

# **2007 Urban Drought Workshop From Plan to Action**

**City of Davis  
September 11, 2007**

# **Welcome & Introductions**

**Bob Weir**  
**Public Works Director**  
**City of Davis**

**Why are  
we here today?**

# Drought Survey Results

## *85 responses*

- 76% respondents over 5,000 connections
- 71% taken action
- 20% formally declared drought
- 72% request info on assisting customers
- 68% request grants
- 13% request loans

# **Drought / shortages impact communities**

- Environmental
- Economic
- Quality of life

# Planning can help minimize impacts

- Protect environment
- Supplement supply
- Decrease demand
- Long term net gains - permanent reductions
- Equity of impact = community as team

# Planning can help minimize impacts

- Update water shortage contingency plan
- Suppliers ready to implement plan by Spring 2008
- Regional planning and cooperation formalized
- Sharing outstanding elements of plans
- Free flow of information

# Drought Planning

- Taken seriously and updated regularly
- Staff and budget
- Flexibility and creativity
- Community participation

**What has already  
happened?**

# WHAT HAS ALREADY HAPPENED?

<b>Reduction</b>	<b>Water Supplier</b>	<b>Announced</b>
10%	San Francisco PUC	11-April
15%	East Bay MUD	25-April
20%	Tuolumne Utilities District	25-April
10-15%	Redwood Valley County WD	15-May
10%	City of Los Angeles	5-June
10%	Dublin-San Ramon Services Dist.	12-June
15%	Sonoma County Water Agency	15-June
10%	San Diego County Water Authority	28-June
20%	Ventura River County WD	11-July
10%	City of Glendora	24-July
20%	San Lorenzo Valley WD	9-Sept

**Manucher Alemi**  
**Calif. Department**  
**of Water Resources**

# Department of Water Resources Office of Water Use Efficiency and Transfers

## Resources:

- Draft Drought Guidebook: [http://Drought Preparedness:](http://DroughtPreparedness)  
<http://watersupplyconditions.water.ca.gov/>

# Department of Water Resources Office of Water Use Efficiency and Transfers

Information is available at:

- <http://watersupplyconditions.water.ca.gov/>
  - Workshops in November 2007 (to be announced)
- <http://www.watertransfers.water.ca.gov/>
- <http://watersupplyconditions.water.ca.gov/hydrologic.cfm>



- [DWR Home](#)
- [OWUE Home](#)
- [Financial Assistance](#)
- [Ag Water Management Planning](#)
- [Agricultural Water Use](#)
- [Ag Drainage Reduction and Reuse](#)
- [Statewide Drainage Management/SJVDIP](#)
- [Eco/Mobile Irrigation Laboratory](#)
- [CIMIS](#)
- [Urban Water Management Planning](#)
- [Landscape Water Use](#)
- [Leak Detection](#)
- [CII Water Management](#)
- [Water Recycling and Desalination](#)

Office of Water Use Efficiency  
 Department of Water Resources

901 P Street, Third Floor  
 Sacramento, CA 95814



**Water Use Efficiency and Transfers Home**

**Mission**

The **Office of Water Use Efficiency and Transfers** provides support for the stewardship of California's water resources by promoting and facilitating the energy efficient use of water (including water transfers) and facilitates in the **CALFED** solution area. This office is responsible for water use efficiency planning and coordination. Our services include technical and financial assistance, information collection and dissemination, resources evaluation, and implementation, reviewing, facilitating and implementing water transfers.

**Services**

- Provides expertise to local agencies and individuals regarding agricultural and urban water and energy conservation, reclamation and reuse of water, land and water use, and drainage management.
- Manages the California Irrigation Management Information System (CIMIS) by collecting weather data from over 120 stations and disseminating calculated reference evapotranspiration (ET<sub>o</sub>) to assist landscape and crop managers irrigate efficiently.
- Assists in establishing mobile laboratories that conduct irrigation system evaluations.
- Carries out data analysis, demonstration projects, and research to achieve energy and water use efficiency.
- Provides loans and grants to make more efficient use of water and energy resources.
- Facilitate water transfers in a manner that prevents: 1) injury to the legal users of the water, 2) unreasonable effects to fish and wildlife, and 3) unreasonable effects to the overall economy of the counties from which the water is transferred, consistent with State law.

Search

DWR My CA



- OWUE
- [Organizational Chart](#)

- OWUE Links
- [Related Links](#)
  - [News](#)
  - [NEW Drought Workshops](#)
  - [Drought Tips - Links](#)

# Department of Water Resources Office of Water Use Efficiency and Transfers

## Drought Tips

- Landscape: <http://www.owue.water.ca.gov/landscape/index.cfm>
- Leak Detection: <http://www.owue.water.ca.gov/leak/index.cfm>
- CII Water Management:  
<http://www.owue.water.ca.gov/cii/index.cfm>
- Water Conservation Tip Sheet:  
<http://www.owue/events/events.cfm>
- Ag Drought Tips: <http://www.owue/drlinks/drlinks.cfm>

# Department of Water Resources Office of Water Use Efficiency and Transfers

Urban Water Management Plan and Water Shortage Contingency  
Plans Information is available at:

<http://www.owue.water.ca.gov/urbanplan/uwmp/uwmp.cfm>

Technical Assistance

- State Water Project Reliability Report :  
[http://baydeltaoffice.water.ca.gov/SWPRel05\\_final.pdf](http://baydeltaoffice.water.ca.gov/SWPRel05_final.pdf)
- Small Water System Leak Detection Workshops (to be scheduled soon): <http://www.owue/events/events.cfm>

# **Department of Water Resources Office of Water Use Efficiency and Transfers**

Contact Information:

Dave Todd

Office of Water Use Efficiency & Transfers

California Department of Water Resources

(916) 651-7027

[dtodd@water.ca.gov](mailto:dtodd@water.ca.gov)

**Kevin Clancy**  
**U.S. Bureau of**  
**Reclamation**

**Chris Brown**  
**Calif. Urban Water**  
**Conserv. Council**

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California Urban Water Conservation Council

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BMP Reporting Database

Membership

## News

### ***DROUGHT ACTION ALERT!***

Check for the latest drought-related news, references and program funding information



## Headlines

- Council Seeks Administrative/Executive Assistant
- Water Efficiency in a new Green Building Standard
- New Executive Director chosen to lead CUWCC

## Virtual Home Tour



Visit the Water Saver Home Now!



News of the  
**Alliance  
for Water  
Efficiency**

For full details,  
click [HERE](#)

## Search


Contact Us:  
[webmaster@cuwcc.org](mailto:webmaster@cuwcc.org)



Rebates Available!

PARTNERS FOR A WATER-EFFICIENT CALIFORNIA



Home

### Questions?

Marsha Prillwitz,  
Project Manager  
(916) 552-5885  
ext. 22

# Drought Action Alert!

## Are you prepared for another dry year? We can help!

On this page you will find a wide array of information and notices for upcoming events to help your organization deal with water shortages.

### Drought Workshops: From Plans to Actions!

#### New Update!

This Week's Drought News: August 4-10, 2007  
Drought News Archive July 28 - August 3, 2007  
Drought News Archive July 21-27, 2007



### Drought News Clips

- Drought News Clips July-August, 2007
- Drought News Clips May-June, 2007
- Drought News Clips March-April, 2007

These news clips focus primarily on drought, water shortage conditions, climate change in relation to water supply, water supply interruptions, and various actions that water suppliers, politicians, and citizens in California and the Western United States are taking in response to dry conditions. These clips were collected from the California Department of Water Resources' (DWR) *Water News* publication. [Click here to subscribe to daily issues of Water News via e-mail from the DWR Web site.](#) Note: For articles prior to March, 2007, go to the archive section of *Water News*.

### Drought Related Web Links

Here is a list of drought-related web sites that provide a wealth of information from current water supply outlooks to fire conditions and information regarding planning, monitoring, and implementing water shortage programs. Web site addresses change periodically, so please note the date of this list and look for updates as appropriate.

### Drought Related References

Here is a list of drought-related publications that provide background information as well as helpful drought management strategies and regulatory requirements related to water shortage contingency programs and water rationing. The publications are arranged in date order with the most recently published documents listed first.

### Drought Funding

Here is a list of potential sources of financial assistance for drought programs

**CONTACT INFO**

California Urban Water Conservation Council  
455 Capitol Mall #703  
Sacramento, CA 95814

Phone (916) 552-5885  
Fax (916) 552-5877

E-Mail  
[webmaster@cuwcc.org](mailto:webmaster@cuwcc.org)



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# Product News

## Technical Information

### Categories

- [Toilet Fixtures](#)
- [Urinal Fixtures](#)
- [Faucets and Showerheads](#)
- [Residential Hot Water Distribution](#)
- [Commercial Food Services](#)
- [Medical & Health Care Systems](#)
- [Residential Dishwashers](#)
- [High Efficiency Clothes Washers](#)
- [Landscape Irrigation Technologies](#)
- [Wet Cleaning](#)
- [Vehicle Wash Facilities](#)
- [End-Use Studies Multiple Technologies](#)
- [Potential BMP Reports](#)
- [Waterlogue Newsletter](#)
- [Weather-Based Irrigation Controllers](#)

## Landscape Irrigation Technologies

### SWAT™ – Smart Water Application Technologies™

What is SWAT™? Check it out here:

<http://www.irrigation.org/SWAT/Industry/>

For case studies and other reports, go here for the links:

<http://www.irrigation.org/SWAT/Industry/water-purveyors/case-studies.asp>

### Santa Monica's Drip Irrigation Guide (2006)

This 15-page guide is intended for landscape professionals.

- [Drip Irrigation Guide \(PDF\)](#)

### LADWP's Irrigation Controller Pilot Study

A Pilot Study commissioned by the Los Angeles Department of Water and Power documents "real world" water savings resulting from the use of weather-based landscape irrigation controllers for large multi-family residential (homeowners' associations) and small commercial and institutional sites (office buildings, schools, parks). Designed to determine how these controllers perform at sites with medium-to large-size landscapes, the study tracked water use (and savings) at 25 sites with roughly 83 acres of landscape improvements.

- [Irrigation Controller Pilot Study \(PDF\)](#)

### Two Irrigation Controller Studies Released

Two comprehensive studies were released that may provide significant new insight into understanding the relative performance abilities of the different units being marketed as "smart" ET or weather-based controllers. Comments on each of the studies is being solicited from water utilities and manufacturers.

#### 1) Metropolitan Water District's Bench Test

In October 2002, the Metropolitan Water District of Southern California (MWD) initiated a year-long bench test of the three distinct types of weather-based irrigation controllers. Designed to observe how the controllers achieved theoretical water application goals, this test is a valuable part of understanding how different products might perform to achieve water efficiency, plant health and user satisfaction. MWD's very comprehensive final study report is now available and may be downloaded for your review.

#### 2) University of California Cooperative Extension Service Controller



California  
Urban Water  
Conservation  
Council



# Memorandum

## What we are about

[Home](#)

### BMPs

- [BMP 1: Residential Surveys](#)
- [BMP 2: Residential Retrofits](#)
- [BMP 3: System Water Audits](#)
- [BMP 4: Metering](#)
- [BMP 5: Landscape](#)
- [BMP 6: Clothes Washers](#)
- [BMP 7: Public Info](#)
- [BMP 8: School Education](#)
- [BMP 9: CII](#)
- [BMP 10: Wholesaler Incentives](#)
- [BMP 11: Rates](#)
- [BMP 12: Consv Coordinator](#)
- [BMP 13: Waste Prohibitions](#)
- [BMP 14: ULFTs](#)
- [Potential BMPs](#)

First adopted December 11, 1991  
Last amended March 14, 2007

**CLICK HERE to download a PDF copy of the entire Memorandum**  
(If the file does not automatically download, right click on the link above and select "Save Target As..." from the drop-down menu.)

### Recitals

#### Terms:

- [Section 1. Definitions](#)
- [Section 2. Purposes](#)
- [Section 3. Limits to Applicability](#)
- [Section 4. Implementation of Best Management Practices](#)
- [Section 5. Bay/Delta Proceedings](#)
- [Section 6. California Urban Water Conservation Council](#)
- [Section 7. General Provisions](#)
- [Exhibit 1: BMP Definitions, Schedules & Requirements](#)
- [Exhibit 2: California Urban Water Conservation Council](#)
- [Exhibit 3: Principles to Guide the Performance of BMP Economic Analyses](#)
- [Exhibit 4: Form Letter to SWRCB](#)
- [Exhibit 5: SWRCB Annual Report Outline](#)
- [Exhibit 6: Assumptions and Methodology for Determining Estimates of Reliable Water Savings from the Installation of ULF Toilets](#)
- [Exhibit 7: Bylaws of the CUWCC](#)
- [Exhibit 8: Assumptions and Methodology for Determining CII ULFT Total Savings Potential](#)



# The Seven Steps

<b>ONE</b>	Establish a Water Shortage Response Team
<b>TWO</b>	Forecast Supply in Relation to Demand
<b>THREE</b>	Balance Supply and Demand: Assess Mitigation Options
<b>FOUR</b>	Establish Triggering Levels
<b>FIVE</b>	Develop Staged Demand Reduction Program
<b>SIX</b>	Adopt the Water Shortage Contingency Plan
<b>SEVEN</b>	Administer and Implement the Water Shortage Contingency Plan

# **Establish a Water Shortage Response Team**

# Select Team

General Manager

Water Shortage Response Team Leader

Water Treatment

Finance

Conservation

Engineering

Operations

Customer Service

Communications *large agency*

Environmental Review *large agency*

# Set priorities

- Avoid irretrievable loss of natural resources
- Eliminate supplier and customer waste
- Prioritize essential uses
- Create equitable demand reduction targets
- Minimize adverse financial effects
- Provide customers with programs and knowledge that allow flexibility and choice

# Maintain Momentum

- Appoint Leader and Team
- Start by December 1
- Public information campaign
- Prepare through winter/spring *regardless of precipitation*
- Supplemental supply agreements
- Plan for interconnections
- Modify and test computer programming and billing format
- New staff and equipment as needed

# Coordinate, Cooperate, Communicate

- Within agency
- Among agencies, tribal entities
- Regionally
- Community

# **Forecast Supply in Relation to Demand**

# Data Collection

- Supply *without supplemental supplies*
- Demand *by Normal, Dry Year, Customer Type*
- Supply/Demand analysis *is there a shortage?*

# Data Collection: Supply

### Normal/Average:

- Groundwater availability and production capability
- Local surface water storage and deliveries
- Wholesale water deliveries
- Recycled water supply
- Banked water supply and production capability
- Existing transfer agreements

# Data Collection: Demand

**Without reductions, with growth, normal and dry year:**

- Single Family *seasonal demand*
- Multi-family *seasonal demand, number of units*
- Commercial *by total & seasonal use, NAICS*
- Industrial *by total & seasonal use, NAICS*
- Institutional *by total/seasonal use, NAICS, special needs*
- Landscape Irrigation *seasonal demand, acres, plant type*
- Recycled *seasonal demand, acres, plant type, inside use*
- Agricultural *acres, crop type & age, soils, ETc*

# Data Analysis: Supply

**Range of Projections for 2008 - 2012 by year**  
*without augmentation, worst case scenario,*  
*increased uncertainty & variability for all supplies*

- Confidence intervals by source
- Combine supplies and confidence intervals
- Water quality changes by source

# Data Analysis: Water Quality

**Changes by source for 2008 - 2012 by year**  
*without augmentation, worst case scenario,*  
*increased uncertainty & variability for all supplies*

- Supplier and customer distribution systems
- Additional treatment needs
- Additional infrastructure for blending
- Budget impacts

# Data Analysis: Demand

- Demand by individual customer by month  
*compare 6 winter months to 6 summer months*
- Inside use by low-use month(s)
- Use per acre by crop, irrigation and soil type
- Water-use characteristics of special need customers  
(based on water surveys)

# Data Analysis: Demand

**Projections by customer type 2008 - 2012**  
*without reductions, assume worst case*

- dryness of year
- dryness of year by season
- inside use
- essential need
- economic impact

# Is there a predicted shortage?

**Example of Supplier with 10,000 AFY demand**

Year	Shortage	
2008	15%	1,500 AF
2009	25%	2,500 AF
2010	20%	2,000 AF
2011	40%	4,000 AF
2012	45%	4,500 AF

# Is there a predicted shortage?

**Before and during a water shortage, water wholesalers can offer :**

- Allocation process *retailers*
- Regular water supply availability *retailers*
- Consistent regional media message
- Supplemental supply financing and purchases and agency interconnections
- Regional demand reduction
- Demand reduction projects

# Is there a predicted shortage?

**Before and during a water shortage, water retailers and wholesalers can:**

- *Carryover amount should be enough to meet essential health, safety, and firefighting needs if the subsequent winters are as dry as the driest years on record*
- *Climate Change impacts of the variable weather patterns associated with climate change may be longer, drier droughts, more variability in precipitation and uncertainty when predicting future supply*

# Catastrophic Supply Interruptions

<b>EARTHQUAKES</b>	<b>POWER OUTAGES</b>	<b>FLOODS</b>
<b>SYSTEM FAILURES</b>	<b>FIRES</b>	<b>WATER CONTAMINATION</b>

**Balance Supply  
and Demand:  
Assess Mitigation  
Options**

# Supply Augmentation Methods

### **Increase existing supplies, use reserve supplies**

- Groundwater *new or deepened wells*
- Reservoir dead storage *floating pipelines*
- Increase use of recycled water
- Blend lower quality water with potable water
- Interruptible supply customers
- Emergency supplies in reserve *local groundwater basins or distant water banks*

# Supply Augmentation Methods

## Possible supplemental supplies

- Desalination
- Nano-filtration of brackish water, recycled
- Water banks
- Temporary pipelines
- Short-term purchases, trades and swaps
- Water importation by train or truck or ship

# Supply Augmentation Methods

## Increase supplier water use efficiency

- Meter accuracy
- System leaks and breaks
- Reduce system pressure
- Reduce system flushing
- Reuse of backwash water
- Install efficient irrigation system and timer
- Stop turf irrigation at supplier facilities

# Demand Reduction

## Public information

- Build community support and participation
- Start early
- Voluntary
- Water Hero
- 20 Gallon Challenge

# Demand Reduction

**Restrictions** *develop an exemption policy*

- Water waste ordinances *vary by stage*
- Potable water for non-potable uses
- Landscape requirements and budgets

# Demand Reduction

## Pricing

- Inclining Block Rates *tiers and rates to reduce use and cover costs, vary by stage*
- Uniform Rates *increased for shortage program costs*
- Seasonal Rates *reduce summer peak use*
- Drought Surcharge *for shortage program costs*
- Excess-Use Charge *customer allotments, sense of equity*

# Demand Reduction

## Allocation Methods

- Percent Reduction Allotment *all account types*
- Financial Rationing *all account types*
- Per Connection Allotment *residential*
- Per Capita Allotment *residential*
- Hybrid Per Capita / Percentage *residential*

# Demand Reduction

## Allocation Methods

Percent Reduction Allotment *all account types*

- |   |  |
|---|--|
| + | useful for non-residential <i>vary based on efficiency</i> |
| + | easy to determine and administer                           |
| + | establish minimum/maximum amounts to limit extremes        |
| - | penalizes conservers                                       |
| - | rewards "above average" users                              |
| - | promotes water use during non-shortage periods             |

# Demand Reduction

## Allocation Methods

Financial Rationing *all account types*

+	market determines water uses, avoids allotments
-	relates water use to income
-	residential tiers are based on average number of occupants
-	large number of appeal
-	difficult to set non-residential tiers

# Demand Reduction

## Allocation Methods

Per Connection Allotment *residential*

+	easy to establish allotments
-	no relationship between customer characteristics and water use
-	not equitable
-	doesn't recognize historic use

# Demand Reduction

## Allocation Methods

Per Capita Allotment *residential*

+	suitable for extreme shortages
+	equitable <i>base allotment, sewer charges on number of residents</i>
-	must determine and update per account occupancy
-	water for essential inside use only
-	doesn't recognize historic use

# Demand Reduction

## Allocation Methods

Hybrid Per Capita / Percentage *residential*

+	equitable <i>recognizes variety of uses</i>
+	flexibility <i>suitable to all stages</i>
+	provides customers greatest control
+	recognizes factors like lot size, historic use and economics
-	additional staff / computer work to determine allotments
-	requires more public education

# Enforcement

## Water Cops and Community

- Primarily educational
- Citations occur after first or second warning
- Community support

## Fines *billing based*

- Repeat offenders require action
- Excess use charge

## Flow Restrictors

- Repeat offenders undermine equity
- Provide health and safety flow

# STEP THREE

## Landscape Ordinance Violations Water Cop Visits

<b>YEARLY</b>	<b>JAN</b>	<b>FEB</b>	<b>MAR</b>	<b>APR</b>	<b>MAY</b>	<b>JUN</b>	<b>TOTAL</b>
No violation found	28	41	33	46	230	764	<b>1124</b>
Wasting water	6	11	11	18	47	98	<b>191</b>
Prohibited watering	2	4	2	8	126	67	<b>219</b>
Owner's leak	11	3	6	11	22	31	<b>84</b>
Charity car wash	0	1	7	2	4	2	<b>16</b>
<b>TOTAL</b>	<b>47</b>	<b>60</b>	<b>59</b>	<b>95</b>	<b>429</b>	<b>962</b>	<b>1652</b>

San Antonio, Texas

# Demand Reduction

**Evaluate demand reduction measures by:**

- potential saved water
- cost effectiveness
- season(s) with savings
- ease of implementation
- long-term benefits

# Demand Reduction

### **BMP Based Measures *all customer types***

- Interior and landscape water audit
- Plumbing fixture, appliance replacement
- Irrigation system improvements
- Irrigation timer replacement, settings
- Pool covers, etc.

### **BMP Based Measures *industrial***

- Process water audits, system improvements
- Equipment replacement

# Demand Reduction

## Other ideas

- \$5 a month rebate for staying below allocation
- “Water offset” program to provide water to environment (either \$\$ or water)
- Prizes for conservers
- Special programs for dedicated landscape meters
- Pledge program with certificates
- “Water Saver School” instead of fines

# Feedback to Customer

### Provide customers with:

- Actual Water Use to Allocation comparison *printed on the bill*
- Next month's allocation *printed on the bill*
- Total Use Year-to-Date versus Allocation Year-to-Date
- Meter-reading instructions
- Billing units to gallons conversion
- Customer assistance programs

# **Establish Triggering Levels**

# Examples of Triggers

- Projected supply at a pre-defined level
- Water quality changes
- Supply interruption
- Environmental changes
- Regional agreements

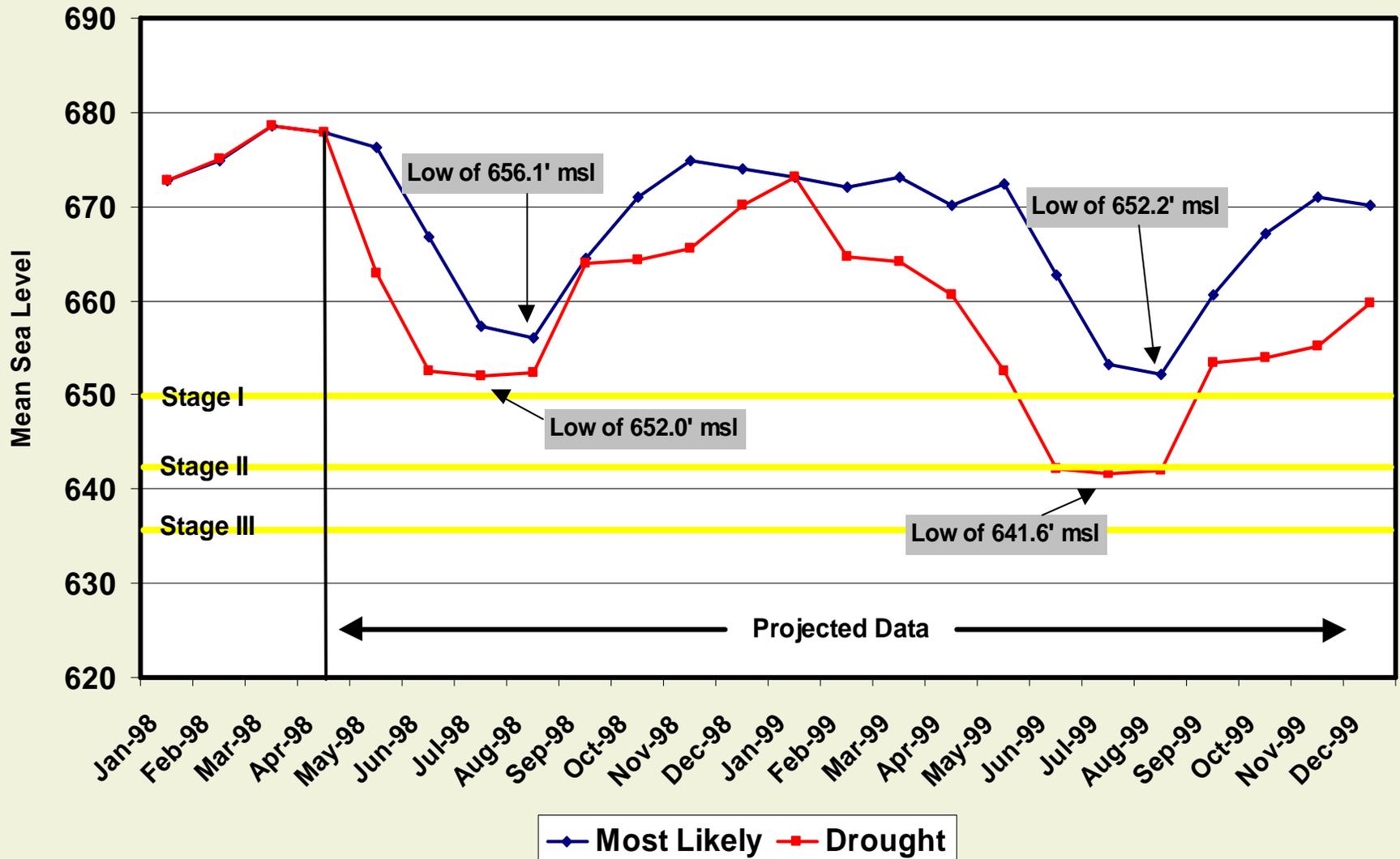
# Supply based trigger

Example of triggers at a one-source agency

Reservoir storage less than	Drought Stage	Water Use Reduction Goal
80%	Stage 1	10-15%
65%	Stage 2	15-25%
40%	Stage 3	25-40%
25%	Stage 4	40%+

# STEP FOUR

## J-17 Monthly Median Forecast 1998-1999



# Trigger Mechanisms

## Causes of delays

- Pressure on Board often from business community, developers, agriculture
- Supplier is not ready
- Ill defined triggers

# Trigger Mechanisms

**Include flexibility to:**

- Move up or down two Stages
- Stay at a Stage and modify demand reduction program *for smaller or greater reduction than needed*
- Provide a consistent message with local agencies

**Develop a  
Staged Demand  
Reduction Program**

## Establish Stages

**Example Stages with demand reduction goals**

<b>Stage</b>	<b>Water Shortage</b>	<b>Demand reduction goal</b>
<b>1</b>	<b>Minimum</b>	<b>10 - 15%</b>
<b>2</b>	<b>Moderate</b>	<b>15 - 25%</b>
<b>3</b>	<b>Severe</b>	<b>25 - 40%</b>
<b>4</b>	<b>Critical</b>	<b>40+%</b>

# Evaluate Demand Reduction Measures

## **Methods that reduce demand:**

*supported by demand reduction actions*

- Public Information Campaign
- Restrictions
- Pricing
- Allocations

# Evaluate Demand Reduction Measures

### **Prioritize methods:**

- Water savings
- Lead time required to activate measure
- Direct and indirect costs
- Legal or procedural requirements for implementation

# Example Actions: Stage One

## Voluntary

- Initiate public information campaign
- Advertise toilet, appliance, equipment rebate programs
- Request 20 gallon-a-day per person reduction
- Suggest shorter showers, no hosing of hard surfaces

# Example Actions: Stage Two

## Restrictions with enforcement

- Intensify public information, assistance programs
- Restrict irrigation to morning and evening
- No run-off, three times per week watering
- Water by request in restaurants
- Increase rates

# Example Actions: Stage Three

## Mandatory

- Limit days of irrigation
- Tiered pricing with significant price jumps
- Establish allocations

## Customer outreach

- Provide customer on-site assistance
- Provide multiple demand reduction programs
- Provide customer / business training programs

# Example Actions: Stage Four

- Mandatory/critical
- Intensify all efforts
- Manage consumption to stay within water allotments
- Landscape irrigation restrictions
- Fines

# Considerations

- Savings vary from month to month, difficult to predict
- Savings can be scaled to the normal year demand curve
- Supplier enter Stage before customers implement
- Cooperate with local and regional water suppliers to avoid inconsistent drought messages

# Lag Time Issues

- Customer awareness reduced by bi-monthly billing
- Build lag time in triggers
- Leap-frog Stage if lag time is long or not recognized
- Lag time could result in draw down of next year's reserves and unnecessary economic losses

**Adopt the  
Water Shortage  
Contingency Plan**

# Process

- Involve the community
- Prepare revenue plan
- Formalize cooperation with local agencies
- Adopt the Plan

# Involve the Community

- Present Plan outline, issues and choices at several community forums
- Outreach to impacted groups
- Find ways to encourage creative solutions, communication, and actions from citizens
- Incorporate ideas presented at the public forums

# Prepare Revenue Plan

Project income and expenses, by Stage

Balance budget by Stage

- rates
- surcharges
- use of reserves
- use of State / Federal emergency funding

# Example Spreadsheet

## Estimated Cumulative Costs and Revenue Losses for WSCP Stages (based on 2005 dollars)

Revenue & Cost Impacts	Stage 1 Advisory	Stage 2 Voluntary	Stage 3 Mandatory	Stage 4 Emergency
Revenue Loss	\$ 1,000,000	\$ 5,000,000	\$ 9,000,000	\$ 13,000,000
Cost	<u>\$ 55,000</u>	<u>\$ 1,485,500</u>	<u>\$ 2,935,500</u>	<u>\$ 3,285,500</u>
Demand Management				
customer outreach		250,000	650,000	650,000
customer incentives			950,000	950,000
enforcement			100,000	300,000
Cedar Pumping				
preparation		500,000	500,000	500,000
mobilization	30,000	354,500	354,500	354,500
pumping costs		81,000	81,000	81,000
Seattle wells	25,000	300,000	300,000	450,000
<b>Total: Revenue loss &amp; costs</b>	<u><b>1,055,000</b></u>	<u><b>6,485,500</b></u>	<u><b>11,935,500</b></u>	<u><b>16,285,500</b></u>

# Cooperate with Local Agencies and Tribes

- Negotiate and adopt agreements before shortage
- Agreements to implement restrictions and provisions regionally when needed
- Agreements to share supplies, resources and budget for regional programs when possible

# Finalize and Adopt the Plan

- Conduct a formal public review process
- Describe plan in clear, concise language to the board of directors, the public and the media
- Examples of how Stages will affect customers  
*sample allocations, bill increases, restrictions*
- Adopt Plan

# **Implement the Water Shortage Contingency Plan**

# Implement the Plan

- Staff levels, training and support
- Office space and equipment
- Budget
- Integration into agency
- Coordination with other agencies
- Computer and billing format capabilities
- Customer assistance
- Customer appeals
- Special need customers
- Dealing with the media
- Monitoring of actual use

# Staff levels, training and support

### Example: 15,000 connections

- 2 full time *appeals, media contact, data analysis, monitoring*
- 4 interns *customer surveys and assistance, water cops, data entry*
- Training *high stress contact needs role playing, support, thorough understanding of program, familiarity with agency and community, water conservation and water audit knowledge*

# Office space and equipment

- Trailer at main office or rented space *high volume, separate from regular functions*
- Desks, phones, cell phones, networked computers with database and billing access, cars
- Hose nozzles, showerheads, soil probes
- Materials on rebates, micro irrigation, graywater

# Budget

- Salaries *including overtime*
- Equipment *cars, phones, computers, audit materials*
- Training *professional trainers for customer contact, computer databases, conservation audits and assistance*
- Materials *program brochures, conservation information, water waste educational information and door hangers*
- Media *TV, radio and print advertising budget, graphic and recording studio support, events, direct mail*
- Programs *rebates, hand-outs, contests, awards, training for customers & green industry*

# Connecting the “Silos”

- Present drought program at department staff meetings so all employees understand and can communicate the drought program
- Part-time interns in all departments to meet staff and understand each departments function
- Staff ride-alongs with water cops
- Department meetings to improve Plan

# Coordination with other agencies & tribes

- Share drought materials, knowledge, training sessions *locally, regionally and statewide*
- Establish “drought clearing house”
- Sponsor regional plumbing and landscape training sessions for customers, green industry, plumbing suppliers and hardware stores
- City/county planning, building, parks, emergency services, agriculture, police and fire departments *for understanding community, support and a consistent water conservation message*

# Computer and billing format capabilities

- Computer databases *track demand reduction programs, customer rebates and water waste problems*
- Flexible billing format *ability to change number of tiers, billing units per tier, rates per tier, rates and tiers by customer type*
- Vary allocations by customer, month and account type
- Current, future month, and year allocation on bills
- Clearly delineated excess use charges

# Customer assistance

- Phone hot-line, including evenings and weekends
- Email distribution list, blogs
- House calls, surveys
- Plumbing and landscaping referrals
- Irrigation system management training and assistance
- Plumbing fixture and appliance recommendations
- Assistance to excess-use customers
- Assistance to disadvantaged communities

# Customer appeals

- Complicated and time-consuming
- Relief from some restrictions  
*criteria: low volume irrigation system, efficient toilets, single-head shower stalls*
- Increased allotments for additional residents  
*criteria: low volume irrigation system, efficient toilets, single-head shower stalls*
- Increase allotment for non-residential customers  
*criteria: process water audit, mulch in orchards, efficient toilets*

# Special need customers

- Hospitals
- Nursing homes
- Schools
- Day care
- Water-dependent business *Require water audits and efficient fixtures. No water for non-essential uses*

# Dealing with the media

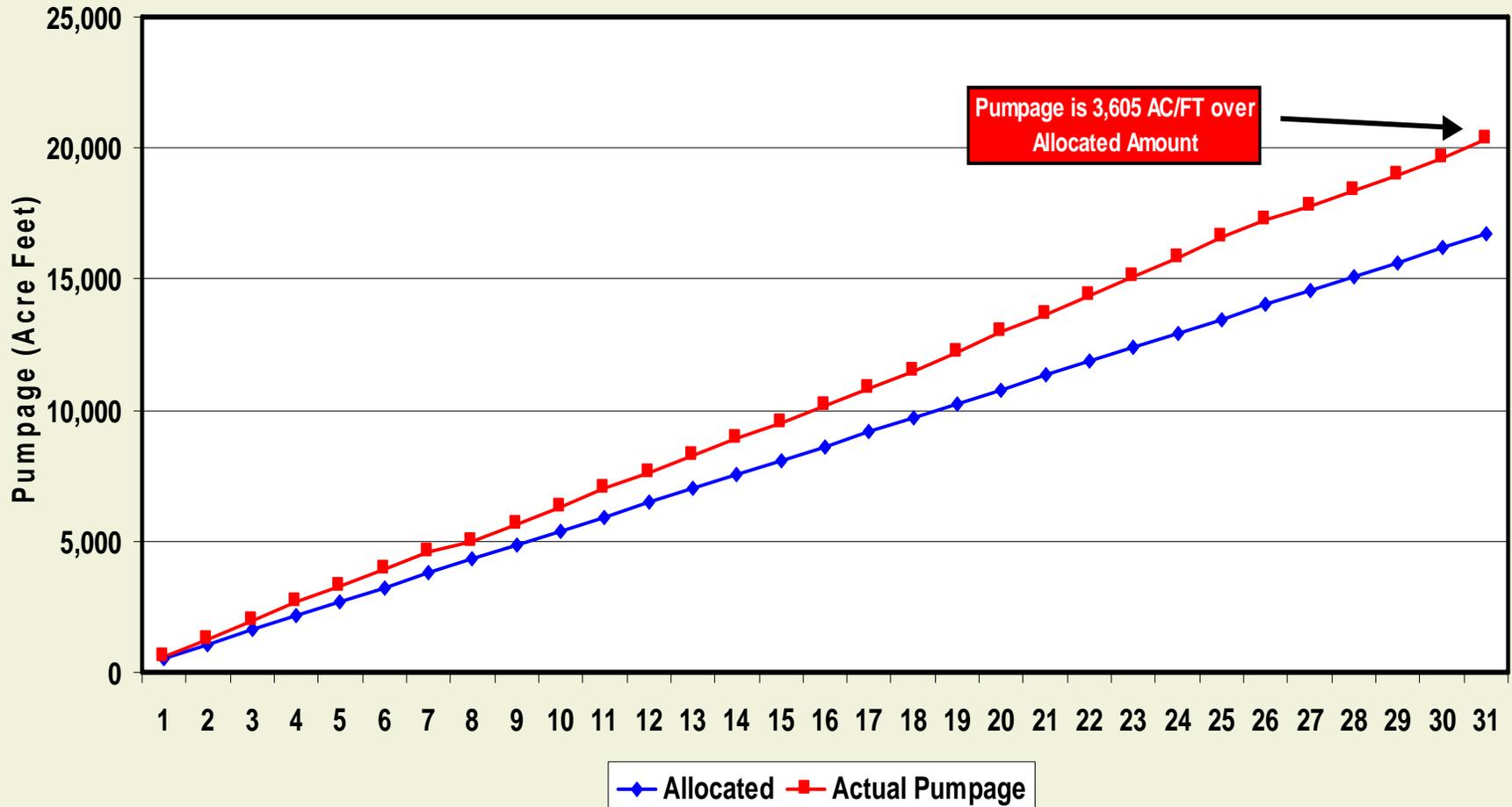
- Establish good relations with reporters *local print, radio and television*
- Rationing response manager available for questions and interviews
- Consistent message *talking points, sound bites*
- Free media and community support resources
- In response to possible negative media reports, demonstrate how the agency solves customers problems

# Monitoring of actual use

- Track production daily and correlate to temperature
- Print daily reports on excess use
- Flag customers with multiple water waste or excess-use events *problem customers or program design flaws*
- Compare weekly and monthly production with targets to changes to demand reduction programs or Stage

# STEP SEVEN

## SAWS Water Budget May 1998



# Planning timeline Nov - Feb

<b>26 - Nov</b>	Staff member begins to research and draft an updated rationing plan.
<b>10 - Dec</b>	Draft plan is ready for staff review. GM and team review plan, suggest changes. The plan is modified and expanded to include implementation procedures.
<b>17 - Dec</b>	Essential staff review plan and comment on how it effects their functions, ensure that it is 'workable.'
<b>3 - Jan</b>	Board subcommittee reviews the plan, suggests changes, and sends the plan to the Board for review and action.
<b>Jan</b>	Full Board reviews the draft plan and schedules public hearings.
<b>mid-Feb</b>	Public hearings announced. Plan released for public review.

## Planning timeline Feb - May

<b>Feb-Mar</b>	Public hearings result in public pressure to revise specific elements of the plan
<b>31 - Mar</b>	The Board declares a Water Shortage Warning, requests 10% reduction <i>rainy season is almost over</i>
<b>Apr</b>	Customers are notified by direct mail that mandatory rationing has been adopted and how the plan will affect them
<b>mid-Apr</b>	Customers receive individual letter with their allotment, description of rationing plan and appeal procedure, general rationing/information brochure, and conservation information on how to reduce use (efficient toilets, showerheads, landscaping, meter reading, leak repair, etc.)
<b>31 - May</b>	Board declares a Water Shortage Emergency, Stage 1 <i>rainy season is over</i>

# Resources

Code Sections for Declaring a Water Shortage Emergency

CA Public Utilities Comm.'s Drought Moratoria

California Environmental Quality Act

Drought Reference Materials & Websites

Supply Augmentation Measures

Emergency Water Shortage Ordinance

Drought Funding

Water Efficient Landscapes Websites

Unmeasured Suppliers

# THANK YOU!

**By November 1, send ideas,  
comments and suggestions  
regarding the guidebook to:**

**Marsha Prillwitz**

**[Marsha@cuwcc.org](mailto:Marsha@cuwcc.org)**

**(916) 552-5885 ext. 22**