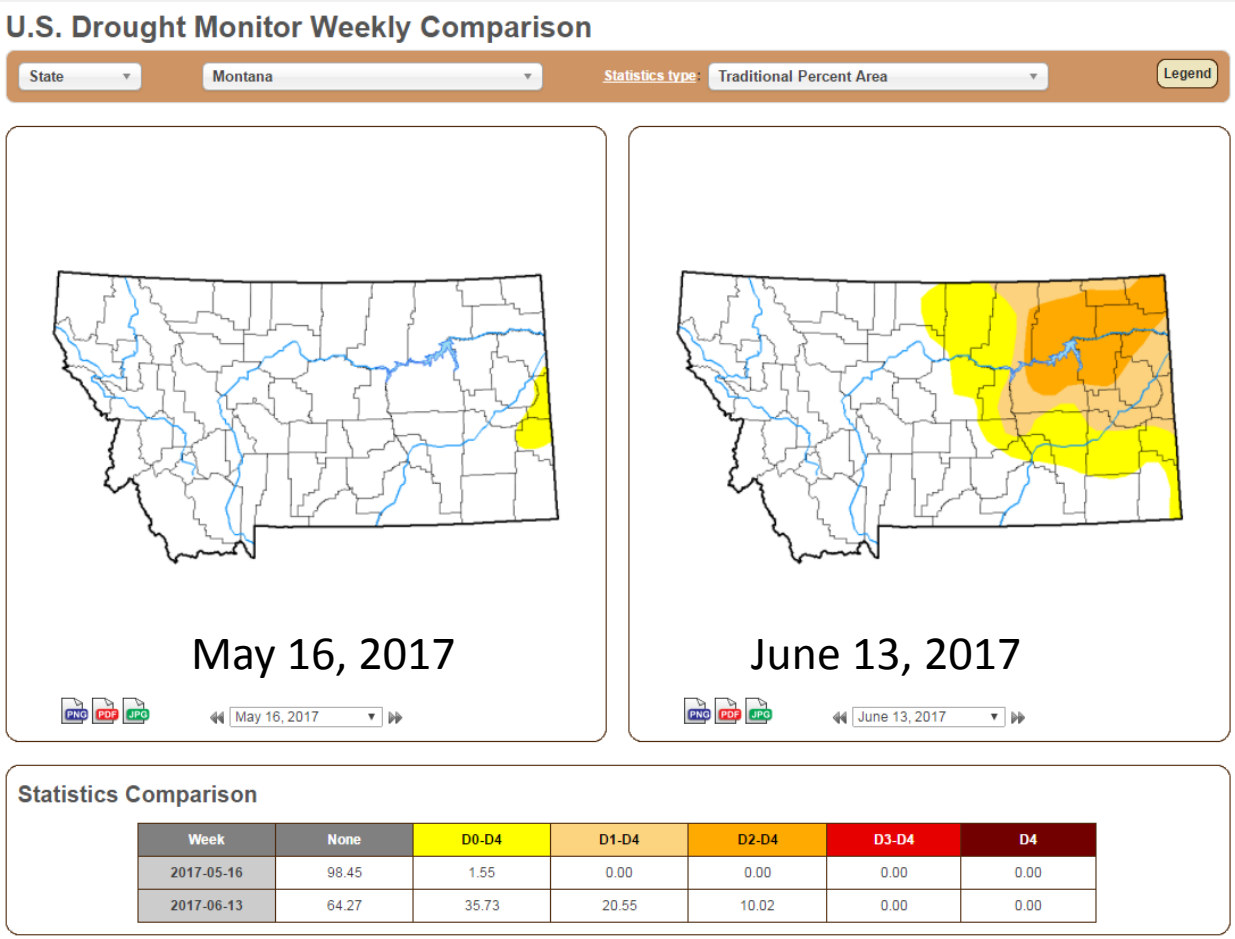
Drought in Eastern Montana

Remember May?

NO DROUGHT

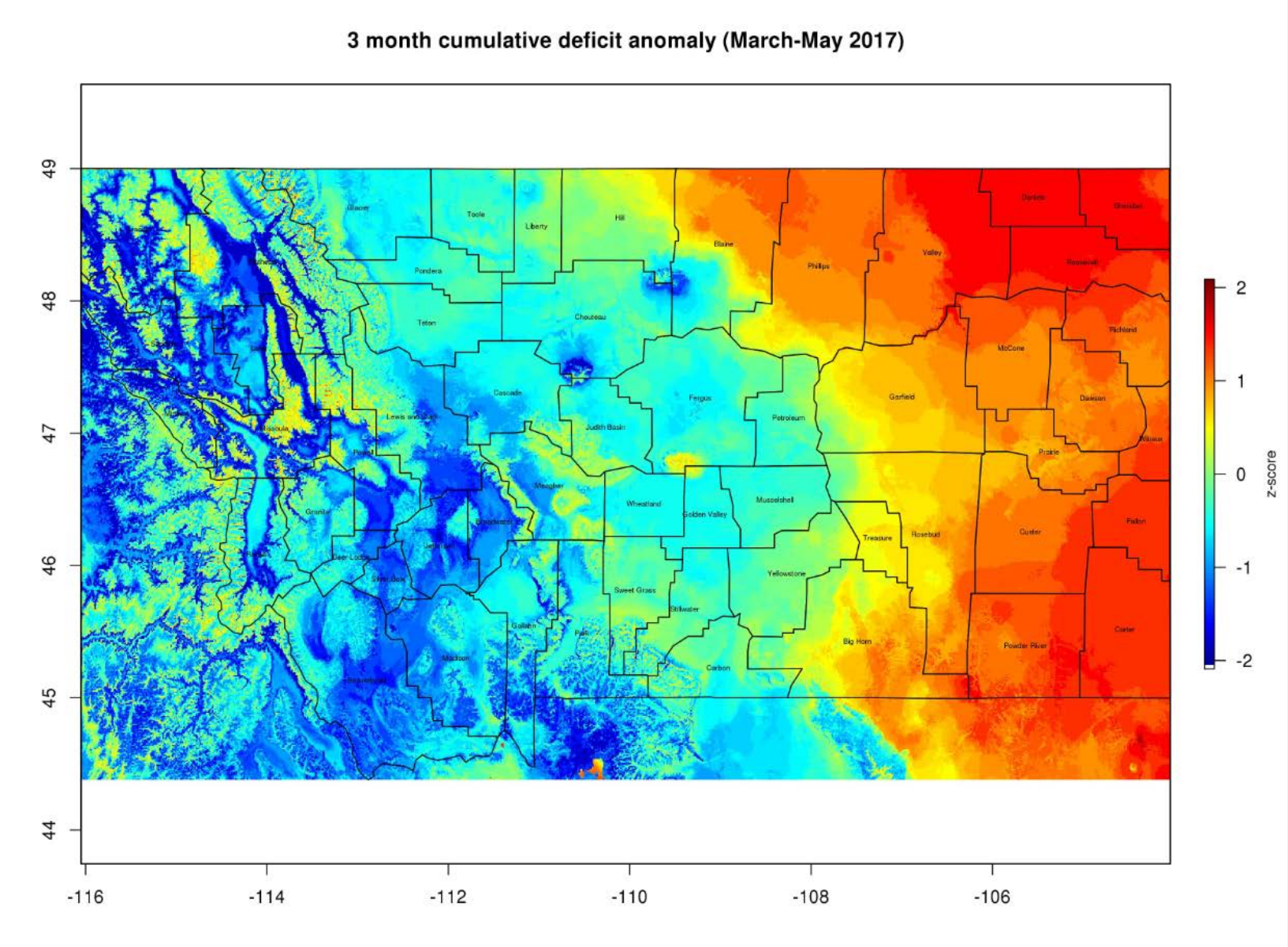
Before June 1



Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
2017-05-16	98.45	1.55	0.00	0.00	0.00	0.00
2017-06-13	64.27	35.73	20.55	10.02	0.00	0.00

After June 1

Montana is experiencing **A Flash Drought** in the eastern 1/3 of the state.


3 month cumulative deficit anomaly (March-May 2017)
49
48
47
46
45
44
-116
-114
-112
-110
-108
-106
Glacier
Toole
Liberty
Hill
Blaine
Phillips
Valley
Daniels
Sheridan
Roosevelt
Pondera
Teton
Chouteau
McCone
Richland
Cascade
Fergus
Garfield
Dawson
Lewis and Clark
Judith Basin
Petroleum
Wibaux
Powell
Prairie
Meagher
Wheatland
Golden Valley
Musselshell
Granite
Broadwater
Treasure
Rosebud
Custer
Fallon
Deer Lodge
Jefferson
Silver Bow
Yellowstone
Sweet Grass
Stillwater
Gallatin
Park
Big Horn
Powder River
Carter
Madison
Carbon
Beaverhead
2
1
0
-1
-2
z-score

Summary of Impacts

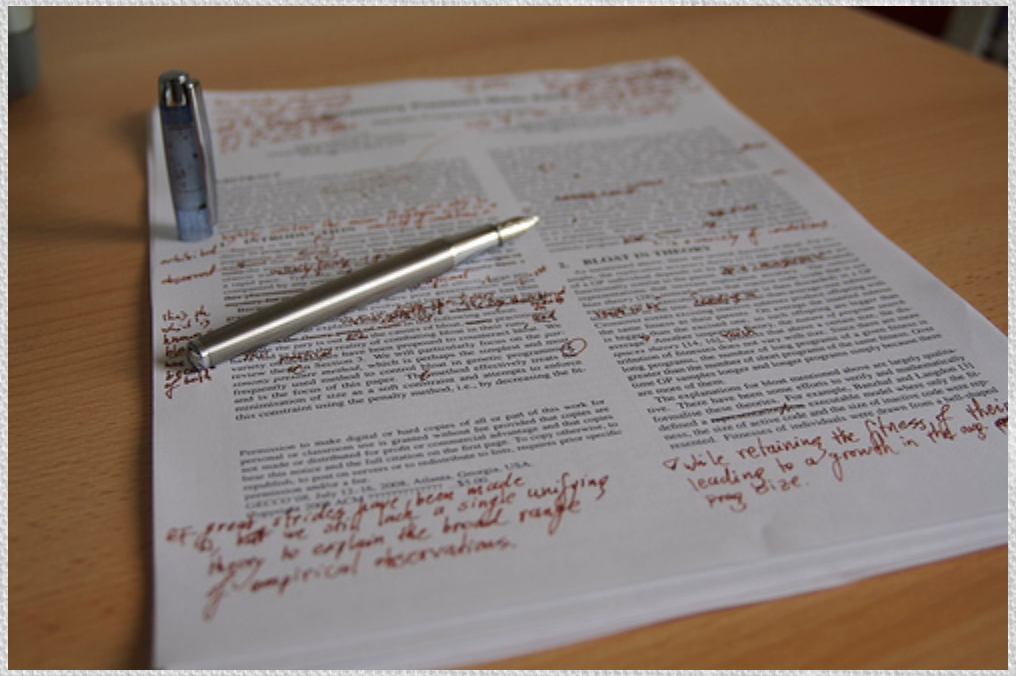
- PRECIPITATION TOTALS BELOW 25% SINCE THE END OF APRIL
- ELEVATED TEMPERATURES OF 1-4°F
- SPRING PLANTING IMPACTS
- SURFACE SOIL AND ROOT ZONE MOISTURE AT 95-98% OF AVERAGE
- SNOTEL SITES IN THE SUN-JUDITH-MUSSELSHELL SHOW SNOW WATER EQUIVALENT OF 29% OF AVERAGE
- FORAGE, STOCK WATER, POTENTIAL FOR WILDFIRE, EROSION, CATTLE LOSS, CROP LOSS

FUNDING RESOURCES

Drought Response and Resilience

DRAFT RESEARCH

- MDMP Working Group
- Status of Research on Funding – **IN PROGRESS**



WHAT DOES MONTANA CURRENTLY DO?

- **DNRC – Renewable Resource Project and Planning Grants, Watershed Management Grants**
- **FWP – Future Fisheries**
- **DES – FEMA Mitigation if Drought is listed in County PDM Plan**
- **DEQ – State Revolving Loan Funds, Treasure State Endowment Program, municipal effluent permitting, Total Maximum Daily Loads, and Watershed Restoration Plans**
- **Dept. of Agriculture – Hay Hotline**

WHAT ARE OTHER STATES DOING?

WHAT DO THE FEDS DO?

- USDA
- FSA
- US Small Business Administration
- IRS Tax Credits
- American Red Cross
- Women, Infants and Children
- Bureau of Reclamation
- National Integrated Drought Information System
- US Drought Monitor
- National Drought Mitigation Center

President Barak Obama tours a field with farmer Joe Del Bosque, his wife Maria, and California Governor Jerry Brown in Los Banos, CA. Feb 14, 2014
Photo credit: Obama White House Archives

WHAT DOES THE PRIVATE SECTOR DO?

- Drought Insurance
- Industrial, Institutional, & Commercial Efficiency

WHAT MORE IS NEEDED?

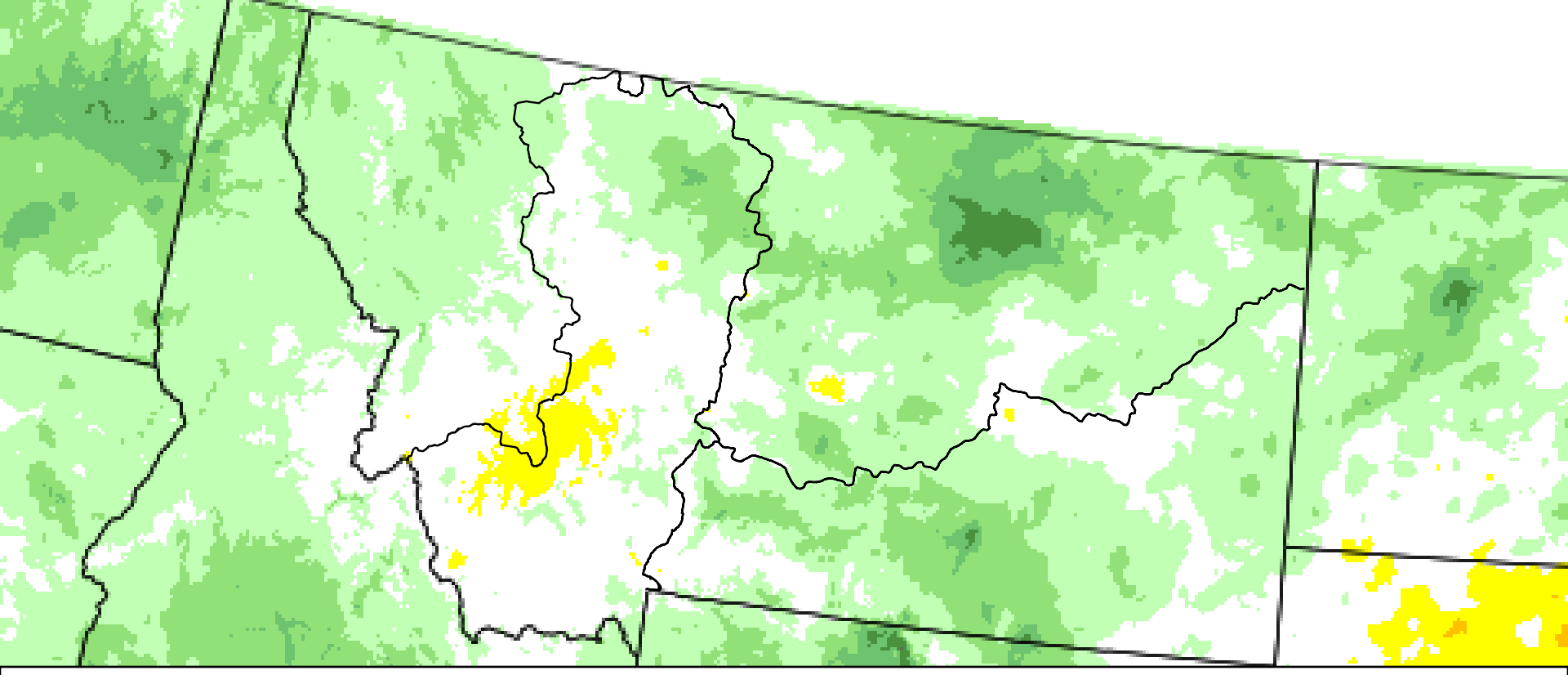
- How can we use all theses resources more wisely to plant the seeds of long-term drought resilience?

Montana DWSAC Briefing

June 20, 2017

Weather-Ready Nation

National Oceanic and Atmospheric Administration



June 16 – May 17 Precip Anomaly

% of Average Precipitation

0	50 - 70	150 - 170
1 - 10	70 - 90	170 - 200
11 - 20	90 - 110	200 - 300
20 - 30	110 - 130	300 - 400
30 - 50	130 - 150	> 400

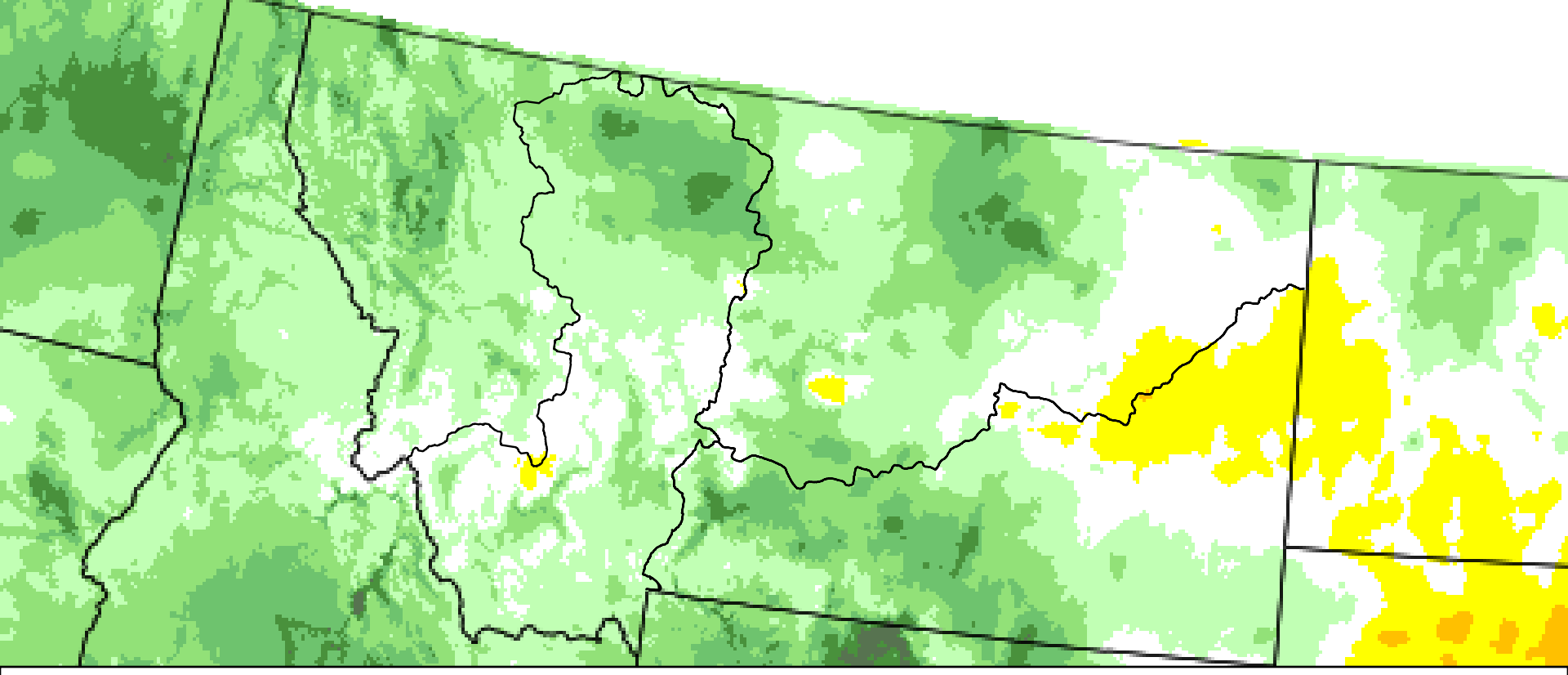
Montana: Jun 2016 – May 2017

19th Warmest on Record

Avg Temp	20th Century Average	Departure
43.0°F	41.1°F	1.9°F

23rd Wettest on Record

Precip	20th Century Average	Departure
20.74”	18.66”	2.09”



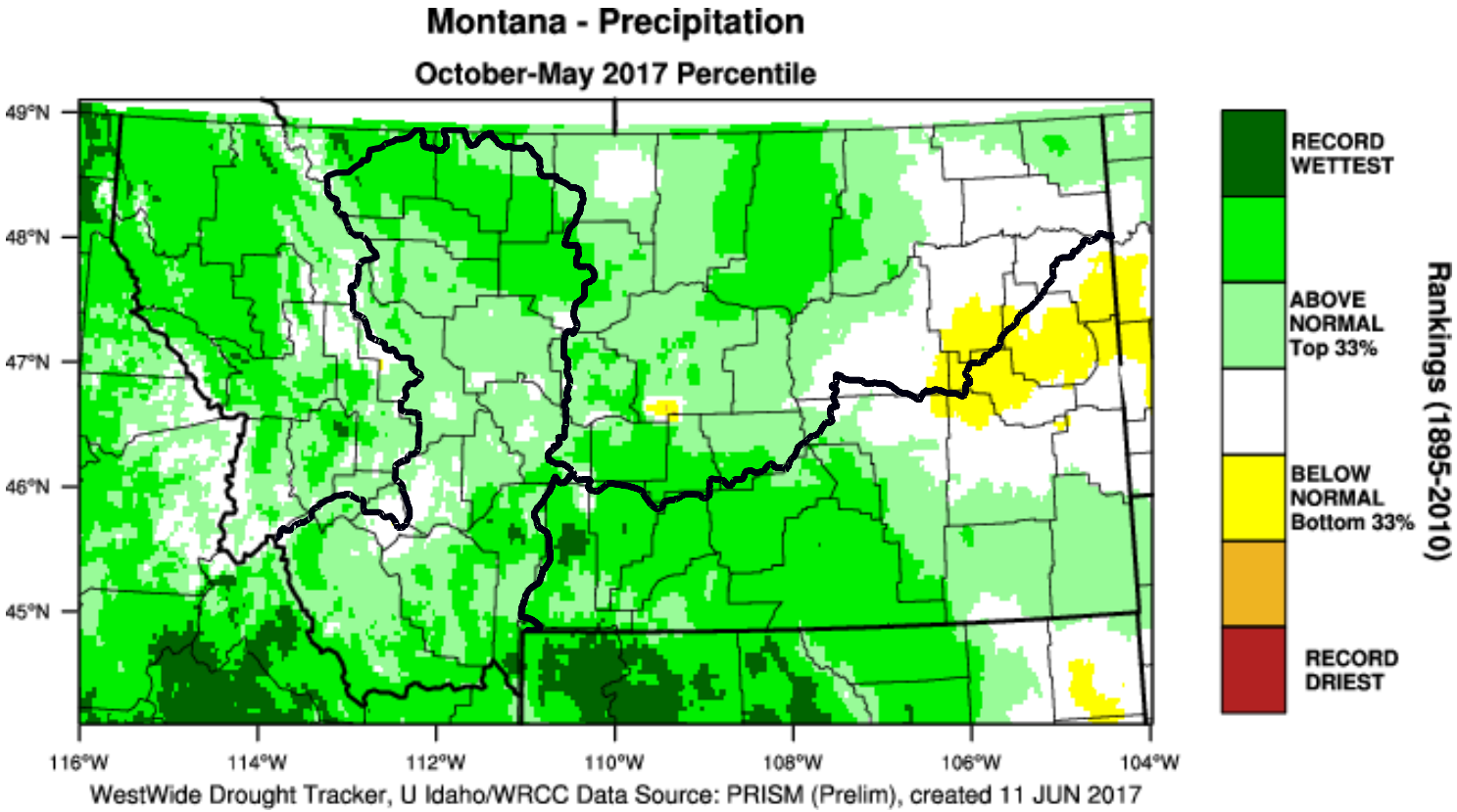
Water Year 2017 Precip Anomaly

% of Average Precipitation

0	50 - 70	150 - 170
1 - 10	70 - 90	170 - 200
11 - 20	90 - 110	200 - 300
20 - 30	110 - 130	300 - 400
30 - 50	130 - 150	> 400

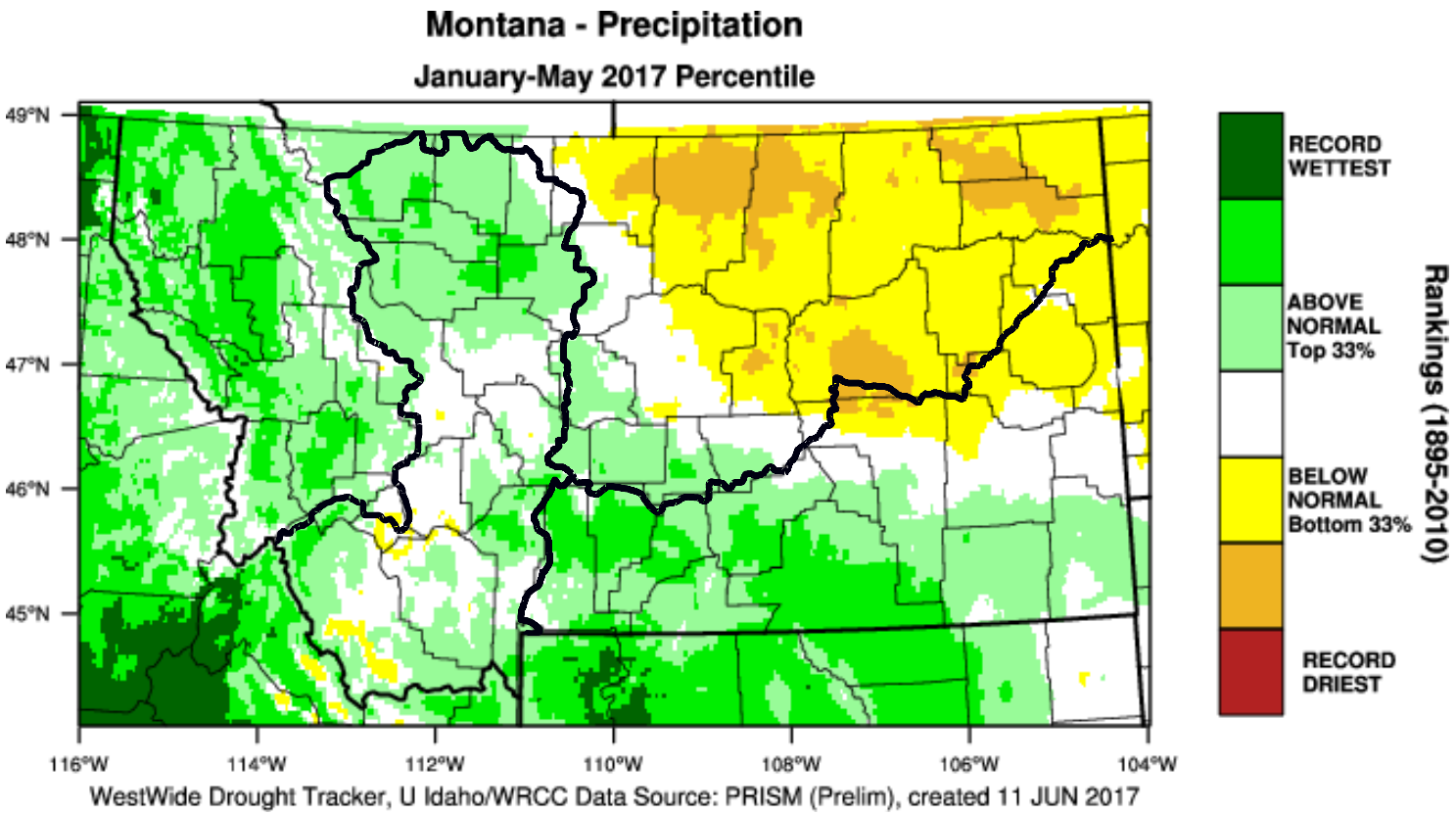
Precipitation Ranking

Water Year 2017



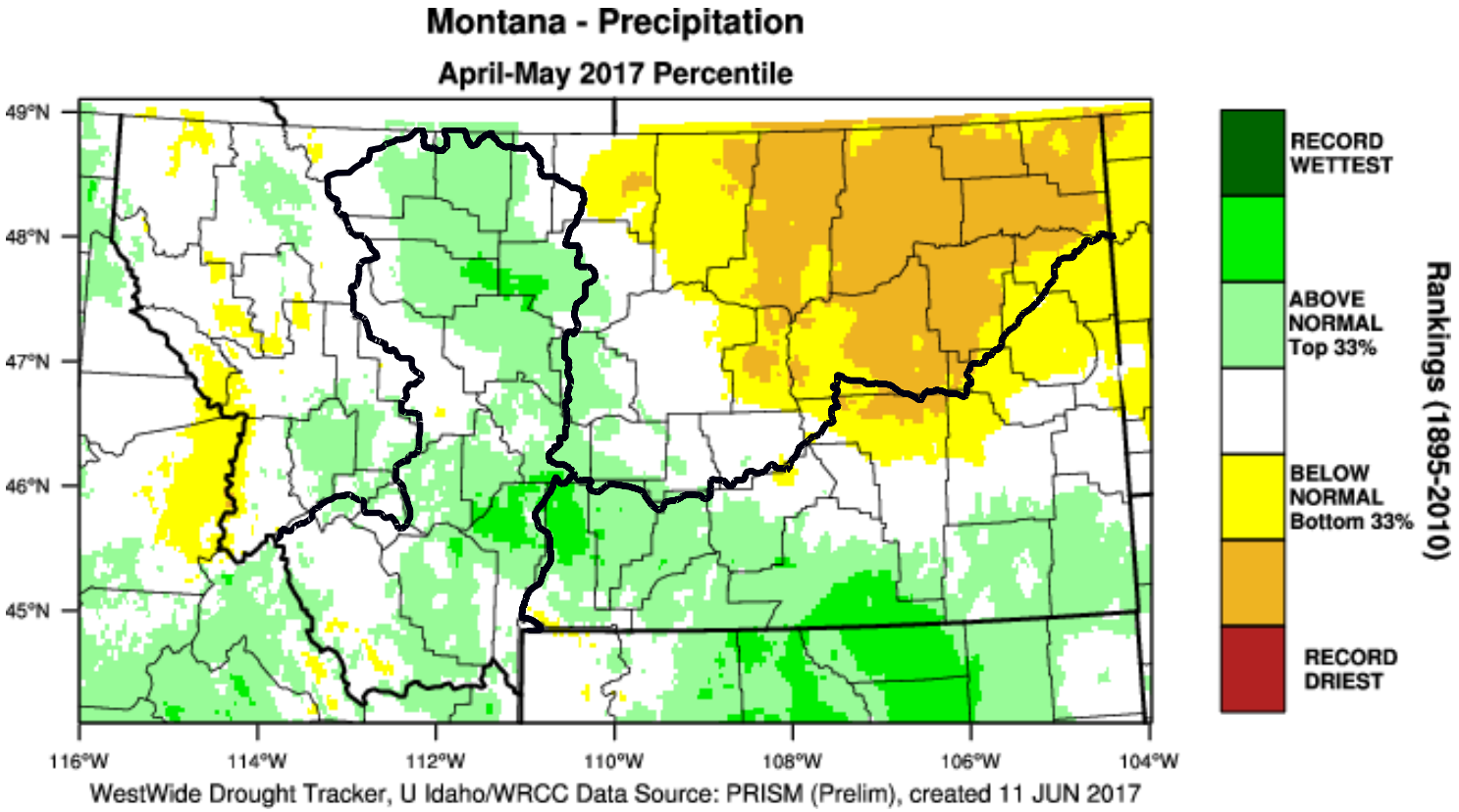
Precipitation Ranking

Calendar Year 2017

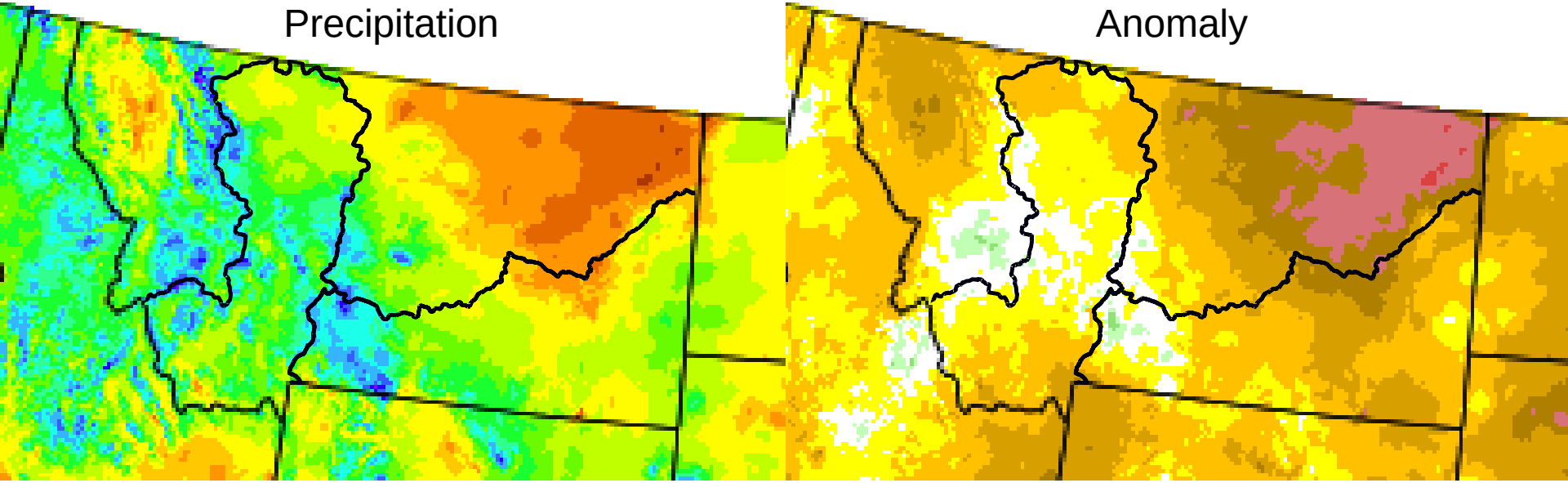


Precipitation Ranking

April-May 2017



May 2017 Precip vs Anomaly



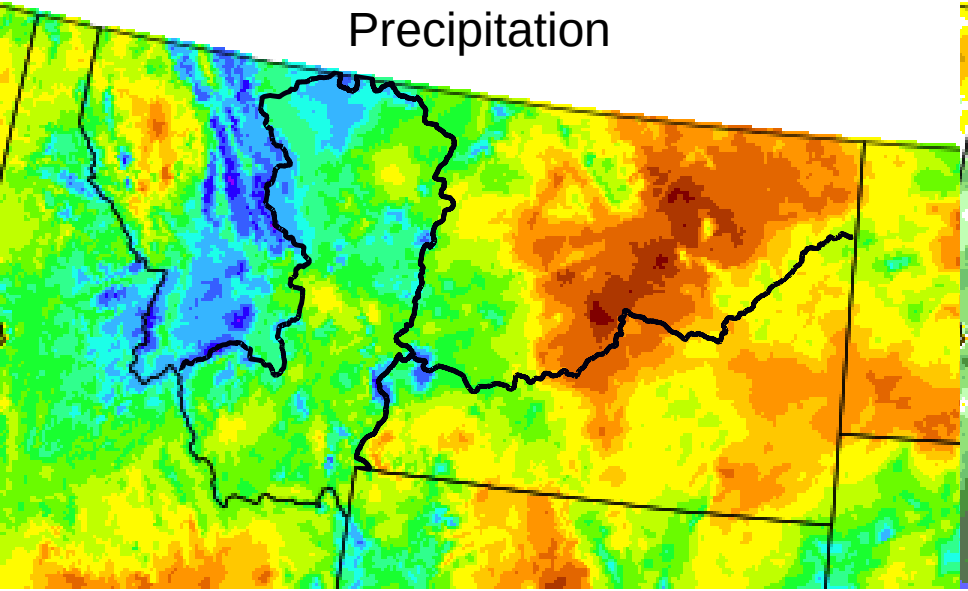
Monthly Precipitation (in.)

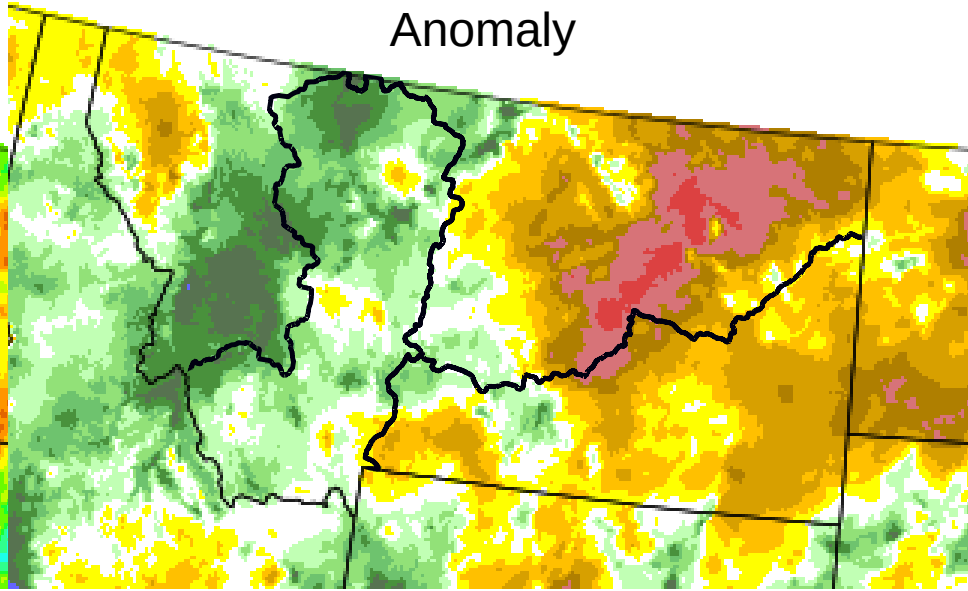
< 0.01	0.6 - 0.8	2.4 - 2.8	6 - 8
.01 - 0.1	0.8 - 1.2	2.8 - 3.2	8 - 12
0.1 - 0.2	1.2 - 1.6	3.2 - 4	12 - 16
0.2 - 0.4	1.6 - 2	4 - 5	16 - 20
0.4 - 0.6	2 - 2.4	5 - 6	> 20

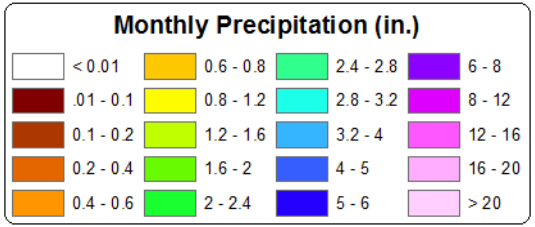
% of Average Precipitation

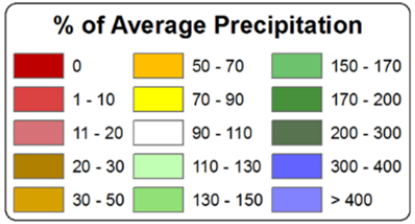
0	50 - 70	150 - 170
1 - 10	70 - 90	170 - 200
11 - 20	90 - 110	200 - 300
20 - 30	110 - 130	300 - 400
30 - 50	130 - 150	> 400

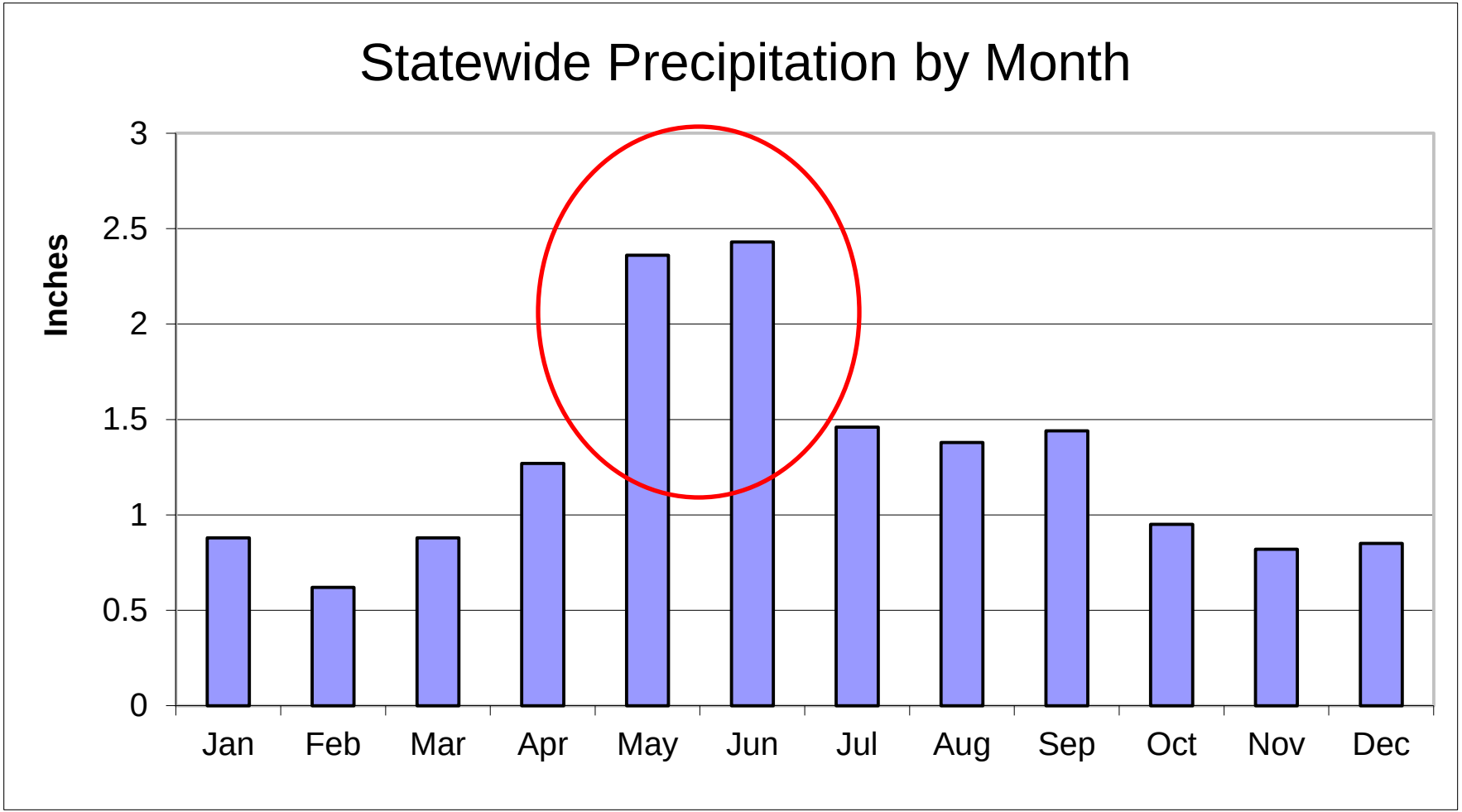
June Precip vs Anomaly – as of 6/18





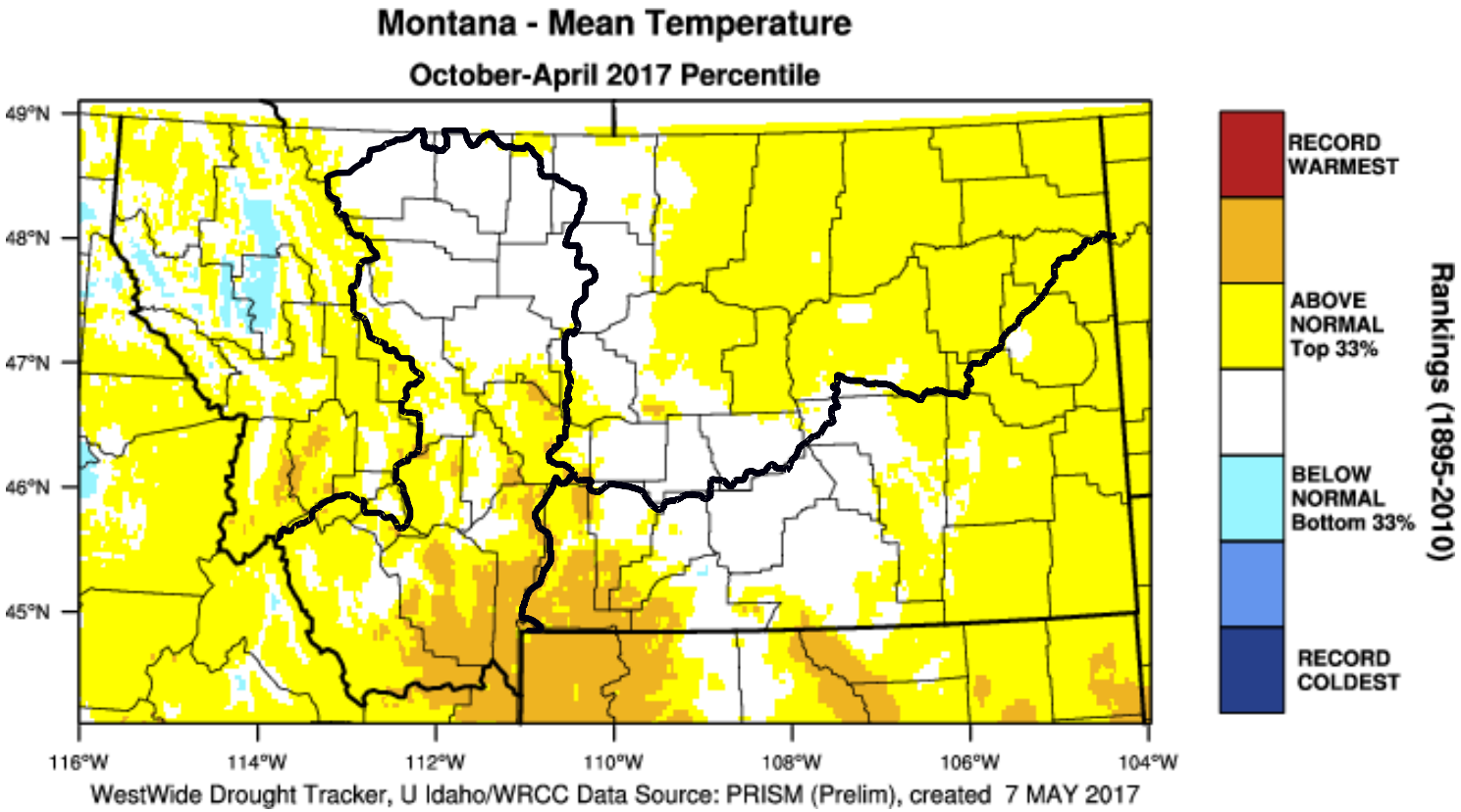





Statewide Precipitation by Month
Inches
3
2.5
2
1.5
1
0.5
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec

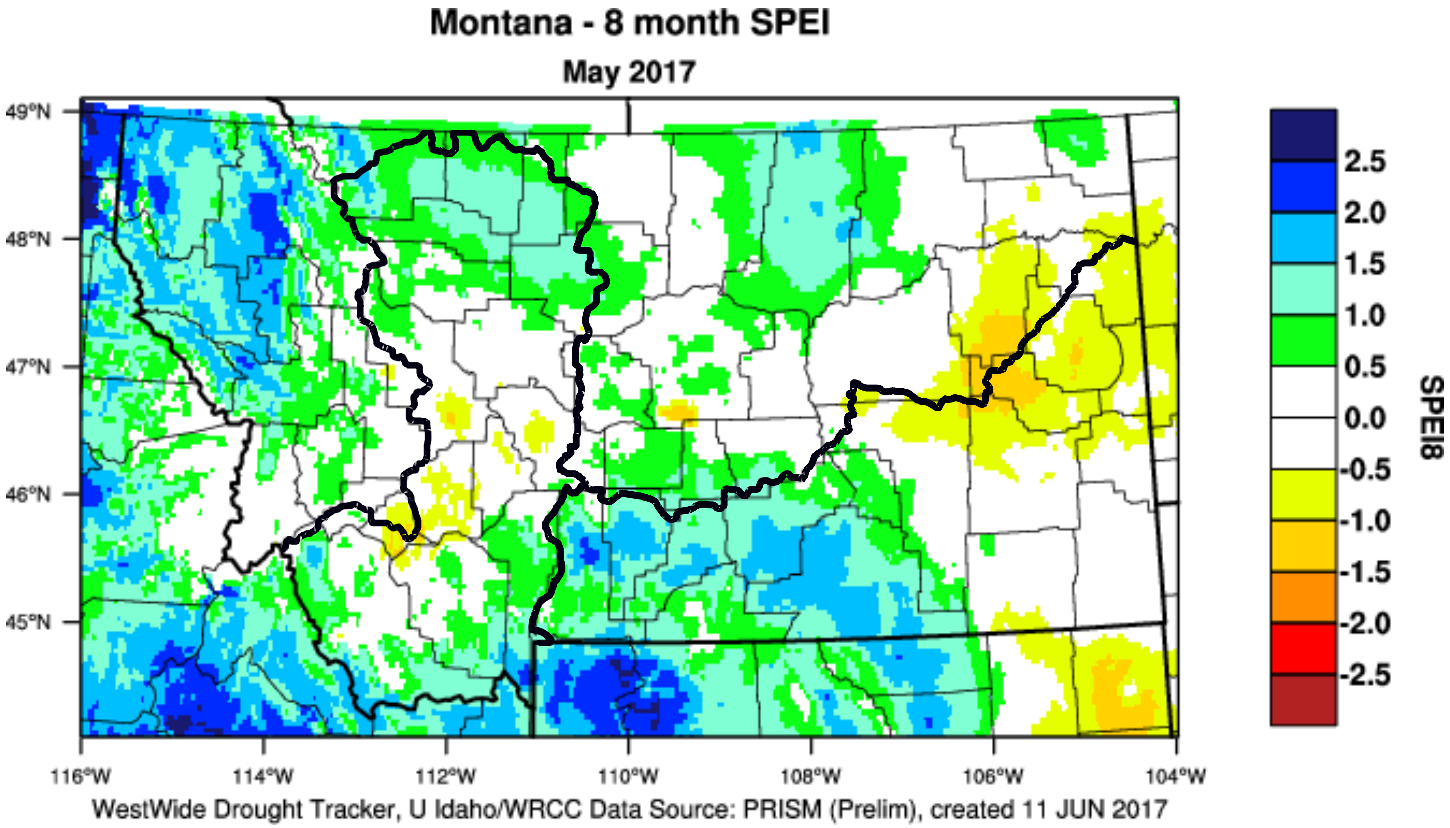
Mean Temperature Ranking

Water Year 2017



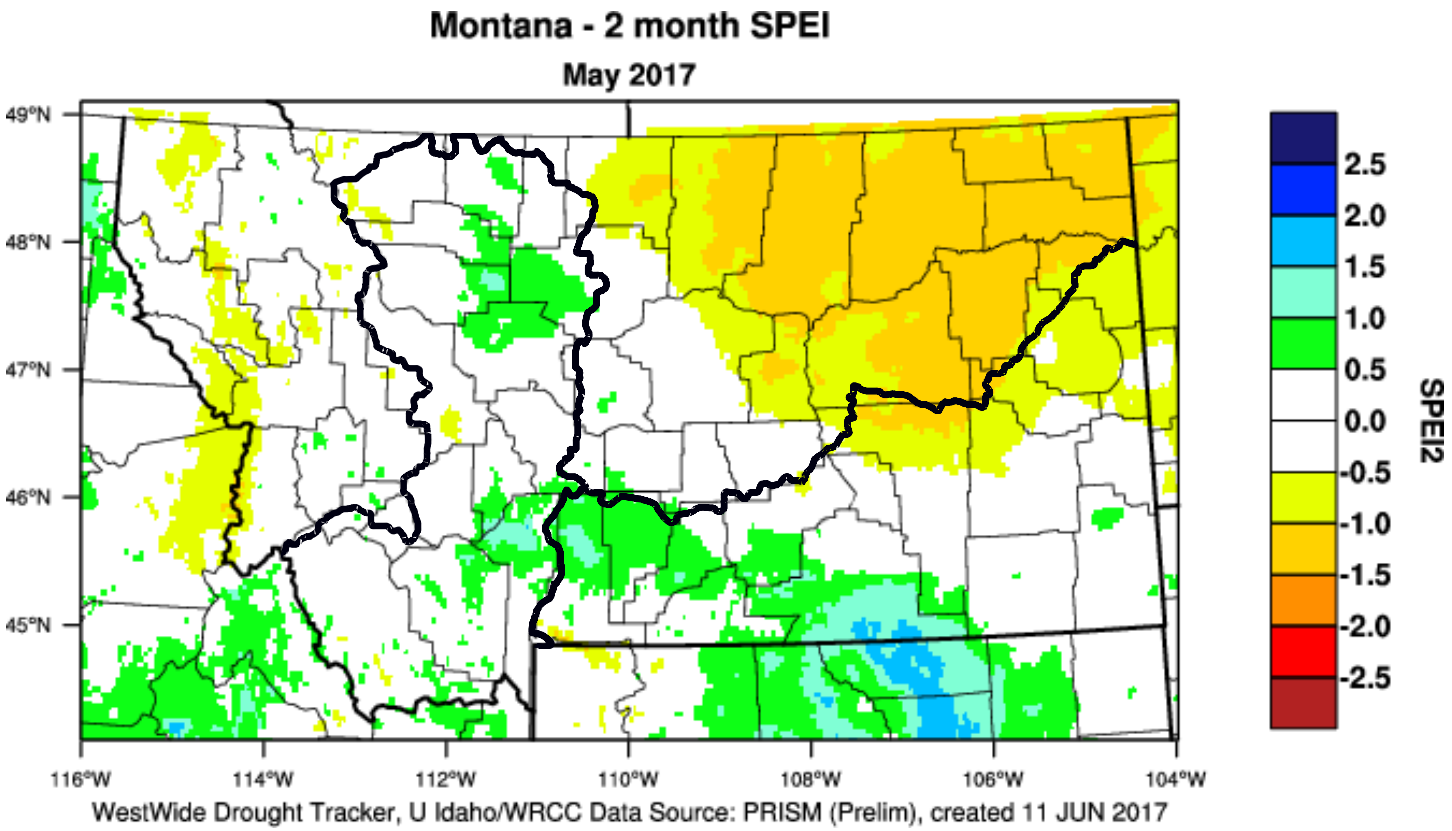
PRISM SPEI

Water Year 2017

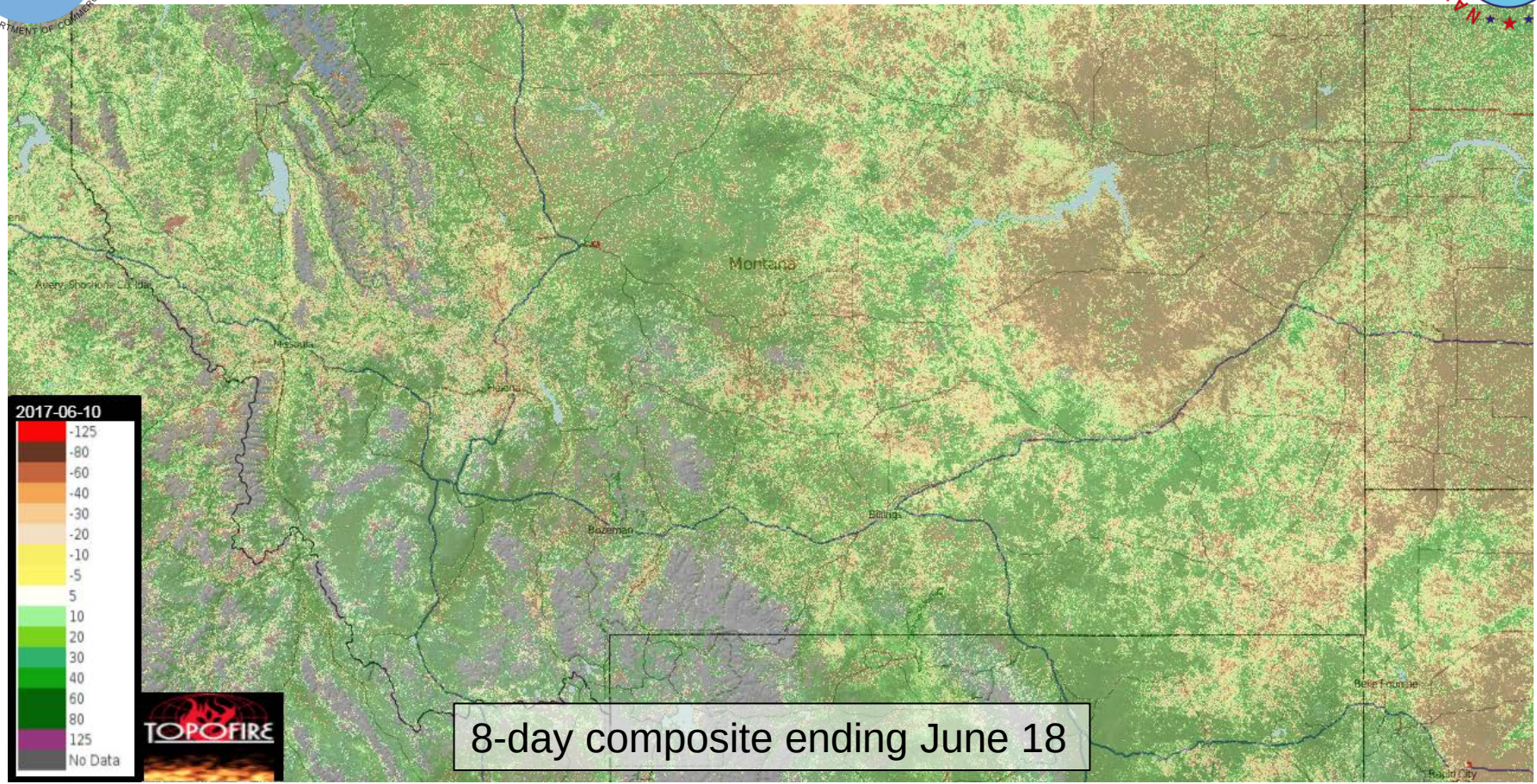


PRISM SPEI

Apr-May 2017

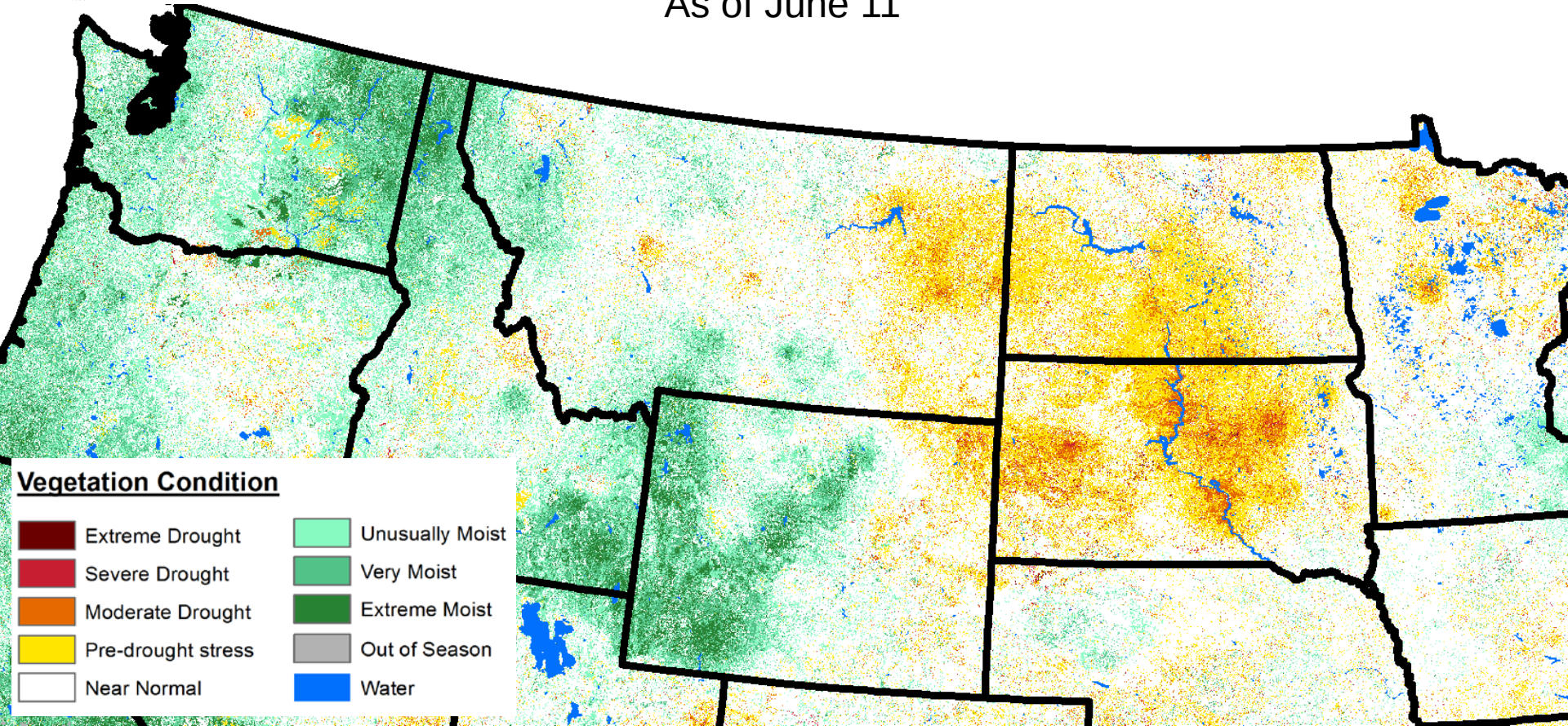


Normalized Difference Vegetation Index



Vegetation Drought Response Index

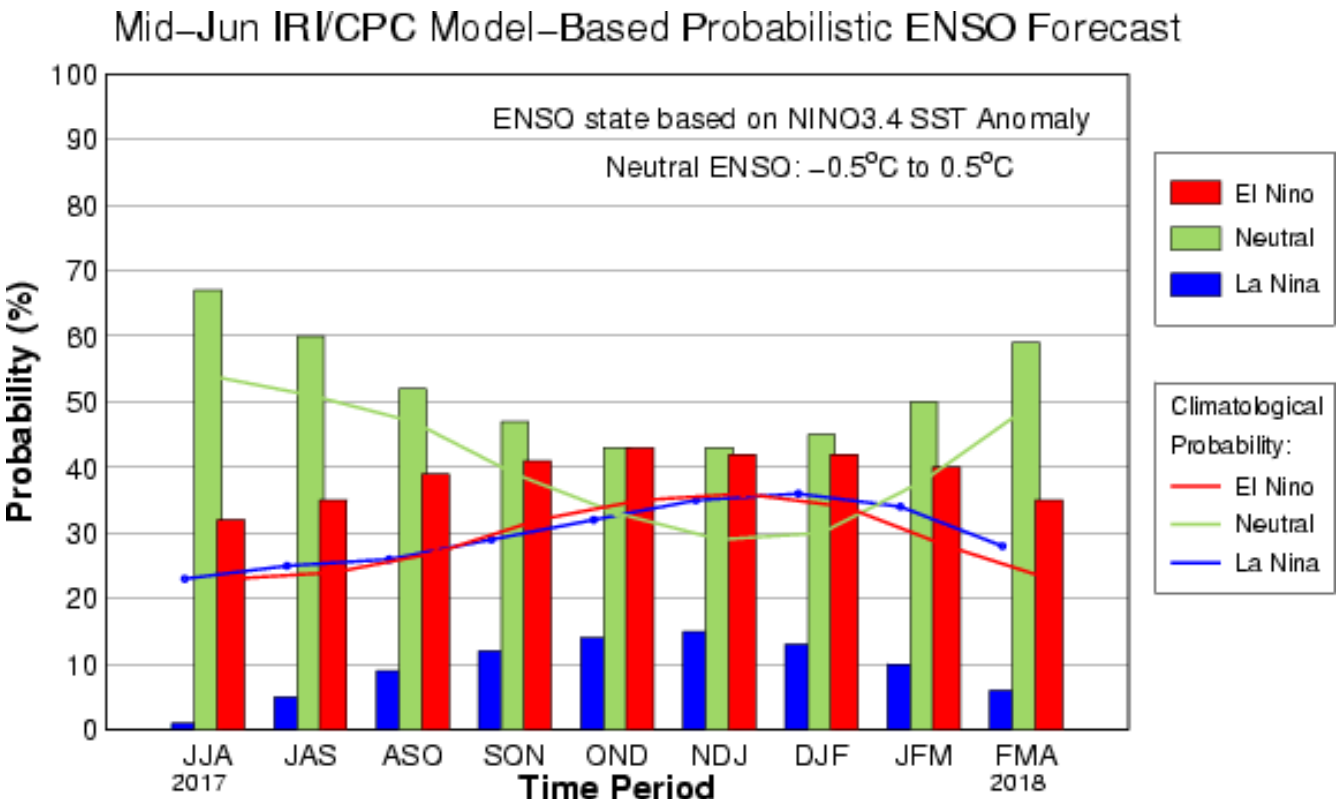
As of June 11

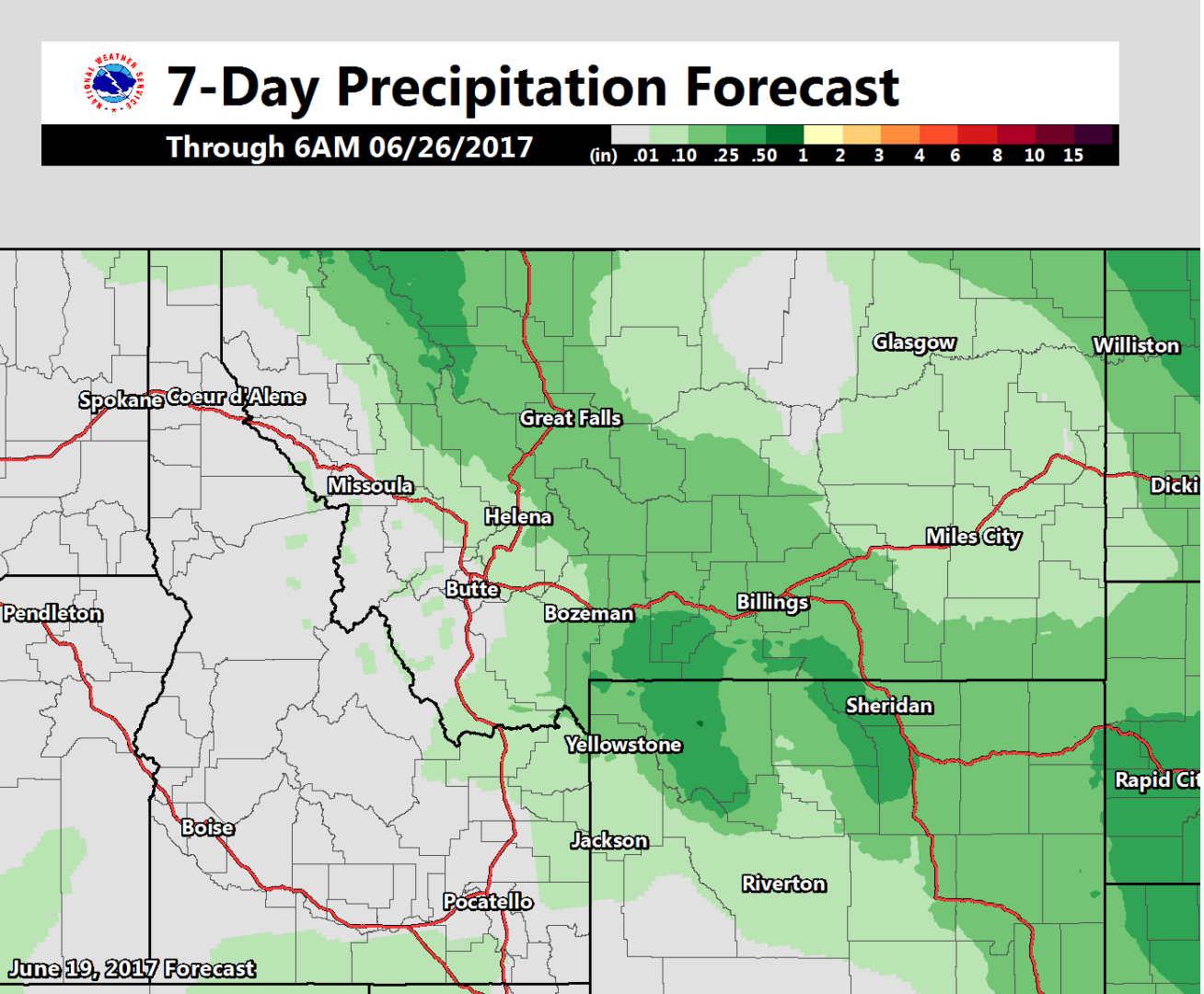


Reported Drought Impacts

ENSO

El Niño Neutral





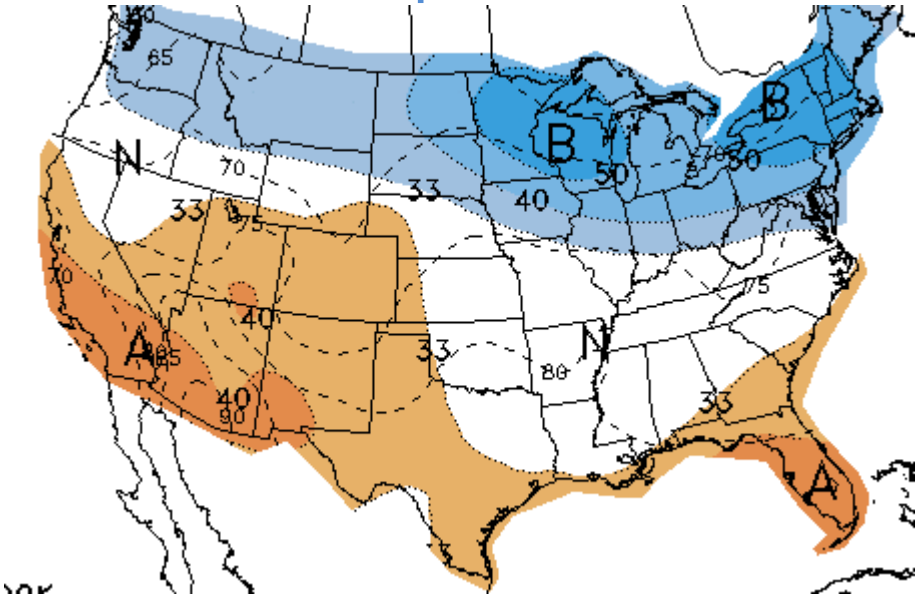
7-Day Precipitation Forecast

Created June 19

8-14 Day Outlook

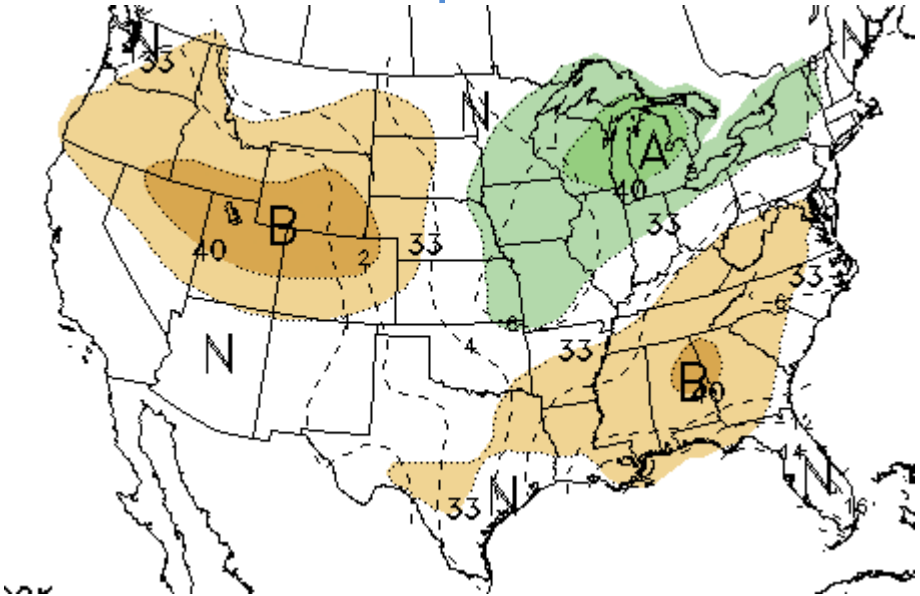
Created June 18

Temperature



33% chance or greater of below normal temperatures statewide

Precipitation

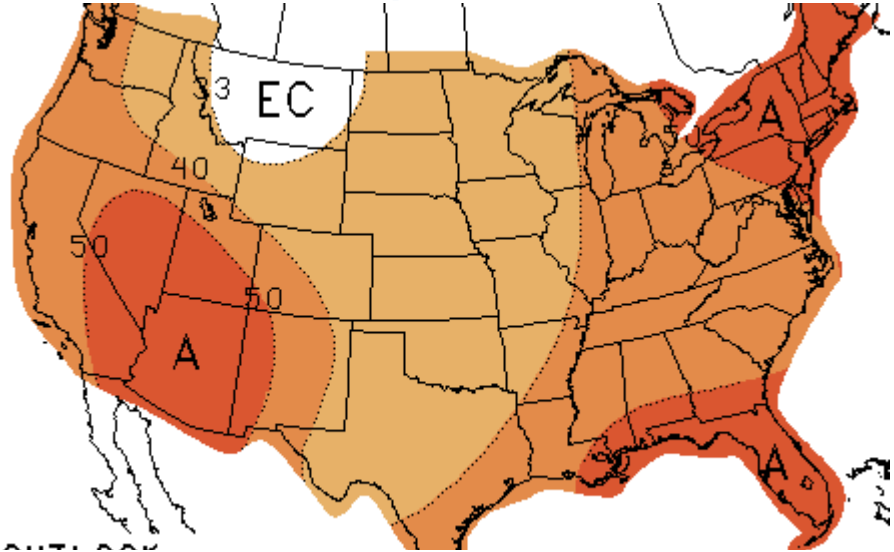


Equal chances of above or below normal precipitation NW half of state, 33% chance of below normal precipitation SE half of state

Jul-Sep Outlook

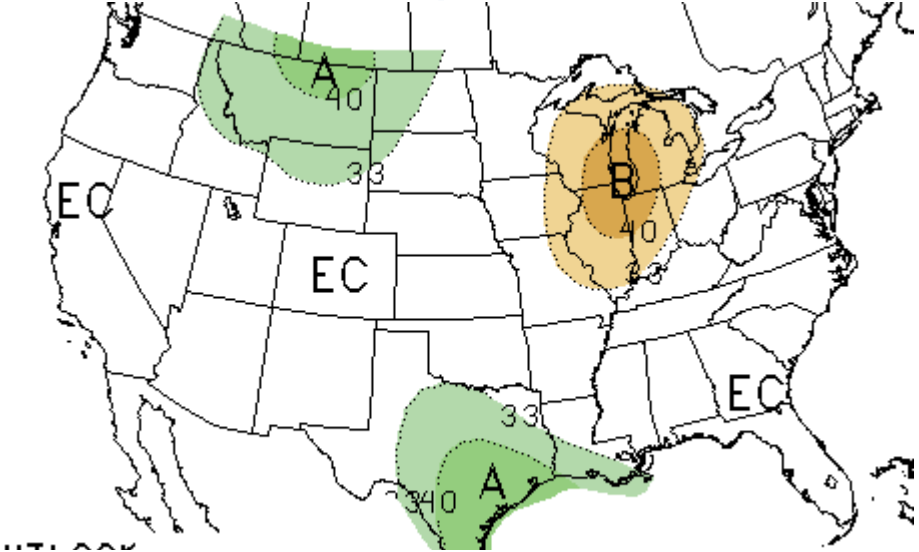
Created June 15

Temperature



Equal chances for above normal or below temperatures over most of Montana

Precipitation

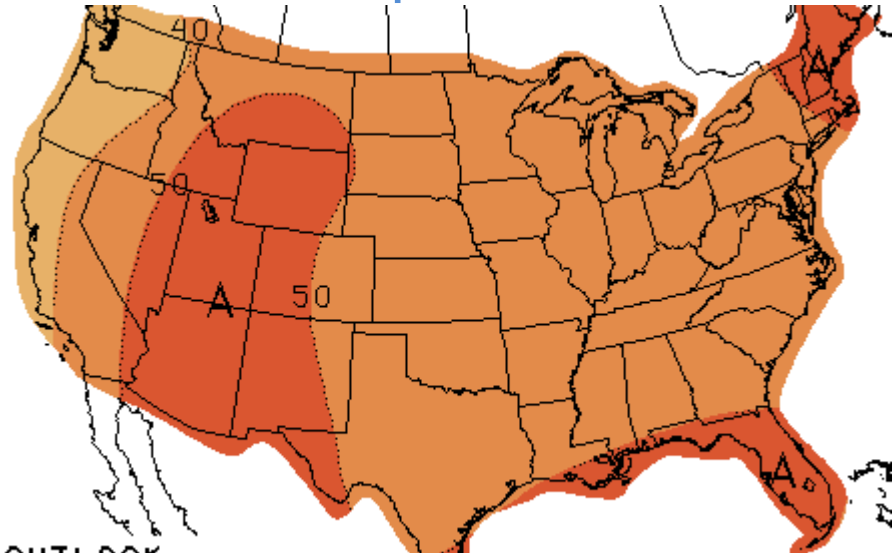


33% chance of above normal precipitation over eastern Montana, but 40% chance of above precipitation northeast Montana

Sep-Nov Outlook

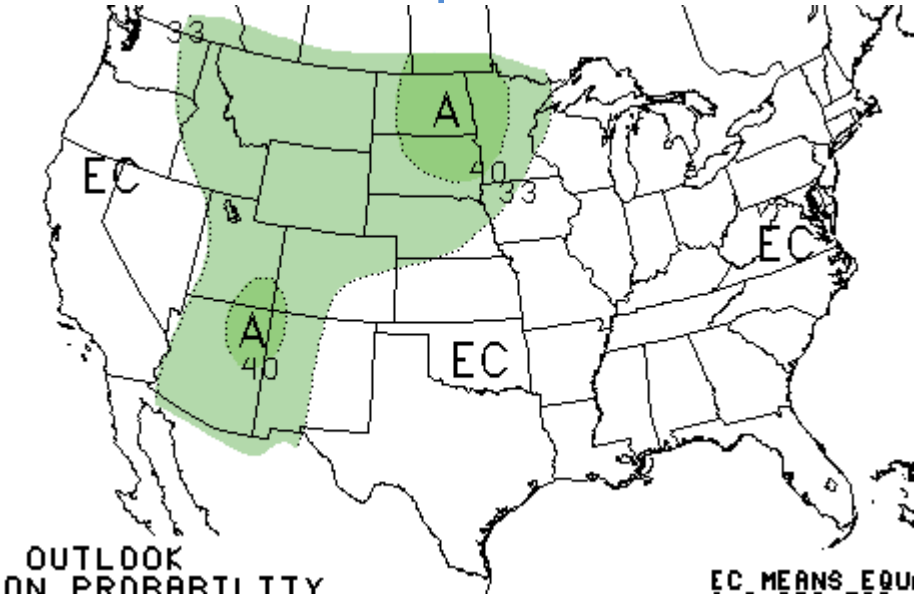
Created June 15

Temperature



40% chance of above normal temperatures north, 50% chance of above normal temperatures south

Precipitation

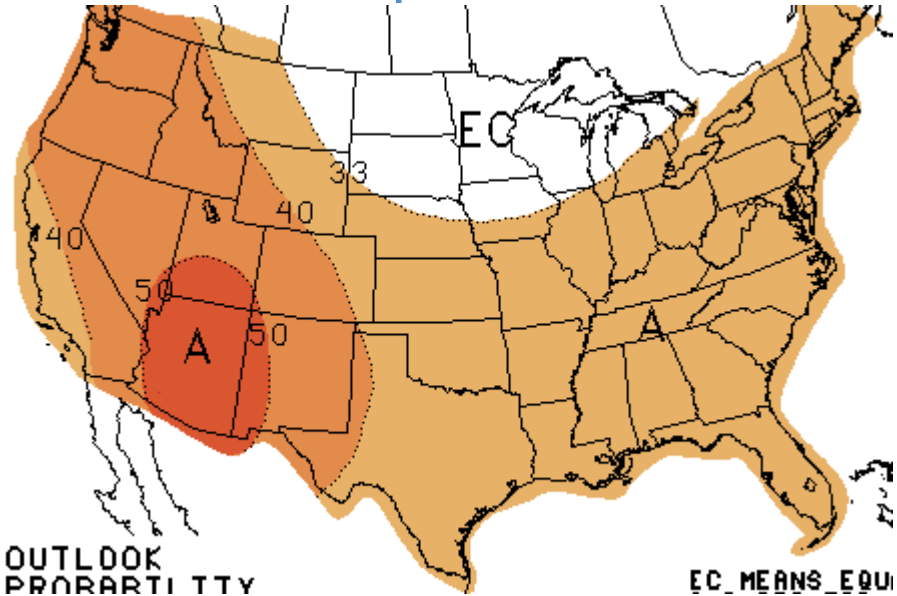


33% or greater chance of above normal precipitation

Dec-Feb Outlook

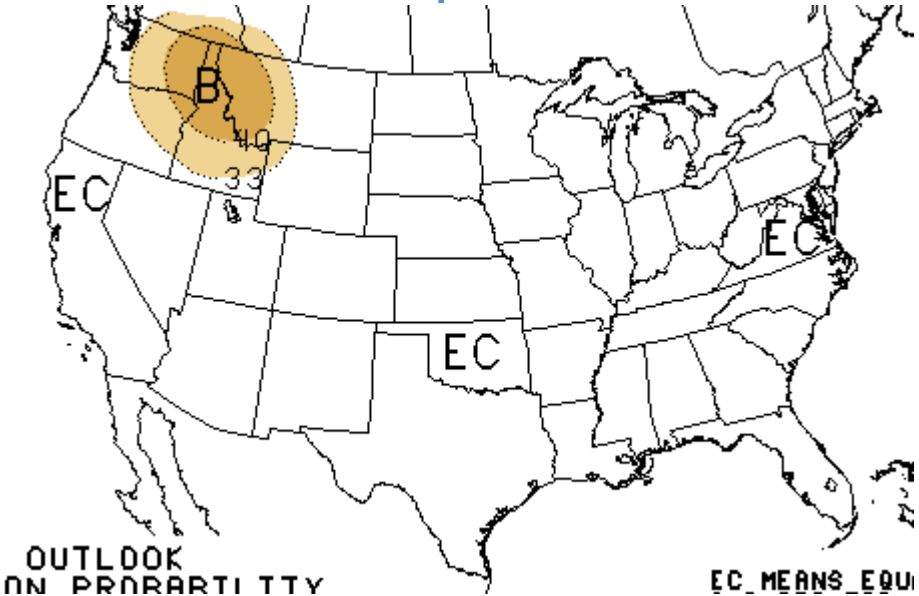
Created June 15

Temperature



33% chance of above normal temperatures, with equal chances northeast Montana

Precipitation

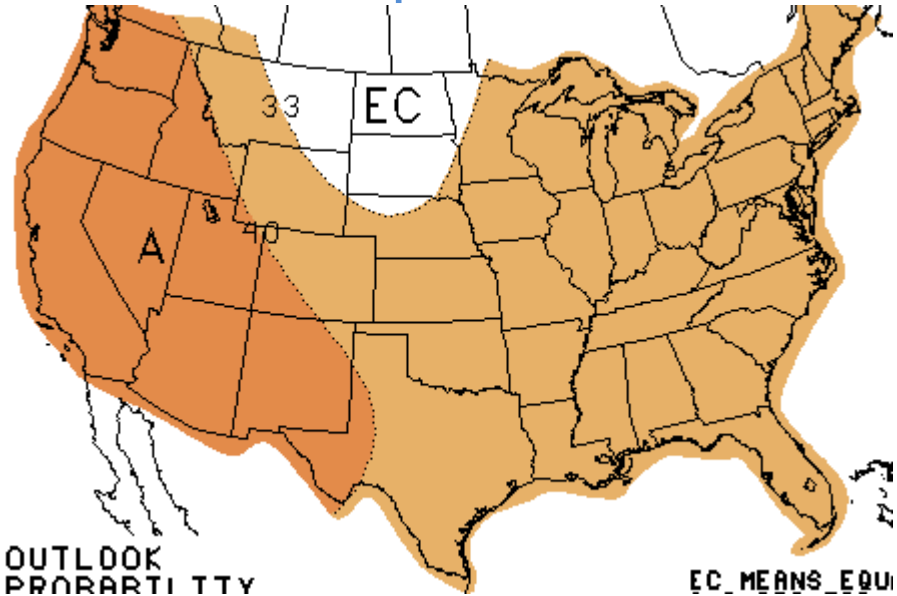


Equal chances of above or below normal precipitation, except 33% chance below normal east slopes westward

Mar-May Outlook

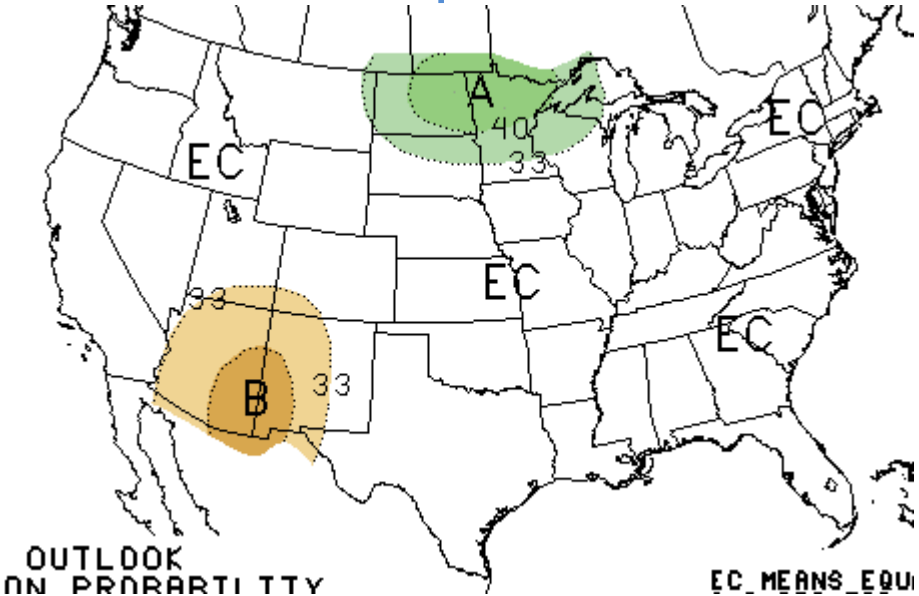
Created June 15

Temperature



Equal chances for above normal or below temperatures northeast Montana, 33% chance or greater over western half of Montana

Precipitation



Equal chances of above or below normal precipitation statewide

weather.gov

weather.gov/billings
weather.gov/glasgow
weather.gov/missoula
weather.gov/greatfalls

Weather-Ready Nation
National Oceanic and Atmospheric Administration

RECLAMATION

Managing Water in the West

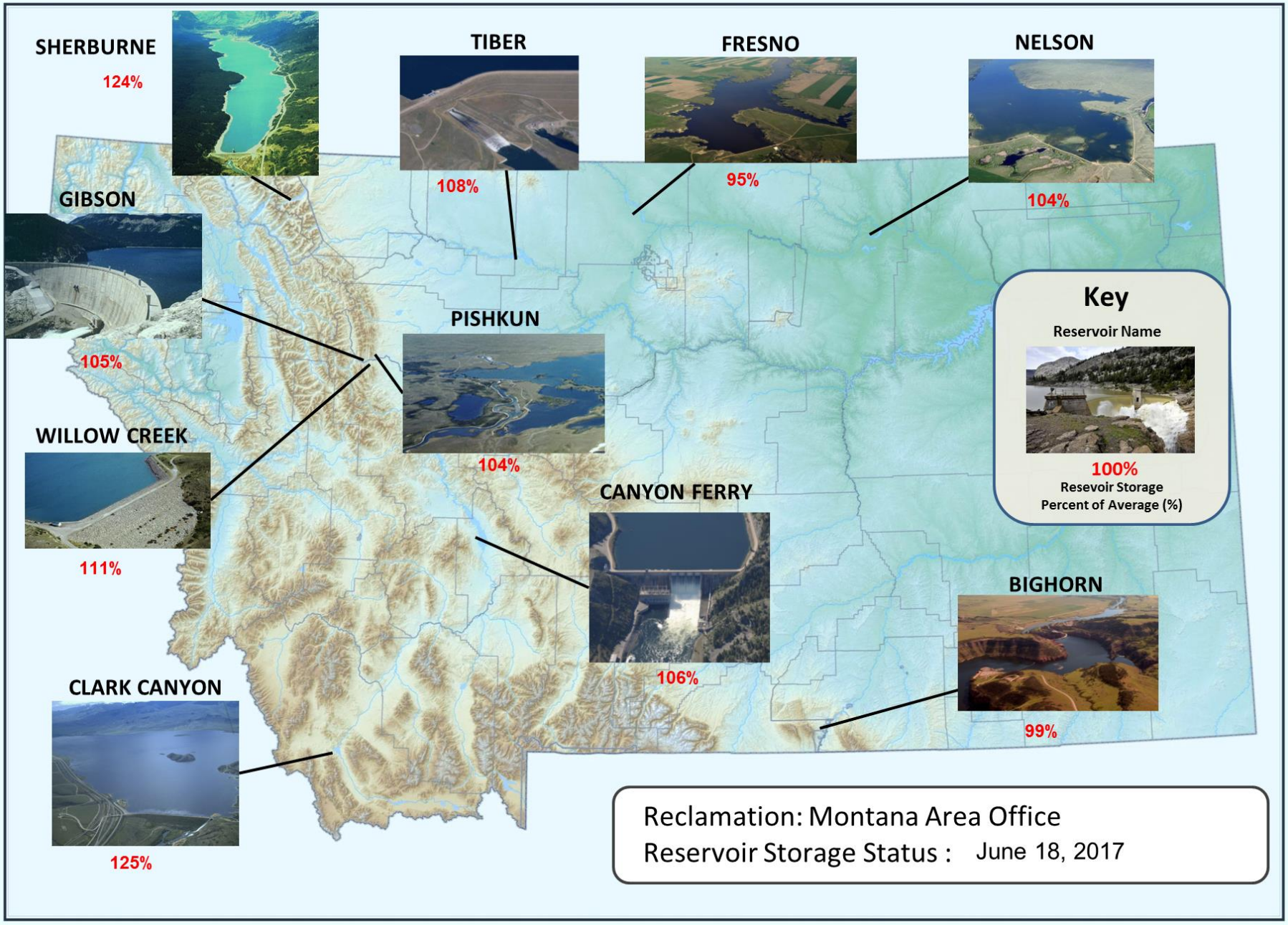
River and Reservoir

Status Briefing

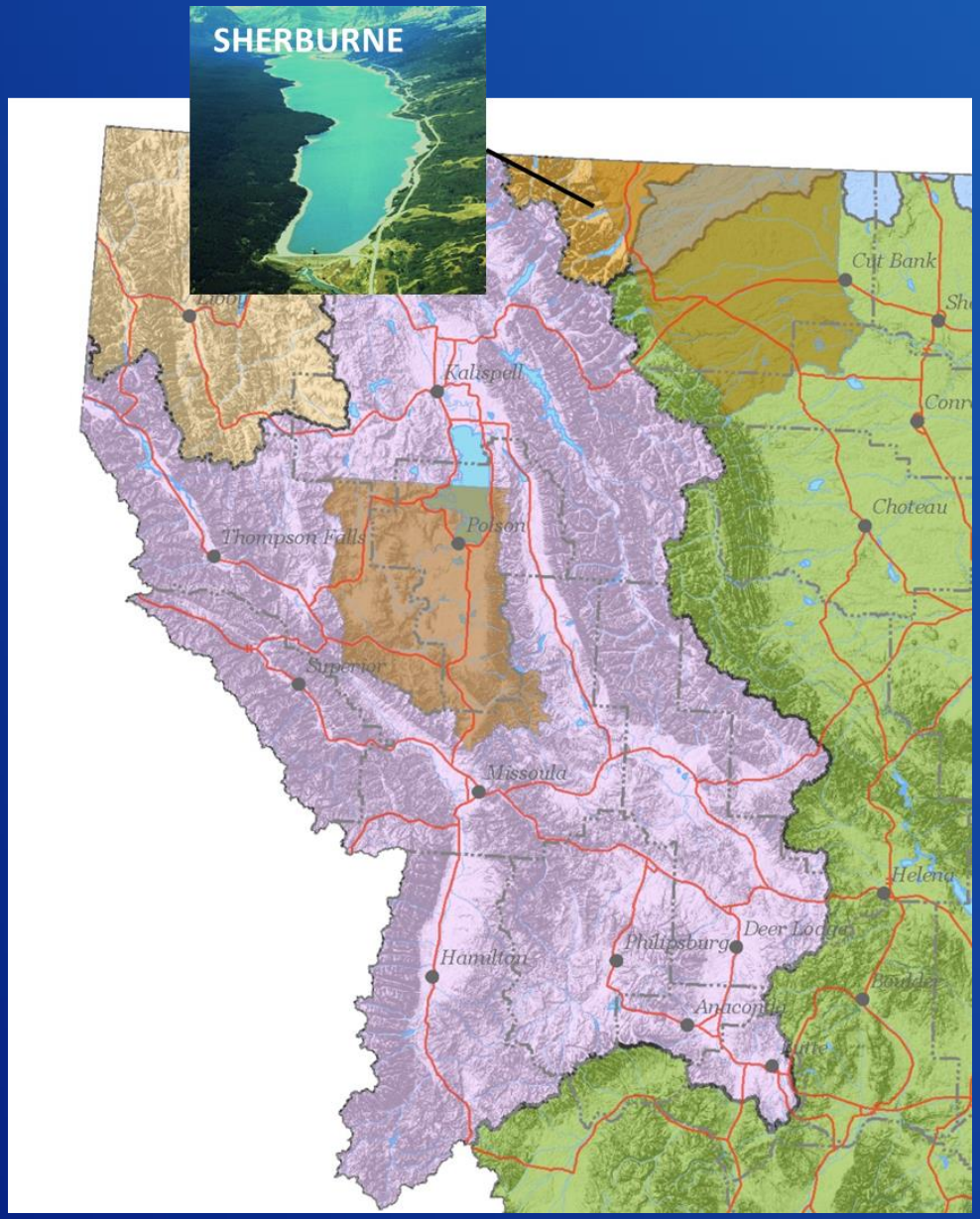
RESERVOIR AND RIVER OPERATIONS

Montana Area Office
Billings
June 19, 2017

U.S. Department of the Interior
Bureau of Reclamation



RECLAMATION



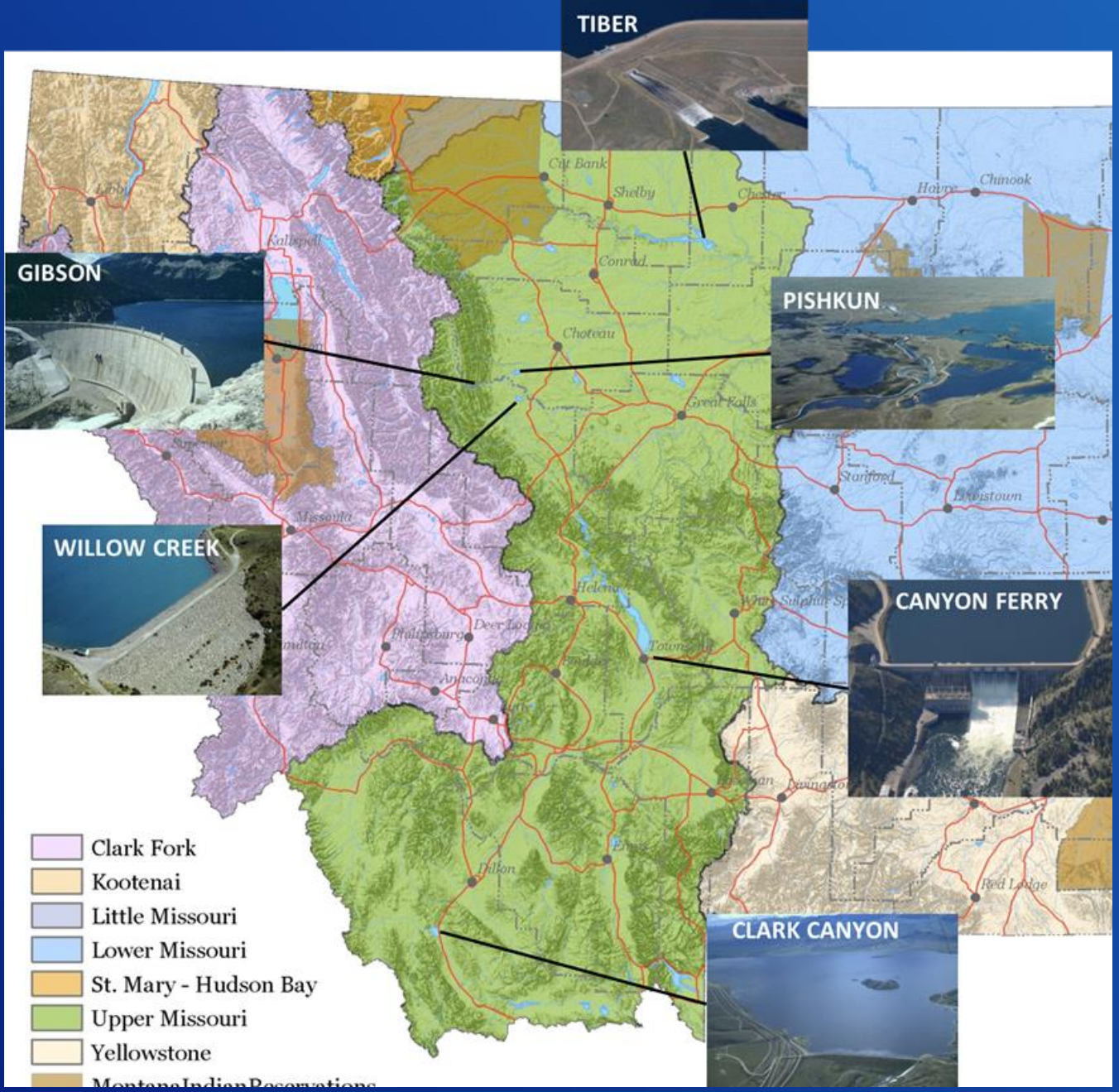
Clark Fork Kootienai St. Mary Basins

RECLAMATION

Summary of Conditions

- Reservoir Elevation – 1 ft from full
- Reservoir Release – 300 cfs

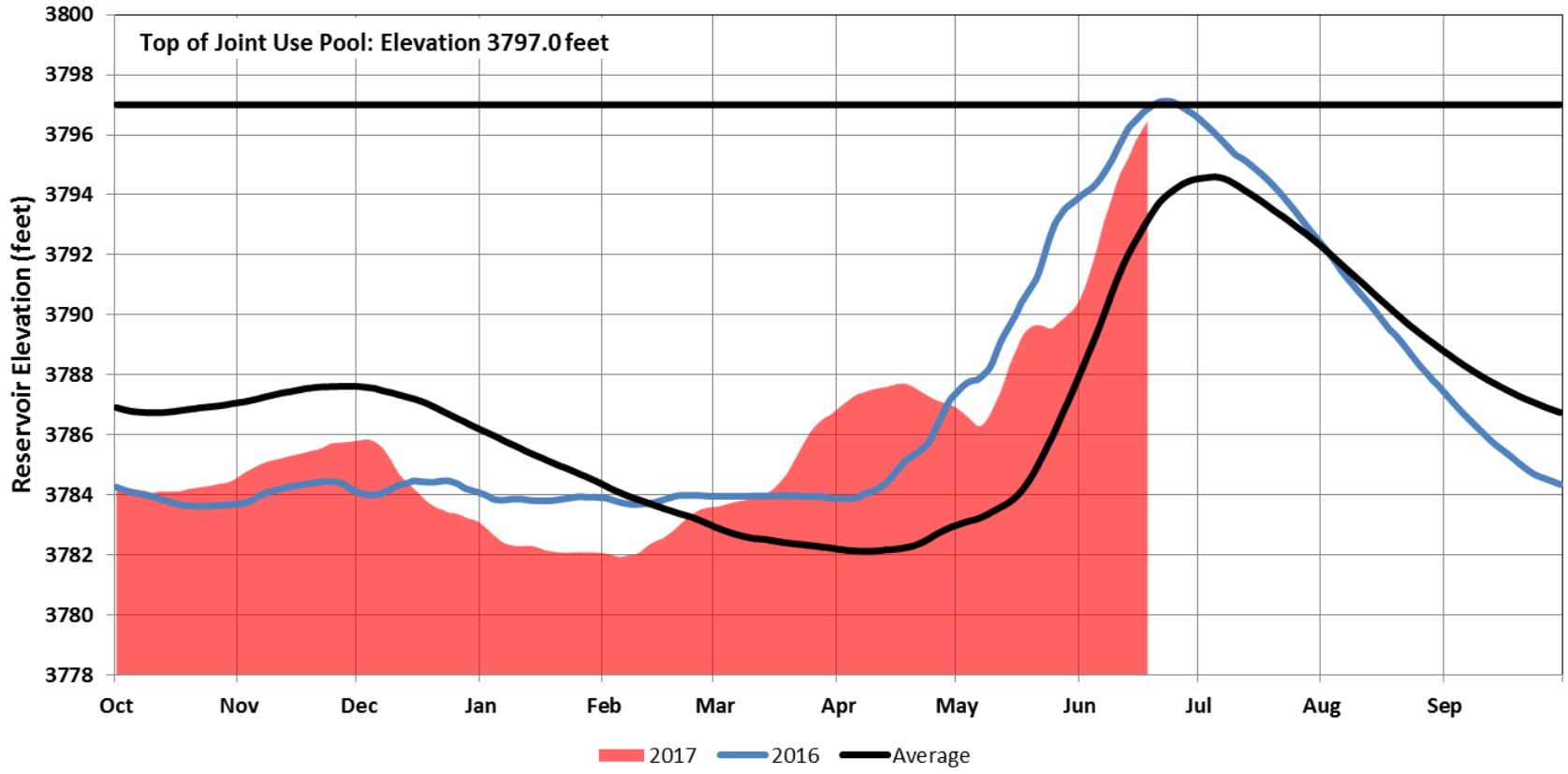
RECLAMATION

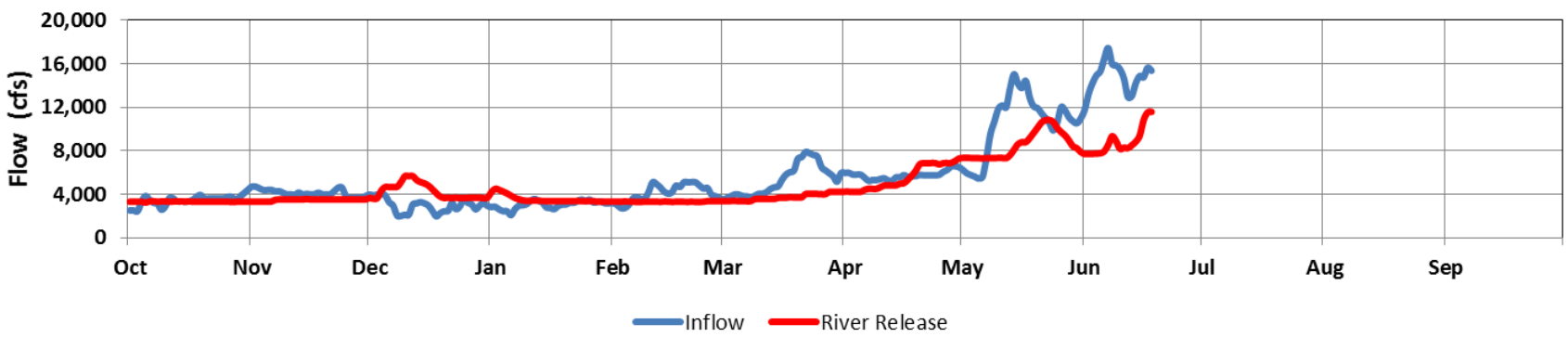


Upper Missouri Basin

RECLAMATION

Canyon Ferry Reservoir Operations





Summary of Conditions

- **Full Irrigation Allotments**

  East Bench & Clark Canyon Company

  Greenfield Irrigation District

- **River Flows – above average releases**

  Sun River below Diversion Dam – 600 cfs

  Missouri River below Canyon Ferry – 9,500 cfs

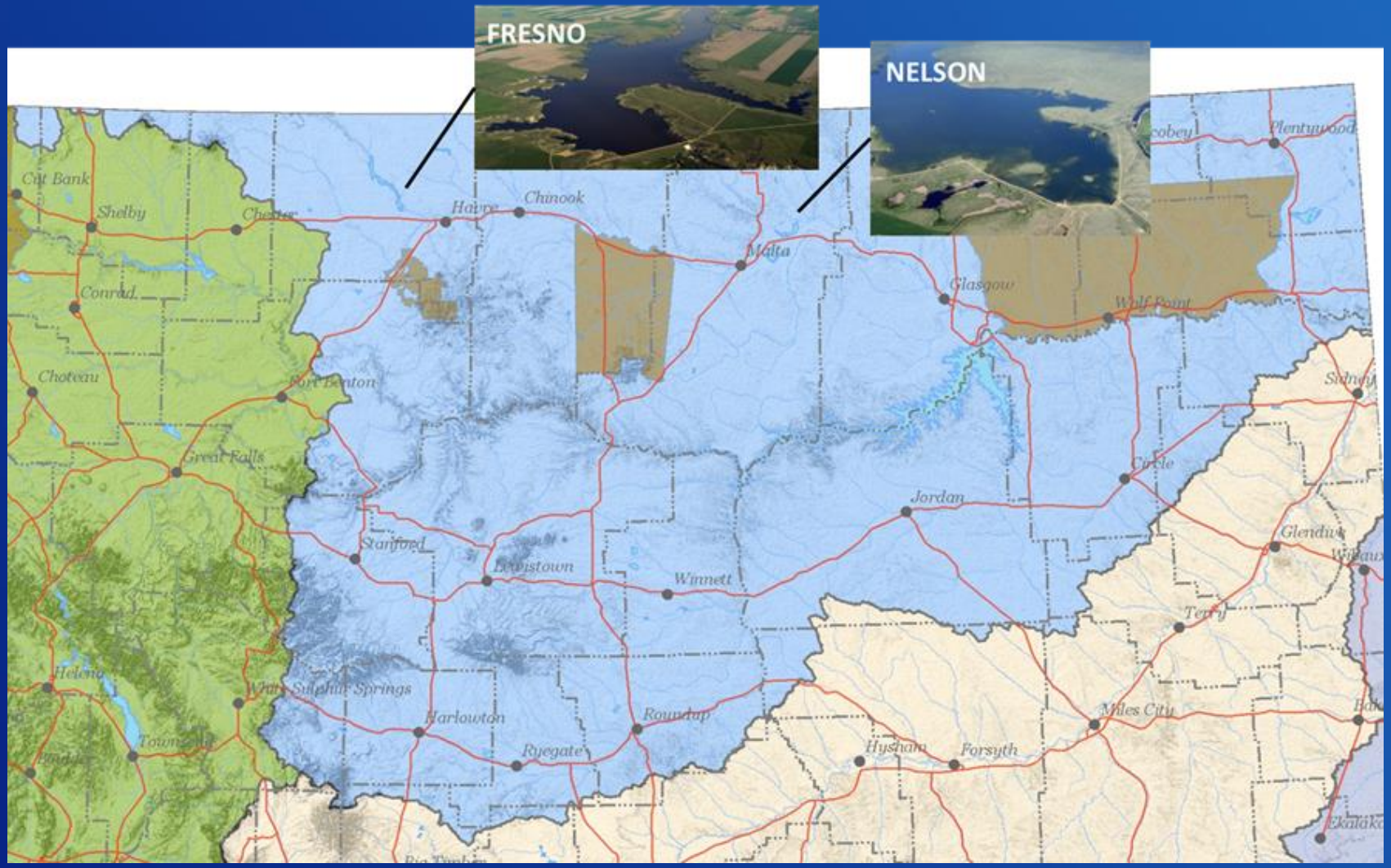
  Marias River below Tiber – 2,000 cfs

- **Reservoir Not Anticipated To Fill**

  Clark Canyon – 6 ft from full

RECLAMATION

Lower Missouri Basin



RECLAMATION

Summary of Conditions

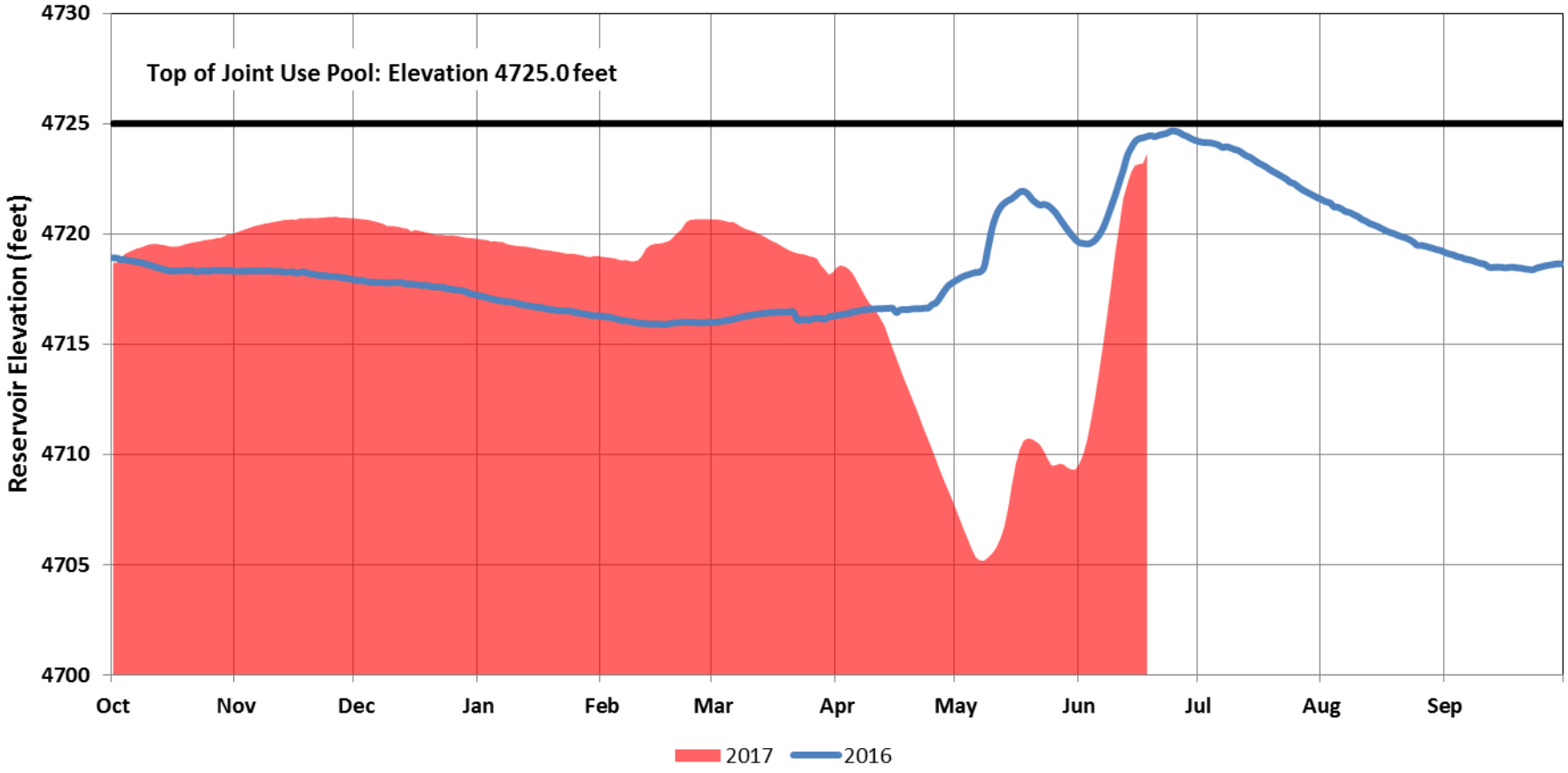
- Full Irrigation Allotments on Milk River
- Fresno Release – 635 cfs
- Nelson Release – 255 cfs

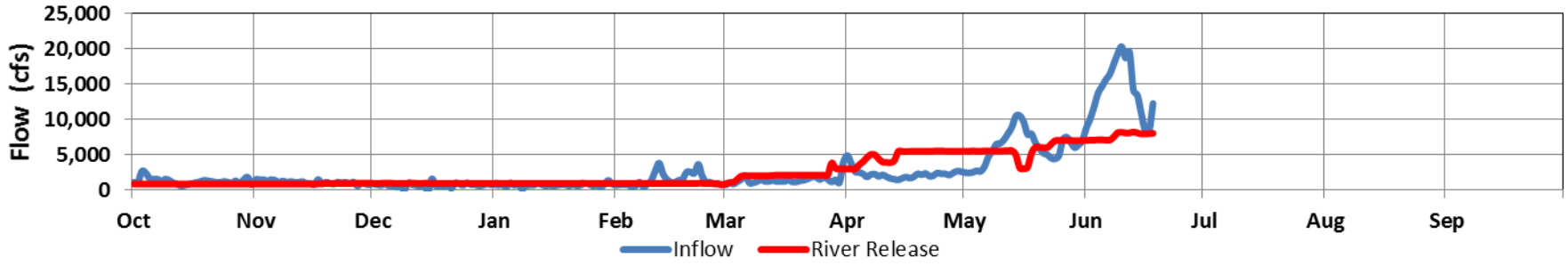
RECLAMATION

Yellowstone Basin

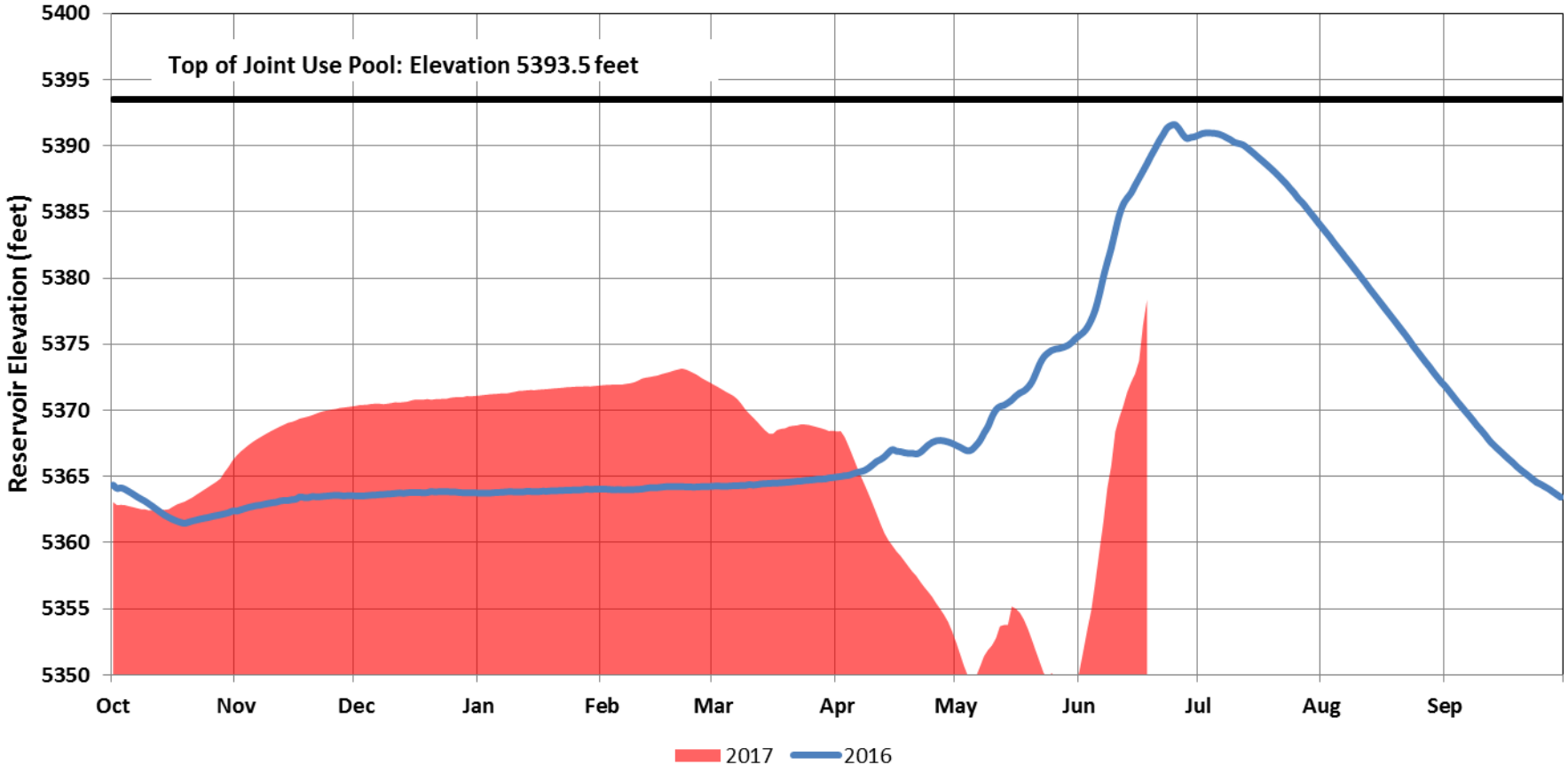
RECLAMATION

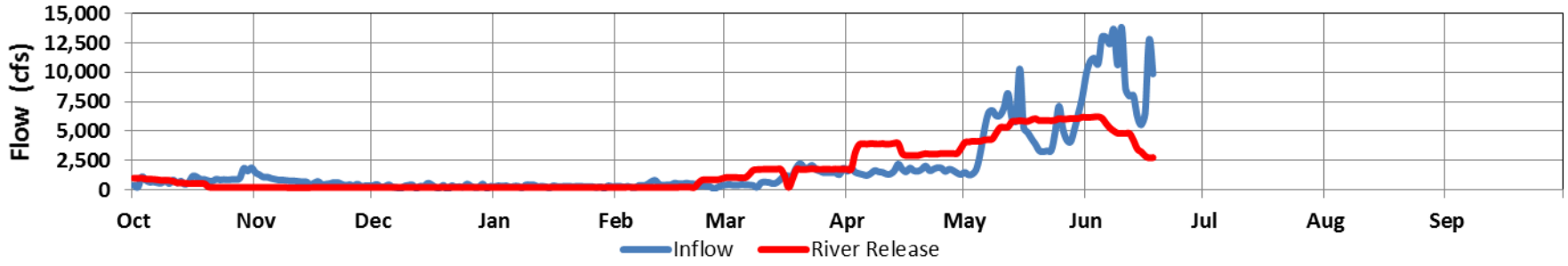
Boysen Reservoir Operations



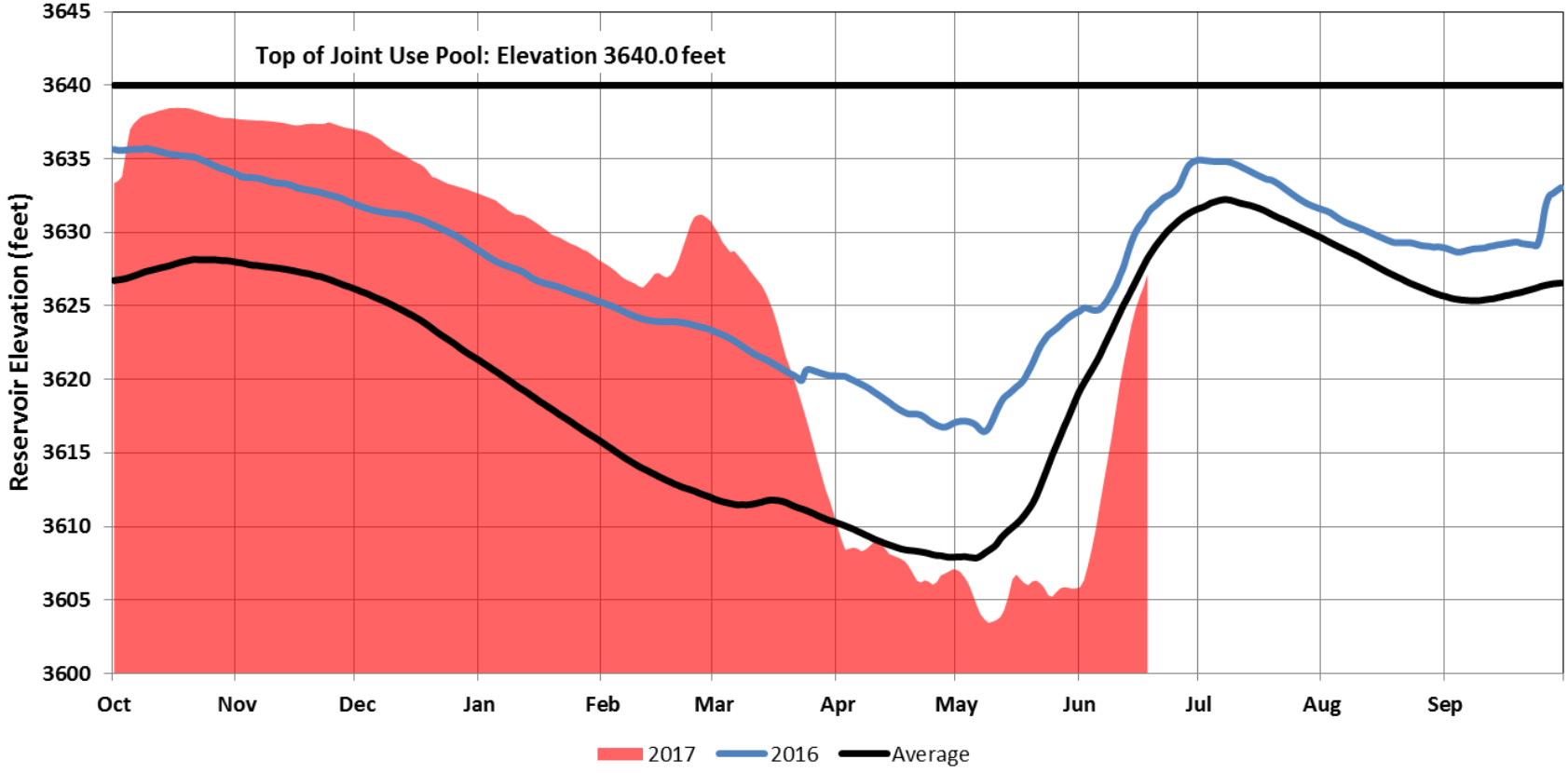


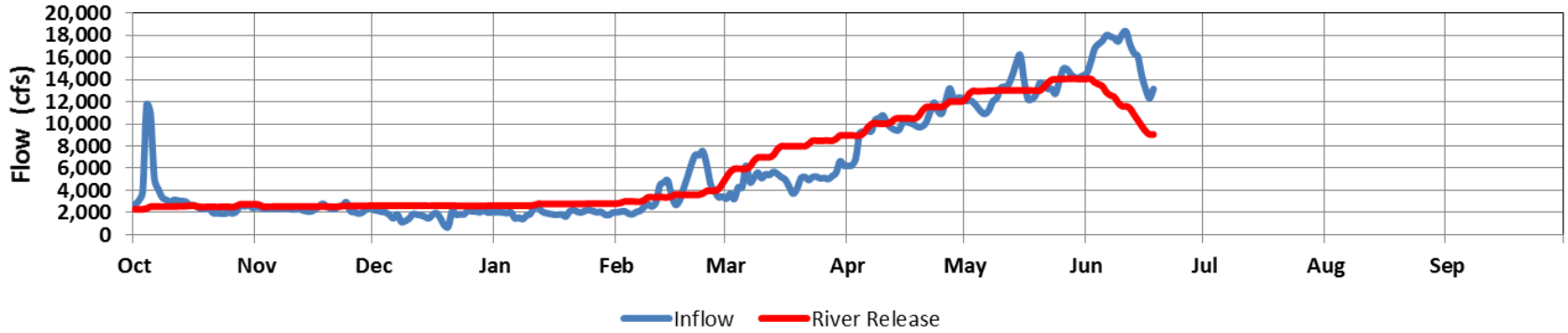
Buffalo Bill Reservoir Operations





Bighorn Lake (Yellowtail Dam) Operations





Summary of Conditions

Yellowtail Dam

Bighorn River Release – 9,000 cfs

Boysen River Release – 9,000 cfs

Buffalo Bill River Release – 2,750 cfs

RECLAMATION

Reclamation's Internet Website

http://www.usbr.gov/gp/hydromet/

- near real-time data available through the HYDROMET data system
- summaries and plots of historical data
- annual reservoir operating plan publication
- monthly water supply reports
- project data
- snow plots
- links to related internet sites

RECLAMATION

The Nature Conservancy

State Water and Drought Funding Programs

Eleanor Morris

GLOBAL CONSERVATION CAMPAIGNS TEAM

Hazel Wong
Director, Global Conservation Campaigns

Adam Snyder
Conservation Campaigns Manager
Focus: Public Funding

Andy Tuck
Conservation Campaigns Manager
Focus: Climate

Eleanor Morris
Senior Campaign Advisor
Focus: Water

Isis Stark
Senior Campaign Advisor
Focus: Agriculture

Dharma George
Senior Campaign Advisor

Kellyn Garrison
Senior Campaign Advisor

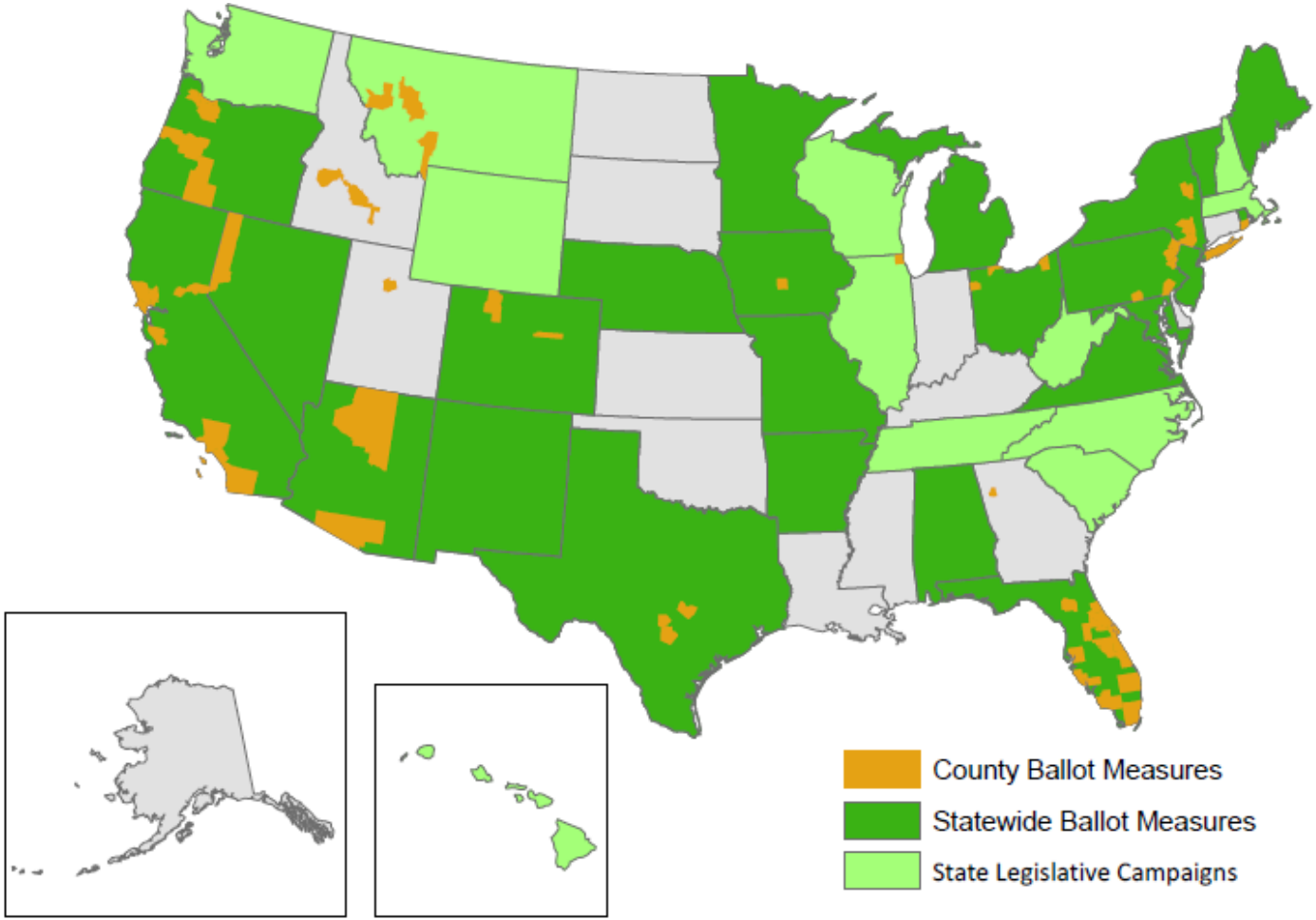
Brian Rae
Policy Associate

Julia Fiala
Programs Associate

Megan Finney
Operations Specialist

Randy Curtis
Senior Policy Advisor
Focus: International Water

TNC CONSERVATION FUNDING WINS: 1986 - 2016



OUR WIN STATISTICS

199
MEASURES WON

+

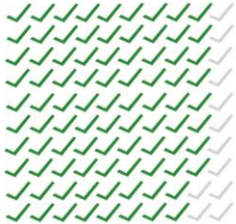
28
STATES

+

80.3
BILLION DOLLARS

=

88%
WIN RATE



LEGISLATIVELY APPROVED FUNDING PROCESS

Step 1: Feasibility Research

Step 2: Public Opinion Polling

Step 3: Coalition Building

Step 4: Lobby Legislature

BALLOT MEASURE PROCESS

Step 1: Feasibility Research

Step 2: Public Opinion Polling

Step 3: Coalition Building

Step 4: Getting on the Ballot

Step 5: Campaign

FINANCIAL FEASIBILITY RESEARCH

POLITICAL

- How do political leaders and the community feel?
- What other funding needs are you competing with?

ELECTORAL

- What is the best time to put this on the ballot?
- What has been the success rate of other ballot measures?

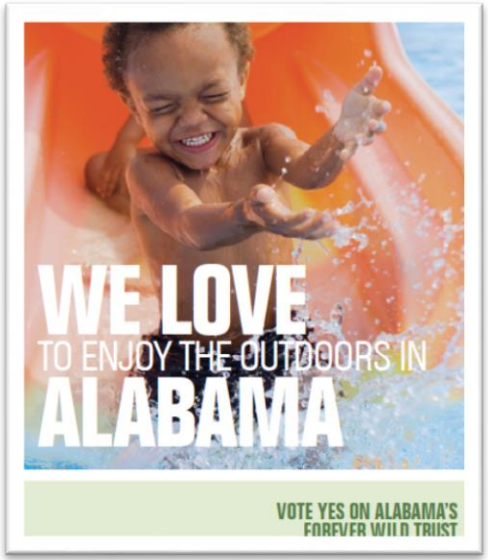
FISCAL

- What is the economic situation now? Tax base? Debt?
- What would be the best funding mechanism?

LEGAL

- What are the legal rules for a ballot measure?

Public Opinion Research



EXAMPLE: TX Prop 6 (2013)

TX Prop 6: What it does

- **Governance:** Texas Water Development Board = 3 member appointed by the Governor and overseen by Legislative Advisory Committee appointed by the Lieutenant Governor and the Speaker of the House and includes the state comptroller, three state senators, and three state representatives

- **Funding Source:** $2 billion in surplus state money (from the Rainy Day Fund) to start a low-interest loan program.

- **Purpose:** projects from the 2012 State Water Plan, at least 20% for conservation and reuse, and 10% to serve rural areas and agricultural conservation; projects prioritized by the number of people served, the urgency of the project, the ability of local and regional sponsors to support the project, and the degree of conservation achieved

EXAMPLE: CA Prop 1 (2014)

CA Prop 1: What It Does

- **Governance:** About $4 billion of the bond money to state agencies for oversight; legislature can't allocate funding to specific projects

- **Funding Sources:** $7.12 billion in general obligation bonds; appropriate money from the General Fund to pay off bonds

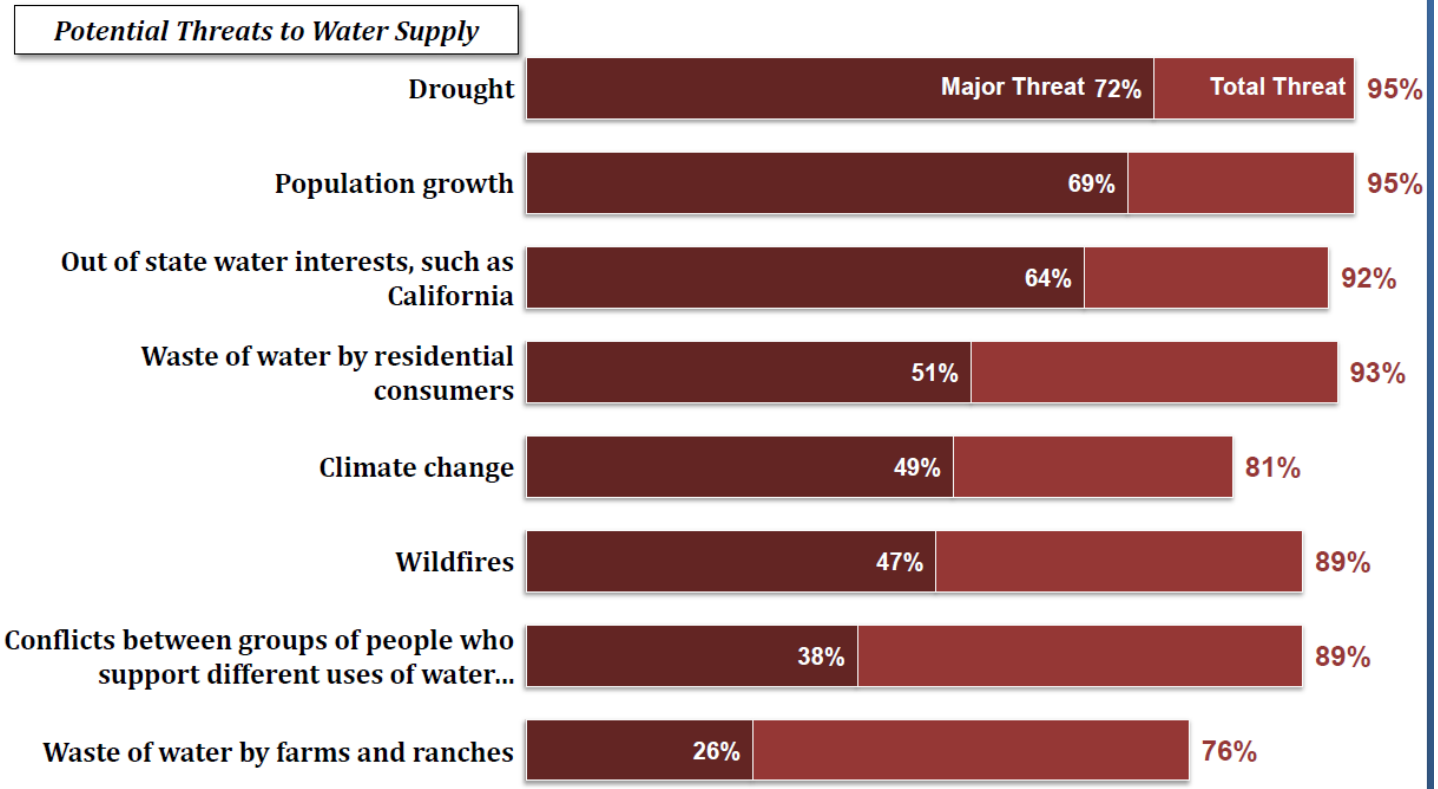
- **Purpose:** Seven funding categories; two-year process for establishing funding criteria; the bond language preauthorized spending in the largest area—$2.7 billion for water storage projects. For the other six areas, spending must be appropriated in the state budget.

EXAMPLE: Funding for CO Water Plan (2017)

Final Alternatives Selected for Analysis

- Container Fee/Tax on all beverages either sold in or bottled in Colorado.
- State-wide fee/tax per unit of water used, on every water bill.
- Fee/tax on water consumption for mining, gas, oil that is pumped underground.
- Water quality impact fees/taxes on products such as pharmaceuticals, personal-care products, and other products that leave trace elements in wastewater not removed during treatment.
- Statewide water fee/tax on all new water system connections with reductions given for low impact covenants.
- Statewide Tourism or "impact" tax/fee.
- Flat surcharge on every water bill.
- A tax/fee for inter-basin transfers.
- Fee/tax on water consumption for marijuana grow operations.
- A general outdoor recreation impact fee/tax for activities such as rafting and other water sports, skiing, hunting and fishing, horseback riding, etc.
- Peak water demand use tax/fee.

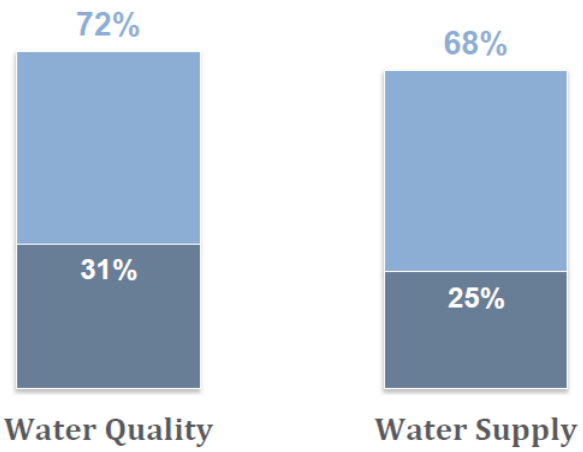
Drought, growth and out-of-state interests are deemed the greatest threats to state water supply.



I am going to read you a list of potential threats to Colorado's water supply. After I read each item, please tell me whether you think it poses a major threat to the state's water supply, a minor threat, or does not pose a threat to the state's water supply.

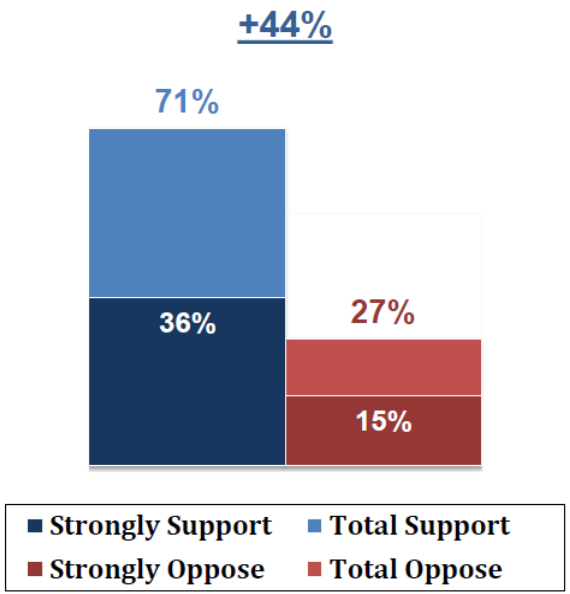
Seven-in-ten indicate support for a modest increase in taxes or fees to fund water-related needs.

Willing to Pay More In Taxes For...



Would you be willing, or not willing, to pay more in taxes to increase funding for...

Support for Tax Increase for Water Plan



Would you support or oppose increasing funding through a small increase in taxes or fees in order to improve the amount of water supply for drinking, irrigating crops, recreation and wildlife, and to prevent polluted runoff from contaminating rivers, lakes, streams and groundwater?

Making *the* Most *of* Our Money:

Recommendations for State Conservation Programs

by Sandra Tassel, Look at the Land Inc.
for The Nature Conservancy and The Trust for Public Land

QUESTIONS?

Governor's Drought Advisory Committee
Snowpack and Streamflow Update
June 20th, 2017

Lucas Zukiewicz
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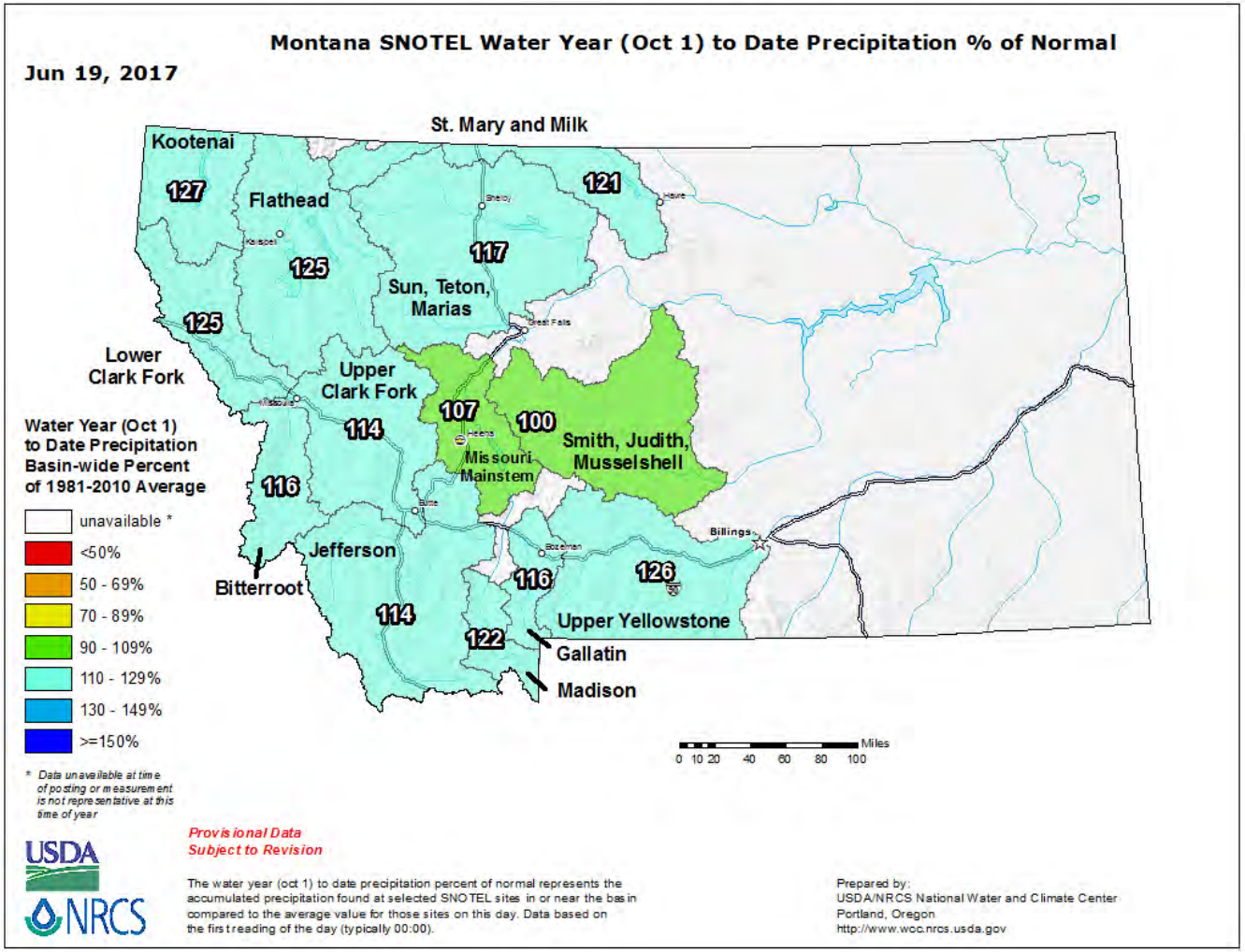
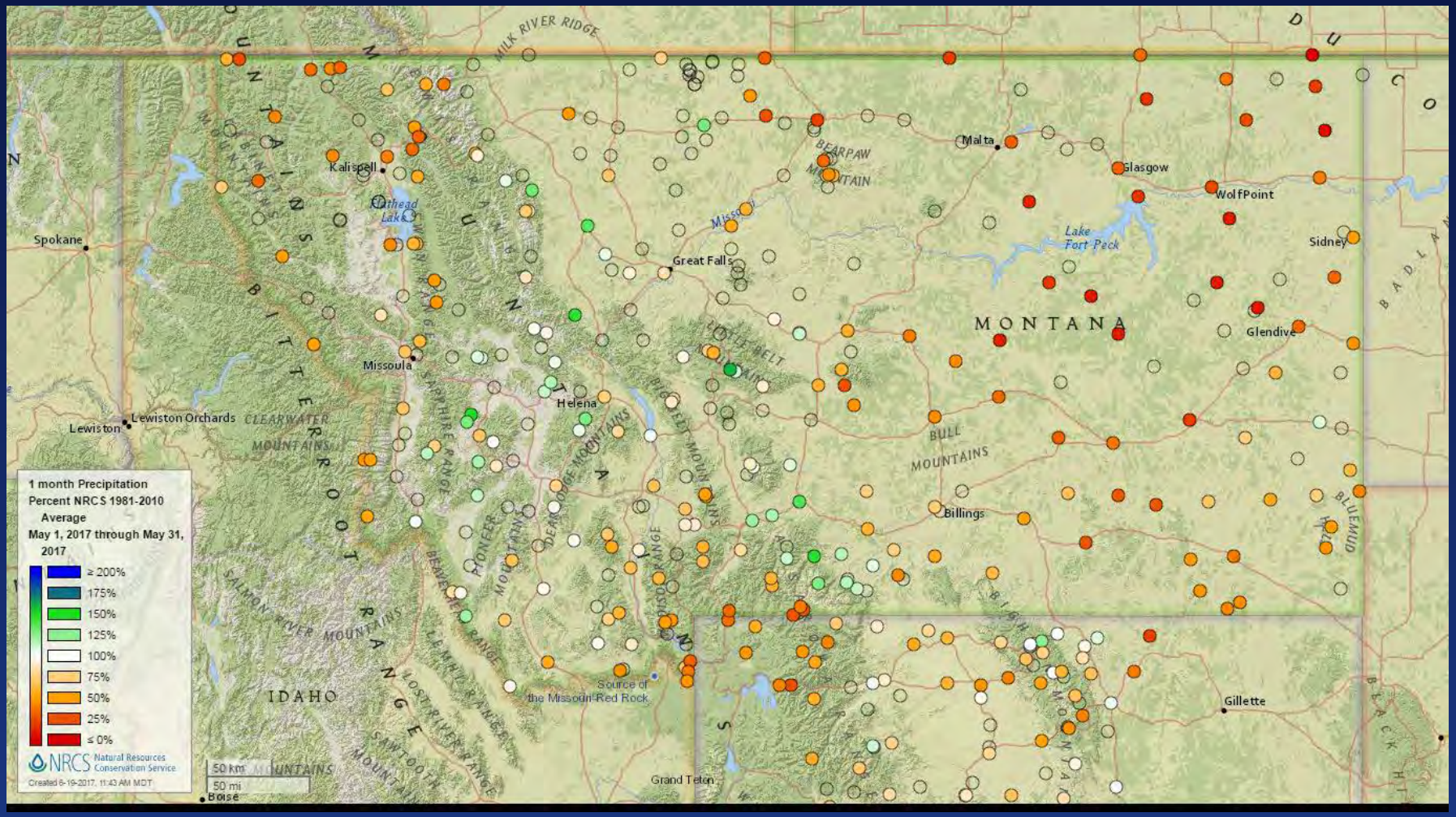
http://www.nrcs.usda.gov/wps/portal/nrcs/main/mt/snow/

Mountain Precipitation

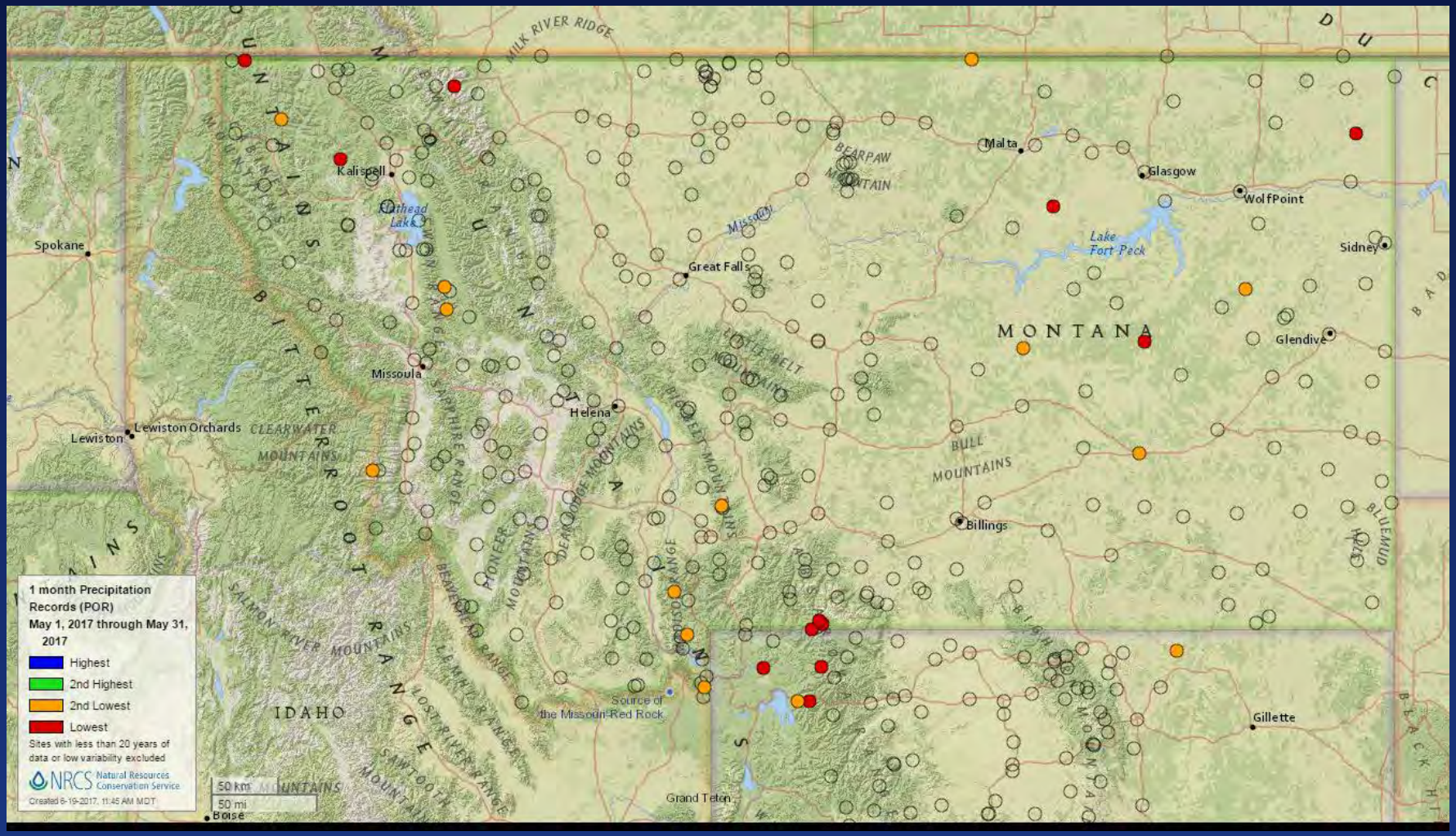
Water Year-to-Date Mountain Precipitation
April 28th, 2017



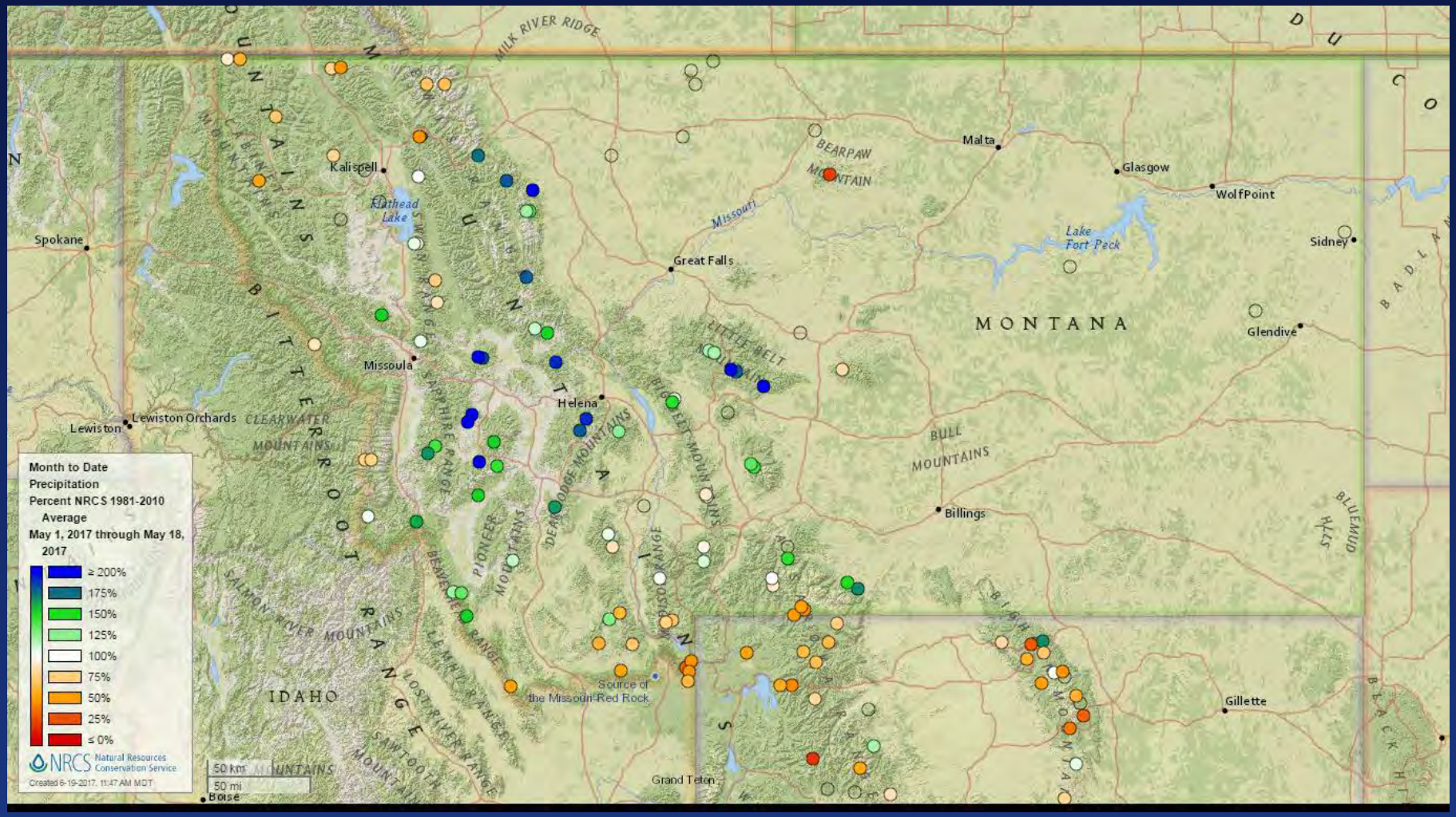
Month-to-Date Mountain Precipitation
May 2017



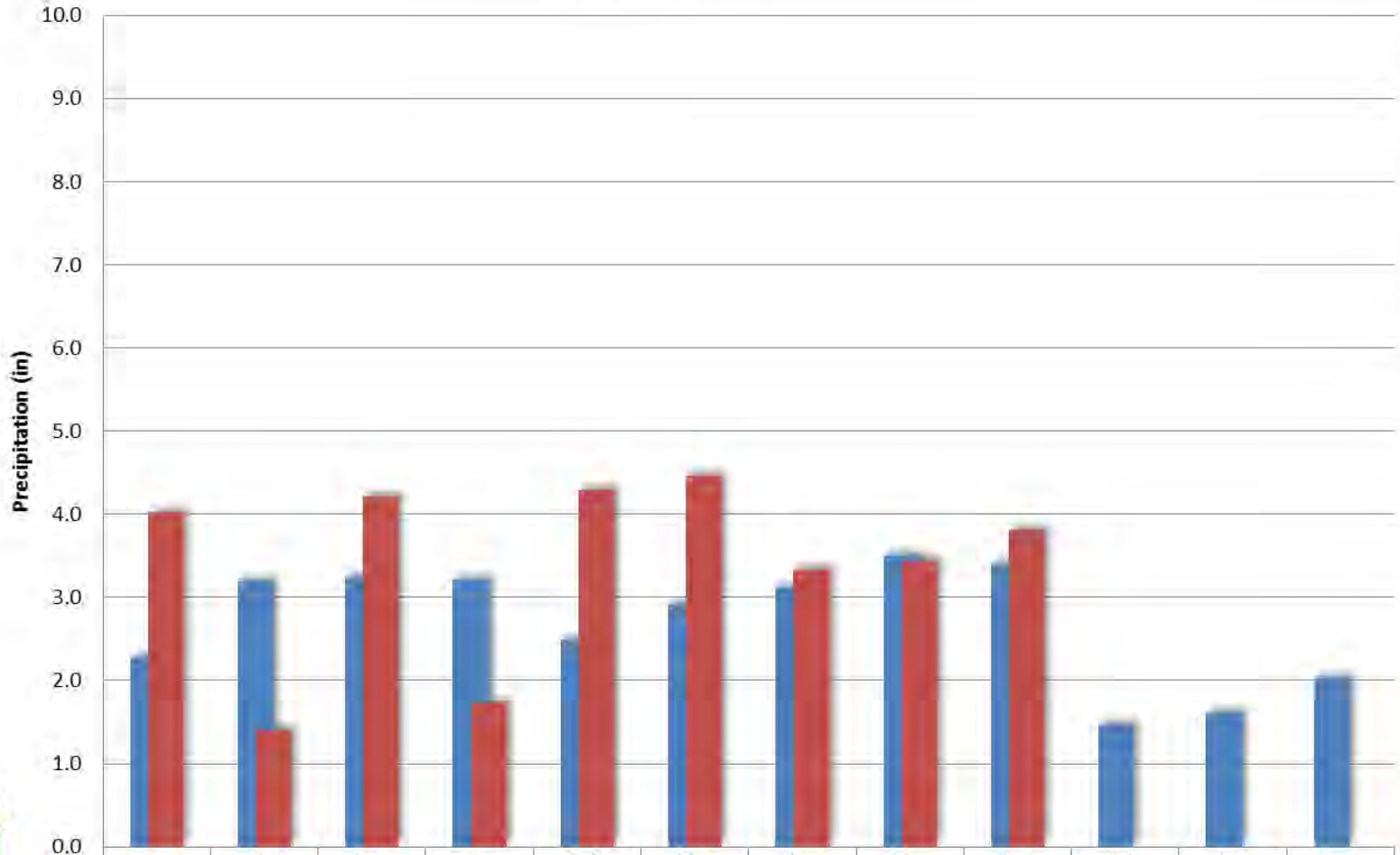
Month-to-Date Mountain Precipitation Record or Near Record Low May 2017



Month-To-Date Mountain Precipitation
June 1 – June 19th, 2017

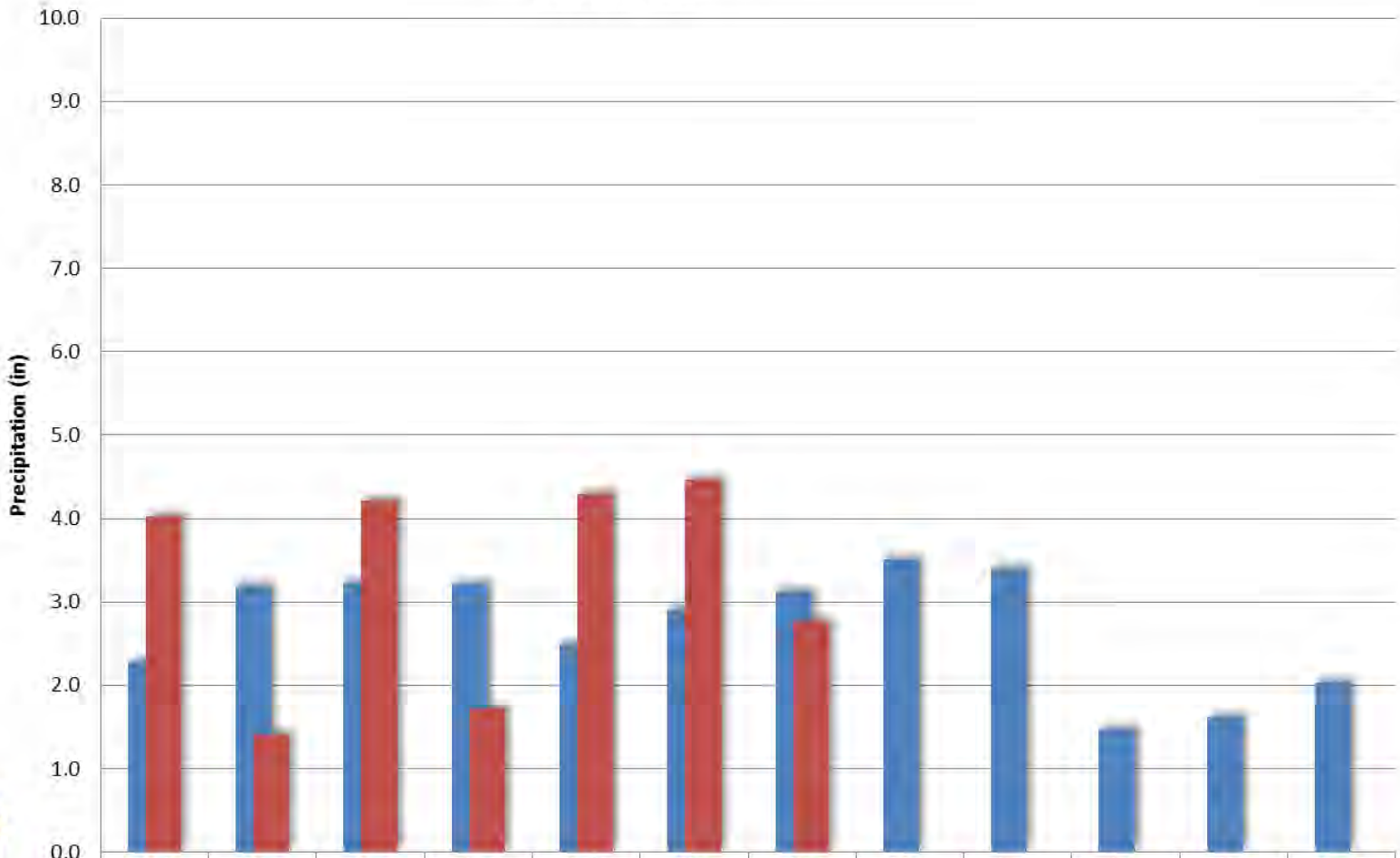


Montana Snow Survey



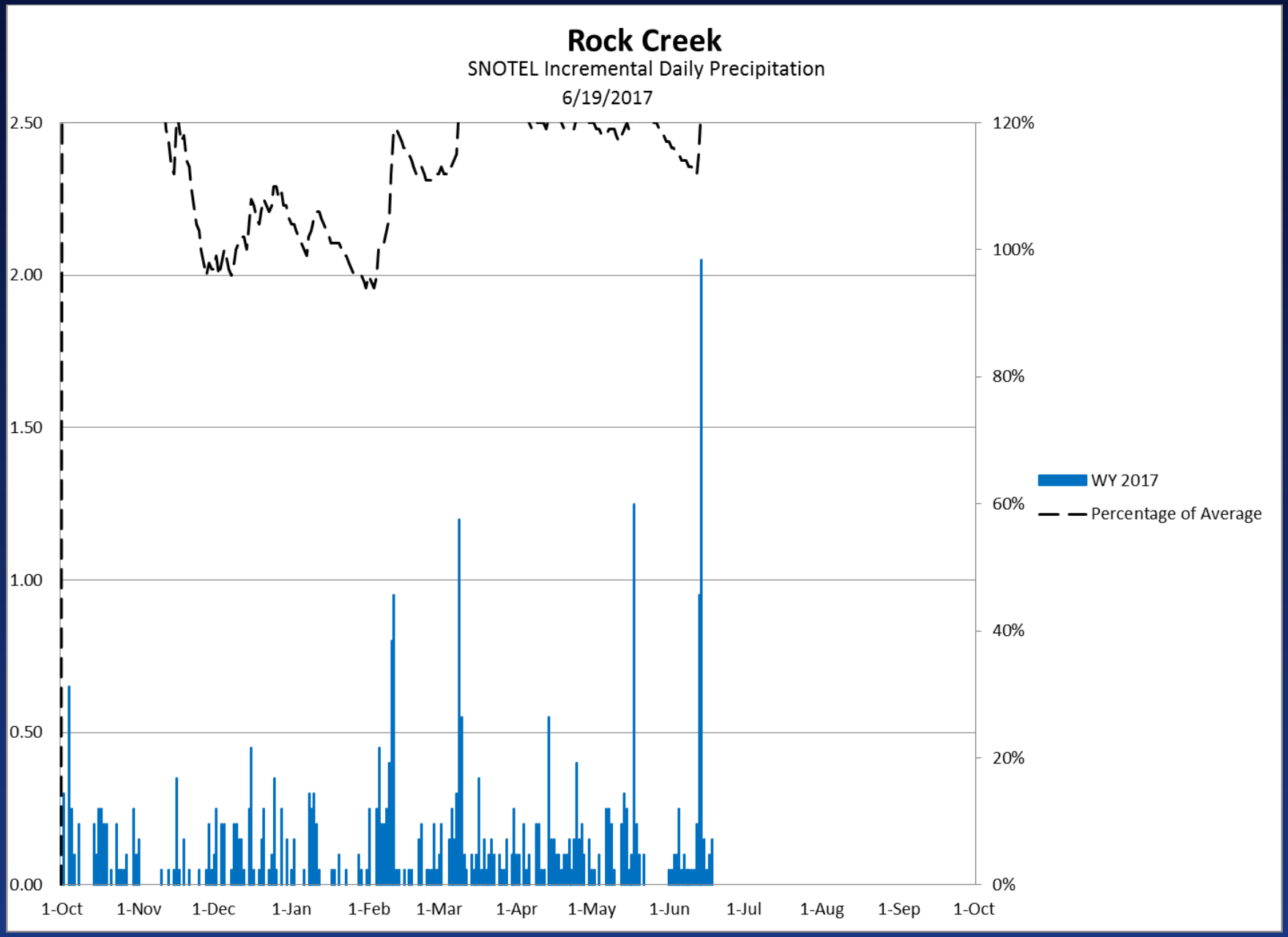
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
Avg Monthly PCP (in)	2.3	3.2	3.2	3.2	2.5	2.9	3.1	3.5	3.4	1.5	1.6	2.0
Monthly PCP (in)	4.0	1.4	4.2	1.7	4.3	4.5	3.3	3.4	3.8	0.0	0.0	0.0

Montana Snow Survey

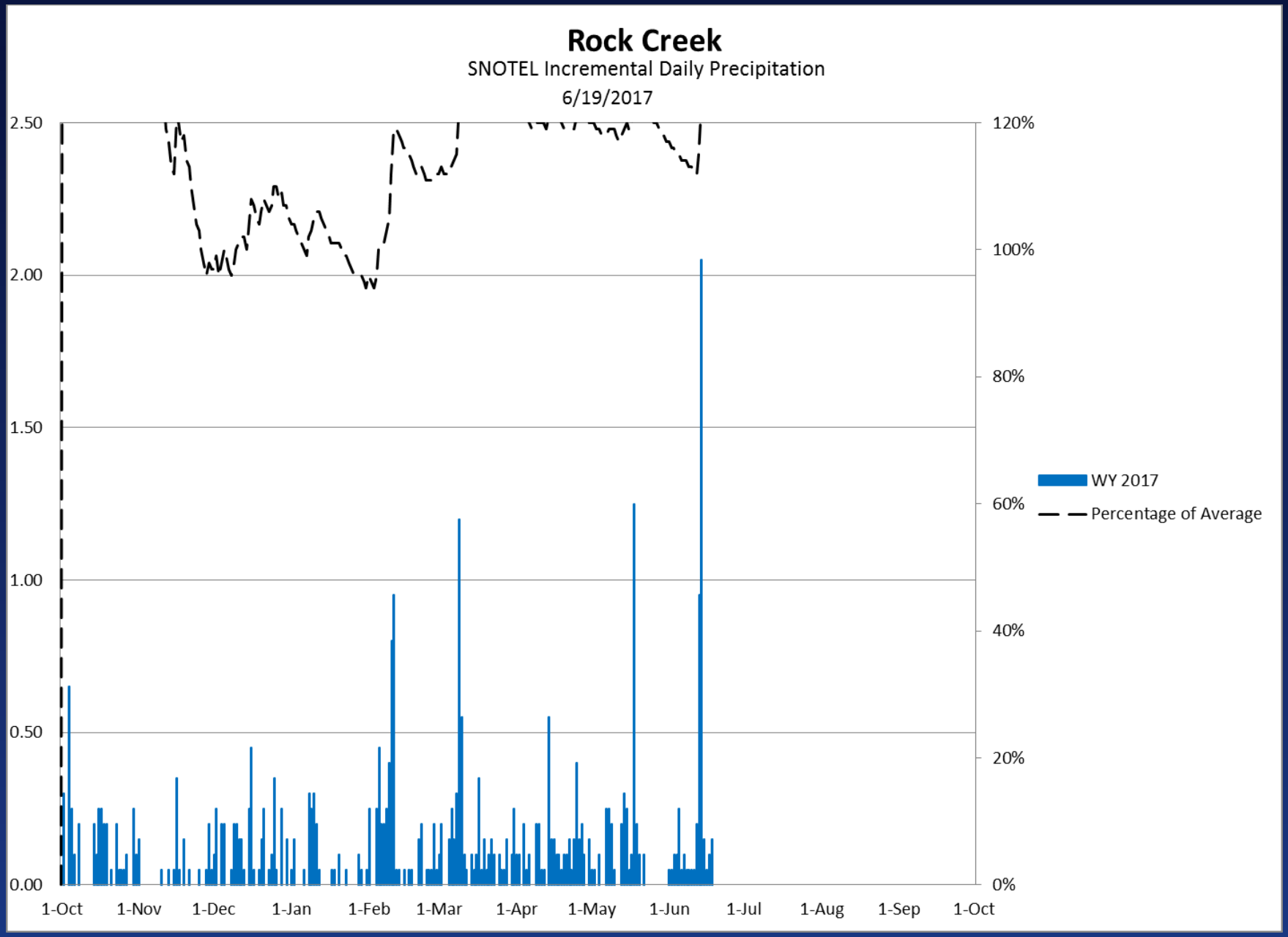


	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
Avg Monthly PCP (in)	2.3	3.2	3.2	3.2	2.5	2.9	3.1	3.5	3.4	1.5	1.6	2.0
Monthly PCP (in)	4.0	1.4	4.2	1.7	4.3	4.5	2.8	0.0	0.0	0.0	0.0	0.0

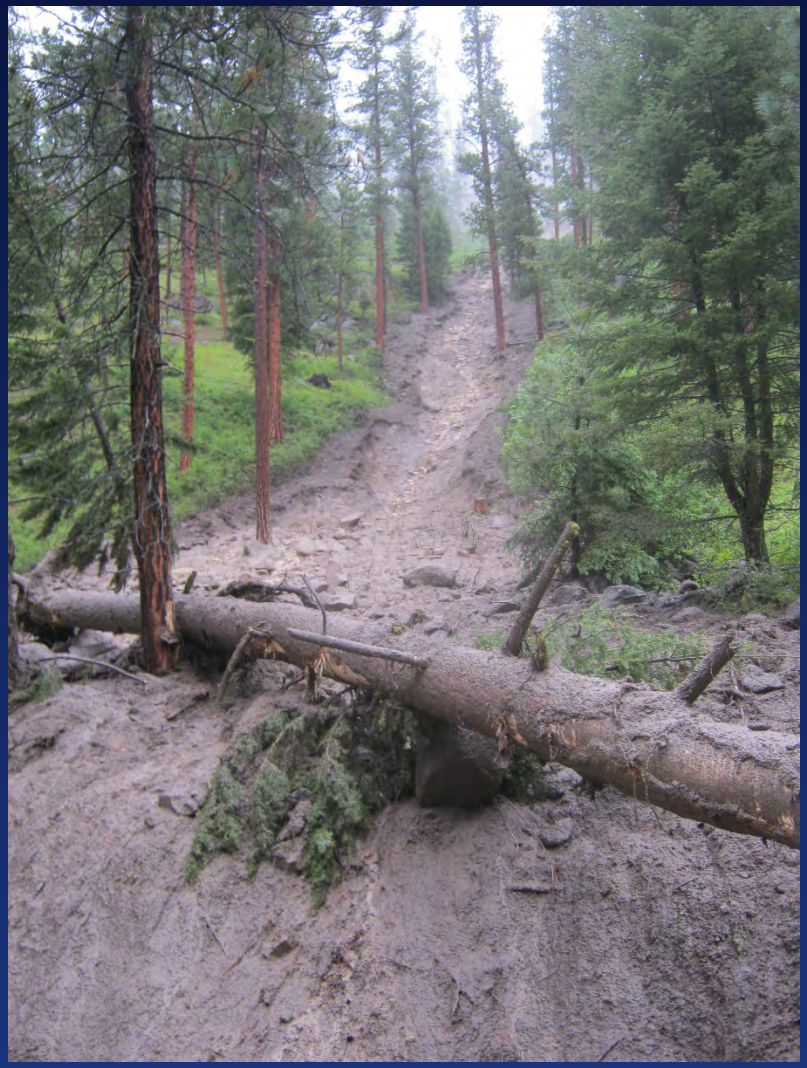
Montana Snow Survey



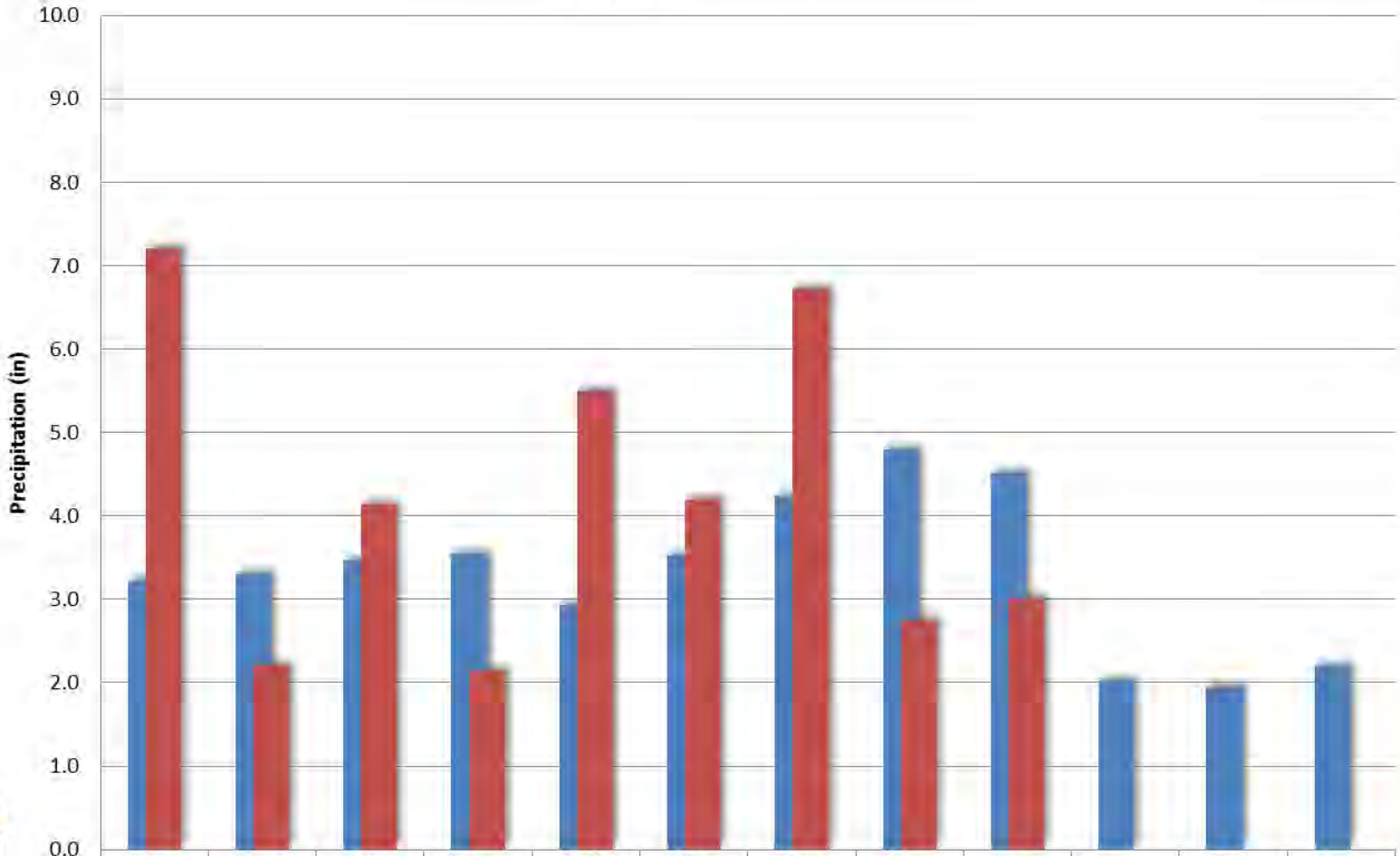
Montana Snow Survey



Willow Creek Road Closure

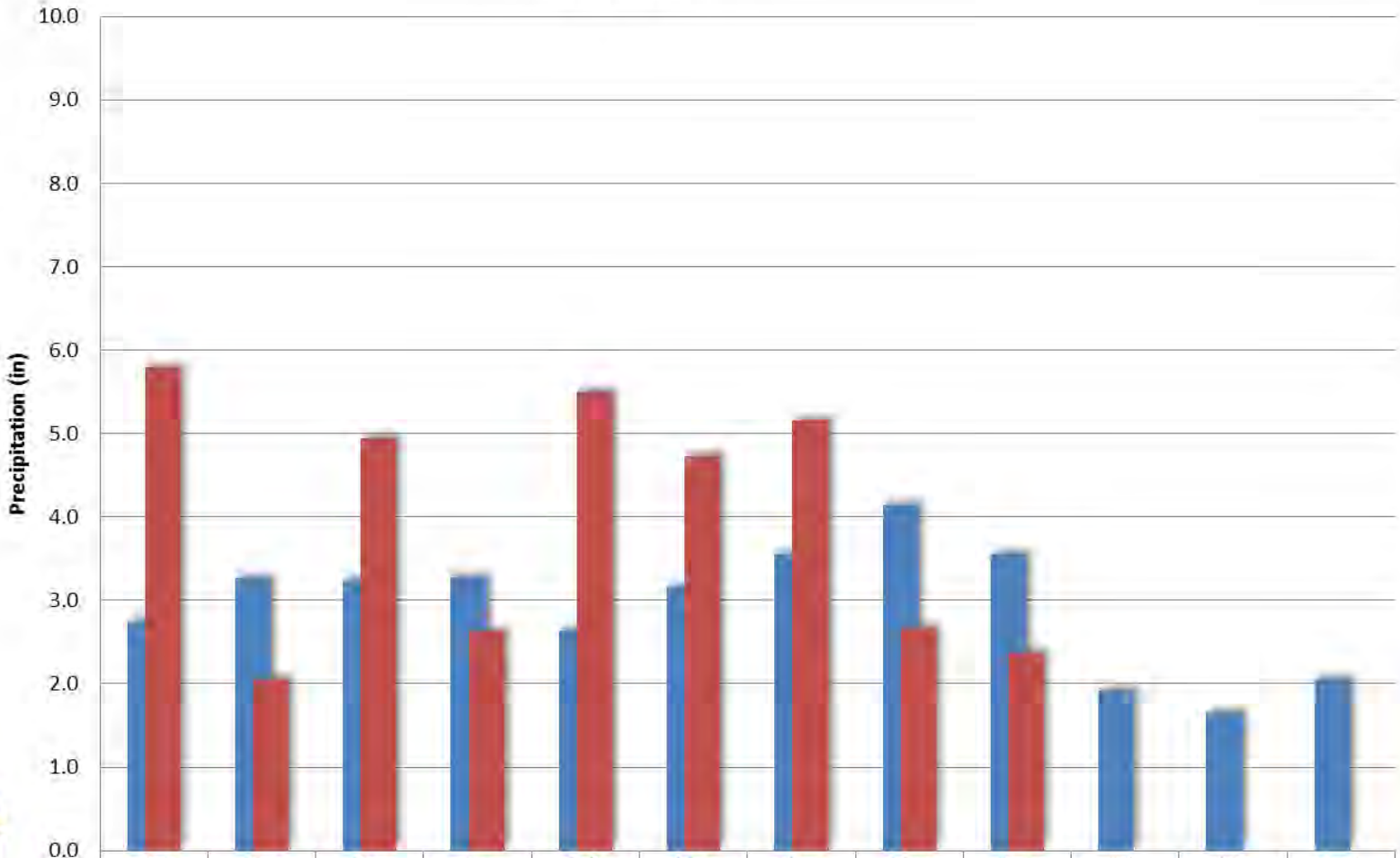


Montana Snow Survey



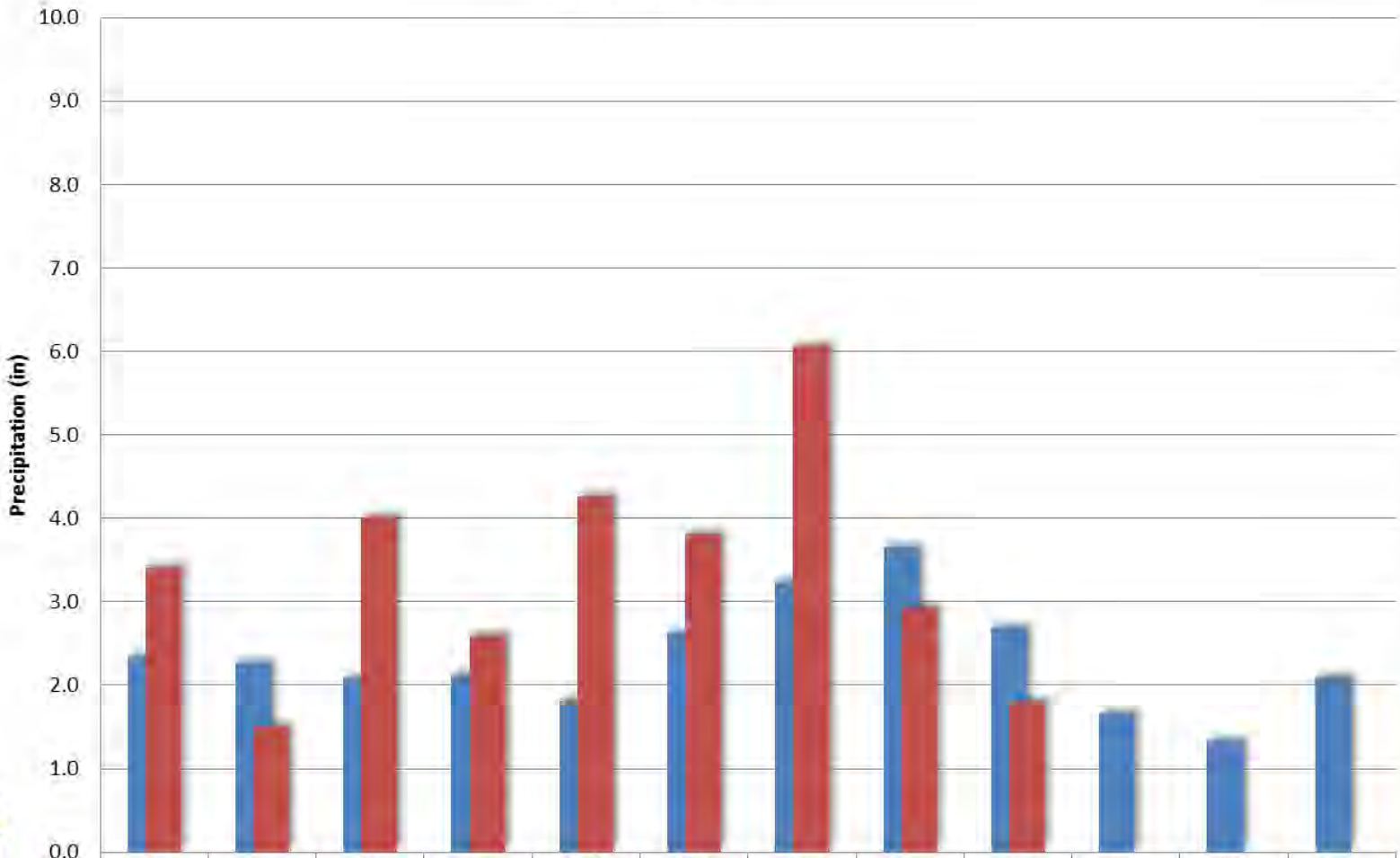
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
Avg Monthly PCP (in)	3.2	3.3	3.5	3.5	2.9	3.5	4.2	4.8	4.5	2.0	1.9	2.2
Monthly PCP (in)	7.2	2.2	4.1	2.1	5.5	4.2	6.7	2.7	3.0	0.0	0.0	0.0

Montana Snow Survey



	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
Avg Monthly PCP (in)	2.7	3.3	3.2	3.3	2.6	3.2	3.6	4.1	3.6	1.9	1.7	2.0
Monthly PCP (in)	5.8	2.0	4.9	2.6	5.5	4.7	5.2	2.7	2.4	0.0	0.0	0.0

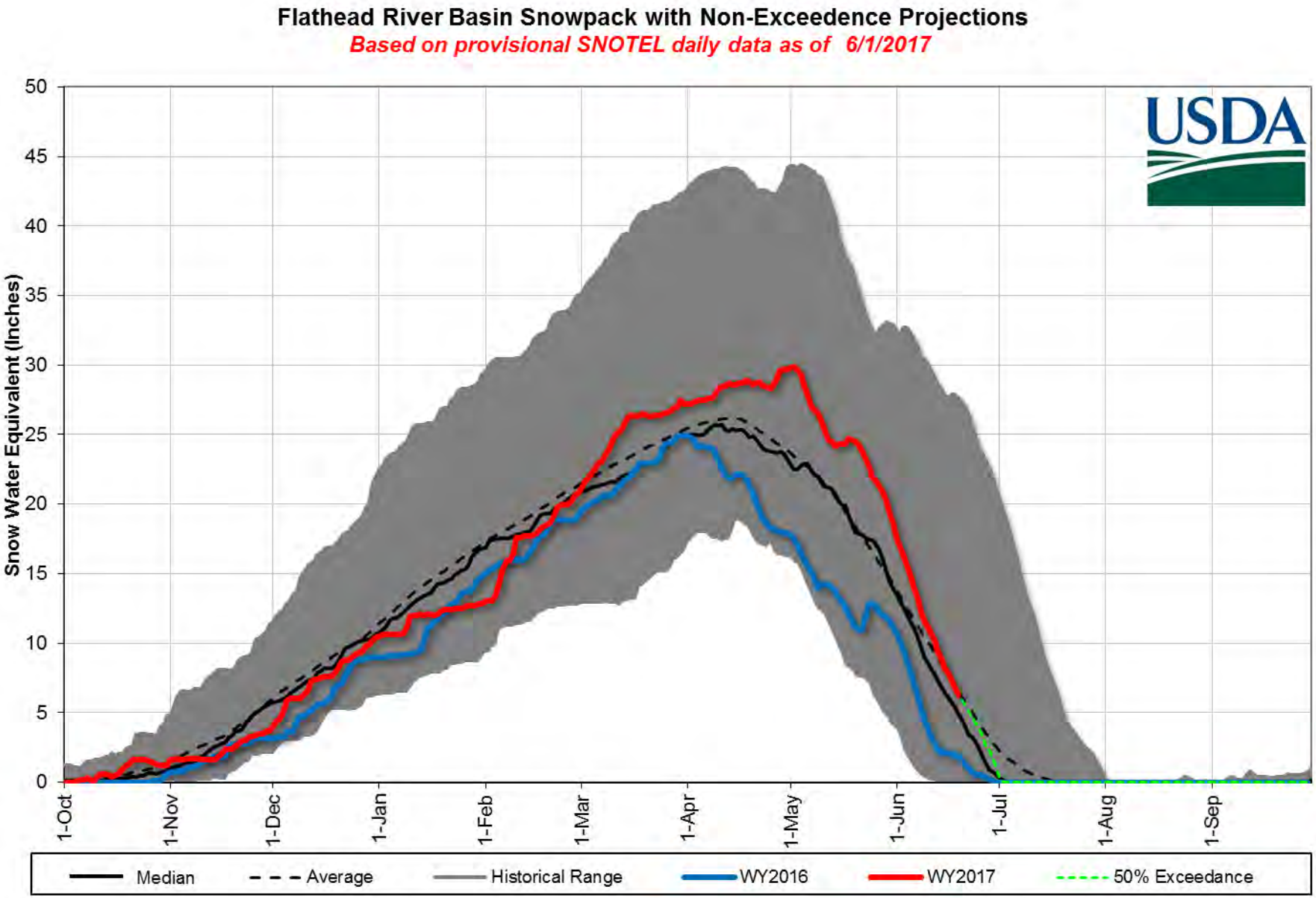
Montana Snow Survey



	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
Avg Monthly PCP (in)	2.3	2.3	2.1	2.1	1.8	2.6	3.2	3.7	2.7	1.7	1.3	2.1
Monthly PCP (in)	3.4	1.5	4.0	2.6	4.3	3.8	6.1	2.9	1.8	0.0	0.0	0.0

Snowpack

Montana Snow Survey



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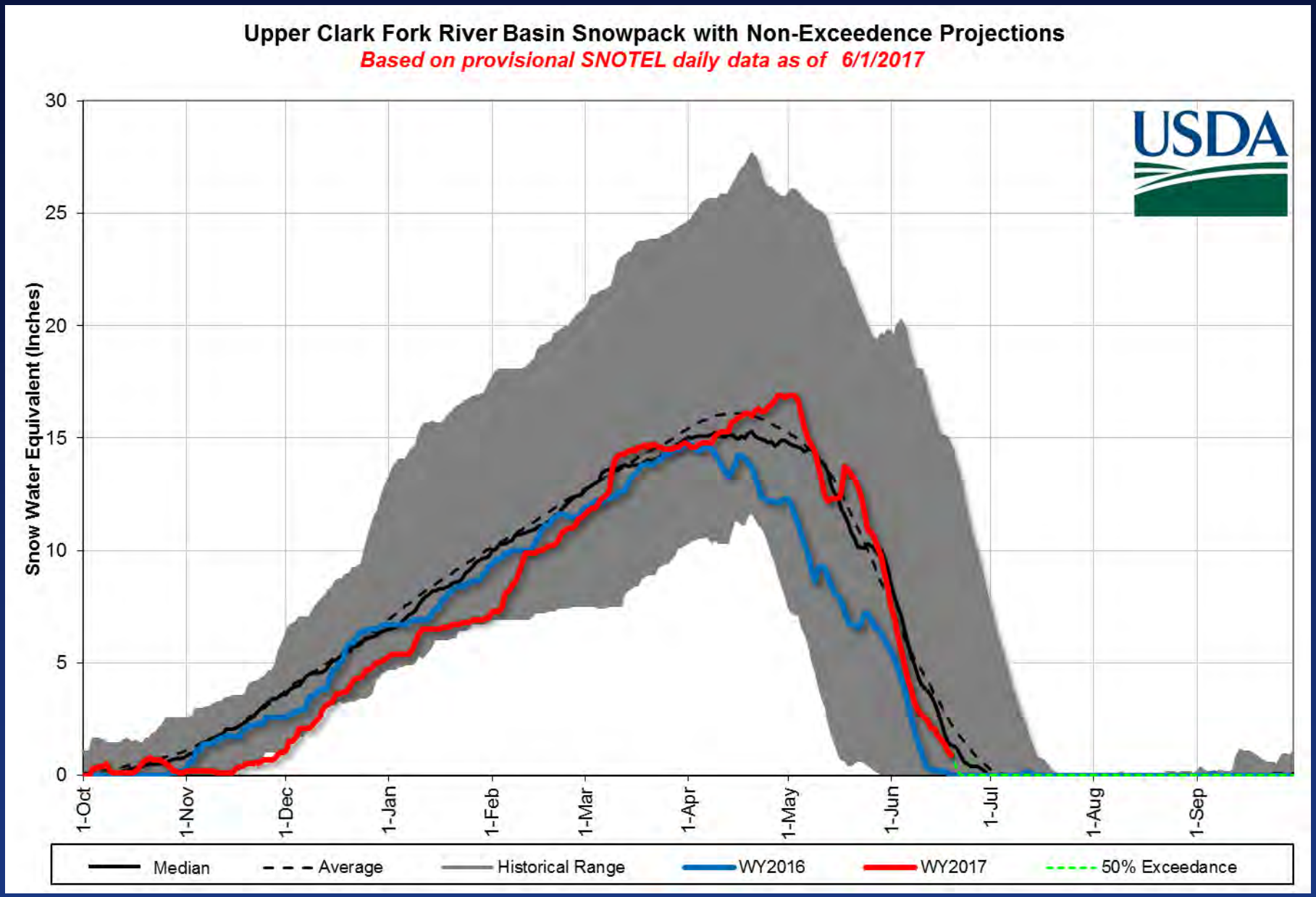
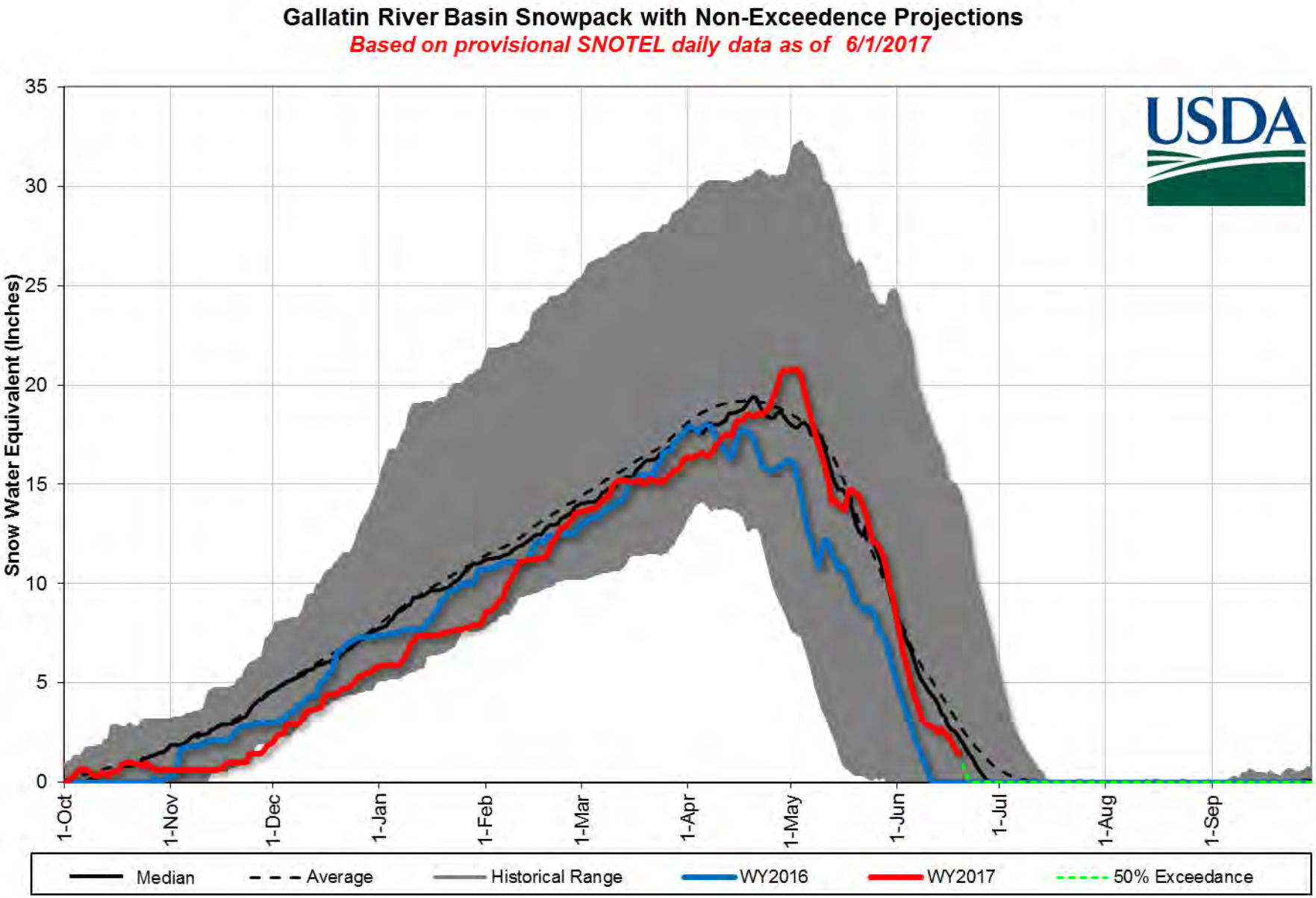
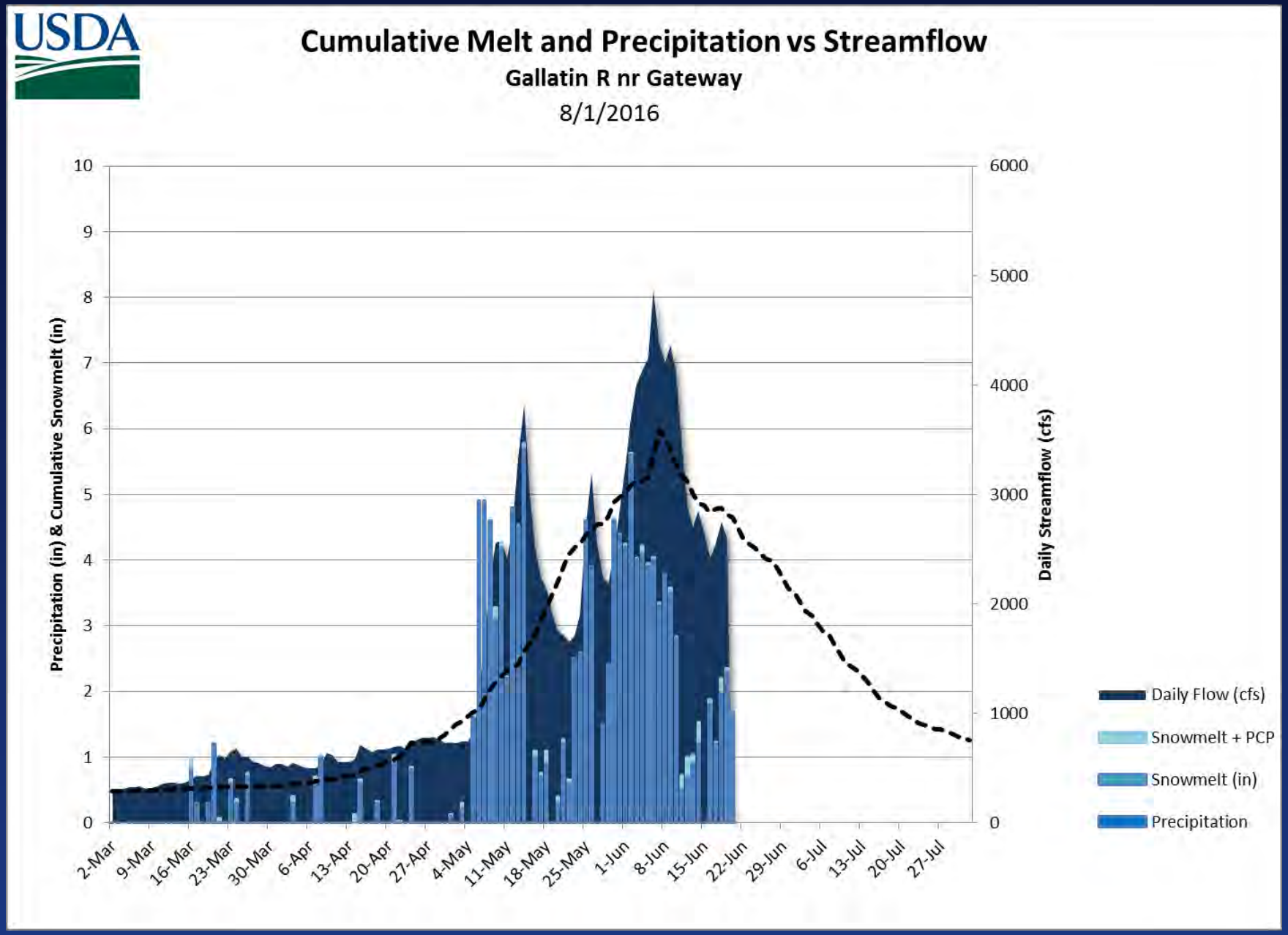


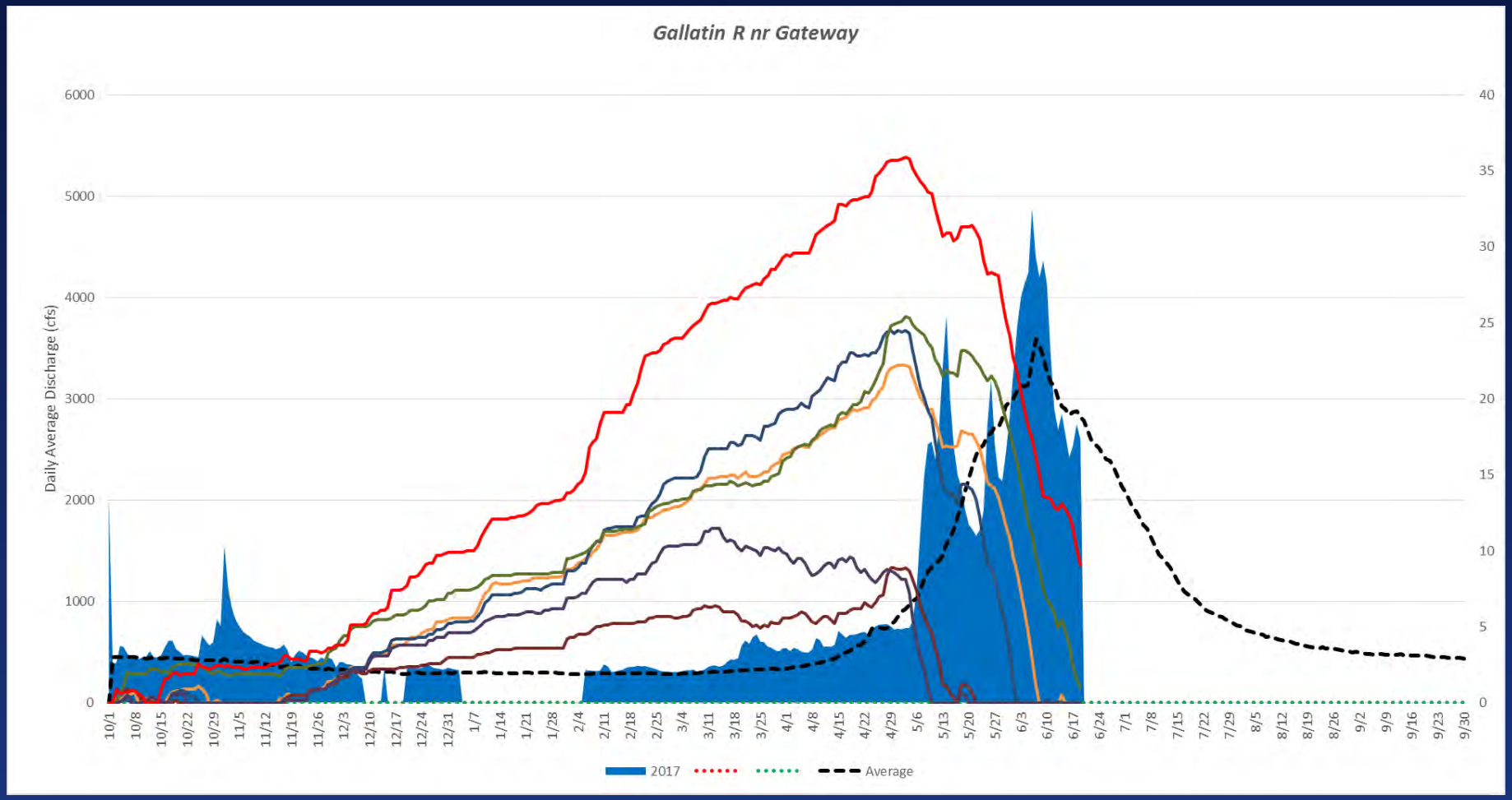
Montana Snow Survey



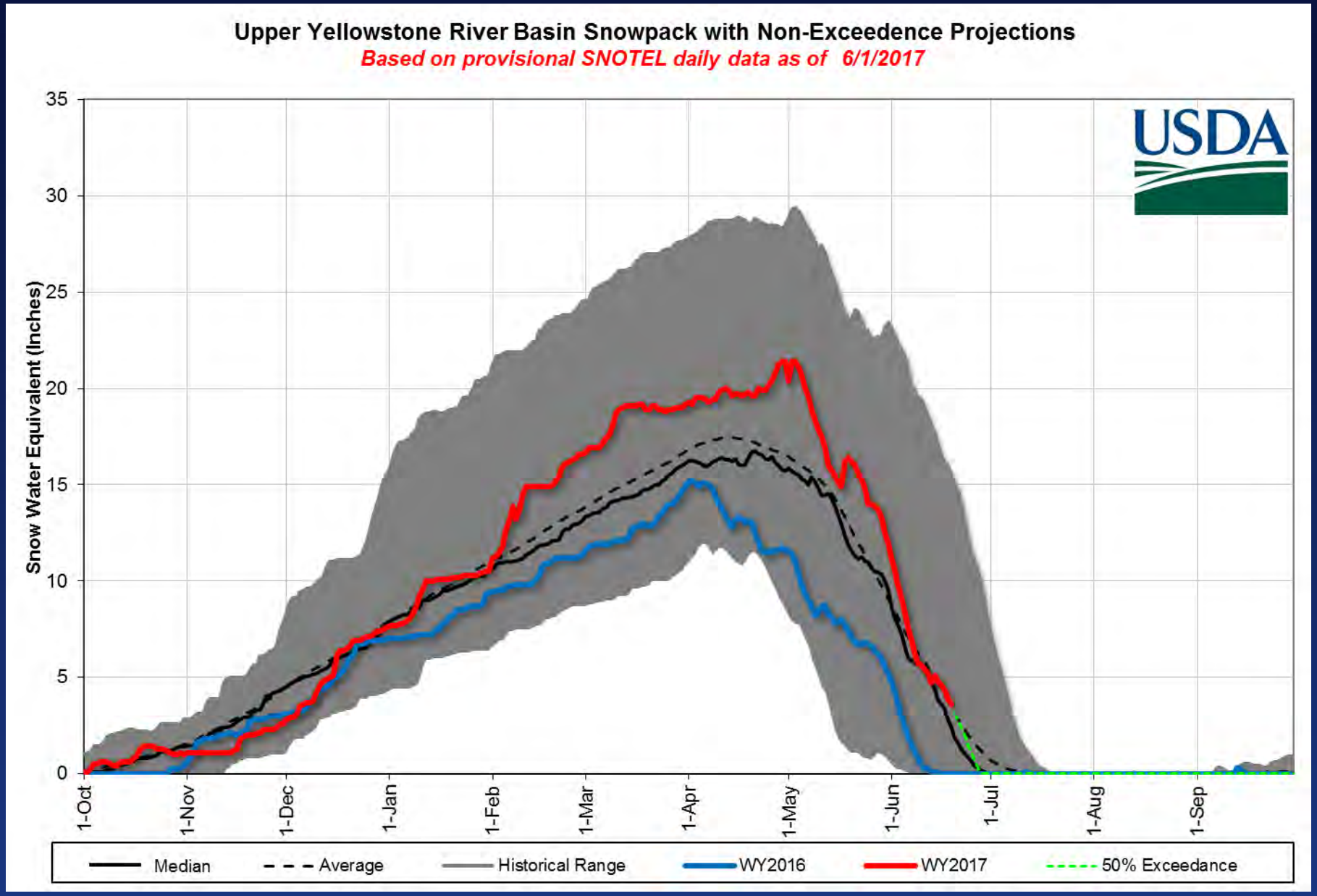
Montana Snow Survey



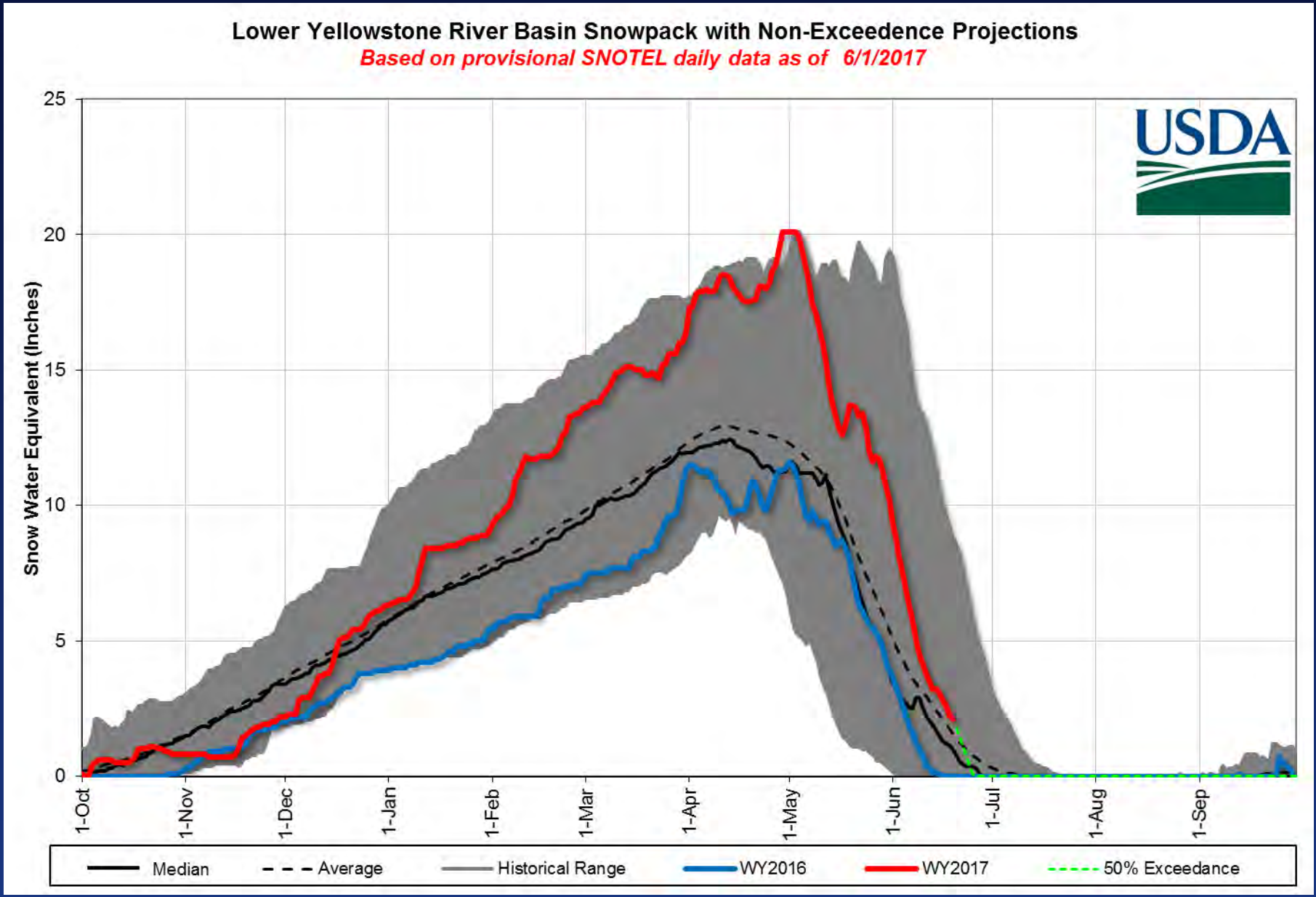
Snowmelt vs Streamflow: Gallatin River 2017



Montana Snow Survey



Montana Snow Survey



Water Supply

Streamflow Forecast Table: Gallatin River

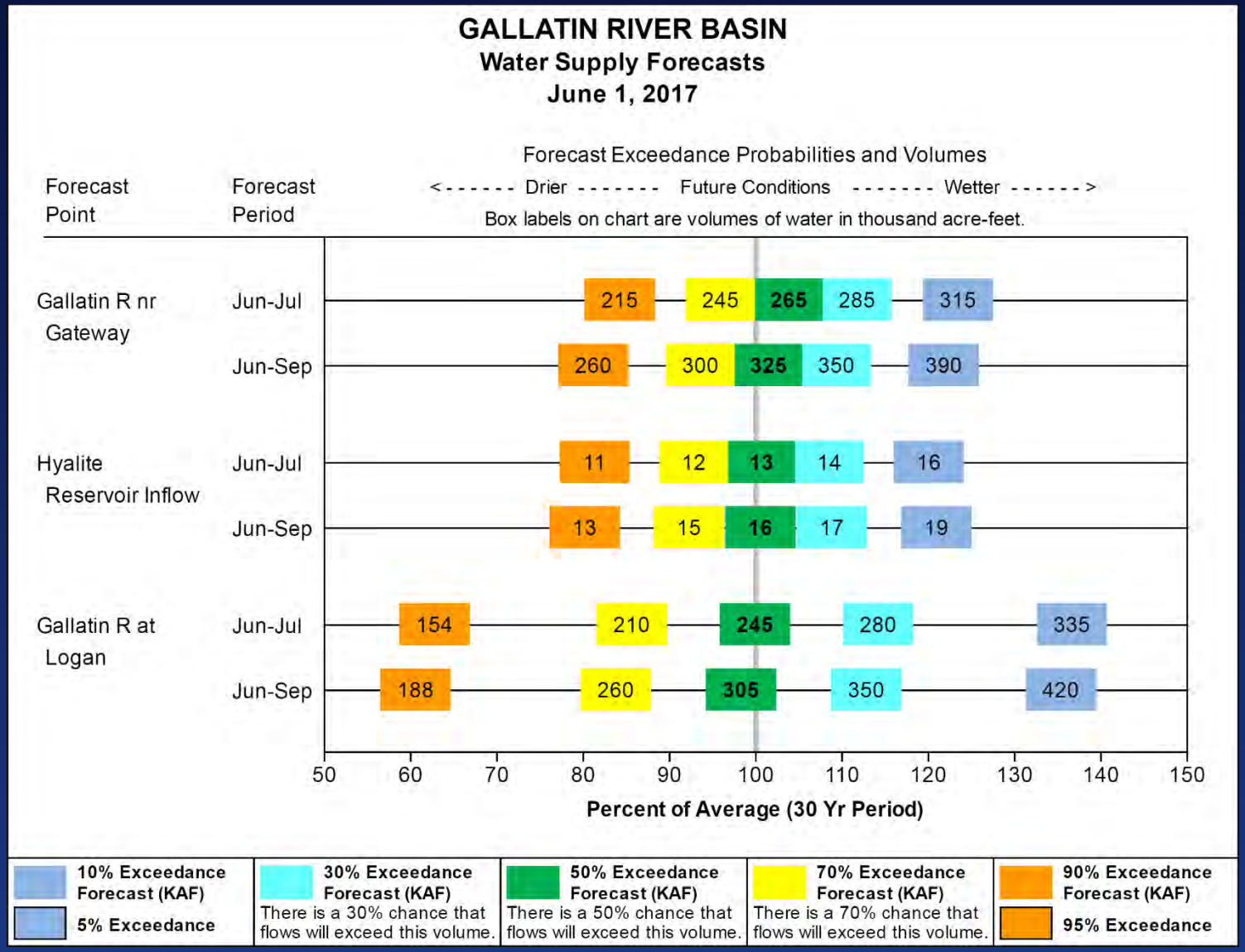
Gallatin River Basin

GALLATIN RIVER BASIN	Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	% Avg	30% (KAF)	10% (KAF)	30yr Avg (KAF)
		Chance Actual Volume Will Exceed Forecasted Volume						
Gallatin R nr Gateway	JUN-JUL	215	245	265	*104%*	285	315	255
	JUN-SEP	260	300	325	*102%*	350	390	320
Hyalite Reservoir Inflow[2]	JUN-JUL	10.5	12	13	*101%*	14	15.5	12.9
	JUN-SEP	12.6	14.5	15.8	*101%*	17.1	19	15.7
Gallatin R at Logan	JUN-JUL	154	210	245	*100%*	280	335	245
	JUN-SEP	188	260	305	*98%*	350	420	310

1) 90% and 10% exceedance probabilities are actually 95% and 5%

2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Graphical Streamflow Forecasts: Gallatin River



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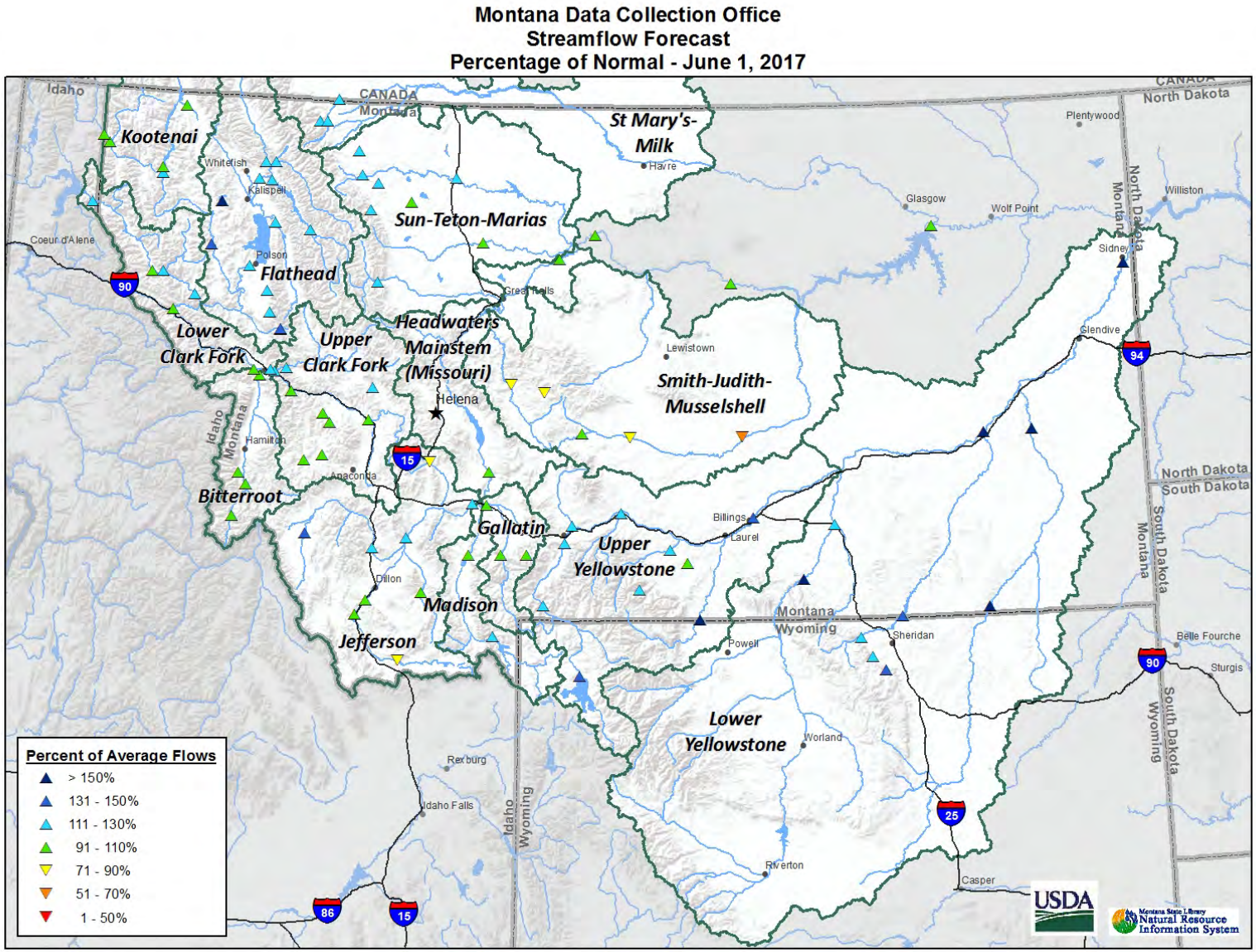

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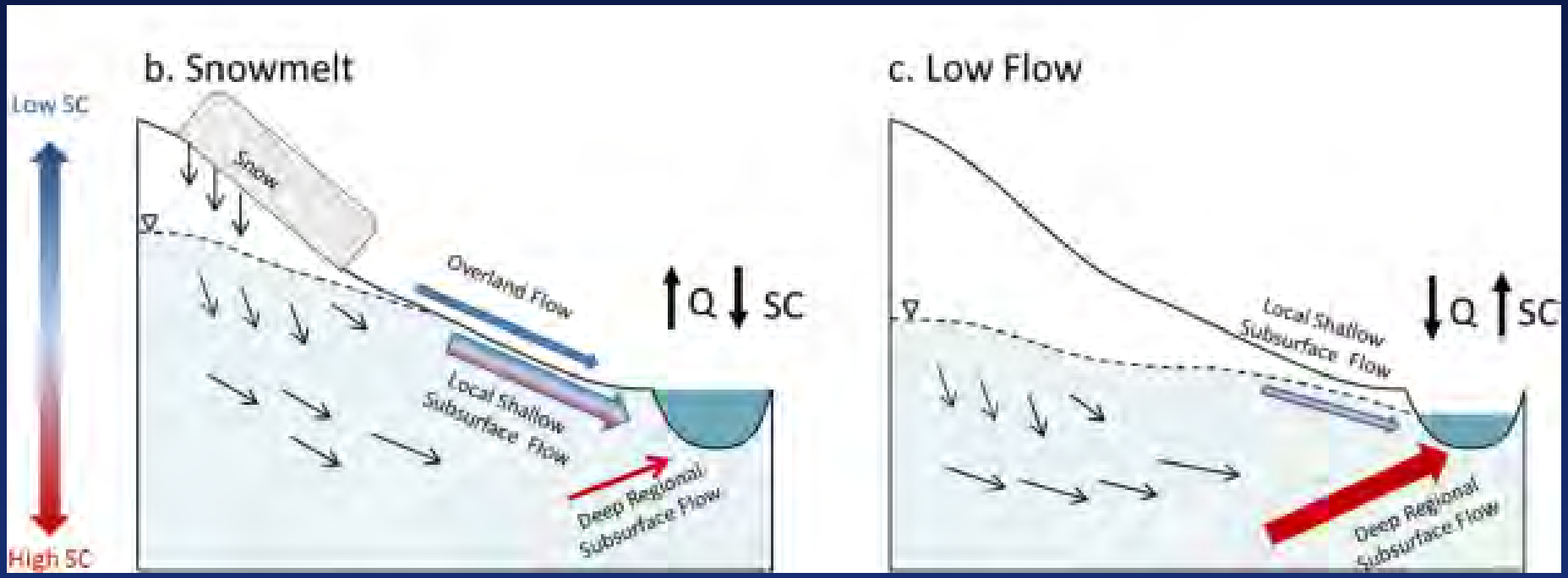

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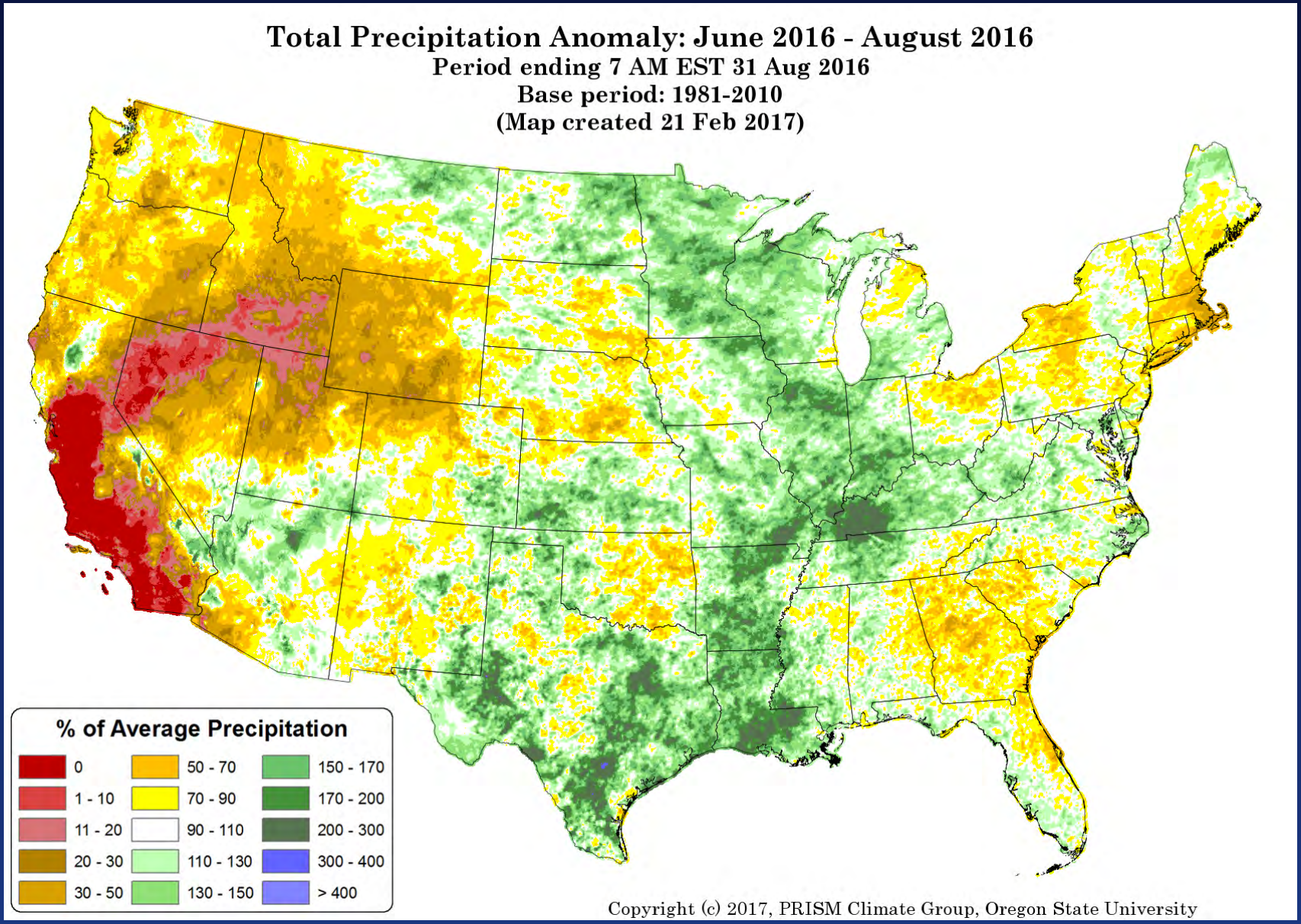

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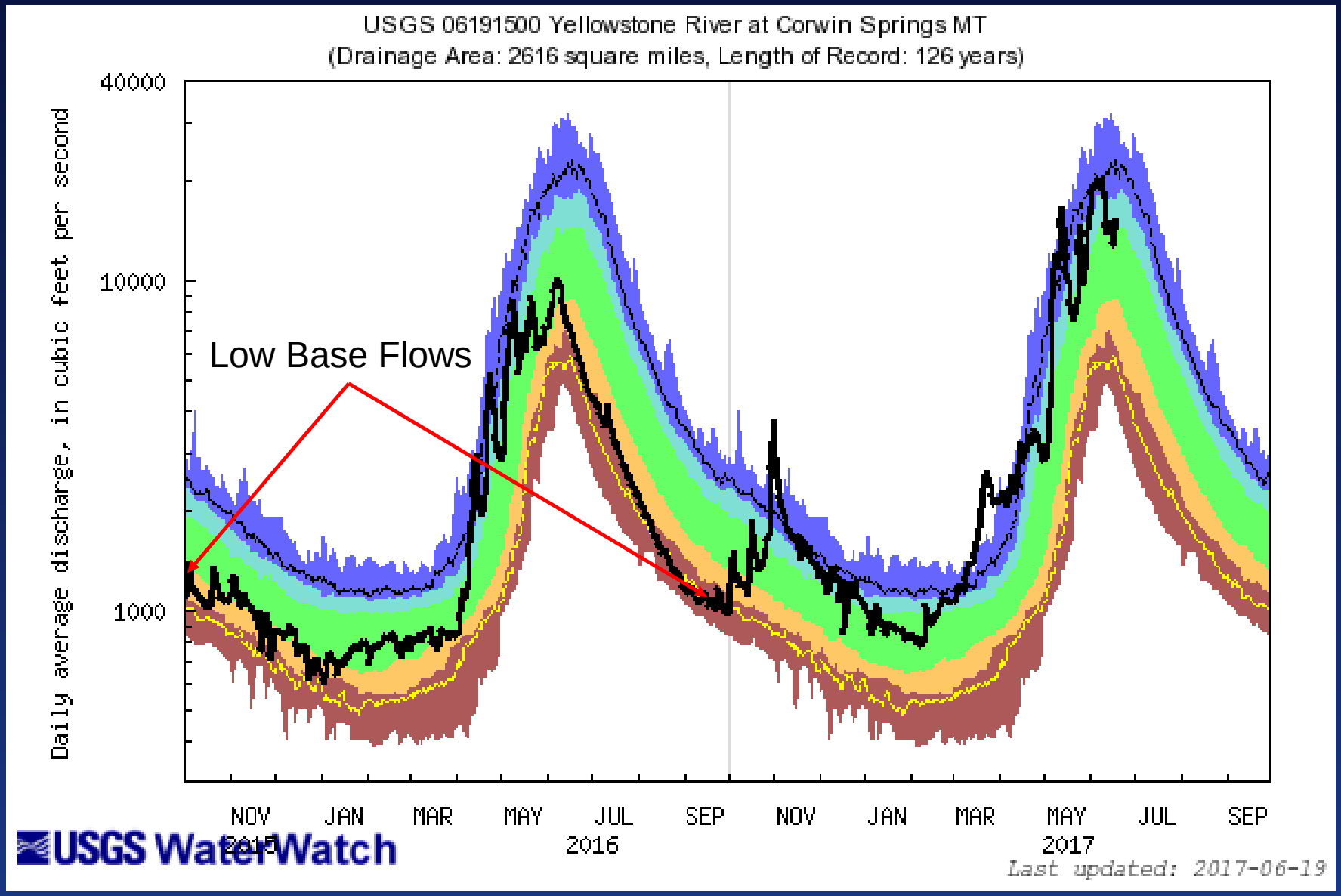
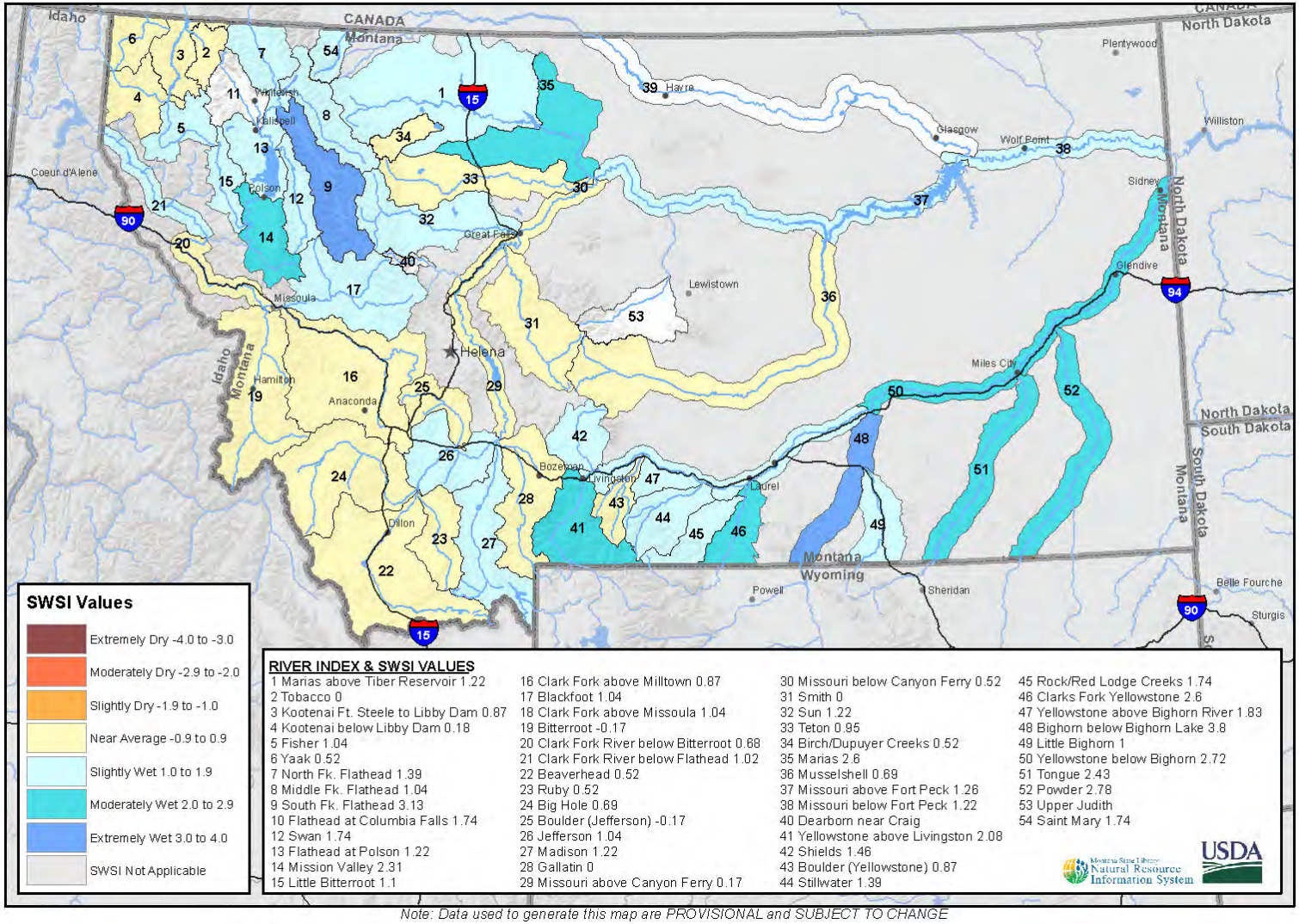


Montana Snow Survey

USDA NRCS

Montana Data Collection Office
Surface Water Supply Index (SWSI)
June 1, 2017



Note: Data used to generate this map are PROVISIONAL and SUBJECT TO CHANGE

Montana Snow Survey

Governor's Drought Advisory Committee

Snowpack and Streamflow Update

June 20th, 2017

Lucas Zukiewicz
Water Supply Specialist (Snow Hydrologist)
USDA-NRCS
Montana Snow Surveys
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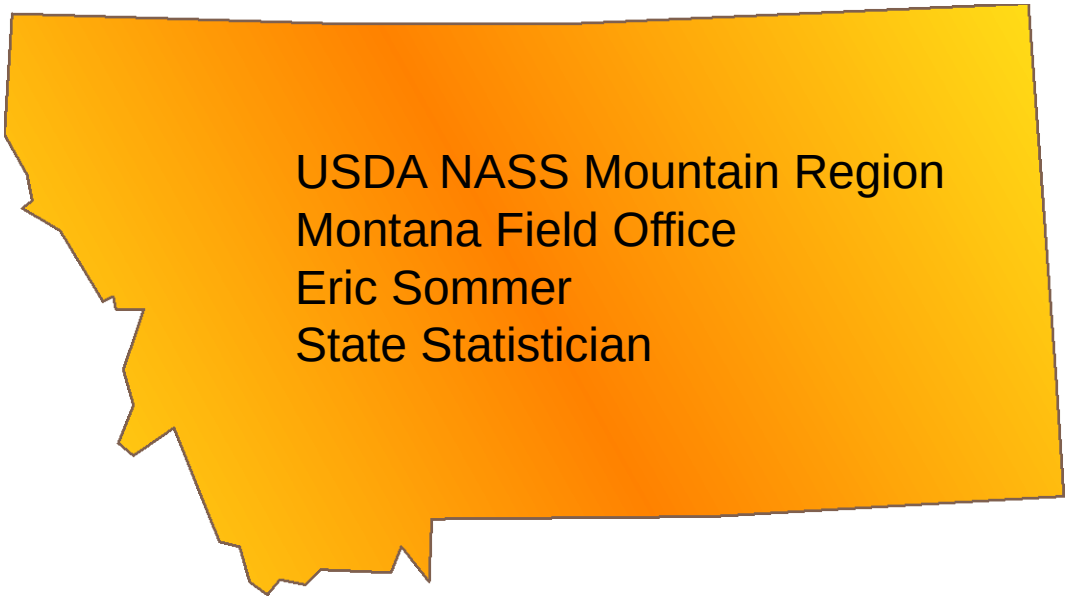
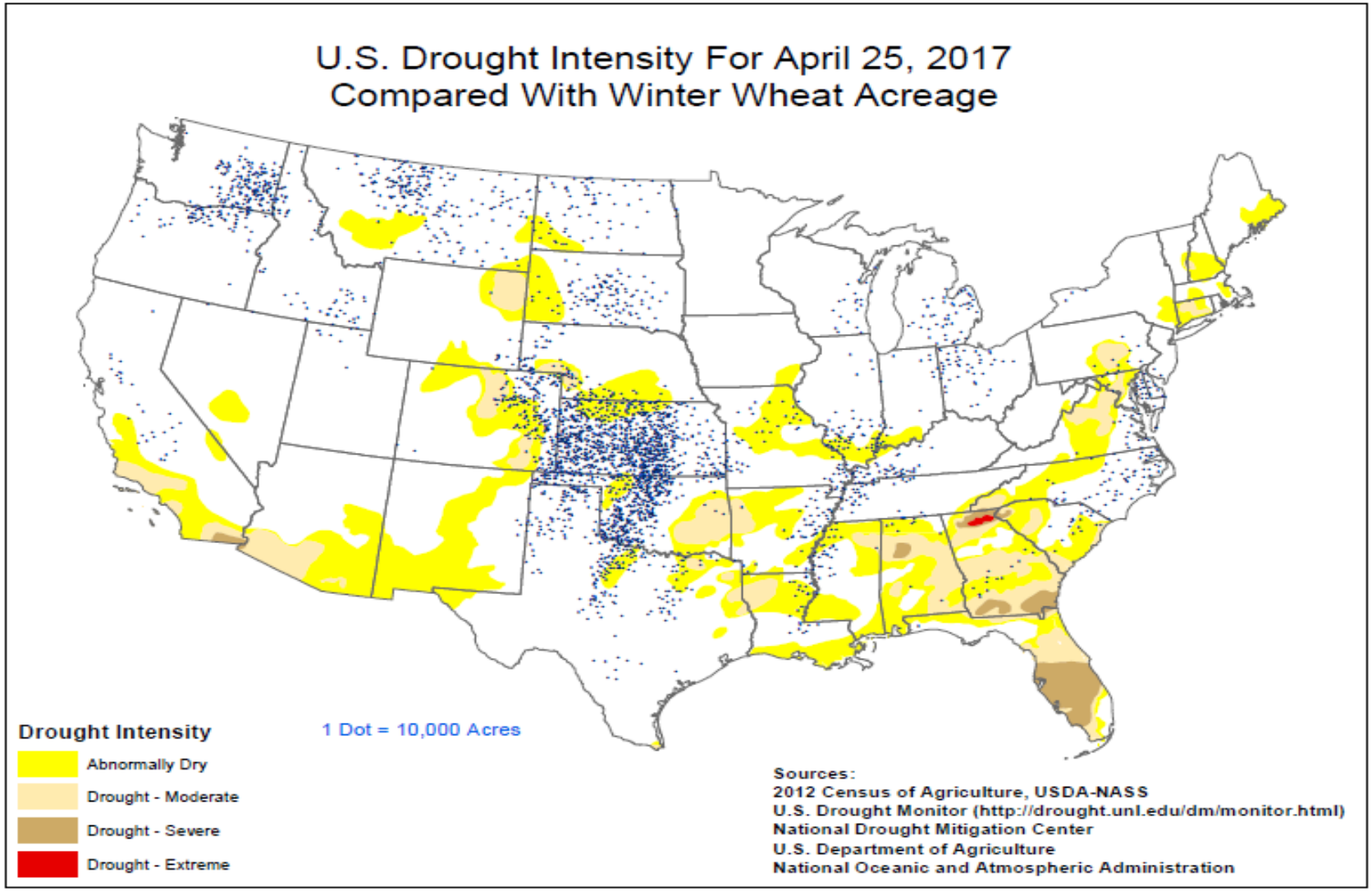
http://www.nrcs.usda.gov/wps/portal/nrcs/main/mt/snow/

Governor’s Drought & Water Supply Advisory Committee



USDA NASS Mountain Region
Montana Field Office
Eric Sommer
State Statistician



USDA-NASS
6-20-17

Weekly Crop Progress Report

MONTANA CROP PROGRESS

United States Department of Agriculture
NATIONAL AGRICULTURAL STATISTICS SERVICE
MONTANA FIELD OFFICE
10 West 15th Street, Suite 3100, Helena, MT 59626
Cooperating with the Montana Department of Agriculture

FOR IMMEDIATE RELEASE
June 12, 2017

Contact: Eric Sommer
(800) 835-2612

CROP PROGRESS AND CONDITION
WEEK ENDING JUNE 11, 2017

AGRICULTURAL SUMMARY: Storms brought moisture to the western part of the state, slowing fieldwork, while Eastern Montana remained hot and dry according to the Mountain Regional Field Office of the National Agricultural Statistics Service, USDA. Central areas of the state had the highest precipitation with some areas receiving as much as an inch of moisture. Reporters in eastern areas have reported that dry conditions are prompting ranchers to sell cow/calf pairs due to poor grazing conditions and noted that crops are suffering from lack of moisture. Temperatures reached 97 degrees in the Northeast and Southeast regions.

Weekly Crop Progress
Week Ending June 12, 2017

- First paragraph place to publish comments given by reporters
- Comments like producers selling cow/calf pairs
- What does this tell us?
  - Grazing land concerns
  - Hay production concerns
  - Water Hauling

Weekly Crop Progress
Week Ending June 12, 2017

CROP AND LIVESTOCK PROGRESS				
Commodity	Current week	Previous week	Previous year	5-year average
	(percent)	(percent)	(percent)	(percent)
Barley				
Emerged	86	76	95	96
Boot stage	5	1	27	23
Camelina				
Planted	80	70	93	93
Emerged	44	30	71	71
Canola				
Planted	85	80	95	98
Emerged	40	27	86	89
Corn				
Planted	98	96	NA	NA
Emerged	80	75	85	86
Dry edible beans				
Planted	95	92	NA	NA
Emerged	72	64	87	65
Blooming	1	NA	NA	NA
Dry edible peas				
Emerged	87	81	98	97
Blooming	12	1	18	16
Durum wheat				
Emerged	66	50	89	77
Boot stage	1	NA	5	NA
Flaxseed				
Emerged	56	42	75	82
Lentils				
Emerged	77	69	96	92
Blooming	6	--	16	12
Mustard seed				
Planted	90	80	NA	NA
Emerged	42	32	88	87
Oats				
Planted	78	74	NA	NA
Emerged	64	57	NA	NA
Boot stage	4	--	21	18

Weekly Crop Progress
Week Ending June 12, 2017

- Comparison of Weekly Crop Progress
  - Are we ahead/behind
  - Is this normal?
  - Ground truth
- Weighted by commodity by county ranking

Weekly Crop Progress
Week Ending June 12, 2017

DAYS SUITABLE FOR FIELDWORK AND SOIL MOISTURE CONDITION

Commodity	Current week	Previous week	Previous year	5-year average
Days suitable for fieldwork	6.3	6.5	5.8	5.5
Topsoil moisture	(percent)	(percent)	(percent)	(percent)
Very short	26	15	8	6
Short	30	28	18	21
Adequate	42	53	68	64
Surplus	2	4	6	9
Subsoil moisture				
Very short	10	5	8	7
Short	26	16	25	22
Adequate	58	74	63	63
Surplus	6	5	4	8

NA = not available

(--) = zero

Weekly Crop Progress
Week Ending June 12, 2017

- Days suitable
  - What affect did the weather have
  - Was it wide spread
- Top Soil/ Sub Soil
  - Highly subjective
  - Ground Truth
  - First indication

Weekly Crop Progress
Week Ending June 12, 2017

CROP, LIVESTOCK, PASTURE AND RANGE CONDITION	Current week	Previous week	Previous year	5-year average
	(percent)	(percent)	(percent)	(percent)
Barley				
Very poor	3	3	--	--
Poor	4	6	1	4
Fair	22	32	30	36
Good	62	51	42	42
Excellent	9	8	27	18
Corn				
Very poor	--	--	--	--
Poor	6	5	--	2
Fair	40	39	31	37
Good	48	52	60	48
Excellent	6	4	9	13
Dry edible beans				
Very poor	1	1	--	NA
Poor	7	1	4	NA
Fair	77	70	43	NA
Good	13	25	46	NA
Excellent	2	3	7	NA
Dry edible peas				
Very poor	10	6	1	2
Poor	16	12	3	3
Fair	51	56	29	29
Good	18	21	53	54
Excellent	5	5	14	12
Lentils				
Very poor	5	2	2	3
Poor	14	7	2	4
Fair	53	59	34	33
Good	24	29	53	56
Excellent	4	3	9	4

Weekly Crop Progress
Week Ending June 12, 2017

- Condition is an indication of affect of the weather
- Looking for changes
- Looking for similarities/differences

Summary
Weekly Crop Progress

- Good weekly indication
- Only source for weekly crop information
- Good source for good local data
- We don’t use it estimate yield

June Releases

- June Hog Report released on June 29
- June Acreage, and June Stocks Reports released on June 30

Census of Agriculture

- Every 5 years
- Only source for comprehensive county Ag data
- Collection starts Dec 2017
- Published Feb 2019

USDA, NASS, Montana Field Office

Eric Sommer, State Statistician

1-800-835-2612 or 406-441-1240

Email: nass-mt@nass.usda.gov

www.nass.usda.gov/mt/

http://www.nass.usda.gov/Statistics_by_State/Montana Publications/Crop_Progress_&_Condition/index.asp

Montana Streamflow Information

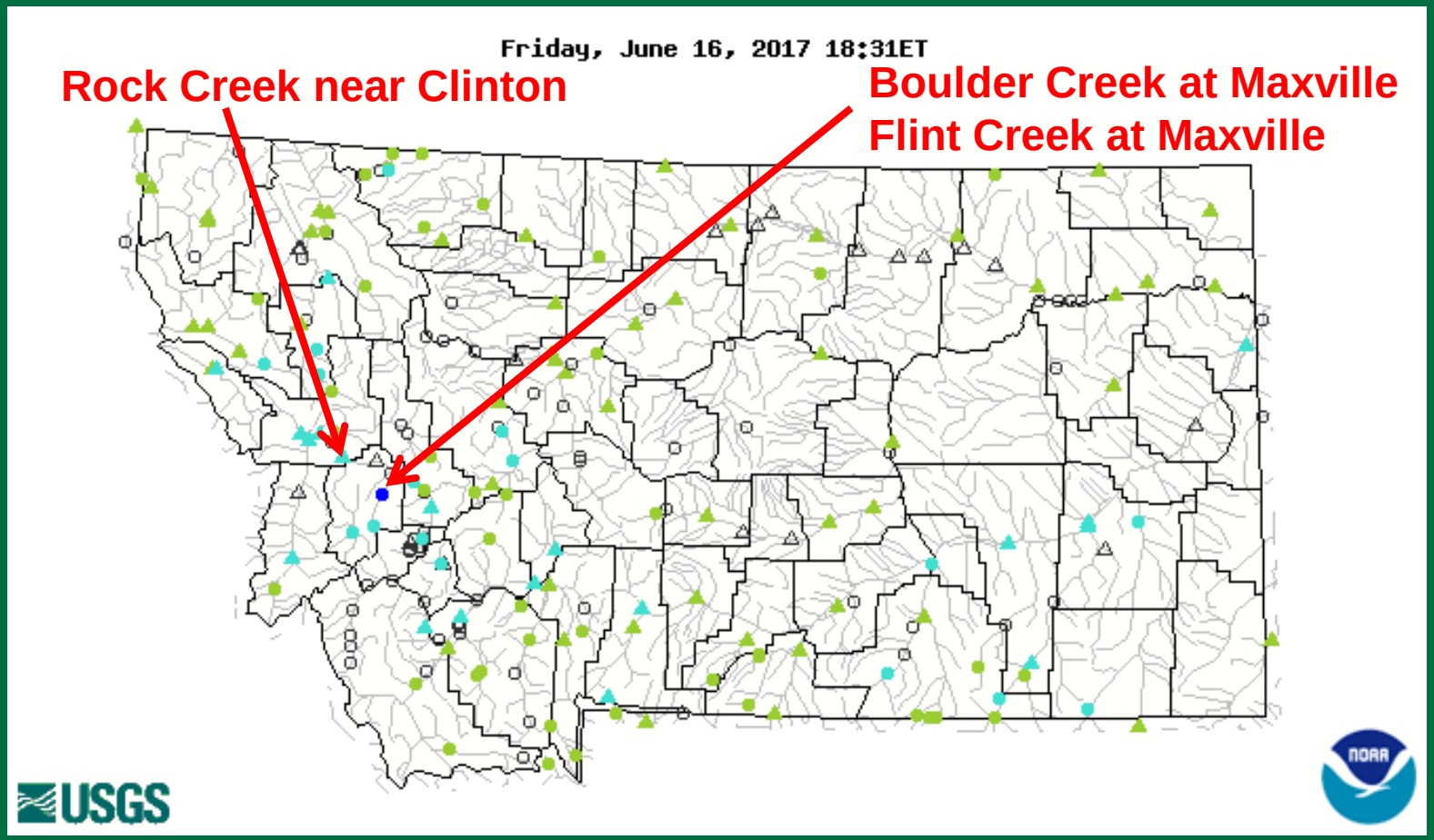
Governor's Drought and Water Supply Advisory Committee

June 20, 2017

U.S. Department of the Interior
U.S. Geological Survey

Map of Flood and High Flow Conditions

Explanation - Percentile classes				
<95	95-98	>= 99	River above flood stage	Not ranked
△ Streamgage with flood stage		○ Streamgage without flood stage		



USGS

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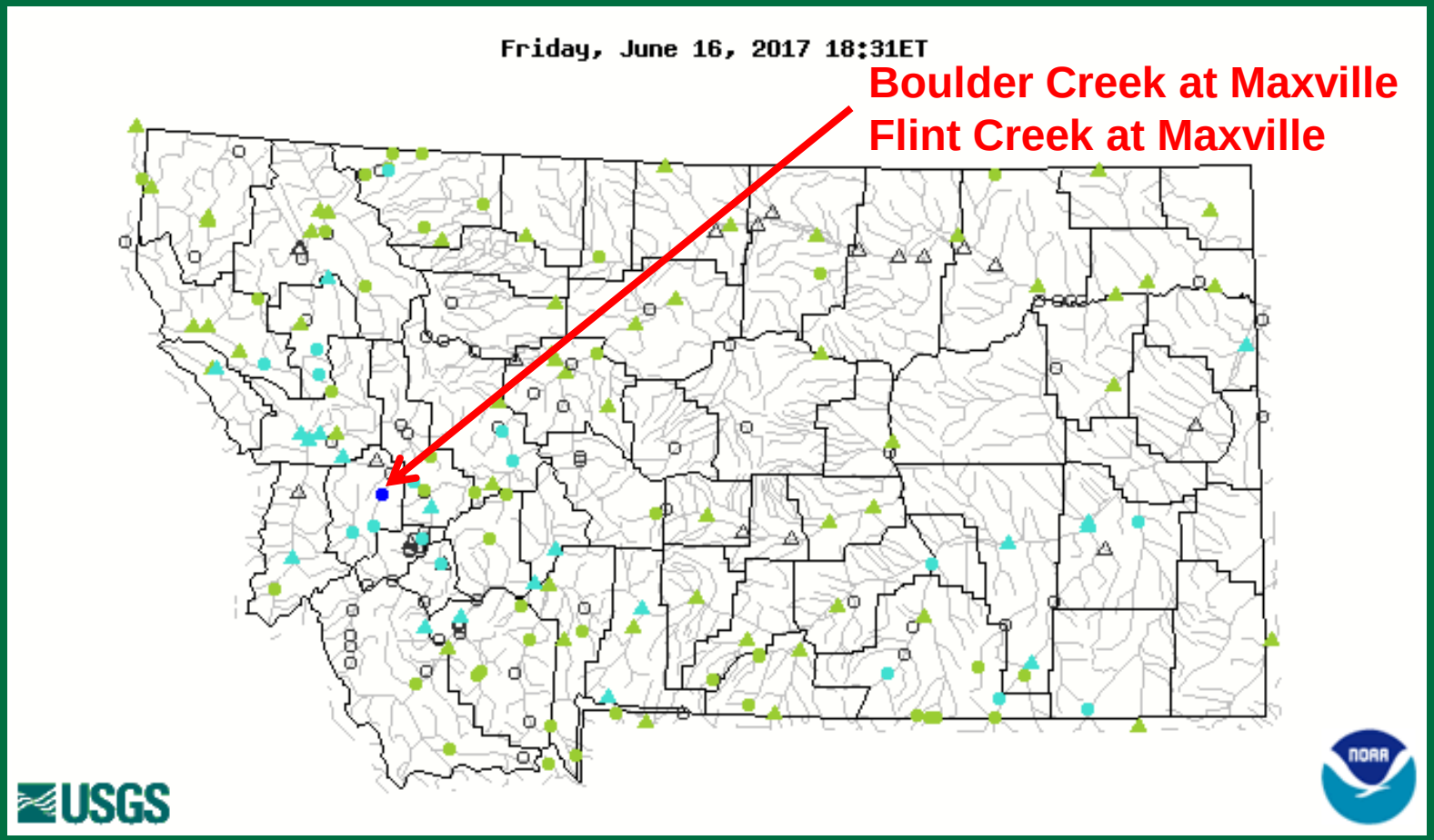
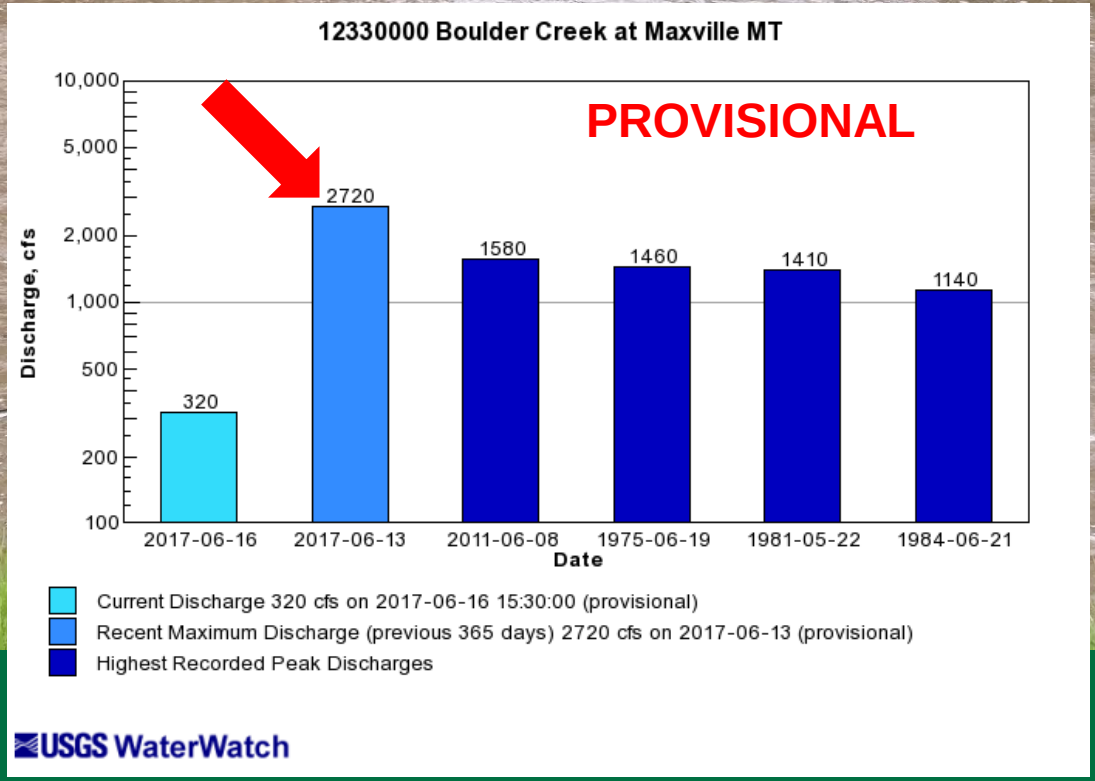


USGS

Boulder Creek at Maxville

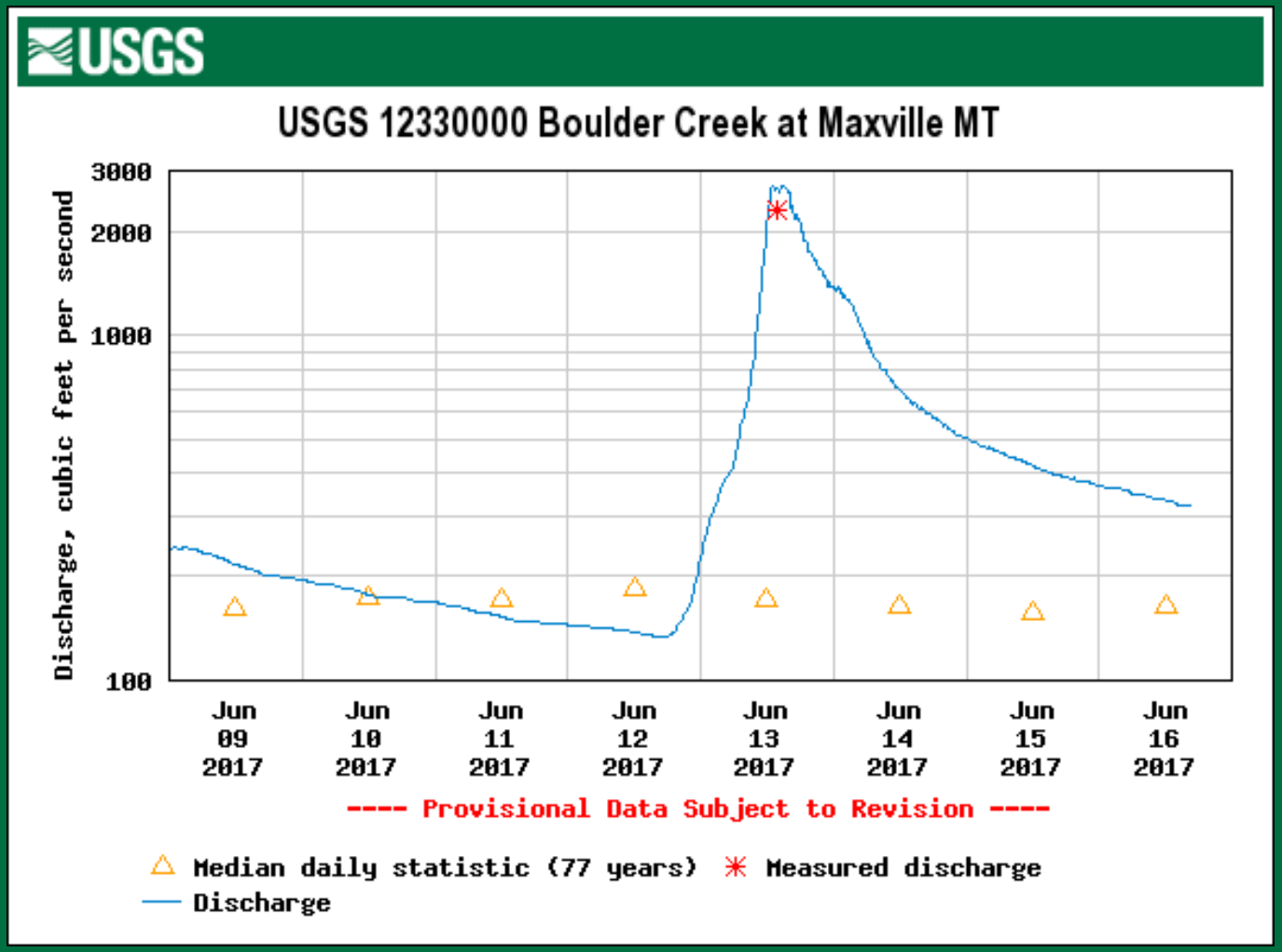
Highest peak discharge over 77-yr record



USGS

Boulder Creek at Maxville

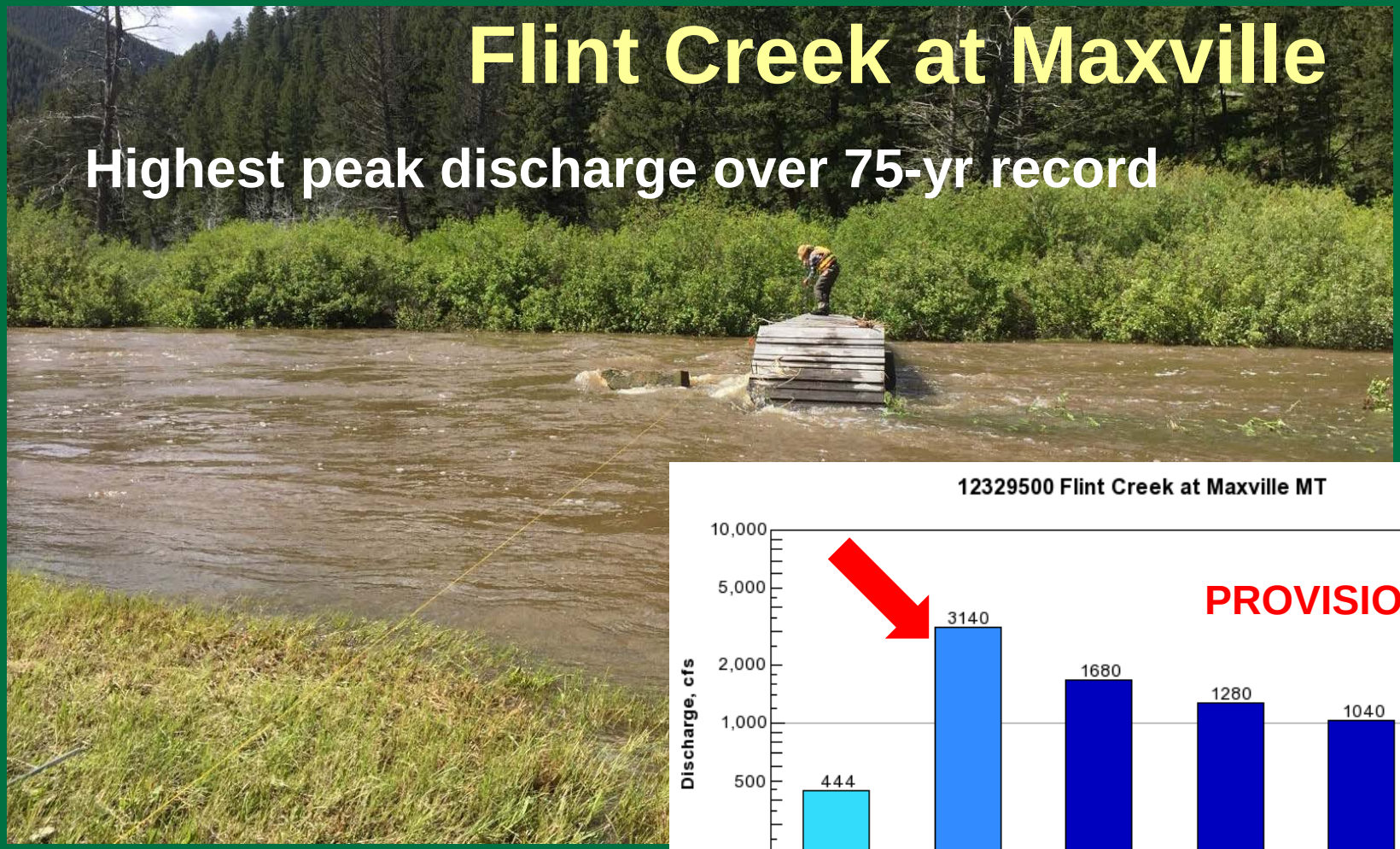
Highest peak discharge over 77-yr record

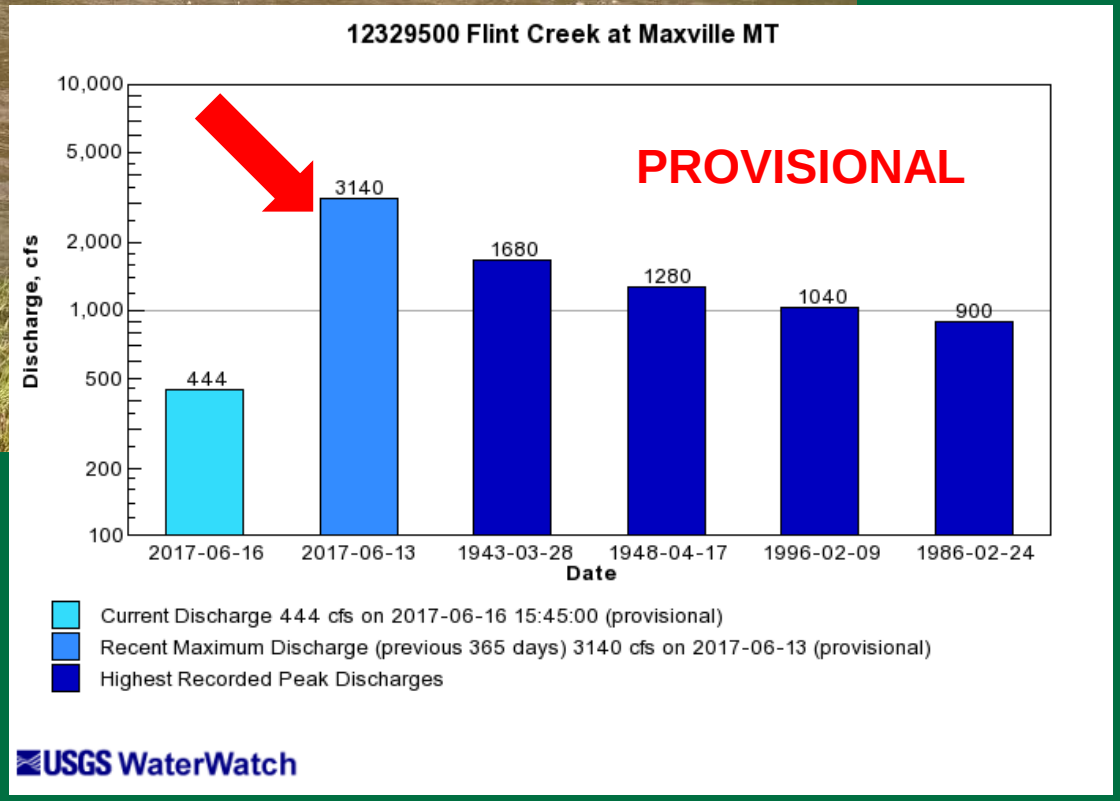


USGS

Flint Creek at Maxville

Highest peak discharge over 75-yr record





USGS

Map of Flood and High Flow Conditions

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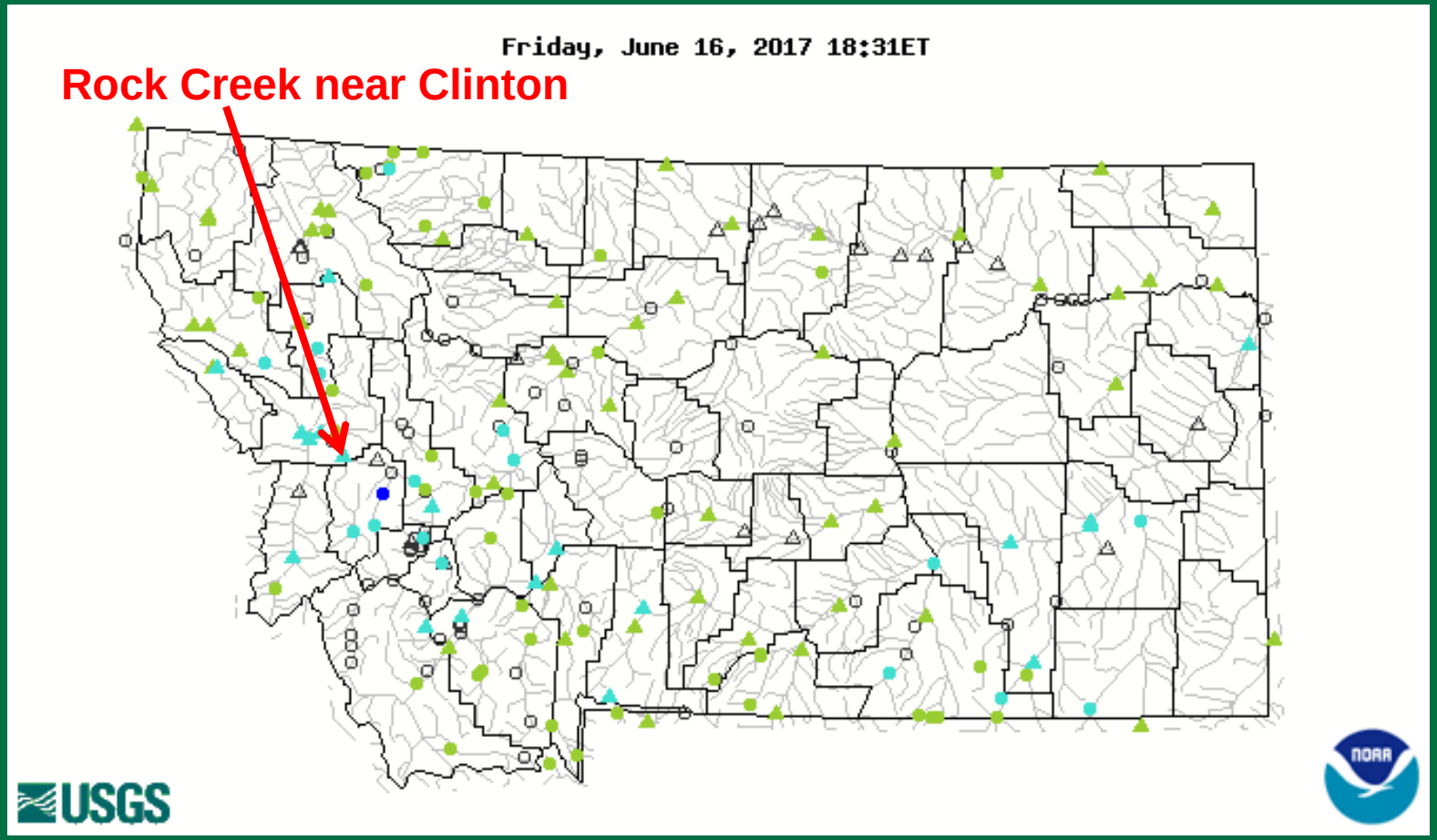

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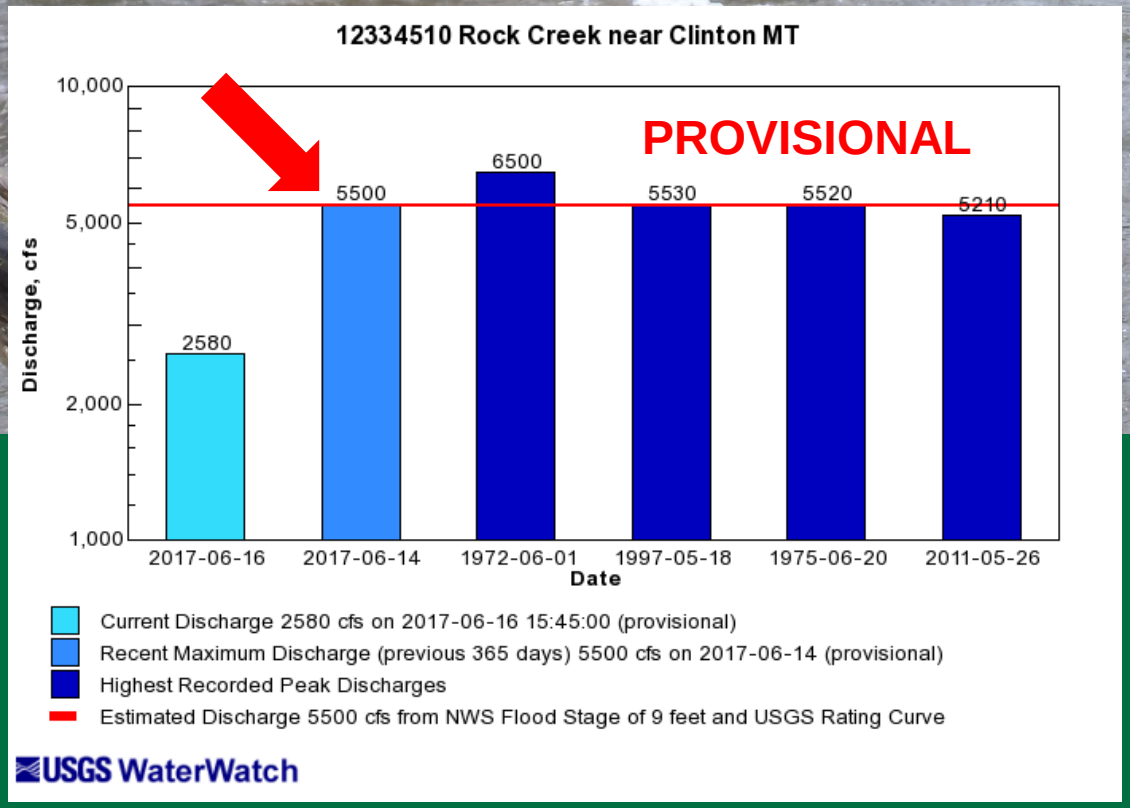
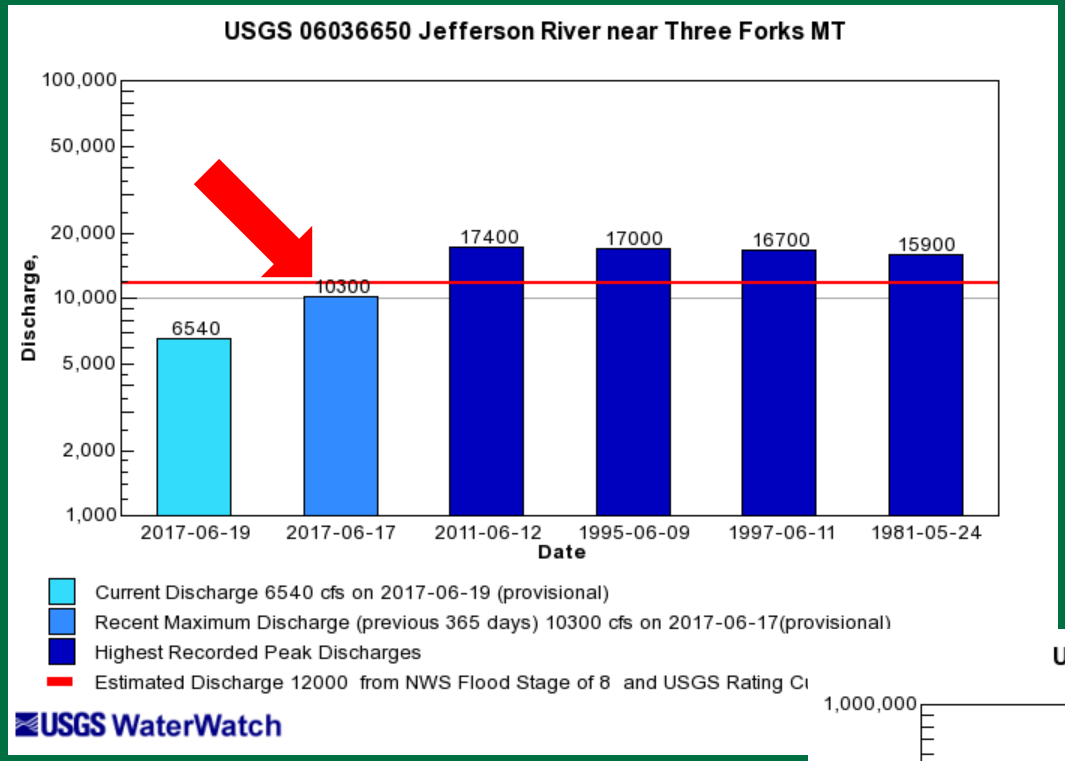
Rock Creek near Clinton

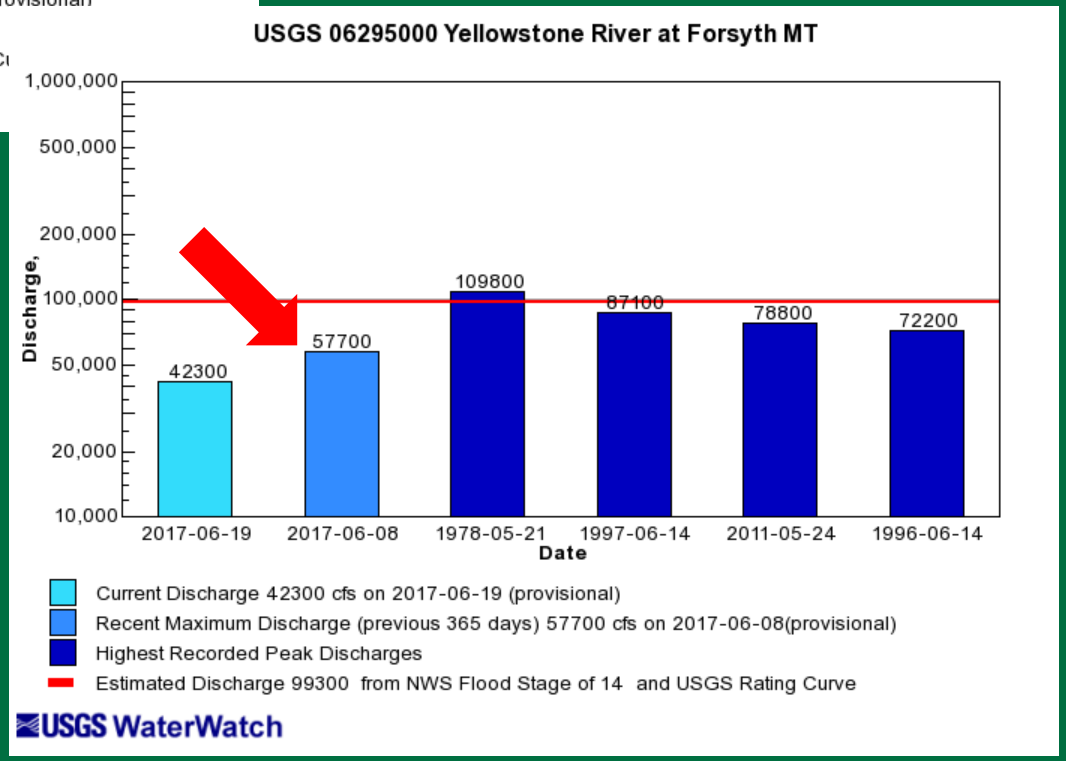
Highest Discharge measurement



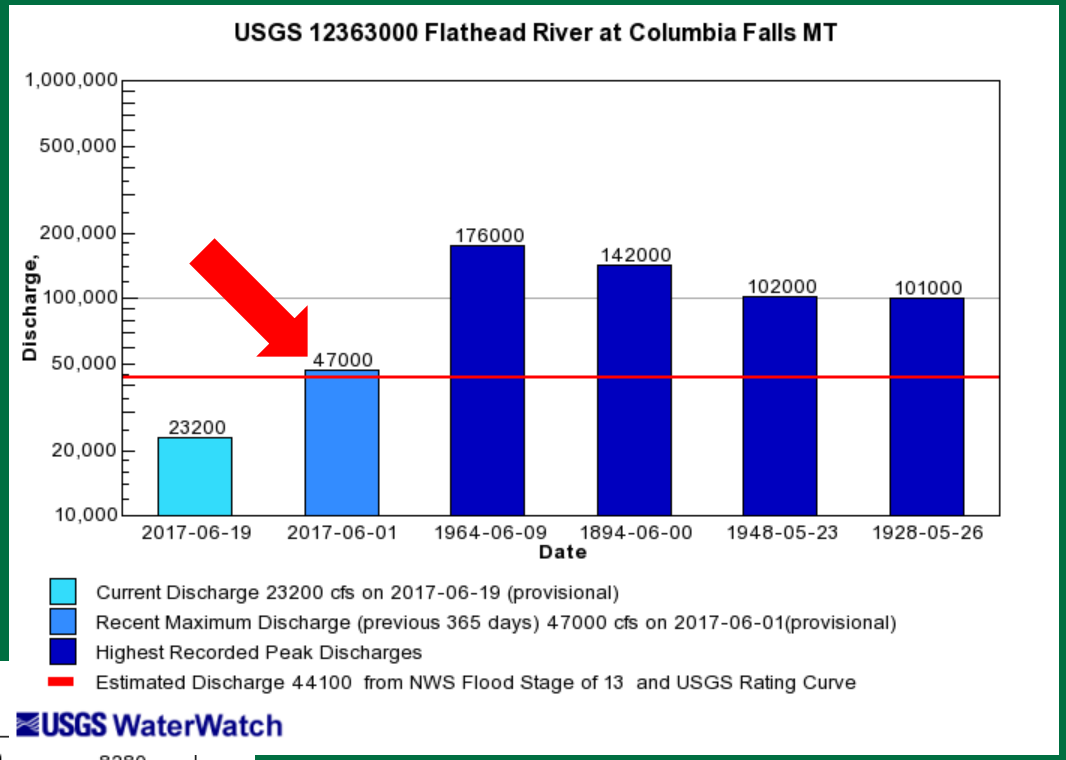
(Photo from 2011)

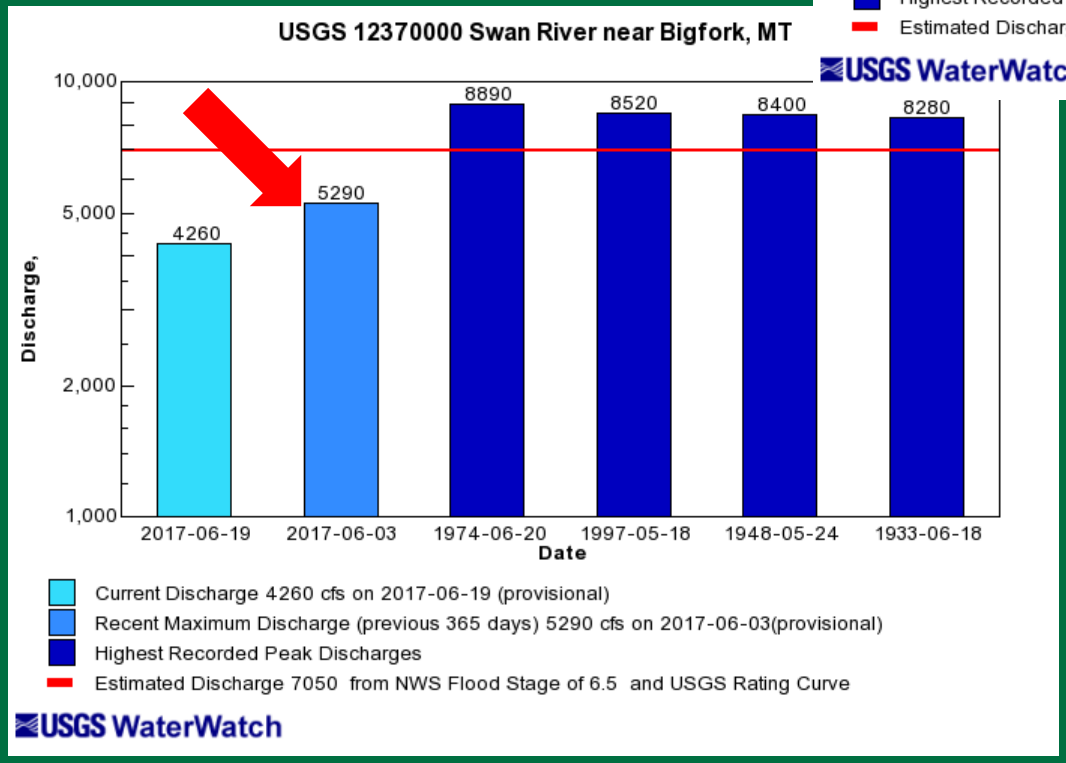
USGS


USGS 06036650 Jefferson River near Three Forks MT
100,000
50,000
20,000
10,000
5,000
2,000
1,000
Discharge,
6540
10300
17400
17000
16700
15900
2017-06-19
2017-06-17
2011-06-12
1995-06-09
1997-06-11
1981-05-24
Date
Current Discharge 6540 cfs on 2017-06-19 (provisional)
Recent Maximum Discharge (previous 365 days) 10300 cfs on 2017-06-17(provisional)
Highest Recorded Peak Discharges
Estimated Discharge 12000 from NWS Flood Stage of 8 and USGS Rating Cu
USGS WaterWatch

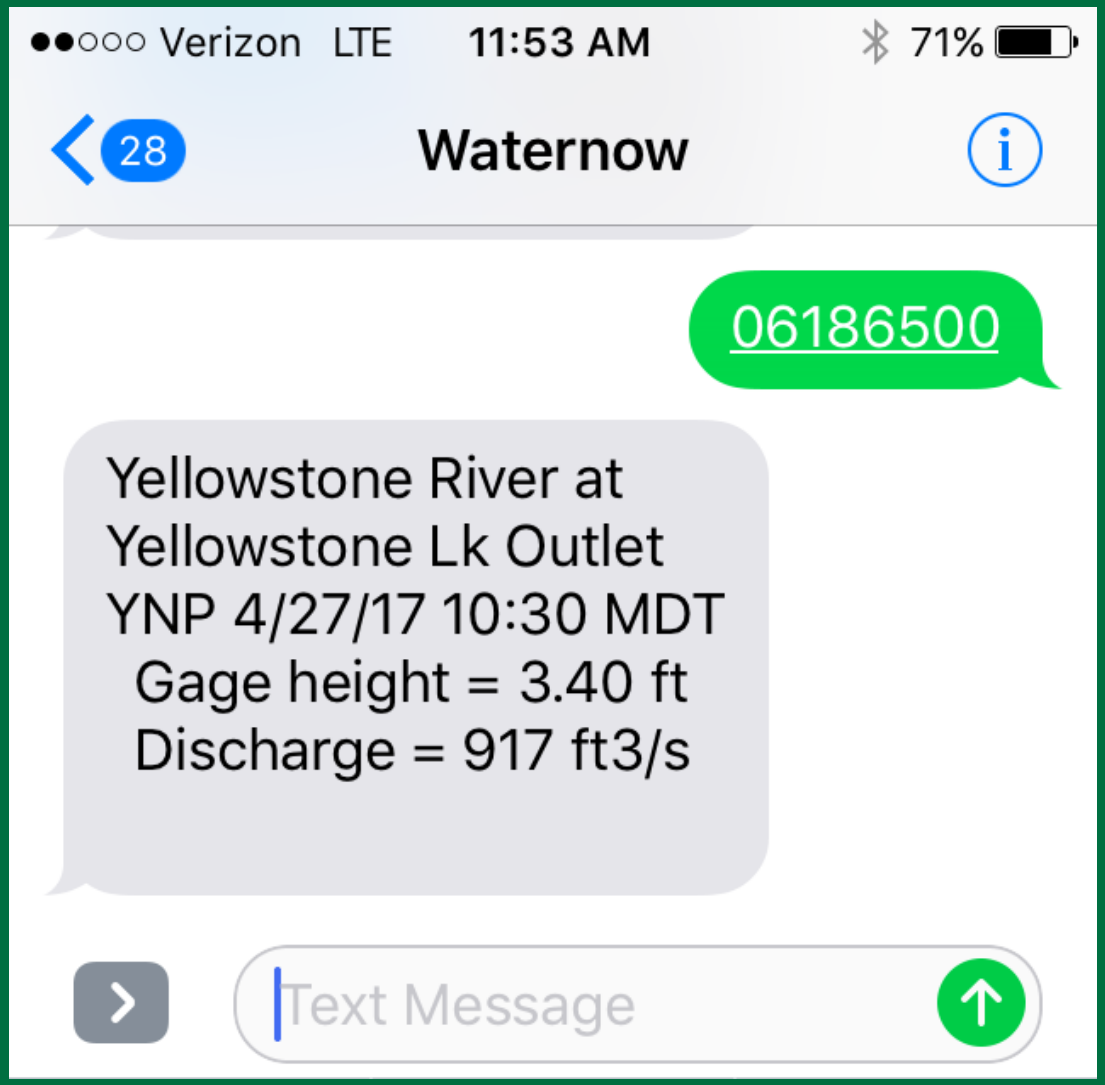

USGS 06295000 Yellowstone River at Forsyth MT
1,000,000
500,000
200,000
100,000
50,000
20,000
10,000
Discharge,
42300
57700
109800
87100
78800
72200
2017-06-19
2017-06-08
1978-05-21
1997-06-14
2011-05-24
1996-06-14
Date
Current Discharge 42300 cfs on 2017-06-19 (provisional)
Recent Maximum Discharge (previous 365 days) 57700 cfs on 2017-06-08(provisional)
Highest Recorded Peak Discharges
Estimated Discharge 99300 from NWS Flood Stage of 14 and USGS Rating Curve
USGS WaterWatch

USGS


USGS 12363000 Flathead River at Columbia Falls MT
1,000,000
500,000
200,000
100,000
50,000
20,000
10,000
Discharge,
23200
47000
176000
142000
102000
101000
2017-06-19
2017-06-01
1964-06-09
1894-06-00
1948-05-23
1928-05-26
Date
Current Discharge 23200 cfs on 2017-06-19 (provisional)
Recent Maximum Discharge (previous 365 days) 47000 cfs on 2017-06-01(provisional)
Highest Recorded Peak Discharges
Estimated Discharge 44100 from NWS Flood Stage of 13 and USGS Rating Curve
USGS WaterWatch


USGS 12370000 Swan River near Bigfork, MT
10,000
5,000
2,000
1,000
Discharge,
4260
5290
8890
8520
8400
8280
2017-06-19
2017-06-03
1974-06-20
1997-05-18
1948-05-24
1933-06-18
Date
Current Discharge 4260 cfs on 2017-06-19 (provisional)
Recent Maximum Discharge (previous 365 days) 5290 cfs on 2017-06-03(provisional)
Highest Recorded Peak Discharges
Estimated Discharge 7050 from NWS Flood Stage of 6.5 and USGS Rating Curve
USGS WaterWatch

“Talk” to your favorite USGS streamgage waternow@usgs.gov



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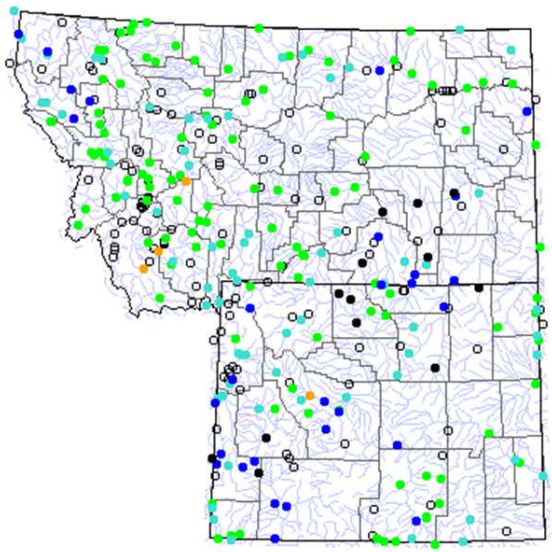

USGS

Current streamflow conditions

Dry | Normal | Wet

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Go

USGS WaterAlert

Our WaterAlert service sends e-mail or text messages when certain parameters measured by a USGS water-monitoring site exceed user-definable thresholds.

USGS WaterNow

Our WaterNow allows you query a real-time monitoring site and receive the most recent water observations.

Wyoming-Montana Water News and Notices

Sign up to receive Wyoming-Montana water news and notices

We have crews out all across Wyoming and Montana to repair and maintain streamgages, ensuring data on the web is accurate. High flows make working in the river difficult. The video below shows work conducted at the Mill Creek above Bassoo Creek near Niarada, Montana streamgage to install temporary equipment and repair high-water damage.

Recent Publications

Estimating current and future streamflow characteristics at ungaged sites, central and eastern Montana, with application to evaluating effects of climate change on fish populations

A relatively new technique was used to predict historical and future streamflows under different climate scenarios at 1,707 fish sampling sites across central and eastern Montana. Historical streamflow was predicted at sites near USGS streamgages to determine the accuracy of the model. Comparison between predicted flow in the past and the historical streamflow data recorded at those USGS streamgages had acceptable agreement, indicating confidence in predicting future streamflow scenarios. Fisheries biologists are using the streamflow predictions and fish sample information to understand how climate change might affect fish in small central and eastern Montana streams.

Enhanced coal-dependent methanogenesis coupled with algal biofuels: Potential water recycle and carbon capture

Many coal beds contain microbial communities that can convert coal to natural gas (coalbed methane). Native microorganisms were obtained from Powder River Basin (PRB) coal seams with a diffusive microbial sampler placed

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Wyoming-Montana Water Science Center

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Pacific Creek near Farson, WY is usually small enough to jump across. Streamflow on March 20, 2017 was 373 cfs.

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- Water Quality WY | MT

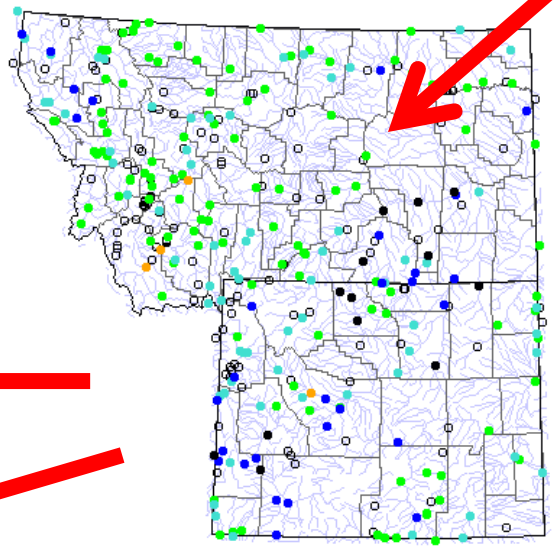
Water Resources of Wyoming and Montana

Welcome to the USGS Wyoming-Montana Water Science Center. These pages are your source for water-resource information collected and interpreted by the U.S. Geological Survey in Wyoming and Montana. Here you'll find information on Wyoming's and Montana's rivers and streams. You'll also find information about ground water, water quality, and many other topics. The USGS operates the most extensive satellite network of stream-gaging stations in the state, many of which form the backbone of flood-warning systems.

Wyoming and Montana Water Data and Information

Current Streamflow Conditions

Thursday, April 27, 2017 11:30ET



News and Highlights

We have crews out all across Wyoming and Montana to repair and maintain streamgages, ensuring data on the web is accurate. High flows make working in the river difficult. The video below shows work conducted at the Mill Creek above Bassoo Creek near Niarada, Montana streamgage to install temporary equipment and repair high-water damage.

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