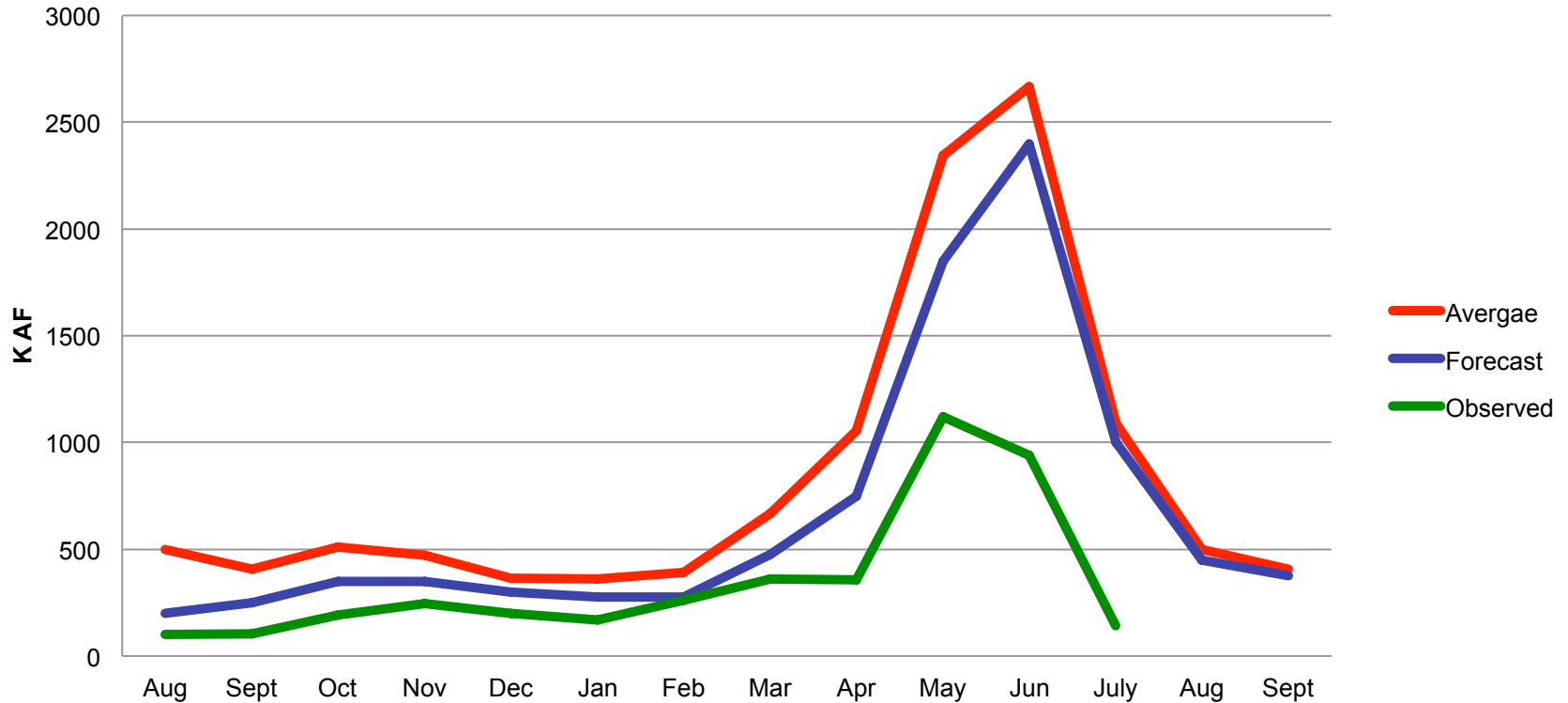
Climate Forecasts

Mid-Jul 2013 Plume of Model ENSO Predictions



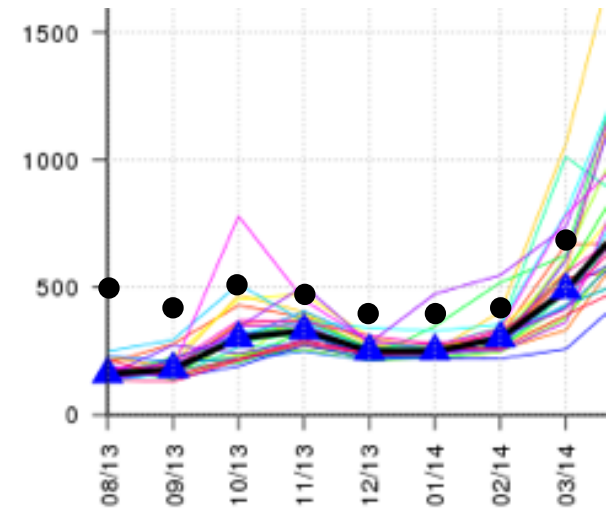
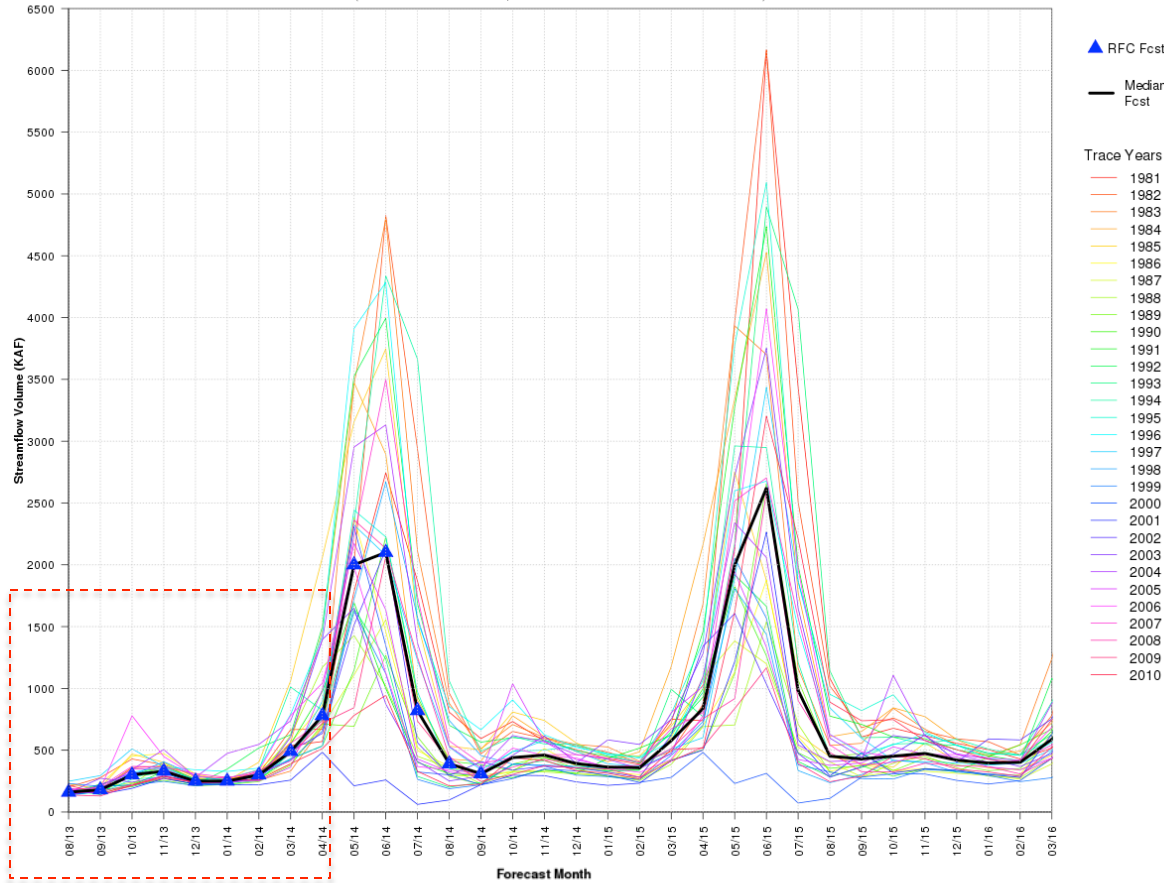
August 2012 Forecast – What Happened?

August 2012 Forecasts and Observed



Aug 2013 ESP traces

ADJUSTED Monthly Streamflow Forecast Traces for GLDA3 (COLORADO - LAKE POWE)
 (ESP Run Date: 2013-07-24, Most Recent RFC Fcst Issue Date: 2013-08-01)





Lake Powell Unregulated Inflow Forecast

| Month | Average | Forecast | % Average |
|---------|---------|----------|-----------|
| Aug | 500 | 160 | 32% |
| Sep | 408 | 180 | 44% |
| Oct | 512 | 300 | 59% |
| Nov | 473 | 330 | 70% |
| Dec | 363 | 250 | 69% |
| Jan | 361 | 250 | 69% |
| Feb | 393 | 300 | 76% |
| Mar | 666 | 490 | 74% |
| Apr | 1056 | 780 | 74% |
| May | 2344 | 2000 | 85% |
| June | 2667 | 2100 | 79% |
| July | 1091 | 820 | 75% |
| Apr-Jul | 7155 | 5700 | 80% |