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CALIFORNIA URBAN WATER AGENCIES
SURVEY OF 1991
DROUGHT MANAGEMENT MEASURES

COMPENDIUM OF RESULTS

June 1991

MEMBER AGENCIES

*Alameda County Water District
Contra Costa Water District
East Bay Municipal Utility District
Los Angeles Department of Water & Power
Metropolitan Water District of Southern California
Municipal Water District of Orange County*

*Orange County Water District
San Diego County Water Authority
San Diego Water Utilities Department
San Francisco Public Utilities Commission
Santa Clara Valley Water District*

BACKGROUND

This report presents the results of a survey conducted in May of 1991 of the emergency drought actions being taken by the agencies that supply water to California's population centers--its largest cities. This survey did not include conservation measures already in place to deal with increasing population and constraints on developing new water supplies. The report, therefore, does not describe all the intensified efforts to respond to drought conditions over the past four years. It is limited to reporting the measures now being adopted (effective on June 1, 1991) to deal with urban water demands of the summer and fall in this fifth year of the worst California drought of this century.

This survey was undertaken to provide CUWA member agencies with up-to-date information on what the other member agencies are doing; and to report these activities to water managers and planners for sharing ideas and strategies for responding to emergency drought conditions.

There are major differences among the 11 member agencies surveyed that prevent direct comparison of the methods being employed to meet their individual objectives. Four are wholesale suppliers of water to other agencies; three are retail suppliers of water direct to consumers; three are engaged in both retail and wholesale supply; and one (Orange County Water District) is a groundwater management district that regulates groundwater pumping and plans water management programs. While all of these agencies share a common goal of reducing water use in 1991, Orange County Water District will manage an overall increase in groundwater pumping in its region in order to offset reduced supplies of surface water.

The results of the survey are presented graphically and highlights are described in a summary of individual agency programs.

DEFINITIONS OF TERMS USED IN SURVEY

- A. *Mandatory metered rationing*
Specified water allotments enforced by metering

- B. *Mandatory conservation*
Restrictions on water use for purposes such as landscape irrigation, washing cars, etc.
- C. *Extreme voluntary conservation*
Extraordinary requested measures with guidelines or rules set, but without penalty or other enforcement
- D. *Steeply inclined (increasing) commodity rates or surcharges*
Sharply increased rates or surcharges based on using increasing amounts of water above allotments
- E. *Direct economic incentives*
Payment directly to customers for installing retrofit devices or other water-saving measures that would not have been implemented otherwise
- F. *Water-saving device distribution*
Distribution of retrofit devices beyond existing pre-1991 program
- G. *Media public information*
Media information programs beyond those already in use prior to 1991 program
- H. *Mailed public information*
Special mailings or bill stuffers that address increased need to save water in 1991
- I. *Water-waste patrols and citations*
Enforcement by patrols and citations for violations of restrictions
- J. *Enforcement by fines or meter disks*
Fines or devices on meters to restrict water delivery to violators of rules or allotments

SUMMARY OF 1991 DROUGHT MANAGEMENT PROGRAMS

JOINT EFFORTS

San Francisco Bay Area agencies are carrying out a multi-agency radio advertising campaign. CUWA member participants are Alameda County Water District, Contra Costa Water District, East Bay Municipal Utility District, San Francisco

CONTACTS FOR MORE INFORMATION

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Water Department, Santa Clara Valley Water District. (Alameda County Water Conservation and Flood Control District is the lead agency.)

WHOLESALE WATER SUPPLIERS

METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA (MWD/SC)

MWD/SC is a wholesale water agency supplying water to 15 million people through 27 member agencies. MWD/SC's normal water supply is from the Colorado River and the State Water Project (SWP). The percentage of supplies from these sources varies from year to year. In 1988, the Colorado accounted for 65 percent of the supply; the SWP accounted for 35 percent. In 1991, MWD/SC plans to use supplemental water from the State Emergency Water Bank (SEWB). As the largest wholesale water supplier for Southern California, MWD/SC supplies all or part of the water supply for several CUWA member agencies. MWD/SC has developed a six-stage Incremental Interruption and Conservation Plan (IICP) that allows MWD/SC to adopt appropriate measures for allocating water under changing conditions of availability. The most severe shortages would be addressed by Stage VI, which would trigger a 50 percent reduction of total water deliveries compared with normal deliveries. At Stage VI, there would be a 90 percent reduction in interruptible deliveries and a 30 percent reduction in non-interruptible deliveries, with an expected savings of 1,200,000 acre-feet per year (AFY). (An acre-foot is the amount of water it takes to supply the indoor and outdoor needs of one to two families for a year.) MWD/SC anticipates that with conservation efforts and additional supplies from the SEWB, operation at Level V (31 percent savings) will be possible through 1991. MWD/SC is presently conducting pilot programs and research projects to measure the effectiveness of various water conservation measures, including media and other public information programs.

MWD/SC's 1991 program includes: (1) a water surcharge and rebate program to encourage water conservation; under this program, member agencies which exceed their water allocation under the IICP must pay triple rates for water, while member agencies using less than their allocation receive a rebate of about \$100/AF for their extra water savings; (2) water conservation packets furnished to wholesalers for

distribution to their retail customers; (3) weathercaster slides for use by local television stations, emphasizing low water storage; (4) restaurant tent cards explaining to customers why water is served only on request; (5) "Drought-resistant" plant tags, distributed through the Nurserymen's Association; (6) Camera-ready articles and artwork on the drought, provided to member agencies for use in local newspapers; and (7) a task force on implementation, to assist local water purveyors in developing and adopting water conservation ordinances, and to develop and implement other methods of improving water use efficiency.

MUNICIPAL WATER DISTRICT OF ORANGE COUNTY (MWDOC)

Like MWD/SC, MWDOC is a wholesale agency. MWDOC serves a population of 1.5 million through its 28 member agencies. MWDOC's normal water supply is from MWD/SC. One-third of MWDOC's member agencies are wholly dependent on imported water. MWDOC is implementing a variety of conservation programs in conjunction with its member agencies and MWD/SC. Orange County makes extensive use of reclaimed water and promotes the use of new technologies, such as drip irrigation, among consumers with commercial irrigation needs. MWDOC has expanded its public information program which includes: 1) videos for cable and library distribution; 2) workshops and seminars for member agencies; 3) newsletters; 4) speakers bureau; and 5) an educational program that reaches more than 135,000 students annually throughout Orange County.

SAN DIEGO COUNTY WATER AUTHORITY (SDCWA)

SDCWA receives most of its water from MWD/SC, with a small amount of its normal supply from local ~~groundwater~~ ^{Surface Sources} (less than ten percent). SDCWA serves a population of 2.5 million people in most of San Diego County through a network of 23 member agencies.

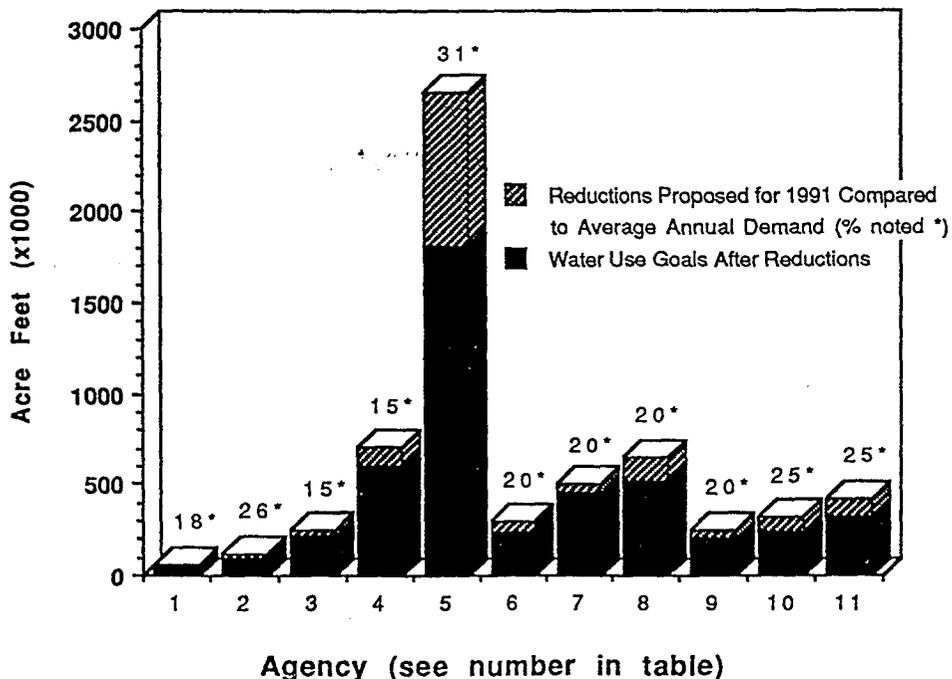
In 1991, SDCWA plans to use supplemental water from the SEWB. To meet 1991 and future needs, SDCWA is also investigating additional opportunities for using reclaimed water. SDCWA has funded a mobile lab which performs irrigation water audits. 1991 programs include: (1) Community College class participation; (2) bilingual, multi-media public

1991 Water Use Goals and Drought Management Measures

AGENCY	Percentage Water Use Reduction Goals for 1991 Compared to Base Year													
	Total	Residential	Industrial	Commercial / Institutional	Drought Management Measures									
					A	B	C	D	E	F	G	H	I	J
1. Alameda Co. WD	18	16	15	15		X		X		X	X	X		
2. Contra Costa WD	26	33	15	25	X		X	X		X	X	X		X
3. East Bay MUD	15	20/7*	5	10	X	X		X	X	X	X	X		
4. LA Dept. of W&P	10	15	15	15	X	X		X	X	X	X	X	X	X
5. MWD of Southern CA	31	N/A	N/A	N/A				X	X		X			
6. MWD of Orange Co.	20	N/A	N/A	N/A		X	X	X	X	X	X	X	X	X
7. Orange Co. WD	20	N/A	N/A	N/A			X		X		X	X		
8. San Diego Co. Water Auth.	20	N/A	N/A	N/A	X	X	X	X	X	X	X	X	X	X
9. City of San Diego WUD	20	20	20	20			X			X	X	X	X	
10. San Francisco PUC	25	25	25	25	X	X		X		X	X	X		X
11. Santa Clara Valley WD	25	30	15	15	X	X		X			X	X	X	X

* Single Family/Multi-Family

Proposed Total Water Use Reductions for 1991 by Member Agencies



information program; (3) 4th grade educational program; (4) public facility retrofit program; (5) news media seminars ("Drought 101"); (6) films, newsletters; (7) "water cops" training program.

SANTA CLARA VALLEY WATER DISTRICT (SCVWD)

SCVWD serves a population of 1.5 million people through 12 major retailers. In 1987 the District's supply consisted of 53 percent imported water from a combination of SWP, Central Valley Project (CVP), and Hetch Hetchy (SFWD). The remaining 47 percent came from local groundwater and surface water supplies. In 1991, the SCVWD will use supplemental water from Placer and Yuba County transfers, SFWD, and CVP hardship water. SCVWD prepared a Drought Plan in 1989 that has served as the basis for its local drought management programs through subsequent drought years. Drought Status Reports are prepared monthly to track the status of water use by local retailers. In addition to ongoing public information programs, the SCVWD has established a speaker's bureau to address local groups. During 1990-91, the SCVWD continued its conservation efforts through the winter months and adopted a 25 percent annual water use reduction program for the 1991 calendar year. This program is likely to continue into 1992. To heighten public awareness, the District sponsored a contest, "Winning Ways of Saving Water in the Winter". A public information campaign will continue through the summer by utilizing the local print media and transit buses.

RETAIL WATER SUPPLIERS

ALAMEDA COUNTY WATER DISTRICT (ACWD)

ACWD serves a population of 265,000. Its normal water supply is 54 percent from SWP, 30 percent from SFWD, and 16 percent from local sources. In 1991, ACWD plans to use supplemental water from the SEWB. ACWD is participating in the multi-agency radio campaign mentioned above. Intensified public information efforts of ACWD also include newspaper advertising. The District is also mailing information on past usage, water budget guidelines, and water conservation tips. The education program has been expanded with increased conservation kits and literature handouts. Mandatory use restrictions have been added, with flow restrictors and possible shutoff for flagrant water waste violations.

ACWD has adopted an inclining block rate structure for water used in excess of baseline allowances, which are set at 85 percent of 1990 use for multi-family and non-residential accounts, and at 50 percent of 1990 use for landscape irrigation-only accounts. Single family residences receive a 350 gallon per day summer allowance, which drops to 250 gpd for October through March. In addition, households can apply for an extra 50 gpd for every household member in excess of four. Customers can also bank their water allocation so that water use below the baseline allocation can be carried over, applied in a subsequent billing period before additional charges apply. A special program to determine landscape irrigation efficiencies and to develop baseline use allowances utilizing evapotranspiration rates is underway.

EAST BAY MUNICIPAL UTILITY DISTRICT (EBMUD)

EBMUD serves a population of 1.2 million, and gets its normal water supply from its own Mokelumne River reservoirs. EBMUD has set residential single family allocations at 250 gallons per day (gpd) per customer, as the reasonable use for human needs and not subject to rate reductions for lower use or rate increases. This allocation is based on the probability that use in excess of this amount is for exterior and discretionary uses, and reduction efforts focus on these uses. There is an inclining block rate structure for water consumed by single family residential customers in excess of this amount. A separate inclining block rate structure applies to multi-family, irrigation, commercial, and industrial customers.

EBMUD also has a pilot program for irrigation system upgrades. Under this program, the District will pay for one-third of the hardware costs of a District recommended upgrade. The District also offers a discount on the System Capacity Charge paid for water meters as an incentive for installing drought-tolerant landscaping for public agencies. Besides participating in the multi-agency radio ad campaign, EBMUD had an innovative multi-media advertising program. The first-ever winter advertising campaign was conducted in 1990-91, and the latest advertising was directed at heightening awareness of the wastefulness of specific water uses. For example, one ad reads: "No matter how much you water cement, it will never grow." The advertising program has been discontinued for 1991. A direct mailer has been distributed to all customers

following adoption of the 1991 drought management program. It communicates details of the water supply situation, conservation goals by customer group, related rates and restrictions, and provisions for restrictions.

CITY OF LOS ANGELES DEPARTMENT OF WATER AND POWER (LADWP)

LADWP serves a population of 3.4 million. Historically, 70 percent of the LADWP's water supply has come from the Owens Valley and Mono Basin through the Los Angeles Aqueduct (LAA); 16 percent has come from local groundwater sources; and the remaining 14 percent has come from MWD/SC. As a result of the drought and reallocations of the Owens Valley/Mono Basin supplies due to environmental considerations, the LAA supply was reduced to 21 percent while the MWD/SC supply increased to 64 percent in 1990-91. For calendar year 1991 DWP expects to obtain 41 percent of its supply from MWD/SC, 28 percent from the LAA, 16 percent from local groundwater, and 15 percent through conservation. If the higher levels of conservation are maintained the portion from MWD/SC will be reduced. LADWP has spent \$5 million on its advertising and community outreach program since April 1990, consisting of TV, radio, print, billboard, and mailed information and bill inserts. LADWP has also prepared a "DWP Pocket Guide to the City's Emergency Water Conservation Plan," describing its provisions, surcharges, and the appeal process. LADWP has a conservation kit distribution program for its 80,000 low-income customers, with installation if requested. A \$100/toilet rebate program has resulted in the installation of almost 40,000 Ultra-low-flow toilets since April of 1990. Thirty "Drought Busters" patrol the city to enforce prohibited uses. LADWP has a \$0.09 per hundred cubic feet surcharge to recover lost revenue due to rationing.

SUPPLIERS OF BOTH WHOLESALE AND RETAIL WATER

CONTRA COSTA WATER DISTRICT (CCWD)

CCWD serves a population of 200,000 with treated water through 56,000 retail service connections, and another 200,000 people through 700 connections for delivering untreated (raw) water for wholesale service. CCWD's normal water supply is from the CVP. CCWD is investigating other sources to meet 1991

needs. CCWD has adopted increasing block rates for water used in excess of allotments, which are based on water use in 1990 for wholesale customers. Retail customers are allocated 280 gallons per day for single-unit residences, which may be increased by 70 gallons per day for each resident in excess of four by application to the district. Allocations for non-residential customers of treated water are based on a percentage of 1990 use. Water savings below a customer's allocation in any period may be carried over and used in a subsequent period before penalties for excess use are applied. The District has prohibited a number of uses, including using water for decorative fountains or filling decorative lakes or ponds, washing paved areas, all but essential flushing of sewers or hydrants, gutter flooding, and new irrigation, including landscape irrigation. Potable water cannot be used for construction if any other water supply is reasonably available. The regulations do not apply to recycled water. CCWD has a staff of 10 college interns who visit customers' homes to install retrofit devices, check toilets for leaks, and develop watering schedules to show customers how to more efficiently water their landscapes.

CITY OF SAN DIEGO WATER UTILITIES DEPARTMENT (SDWUD)

SDWUD supplies water retail to over a million customers, and wholesale water to about 90,000 customers. SDWUD receives all of its normal water supply from SDCWA except about 10 percent from local sources. A four-stage city ordinance has been adopted to enable rapid response to changing water supply conditions. Voluntary conservation is being used to reach reduction goals, and mandatory provisions of the ordinance will be applied only if this becomes necessary. SDWUD has a rebate program for low-flush toilet installation and a single and multi-family retrofit program. SDWUD also has a 24-hour hotline for information and reporting of water waste.

SAN FRANCISCO PUBLIC UTILITIES COMMISSION, WATER DEPARTMENT (SFWD)

SFWD supplies retail water to 730,000 residents, and wholesale water to a population of 1.9 million through 75 connections. SFWD's normal water supply is made up of 85 percent from its Hetch Hetchy reservoirs, and 15 percent from local sources. In 1991, SFWD plans to use supplemental water from the SEWB and purchase other surface and groundwater. Mandatory

rationing is being applied system-wide to achieve a 25 percent reduction. Mandatory use restrictions have been adopted, as well as excess use charges. The public information program includes multi-lingual radio ads, TV public service spots, transit advertisements, and handouts in public transit vehicles. Public information packets are provided to new customers with information on the rationing program, how to read meters, and conservation tips for inside and outside water use.

GROUNDWATER MANAGEMENT DISTRICT

ORANGE COUNTY WATER DISTRICT (OCWD)

OCWD is a groundwater management agency, managing 60 percent of the water needs of 2 million people that overlie the groundwater basin in the central and northern portion of Orange County. Effective February 1991, OCWD approved an increase in the basin production percentage from 70 percent to 80 percent in response to the drought. This was done to reduce the reliance on imported water and free surface supplies for other users. OCWD also sells reclaimed water to cities and businesses. The District has a low interest loan program to develop conjunctive use projects. OCWD has had an "In-Lieu" program to pay groundwater producers the difference in cost between imported and groundwater, to encourage them to buy extra imported water from MWD and save the groundwater supply. Because of supply conditions, this program is expected to be suspended. OCWD, along with Municipal Water District of Orange County, have created the Orange County Water Information Center to handle public inquiries regarding the drought and conservation, and has a published toll-free number.

If the Drought is Even Worse In 1992...

The survey asked member agencies what additional drought management measures they would consider using if the drought continued in 1992. In most cases, agencies reported that they would have to consider more stringent mandatory rationing and restrictions, tougher enforcement, and higher levels of cutbacks. Most reported that they would also seek new sources of additional supplies, including water transfers and development of more groundwater and reclaimed water. Several agencies reported that they would consider some combination of bans on annexations, prohibitions of new services, new landscaping, and pooling of allotments. Most would also increase rates and penalties for use above allotments.