BAY AREA WATER SUPPLY AND CONSERVATION AGENCY

BOARD POLICY COMMITTEE MEETING

April 8, 2015

Correspondence and media coverage of interest between March 23, 2015 and April 1, 2015

Media Coverage

Date: April 1, 2015
Source: CA.gov
Article: Governor Brown Directs First Ever Statewide Mandatory Water Reductions

Date: April 1, 2015
Source: Maven's Notebook
Article: Media Call: Agency Officials Discuss Their Role in Addressing the Drought

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Article: Governor Issues Mandatory Water Reductions

Date: March 30, 2015
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Article: Why Isn't Desalination the Answer to All California's Water Problems?

Date: March 23, 2015
Source: Mercury News
Article: Mercury News Editorial: Jerry Brown's Lame Response to California's Drought

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Governor Brown Directs First Ever Statewide Mandatory Water Reductions
CA.gov | April 1, 2015

SACRAMENTO - Following the lowest snowpack ever recorded and with no end to the drought in sight, Governor Edmund G. Brown Jr. today announced actions that will save water, increase enforcement to prevent wasteful water use, streamline the state's drought response and invest in new technologies that will make California more drought resilient.

"Today we are standing on dry grass where there should be five feet of snow. This historic drought demands unprecedented action," said Governor Brown. "Therefore, I'm issuing an executive order mandating substantial water reductions across our state. As Californians, we must pull together and save water in every way possible."

High resolution photos of previous snow surveys are available here.

For more than two years, the state's experts have been managing water resources to ensure that the state survives this drought and is better prepared for the next one. Last year, the Governor proclaimed a drought state of emergency. The state has taken steps to make sure that water is available for human health and safety, growing food, fighting fires and protecting fish and wildlife. Millions have been spent helping thousands of California families most impacted by the drought pay their bills, put food on their tables and have water to drink.

The following is a summary of the executive order issued by the Governor today.

Save Water

For the first time in state history, the Governor has directed the State Water Resources Control Board to implement mandatory water reductions in cities and towns across California to reduce water usage by 25 percent. This savings amounts to approximately 1.5 million acre-feet of water over the next nine months, or nearly as much as is currently in Lake Oroville.

To save more water now, the order will also:

-Replace 50 million square feet of lawns throughout the state with drought tolerant landscaping in partnership with local governments;
-Direct the creation of a temporary, statewide consumer rebate program to replace old appliances with more water and energy efficient models;
-Require campuses, golf courses, cemeteries and other large landscapes to make significant cuts in water use; and
-Prohibit new homes and developments from irrigating with potable water unless water-efficient drip irrigation systems are used, and ban watering of ornamental grass on public street medians.

Increase Enforcement

The Governor's order calls on local water agencies to adjust their rate structures to implement conservation pricing, recognized as an effective way to realize water reductions and discourage water waste.

Agricultural water users - which have borne much of the brunt of the drought to date, with hundreds of thousands of fallowed acres, significantly reduced water allocations and thousands of farmworkers laid off - will be required to report more water use information to state regulators, increasing the state's ability to enforce against illegal diversions and waste and unreasonable use of water under today's order. Additionally, the Governor's action strengthens standards for Agricultural Water Management Plans submitted by large agriculture water districts and requires small agriculture water districts to develop similar plans. These plans will help ensure that agricultural communities are prepared in case the drought extends into 2016.

Additional actions required by the order include:

-Taking action against water agencies in depleted groundwater basins that have not shared data on their groundwater supplies with the state;
-Updating standards for toilets and faucets and outdoor landscaping in residential communities and taking action against communities that ignore these standards; and
-Making permanent monthly reporting of water usage, conservation and enforcement actions by local water suppliers.

Streamline Government Response

The order:

-Prioritizes state review and decision-making of water infrastructure projects and requires state agencies to report to the Governor's Office on any application pending for more than 90 days.
-Streamlines permitting and review of emergency drought salinity barriers - necessary to keep freshwater supplies in upstream reservoirs for human use and habitat protection for endangered and threatened species;
-Simplifies the review and approval process for voluntary water transfers and emergency drinking water projects; and
-Directs state departments to provide temporary relocation assistance to families who need to move from homes where domestic wells have run dry to housing with running water.

Invest in New Technologies

The order helps make California more drought resilient by:

-Incentivizing promising new technology that will make California more water efficient through a new program administered by the California Energy Commission.

The full text of the executive order can be found here.

For more than two years, California has been dealing with the effects of drought. To learn about all the actions the state has taken to manage our water system and cope with the impacts of the drought, visit Drought.CA.Gov.

Every Californian should take steps to conserve water. Find out how at SaveOurWater.com.

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Media call: Agency officials discuss their role in addressing the drought
Maven's Notebook | April 1, 2015

This afternoon, agency officials held a media call to discuss their roles in addressing the drought as laid out in the Governor's executive order issued this morning. John Laird, Secretary of Natural Resources, welcomed everyone to the call and introduced the speakers but provided no other substantive comment.

The officials on the call were Mark Ghilarducci, Director of the Governor's Office of Emergency Services; Mark Cowin, Director of the Department of Water Resources; Felicia Marcus, Chair of the State Water Resources Control Board; Robert Weisenmiller, Chair of the California Energy Commission; Karen Ross, Secretary of the Department of Food and Ag, and Chuck Bonham, Director of the Department of Fish and Wildlife.

Here's what they had to say …

MARK GHILARDUCCI, Director of the Governor's Office of Emergency Services

As you probably know by now, the Governor participated in the snowpack survey and really confirmed what I think we all knew – that the snowpack is the lowest on record, and unfortunately, there doesn't appear to be any meaningful precipitation coming in our near future. This really spells out the fact that the situation is unprecedented and critical, and requires the actions of all hands on deck approach.

Over the last year, this drought has taken its toll on our cities, our farms, and our natural environment. The cascading impacts are having an effect on public health and safety, on our agriculture, and on our natural environment. Since the very beginning of the drought, our experts have been working around the clock managing our precious water resources and working to ensure that the state survives this drought and is better prepared for the next one.

During that time, the state is taken steps to make sure that water is available for human health and safety, growing of foods, firefighting, and protecting fish and wildlife. We've also spent millions of dollars helping thousands of California families most impacted by the drought to pay their bills, put food on their tables, and have water to drink.

Last year, as you may remember, the Governor asked all Californians to reduce their water use by 20%. Unfortunately, many haven't stepped up to meet that goal. This year has to be different. We are in a critical stage and conservation will be paramount. Now with no snow in the mountains and our reservoirs getting lower by the day, it's time to do more.

So with that setting the stage, I'm going to turn it over to Director Mark Cowin …

MARK COWIN, Director of the Department of Water Resources

As Mark points out, the Governor did participate in our snow survey this morning. I would think this is the first time that an active governor has participated in a snow survey, but I think there will be an asterisk in the record book because we didn't find any snow.

So this is obviously a very significant glimpse at our water picture this year. In normal years, we expect the Sierra snowpack will account for about 15 million acre-feet of storage. The fact that water content and snow for the northern Sierra looks like it will stand at about 6% of normal indicates that that big reservoir is near empty. So we will be consigned to the water we have in storage in reservoirs around the state now, as well as continued reliance upon groundwater to meet our needs this year for our cities and farms and for our environment, so the delicate balancing act that we have endeavored to pursue over the last few years continues and only gets harder over time.

With this executive order, we take very bold new steps, I believe, to change the way that we're using water in California. I will quickly describe some of the actions that the executive order includes where my Department is the action agency, and then others will get to some of those even more significant actions that are included in the executive order.

First off for the Department of Water Resources, we shall lead a statewide initiative in partnership with local agencies to collectively replace 50 million square-feet of lawns. This is essentially ornamental turf that uses a whole lot of water, and replace those with lawns with drought tolerant landscaping. I want to be clear that we're going to do this in partnership with local agencies so the additive amount will total a goal of 50 million square feet. The Department will be putting together its program over the next couple of months. We aim to try to provide these types of programs to underserved communities to complement some of the bigger programs that are already taking shape in local agencies around the state.

The second action that the Department will undertake is to update the state model water efficient landscape ordinance. Under legislation authored by then Assembly member Laird in 2006, the Department created a state model water efficient landscape ordinance that provided for requirements for new installations for landscaping in developments around the state. The idea was to provide for efficient irrigation of new landscaping and do all the types of things, including limiting acres or percentages of any landscape to high water use plants, and that ordinance has served us well. Local governments, cities, and counties have been required to either adopt that ordinance as part of their planning process, or adopt an equivalent ordinance that would provide the same amount of water efficiency. In the fourth year of this historic drought, we think it's time to improve the efficiency of all of our landscapes, so the Department will undertake and update of this ordinance again to increase the efficiency of irrigation systems, to improve gray water usage, improve onsite stormwater capture, and limit the portions of landscape that can be covered in turf. We will also be asking cities and counties to report on their implementation of this ordinance by the end of 2015.

The next action that the Department is responsible for is in advancing the role of our agricultural water management process across the state, so several issues here. First of all, 2009 legislation required local ag water suppliers that serve water to more than 25,000 irrigated acres to prepare agricultural water management plans that have specified requirements. Under this action in this executive order, we will add to those requirements a detailed drought management plan that will describe how individual ag water suppliers intend to strike the balance between supplies and demands in this significant drought. We're also going to extend the requirements to produce these plans to ag water suppliers that serve water to between 10,000 and 25,000 acres; so in other words, all of these requirements will now be applied to any ag water supplier that serves more than 10,000 acres.

In addition, the Department will target our grant funding to help develop and implement those drought management plans, particularly for those smaller ag water suppliers. We'll be asking for information on compliance and providing that information to the State Water Board.

Finally, we are in this fourth year of drought, preparing for the need the emergency drought salinity barriers in the Sacramento-San Joaquin Delta. The barriers would provide an opportunity to prevent salt water from intruding into the fresh water channels of the Delta and limit the amount of releases from our upstream reservoirs necessary in order to manage salinity in the Delta. That will allow us to keep more water upstream for cold water purposes for the benefit of many species of fish. This executive order will provide some regulatory streamlining to allow us to implement the barriers in a timely way if they are deemed necessary. That decision will be made over the course of April with barriers starting to be constructed in early May if indeed we need to go forward with that program.

The Department is also required to continue to expedite our consideration of water transfers, voluntary water transfers around the state and we have some regulatory streamlining included in the executive order to help us with that process.

So with that, I will turn it over to Felicia Marcus, chair of the State Water Resources Control Board …

FELICIA MARCUS, Chair of the State Water Resources Control Board

It's obvious we're clearly now in a drought like we've not seen before, nor have our parents our grandparents, so we do have to take actions that we haven't taken before. And it is always better to be safer than sorrier, and unfortunately, the voluntary efforts and the baseline regulations that have been in effect since last summer haven't really provided with the water savings that the situation now clearly warrants.

Many businesses and public agencies have asked us to set more aggressive statewide expectations and targets for conservation, so the first provision specific to the water board has to do with setting targets for statewide water restrictions. The goal in it is to get a 25% savings in urban water use, but the Governor also recognizes that different agencies have taken different levels of effort over the past decades, let alone during this drought, and so we'll be setting targets that take into consideration the current per capita use of water – meaning that we have to come up with a sliding scale where those who have been conserving longer and use less will have lower targets than those who have just started conserving or use more. That's the fairest and most effective way to go. A little bit complicated, but being fair is really important in this work.

It also means that a number of agencies are going to have to step up mightily compared to where they've been. Others who have been acting will still need to step up more, because it's important, given the severity of the crisis we're facing and the need to stretch our urban water resources for as long as possible, particularly if it doesn't rain next year in addition to this year, and we find ourselves in a more Australian style millennium drought.

There are a few provisions that are fairly specific. We will be looking at other specifics but a few are called out in the executive order. One is on commercial, industrial, and institutional properties with large landscapes – just a clear statement that they will at least need to meet the targets that we set for others. It is inevitable that local agencies will also no doubt focus on indoor use of water in the commercial,

industrial, and institutional sector, but it varies very greatly, and so that will be an area that locals will use to meet their targets, but in particular, it targets large ornamental landscapes that don't serve a purpose other than ornamental or they don't need to be lush and green in a time of severe drought.

There's also a provision to work on prohibiting the irrigation of medians with potable water; similarly in a time of severe drought, that seems to be a luxury that many residents and others have been complaining about. We will figure out how to target that one, and similar to all the landscape uses in a way that encourages people to save trees, but not unduly water lawns, because trees are important from a climate change perspective, but important in terms of public safety.

Similarly there is a provision to prohibit new home building with potable water not delivered by drip or micro spray. This is an opportunity in new buildings not to be profligate with our water use on ornamental landscapes. Unfortunately for the state of California, we have had quite a few new home starts and we predict even more for the next year, which is great for the economy but we might as well do it right as we go forward.

Another provision relates to water pricing. Water pricing is very much a locally set issue but it falls into the category of the most important tools for achieving water conservation, so we are directed to work with water suppliers to come up with a way to direct some kind of conservation rate structures. They can range from fees on the highest water users to allocation based rates, which some agencies have done, to budget based rates which others have done, and the goal is to be able to use that tool to garner greater conservation also to reward those who have conserved. It also is something that we know has some challenges based on Prop 218 so we will be working with local agencies to figure out the best way to be helpful to them in this effort. But it's a very important effort, not just for conservation, but also for assuring the financial stability of our water agencies during a time when conservation is called for.

Two more provisions. One is making permanent our existing rules on requiring urban water suppliers to report their water usage, their conservation rates, and their enforcement information. Clearly as we move into an area where droughts are expected to be more frequent, particularly in the situation such as we find this year where our snowpack is dismal because of hot temperatures, we're going to need all the information we can get to move forward. It's item #1 in the water action plan to make conservation a California way of life, and there's no time like the present to get going on our long-term as well as our short-term needs, and that reporting will certainly help us stay on track.

And then finally, Mark has mentioned a couple of the other ones that they are point on that we're back up for, is an order, provision #10, requires or gives us the ability to require more reporting and allow us the ability to do inspections, similar to what other agencies can do to better help us enforce the water rights system in California.

So those are the major ones are our plate … We'll turn it to our next speaker, which is Bob …

BOB WEISENMILLER, California Energy Commission

I'm going to cover the four things the energy commission is doing to help in this crisis.

First, the Energy Commission, along with DWR and the Water Board, will put in place a time-limited statewide appliance rebate program, and we're going to provide financial incentives for the replacement of inefficient household devices.

Second, the Energy Commission shall adopt on emergency basis regulations establishing standards that improve the efficiency of water appliances, including toilets, urinals, and faucets, available for sale and installation in any new and existing buildings in California.

The next thing we're going to do, the third item, is that we, along with the Department and the Water Board, will implement a water energy technology program, and we want to encourage the deployment of innovative water management technologies for businesses, residences, industries and agriculture. And we want to achieve water and energy savings and greenhouse gas reductions by accelerating the use of cutting edge technologies.

And finally, the Energy Commission is responsible for siting large power plants. In our decisions we specify exactly where the water comes from for those plants. We're putting in place an expedited process so if any of these power plants need to shift to other water sources, we can do that and also put in place mitigation measures.

So with that, let me now turn it over to Karen Ross …

KAREN ROSS, Secretary of Food and Agriculture

Everyone knows that drought is especially a hard hit for agriculture and our natural environment. Just a reminder of what the analysis of last year's drought impacts were when there were, for the first time, a zero allocation from the federal water project and significant allocation reductions by the State Water Project. We fallowed over 400,000 acres, primarily in the Central Valley. We also had the loss of about 17,000 jobs for our farmworkers within the Central Valley.

We know already that based on zero allocation of water from the federal project this year and only a 20% allocation from the State Water Project this year. In addition to cuts that have already been announced by local districts to better manage every drop of water that they do have, we will see even more significant hits this year.

Last year was a total of $1.5 billion in direct losses to the agricultural community. We anticipate hundreds of thousands of more fallowed acres this year, including additional pullouts beyond the 40,000 acres of trees and vines that were taken out last year. This will result in more jobs being lost, and that's farm and wage income that is not going to be spent in these local rural communities that are especially dependent on the agricultural community.

We also know that over time there have been great strides made in water use efficiency within the agricultural community, over the last two decades, agriculture is using 5% less water with 90% gains in economic activity and yield gains. It was for that reason that the state legislature and the legislation that the Governor signed on an emergency basis a year ago and again last week is making further investments in ag energy and water efficiency programs. Our first round of funding that was just completed is estimated to save over 317,000 acre-feet of water over the lifetime of those projects and we know that continuing to make these kinds of investments in technology and innovation, we will continue to be able

to provide the kinds of food crops that are only grown in California and enjoyed by consumers here and across the country.

And with that, I'll turn it over to my colleague Chuck Bonham …

CHUCK BONHAM, Director of the Department of Fish and Wildlife

Secretary [Ross] and I have had a conversation over these difficult four years about how drought is not an issue over who is impacted the most, but rather, drought is impacting all of us. It's not about people or the environment, fish or the farms, the task in front of us, how we make it through this together.

So as additional context for some of the impacts of drought, the facts are as strong and as stark for fish and wildlife as they are for people. Our Department has been running surveys in the Delta to monitor Delta smelt and longfin smelt, each of whom live almost the entirety of their life in the Bay Delta estuary. We've been doing those surveys for almost half a century; this fall and winter, we recorded the lowest ever number for Delta smelt and the second lowest ever for longfin smelt. And then just this spring and March, we completed our spring surveys for Delta smelt, we found the lowest number ever in our recorded history there, a number of 6. By way of comparison, last year we found 88. Now it's important to note these surveys aren't looking for every single fish; they are monitoring at defined locations year after year after year, we found the lowest numbers ever.

On the salmon front, we know that in the Upper Sacramento in our winter run Chinook salmon fishery, we had a 95% mortality rate for the young egg and fry in the 2014 year class. In plain English, our Department thinks that means we've seen potentially a collapse of our natural winter-run spawning stock. It's no better for birds, and it's even worse for the non migratory species like your garter snakes or your Amarosa volts.

In an extremely oddity example of the relationship of drought to people and wildlife, typically our Department may get a couple of phone calls about wildlife in urban areas in Bakersfield in any given year. This year, at the end of the fall and the beginning of the winter, we got about 100 calls, and in a week period, we moved 10 bears out of downtown Bakersfield.

So, if you care about fish and wildlife, every drop of water that we can save may be the drop of water that makes a difference and gives a fighting chance to those species who are struggling to survive during this fourth year of drought. So we're thankful to the DWR, SWB, the lead agencies expressed in this executive order, and all citizens of the state who can help us conserve more water.

And let me turn it back to our Director of the Office of Emergency Services, Mark Ghilarducci …

MARK GHILARDUCCI, Office of Emergency Services

So OES continues to coordinate the overall state's response, working with state and federal agencies and our local governments, and with the Governor's drought task force to implement these drought response strategies. As you remember, last year the Governor did issue an executive order which authorized OES to provide for a program called the California Disaster Assistance Act (CDAA), and this is special disaster funding that is made available to local governments for assistance in providing emergency drinking water supplies to households without water, and also for sanitation purposes. Eligibility for this

program are for those jurisdictions which include counties, cities, special districts, and private non-profits which have the authority to provide emergency water supplies in response to the threat of public health and safety.

Types of eligibility programs include emergency water supplies for sanitation, such as providing portable toilets, portable showers, or laundry services in centralized locations; the installation of temporary water tanks to provide potable water to households for drinking and/or sanitation; the installation of community tanks in central parts of communities for community use; and delivery of potable or bottled water under both the CDAA's program and through the SWRCB's drinking water program.

This program is being taken advantage of now in a number of places throughout the state, for example in Tulare and Tuolumne Counties, OES through CDAA is funding the purchase of the installation of tanks and providing bottled water delivery. In Tulare, for example, this is happening mainly in East Porterville, and two community non-potable large capacity water tanks have been installed and water delivery is taking place. In addition, Mariposa, Fresno, Kern, and Madera counties are beginning the process for rolling out similar programs.

Now in the current executive order, OES with housing and community and development will work jointly with counties to identify and where necessary provide temporary assistance for individuals or persons that may have to move from their homes or housing units due to a lack of water. Predominantly who are served by private wells that have gone dry, so this is a situation where a home could be theoretically red tagged because of the impact to its health and safety and it's not a secure environment, or to utilities with less than 15 connections where all available water has been exhausted.

All of this will continue to be coordinated both from the work that had been done last year where a number of the agencies working together did emergency water ties, and connections to ensure that what water was available was moved to where it was needed the most, but this year with the lack of precipitation, and very little or no snowpack to speak of, the conditions and the complexities are much worse.

So the effort will continue to be facilitated and coordinated through the drought task force and through the OES state operations center and regional centers in conjunction with all of the state agencies to be able to deal with the cascading impacts and work very diligently to stay out in front of this evolving crisis.

So with that …

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Governor Issues Mandatory Water Reductions
KQED Science | March 31, 2015 | Craig Miller

Scant precipitation combined with freakishly high temperatures put a double whammy on California's water supply. And when the Governor attended the last snow survey of the season today, he took the unprecedented step of ordering mandatory water reductions for the first time in California's history.

Included in the order: replacing lawns, creating a consumer rebate program for trading out water-guzzling appliances, requiring drip irrigation on new homes and developments, and requiring water cuts at golf courses and cemeteries.

Original Post:

We are officially in uncharted territory.

The Sierra Nevada snowpack, which typically supplies nearly a third of California's water, is showing the lowest water content on record: 6 percent of the long-term average for April 1. That doesn't just set a new record, it shatters the old low-water mark of 25 percent, which happens to have been last year's reading (tied with 1977).

Things are so bad that Governor Jerry Brown has decided to slog into the field for the manual snow survey on Wednesday morning. He won't need his snowshoes.

While the state's Department of Water Resources does monthly snow surveys during the winter season, the April 1 survey is the benchmark for assessing the season as a whole. That's when snowfall is reckoned to have peaked and the runoff season gets underway. Six percent on April 1 is essentially saying there's next-to-nothing to show for an entire winter's snow accumulation.

The snowpack has now seen four years of steady decline. 2013 was California's driest year on record. 2014 was dry too, but also the warmest on record, which combined for a one-two punch to California's water supply. In March, for example, both Sacramento and Redding logged average temperatures more than 10 degrees above normal, according to consulting meteorologist Jan Null of Golden Gate Weather Services.

"There will be consequences," says Mark Cowin, who heads DWR.

More than 400,000 acres of farmland were fallowed last year because of scarce water. Credible sources have estimated that figure could double this year.

"More impacts to farms where supplies will be shorted," predicts Cowin, "more local communities where wells will run dry, and we'll have to help assist them in some sort of emergency response, and more impacts to fish & wildlife, which is of course, very important."

Groundwater resources will be stressed even more, as water-constrained farmers turn up the pumps to offset cuts in allocations from state and federal water projects.

Though Cowin hastens to add that "the vast majority of our citizens will not run out of water," some already have, mostly in rural areas where wells have gone dry.

Urban water restrictions are bound to tighten this spring, though it remains unclear by how much. Despite recent intervention by state regulators, it remains largely up to local water districts what conservation

measures to take. In a recent statewide poll, 66 percent of respondents said that not enough was being done in their area in response to the drought.

“I hope that this will continue to be a wake-up call for people that things are different,” says Lester Snow, a former DWR chief who now heads the non-partisan California Water Foundation.

“And not only is it gonna be bad this year but let’s not pretend that next year’s gonna be a lot better,” he added. “This drought has revealed fundamental weaknesses in our drought management system, and we need to start addressing those weaknesses.”

Other impacts from the paltry snowpack will be more subtle, such as the loss of hydroelectric power. Less runoff coming down the hill, turning hydropower turbines means that utilities have to replace the electricity, which they usually do with natural gas-fired power plants. That wields a bigger carbon footprint and adds to Californians’ electric bills — $1.4 billion since 2012, by one estimate.

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Why Isn't Desalination the Answer to All California's Water Problems?
KQED Science | March 30, 2015 | Daniel Potter

The California American water company hopes to desalinate water from Monterey Bay. This drill site near the town of Marina is meant to prove they can access seawater from under the beach. (Luke Gianni/California American Water Co.)

The California American Water Company plans to desalinate water from Monterey Bay. This drill site near the town of Marina is meant to prove they can access seawater from under the beach. (Luke Gianni/California American Water Co.)

Nowhere near enough water has fallen on California in years, and there's nothing you can do to make it rain.

So where else can we get water? One idea gaining traction is desalination: converting seawater into drinking water. While desal has long been confined by steep costs and environmental concerns, even some critics now say it merits a place in the state's water portfolio.

South of Los Angeles, in the city of Carlsbad, what will be the nation's largest desalination facility is nearly ready. For roughly a billion dollars, the plant will produce 7 percent of San Diego County's water. In Santa Barbara, a plant built amid the drought of the early 1990's, and idled by the return of rain, could come back online soon and provide 30 percent of the community's water.

Farther north, another desalination plant is expected to serve several towns in Monterey County. Jason Burnett, the mayor of Carmel, sometimes acts as a kind of spokesman for the planned project — but he's hardly an evangelist.

"I'll say at the outset, I am not a fan of desal generally," says Burnett.

Apart from concerns about the expense, Burnett has a personal stake in desalination's environmental challenges. He's the son of two marine biologists, and his grandfather David Packard's Silicon Valley fortune was integral to founding the Monterey Bay Aquarium. Burnett himself worked on climate rules for the U.S. Environmental Protection Agency before becoming Carmel's mayor.

Carmel Mayor Jason Burnett stands on the beach where the Carmel River flows out to the Pacific. Burnett says he's not a fan of desalination, but the Monterey Peninsula is out of alternatives. (Daniel Potter/KQED)

Carmel Mayor Jason Burnett gestures toward the Carmel River, near its mouth at the Pacific. Burnett says he's not a fan of desalination, but the Monterey Peninsula is out of alternatives. (Daniel Potter/KQED)

"I've dedicated my professional life to working on climate change," Burnett says. "My family is very dedicated to the health of our oceans. So here I am advocating a project that has a large carbon footprint, and, if not done correctly, can hurt the oceans."

Burnett met me on a beach where the Carmel River flows out to the Pacific Ocean. Nearby, ladies in straw hats were hauling easels and paints out to the sand to capture the picturesque landscape. Wearing designer sunglasses and a crisp blue shirt, Burnett told me desalination was the community's last resort.

"We've explored a wide range of options," he says. "Everything was on the table — harnessing icebergs and bringing them down, filling up huge balloons of water from up north and bringing them down."

It came to desal because the area's for-profit water supplier, California American Water Company, was told it had to find a new source. For decades Cal Am had relied on the Carmel River, but then came a cease-and-desist order intended to protect the river's threatened steelhead trout. There were years of wrangling and competing designs. A deadline was set for the end of next year –- a deadline Cal Am's proposed desal plant will not hit. All the same, a plan is moving forward.

"This is, at its core," says Burnett, "an environmental project."

Intakes and Outfalls

There are three main environmental considerations when building a desalination plant: how seawater is brought in, how the drinkable water is separated out, and what happens to the salt afterward.

The simplest intake is essentially a straw in the ocean -– a design that risks trapping and killing sea life. One solution is to affix a grate to the end of such a pipe, but even then, tiny larvae and fish eggs can still be sucked in. Instead, regulators tend to prefer what's known as a "subsurface intake."

At a cement company's beachside site on Monterey Bay, California American is currently working on a proof-of-concept for this approach. They're using directional drilling, similar to the technology oil companies use to extract fossil fuels. The idea is to run a slant well hundreds of feet out, passing beneath the dunes to a spot under the waves. From below 200 feet of sand, and well insulated from any vulnerable sea life, Cal Am hopes to suck up a couple thousand gallons of water per minute.

California American is using directional drilling extend a pipe some 735 feet under the beach, in hopes of sucking in a couple thousand gallons of seawater per minute from below the ocean floor. (Luke Gianni/California American Water Co.)

California American is using directional drilling extend a pipe some 735 feet under the beach, in hopes of sucking in a couple thousand gallons of seawater per minute from below the ocean floor. (Luke Gianni/California American Water Co.)

It will take a huge amount of power to pump that much water, that far.

"Our energy bill is going up, no question," an engineer on the project told me.

This is the second concern with desalination: once the seawater gets to the plant, it has to be pushed through membranes fine enough that salt can't pass through them. That requires immense pressure – on the order of a pressure-washer.

An official at a smaller desal facility told me it took $25,000 of electricity per month to produce enough water for 1,200 homes. In Cal Am's case, they're hoping to reach a deal to power the plant using methane from a nearby landfill.

One other still-tentative design element addresses the third challenge of the desalination process: all that salt has to go somewhere.

Only about half of the saltwater piped into a desal plant is made drinkable. All the salt that's separated out ends up concentrated into the other half, in a kind of brine that's much denser than seawater. As a result, it doesn't easily mix back in.

If it's just dumped carelessly back into the ocean, it sinks, and can kill any marine life having the misfortune of dwelling on the seafloor below.

Blending the briny byproduct back into the ocean may involve sprayers, or in Cal Am's case, an existing outfall that the nearby Monterey Regional Water Pollution Control Agency uses to dispose of wastewater. It's a pipe that runs thousands of feet out to sea, with small holes spaced ten feet apart, so not too much brine would pour out in any one place.

The desal facility isn't expected to start delivering water to customers for several years, and in the meantime, it has to navigate a regulatory thicket of needed approvals.

Optional or Inevitable?

In recent years, desalination projects were considered in places like Marin County and Santa Cruz, only to end up sidelined amid skepticism. Between the environmental headaches and the cost of engineering work-arounds, critics argued the technology is often more trouble than it's worth.

To the extent that conservation's an option, it's much simpler and cheaper to do. Mayor Burnett says the towns along the Monterey Peninsula have just about wrung out that sponge for all it's worth: people there get by on 60 gallons per day — less than half what many Californians use.

Susan Jordan with the California Coastal Protection Network is a longtime critic of desal. She says, indeed, communities should first exhaust their other options.

"If you're going to do something like desal," Jordan says, "you want to make sure you're doing everything you can in terms of conservation, water recycling, water re-use, and you don't want unsustainable development that just perpetuates your problem, or the state's problem."

That question of what constitutes sustainable development underpins the debate around desal. The counter-argument I heard from Scott Maloni, vice president at Poseidon Water, is: what if there are no alternatives?

"The larger concern is climate change, and what happens ten years from now and twenty years from now," says Maloni, whose company is building the big plant outside San Diego and hopes to add another like it in Huntington Beach. "Can you really count on the Colorado River or Northern California to continue to supply the vast majority of the state's population with water?"

I asked several people what percentage of California's overall water portfolio desalination might someday make up, and only Maloni was willing to venture a guess. He says such plants are most efficient when they're built big, thereby reaping economies of scale. Between that and the stringent permitting process, he says, you could probably count the number of viable sites on two hands.

"And so I think you could be looking at somewhere between 10 to 20 percent of the state's municipal and industrial demand," Maloni says.

It's worth noting that would seem to leave out agriculture; Maloni envisions desal serving the state's coastal urban populations.

Maloni and several others I spoke with also made the point that, while the technical challenges of designing and constructing an environmentally sound desalination plant are serious, the permitting process is lengthy and could well last longer than the drought itself.

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Mercury News editorial: Jerry Brown's lame response to California's drought
San Jose Mercury News | March 23, 2015

California is in a drought of historic proportions with no end in sight. Scientists and political leaders, including Gov. Jerry Brown, agree. The governor called an official state of emergency way back in January 2014 -- but you wouldn't know it from his actions since.

Lame doesn't begin to describe Brown's failure to show leadership on this threat to the state's long-range future that's easily as dire as the massive budget deficit he inherited in 2011.

For example:

• A governor who was serious about conservation would be offering tens of millions of dollars in incentives to urban water users to replace water-wasting toilets, shower heads, dishwashers and washing machines with state-of-the-art, low-flow products.

Instead, Brown's Water Resources Control Board is requiring restaurants to fill customers' water glasses only if they ask and telling hotels to offer guests only one towel during their stay unless they request a fresh one. Oh, the pain of sacrifice.

• A governor who was serious about conservation would be helping farmers finance drip-irrigation systems and ordering immediate restrictions on groundwater pumping to protect California's long-term water needs. Only 40 percent of California farmers now use low-volume systems -- and 80 percent of the state's water goes to agriculture. Reducing the use of flood irrigation in the Central Valley is the state's greatest water-saving opportunity.

Instead, Brown last week offered up $660 million from funds approved nearly a decade ago to be used on flood control projects. Yes, that's a drought response, since parched land combined with ground subsidence from over pumping makes some areas more prone to flooding -- but it is not a water-saving strategy. It's money that should have been spent by now.

• A governor who was serious about conservation would have ornamental lawns in his cross hairs. The green expanses at corporate campuses, look-don't-touch home lawns and other grassy places where no kids play nor families picnic are an embarrassment in a state where, even in wet years, it doesn't rain from May to October. Parks, golf courses and ballfields should stay green, but using only recycled water.

Instead, Brown's Water Resources Control Board is telling water agencies like the Santa Clara Valley Water District to limit watering lawns to two times a week or hit owners with a $500 fine -- but allocating no money for enforcement. Agencies like this don't maintain personnel or systems to deal with enforcement, and the governor knows it. He's still relying on Californians' goodwill. And we know how well that's worked over the past year, when his 20 percent reduction goal was widely greeted with yawns.

Water experts and environmentalists are at a loss to explain the governor's uncharacteristic caution, if not indifference. But conspiracy theorists are all over it. Try this out: If California's urban and ag interests make major gains in conservation -- which we all know are broadly possible -- that will undercut their willingness to pay for the massive, $25 billion Delta twin-tunnels Brown wants to build to ship water to the Central Valley and Southern California.

More likely, Brown is distracted by other priorities and has been slow to refocus on something that's not a flashy legacy project like the tunnels or high-speed rail. But this generally forward-thinking, environmentally aware governor -- one of the smartest politicians in state history -- has to realize that the longer we wait to get started, the more draconian limits on water use need to be, and the more development will take place with huge lawns.

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