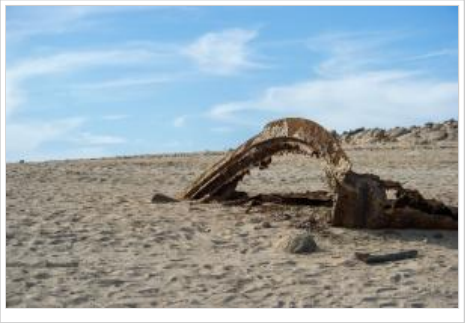
Model Water Shortage Contingency Plans



Original Publication

- Model Water Shortage Contingency Plans (http://toolbox.cuwcc.org/wiki/File:Toolkit-Tool_1_F.pdf)

Highlighted Resources

- Urban Drought Guidebook (2008) (http://toolbox.cuwcc.org/wiki/Urban_Drought_Guidebook_(2008))

Water shortage contingency plans (WSCP) have been required as part of the water contingency analysis specified by the California Water Code 10632 since the early 1980s for urban water suppliers. Having a developed WSCP is an essential part of being prepared to respond to water shortages in a timely manner. This tool will provide an overview of WSCP development, reference resources and tools, and provide examples of WSCPs from around the state with the goal of helping agencies develop a WSCP quickly or refine an existing plan. The DWR Urban Drought Guidebook (2008) and the (2011) AWWA M60: Drought Preparedness and Response Manual are key resources for developing and implementing a WSCP. This tool will refer to these key resources, but does not seek to duplicate them.

Contents

Water Shortage Contingency Plan Development Overview

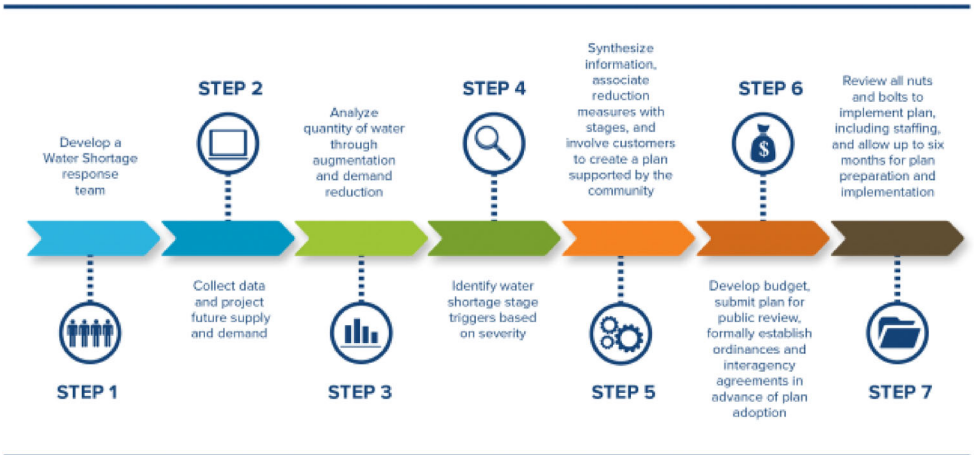
The goal of developing a WSCP is to prepare in advance a response for various water shortage conditions. These shortages could be caused by dry years, natural forces, system interruptions or failure, chronic maintenance deferral, dropping groundwater levels, or regulatory action.[1] [2] The water contingency analysis specified in California Law is defined by six elements, as summarized by the DWR Urban Drought Guidebook:[3]

1. A description of the stages of action an agency will take in response to water shortages;
2. An estimate of supply for three consecutive dry years;
3. A plan for dealing with a catastrophic supply interruption;
4. A list of the prohibitions, penalties, and demand reduction methods to be used;
5. An analysis of expected revenue effects of reduced sales during shortages and proposed measures to overcome those effects; and
6. A description of how the water supplier will monitor and document water cutbacks.

Both DWR's Drought Guidebook and AWWA's M60 outline seven steps to develop and implement a WSCP. Figure 1: Water Shortage Contingency Plan Development and Implementation Process summarizes these seven steps. For a WSCP development and implementation check list, see the additional resources sections below. Water shortage restrictions will result in limiting specific water uses for some or all customer types. Before drafting the restrictions, identify both the uses to limit and those to give priority to for continued uses. The following are sample priorities listed in both the DWR and AWWA guidelines:

1. Health and Safety – interior residential and fire fighting;
2. Commercial, Industrial, and Institutional – maintain economic base, protect jobs;
3. Permanent Crops – takes 5 to 10 years to replace;
4. Annual Crops – protect jobs;
5. Landscaping – direct water to trees and shrubs; and
6. New Demand – generally, two years of construction projects are already approved.

Figure 1: Water Shortage Contingency Plan Development and Implementation Process



Water Shortage Stages

The California Water Code asks agencies to describe the stages and subsequent actions the agency will take to respond to the drought. These stages are a key framework for the WSCP. They typically include three to five increasing levels of water shortage with response actions. These stages may or may not include a 'normal' non-water shortage state. Developing the stages requires data collection and analysis to identify potential water availability during various water shortage scenarios. Key elements of a WSCP include:

- Triggers that signify when a stage will be entered;
- Demand reduction goals; and
- Water use restrictions.

The example below shows common descriptions and demand reduction goals for WSCP stages: **Normal:** Typical water restrictions with local water waste ordinances or regulations. See Tool 2 for more information. **Stage 1:** This stage is often used to raise awareness of emerging water shortage conditions and often relies on voluntary measures with demand reduction goals, commonly 10-15%. **Stages 2 and 3:** Often begin or increase mandatory water restrictions with higher demand reduction goals, commonly 15-30%. **Stages 4 and/or 5:** Often includes extensive restrictions on water use, and possible water rationing, and high demand reduction goals, commonly 35-50%.

Water Shortage Stage Triggers

Comparing forecasted water supply with demand forms the basis of determining when to intensify a water shortage emergency. While this comparison of supply and demand is the key factor in establishing water shortage triggers, triggers can include a variety of other factors, such as water quality conditions, supply interruptions, and regional agreements. Several of the WSCP tables from sample agencies show examples of stage reduction goals. See Table 2 on page 5.

Water shortage stages can include the declaration of a water shortage emergency. Several sections of the California Water Code apply to an agency's initiation of a water shortage emergency.

Table 1: California Water Code Key Sections for Water Shortage Triggers

Section	Summary of Key Points for Initiating Water Shortage Emergency
350	"Governing body of water supply distributor has authority to declare water shortage emergency condition. Defines water shortage emergency condition as when there would be "insufficient water for human consumption, sanitation, and fire protection."
351	A public hearing is required prior to a water shortage emergency condition declaration.
352	Advertisement of the public hearing must follow certain notification and distribution procedures.
355	Regulations and restrictions are in effect until the emergency is over and the water supply has been replenished or augmented.

http://www.leginfo.ca.gov/cgi-bin/isplaycode?section=wat&gro

Demand Reduction Goals

Demand reduction goals help agencies provide a target for customers during the different stages of a water shortage. Smaller reduction goals during early stages may help agencies delay or avoid drastic reductions later. Table 2: Sample Demand Reduction Goals shows sample water reduction goals.

Table 2: Sample Demand Reduction Goals

	Santa Rosa [4]	Redding [5]	Roseville [6]	San Diego County WA [7]
Stage 1	10 % V	15% V	10%	Up to 10% V
Stage 2	20% M	25% M	20%	Up to 20% M
Stage 3	30% M	35% M	30%	Up to 40% M
Stage 4	40% M	50% M	40%	Above 40% M
Stage 5	50%+ M	---	50%	---
M = Mandatory V = Voluntary				

The actual amount of demand reduction that can be achieved will vary from agency to agency and from year to year. Table 3: Requested and Actual Water Reduction during 1976-77 Drought illustrates requested and actual demand reductions during the 1976-77 drought for a sampling of California agencies. The percentage of reduction achieved for these agencies frequently met or exceeded the agency's targets. Some factors that can affect this include: prior patterns of water use; prior experience with water shortages; length of time since the preceding water shortage; the saturation of water efficiency measures in the service area; the extent of agricultural and landscape areas; and the types of industries and businesses in the water service area. The effectiveness of each water use restriction should be periodically re-evaluated. The DWR Urban Drought Guidebook also notes that agencies may find that customers are more likely to exceed demand reduction goals in warmer months, whereas they may not achieve the demand reduction goal in cooler months.

Table 3: Requested and Actual Water Reduction during 1976-77 Drought

Supplier	Residential Rationing Program	Achievement Percent
Marin Municipal Water District	Mandatory 57% per capita	65%
East Bay Municipal Utility District	Mandatory 35% per household	40%
Contra Costa County Water District	Mandatory 30%	25%
San Francisco Water Department	Mandatory 25%	30%
Los Angeles DWP	Mandatory 10%	16%
Sunnyvale Water Department	Voluntary 25%	26%
Santa Clara Valley Water District	Voluntary 25%	30%
City of Pleasanton	No program	19%

Water Restrictions

Water restrictions complement demand reduction goals by limiting wasteful practices. During a water emergency, the California water code gives priority to domestic uses, sanitation, and fire protection. Water restrictions integrated in WSCPs typically limit specifically identified wasteful or lower priority water uses, such as frequent landscape irrigating, and outdoor surface washing. Table 4: Sample Water Use Restrictions and Earliest Implementation Stage lists restrictions common to at least three of the six example agencies. For more information on water restrictions, see the Appendix and Tool 2, Water Ordinances. This tool focuses on restrictions that produce short term demand reduction; for information on long term demand reduction, see additional resources on page 14 of this tool.

Table 4: Sample Water Use Restrictions and Earliest Implementation Stage

Water Use Restriction Type		Santa Rosa	Long Beach	Calaveras County WD	Redding	San Diego City	Roseville
Outdoor	Limit irrigation to specified times of day	1 M	N	3M		2	
	Limit irrigation to specified days of week			3 M	3	2	
	Prohibit washing down of hardscapes	1 M	N	3 M		N	1
	Prohibit the use of potable water for street washing	1 M			2		1
	Require hose-end shut-off nozzles on all garden and utility hoses	1 M	N		2	N	N
	Irrigating landscape in a manner that results in unreasonable runoff, where (potable or reclaimed) water flows onto adjacent property, non-irrigated areas		N		2	N	N
	Prohibit operating a fountain or other water feature that does not re-circulate the water		N		2	N	N
CII	Require “Water-on-Request” programs at restaurants	1 M	1M			N	1
	Operate a conveyor type car wash system that does not re-circulate the wash and/or rinse water		N			N	4
Other	Quickly repair loss of water through breaks, leaks or other malfunctions in the water user’s plumbing.		N			N	N
Normal (N) refers to permanent restrictions, even with normal water availability.							
M = Mandatory V = Voluntary # = Stage Numbers indicate the earliest water shortage stage that the restriction is active.							

CPUC Drought Procedures Standard Practice U-40-W

Water providers operating under the regulations of the California Public Utilities Commission should refer to CPUC Drought Procedures Standard Practice U-40-W for typical water use restrictions under voluntary and mandatory rationing. The water use restrictions are similar to those available to non-regulated water providers.

- Standard Practice U-40-W specifies that notice of activation for “mandatory rationing and associated public hearing (if required) shall be provided to customers as a bill insert at the earliest billing cycle possible or through direct mailing, and shall include:
  - How penalties (or other instrument of compliance) will be assessed
  - What is the allocation
  - How the allocation was determined
- Fines for non-volumetric non-essential or unauthorized water use infractions (i.e. use of potable water to wash structures or driveways) may consist of flat fee fine; fines for exceeding the volumetric allotment shall consist of a penalty based upon a multiple of the authorized top tier quantity rate applied to all usage exceeding the allotment.”

Standard Practice U-40-W contains examples of a voluntary water conservation plan and staged mandatory rationing of water use. The examples state that “each utility/district shall propose its own unique amounts for each of these items.”[8]

Applicable sections of the California Water Code for water restrictions include:

Table 5: California Water Code Key Sections for Water Restrictions

Section	Summary of Key Sections for Water Restrictions
353	Governing body of water supply distributor must adopt regulations and restrictions to conserve the water supply for the greatest public benefit. Priority uses are domestic, sanitation, and fire protection.
354	Option given to governing body of water supply distributor to establish additional water allocation, distribution, and delivery priorities.Method of allocation cannot discriminate “between customers using water for the same purpose or purposes.”
355	Regulations and restrictions are in effect until the emergency is over and the water supply has been replenished or augmented.
356	Regulations and restrictions allow prohibiting new or additional service connections. Enforcement of regulations and restrictions may include discontinuing service to customers willfully violating them.
357	Regulations and restrictions must prevail over allocation provisions of laws pertaining to water rights of individual customers. Water distributors subject to regulation by the State Public Utilities Commission (PUC) need prior approval by the PUC before adopting regulations and restrictions of this type.
358	Review of an emergency declaration or adopted regulations and restrictions adopted by a court is not prohibited.
http://www.leginfo.ca.gov/cgi-bin/displaycode?section=wat&group=00001-01000&file=350-359	

Sample Water Shortage Contingency Plans

The following examples provide excerpts from tables taken from various WSCPs around the state. These examples show a variety of approaches to stages, trigger conditions, demand reduction goals, restrictions, and related plan elements. These tables are snapshots of each WSCP. A more complete understanding of statewide WSCP development and implementation will come from review of the hyperlinked full plans.

Retail Examples

City of Clovis

Service Area Population (2010): 99,519 2010 UWMP Water Shortage Contingency Plan. Section 6.2, page 55 (PDF page 67)

City of Clovis WSCP Stages

Stage	Conditions	Percentage Shortage
1 Minor (voluntary)	Groundwater in overdraft or available production within 10% of peak hour demands	10%
2 Moderate (mandatory)	Groundwater in overdraft in second consecutive year or available water production is 10% less than the peak hour demands	10% to 20%
3 Severe (mandatory)	Available water production is 20% less than peak hour demands	20% to 35%
4 Critical (mandatory)	Available water production is 35% less than peak hour demands or surface water supply is 50% of required.	35% to 50%

City of Clovis Mandatory Prohibitions by WSCP Stage

Examples of Prohibitions	Stage When Prohibition Becomes Mandatory
Using a hose without a nozzle	Stage 1
Outdoor water use on a non-watering day	Stage 2
Broken sprinklers or other leaks	Stage 1
Excessive runoff from property	Stage 1
Evaporative cooler overflowing	Stage 1

City of Clovis Water Shortage Stages and Reduction Objectives

Consumption Reduction Methods	Stage When Method Takes Effect	Projected Reduction (%)
Customer allotments/Rate Changes	Stage 3 and 4	25% to 40%
No refilling of pools	Stage 3 and 4	1%
Irrigation reduced to 2 or 1 day per week	Stage 3 and 4	18% to 35%
No new connections w/o offsets	Stage 3	None but no increase
No new connections	Stage 4	None but no increase
Main flushing only on complaint basis	Stage 3 and 4	50%

Marin Municipal Water District

Service Area Population (2010): 190,600 2010 UWMP Water Shortage Contingency Plan. See Section 5-1, pdf page 61

Table 5-2 | Water Shortage Contingency — Water Supply Conditions and Rationing Levels		
Stage	Water Supply Conditions	% Reduction
Alert Stage (Voluntary Rationing)	Total reservoir storage is less than 50,000 ac-ft on April 1	10%
Mandatory Rationing	Total reservoir storage is less than 40,000 ac-ft on April 1	25%
Water Shortage Emergency	Total reservoir storage on December 1 is projected to be in the vicinity of, or less than 30,000 ac-ft	up to 50%

Table 5-3 | Allocation Plan — Proposed Cutbacks at Different Rationing Levels					
Billing Codes	20% Rationing	25% Rationing	30% Rationing	40% Rationing	50% Rationing
Billing Code 1-5 (Residential)	25%	32%	32%	46%	55%
Billing Code 6 (Institutional)	20%	25%	30%	40%	50%
Billing Code 7 (Business)	15%	20%	25%	35%	45%
Billing Code 8 (Irrigation)	45%	50%	60%	75%	90%

Table 5-4 | Water Shortage Contingency — Mandatory Prohibitions	
Prohibitions	When Prohibition Becomes Mandatory
No Non-Essential Uses: • Washing sidewalks, walkways, driveways, parking lots, and all other hard-surfaced areas by direct hosing, except to properly dispose of flammable or other dangerous liquids or substances or to prevent or eliminate materials dangerous to public health and safety. • Escape of water through breaks or leaks within the consumer's plumbing or private distribution system for any substantial period of time within which such break or leak should reasonably have been discovered and corrected. It shall be presumed that a period of forty-eight hours after the consumer discovers such a leak or break, or receives notice from the District of such leak or break, whichever occurs first, is a reasonable time within which to correct such leak or break. • Non-recycling decorative water fountains.	On-Going
Restrictions on Irrigation: Irrigation shall not be conducted in a manner or to an extent that allows water to run off or overspray the areas being watered. Every consumer is required to have his/her water distribution lines and facilities under control at all times to avoid water waste.	On-Going
Restrictions on Reverse-Osmosis Units: The installation of reverse-osmosis water purifying systems not equipped with an automatic shutoff unit is prohibited.	On-Going
Prohibitions for New Connections: • Single-pass cooling systems for air conditioning or other cooling system applications unless required for health or safety reasons; • Non-recirculating systems for conveyor carwash applications.	On-Going
Twenty-five Percent or Greater Water Use Reduction Program: Every consumer shall eliminate water wastage and non-essential use of potable water from the District in an effort to aid the District in achieving a twenty-five percent reduction in the amount of water used by all consumers in the last year in which no restrictions in water use were required.	Mandatory Rationing Stage
Additional Prohibited Nonessential Uses Applicable to All Consumers: Use of potable water for: refilling or as make-up water for decorative fountains or pools; irrigation between the hours of 11 AM and 7 PM; irrigation of new turf areas; washing of cars, boats, airplanes with hose without a shut-off nozzle; or serving water to restaurant patrons, except on request.	Mandatory Rationing Stage

City of Roseville

Service Area Population (2010): 114,078 2010 UWMP Water Shortage Contingency Plan. See Section 5-1

Table 5.5 | Water shortage contingency — penalties and charges – RMC 14.08.095		
Penalties or Charges	Stage When Measure Takes Effect	Measure Description
Water Shortage Surcharge	Stage 2 - 5	A temporary increase in per unit water rates to stabilize water revenues when customers are successful in reducing water demands.
Excess Water Use Charge	Stage 3 - 5	A temporary increase in the top tiers of water use to provide further incentives for users in these categories to find ways of reducing demands.

Table 5.6 | Supply reliability — historic conditions					
	Single Dry Water Year 1977 (AFY)	Multiple Dry Water Years (AFY)			
Folsom Reservoir Unimpaired Inflow Average Year = 1,886,210 AF; Roseville Surface Water Available Average Year = 58,900 AF[9]		1990	1991	1992	Average of 3 Years[10]
Unimpaired Inflow	289,740	822,331	1,185,926	604,927	871,061
Percent of UI Average Year	15.40%	43.60%	62.90%	32.10%	46.20%
Surface Water Allocation	39,800	54,466	58,900	46,917	56,159
Percent of Available Average Year Supply	67.60%	92.70%	100%	79.70%	95.30%

Table 5.7 | Water shortage contingency — rationing stages to address water supply shortages		
Stage No.	Water Supply Conditions	% Shortage
Basic Stage	Full surface water supply allocation of 58,900 AF[11]	0%
Stage 1	Surface water supply availability of 53,000 AF	10%
Stage 2	Surface water supply availability of 47,120 AF	20%
Stage 3	Total water supply availability of 41,230 AF	30%
Stage 4	Total water supply availability of 35,340 AF[12]	40%
Stage 5	Total water supply availability of 29,450 AF	50%

South Tahoe Public Utility District

Population (2010): 33,124 2010 UWMP Water Shortage Contingency Plan. See Section 5.4, pdf page 56

Table 5.8 | Water Shortage Contingency – Rationing Stages to Address Water Supply Shortages		
Stage No.	Water Supply Conditions	% Shortage
Continuous	Water Waste Prohibited	NA
1 Normal Conditions	Prohibition against runoff from site; Prohibition against irrigating non-landscaped property except to mitigate fire risk; Inspection/repair/adjustment of irrigation systems; Shutoff nozzle required on hoses used for vehicle washing; Encouragement to report water leaks/waste	0
2 Minor Water Supply Shortage	All Stage 1 Restrictions; Designated irrigation days; Prohibition against washing hard surfaces except to mitigate fire or sanitation concerns; Restaurant water service on request	20%
3 Severe Water Supply Shortage	All Stage 1 and 2 Restrictions; Weekend irrigation prohibition; Prohibition against filling outdoor swimming pools; Prohibition against operating non-recirculating fountains and ornamental water features	30%
4 Critical Water Supply	All Stage 1, 2 and 3 Restrictions; Outdoor irrigation limited to once per week; Prohibition against water use for landscaping for new construction; Prohibition against hydrant use except for firefighting	40%
5 Water Emergency	All Stage 1, 2, 3 and 4 Restrictions; Prohibition against water use for other than domestic and commercial purposes (no irrigation); Prohibition against water use for construction dust control; Prohibition against hydrant flushing; Prohibition against water use for air conditioning where an alternate source of fresh air is available	50%

One of the stages of action must be designed to address a 50 percent reduction in water supply.

Wholesale Examples

San Diego County Water Authority

Service Area Population (2010): 3,200,000 Model Drought Response Ordinance **Model Drought Response Ordinance: Drought Response Levels and Water-Use Restrictions**[13]

Drought Response Levels		Trigger	Voluntary or Mandatory Restrictions	Customer Conservation Targets	Water Authority DMP Stage
Level 1	Drought Watch	• Level 1 applies when the Water Authority notifies its member agencies that due to drought or other supply reductions, there is a reasonable probability of supply shortages and that a consumer demand reduction of up to 10% is required in order ensure that sufficient supplies will be available to meet anticipated demands.; • The [AGENCY GENERAL MANAGER] shall declare the existence of Level 1 and take action to implement the Level 1 conservation practices identified in this ordinance.	Voluntary	Up to 10%	Stage 1 or Stage 2
Level 2	Drought Alert	• Level 2 applies when the Water Authority notifies its member agencies that due to cutbacks caused by drought or other reduction in supplies, a consumer demand reduction of up to 20% is required in order to have sufficient supplies available to meet anticipated demands.; • The [AGENCY BOARD OF DIRECTORS] shall declare the existence of Level 2 condition and implement the mandatory Level 2 conservation measures identified in this ordinance.	Mandatory	Up to 20%	Stage 2 or Stage 3
Level 3	Drought Critical	• Level 3 applies when the Water Authority notifies its member agencies that due to increasing cutbacks caused by drought or other reduction of supplies, a consumer demand reduction of up to 40% is required in order to have sufficient supplies available to meet anticipated demands.; • The [AGENCY BOARD OF DIRECTORS] shall declare the existence of a Level 3 condition and implement the Level 3 conservation measures identified in this ordinance.	Mandatory	Up to 40%	Stage 3
Level 4	Drought Emergency	• A Level 4 condition applies when the Water Authority Board declares a water shortage emergency pursuant to Water Code Section 350 and notifies its member agencies that Level 4 requires a demand reduction of more than 40% in order for the [AGENCY] to have maximum supplies available to meet anticipated demands.; • [AGENCY] shall declare a Drought Emergency in the manner provided in Water Code Section 350.	Mandatory	Above 40%	Stage 3

Santa Clara Valley Water District

Service Area Population (2010): 1,822,000 2010 UWMP Water Shortage Contingency Plan. See Section 6.3, pdf page 72 **Santa Clara Valley Water District, Water Shortage Contingency Plan**

URBAN WATER MANAGEMENT PLAN 2010					
Stage	Stage Title	Projected GW Reserves	Response	Suggested Reduction in Water Use(1)	Communication and outreach effort
Stage 1	Normal	Above 300,000 AF	Continue regular outreach activities in this stage to promote ongoing implementation of conservation and implementation of BMPs.		• Maintain public information and outreach focused on long term, ongoing conservation actions (e.g., water saving appliances, repairing leaks, and low-water use landscaping).
Stage 2	Alert	250,000 to 300,000 AF	This stage is meant to warn customers that current water use is tapping into groundwater reserves – a signal that groundwater levels are dropping to meet demands. Communications are needed to set the tone for the onset of shortages. Request water users to reduce water use by as much as 10%. Coordinate ordinances with cities and warn and prepare for a stage 3 situation.	0-10% demand reduction	• Expand on Stage 1 efforts • Intensify public information and advertising campaign • Focus messages on shortage situation and immediate behavioral changes
Stage 3	Severe	200,000 to 250,000 AF	Shortage conditions are worsening, requiring close coordination with retailers and cities to enact ordinances and water use restrictions. Requires significant effort and behavioral change by water users. Increase outreach campaign to save water.	10-20% demand reduction	• Expand and intensify Stage 2 activities • Further expand outreach efforts • Modify messages to reflect more severe shortage condition and need for immediate behavioral changes
Stage 4	Critical	150,000 to 200,000 AF	This is the most severe stage in a multiyear drought. Encourage retailers and cities to enforce their plans which could include fines for repeated violations.	20-40% demand reduction	• Strengthen and expand Stage 3 activities • Further expand outreach efforts • Open drought information center
Stage 5	Emergency	Below 150,000 AF	This last stage is meant to address a more immediate crisis such as a major infrastructure failure. Water supply would be available only to meet health and safety needs.	Up to 50% demand reduction	• Daily updates on water shortage emergency (media briefings, web update, social media outlets) • Activate EOC
Notes: (1) When the District Board calls for short-term water conservation, the cities and water retailers will consider the implementation of water contingency plan actions identified in their Urban Water Management Plans in order to achieve the necessary shortage response. The District works with the water retailers and cities to help coordinate these activities.					

Resources for Water Shortage Plans

Foundational resources for developing a WSCP include the DWR Urban Drought Guidebook (2008) and the (2011) AWWA M60: Drought Preparedness and Response Manual. The AWWA M60, 72 pages, contains much of the same language as the DWR Guidebook, and also some new content. The DWR Guidebook, 207 pages, is available for free download below. Additional resources are listed below.

WSCP Development and Implementation

- AWWA M60: Drought Preparedness and Response (2011) http://www.awwa.org/store/productdetail.aspx?productid=26750
- DWR Urban Drought Guidebook: 2008 Updated Edition http://www.water.ca.gov/pubs/planning/urban_drought_guidebook/urban_drought_guidebook_2008.pdf
- DWR WSCP excerpt from Urban Drought Guidebook, includes WSCP Development and Implementation Checklist http://www.water.ca.gov/wateruseefficiency/docs/2014/021014_DT_3_Water_Shortage_Contingency_Planning_2.docx

Related California Law

- Declaration of Water Shortage Emergencies
  - California Water Code Section 350-359 http://www.awwa.org/store/productdetail.aspx?productid=26750
  - California Government Code, Section 8550-8551 http://www.leginfo.ca.gov/cgi-bin/displaycode?section=gov&group=08001-09000&file=8550-8551
- Urban Water Management Planning, California Water Code Sections 10610-10656 http://www.leginfo.ca.gov/.html/wat_table_of_contents.html
- UWMP staff contact at DWR: Gwen Huff, mailto://ghuff@water.ca.gov

Water Shortage Triggers

- Data Collection: DWR Urban Drought Guidebook, page 29. AWWA M60, page 8. http://www.water.ca.gov/pubs/planning/urban_drought_guidebook/urban_drought_guidebook_2008.pdf
- Data Analysis: DWR Urban Drought Guidebook, page 31. AWWA M60, page 10. http://www.water.ca.gov/pubs/planning/urban_drought_guidebook/urban_drought_guidebook_2008.pdf
- Establish Triggers: DWR Urban Drought Guidebook, page 65. AWWA M60, page 35. http://www.water.ca.gov/pubs/planning/urban_drought_guidebook/urban_drought_guidebook_2008.pdf

Demand Reduction Goals

- Demand Reduction: DWR Urban Drought Guidebook, pages 43, 73. AWWA M60 pages, 20, 41. http://www.water.ca.gov/pubs/planning/urban_drought_guidebook/urban_drought_guidebook_2008.pdf
- Pricing: Drought Tool Kit Tool 3. DWR Urban Drought Guidebook, page 51. AWWA M60 page 25. http://www.water.ca.gov/pubs/planning/urban_drought_guidebook/urban_drought_guidebook_2008.pdf
- AWE Financing Sustainable Water, Rates Handbook and Model http://www.financingsustainablewater.org/

Example WSCPs

- Review 2010 Urban Water Management Plans http://www.water.ca.gov/urbanwatermanagement/2010uwmps/

Partnership Opportunities

- Santa Ana watershed “One Water, One Watershed” http://www.sawpa.org/owow/
- Regional Coordination: DWR Urban Drought Guidebook, page 27. AWWA M60, page 5. http://www.water.ca.gov/pubs/planning/urban_drought_guidebook/urban_drought_guidebook_2008.pdf
- Actions by Wholesalers: DWR Urban Drought Guidebook, page 35. AWWA M60, page 13. http://www.water.ca.gov/pubs/planning/urban_drought_guidebook/urban_drought_guidebook_2008.pdf

Partnership Opportunities

Water provider partnerships allow local and regional organizations to work together to deliver water conservation messages and measures. If an agency does not already have a WSCP, it may want to consider reviewing WSCPs in neighboring communities. Alignment of stages, demand reduction goals, and restrictions allows for a consistent regional water shortage response messages. See the San Diego County Water Authority model drought response ordinance on page 12.

Appendix

Table 6: Sample Water Use Restrictions and Earliest Implementation Stages shows some water use restrictions and the associated stages from several utilities.

Table 7 shows water use restrictions by water shortage stage for San Juan Water District.

Table 6: Sample Water Use Restrictions and Earliest Implementation Stages

Water Use Restriction						
Normal (N) or Basis (B) refers to permanent restrictions, even with normal water availability. ; M = Mandatory V = Voluntary # = Stage # = Stage Numbers indicate the earliest water shortage stage that the restriction is active.	Santa Rosa	Long Beach	Calaveras County WD	Redding	San Diego City	Roseville
Outdoor irrigation to occur between specified times of day	1 M	N	3 M		2	
Restrict landscape irrigation to specified days			3 M	3	2	
Prohibit washing down of hardscapes	1 M	N	3 M		N	1
Reduce residential water use by X percent						2
Prohibit the use of potable water for street washing	1 M			2		1
Require the use of hose-end shut-off nozzles on all garden and utility hoses	1 M	N		2	N	B
Require “Water-on-request” programs at restaurants	1 M	1M			N	1
Restrict irrigating landscape October – March with potable water to specified days of week.		1M			2	
Filling residential swimming pools and spas with potable water		1 M	3 M			
Overfilling of swimming pools and spas is strictly prohibited					N	
Prohibit operating a fountain or other water feature that does not re-circulate the water		N		2	N	B
Stop operation of ornamental fountains, except to the extent needed for maintenance purposes.					2	3
Quickly repair loss or escape of water through breaks, leaks or other malfunctions in the water user’s plumbing or distribution system.		N			N	B
Irrigating landscape with potable water for specified time periods per authorized day if using sprinkler heads that emit > 1 gpm or longer periods if more efficient emitters are used.		1 M				
City uses (except active sports fields) reduced by percent stages.						1
Irrigating commercial landscape, schools parks reduced by 30+ %			3 M			2
Golf course irrigation restricted to greens and tees if raw water is sole source.			3 M			
Except where recycled water is used, golf courses shall reduce irrigation by 30+ percent.						3
Golf course irrigation reduced by 35 % if treated effluent is used.			3 M			
Irrigating landscape in a manner that results in unreasonable runoff, where (potable or reclaimed) water flows onto adjacent property, non-irrigated areas, private and public walks, roadways, parking lots or structures		N		2	N	B
Automobiles or equipment shall be washed only at commercial establishments that recycle their water or by equipment and means that separates debris and recycles wash water for continual use.						4
Irrigating landscape in a manner that is unreasonably water-inefficient, such as:. excessive over spray, excessive misting, over pressurization, misalignment or tilted spray heads, or other malfunction or out-of-adjustment condition which results in unreasonable waste of potable water		N				
New or expanded landscaping is limited to drought-tolerant trees, shrubs, and ground-cover. No new turf shall be planted, hydroseeded, or laid.						3
Hotel or motel, failing to provide customers the option of choosing not to have towels and linens laundered daily.		N			Nl	
Restaurants and all other commercial, industrial, institutional food preparation sites using pre-rinse heads having flow-rates greater than 1.5 gallons of water per minute		Nl				
Operating a commercial laundry system installed after specified date that does not re-circulate wash and/or rinse water		N				
Operating a conveyor type car wash system that does not re-circulate the wash and/or rinse water		N			N	4
Installing a single-pass cooling system in a building requesting a water connection after specified date						
Using potable water, rather than reclaimed water, where reclaimed water is a cost-effective alternative to potable water and the customer has had a reasonable amount of time to make the conversion to reclaimed water		N				
Discontinue line flushing			3 M			
New building permits not issued						4

Table 7: San Juan Water District Water Restrictions

San Juan Water District Water Conservation Stages							
	Stage 1	Stage 2	Stage 3	Stage 4		Stage 5	
				ST	LT	ST	LT
Water shall be used for beneficial purposes only; all unnecessary and wasteful uses of water are prohibited.	✓	✓	✓	✓	✓	✓	✓
Water shall be confined to the customer's property and shall not be allowed to run-off to adjoining properties or to the roadside ditch or gutter. Care shall be taken not to water past the point of saturation.	✓	✓	✓	✓	✓	No outdoor watering	No outdoor watering
Free-flowing hoses for all uses are prohibited. Automatic shut-off devices shall be attached on any hose or filling apparatus in use.	✓	✓	✓	✓	✓	✓	✓
Customers shall repair all leaks within specified working days (see table at right) or less, if warranted by the severity of the problem; Water service will be suspended until repairs are made.	5 days or less	5 days or less	2 days or less	24 hrs. or less	24 hrs. or less	Immediately	Immediately
Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health, esthetic or sanitary purposes, is prohibited.	✓	✓	✓				
Washing streets, parking lots, driveways, sidewalks, or buildings, except as necessary for health or sanitary purposes, is prohibited.				✓	✓	✓	✓
Customers are encouraged to take advantage of the District's free conservation services and rebate programs.	✓	✓	✓	✓	✓	✓	✓
All pools, spas, and ornamental fountains/ponds shall be equipped with a recirculation pump and shall be constructed to be leak-proof.	✓	✓	✓	✓	✓	✓	✓
Pool draining and refilling shall be allowed only for health, maintenance, or structural considerations.	✓	✓	✓	✓	✓		
No potable water from the District's system shall be used to fill or refill swimming pools, artificial lakes, ponds or streams. Water use for ornamental ponds and fountains is prohibited.						✓	✓
Reduce indoor and outdoor water use by specified percentage as determined (see table at right). Contact the District or visit our website at www.sjwd.org for additional tips and techniques to reduce water use.		5-10%	25%	26-50%	26-50%	50% or more	50% or more
Customers with "smart" irrigation timers or controllers are asked to set their controllers to achieve specified percentage reduction (see table at right) of the evapotranspiration (ET) rate.		90-95%	75%	50-74%	50-74%		
Landscape and pasture irrigation is prohibited.						✓	✓
Restaurants shall serve water only upon request.			✓	✓	✓	✓	✓
Construction meters and fire hydrant meters will be monitored for efficient water use.		✓	✓	✓	✓	✓	✓
Use of reclaimed water for construction purposes is encouraged.				✓	✓	✓	✓
Water Emergency tiered pricing will be implemented pursuant to requirements of Proposition 218 in accordance with California law.			✓		✓		✓
Flushing of sewers or fire hydrants is prohibited except in case of emergency and for essential operations.				✓	✓	✓	✓
Installation of new turf or landscaping is prohibited (Discourage at Stage 3).				✓	✓	✓	✓
Automobiles or equipment shall be washed only at commercial establishments that use recycled or reclaimed water.				✓	✓	✓	✓
No commitments will be made to provide service for new water service connections.					✓		✓
New connections to the District water distribution system will not be allowed.							✓
ST = Short Term (< 45 days) / LT = Long Term (> 45 days)							

The complete Jumpstart Water Shortage Toolkit includes:

1. – Model Water Shortage Contingency Plans
2. – Water Waste Ordinances and Enforcement Primer
3. – Water Shortage Pricing Primer
4. – Water Loss and Supply Alternatives Primer
5. – Customer Programs and Communication/Outreach Primer
6. – Local Water Supply Fact Sheet
7. – Water Use and Loss Awareness Resources
8. – Water School Curriculum
9. – Water Resource Funding Primer

Tools are available to view or download at http://www.cuwcc.org The Council is grateful to the following individuals for helping Council staff to develop, edit and review the Jumpstart Water Shortage Toolkit: Russell Frink, Charlie Pike, Sharon Fraser, William Granger and Toby Goddard. The Toolkit was made possible by the financial assistance of the California Department of Water Resources and Council membership dues.

Footnotes

1. Urban Water Suppliers with 3000 or more connections or that deliver 3000 or more acre feet of water.
2. This primer attempts to give readers a jump start on developing a WSCP, this is not a comprehensive resource for all legal and implementation issues.
3. DWR, Urban Drought Guidebook: 2008 Updated Edition. 2008 http://www.water.ca.gov/pubs/planning/urban_drought_guidebook/urban_drought_guidebook_2008.pdf
4. http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Santa%20Rosa,%20City%20of/CityofSantaRosa2010%20UWMP.pdf. Page 348.
5. http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Redding,%20City%20of/Redding%202010%20UWMP.pdf. Page 59.
6. http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Roseville,%20City%20of/UWMP%20SECTION%205%20Final%20draft_REV.pdf. Page 5-11.
7. http://www.water.ca.gov/urbanwatermanagement/2010uwmps/San%20Diego%20County%20Water%20Authority/11_ShortageContingency.pdf. Page 11.
8. California Public Utilities Commission Drought Procedures Standard Practice U-40-W
9. Available surface water supplies are based upon the City's Water Forum Agreement and the allocation of supplies are based on unimpaired inflow.
10. Average available surface water for the 3 years is based upon the average of the unimpaired inflow value.
11. Surface water availability consistent with Water Forum Agreement for water taken from the American River system.
12. Based on water supply portfolio available it is not projected or anticipated that shortages would ever get to levels of 40– 50% shortage. Measures are planned, however, to meet regulatory requirements or UWMP.
13. Model Drought Response Ordinance: Drought Response Levels and Water-Use Restrictions

Facts about "Model Water Shortage Contingency Plans" RDF feed

Has general subject	Planning and sustainability +
Has introduction	Water shortage contingency plans (WSCP) ha … rces, but does not seek to duplicate them. + (http://toolbox.calwep.org/w/index.php?title=Special:SearchByProperty&x=Has-20introduction%2FWater-20shortage-20contingency-20plans-20%28WSCP%29-20have-20been-20required-20as-20part-20of-20the-20water-20contingency-20analysis-20specified-20by-20the-20California-20Water-20Code-2010632-20since-20the-20early-201980s-20for-20urban-20water-20suppliers.-20Having-20a-20developed-20WSCP-20is-20an-20essential-20part-20of-20being-20prepared-20to-20respond-20to-20water-20shortages-20in-20a-20timely-20manner.-20-20This-20tool-20will-20provide-20an-20overview-20of-20WSCP-20development%2C-20reference-20resources-20and-20tools%2C-20and-20provide-20examples-20of-20WSCPs-20from-20around-20the-20state-20with-20the-20goal-20of-20helping-20agencies-20develop-20a-20WSCP-20quickly-20or-20refine-20an-20existing-20plan.-20The-20DWR-20Urban-20Drought-20Guidebook-20%282008%29-20and-20the-20%282011%29-20AWWA-20M60%3A-20Drought-20Preparedness-20and-20Response-20Manual-20are-20key-20resources-20for-20developing-20and-20implementing-20a-20WSCP.-20-20This-20tool-20will-20refer-20to-20these-20key-20resources%2C-20but-20does-20not-20seek-20to-20duplicate-20them.)
Has primary image	Tool 1 Folsom Lake drought.jpg +
Has resource URL	http://toolbox.cuwcc.org/wiki/Urban_Drought_Guidebook_(2008) (http://toolbox.cuwcc.org/wiki/Urban_Drought_Guidebook_%282008%29) +
Has source URL	http://toolbox.cuwcc.org/wiki/File:Toolkit-Tool_1_F.pdf +

Contents
