State of California
The Natural Resources Agency

Department of
Water Resources

Water Conditions in California

Report 4 May 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

Department of Water Resources
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

May 1, 2019

Rainfall during April was less than average except in the North Coast region. Almost one-third of this year's large April 1 snowpack melted during the month leaving a robust 160 percent of May average snowpack to produce most of the remaining seasonal runoff. This is a little less than the 180 percent of average snowpack two years ago on May 1, 2017. Estimated runoff during April this year was 175 percent of average for the month.

Forecasts of median April-July runoff are expected to be 160 percent of average which remained unchanged since last month. The median April-July runoff forecast was 80 percent of average last year. Water year forecasts are now projected to be 140 percent of average, the same as forecasted a month ago.

Snowpack water content on May 1 was still much above average at about 160 percent of the May 1 average and 125 percent of its April 1 average. Last year only 25 percent of average was left at the beginning of May.

Precipitation during April was about 75 percent of average for the month and seasonally now stands at 125 percent of average. Last year it was about 75 percent of average on May 1.

Runoff to date is about 125 percent of average compared with 75 percent of average one year ago. Estimated runoff of the eight major rivers of the Sacramento-San Joaquin River Region during April was 6.00 million acre-feet.

Reservoir storage is excellent at about 115 percent of average which is a bit more storage compared to last year.

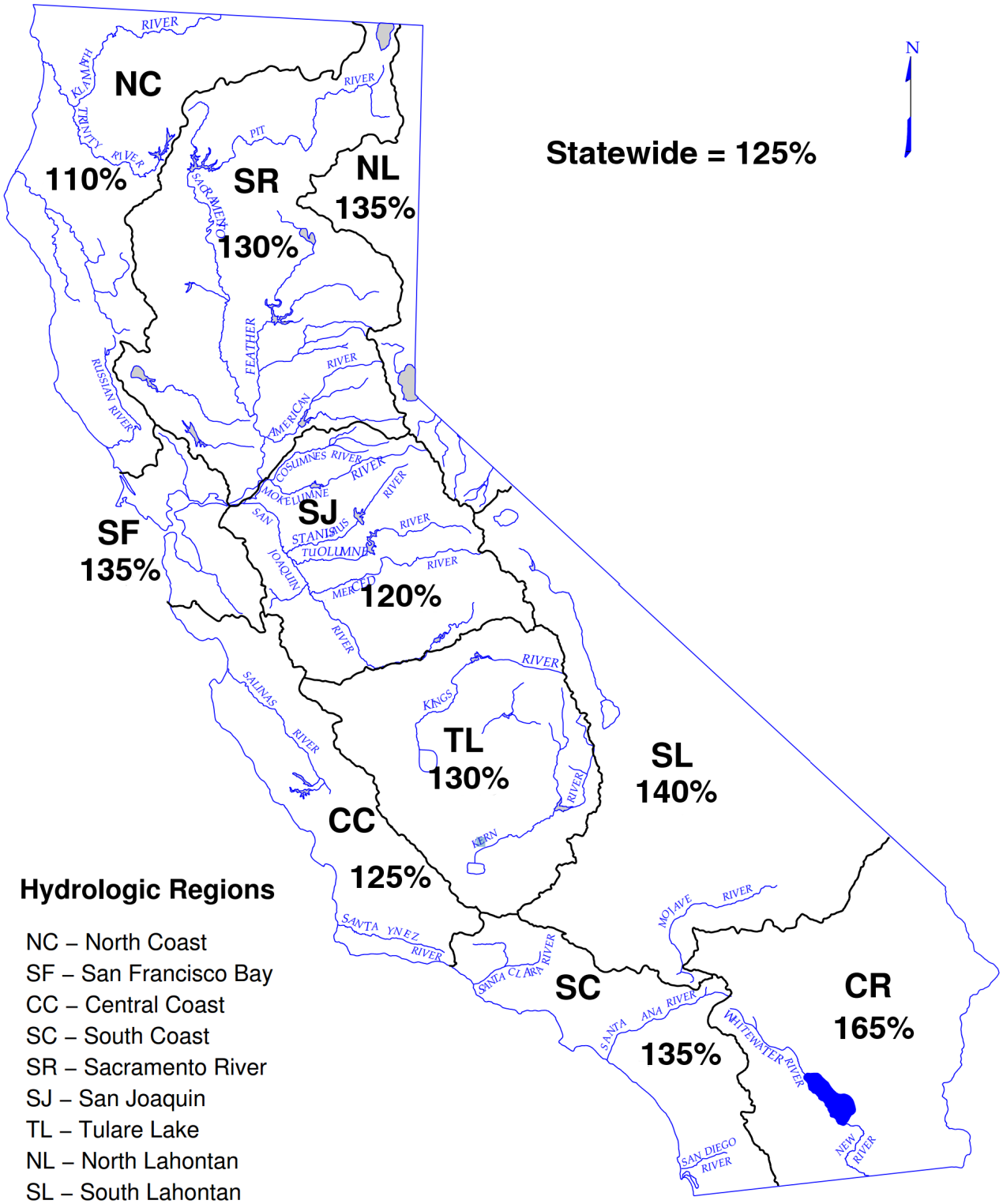
SUMMARY OF WATER CONDITIONS IN PERCENT OF AVERAGE

HYDROLOGIC REGION	PRECIPITATION OCTOBER 1 TO DATE	MAY 1 SNOW WATER CONTENT	MAY 1 RESERVOIR STORAGE	RUNOFF OCTOBER 1 TO DATE	APRIL-JULY RUNOFF FORECAST	WATER YEAR RUNOFF FORECAST
NORTH COAST	110	150	110	105	160	125
SAN FRANCISCO BAY	135	--	105	160	--	--
CENTRAL COAST	125	--	100	170	--	--
SOUTH COAST	135	--	95	185	--	--
SACRAMENTO RIVER	130	165	115	135	165	135
SAN JOAQUIN RIVER	120	160	120	150	145	140
TULARE LAKE	130	165	115	145	155	145
NORTH LAHONTAN	135	135	150	130	170	145
SOUTH LAHONTAN	140	170	95	100	145	130
COLORADO RIVER	165	--	--	--	--	--
STATEWIDE	125	160	115	125	160	140

DEPARTMENT OF WATER RESOURCES
CALIFORNIA COOPERATIVE SNOW SURVEYS
SEASONAL PRECIPITATION

IN PERCENT OF AVERAGE TO DATE

October 1, 2018 through April 30, 2019

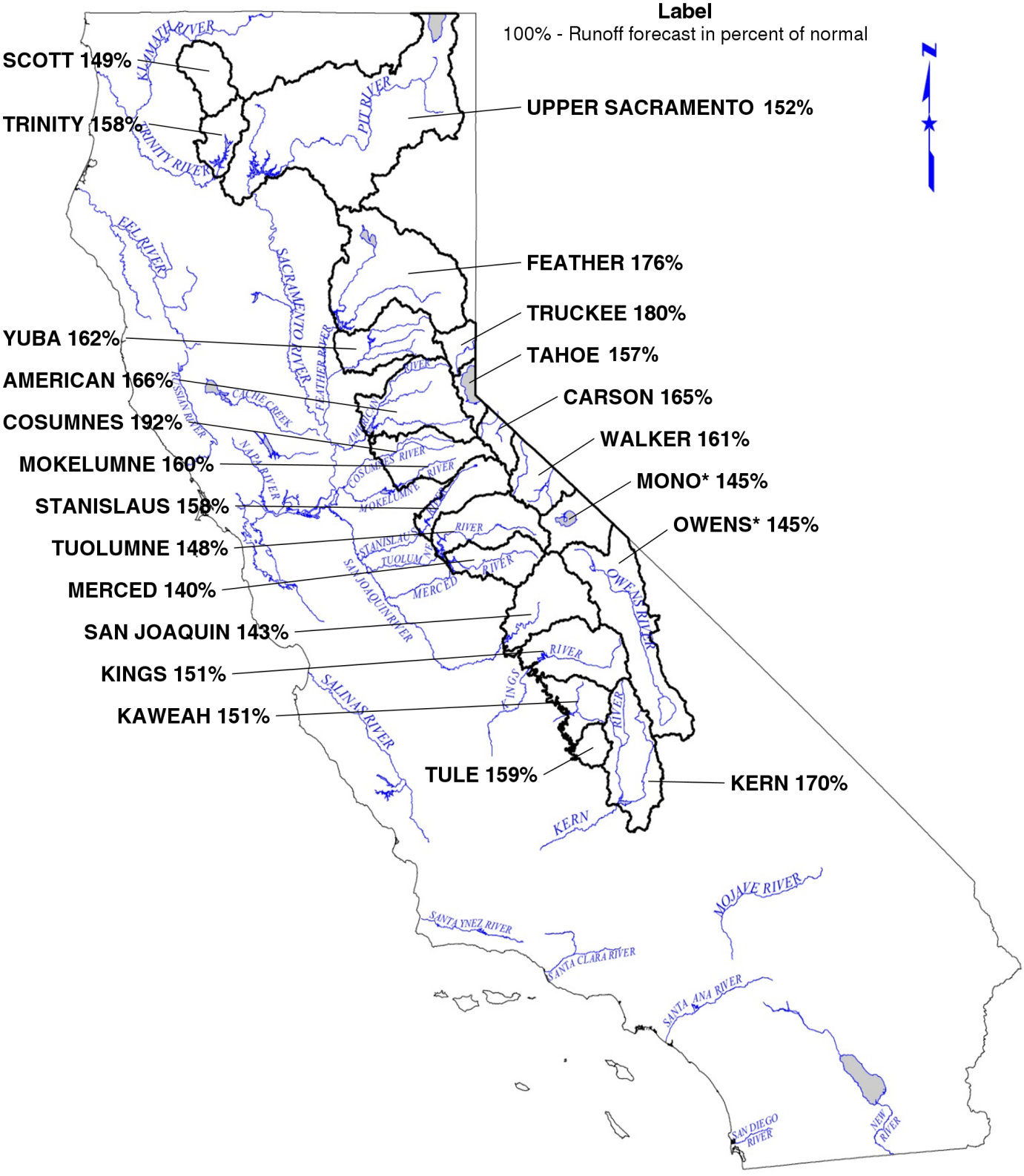


Hydrologic Regions

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
May 1, 2019



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

May 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	**1,010**	158%	830 - 1,180
SACRAMENTO RIVER						
Upper Sacramento River						
Sacramento River at Delta above Shasta Lake	295	751	39	470	159%	
McCloud River above Shasta Lake	385	850	185	550	143%	
Pit River near Montgomery Creek + Squaw Creek	1,020	2,098	480	1,520	149%	
Total Inflow to Shasta Lake	1,756	3,525	711	**2,670**	152%	2,300 - 2,980
Sacramento River above Bend Bridge, near Red Bluff	2,421	5,117	943	**3,770**	156%	3,150 - 4,400
Feather River						
Feather River at Lake Almanor near Prattville (3)	333	675	120	590	177%	
North Fork at Pulga (3)	1,028	2,416	243	1,810	176%	
Middle Fork near Clio (4)	86	518	4	150	174%	
South Fork at Ponderosa Dam (3)	110	267	13	190	173%	
Feather River at Oroville	1,704	4,676	378	**3,000**	176%	2,530 - 3,420
Yuba River						
North Yuba below Goodyears Bar	279	647	51	450	161%	
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	**1,570**	162%	1,310 - 1,840
American River						
North Fork at North Fork Dam (3)	262	716	43	430	164%	
Middle Fork near Auburn (3)	522	1,406	100	870	167%	
Silver Creek below Camino Diversion Dam (3)	173	386	37	280	162%	
American River below Folsom Lake	1,199	3,074	185	**1,990**	166%	1,700 - 2,390
SAN JOAQUIN RIVER						
Cosumnes River at Michigan Bar	125	446	8	**240**	192%	200 - 325
Mokelumne River						
North Fork near West Point (5)	437	829	104	690	158%	
Total Inflow to Pardee Reservoir	457	1,076	75	**730**	160%	620 - 860
Stanislaus River						
Middle Fork below Beardsley Dam (3)	334	702	64	520	156%	
North Fork Inflow to McKays Point Dam (3)	224	503	34	350	156%	
Stanislaus River below Goodwin Reservoir (9)	682	1,710	116	**1,080**	158%	950 - 1,270
Tuolumne River						
Cherry Creek & Eleanor Creek near Hetch Hetchy	315	727	97	460	146%	
Tuolumne River near Hetch Hetchy	604	1,392	153	890	147%	
Tuolumne River below La Grange Reservoir (9)	1,193	2,682	301	**1,770**	148%	1,570 - 2,040
Merced River						
Merced River at Pohono Bridge	372	888	80	520	140%	
Merced River below Merced Falls (9)	623	1,588	104	**870**	140%	760 - 1,010
San Joaquin River						
San Joaquin River at Mammoth Pool (7)	1,026	2,279	235	1,450	141%	
Big Creek below Huntington Lake (8)	91	264	11	135	148%	
South Fork near Florence Lake (7)	201	511	58	290	144%	
San Joaquin River inflow to Millerton Lake	1,228	3,355	193	**1,760**	143%	1,510 - 2,030
TULARE LAKE						
Kings River						
North Fork Kings River near Cliff Camp (3)	239	565	50	360	151%	
Kings River below Pine Flat Reservoir	1,210	3,113	208	**1,830**	151%	1,600 - 2,110
Kaweah River below Terminus Reservoir	285	814	42	**430**	151%	360 - 490
Tule River below Lake Success	63	259	1	**100**	159%	80 - 130
Kern River						
Kern River near Kernville	384	1,203	83	640	167%	
Kern River inflow to Lake Isabella	458	1,657	57	**780**	170%	680 - 930

(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.

May 1, 2019 FORECASTS
WATER YEAR UNIMPAIRED RUNOFF

HISTORICAL			Water Year Unimpaired Runoff in 1,000 Acre-Feet (1) 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	455	315	190	50	15	9	**1,660**	123%	1,475 -	1,835
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	1,360	680	370	260	232	227	**7,205**	124%	6,770 -	7,570
8,544	17,180	3,294	2,405	2,047	2,317	1,905	970	540	355	297	295	**11,130**	130%	10,410 -	11,860
780	1,269	366													
2,417	4,400	666													
219	637	24													
291	562	32													
4,407	10,178	995	904	955	1,173	1,336	970	500	194	119	104	**6,255**	142%	5,745 -	6,710
564	1,056	102													
181	292	30													
379	565	98													
2,268	5,604	369	381	496	563	533	580	370	87	33	27	**3,070**	135%	2,795 -	3,360
616	1,234	66													
1,070	2,575	144													
318	705	59													
2,626	7,391	349	425	702	754	767	690	430	103	23	17	**3,910**	149%	3,610 -	4,330
379	1,253	20	63	165	222	140	75	20	5	2	2	**695**	183%	650 -	785
626	1,009	197													
748	1,901	129	70	128	165	235	260	195	40	7	5	**1,105**	148%	990 -	1,240
471	929	88													
-	-	-													
1,149	3,078	155	144	217	278	356	390	255	79	17	8	**1,745**	152%	1,610 -	1,945
461	1,147	123													
770	1,661	258													
1,909	4,631	383	199	344	365	450	580	540	200	33	15	**2,725**	143%	2,515 -	3,005
461	1,020	92													
992	2,787	150	95	226	183	255	320	240	55	15	6	**1,395**	141%	1,280 -	1,555
1,337	2,964	308													
112	298	14													
248	653	71													
1,793	4,642	327	144	211	236	403	550	570	237	65	28	**2,445**	136%	2,180 -	2,730
284	607	58													
1,702	4,287	359	130	186	240	375	600	620	235	64	25	**2,475**	145%	2,230 -	2,770
451	1,402	89	33	58	101	111	145	130	44	12	6	**640**	142%	565 -	705
147	615	10	17	28	65	37	37	20	6	3	2	**215**	146%	190 -	250
558	1,577	163													
728	2,318	130	69	56	128	201	255	224	100	40	22	**1,095**	150%	985 -	1,260

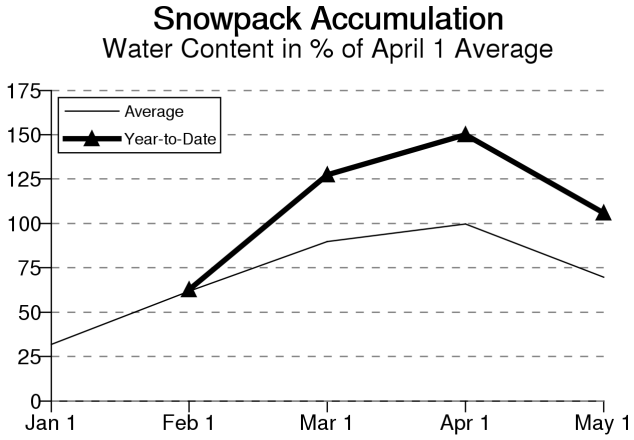
(9) Forecast point names based on USGS gage names. Stanislaus below Goodwin also known as inflow to New Melones, Tuolumne River below La Grange also known as inflow to Don Pedro, Merced River below Merced Falls also known as inflow to McClure.
(10) For the tributaries, the period of record over which 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.

May 1, 2019 FORECASTS
APRIL-JULY UNIMPAIRED RUNOFF

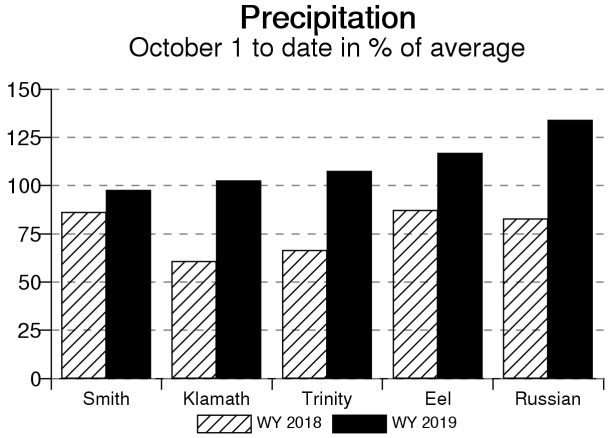
HYDROLOGIC REGION and Watershed	Apr-Jul Unimpaired Runoff in 1,000 Acre-Feet (1) HISTORICAL			FORECAST	
	50 Yr Avg (2)	Max of Record (6)	Min of Record (6)	Apr-Jul Forecast	Pct of Avg
NORTH COAST					
Scott River					
Scott River nr Ft Jones (3)	173	398	22	**257**	149%
Klamath River					
Total inflow to Upper Klamath Lake (4)	475	1,150	149	**505**	106%
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	**82**	158%
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	**105**	172%
SOUTH LAHONTAN					
Owens River					
Total tributary flow to Owens River (5)	231	579	84	**334**	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.

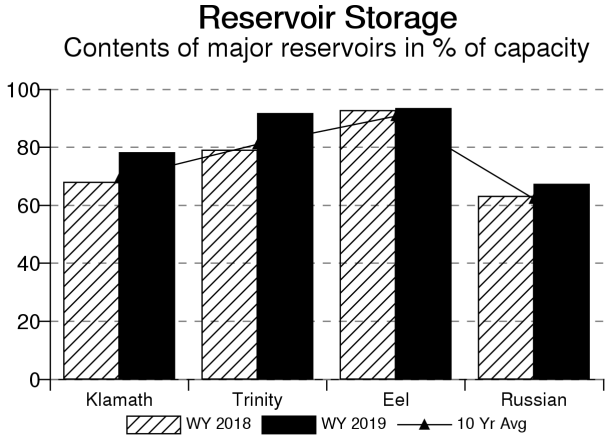
NORTH COAST REGION



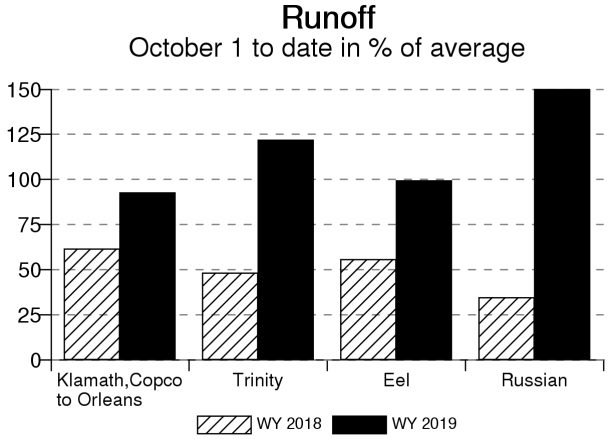
SNOWPACK- First of the month measurements made at 9 snow courses indicate an area wide snow water equivalent of 36.8 inches. This is 105 percent of the seasonal April 1 average and 150 percent of the May 1 average. Last year this time the pack was holding 2.2 inches of water.



PRECIPITATION- Seasonal precipitation (October 1 through to the end of April) on this area was 110 percent of normal. Precipitation last month was about 125 percent of the monthly average. Seasonal precipitation at this time last year stood at 75 percent of normal.

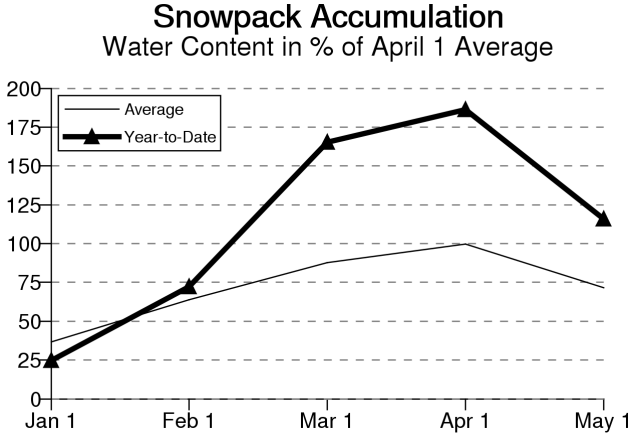


RESERVOIR STORAGE- First of the month storage at 6 reservoirs was 2.70 million acre-feet which is 110 percent of average. About 85 percent of available capacity was being used. Storage in these reservoirs at this time last year was 95 percent of average.

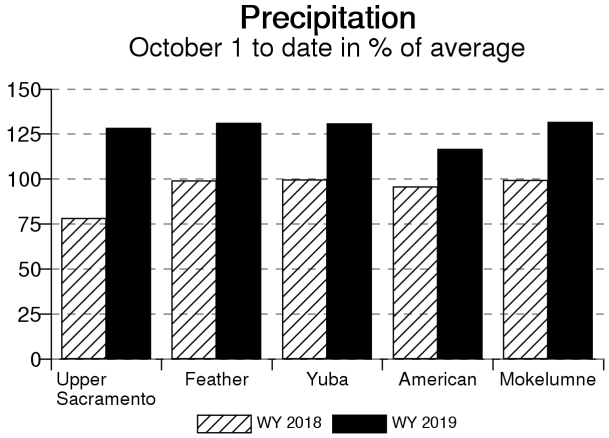


RUNOFF- Seasonal runoff of streams draining this area totaled 10.85 million acre-feet which is 105 percent of average. Last year, runoff for the same period was 55 percent of average.

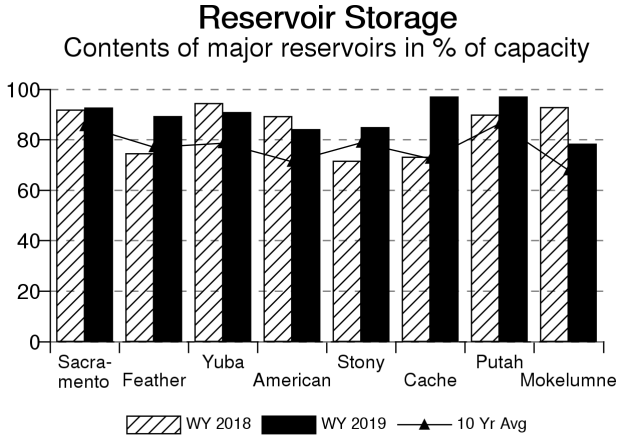
SACRAMENTO RIVER REGION



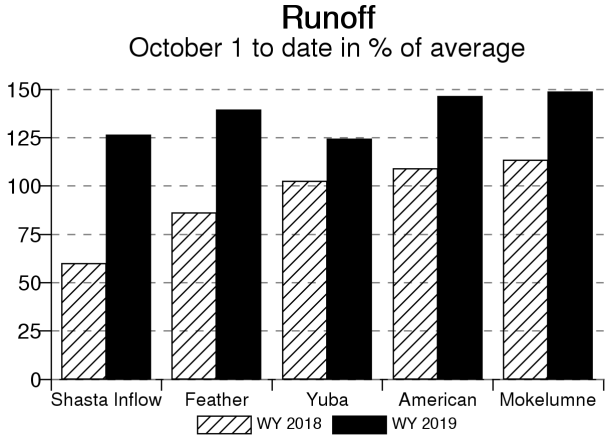
SNOWPACK- First of the month measurements made at 63 snow courses indicate an area wide snow water equivalent of less than 39.7 inches. This is 120 percent of the seasonal April 1 average and 160 percent of the May 1 average. Last year this time the pack was holding 6.7 inches of water.



PRECIPITATION- Seasonal precipitation (October 1 through to the end of April) on this area was 130 percent of normal. Precipitation last month was about 90 percent of the monthly average. Seasonal precipitation at this time last year stood at 90 percent of normal.



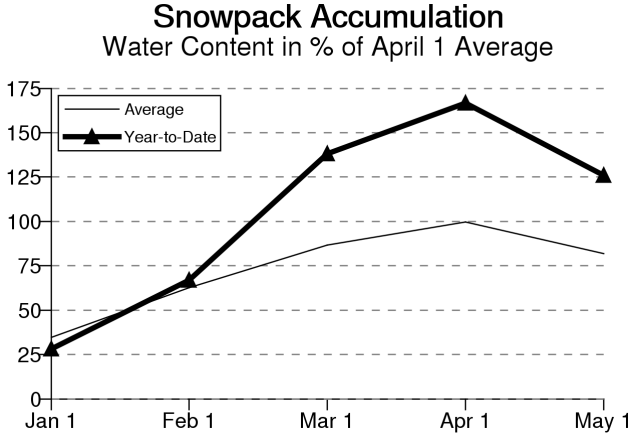
RESERVOIR STORAGE- First of the month storage at 43 reservoirs was 14.67 million acre-feet which is 115 percent of average. About 90 percent of available capacity was being used. Storage in these reservoirs at this time last year was 105 percent of average.



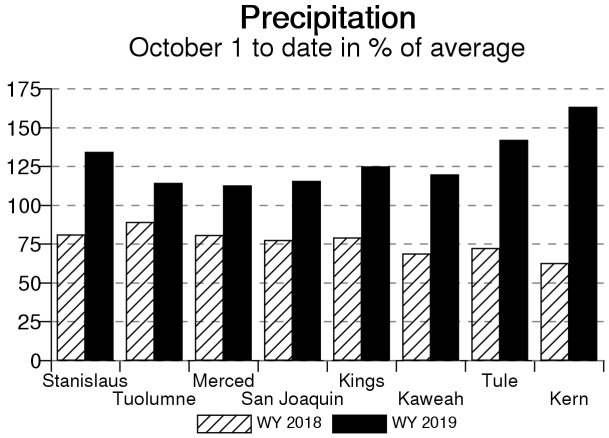
RUNOFF- Seasonal runoff of streams draining this area totaled 17.66 million acre-feet which is 135 percent of average. Last year, runoff for the same period was 75 percent of average.

The **Sacramento Region 40-30-30 Water Supply Index** is forecast to be 10.2 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.

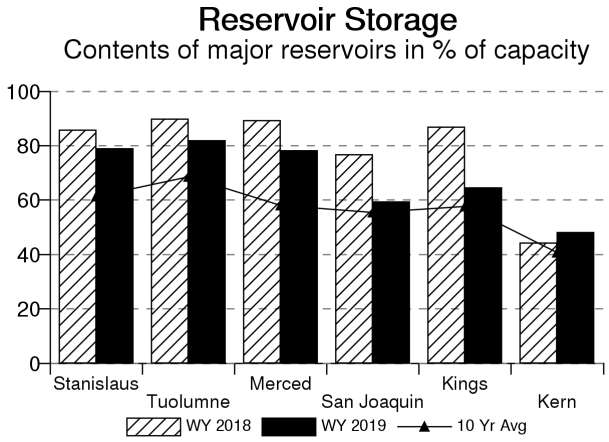
SAN JOAQUIN RIVER AND TULARE LAKE REGIONS



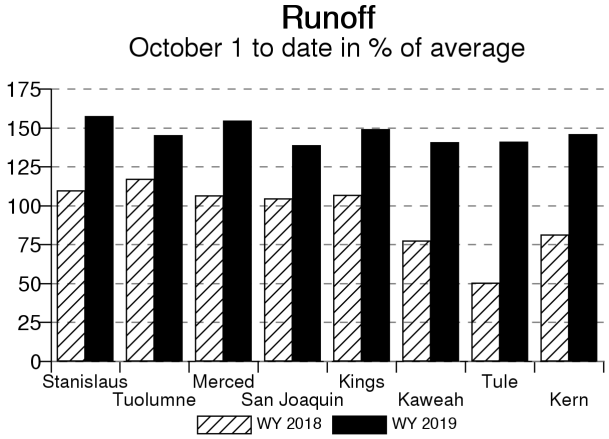
SNOWPACK - First of the month measurements made at 57 **San Joaquin Region** snow courses indicate an area wide snow water equivalent of 43.1 inches. This is 130 percent of the seasonal April 1 average and 160 percent of the May 1 average. Last year at this time the pack was holding 12.0 inches of water. At the same time 41 **Tulare Lake** snow courses indicate a basin-wide snow water equivalent of 32.4 inches. This is 130 percent of the seasonal April 1 average and 165 percent of the May 1 average. Last year at this time the pack was holding 6.9 inches of water.



PRECIPITATION - Seasonal precipitation (October 1 through to the end of April) on the **San Joaquin Region** was 120 percent of normal. Precipitation last month was about 45 percent of the monthly average. Seasonal precipitation at this time last year stood at 80 percent of normal. Seasonal precipitation (October 1 through to the end of April) on the **Tulare Lake Region** was 130 percent of normal. Precipitation last month was about 35 percent of the monthly average. Seasonal precipitation at this time last year stood at 70 percent of normal.



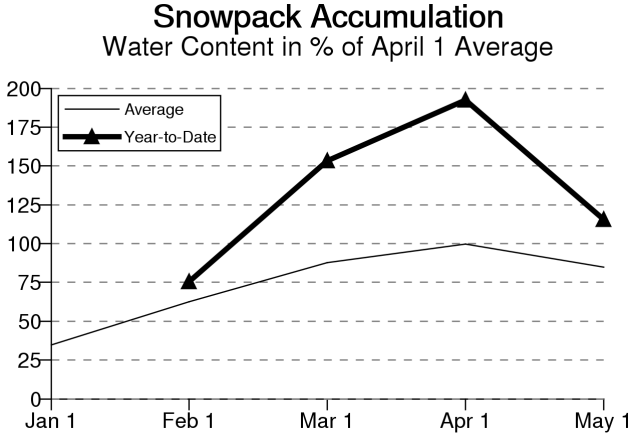
RESERVOIR STORAGE - First of the month storage in 34 **San Joaquin Region** reservoirs was 9.04 million acre-feet which is 120 percent of average. About 80 percent of available capacity was being used. Storage in these reservoirs at this time last year was 130 percent of average. First of the month storage in 6 **Tulare Lake Region** reservoirs was 1.23 million acre-feet which is 115 percent of average. About 60 percent of available capacity was being used. Storage in these reservoirs at this time last year was 145 percent of average.



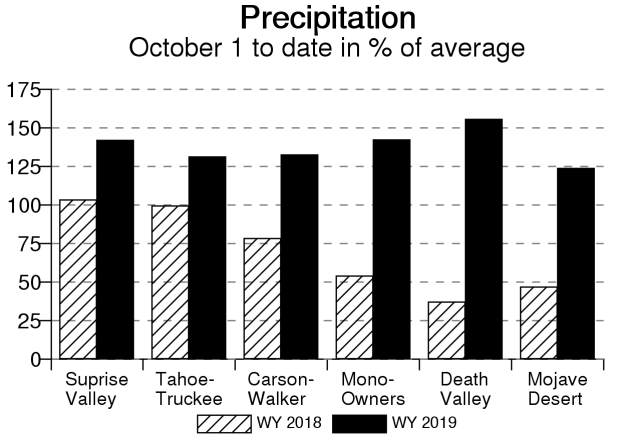
RUNOFF - Seasonal runoff of streams draining the **San Joaquin Region** totaled 5.29 million acre-feet which is 150 percent of average. Last year, runoff for the same period was 110 percent of average. Seasonal runoff of streams draining the **Tulare Lake Region** area totaled 1.84 million acre-feet which is 145 percent of average. Last year, runoff for the same period was 90 percent of average.

The **San Joaquin Region 60-20-20 Water Supply Index** is forecast to be 4.2 assuming 75 percent of median meteorological conditions. This classifies the year as "wet" in the San Joaquin according to the State Water Resources Control Board.

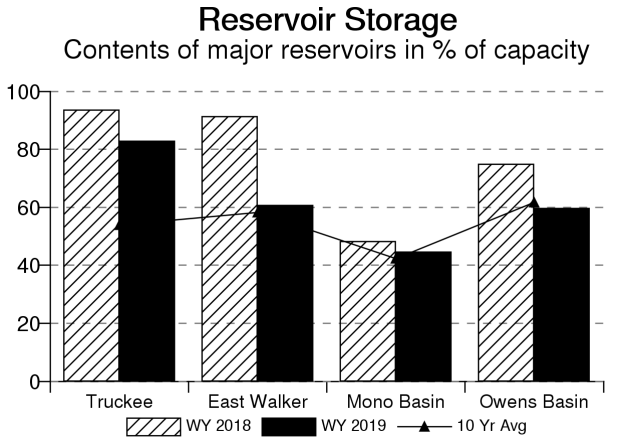
NORTH AND SOUTH LAHONTAN REGIONS



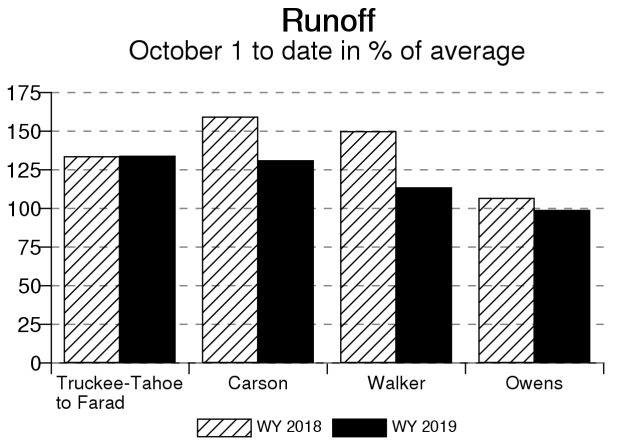
SNOWPACK- First of the month measurements made at 4 **North Lahontan Region** snow courses indicate an area wide snow water equivalent of 30.6 inches. This is 115 percent of the seasonal April 1 average and 135 percent of the May 1 average. Last year this time the pack was holding less than 7.4 inches of water. At the same time 1 **South Lahontan Region** snow course indicates a basin-wide snow water equivalent of 32.5 inches. This is 145 percent of the seasonal April 1 average and 170 percent of the May 1 average.



PRECIPITATION- Seasonal precipitation (October 1 through to the end of April) on the **North Lahontan Region** was 135 percent of normal. Precipitation last month was about 105 percent of the monthly average. Seasonal precipitation at this time last year stood at 90 percent of normal. Seasonal precipitation (October 1 through to the end of April) on the **South Lahontan Region** was 140 percent of normal. Precipitation last month was about 50 percent of the monthly average. Seasonal precipitation at this time last year stood at 50 percent of normal.

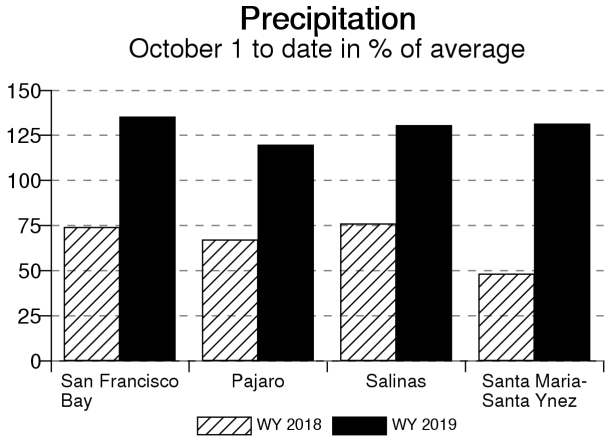


RESERVOIR STORAGE- First of the month storage in 5 **North Lahontan Region** reservoirs was 879 thousand acre-feet which is 150 percent of average. About 80 percent of available capacity was being used. Storage in these reservoirs at this time last year was 170 percent of average. First of the month storage in 8 **South Lahontan Region** reservoirs was 253 thousand acre-feet which is 95 percent of average. About 60 percent of available capacity was being used. Storage in these reservoirs at this time last year was 115 percent of average.

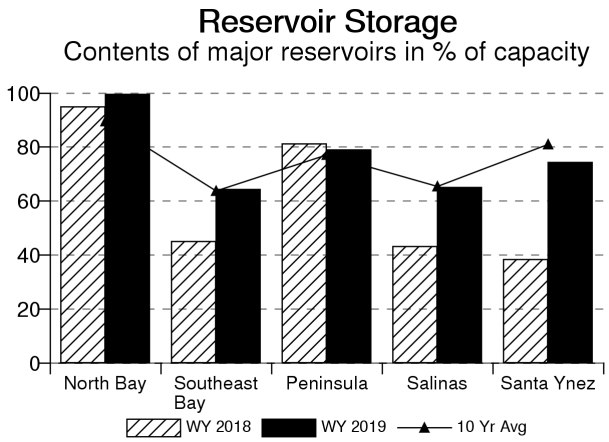


RUNOFF- Seasonal runoff of streams draining the **North Lahontan Region** totaled 536 thousand acre-feet which is 130 percent of average. Last year, runoff for the same period was 145 percent of average. Seasonal runoff of streams draining the **South Lahontan Region** area totaled 75 thousand acre-feet which is 100 percent of average. Last year, runoff for the same period was 105 percent of average.

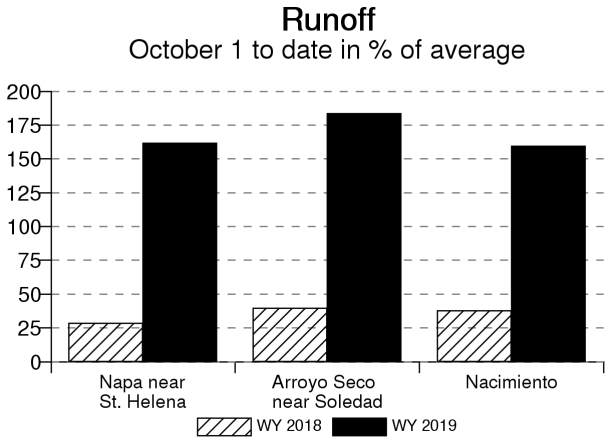
SAN FRANCISCO BAY AND CENTRAL COAST REGIONS



PRECIPITATION - Seasonal precipitation (October 1 through to the end of April) on the **San Francisco Bay Region** was 135 percent of normal. Precipitation last month was about 40 percent of the monthly average. Seasonal precipitation at this time last year stood at 70 percent of normal. Seasonal precipitation (October 1 through to the end of April) on the **Central Coast Region** was 125 percent of normal. Precipitation last month was about 25 percent of the monthly average. Seasonal precipitation at this time last year stood at 65 percent of normal.



RESERVOIR STORAGE - First of the month storage in 17 **San Francisco Region** reservoirs was 545 thousand 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 90 percent of average. First of the month storage in 6 **Central Coast Region** reservoirs was 676 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 60 percent of average.



RUNOFF - Seasonal runoff of streams draining the **San Francisco Region** totaled 113 thousand acre-feet which is 160 percent of average. Last year, runoff for the same period was 30 percent of average. Seasonal runoff of streams draining the **Central Coast Region** area totaled 513 thousand acre-feet which is 170 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 April) on the South Coast Region was 135 percent of average. Precipitation last month was about 10 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 1.45 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 80 percent of average.

RUNOFF - Seasonal runoff of streams draining this area totaled 268 thousand acre-feet which is 185 percent of average. Last year, runoff for the same period was 20 percent of average.

COLORADO RIVER REGION

SNOWPACK - The May 1 snowpack in the Colorado River basin above Lake Powell is 132 percent of average, highest in the Dolores and San Miguel River basins at 195 percent of average and lowest in the Dirty Devil River basin at 85 percent of average.

PRECIPITATION - Seasonal precipitation (October 1 through to the end of April) on the Colorado River Region was 165 percent of average. Precipitation last month was about 35 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 65 percent of average.

RUNOFF - The April-July inflow to Lake Powell is forecast to be 9.69 million acre-feet, which is 135 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 April 2018 1,000 AF	2019 1,000 AF	PERCENT AVERAGE	PERCENT CAPACITY
STATE WATER PROJECT						
Lake Oroville	3,538	2,857	2,433	3,285	115%	93%
San Luis Reservoir (SWP)	1,062	937	893	867	92%	82%
Lake Del Valle	77	39	38	39	101%	51%
Lake Silverwood	78	69	68	66	95%	84%
Pyramid Lake	180	163	166	167	102%	93%
Castaic Lake	325	288	283	300	104%	92%
Perris Lake	131	105	95	108	102%	82%
CENTRAL VALLEY PROJECT						
Trinity Lake	2,448	1,984	1,930	2,240	113%	92%
Lake Shasta	4,552	3,872	4,195	4,223	109%	93%
Whiskeytown Lake	241	233	229	231	99%	96%
Folsom Lake	977	727	866	887	122%	91%
New Melones Reservoir	2,400	1,483	2,062	1,921	130%	80%
Millerton Lake	521	358	451	317	89%	61%
San Luis Reservoir (CVP)	971	839	862	882	105%	91%
COLORADO RIVER PROJECT						
Lake Mead	26,159	18,823	10,387	10,767	57%	41%
Lake Powell	24,322	16,854	12,669	9,198	55%	38%
Lake Mohave	1,810	1,670	1,682	1,686	101%	93%
Lake Havasu	648	587	564	567	97%	87%
EAST BAY MUNICIPAL UTILITY DISTRICT						
Pardee Res	204	184	205	205	112%	101%
Camanche Reservoir	417	265	383	326	123%	78%
East Bay (4 res.)	159	134	136	138	103%	87%
CITY AND COUNTY OF SAN FRANCISCO						
Hetch-Hetchy Reservoir	360	189	325	284	150%	79%
Cherry Lake	268	176	205	204	116%	76%
Lake Eleanor	29	17	22	24	142%	85%
South Bay/Peninsula (4 res.)	238	173	140	184	106%	77%
CITY OF LOS ANGELES (D.W.P.)						
Lake Crowley	183	124	147	120	97%	66%
Grant Lake	48	26	23	30	114%	63%
Other Aqueduct Storage (6 res.)	95	75	70	60	80%	63%

TELEMETERED SNOW WATER EQUIVALENTS

May 1, 2019

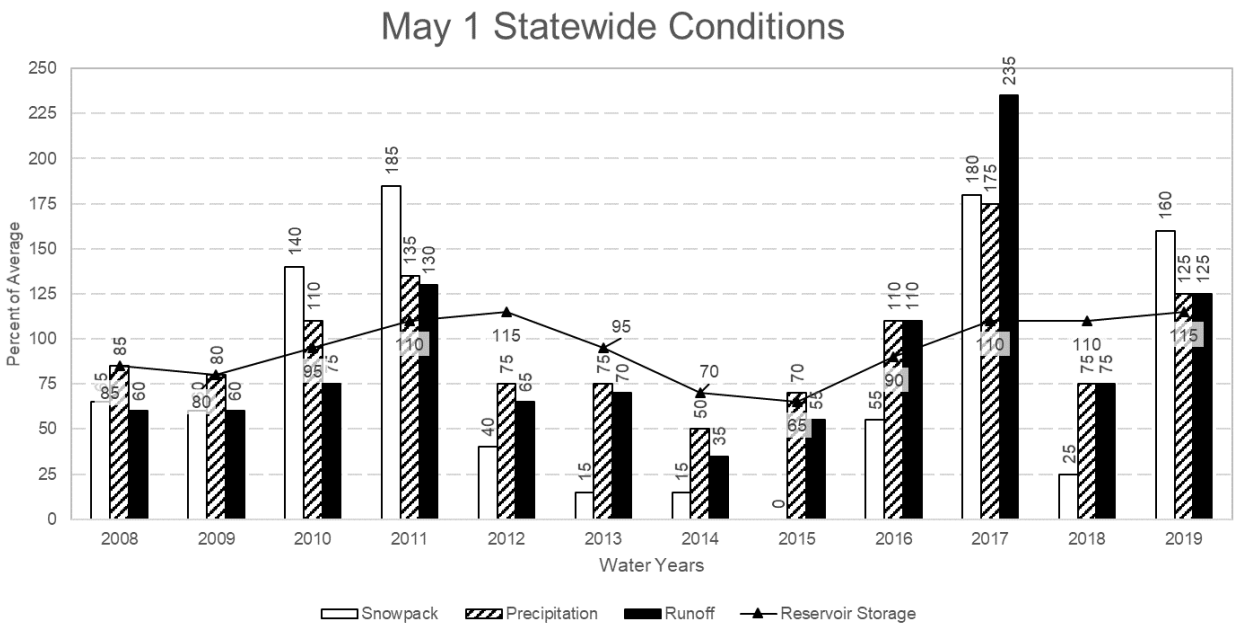
(AVERAGES BASED ON PERIOD RECORD)

BASIN NAME / STATION NAME	ELEV	APRIL 1 AVERAGE	May 1	INCHES OF WATER EQUIVALENT PERCENT OF AVERAGE	24 HRS PREVIOUS	1 WEEK PREVIOUS
TRINITY RIVER						
Shimmy Lake	6400'	40.3	44.8	111.2	46.2	51.9
Crowder Flat	5100'	-	0.0	-	0.0	0.0
Highland Lakes	6030'	29.9	12.0	40.1	12.8	24.7
Mumbo Basin	5650'	22.4	-	-	-	-
Bonanza King	6450'	40.5	-	-	-	-
Red Rock Mountain	6700'	39.6	78.3	197.8	78.3	79.2
Big Flat	5100'	15.8	15.8	99.7	15.8	23.0
Scott Mountain	5900'	16.0	20.8	129.8	21.2	27.1
Peterson Flat	7150'	29.2	35.4	121.2	35.9	40.2
Middle Boulder 3	6200'	28.3	13.8	48.8	14.7	23.9
SACRAMENTO RIVER						
Blacks Mountain	7050'	12.7	7.7	60.5	7.6	13.3
Cedar Pass	7100'	18.1	9.9	54.7	9.8	18.0
Medicine Lake	6700'	32.6	39.1	120.0	39.6	44.4
Sand Flat	6750'	42.4	44.3	104.4	45.0	51.4
Slate Creek	5700'	29.0	19.1	65.9	19.1	28.7
Adin Mountain	6200'	13.6	0.0	0.0	0.4	8.5
Stouts Meadow	5400'	36.0	36.2	100.6	36.6	41.7
Snow Mountain	5950'	27.0	38.0	140.9	38.6	46.4
FEATHER RIVER						
Kettle Rock	7300'	25.5	-	-	-	-
Gold Lake	6750'	36.5	52.4	143.7	53.0	57.5
Bucks Lake	5750'	44.7	30.6	68.4	31.6	37.5
Harkness Flat	6200'	28.5	25.1	88.0	25.0	32.6
Four Trees	5150'	20.0	0.4	1.8	0.5	10.9
Humbug	6500'	28.0	24.8	88.7	25.7	33.7
Grizzly Ridge	6900'	29.7	32.9	110.7	33.2	40.2
Rattlesnake	6100'	14.0	-	-	-	-
Lower Lassen Peak	8250'	-	-	-	-	-
Pilot Peak	6800'	52.6	58.9	111.9	58.8	67.8
EEL RIVER						
Noel Spring	5100'	-	0.0	-	0.0	0.0
YUBA & AMERICAN RIVERS						
Carson Pass	8353'	-	41.3	-	42.4	47.4
Lake Lois	8600'	39.5	57.6	145.9	57.7	75.0
Forni Ridge	7600'	37.0	-	-	-	-
Silver Lake	7100'	22.7	26.9	118.5	27.6	33.4
Blue Canyon	5280'	9.0	3.0	33.3	3.7	10.9
Schneiders	8750'	34.5	-	-	-	-
Meadow Lake	7200'	55.5	-	-	-	-
Robbs Powerhouse	5150'	5.2	0.0	0.0	0.0	0.3
Robinson Cow Camp	6480'	-	52.0	-	53.2	59.8
Cent Sierra Snow Lab	6900'	33.6	45.3	134.8	46.0	55.5
Caples Lake	8000'	30.9	47.3	153.2	48.2	53.3
Alpha	7600'	35.9	43.9	122.4	44.0	51.2
Robbs Saddle	5900'	21.4	11.3	52.9	11.7	19.0
Huysink	6600'	42.6	42.7	100.3	43.0	47.2
Van Vleck	6700'	35.9	50.3	140.1	51.1	57.1
Greek Store	5600'	21.0	17.4	82.9	17.9	25.9
MOKELUMNE & STANISLAUS RIVERS						
Highland Meadow	8700'	47.9	56.1	117.2	56.6	60.5
Gianelli Meadow	8400'	55.5	94.0	169.3	94.3	88.0
Bloods Creek	7200'	35.5	-	-	-	-
Blue Lakes	8000'	33.1	45.2	136.6	45.6	49.9
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	33.0	80.1	33.7	-
TUOLUMNE & MERCED RIVERS						
Dana Meadows	9800'	27.7	32.6	117.5	32.6	34.8
Horse Meadow	8400'	48.6	72.6	149.4	73.3	76.7
Tuolumne Meadows	8600'	22.6	19.0	84.2	19.7	25.7
Slide Canyon	9200'	41.1	47.8	116.4	48.0	61.1
Ostrander Lake	8200'	34.8	51.0	146.4	52.1	58.6
Gin Flat	7050'	34.2	19.2	56.1	20.0	27.8
Tenaya Lake	8150'	33.1	44.4	134.0	45.0	48.0
White Wolf	7900'	-	37.3	-	38.7	44.5
Lower Kibbie Ridge	6700'	27.4	13.8	50.4	14.6	20.9
Paradise Meadow	7650'	41.3	52.9	128.1	53.5	61.0

SAN JOAQUIN RIVER						
Volcanic Knob	10050'	30.1	39.6	131.6	39.0	43.5
Tamarack Summit	7550'	30.5	27.1	88.9	27.5	35.0
Kaiser Point	9200'	37.8	34.1	90.3	34.7	41.0
Huntington Lake	7000'	20.1	16.2	80.5	16.9	24.0
Green Mountain	7900'	30.8	26.8	86.9	28.4	39.1
Poison Ridge	6900'	28.9	10.9	37.7	11.7	21.3
Graveyard Meadow	6900'	18.8	20.8	110.4	21.8	28.4
Agnew Pass	9450'	32.3	-	-	-	-
Devils Postpile	7569'	-	-	-	-	-
Chilkoot Meadow	7150'	38.0	41.0	108.0	41.3	47.9
KINGS RIVER						
Bishop Pass	11200'	34.0	-	-	-	-
Blackcap Basin	10300'	34.3	-	-	-	-
Mitchell Meadow	9900'	32.9	59.0	179.3	59.3	59.9
Upper Burnt Corral	9700'	34.6	46.4	134.0	46.9	49.7
State Lakes	10300'	29.0	49.0	169.0	49.3	54.3
West Woodchuck Meadow	9100'	32.8	34.0	103.7	34.6	40.5
Big Meadows	7600'	25.9	-	-	-	-
Charlotte Lake	10400'	27.5	-	-	-	-
KAWEAH & TULE RIVERS						
Farewell Gap	9500'	34.5	-	-	-	-
Giant Forest	6650'	10.0	0.3	3.0	0.5	5.7
Quaking Aspen	7200'	21.0	14.5	69.0	15.2	21.2
KERN RIVER						
Tunnel Guard Station	8900'	15.6	-	-	-	-
Beach Meadows	7650'	11.0	0.0	0.0	0.0	0.4
Upper Tyndall Creek	11400'	27.7	33.0	119.1	33.3	35.9
Casa Vieja Meadows	8300'	20.9	13.1	62.5	15.7	25.0
Pascoes	9150'	24.9	38.0	152.6	38.2	43.1
Wet Meadows	8950'	30.3	-	-	-	-
Chagoopa Plateau	10300'	21.8	25.6	117.2	25.8	30.0
Crabtree Meadow	10700'	19.8	19.7	99.5	19.8	23.4
SURPRISE VALLEY AREA						
Dismal Swamp	7050'	29.2	38.3	131.2	38.1	42.1
TRUCKEE RIVER						
Independence Camp	7000'	21.8	18.1	83.0	17.4	25.7
Independence Lake	8450'	41.4	66.5	160.6	66.5	68.9
Squaw Valley Gold Coast	8200'	46.5	52.2	112.3	53.7	64.3
Truckee 2	6400'	14.3	-	-	-	-
Independence Creek	6500'	12.7	3.2	25.2	3.3	9.3
Big Meadows	8700'	25.7	32.6	126.8	32.3	37.6
LAKE TAHOE BASIN						
Rubicon Peak 2	7500'	29.1	35.2	121.0	35.9	40.7
Tahoe City Cross	6750'	16.0	8.4	52.5	9.0	17.0
Echo Peak 5	7800'	39.5	45.7	115.7	46.2	55.7
Hagans Meadow	8000'	16.5	12.3	74.5	12.5	19.3
Fallen Leaf Lake	6250'	7.0	0.0	0.0	0.0	0.0
Ward Creek 3	6750'	39.4	50.5	128.2	51.2	58.4
Mount Rose Ski Area	8900'	38.5	56.5	146.8	57.5	59.7
Heavenly Valley	8800'	28.1	28.4	101.1	28.6	35.1
Marlette Lake	8000'	21.1	35.1	166.4	35.7	40.3
CARSON RIVER						
Spratt Creek	6150'	4.5	0.0	0.0	0.0	0.0
Horse Meadow	8557'	48.6	72.6	149.4	73.3	76.7
Burnside Lake	8129'	-	32.9	-	32.8	38.2
Monitor Pass	8350'	-	15.1	-	15.1	20.7
Poison Flat	7900'	16.2	26.2	161.7	27.0	30.7
Forestdale Creek	8017'	-	-	-	-	56.4
Ebbetts Pass	8700'	38.8	52.5	135.3	52.8	58.2
WALKER RIVER						
Sonora Pass Bridge	8750'	26.0	35.0	134.6	35.8	40.4
Virginia Lakes Ridge	9300'	20.3	23.1	113.8	23.2	26.3
Lobdell Lake	9200'	17.3	20.0	115.6	20.1	25.5
Summit Meadow	9313'	-	33.3	-	33.3	37.5
Leavitt Meadows	7200'	8.0	0.0	0.0	0.0	8.4
Leavitt Lake	9600'	-	84.3	-	87.0	90.2
OWENS RIVER/MONO LAKE						
Cottonwood Lakes	10150'	11.6	19.3	166.7	19.4	23.8
Gem Pass	10750'	31.7	-	-	-	-
Rock Creek Lakes	9700'	14.0	8.6	61.2	9.1	15.6
South Lake	9600'	16.0	18.3	114.1	18.5	22.1
Big Pine Creek	9800'	17.9	34.9	194.9	34.8	37.6
Sawmill	10200'	19.4	20.4	105.4	20.7	25.5

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 87th Annual Western Snow Conference was held in Reno, Nevada on April 15-18, 2019. The theme of the annual meeting was “Warm Snow Environments”. The conference was well attended and was hosted by the General Chair, Ron Abramovich, and Conference Chair, Randall Osterhuber.

The meeting proceedings will be posted at the link below.

https://westernsnowconference.org/biblio

COVER PHOTO

Depicted on this month’s cover is snow surveyor Sue King facing west at the top of Kearsarge Pass that lies on the crest of the Sierra Nevada and is an entrance into Kings Canyon National Park. Photo was taken on route to measure the Charlotte Ridge snow course and Charlotte Lake snow sensor in the Kings River basin on May 2, 2019.

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, or the 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
DEPARTMENT OF WATER RESOURCES
P.O. Box 942836
Sacramento, CA 94236-0001

First Class