CBRFC
June 2017
# CUWCD Briefing

1pm June 6, 2017

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Today's Presentation

- May Weather
  - Below normal precipitation
  - Normal to below normal temperatures
    - -Periods of above and below normal

- Snowpack conditions
  - Significant melt!
  - Where is the remaining snow?

- May 2017 Water Supply Forecast Overview
  - Decreases to forecasts

- Upcoming Weather
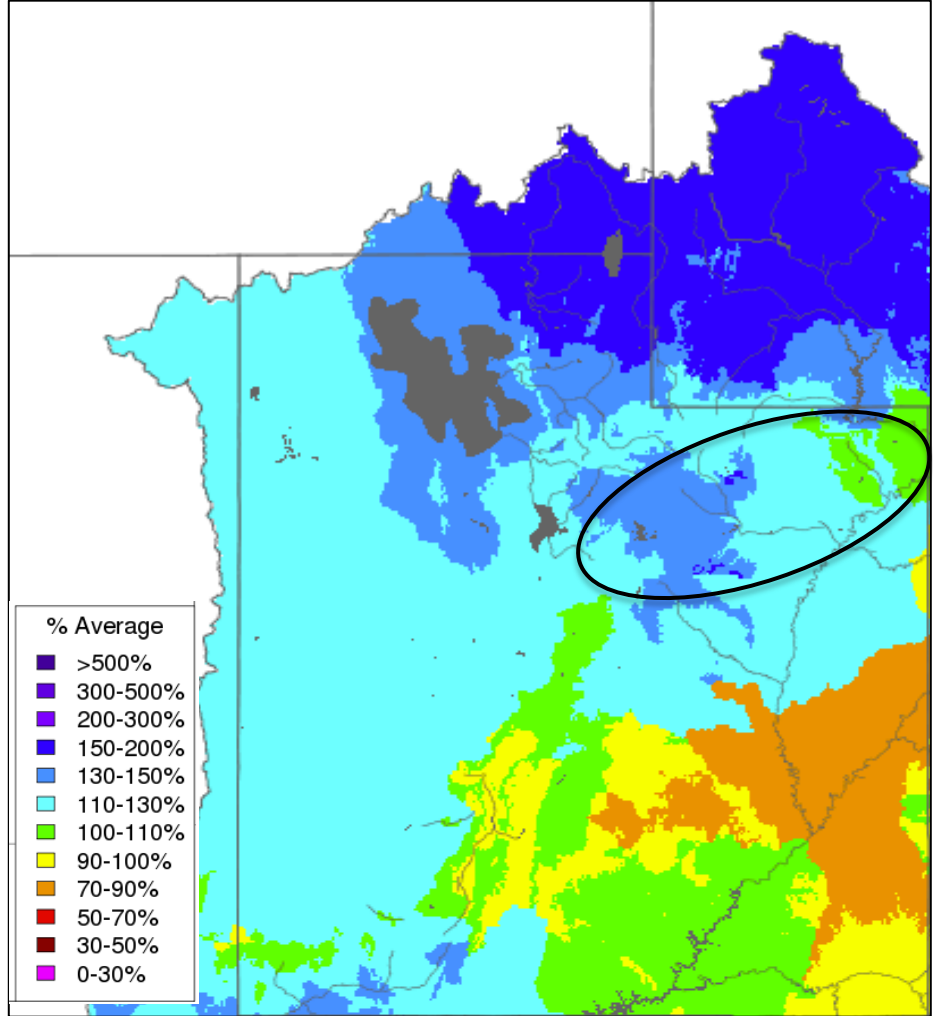
- Current Conditions
  - 10-Day Streamflow Forecasts

May Weather: Precipitation

Monthly Precipitation - May 2017
(Averaged by Basin)

Water Year Precipitation, October 2016 - May 2017
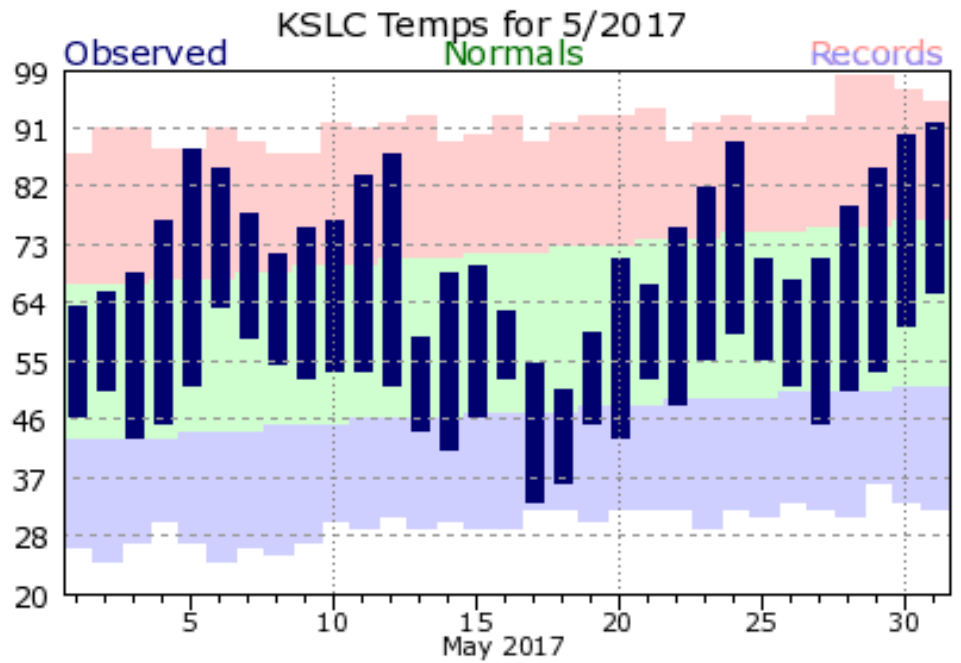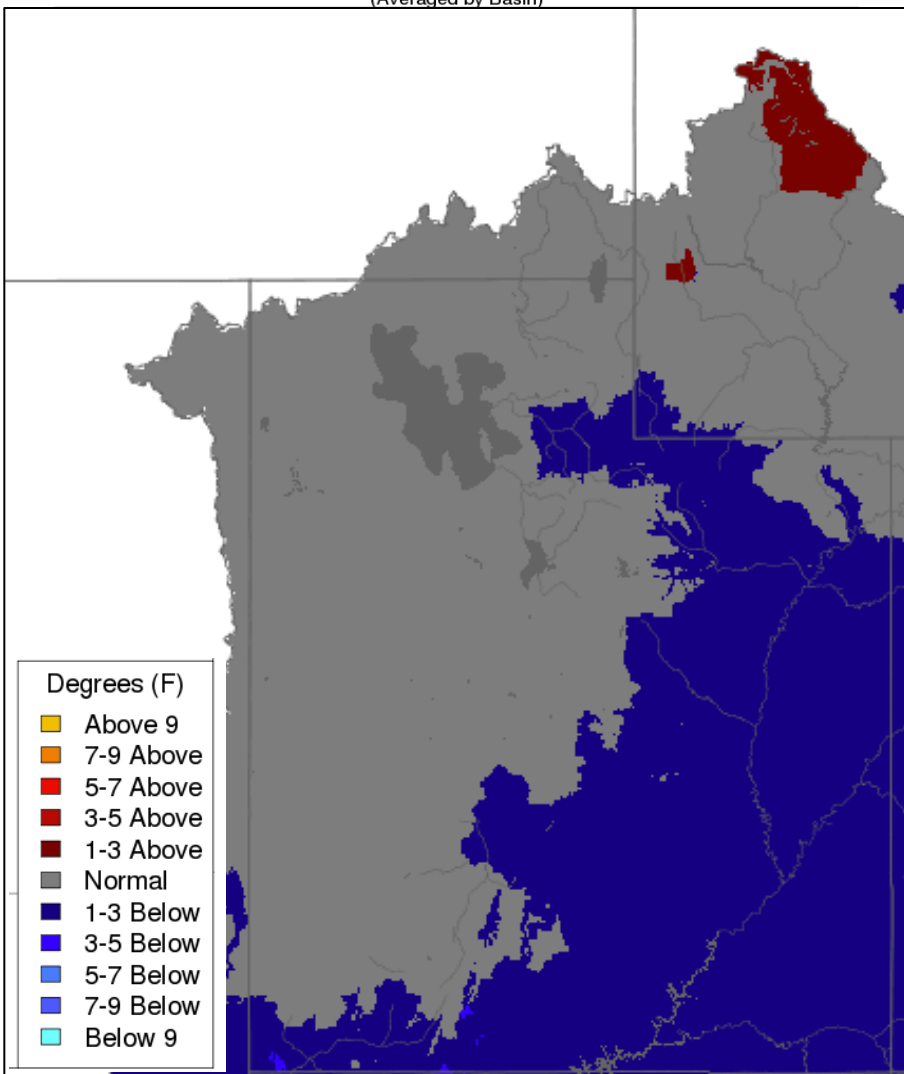(Averaged by Basin)
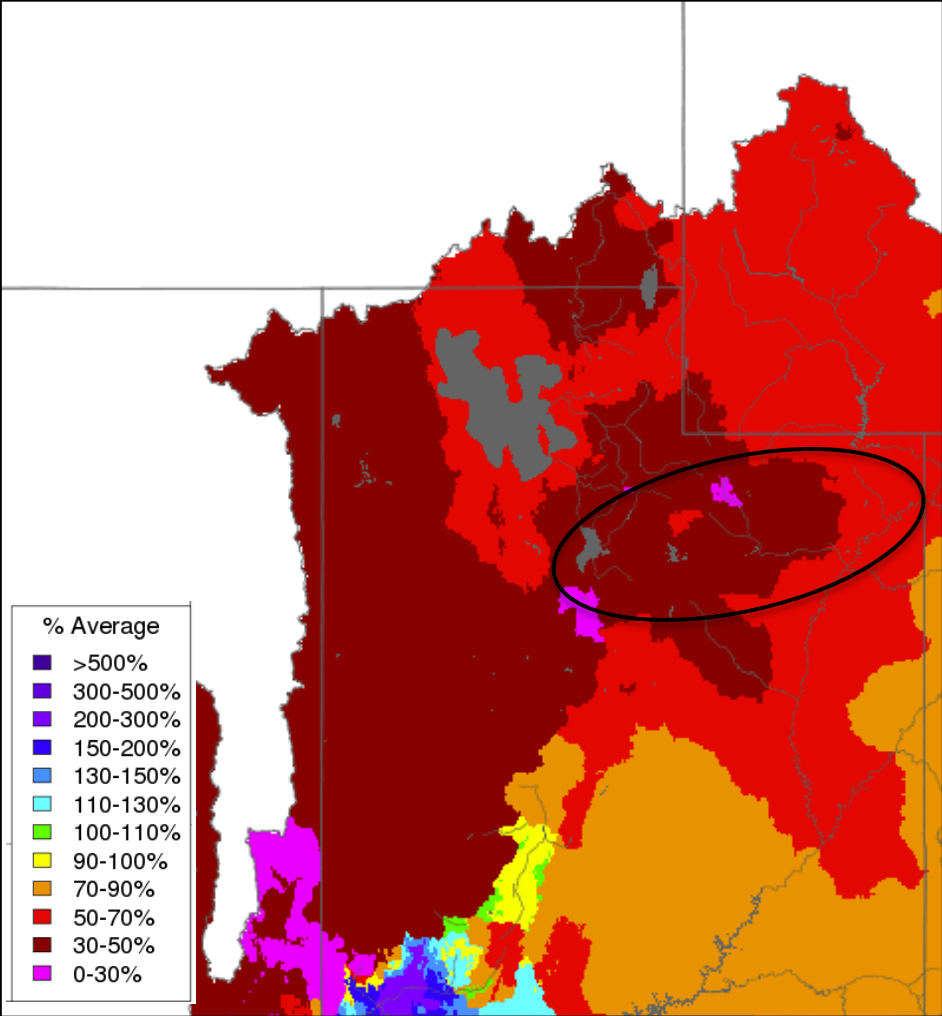
Duchesne: 40%
Provo: 40%

Duchesne: 130%
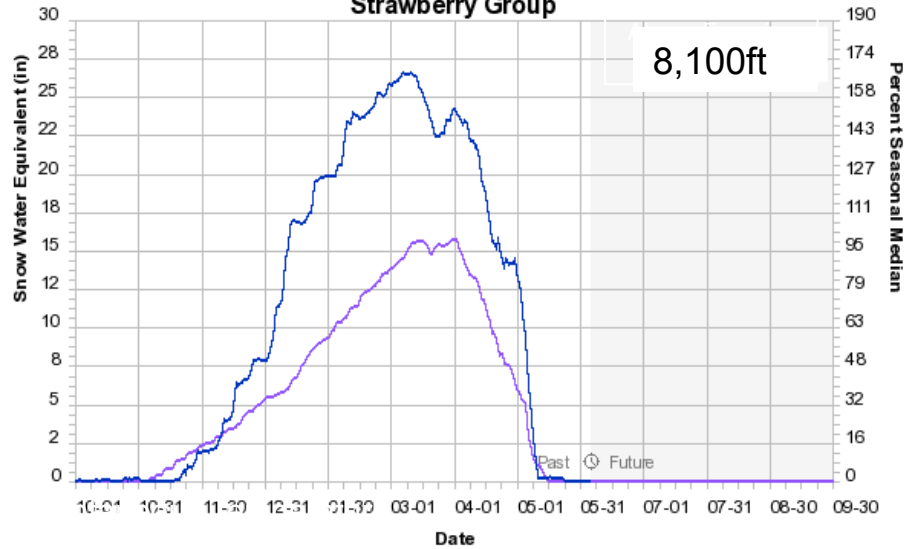Provo: 132%

May Weather: Temperature

Below normal to normal mean monthly temperatures
Periods of both above and below normal temperatures

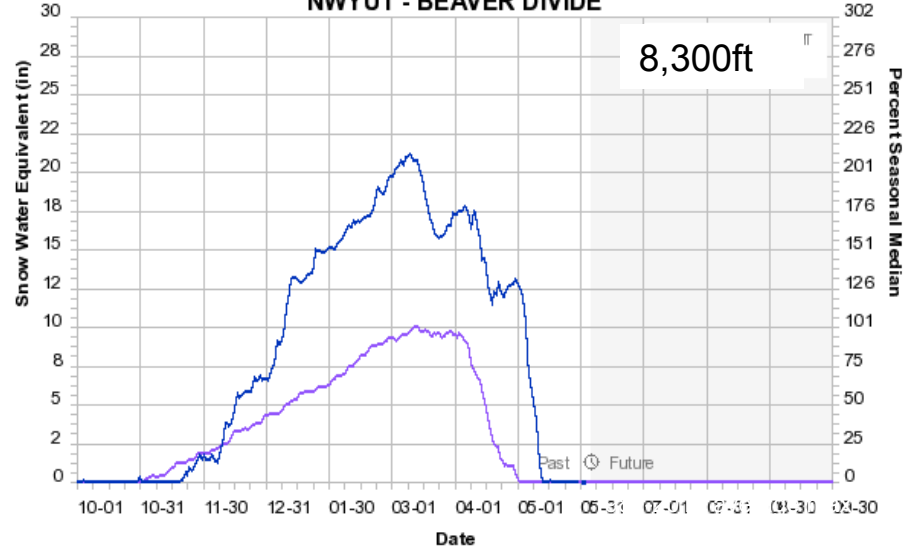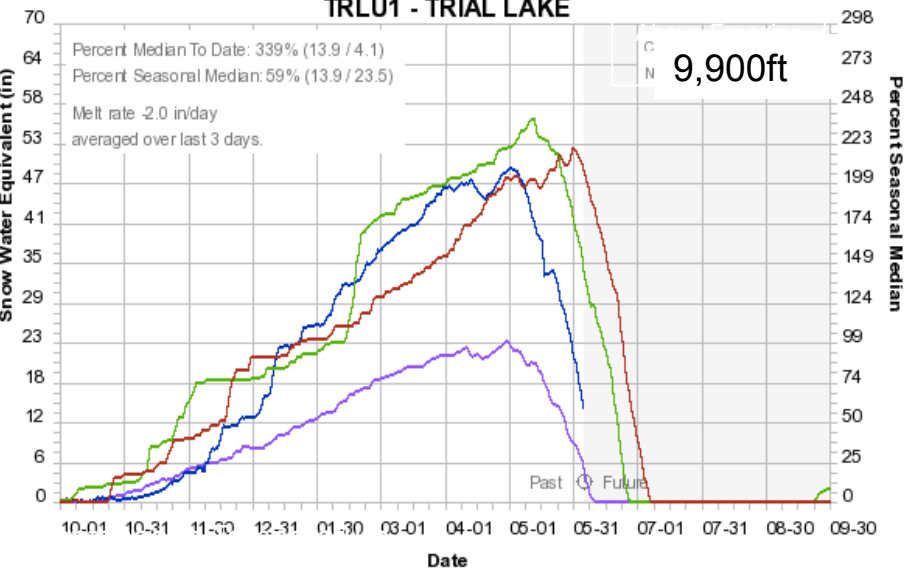Max Temp - Monthly Deviation - May 2017
(Averaged by Basin)

KSLC Temps for 5/2017

Snowpack Conditions: SNOTEL

Snowpack Conditions: SNOTEL

Colorado Basin River Forecast Center
CWHU1 - CHEPETA

10,600ft

Colorado Basin River Forecast Center
KGCU1 - KINGS CABIN

Created 06/06.00:40 G MT
NOAA/CBRFC, 2017

Median 1981-2010 — 2017 —
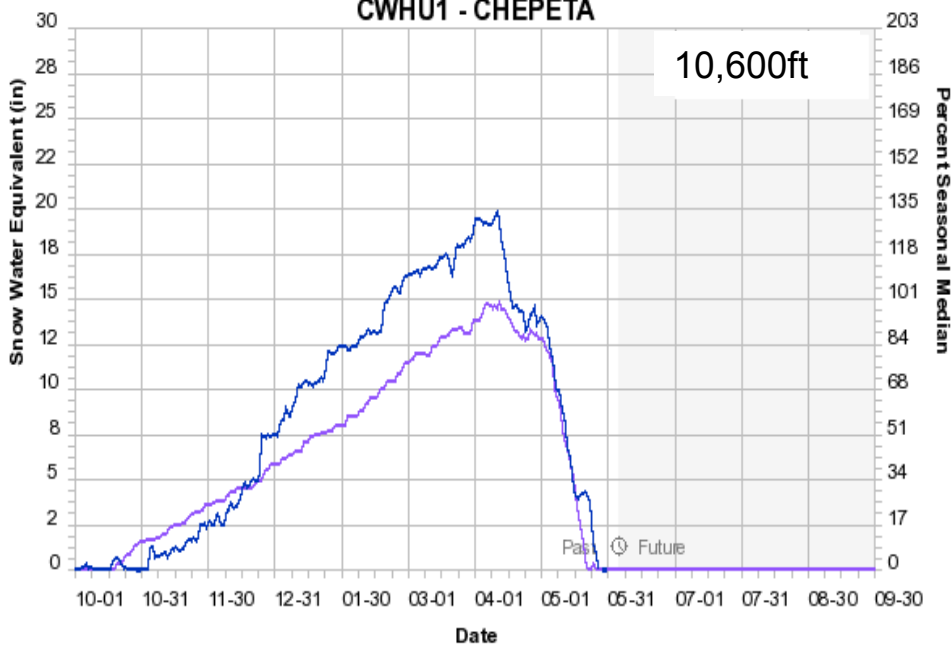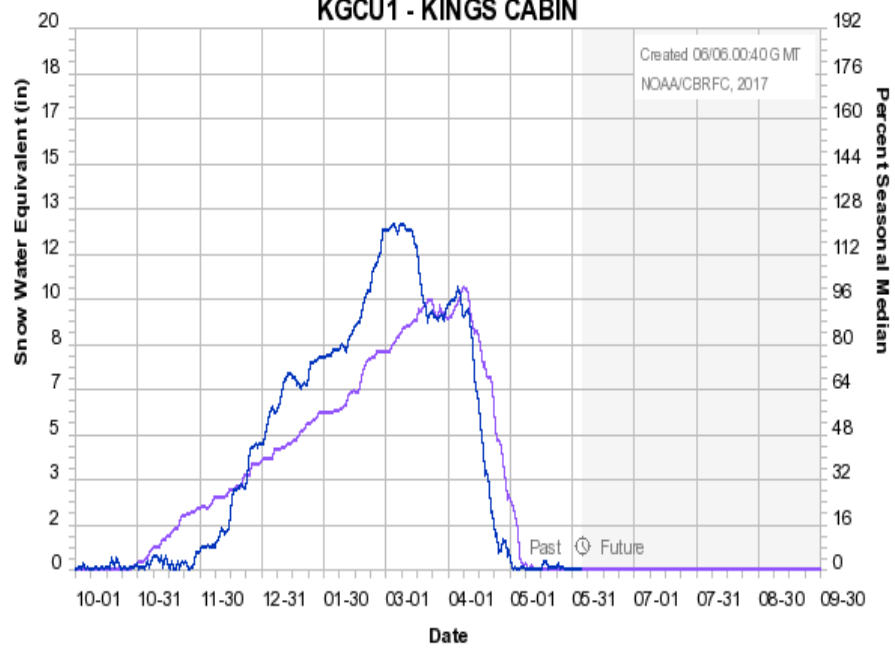
Snowpack Conditions: CBRFC MODEL

CBRFC MODEL SNOW (% median):

May 1 2017
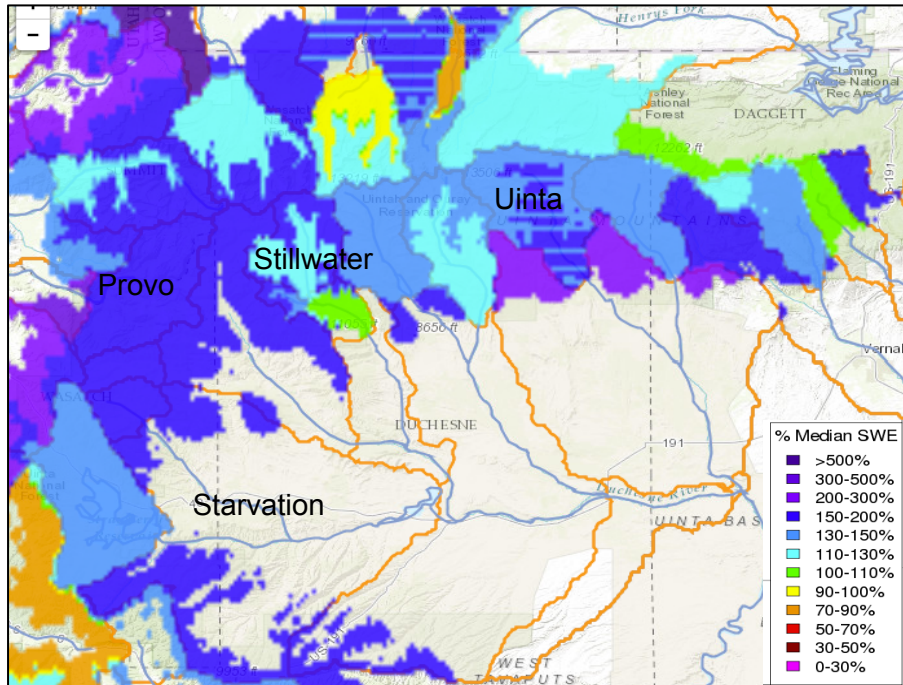
June 1 2017

Significant snowmelt has occurred at all elevations since May 1st

There is uncertainty in model snowpack especially during the melt period. We verify model snow with observed streamflow, SNOTEL (if not melted out), and satellite images (if not cloudy).

June 1st Water Supply Forecasts
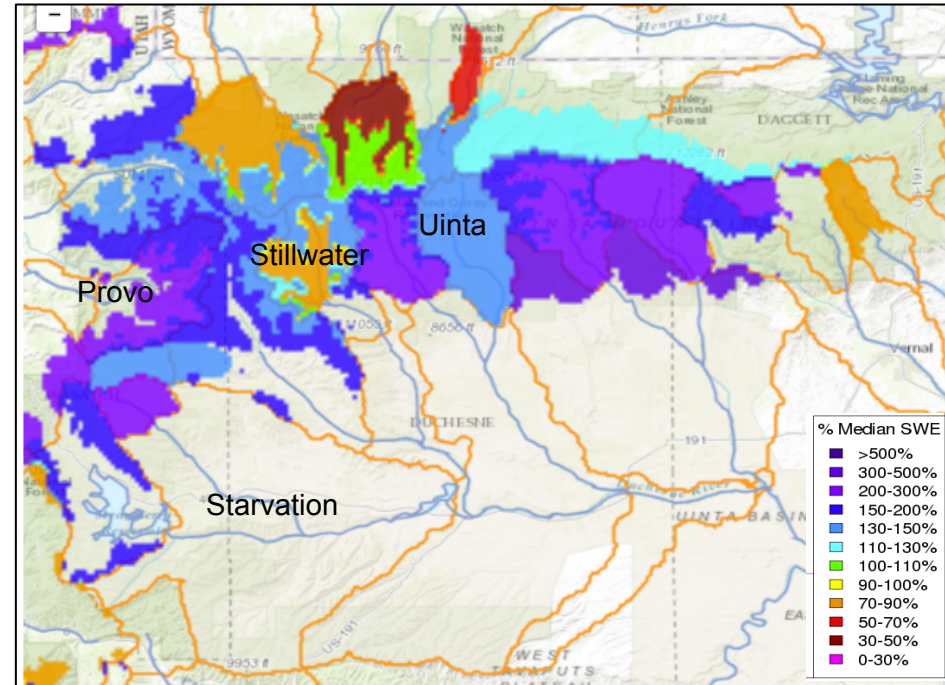
April-July Forecast Streamflow Volumes
(% of Average Change from May 1st Forecasts)

	NA
	Below -10%
	-10% - -5%
	-5% - -4%
	-4% - -3%
	-3% - -2%
	-2% - -1%
	-1% - -0.5%
	-0.5% - 0%
	0% - 0.5%
	0.5% - 1%
	1% - 2%
	2% - 3%
	3% - 4%
	4% - 5%
	5% - 10%
	Above 10%
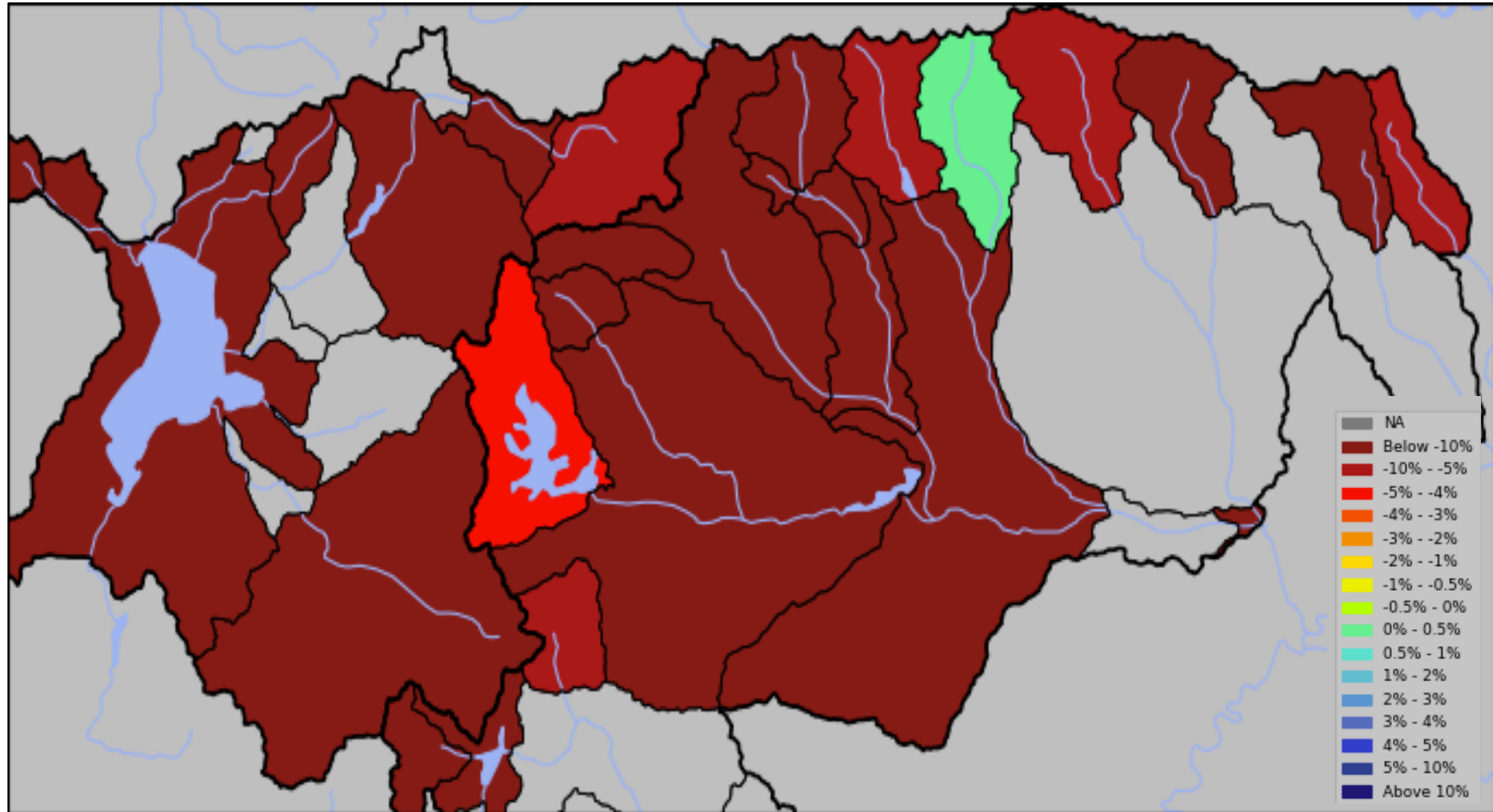
~5-20% decrease to forecasts since May 1st

Forecasts: Provo nr Hailstone

Provo - Woodland- Nr (WOOU1)
2017-06-01 Apr-Jul Official 50% Forecast: 159 kaf (159% of average)
ESP is Unregulated and No Precipitation Forecast Included

184 KAF / 167%

159 KAF / 159%

Apr-May Observed: 79 KAF (147 %)
June-July Fcst: 80 KAF
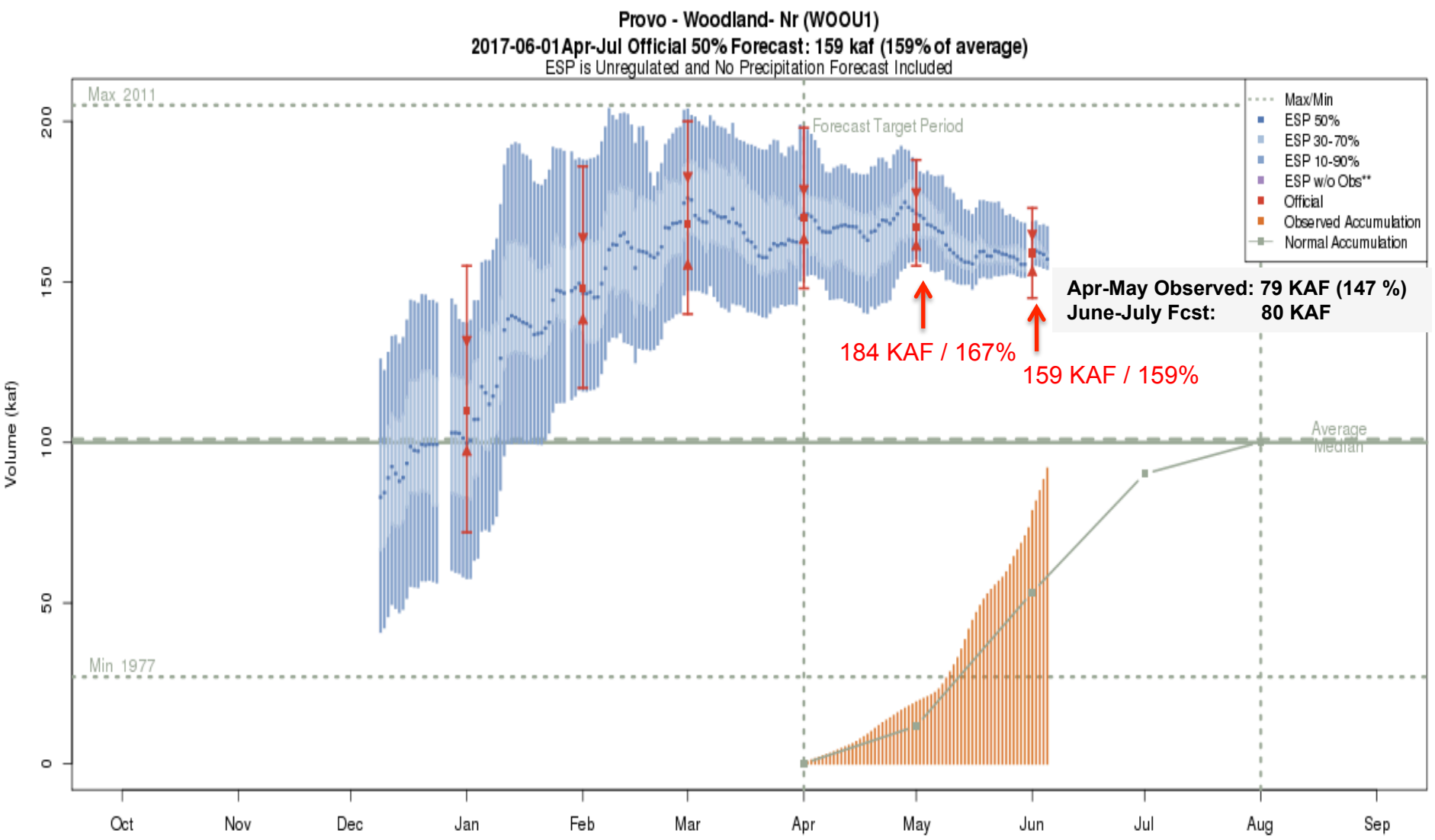
The most recent (2017-06-05) full period 50% ESP forecast is 157 kaf.
Plot Created 2017-06-05 15:45:52, NOAA / NWS / CBRFC
Forecasts in the forecast target period include observed values.

Forecasts: Currant Creek

Currant Ck - Currant Ck Res (CRUU1)
2017-06-01 Apr-Jul Official 50% Forecast: 33 kaf (165% of average)
ESP is Unregulated and No Precipitation Forecast Included

Model adjustment

Had to remove snow from model

40 KAF / 200%   33 KAF / 165%
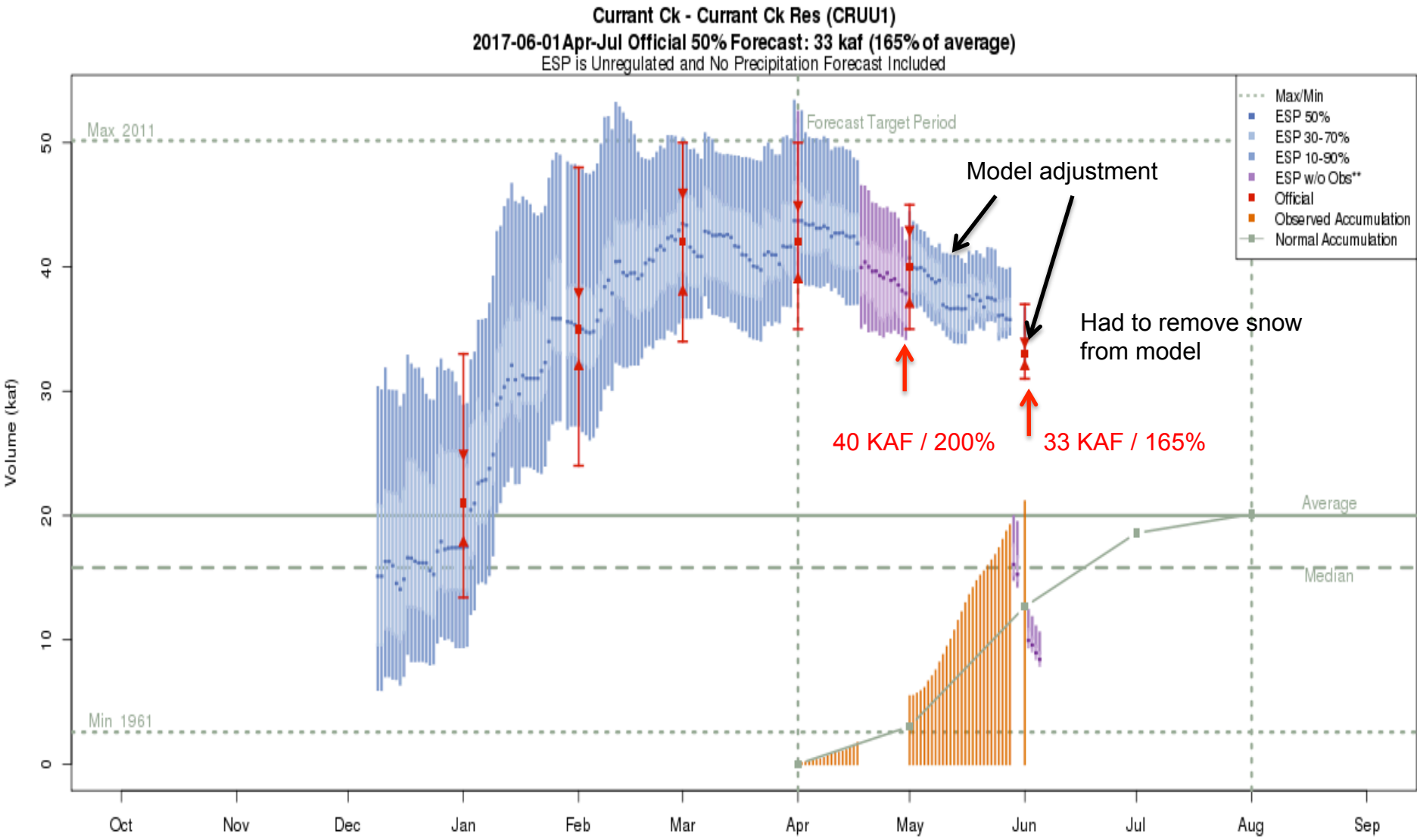
The most recent (2017-06-01) full period 50% ESP forecast is 33 kaf.
Plot Created 2017-06-06 08:20:36, NOAA / NWS / CBRFC
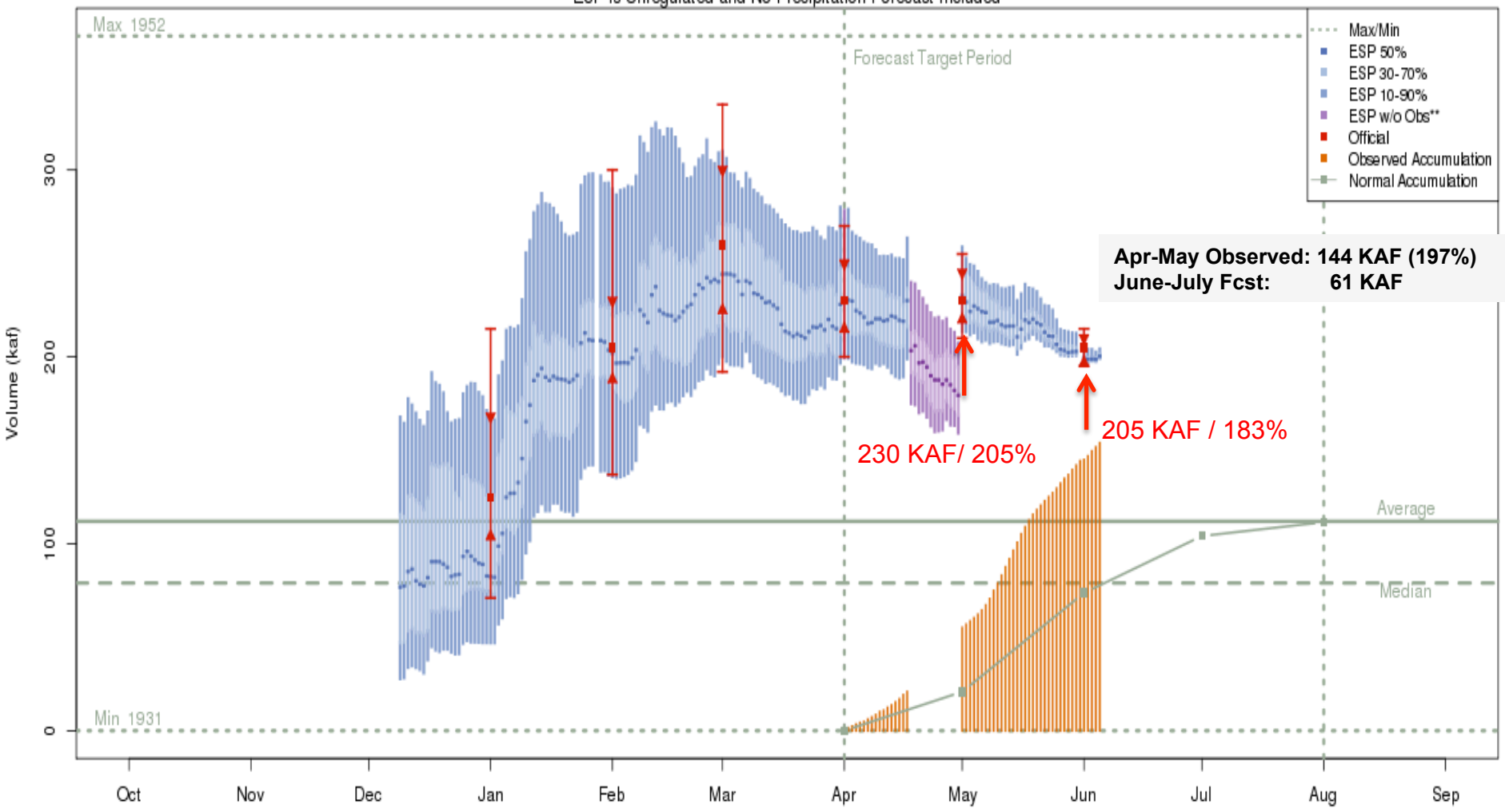**Purple ESP forecasts do not include observed and are not total runoff.

Strawberry - Solider Springs-nr - Strawberry Res (STIU1)
2017-06-01 Apr-Jul Official 50% Forecast: 112 kaf (158% of average)
ESP is Unregulated and No Precipitation Forecast Included
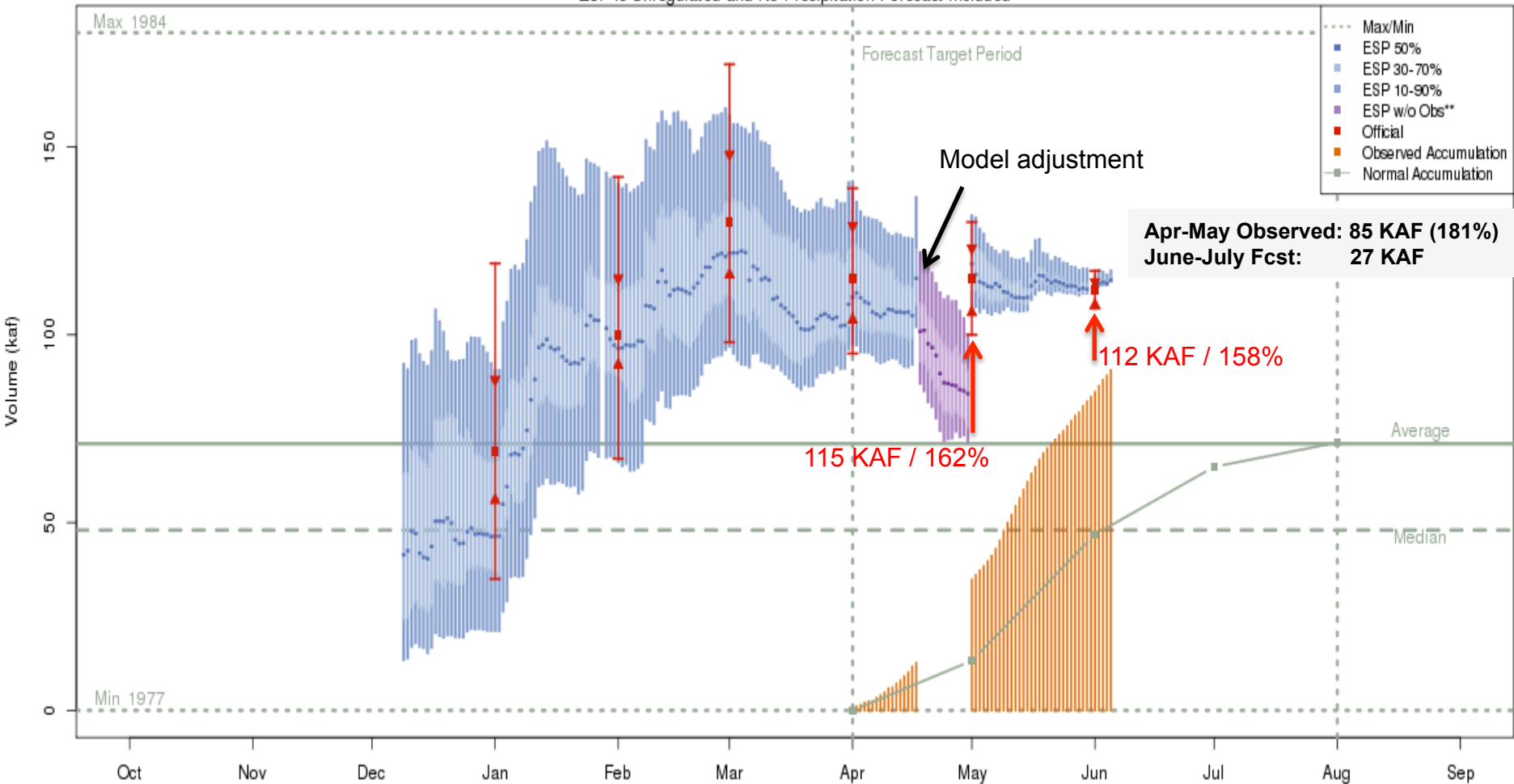
Forecasts: Starvation Reservoir

Strawberry - Starvation Res- Duchesne- Nr (STAU1)
2017-06-01 Apr-Jul Official 50% Forecast: 205 kaf (183% of average)
ESP is Unregulated and No Precipitation Forecast Included

Apr-May Observed: 144 KAF (197%)
June-July Fcst: 61 KAF

230 KAF/ 205%

205 KAF / 183%

Legend:
- Max/Min
- ESP 50%
- ESP 30-70%
- ESP 10-90%
- ESP w/o Obs**
- Official
- Observed Accumulation
- Normal Accumulation

The most recent (2017-06-05) full period 50% ESP forecast is 200 kaf.
Plot Created 2017-06-06 06:52:56, NOAA / NWS / CBRFC
**Purple ESP forecasts do not include observed and are not total runoff.

Forecasts: West Fork below Vat

West Fork Duchesne - Vat Diversion- Bio (WFDU1)
2017-06-01 Apr-Jul Official 50% Forecast: 34 kaf (183% of average)
ESP is Unregulated and No Precipitation Forecast Included

Model adjustment

36 KAF/ 194%

34 KAF / 183%

Apr-May Observed: 17 KAF (185%)
June-July Fcst: 17 KAF
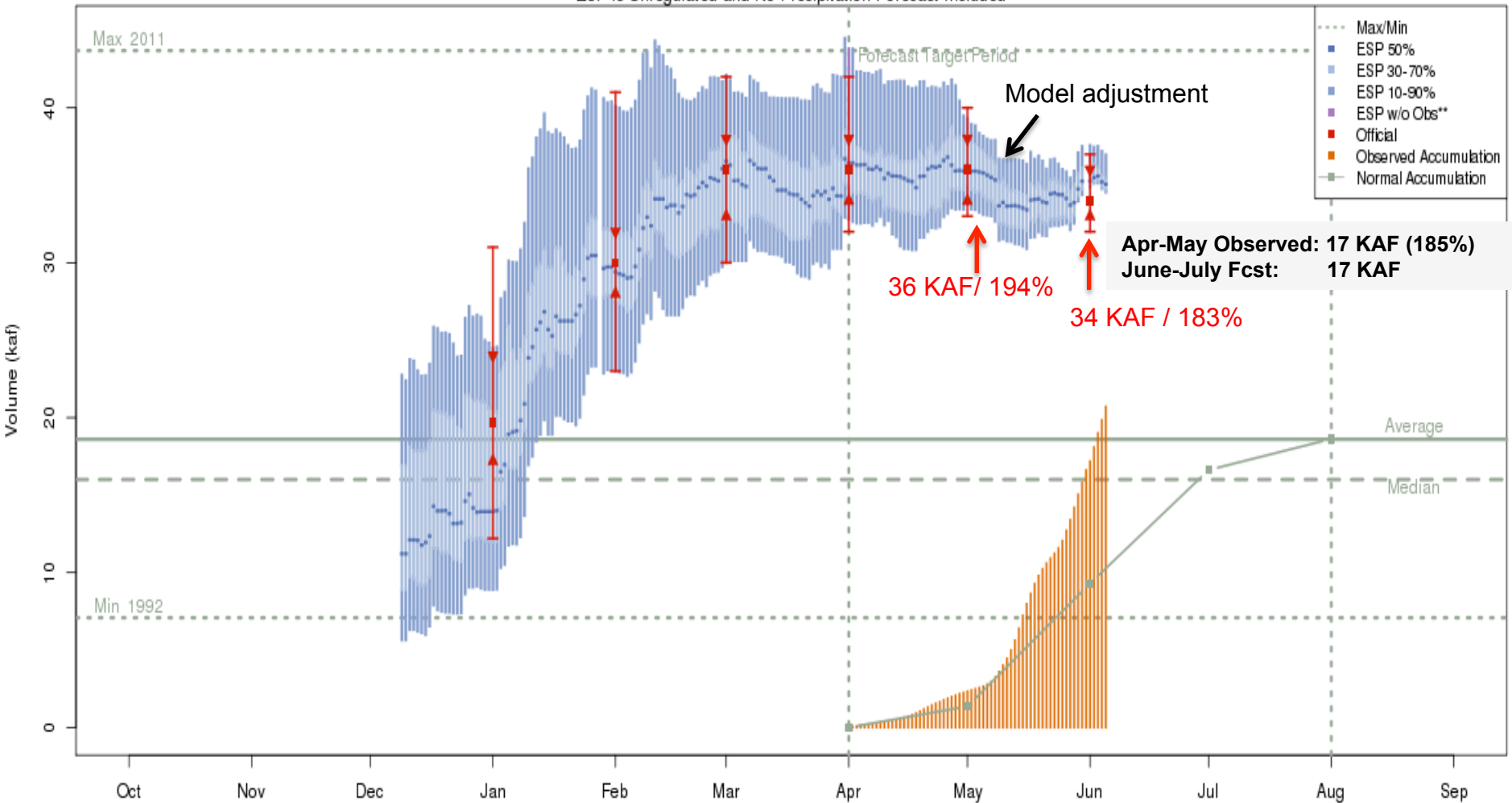
The most recent (2017-06-05) full period 50% ESP forecast is 35 kaf.
Plot Created 2017-06-06 06:54:07, NOAA / NWS / CBRFC
Forecasts in the forecast target period include observed values.

Forecasts: Upper Stillwater Reservoir

Rock Ck - Upper Stillwater Res (USTU1)
2017-06-01 Apr-Jul Official 50% Forecast: 111 kaf (150% of average)
ESP is Unregulated and No Precipitation Forecast Included

Apr-May Observed: 44 KAF (164%)
June-July Fcst: 67 KAF

120 KAF/ 162%

111 KAF/ 150%
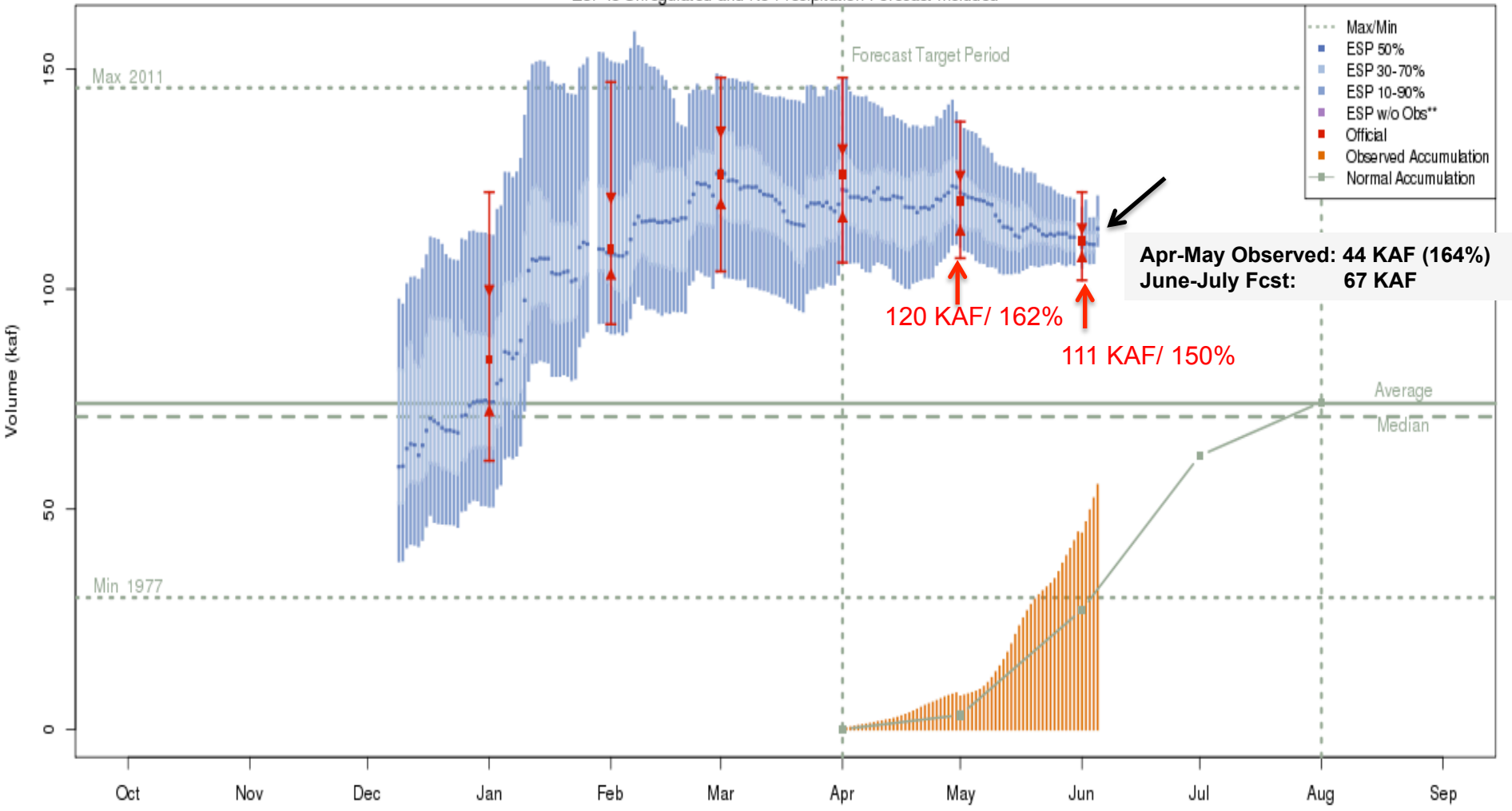
The most recent (2017-06-05) full period 50% ESP forecast is 114 kaf.
Plot Created 2017-06-06 08:50:56, NOAA / NWS / CBRFC
Forecasts in the forecast target period include observed values.

Currant Snow Conditions: Satellite Snow Covered Area
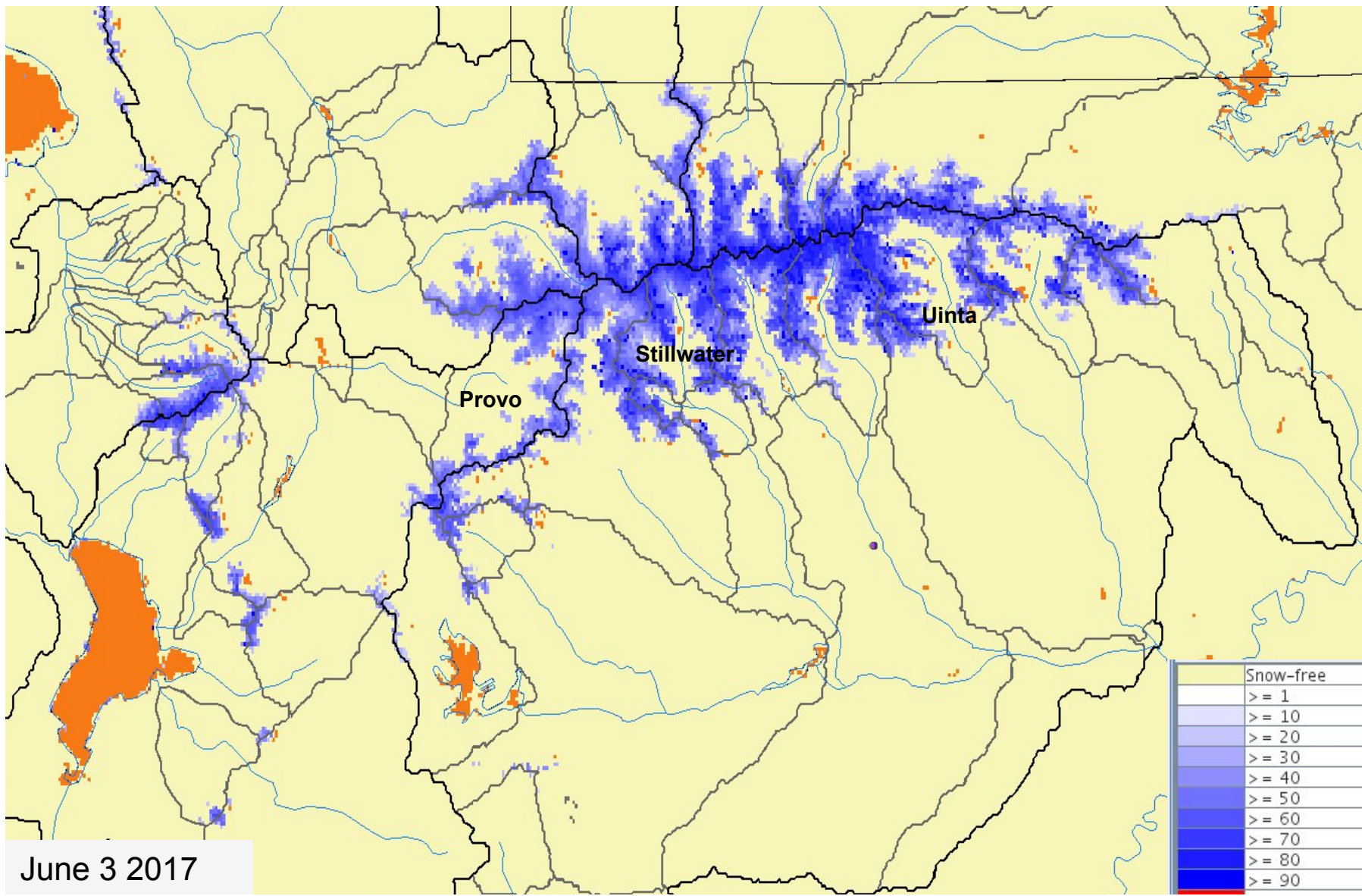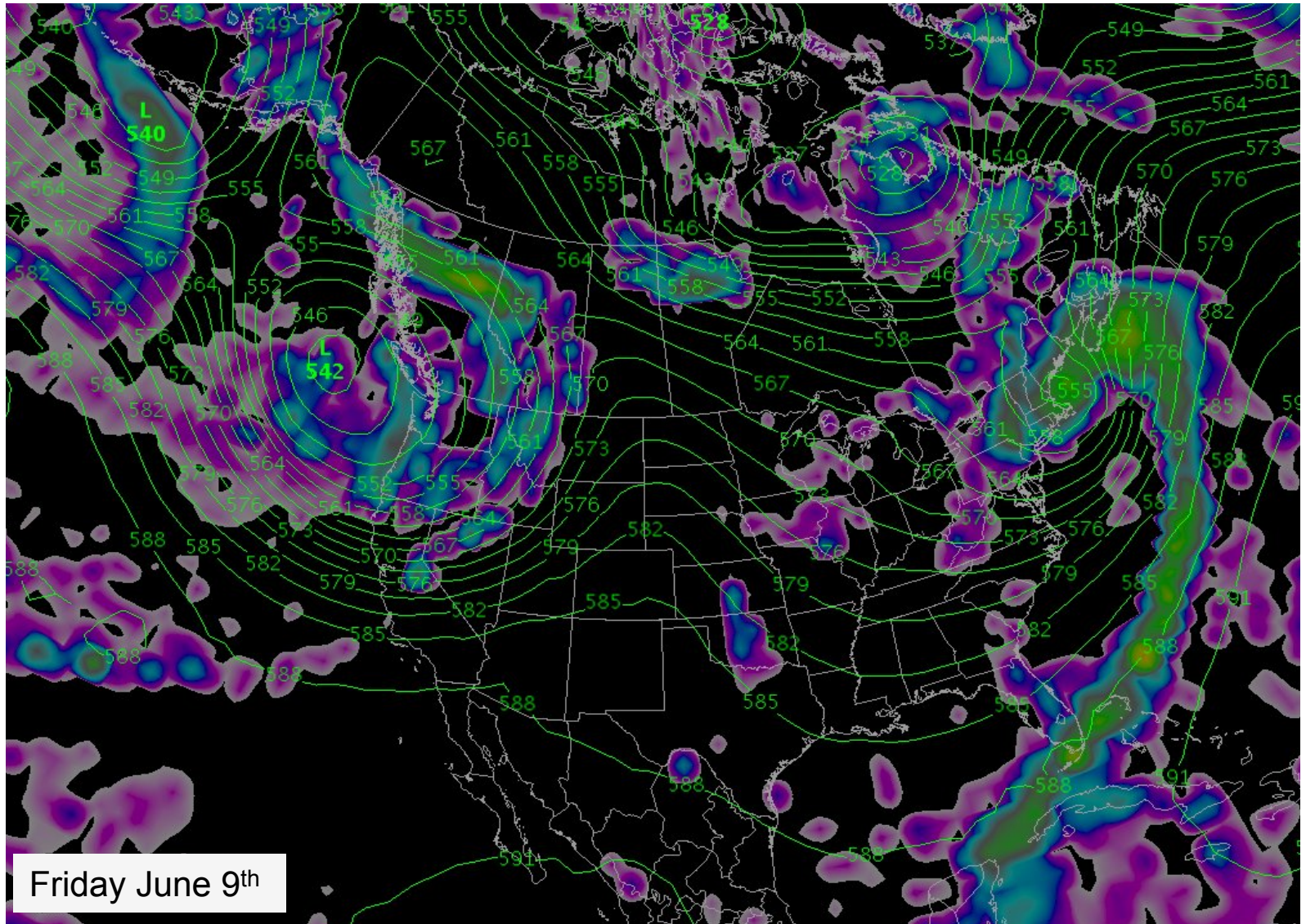

June 3 2017

Upcoming Weather

Ridge of high pressure will maintain warm (above normal temperatures) and dry conditions through Friday.
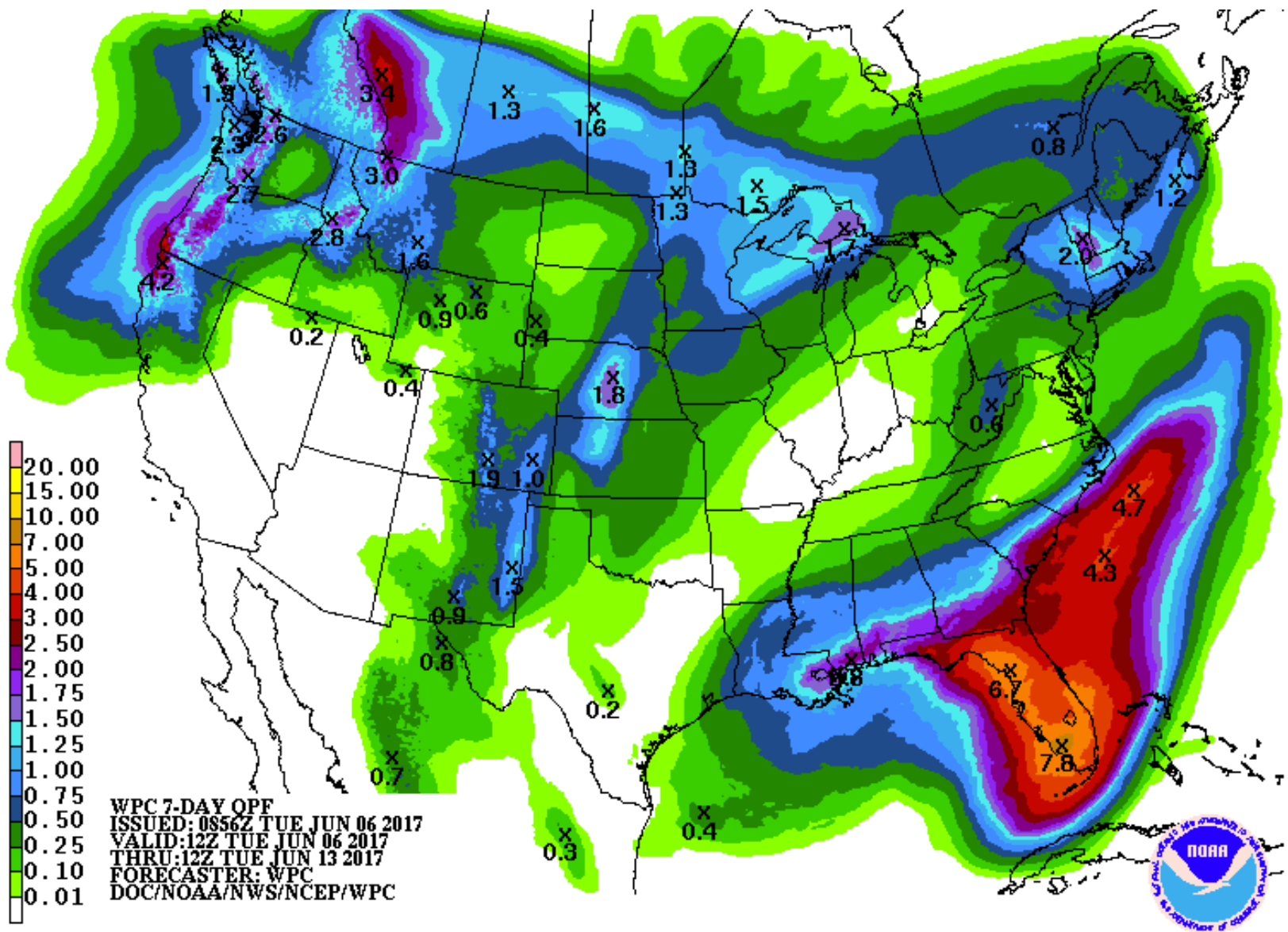

Wednesday June 7th
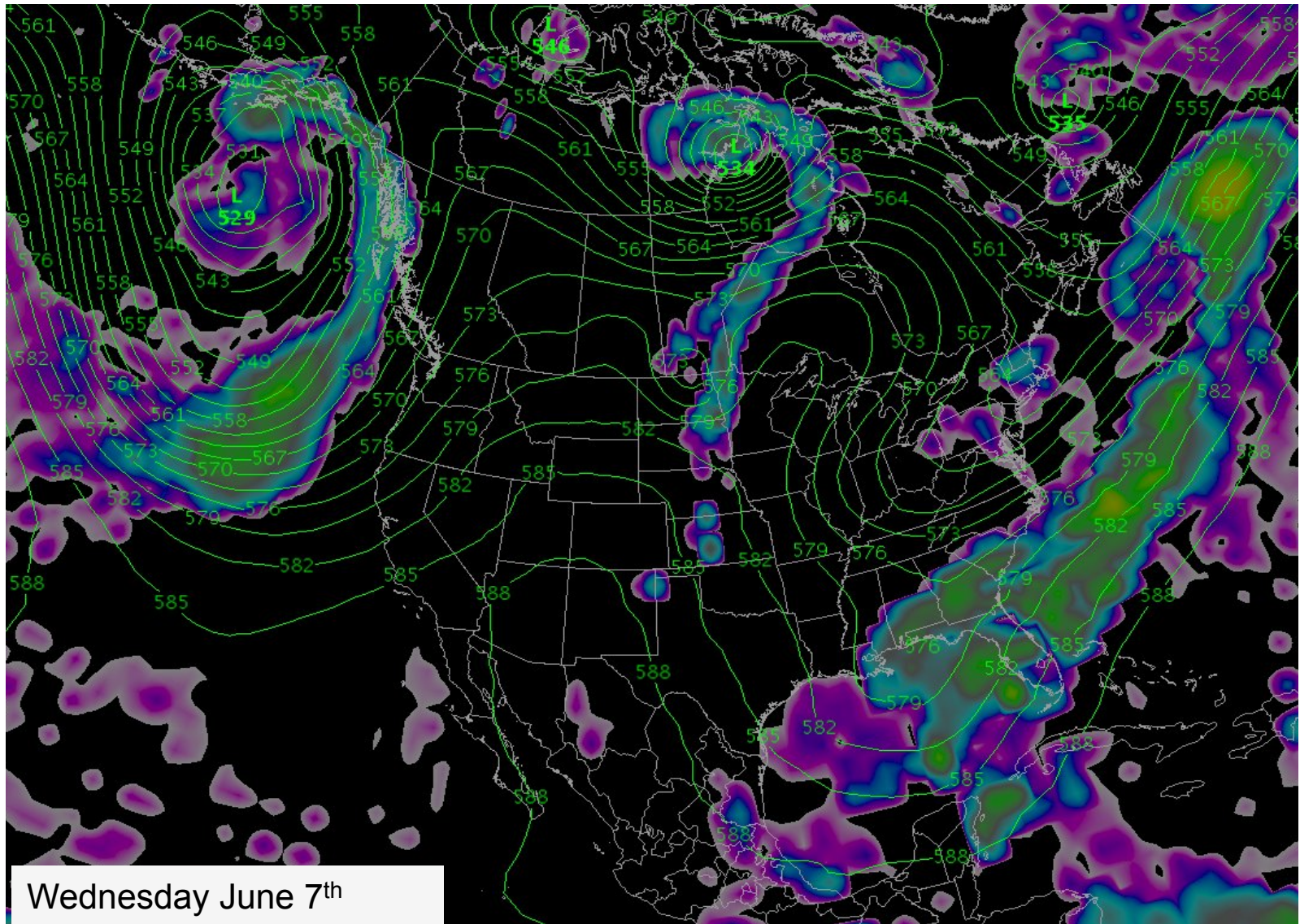
Upcoming Weather

A strong cold front will cross the region Friday followed by colder air (below normal temperatures) through early next week.

Friday June 9th

Upcoming Weather

Precipitation Forecast: 7 day total (June 6th – June 13th)

10-Day Deterministic Streamflow Forecasts

Flow you would expect to see in the river. Updated every morning by 10 am.

Forecasts include:
    5 days of forecasted precip
    10 days of forecasted temperatures

Sources of Errors/Inconsistency:
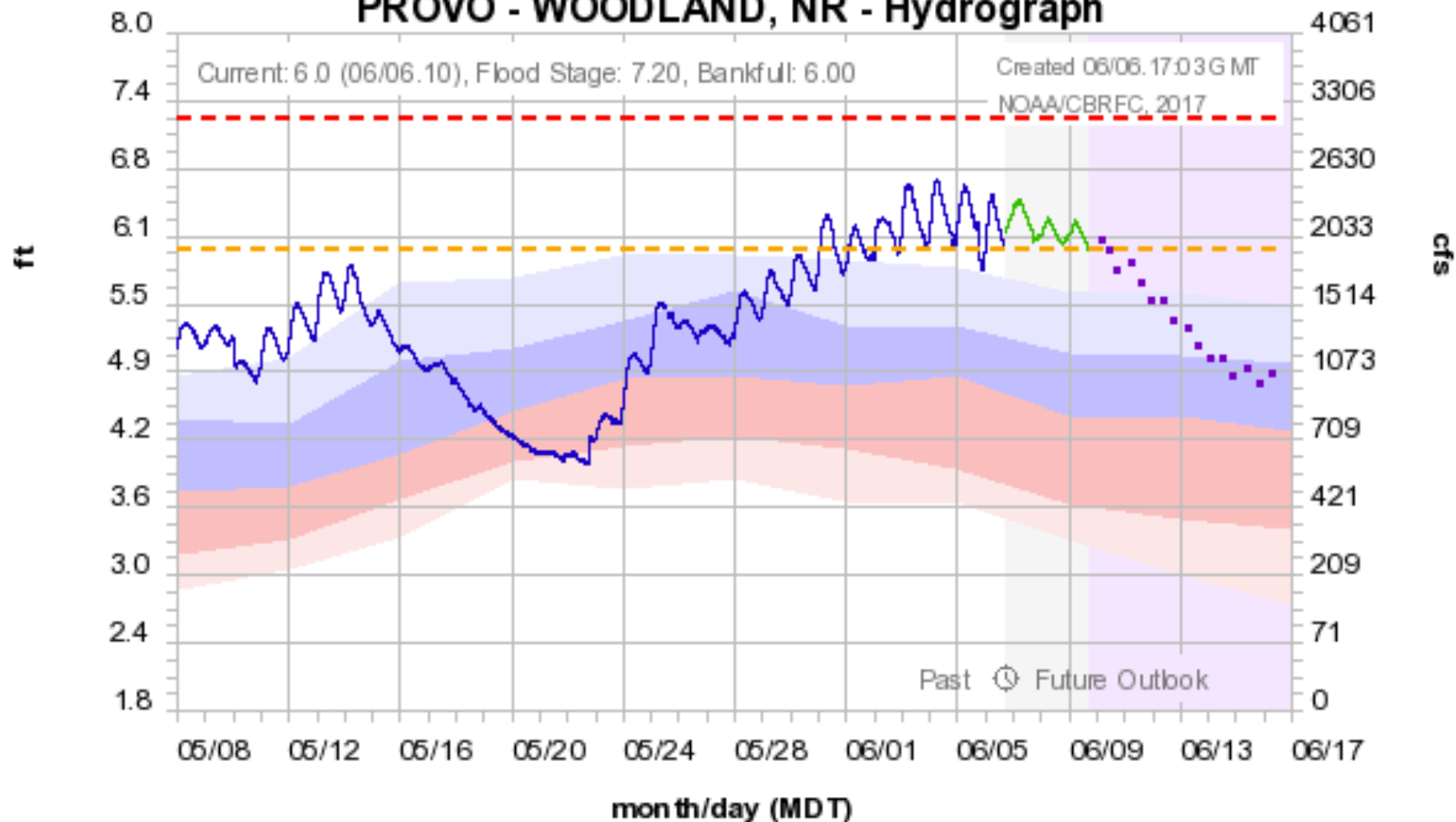   Model snow states
   Consistency of meteorological models
   Future weather
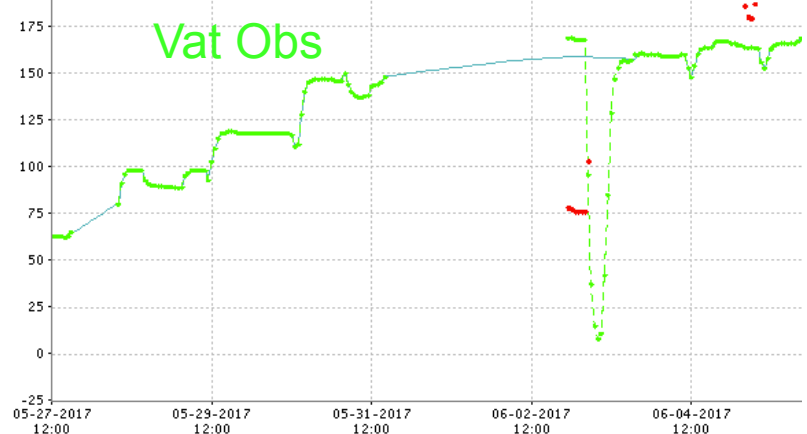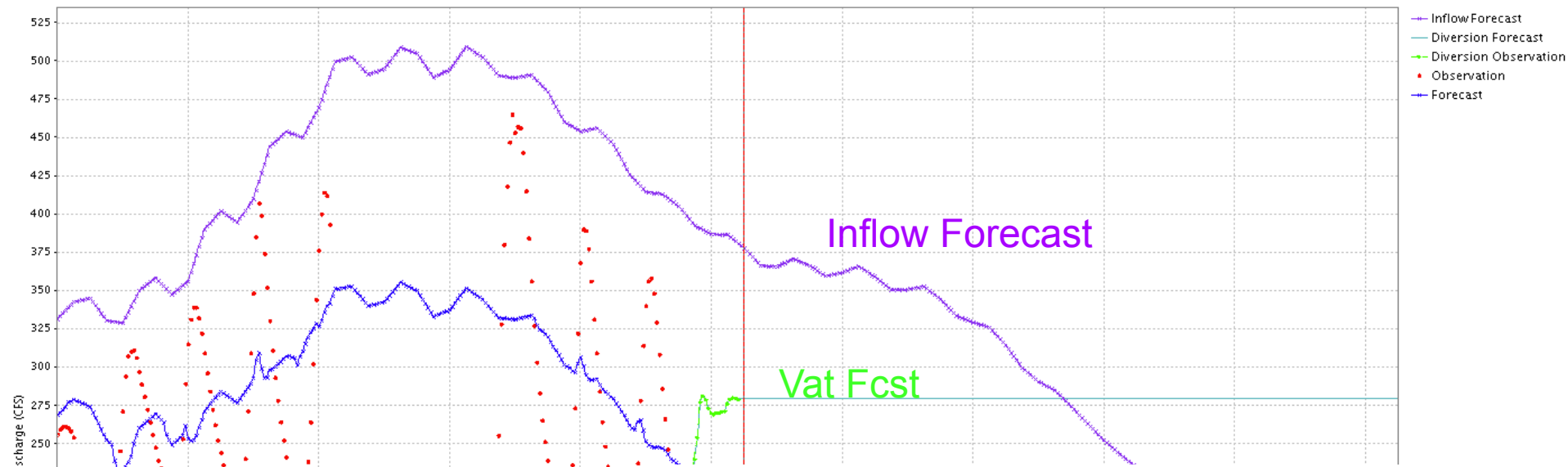   Assumptions about regulation/ diversions

www.cbrfc.noaa.gov

Provo River near Woodland
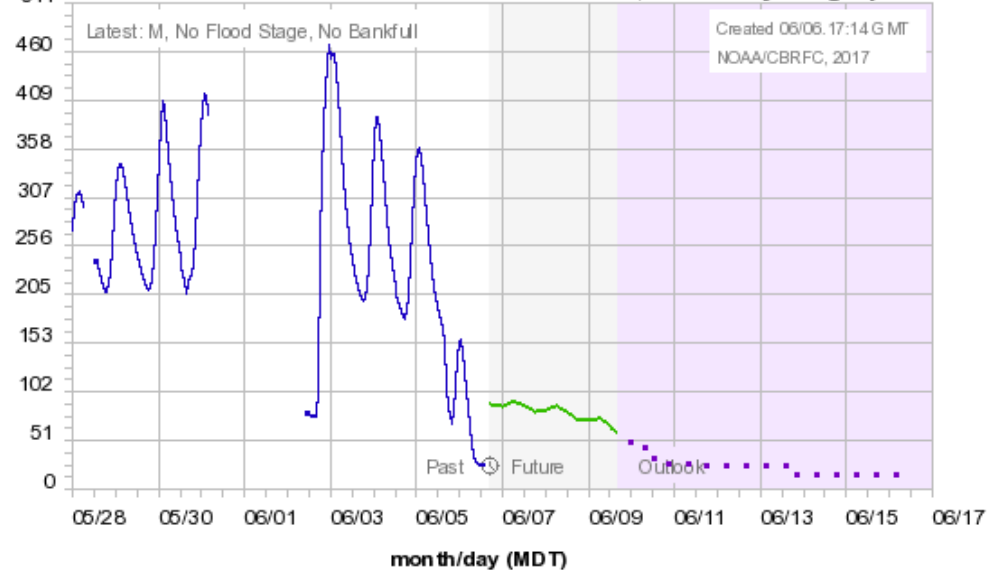

Colorado Basin River Forecast Center
PROVO - WOODLAND, NR - Hydrograph

*Assuming Duchesne Tunnel will stay around ~165 cfs
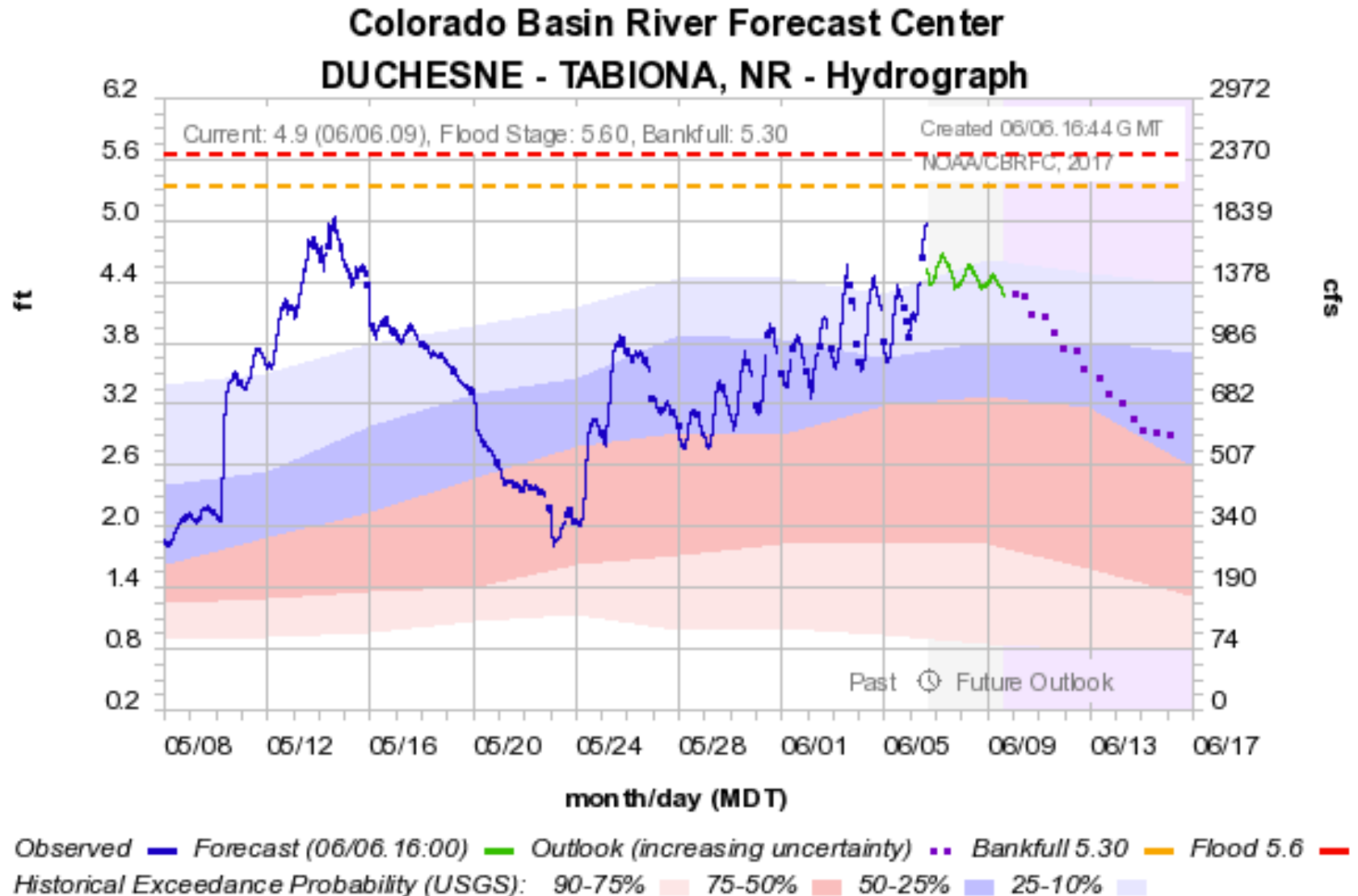
West Fork Duchesne River

Duchesne River nr Tabiona

Colorado Basin River Forecast Center
DUCHESNE - TABIONA, NR - Hydrograph

Current: 4.9 (06/06.09), Flood Stage: 5.60, Bankfull: 5.30

Created 06/06.16:44 G MT
NOAA/CBRFC, 2017

Legend: Observed — Forecast (06/06.16:00) — Outlook (increasing uncertainty) — Bankfull 5.30 — Flood 5.6 —
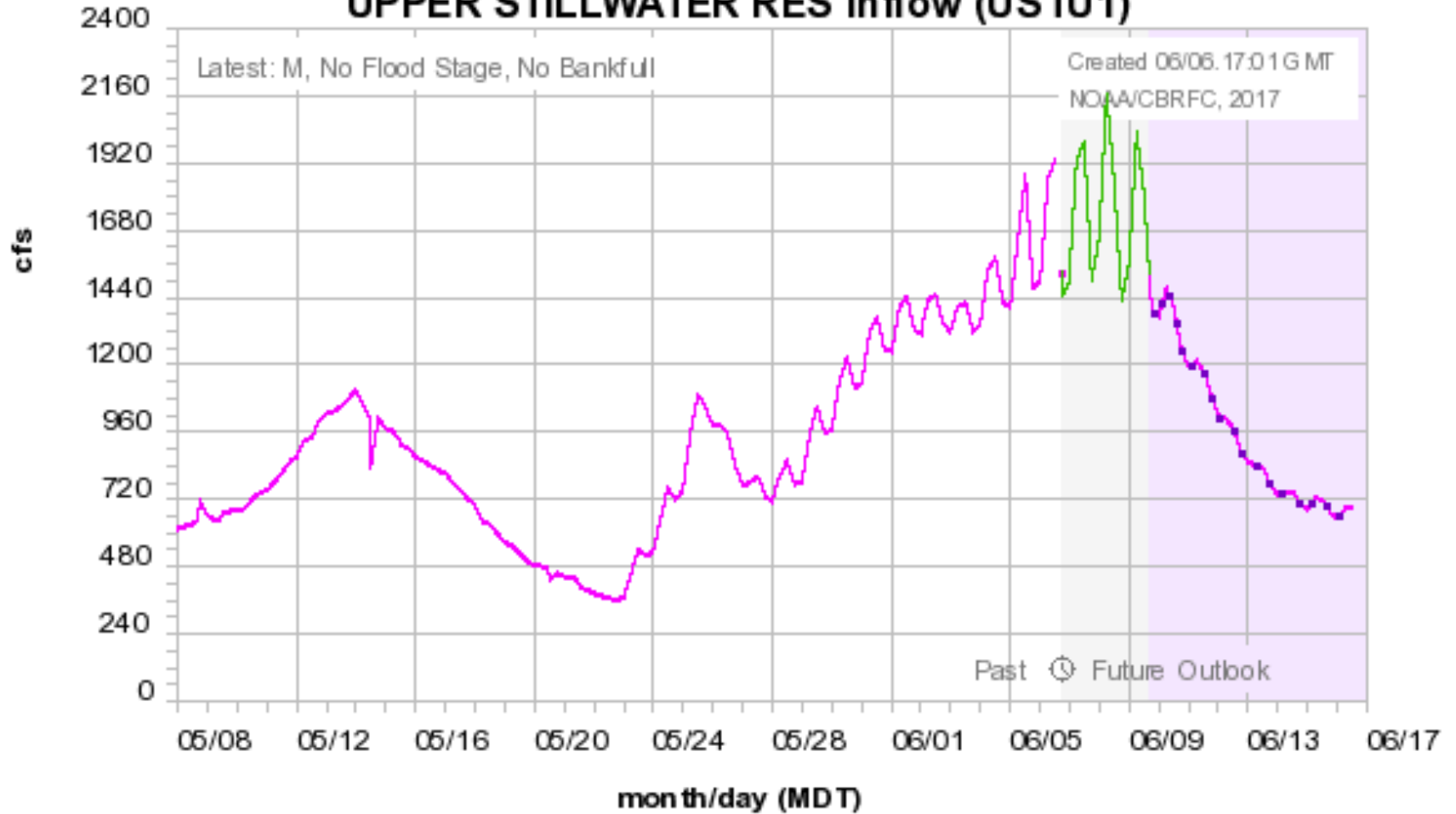Historical Exceedance Probability (USGS): 90-75% 75-50% 50-25% 25-10%
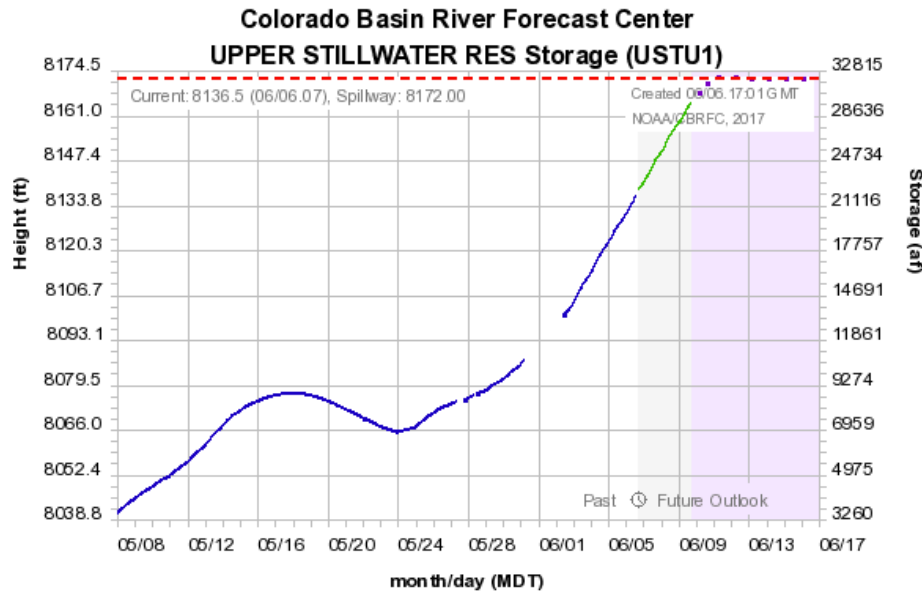
Assuming Duchesne Tunnel will stay around ~165 cfs

Upper Stillwater Inflow

Colorado Basin River Forecast Center
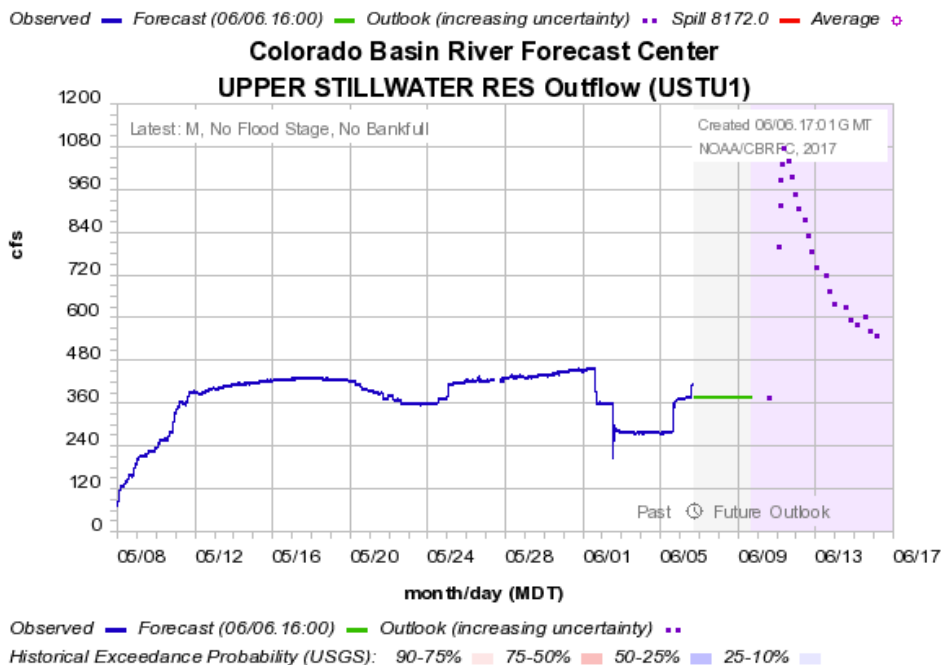UPPER STILLWATER RES Inflow (USTU1)

Upper Stillwater Pool Elevation/Outflow

Assuming the following:
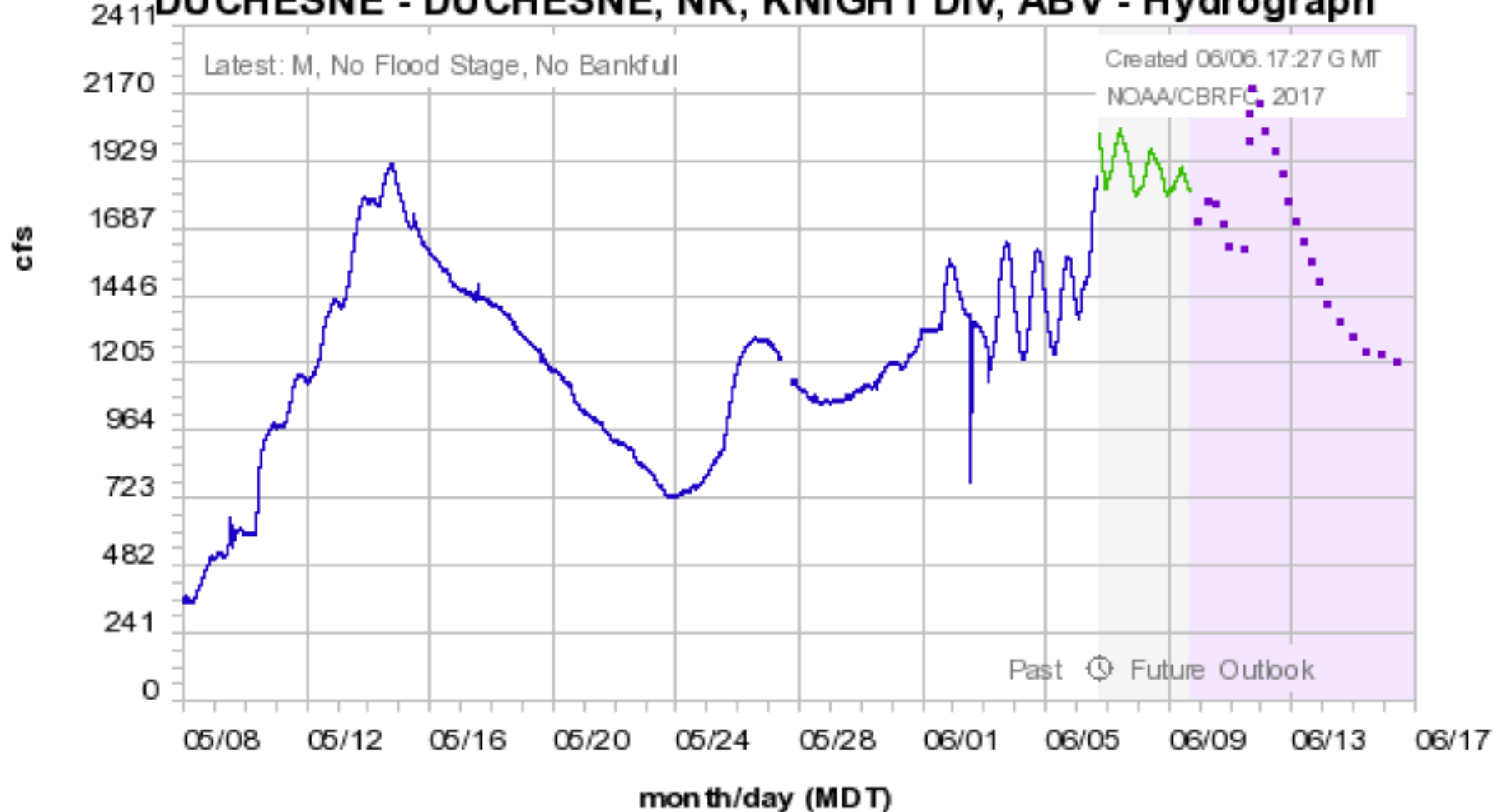 Stillwater Tunnel = ~165 cfs
  Outflow = 375 cfs

Spill ~ 6/10

Duchesne River above Knights Diversion

Colorado Basin River Forecast Center
DUCHESNE - DUCHESNE, NR, KNIGHT DIV, ABV - Hydrograph

Latest: M, No Flood Stage, No Bankfull

Created 06/06. 17:27 G MT
NOAA/CBRFC, 2017

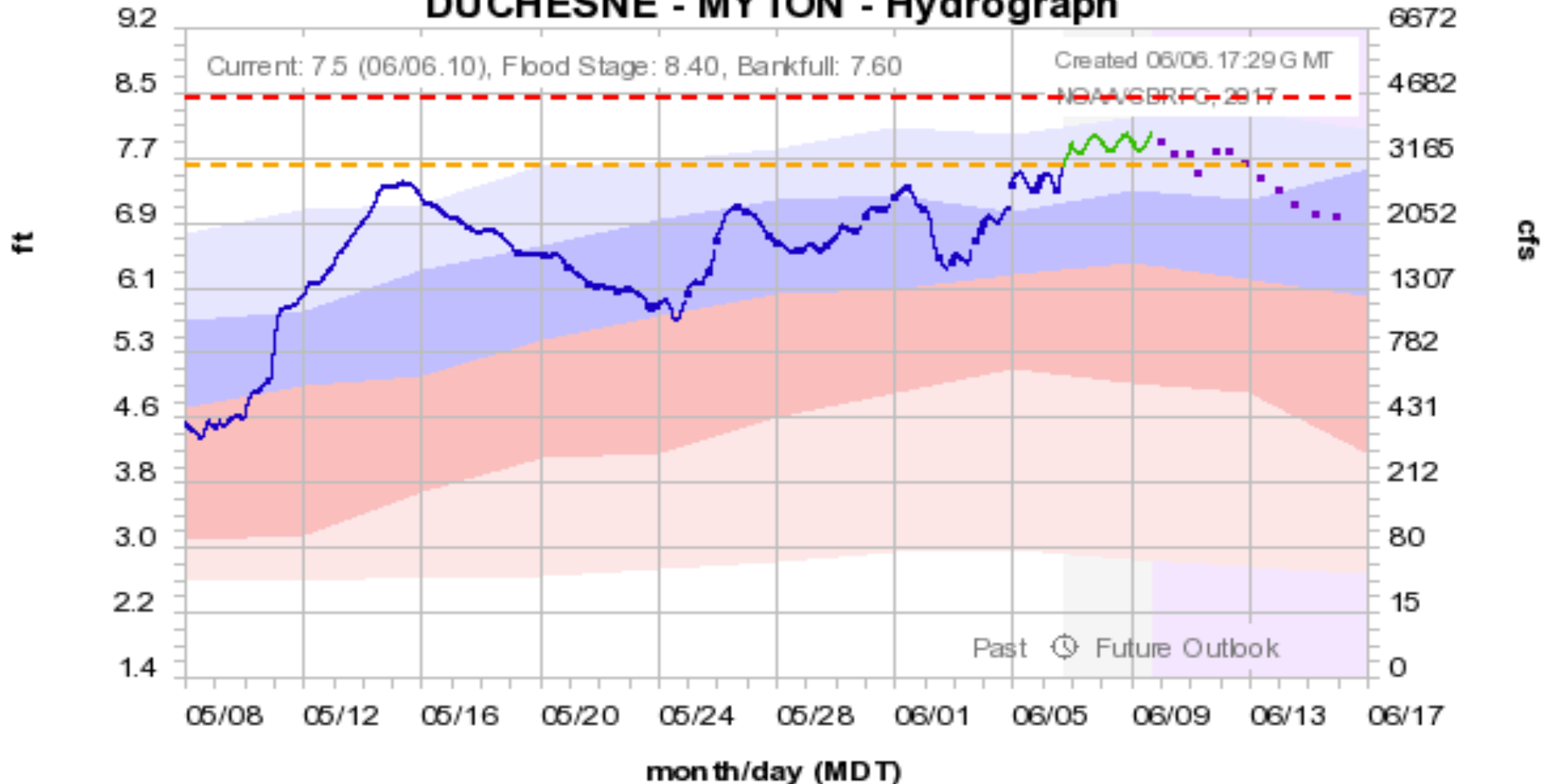Past ⊙ Future Outlook

month/day (MDT)

Observed — Forecast (06/06. 16:00) — Outlook (increasing uncertainty) ▪▪

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

Duchesne River - Myton


Colorado Basin River Forecast Center
DUCHESNE - MYTON - Hydrograph

Current: 7.5 (06/06.10), Flood Stage: 8.40, Bankfull: 7.60

Created 06/06.17:29 G MT

NOAA/CBRFC, 2017

Past ⏱ Future Outlook

Observed ── *Forecast (06/06.16:00)* ── *Outlook (increasing uncertainty)* ▪▪ *Bankfull 7.60* ── *Flood 8.4* ──

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

Assuming: Starvation Release 250 cfs, ~650 cfs diversions (Knights, Grey Mtn, Duchesene Feeder, Myton Townsite), ~600-700 cfs other uses.

Duchesne River - Randlett
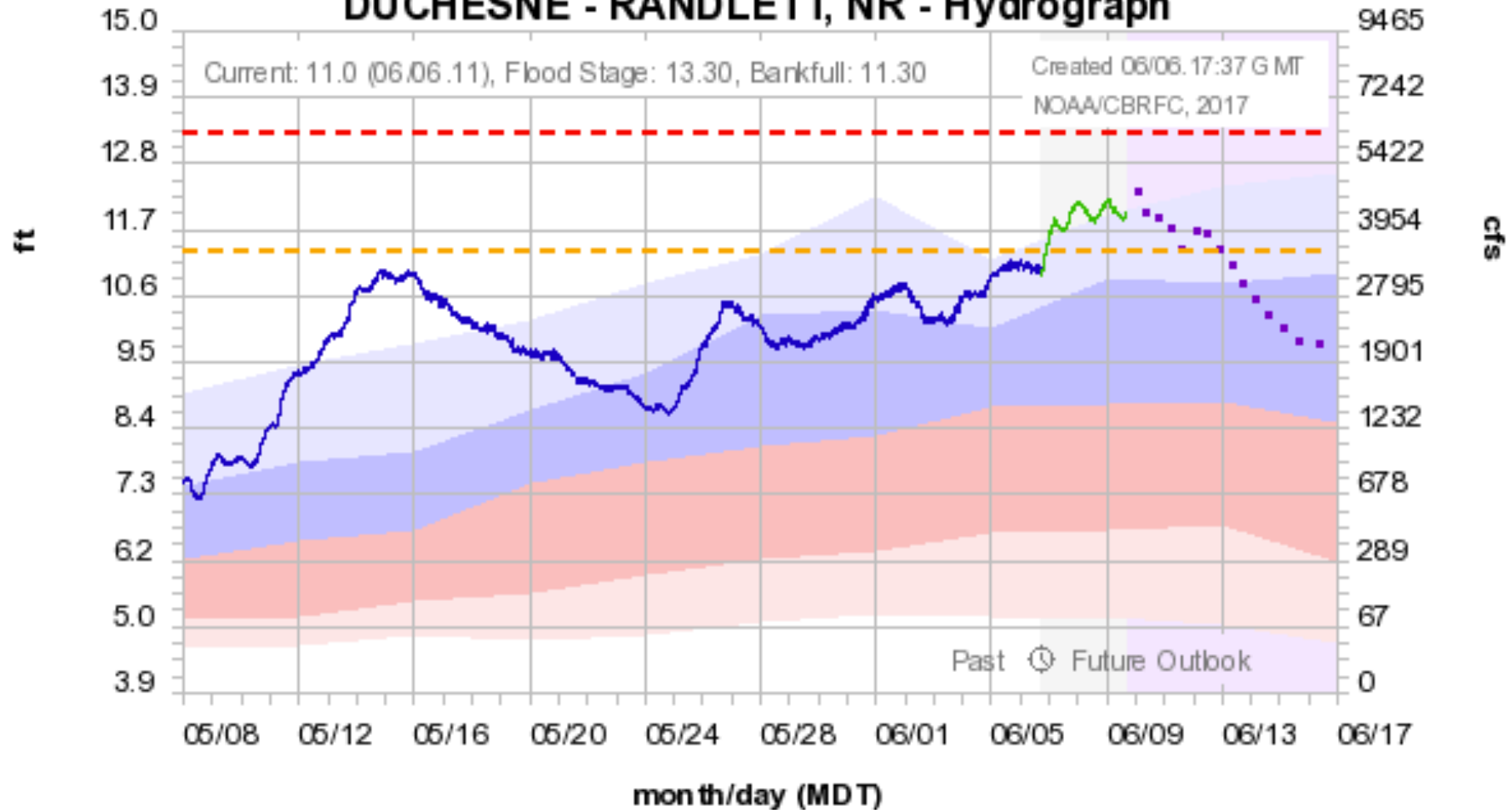
Discussion

Forecast Discussion

Operations Discussion?
 Thanks for the updates and data!