Quest for Reliability: San Diego’s Water Story

Water Education Foundation
May 19, 2016

Mark Weston, Chair, Board of Directors
Maureen Stapleton, General Manager
Dec. 1915: San Diego in multi-year drought
City Council hires Rainmaker Charles Hatfield, aka “moisture accelerator”
  • $10,000 “no rain, no pay” contract to “fill Morena Reservoir”
  • Devised potion and put in “rainmaking tower”
Inspired 1956 film *The Rainmaker*
History of Water Authority

- Nov. 29, 1944: President Franklin D. Roosevelt issues directive:
  - U.S. Navy to build pipeline connecting MWD’s Colorado River Aqueduct to City of San Diego’s just-completed San Vicente Reservoir in Lakeside
  - Annexation to MWD
Nov. 26, 1947: first Colorado River water flows into San Diego County at the San Vicente Reservoir
- San Diego had less than three weeks of water supply left
San Diego County Water Authority

- Wholesale water agency created by State Legislature in 1944
  - 24 member agencies
  - 36-member board of directors
  - Serves 3.2 million people and region’s $218 billion economy

- Service area
  - 950,000 acres
  - 97% of county’s population

- Largest member agency of Metropolitan Water District of Southern California
San Diego County Water Supply 1991

Total = 578,000 AF

Metropolitan Water District
552,000 AF
95%

Local Supplies
26,000 AF
5%
1991–92: San Diego’s Drought Crisis

San Diego Civic Leaders
“Never Again!”
“No More Water Shortages!”

State to Shut Off Water Delivery to Southland
Limits on tap water use urged by staff
S.D. Faces 31% Cut in Imported Water Supply
50% Water-Delivery Cut Will Be Blow to San Diego

San Diego County Water Authority

State Water Project cuts off water to farms; urban slack expected
L.A. Ready to Battle San Diego Over Water

Water: Authority to Vote Today on Mandatory Restrictions

Companies cringe at 50 percent cut in water

Grim water outlook is getting even worse

SACRAMENTO – Gov. Pete Wilson on Monday announced a drought that Southern Calif. will be cut off from traditional source of water. Wilson said that height of drought conditions had forced the state to notify cities and ind...
Strategy: Improving Water Reliability

- Conservation
- Canal Linings
- Reclaimed Water
- Carlsbad Desal Plant
- Potable Water Reuse
- Infrastructure Improvements
Water Authority’s Colorado River Quantification Settlement Agreement Supplies Continue to Grow

- Imperial Irrigation District transfer
  - Term: 45 to 75 years
  - 100,000 acre-feet in 2015
  - Ramps up to 200,000 AF/year by 2021
- Canal-lining projects
  - 80,000 AF/year for 110 years
- Higher priority than MWD’s Colorado River supplies
- 34% of region’s supply in 2020

IID and Canal Lining Deliveries 2003-2021
Carlsbad Seawater Desalination Project
- $1 billion investment
- 56,000 acre-feet/year of drought-proof supplies
  - Largest seawater desalination facility in North America
- Commercial operation began December 2015
The reduction in potable per capita water use since 1990 offsets the need for over 300,000 acre-feet per year within the region.
Increasing San Diego County's Water Supply Reliability through Supply Diversification

1991
- Total = 578 TAF
- 550 TAF (95%)
- 28 TAF (5%)

2015
- Total = 533 TAF
- 305 TAF (57%)
- 80 TAF (15%)
- 26 TAF (5%)
- 18 TAF (3%)
- 4 TAF (1%)

Estimated 2020
- Total = 587 TAF
- 150 TAF (26%)
- 80 TAF (14%)
- 44 TAF (7%)
- 48 TAF (8%)
- 27 TAF (5%)
- 48 TAF (8%)

Projected 2035
- Total = 680 TAF
- 120 TAF (18%)
- 80 TAF (12%)
- 50 TAF (7%)
- 50 TAF (7%)
- 30 TAF (4%)
- 50 TAF (7%)
- 100 TAF (15%)

Legend:
- Yellow: Metropolitan Water District
- Blue: Imperial Irrigation District Transfer
- Red: All American & Coachella Canal Lining
- Purple: Recycled Water
- Orange: Seawater Desalination
- Light Blue: Local Surface Water
- Dark Purple: Potable Reuse (Includes conceptual and planned projects)

TAF = Thousand Acre-Feet
Next Increment of San Diego County’s Water Supply: Potable Reuse

- City of San Diego Pure Water: 96,000 AF/year
- Padre Dam Advanced Purification Program: up to 3,000AF/year
- 11 Water Authority agencies pursuing potable reuse, with potential for up to 100,000 AF/year by 2035
Historic Investments in Infrastructure

San Vicente Dam Raise & Related Projects
$816 million

Twin Oaks Valley Water Treatment Plant
$179 million

Pipeline Relining
$493 million

Carlsbad Seawater Desalination Projects
$1 billion

Plant Site

Olivenhain Dam & Reservoir
$198 million

All-American & Coachella Canal Lining Projects
$447 million
($190 million from Water Authority)

Lake Hodges Projects
$208 million

Pump House Detail
San Diego County: 1990 vs. 2015

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<th>1990</th>
<th>2015</th>
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<tr>
<td>Potable water use</td>
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<tr>
<td>(thousand acre-feet)</td>
<td>641</td>
<td>507</td>
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<tr>
<td>Population</td>
<td>2.4</td>
<td>3.2</td>
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<td>(millions)</td>
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<td>Gross Domestic</td>
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<td>Product (billions)</td>
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<td>Jobs (millions)</td>
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<tr>
<td>Potable gallons</td>
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<tr>
<td>per capita daily</td>
<td>641 $114*</td>
<td>507 $218</td>
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<tr>
<td>use</td>
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<td>Cost of water</td>
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<tr>
<td>per acre-foot</td>
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<td>(full service</td>
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<td>treated water rate</td>
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* 2015 dollars
Today’s Tour Stops
Project: San Vicente Dam Raise
Approved: 1998; CSP added 2003
Complete: 2014
Cost: $401 million
Benefit: 152,000 acre-feet of new storage
Project: Olivenhain Dam & Reservoir
Approved: 1998
Complete: 2003
Cost: $198 million
Benefit: 24,800 AF of storage
Stay in Touch with the Water Authority

Video & Slide Sharing
- YouTube: youtube.com/SDCWAvideo
- SlideShare: slideshare.net/waterauthority

Mobile Apps
- sdcwa.org/mobile-news-app
- When in Drought Report Waste

Social Media
- Facebook: facebook.com/SanDiegoCountyWaterAuthority
- Twitter: @sdcba @mwdfacts
- RSS: sdcwa.org/rss

www.sdcwa.org