2018 Annual Operating Plan

April 1 Runoff Forecast

RECLAMATION
Managing Water in the West

US Army Corps
of Engineers®
Albuquerque District

Definitions

Native/Natural Rio Grande water: Water that comes directly from the Rio Grande Basin

San Juan-Chama water: Water that is imported into the Rio Grande Basin from the San Juan Basin through the San Juan-Chama Project

Rio Grande Compact: Agreement between the states of Colorado, New Mexico, and Texas that apportions Rio Grande water between the three states.

Article VII: Section of the Rio Grande Compact that dictates storage in reservoirs. If Rio Grande Project storage is less than 400,000 ac-ft at Elephant Butte and Caballo, no storage of Rio Grande water can take place at El Vado except to satisfy Native American needs or as part of the Emergency Drought Water Agreement.

Definitions (cont.)

cfs- cubic feet per second (roughly 7.5 gallons/second)

Acre foot = approximately 326,000 gallons or 43,560 cubic feet

Hydrograph – graph of flow rate per unit time

MRGCD – Middle Rio Grande Conservancy District

The City/The Water Authority – Albuquerque Bernalillo County Water Utility Authority (ABCWUA)

NRCS – Natural Resources Conservation Service

Supplemental water – Water leased by Reclamation to augment flows in support of the Rio Grande Silvery Minnow as outlined in the 2016 Biological Opinion

P&P – Prior & Paramount

Definitions (cont.)

EBID - Elephant Butte Irrigation District

EP1 - El Paso County Water Improvement District No. 1

IBWC - International Boundary and Water Commission, US Section

1906 - Convention of 1906, US and MX

OA - 2008 Operating Agreement for the Rio Grande Project, NM and TX

What Drives the Process

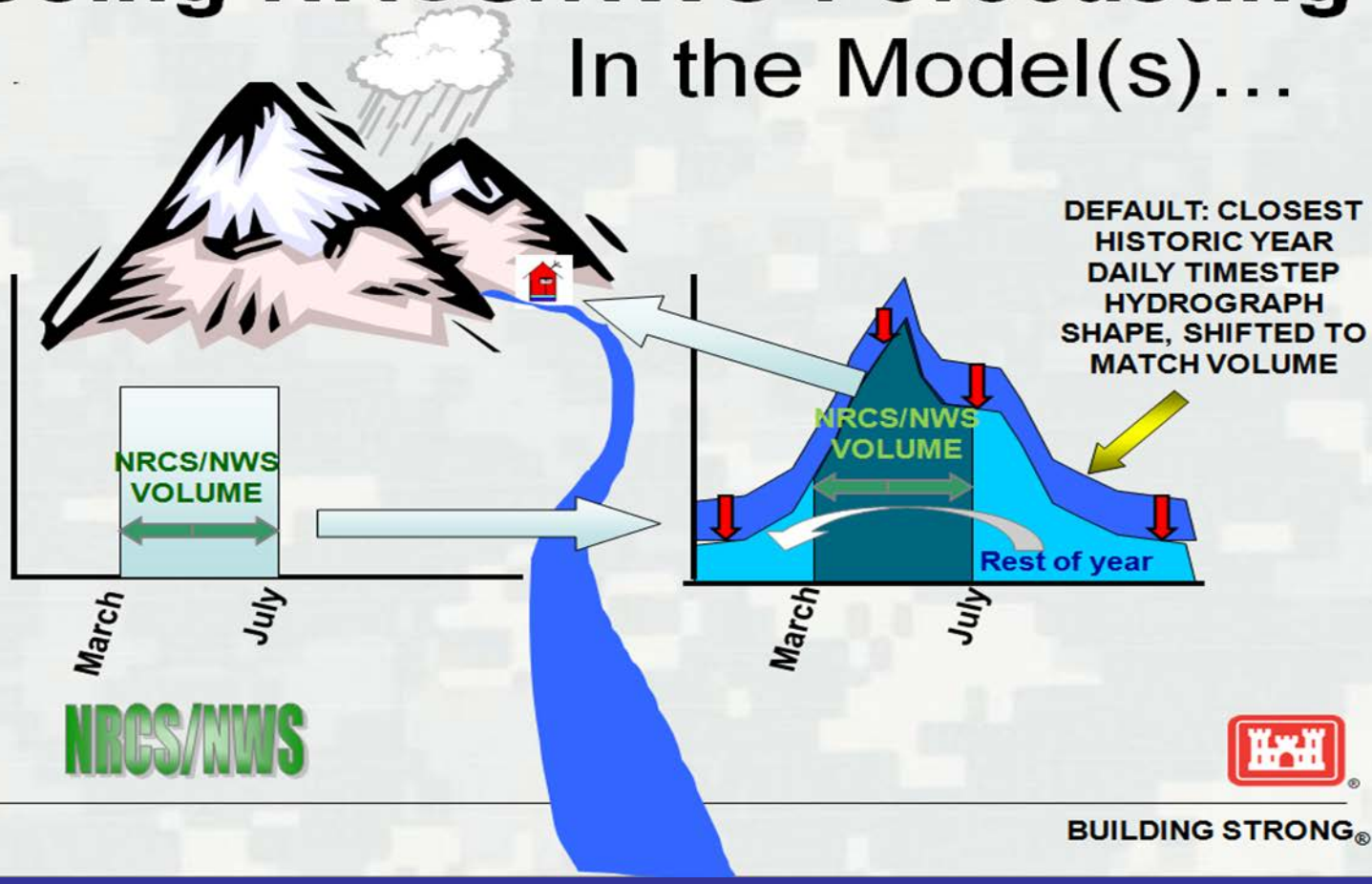
Volume Forecast from the NRCS
Based on snowpack, soil moisture, climate forecast

Choose similar year based on similar volume
Actual hydrograph vs. average hydrograph
Can tweak timing of hydrograph to best match forecasted conditions (warm Spring vs. cool Spring)

Inflows/Outflows based on nature and policies

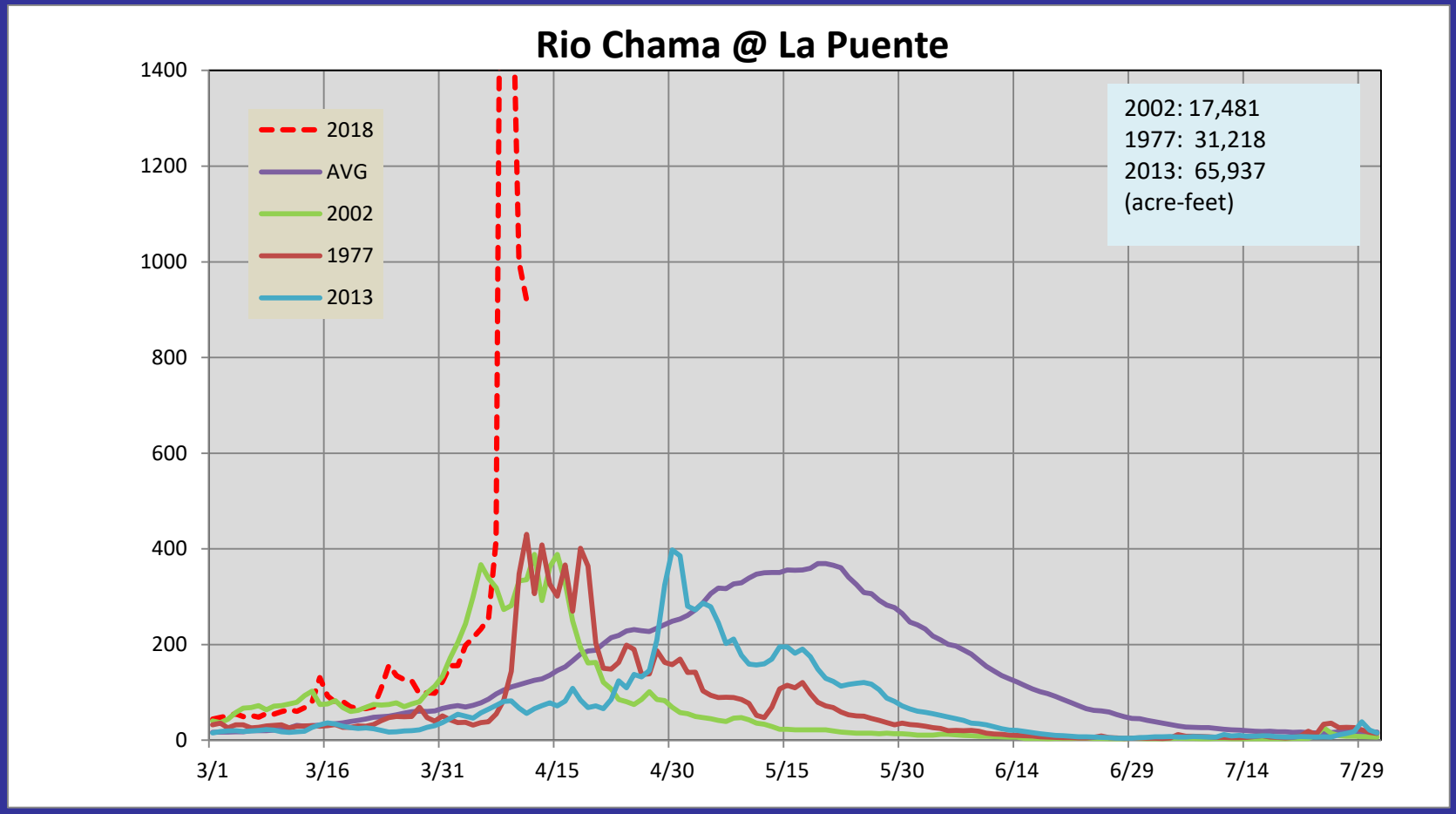
Article VII restrictions
Flood control and channel capacity
Timing of water deliveries
Demand curves from water users

Using NRCS/NWS Forecasting In the Model(s)…



BUILDING STRONG®

Similar Year Hydrographs



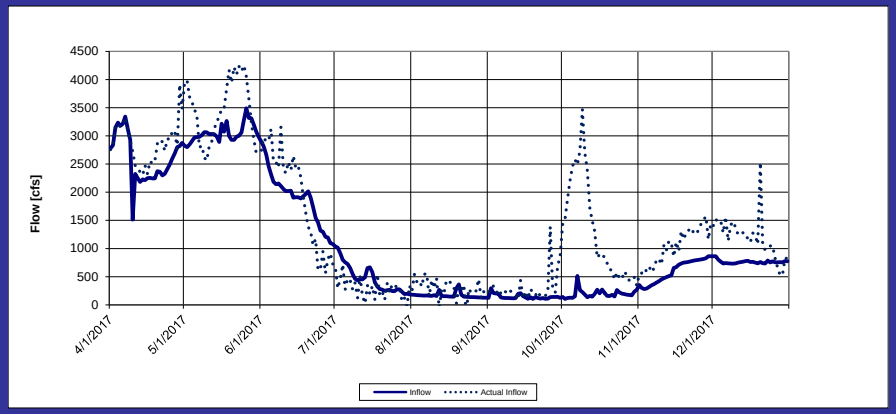
SJC RG

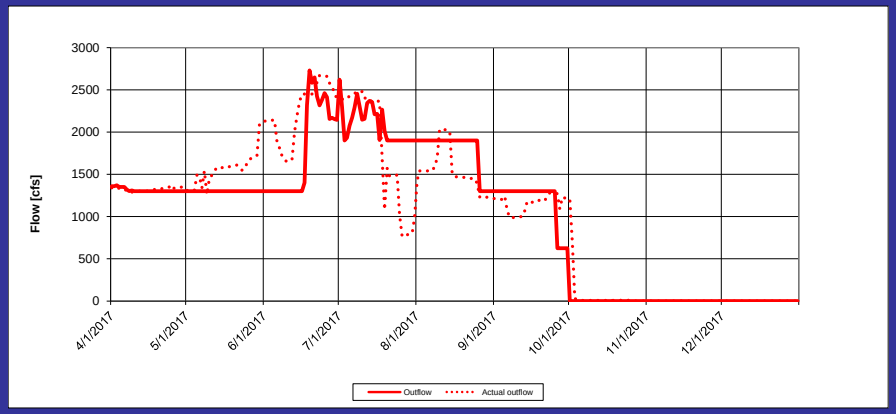
Operated By: Dams:	Reclamation	Corps	Water Supply	Recreation	Flood Control	Sediment Control
HERON						
EL VADO						
ABIQUIU						
NAMBE FALLS						
GALISTEO						
COCHITI						
JEMEZ CANYON						
ELEPHANT BUTTE						
CABALLO						

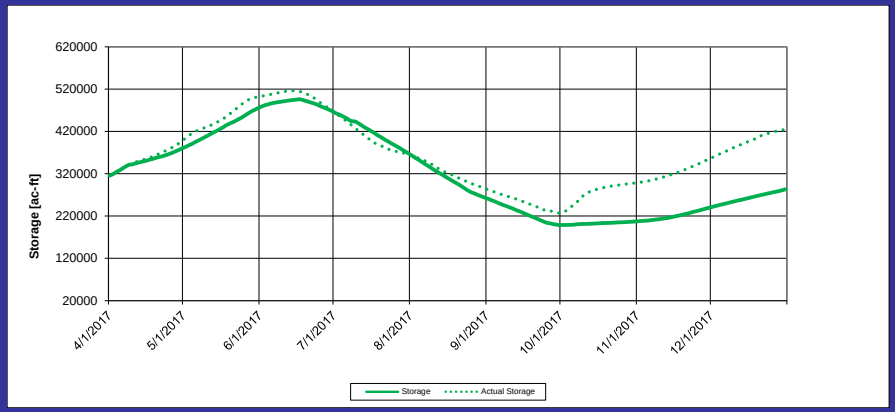
2017: The Year in Review

Elephant Butte Reservoir

April 2017 Forecast and Observed



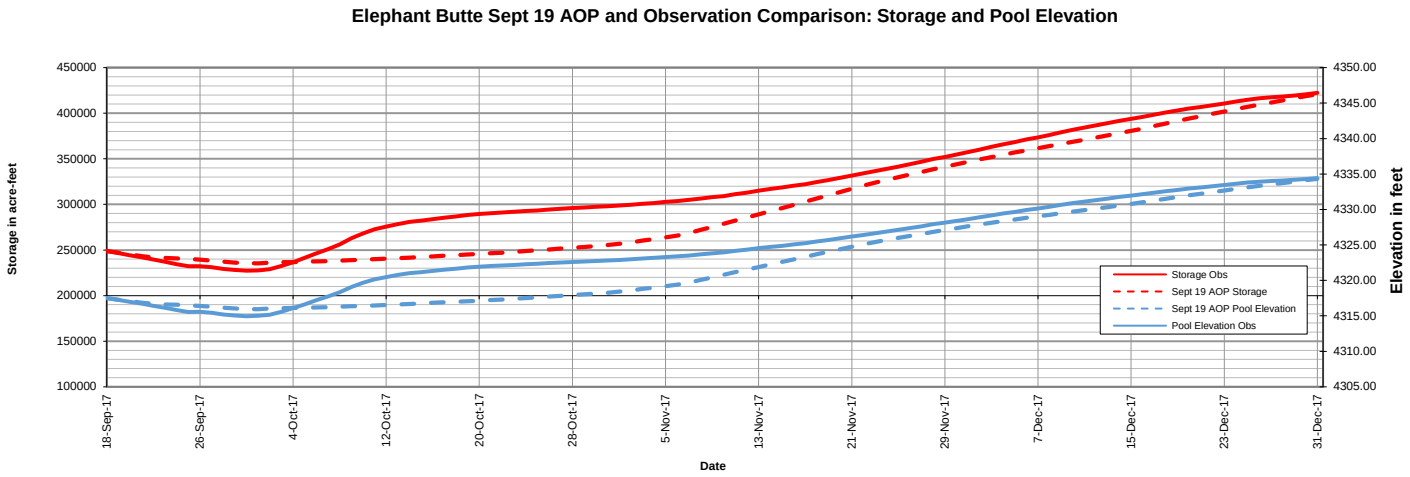


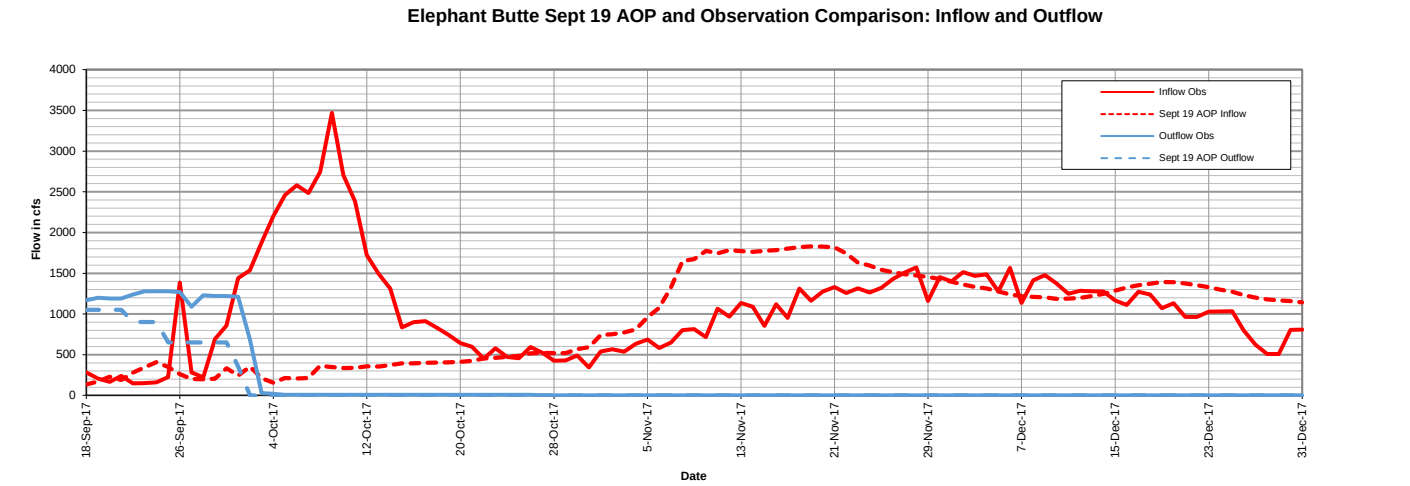


Dashed lines – observed
Solid lines – forecast

Elephant Butte Reservoir

September 2017 Projections

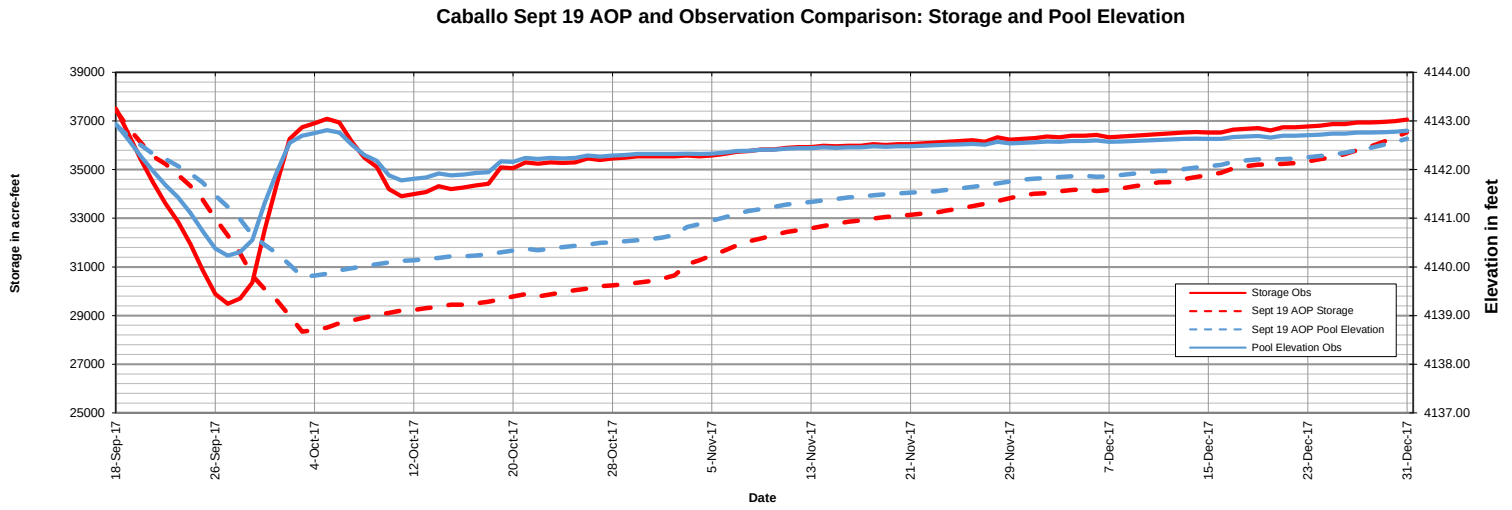


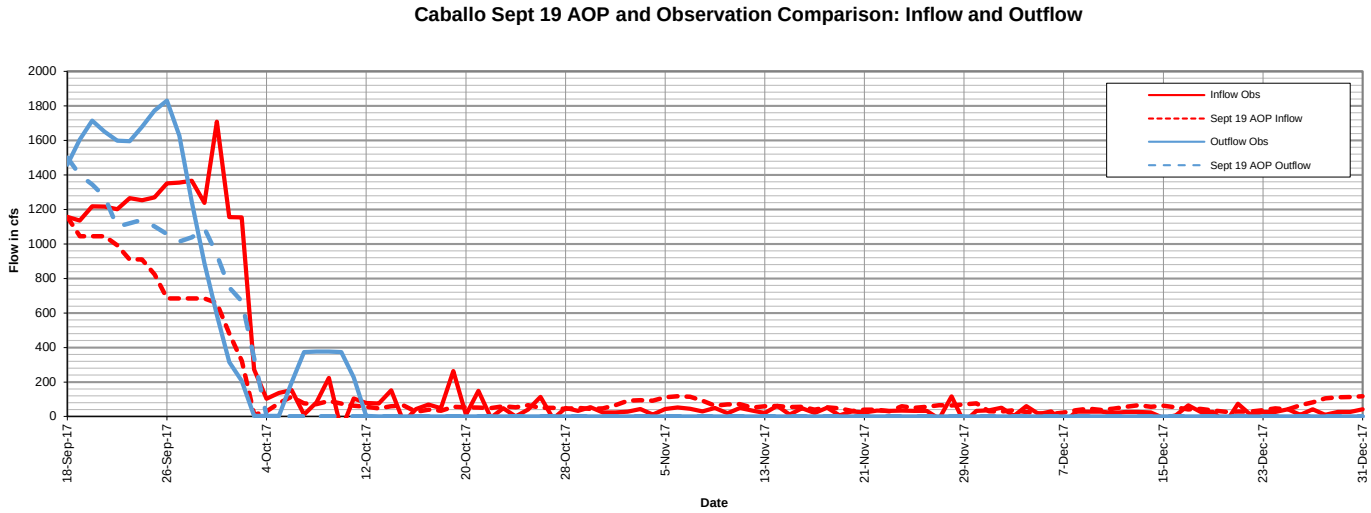


Dashed lines – forecast
Solid lines – observed

Caballo Reservoir

September 2017 Projections

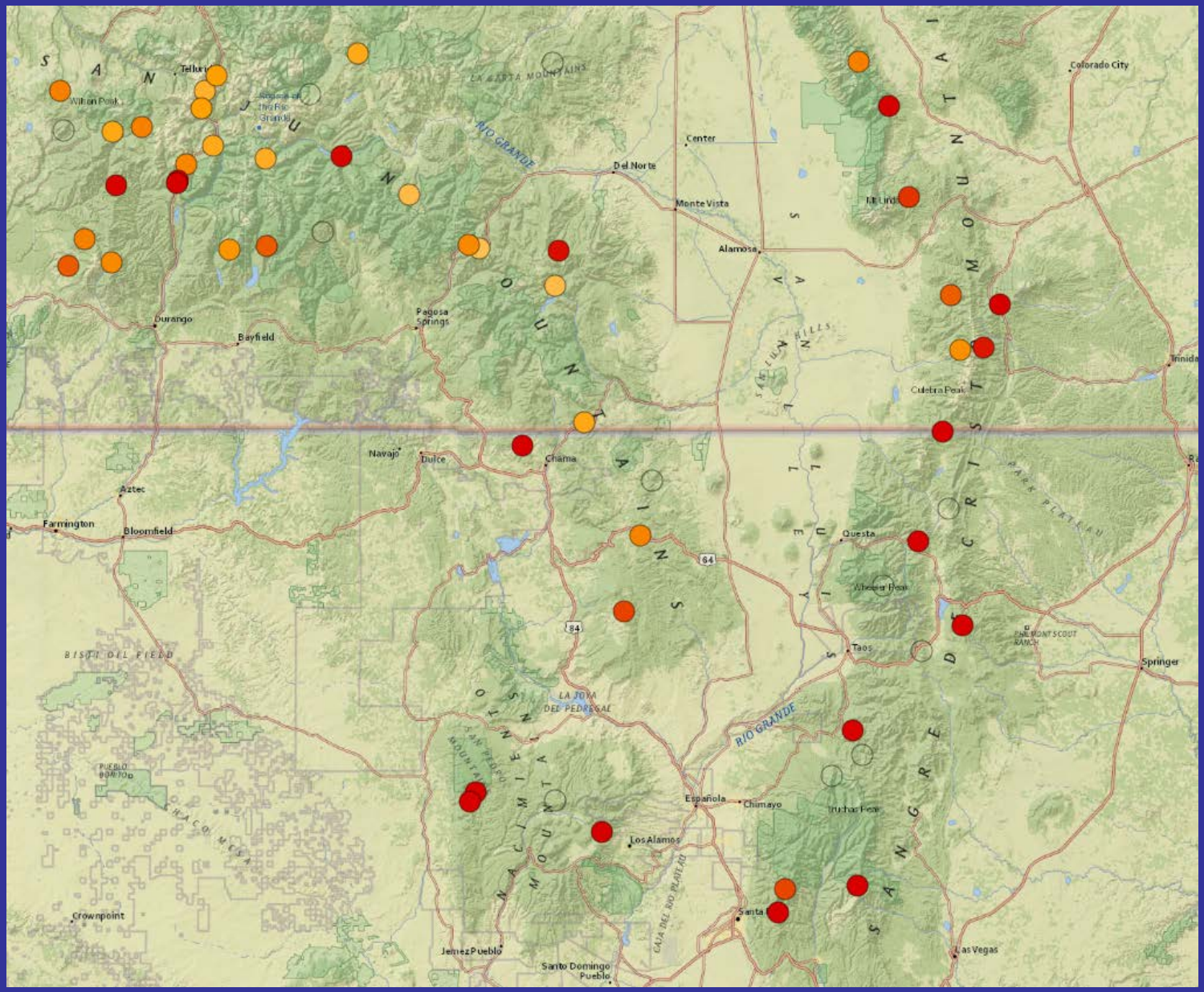




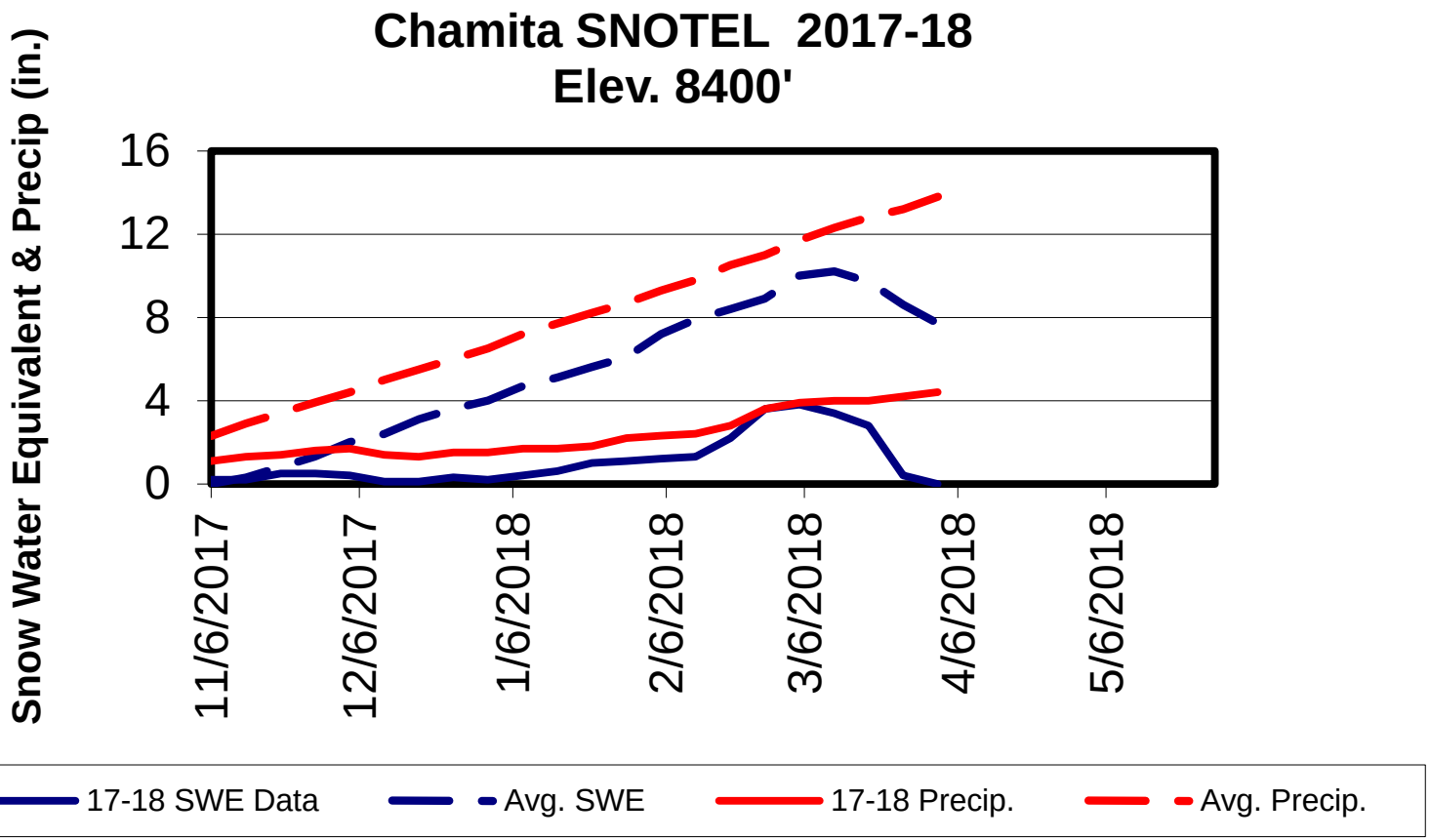
Dashed lines – forecast
Solid lines – observed

Current Snow Conditions

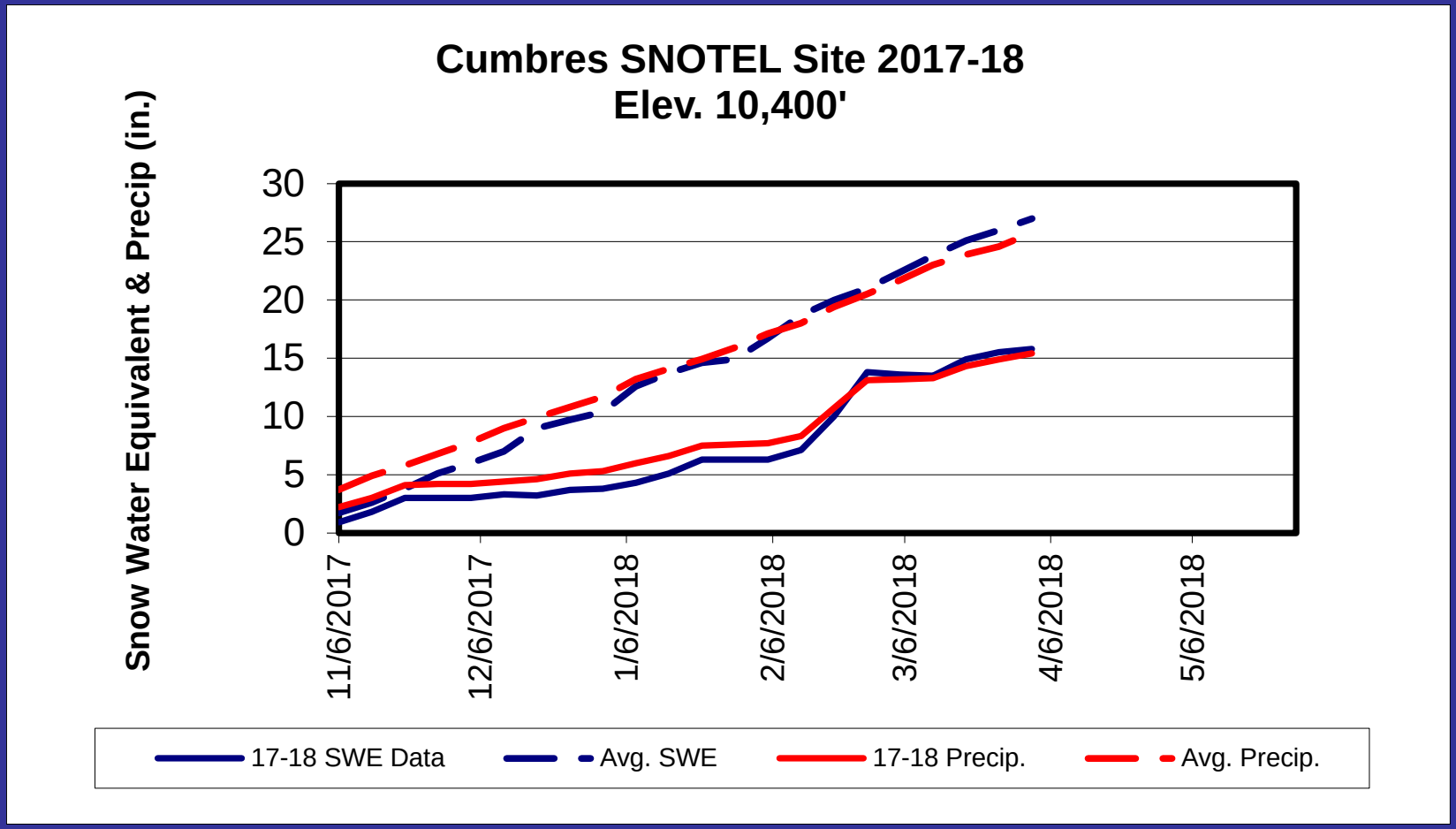
SNOTEL Locations



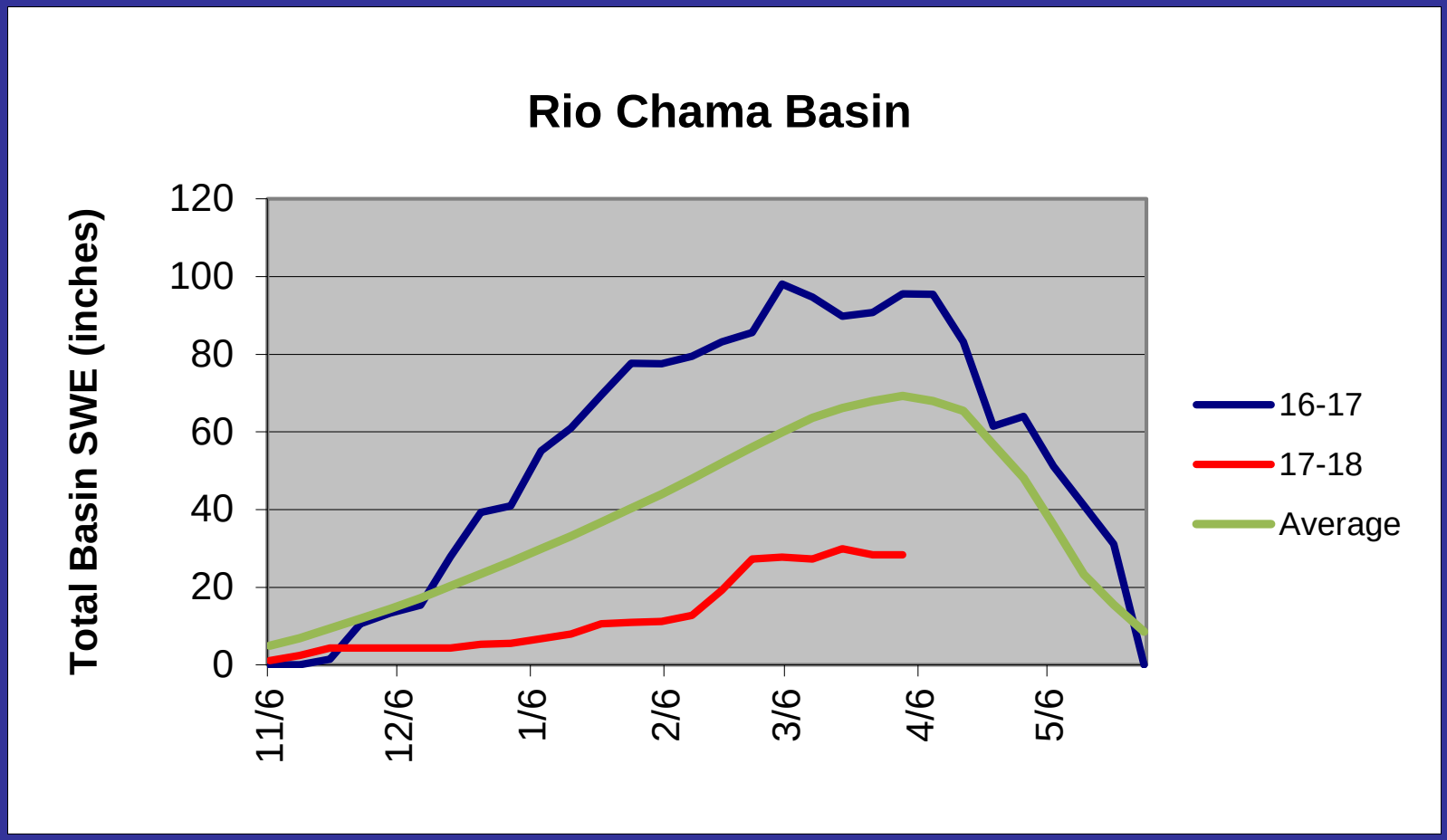
Rio Chama Snow Data



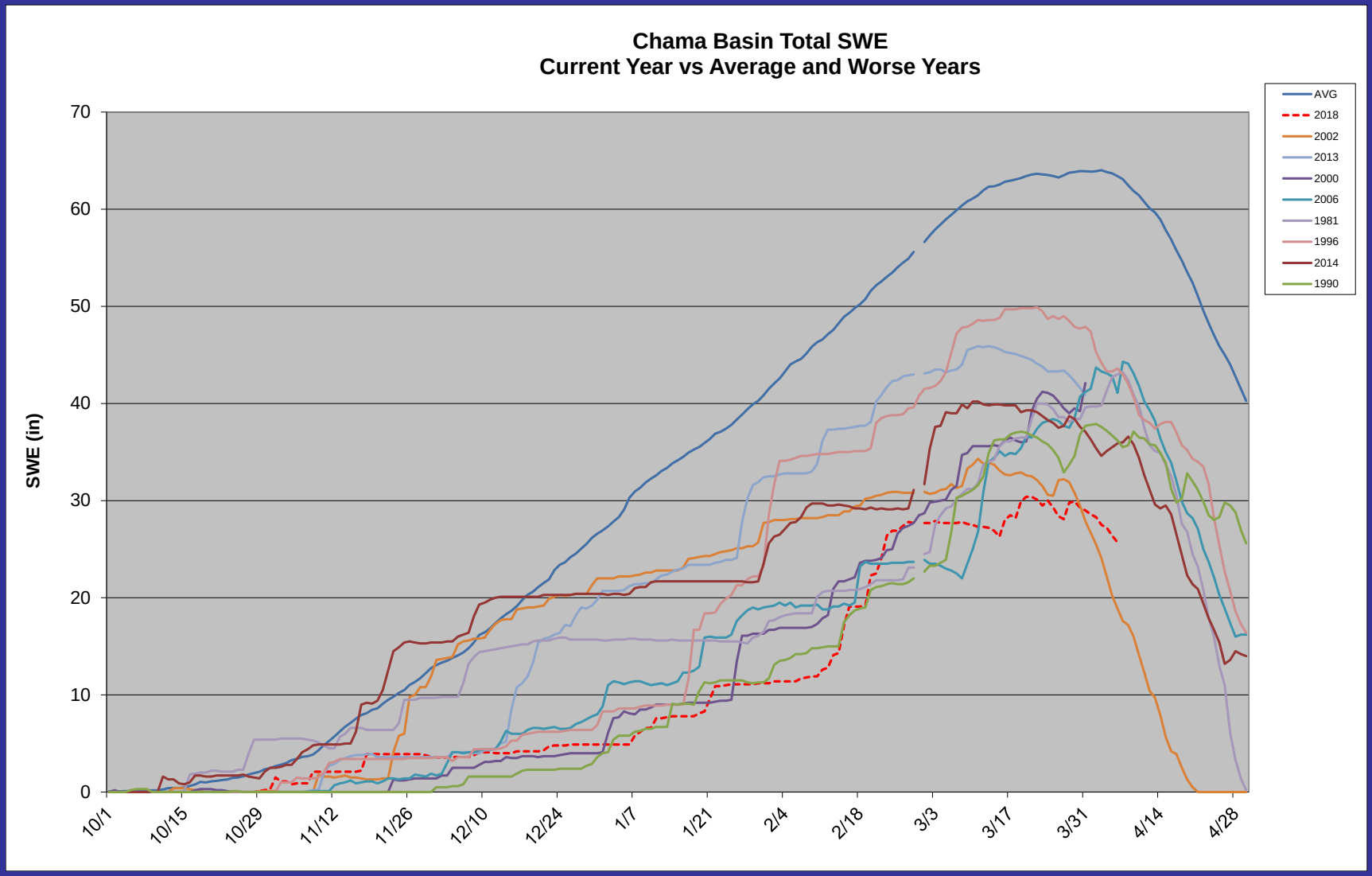
Rio Chama Snow Data



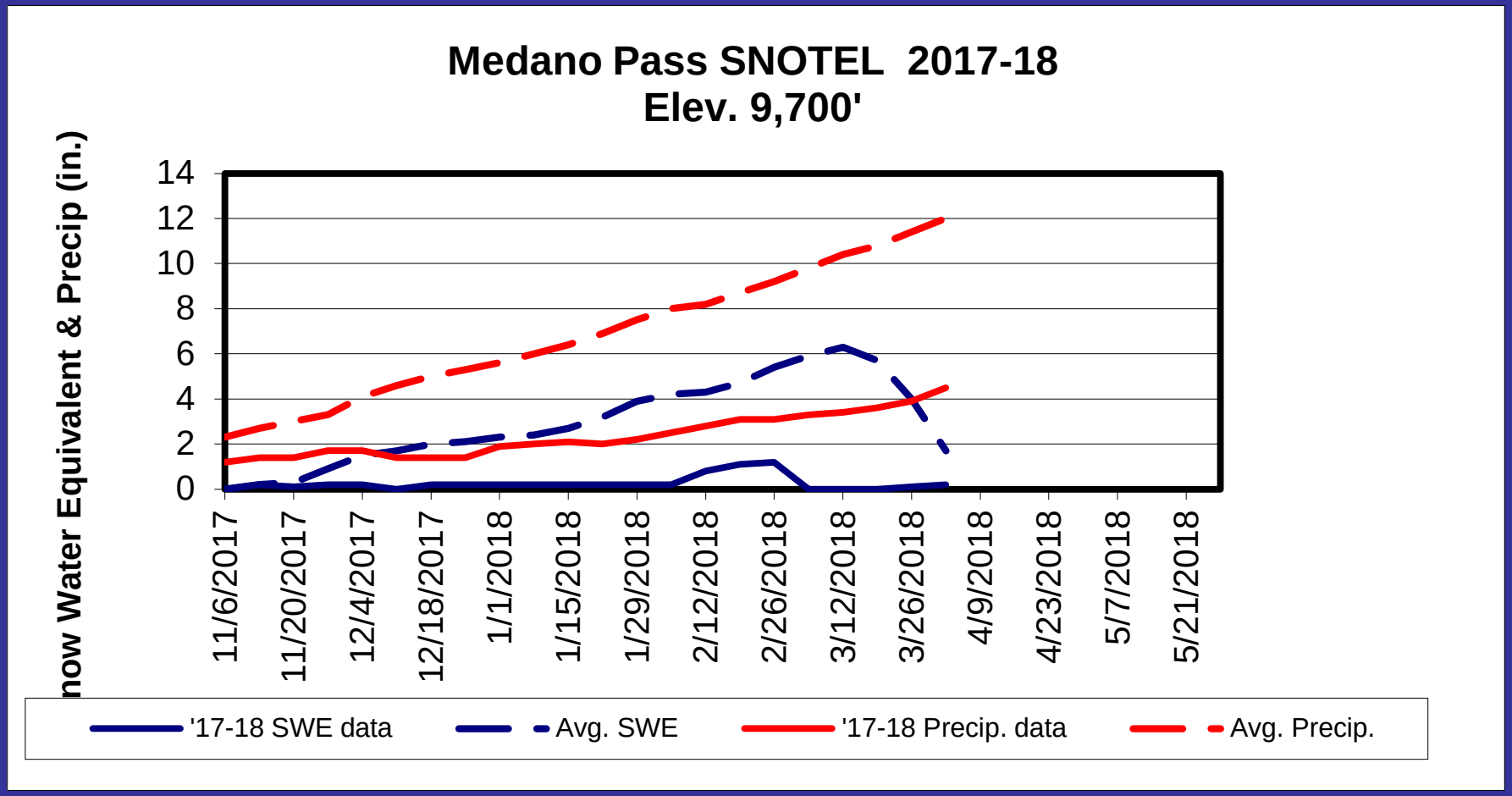
Rio Chama Snow Comparison



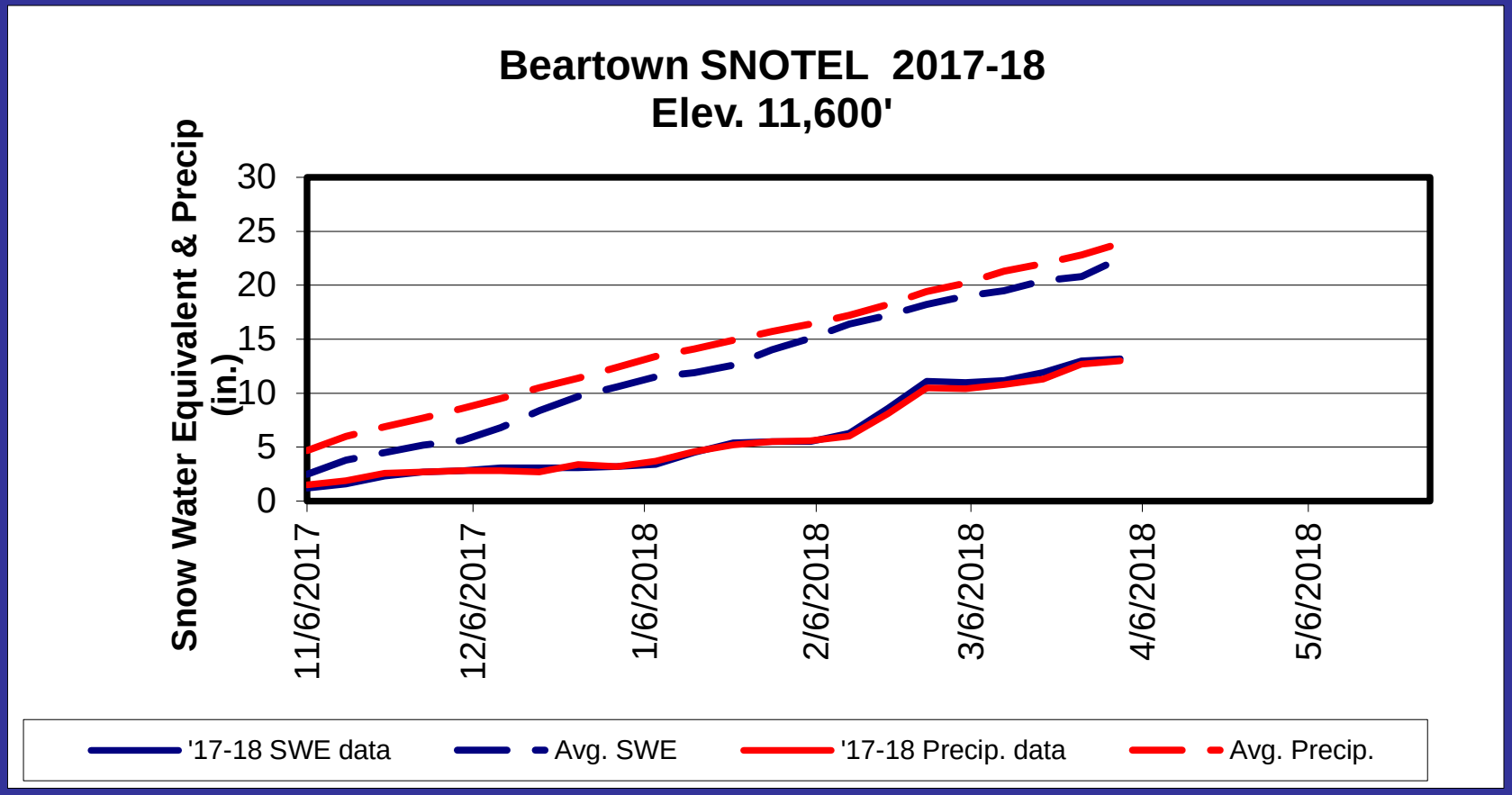
Similar Snowpack Years



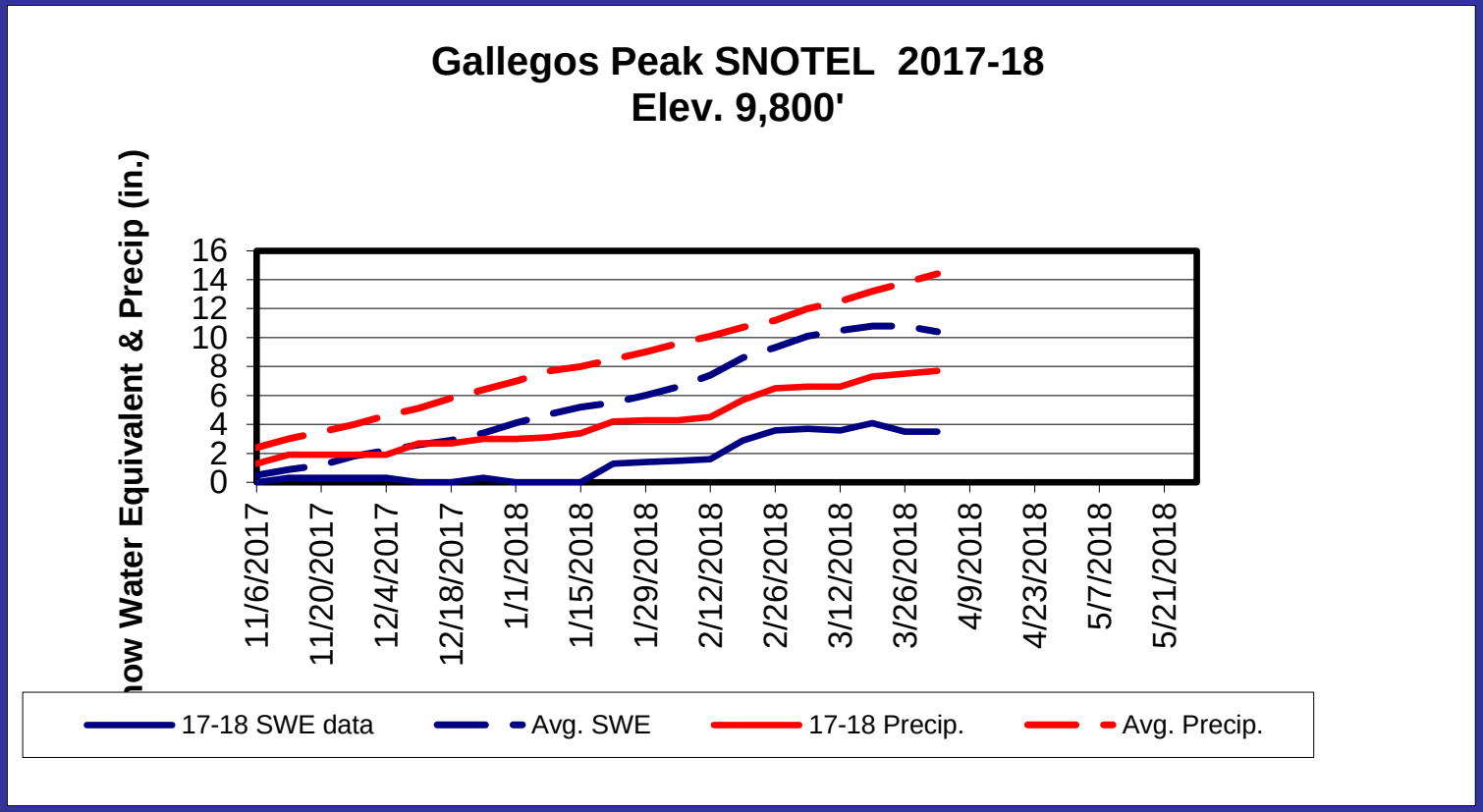
Rio Grande Snow Data



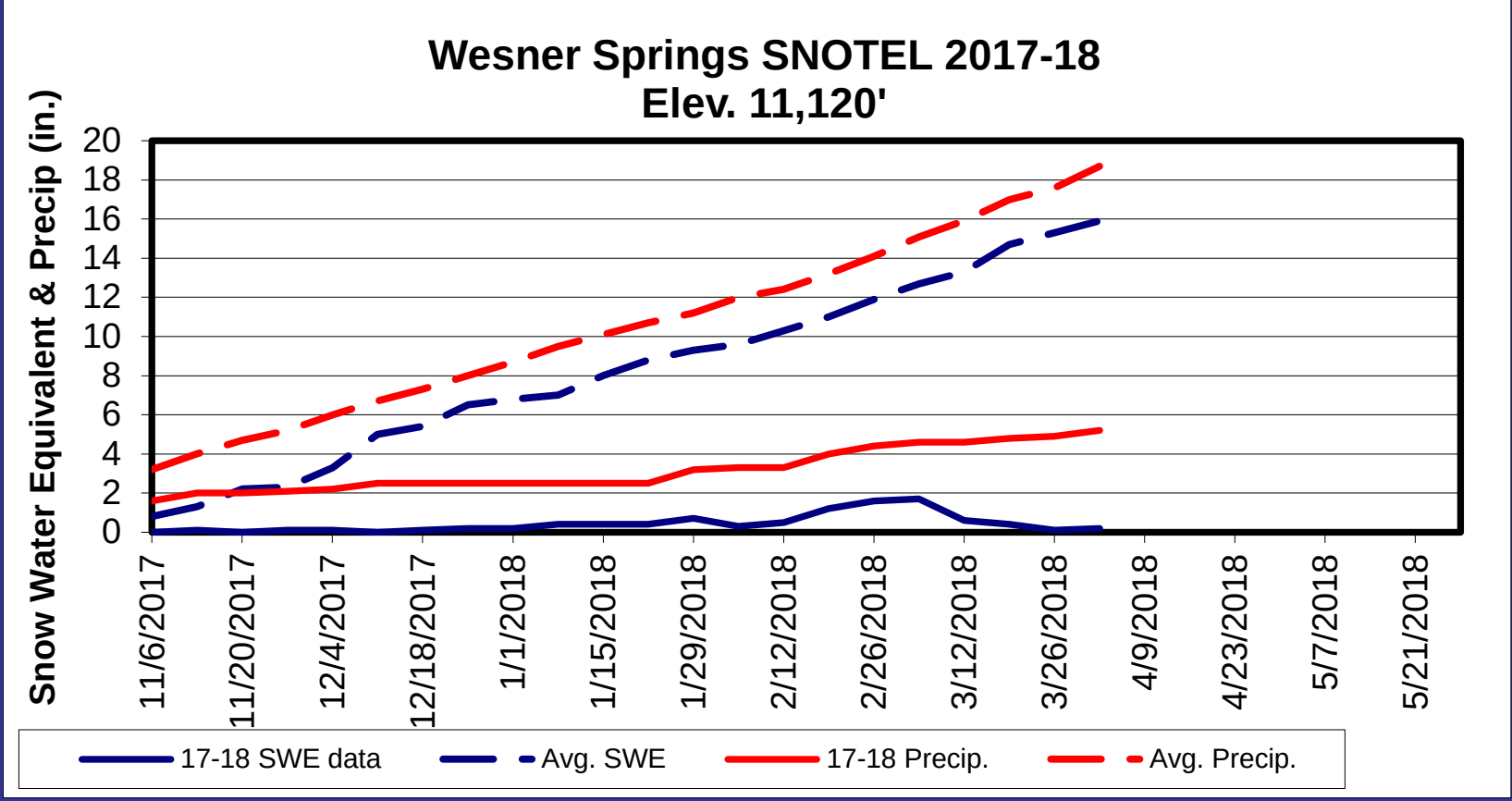
Rio Grande Snow Data



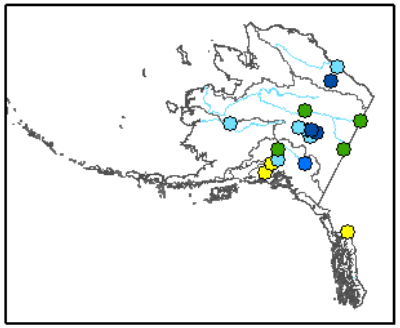
Sangre de Cristo Snow Data



Sangre de Cristo Snow Data

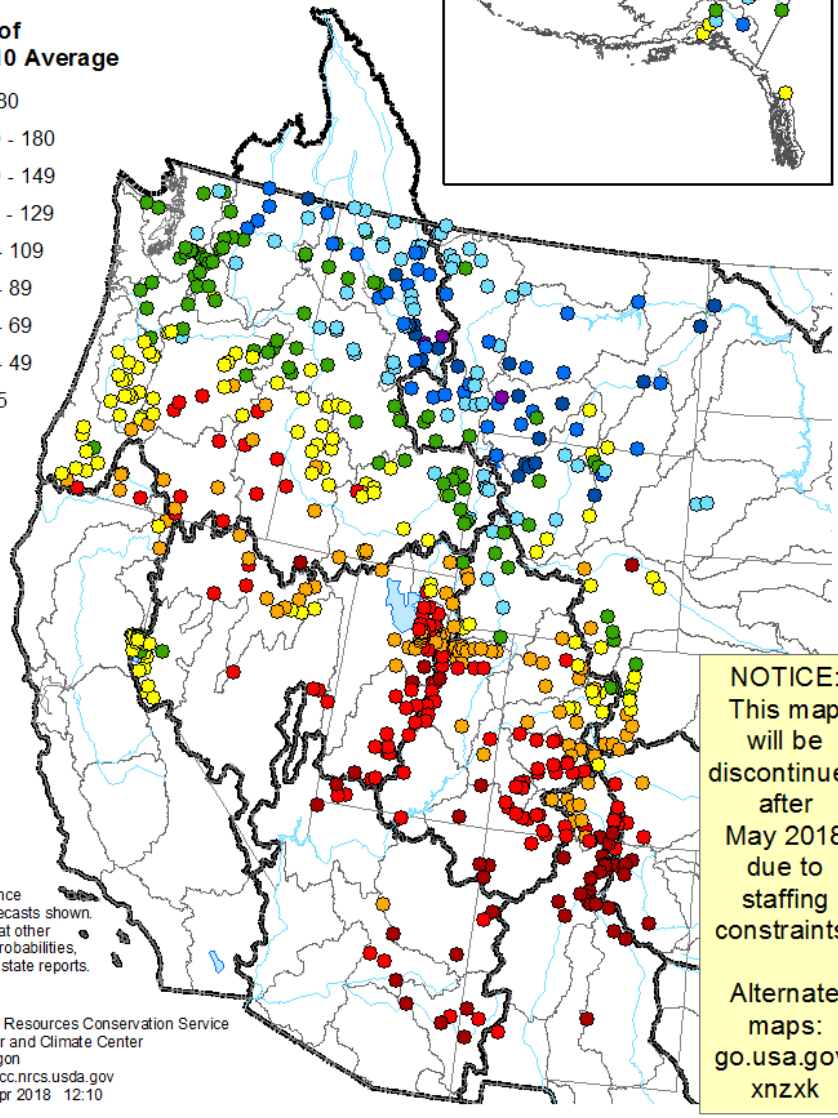


Spring and Summer Streamflow Forecasts as of April 1, 2018



Percent of 1981-2010 Average

- > 180
- 150 - 180
- 130 - 149
- 110 - 129
- 90 - 109
- 70 - 89
- 50 - 69
- 25 - 49
- < 25



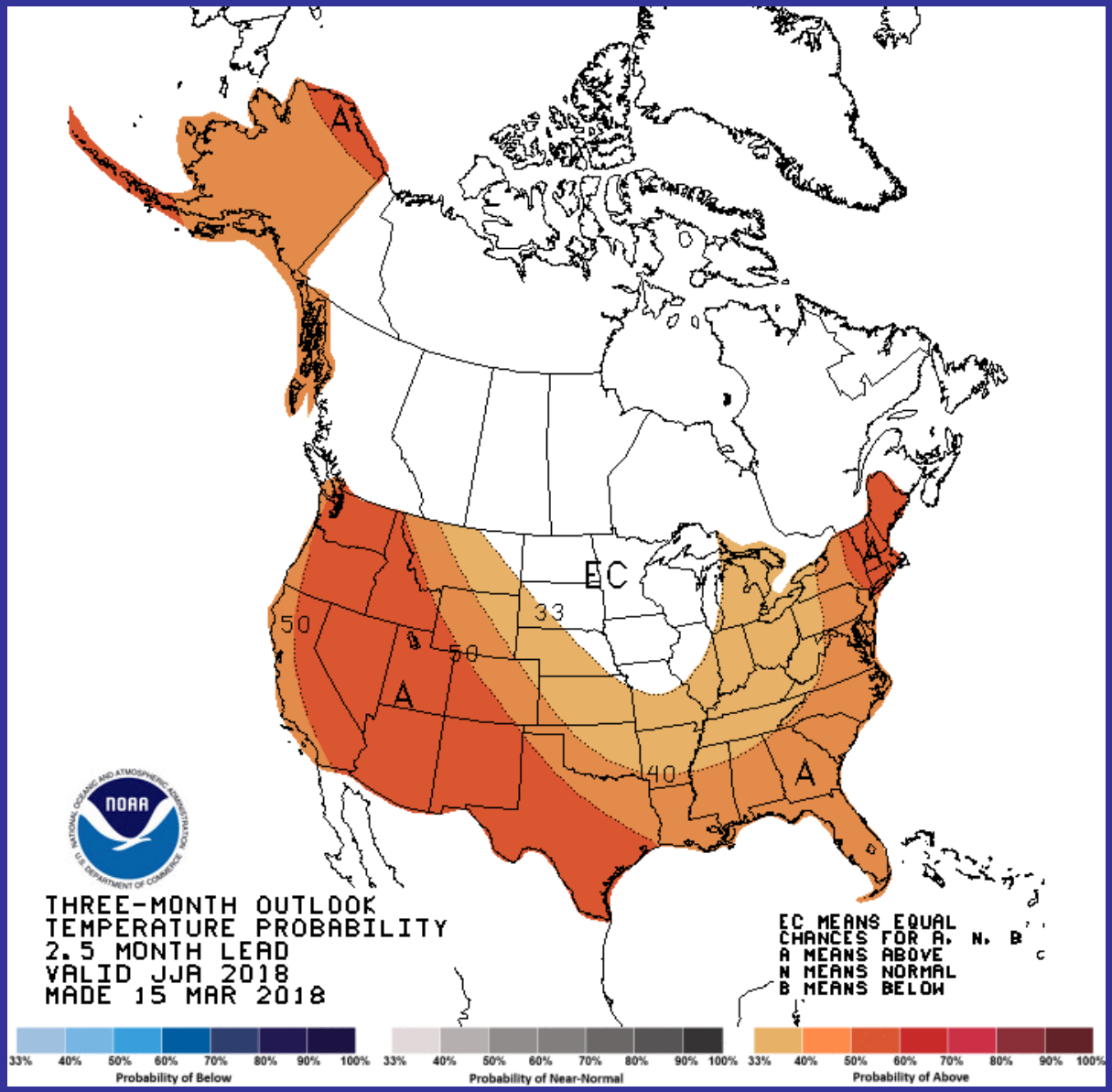
50% exceedance probability forecasts shown. For forecasts at other exceedance probabilities, see individual state reports.

Prepared by:
USDA Natural Resources Conservation Service
National Water and Climate Center
Portland, Oregon
https://www.wcc.nrcs.usda.gov
Created: 6 Apr 2018 12:10

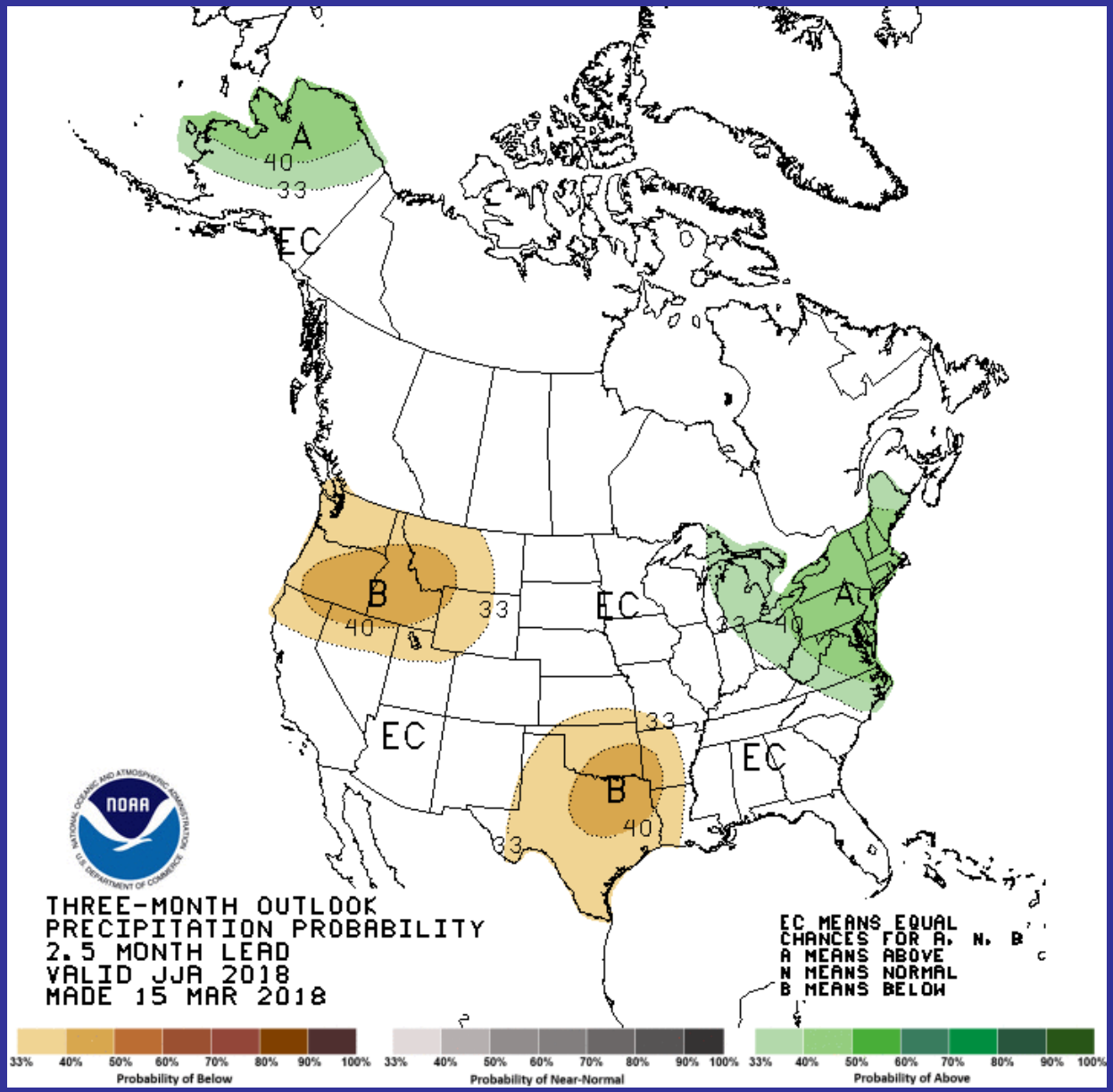
NOTICE: This map will be discontinued after May 2018 due to staffing constraints.

Alternate maps: go.usa.gov/xnzxk

Monsoon Season Temperature Outlook



Monsoon Season Precipitation Outlook



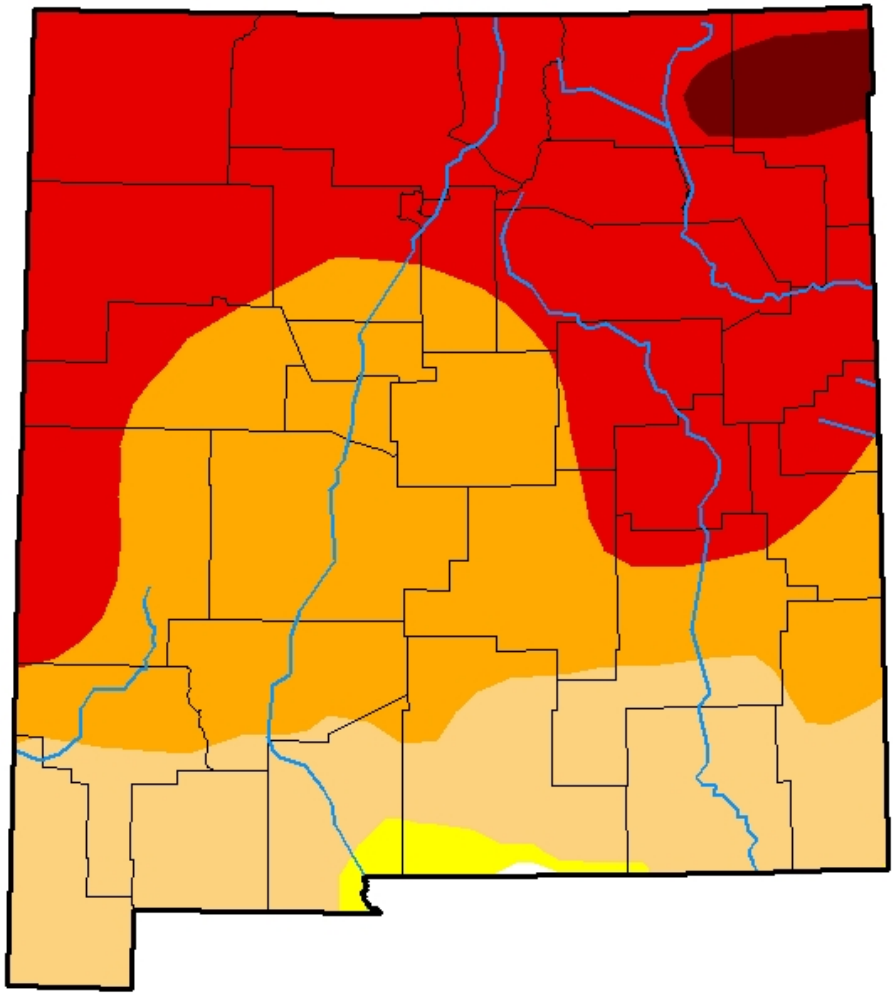
U.S. Drought Monitor

New Mexico

April 10, 2018

(Released Thursday, Apr. 12, 2018)

Valid 8 a.m. EDT



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

David Miskus
NOAA/NWS/NCEP/CPC

http://droughtmonitor.unl.edu/

2018 Water Operations Modeling

MRG Project Assumptions

- April 1 70% most probable forecast
- Storage of water for Prior & Paramount lands

Results:

- Back into Article VII restrictions by May
- MRGCD uses all of its storage
- No supplemental water left by August (18,000 ac-ft used)

Rio Grande Project Input

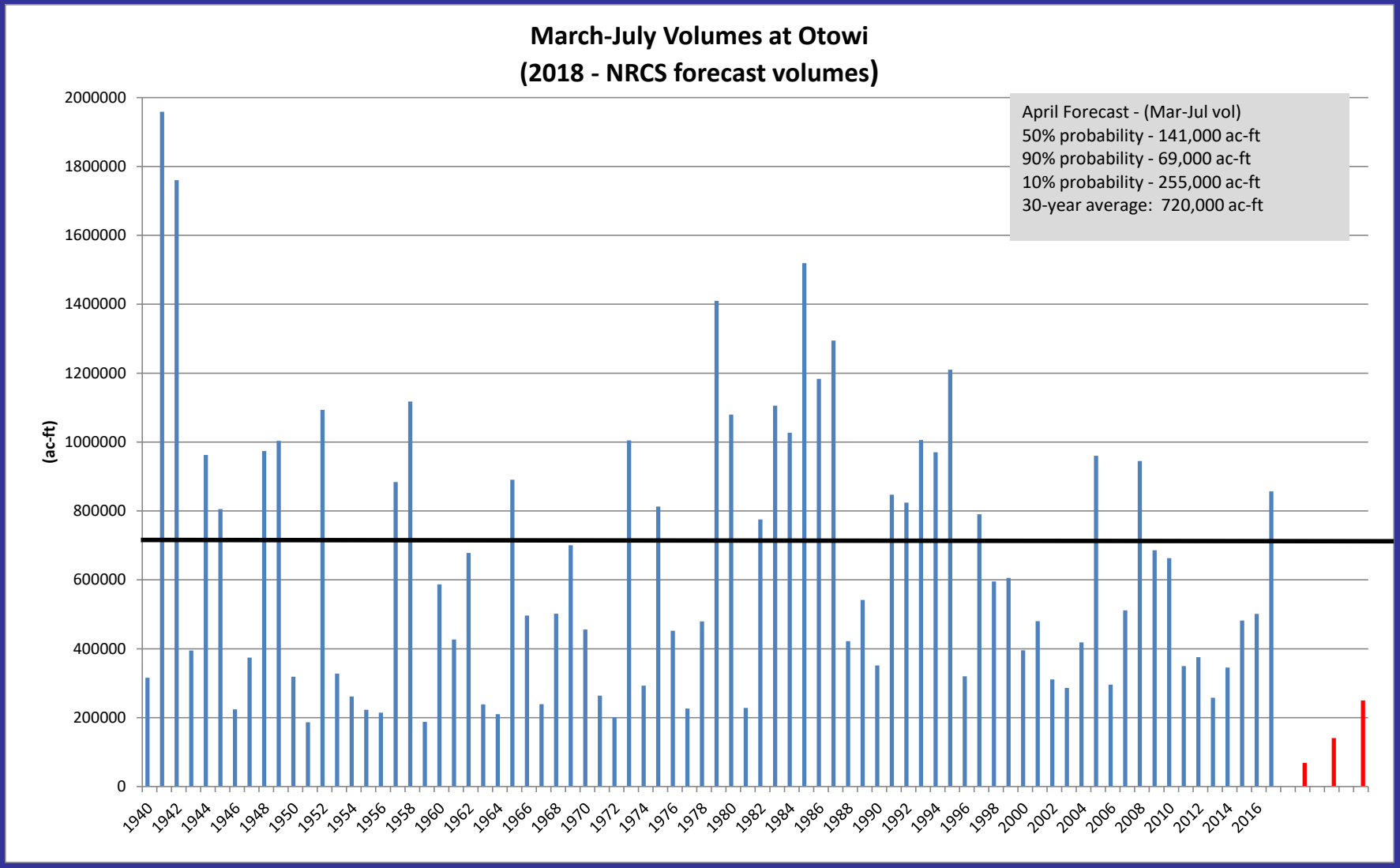
- February 23 - Elephant Butte releases began
- March 16 - Caballo releases began
- March 19 - EPCWID diversions began
- March 20 - MX diversions began
- March Allocation – EPCWID (309,284 ac-ft), EBID (119,329 ac-ft), MX (36,879 ac-ft) (~59% of full)

- April 15 - EBID (Arrey) will come on-line
- June 1 - EBID (Mesilla) will come on-line
- End of July - EBID will end irrigation season
- Mid-September - EP1 will end irrigation season

April Forecast Data

	Most Probable Percent of Average		April 1 70% Probability Volume, ac-ft
	2017	2018	2018
Rio Grande nr Del Norte	109%	50%	215,000
El Vado Reservoir Inflow	160%	18%	30,000
Rio Grande at Otowi	128%	20%	106,000
Nambe Reservoir Inflow	89%	24%	1,100
Jemez blw Jemez Dam	74%	6%	1,100
Rio Blanco @ Diversion	117%	48%	22,000
Navajo River @ Diversion	115%	46%	25,000

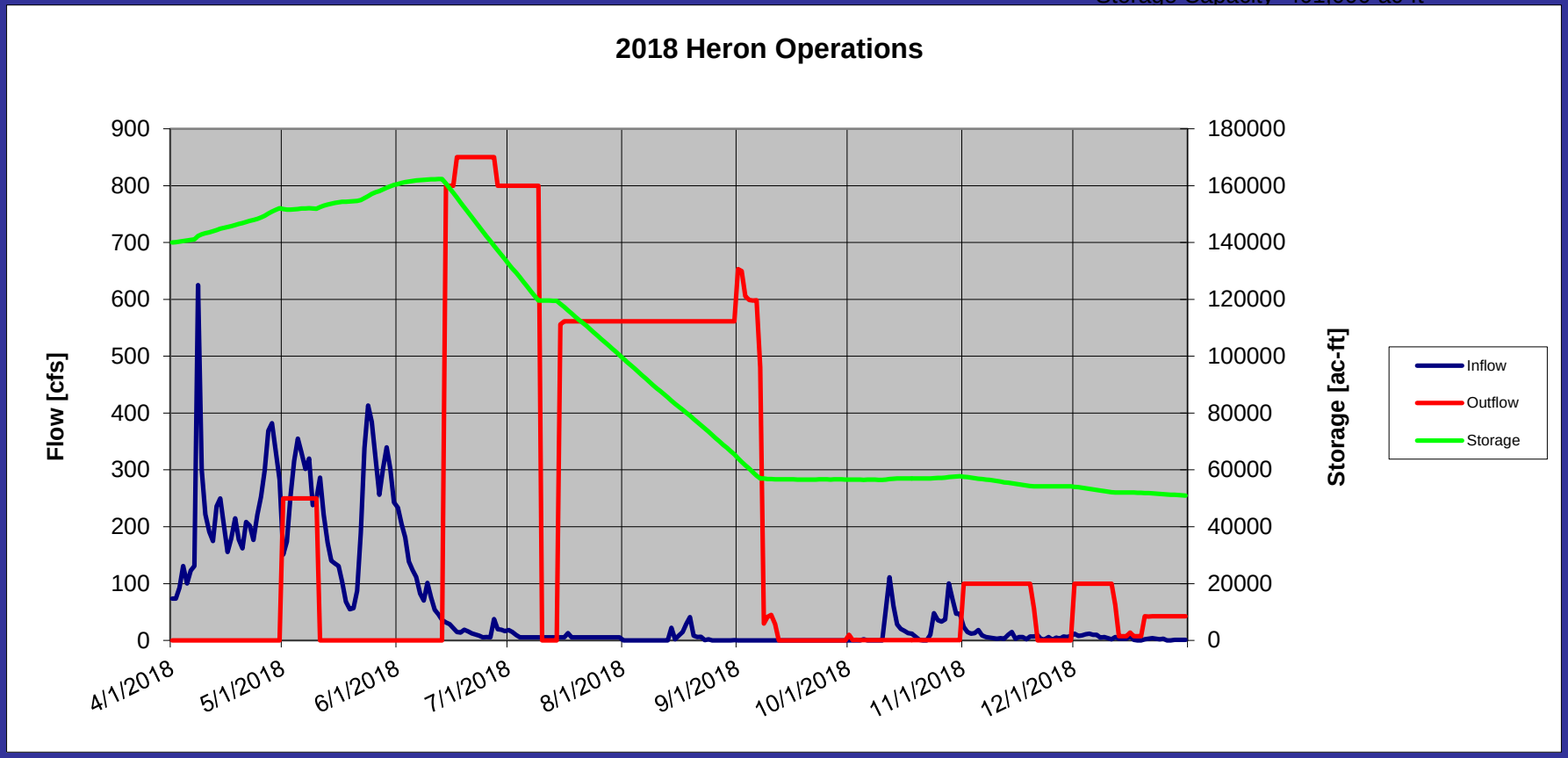
Historic Mar-Jul Flow Volumes at Otowi



Heron Reservoir

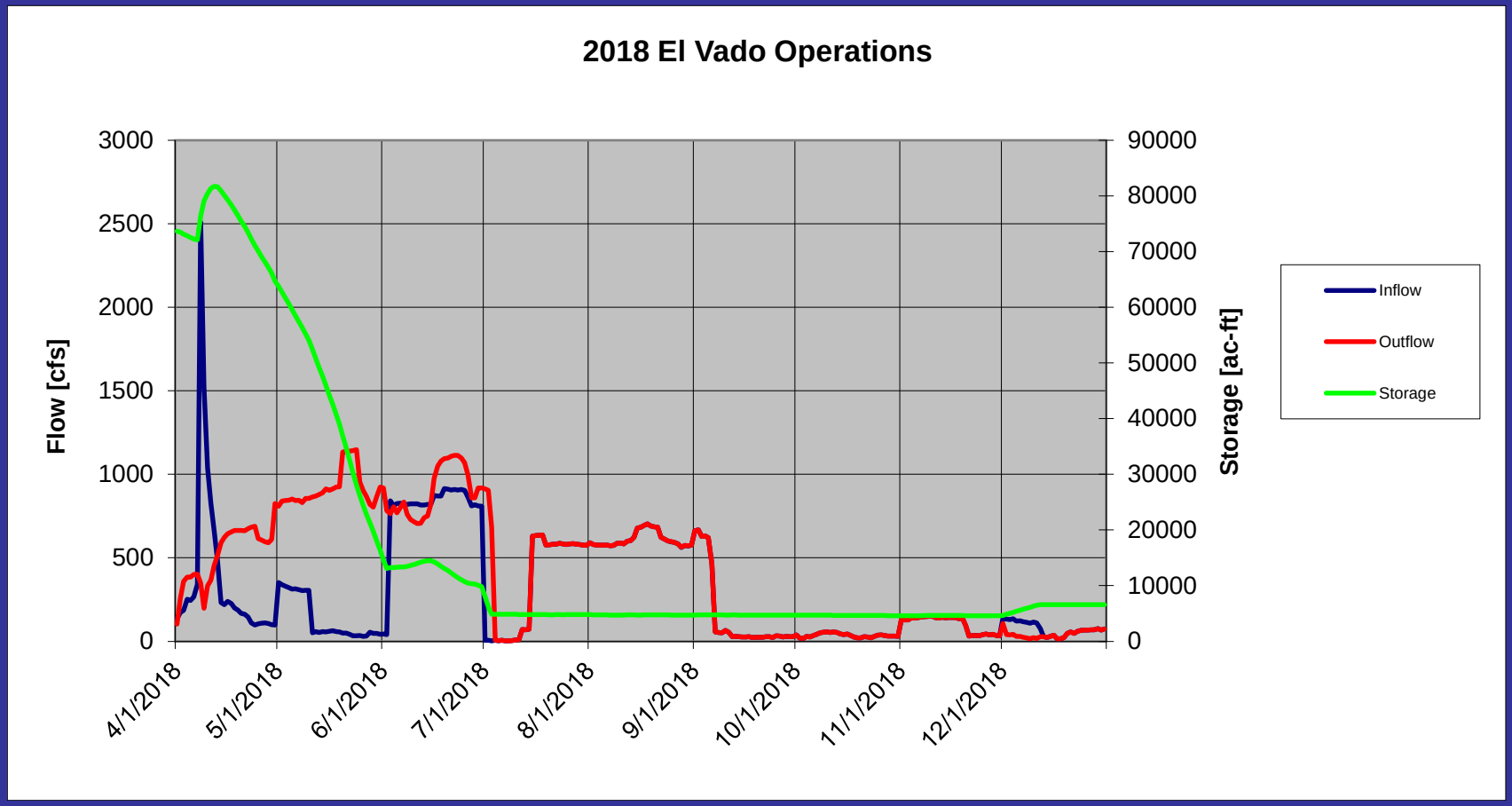
Proposed 2018 Heron Operations

Storage Capacity=401,000 ac-ft



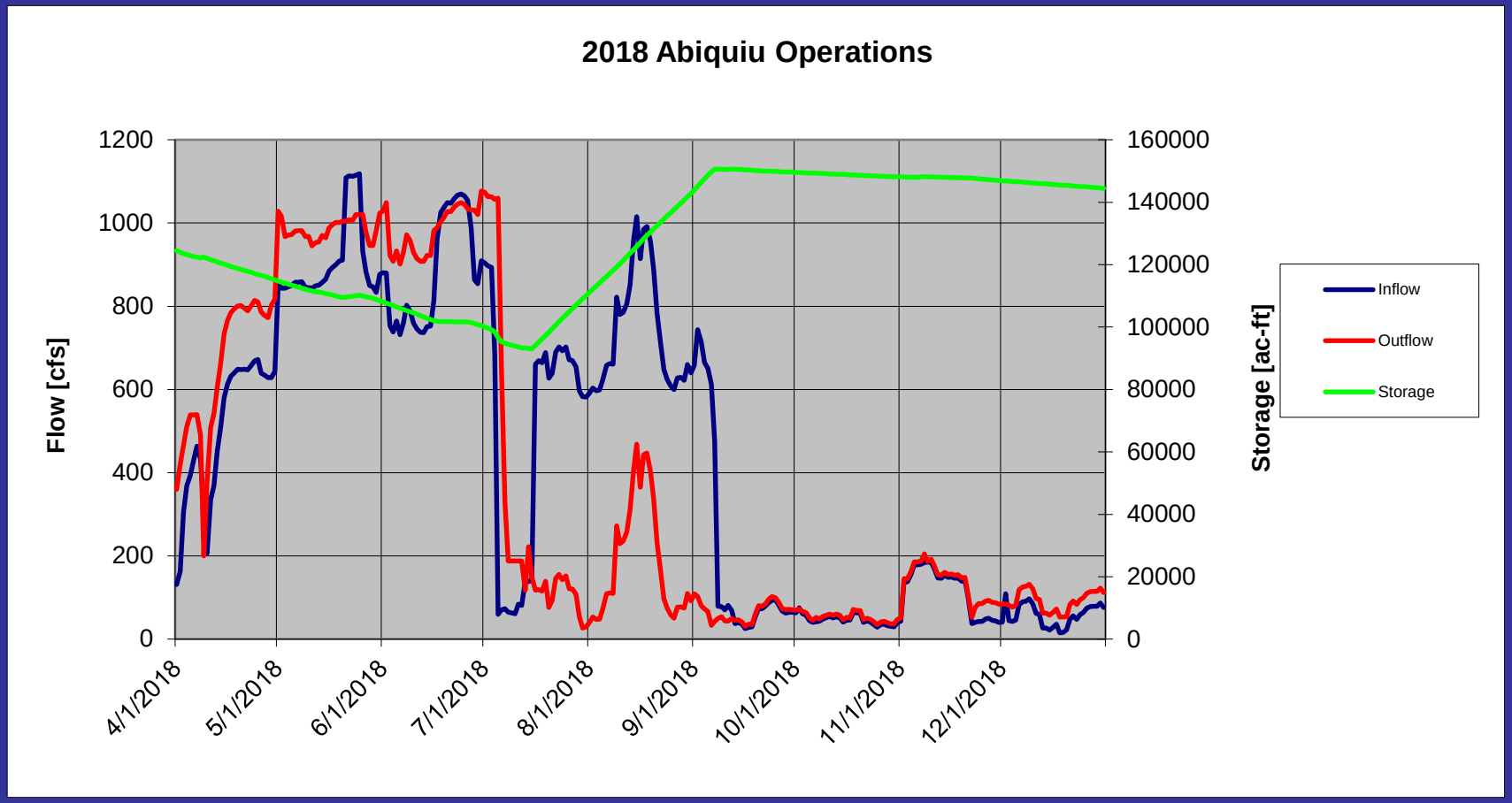
El Vado Reservoir

Proposed 2018 El Vado Operations

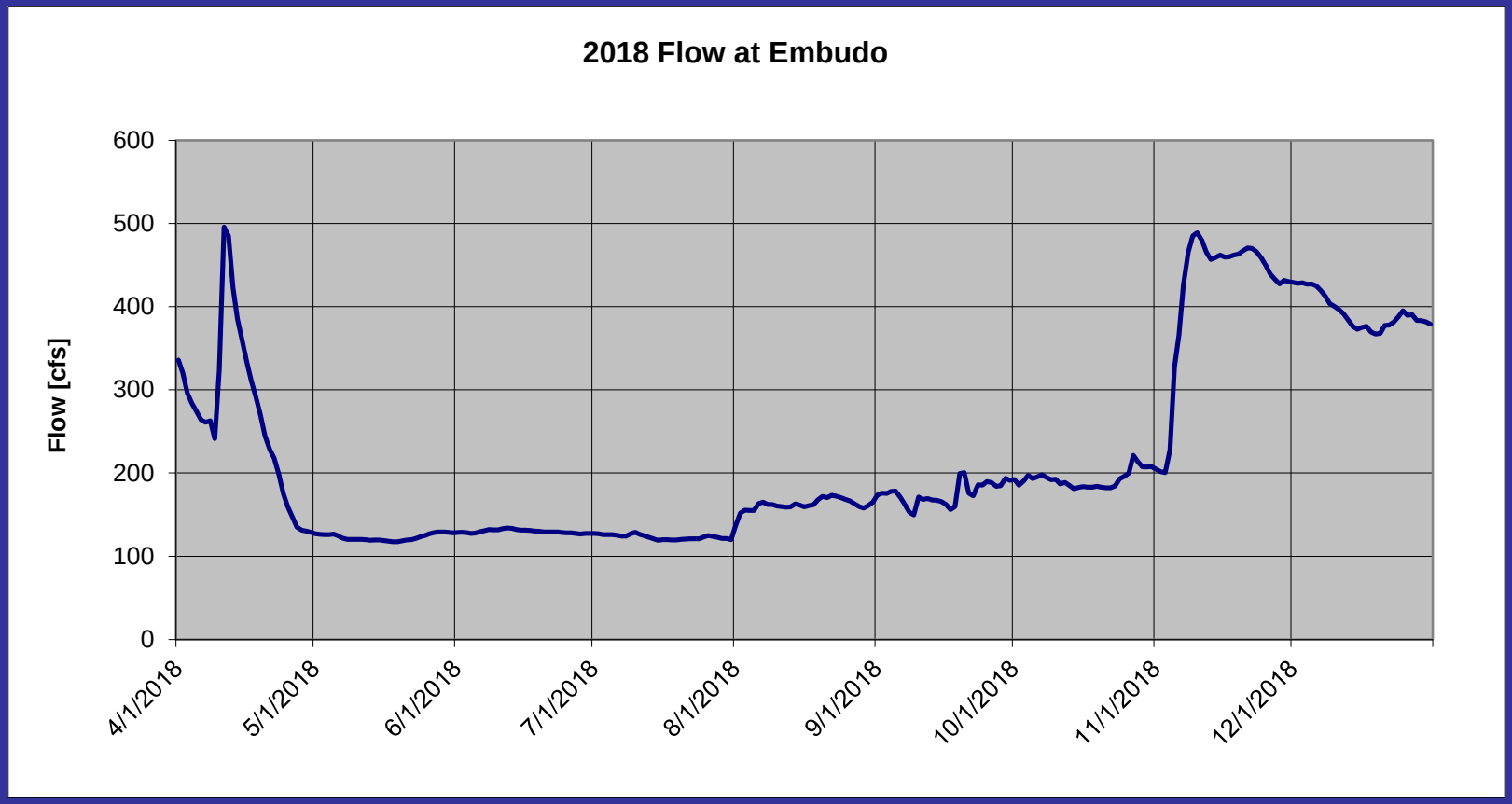


ABIQUIU LAKE

Proposed 2018 Abiquiu Operations

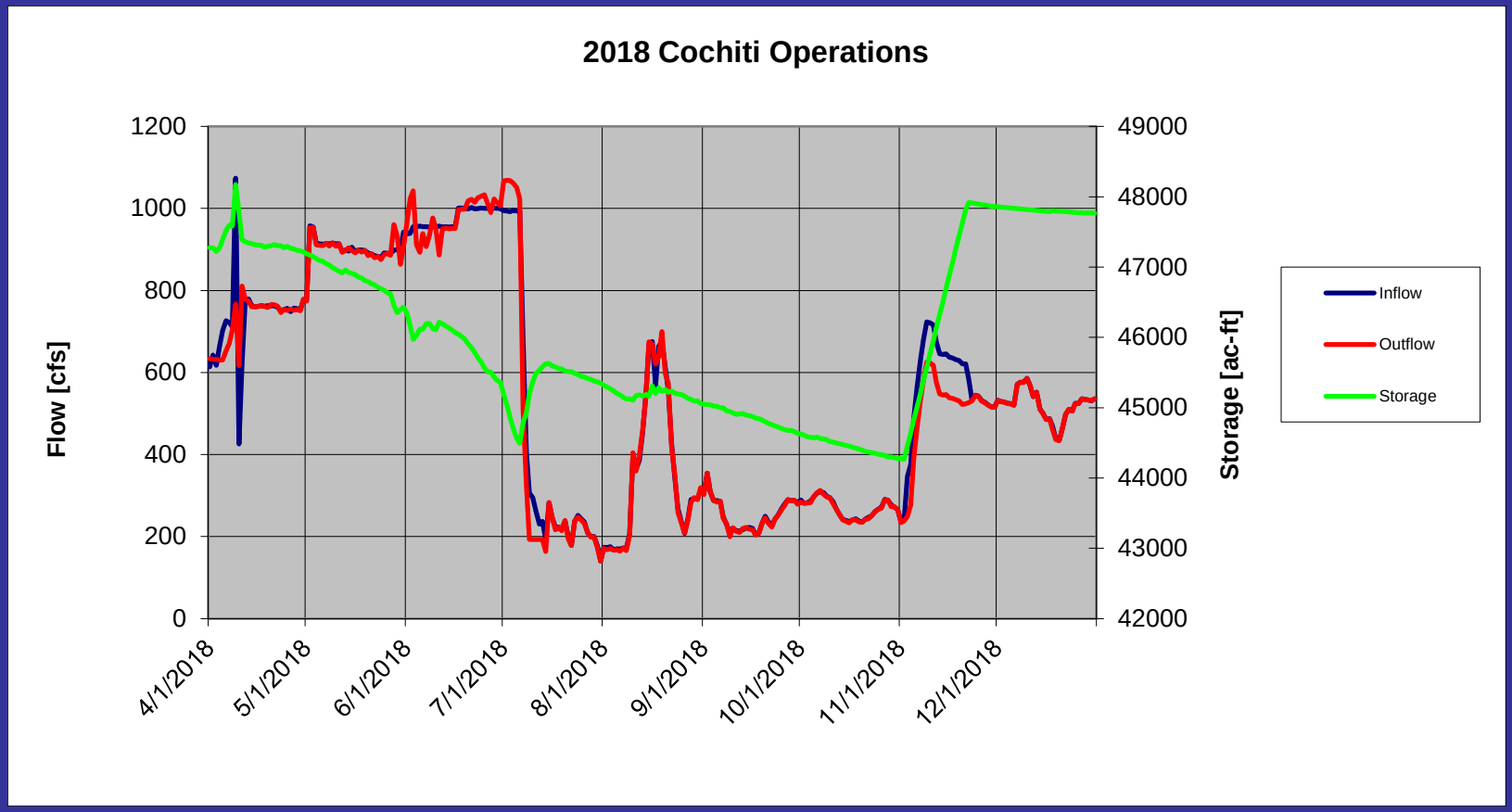


Estimated Hydrograph at Embudo

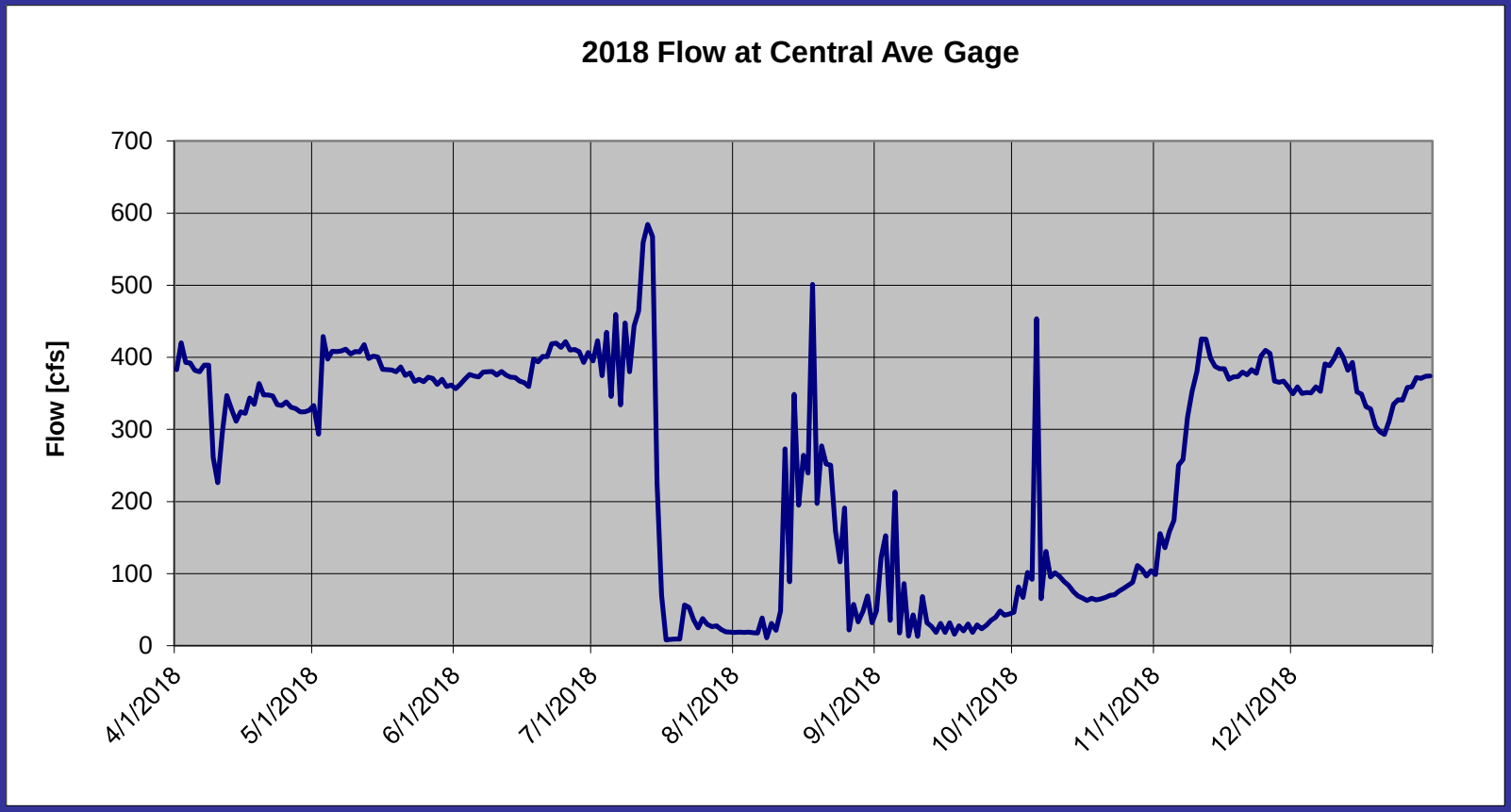



COCHITI LAKE

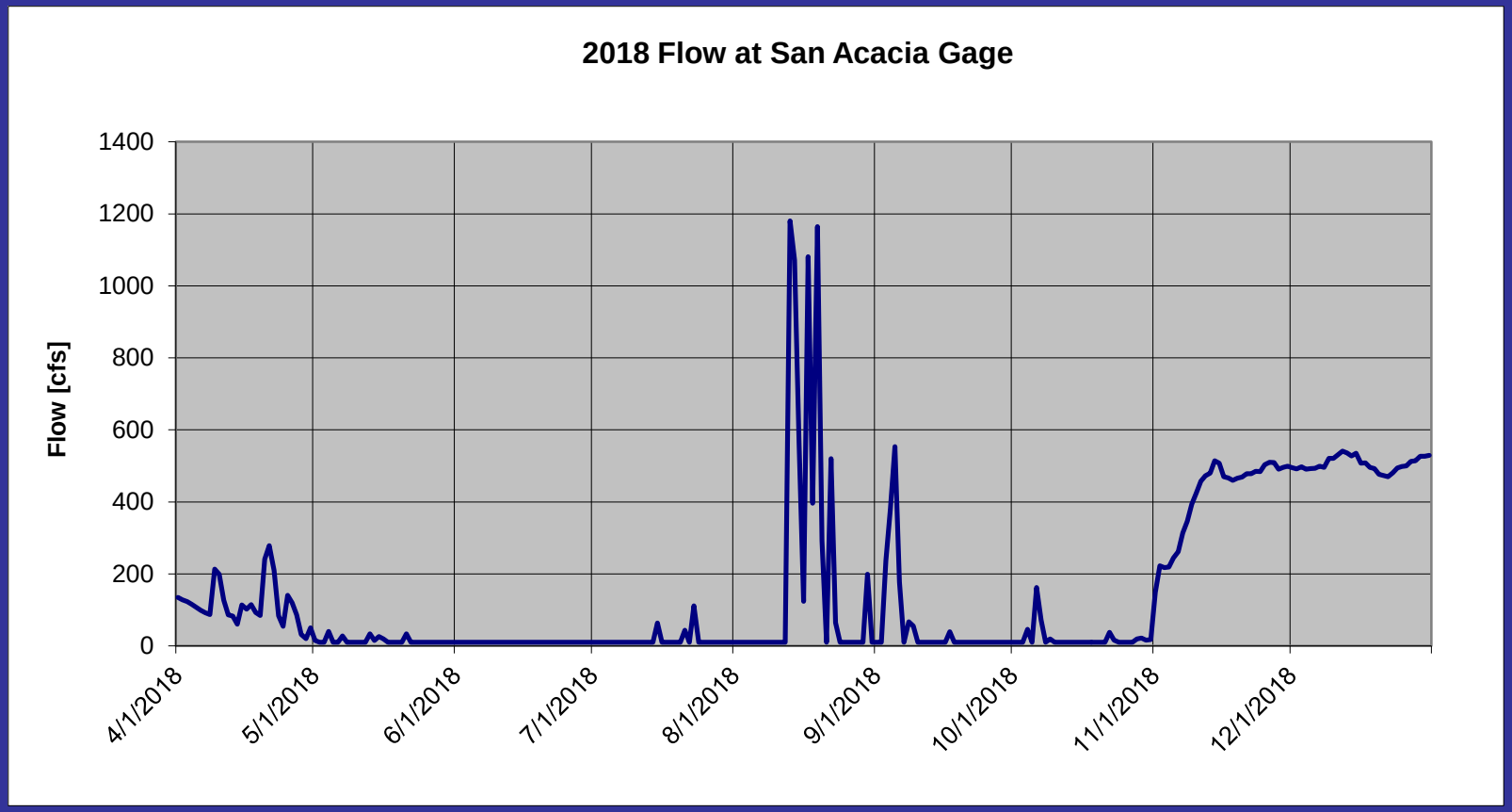
Proposed 2018 Cochiti Operations



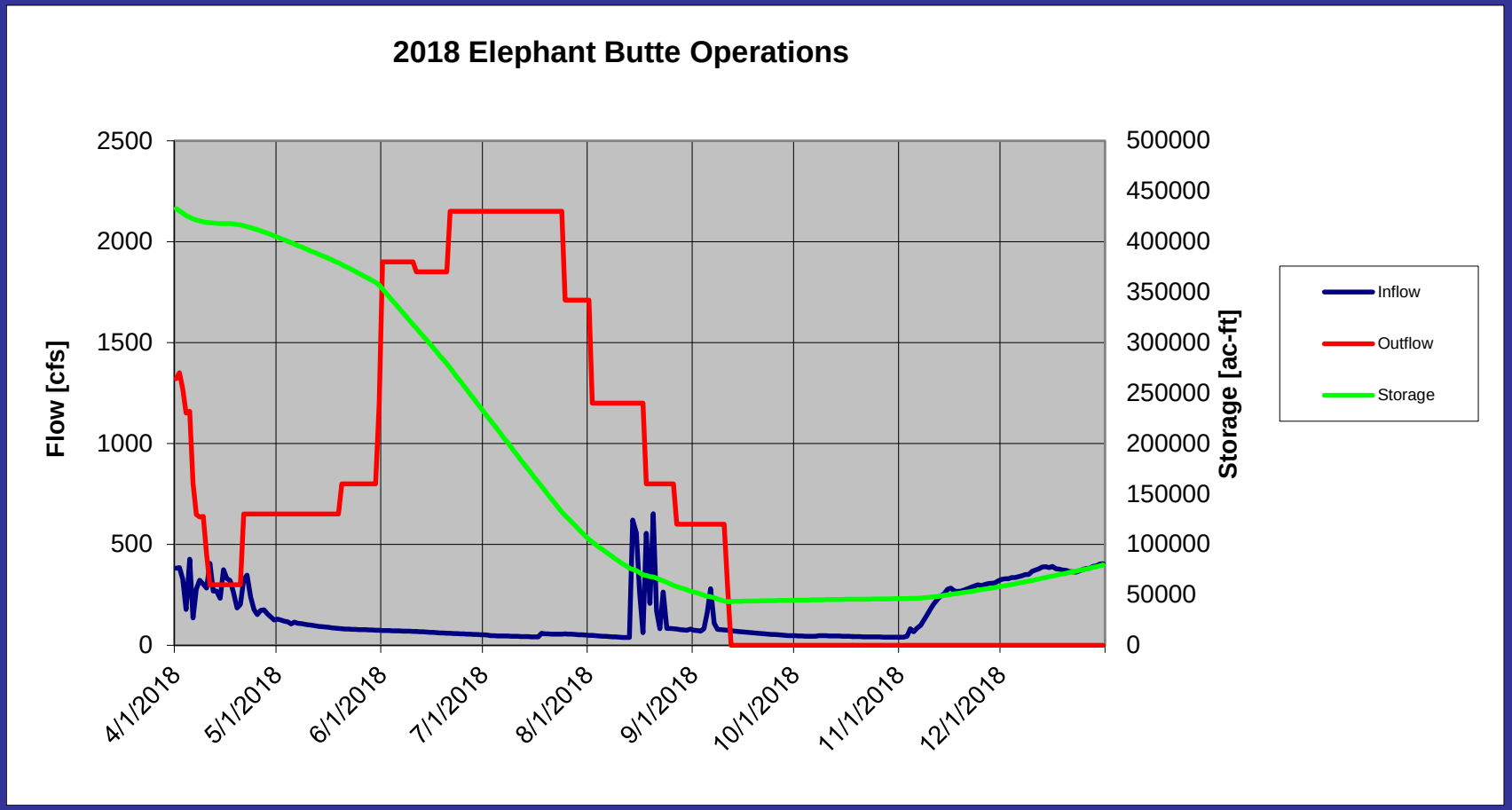
Estimated Hydrograph at Central Ave.

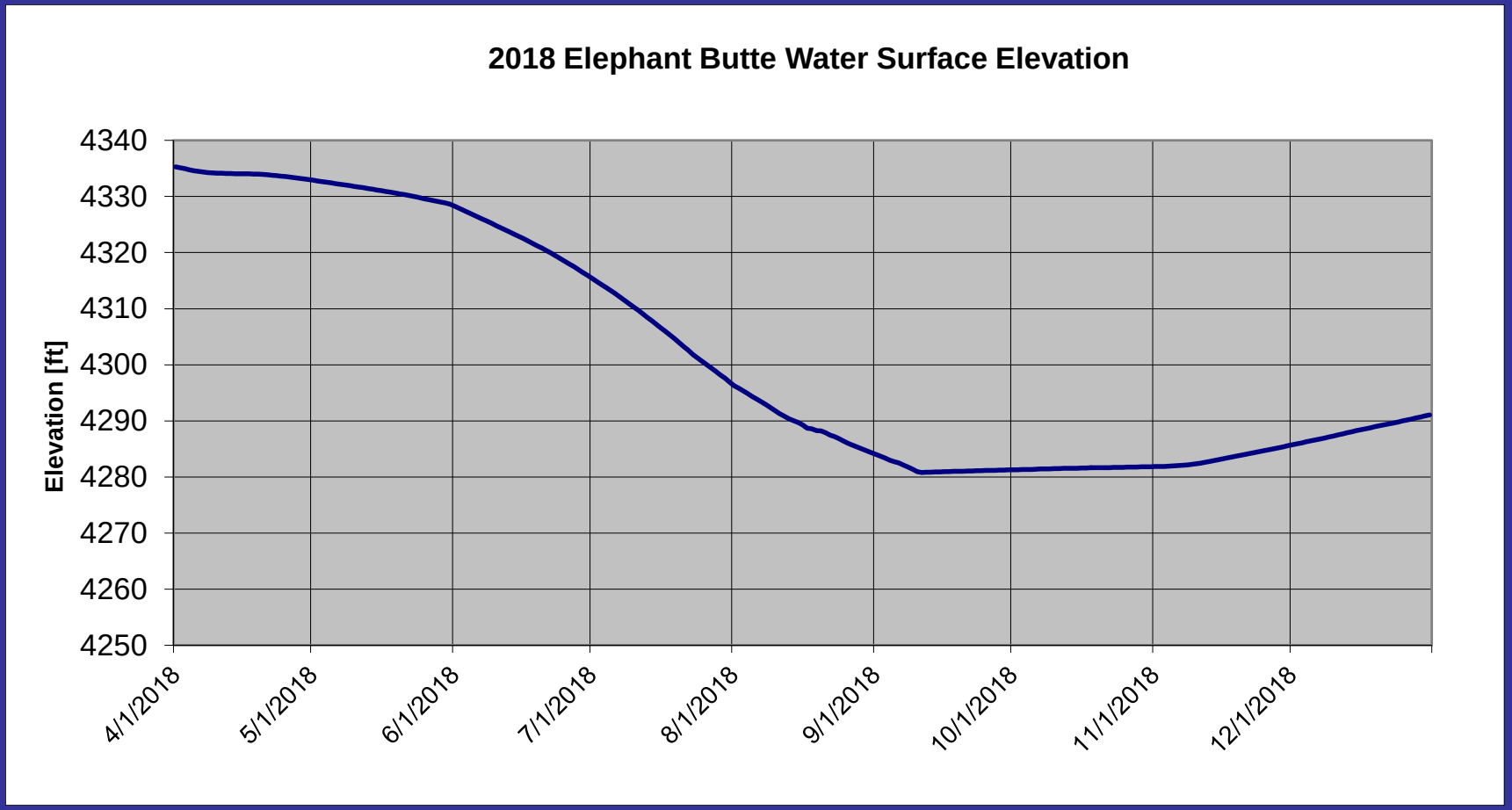


Estimated Flow at San Acacia

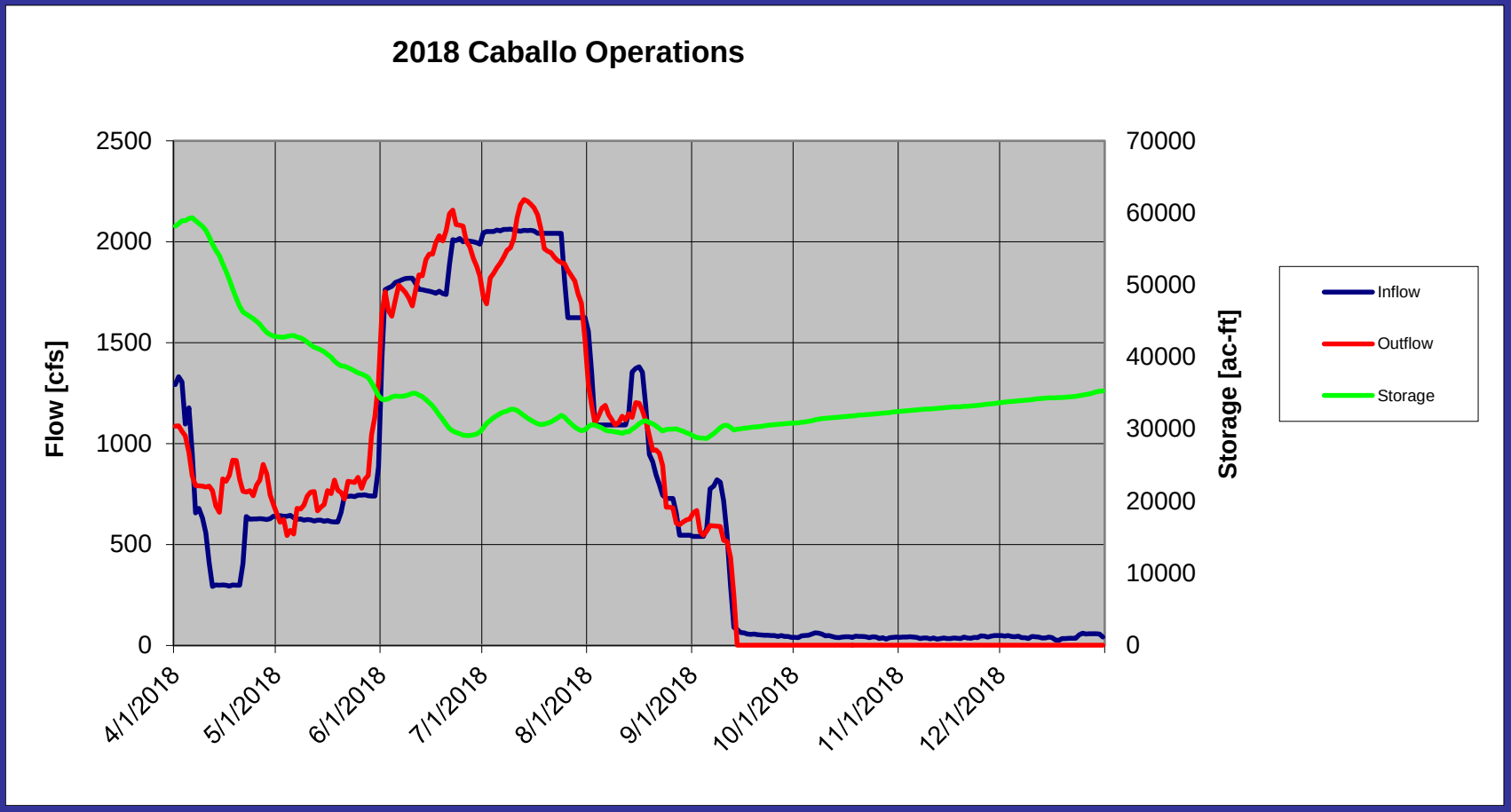


Proposed Elephant Butte Operations




2018 Elephant Butte Water Surface Elevation
Elevation [ft]
4340
4330
4320
4310
4300
4290
4280
4270
4260
4250
4/1/2018
5/1/2018
6/1/2018
7/1/2018
8/1/2018
9/1/2018
10/1/2018
11/1/2018
12/1/2018

Proposed Caballo Operations



WaterSMART Financial Assistance Programs
https://www.usbr.gov/watersmart

- Water and Energy Efficiency Grants
  - Awarded to projects that result in quantifiable water savings and support broader water reliability benefits
  - Proposals due by 4:00 p.m. MDT on May 10, 2018
  - View Grant opportunity at https://www.grants.gov/web/grants/view-opportunity.html?oppId=301904
- Water Marketing Strategy Grants
  - Awarded to entities exploring actions to develop or facilitate water marketing
  - Proposals due by 4:00 p.m. MDT on July 18, 2018
  - View Grant opportunity at https://www.grants.gov/web/grants/view-opportunity.html?oppId=301914
- Small-Scale Water Efficiency Projects
  - Awarded to small-scale water management projects identified through previous planning efforts
  - Proposals due by 4:00 p.m. MDT on July 31, 2018
  - View Grant opportunity at https://www.grants.gov/web/grants/view-opportunity.html?oppId=301905

Opportunities posted at www.grants.gov