



THE METROPOLITAN WATER DISTRICT  
OF SOUTHERN CALIFORNIA

**Date:** November 28, 2017  
**To:** Board of Directors  
**From:** Jeff Kightlinger, General Manager  
**Subject:** Transmittal of Draft 2018 Annual Progress Report to the California State Legislature on Achievements in Conservation, Recycling, Groundwater Recharge

Attached for your review is the draft Metropolitan report, *Annual Progress Report to the California State Legislature on Achievements in Conservation, Recycling, Groundwater Recharge*. On or before February 1 of each year, Metropolitan submits an annual report to the California State Legislature on our progress in achieving the goals of increased emphasis on cost-effective conservation, recycling, and groundwater recharge. This draft report presents the achievements in conservation, recycling, groundwater recovery, and recharge during the fiscal year 2016/17.

In conjunction with the report, Metropolitan will hold a public hearing at its regularly scheduled Water Planning and Stewardship Committee Meeting on December 11, 2017 to review our region's achievements in promoting cost-effective conservation, recycling, and groundwater recharge. Metropolitan has invited knowledgeable persons from the fields of water conservation and sustainability to comment at the hearing. The public hearing will commence with a staff report reviewing the achievements during the fiscal year 2016/17. Next, invited experts will be requested to make comments on the report. Thereafter, the public will be invited to comment on the report.

A copy of the final report will be distributed prior to the February Board and Committee meetings. Metropolitan will be submitting the final report to the California State Legislature by February 1, 2018.

A handwritten signature in blue ink, appearing to read "Jeff Kightlinger", written over a printed name.

Jeffrey Kightlinger

Attachment

cc: Member Agencies

**DRAFT**

“KEEP SAVING WATER  
FOR THE BIRDS AND  
THE BEES.  
AND ME.”



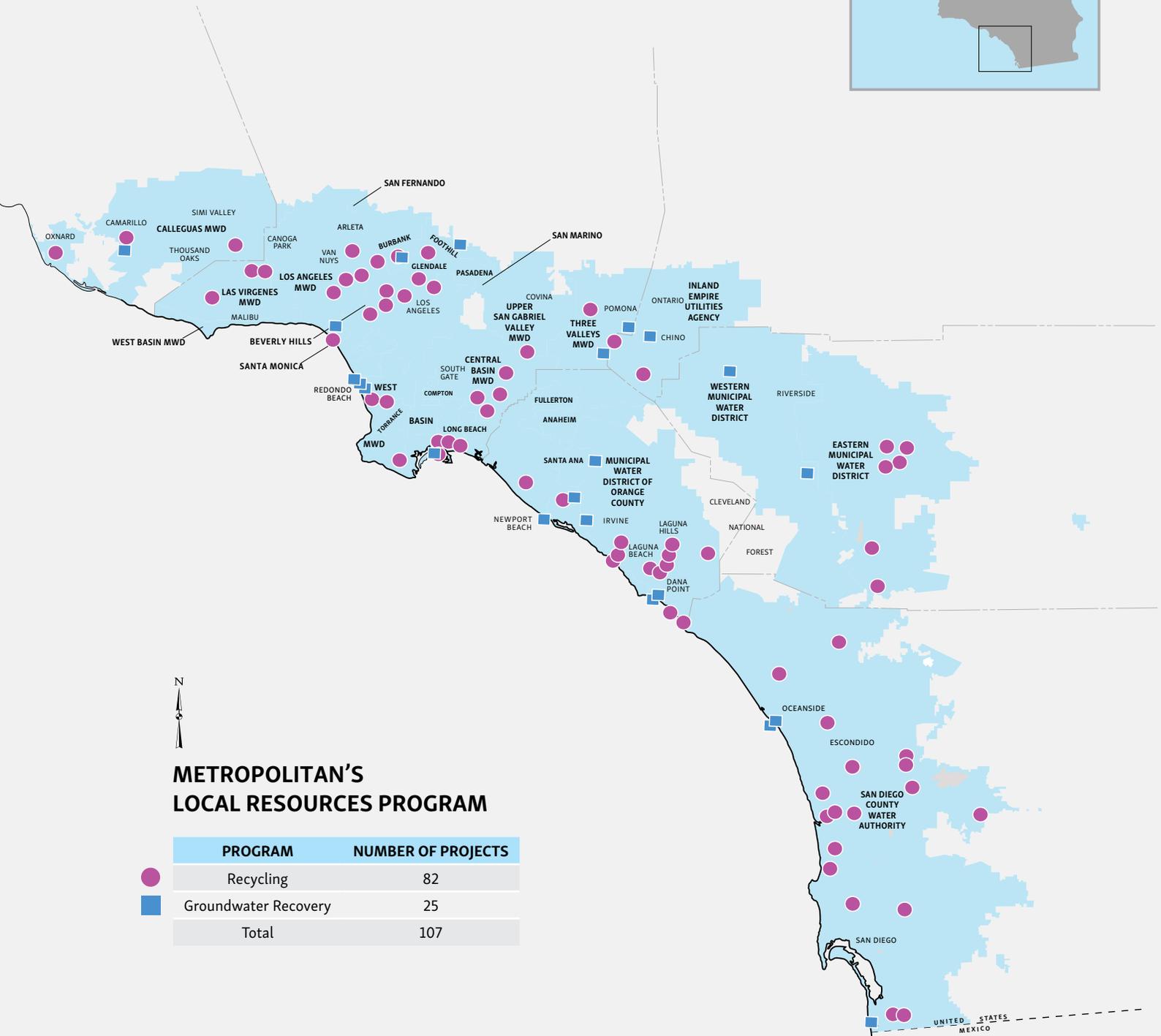
A THANKFUL BUTTERFLY ”



Achievements in  
Conservation, Recycling  
and Groundwater Recharge

**FEBRUARY 2018**

Covering the fiscal year  
of July 2016 – June 2017



## METROPOLITAN'S LOCAL RESOURCES PROGRAM

	PROGRAM	NUMBER OF PROJECTS
<span style="color: #C00040;">●</span>	Recycling	82
<span style="color: #0070C0;">■</span>	Groundwater Recovery	25
	Total	107

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For more information about this report, contact Kathy Cole, Metropolitan's executive legislative representative, at 916.650.2642 or [kcole@mwdh2o.com](mailto:kcole@mwdh2o.com).



*Wildflowers blanket  
Diamond Valley Lake*



## About Metropolitan

The Metropolitan Water District of Southern California was established in 1928 under an act of the State Legislature to provide supplemental water supplies to its member agencies in Southern California.

Metropolitan is a public agency and a regional water wholesaler. It is a voluntary cooperative of 26 member agencies that purchase some or all of their water from Metropolitan. These member agencies and their sub agencies serve about 19 million people across six Southern California counties. Metropolitan is governed by a 38-member Board of Directors made up of representatives from each of Metropolitan's member agencies.

The mission of Metropolitan is to provide its 5,200-square-mile service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

Metropolitan draws supplies from the Colorado River through the Colorado River Aqueduct, which it owns and operates: from Northern California via its participation in the State Water Project; and from local programs and transfer arrangements. An increasing percentage of Southern California's water supply comes from conservation, water recycling and recovered groundwater.

Metropolitan contributes to these efforts through its conservation and local resource programs. Conservation and local resource development take place at the local level, and regional approaches have proven to be effective and benefit all Metropolitan member agencies. These programs help to increase regional water supply reliability, reduce demands for imported water supplies, decrease the burden on Metropolitan's infrastructure and reduce system costs, and free up conveyance capacity to the benefit of all system users. The programs advance the legislative intent that Metropolitan increase "sustainable, environmentally sound and cost-effective water conservation, recycling, and groundwater storage and replenishment measures." Metropolitan is also involved in other beneficial programs and initiatives as detailed in this report.

# INTRODUCTION

For the Metropolitan Water District of Southern California, fiscal year 2016/17 marked an important milestone in the region's conservation efforts. For the first time since the 1990s, the region's efforts to lower water demand are estimated to save more than 1 million acre-feet of water supply.

This achievement in conservation better positions Southern California for a reliable water future. Most of the per-capita reductions in water use that were achieved during the recent drought cycle remained in place on a voluntary basis by Southland residents and businesses, a sign that Southern Californians are committed to making conservation a way of life.

The lower demand had further benefits for the region's long-term water reliability. Metropolitan was able to take full advantage of the record wet conditions in Northern California and replenish the District's network of groundwater banks and reservoirs. Metropolitan was on track to place as much as 1.1 million acre-feet of water into reserve – the largest quantity put into storage in a single year.

Maintaining the momentum for conservation was a key priority for Metropolitan in fiscal year 2016/17. Metropolitan used multiple strategies and strong collaboration with our member agencies to encourage Southland residents and businesses to embrace additional conservation measures and behaviors. Metropolitan funded about \$45 million in rebates, classes, research and advertising to encourage lower water use. This included \$3.5 million in direct outreach via the award-winning H2Love campaign. The investment had notable results.

Since 1990, the District has invested nearly \$1.4 billion in conservation, recycling and groundwater replenishment. More investments are on the immediate horizon, with continued funding for rebates, classes, research and advertising, as well as construction of a recycled water demonstration facility to advance Metropolitan's partnership with the Sanitation Districts of Los Angeles County. This advanced water treatment facility could lead to one of the largest water recycling programs in the nation.

While the Southland undoubtedly will face variable economic and hydrologic conditions ahead, the region has established a solid foundation of achievements in conservation. Senate Bill 60, passed in 1999, stated the Legislature's intent that Metropolitan "expand water conservation, water recycling, and groundwater recovery efforts" and to "place increased emphasis on sustainable, environmentally sound, and cost-effective water conservation, recycling, and groundwater storage and replenishment measures." Metropolitan will continue to build on its achievements in conservation, recycling and groundwater recharge in the years ahead.

## Achievement Scorecard

Conservation		
<b>FY 2016/17 Total Water Saved<sup>1</sup></b>	1,013,000 acre-feet	
New Water Saved From Metropolitan Conservation Credits Program <sup>2</sup>	8,000 acre-feet	
Water Saved From Existing Metropolitan Conservation Credits Program <sup>3</sup>	206,000 acre-feet	
<b>FY 2016/17 Investment</b>		
Metropolitan Conservation Credits Program Investment <sup>4</sup>	\$41 million	
Member Agency Conservation Investment <sup>5</sup>	\$11 million	
Metropolitan Outreach & Education	\$4 million	
<b>Cumulative Savings Since 1990</b>		
Water Saved From Metropolitan Conservation Credits Program <sup>6</sup>	2,635,000 acre-feet	
Metropolitan Conservation Investment (excl. funding by member agencies)	\$772 million	
Recycled Water		
<b>FY 2016/17 Production<sup>7</sup></b>	459,000 acre-feet	
Water Produced From Projects Receiving Metropolitan Funding	180,000 acre-feet	
Water Produced From Projects Without Metropolitan Funding (incl. Santa Ana River base flow) <sup>8</sup>	280,000 acre-feet	
<b>FY 2016/17 Investment</b>		
Metropolitan Funding	\$29 million	
<b>Cumulative Production &amp; Investment Since Inception<sup>9</sup></b>		
Production With Metropolitan Funding	2,592,000 acre-feet	
Metropolitan Investment	\$448 million	
Groundwater Recovery		
<b>FY 2016/17 Production</b>	87,000 acre-feet	
Water Produced From Projects Receiving Metropolitan Funding	48,000 acre-feet	
Water Produced From Projects Without Metropolitan Funding	41,000 acre-feet	
<b>FY 2016/17 Investment</b>		
Metropolitan Funding	\$7 million	
<b>Cumulative Production &amp; Investment Since Inception<sup>10</sup></b>		
Production With Metropolitan Funding	893,000 acre-feet	
Metropolitan Investment	\$151 million	
Conjunctive Use Program <sup>11</sup>		
Metropolitan Cumulative Capital Investment	\$27 million	
Proposition 13 Grant Funds Administered by Metropolitan	\$45 million	
Water Stored Since Program Inception through August 2017	297,000 acre-feet	
Water Extracted Since Program Inception through August 2017	256,000 acre-feet	
Groundwater Replenishment <sup>12</sup>		
FY 2016/2017 Delivery	177,000 acre-feet	
Cumulative Replenishment Delivery since 1984	3,650,000 acre-feet	
Regional Summary		
	<b>FY 2016/17</b>	<b>Cumulative</b>
Metropolitan's Investment in Water Conservation, Recycled Water and Groundwater Recovery	\$77 million	\$1,372 million

## Metropolitan's Cumulative Investment: Nearly \$1.4 billion



- \$772 million**  
2,635,000 acre-feet saved
- \$448 million**  
2,592,000 acre-feet produced
- \$151 million**  
893,000 acre-feet recovered

### Footnotes for the Achievement Scorecard

Numbers in this report are based on the best available information during the production of this report and are subject to revision for accounting reconciliation.

1. Annual total savings include Metropolitan's Conservation Credits Program, code-based conservation achieved through legislation, building and plumbing codes and ordinances, reduced consumption resulting from changes in water pricing, and pre-1990 device retrofits.
2. New water savings achieved through Metropolitan's Conservation Credits Program and from member agency-funded programs initiated in fiscal year 2016/17.
3. Includes water savings initially achieved through Metropolitan's Conservation Credits Program and subsequently maintained through plumbing codes.

Table below shows total water savings based on audited historical conservation device data and revised population data from the California Department of Finance.

2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
776,000	805,000	834,000	859,000	880,000	903,000	927,000	957,000	994,000	1,013,000

4. Active conservation investment includes administrative fees for contracted program vendors.
5. In addition to Metropolitan's Conservation Credits Program, member agencies and sub-agencies retailers also implemented local water conservation programs within their respective service areas. Member agency investment figures include rebate funding beyond rebates already provided by Metropolitan's Conservation Credits Program.
6. Cumulative water savings since 1990 that include water savings initially achieved through Metropolitan's Conservation Credits Program and subsequently maintained through plumbing codes.
7. Totals may not foot due to rounding for this report. Figures reflect actual and estimated deliveries for all Metropolitan-assisted projects and payments reported for fiscal year 2016/17; cumulative production and investment reflect accounting reconciliation as data become available; annual regional production for recycled water includes an estimated 68,000 acre-feet of treated wastewater discharged to the Santa Ana River base flow that percolates into downstream groundwater basins.
8. Projects accounted for here include some that received funding at the outset through Metropolitan's Local Resources Program. Once the term of the funding agreement expires, the projects continue, but further production is not factored into program totals.
9. Metropolitan initiated its Local Resources Program in 1982 to encourage production of recycled water for municipal purposes. Figure reflects a correction to previous fiscal year 2015/16 reporting of cumulative LRP production and investment.
10. Metropolitan initiated its Groundwater Recovery Program in 1991 to encourage treatment and use of degraded groundwater for municipal purposes.
11. Construction of the conjunctive use storage programs was completed in 2008. Proposition 13 refers to Chapter 9 of the Safe Drinking Water, Clean Water, Watershed Protection, and Flood Protection Bond Act of 2000. Water extracted since program inception includes losses.
12. Figure is cumulative since 1984. Prior to 2013, Metropolitan provided replenishment water at a discounted rate to encourage long-term recharge and maintenance of groundwater basins and local reservoirs. Although the discounted replenishment rate was discontinued Jan. 1, 2013, Metropolitan continues to provide water for replenishment purposes at full service rates through conjunctive use and other supply programs.



*A California Friendly™ landscape replaces water-thirsty turf with vibrant color and textures*

# CONSERVATION



“A fundamental pillar of our reliability plan is increased conservation and efficient water use. We want to do everything we can to help Southern Californians conserve.”

- Metropolitan General Manager Jeffrey Kightlinger

Metropolitan and its member agencies are nationally recognized as long-time leaders in water conservation. One of the pillars of Metropolitan’s plan to be reliable is continued conservation and efficient water use. In fact, by 2040, conservation and water recycling will account for one-third of Southern California’s water supply portfolio in Metropolitan’s service area. To encourage continued commitment to conservation, Metropolitan supports financial incentives, education and outreach programs and regulations that facilitate water savings at the local level.

In fiscal year 2016/17, the region saved about 1 million acre-feet of water\*. Rebates funded through Metropolitan’s Conservation Credits Program generated approximately 8,400 acre-feet of new water savings last year and will continue to produce more savings in years to come. Since 1990, Metropolitan has invested more than \$772 million in conservation, about \$41 million of which was spent in fiscal year 2016/17. Metropolitan occasionally supplements its conservation programs using state and federal grant funds when they are available.

## Fiscal Year 2016/17 Conservation Program Highlights

- Metropolitan funded about \$41 million in rebates, classes, research and advertising to help consumers reduce water use in their homes and businesses.
- Consumers in Metropolitan’s service area submitted over 124,000 applications for a total of \$37.1 million in funding.
- Metropolitan’s conservation program received the U.S. Environmental Protection Agency’s Excellence in Promoting Watersense® Labeled Products Award.
- Turf removal courses were made available throughout the region for homeowners, property managers and others.

\*For reference, an acre-foot is equal to 325,851 gallons

## Metropolitan's Residential Conservation Programs

### SoCal Water\$mart Residential Program

SoCal Water\$mart provides rebates to residential customers to encourage the use of water-efficient products. Program rebates in fiscal year 2016/17 included high-efficiency clothes washers, high-efficiency toilets, multi-stream rotary sprinkler nozzles, irrigation controllers and rain barrels. Metropolitan estimates water savings of about 2,932 acre-feet annually from more than 117,800 residential conservation device rebates funded by Metropolitan in fiscal year 2016/17.

### Member Agency Residential Programs

Metropolitan also provides funding to member agencies for locally administered conservation programs. Qualifying residential projects included low-flow toilet distribution and replacement programs, direct installation of water-efficient clothes washer programs and residential water audits. Metropolitan estimates water savings of about 512 acre-feet annually from residential programs administered in fiscal year 2016/17.

### Turf Removal

In January 2014, Metropolitan added turf removal to the SoCal Water\$mart Regional Program, making it available to customers throughout the service area. More than 17 million square feet of lawn was removed last year as Metropolitan's rebate program fulfilled the remaining rebate requests from the waiting list of applicants created after the program closed to new applicants in 2016. Metropolitan estimates water savings of about 2,300 acre-feet annually from turf removed in fiscal year 2016/17.

### High-efficiency Toilets

Metropolitan offers rebates for premium high-efficiency toilets. These toilets use no more than 1.1 gallons per flush and save about 30 percent when compared to older ultra-low-flush toilets (1.6 gallons per flush). Metropolitan estimates that toilet rebates issued for both residential and commercial customers in fiscal year 2016/17 will save about 1,145 acre-feet of water per year.



### High-efficiency Clothes Washers

High-efficiency clothes washers (HECW) with an integrated water factor of 3.7 or less are eligible to receive rebates. The integrated water factor is the measure of the amount of water used to wash a standard load of laundry. An HECW saves more than 10,000 gallons per year over a conventional top-loading clothes washer. Metropolitan estimates water savings of about 615 acre-feet annually from HECW rebates in fiscal year 2016/17.

### Smart Irrigation Controllers

Smart irrigation controllers have been offered in Metropolitan's rebate program since 2006. With numerous technological advancements incorporated into new controller models, these units now are more customer-friendly and have greater functionality to determine weather effects and water needs. Smart irrigation controllers automatically adjust watering schedules based on weather, soil conditions, plant material types, sun exposure and slope. Metropolitan estimates water savings of about 2,190 acre-feet annually from smart controller rebates funded by Metropolitan in fiscal year 2016/17.

*“Metropolitan constantly evaluates its conservation programs for efficacy and value and explores opportunities for new water savings potential.”*

*- Metropolitan Water Efficiency Manager  
Bill McDonnell*

## Metropolitan's Commercial Conservation Programs

Metropolitan's commercial conservation programs provide financial incentives for water-saving devices and projects to businesses and institutions throughout Southern California. Metropolitan estimates savings of about 5,000 acre-feet annually from commercial conservation programs in fiscal year 2016/17.

### SoCal Water\$mart and Member Agency Commercial Programs

The majority of commercial conservation activity came from Metropolitan's SoCal Water\$mart program. In addition, Metropolitan's member agencies and sub-agencies implemented water conservation programs for commercial sectors using Metropolitan incentives. Qualifying commercial projects have included turf removal, along with direct installation of HETs and multi-stream rotating nozzles. Metropolitan estimates water savings of about 3,516 acre-feet from more than 6,400 applications processed through SoCal Water\$mart in fiscal year 2016/17. An additional 758 acre-feet of water was saved from member agency incentive programs.

### Water Savings Incentive Program

The Water Savings Incentive Program is a regional pay-for-performance initiative. It is open to all commercial, industrial, institutional, agricultural and large landscape

consumers with qualifying projects within Metropolitan's service area. Financial incentives are available for customized water efficiency projects, including the installation of commercial or industrial high-efficiency equipment; industrial process improvements; agricultural and landscape water efficiency improvements; and water management services. Incentives are based on the amount of water saved and capped at 50 percent of eligible project costs. In fiscal year 2016/17, Metropolitan estimates savings of about 724 acre-feet of water.

## Research and Development

### Innovative Conservation Program

Metropolitan's Innovative Conservation Program (ICP) is a competitive grant program that evaluates water savings and reliability of innovative water saving devices, technologies and strategies. With funding provided by the U.S. Bureau of Reclamation, the U.S. Environmental Protection Agency, Southern Nevada Water Authority, the Central Arizona Project, Southern California Gas Company, Western Resource Advocates and Metropolitan, approximately \$560,000 was available for research. Ten projects were selected for up to \$100,000 funding each to study diverse areas such as use of drone imagery for irrigation.

### Metropolitan Research Focus

In addition to the ICP, Metropolitan has been involved in multiple research efforts to better understand future potential for conservation:

- Conducting a comprehensive study of Metropolitan's turf removal program
- Partnering with the Alliance for Water Efficiency for water conservation research on the rationale for landscape choices
- Creating a pilot program with Inland Empire Utilities Agency on pressure regulation of irrigation systems
- Analyzing rain barrel rebates for potential correlation to other consumer water-saving measures or behaviors
- Evaluating commercial cooling towers' potential for water savings
- Studying market saturation of residential indoor water fixtures in Southern California.



*Water Savings Incentive Program funds helped Anheuser Busch expand water treatment capability for reuse.*



*The H2Love campaign lit the Pacific Park Ferris wheel on the Santa Monica pier to spread the conservation message on high-traffic summer nights*

# COMMUNICATIONS AND OUTREACH



“Our ongoing conservation advertising and outreach campaign looks to inspire a cultural shift in how we value water every day.”

- Metropolitan Assistant General Manager Dee Zinke

In 2016, Metropolitan’s advertising campaign responded to changing water conditions and public perceptions about the importance of conservation. Metropolitan convened focus groups to better understand those changing perceptions. The results underscored a strong willingness of many Southern Californians to permanently change their water use because it “is the right thing to do” regardless of drought conditions. Metropolitan re-branded key elements and unveiled a new H2Love logo that underscored the value of water with the tagline: Love Water, Save Water.

Another factor was responding to the dramatic changes in how people across all demographics are getting their information and media. Mobile, social and digital media are reshaping news. With a smaller budget of \$3.5 million for 2016, leveraging additional value was critical. This was done with traffic and weather live read spots on radio stations throughout the six county region; digital, mobile friendly banner ads and videos in multiple languages; and search engine optimization.

Metropolitan continued with its multi-media approach with paid advertising in 53 community newspapers in six languages which expanded the reach of the conservation message. Metropolitan continued to focus on reaching more Californians, especially the younger demographics in the region which required creative approaches. Metropolitan used Snapchat geofilters, Facebook Live broadcasts, and explored marketing and educational opportunities using a range of augmented reality tools and games to provide information about water conservation.

In 2017, a new media campaign called “H2Love Letters” extended a big thanks through fun messages on billboards, busses, newspapers and even the Santa Monica Pier Ferris wheel. H2Love Letters continued the messaging of Metropolitan’s original H2Love campaign, with a personal touch. The goal of the campaign is to get Southern Californians to rethink how they value water and make a commitment to water conservation as a way of life.

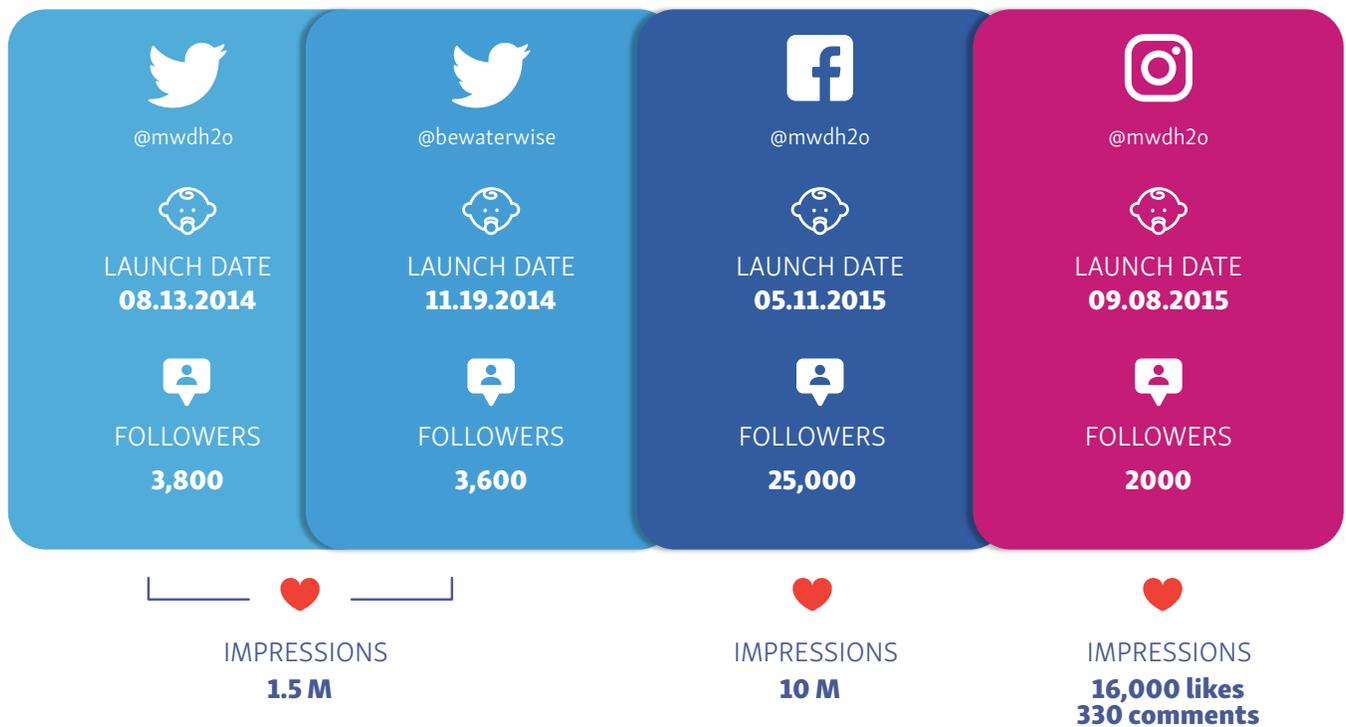
The latest conservation campaign will be featured on 450 billboards in six languages across Southern California. The \$2.8 million media buy for the campaign also will be delivered through 3,200 radio spots on 75 Southern California stations, print ads in community newspapers, online video advertising and through Metropolitan’s growing social media network.

Metropolitan also found creative ways to directly share the conservation message with the public. The H2Love campaign took over the Ferris wheel at the Santa Monica pier for four consecutive Saturday nights in August and September. The water-saving message was delivered to thousands of beachgoers and visitors through the Ferris wheel’s live web cam and television broadcasts.

As it did the previous summer, Metropolitan partnered with Major League Soccer’s LA Galaxy, which promoted conservation through an exciting and fun video featuring goalie Brian Rowe and other in-stadium messaging. Rowe also helped Metropolitan showcase wise water use at the August dedication of a new conservation garden and educational center at Debs Regional Park in Los Angeles.

All of the elements of Metropolitan’s latest water-saving campaign direct audiences to [bewaterwise.com](http://bewaterwise.com), Metropolitan’s online water conservation portal available in English, Spanish and Chinese. There, visitors can find conservation tips, online water-wise gardening classes, and access to Metropolitan’s rebates for an array of water-saving devices such as sprinklers, irrigation devices, washing machines, toilets, rain barrels and more.

## A Growing Social Media Presence in Fiscal Year 2016/2017



“Permanent, sustainable water conservation has become a way of life. And Metropolitan played a big role in making this happen. Ultimately, conservation is not simply a drought response effort, but a long-term vision and way of life.”

- Metropolitan External Affairs Manager Sue Sims



*Metropolitan’s partnership with the LA Galaxy extended the conservation message to new audiences. Brand ambassador Galaxy Goalie Brian Rowe and Metropolitan’s Dee Zinke opened a new children’s garden to highlight waterwise plants near downtown Los Angeles.*

The addition of Metropolitan’s Garden of the Month video series to [bewaterwise.com](http://bewaterwise.com) and multiple social media platforms, featuring California Friendly™ gardens, has increased views and provided ideas on how water-guzzling lawns can be replaced with beautiful water-conserving gardens that also provide habitat to butterflies, hummingbirds, and other animals. The July Garden of the Month video, for example, received more than 145,000 views on Facebook.

Metropolitan continued to promote U.S. EPA WaterSense® labeled toilets and irrigation controllers in 2016, and consumers used those rebates to purchase more than 114,000 WaterSense®-labeled residential and commercial toilets and nearly 15,000 weather-based irrigation controllers. During this year’s U.S. EPA Fix a Leak Week, Metropolitan staff created multilingual home

videos that encouraged checking for and fixing leaks to conserve water. Daily pictures, videos and social media messages were shared to demonstrate how much water is wasted if leaks go unattended. The week-long campaign generated more than 45,000 social media impressions.

In fiscal year 2016/17, Metropolitan’s Facebook page received more than 10 million impressions, with the number of followers increasing 12 percent over the last year. A conservation tip posted in June 2017 received 1 million impressions alone. On Twitter, followers increased by 20 percent and engagement increased nearly 450 percent. Metropolitan used Facebook Live and Snapchat geofilters to reach a broader audience during its conservation and outreach campaign.



*Metropolitan's college grant program, World Water Forum, sponsors exploration of local, regional and global water supply and energy solutions*

Metropolitan continued its track record of receiving recognition for its outstanding outreach efforts including the 2017 U.S. EPA WaterSense Excellence Award for promoting WaterSense labeled products, the American Water Works Association for Public Communications Achievement Award, PR News for Corporate Social Responsibility Awards in the categories for Environmental Stewardship and Twitter Communications, and the LA County Green Leadership Award.

## Community Outreach

Community water resources and conservation education are at the forefront of Metropolitan's community outreach activities. Metropolitan co-sponsored and staffed booths at about 50 Community Partnering Program water-related education and outreach programs for member agencies, community groups, nonprofit organizations and educational institutions. These activities varied from conservation and garden signage projects to community events and educational materials that addressed watersheds, conservation, rebates and water recycling.

## Education Programs

Metropolitan's Education Unit provides programs for more than 5 million students and teachers in Metropolitan's service area ranging from preschool through college. Teacher workshops, classroom materials, field trips and class instruction are available to schools through

out Metropolitan's service area. The Education Unit's growing use of technology, its mobile-friendly website and social media are expanding the scope and reach of Metropolitan's education programs.

Staff worked with member agencies to hold more than 400 events and engage with nearly 300,000 students, teachers, parents, and participants through activities, social media and curriculum materials. Metropolitan continues to develop K-12 water education curriculum in support of California's Education and Environment Initiative. These educational resources align to modern education standards (Common Core, Next Generation Science Standards) and support early bilingual education (Spanish and Mandarin).

Metropolitan concluded the fourth cycle of the World Water Forum College Grant Program and highlighted the program during Metropolitan's annual Spring Green event at Union Station in Los Angeles. This event showcased the water conservation and treatment projects of colleges and universities supported by the World Water Forum. The program provides 17 grants to colleges and universities for local and globally-focused projects that foster a better understanding and community awareness of water issues, while improving technology related to water supply and delivery, water conservation, and/or sanitation programs. The U.S. Bureau of Reclamation and Sanitation Districts of Los Angeles County continued their involvement for this funding. Additional program sponsors included Water for People, and Friends of the United Nations.

Solar Cup™ is the nation's largest solar-powered boat competition and in 2017, drew 43 teams from Southern California high schools to Lake Skinner in Temecula on May 19-21. More than 800 students participated in the 15<sup>th</sup> annual event. The event attracted a wide variety of media coverage, with extensive local news reports originating from throughout Southern California. The seven-month program immersed students in engineering, math, and communication concepts, as they created water conservation-focused public service announcements.

The Diamond Valley Lake Education Program marked its 24th anniversary, conducting numerous field trips that engaged more than 3,000 fourth- through seventh-graders. Metropolitan staff collaborated with the Western Science Center Outreach Program to provide activities for more than 4,000 second through fifth grade students and oversaw the DVL Visitor Center that educated more than 10,000 guests on water stewardship.

Metropolitan's "Water is Life" Student Art and Calendar Program features student artwork representing the importance of conservation inside and outside the home. Metropolitan's "Water is Life" Program annually compiles more than 14,000 pieces of art generated by K-12 students throughout Metropolitan's service area. The 2017 Student Art Exhibit was displayed at 27 member and retail agencies and viewed by more than 20,000 people.

"Learning about renewable energy and water conservation in a program like Solar Cup often inspires a lifelong interest in science and math."

- Metropolitan Solar Cup™ Coordinator Julie Kalbacher

*Solar Cup™ is the nation's largest solar boat competition, which drew 43 high school teams for the 2017 competition*





*Recycled water programs are growing across the Southland with nearly \$448 million invested by Metropolitan to date. Photo courtesy CA Dept. of Water Resources*

# LOCAL RESOURCES



“The value of being a regional water agency is that Metropolitan can make forward-looking investments to benefit the region’s residents and businesses.”

- Metropolitan Board Chairman Randy Record

Water recycling and groundwater recovery continue to be growing assets in the region’s water supply portfolio. For a quarter of a century, Metropolitan has invested in regional projects, committing about \$448 million to help local agencies produce 2.6 million acre-feet of recycled water. An investment of \$151 million has been made to recover about 893,000 acre-feet of degraded groundwater for municipal use. To date, there are 82 water recycling projects and 25 groundwater recovery projects in the program. For the first time, Metropolitan is embarking on a region-wide recycling demonstration project with the potential to become the nation’s largest water recycling facility if the program moves forward to full scale.

## Water Recycling and Groundwater Recovery

In fiscal year 2016/17, Metropolitan approved Local Resource Program incentives to member agencies toward the development of seven water recycling projects and one groundwater recovery project. These projects are expected to produce about 25,000 acre-feet per year when fully developed. Metropolitan’s funding supported the production of 180,000 acre-feet of recycled water for non-potable and indirect potable uses. Metropolitan supported projects that produced about 48,000 acre-feet of recovered groundwater for municipal use. In addition, another 280,000 acre-feet of recycled water and 41,000 acre-foot of recovered groundwater were produced by local agencies through other funding sources. Figures 1 and 2 show total recycled water and groundwater recovery production in Metropolitan’s service area, including local agency funded projects. Figure 1 includes treated wastewater discharged to the Santa Ana River base flow that percolates into downstream groundwater basins.

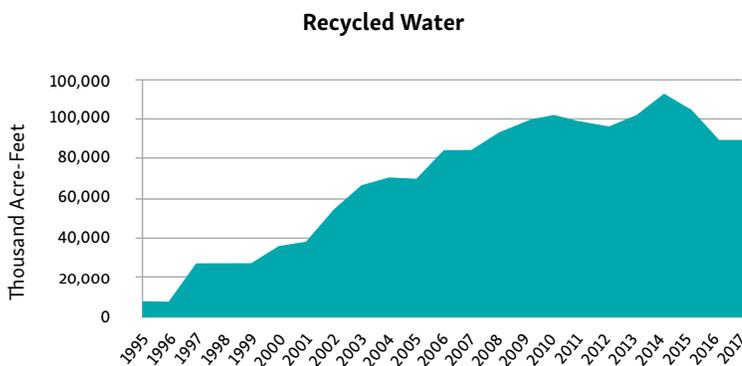


Figure 1

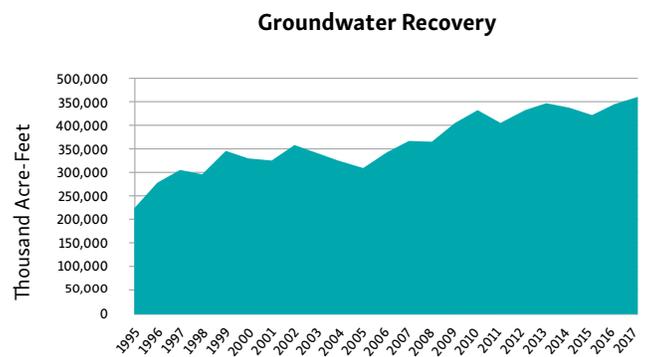


Figure 2



*Metropolitan and Sanitation Districts of Los Angeles County broke ground for a regional recycled water demonstration plant in Carson, CA*

### **On-site Retrofit Pilot Program**

The On-site Retrofit Pilot Program with a budget of \$7.5 million was launched in July 2014 to provide financial incentives for conversion of potable irrigation or industrial water systems to recycled water. In addition, the Pilot Program also received a \$700,000 grant from the U.S. Bureau of Reclamation. In April 2016, the Metropolitan Board approved an additional \$10 million for the program. As of June 30, 2017 Metropolitan has provided about \$7 million to 267 consumers who agreed to retrofit their facilities and have used about 8,900 acre-feet per year of recycled water. An additional 38 projects are in design or under construction.

### **Groundwater Management**

Metropolitan partners with local agencies to store imported water in groundwater basins for use in times of shortage under conjunctive use agreements. Metropolitan currently has nine storage projects with nearly 212,000 acre-feet of storage capacity and can store up to 53,000 acre-feet per year and withdraw up to 71,000 acre-feet annually during shortage years.

Due to improved hydrologic conditions, Metropolitan called upon agencies to store water in the conjunctive use accounts. In fiscal year 2016/17, Metropolitan stored about 7,900 acre-feet for future drought mitigation. Continued storage over the coming year will increase storage in these accounts.

The Board authorized the general manager to enter into Cyclic Storage Agreements with Metropolitan's member agencies. Under the existing cyclic agreements with Upper San Gabriel Valley Municipal Water District and Three Valleys Municipal Water District, about 27,000 acre-feet were stored. No new cyclic agreements had been executed as of June 2017.

### **Regional Recycled Water Program**

Metropolitan and the Sanitation Districts of Los Angeles County inaugurated a regional water recycling program that could help refill groundwater basins across Southern California and, through member agencies provide water to hundreds of thousands of homes. The Sanitation Districts' Joint Water Pollution Control Plant in Carson, California currently treats and cleans wastewater discharged from homes, businesses and industry. Under this potential new program, Metropolitan would purify treated wastewater through multiple advanced processes to produce safe, high-quality water that could help replenish groundwater basins in Los Angeles and Orange counties. In fiscal year 2016/17, a comprehensive feasibility study was completed to evaluate groundwater basin conditions, treatment requirements, conveyance facilities, and cost of a full-scale project. The agencies broke ground on Sept. 18, 2017 for construction of a demonstration advanced purification facility that will generate information needed for the potential future construction of a full-scale advanced water treatment plant that would produce up to 150 million gallons daily. The demonstration plant is expected to be operational in early 2019.

### **Future Supply Actions**

In 2013, Metropolitan's Board approved a pilot Foundational Actions Funding Program (FAF) that consisted of member agency co-funded technical studies and pilot projects in the areas of groundwater, recycled water, seawater desalination, and stormwater. Foundational Actions, which were renamed as Future Supply Actions in Metropolitan's Integrated Water Resources Plan 2015 Update, are relatively low-cost, low-risk supply development actions designed to better prepare the region for unforeseen water supply challenges. Collectively, the

projects funded by this program reduce barriers and are intended to enhance regional understanding of the challenges and technical requirements necessary to develop future water supplies.

Under the FAF Program, Metropolitan funded up to \$500,000 per project per member agency, with participating member agencies providing dollar-for-dollar matching funds. Metropolitan provided approximately \$3 million of funding for 13 technical studies and pilot projects, and all but one of which were completed by 2017. On February 23, 2017, Metropolitan hosted a technical conference on the findings of the FAF projects. More than 300 people attended in person or via webinar, and each of the participating agencies presented their research findings and took part in panel discussions.

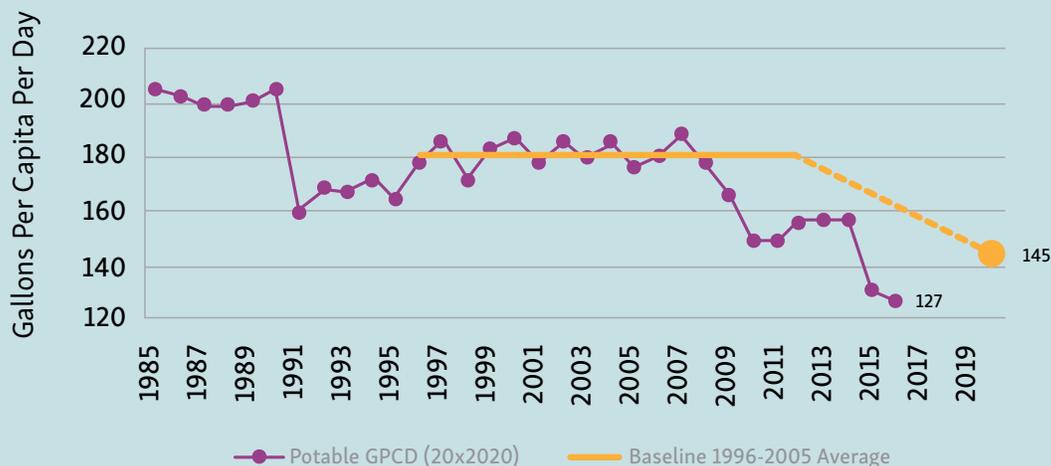


*Well-attended Foundational Actions Funding Program technical conference presented findings from 13 studies and pilot programs*

## Water-Use Efficiency Strategy

Metropolitan and the Natural Resources Defense Council cosponsored the Water Conservation Act of 2009 (SBX7-7), which targets a 20 percent reduction statewide in urban per capita potable water use by the year 2020. Per capita water use is one indicator of progress in advancing water-use efficiency. Metropolitan’s baseline is 181 gallons per capita per day (GPCD), and the 2020 reduction target is 145 GPCD. Between 2011 and 2014, there was a slight increase in per capita water use explained in part by continued economic recovery and drier weather as compared with previous years. GPCD fell significantly during calendar years 2015 and 2016, as the region responded to the governor’s Executive Order B-29-15 that mandated a 25 percent emergency reduction in urban water use. As California’s drought emergency remained in effect throughout 2016, regional potable GPCD fell to 127, which was below the 2020 target.

**Target: 20 Per Cent Reduction by 2020**  
Metropolitan’s Service Area Calendar Year



Notes about the graph:

1. Calendar year data.
2. 2016 GPCD based on best available data as of April 2017 and is subject to change.

3. Baseline per capita water use based on 1996-2005 average (181 GPCD).
4. Target GPCD for 2020 based on 20% reduction from baseline (145 GPCD). ●



*A great egret takes flight in the Yolo Bypass Wildlife Area, photo courtesy CA Department of Water Resources*

# WATERSHED INITIATIVES



“Metropolitan is always evaluating innovative science opportunities that we can bring to the table to collaborate on habitat restoration, watershed improvements, and other environmental projects.”

*- Metropolitan Assistant General Manager, Chief Operating Officer  
Deven Upadhayay*

Metropolitan’s environmental values extend to habitat restoration and watershed improvements and management. Staff are active on planning boards and organizations focused on these efforts which include the protection of water quality at the source. Metropolitan participates on the following initiatives:

## Local Watersheds

### Integrated Regional Water Management

Metropolitan continues to participate in a multi-jurisdictional water planning effort, serving on the Greater Los Angeles County Region Leadership Committee as its surface water management area representative.

### Southern California Water Committee Stormwater Task Force

Metropolitan, in coordination with the Southern California Water Committee (SCWC), Los Angeles County Department of Public Works, and others, is actively engaged in the development of a white paper on the results of a study of 50 stormwater projects currently in operation to assess actual stormwater capture volumes and cost data. While agencies record and track their benefits and costs differently, many lessons have been learned to help guide the region’s water planners as projects move from concept to operation.

In addition, Metropolitan hosted the SCWC Stormwater Task Force Annual Workshop on September 29, 2016. This annual workshop brought together local agencies, regional planners, and non-government agencies to discuss stormwater issues in the region.

## Council for Watershed Health

Metropolitan has partnered with the Council for Watershed Health in various research studies, including the Water Augmentation Study (from 2000 through 2015), and educational outreach efforts to improve water supply reliability, water quality and promotion of water-use efficiency. Currently, the council has four programs: Living Laboratory, Sustainable Landscape Resources, Healthy Streams, and Watershed Coordination and Planning. Metropolitan serves on the council's board of directors and continues to seek ways to collaborate in furthering its mission to advance the health and sustainability of the region's watersheds, rivers, streams and habitat. Southern California Salinity Coalition.

The Southern California Salinity Coalition (SCSC) is a nonprofit organization formed in 2002 by water and wastewater agencies in Southern California to address the critical need to remove salt from water supplies and to preserve our water resources. SCSC focuses on research and outreach activities that address the need to control or reduce salinity in drinking water, wastewater, and recycled water. Metropolitan is a founding member of the SCSC and holds a position on SCSC's Board. In 2016 the SCSC launched a study of the impacts of increasing wastewater salinity concentrations on recycled water potential in Southern California.

## Ecological Reserves

Four large-scale multi-species reserves spanning more than 30,000 acres are the cornerstone of Metropolitan's investments in environmental conservation and stewardship. Reserves provide mitigation for impacts from Metropolitan projects, watershed protection around reservoirs, protection of open space for native species and their habitat, trails for hiking and horseback riding, and opportunities for research and education.

*Lesser snow geese fly across Yolo Bypass Wildlife Area, photo courtesy CA Department of Water Resources*

### 1. Southwestern Riverside County Multi-Species Reserve

Nearly 13,500 acres surrounding Diamond Valley Lake and Lake Skinner, and in the connecting Dr. Roy E. Shipley Reserve, provide protection for habitat and many wildlife species. The reserve is home to at least eight types of habitat and up to 16 sensitive bird, animal and plant species. Metropolitan partners with the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, Riverside County Regional Park and Open-Space District, and Riverside County Habitat Conservation Agency to cooperatively manage the Multi-Species Reserve for these species and habitats. Management includes important provisions for watershed protection for Diamond Valley Lake and Lake Skinner through appropriate siting of public access, fire management, and careful review of vegetation management tools.

### 2. Upper Salt Creek Wetland Preserve

A 40-acre mitigation site for the Eastside Pipeline feature of Diamond Valley Lake provides protection for unique vernal pool habitat and rare plants. Metropolitan manages the preserve solely for the purpose of protecting these habitats and plants under agreement with the U.S. Army Corps of Engineers. The preserve does not allow for public access and is protected in perpetuity from future development. The Upper Salt Creek Wetland Preserve serves as a cornerstone for broader regional conservation goals under Riverside County's multi-species habitat conservation program.

### 3. Santa Rosa Plateau Ecological Reserve

The 9,000-acre Santa Rosa Plateau Ecological Reserve is home to 200 species of native birds and 49 endangered, threatened, or rare animals and plants including one rare species of fairy shrimp which exists nowhere else on earth. Establishment of the reserve, as partial mitigation for construction of Diamond Valley Lake, protected some of the most unique grassland, chaparral and oak habitats in California.



#### 4. Lake Mathews Multiple Species Reserve

The 5,100-acre reserve surrounding Lake Mathews is managed for native habitat and sensitive plant and animal species including the endangered Stephens' kangaroo rat. Lake Mathews is an important bird resting and feeding site, especially in winter, when ducks, double-crested cormorants, grebes and eagles visit. The Reserve is cooperatively managed by Metropolitan, Riverside County Habitat Conservation Agency, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife under the provisions of a Habitat Conservation Plan and Natural Community Conservation Plan. Equally important to habitat preservation is protection of the watershed surrounding Lake Mathews. Habitat management tools and strategies are critically evaluated for potential effects to water quality, including the use of grazing and prescribed fires to enhance habitat and limit the potential for catastrophic wildfires.

### Sacramento-San Joaquin Delta

#### Habitat Restoration

Metropolitan participates in the Yolo Bypass Biological Opinion Workgroup, and is a cooperating agency for the Yolo Bypass Salmonid Habitat Restoration and Fish Passage Project Environmental Impact Report/Environmental Impact Statement (EIR/EIS), a comprehensive federal/state planning process to address Biological Opinion requirements for enhanced access to rearing habitat and increased passage for adult salmonids. In fiscal year 2016/17, Metropolitan worked with the California Department of Water Resources, the U.S. Bureau of Reclamation, and local stakeholders to develop and refine alternatives for analysis in the EIR/EIS. The Draft EIR/EIS was released for public review in October 2017.

Metropolitan is also working with the State and Federal Contractors Water Agency to develop the Tule Red Restoration Project in Suisun Marsh to restore tidal marsh wetlands. The Tule Red project is expected to provide benefits to native fish species.

#### Municipal Water Quality Investigations Program

Metropolitan continues to support the California Department of Water Resources' Municipal Water Quality Investigations Program, which implements water quality monitoring and special studies in the Delta and its tributaries. In fiscal year 2016/17, this program operated five real-time water quality monitoring stations, completed seasonal water quality forecasts, and conducted pre-habitat restoration baseline water quality monitoring in the Cache Slough watershed.

#### Delta Nutrient Impact Studies

Metropolitan continues to work with state and federal water contractors to support studies and management actions addressing the impact of nutrients and other water quality stressors in the Delta watershed. Metropolitan participated in the Delta Regional Monitoring Program, and in the Central Valley and San Francisco Bay Regional Water Quality Control Boards' nutrient management programs.

#### Battle Creek Salmon and Steelhead Restoration Project

This partnership project between Pacific Gas and Electric Company, the U.S. Bureau of Reclamation, U.S. Fish and Wildlife Service, National Marine Fisheries Service and California Department of Fish and Wildlife is one of the largest cold water fish restoration efforts in North America. Metropolitan supported and financially assisted this project, which is restoring almost 50 miles of habitat in Battle Creek and Battle Creek tributaries within the Sacramento River watershed for threatened and endangered winter- and spring-run Chinook salmon and steelhead, while maintaining the continued production of hydroelectric power at the Battle Creek Hydroelectric Project. Construction is anticipated to be completed by 2022.



## Colorado River

### The Lower Colorado River Multi-Species Conservation Program

The Lower Colorado River Multi-Species Conservation Program (LCR MSCP) is a comprehensive restoration program along the Colorado River through the states of Arizona, Nevada, and California. The plan targets the restoration of natural habitat communities once prevalent along the river corridor—riparian forests, marshes, and backwaters. The benefits of restoring natural communities go beyond providing critical habitat for native aquatic and terrestrial species. Creation of more than 8,000 acres of new habitat provides other environmental benefits including water quality improvements and greenhouse gas reduction. Metropolitan is a proud supporter of the LCR MSCP through its financial contributions and staff participation. In 2017, the LCR MSCP Habitat Conservation Plan was amended for the first time to include the Northern Mexican gartersnake which was believed to no longer inhabit the planning area.

### Colorado River Salinity Control Forum

The Colorado River Basin Salinity Control Forum is an organization of the seven Colorado River Basin states of Arizona, California, Colorado, Nevada, New Mexico, Utah and Wyoming. The purpose of the Forum is to coordinate salinity control efforts among the states; coordinate with federal agencies on the implementation of the Colorado River Basin Salinity Control Program; work with Congress on the authorization and funding of the Program; act to disseminate information on salinity control and otherwise promote efforts to reduce the salt loading to the Colorado River. Metropolitan holds positions on the Forum's board and participates in the Forum's workgroups and related meetings. In fiscal year 2016/17 the Forum's salinity control measures removed about 1.3 million tons of salt per year from the Colorado River. This translates into a 100 mg/L reduction in salinity concentration in the Colorado River's lower basin and Metropolitan's Colorado River Aqueduct supplies. Planned projects are expected to control an additional 63,500 tons per year by 2020.



## About This Report

Every year, Metropolitan reports its accomplishments in water conservation, recycling and groundwater recharge to the state Legislature. Achievements are chronicled and detailed in this report. To coincide with the preparation of the report, the MWD Act requires Metropolitan to “hold an annual public hearing... during which the district shall review its urban water management plan... for adequacy in achieving an increased emphasis on cost-effective conservation, recycling, and groundwater recharge.” While the Urban Water Management Plan is prepared and updated every five years according to state requirements (with the next update due in July 2021), Metropolitan hosts an annual December hearing to share progress on fiscal year plan objectives, and to receive public comments. Metropolitan held a public hearing on December 11, 2017 to receive public and stakeholder input. Comments received at the hearing are on file at Metropolitan and are available upon request.



# METROPOLITAN'S MEMBER AGENCIES



City of Anaheim



City of Beverly Hills



City of Burbank



City of Compton



City of Fullerton



City of Glendale



City of Long Beach



City of Los Angeles



City of Pasadena



City of San Fernando



City of San Marino



City of Santa Ana



City of Santa Monica



City of Torrance



Calleguas Municipal Water District



Central Basin Municipal Water District



Eastern Municipal Water District



Foothill Municipal Water District



Inland Empire Utilities Agency



Las Virgenes Municipal Water District



Municipal Water District of Orange County



San Diego County Water Authority



Three Valley Municipal Water District



Upper San Gabriel Valley Municipal Water District



West Basin Municipal Water District



Western Municipal Water District

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