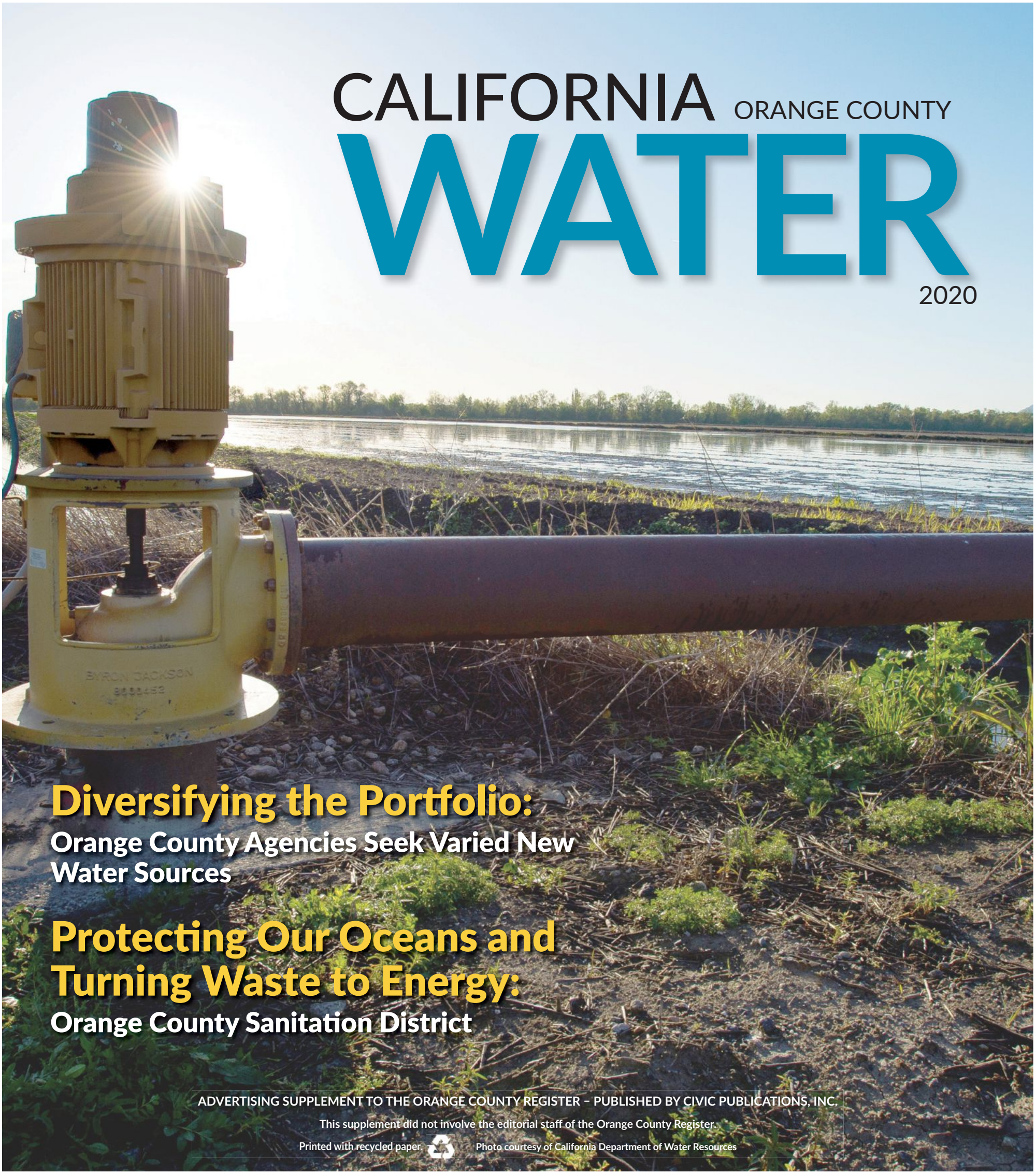
CALIFORNIA ORANGE COUNTY WATER

2020



Diversifying the Portfolio:

Orange County Agencies Seek Varied New Water Sources

Protecting Our Oceans and Turning Waste to Energy:

Orange County Sanitation District

ADVERTISING SUPPLEMENT TO THE ORANGE COUNTY REGISTER – PUBLISHED BY CIVIC PUBLICATIONS, INC.

This supplement did not involve the editorial staff of the Orange County Register.

Printed with recycled paper.

Photo courtesy of California Department of Water Resources

FROM THE PUBLISHER

I began attending water and wastewater meetings in the early 1990s and over these many years, it has been my great pleasure to meet and interact with some of the great leaders of the last half century. People who imagined, and then helped build, some of the greatest engineering achievements of our time. And these projects were not simply technical marvels, they have helped drive our lifestyle and economy in Orange County for decades and are a big part of our future.

Since that time, I have remained an admirer of the forward-thinking work of our local agencies. With life-giving services on the line, challenges come from myriad places. As the last several weeks have shown, life-changing events can strike quickly. And while not everything rises to the level of a pandemic (thankfully!), we are well advised to remember that events beyond our control not only can happen, but likely will.

In the world of water and wastewater infrastructure, we can already identify many challenges. Climate change represents an ongoing, even evolving, concern. Natural disasters, particularly earthquakes in sensitive areas like the Delta, loom as potential disruptors of even the most basic elements of our systems. And all the while the population grows, relying on continually aging infrastructure.

"I have remained an admirer of the forward-thinking work of our local agencies."

Adding a layer of complexity for our leadership is the somewhat "invisible" nature of their work. Even with the rigorous water-use efficiency mandates imposed by the state a few years back, most of us still use this precious resource with little thought about the people, planning, and execution that goes into providing it. Outside of a pipe bursting in the middle of a street or a sewer backup, we think even less about the extensive infrastructure that serves our homes.

I am hopeful that through this publication you might gain a bit of valuable insight about these critical, if often overlooked, issues. But more than that, I hope you gain a greater appreciation for the work of our great leadership in this county and the work they are doing today to ensure a brighter tomorrow.

The ability to endure, and even succeed, during times of crisis is a hallmark of great leadership. In this publication, we aim to spotlight some of the innovative and visionary work of Orange County's water and wastewater agencies. ❍

Enjoy and stay safe!
Sean Fitzgerald, Publisher

How Water Will Continue to Shape Orange County

A Well-Managed, Diversified Supply is Essential Now and into the Future

By Elizabeth Smilor
Special Sections Writer

Just as it carved through land, water shaped Orange County's past and will be an integral part of its future.

The Santa Ana River was a lifeline for early Native American tribes and then for settlements of the Spanish conquistadors and missionaries. The river and underground wells supported vast agricultural fields and fledgling towns until the early 1900s. However, Orange County's dramatic transformation during the past century from largely agricultural land to sprawling neighborhoods and business districts also radically changed the water system.

In the 1920s, it became clear that local water supplies could not support the growing area. In 1928, 13 cities from Los Angeles and Orange County, including Santa Ana, Fullerton and Anaheim, formed the Metropolitan Water District of Southern California. Metropolitan's key water lifeline was the Colorado River Aqueduct, which opened in 1939. In the 1970s, the county would begin receiving water from the State Water Project that delivers water from Northern California. Today, nearly 50 percent of Orange County's water is imported.

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is an advertising supplement published by Civic Publications, Inc. ©2020.

For comments or questions, email Sean Fitzgerald at sean@agndm.com.

At left, a comical, colorized postcard shows people swimming in an irrigation ditch in Fullerton. Bottom left, a 1930s Colorado River Aqueduct publicity booth. A historical photo of a man beside a reservoir outlet is shown above. Below are more historical photos of water system infrastructure development in Orange County provided by the Orange County Water District.

To move all this water, vast pipelines were built and many water agencies were formed to manage water systems. These agencies, though, do not only bring water to the county from far-flung sources, they also develop, improve and create local supplies. In fact, the innovative work of Orange County's water agencies has won many accolades, especially in the areas of groundwater management and recycled water.

"Orange County has to build its own rivers, so to speak," says Rob Hunter, general manager of the Municipal Water District of Orange County (MWDOC), which was formed and became a Metropolitan member in 1951. "With roughly half of Orange County relying on imported water from the Bay Delta and Colorado River, OC water leaders have been at the forefront of water resources and planning internationally."

Another key agency was formed back in 1933 for a different purpose. The Orange County Water District was created by the California State Legislature to manage the Orange County Water Basin. This vast and well-managed groundwater basin provides 75 percent of the water supply for north and central Orange County. In partnership with the Orange County Sanitation District, OCWD created and plans to expand the Groundwater Replenishment System, which uses advanced purification to create potable water from wastewater. This water replenishes the groundwater basin and ensures reliability for the future.

It is important to note that the water outlook is much different in south Orange County, which does not have a groundwater basin as its geology doesn't allow for much water to percolate underground. The agencies supporting south county cities, while much more dependent on imported water, were early innovators in water recycling. The Irvine Ranch Water District pioneered the use of recycled water for non-potable uses dating back to the 1960s. Today, 85 percent of Irvine's green spaces are irrigated with recycled water and many high-rises use it to flush toilets.

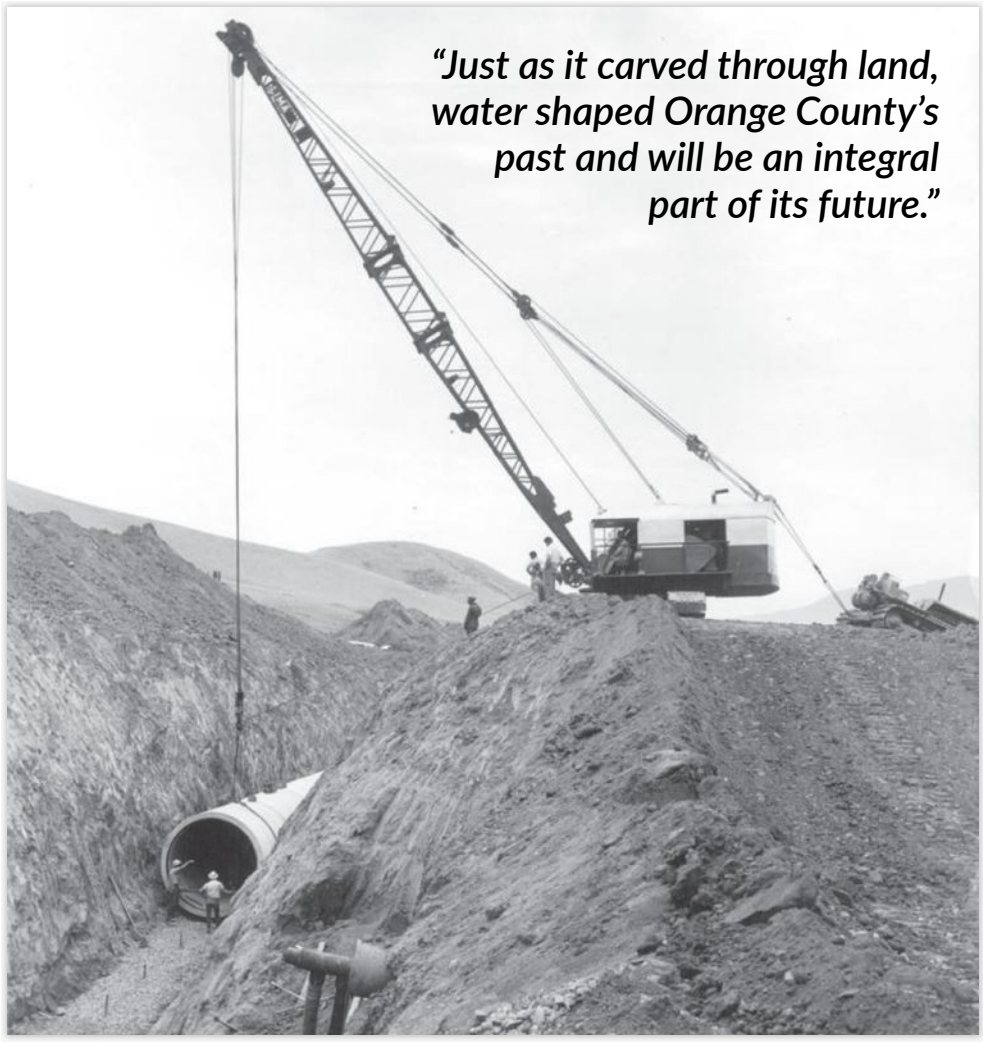
Other south county water agencies have also embraced water recycling to lessen their dependence on imported water. Santa Margarita Water District has one of the largest recycled water programs in the county and this summer will complete the county's largest recycled water reservoir, Trampas Canyon Dam and Reservoir.

"Right now, because we don't have enough storage, we're sending water to the ocean during the wintertime," said Dan Ferons, general manager of Santa Margarita Water District. "Trampas will allow us to store recycled water for later beneficial use. It is important for us to diversify supplies, so that if one is out, there is another."

South Coast Water District, along with recycling water, is looking to the ocean for future water reliability. The proposed Doheny Ocean Desalination Project would create a new, local emergency backup water supply.

Looking to the future, Orange County's water leaders understand the importance of re-using and storing as much water as possible. They also know they will continue to need imported water, so they look to the north and support efforts to improve infrastructure, especially in the critical San Joaquin-Sacramento Delta. With climate change and the ever-present threat of earthquakes, a modern and reliable system is paramount.

As reflected in the history of Orange County, the local agencies continually focus on the road ahead. Their foresight created a system that fuels our lives and economy. Their management and vision will continue to drive innovation and success for generations to come. ❍



Secondary clarifiers are part of the wastewater treatment process removing organic materials that were not removed through primary treatment. Treated water is then sent to the Groundwater Replenishment System for recycling or is released into the ocean.

Remember... Flush Only the Three Ps

As we all know, the pandemic has generated a shortage of toilet paper leading people to use alternatives such as wipes, paper towels, and even rags. Wipes, even those labeled "flushable" should not be flushed as they do not disperse like toilet paper. Flushing items other than the 3Ps can cause major sewer blockages and spills, resulting in expensive problems at home and for us at the treatment plant.

The only things that should be flushed are the 3Ps ... PEE, POOP, and toilet PAPER. Want to learn more, explore the What2Flush site at **www.what2flush.com**.

Help us spread the word by sharing the 3Ps message on social media and with your friends and family. Tag us @OCSewers and use the hashtags #What2Flush and #The3Ps when posting.

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The Silent Utility

Orange County Sanitation District Provides Vital Wastewater Treatment and Recycling

Even though most people don't think much about it, wastewater collection and treatment is an essential service that must operate 24 hours a day, 365 days a year. "For more than 65 years we have been protecting public health and the environment by providing effective wastewater collection, treatment, and recycling," said Orange County Sanitation District (OCSD) General Manager James Herberg. "More than ever, we recognize the importance of operating our utility in a way that benefits not only our existing customers, but future generations as well."

James Herberg

Each day, OCSD treats approximately 185 million gallons of wastewater from residential, commercial and industrial sources at two plants: Reclamation Plant No. 1 in Fountain Valley and Treatment Plant No. 2 in Huntington Beach. This wastewater comes from about 2.6 million people living within a 479-square-mile area of central and northwestern Orange County that includes 20 cities. Overall, OCSD's wastewater collection facilities include 389 miles of sewer pipes and 15 pump stations.

"... we recognize the importance of operating our utility in a way that benefits not only our existing customers, but future generations as well."

– OCSD General Manager James Herberg

This sewer pipe network conveys the wastewater to the treatment plants. There, it goes through a series of processes before being either released to the Pacific Ocean or sent to the Groundwater Replenishment System (GWRS). OCSD is an industry leader in employing innovative technologies to treat and recycle wastewater as well as protect the environment.

GROUNDWATER REPLENISHMENT SYSTEM

OCSD and the Orange County Water District (OCWD) jointly sponsor the GWRS, enhancing water supplies by providing a reliable, high-quality source of water to recharge the Orange County Groundwater Basin and protect it from seawater intrusion.

OCSD sends 130 million gallons a day of treated wastewater to the GWRS, which produces up to 100 million gallons a day of purified water that meets or is better than drinking water standards. This is enough new water for nearly 850,000 residents in north and central Orange County.

OCSD and OCWD are working together to complete the GWRS Final Expansion. When complete in 2023, the expanded system will supply enough water for 1 million residents in north and central Orange County.

"In everything we do, we are ensuring that public health and the environment are protected…"

– OCSD Board Chairman David Shawver

David Shawver

PROTECTING OUR BEACHES AND OCEAN

OCSD also collects and treats up to 10 million gallons per day of dry weather urban runoff to help protect local beaches from contamination. The high beach water quality grades in Orange County demonstrate the effectiveness of OCSD's Urban Runoff Program in protecting our beaches.

As a part of OCSD's water quality monitoring program, OCSD staff collects ocean water samples from Seal Beach to Crystal Cove and conducts over 100,000 tests annually at our nationally certified laboratory facility in Fountain Valley.

On board the Nerissa, OCSD's 60-foot ocean research vessel, staff samples 38 square miles of ocean, testing and monitoring sea life and sediments from the ocean floor to make sure no pollutants cause harm to marine life.

"In everything we do, we are ensuring that public health and the environment are protected, and that our water resources are enhanced," said OCSD Board Chairman, David Shawver. ❍

The Orange County Sanitation District (OCSD) is a special district governed by a 25-member Board of Directors comprised of 20 cities, four special districts, and one representative from the Orange County Board of Supervisors.

The Central Power Generation System has eight clean burning, internal combustion engines that power generators producing more than 60 percent of the power required to run our two treatment plants in Huntington Beach and Fountain Valley. This system is fueled by renewable methane generated in OCSD's anaerobic digesters.

Solids captured from the treatment process are loaded into anaerobic digesters where they are heated to about 98 degrees and treated for 18-21 days. The digestion process produces methane gas and a material called biosolids which are composted and used as a soil amendment.

Keeping Water Close to Home

Santa Margarita Water District Projects Will Lessen Reliance on Imported Supply

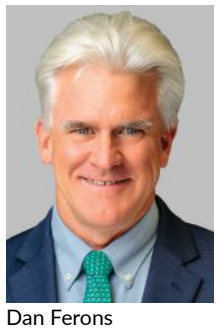
By Elizabeth Smilor
Special Sections Writer

"Our primary sources of water are hundreds of miles away … If you're going to bring water from 400 miles away, you ought to reuse it as many times as you can before you let it go."

– SMWD General Manager Dan Ferons

Santa Margarita Water District, which supplies water to more than 170,000 residents in southern Orange County, is developing water supplies that are closer to home.

"Our primary sources of water are hundreds of miles away," said General Manager Dan Ferons, explaining that nearly 100 percent of the district's drinking water comes from Metropolitan Water District of Southern California.


Dan Ferons

To diversify its water supply by 2030, the district has three strategic goals: develop 30 percent alternative supply; re-use 100 percent of its recycled wastewater; and have a six-month storage capacity. All these objectives are interconnected and have produced innovative projects.

"That 30 percent will meet indoor-use needs, so in the case of a major emergency, our customers could still shower, wash clothes, do dishes and other household activities; and, there is water in the system for healthcare use and fire protection," Ferons said.

Imported water comes from the Colorado River and from Northern California via the State Water Project and is distributed via hundreds of miles of pipeline and aqueducts. Ferons says a local supply would, instead, be within 20 miles of the district's service area, which currently covers Mission Viejo, Rancho Santa Margarita, Coto de Caza, Wagon Wheel, Las Flores, Talega, Ladera Ranch, and Rancho Mission Viejo.

KEEPING WATER LOCAL BY RE-USING IT

The district recycles over 2 billion gallons of water a year, one of the largest recycled water programs in Orange County, with urban return projects as well as three wastewater reclamation plants.

"If you're going to bring water from 400 miles away, you ought to reuse it as many times as you can before you let it go," Ferons said. "Recycling also helps reduce our need for imported water." One quarter of the District's total water demands are met with recycled water.

When completed this summer, the Trampas Canyon Dam and Reservoir, at far left, will hold 1.6 billion gallons of recycled water. Above, the Gobernadora Multipurpose Basin south of Coto de Caza collects 244 million gallons of urban return flows and stormwater for irrigation use throughout the community. Lake Mission Viejo, below, is California's first recycled water recreational lake.

However, not all the recycled water is currently used due to a lack of storage capacity in the service area. During the winter months, more wastewater is generated than recycled water is needed which results in the district discharging the excess to the ocean, roughly 20 percent.

This summer the district will complete Orange County's largest recycled water reservoir, Trampas Canyon Dam and Reservoir, which will store over 1.6 billion gallons of recycled water. This $93-million project will translate to a year-round supply of water for irrigation and other non-potable uses, and lessen the need for imported drinking water It may one day, serve as a drinking water source.

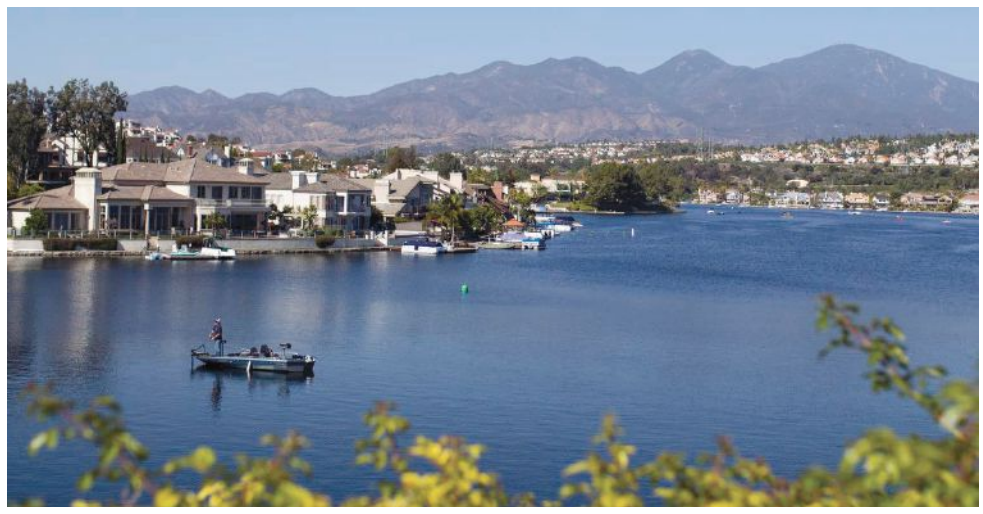
Trampas reservoir will also help to recharge the San Juan Creek watershed, a groundwater basin described by the district as its "best alternative water supply." The San Juan Watershed Project is a multi-phase project that will enhance water reliability by capturing local stormwater runoff as well as directing recycled water into temporary storage and using it to recharge the underground aquifer. When completed, the San Juan Watershed Project will be able to provide about 5.6 billion gallons of additional local, reliable water. That's enough water for 50,000 families each year.

"San Juan Watershed can become that backbone reliability for us," said Ferons, adding that the district is currently in the process of annexing the city of San Juan Capistrano's water and sewer utility, which includes a groundwater treatment plant virtually on San Juan Creek. "It's the best alternative for us in the short term because it's locally controlled and we can keep costs reasonable."

SAVING A COMMUNITY LAKE AND PROTECTING WILDLIFE

In addition to creating a regional water supply that will be treated for potable use in the long-term, the district has been enhancing communities and the environment since the 1970s. Through four runoff diversions/basins, the District captures and reuses over 500 million gallons of urban return flows a year.

The district worked with the city of Mission Viejo and the Lake Mission Viejo Homeowners Association to create California's first recycled recreational lake. Up against pressure from the state during the most recent drought to stop filling the lake with imported drinking water, the groups built an Advanced Treated Water Facility to refill the lake. The water is safe for swimming and preserves an important community feature, Ferons said.



Santa Margarita Water has also been recognized for being an environmental steward. The districts long-time urban return flow capture efforts have created a renewable water source and protected local habitat areas. The Gobernadora Multipurpose Basin south of Coto de Caza treats urban runoff for irrigation use and also reduces downstream erosion and sedimentation. The Dove Canyon Conservation and Water Recovery Project, a partnership with Trabuco Canyon Water District and Audubon Starr Ranch Sanctuary, is helping to preserve a delicate habitat along Bell Creek.

"So, together we were able to show the benefits of that capture from an environmental as well as a water supply perspective," said Ferons.

Santa Margarita Water has been providing safe drinking water to its customers for more than 50 years and will continue to pursue innovative ways to conserve and recycle water to serve south Orange County's needs into the next century. ❍

TURF REMOVAL PROGRAM (TRP)

The Municipal Water District of Orange County (MWDOC), the Metropolitan Water District of Southern California, and your local water agency invite YOU to participate in the **Turf Removal Program**! Use up to 70 percent less water outdoors by replacing thirsty turf grass with a beautiful, climate-appropriate landscape.

Space is limited. Apply today!

- Rebates available starting at **$3 per square foot** of turf removed
- **FREE** customized design assistance and maintenance programs also available to **Turf Removal Program** participants
- Save **water**, save money, and save time on maintenance
- Fall is the best time to plant new landscapes and gardens!

LANDSCAPE DESIGN ASSISTANCE PROGRAM (LDAP)

MWDOC has collaborated with top landscape designers to create **FREE** landscape designs for **Turf Removal Program** participants! Designs are tailored to **YOUR** property and personal style showcasing plants that thrive in Southern California's semi-arid climate.

What's Included:

- **FREE** landscape design from a qualified professional
- 1-on-1 onsite landscape design consultation
- Recommended plant palette
- Irrigation plan and materials list

LANDSCAPE MAINTENANCE ASSISTANCE PROGRAM (LMAP)

MWDOC offers FREE custom landscape maintenance plans for Turf Removal Program participants to help sustain a beautiful landscape all year long.

What's Included:

- **FREE** landscape maintenance guide from a qualified professional
- 1-on-1 onsite maintenance plan consultation
- Recommended irrigation controller settings
- Personalized plant care recommendations for the plants in **YOUR** landscape

Limited availability for Turf Removal Program participants. **APPLY TODAY!**

For more information, visit mwdoc.com/turfremoval

Delta Conveyance – Doing Nothing is Not an Option

It's Time to Do What is Right for All Californians

One thing that can be relied upon in the confusion and uncertainty of the coronavirus (COVID-19) pandemic, is the uninterrupted delivery of safe, clean tap water to homes and businesses. The Municipal Water District of Orange County (MWDOC), along with water providers in Orange County, are thankful COVID-19 has not affected drinking water supplies. Now, as always, we are supporting our 28 member water agencies in Orange County to reliably serve their customers.

In response to COVID-19, the Water Emergency Response Organization of Orange County (WEROC) has been activated. WEROC is a program administered by MWDOC that is responsible for coordinating the management of countywide emergency preparedness, planning, response, and recovery efforts for 35 Orange County water and wastewater utilities. The WEROC team is coordinating communication efforts, and responding to the needs of our members, as well as to county health officials and first responders during this unprecedented crisis. Our Emergency Operation Center is the centralized hub for water and wastewater emergency coordination efforts, and WEROC is ready to respond to any emergency that has the potential to impede water supplies and wastewater service.

It was not long ago that we faced a major challenge in the water industry: drought. The historically severe drought conditions taught us many lessons, including the need to continue to improve our daily water-use habits. The California Water Resilience Portfolio, drafted in response to an executive order from Governor Gavin Newsom last year, warns: "California confronts more extreme droughts and floods, rising temperatures, depleted groundwater basins, aging infrastructure and other challenges magnified by climate change." It calls for "a broad, diversified approach" that includes not only more storage, but expanding supply sources, improving natural systems where possible and building infrastructure to more easily move water from where it is to where it's needed.

To meet the future needs of Orange County and assure service during potential major supply disruptions, we must ensure a robust portfolio of water supplies including imported water from the Colorado River and State Water Project, recycled water, groundwater, runoff capture, and saltwater desalination.

One vital water infrastructure project identified in the Governor's Portfolio is the Delta Conveyance Project, which would carry Sacramento River water through a tunnel under the Sacramento-San Joaquin Delta. About 30 percent of Southern California's water is delivered from Northern California through the Delta. This project, which may take 15 years to construct, has been needed for over 40 years. It would allow for greater capture and storage of stormwater during the wet season, and reduce adverse fishery impacts from the State Water Project. It would also address the ever-increasing threat to the State Water Project from sea level rise, and protect against the inevitable earthquake that will inundate the Delta Islands with seawater.

The Delta Conveyance Project is in the early stages of environmental review and includes the companion California EcoRestore program that will monitor and guide habitat management and restoration efforts. However, a bevy of lawsuits are being filed on all sides of the project. State and Federal proponents are now filing to protect their investments and interests. This can, and will, only result in more time and money wasted, with the only losers being the people and businesses of California, and the fragile environment of the Delta. The State and Feds need to turn away from the path of litigation and look towards productive discussions for the benefit of the environment, agriculture and urban water users. Let's do what is right for all Californians based on the current and best science. MWDOC's Orange County Water Reliability Study has used that science to determine that Delta Conveyance is the single most important project to ensure reliable water deliveries for the next 50 years and beyond.

My hope is that with the Delta Conveyance, EcoRestore, local projects, and continued efforts in water efficiency we will secure water supply reliability for future generations.

Sat Tamaribuchi
MWDOC Board President
Division 5

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South Coast Water District Focuses on Water Reliability

South Orange County is not as fortunate as north Orange County in two very critical ways. First, south Orange County has virtually no aquifers, leaving us to obtain 85 to 100 percent of our drinking water from the Colorado River or Northern California via the State Water Project. By contrast, north Orange County gets 75 percent or more of its drinking water from groundwater aquifers. The good news is South Coast Water District (SCWD) has been a leader in water sustainability for decades. We currently recycle 70 percent of the sewage (with plans to recycle 100 percent in the next 10 years) into the Coastal Treatment Plant for extensive landscape irrigation. SCWD also has one of the lowest water loss levels of any water system in Orange County and the state, which is indicative of a very well-maintained system.

At SCWD, our goal is to diversify our water portfolio for three critical reasons. First, we want to be ready for a large earthquake that could cut our drinking water supplies by 85 percent for 60 days or more. Secondly, we want to create a high-quality, safe, drought-proof and locally controlled water supply. We don't want to be severely limited or cut off from water supplies. The third and final reason is economic. We are striving to insulate the District's residences and resort-area businesses from the significant economic impacts of a prolonged water outage from a catastrophic interruption of imported water supplies from the Sacramento-San Joaquin Delta and Colorado River shortages, or extreme water conservation. Sacramento-San Joaquin Delta and Colorado River shortages, or extreme water conservation.

Would it surprise you to learn that SCWD, like our other south Orange County agencies, only has 10 to 20 days of emergency water storage? State and regional planning guidelines dictate a minimum of 60 days (or two months) of emergency storage for a catastrophic interruption of our imported water supplies.

From a regional perspective, the reality is that a 7.8 earthquake could sever the State Water Project aqueduct connecting us to our Northern California water supply. Cutting off water supply to Southern California would affect 18 to 22 million people. Rebuilding the aqueduct could take more than a year, and it would cost the California economy billions of dollars.

All water agencies are actively seeking ways to lessen our dependence on imported water. New local water supply projects are needed to meet Orange County's water demand, especially in south Orange County. All of us must assume responsibility for taking control of our water supply, continuing to focus on how we can conserve, and looking for new sources of water for our communities. Drought is the "new normal," and we need to prepare accordingly.

A survey found Californians are firmly in favor of water desalination. An overwhelming majority want to see the state approve more desalination plants. Notably, nine out of 10 voters (90 percent) favor desalination efforts, including a majority (56 percent) that actively supports these efforts. Conversely, just 5 percent of voters oppose desalination efforts, while 5 percent of voters are undecided.

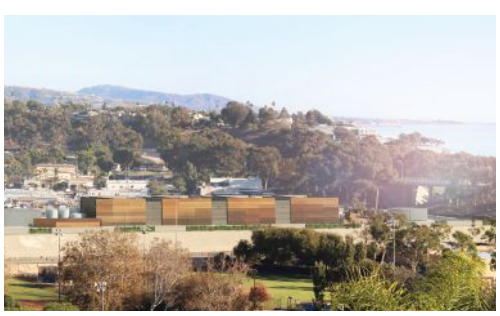
South Coast Water District's Board of Directors has certified an environmental impact report for a proposed ocean water desalination facility in Dana Point. The facility would have an initial capacity of up to 5 million gallons per day; an equivalent water supply for more than 15,000 average homes, with potential for future expansions to serve the greater south Orange County region.

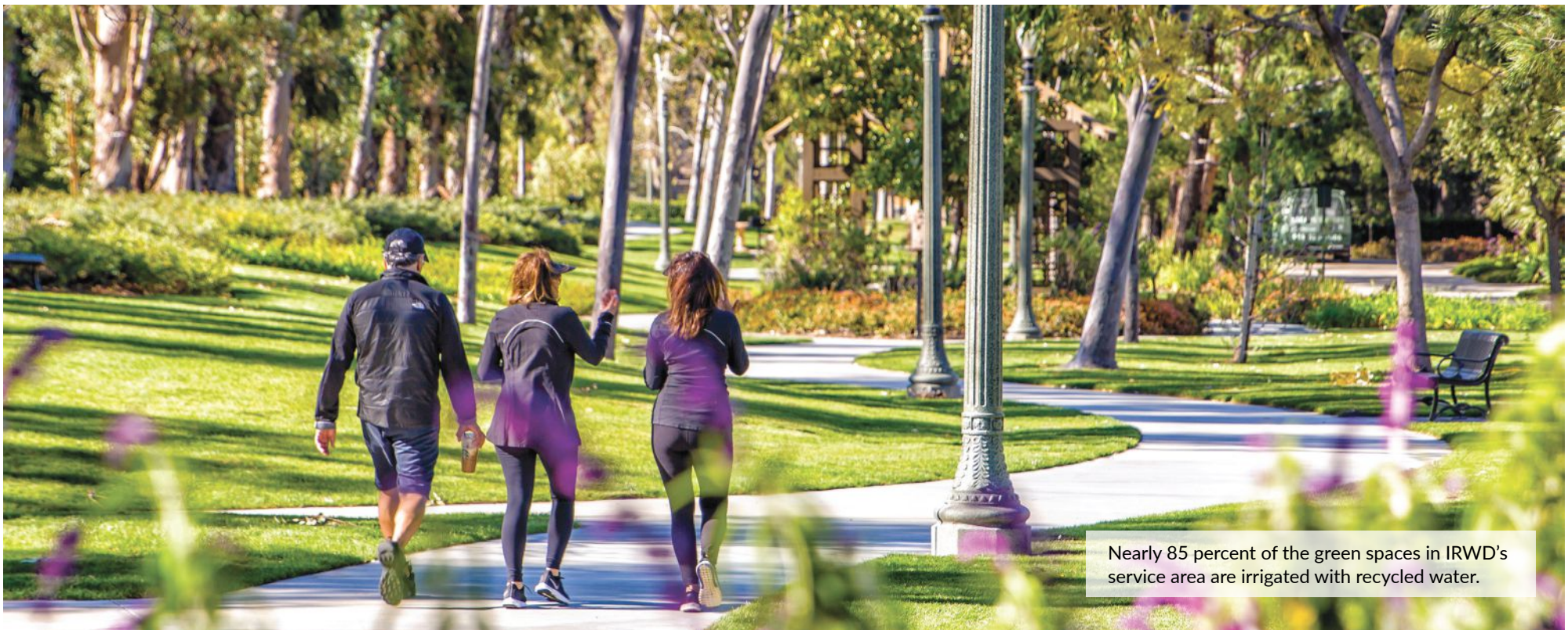
"The Doheny Ocean Desalination Project would create a critical community benefit..."

The Doheny Ocean Desalination Project would create a critical community benefit: a reliable, local and drought-proof water supply that does not rely on imported water (which is conveyed from more than 700 miles away) and is environmentally friendly. In addition to providing a local, reliable and secure water supply for the District, the desalination facility would also provide continuous emergency backup water supplies, should delivery of imported water be disrupted.

The proposed project uses environmentally friendly, fully submerged slant-well technology to draw water from beneath the ocean floor to the desalination facility site. The project is in conformance with the State Water Board's California Ocean Plan. To date, South Coast Water District has been awarded $18.3 million in state and federal grants for the Doheny Desalination Project and the District continues to pursue new federal grants, which could bring in an additional $11.7 million. ❍

To learn more about water conservation, water supply, new water sources and desalination, visit us at scwd.org and sign up to receive regular notices from us, updating you on what you can do to help.



Nearly 85 percent of the green spaces in IRWD's service area are irrigated with recycled water.

Irvine Ranch Water District

Building Resilience One Water Source at a Time

By Paul Cook
General Manager, Irvine Ranch Water District

If you could fly over Irvine Ranch Water District's service area — Irvine, parts of Lake Forest, Tustin, Costa Mesa, Newport Beach, Orange, and unincorporated portions of the county — the benefits of our water supply diversity would be clear.

Like most water districts in Southern California, IRWD has access to imported water transported here by the State Water Project and Colorado River.

We also tap into groundwater wells as a local resource. A robust network of 26 wells and three water treatment plants gives IRWD the ability to meet 50 percent of the district's total water needs with local groundwater.

How do we build resilience in addition to these sources?

RECYCLING WATER

IRWD's water resilience can be seen in the landscaping of our community's tree-lined medians, parks, schools and golf courses. Nearly 85 percent of these green spaces are irrigated using water that, after going down the drains in local homes and commercial buildings, is treated, disinfected, and then recycled through a dedicated network that includes more than 560 miles of purple pipeline.

IRWD's recycled water is used for irrigation and to flush toilets in high-rises and commercial buildings. To date, more than 100 structures in the IRWD service area contain separate plumbing systems that provide either drinking water or recycled water as needed.

Recycled water is also used in cooling towers, like those at U.C. Irvine. It's used in construction and composting, and at the Hyatt House Irvine: the first hotel in the United States to use recycled water to flush toilets in guest rooms. It's even used to make the ice at the Great Park Ice Arena in Irvine.

Every day, IRWD recycles about 28 million gallons of water. It makes up 25 percent of our total water supply, which is great news — because every gallon of recycled water saves a gallon of drinking water.

HARVESTING RAIN AND BANKING IT FOR THE FUTURE

Beyond recycled water, IRWD invests in other water sources to ensure reliability, adaptability and resilience.

Surface water from rain is captured in Irvine Lake and added to our water portfolio for treatment and then drinking, making up an additional 6 percent of our supply.

IRWD is banking water to help meet customer needs during critically dry years.

Meanwhile, 150 miles to the north, IRWD's innovative new water banking projects provide emergency water supplies that can serve our customers when access to imported water is compromised.

To do this, IRWD developed 502 acres of groundwater recharge ponds in Kern County and entered into long-term agreements to capture low-cost water for underground storage during wet periods and recover it for use during dry periods or emergencies.

The goal: bank enough water to meet about 15 percent of our customers' needs during critically dry years.

MAKING THE MOST OF WHAT WE HAVE

Ultimately, water resilience also depends on customers who appreciate the value of water and are doing their part to use it efficiently.

That's been demonstrated at IRWD with the impressive savings we have achieved in the past 30 years.

Since 1990, our customer base has grown by 270 percent, but total water use has increased just 38 percent. In 1990, imported water, the most expensive source, made up 66 percent of IRWD's water supply. Today, it's just 18 percent.

IRWD understands that a diverse and sustainable water supply is vital to the health and livelihood of a community. We are committed to this mission as we continue to seek out and implement innovations and new technologies for even greater resilience for the future. ❍

Orange County Water District

A World-Renowned Innovator in Water Quality and Supply

"We know our communities are facing enormous challenges. We take pride in the fact that we can continue to provide one stable, essential service during this time. It's our sincere hope that you and your families remain safe and healthy amid this crisis."

– OCWD President Vicente Sarmiento

The Orange County Water District (OCWD) is internationally recognized as a leader in groundwater management. In 1933, the California State Legislature created OCWD to safeguard Orange County's vast groundwater supply that provides 77 percent of the water to north and central Orange County. Protecting the basin involves managing and replenishing the basin, ensuring water reliability and quality, preventing seawater intrusion, and protecting Orange County's rights to Santa Ana River water. By doing this and so much more, OCWD provides water for more than 2.5 million people in north and central Orange County.

Vicente Sarmiento

SAFE, RELIABLE WATER YOU CAN COUNT ON DURING THE COVID-19 PANDEMIC

Most of us have never experienced the extent of uncertainty we are all facing today. COVID-19 has rattled the pillars of our society – our health care system, economy and education system. Many services, however, ***must*** remain available, and water is something you can count on. Homes, hospitals and other service providers need water to survive, and that's why during this chaotic time, water utilities continue to deliver clean, safe and reliable water to our communities.

There are a few things we'd like you to know:

- **Your water remains safe.** COVID-19 does not impact the quality of your drinking water.
- **Your water is treated.** Per drinking water regulations established by the U.S. Environmental Protection Agency (EPA), your tap water is treated specifically to remove or kill pathogens, including viruses such as the novel coronavirus.
- **Your water remains reliable.** COVID-19 ***does not*** impact water supply delivery. Water is an essential service and will continue to be delivered to your tap.
- **Your water is regularly monitored and tested.** Your drinking water is highly regulated, even more than bottled water, and must comply with stringent state and federal water quality standards.

Trust and enjoy what comes out of your tap. COVID-19 has impacted our daily lives, but one thing it will not impact is your water.

The Groundwater Replenishment System – the world's largest advanced water purification facility for potable reuse – is located here in Orange County.

UNWAVERING COMMITMENT TO WATER QUALITY

OCWD tests the water daily. We test from approximately 1,500 locations throughout the basin, analyze more than 20,000 samples each year and report more than 400,000 results to ensure your water meets rigorous water quality standards. We test water supplies for hundreds of contaminants every year.

In recent years, the Philip L. Anthony Water Quality Laboratory became the first public agency laboratory in California to achieve state certification to analyze for PFAS – per- and poly-fluoroalkyl substances – in drinking water. This has been critical as the PFAS challenge has emerged as one of the most pressing water quality issues not just in California but nationwide.

OCWD recently announced the launch of the nation's largest water treatment pilot program for PFAS. As part of the pilot, OCWD will test various methods for treating PFAS, specific to each retail water agency in our service area. OCWD is joining with water agencies across the nation to advocate for both state and federal maximum containment levels for PFAS.

QUENCHING A THIRST

Orange County is a semi-arid region that receives on average 14 inches of rain a year. Although the basin is vast, OCWD must balance the annual withdraws by recharging the basin from a variety of sources. The primary sources of water for the basin include flows from the Santa Ana River, rainfall from local storms, reused water, and excess imported water from the State Water Project and the Colorado River.

The Groundwater Replenishment System (GWRS) is a joint project of OCWD and the Orange County Sanitation District (OCSD) that has become an essential component of our local water supply. The world's largest advanced water purification system for potable reuse, the GWRS produces 100 million gallons of water per day, which is enough water for nearly 850,000 residents. Operational since January 2008 and located in Fountain Valley, California, the GWRS takes wastewater treated by OCSD and purifies it using a three-step advanced technology process. This purification process produces high-quality water that meets or exceeds state and federal drinking water standards. The purified water is then put into the Orange County Groundwater Basin where it supplements Orange County's drinking water supplies. The GWRS is one of the most celebrated water reuse projects in the world and is undergoing a final expansion to bring total water production to 130 million gallons of water per day, enough water for 1 million people.

LEADERSHIP NOW AND INTO THE FUTURE

OCWD's Board of Directors and staff are committed to serving the people of Orange County. As public servants, we take on the water challenges of today and prepare to meet the region's water demands for generations to come. Solid science and state-of-the-art technologies guide our decisions. We invite you to learn more about your water supply and OCWD by visiting our website, following us on social media, taking a tour of our many facilities, including the Groundwater Replenishment System, or having an expert from our Speakers' Bureau present to your group or organization. For more information or to book tours or speakers, please visit www.ocwd.com or find us on Twitter, Facebook, Instagram, YouTube, and LinkedIn. ❍

The Bay Delta provides water for 25 million people, 3 million acres for agriculture and a habitat for 750 different plants and animals.

Photo by California Department of Water Resources

Keeping the Water Flowing

The Delta Conveyance Project is a Massive, Much-Needed Infrastructure Project

By Elizabeth Smilor
Special Sections Writer

"We support the Delta Conveyance Project not only because it will result in many construction jobs, but because it is a vital and cost-effective plan."

– SCPFJ Director of Water and Environmental Relations Marci Stanage

Many sectors – from labor and business to public agencies and agricultural interests – support infrastructure modernization in the Sacramento-San Joaquin Delta, which is the hub of the State Water Project and federal Central Valley Project. Together these projects supply fresh water to two-thirds of California's population and millions of acres of farmland.

"The Delta Conveyance Project has broad support because there is a general acknowledgment that we need to secure the water system," said Roger Patterson, assistant general manager for the Metropolitan Water District of Southern California. "We have tens of millions of people and a lot of irrigated land dependent on this system."

That system is at great risk from natural threats such as earthquakes, levee failures and sea level rise brought on by climate change, he said. Patterson, who oversees Metropolitan's strategic water initiatives for the Colorado River and Sacramento-San Joaquin Bay Delta, emphasized that about 30 percent of Southern California's water comes from Northern California via the Delta.

Metropolitan is a regional wholesaler that provides water for 26 member public agencies to deliver – either directly or through their sub-agencies - to 19 million people living in Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura counties. Metropolitan is the largest contractor on the State Water Project system, receiving about 50 percent of the SWP's supplies, roughly 1.2 million-acre-feet (MAF) in an average year.

The Delta Conveyance Project, which is in the early stages of environmental review, is a large tunnel that would carry water underneath the Delta, avoiding

Major water infrastructure projects like The Delta Conveyance Project are necessary to bring efficiency and security as well as jobs and growth to California.

Photo courtesy of Metropolitan Water District

the risks in the current delivery infrastructure. The single tunnel would include two intakes with a proposed diversion capacity of 6,000 cubic feet-per-second. The project is in the early stages of environmental review, including an initial public comment period. This plan, put forth by Gov. Gavin Newsom, replaces California WaterFix, which was a similar proposal with two tunnels. Metropolitan was a strong backer of the WaterFix plan, but still supports the one-tunnel plan because the water capacity is the same for the State Water Project, Patterson said. Some in the Delta area who are opposed to the project argue that big cities are trying to take more water, Patterson said.


Marci Stanage

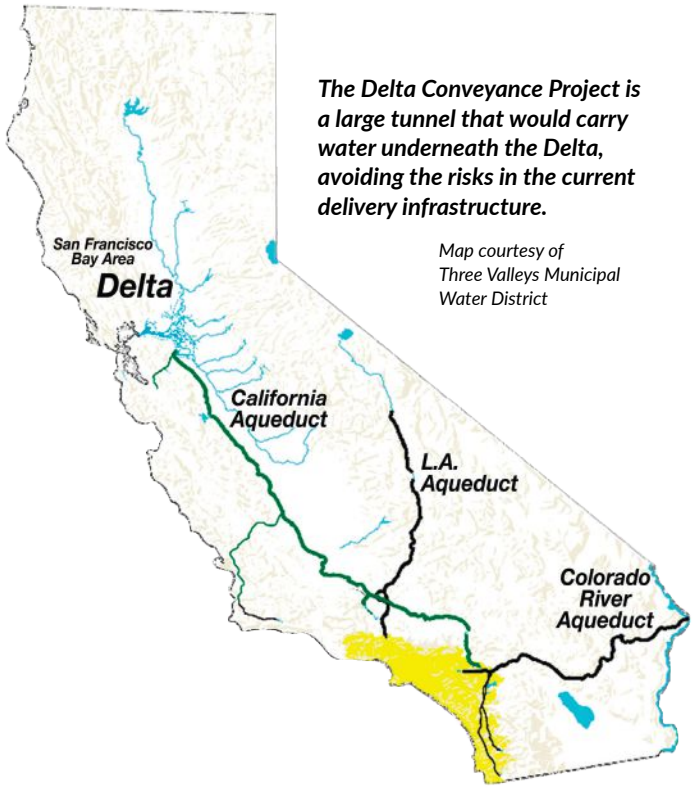
"We are not looking to increase our water supply. We want to keep it from degrading over time," explained Patterson. "It's big infrastructure with large capacity but we will not be allowed to use it at full capacity all the time. This is a much more cost-effective project than finding a new water source."

From now until the end of 2022, Environmental Impact Reports will be conducted, permits obtained and some preliminary design work will commence. Once design is completed, construction is expected to take 10-12 years.

"There hasn't been an economic evaluation done on this single-tunnel project," said Patterson, who added that it would be similar to the previous plan. "The previous project was estimated to have 122,000 jobs associated with it, with 111,000 of those as actual construction jobs. Most of which would come from counties around the Delta."

The Southern California Partnership For Jobs (SCPFJ) supports the Delta Conveyance plan and will assist contractors and labor unions as they navigate the work contracting process. The Delta Design and Construction Authority will be approving project contracts and distributing the work. SCPFJ is a nonprofit partnership between organized labor and construction management to advocate for responsible investment projects to help fix our aging infrastructure, while creating jobs and economic growth.

"The last time we saw significant state and federal investments in our water storage and delivery system was in the 1960s. In 2018, the EPA named California as the state with the greatest need for water infrastructure rebuilding and expansion," said Marci Stanage, SCPFJ Director of Water and Environmental Relations. "We support the Delta Conveyance Project not only because it will result in many construction jobs, but because it is a vital and cost-effective plan."



The Delta Conveyance Project is a large tunnel that would carry water underneath the Delta, avoiding the risks in the current delivery infrastructure.

Map courtesy of Three Valleys Municipal Water District

Infrastructure improvements in the Delta have been debated for decades, in part because of the complex nature of the area. In addition to supplying vast fields and millions of people with water, the Delta is a rich eco-system protecting many species. An estimated 80 percent of the state's commercial fishery species live in or migrate through the Delta, and at least half of its Pacific Flyway migratory water birds rely on the region's wetlands.

Saltwater from the San Francisco Bay mixes with fresh water from the Sacramento, San Joaquin, and other rivers to create the largest estuary on the West Coast. This estuary provides habitat critical to the survival of many fish and wildlife species. The Delta smelt, indicators of the estuary's health, are on state and federal agencies' threatened and endangered lists. Chinook salmon and other native fish species also are in trouble as a result of engineered stream flows, loss of access to floodplains, and disturbances caused by the pumps of the State Water Project and federal Central Valley Project.

"The fish disturbances are caused by us pushing water sideways across the Delta," Patterson explained. "We can restore more natural flow patterns to the Delta with the Delta Conveyance Project. What we have is not working."

To manage the planning and regulatory process, proposals have been separated into the infrastructure initiative, the Delta Conveyance Project, and the habitat restoration initiative, California EcoRestore.

Metropolitan lists five reasons the infrastructure needs to be modernized, emphasizing that the status quo is not sustainable. First, is earthquake risk. Patterson explained that a 6.5 earthquake would collapse levees and sink islands in the Delta, allowing saltwater into the fresh water supply. After such a disaster, a remedy could take three years, he said.

Two other reasons are driven by climate change: drought and big storms. A modernized system would allow water agencies to transport water when it's available during big storms, and decrease deliveries when it is dry. That leads to the last two reasons: Increasing groundwater storage and water recycling.

"When the water's available you grab it, if it's not all needed, you put it into storage facilities and it's there when you need it. That will become more emphasized in the future," Patterson said.

"We need to safeguard the flow we have against earthquakes and climate change."

SCPFJ's valued partners include the International Union of Operating Engineers Local 12 (IUOE), The Southern California District Council of Laborers (LiUNA), and the Southwest Regional Council of Carpenters (SWRCC), Associated General Contractors (AGC) of California, AGC of San Diego, Engineering Contractors' Association (ECA), Southern California Contractors Association (SCCA), United Contractors (UCON), and the Building Industry Association of Southern California (BIA). ❍

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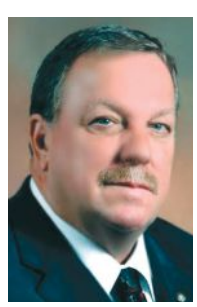
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THE DELTA CONVEYANCE PROJECT:

THE FUTURE OF CALIFORNIA'S WATER SUPPLY

As climate change threatens California's water reliability with rising temperatures, decreasing snowpack, and recurring droughts, our primary water delivery systems are strained. The need to come together behind a proactive solution that protects our water supplies for years to come is imperative. The Delta Conveyance project, a proposed modernization of the state's aging water infrastructure, aims to construct a tunnel to move water underneath the fragile Sacramento-San Joaquin Delta ecosystem rather than through it to secure a clean, reliable, and affordable water supply for California's future.

THE CURRENT STATUS OF DELTA CONVEYANCE

Last year, Governor Gavin Newsom's administration introduced its draft of the Water Resilience Portfolio to assist state agencies in their plan of action when approaching critical matters of water supply in the age of climate change. Moving forward with the Delta Conveyance project was among these plans. This year, the state issued its Notice of Preparation for the Delta Conveyance project.

Southern California Water Coalition Supports Delta Conveyance

OUR COALITION

- Labor
- Business
- Water
- Public Agencies
- Nonprofits
- Agriculture

At the SCWC, our perspective on finding solutions to California's water reliability is one that includes an improved Delta Conveyance while supporting initiatives that stretch our supplies beyond just one use. Water resilience for California means modernizing our water infrastructure while embracing stormwater capture and reuse, groundwater recharge, water recycling and more.

What You Can Do To Help

Plenty of opportunities will arise for community members to share their support of this project. You can connect with us at the SCWC by following our social or signing up for our free newsletter, where you will receive the best updates on California's water infrastructure reform.

Follow us: @socalwatercomm @socalwater