

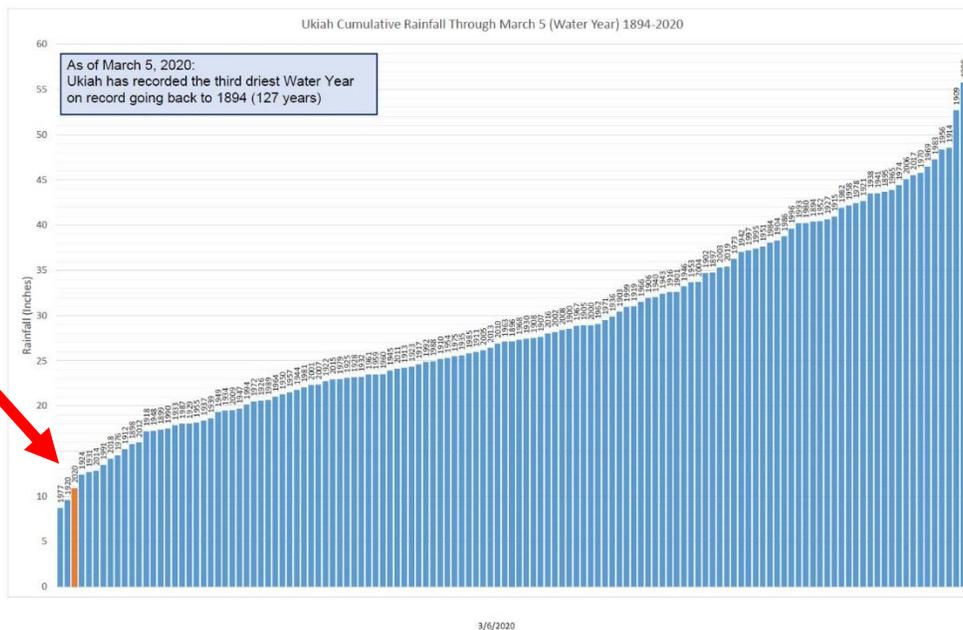
Sonoma Water Prepares For Drought:

Use of Science & Technology in Reservoir Management Pays Real Dividends in Building Drought Resiliency

What Is the Rainfall Situation?

Water Year 2020 (October 1 – September 30) has, to date, been a very dry year in Northern California. As shown in the figure below, the cumulative rainfall total (as of March 5th) is the *third lowest on record* over a period of 127 years (based on Ukiah rain gage).

2020
3rd driest year
on record

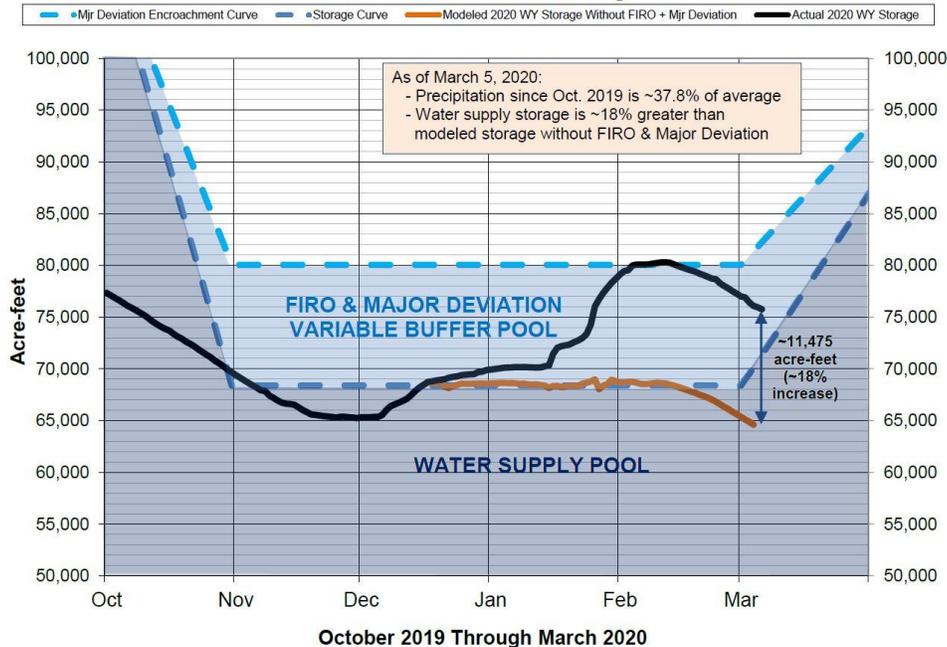


What is the Reservoir Storage Level at Lake Mendocino?

Despite the extremely low precipitation to date, the storage levels observed in Lake Mendocino will ensure that a robust water supply will be available to meet the needs of municipal/industrial, agriculture and environmental needs through the remainder of the Water Year. As noted in the figure below, use of forecasting tools, as part of an innovative strategy known as Forecast Informed Reservoir Operations (FIRO), by the U.S. Army Corps of Engineers (USACE) has made the most of the little inflow that has occurred. FIRO has allowed early season rainfall to be stored which, along with inter-basin transfers from the Eel River, would normally have been released. This has resulted in about *18% more storage* than modeled storage levels under previous routine operations.



Lake Mendocino Storage



How is FIRO Helping Water Management in Lake Mendocino?

Since 2015, Sonoma Water has been working with several partners to evaluate the viability of FIRO in achieving improved flood management, water supply and environmental flows associated with the operation of Lake Mendocino. A Steering Committee, led by Sonoma Water and Scripps Center for Western Weather & Water Extremes, includes USACE, California Department of Water Resources, NOAA (National Marine Fisheries Service, National Weather Service, & Office of Atmospheric Research), U.S. Geological Survey, and the Bureau of Reclamation. In addition to technical and scientific studies, the FIRO program is piloting the operation of Lake Mendocino under a major deviation to the Lake Mendocino reservoir guide curve. The major deviation, authorized by USACE, allows reservoir operators to use forecasts to inform the storage and release of water in a portion of the flood control pool. This “variable buffer pool” within the flood control pool has the potential to increase water supply storage for years where water can be safely retained, while also allowing for pre-releases in advance of storm events to enhance flood management. Improved water storage also benefits stream flows and water quality to support habitat.

Accurate Predictions of Atmospheric Rivers and the Streamflow They Produce Are Key

The ability to mitigate potential impacts of drought through FIRO hinges on accurate forecasts of atmospheric river type storms because they provide roughly half the water supply for the year in just a few storms annually, and yet can also cause flooding. Better atmospheric river forecasts in the future can yield greater water supply reliability and reduce flood damages.

Moving Forward

The Steering Committee is working on a FIRO Final Viability Assessment proposing implementation of an initial FIRO strategy, which is expected to be complete by the end of 2020. Upon completion, Sonoma Water and its partners will support USACE in updating the Water Control Manual for Lake Mendocino for a permanent implementation of FIRO so that long-term drought and flood resiliency can be realized.