

CBRFC Forecast Areas

Colorado Basin River Forecast Center

Water Supply Briefing Great Basin, Duchesne, Virgin

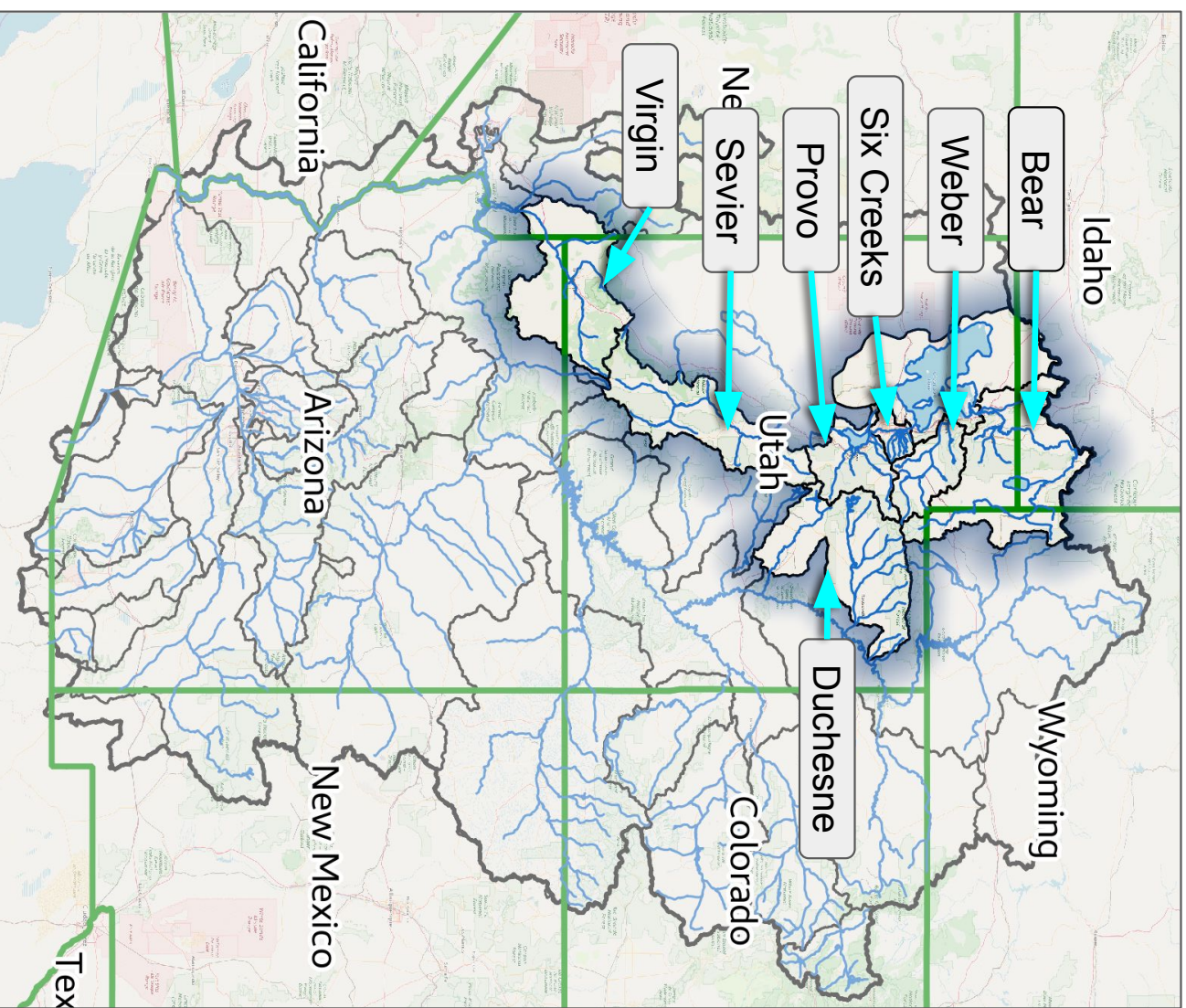
May 7th, 2019

- Patrick Kormos - Hydrologist
- Greg Smith - Sr. Hydrologist
- Brenda Alcorn - Sr. Hydrologist
- Ashley Nielson - Sr. Hydrologist
- Brent Bernard - Hydrologist

Phone: 1-877-929-0660

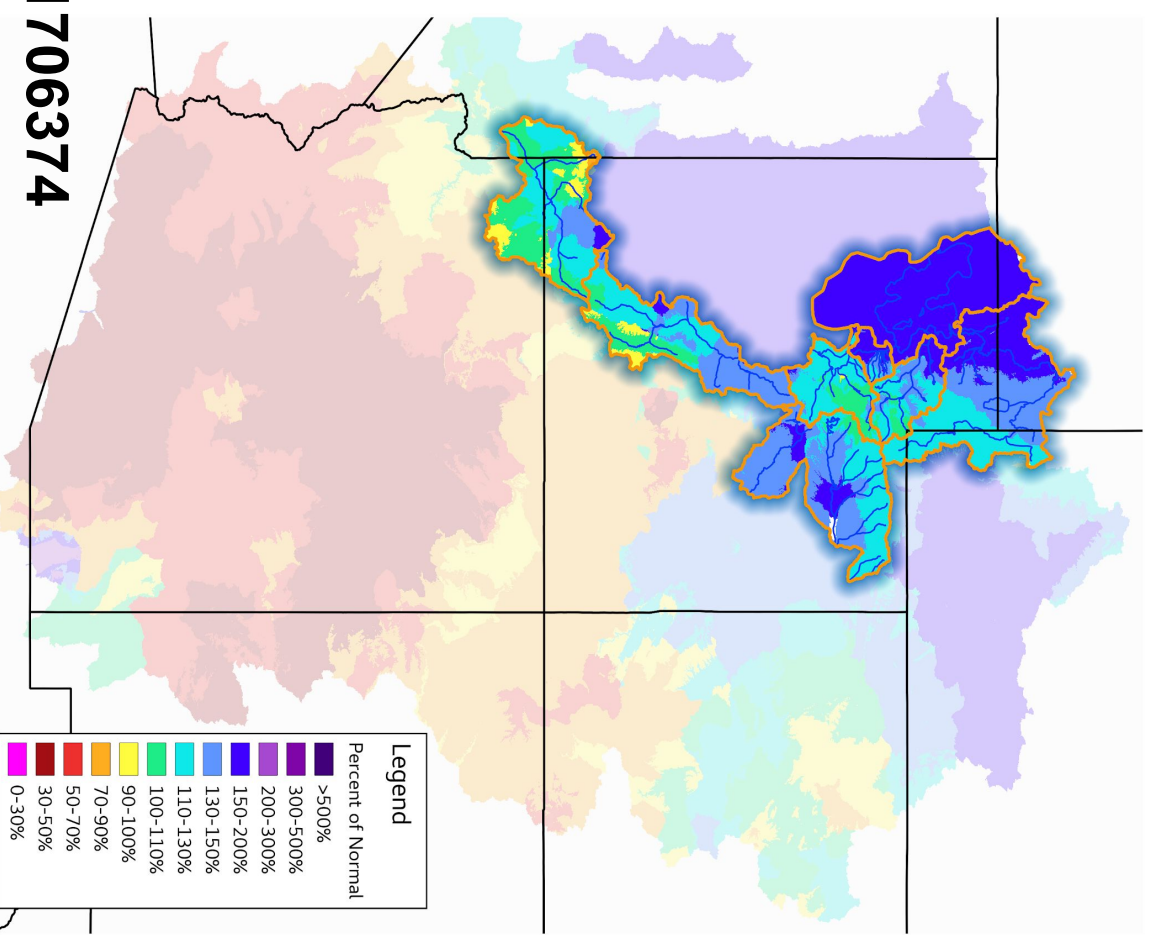
Passcode: 1706374

**Please mute your phone
until ready to ask questions**



Today's Presentation

April Precipitation, 2019
(Averaged by Basin)



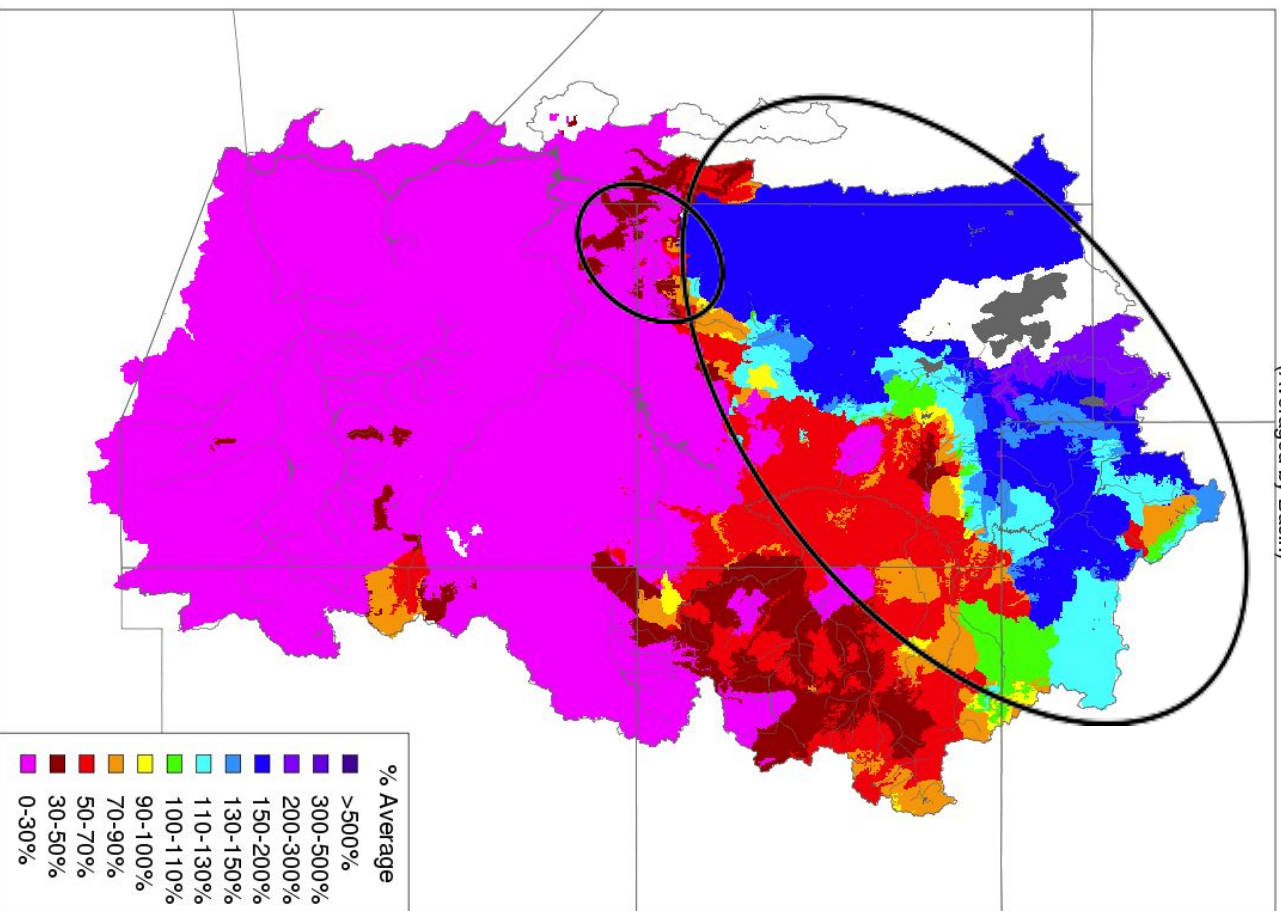
- Weather review
 - April Precipitation
- Current Snowpack
- April Streamflow Volumes
- May 1 Water Supply Forecasts
- May Forecast Error
- Upcoming Weather
- Contacts & Questions

Phone: 1-877-929-0660 Passcode: 1706374

* Please mute your phone until the question period *

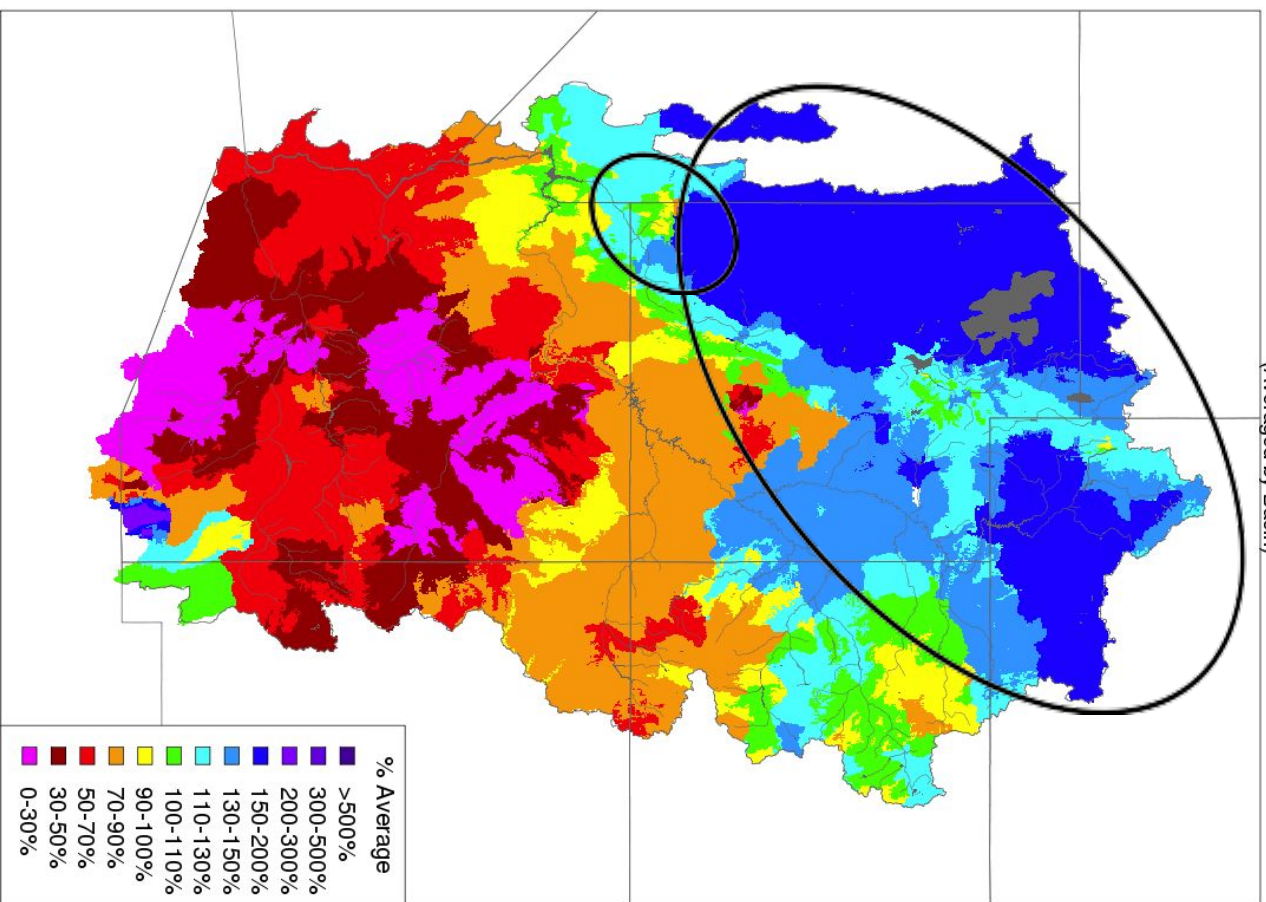
April Precipitation Pattern

Month to Date Precipitation - April 16 2019
(Averaged by Basin)



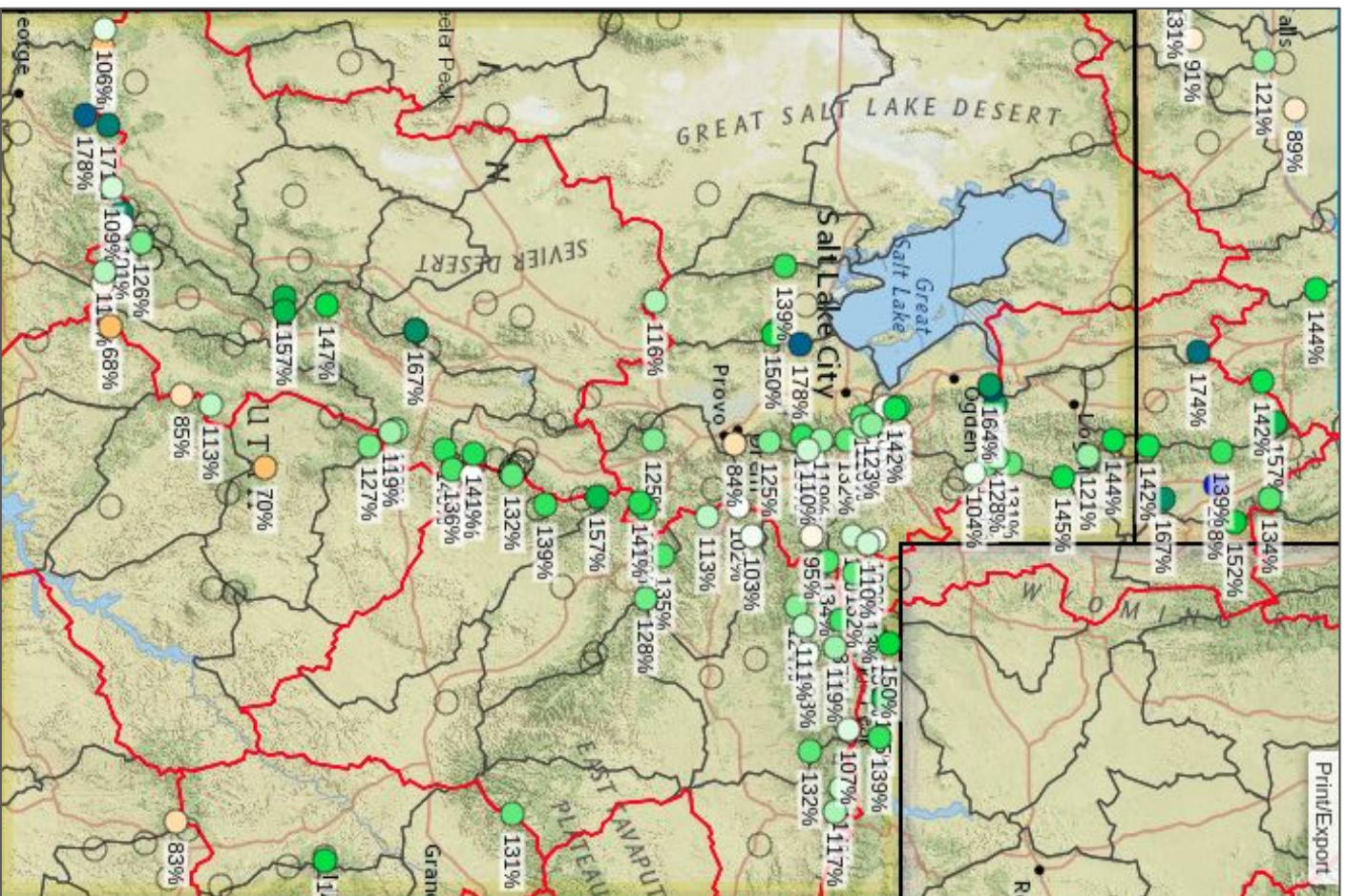
Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Monthly Precipitation - April 2019
(Averaged by Basin)

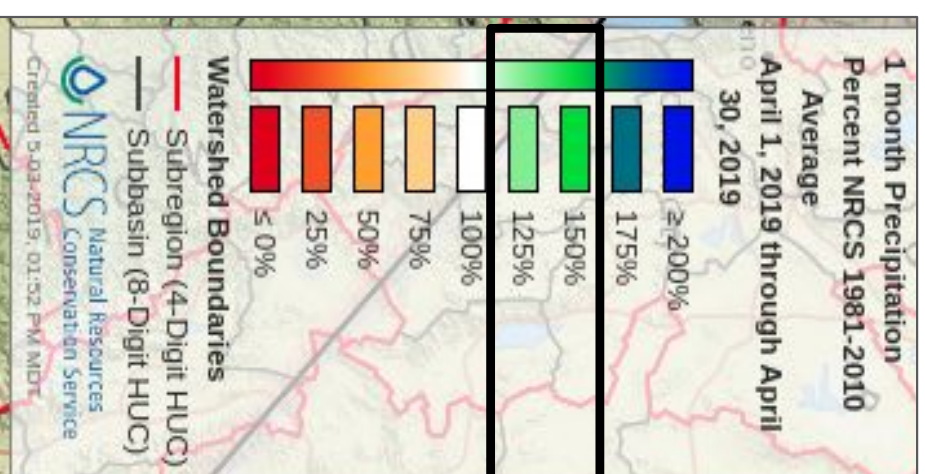


Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

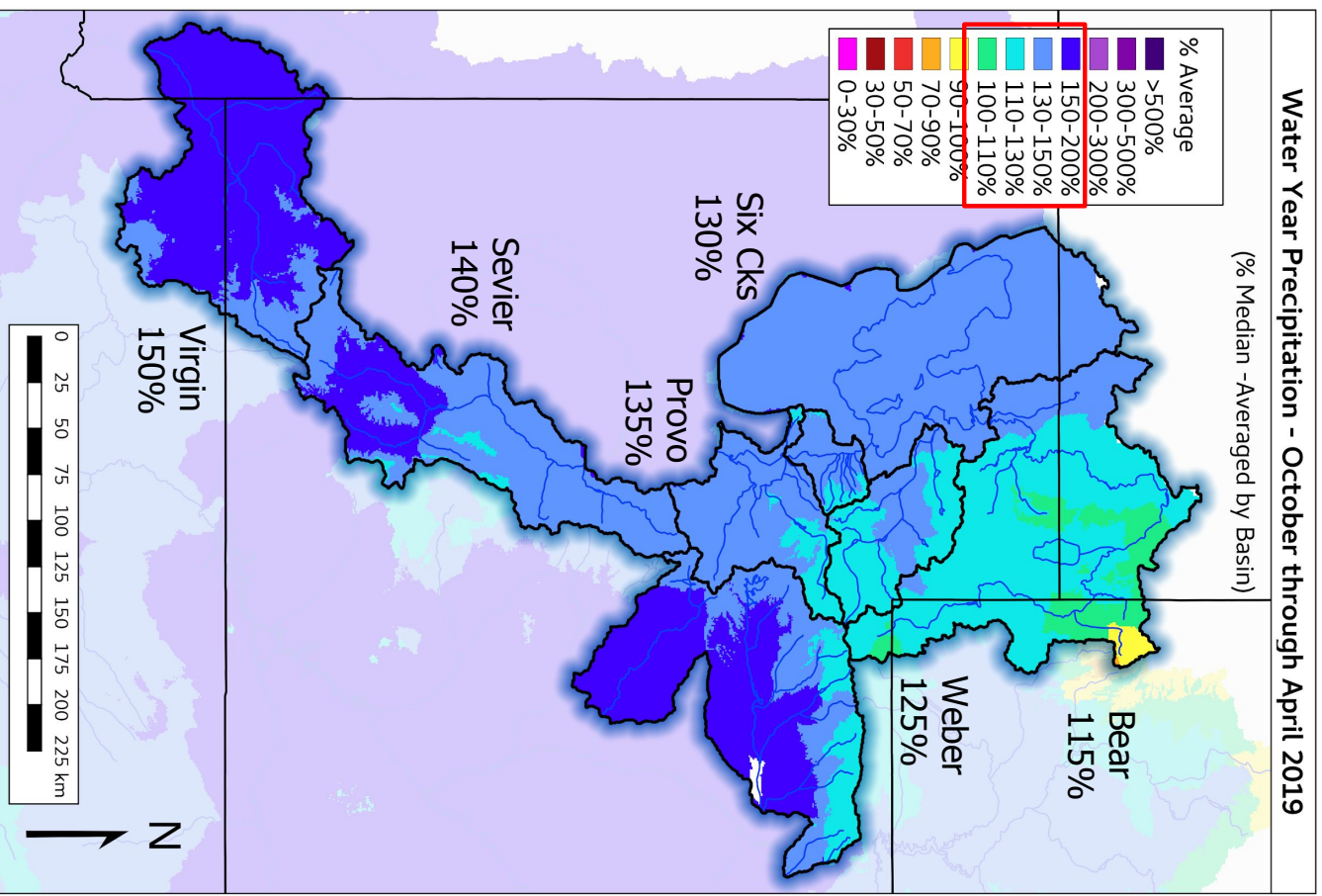
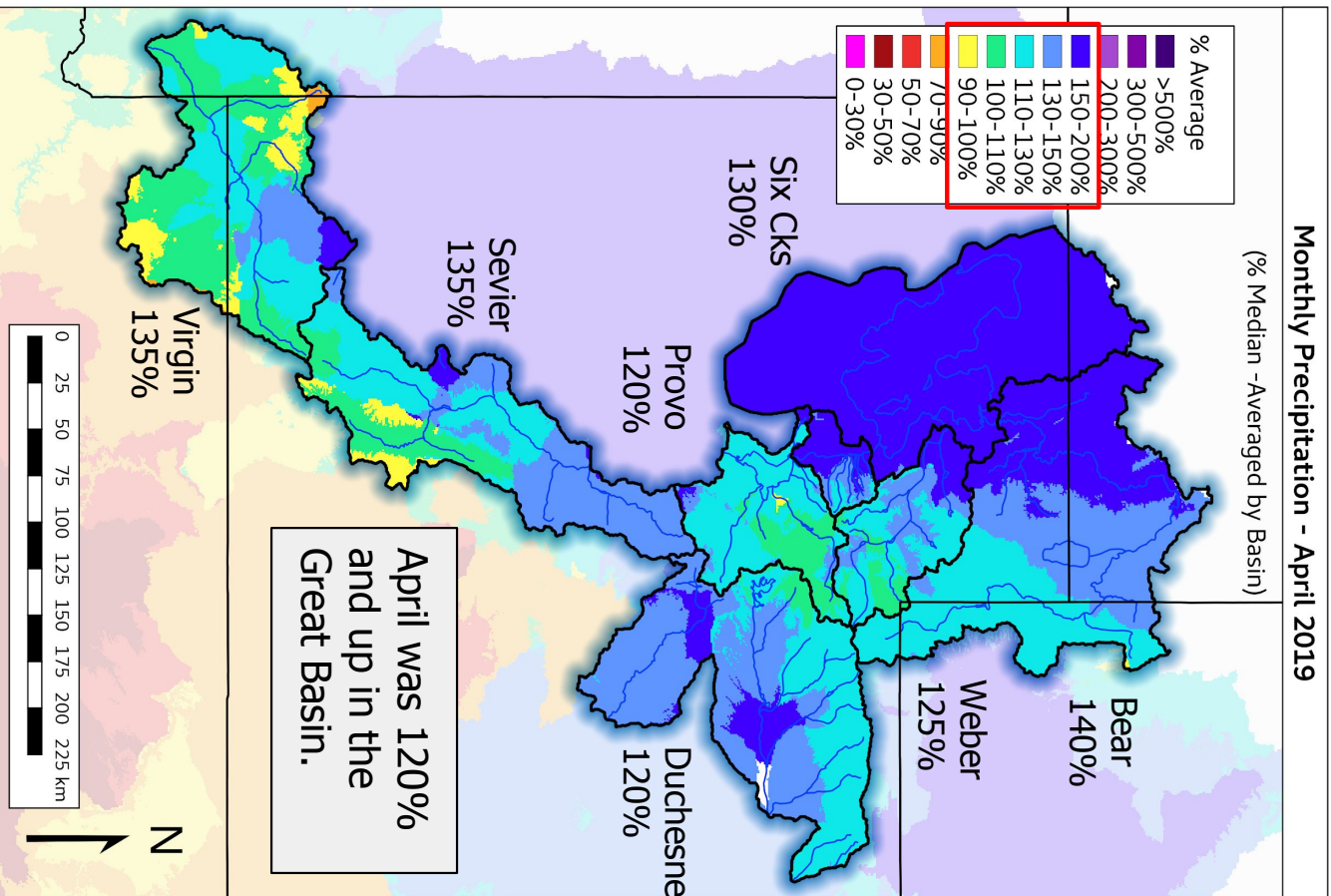
April 2019 Total Precipitation - Measurements



- April SNOTEL Precipitation Percent of Normal.
- Most 125% to 150%



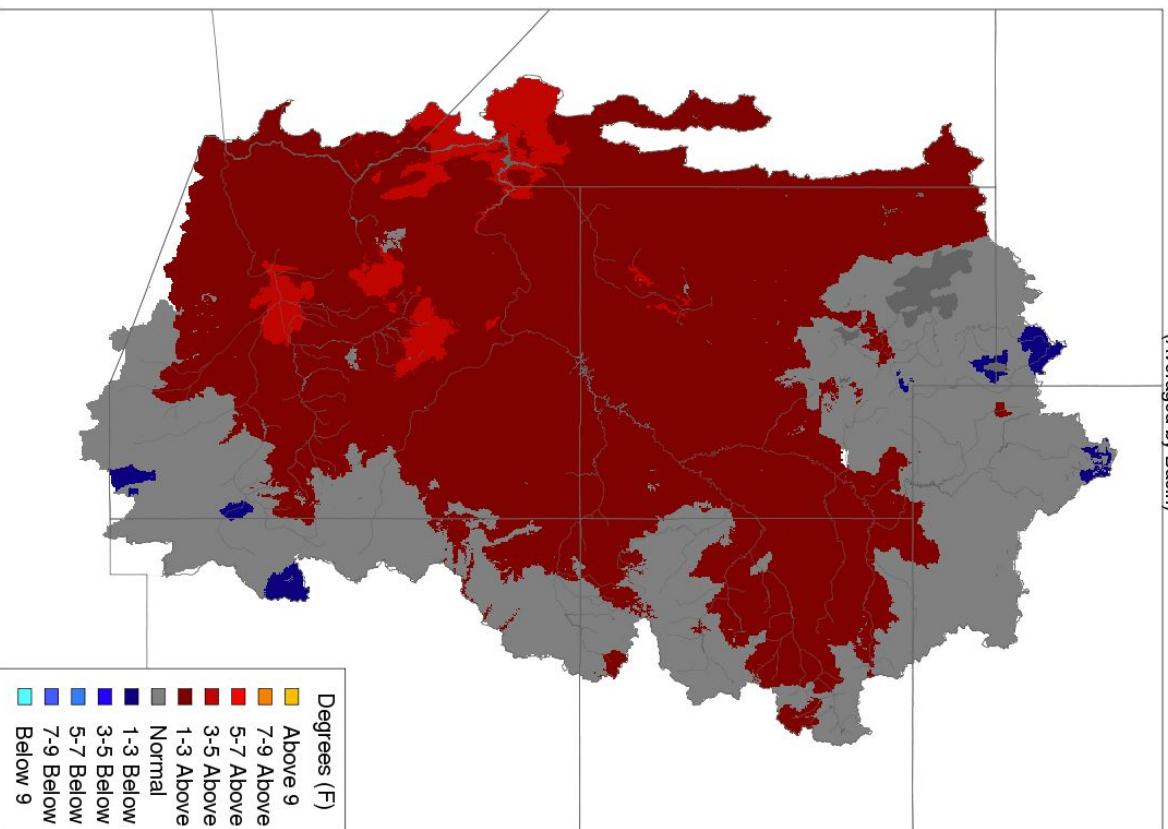
April 2019 Total Precipitation - CBRFC Basins



April Temperature Pattern

Max Temp - Monthly Deviation - April 2019

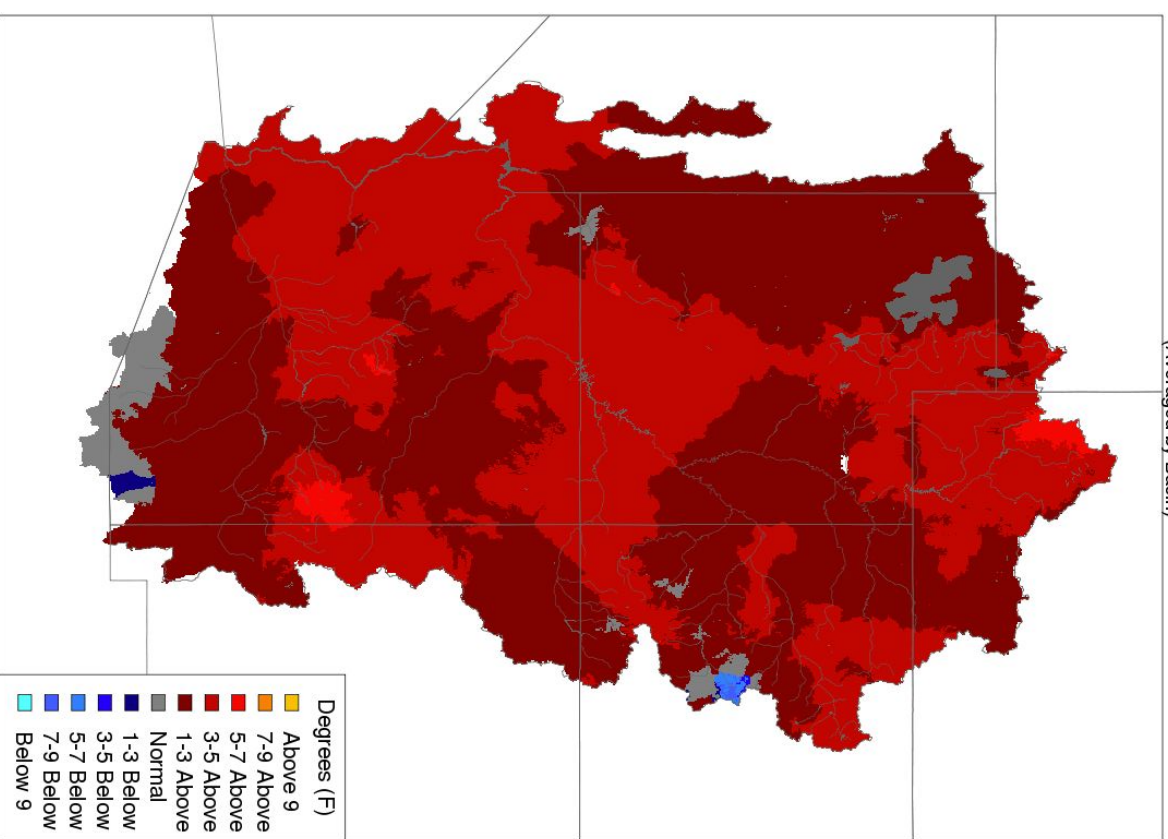
(Averaged by Basin)



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

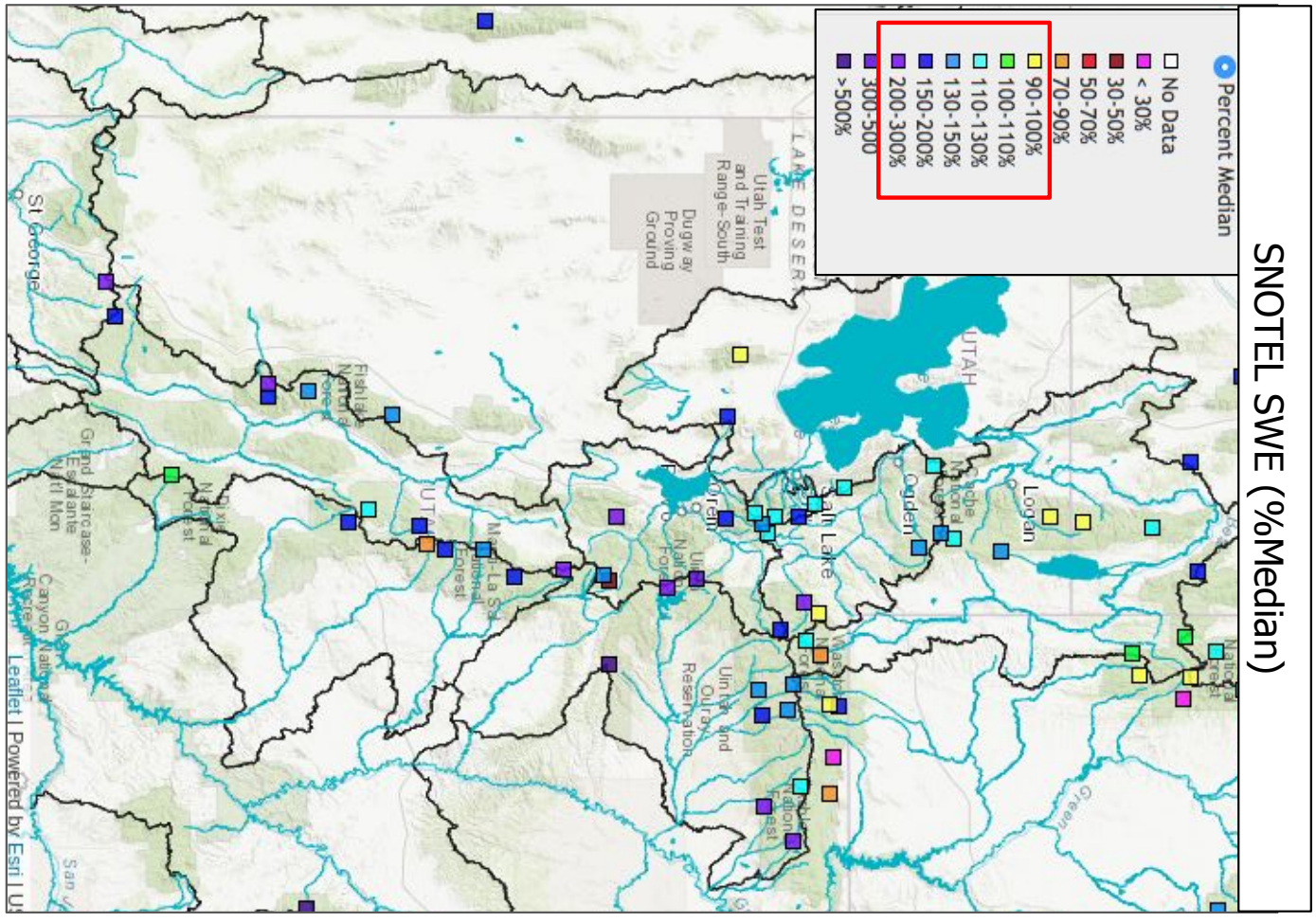
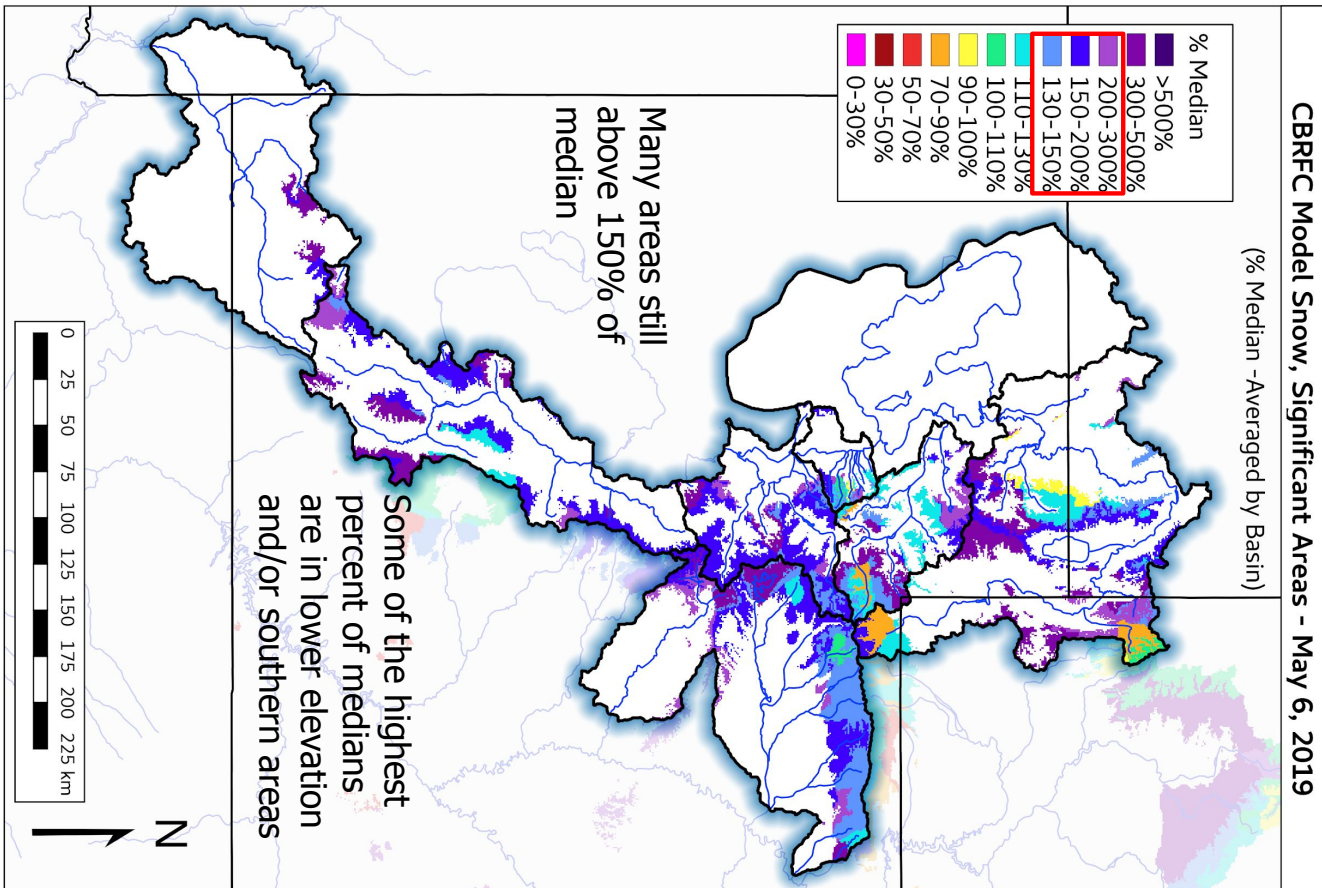
Min Temp - Monthly Deviation - April 2019

(Averaged by Basin)



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

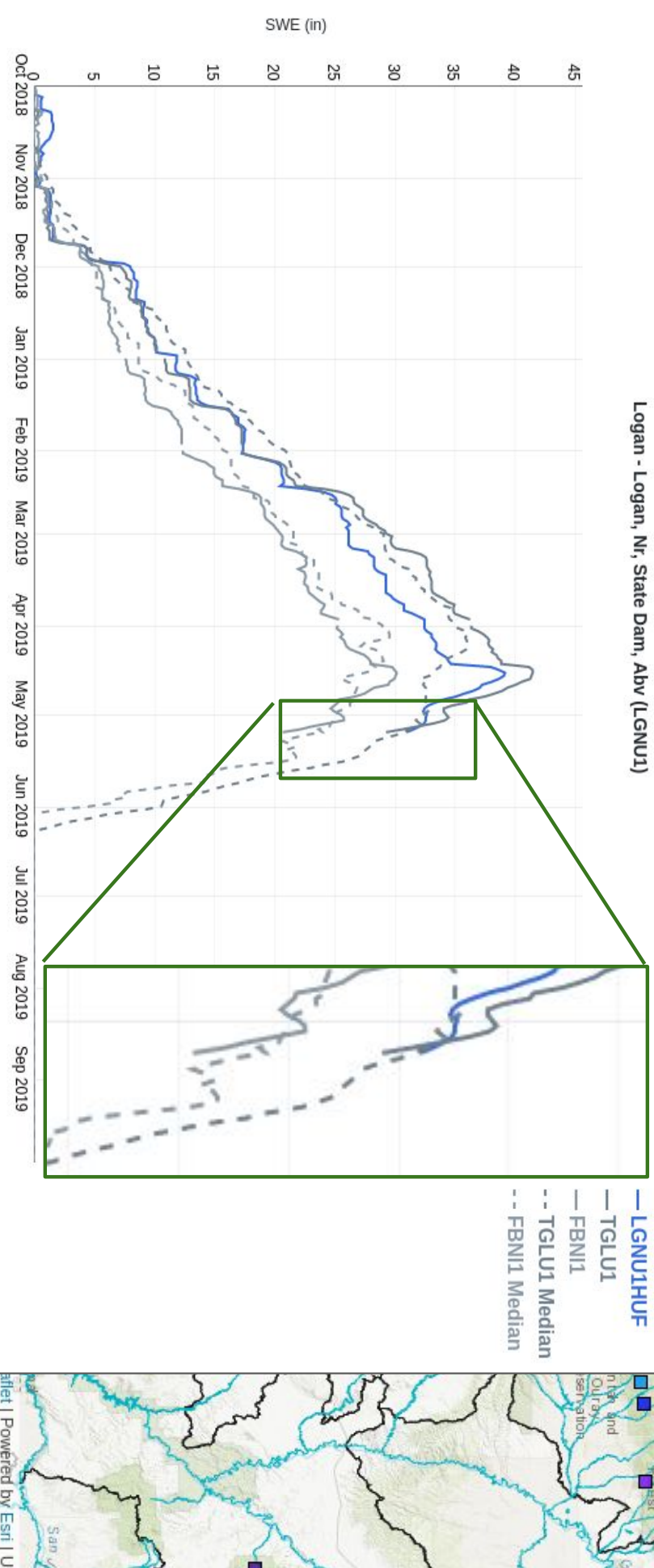
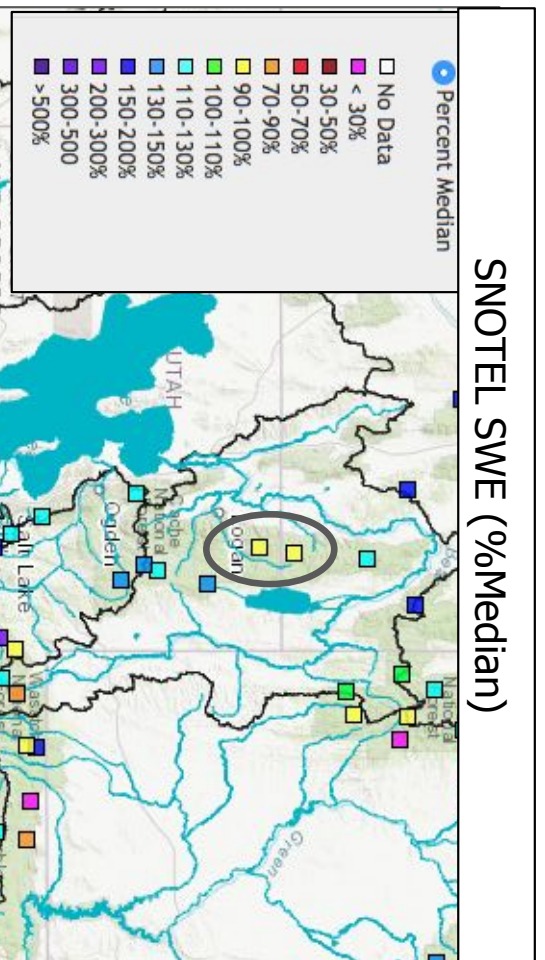
Current Snowpack - May 6 Snow Conditions



Current Snowpack - May 6 Snow Conditions

Current snow conditions in percent of normal.

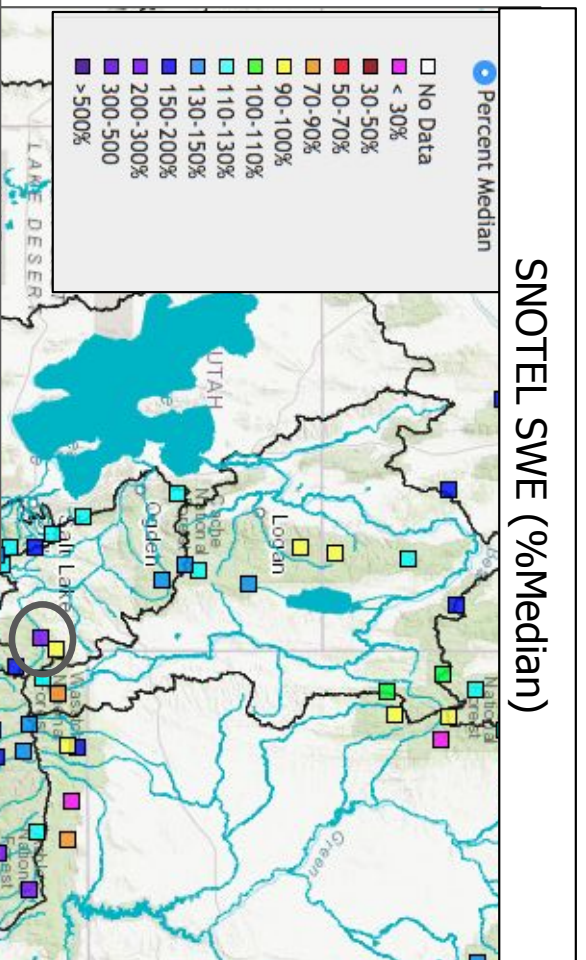
- Dependant on melt out pattern
- Dependant on the 'normal'
- Monthly precipitation and actual SWE values may provide a better basin indicators



Current Snowpack - May 6 Snow Conditions

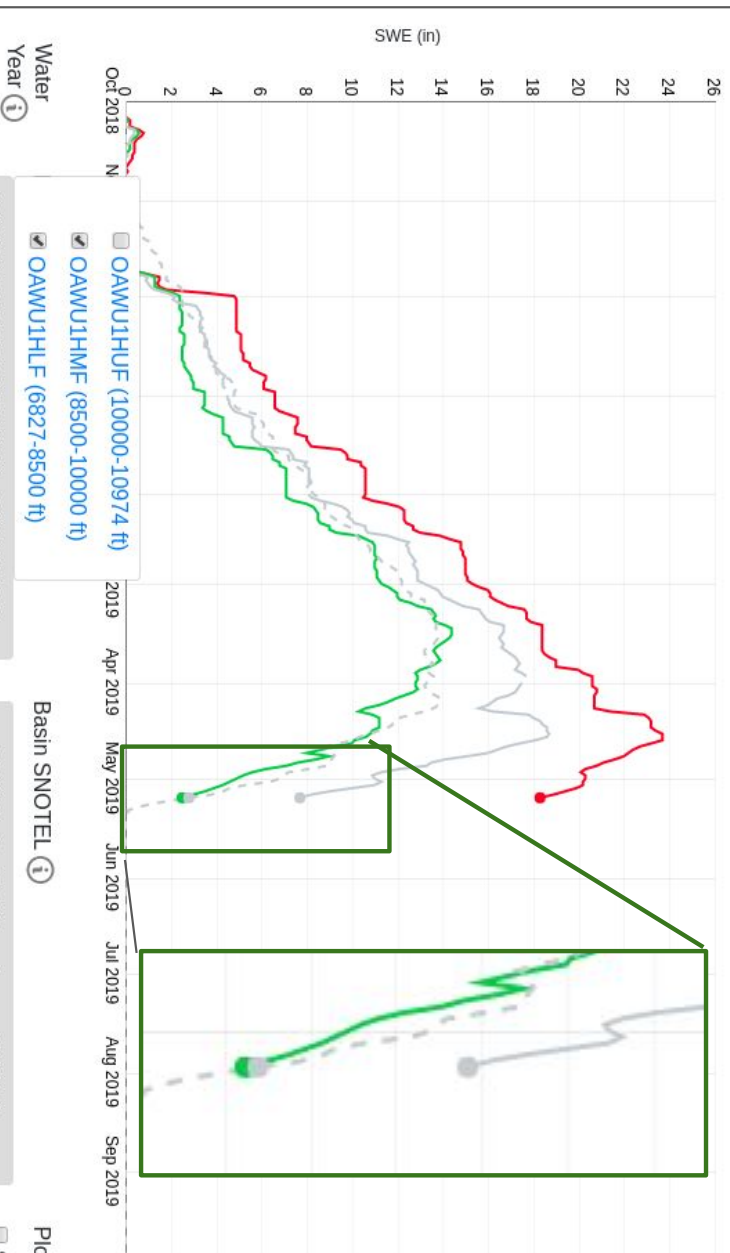
Current snow conditions in percent of normal.

- Smith and Morehouse has 7.7” swe
- Median is 2.8”
- 275% of normal



Weber - Oakley, Nr (OAWUJ)

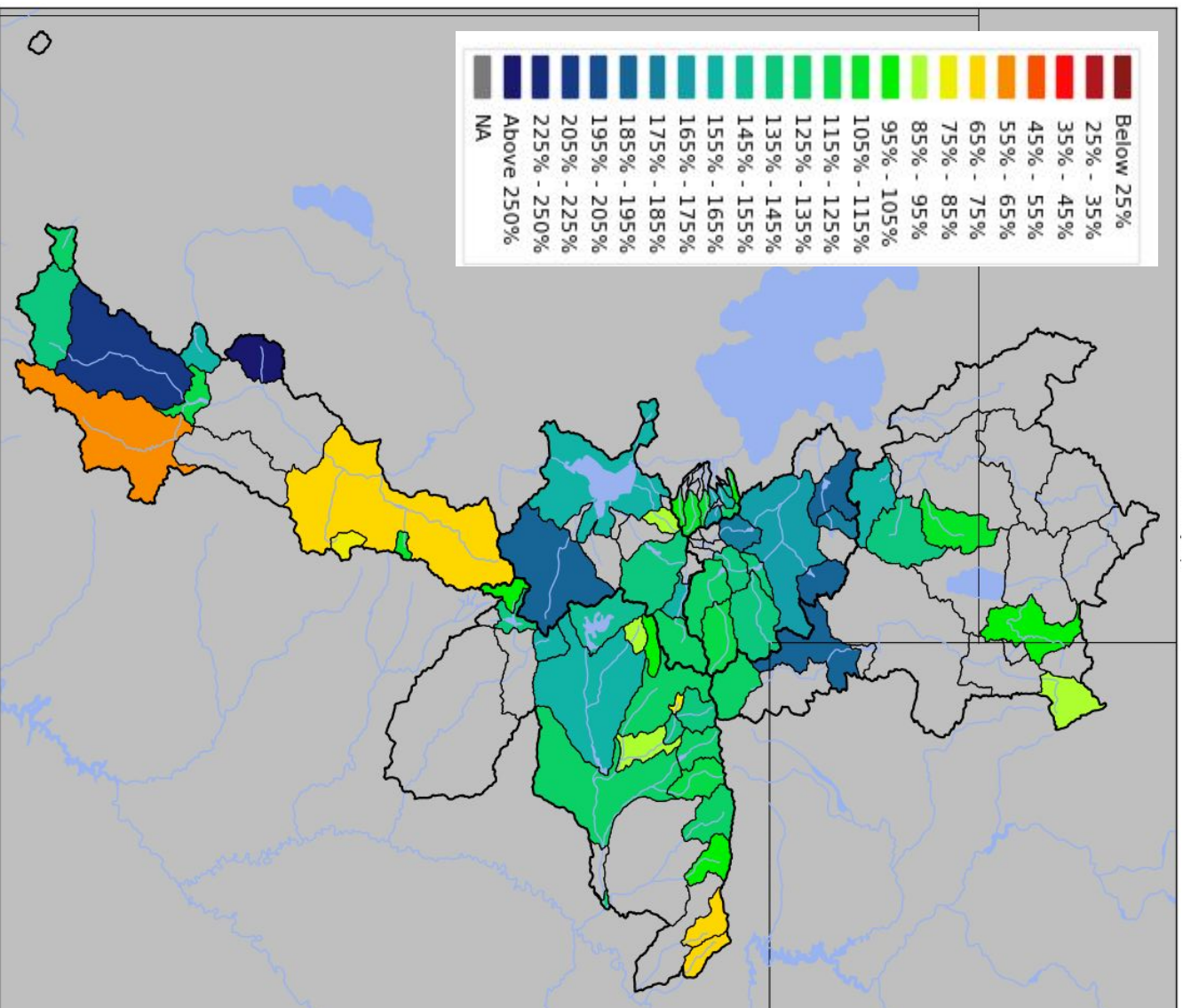
2019/05/07:
OAWUJHMF: 18.3
OAWUJHLE: 2.5
SMMUJ1: 7.7
SMMUJ1 Median: 2.8



Plot Options ⓘ

Sim Median ⓘ

April Streamflow Volume Observations



**Basin Mean
Percent of Normal**

Bear 110%

Weber 115%

Six Creeks 110%

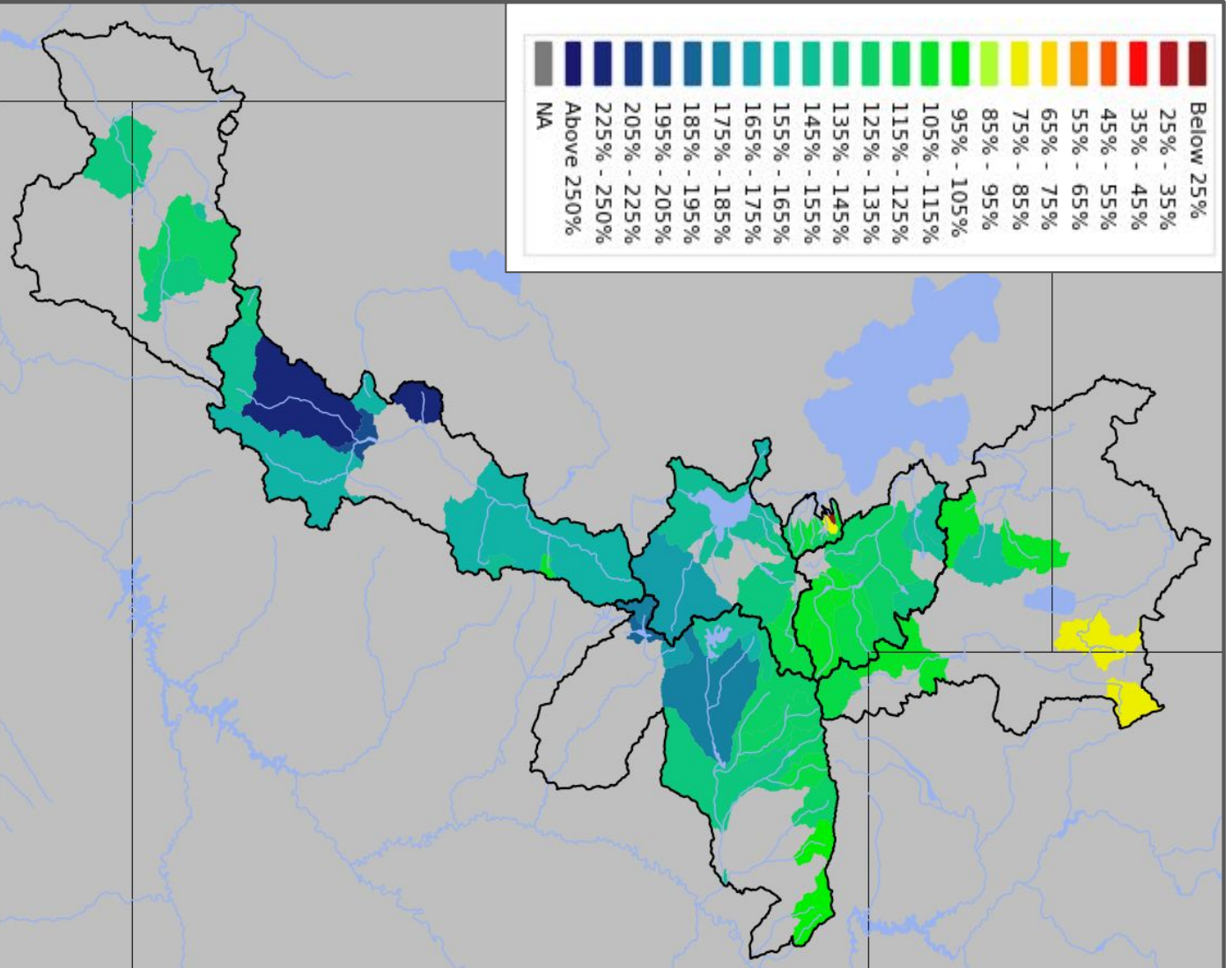
Provo 160%

Sevier 140%

Duchesne 130%

Virgin 190%

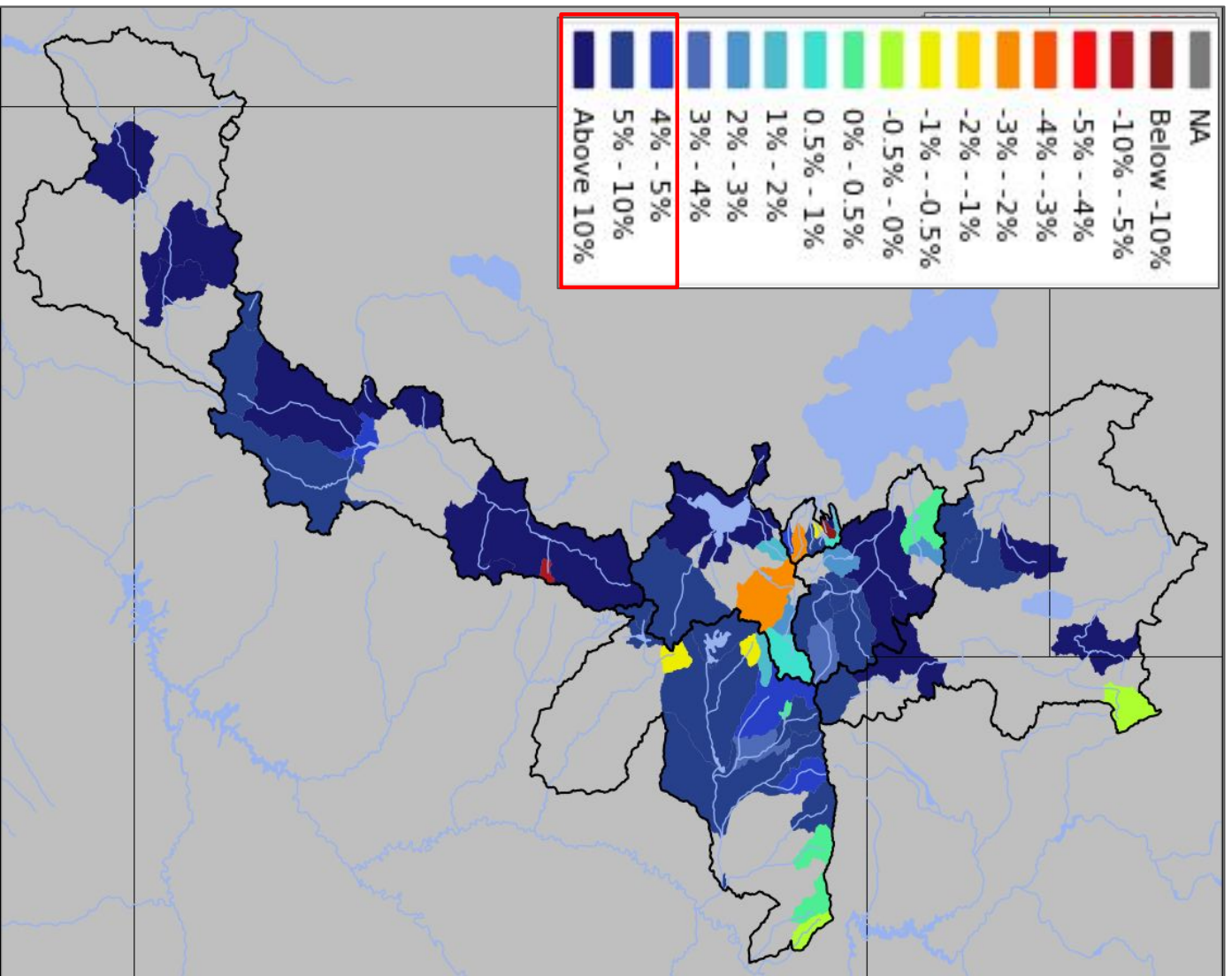
Water Supply Forecasts – Great Basin/Utah



May 2019 Water Supply Forecasts

- May 1 Forecast for April-July Volume in 1000's acre feet (KAF)
- Includes April Observed Streamflow
- Percent of 1981-2010 average
- Many Forecasts have increased from April 1

Water Supply Forecasts – Great Basin/Utah

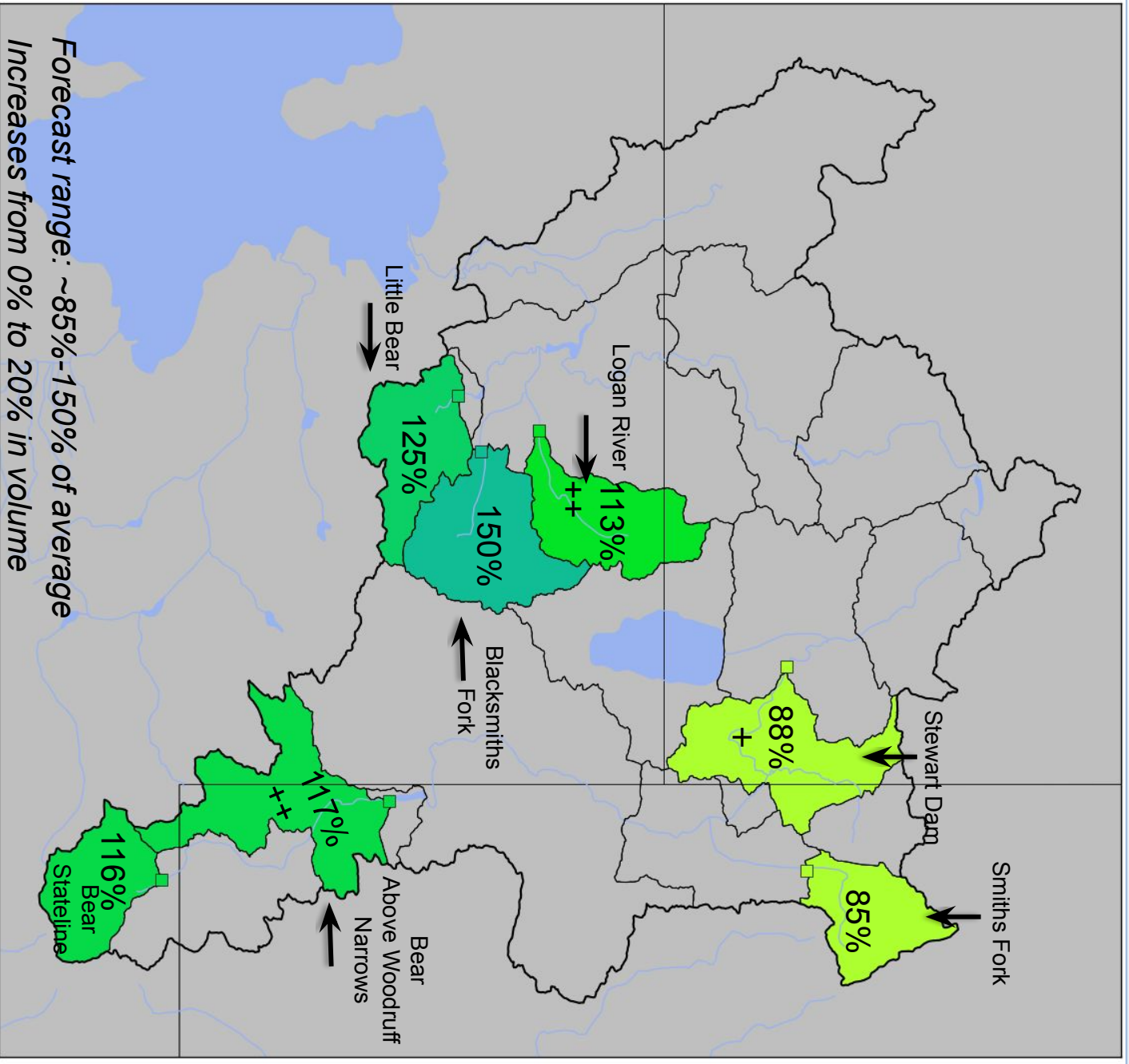
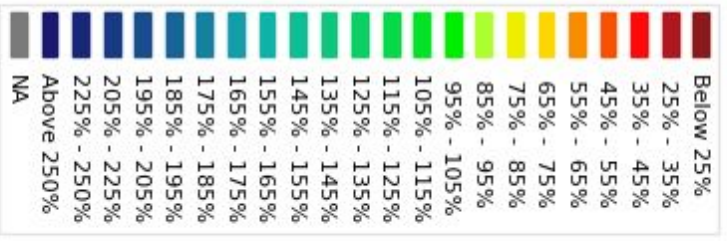


- May 1 Forecast for April-July Volume in 1000's acre feet (KAF)
- Includes April Observed Streamflow
- Percent of 1981-2010 average
- Many Forecasts have increased from April 1

May 1st Water Supply Forecasts – Bear River Basin

Median Basin Forecast:
 Jan - 70%
 Feb - 85%
 Mar - 95%
 Apr - 100%
 May - 115%

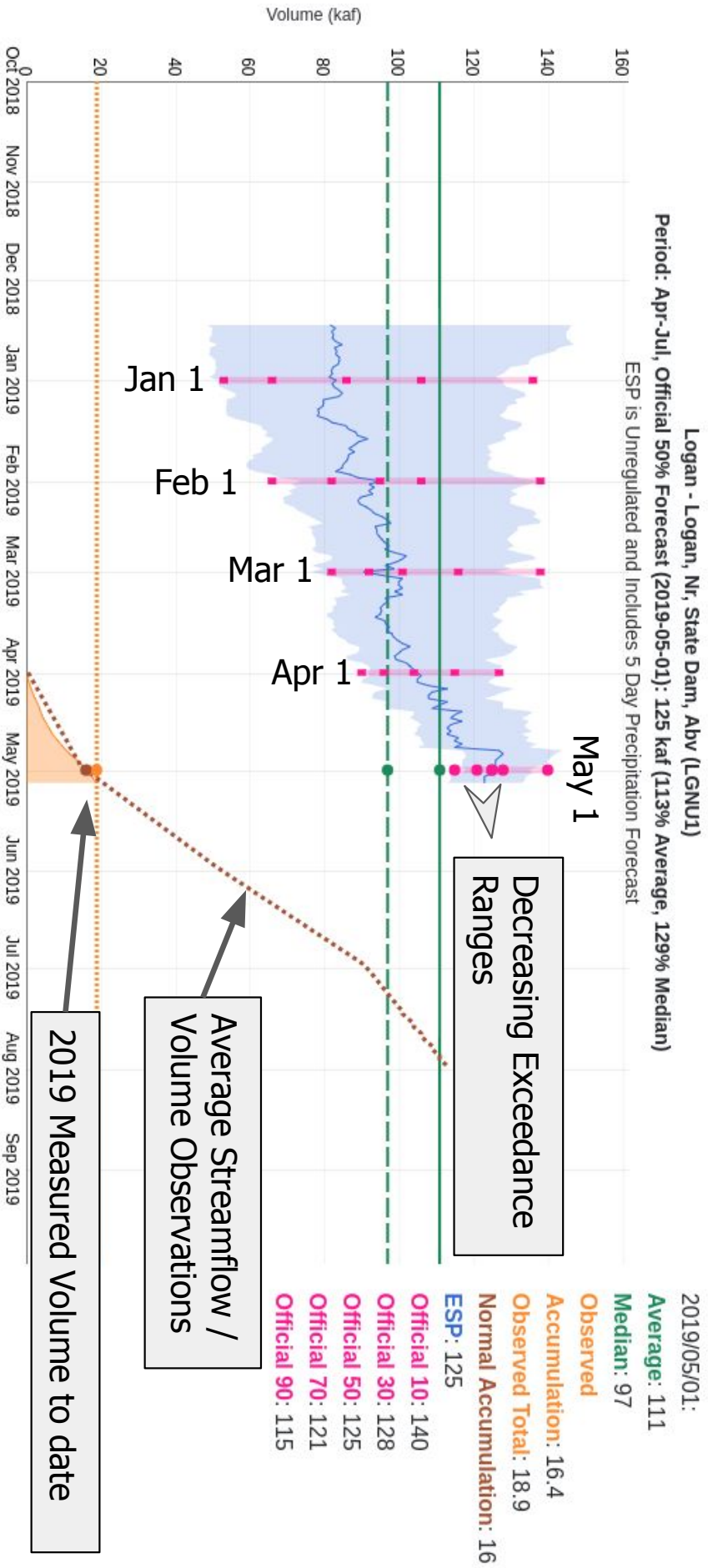
April-July Forecast
 Streamflow Volumes
 (% of 1981-2010 average)



Forecast range: ~85%-150% of average
 Increases from 0% to 20% in volume

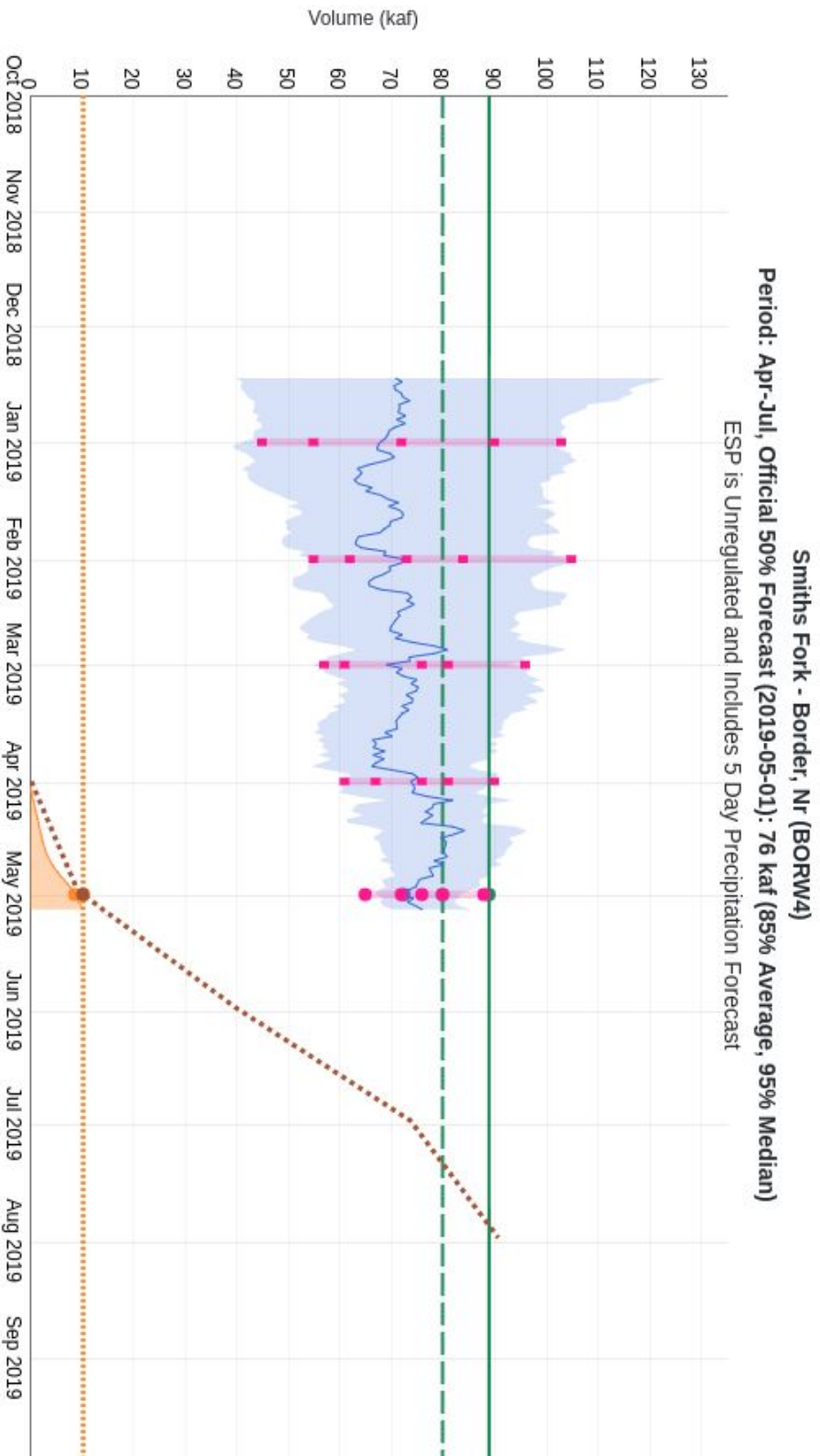
Forecast Evolution Plot

Logan River: 125 KAF / 113% Avg



Forecast Evolution Plot

Smiths Fork: 76 kaf / 85%



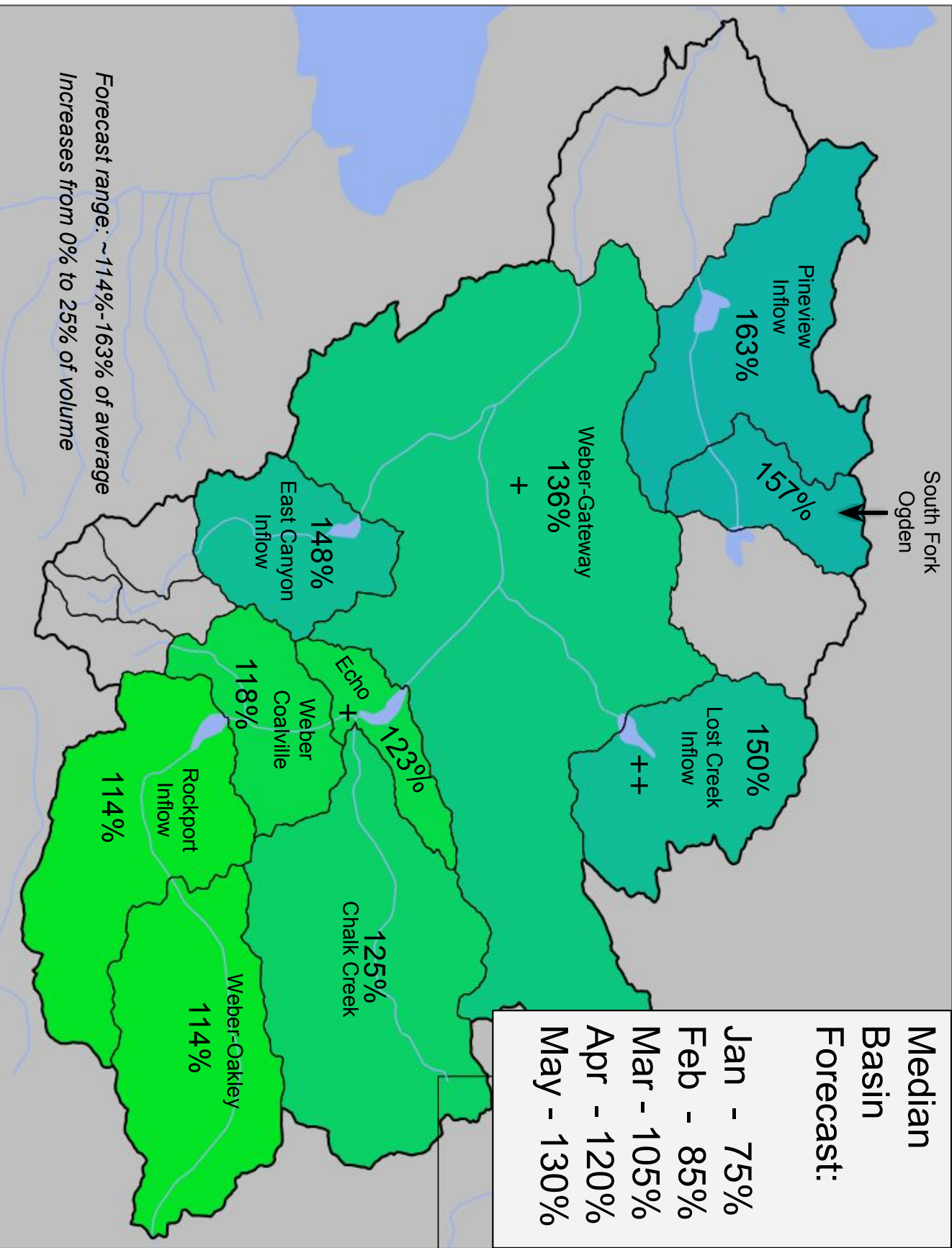
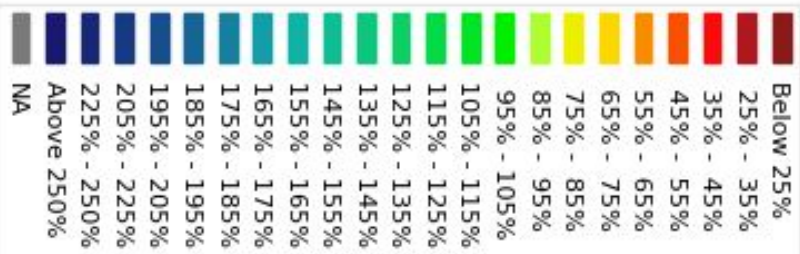
2019/05/01:

- Average: 89
- Median: 80
- Observed
- Accumulation: 8.71
- Observed Total: 10.4
- Normal Accumulation: 10.3
- ESP: 72.5
- Official 10: 88
- Official 30: 80
- Official 50: 76
- Official 70: 72
- Official 90: 65

Same Official 50 Forecast for May as April and March. Confidence has increased.

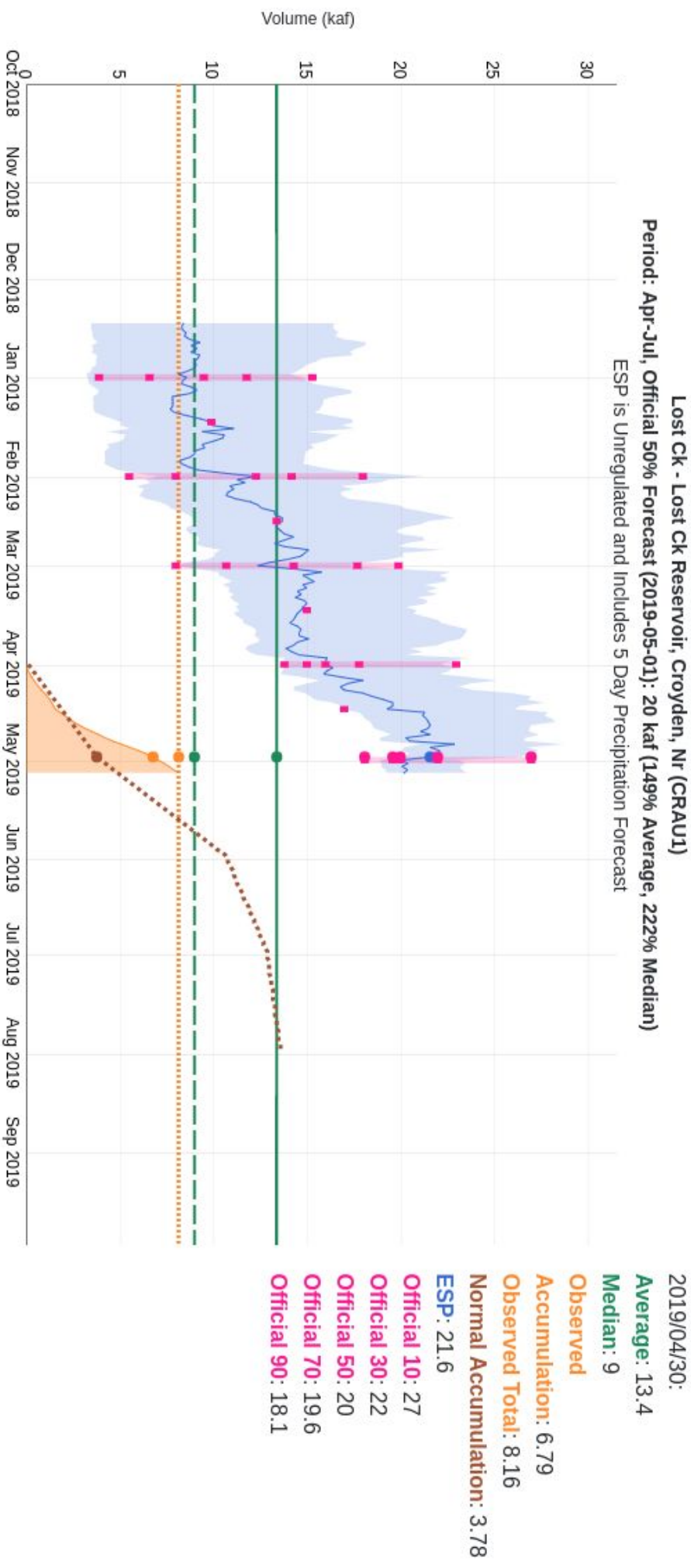
May 1st Water Supply Forecasts – Weber River Basin

April-July Forecast Streamflow Volumes



Forecast Evolution Plot

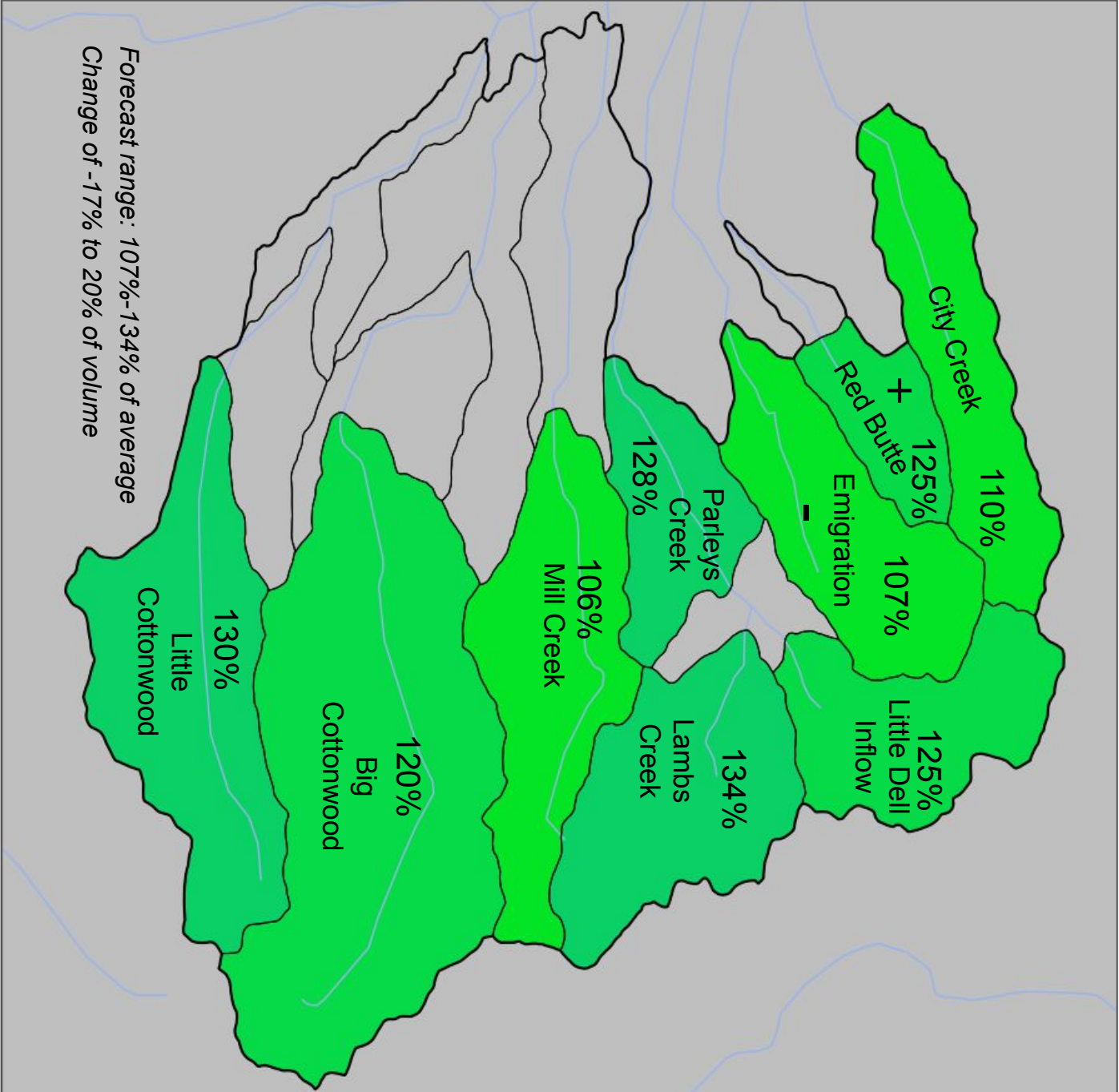
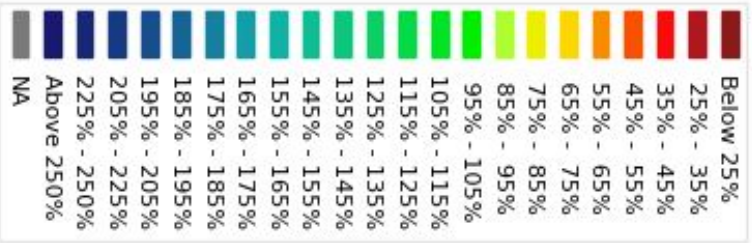
Lost Creek: 20 kaf / 149%



25% increase in volume from April 1 to May 1 forecast.

May 1st Water Supply Forecasts – Six Creeks

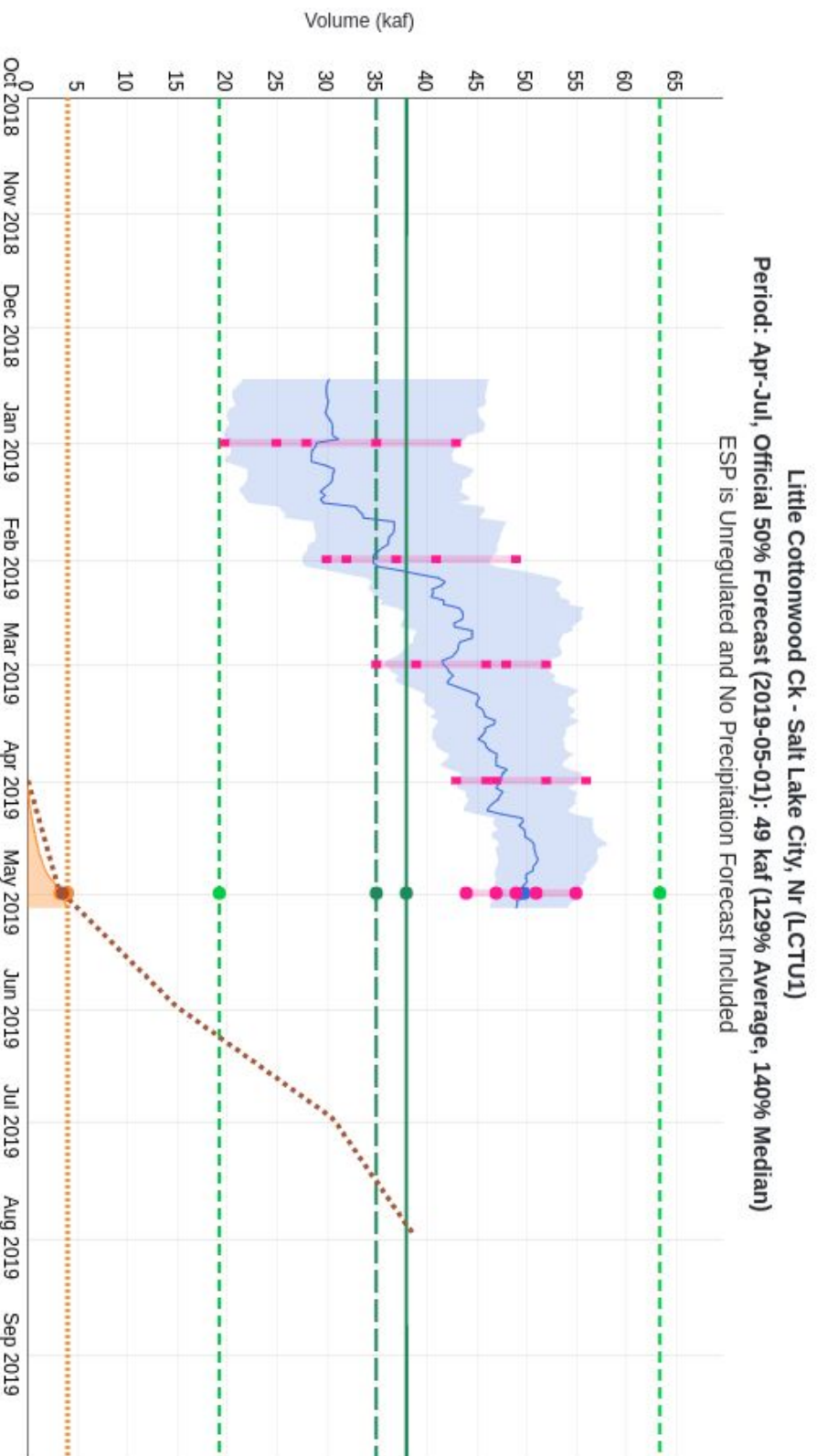
April-July
Forecast
Streamflow Volumes
(% of 1981-2010 average)



Median
Basin
Forecast:
Jan - 65%
Feb - 90%
Mar - 115%
Apr - 125%
May - 125%

Forecast Evolution Plot

Little Cottonwood: 49 kaf / 129% Average



2019/05/01:

Max 1983: 63.39

Min 1961: 19.27

Average: 38

Median: 35

Observed

Accumulation: 3.33

Observed Total: 4.08

Normal Accumulation: 3.57

ESP: 49.8

Official 10: 55

Official 30: 51

Official 50: 49

Official 70: 47

Official 90: 44

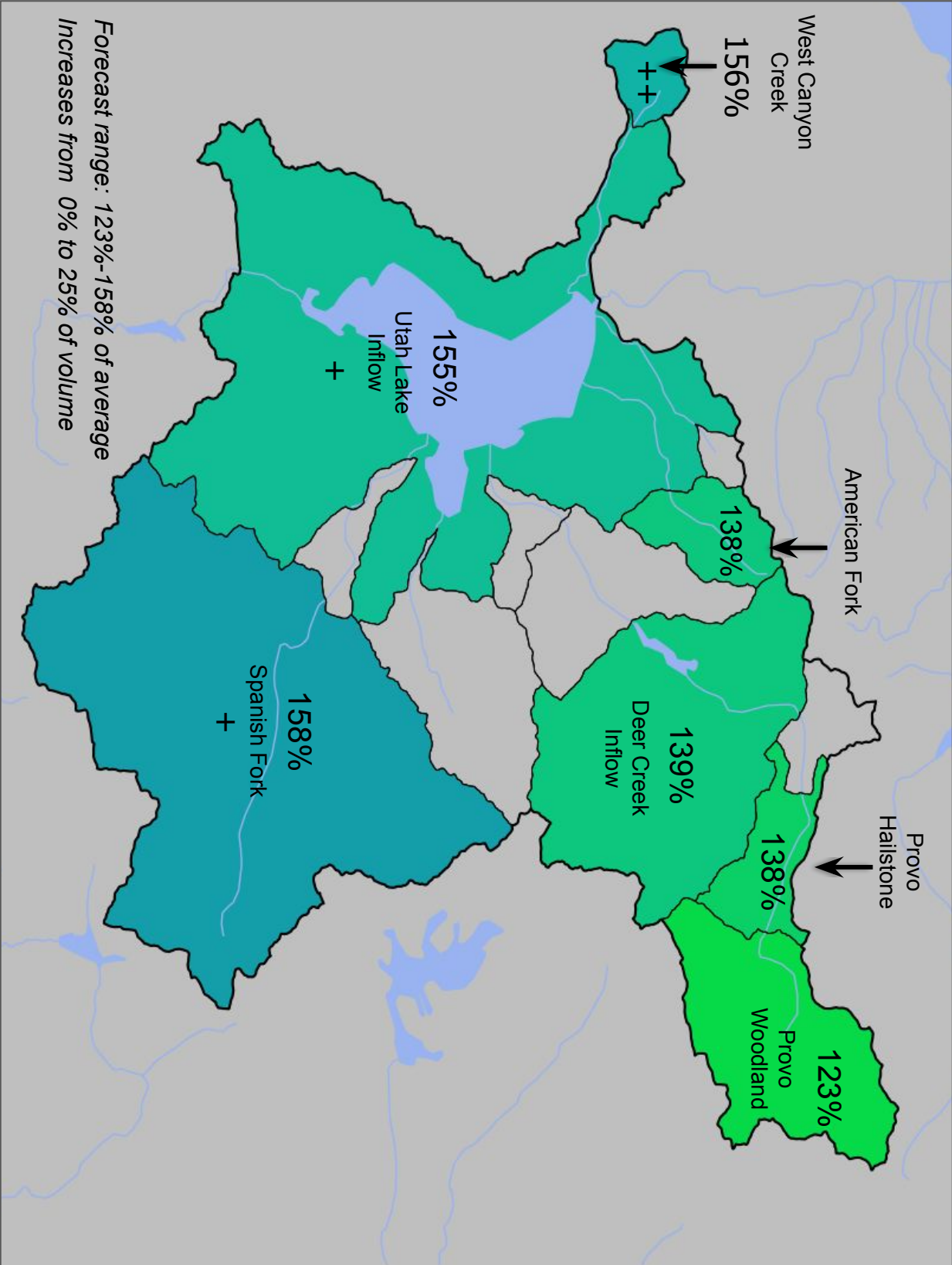
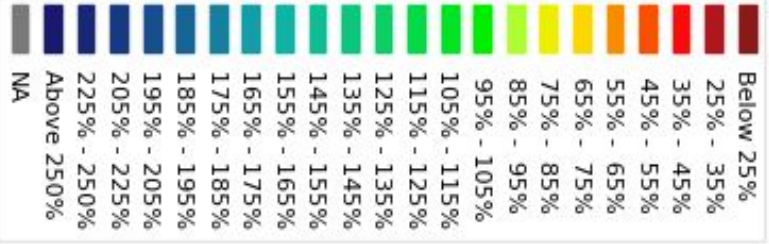
5% increase in volume from April 1 to May 1 forecast

May 1st Water Supply Forecasts – Provo River/Utah Lake

Median Basin

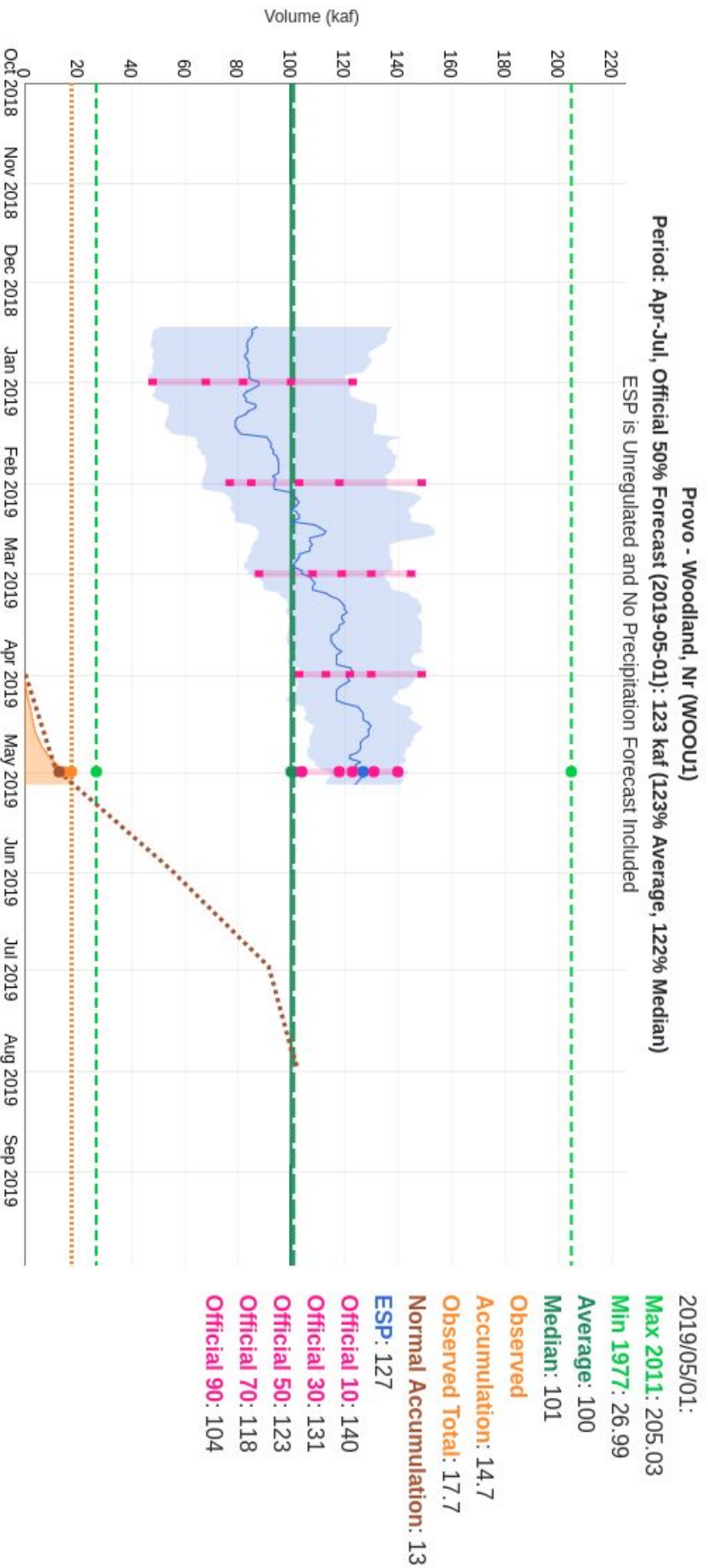
Forecast:

- Jan - 70%
- Feb - 100%
- Mar - 125%
- Apr - 135%
- May - 145%



Forecast Evolution Plot

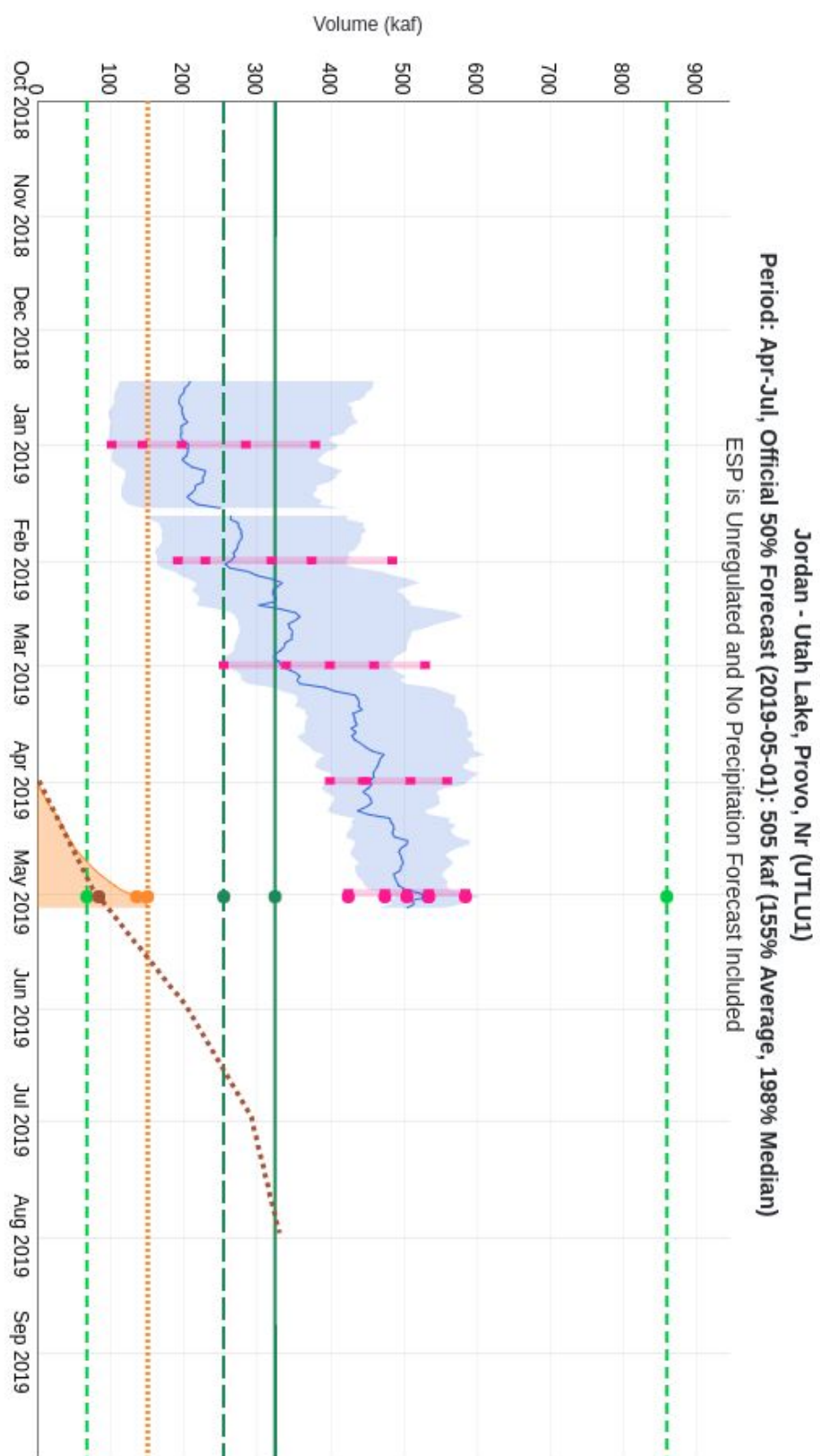
Provo Woodland: 123 kaf / 123% of average



Same forecast on April 1 as May 1 forecast.

Forecast Evolution Plot

Utah Lake: 505 kaf / 155% of average



2019/05/02:
Max 1984: 859.97
Min 1961: 68.03
Average: 325
Median: 255
Observed Accumulation: 136
Observed Total: 151
Normal Accumulation: 84.4
ESP: 534
Official 10: 585
Official 30: 535
Official 50: 505
Official 70: 475
Official 90: 425

12% increase in volume from April 1 to May 1 forecast

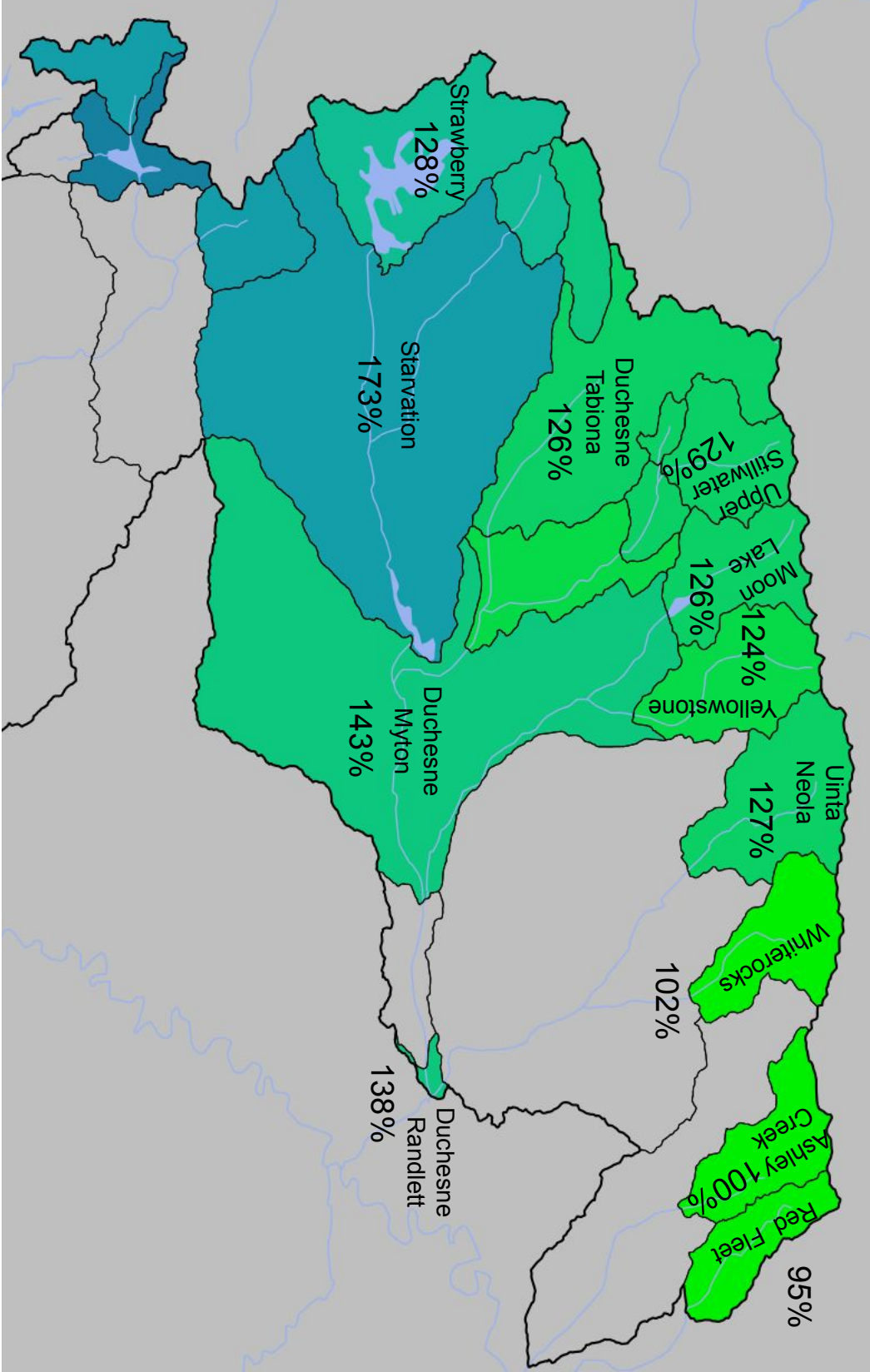
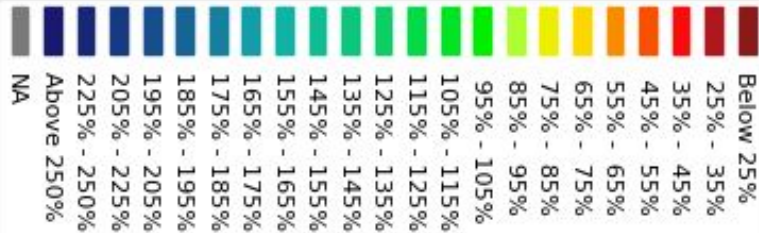
May 1st Water Supply Forecasts – Duchesne

Median Basin

Forecast:

- Jan - 75%
- Feb - 100%
- Mar - 115%
- Apr - 120%
- May - 125%

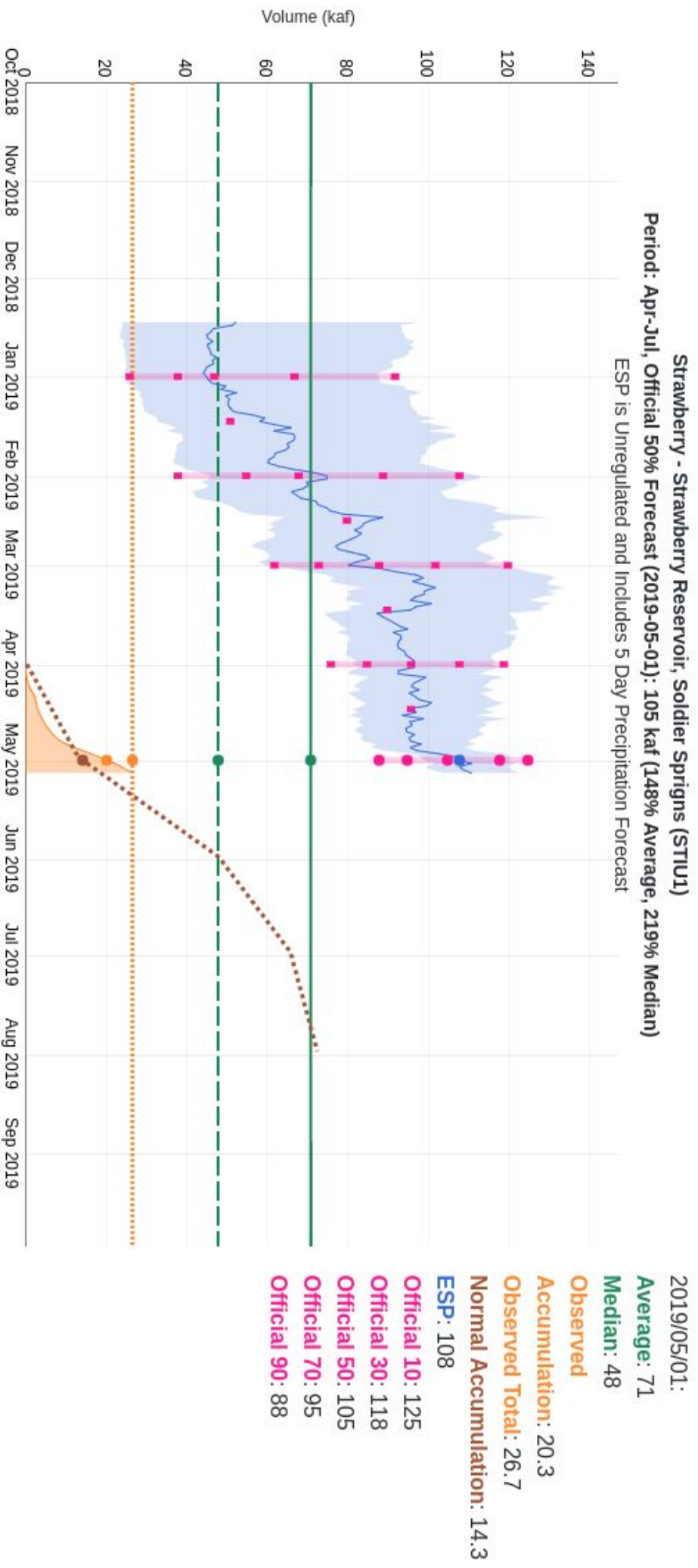
April-July
Forecast



Forecast range: 95%-173%
Increases from 0 to 10% of volume

Forecast Evolution Plot

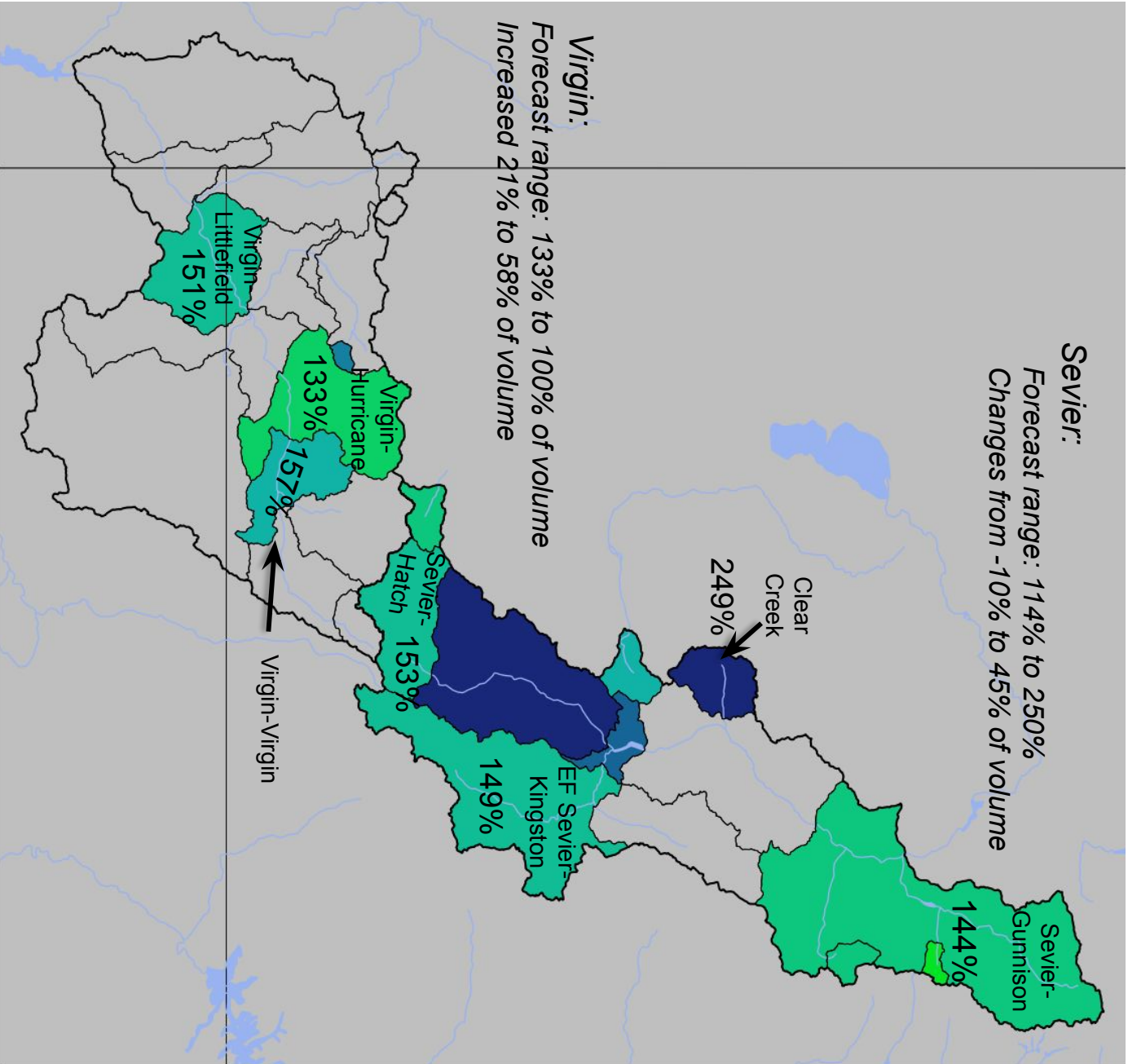
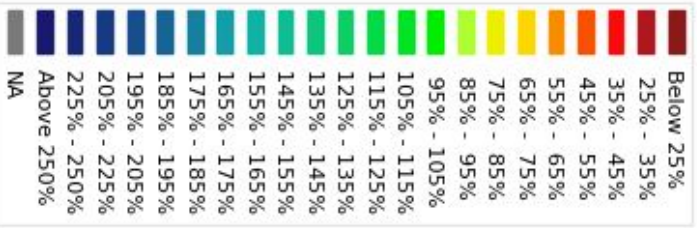
Strawberry: 105 kaf / 148% of average



10% increase in volume from April 1 to May 1 forecast

May 1st Water Supply Forecasts – Sevier/Virgin

April-July
Forecast
Streamflow Volumes
(% of 1981-2010 average)



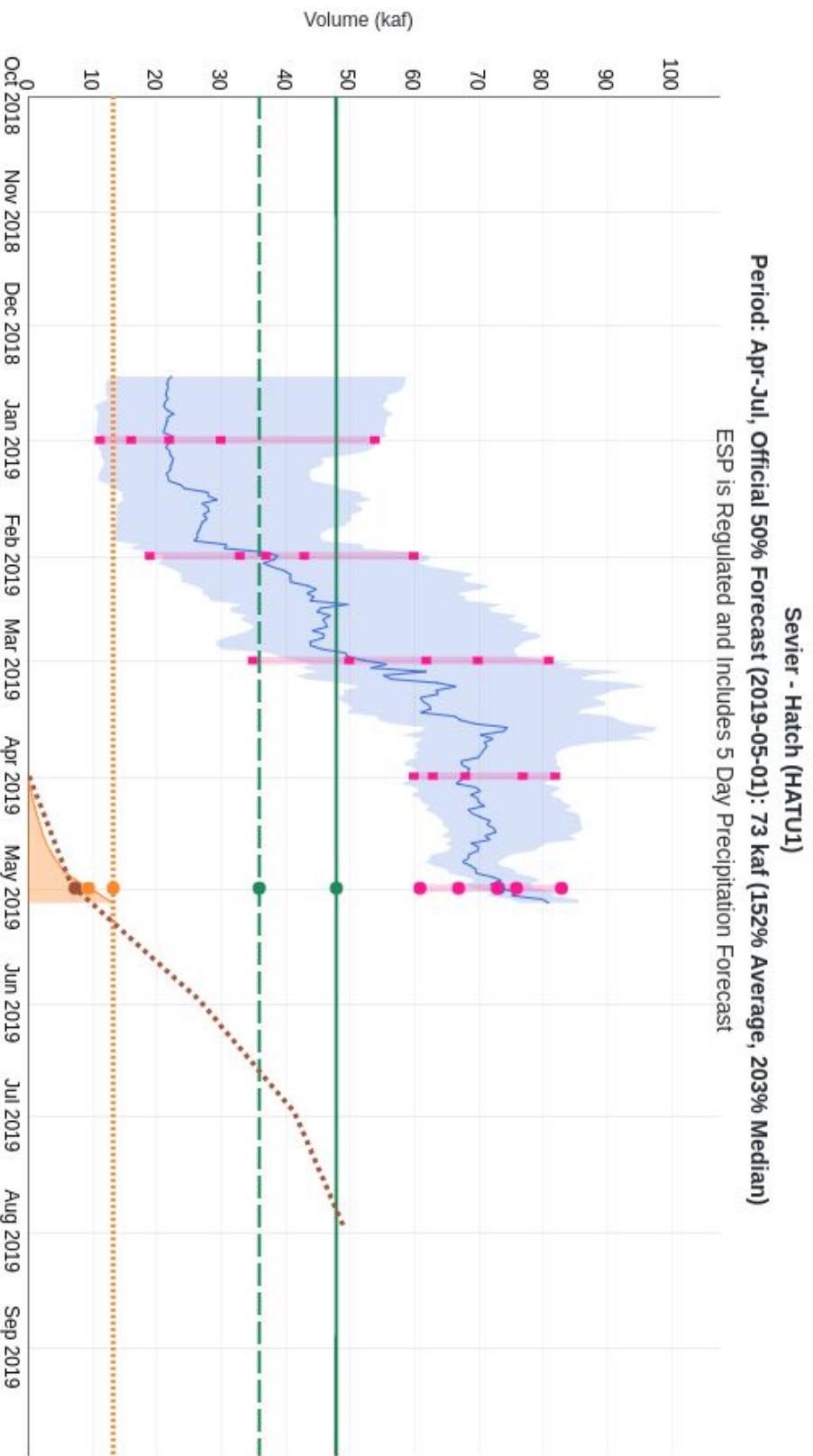
Median
Basin
Forecast:

Sevier:
Jan - 60%
Feb - 90%
Mar - 130%
Apr - 135%

Virgin:
Jan - 50%
Feb - 80%
Mar - 110%
Apr - 115%

Forecast Evolution Plot

Sevier Hatch: 73 kaf / 152% of average



2019/05/01:

Average: 48

Median: 36

Observed

Accumulation: 9.47

Observed Total: 13.3

Normal Accumulation: 7.37

ESP: 73.2

Official 10: 83

Official 30: 76

Official 50: 73

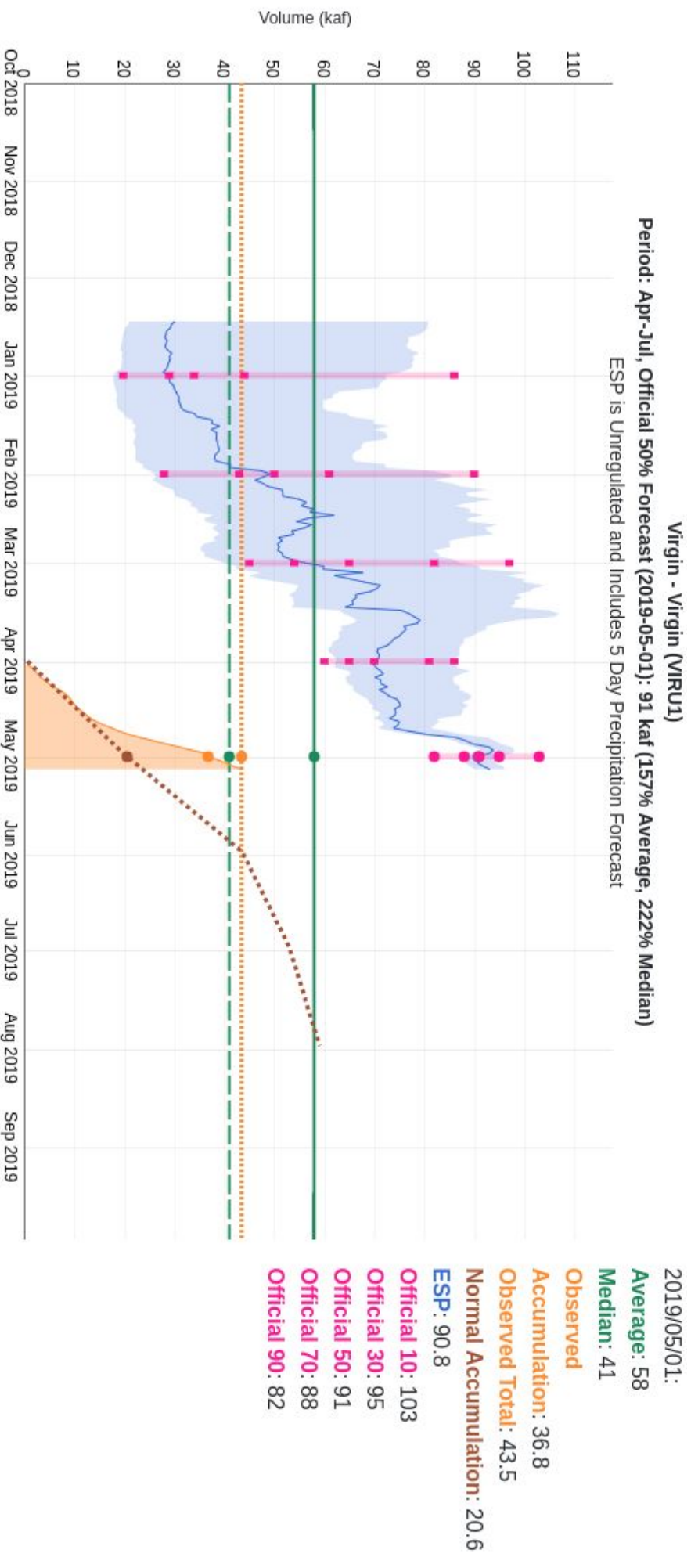
Official 70: 67

Official 90: 61

8% increase in volume from April 1 to May 1 forecast

Forecast Evolution Plot

Virgin at Virgin: 91 kaf / 157%



30% increase in volume from April 1 to May 1 forecast - increase model snow NF of the Virgin

Forecast Validation: Historical model error March to April

Historical Model Error 1981-2010

Small improvements between April and May 1st Forecast Errors (2-3%)

Forecasts are better than just going with average

Where We Do Better:

- Headwaters
- Primarily snow melt basins
- Known diversions / demands

Where We Do Worse:

- Lower elevations (rain or early melt)
- Downstream of diversions / irrigation
- Little is known about diversions / demands

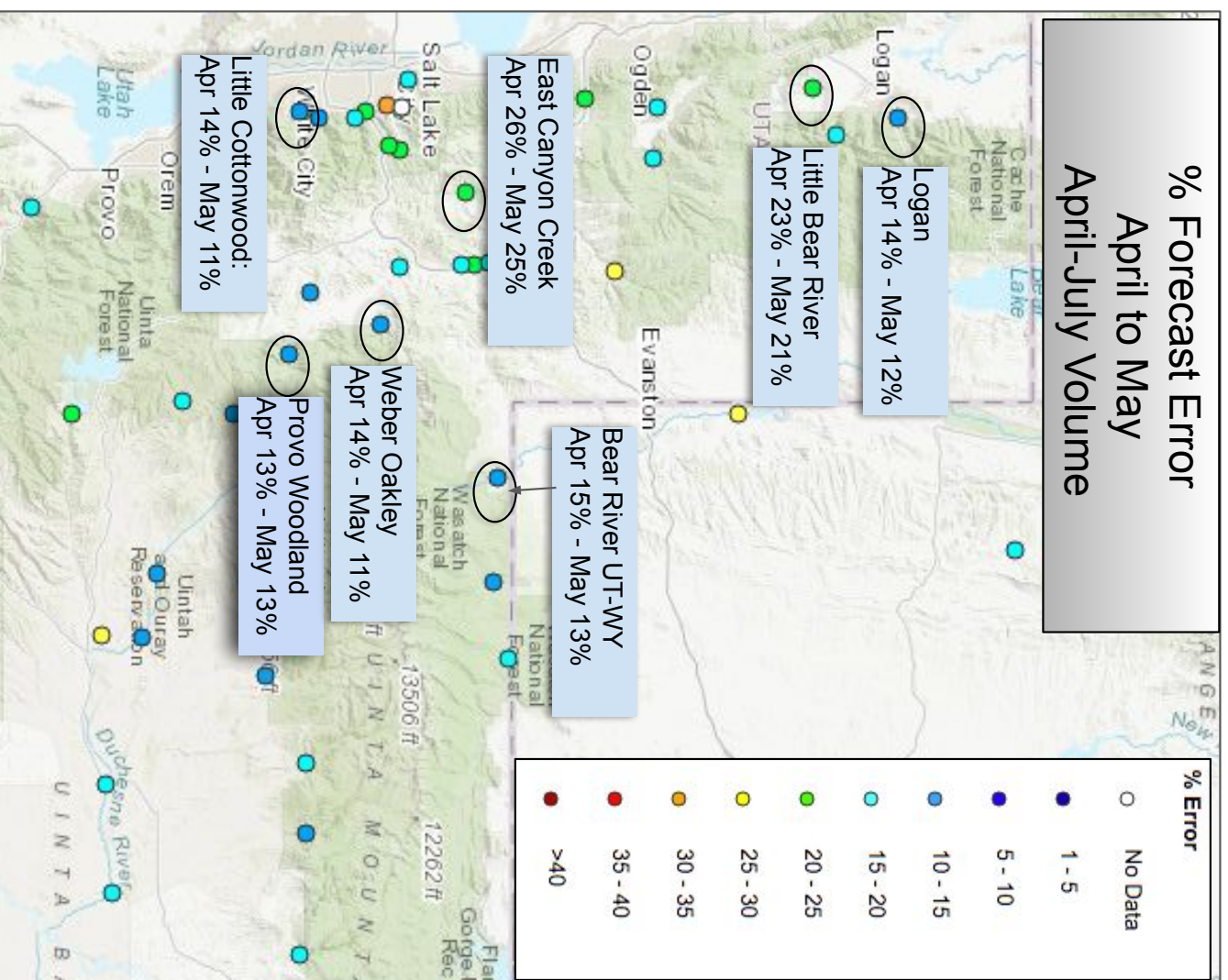
Map is available at:

<https://www.cbrfc.noaa.gov/arc/verif/verif.php>

From Water Supply drop down menu

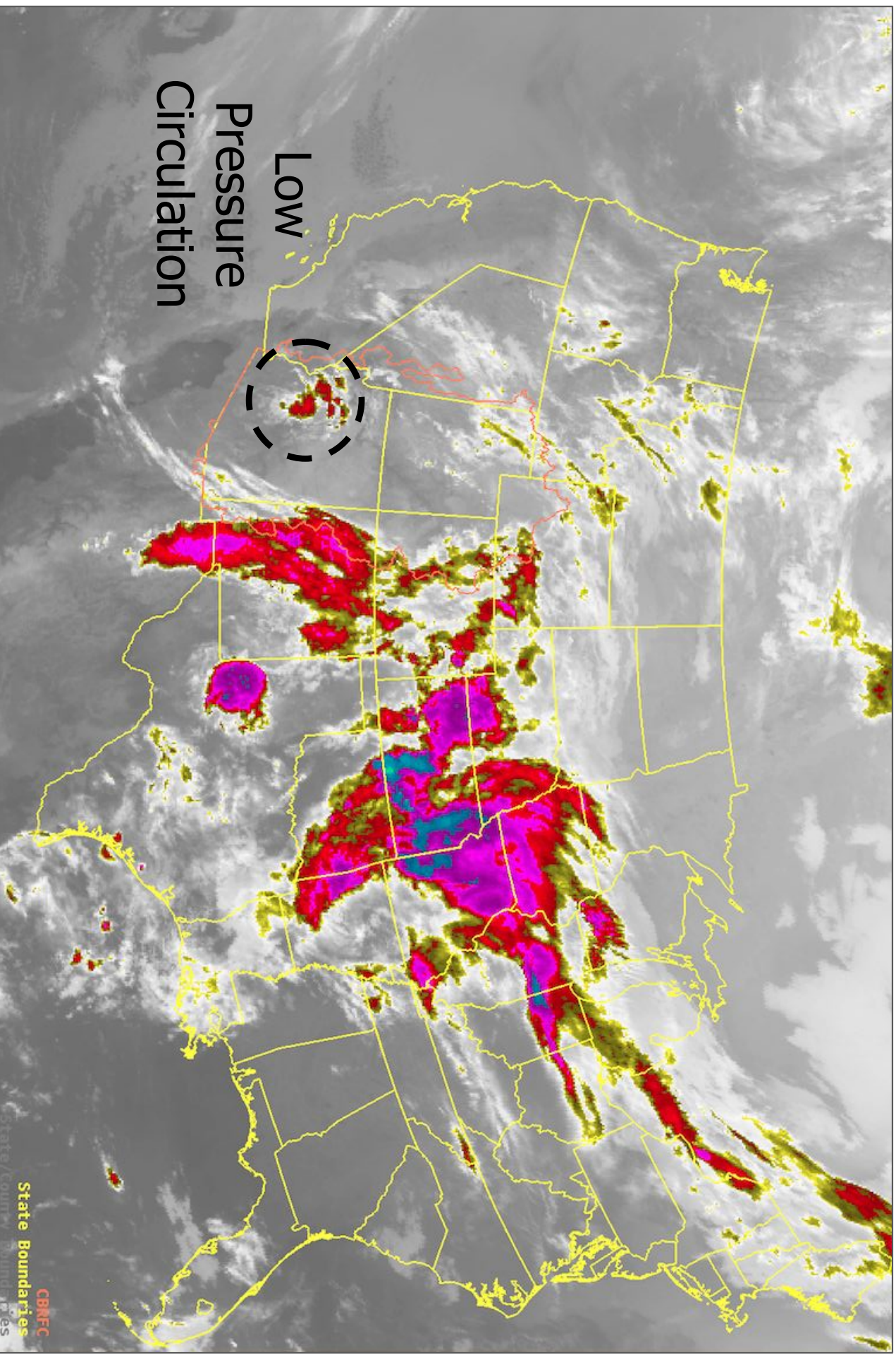
→ select Historical Verification Map

Historical Water Supply Verification - May



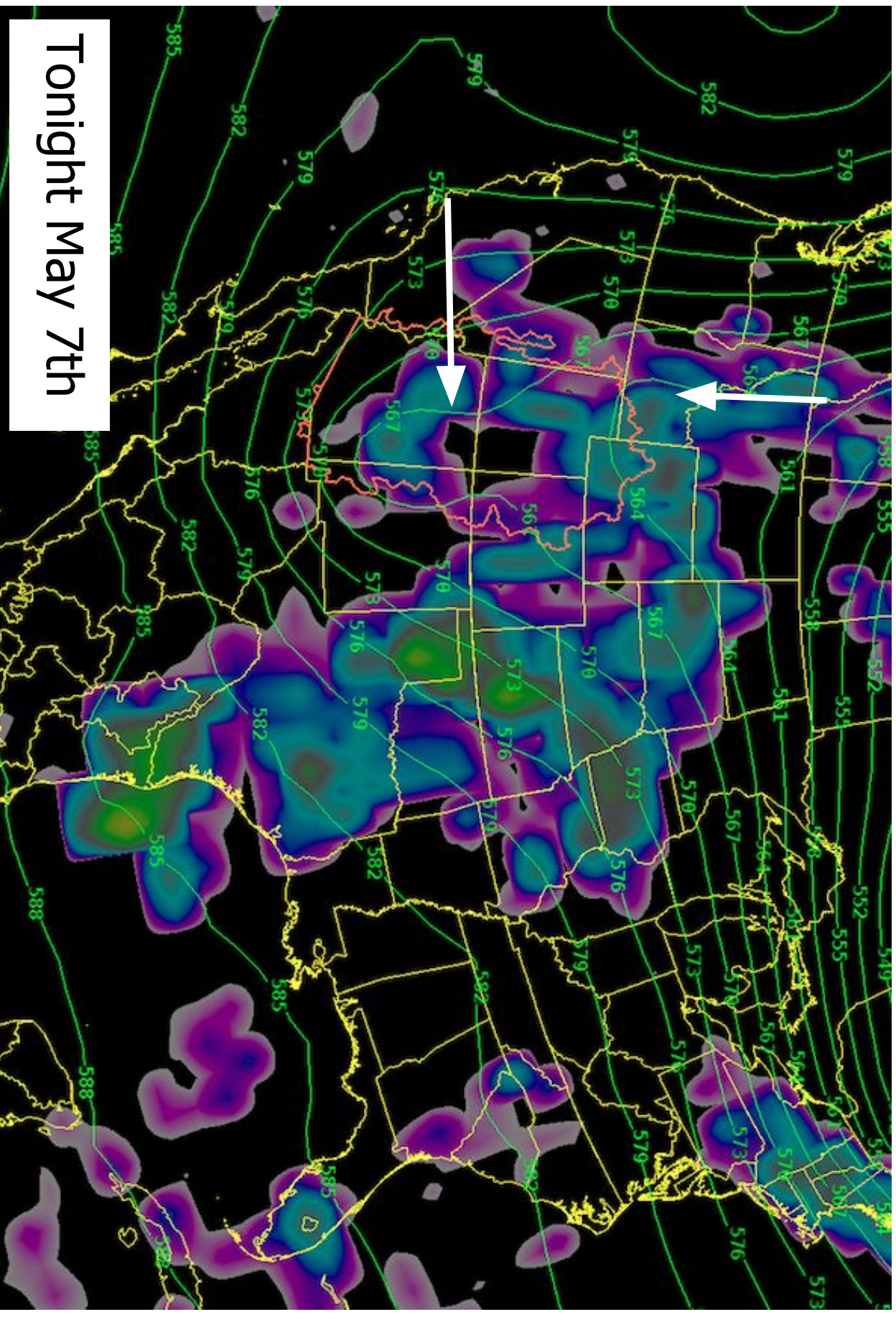
Upcoming Weather Summary - Satellite from this morning

Low pressure system moving through the area increase in cloud cover and instability



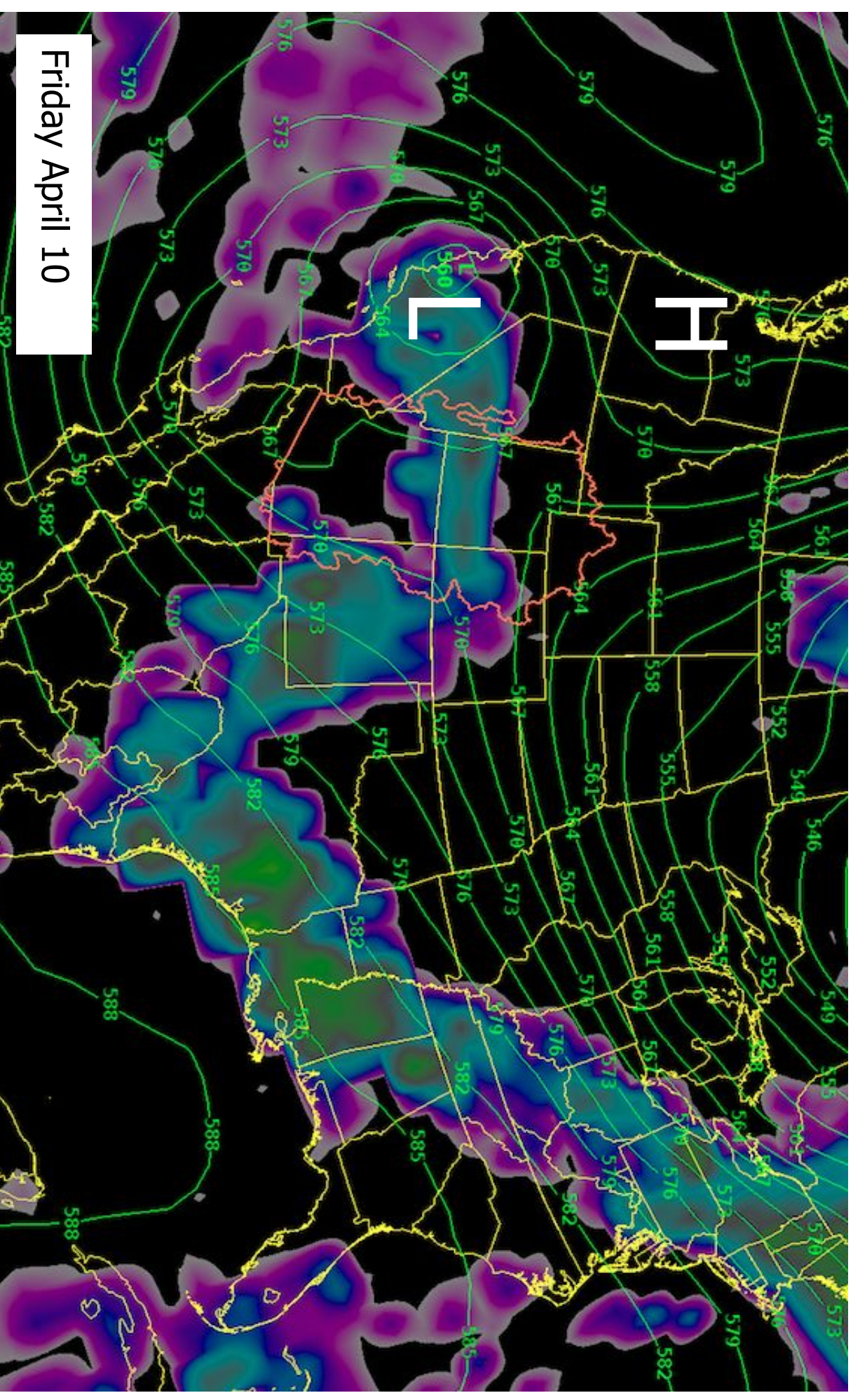
Upcoming Weather Summary - Model

Low pressure moves east. Trough drops from the north. Increasing instability resulting in showers and thunderstorms. Temperatures below normal. Snow levels down to 8000-9000 feet.

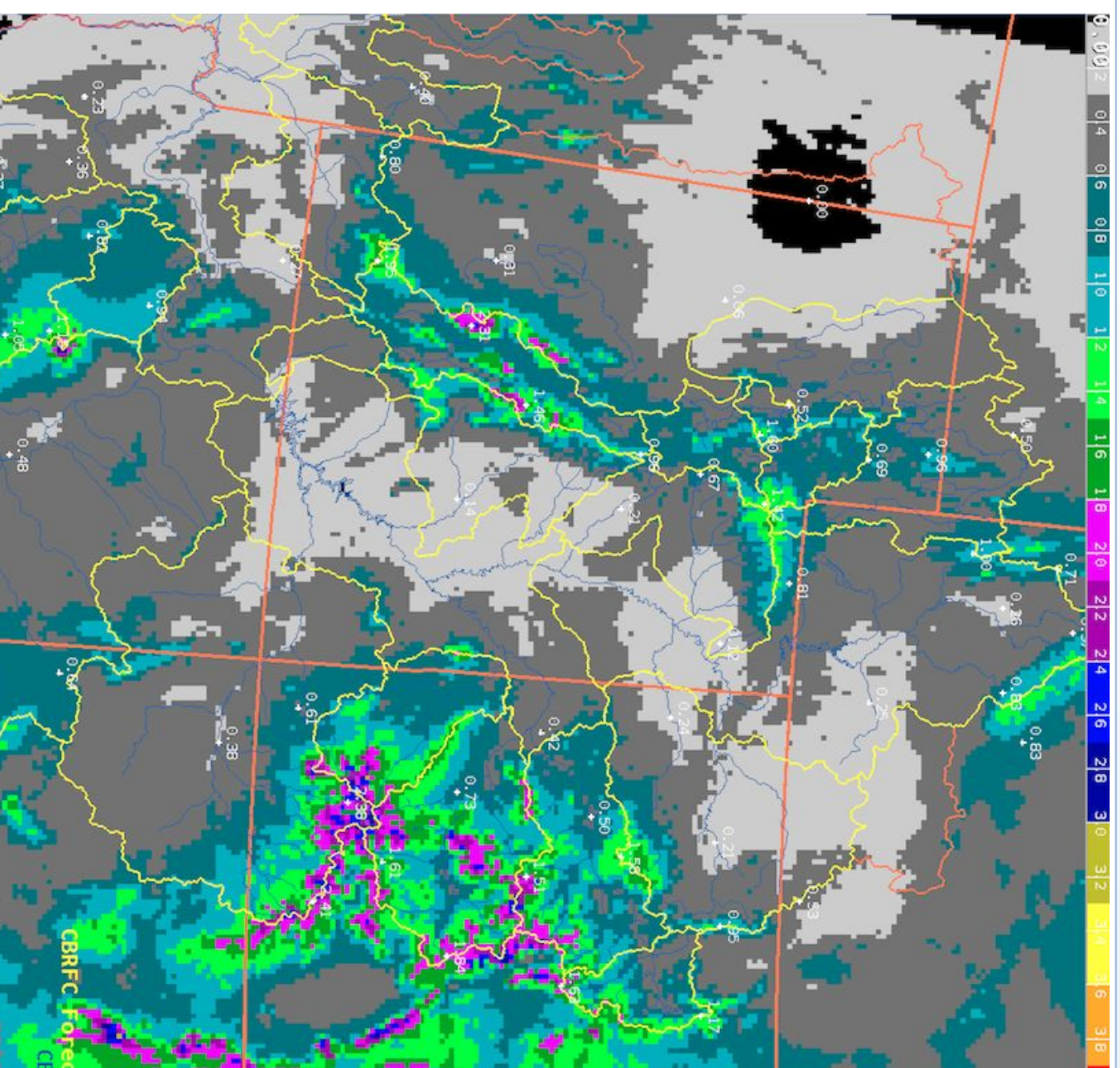


Upcoming Weather Summary - Blocking Pattern

Low pressure system moves east off the west coast. High pressure to the north. Low pressure has little east-west movement. This pattern feeds moisture into the forecast area. Occasional showers and below normal temperatures.



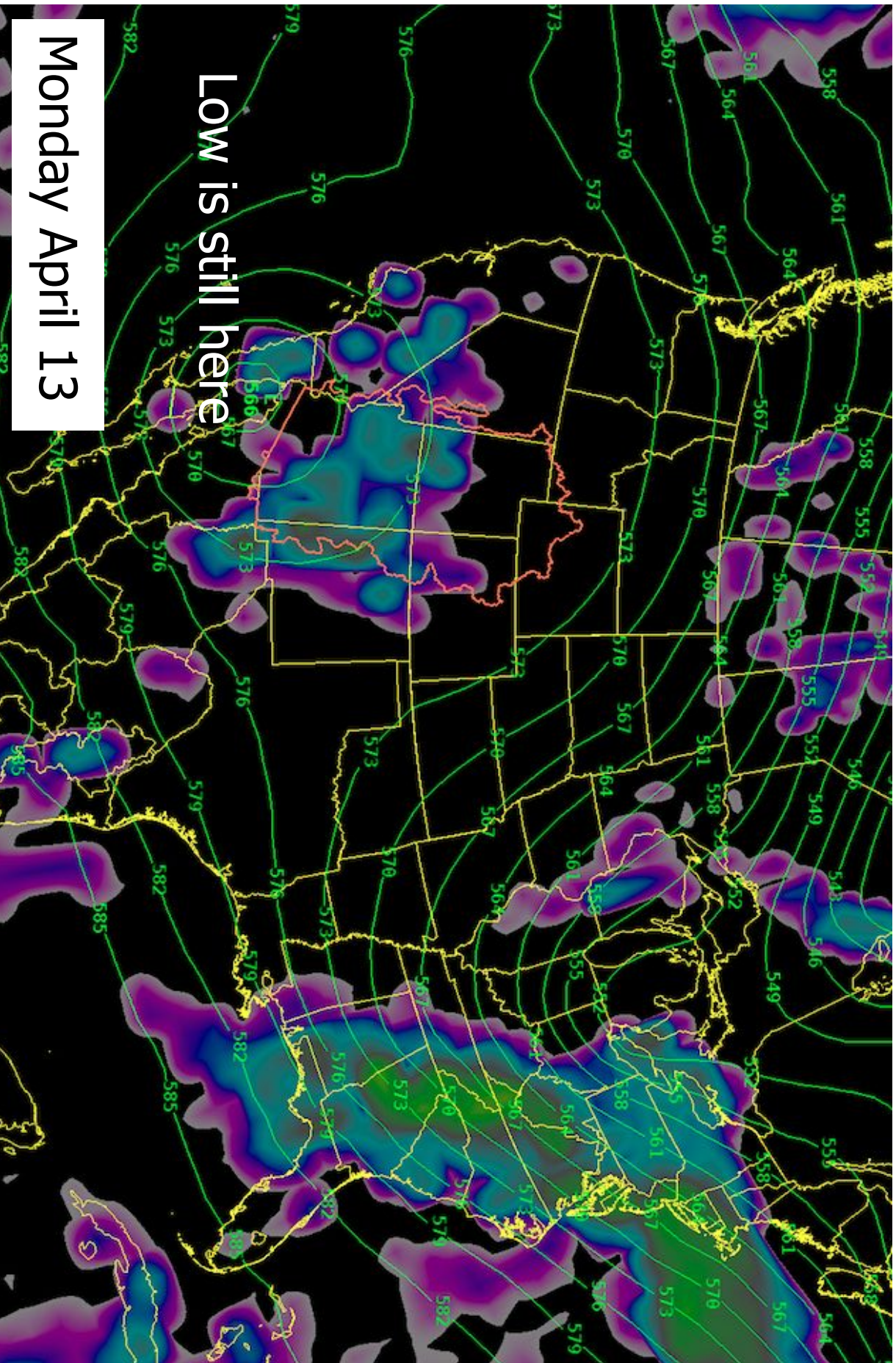
Upcoming Weather Summary - 5 day Precipitation Forecast



- Most precipitation in the next 72 hours.
- Larger amounts central Utah
- Widespread 1-2 inch precipitation amounts possible

Upcoming Weather Summary - Blocking Pattern

Models still have the low pressure dominating the pattern over the forecast area. Low may move eastward during the week. Warmer and dryer weather may follow. The timing of eastward movement will affect snowmelt.



Upcoming Weather Summary - Warmer Temps. next week.

High pressure and above normal temperatures develop next week. How long will this pattern persist? Next storm will increase cloud cover & showers. The timing of eastward movement will affect snowmelt. Cooler, wet weather for the 18th -19th weekend.



Warmer
Temperatures

Thursday May 16

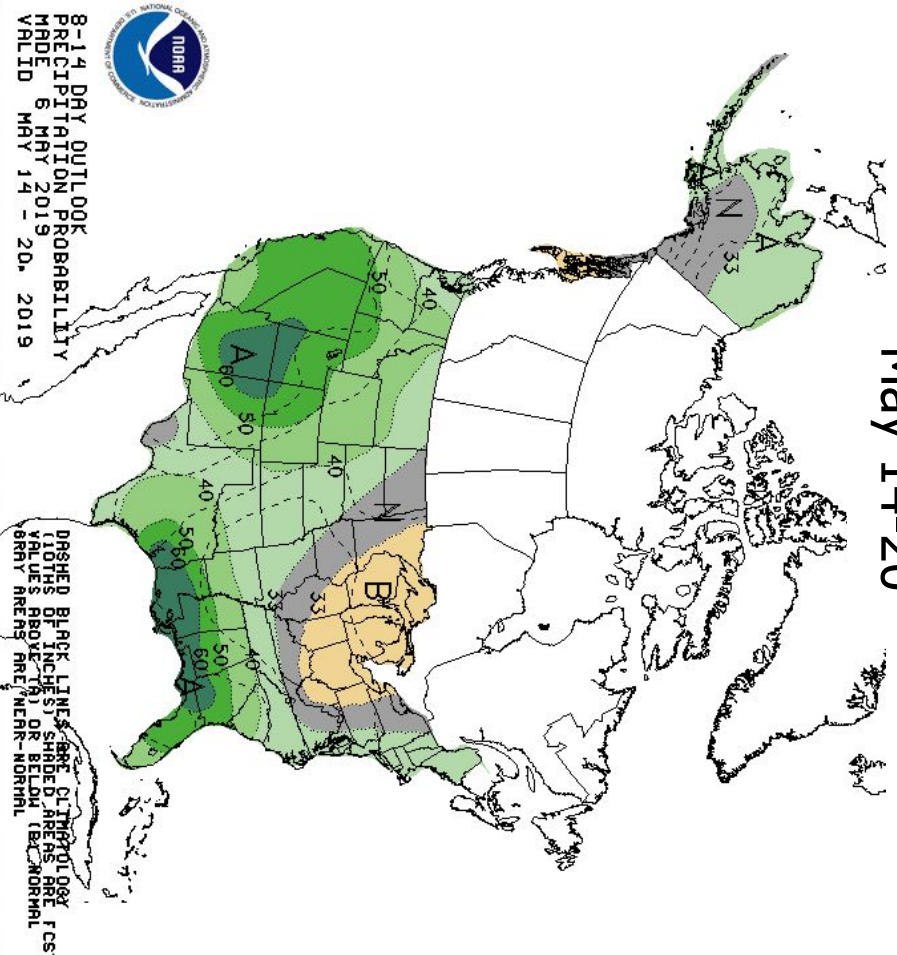
Upcoming Weather Summary - Longer Range Weather

Pattern remains progressive / active approaching Memorial Day weekend.

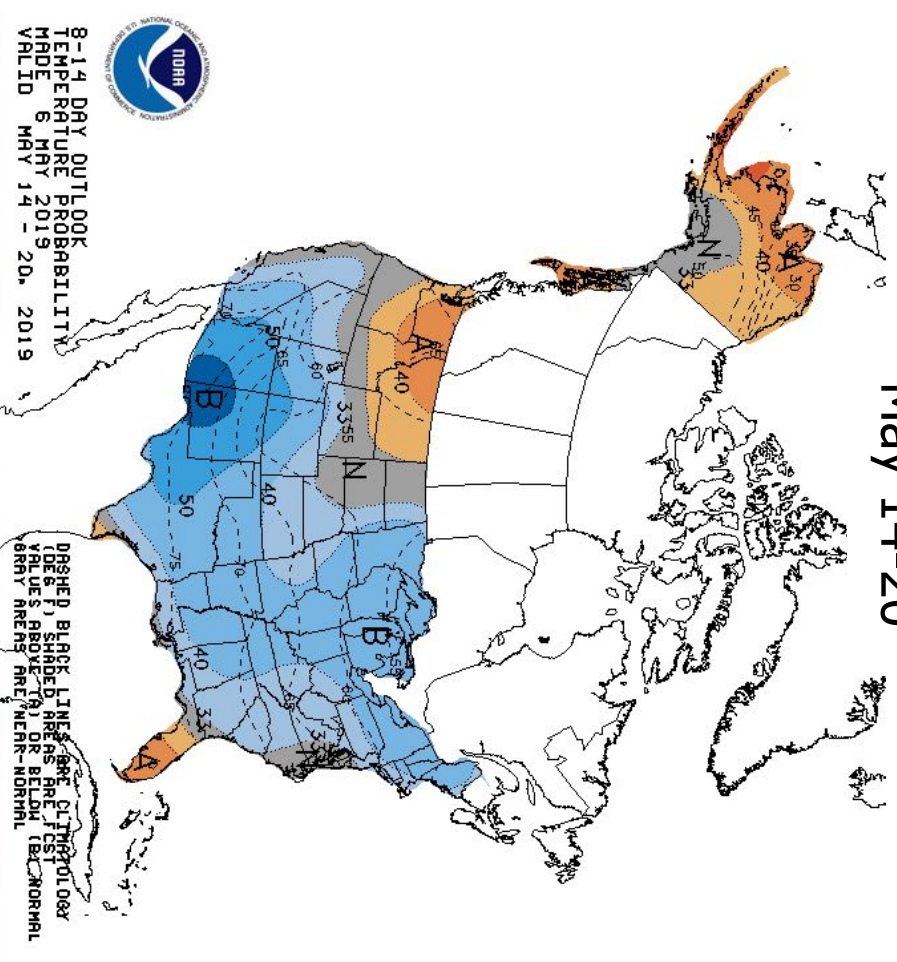
Pattern is trending wetter with periods of below and above average temperatures.

This weather pattern makes peak flow forecasts difficult.

May 14-20



May 14-20



2019 Water Supply Briefing Schedule

2019 monthly water supply briefings for the Great Basin/Utah

Additional webinar will be scheduled for early June if needed.

Date/Times are subject to change.

All registration information has been posted to the CBRFC web page.

Thank you for attending.

CBRFC Water Supply Contacts

Please contact us with any questions

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Basin Focal Points (Forecasters)

Brent Bernard – Six Creeks, Provo , Sevier Focal Point

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Greg Smith – San Juan, Gunnison, Dolores Focal Point

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Ashley Nielson – Green River Basin, Lake Powell Focal Point

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Cody Moser – Upper Colorado Mainstem Focal Point

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Tracy Cox and Zach Finch – Lower Colorado Basin, Virgin Focal Point

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zach.finch@noaa.gov

Current Peak Flow Flood Probability

- City Creek and Duchesne Randlett have forecast mean daily peaks close to flood stage between 10 and 25% level.
- In addition, Chalk Creek has an instantaneous forecast peak greater than 30% chance of reaching bankfull
- Combination of high elevation snowpack levels and continued delayed melt could increase flood potential
- Prolonged spring warm-up or rain events can cause flooding issues in any year