

Doing the Math on California Water Solutions: Dams Can't Compete with 21st Century Options



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The Department of Water Resources [upcoming announcement](#) of dismal April 1 snow survey results, an important measure of available water supply for the coming year, will confirm that, despite a few welcome storms, California remains in the grip of drought. How we respond to the drought today will undoubtedly define our water use and availability for years to come.

Drought is a fact of life in California and across the West, and we cannot know if the drought will end next year, or whether we're facing many more dry years. With climate change creating the conditions for longer and more frequent droughts, we cannot afford to be wasting water and money on 19th and 20th century water habits – like building more dams. Instead, California should take charge of our water future by investing in 21st century sustainable water solutions right now.

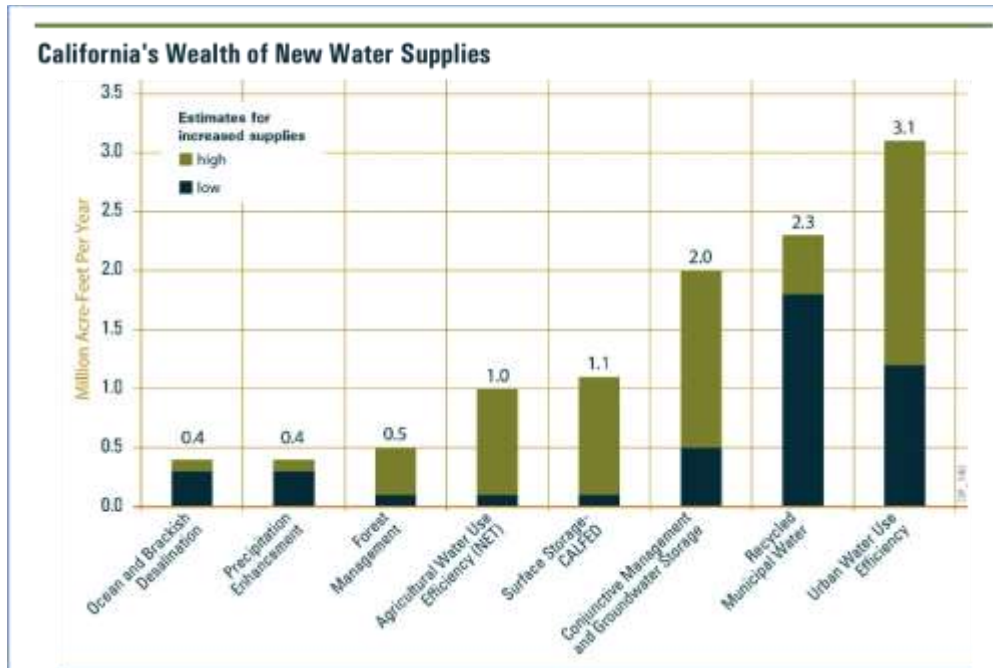
Why? Because 21st century solutions are *far* more cost-effective than massive new dams.

Thankfully, some government leaders and forward-looking water managers are showing us the way to a water-wise future. By embracing sustainable water management solutions like improving agricultural and urban water use efficiency, building water recycling plants, capturing stormwater in our urban environment, and cleaning up and using local groundwater storage, we can put California on a long-term path ahead for real and lasting gains -- resilient and healthy water supplies for decades to come.

21st Century Solutions: A Portfolio of Conservation, Recycling, and other Water Supplies

Investing in water smart approaches are worth it and experts across the spectrum agree that investing in these kinds of water smart approaches are the most cost-effective new sources of water supply. The Director of the California Department of Water Resources [recently acknowledged](#) that over the past decade, voters approved spending approximately \$1.4B in bond funding

(leveraging \$3.7B in local ratepayer funding) for what's known as integrated water management: conservation, water recycling, and local storage. The result: 2 million acre feet of new water, which is approximately three times as much water used each year in the City of Los Angeles. The Public Policy Institute of California, the nonpartisan [Legislative Analyst's Office](#), and virtually every independent expert agrees that these solutions are generally the cheapest new sources of water for California and they have the greatest potential to create more new water for California.



Source: [Delta Stewardship Council 2012](#)

Investments in local water supply projects can generate significant environmental benefits such as reduced climate pollution and reduced energy use, improved water quality in our rivers and at the beach, and reduced reliance on water exports from the Delta.

These 21st century solutions also create substantial good jobs in our communities. In 2011, the [Economic Roundtable estimated](#) that every \$1M invested in water conservation and other local supply projects in Los Angeles creates 12-16 job years and stimulates \$1.9M to \$2.09M in total sales, equal or greater than the economic impact from a similar investment in the motion picture or construction industries.

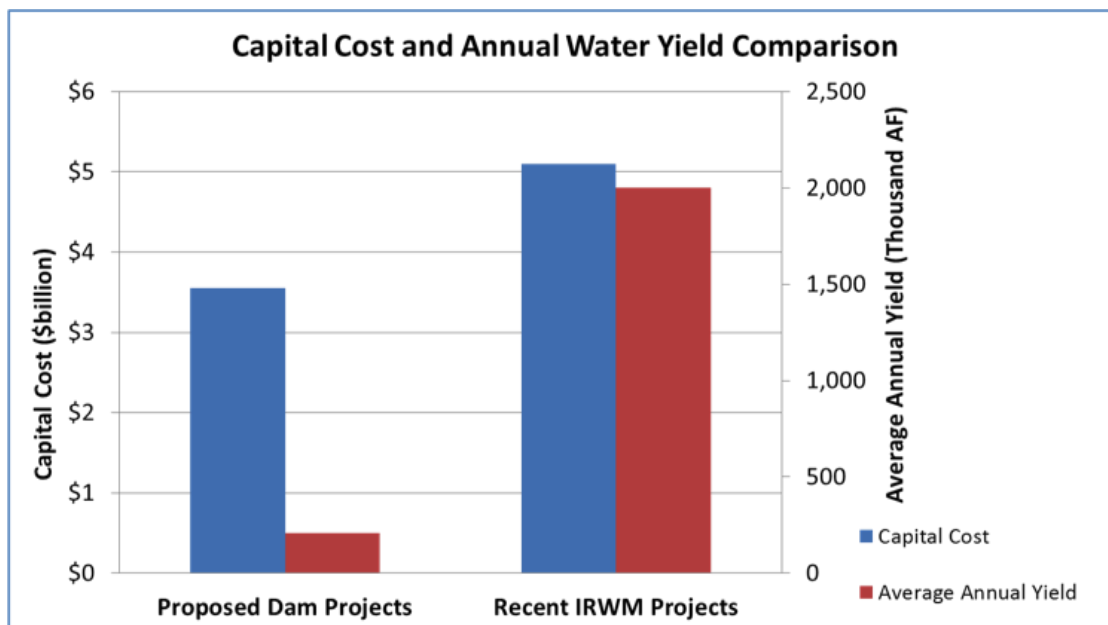
And investments in local water supply solutions are paying off in this drought. Conservation, recycling, and other sustainable approaches are a big

part of the reason [why Southern California is doing better](#) than other parts of the State in dealing with the drought.

20th Century Solutions: Building Big New Dams

Nevertheless, some voices have been rallying for antiquated solutions to drought, such as eliminating environmental protections for the State's rivers and salmon fishery, and demanding massive taxpayer subsidies to build expensive, big new dams. The field hearing convened by House Republicans in Fresno on March 19th was no exception – simply an echo chamber of false solutions, myths, and water management ideas of the past.

With more than 1,400 reservoirs in California, and the majority of the state's [major reservoirs](#) less than half full (not to mention millions of acre feet of groundwater storage available in the state), it's no surprise that the Public Policy Institute of California has described major new surface storage reservoirs as a costly source of new water, and written that the idea that new surface storage will fix California's water problems is a persistent [myth](#). For instance, the Bureau of Reclamation's [draft feasibility study](#) estimates that at a cost of \$2.5 billion, the Temperance Flat dam would yield an average of only 70,000 acre feet per year. The [proposed expansion of Shasta Dam](#) doesn't fare much better economically, and at a combined cost of over \$3.5 billion, the most aggressive alternatives for these two projects show that they would only yield an average of 209,000 acre feet of new water. Those are paltry amounts compared to what the more than 2 million acre feet of water created by water conservation, recycling, and other 21st century solutions (Integrated Regional Water Management projects, or IRWM, in the chart below) yielded in the past decade:



The Public Policy Institute of California’s analysis also shows that new surface storage is generally one of the most costly sources of new water for California, typically more expensive than water use efficiency, groundwater storage, and recycled water:

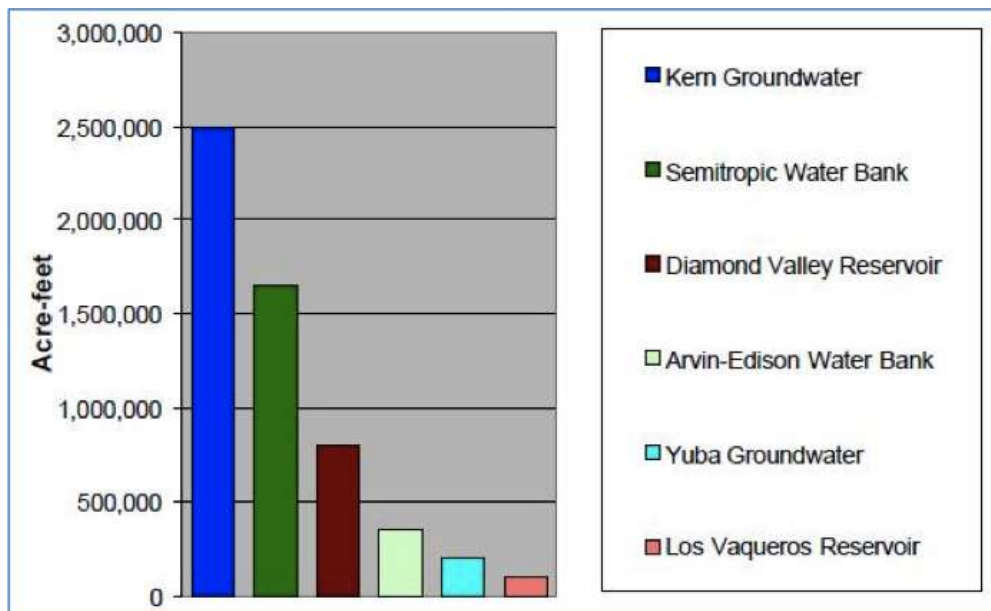
Surface storage is a costly source of new water supplies		
Method	Annual cost per acre-foot (\$)	
	Low	High
Conjunctive use and groundwater storage	10	600
Water transfers	50	550
Agricultural water use efficiency (net)	145	240
Urban water use efficiency (gross)	230	635
Recycled municipal water	300	1,300
Surface storage (state projects)	340	1,070
Desalination, brackish	500	900
Desalination, seawater	900	2,500

Source: *PPIC, California Water Myths, 2009*

These big new dams can also cause huge environmental, social, and economic impacts: for instance, the [potential expansion of Shasta Dam](#) would inundate sacred sites of the Native American Winnemem Wintu tribe, flood part of the beautiful McCloud River (protected under the state’s Wild & Scenic Rivers laws), and impact recreation and infrastructure around the lake. There are virtually no environmental benefits to these big new dam projects, and no justification for the massive taxpayer subsidies (up to 72% for some projects, like Temperance Flat dam) that the Bureau of Reclamation claims will make the projects economically feasible.

Regional Water Storage Projects as part of a 21st Century Portfolio

That’s not to say that there is no role for new storage in California, including both groundwater banking and smaller surface storage projects. Southern California’s investments in storage over the past decades are part of why they are in better shape to deal with the drought. And contrary to myths that California has not built any new storage in recent decades, the State has added nearly six million acre feet of new surface and groundwater storage over the past several decades.



NRDC and some other environmental groups see potential benefits for smaller storage projects like expanding Los Vaqueros Reservoir or [San Luis Reservoir](#), and especially for groundwater remediation and groundwater storage projects in the San Fernando Valley and elsewhere in Southern California. These offstream reservoirs and groundwater banks South of the Delta don't block salmon swimming in California's rivers, but they do provide a place to store water from the Delta during the really wet years (for instance, in 2011, the state and federal water projects (CVP/SWP) had to [stop pumping from the Delta](#) because there was simply no place to put any water, even though environmental rules allowed significantly more pumping). These regional surface storage projects can be used in conjunction with groundwater banks to save that water underground for the inevitable dry years.

Conclusion

Instead of wasting money on taxpayer subsidies for big new dams that also threaten California's salmon fisheries and the health of our rivers and Bay-Delta, we should be investing in local supply solutions. Recent [polling done for NRDC](#) shows that California voters overwhelming support investments in local water supply solutions, and are willing to pay a little more on their water bill for investments in water recycling plants, improved efficiency, and similar investments – 21st Century solutions to drought, not 19th or 20th Century solutions.

Unfortunately, it's not yet clear whether the state's politicians are listening to the voters and sound economic and environmental considerations, or whether

they're mostly listening to those special interests that "stand to gain from state subsidies for new facilities." (PPIC, California Water Myths, 2009)

http://switchboard.nrdc.org/blogs/dobegi/doing_the_math_on_california_w.html