



— BUREAU OF —
RECLAMATION

Rio Chama Water Operations

Rio Chama Congreso
February 29, 2020



El Vado Dam Facts

- Built by Middle Rio Grande Conservancy District in 1934
- Rehabilitated by Reclamation in 1954-55
- New outlet works built by Reclamation 1965-66 to accommodate increased flow from San Juan-Chama Project
- FERC-licensed powerplant built by Los Alamos County in 1986 in original outlet works
- Dam embankment is rolled gravel fill with steel membrane on upstream face
- Dam is 230 feet high and has a crest length of 1,326 feet
- Total reservoir capacity – 196,500 ac-ft



Corrective Action Study (CAS)

- El Vado CAS initiated by Comprehensive Facility Review (CFR) recommendations
- Safety of Dams (SOD) recommendations from 2013 CFR:
 - 2011-SOD-A
 - 2013-SOD-A
 - Both for spillway (hydrologic) failure modes
- 2017 risk analyses and field exploration resulted in two new SOD recommendations
 - 2017-SOD-A
 - 2017-SOD-B
 - CAS – develop alternatives to reduce risk from internal erosion and under normal operations



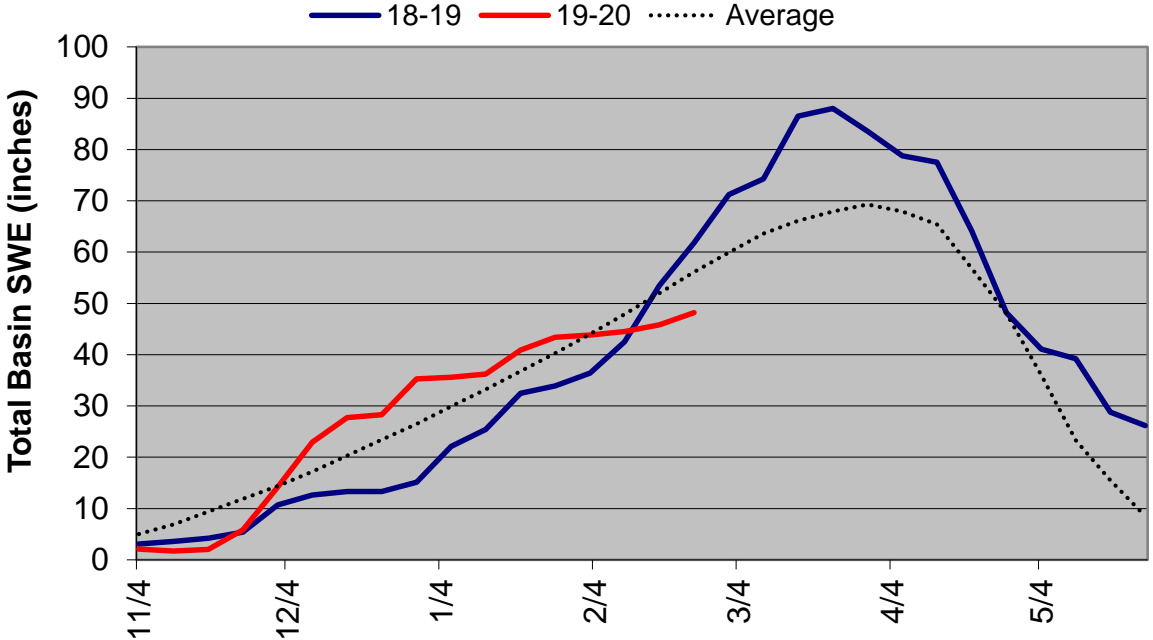
El Vado Dam Construction Update

- Finishing final designs and contracting
- Headed toward construction in 2021
- Reclamation finalizing water operations options
- To extent possible, will utilize operational flexibilities during construction
- Project funding comes from Reclamation's Safety of Dams program – cannot fund intake tower modifications
- Reclamation may analyze effects of sediment releases in the future

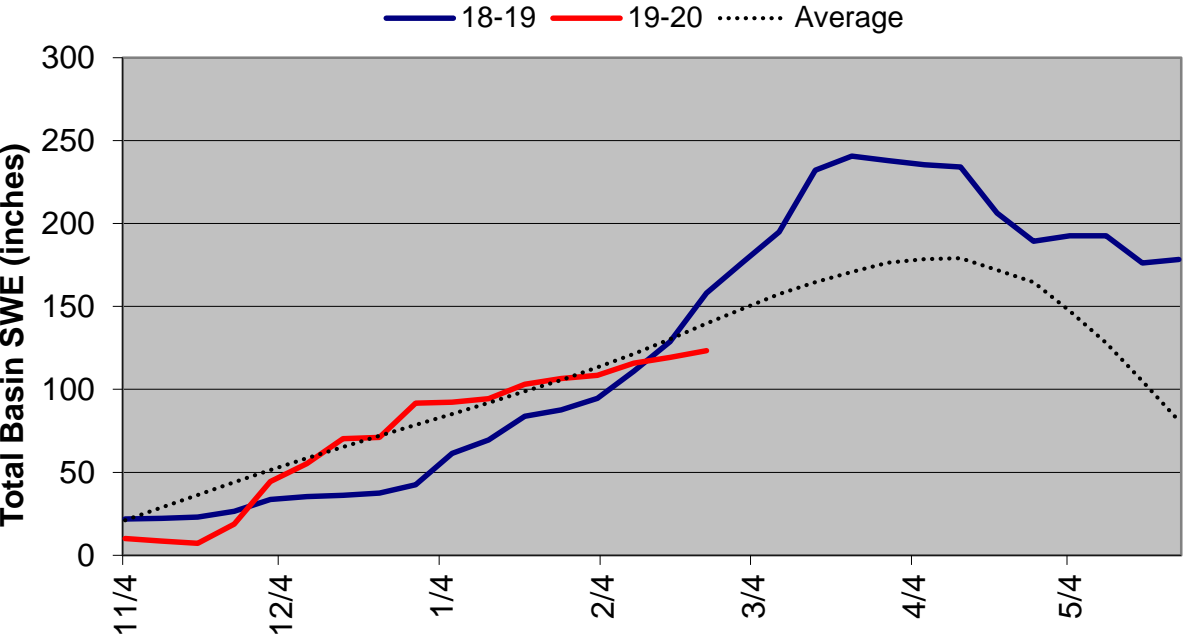


Snowpack Comparison: 2020 vs. 2019

Rio Chama Basin



Upper Rio Grande Basin



February Runoff Forecast Comparison

(ac-ft & percent of median)

2020

Rio Grande @ Del Norte	435,000	84%
Rio Blanco @ diversion	42,000	78%
Navajo River @ diversion	50,000	77%
El Vado Inflow	175,000	78%
Nambe Falls Inflow	6,600	102%
Rio Grande @ Otowi	560,000	78%
Jemez River @ Jemez	28,000	67%
Rio Grande @ San Marcial	350,000	69%

2019

Rio Grande @ Del Norte	435,000	84%
Rio Blanco @ diversion	43,000	80%
Navajo River @ diversion	50,000	77%
El Vado Inflow	178,000	79%
Nambe Falls Inflow	6,000	92%
Rio Grande @ Otowi	525,000	73%
Jemez River @ Jemez	41,000	98%
Rio Grande @ San Marcial	350,000	69%





February 2020 NRCS Forecast

Location	Forecast Period	90% (kaf)	70% (kaf)	50% (kaf)	% Avg	30% (kaf)	10% (kaf)	30yr avg (kaf)
Upper Rio Grande								
Rio Grande nr Del Norte	APR-SEP	230	320	390	76%	465	590	515
Conejos R nr Mogote	APR-SEP	97	127	150	77%	174	215	194
Rio Grande nr Lobatos*	APR-JUL	30	56	84	42%	117	175	200
San Juan Chama and Middle Rio Grande								
Jemez R bl Jemez Canyon Dam	MAR-JUL	14.5	22	28	67%	35	46	34
El Vado Reservoir Inflow	MAR-JUL	87	135	175	78%	220	295	225
Rio Grande at Otowi Bridge	MAR-JUL	320	455	560	78%	675	865	720
Rio Grande at San Marcial*	MAR-JUL	47	225	350	69%	470	650	510

*Not used as input into URGWOM



Forecast Runs (aka AOP)

- Three forecasts from NRCS

- 50% exceedance forecast = most probable
- 70% exceedance forecast = lower inflow
- 30% exceedance forecast = higher inflow

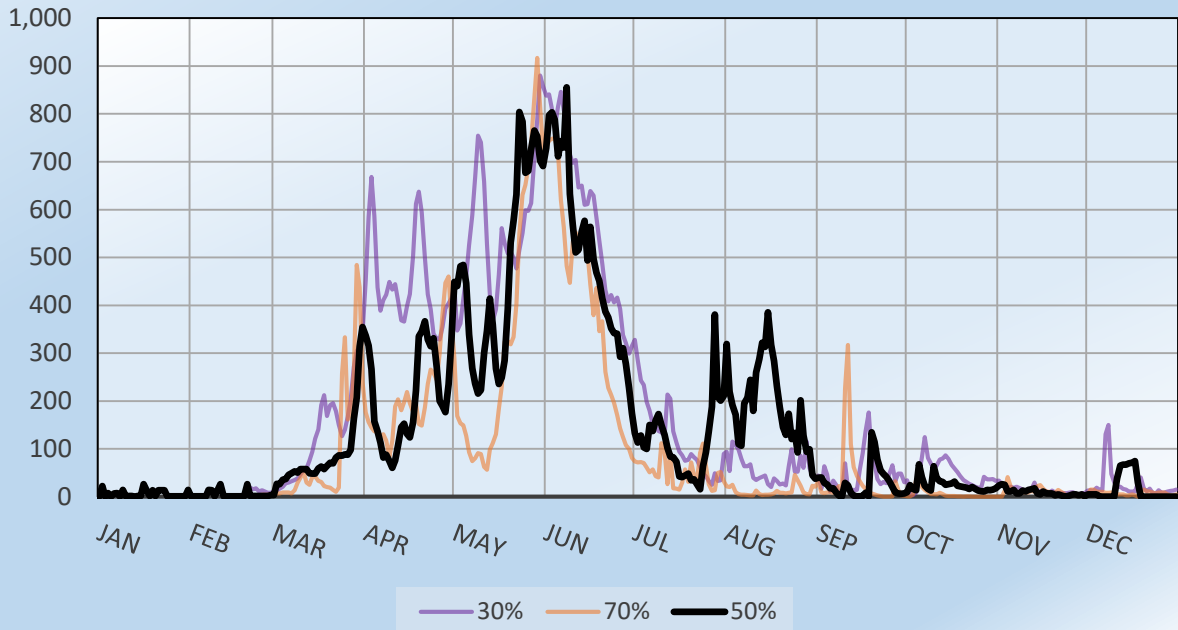
There is a 70% chance that the total volume during the forecast period will exceed the 70% forecast and a 30% chance that flow volume during the period will be lower.

- Shape of hydrograph based on year with similar flow volume and chosen by model

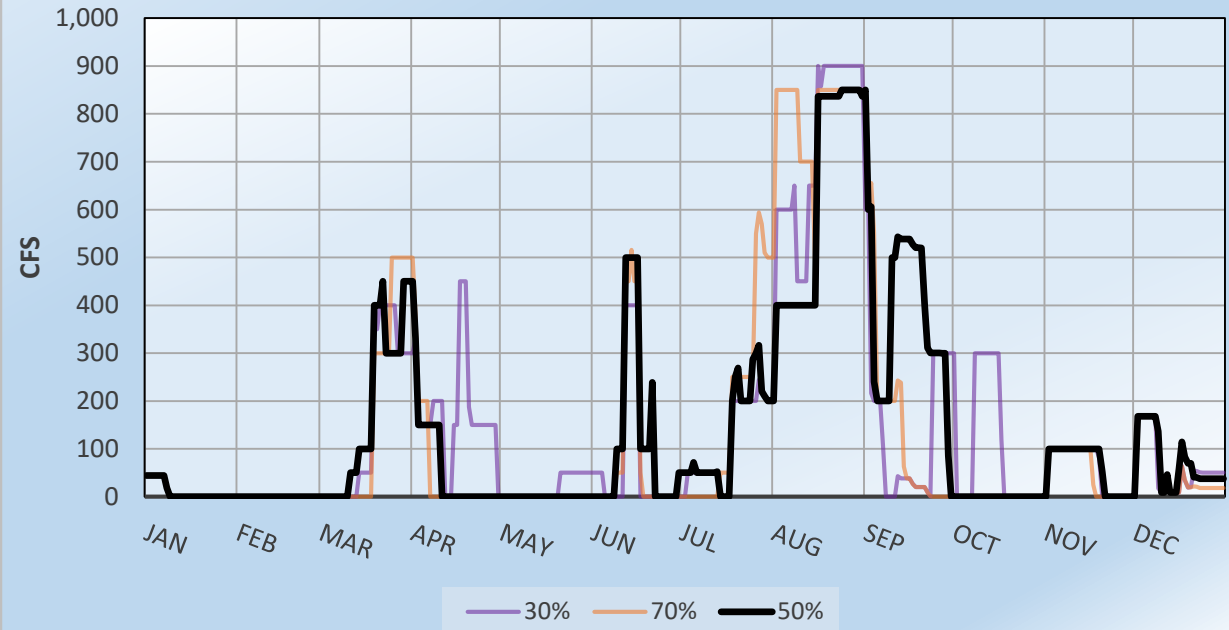
<u>Location</u>	<u>30%</u>	<u>50%</u>	<u>70%</u>
Colorado	1950, 1976, 1992	1953, 1971, 2014	1951, 1953, 1959
Lobatos	1961	1953	1956
Red River Blw Fish Hatchery	2015	1999	1989
Rio Pueblo De Taos At Los Cordovas	1965	1999	1994
Embudo Creek At Dixon	1998	2008	2009
San Juan Chama	2010	1976	1954
Otowi to Caballo (Except Jemez)	1962	1989	1970
Jemez	1988	1957	2009



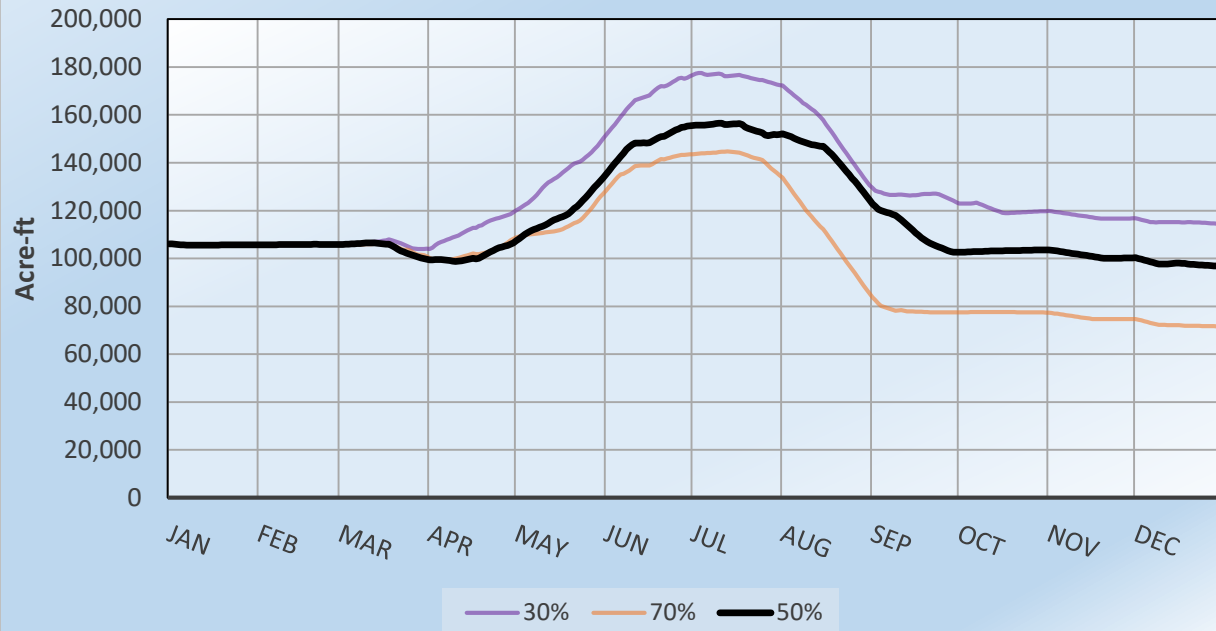
Heron Inflow



Heron Outflow



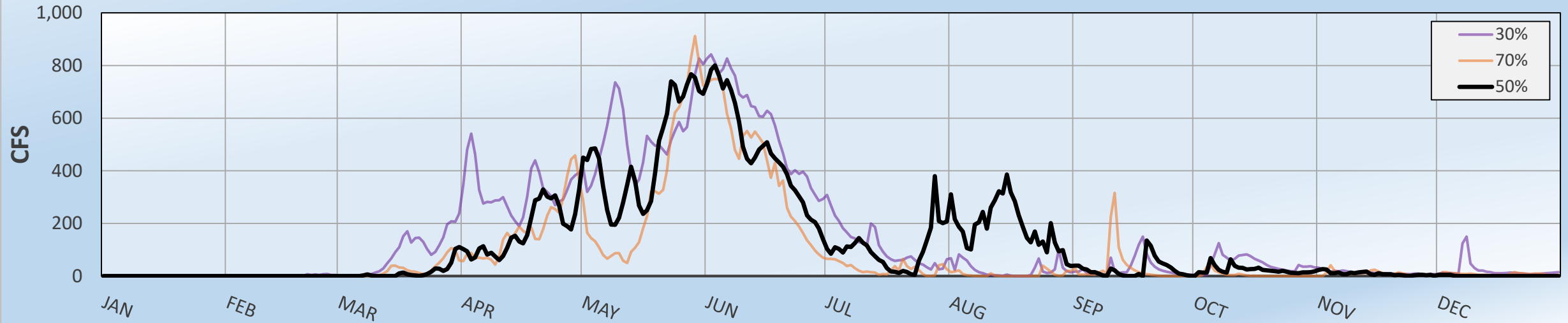
Heron Storage



February 2020 AOP Results
Provisional – Subject to Change



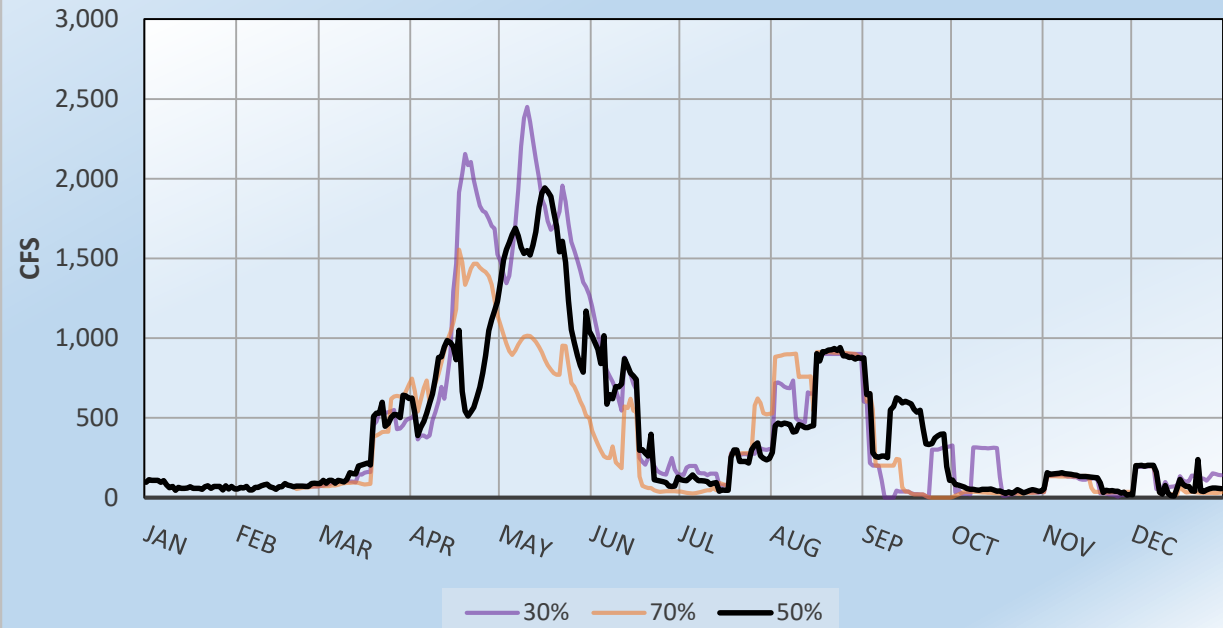
Azotea Outlet



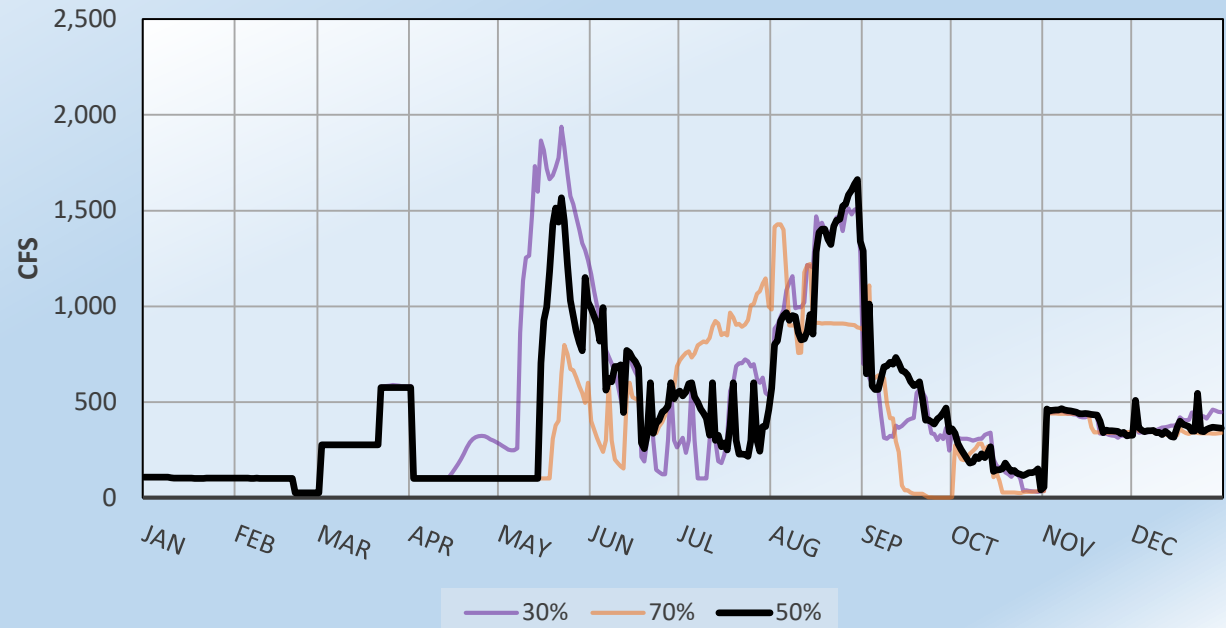
El Vado Local Inflow



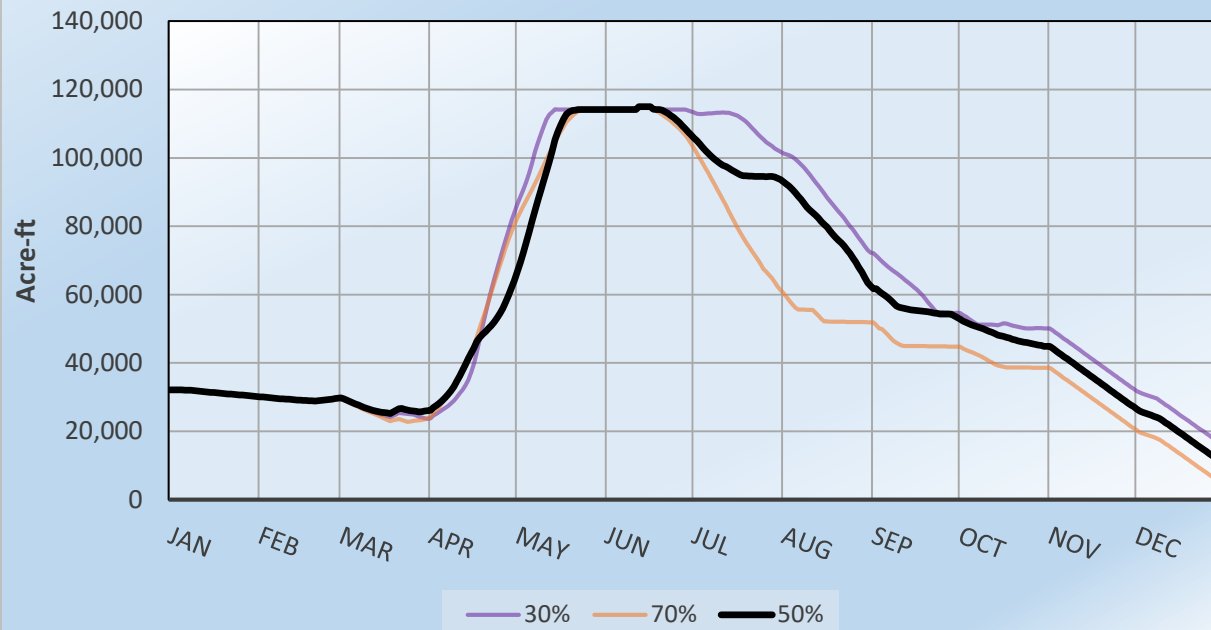
El Vado Inflow



El Vado Outflow



El Vado Storage



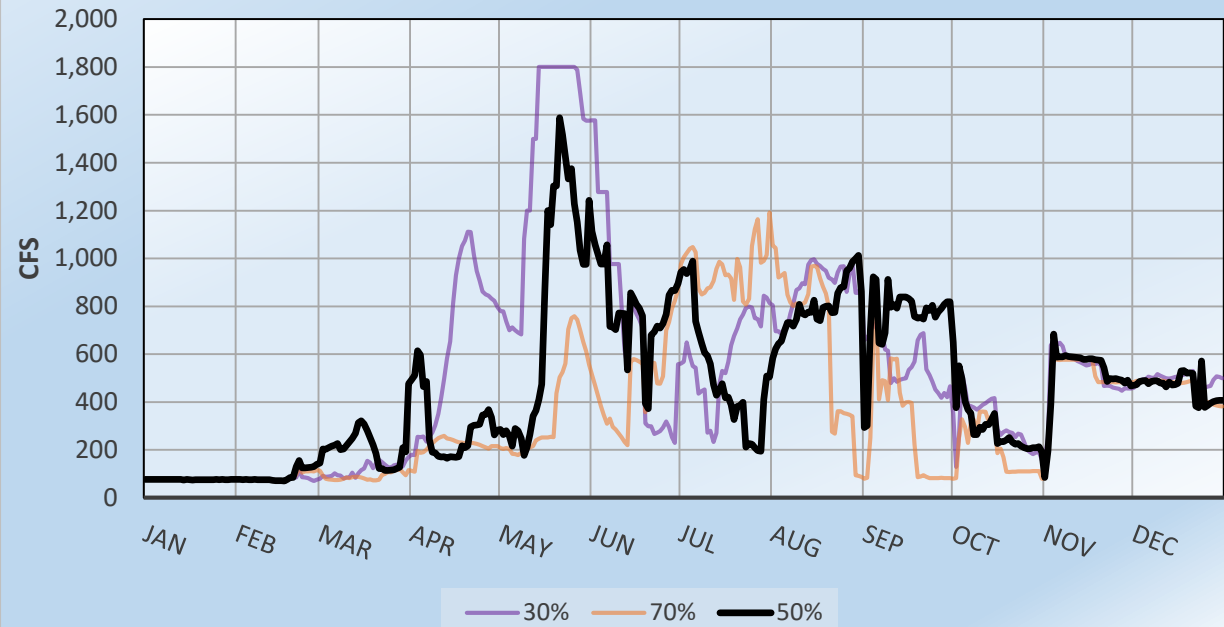
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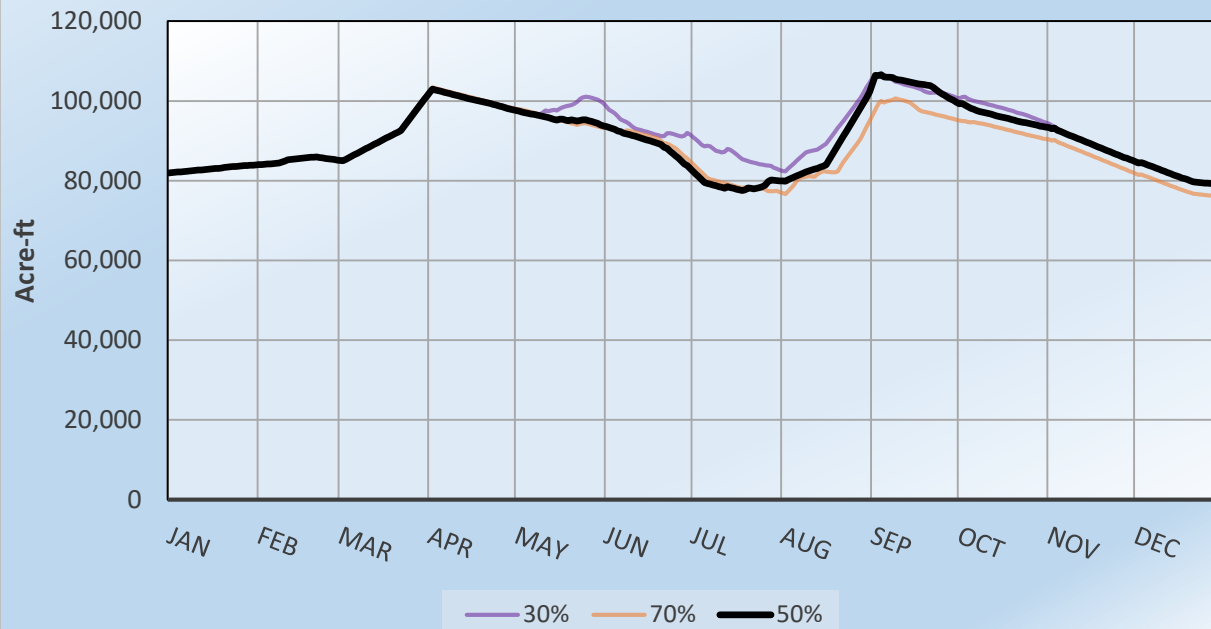
Abiquiu Inflow



Abiquiu Outflow



Abiquiu Storage



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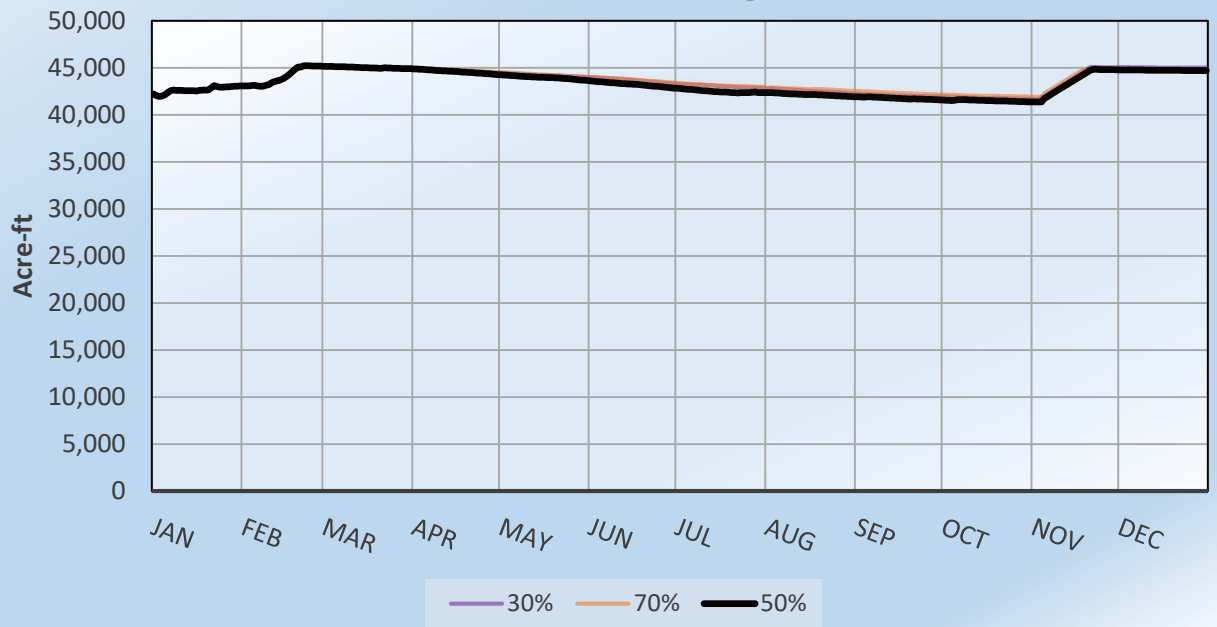
Cochiti Inflow



Cochiti Outflow



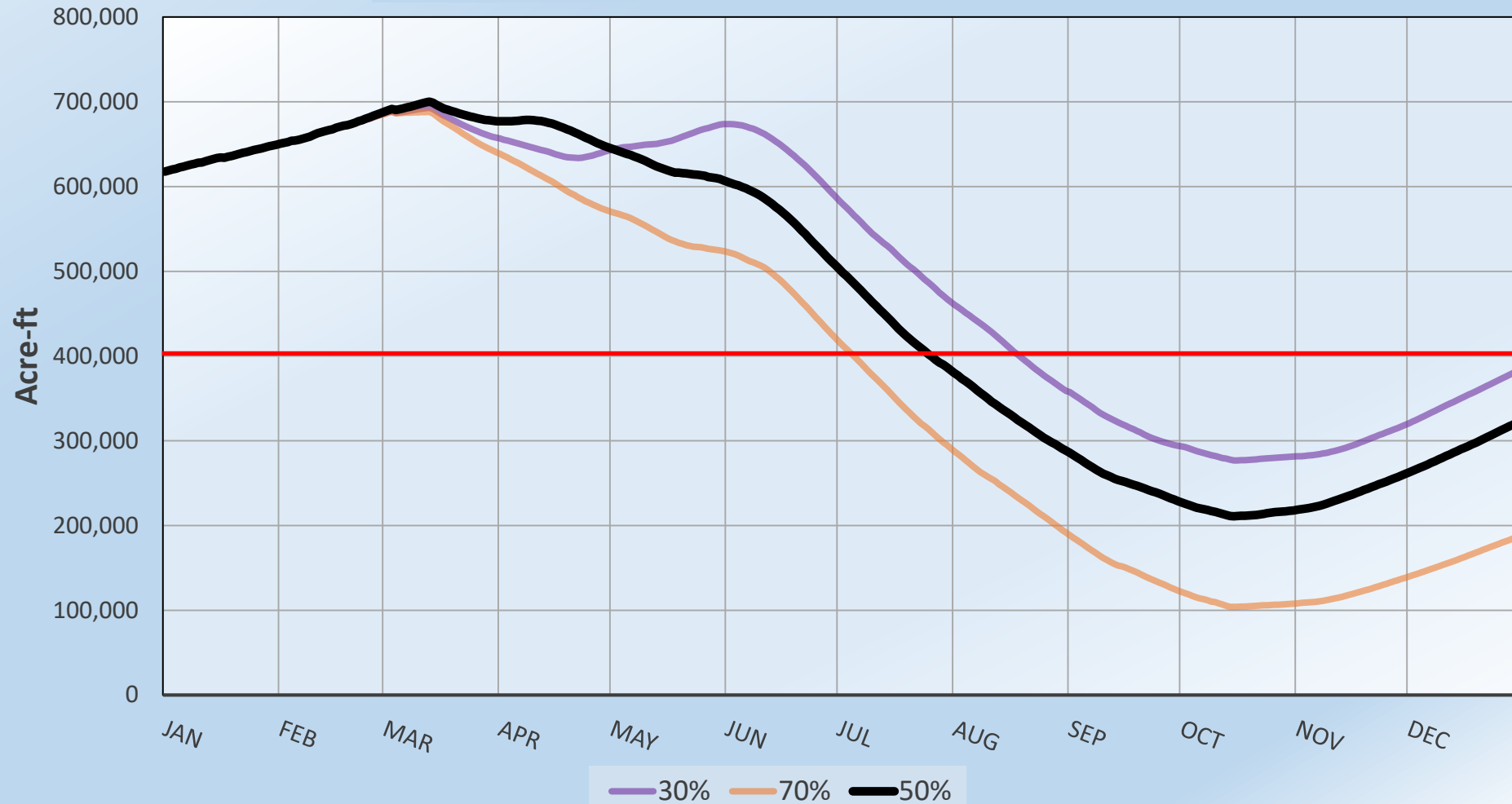
Cochiti Storage



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Article VII Status



Storage is combined
Rio Grande
Project
reservoirs

