

Annual Recycled Water Summary Report 2008 and 2009

California must change its water supply sources to meet the needs of a growing population. Importing water is not sustainable due to unpredictable droughts, climate change, and complex legal issues. The State Water Board determined that managing a diverse water supply can help alleviate the problems. The State's Recycled Water Policy includes the goals of increasing total recycled water use by 1 million acre-feet per year by 2020, and by 2 million acre-feet per year by 2030. "Recycled water use" is defined as a use that replaces the use of potable water. For reference, 0.5 acre-feet (ac-ft) of water is enough to meet a typical family's needs for an entire year. The purpose of the *Recycled Water Annual Summary Report* is to monitor progress toward those goals and identify areas for improvement. The Report contains analysis and summary of information on the production, reuse, and quality of recycled water in the San Diego Region.

The San Diego Water Board surveyed recycled water agencies to collect the information analyzed in the Report. In 2008, 42 agencies reported that they treated approximately 113,700 ac-ft of wastewater, of which approximately 58,500 ac-ft of recycled water was beneficially reused in the region. In 2009, 29 agencies reported that they treated approximately 104,800 ac-ft of wastewater of which approximately 54,900 ac-ft of recycled water was beneficially reused. Although the reported volume of reused water was slightly lower for 2009 than 2008, significantly fewer agencies responded to the survey in 2009. The top producing agencies, however, reported an average recycled water production increase of approximately 2,300 ac-ft to 2,800 ac-ft from 2007 to 2009. The percentage of treated wastewater that was recycled and beneficially reused increased slightly from 49.2 percent in 2007, to 51.4 percent in 2008, and to 52.4 percent in 2009. Attachment 1A provides detailed tables and graphs of the recycled water production and reuse in the Region during 2008 and 2009.

The San Diego Water Board regulates the production and discharge of recycled water through waste discharge requirements, Master Reclamation Permits, Water Reclamation Requirements (collectively referred to as "permits"), and waivers of waste discharge requirements. The Master Reclamation Permits are a tool intended to promote recycled water use by allowing the producer to regulate its users, rather than the San Diego Water Board issuing individual requirements for each user.

The San Diego Water Board also collected information on the use type, use location, and compliance with permits. The users appear to be doing a good job complying with permit requirements for the use sites. Although the reported number of sites increased, the reported number of user rule violations decreased. In 2008, 2,318 inspections at 1,776 sites identified 520 violations at 100 of those sites. In 2009, 4,403 inspections at 2,303 sites identified 405 violations at 72 of those sites. The number of inspected sites with violations decreased from 6 percent to 3 percent.

Although recycled water producers reported that a total of 54,900 ac-ft of recycled water was reused in 2009, the use sites that provided data only accounted for 40,000 ac-ft, or approximately 74 percent of the total. Of the 3,981 specific use sites for which data was provided, almost all (over 99 percent) used recycled water at least partially for irrigation (62.9 percent irrigation, 35.8 percent irrigation/ industrial), primarily landscape irrigation. Use types identified in the survey suggest that new industrial users and industrial use by existing irrigation users is increasing the demand for recycled water.

Overall, recycled water quality met discharge specifications across the Region. The water quality data indicates that the average concentration of total dissolved solids (TDS), chloride, and sulfate in the source water increased from 2008 to 2009. There was a corresponding increase in the average concentration of TDS, and sulfate in recycled water, although average chloride concentration decreased. Other constituents that showed improved water quality in recycled water from 2008 to 2009 included percent sodium, total nitrogen, manganese, methylene blue-activated substances (MBAS), boron, and color. Nitrate and fluoride, however, increased in average concentration, while iron remained the same. Attachment 1A shows the quality of the recycled water across the Region. Data for 14 of the wastewater treatment facilities from 2008-2009 was compared to available data from 1991-1993, and 1997-1999. The concentrations for 2008-2009 were generally within the range of historical data: for the selected facilities and constituents the relative percent difference was 16 percent. Furthermore there are no discernible trends for individual facilities or constituents, suggesting that the overall quality of recycled water remained consistent for the last two decades.

The San Diego Water Board gathered data from annual reports, both voluntary and permit required. All comparisons are approximations due to inconsistent methods of measuring, reporting and gathering data. In addition, volumes and percentages of recycled water produced and distributed may vary due to storage conditions and due to instances of production/distribution between agencies and jurisdictional areas of the San Diego, Los Angeles, and Santa Ana Water Boards.

ATTACHMENT RECYCLED WATER ANNUAL SUMMARY 2008 AND 2009
Data Tables and Charts

| Recycled Water Facility Production | | | | | Potable Water Use | | | |
|------------------------------------|----------------------|----------------------------|-------------------------|-----------------------|------------------------|---------------------------------------|---------------------------|---|
| # of Facilities Reporting | Permitted Flow (mgd) | Total Vol. Treated (ac-ft) | Volume Disposed (ac-ft) | Volume Reused (ac-ft) | Percent Reused (ac-ft) | San Diego Co. Water Authority (ac-ft) | MWD of Orange Co. (ac-ft) | Metropolitan W/D of Southern California (ac-ft) |
| 2007 | 41 | 163.8 | 103,983 | 51,392 | 51,196 | 49.2% | 669,785 | 2,230,000 |
| 2008 | 42 | 161.9 | 113,724 | 54,119 | 58,456 | 51.4% | 601,362 | |
| 2009 | 29 | 146.9 | 104,777 | 49,376 | 54,928 | 52.4% | 552,567 | 575,000 |

RECYCLED WATER USE SITE SURVEY

Reported User Data

| # of Sites | Total Reuse (ac-ft) | Average Reuse (ac-ft) | Median Reuse (ac-ft) | # Inspections | # Sites Inspected | # Violations | # Sites with Violations |
|------------|---------------------|-----------------------|----------------------|---------------|-------------------|--------------|-------------------------|
| 2008 | 2,720 | 29,474 | 10.8 | 4.1 | 2,318 | 1,776 | 520 |
| 2009 | 3,981 | 40,764 | 10.2 | 3.8 | 4,403 | 2,303 | 405 |
| | | | | | | | 72 |

Number of Reuse Sites by Type

| # of Irrigation Sites | # of Irrigation/Industrial Sites | # of Industrial Sites | # of Dust/Construction Sites | Irrigation (ac-ft) | Industrial (ac-ft) | Dust/Construction (ac-ft) |
|-----------------------|----------------------------------|-----------------------|------------------------------|--------------------|--------------------|---------------------------|
| 2008 | 2,685 | 2 | 3 | 23,103 | 6,308 | 0 |
| 2009 | 2,505 | 1,455 | 12 | 25,632 | 14,361 | 179 |

Volume Reused by Site Type

Volume by Hydrologic Area

| # of Irrigation Sites | # of Irrigation/Industrial Sites | # of Industrial Sites | # of Dust/Construction Sites | Irrigation (ac-ft) | Industrial (ac-ft) | Dust/Construction (ac-ft) |
|-----------------------|----------------------------------|-----------------------|------------------------------|--------------------|--------------------|---------------------------|
| 2008 | 12,146 | NR | 8,260 | 643 | 0 | NR |
| 2009 | 14,539 | 2,917 | 4,827 | 7,413 | 1,661 | 2,815 |

NR: Not reported

ATTACHMENT 1 RECYCLED WATER ANNUAL SUMMARY 2008 AND 2009
Data Tables and Charts

SOURCE AND RECYCLED WATER QUALITY

Average Source Water Quality

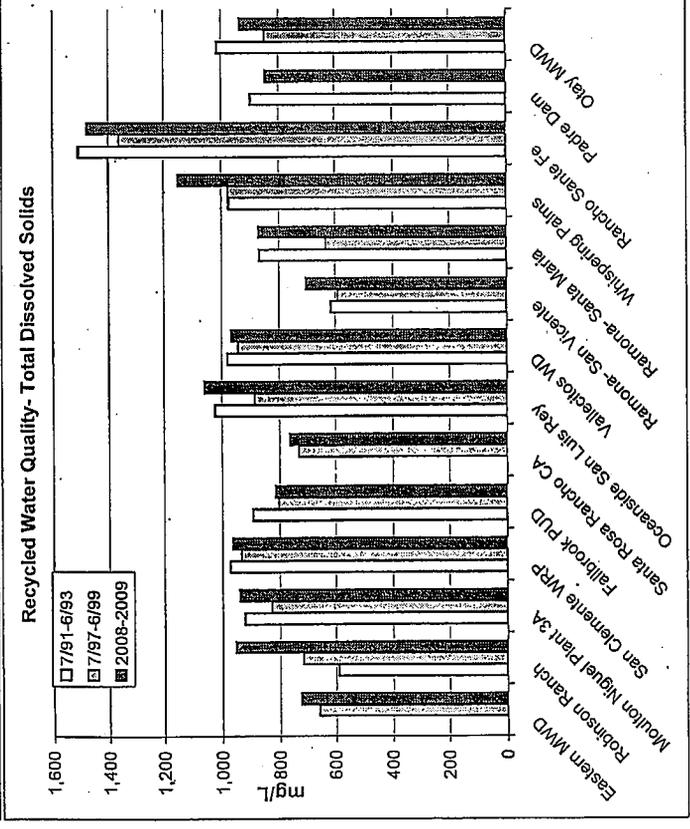
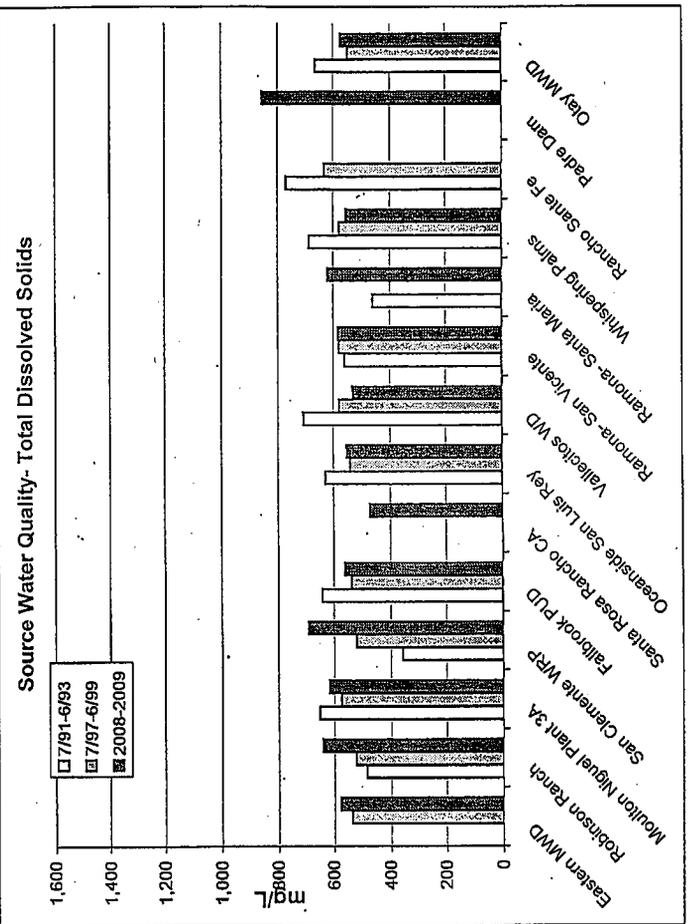
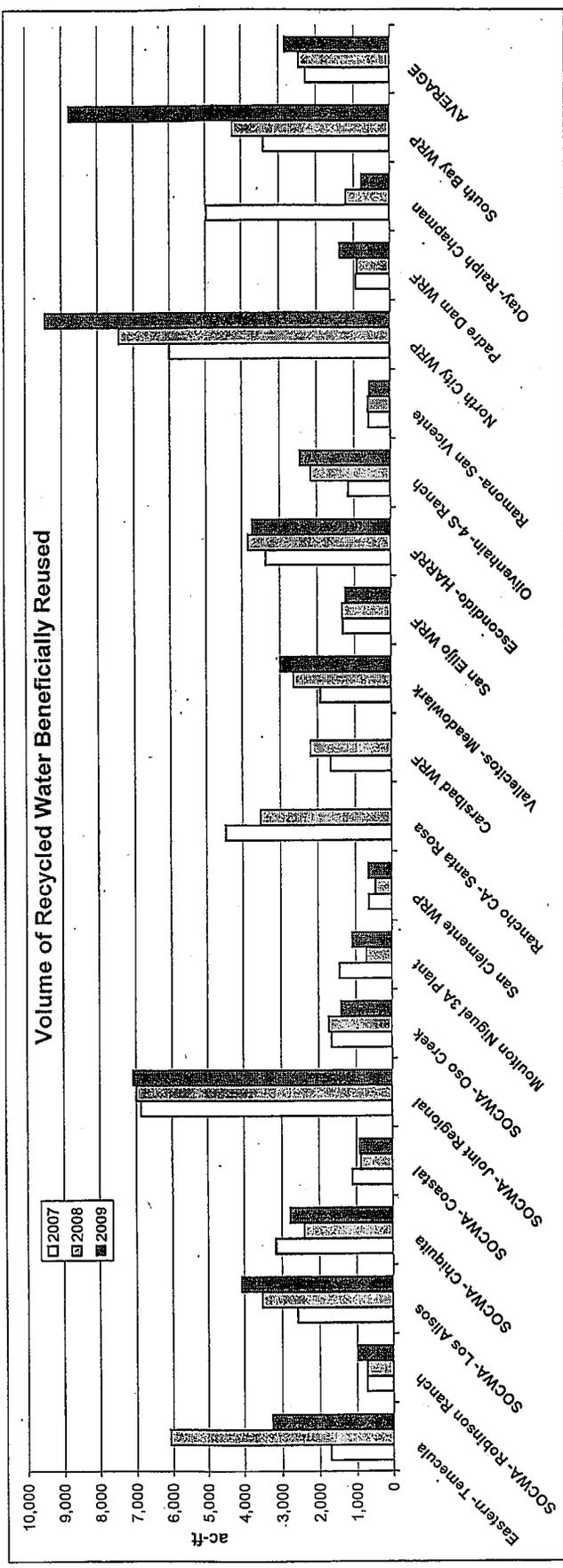
| | TDS (mg/L) | Chloride (mg/L) | Sulfate (mg/L) |
|------|---------------|--------------------|-------------------|
| 2008 | 625 | 104 | 197 |
| 2009 | 685 | 126 | 211 |

Average Recycled Water Quality

| | TDS (mg/L) | Chloride (mg/L) | Sulfate (mg/L) | Percent Sodium (%) | Nitrate (mg/L) | Total Nitrogen (mg/L) | Iron (mg/L) | Manga- nese (mg/L) | MBAS (mg/L) | Boron (mg/L) | Turbidity Daily Avg (NTU) | Color (Units) | Fluoride (mg/L) |
|------|---------------|--------------------|-------------------|-----------------------|----------------|-----------------------------|----------------|--------------------------|----------------|-----------------|---------------------------------|------------------|--------------------|
| 2008 | 915 | 236 | 226 | 53.8 | 17.5 | 11.9 | 0.12 | 0.07 | 0.18 | 0.43 | 1.0 | 10 | 0.57 |
| 2009 | 917 | 224 | 245 | 49.3 | 18.0 | 7.4 | 0.11 | 0.04 | 0.16 | 0.38 | 1.0 | 6 | 0.75 |

TDS= Total dissolved solids; MBAS= Methylene blue-activated substances

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