

Current Trinity River Basin Hydrologic Conditions and Flow WG Hydrograph Recommendations

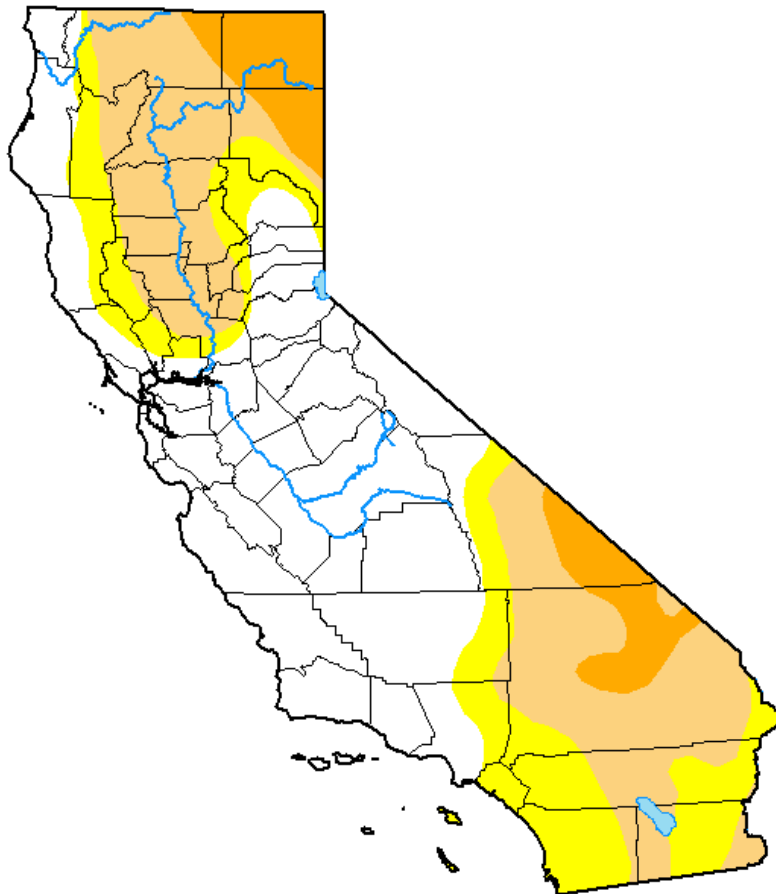


TRRP Trinity Management Council
March 29, 2023

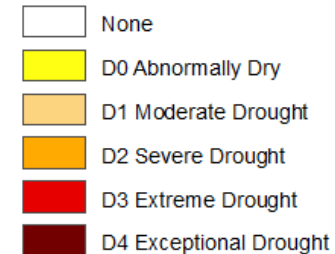
Drought Monitor

U.S. Drought Monitor California

March 14, 2023
(Released Thursday, Mar. 16, 2023)
Valid 8 a.m. EDT



Intensity:



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

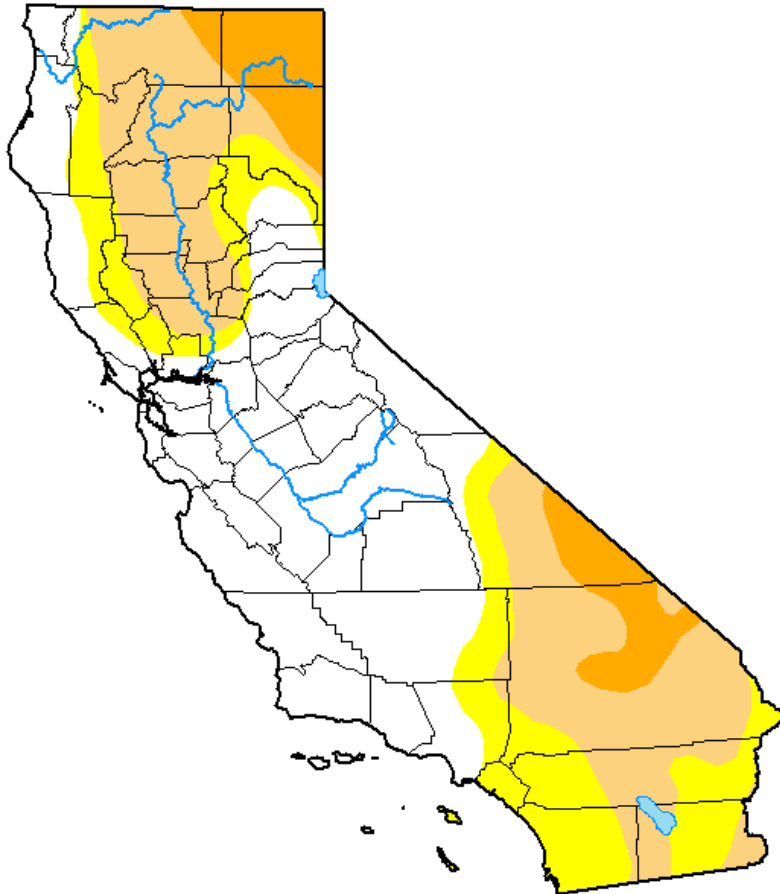
Brad Rippey
U.S. Department of Agriculture



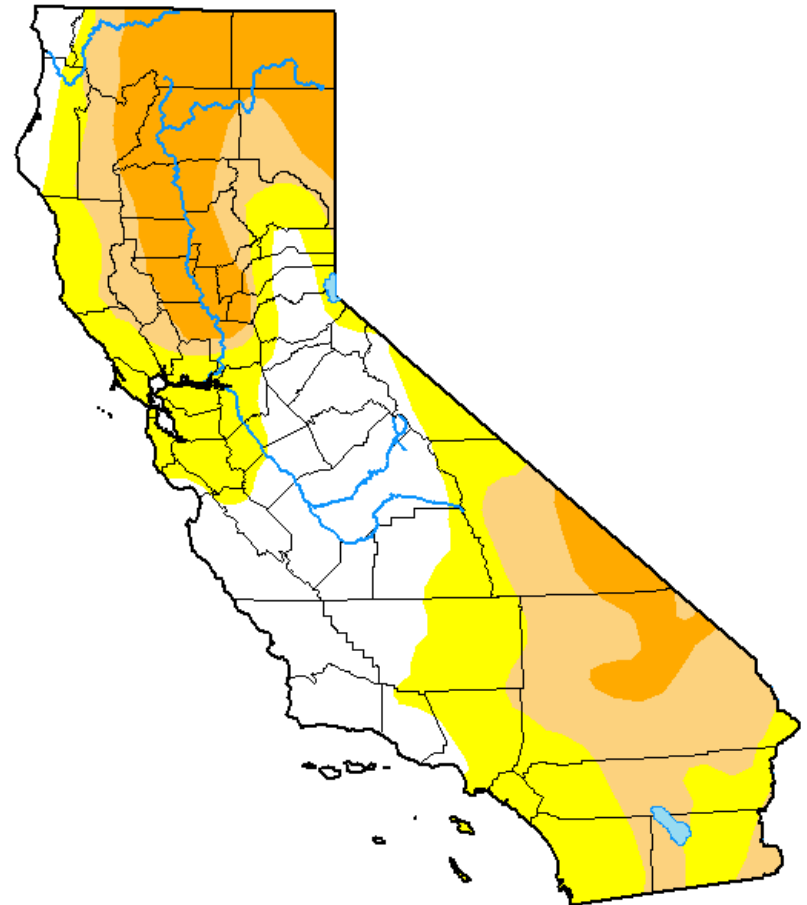
droughtmonitor.unl.edu

Drought Monitor

14 March 2023

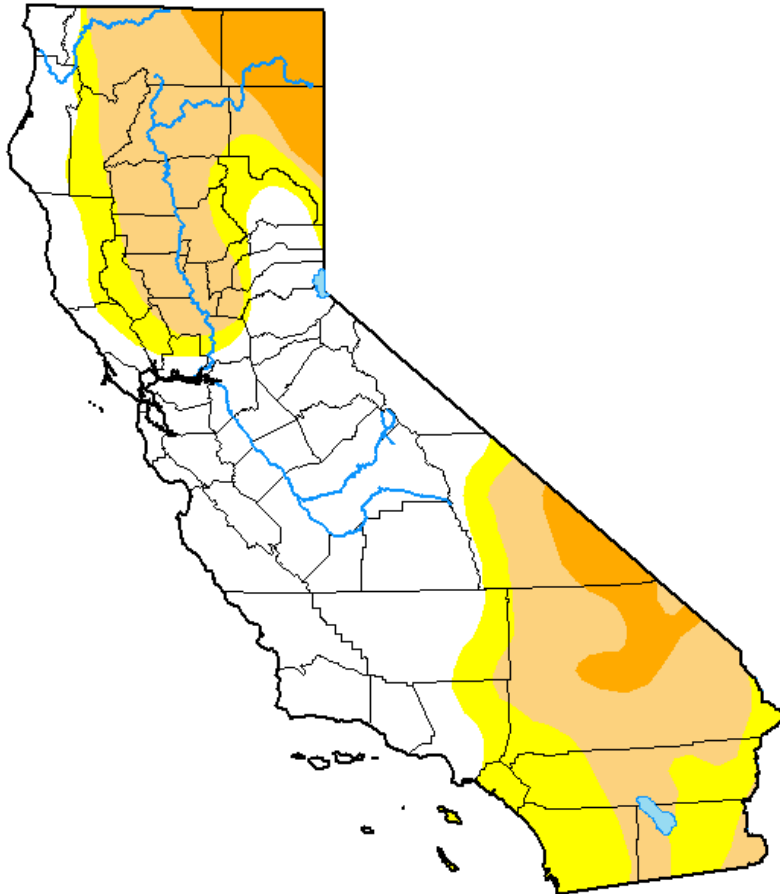


7 March 2023

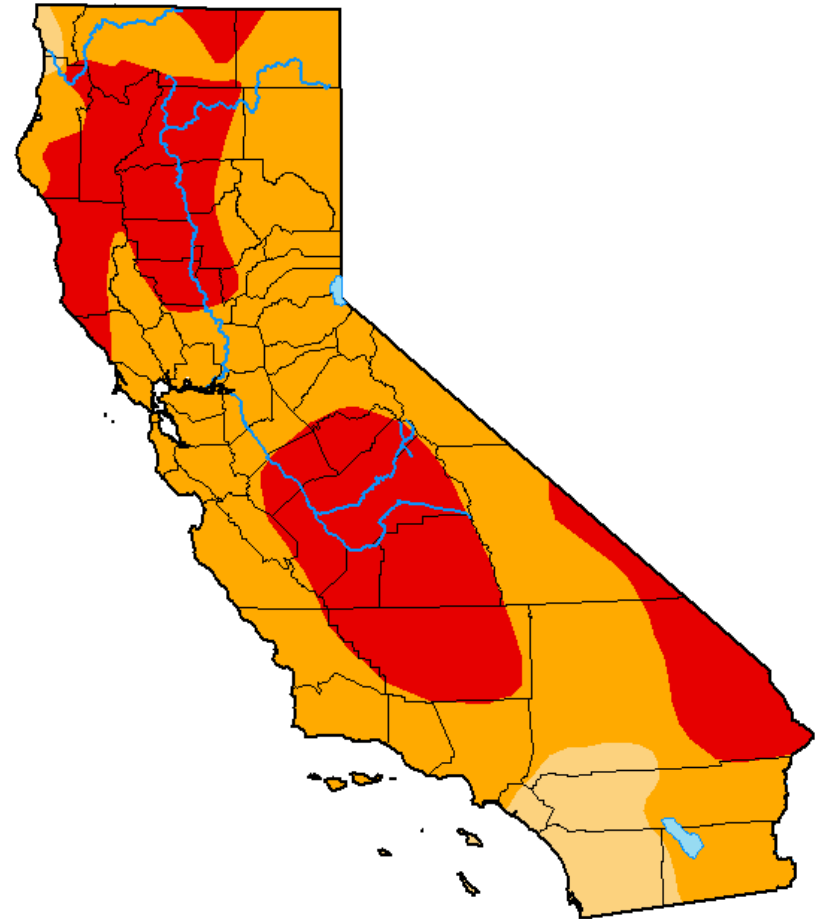


Drought Monitor

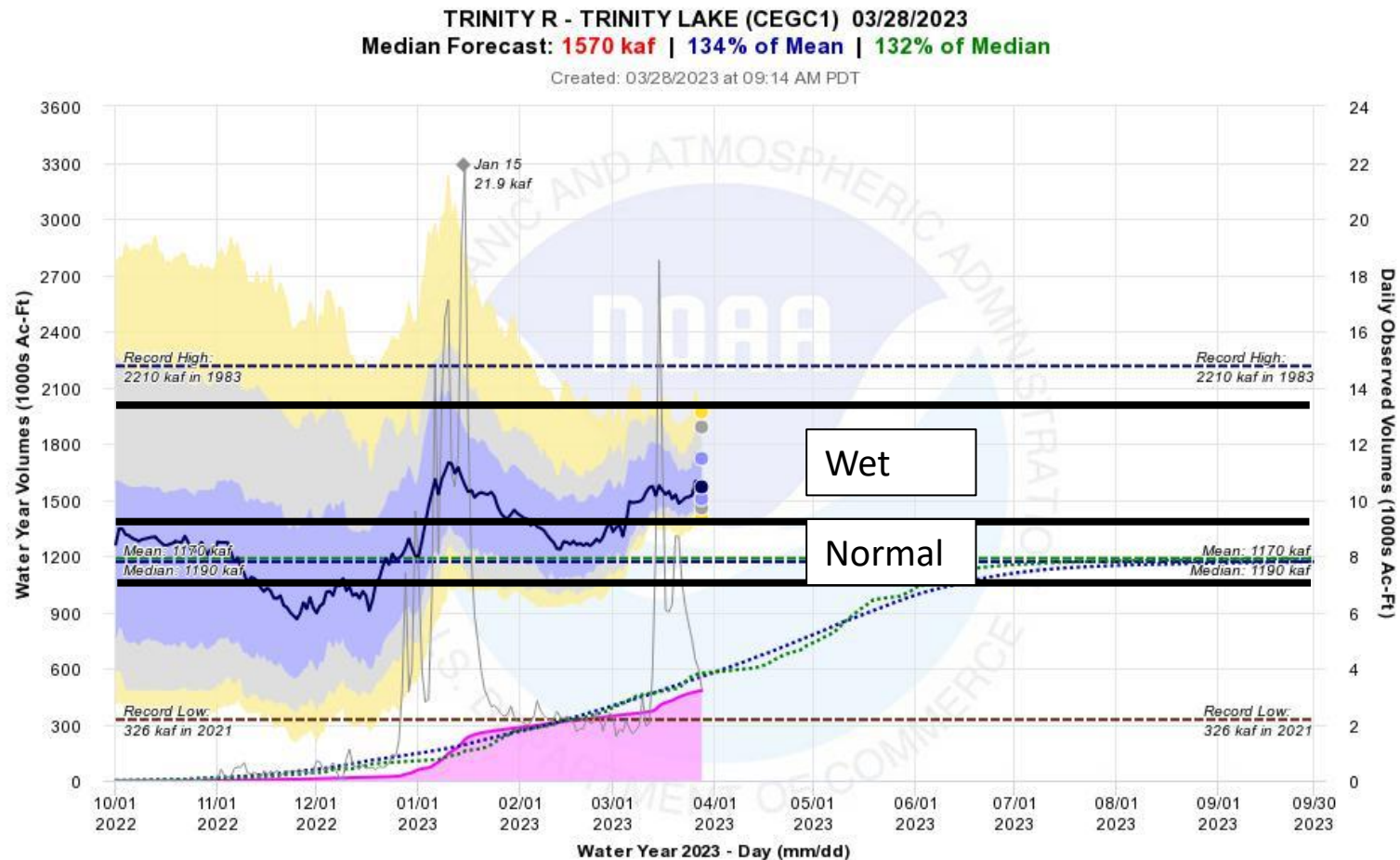
14 March 2023



15 March 2022



CNRFC 50% inflow prediction currently 1,570 kaf (Wet: 1,350-1,999 kaf Normal:1,025-1,349 kaf)



-- WY Volume Mean -- WY Volume Median ● WY to Date Obs ● WY to Date Mean ● WY to Date Median
-- Daily Obs -- Obs Peak ● ESP WY Vol Fcst 50% ● ESP WY Vol Fcst 25/75% ● ESP WY Vol Fcst 10/90%
-- ESP WY Vol Fcst Max/Min -- Record Low ▼ Snow Model Updates

CA DWR B120 50% inflow prediction currently 1,595 kaf
80% Probability range 1,300-2,045 kaf
(Wet: 1,350-1,999 kaf Normal:1,025-1,349 kaf)

Report generated: March 23, 2023 12:30

Water Year Forecast Summary and Monthly Distribution (in thousands of acre-feet)													
Watershed	Oct Thru Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year Total	80% Probability Range		WY % Average
											90%	10%	
Trinity, Lewiston	319	66	180	310	395	230	65	19	12	1,595	1,300	2,045	121
Inflow to Shasta	1,712	308	1,230	895	630	350	255	223	222	5,825	5,110	7,400	103
Sacramento, Bend	2,973	499	2,200	1,175	820	490	335	282	281	9,055	7,805	11,910	108
Feather, Oroville	1,790	349	1,280	1,110	1,020	530	210	126	105	6,520	5,480	8,065	150
Yuba, Smartville	999	147	650	565	630	410	95	35	29	3,560	3,090	4,300	157
American, Folsom	1,397	226	941	720	830	520	130	33	23	4,820	4,150	5,635	179
Cosumnes, Michigan Bar	479	62	280	130	90	33	7	2	2	1,085	945	1,420	278
Mokelumne, Pardee	301	55	230	250	340	290	70	15	7	1,557	1,340	1,790	204
Stanislaus, Goodwin	494	96	370	395	545	410	180	37	18	2,545	2,170	2,895	216
Tuolumne, La Grange	767	119	620	600	770	780	440	83	35	4,215	3,790	4,730	216
Merced, McClure	487	87	370	350	475	475	240	50	21	2,555	2,255	2,930	254
San Joaquin, Millerton	588	142	570	620	890	940	630	168	72	4,620	4,100	5,215	260
Kings, Pine Flat	406	100	510	540	870	1,020	650	167	67	4,330	3,905	4,865	259
Kaweah, Terminus	161	35	310	190	220	230	130	35	14	1,325	1,175	1,550	311
Tule, Success	88	20	240	85	75	45	15	4	3	575	435	715	435
Kern, Isabella	127	37	370	350	600	500	250	78	43	2,355	2,095	2,835	350
Notes													

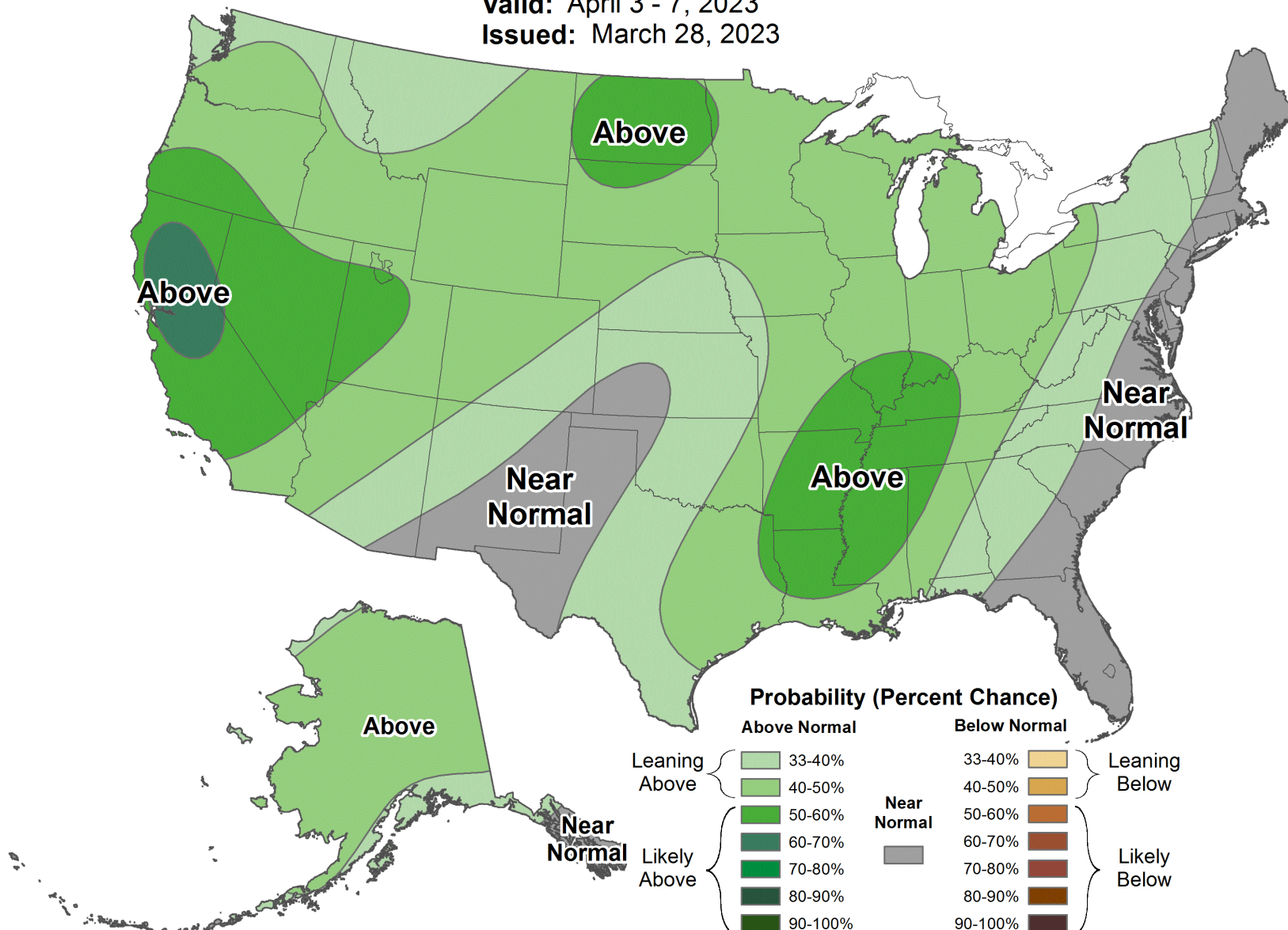


6-10 Day Precipitation Outlook



Valid: April 3 - 7, 2023

Issued: March 28, 2023



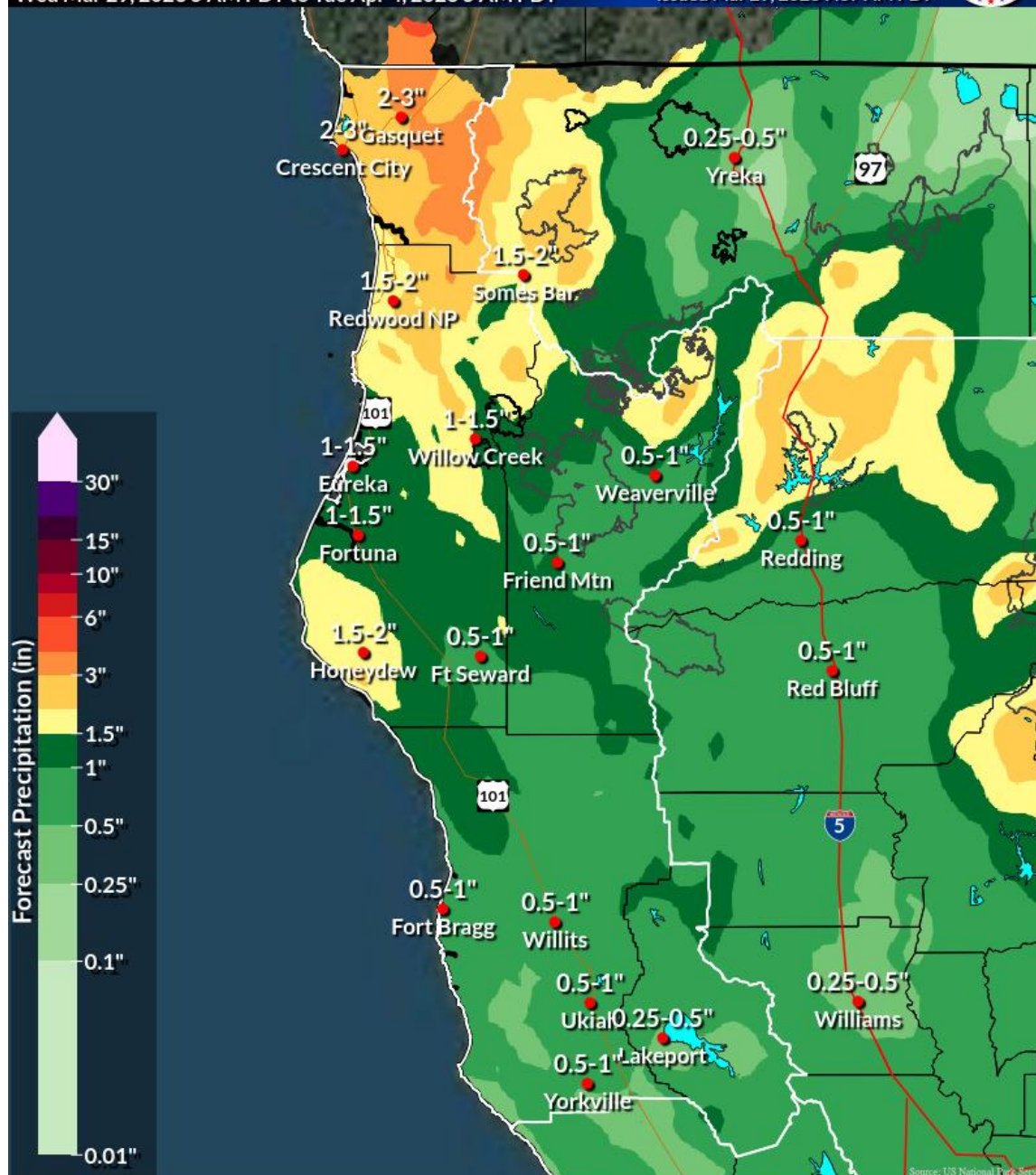
6-Day Forecast Precipitation

California Nevada
River Forecast Center



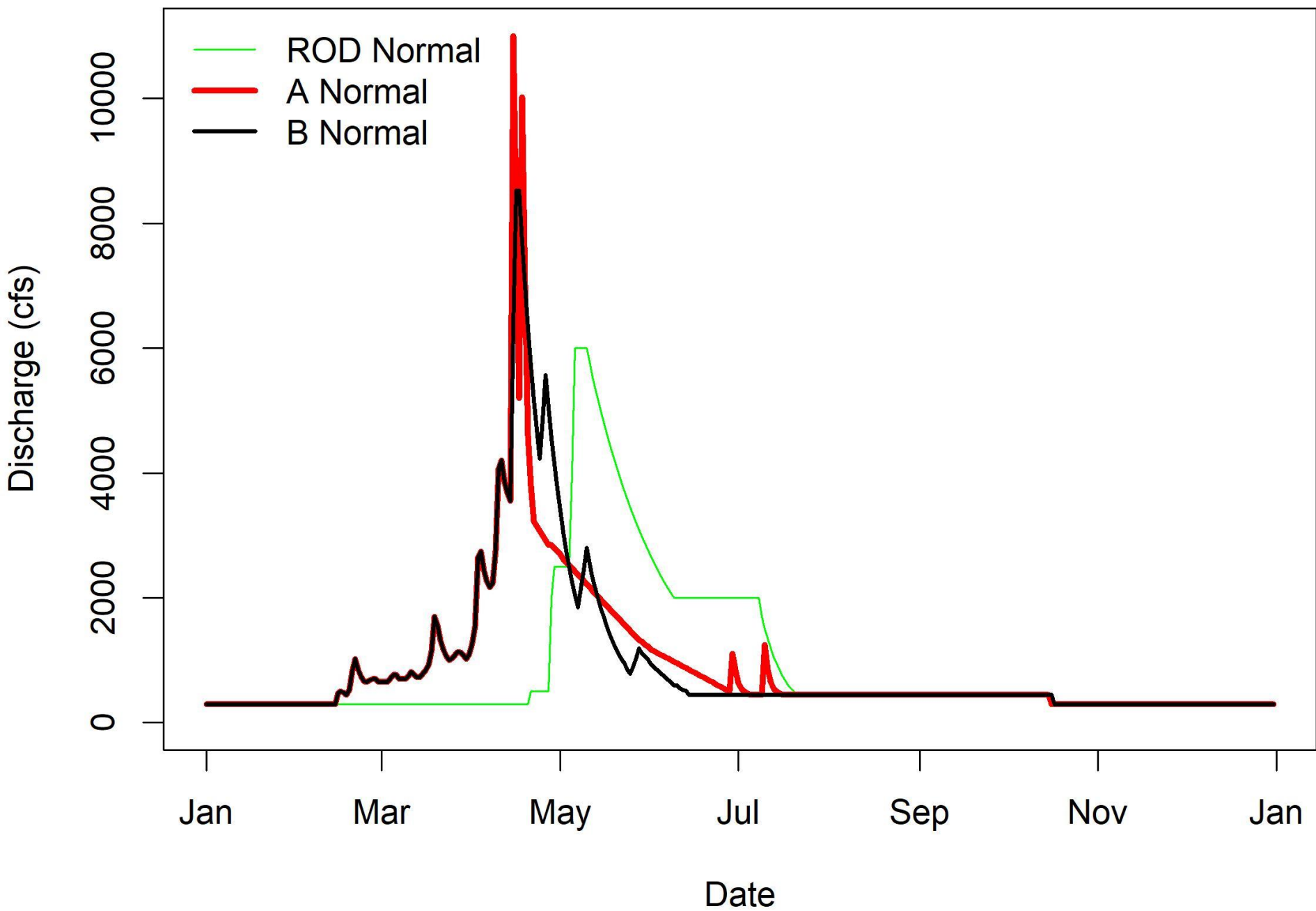
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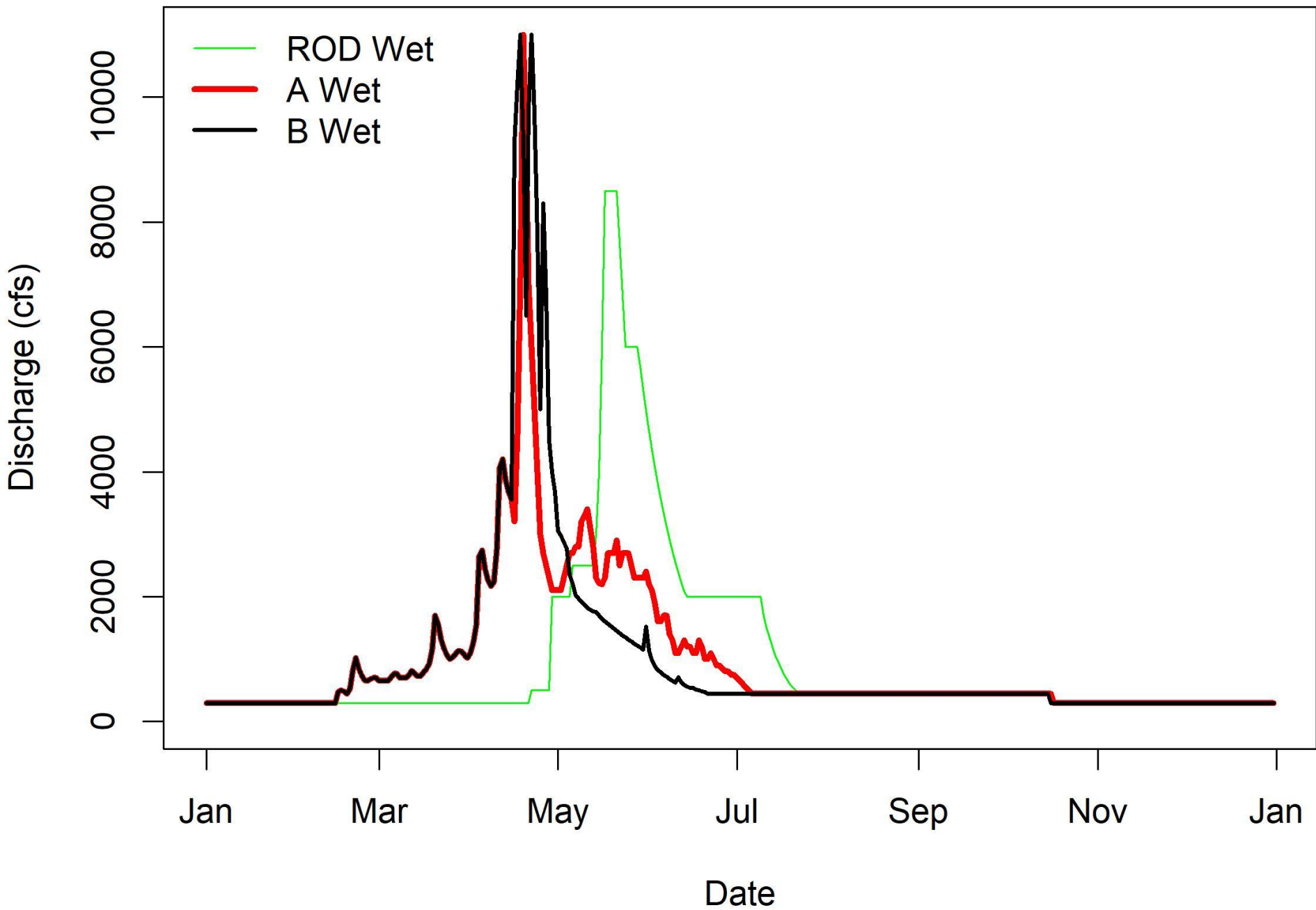
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2023 Hydrograph Objectives

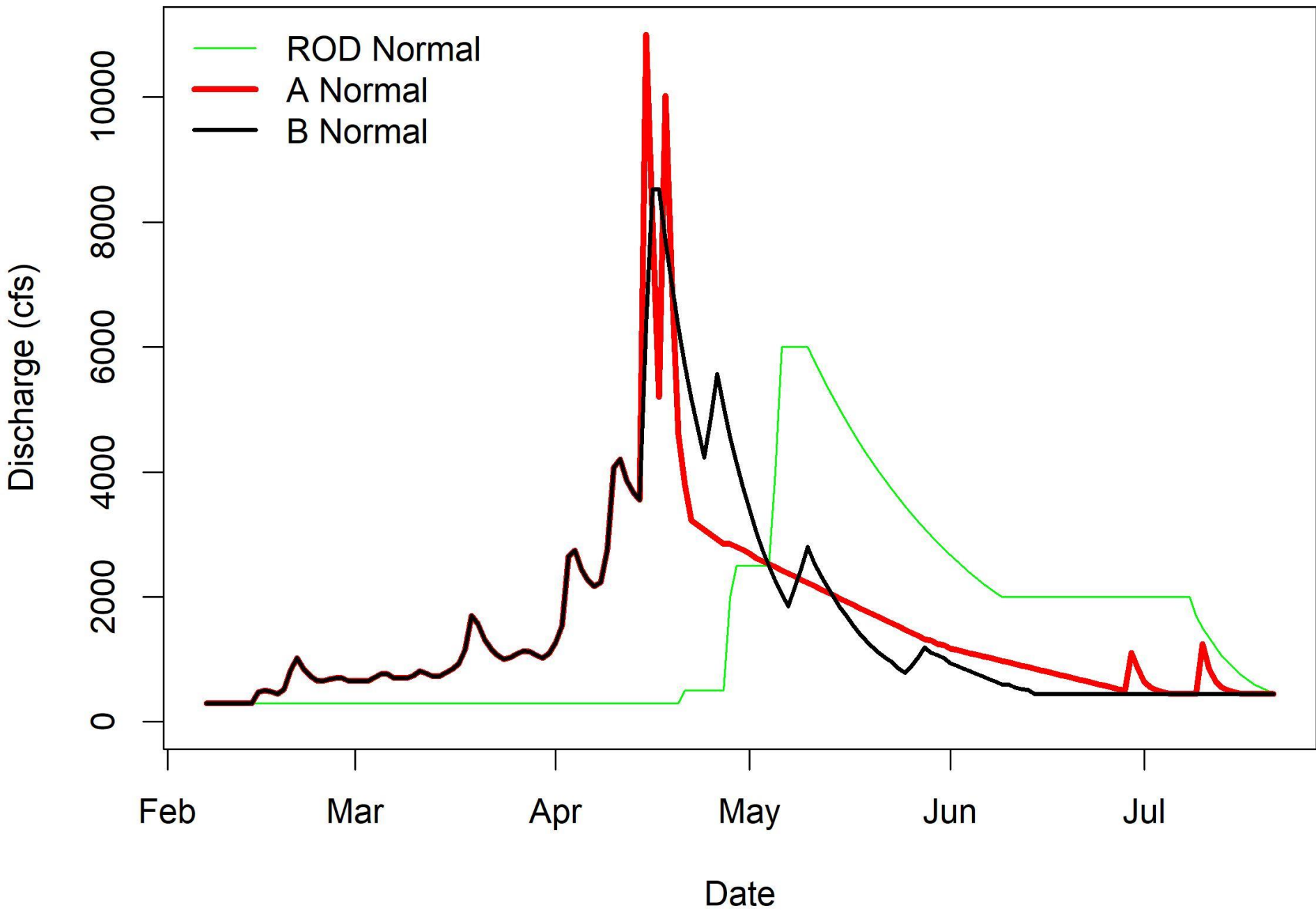
- Achieve peak of 6,000 cfs (Normal) or 8,500 cfs (Wet)
- Begin spring release on 16 April to ensure seamless transition from elevated baseflows
- Remain within EIS ramp up and ramp down rates
- Flow changes ≥ 50 cfs (or zero) per day and 50 cfs increments due to infrastructure
- Achieve flows below 1,500 cfs by mid to late May and reach baseflow by mid to late June, to improve conditions for juvenile growth and not delay outmigration (Fish WG)
- 600-1,000 cfs during hatchery releases March-June
- Remain $< 2,000$ cfs to allow BMI study to continue and prevent equipment loss. Consider 2,000 cfs benches (24-48 hrs) between pulses.
- Numerous functional flow considerations that we review annually, largely captured in EIS
- Implement diurnal fluctuations between March 21 and June 21 for all flows where it is possible (Fish WG)





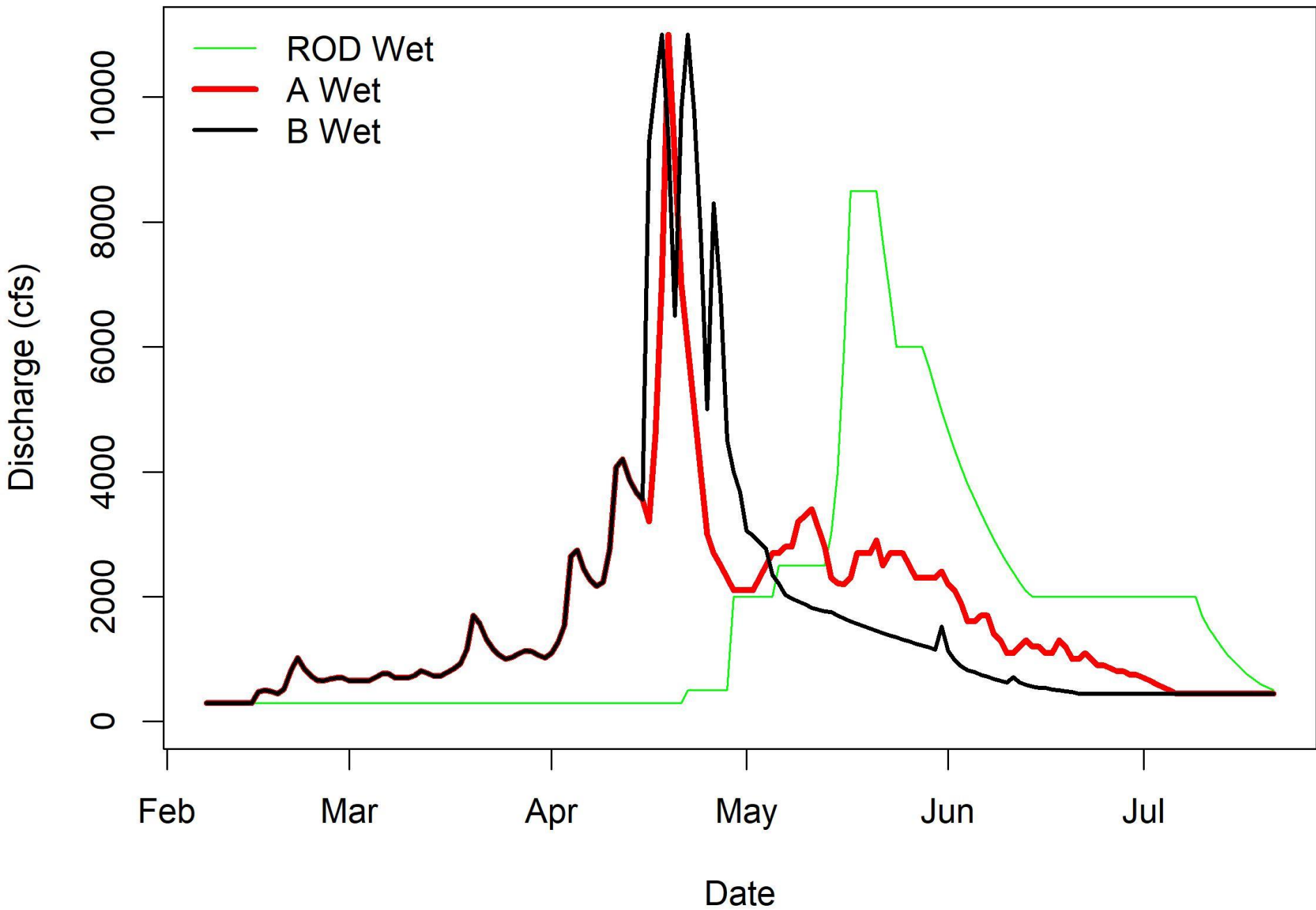
Modeling results for proposed hydrographs

	Normal WY alternatives			Wet WY alternatives		
Parameter	ROD Normal	A Normal	B Normal	ROD Wet	A Wet	B Wet
Fisheries						
Total Natural Chinook Abundance at Weitchpec (spring and fall run) (SSS)	3,571 k	3,589 k	3,592 k	3,584 k	3,571 k	3,581 k
Fry abundance (<55 mm)	1,801 k	1,821 k	1,818 k	1,821 k	1,801 k	1,833 k
Parr abundance (55 - 90 mm)	1,770 k	1,768 k	1,774 k	1,763 k	1,770 k	1,748 k
Smolt abundance (>90 mm)	323	235	227	181	323	224
Total Natural Chinook Biomass at Weitchpec (metric tons) (SSS)	5.08	5.20	5.19	5.14	5.08	5.17
Temperature						
EIS Temperature objectives for adult salmon holding/spawning at Douglas City (exceedance °C days)	15.6°C July 1 - Sept. 14					
Exceedance, average climate conditions (mean temperatures, 5 Norm, 12 Wet)	0.7	1.9	2.5	1.2	2.3	2.4
Exceedance, adverse climate conditions	2.9	7.4	8.7	9.5	12.9	14.9
EIS Temperature objectives for adult salmon holding/spawning at Douglas City (exceedance °C days)	13.3°C Sept. 15-31					
Exceedance, average climate conditions (mean temperatures, 5 Norm, 12 Wet)	0	0	0	0.1	0.1	0.1
Exceedance, adverse climate conditions	0	0	0	0.7	0.7	0.7
EIS Temperature objectives for adult salmon holding/spawning above NF Trinity River (exceedance °C days)						
Exceedance, average climate conditions (mean temperatures, 5 Norm, 12 Wet)	0.5	0.5	0.5	0.1	0.1	0.1
Exceedance, adverse climate conditions	1.7	1.7	1.7	0.9	0.9	0.9
Temperature objective for juvenile salmonid rearing on Trinity River above NF Trinity River April 1 - July 31 (7 DADA <13°C/>16.5°C; 7 DADA = 7 day average of the daily average temperatures)						
Deviations, average climate conditions (mean temperatures, 5 Norm, 12 Wet)	-143 +21	-114 +40	-111 +55	-132 +21	-120 +44	-114 +59
Deviations, adverse climate conditions	-218 +41	-184 +65	-181 +77	-206 +36	-170 +73	-157 +87
Riparian						
Black Cottonwood Initiation Potential (nodes)	2,172	2,759	813	167	604	1,836
Risk of encroachment by narrow leaf willow (peak discharge >6,000 cfs=no risk; <6,000 cfs=risk)	NO RISK	NO RISK	NO RISK	NO RISK	NO RISK	NO RISK
Biology						
Number of froglets produced in the modeled reach, % survival	71,250 (71%)	82,307 (82%)	85,701 (86%)	44,941 (45%)	75,969 (76%)	85,820 (86%)
Median date for FYLF metamorphosis	20 Nov	17 Oct	13 Oct	13 Nov	6 Nov	29 Oct
Physical						
Total bedload transport at Douglas City (tons)	4,289	8,866	12,660	15,177	12,122	26,544
Administrative						
Construction Impacts (Days ≥1000 cfs; July 15 to Sept 15)	0	0	0	0	0	0



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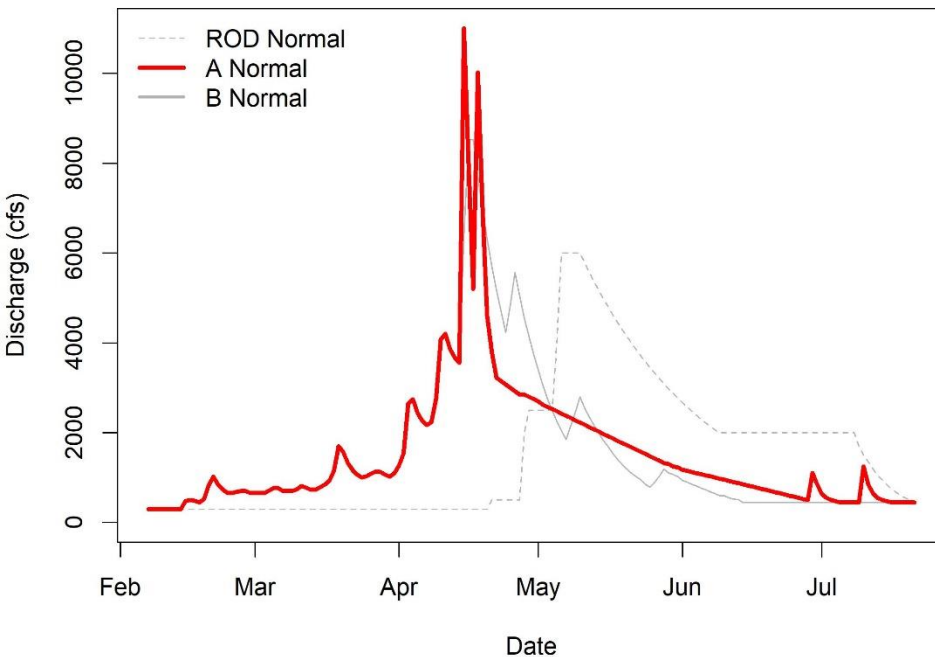


Modeling results for proposed hydrographs

		Wet WY alternatives		
Parameter		ROD Wet	A Wet	B Wet
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Parr abundance (55 - 90 mm)		1,763 k	1,770 k	1,748 k
Smolt abundance (>90 mm)		181	323	224
Total Natural Chinook Biomass at Weitchpec (metric tons) (SSS)		5.14	5.08	5.17
Temperature				
EIS Temperature objectives for adult salmon holding/spawning at Douglas City (exceedance °C days) 15.6°C July 1 - Sept. 14				
Exceedance, average climate conditions (mean temperatures, 5 Norm, 12 Wet)		1.2	2.3	2.4
Exceedance, adverse climate conditions		9.5	12.9	14.9
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Flow Workgroup Recommendation:

Normal



Wet

