California Cooperative
Snow Surveys
Bulletin 120 3-19

State of California
The Natural Resources Agency

Department of
Water Resources

Water Conditions in California

Report 3 April 1, 2019

Gavin Newsom
Governor
State of California

Wade Crowfoot
Secretary for Natural Resources
The Natural Resources Agency

Karla Nemeth
Director
Department of Water Resources

STATE OF CALIFORNIA
Gavin Newsom, Governor

CALIFORNIA NATURAL RESOURCES AGENCY
Wade Crowfoot, Secretary for Natural Resources

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Karla Nemeth
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COOPERATING AGENCIES

Public Agencies
Buena Vista Water Storage District
East Bay Municipal Utility District
Eldorado Irrigation District
Friant Water Users Association
Kaweah Delta Water Conservation District
Kern Delta Water District
Kings River Conservation District
Lower Tule River Irrigation District
Merced Irrigation District
Modesto Irrigation District
Nevada Irrigation District
North Kern Water Storage District
Northern California Power Agency
Oakdale Irrigation District
Omochumne-Hartnell Water District
Placer County Water Agency
Sacramento Municipal Utility District
San Joaquin River Exchange Contractors Water Authority
South Feather Water and Power Agency
South San Joaquin Irrigation District
Tri-Dam Project
Truckee River Basin Water Commission
Tulare Lake Basin Water Storage District
Turlock Irrigation District
Yuba County Water Agency
Private Organizations
J.G. Boswell Company
Kaweah and St. Johns River Association
Kings River Water Association
Tule River Association
State Water Project Contractors
Municipalities
City of Bakersfield Water Department
City of Los Angeles Department of Water and Power
City and County of San Francisco Hetch Hetchy Water and Power
State Agencies
University of California
  Central Sierra Snow Laboratory
  Scripps Institution of Oceanography
California Department of Forestry & Fire Protection
California Department of Water Resources
Public Utilities
Pacific Gas and Electric Company
Southern California Edison Company
Federal Agencies
U.S. Department of Agriculture
  Forest Service (14 National Forests)
  Natural Resource Conservation Service
U.S. Department of Commerce
  National Weather Service
U.S. Department of Interior
  Bureau of Reclamation
  Geological Survey, Water Resources
  National Park Service (3 National Parks)
U.S. Department of Army
  Corps of Engineers
National Aeronautics and Space Administration
  Jet Propulsion Laboratory
Other Cooperative Programs
Nevada Cooperative Snow Surveys
Oregon Cooperative Snow Surveys

Summary of Water Conditions

April 1, 2019

The wetness this water year which began in January and has continued through March with rainfall and snowfall well above average for the month. As a result, the April 1 snowpack is about 175 percent of average, slightly exceeding that of 2017. Total rainfall and runoff so far are appreciably less this year however.

Forecasts of median April through July runoff are expected to be 160 percent of average, up about 20 percent from those a month ago, and much better than the 70 percent projected last year. Water year forecasts are now projected to be 140 percent, up appreciably from the 125 percent a month ago.

Snowpack water content increased proportionately during March with the percentage increasing from 148 to 175 percent of the April 1 average. The lowest percentage was in the lower elevation North Coast region. Last year the snowpack stood at 60 percent.

Precipitation percentages remained at 130 percent of average. Last year the percentage was 70 percent, and it was 175 percent in 2017.

Runoff to date is about 115 percent of average, up from last month, and much better than the 60 percent reported one year ago. Estimated March runoff was 150 percent of average with the highest percentage, 195 percent, in the Tulare Lake region. Estimated runoff of the eight major rivers of the Sacramento-San Joaquin River region in March was 5.87 million acre-feet.

Reservoir storage is about 110 percent of average compared to 105 percent one year ago at this time. The increase during March was about 1.3 million acre-feet, 3 percent of in-State capacity. Many of the larger reservoirs made releases to maintain flood control space during March.

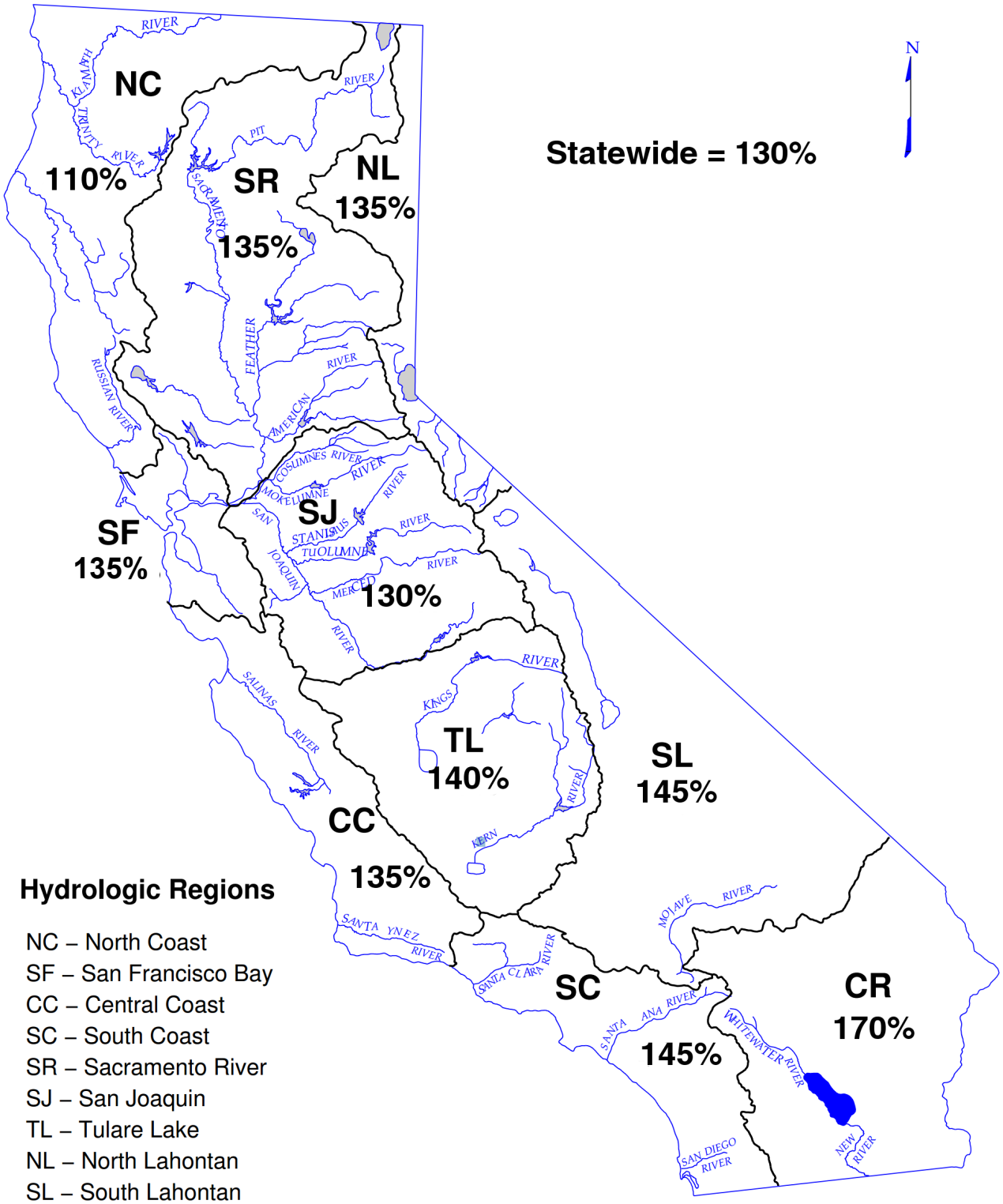
SUMMARY OF WATER CONDITIONS IN PERCENT OF AVERAGE

HYDROLOGIC REGION	PRECIPITATION OCTOBER 1 TO DATE	APRIL 1 SNOW WATER CONTENT	APRIL 1 RESERVOIR STORAGE	RUNOFF OCTOBER 1 TO DATE	APRIL-JULY RUNOFF FORECAST	WATER YEAR RUNOFF FORECAST
NORTH COAST	110	145	105	100	145	120
SAN FRANCISCO BAY	135	--	100	165	--	--
CENTRAL COAST	135	--	100	180	--	--
SOUTH COAST	145	--	100	195	--	--
SACRAMENTO RIVER	135	185	110	120	160	135
SAN JOAQUIN RIVER	130	170	120	140	155	150
TULARE LAKE	140	185	100	130	160	150
NORTH LAHONTAN	135	175	155	85	170	150
SOUTH LAHONTAN	145	170	100	90	145	125
COLORADO RIVER	170	--	--	--	--	--
STATEWIDE	130	175	110	115	160	140

DEPARTMENT OF WATER RESOURCES
CALIFORNIA COOPERATIVE SNOW SURVEYS
SEASONAL PRECIPITATION

IN PERCENT OF AVERAGE TO DATE

October 1, 2018 through March 31, 2019

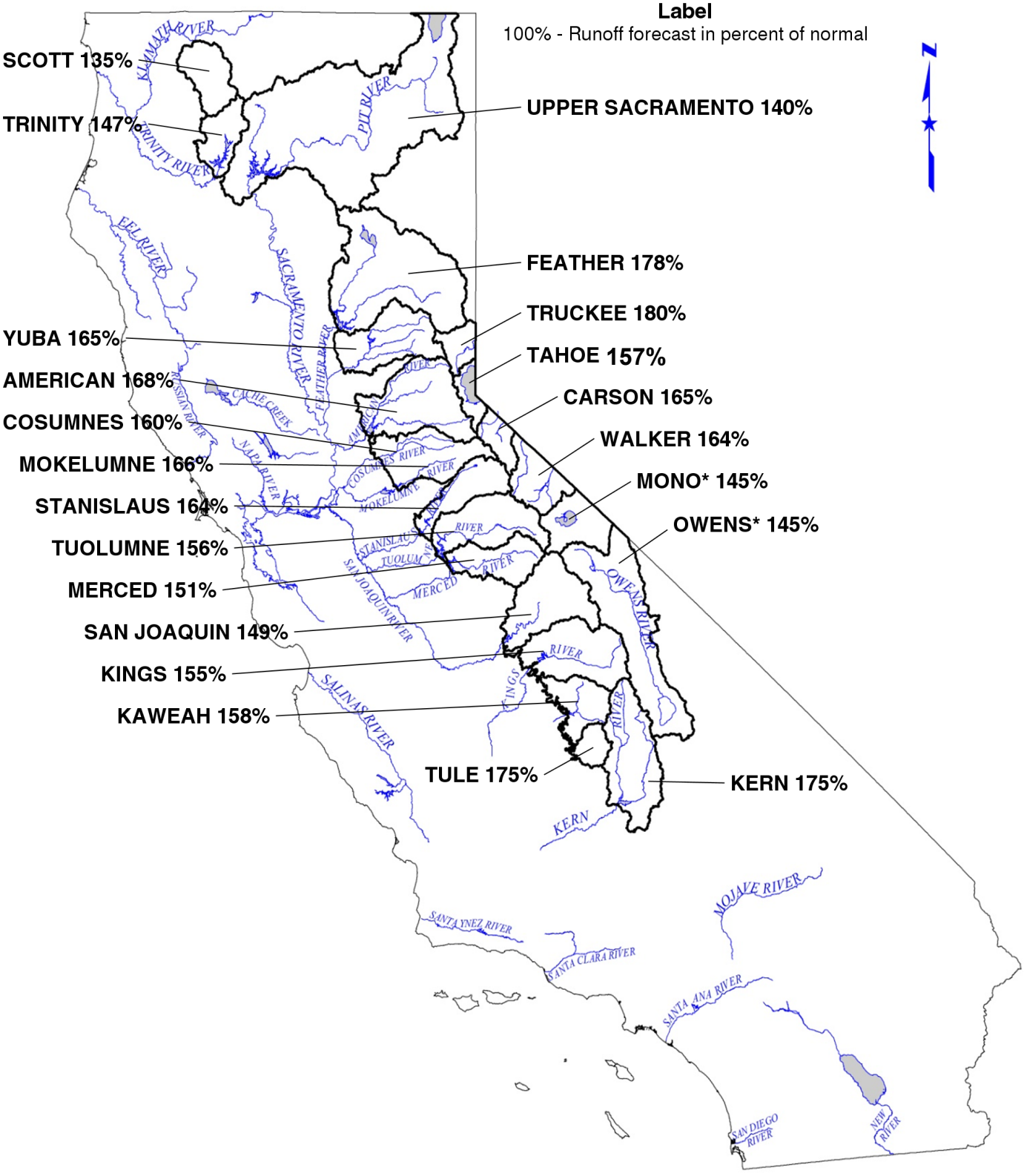


Hydrologic Regions

NC – North Coast
SF – San Francisco Bay
CC – Central Coast
SC – South Coast
SR – Sacramento River
SJ – San Joaquin
TL – Tulare Lake
NL – North Lahontan
SL – South Lahontan
CR – Colorado River–Desert

WATER YEAR IS OCTOBER 1 THROUGH SEPTEMBER 30

DEPARTMENT OF WATER RESOURCES
CALIFORNIA COOPERATIVE SNOW SURVEYS
FORECAST OF APRIL-JULY
UNIMPAIRED SNOWMELT RUNOFF
April 1, 2019



* FORECAST BY DEPARTMENT OF WATER AND POWER, CITY OF LOS ANGELES

April 1, 2019 FORECASTS
APRIL-JULY UNIMPAIRED RUNOFF

HYDROLOGIC REGION and Watershed	Apr-Jul Unimpaired Runoff in 1,000 Acre-Feet (1) HISTORICAL 50 Yr Avg (2)	Max of Record (10)	Min of Record (10)	FORECAST Apr-Jul Forecast	Pct of Avg	80% Probability Range (1)
North Coast						
Trinity River at Lewiston Lake	639	1,593	80	**940**	147%	750 - 1,120
SACRAMENTO RIVER						
Upper Sacramento River						
Sacramento River at Delta above Shasta Lake	295	751	39	400	136%	
McCloud River above Shasta Lake	385	850	185	500	130%	
Pit River near Montgomery Creek + Squaw Creek	1,020	2,098	480	1,470	144%	
Total Inflow to Shasta Lake	1,756	3,525	711	**2,460**	140%	2,060 - 2,880
Sacramento River above Bend Bridge, near Red Bluff	2,421	5,117	943	**3,450**	143%	2,730 - 4,230
Feather River						
Feather River at Lake Almanor near Prattville (3)	333	675	120	600	180%	
North Fork at Pulga (3)	1,028	2,416	243	1,830	178%	
Middle Fork near Clio (4)	86	518	4	150	174%	
South Fork at Ponderosa Dam (3)	110	267	13	195	177%	
Feather River at Oroville	1,704	4,676	378	**3,040**	178%	2,200 - 3,690
Yuba River						
North Yuba below Goodyears Bar	279	647	51	470	168%	
Inflow to Jackson Mdws and Bowman Reservoirs (3)	112	236	25	180	161%	
South Yuba at Langs Crossing (3)	233	481	57	380	163%	
Yuba River near Smartsville plus Deer Creek	968	2,424	151	**1,600**	165%	1,200 - 2,000
American River						
North Fork at North Fork Dam (3)	262	716	43	430	164%	
Middle Fork near Auburn (3)	522	1,406	100	880	169%	
Silver Creek below Camino Diversion Dam (3)	173	386	37	290	168%	
American River below Folsom Lake	1,199	3,074	185	**2,020**	168%	1,500 - 2,520
SAN JOAQUIN RIVER						
Cosumnes River at Michigan Bar	125	446	8	**200**	160%	140 - 285
Mokelumne River						
North Fork near West Point (5)	437	829	104	720	165%	
Total Inflow to Pardee Reservoir	457	1,076	75	**760**	166%	590 - 930
Stanislaus River						
Middle Fork below Beardsley Dam (3)	334	702	64	550	165%	
North Fork Inflow to McKays Point Dam (3)	224	503	34	360	161%	
Stanislaus River below Goodwin Reservoir (9)	682	1,710	116	**1,120**	164%	890 - 1,360
Tuolumne River						
Cherry Creek & Eleanor Creek near Hetch Hetchy	315	727	97	480	152%	
Tuolumne River near Hetch Hetchy	604	1,392	153	950	157%	
Tuolumne River below La Grange Reservoir (9)	1,193	2,682	301	**1,860**	156%	1,520 - 2,250
Merced River						
Merced River at Pohono Bridge	372	888	80	560	151%	
Merced River below Merced Falls (9)	623	1,588	104	**940**	151%	760 - 1,140
San Joaquin River						
San Joaquin River at Mammoth Pool (7)	1,026	2,279	235	1,520	148%	
Big Creek below Huntington Lake (8)	91	264	11	135	148%	
South Fork near Florence Lake (7)	201	511	58	300	149%	
San Joaquin River inflow to Millerton Lake	1,228	3,355	193	**1,830**	149%	1,530 - 2,260
TULARE LAKE						
Kings River						
North Fork Kings River near Cliff Camp (3)	239	565	50	370	155%	
Kings River below Pine Flat Reservoir	1,210	3,113	208	**1,880**	155%	1,540 - 2,290
Kaweah River below Terminus Reservoir	285	814	42	**450**	158%	360 - 550
Tule River below Lake Success	63	259	1	**110**	175%	75 - 145
Kern River						
Kern River near Kernville	384	1,203	83	670	174%	
Kern River inflow to Lake Isabella	458	1,657	57	**800**	175%	640 - 960

(1) See inside the back cover for definition.
(2) All 50 year averages are based on years 1966-2015 unless otherwise noted.
(3) 50 year average based on years 1941-90.
(4) 44 year average based on years 1936-79.
(5) 36 year average based on years 1936-72.
(6) 45 year average based on years 1936-81.
(7) 50 year average based on years 1953-2002.
(8) 50 year average based on years 1946-1995.

April 1, 2019 FORECASTS
WATER YEAR UNIMPAIRED RUNOFF

Water Year Unimpaired Runoff in 1,000 Acre-Feet (1)

HISTORICAL			DISTRIBUTION									FORECAST			
50 Yr Avg (2)	Max of Record (10)	Min of Record (10)	Oct Thru Jan	Feb *	Mar *	Apr	May	Jun	Jul	Aug	Sep	Water Year Forecast	Pct of Avg	80% Probability Range (1)	
1,348	2,990	200	224	177	225	280	370	225	65	17	12	**1,595**	118%	1,395 -	1,785
860	1,966	165													
1,183	2,353	557													
3,002	5,150	1,484													
5,831	10,796	2,479	1,492	1,163	1,422	1,000	740	435	285	245	234	**7,015**	120%	6,535 -	7,520
8,544	17,180	3,294	2,405	2,047	2,317	1,480	995	600	375	312	310	**10,840**	127%	9,990 -	11,765
780	1,269	366													
2,417	4,400	666													
219	637	24													
291	562	32													
4,407	10,178	995	904	955	1,173	1,120	1,070	610	240	135	114	**6,320**	143%	5,410 -	7,025
564	1,056	102													
181	292	30													
379	565	98													
2,268	5,604	369	381	496	563	515	590	400	95	35	30	**3,105**	137%	2,685 -	3,525
616	1,234	66													
1,070	2,575	144													
318	705	59													
2,626	7,391	349	425	702	754	635	760	495	130	30	20	**3,950**	150%	3,415 -	4,470
379	1,253	20	63	165	222	100	71	24	5	1	1	**653**	172%	590 -	740
626	1,009	197													
748	1,901	129	70	128	165	180	285	240	55	7	5	**1,135**	152%	960 -	1,310
471	929	88													
-	-	-													
1,149	3,078	155	144	217	278	280	420	320	100	21	10	**1,790**	156%	1,550 -	2,050
461	1,147	123													
770	1,661	258													
1,909	4,631	383	199	344	365	390	635	595	240	45	18	**2,830**	148%	2,465 -	3,250
461	1,020	92													
992	2,787	150	95	226	183	205	340	300	95	22	9	**1,475**	149%	1,285 -	1,685
1,337	2,964	308													
112	298	14													
248	653	71													
1,793	4,642	327	144	211	236	335	600	615	280	74	35	**2,531**	141%	2,205 -	3,025
284	607	58													
1,702	4,287	359	130	186	240	300	625	660	295	91	33	**2,560**	150%	2,195 -	3,000
451	1,402	89	33	58	101	100	155	145	50	13	5	**660**	146%	565 -	765
147	615	10	17	28	65	44	40	20	6	3	2	**225**	153%	185 -	265
558	1,577	163													
728	2,318	130	69	56	128	165	280	235	120	51	26	**1,130**	155%	950 -	1,310

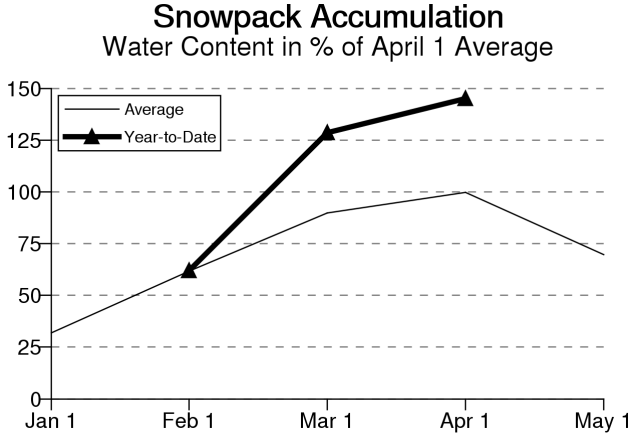
(9) Forecast point names based on USGS gage names. Stanislaus below Goodwin also known as inflow to New Melones, Tuolumne River below La Grange also known as inflow to Don Pedro, Merced River below Merced Falls also known as inflow to McClure.
(10) For the tributaries, the period of record over which the minimum and maximum values are found does not include years after water year 2011.
* Unimpaired runoff in months prior to forecast date are based on measured flows.

April 1, 2019 FORECASTS
APRIL-JULY UNIMPAIRED RUNOFF

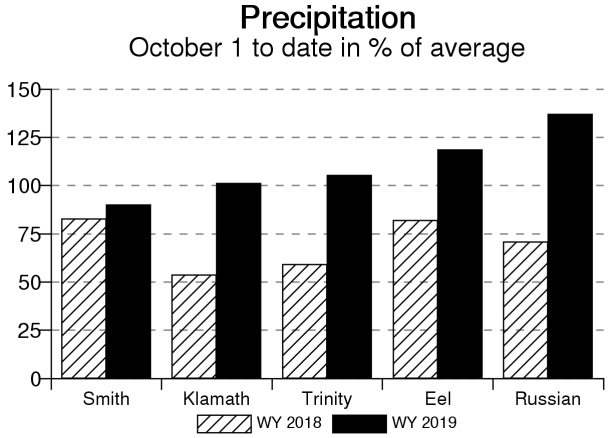
HYDROLOGIC REGION and Watershed	Apr-Jul Unimpaired Runoff in 1,000 Acre-Feet (1) HISTORICAL			FORECAST	
	50 Yr Avg (2)	Max of Record (6)	Min of Record (6)	Apr-Jul Forecast	Pct of Avg
NORTH COAST					
Scott River					
Scott River nr Ft Jones (3)	173	398	22	**234**	135%
Klamath River					
Total inflow to Upper Klamath Lake (4)	475	1,150	149	**516**	109%
NORTH LAHONTAN					
Truckee River					
Lake Tahoe to Farad accretions	250	713	48	**450**	180%
Lake Tahoe Rise (assuming gates closed, ft)	1.3	5.4	0.2	**2.1**	157%
Carson River					
West Fork Carson River at Woodfords	52	135	10	**84**	162%
East Fork Carson River near Gardnerville	182	480	43	**300**	165%
Walker River					
West Walker River below Little Walker, near Coleville	153	410	35	**240**	157%
East Walker River near Bridgeport	61	209	7	**110**	180%
SOUTH LAHONTAN					
Owens River					
Total tributary flow to Owens River (5)	231	579	84	**336**	145%

(1) See inside the back cover for definition.
(2) All 50 year averages are based on years 1966-2015 unless otherwise noted.
(3) Forecast by National Weather Service California-Nevada River Forecast Center. 30 yr average (1981-2010).
(4) Forecast by U.S. Natural Resources Conservation Service and National Weather Service California-Nevada River Forecast Center, April through September forecast, 30 year average based on years 1981-2010.
(5) Forecast by Department of Water and Power, City of Los Angeles, average based on years 1961-2010.
(6) For the tributaries, the period of record over which the minimum values are found does not include years after water year 2011.

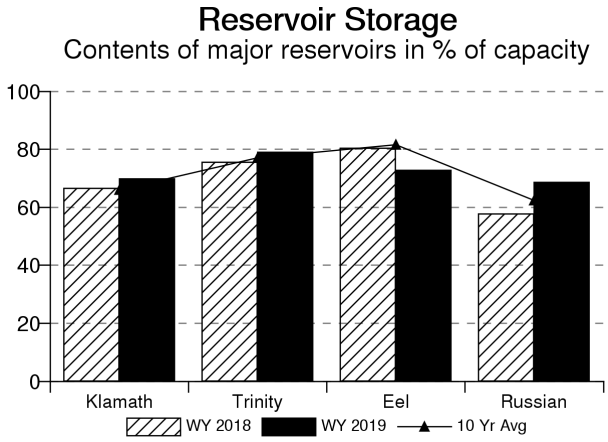
NORTH COAST REGION



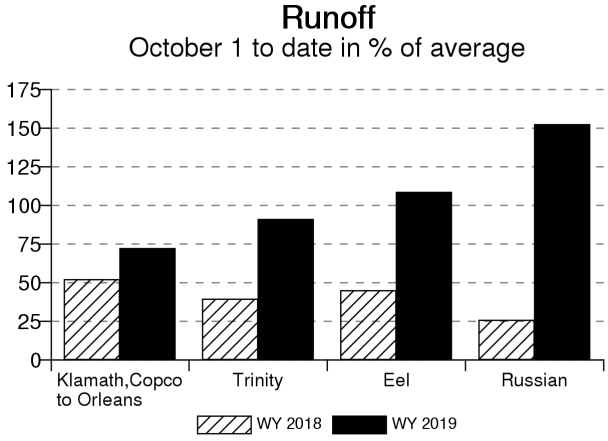
SNOWPACK - First of the month measurements made at 15 snow courses indicate an area wide snow water equivalent of 39.3 inches. This is 145 percent of the seasonal April 1 average. Last year at this time the pack was holding 9.9 inches of water.



PRECIPITATION - Seasonal precipitation (October 1 through to the end of March) on this area was 110 percent of normal. Precipitation last month was about 100 percent of the monthly average. Seasonal precipitation at this time last year stood at 70 percent of normal.

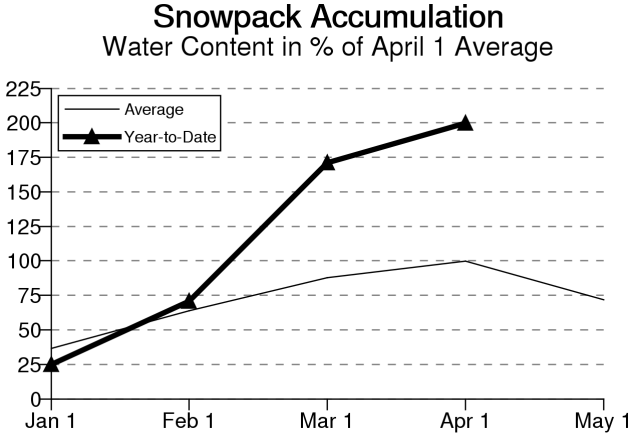


RESERVOIR STORAGE - First of the month storage at 6 reservoirs was 2.38 million acre-feet which is 105 percent of average. About 75 percent of available capacity was being used. Storage in these reservoirs at this time last year was 95 percent of average.

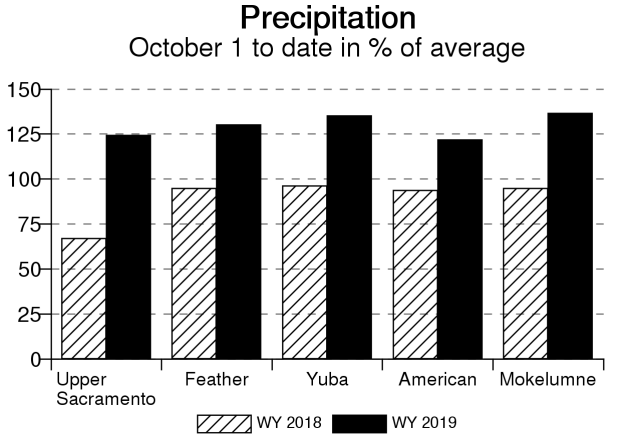


RUNOFF - Seasonal runoff of streams draining this area totaled 9.04 million acre-feet which is 100 percent of average. Last year, runoff for the same period was 45 percent of average.

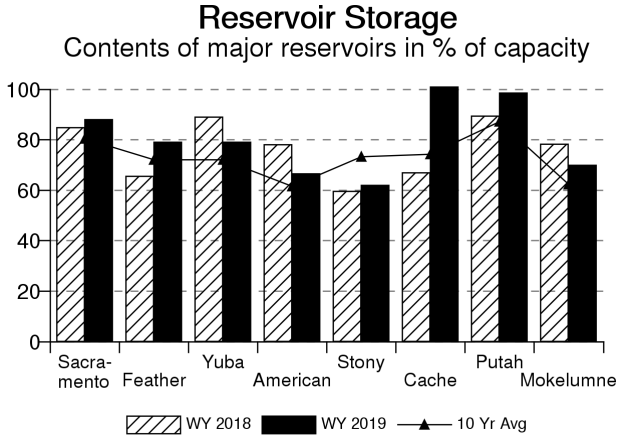
SACRAMENTO RIVER REGION



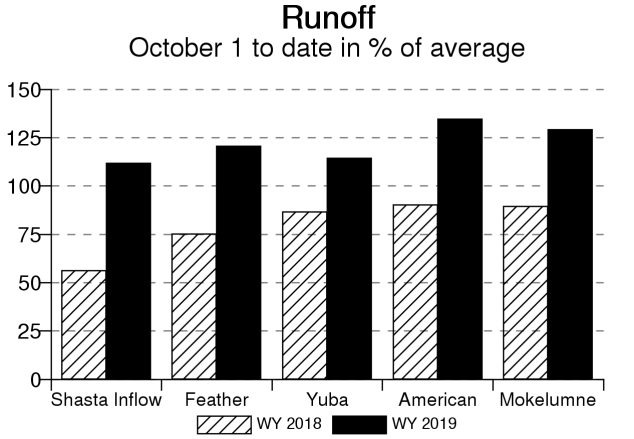
SNOWPACK - First of the month measurements made at 74 snow courses indicate an area wide snow water equivalent of 48.1 inches. This is 185 percent of the seasonal April 1 average. Last year at this time the pack was holding 15.3 inches of water.



PRECIPITATION - Seasonal precipitation (October 1 through to the end of March) on this area was 135 percent of normal. Precipitation last month was about 140 percent of the monthly average. Seasonal precipitation at this time last year stood at 85 percent of normal.



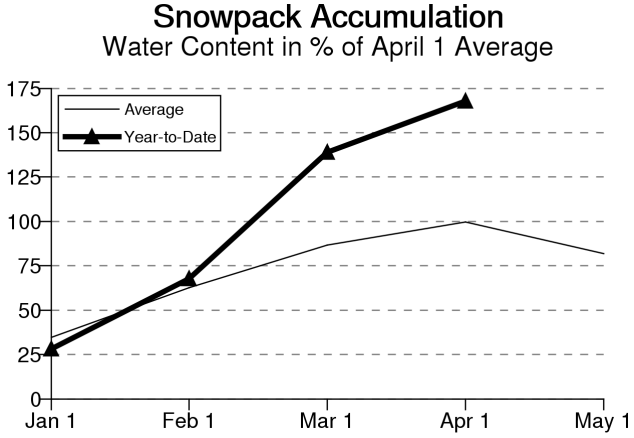
RESERVOIR STORAGE - First of the month storage at 43 reservoirs was 13.40 million acre-feet which is 110 percent of average. About 85 percent of available capacity was being used. Storage in these reservoirs at this time last year was 105 percent of average.



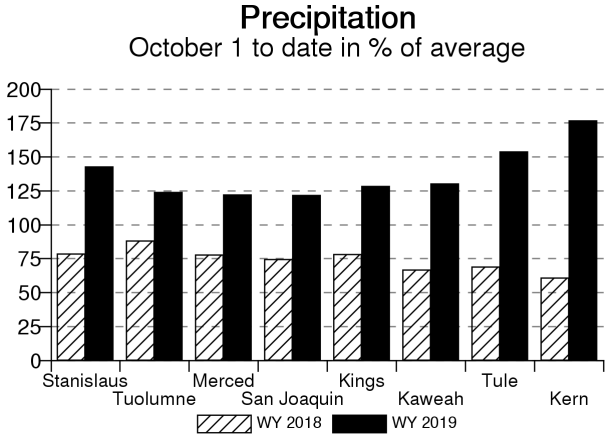
RUNOFF - Seasonal runoff of streams draining this area totaled 13.12 million acre-feet which is 120 percent of average. Last year, runoff for the same period was 65 percent of average.

The **Sacramento Region 40-30-30 Water Supply Index** is forecast to be 10.1 assuming median meteorological conditions for the remainder of the year. This classifies the year as "wet" in the Sacramento Valley according to the State Water Resources Control Board.

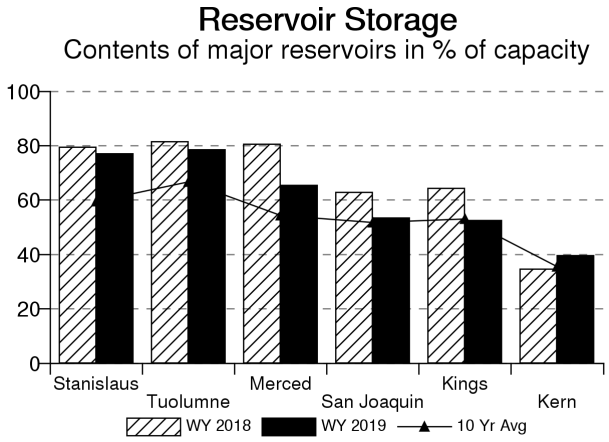
SAN JOAQUIN RIVER AND TULARE LAKE REGIONS



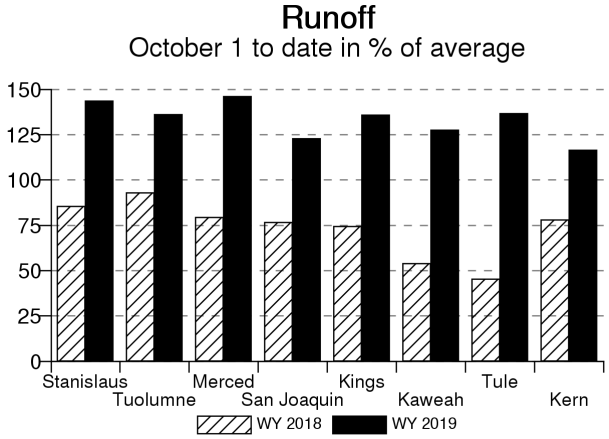
SNOWPACK - First of the month measurements made at 67 **San Joaquin Region** snow courses indicate an area wide snow water equivalent of 51.6 inches. This is 170 percent of the seasonal April 1 average. Last year at this time the pack was holding 20.7 inches of water. At the same time 43 **Tulare Lake** snow courses indicate a basin-wide snow water equivalent of 41.9 inches. This is 185 percent of the seasonal April 1 average. Last year at this time the pack was holding 13.9 inches of water.



PRECIPITATION - Seasonal precipitation (October 1 through to the end of March) on the **San Joaquin Region** was 130 percent of normal. Precipitation last month was about 140 percent of the monthly average. Season precipitation at this time last year stood at 80 percent of normal. Seasonal precipitation (October 1 through to the end of March) on the **Tulare Lake Region** was 140 percent of normal. Precipitation last month was about 185 percent of the monthly average. Seasonal precipitation at this time last year stood at 70 percent of normal.



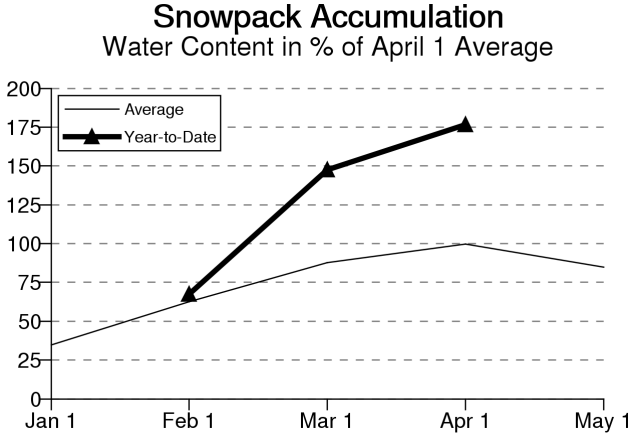
RESERVOIR STORAGE - First of the month storage in 34 **San Joaquin Region** reservoirs was 8.87 million acre-feet which is 120 percent of average. About 75 percent of available capacity was being used. Storage in these reservoirs at this time last year was 120 percent of average. First of the month storage in 6 **Tulare Lake Region** reservoirs was 919 thousand acre-feet which is 100 percent of average. About 45 percent of available capacity was being used. Storage in these reservoirs at this time last year was 115 percent of average.



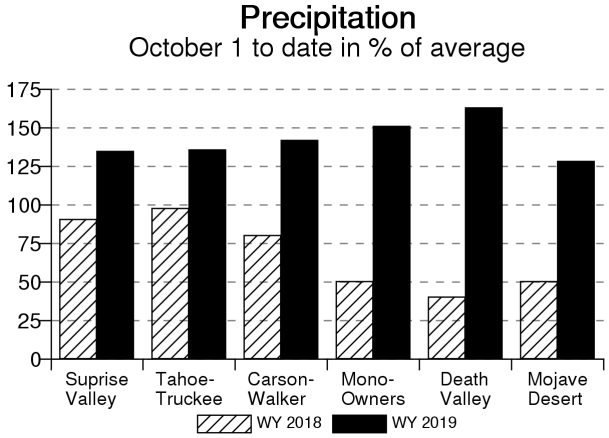
RUNOFF - Seasonal runoff of streams draining the **San Joaquin Region** totaled 3.46 million acre-feet which is 140 percent of average. Last year, runoff for the same period was 85 percent of average. Seasonal runoff of streams draining the **Tulare Lake Region** area totaled 1.11 million acre-feet which is 130 percent of average. Last year, runoff for the same period was 50 percent of average.

The **San Joaquin Region 60-20-20 Water Supply Index** is forecast to be 4.3 at the 75 percent exceedance level assuming median future meteorological conditions. This classifies the year as "above normal" in the San Joaquin according to the State Water Resources Control Board.

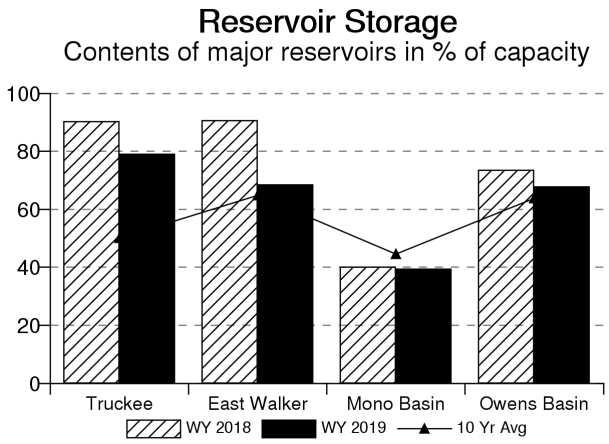
NORTH AND SOUTH LAHONTAN REGIONS



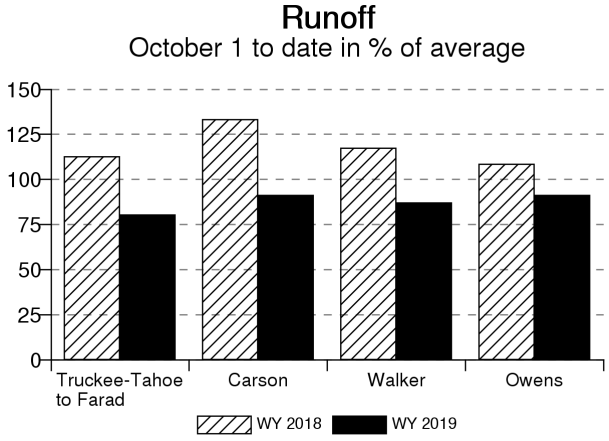
SNOWPACK - First of the month measurements made at 17 **North Lahontan Region** snow courses indicate an area wide snow water equivalent of 42.5 inches. This is 175 percent of the seasonal April 1 average and 175 percent of the April 1 average. Last year this time the pack was holding 18.7 inches of water. At the same time 19 **South Lahontan Region** snow courses indicate a basin-wide snow water equivalent of 34.8 inches. This is 170 percent of the seasonal April 1 average and 170 percent of the April 1 average. Last year this time the pack was holding 15.0 inches of water.



PRECIPITATION - Seasonal precipitation (October 1 through to the end of March) on the **North Lahontan Region** was 135 percent of normal. Precipitation last month was about 135 percent of the monthly average. Seasonal precipitation at this time last year stood at 85 percent of normal. Seasonal precipitation (October 1 through to the end of March) on the **South Lahontan Region** was 145 percent of normal. Precipitation last month was about 280 percent of the monthly average. Seasonal precipitation at this time last year stood at 50 percent of normal.

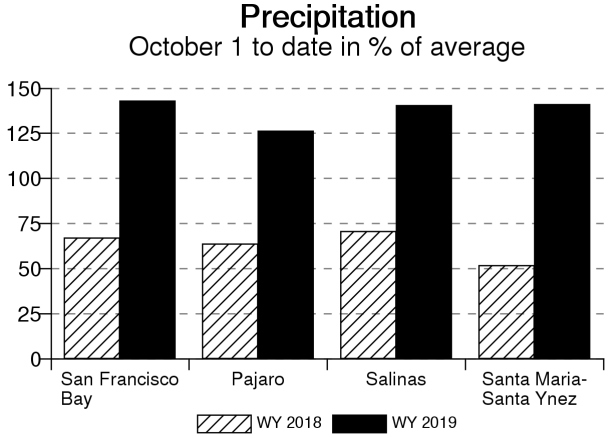


RESERVOIR STORAGE - First of the month storage in 5 **North Lahontan Region** reservoirs was 843 thousand acre-feet which is 155 percent of average. About 80 percent of available capacity was being used. Storage in these reservoirs at this time last year was 175 percent of average. First of the month storage in 8 **South Lahontan Region** reservoirs was 272 thousand acre-feet which is 100 percent of average. About 65 percent of available capacity was being used. Storage in these reservoirs at this time last year was 110 percent of average.

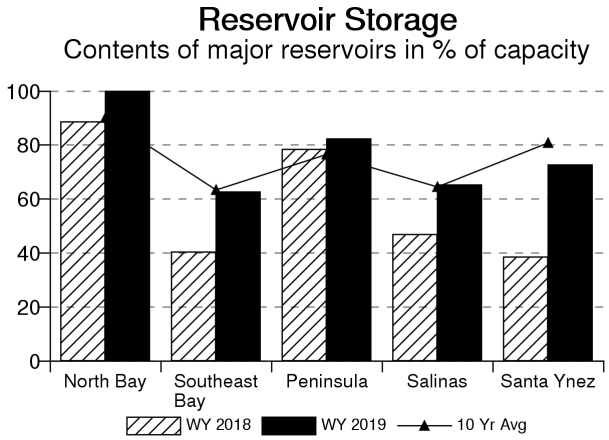


RUNOFF - Seasonal runoff of streams draining the **North Lahontan Region** totaled 239 thousand acre-feet which is 85 percent of average. Last year, runoff for the same period was 120 percent of average. Seasonal runoff of streams draining the **South Lahontan Region** area totaled 60 thousand acre-feet which is 90 percent of average. Last year, runoff for the same period was 110 percent of average.

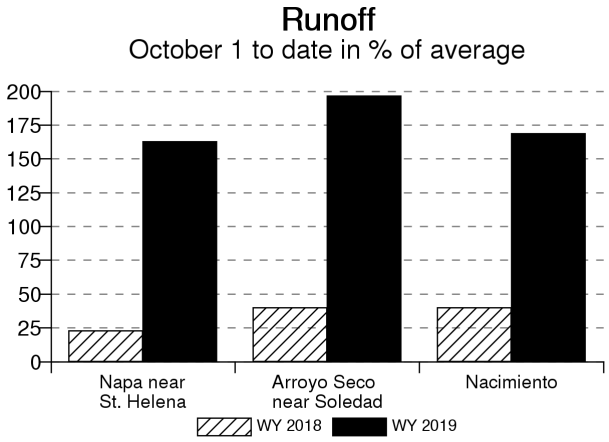
SAN FRANCISCO BAY AND CENTRAL COAST REGIONS



PRECIPITATION - Seasonal precipitation (October 1 through to the end of March) on the **San Francisco Bay Region** was 135 percent of normal. Precipitation last month was about 155 percent of the monthly average. Seasonal precipitation at this time last year stood at 65 percent of normal. Seasonal precipitation (October 1 through to the end of March) on the **Central Coast Region** was 135 percent of normal. Precipitation last month was about 140 percent of the monthly average. Seasonal precipitation at this time last year stood at 60 percent of normal.



RESERVOIR STORAGE - First of the month storage in 17 **San Francisco Region** reservoirs was 539 thousand acre-feet which is 100 percent of average. About 75 percent of available capacity was being used. Storage in these reservoirs at this time last year was 85 percent of average. First of the month storage in 6 **Central Coast Region** reservoirs was 673 thousand acre-feet which is 100 percent of average. About 70 percent of available capacity was being used. Storage in these reservoirs at this time last year was 65 percent of average.



RUNOFF - Seasonal runoff of streams draining the **San Francisco Region** totaled 105 thousand acre-feet which is 165 percent of average. Last year, runoff for the same period was 25 percent of average. Seasonal runoff of streams draining the **Central Coast Region** area totaled 493 thousand acre-feet which is 180 percent of average. Last year, runoff for the same period was 40 percent of average.

SOUTH COAST REGION

PRECIPITATION - Seasonal precipitation (October 1 through to the end of March) on the **South Coast Region** was 145 percent of average. Precipitation last month was about 85 percent of the monthly average. Seasonal precipitation at this time last year stood at 40 percent of average.

RESERVOIR STORAGE - First of the month storage at 29 reservoirs was 1.46 million acre-feet which is 100 percent of average. About 70 percent of available capacity was being used. Storage in these reservoirs at this time last year was 85 percent of average.

RUNOFF - Seasonal runoff of streams draining this area totaled 197 thousand acre-feet which is 195 percent of average. Last year, runoff for the same period was 15 percent of average.

COLORADO RIVER REGION

SNOWPACK - The April 1 snowpack in the Colorado River basin above Lake Powell is 135 percent of average, highest in the South Eastern Utah basin at 205 percent of average and lowest in the Yampa and White River basins at 120 percent of average.

PRECIPITATION - Seasonal precipitation (October 1 through to the end of March) on the **Colorado River Region** was 170 percent of average. Precipitation last month was about 90 percent of the monthly average. Seasonal precipitation at this time last year stood at 30 percent of average.

RESERVOIR STORAGE - First of the month storage at 4 reservoirs was 22.2 million acre-feet which is 60 percent of average. About 40 percent of available capacity was being used. Storage in these reservoirs at this time last year was 70 percent of average.

RUNOFF - The April-July inflow to Lake Powell is forecast to be 10.2 million acre-feet, which is 142 percent of average.

MAJOR WATER DISTRIBUTION PROJECTS
RESERVOIR STORAGE
(AVERAGES BASED ON 1966-2015 OR PERIOD RECORD)

RESERVOIR	CAPACITY 1,000 AF	AVERAGE STORAGE 1,000 AF	STORAGE AT END OF March 2018 1,000 AF	2019 1,000 AF	PERCENT AVERAGE	PERCENT CAPACITY
STATE WATER PROJECT						
Lake Oroville	3,538	2,670	2,093	2,849	107%	81%
San Luis Reservoir (SWP)	1,062	958	898	1,063	111%	100%
Lake Del Valle	77	37	33	40	107%	52%
Lake Silverwood	78	68	67	67	99%	86%
Pyramid Lake	180	165	164	168	102%	93%
Castaic Lake	325	286	291	282	99%	87%
Perris Lake	131	106	87	109	103%	83%
CENTRAL VALLEY PROJECT						
Trinity Lake	2,448	1,888	1,844	1,932	102%	79%
Lake Shasta	4,552	3,657	3,880	4,028	110%	88%
Whiskeytown Lake	241	213	207	216	101%	90%
Folsom Lake	977	633	817	735	116%	75%
New Melones Reservoir	2,400	1,495	2,019	2,001	134%	83%
Millerton Lake	521	362	406	340	94%	65%
San Luis Reservoir (CVP)	971	847	876	965	114%	99%
COLORADO RIVER PROJECT						
Lake Mead	26,159	19,077	10,964	10,878	57%	42%
Lake Powell	24,322	16,720	12,956	9,049	54%	37%
Lake Mohave	1,810	1,676	1,687	1,687	101%	93%
Lake Havasu	648	559	570	577	103%	89%
EAST BAY MUNICIPAL UTILITY DISTRICT						
Pardee Res	204	183	202	193	106%	95%
Camanche Reservoir	417	259	336	309	119%	74%
East Bay (4 res.)	159	133	132	134	101%	85%
CITY AND COUNTY OF SAN FRANCISCO						
Hetch-Hetchy Reservoir	360	163	288	273	167%	76%
Cherry Lake	268	158	118	198	126%	74%
Lake Eleanor	29	14	13	11	82%	39%
South Bay/Peninsula (4 res.)	238	173	134	181	105%	76%
CITY OF LOS ANGELES (D.W.P.)						
Lake Crowley	183	128	147	137	107%	75%
Grant Lake	48	28	19	28	102%	59%
Other Aqueduct Storage (6 res.)	83	77	--	61	79%	73%

TELEMETERED SNOW WATER EQUIVALENTS

April 1, 2019

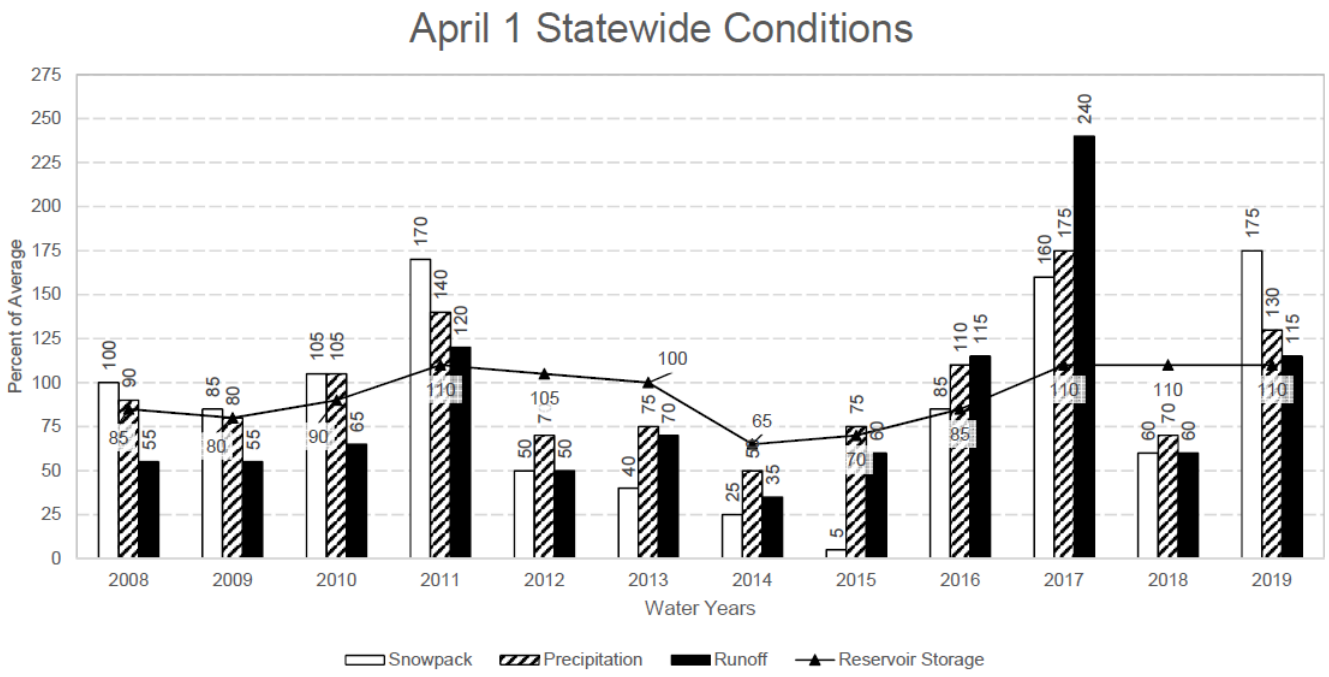
(AVERAGES BASED ON PERIOD RECORD)

BASIN NAME / STATION NAME	ELEV	APRIL 1 AVERAGE	INCHES OF WATER EQUIVALENT Apr 1	PERCENT OF AVERAGE	24 HRS PREVIOUS	1 WEEK PREVIOUS
TRINITY RIVER						
Shimmy Lake	6400'	40.3	51.0	126.6	50.7	46.7
Crowder Flat	5100'	-	0.2	-	0.9	3.1
Highland Lakes	6030'	29.9	59.5	199.1	59.8	55.7
Mumbo Basin	5650'	22.4	-	-	-	-
Bonanza King	6450'	40.5	68.3	168.6	67.6	61.0
Red Rock Mountain	6700'	39.6	83.2	210.2	82.6	77.0
Big Flat	5100'	15.8	33.0	209.1	33.2	31.1
Scott Mountain	5900'	16.0	38.2	238.5	38.6	35.4
Peterson Flat	7150'	29.2	48.8	167.3	48.4	44.5
Middle Boulder 3	6200'	28.3	46.6	164.7	49.2	46.0
SACRAMENTO RIVER						
Blacks Mountain	7050'	12.7	20.6	162.5	20.5	19.4
Cedar Pass	7100'	18.1	23.9	132.0	24.0	22.7
Medicine Lake	6700'	32.6	50.5	155.0	50.4	46.2
Sand Flat	6750'	42.4	53.8	126.8	53.4	50.0
Slate Creek	5700'	29.0	50.3	173.5	49.8	44.6
Adin Mountain	6200'	13.6	21.4	157.4	21.9	21.7
Stouts Meadow	5400'	36.0	55.4	153.9	56.4	49.8
Snow Mountain	5950'	27.0	59.3	219.6	59.5	54.6
FEATHER RIVER						
Kettle Rock	7300'	25.5	49.4	193.9	49.9	48.7
Gold Lake	6750'	36.5	61.6	168.7	61.4	59.6
Bucks Lake	5750'	44.7	49.8	111.3	50.0	47.8
Harkness Flat	6200'	28.5	44.6	156.6	45.3	41.9
Four Trees	5150'	20.0	32.0	160.2	32.3	33.0
Humbug	6500'	28.0	50.6	180.9	50.6	49.4
Grizzly Ridge	6900'	29.7	47.6	160.4	47.9	46.2
Rattlesnake	6100'	14.0	-	-	-	30.8
Lower Lassen Peak	8250'	-	-	-	-	-
Pilot Peak	6800'	52.6	80.5	153.0	80.8	75.4
EEL RIVER						
Noel Spring	5100'	-	12.4	-	12.5	12.6
YUBA & AMERICAN RIVERS						
Carson Pass	8353'	-	49.4	-	49.1	47.3
Lake Lois	8600'	39.5	71.4	180.7	71.6	68.2
Forni Ridge	7600'	37.0	68.9	186.3	69.2	66.3
Silver Lake	7100'	22.7	-	-	-	42.6
Blue Canyon	5280'	9.0	26.0	289.3	27.2	29.8
Schneiders	8750'	34.5	-	-	-	-
Meadow Lake	7200'	55.5	-	-	-	-
Robbs Powerhouse	5150'	5.2	17.1	329.6	17.6	18.1
Robinson Cow Camp	6480'	-	77.3	-	77.0	73.2
Cent Sierra Snow Lab	6900'	33.6	66.1	196.7	66.2	63.2
Caples Lake	8000'	30.9	61.5	199.0	62.1	58.5
Alpha	7600'	35.9	57.6	160.5	57.7	55.1
Robbs Saddle	5900'	21.4	30.1	140.6	30.3	29.5
Huysink	6600'	42.6	52.2	122.5	52.2	50.8
Van Vleck	6700'	35.9	67.0	186.7	67.3	64.5
Greek Store	5600'	21.0	38.3	182.3	38.3	37.4
MOKELUMNE & STANISLAUS RIVERS						
Highland Meadow	8700'	47.9	70.1	146.2	69.9	67.9
Gianelli Meadow	8400'	55.5	93.5	168.5	93.6	90.0
Bloods Creek	7200'	35.5	-	-	-	-
Blue Lakes	8000'	33.1	53.1	160.4	53.0	51.4
Mud Lake	7900'	44.9	-	-	-	-
Black Springs	6500'	32.0	-	-	-	-
Stanislaus Meadow	7750'	47.5	-	-	-	-
Deadman Creek	9250'	37.2	-	-	-	-
Lower Relief Valley	8100'	41.2	-	-	-	-
TUOLUMNE & MERCED RIVERS						
Dana Meadows	9800'	27.7	37.6	135.8	37.7	36.6
Horse Meadow	8400'	48.6	79.5	163.6	79.5	77.1
Tuolumne Meadows	8600'	22.6	33.4	148.0	34.2	33.5
Slide Canyon	9200'	41.1	58.5	142.4	58.5	56.6
Ostrander Lake	8200'	34.8	62.6	179.9	62.2	59.1
Gin Flat	7050'	34.2	36.6	107.0	36.6	35.8
Tenaya Lake	8150'	33.1	51.5	155.7	51.6	49.6
White Wolf	7900'	-	51.0	-	51.3	50.1
Lower Kibbie Ridge	6700'	27.4	31.1	113.4	31.2	30.7
Paradise Meadow	7650'	41.3	68.2	165.2	68.4	66.7

SAN JOAQUIN RIVER						
Volcanic Knob	10050'	30.1	41.0	136.1	40.8	39.9
Tamarack Summit	7550'	30.5	48.0	157.4	48.0	47.0
Kaiser Point	9200'	37.8	47.6	125.8	47.9	46.7
Huntington Lake	7000'	20.1	34.7	172.4	35.1	34.3
Green Mountain	7900'	30.8	46.8	151.9	47.8	46.6
Poison Ridge	6900'	28.9	36.3	125.7	37.4	37.3
Graveyard Meadow	6900'	18.8	40.1	213.2	40.8	39.6
Agnew Pass	9450'	32.3	-	-	-	-
Devils Postpile	7569'	-	-	-	-	39.3
Chilkoot Meadow	7150'	38.0	57.5	151.3	57.4	55.6
KINGS RIVER						
Bishop Pass	11200'	34.0	-	-	-	-
Blackcap Basin	10300'	34.3	-	-	-	-
Mitchell Meadow	9900'	32.9	57.2	173.9	57.2	55.8
Upper Burnt Corral	9700'	34.6	49.6	143.2	49.4	49.2
State Lakes	10300'	29.0	55.5	191.4	55.5	54.0
West Woodchuck Meadow	9100'	32.8	47.5	144.8	47.5	47.0
Big Meadows	7600'	25.9	-	-	-	-
Charlotte Lake	10400'	27.5	-	-	-	-
KAWEAH & TULE RIVERS						
Farewell Gap	9500'	34.5	-	-	-	-
Giant Forest	6650'	10.0	20.0	200.0	20.0	20.8
Quaking Aspen	7200'	21.0	32.7	155.8	33.0	34.2
KERN RIVER						
Tunnel Guard Station	8900'	15.6	-	-	-	-
Beach Meadows	7650'	11.0	18.1	164.7	19.0	21.5
Upper Tyndall Creek	11400'	27.7	36.8	132.9	36.5	35.9
Casa Vieja Meadows	8300'	20.9	33.7	161.1	34.2	35.0
Pascoes	9150'	24.9	48.7	195.6	48.7	48.7
Wet Meadows	8950'	30.3	46.5	153.4	46.8	47.5
Chagoopa Plateau	10300'	21.8	34.7	158.9	35.2	35.3
Crabtree Meadow	10700'	19.8	24.5	123.7	24.5	24.5
SURPRISE VALLEY AREA						
Dismal Swamp	7050'	29.2	42.6	145.9	42.5	39.8
TRUCKEE RIVER						
Independence Camp	7000'	21.8	41.7	191.3	41.6	40.6
Independence Lake	8450'	41.4	64.8	156.5	64.7	62.1
Squaw Valley Gold Coast	8200'	46.5	63.1	135.7	62.8	61.0
Truckee 2	6400'	14.3	-	-	-	-
Independence Creek	6500'	12.7	20.8	163.8	21.2	21.4
Big Meadows	8700'	25.7	40.6	158.0	40.6	39.0
LAKE TAHOE BASIN						
Rubicon Peak 2	7500'	29.1	41.3	141.9	41.1	39.2
Tahoe City Cross	6750'	16.0	28.8	180.0	29.5	29.2
Echo Peak 5	7800'	39.5	71.0	179.7	71.3	68.6
Hagans Meadow	8000'	16.5	28.5	172.7	28.4	27.6
Fallen Leaf Lake	6250'	7.0	13.2	188.6	13.9	15.0
Ward Creek 3	6750'	39.4	67.8	172.1	67.7	65.0
Mount Rose Ski Area	8900'	38.5	59.8	155.3	59.8	58.2
Heavenly Valley	8800'	28.1	39.2	139.5	39.1	37.1
Marlette Lake	8000'	21.1	42.4	200.9	42.4	40.5
CARSON RIVER						
Spratt Creek	6150'	4.5	7.4	164.4	8.5	11.4
Horse Meadow	8400'	48.6	79.5	163.6	79.5	77.1
Burnside Lake	8129'	-	43.7	-	43.8	41.9
Monitor Pass	8350'	-	27.2	-	26.8	26.1
Poison Flat	7900'	16.2	34.1	210.5	33.9	32.5
Forestdale Creek	8017'	-	57.4	-	57.4	54.7
Ebbetts Pass	8700'	38.8	59.4	153.1	59.2	57.1
WALKER RIVER						
Sonora Pass Bridge	8750'	26.0	40.8	156.9	40.7	39.4
Virginia Lakes Ridge	9300'	20.3	26.2	129.1	25.9	25.1
Lobdell Lake	9200'	17.3	31.5	182.1	31.6	30.8
Summit Meadow	9313'	-	41.5	-	41.5	39.2
Leavitt Meadows	7200'	8.0	27.6	345.0	27.4	27.7
Leavitt Lake	9600'	-	80.5	-	80.1	77.1
OWENS RIVER/MONO LAKE						
Cottonwood Lakes	10150'	11.6	28.2	243.1	28.5	28.8
Gem Pass	10750'	31.7	31.5	99.5	31.6	30.6
Rock Creek Lakes	9700'	14.0	23.0	164.1	23.2	23.2
South Lake	9600'	16.0	25.3	158.4	25.5	25.0
Big Pine Creek	9800'	17.9	41.1	229.8	41.0	40.0
Sawmill	10200'	19.4	27.7	142.7	27.6	27.1

NORMAL SNOWPACK ACCUMULATION EXPRESSED AS A PERCENT OF APRIL 1ST AVERAGE

AREA	JANUARY	FEBRUARY	MARCH	APRIL	MAY
Central Valley North	45%	70%	90%	100%	75%
Central Valley South	45%	65%	85%	100%	80%
North Coast	40%	60%	85%	100%	80%



SNOWLINES

The Statewide April 2019 snowpack ranks as the 5th highest on record based on snow courses dating as far back as 1950 behind years 1952, 1983, 1969, and 1995.

Depicted on this month's cover are snow surveyors, Ben Letton and Greg Poulton in the Bear Basin. The surveyors are on the final push to the snow course after a 6-mile ski from Fosters Cabin. Notice the cornices on the ridges. The people who designed the snow survey sites in the 1940s placed the courses in avalanche safe locations despite some rugged and dangerous terrain throughout the Trinity Alps. Photo was taken by Dillon Sheedy on March 30, 2019.

OSP 19 146552

SNOWPACK – Snow data is a major index of spring and summer runoff from Sierra Nevada watersheds. April 1 data historically reflects the magnitude of the snowpack at or near the maximum seasonal accumulation. Averages are based on April 1 data for the period 1966-2015 (50 years, except for data sites established after 1951).

PRECIPITATION – Averages for stations are based on the source of the data and varies from a 30-year to a 50-year period.

RUNOFF AND FORECASTS – Runoff data and runoff forecasts are shown as unimpaired values. Unimpaired runoff represents the natural water production of a river basin, unaltered by upstream diversions, storage, or by export or import of water to or from other watersheds. Forecast of runoff assumes median conditions subsequent to the date of forecast.

Runoff probability ranges are statistically derived from historical data. The 80 percent probability range is comprised of the 90 percent exceedance level value and the 10 percent exceedance level value. This means that actual runoff should fall within the stated limits eight times out of ten.

Runoff averages for most streams are based on the period 1966-2015.

Reservoir storage averages are based on the period from 1966 (or beginning of operation) to 2015. For more details contact California Cooperative Snow Surveys, P.O. Box 219000, Sacramento, CA 95821-9000, of the Acting Chief of the Snow Surveys Section Sean de Guzman at (916) 574-2208 or sean.deguzman@water.ca.gov.

INDICES OF WATER AVAILABILITY

The Sacramento River water year unimpaired runoff is the sum of: Sacramento River above Bend Bridge, Feather River Inflow to Lake Oroville, Yuba River near Smartville and American River Inflow to Folsom Lake.

The Sacramento Valley Water Year Hydrologic Classification (40-30-30 Index) The values 40-30-30 represent the percentage weight given to the three variables in the formula for the index. The first variable is the forecasted unimpaired runoff from April through July (40 percent). The second variable is the forecasted unimpaired runoff from October through March (30 Percent). The third variable is the previous year's index with a cap to account for required flood control releases during wet years. The basins used in this computation are those used in the Sacramento River water year unimpaired runoff.

The San Joaquin Valley Water Year Hydrologic Classification (60-20-20 Index) In a similar manner the values 60-20-20 represents the percentage weights on April through July runoff, October through March runoff and previous year's Index. The San Joaquin River unimpaired runoff is the sum of: Stanislaus River Inflow to New Melones Lake, Tuolumne River Inflow to New Don Pedro Reservoir, Merced River Inflow to Lake McClure and San Joaquin River Inflow to Millerton Lake.

Runoff of the eight major rivers of the Sacramento and San Joaquin Regions is the sum of the runoff in the eight major rivers used in the two above indices.

State of California – The Natural Resources Agency
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