

SAN JOAQUIN VALLEY - HANFORD , CA

REPORT FOR:

MONTHLY REPORT OF RIVER AND
FLOOD CONDITIONS

MONTH: **DECEMBER** YEAR: **2014**

TO: Hydrometeorological Information Center, W/OH12x1
National Weather Service/Office of Hydrology
1325 East-West Highway #7116
Silver Spring, MD 20910

SIGNATURE:

Kevin Durfee
(In Charge of Hydrologic Service Area)

DATE: January 6, 2015

When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts and hydrologic products issued (WSOM E-41).

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| **X** | An **X** inside this box indicates that no flooding occurred for the month
+---+ within this hydrologic service area.

It was long overdue, but water replenishment finally came to the Golden State in December. Although the month's above normal precipitation was not enough to extinguish the long term drought, it was plentiful and quite welcome. In fact, December 2014 was the wettest month in Bakersfield since December, 2010 and the wettest month in Fresno since March, 2012. Ironically, it was the 5th wettest December on record in Bakersfield despite an extraordinarily dry year (12th driest year ever since record keeping began in 1889.) By year's end, precipitation exceeded 100 percent of normal for the season in a portion of the HSA. Not true for the southern Sierra Nevada which still suffers from a significant seasonal deficit. The map on the last page of this summary depicts the percentage of seasonal precipitation compared to normal throughout California as of January 3, 2015. In summary, much of the central California coast, the Mount Shasta region, the Kern County desert and easternmost San Bernardino county were the only areas of the state that ended up much wetter than normal for the season when 2014 came to a close.

There were at least 3 moisture laden storm systems that tracked through the central California interior in December. The first one barreled in from the Pacific on December 2nd equipped with a rich supply of subtropical moisture. By the time this system exited into the Great Basin on the evening of December 3rd, it left a fresh blanket of up to 10 inches of snow over the highest elevations of the Sierra. Nearly two feet of snow buried the high country within Yosemite National Park. Rain soaked the lower elevations with a third of an inch to three quarters of an inch in the San Joaquin Valley and adjacent foothills. 1 to 2 inches of rain fell along the west slopes of the Sierra below the snow line, which was generally above 8,000 feet for the duration of the storm. The weather remained mild and unsettled through December 6th with little more than isolated showers over the Sierra as weak upper level disturbances tracked north of the HSA. The next big storm system brought an atmospheric river of subtropical moisture directly into central California on the 11th and 12th. Heavy snow fell in the Sierra above 6000 feet with general accumulations of 10 to 20 inches in most areas. Meanwhile, rain drenched the lower elevations. The San Joaquin Valley picked up an inch or more of rain and the foothills and higher elevations were water logged with two inches or more of rain. Even the Kern county desert received a thorough soaking from this storm with rain amounts ranging from a half inch to as much as 1.5 inches in Randsburg.

After only a day and a half respite, two more back to back storms brought additional water into central California between the 15th and the 19th. Combined, the two storms produced up to a half inch of rain in the San Joaquin Valley and up to an inch along the west slopes of the Sierra Nevada. A tenth to a third of an inch of rain generally fell in the Kern County mountains but the moisture stopped short of the Kern County desert where drying downsloping winds prevailed. A third, weaker storm tracked farther north on the 19th and brought generally light precipitation to the HSA. In the San Joaquin Valley measurable rain, albeit light, fell north of Fresno county where up to eight hundredths of an inch was observed. Although the upslope regions of the Sierra fared a little better, precipitation amounts were generally less than two tenths of an inch as the last in this string of eastward moving storms exited into northern Nevada on the 20th.

The upper air pattern began to buckle by December 23rd. The mild westerly flow that existed over the Pacific up until then was replaced by an amplifying ridge of High pressure off the California coast. This was a significant change in the pattern that allowed colder storm systems to track southward out of western Canada and eventually opened the door to the infiltration of Polar air masses into California. A cold frontal passage on Christmas Eve was accompanied by showers and brisk winds. Precipitation was relatively light with this system with rainfall ranging from at most a few hundredths of an inch of rain in the San Joaquin Valley and the Kern County desert to a tenth to as much as four tenths of an inch over the higher terrain by Christmas morning. A northerly flow of drier and much colder air behind this front brought the coldest air of the season into the central California interior during the Christmas holiday. Temperatures fell just below 32 degrees in the San Joaquin Valley for the first time since the first week of February on the night of the 25th. The San Joaquin Valley experienced its first frost of the season during the predawn hours of December 26th. Early morning frost occurred in the San Joaquin Valley on the 27th, 28th and 29th, but it was only a precursor of what was yet to come.

A deepening upper level Low pressure system over the Great Basin combined with a storm system that moved inland from the Pacific into southern California on the 30th. This storm system brushed Kern County with generally light precipitation from December 30th into December 31st while north to northeast winds were bringing an Arctic air mass into the HSA. A dusting to locally two inches of snow fell in the Kern County mountains as low as 2500 feet by the morning of December 31st while portions of the southern San Joaquin Valley received trace amounts of rain to as much as eleven hundredths in Bakersfield. Meanwhile, brisk northeast winds gusted to 50 mph or higher over the higher elevations of the Sierra north of Fresno County. The winds were strong enough to down trees and power lines over the higher elevations of the Sierra and close roads leading into Yosemite National Park on the morning of the 31st. The invasion of Arctic air lead to a hard freeze in the San Joaquin Valley during the early morning hours of January 1st.

Although the period between December 26th and January 1st was much colder than normal, December, 2014 ended up being one of the warmest Decembers ever in the central California interior. In Bakersfield, it was the 5th warmest December on record but in Fresno, no December was ever warmer than this one with records dating back to the late 1800's. To top it off, 2014 ended up being the warmest calendar year on record in Fresno and Bakersfield.

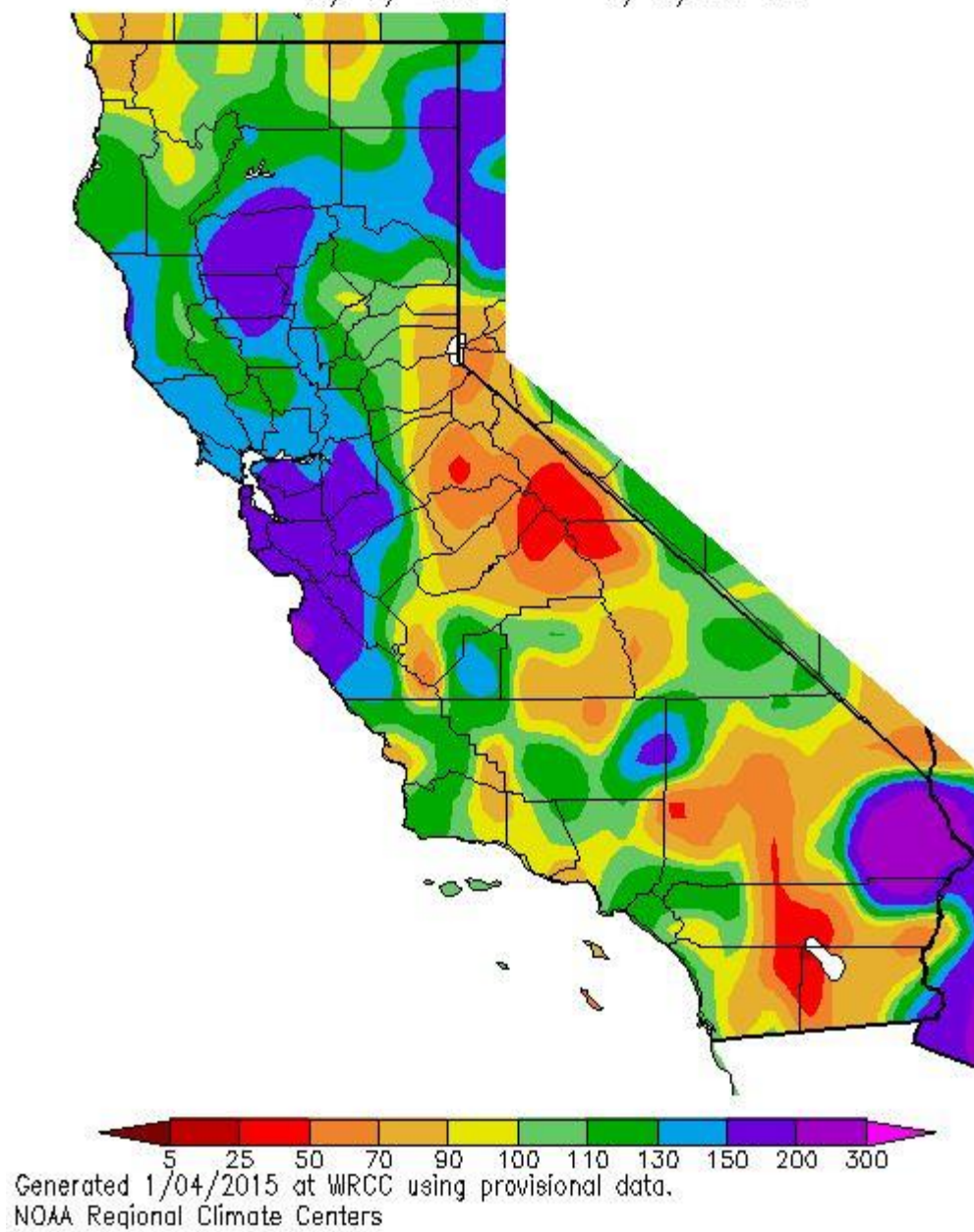
December's hydrologic recharge brought a slight improvement in water storage at most of the major reservoirs. Nonetheless, water capacity was still well below normal and ranged from just 6 percent of normal at Hidden and Success Dams to 43 percent of normal at San Luis Reservoir. The net increase in water capacity compared to November was only about 2 percent and averaged about 15 percent of normal by January 3rd. Although most of the storms that brought water into California during the month were warm storms, there was a noticeable increase in snow cover along the Sierra crest which, as of January 1st, averaged 41 percent of normal. Not great, but in comparison to January 1st, 2014, was a good 20 percent higher.

HYDROLOGIC PRODUCTS ISSUED THIS MONTH

Flash Flood Watch for the burn scars	2250Z	01-DEC
Flash Flood Watch for the El Portal and Rim Fire burn scars	2234Z	08-DEC
Urban/Small Stream Flood Advisory...Merced County	0304Z	12-DEC
Urban/Small Stream Flood Advisory...San Joaquin Valley, Foothills	0458Z	12-DEC
Urban/Small Stream Flood Advisory...San Joaquin Valley, Foothills	0701Z	12-DEC
Urban/Small Stream Flood Advisory...San Joaquin Valley, Foothills	1000Z	12-DEC

Note: The Urban/Small Stream Flood Advisories listed above are only the first product issuances and do not include the follow-ups which were extended beyond the initial advisory period.

Percent of Average Precipitation (%)
7/1/2014 – 1/3/2015



cc:

W/OH12x1
W/WR2
CNRFC
WFO HNX
WFO STO