

Time for more water storage



Low water levels at South Lake Reservoir in California.

John Kingsbury, Executive Director of the Mountain Counties Water Resources Association in the US, explains why it is time for more water storage to help pave the way for a prosperous future in California.

As most of California recovers from a historical drought, one thing we can count on is that history will repeat itself. Californians can take full credit for willingly sacrificing landscape and adjusting habits to save water supply for another year. Toilets have been replaced, lawn has been converted to plastic, leaks have been fixed, prime agricultural land has been fallowed, and we have learned to be more efficient with our water supply. However, most consumers in California are weary from coping with the drought and the accompanying mandated emergency water-use restrictions. Though highly successful in their own right, urban consumers only conserved 2.5% of the total statewide water demand.

In California, statewide average water use is roughly 10% urban, 40% agricultural, and 50% for the aquatic environment. Although urban consumers conserved water, state and federal agencies did little to conserve a portion of the 50% aquatic environmental water. State and federal regulators should have balanced the social-economic impacts of urban and agricultural water users when

determining how and when to allocate water to the environment during a drought.

So, fast-forward to the next drought. What's next? There are powerful environmental activists that support dam removal, oppose new and expanded surface storage, and are demanding permanent and more strenuous conservation restrictions, both on indoor use and outdoor irrigation, as well as more water cutbacks on agriculture. Unfortunately, this environmental movement is a myopic approach that ignores the statewide efforts to improve California's integrated water system. I've worked in the California water world for nearly 30 years, and, in my opinion, we're headed down the wrong path.

The answer is not to continue with landscape restrictions, higher water rates, and a change in the quality of life. We should reduce burdensome, costly and unproductive regulations, re-operate existing storage facilities, and increase surface water storage

Disheartening

In the Spring of 2016, with water flowing over reservoir spillways from the largest reservoirs in

the northern part of the state (Shasta, Oroville and Folsom) it was disheartening to see millions of gallons of fresh water flushed to the ocean. The lack of adequate storage robbed agricultural interests and homes in both northern and southern California of water that could be put to beneficial use. Rather than wasting the water year after year, state and federal agencies should implement projects to capture and store winter's excess flood flows as a water "bank" for later use in the summer and fall.

California's existing integrated and complex water system was built in the 1960s for a different time, hydrology, and population. Climate is and has been warming. By 2050, conservative estimates are that we'll lose 25 to 40% of the Sierra snowpack, the state's largest winter reservoir. In addition, the population has more than doubled since the state and federal water projects were constructed. In 1960, there were 15.87 million people in California. Now there are estimates of around 36 million people and projections of over 60 million by 2050. California's population is larger than many nations of the world.

Significant to California is the water stored in

reservoirs behind dams. These dams, built decades ago, have dedicated in-stream flow releases designed to meet many beneficial uses of the environment, agriculture, and urban and municipal needs. Let's not forget flood control. As the planet warms, more precipitation will land in the Sierra Nevadas in the form of rain rather than snow. Rain, not absorbed by the forest floor, moves unimpeded through the watershed, breaching dams, causing valley flooding and pressure on the levee systems before the water is wasted to the sea. All because California does not have adequate storage facilities to capture excess winter flows.

It has not been since Governor Edmund G. Brown's vision to build a statewide water system for California, and President John F. Kennedy's famous speech in 1962 at the site of San Luis Reservoir, that the people of this state have been united to build a path for the future.

"Water is man's oldest and most precious natural resource," President Kennedy said. "For many years, some believed that the water problems of this state were too controversial and too complicated to solve. They believed there was no escaping the effects of drought and flood." And then it was built. San Luis Reservoir, when full, holds up to 652B gallons of water and is the US' largest off-stream reservoir. Construction began in 1963 and completed in 1967.

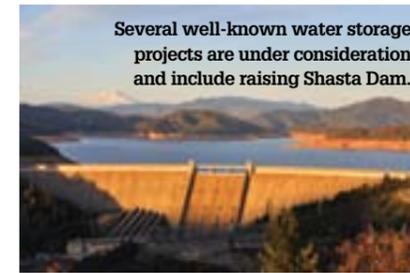
Now, half a century later, most Californians are again united. In 2014, California voted overwhelmingly to support a water bond as a start to pave the way for the future. The water bond includes US\$2.7B to support the construction of surface water storage, and US\$810M dollars to improve water security, provide for drought preparedness, and mitigate the effects of climate change.

There are several proposed well-known surface water storage projects being considered:

- Raising Shasta Dam on the Sacramento River.
 - Constructing Sites Reservoir and Temperance Flat.
 - Expanding Los Vaqueros and San Luis Reservoirs.
- In the Mountain Counties Area, there are also several potential water storage projects with regional and statewide public benefits. These regional projects include:
- Alder Reservoir.
 - Blagen Mill Pond Restoration Project.
 - Centennial Reservoir.
 - Herring Creek Reservoir Expansion.
 - Sierra Pines Reservoir.
 - Sugar Pine Dam Raise.
 - Tuolumne County Water Supply Reliability Project.
 - Upper Strawberry Reservoir.
 - Wilson Lake Rehabilitation.
 - Meadow Restoration Plan.

Additional surface water storage reduces ground water extraction and subsidence in the Sacramento San Joaquin Delta by using surface water during wet years and the ground water basin during dry years. The Sacramento San Joaquin Delta is the largest estuary on the west coast of North and South America and is located in northern California. The Delta is the central hub of the state's water conveyance system and the primary focus of the

Several well-known water storage projects are under consideration and include raising Shasta Dam.



current water wars in California.

Additional storage will provide for new urban and municipal uses, drought preparedness, flood protection, tourism, and recreational opportunities. Surface water stored behind dams provides cold water for endangered fish, such as migrating steelhead trout and salmon. Water released from reservoirs can help balance the wind and solar electricity grid by generating carbon-free hydro. Indeed, as the population grows, so must Californian water for food production, unless we are content with our children and grandchildren subsisting on two meals a day or food from third world countries.

Complex and integrated

California has a very complex and integrated water plumbing system, completely knitted together from the highest watershed to the valley to the ocean. Essentially, California's knitted

water system has three legs: water supply, water demand and the environment. To achieve balance and stability, all three legs must be of equal length. While continuing to advance water use efficiency practices through technology, it is critical that the state balances rural, urban, agricultural, environmental, recreational, and hydropower generation interests equally so as to not gore the ox. Until we restore and thin forests to reduce the risk of catastrophic fire in the watersheds; recover lost storage from sediment displacement; improve watershed health to capture and sequester rain and snow; and build sufficient surface water storage to store that water for later use, the statewide water system will never achieve equilibrium.

It is time for more water storage to help pave the way to a prosperous future for California. Unless we have the fortitude to increase surface water storage as the voters have called for, we will continue to ration the half-full glass of water. We should reflect on the vision of Governor Brown and the words of President Kennedy: "Progress represents the combined will of the American people, and only when they are joined together for action, instead of standing still and thinking that everything that had to be done has been done. It's only when they join together in a forward movement that this country moves ahead and that we prepare the way for those who come after us." ■

A dramatic south-looking view of a dry Stevens Creek reservoir in California.



Author information

John Kingsbury has been Executive Director of Mountain Counties Water Resources Association since March, 2011. Operating out of Placerville, in the foothills of northern California, the Mountain Counties Water Resources Association (MCWRA) is a 68-member organization comprising cities, counties, water and power agencies, and regional water interests. It provides advocacy, education, and leadership to support the water energy interests of its members, and long-term integrated water management of the region and the state. Its mission is to unite agencies, groups and individuals whose interests include protecting and enhancing Mountain County water resources throughout the foreseeable future. The Mountain Counties Area consists of approximately 41,000km² within 16 of the state's 58 counties. It includes eight National Forest units, three National Parks, ten major watershed areas and accounts for about 25% of all natural runoff in California, over half of all snowmelt runoff in the State, and 40% of the state's developed water supply, more than from any other single source. This total increases to more than 60% of the state's developed water supply when combined with other water from sources within the entire Sierra Nevada. The larger Sierra Nevada Region is the source of water for 23M Californians

