

# A Water Turning Point

## How Should California Manage Water in the 21<sup>st</sup> Century?

California has a unique blend of mountains and valleys, forests and deserts, farms and estuaries, cities and preserved open spaces... and in the midst of it flows water. But water in California presents many problems: there's not enough or at other times, there's flooding; it's too polluted or too salty or too far away, or someone else has higher-priority water rights; it's not flowing enough to support some natural fish species or it's supporting the spread of invasive species. Water is both the source of life and the fountain of prosperity. In the 21<sup>st</sup> century, new and deeper challenges are facing Californians in how we manage water, our most fragile and essential resource.

This issue guide had its origin in 2015, when Californians didn't know if we were in the fourth year of a four-year drought or the fourth year of a 15-year drought. As is often the case during a drought, news stories about a strengthening "El Niño" event in the Pacific Ocean, combined with the continual hope that the next winter would end the sequence of dry years, complicated the uncertainty of our water future. El Niño events, however, have historically brought more rain than snow, so the drought might end with a rapid reversal from too little

***Battles over water in the West are always about something more. At their most elemental, they are about survival.***

*Bettina Boxall, 2007*

precipitation to flooding, as was experienced in Texas in the summer of 2015.

Many believe that the word "drought" does not accurately describe what is happening, and that California's current water shortages are a sign of a "new normal," as climate change threatens lower rainfall averages, more periods of heavy rain and flooding, and winter rains and reduced snowpack in the Sierra.

California's water future is filled with uncertainty. Our capacity to plot a political course forward seems to be at an all-time low. Water shortages and restrictions seem to have breathed new life into long-standing debates over the relative value of, and best balance amongst, different urban, agricultural, and environmental

water uses. Climate change and continuing population growth are quickly increasing the complexity of water decisions. The stakes are high. If California were a country, it would have the eighth-largest economy in the world. It is home to nearly 39 million people. And the same river systems many of us depend on for the water we use also support our state's natural diversity. We need to get this right.

### What is this issue guide?

This issue guide is intended to help Californians talk with each other to discover shared values and consider a variety of actions that could help align California water policy and water culture with current realities and challenges.

Three options are presented for personal study, reflection, and careful public deliberation. Each option is based on a distinct set of underlying concerns, values, and priorities, and includes several action steps that suggest how these viewpoints could play out in practical ways. In most cases, these are not new action steps. Many of these proposals have been tried or are being implemented in some fashion already, but not according to a comprehensive plan or overarching set of shared principles.

***... a drought pushes us and shows where we are not prepared...***

*Los Angeles Times, August 16, 2015*

These options are not proposed as "either-or" answers to the complex problems in California water policy—and they are certainly not the only options for addressing our state's water issues. But they capture a range of

commonly held, distinct perspectives rooted in things that we *all* hold deeply valuable, like living within our means, protecting the common good, and maintaining physical security, along with other values such as self-sufficiency, personal choice, local autonomy, a healthy environment, and innovation. California's water issues, and how we choose to respond to them, put these essential values into tension with each other, if not at risk.

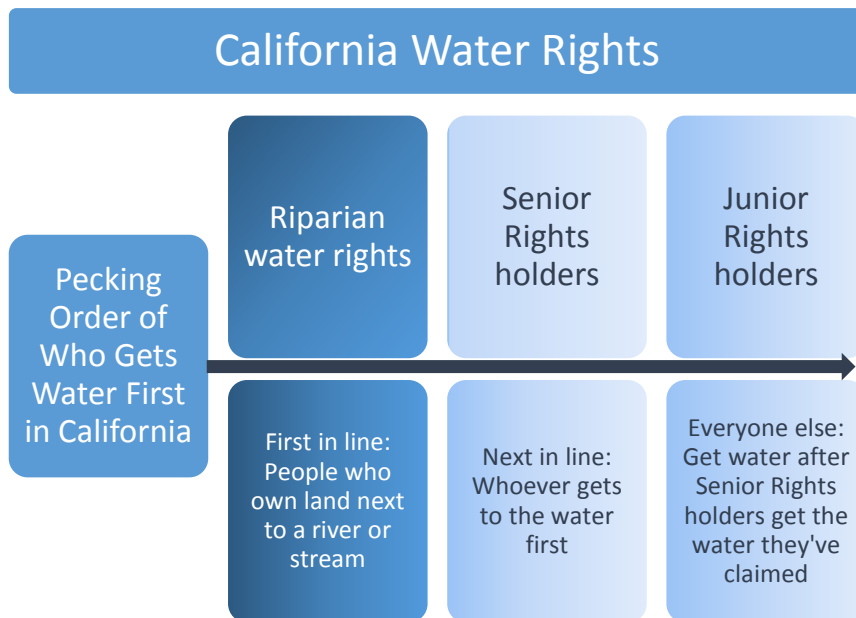
So we have choices to make. The framework of options and actions in this guide is a starting point for charting a sensible and shared course forward. Each option—and each action—has benefits, drawbacks and trade-offs. You may find yourselves favoring one approach, or preferring a blend of actions from two or even all three approaches. Weighing the benefits and tradeoffs together can help reveal fertile ground for action that we can all live with.

### **Some connecting themes**

As your study, reflection, and deliberation move through these options, several key themes will be helpful in understanding the interconnection of options and actions. Here are just a few for your consideration.

A basic starting-point in discussing the management of anything is **information**. California has over 400 large water utilities, nearly 600 wastewater utilities, and hundreds of agricultural water districts—and they're all gathering data. Numerous state and federal agencies are also collecting valuable water data. But there's a big difference between plentiful data and useful information. And, there are still huge gaps in available data. Many homes in California still don't have water meters, and apartments very seldom have individual water meters to provide usage data for consumers. Groundwater pumped from California aquifers is only beginning to be monitored. Information is approached differently among the options in this guide, so returning to this theme throughout your study and deliberation will be helpful.

**Water rights** in California have been defined in a helter-skelter fashion over the course of a long history that dates back to rights granted in the 1700s by Spanish and Mexican governments, Gold-Rush-era rights, and some established during the early period of statehood. The system was further modified during the 20<sup>th</sup> century, as competition for limited water sources grew. And, making an already complex system even more so, use rights to surface water and groundwater are defined in different ways. Throughout your study and deliberation, you probably won't get to the bottom of California's water rights system, but considering who should have access to California's water and why could be an important part of your discussion.



Many actions proposed in California water policy affect the **Sacramento-San Joaquin River Delta and the Bay-Delta estuary** either directly or indirectly. Also known as the California Delta, this is a rare “inverted” river delta, in which several tributaries join to enter the ocean at one outlet, the San Francisco Bay. This is the largest estuary on the west coast of the Americas. Access to Delta water by many other parts of the state and the Delta’s vulnerability to environmental damage and climate change make its management a controversial subject. During a 2009 series of public deliberative forums, Delta residents reminded us that *“the Delta isn’t a plumbing fixture, it’s a place.”* You will likely consider the uses of the Delta’s water and the consequences for the Delta during your study and deliberation.

Another theme that is woven through the options and actions in this issue guide is the influence of **money**. The availability and cost of fresh water are critical components in the business decisions of many economic sectors in California. A lot of money can be made and lost through water policy decisions, and a vast “water business” is supported and lobbied as these decisions are made. In earlier water forums across the state, a prevalent suspicion was voiced that *“money and power always win.”* Throughout your reflection and conversations, you may consider what you believe to be the proper influence of business interests and money in water management in California.

Finally, thinking about **carrying capacity** can be helpful throughout your study and deliberation. “Carrying capacity” refers to the population and activities that can be supported in a given area within its natural resource limits, and without degrading the natural social, cultural and economic environment now and in the future. Fresh water is a finite and limited resource that has a large influence on carrying capacity. Through most of California’s history, this concept was used mostly to guide land management decisions about grazing on public lands. However, it may also provide a way of considering the influences of population, environmental sensitivity, and economic viability in decisions about how we live with, think about, and manage water in California.

***Plans to protect air and water, wilderness and wildlife are in fact plans to protect man.***

*Stewart Udall*

More than ever before, public conversations about California water are needed now. In 2015, a “confluence” of continuing dry conditions, unprecedented limits on the release of agricultural water, mandatory conservation requirements, and increasing peer pressure and incentives toward less water-intensive agriculture and

landscaping across the state helped create a new urgency and opportunity for public input on California water policy in the 21<sup>st</sup> century. This can be—and some say this must be—a turning-point moment as citizens across California purposefully and carefully talk together about the policy choices and the foundational values involved in our critical water decisions.

## OPTION ONE

### Live within Our Means

*Water use in California far outstrips our ability to sustain ourselves and our state's natural bounty over time.*

No matter the current situation, wet or dry, the simple fact is that Californians need to recognize that water is a limited resource and we are using more of it than we need to. Earth is our home. It is our responsibility to steward this precious resource and to ensure that it isn't wasted. According to this option, we need to significantly cut back and limit the use of water by requiring permanent water-saving measures and restricting new development to areas where the water supply can support it. We need to significantly increase the price of water to reflect its real costs so that we are using water most efficiently and to our greatest benefit. We need to act responsibly by limiting long-term ecosystem damage and loss by factoring water *for* the environment into our decision-making. In the end, we need to foster a common culture of water conservation and efficiency.

*But for this enhanced vision of water conservation and efficiency to have any hope of saving sufficient amounts of water, strict mandates will need to be enacted which will restrict personal choices and freedom, and drive up the cost of water. Further, the burden of these measures may be unnecessary if we take full advantage of California's diverse water resources.*

***We can create water savings that insure the future success of agriculture in California, and it can be done without adversely affecting the economic productivity of the agricultural sector.***

*Craig McNamara, owner of Sierra Orchards, Winters, California*

Examples of What Might Be Done	Trade-Offs to Consider
Support household and commercial water conservation by creating a strict new California water-wise standard requiring that toilets, washing machines, faucets, showers, etc. sold in California meet established water-efficiency levels. Such a standard—applied equally to homes and commercial uses—would build water efficiency into our daily lives without requiring individual actions.	Forcing people to buy water-efficient appliances will limit personal choice. And this will only address the problem going forward, doing nothing about the inefficient appliances, systems (including sewer systems prone to back-ups when less water is used to flush solids through pipes), and practices such as wasteful outdoor watering already in place.
Invest in significant increases in agricultural efficiency through means such as replacing traditional irrigation methods with more focused delivery like drip systems, use of remote monitoring systems to precisely control water use, etc.	Large scale agricultural water users may be able to build this investment into their long-term capital improvement plans, but small and mid-sized producers will suffer unless these investments are highly subsidized.

<p>Establish a pricing and taxing structure that charges all surface and ground water users – agriculture, industry, municipalities, or private homes – the real costs of providing clean water and waste water disposal throughout the state. Paying the real costs of water use will provide strong incentives for conservation and efficiency.</p>	<p>Increasing water costs significantly could threaten important industries and ways of life in California – like farming and high-tech manufacturing – and unfairly impact the poor. The unintended consequences of steep changes in the cost of water could severely impact the state’s economy.</p>
<p>Limit permits for new housing and commercial developments based on locally available water without reliance on ground water. These limits will mean that water supplies cannot be oversold.</p>	<p>This will mean that large areas of California will be off-limits to new development, and many communities will lose the growth they need for economic vitality.</p>
<p>Recognize our obligations to other living things by prioritizing environmental uses of water. Strengthen policies to make sure that California’s rivers, wetlands, and other natural areas have the water they need to thrive.</p>	<p>Almost half of California’s surface water is already used to allow passage of salmon and other fish. Especially in dry years, this prioritizes the needs of fish over those of human communities.</p>
<p>Embrace a new California culture of deliberate and careful use of water in everyday life by investing in water conservation education and technical assistance for all water users. This could include the creation of a California Water Conservation Corps – modeled after VISTA and other service/volunteer programs. Corps members and other community volunteers could provide technical assistance, help arrange for needed retrofitting, and teach fellow Californians how to make changes in their everyday water behavior.</p>	<p>The California drought necessitates bold action that goes beyond changing out one faucet at a time. We don’t have enough time to wait for community members and other volunteers to make the necessary changes. Besides, we’ve been down this road before – during previous droughts green lawns were turned into drought tolerant landscapes only to be turned back into green lawns once the perception of crisis was over.</p>



**Questions for Communities**

- What are we currently doing in our community to live within our means?
- What more could we be doing, as individuals, businesses, community organizations, and public agencies?
- What are the drawbacks or trade-offs of this option for our community?

## OPTION TWO

### Enable the State to Regulate Water as a Scarce Public Resource

*Our current approach to water use and allocation is too fragmented, too easily influenced by money, and too inflexible to adapt to changing conditions and needs.*

California’s water comes from complex, interconnected systems made up of surface and groundwater, but our management of these systems has been disjointed. Our ability to act strategically has been hampered by not knowing the amount of groundwater available, over-allocating surface water by five times what is actually available, and not embracing the spirit and letter of California’s Constitution to protect the reasonable use of water for all Californians.

The threats to the health, economic viability and ecology caused by the drought emphasize the need to pool our collective power, giving the state a stronger leadership role in managing water as a critical resource.

The state’s authority to orchestrate a wide range of water management actions should be restructured, allowing the state to direct, adjust, and manage surface water and groundwater allocation, transportation, and use in a comprehensive, statewide system that protects public priorities as the amount of available water varies. While such restructuring isn’t a quick fix (it’s taken Idaho 30 years and Montana 50 years to sort out water rights), California could take action now in defining “reasonable use” of water during critical periods.

*But* centralizing power at the state level could interfere with local control and long-standing individual and corporate water rights, creating uncertainty and economic disruptions. And federal government control over critical water sources such as the Colorado River means there is only so far the state can go in consolidating its authority.

***We’ve turned a renewable resource into a nonrenewable resource. Whoever has the most money, the deepest wells, and the strongest pumps has been able to take this public good and turn it into a private commodity.***

*Peter Gleick, Pacific Institute*

Examples of What Could Be Done	Some Trade-Offs to Consider
Revise the state’s unique water rights system so that rights are granted for specific uses and for a specific time authorized by the “reasonable use” and “public trust” doctrines of California’s Constitution.	Property rights are essential to economic growth, providing incentives to innovate and invest. “Renting” water rights could create uncertainty and disrupt the state’s economy and investment in water-using industries such as agriculture.
Enable the state’s water resource management	This presumes people don’t communicate or work

agencies to make critical and strategic decisions, including identify certain water uses as unreasonable and unconstitutional, when necessary to protect public priorities that are fair for all.	together. The state already has the centralized power to protect everyone’s reasonable use of water through the Constitution, and yet we find users are pitted against one another.
Require the state to provide scientific, systematic, and regular audits of groundwater basins for use in regional surface water and groundwater management, including acceleration of reporting of groundwater usage mandated by the 2014 Sustainable Groundwater Act.	This will give even more power to the state agencies that have not been up to the task of managing water thus far.
California’s congressional representatives should legislate for a 21 <sup>st</sup> century federal role in our state’s comprehensive water management plan, to revise outdated federal water policies and practices, and to seek assistance in understanding and planning for a widely-predicted continuing climate volatility and loss of water supplies.	Local interests have a clearer picture of the problems and solutions than do federal water managers. For example, cuts to federal water allocations in the Central Valley brought the unintended consequence of deeper drilling of water from ancient aquifers, and federal farm subsidies encourage planting of water-thirsty crops.
Apply a statewide “cap and trade” to total housing in California with levels determined by water availability, environmental needs, and limits on agriculture, combined with public education to promote consumer demand for sustainable-water smart communities.	This could still allow development in areas where existing water supplies are already overtaxed.
Gather and store water where and when it is plentiful by building infrastructure projects like dams, storm capture basins, and Delta tunnels, moving water where it’s needed through transactions between willing buyers and sellers.	Transporting and storing water on a large scale robs water from sensitive natural areas and forces reliance on infrastructure that is vulnerable to failure. Transfers by water buyers and sellers impact the local water balance and economy in the vicinity of the sellers.



- What are we currently doing in our community to regulate water as the scarce resource it is?



- What more could we be doing, as individuals, businesses, community organizations, and public agencies?
- What are the drawbacks or trade-offs of this option for our community?

## OPTION THREE

### Rely on California’s Diverse Regions to Manage their Own Water

*We can take advantage of different water sources, uses, and options in California’s diverse watersheds by taking a regional approach to water management and distribution.*

Different regions of California should create water-management systems that enable them to become water self-sufficient. In regions where water is scarce, this would involve developing regional water portfolios that use a variety of “new” water sources that have been largely ignored, as well as developing watershed-based water markets to protect the local environment while allocating remaining water to its most valuable human uses.

*But* concentrating authority at the local and regional levels could create huge disparities in water availability and pricing among California’s regions, and de-emphasizing the transfer of water between basins could disadvantage regions where water is scarce. Developing nontraditional water sources raises concerns about environmental and human health effects.

***California water agencies that rely on the Colorado River have committed billions of dollars to develop water management programs as part of the state’s overall strategy to live within its legal entitlement of 4.4 million acre-feet of Colorado River water per year. These programs, which range from canal linings to water transfers to new groundwater storage projects, are essential to achieving the region’s long-term goals of maintaining a reliable supply from the Colorado River.***

*Association of California Water Agencies website, 2009*

Examples of What Could Be Done	Some Trade-Offs to Consider
Extend the regional management approach being adopted for groundwater to create water markets that operate within watersheds. Eliminating most subsidies and allowing these regional markets to handle water pricing, trading, and distribution would remove the conflicts of interest in agency management, allow the pricing of water to reflect its full costs, and help allocate water to its most valuable uses.	No one knows how much the price of water could skyrocket, putting less-well-off communities at risk and threatening farmers who grow water-intensive crops and other businesses with large water demands. This could also lead to large disparities in water pricing across the state and give an economic edge to regions with more locally available water.
Local governments and regional water authorities should increase their water self-sufficiency by building more, smaller dams for better flood control, aquifer recharging, and local water storage in times of drought.	This will lead to even more fragmentation of water management—and more likelihood that environmental protections will get short-changed as a plethora of new dams are proposed. Plus, regional solutions like these ignore the importance of state and federal projects specifically designed to transfer water between basins.

<p>Increase locally available water by recycling wastewater at the municipal, industrial, farm, and home levels. This approach is being used by some California cities to provide clean water at less than the cost of other sources.</p>	<p>Water recycling creates safety and purity concerns, and it can be difficult to overcome the “ick” factor. Also, the “purple pipe” infrastructure currently required to segregate recycled water is expensive and disruptive to install, limiting its feasibility for established neighborhoods.</p>
<p>Capture and store rainwater for use by homes, public facilities, and businesses.</p>	<p>Decreasing runoff can rob water from the environment, further threatening natural systems that are already under pressure.</p>
<p>Construct ocean water desalination facilities to serve coastal urban areas from San Francisco to San Diego.</p>	<p>Desalination plants have environmental impacts: marine life gets killed in intakes, plants release concentrated brines back into the ocean, and they require a lot of energy to operate. They also require big investments in even more large water infrastructure that will promote even more urban and suburban development in areas that may be beyond their carrying capacity already.</p>



**Questions for Communities**

- What are we currently doing in our community/regional area to manage our own water system?
- What more could we be doing, as individuals, businesses, community organizations, and public agencies?
- What are the drawbacks or trade-offs of this option for our community?

## Want to Learn More?

California Environmental Protection Agency – State Water Resources Control Board: <http://www.swrcb.ca.gov/>

California's Hydrologic Regions – map:

[http://www.conservation.ca.gov/dlrp/watershedportal/InformationResources/Documents/WS\\_huc10\\_regions8\\_26\\_10.pdf](http://www.conservation.ca.gov/dlrp/watershedportal/InformationResources/Documents/WS_huc10_regions8_26_10.pdf)

California's Nine Regional Water Quality Control Boards:

Fact sheet: [http://www.waterboards.ca.gov/publications\\_forms/publications/factsheets/docs/region\\_brds.pdf](http://www.waterboards.ca.gov/publications_forms/publications/factsheets/docs/region_brds.pdf)

Map: [http://www.waterboards.ca.gov/waterboards\\_map.shtml](http://www.waterboards.ca.gov/waterboards_map.shtml)

California's Water: An LAO Primer (Legislative Analyst's Office):

[http://www.lao.ca.gov/2008/rsrc/water\\_primer/water\\_primer\\_102208.pdf](http://www.lao.ca.gov/2008/rsrc/water_primer/water_primer_102208.pdf)

California's Water Plan Update 2013 – California Department of Water Resources:

<http://www.waterplan.water.ca.gov/cwpu2013/>

Hamilton Project.org (several reports that pertain to water at this link):

[http://www.hamiltonproject.org/topics/energy\\_and\\_environment/](http://www.hamiltonproject.org/topics/energy_and_environment/)

In Times of Drought: Nine Economic Facts about Water in the United States • The Hamilton Project, released October 2014: [http://www.hamiltonproject.org/papers/in\\_times\\_of\\_drought\\_nine\\_economic\\_facts\\_about\\_water\\_in\\_the\\_us/](http://www.hamiltonproject.org/papers/in_times_of_drought_nine_economic_facts_about_water_in_the_us/)

MWD - Metropolitan Water District of Southern California: <http://mwdh2o.com/>

MWD Map of Major Water Conveyance Facilities in CA:

[http://mwdh2o.com/PDF\\_NewsRoom/6.4.2\\_Maps\\_Major\\_Water\\_Conveyance.pdf#search=major%20water%20conveyance%20facilities](http://mwdh2o.com/PDF_NewsRoom/6.4.2_Maps_Major_Water_Conveyance.pdf#search=major%20water%20conveyance%20facilities)

The Pacific Institute: <http://pacinst.org>

Public Policy Institute of California: <http://www.ppic.org/main/home.asp>

San Diego County Water Authority: <http://www.sdcwa.org/>

San Francisco Estuary Institute: <http://www.sfei.org>

US Drought Monitor (produced through a partnership with National Drought Mitigation Center at the Univ. of Nebraska-Lincoln, US Dept. of Agriculture and National Oceanic and Atmospheric Administration): <http://droughtmonitor.unl.edu/>

US Environmental Protection Agency (go to these links for information about water): [www.epa.gov/watersense/pubs](http://www.epa.gov/watersense/pubs) and <http://water.epa.gov/infrastructure/>

Water Resources Outlook: US Water Demand, Supply and Allocation: Trends and Outlook (2007—R-3 released December 22, 2006) US Army Corps of Engineers: <http://planning.usace.army.mil/toolbox/library/IWRServer/2007-R-03.pdf>

US Environmental Protection Agency (go to these links for information about water): [www.epa.gov/watersense/pubs](http://www.epa.gov/watersense/pubs) and <http://water.epa.gov/infrastructure/>