Predicting the Future

Climate prediction centers forecast El Niño conditions and other climate-related ocean conditions. California does not always see an increase in precipitation during El Niño years. With the majority of the ten years between 2006 and 2016 showing below normal precipitation in much of the state, researchers were hoping for a potential abundance of rainfall without flooding or coast-damaging storms.

The National Weather Service issues 30 and 90-day forecasts. Academic institutions, such as the Scripps Institution of Oceanography in San Diego, have attempted experimental seasonal forecasts. The accuracy and level of detail of these efforts remains insufficient for water project operations. It is only recently, for example, that researchers have had sufficient understanding of global weather patterns and atmospheric/oceanic interactions to be able to identify conditions associated with the El Niño Southern Oscillation (ENSO) in the Pacific Ocean. That understanding has yet to be translated to forecasts of runoff, partly because ENSO events affect different parts of California differently.

Lake Berryessa had normal fluctuations in water levels from 1995 to 2006. A middling El Niño brought steady rains that filled Lake Berryessa to the brim in January 2006 – the last year the lake spilled over Glory Hole until 2017. A previous El Niño brought seemingly nonstop rains in the winter of 1997-1998. See February 1998 chart below – 18.9 inches in that one month – more than the total of 12.7 inches of rainfall in 2006-2007! Lake Berryessa went up 9 feet in 12 days in 1998.

What no one expected was for the lake to rise 41 feet in several months and 15 feet in three weeks in 2017. Glory Hole did spill in January 2006; however, the lake did not exceed 440 feet again until February 2017 - the first time in 11 years.

An amazing series of Lake Berryessa News Drone videos by Evan Kilkus documents the 45-foot rise of Lake Berryessa in 2017. It was the second largest annual increase in the history of the lake. It was also the second highest level the lake has reached in its 58-year history. The lake has only spilled into Glory Hole 25 times in 65 years. Also, the rainfall total (46.4 inches as of 4/12/17) was the highest in 20 years.

Drone Video Links (as of 1/1/2023)

December 2014: The lake is LOW: https://youtu.be/5d-WIJcmu60

January 10, 2017: The Action Begins: https://youtu.be/bGJvofIyTwQ

February 10, 2017: Only 2 Feet To Go! https://youtu.be/PRWAfVw9DBU

February 12, 2017 - First Time Water Splashes Into Glory Hole! https://youtu.be/8pIPsgLFggk

February 13, 2017: Lake Berryessa Is Full! https://youtu.be/EH0LQW7iduY

February 16, 2017: Lake Officially Spills into Glory Hole: https://youtu.be/cB0BKIm1EzM

February 18, 2017: Overflowing Glory Hole: https://youtu.be/uQp0QConILY

February 21, 2017: Lake Hits 2nd Highest Water Level In History: https://youtu.be/-iHAjOrrU4k

February 21, 2017: A Full Lake Just Feels Good: https://youtu.be/qhPzR2Gqzs0

April 14, 2017: Spring Comes to a Full Lake Berryessa: https://youtu.be/1TVX9Euix3E