

California Water Plan Update 2009

New Investments in Water Portfolios: Completing the Urban Water Balance

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Northern District Office







Overview


- Current Urban Analysis
- The California Urban Water Use Model
- Integration with the Water Portfolios -
Proposed Urban Water Use
Model Application
- Data needs
- Potential partnerships

Current Urban Analysis

- Estimate DAU/County urban water use based on
 - Public Water System Statistics survey data
 - Available Self-Supplied Water Use Data
- Results are an annual time series for
 - Per-capita and total water use by delivery type
 - Single Family Residential, Multi-Family Residential, Commercial, Industrial, Landscape, etc.
 - Indoor and outdoor estimates

California Urban Water Use Model






-  Input ...
-  Reports ...
-  Import ...
-  Maintenance ...
-  About this model

-  Exit



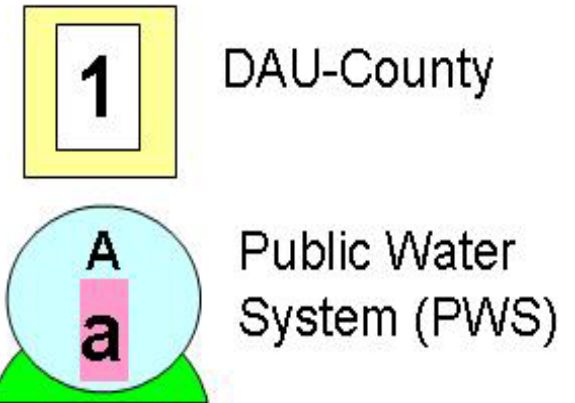
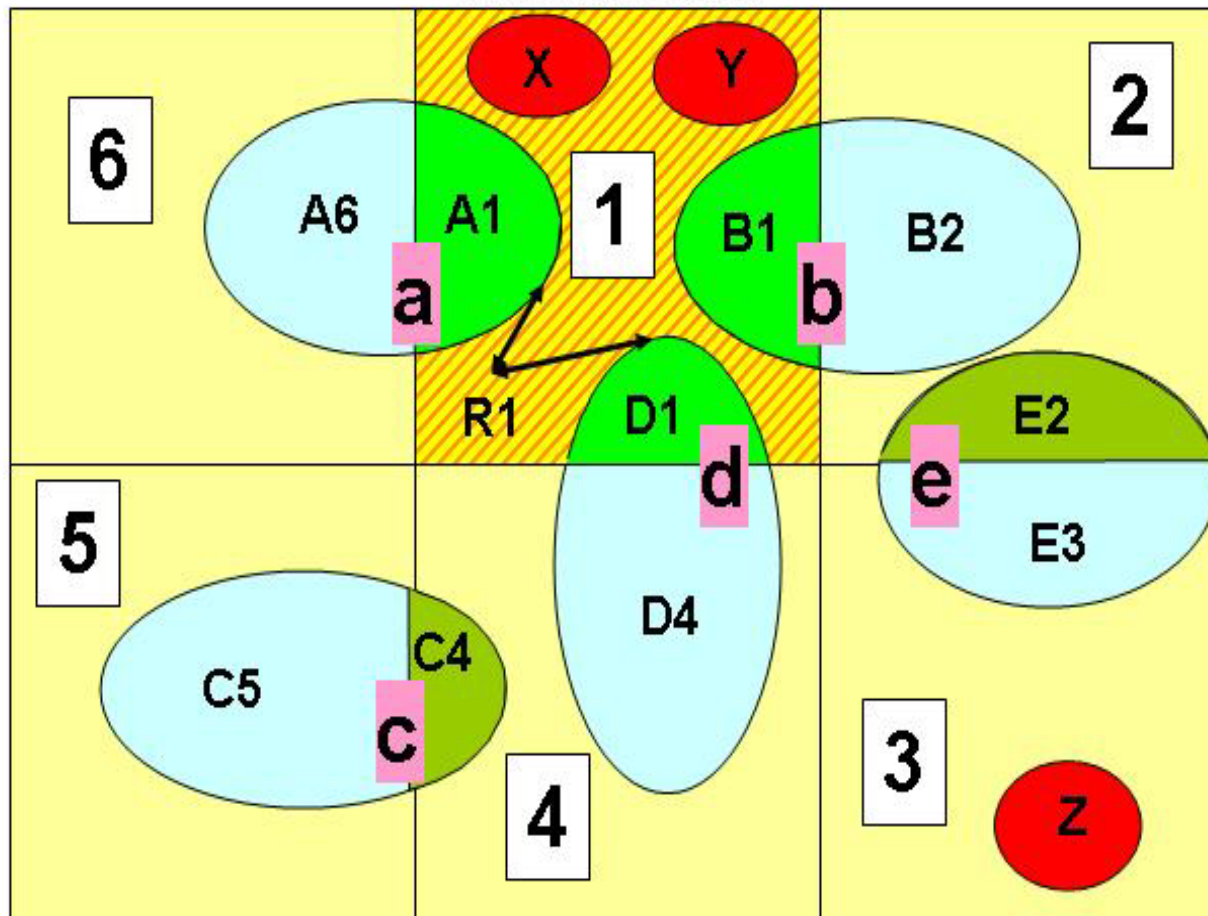
Input

Done

-  Public Water System (PWS) Statistics
and PWS Sub Groups
-  Self Supply Users
-  Residual
-  DAU County
-  Current PWS Names

Urban Water Use Schematic

Goal: Aggregate the smallest units of analysis



A: population
a: per capita water use

A1 PWS Sub Group

X Self Supply Users

R1 Residual Self Supply User Group

Example Calculation: Total Single Family Water Use, WU(SF), in DAU-County 1

$$WU(SF) = A1 \cdot a(SF) + B1 \cdot b(SF) + D1 \cdot d(SF) + X \cdot x(SF) + Y \cdot y(SF) + R1 \cdot r1(SF)$$

Where $a(SF)$ is single family per capita water use of A. The rest terms are interpreted similarly.

$A1 + B1 + D1 + X + Y + R1 = \text{total population in DAU-County 1}$;

Population by Public Water Systems are: $A1 + A6 = A$; $B1 + B2 = B$; $D1 + D4 = D$

ND

Calendar Year

2005

PWS ID:

4510005

Edit Name

Delete

Add New

Done

Public Water System

Redding, City of

General

Connections

Production

Metered Deliveries

Production Units

AF

Production Type

Wells

Month Production Qty

PWS Total

Month	Production Qty	PWS Total
Jan	405.350	1,093.4
Feb	366.310	1,086.3
Mar	390.510	1,091.5
Apr	423.220	1,475.3
May	649.300	1,964.6
Jun	977.810	2,959.6
Jul	1,444.910	4,264.9
Aug	1,475.430	4,273.7
Sep	1,053.980	3,237.5
Oct	772.870	2,523.5
Nov	285.230	1,424.5
Dec	294.070	1,197.1

Total: 8,538.990

26,881.8

Delete

Add New

Double click the word "Jan" to copy to other 11 months

Redding, City of	4510005
Redway CSD	1210011
Rio Alto Water District	5210005
Rush Creek Mutual Water System	5301017
Seymour's Mutual Water System	5301201
Shasta CSD	4510013
Shasta Forest Village	4510009
Shasta Lake, City of	4510006
Siskiyou Co. Rolling Hills MWC	4700528
So. Cal. WC - Clearlake System	1710002
Susanville, City of	1810001
Thermalito Irrigation District	410008
Trinity Co. WWD #1	5310002
Weaverville CSD	5310001
Weed, City of	4710009

Potable Wholesale

Recycled Wholesale Suppliers and Level of Treatment:

Wells
 Surface
 Purchased Surface
Recycled

ND

Calendar Year

2005

PWS ID:

4510005

Public Water System

Redding, City of

Edit Name

Delete

Add New

Done

General

Connections

Production

Metered Deliveries

Delivery Units

AF

Delivery Type

Single Family Residential

Month

Delivery Qty

PWS Total

Jan	546.000	1,069.000
Feb	484.000	898.000
Mar	644.000	1,275.000
Apr	651.000	1,195.000
May	784.000	1,417.000
Jun	1,514.000	2,476.000
Jul	2,148.000	3,231.000
Aug	2,662.000	4,230.000
Sep	2,294.000	3,644.000
Oct	1,649.000	2,693.000
Nov	954.000	1,662.000
Dec	657.000	1,280.000

Total:

14,987.000

25,070.000

Delete

Add New

Double click the
word "Jan" to copy
to other 11 months

Single Family Residential

Multi Family Residential

Commercial / Institutional

Industrial

Landscape Irrigation

Other Urban

Agricultural Irrigation

Wholesale (to other agencies)

Calendar Year

Self-Supply

DAU-County

Edit Name

Delete

Add New

Done

Self Supply User

System Loss

Estimated

Population Units

District

Production

Type

Month	Production Qty	Self Supply Total
Jan	2.000	8.000
Feb	2.000	8.000
Mar	2.000	8.000
Apr	2.000	8.000
May	2.000	8.000
Jun	2.000	8.000
Jul	2.000	8.000
Aug	2.000	8.000
Sep	2.000	8.000
Oct	2.000	8.000
Nov	2.000	8.000
Dec	2.000	8.000

Delete

Add New

Deliveries

Type

Month	Percent of Delivery	Delivery Qty	Self Supply Total
Jan	10.00%	0.72	100.00%
Feb	10.00%	0.72	100.00%
Mar	10.00%	0.72	100.00%
Apr	10.00%	0.72	100.00%
May	10.00%	0.72	100.00%
Jun	10.00%	0.72	100.00%
Jul	10.00%	0.72	100.00%
Aug	10.00%	0.72	100.00%
Sep	10.00%	0.72	100.00%
Oct	10.00%	0.72	100.00%
Nov	10.00%	0.72	100.00%
Dec	10.00%	0.72	100.00%

Delete

Add New

Copy Years

Double click the word "Jan" to copy to other 11 months

Dummy - Required for Water Balance

Calendar Year

Residual

Use Est System Loss

DAU-County

Override Deliveries

PWS Links

Representative PWS

PWSID

Weighted
Percent

Delivery
Types

Estimating non-represented areas

The Model documents the determination of representative unit water use values for unrepresented areas

DAU-County Total:

Representative PWS	PWSID	Weighted Percent	Delivery Types
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Current Urban Water Use Model

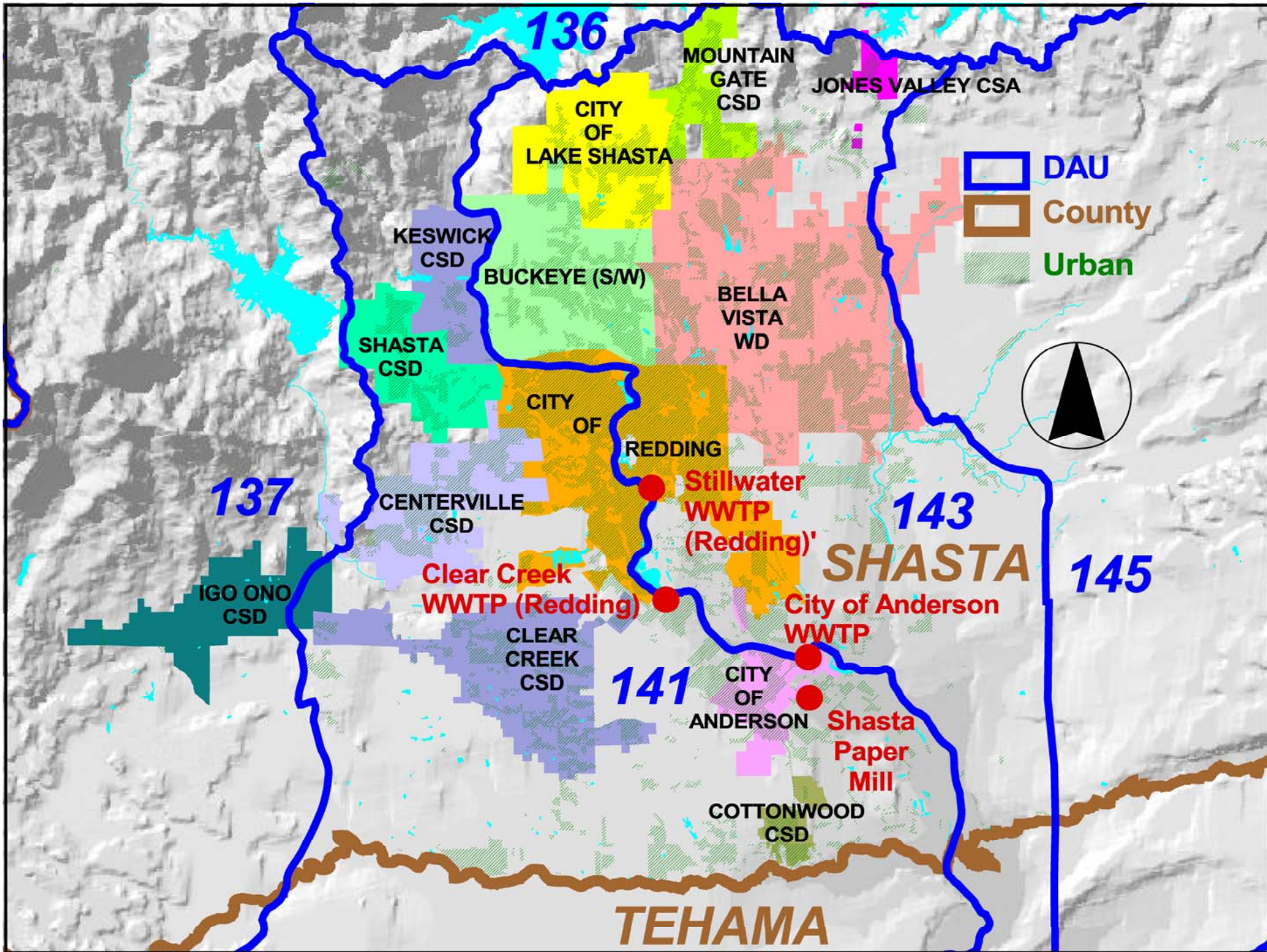
- Compute monthly and annual urban water use based on the smallest unit of aggregation
 - Public Water System Statistics survey data
 - Available Self-Supplied Water Use Data
 - Industrial
 - Golf courses
 - Rural areas
- Results available for each entity within a DAU/County

Integration with the Water Portfolios: Proposed Urban Water Use Application

- Compute monthly and annual urban water balance parameters for each entity within a DAU/County
 - Water production and uses by delivery type (current)
 - Water Supply (CVP, SWP, local project, etc.) and Recycling/Reuse
 - Depletion
 - ETAW, evaporation ponds, etc.
 - Landscape acreage linked to dynamic ETAW and AW model
 - Deep Percolation
 - Landscape AW, septic tanks, percolation ponds, etc.
 - Return Flows
 - Wastewater Treatment Plant discharge data
 - NPDES permit data

Proposed Urban Water Use Application

- Water services entities are spatially referenced to a GIS coverage
 - Develop a spatial coverage for
 - All urban water entities (e.g. public water systems, self-supplied users, etc.)
 - Wastewater treatment plants
- Model output can be aggregated to DAU/County or other spatial coverage



Results of Urban Water Use Application

- Monthly time series of urban water balance parameters available
 - Documentation of data and estimates
- Spatial (GIS) coverage of water suppliers and wastewater dischargers that are linked to the model
- Results shared through a GIS coverage containing the urban water use model output

Data needs

- Additional Public Water System Statistics data
- Self-supplied data
- Spatial (GIS) coverage of services area and points of diversion and discharge for urban water suppliers
 - Public water suppliers
 - Self-supplied entities
 - Wastewater treatment

Potential partnerships

- DWR's Bay-Delta Office
 - CalSim-III
 - C2VSIM
- US Bureau of Reclamation
 - Joint CalSim-III development
- DWR's Division of Planning and Local Assistance
 - Modeling efforts in support of grants (IRWMP, AB303)
- Statewide Water Analysis Network (SWAN)
 - Improve communication and data exchange between State Agencies and Urban Water Suppliers
- Water Suppliers
 - Exchange of water supplier and service area data
- Other Modeling Efforts

Questions?

Visit the
California Water Plan
Website

www.waterplan.water.ca.gov




California Home Governor Home [Check spelling of text you type on any web form in English](#) Saturday, February 23, 2008

Welcome to **California**

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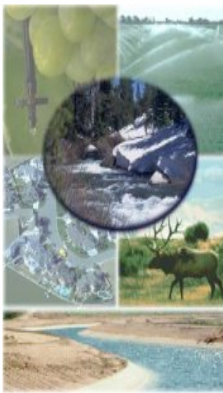
***Participation:**
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[Administrative Corner](#)
[Regional Outreach](#)
[SWAN](#)
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DEPARTMENT OF
WATER RESOURCES
PLANNING AND LOCAL ASSISTANCE

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California Water Plan



The **California Water Plan** provides a framework for water managers, legislators, and the public to consider options and make decisions regarding California's water future. The Plan, which is updated every five years, presents basic data and information on California's water resources including water supply evaluations and assessments of agricultural, urban, and environmental water uses to quantify the gap between water supplies and uses. The Plan also identifies and evaluates existing and proposed statewide demand management and water supply augmentation programs and projects to address the State's water needs.

Our goal for the **California Water Plan Update** is to meet [Water Code](#) requirements, receive broad support among those participating in California's water planning, and be a useful document for the public, water planners throughout the state, legislators and other decision-makers.

California Water Plan News



- Water Plan eNews** -- DWR and the CA Water Plan publishes a weekly electronic newsletter to keep you current on Water Plan news. We welcome comments, suggestions and any news tips that may be of interest to water planners, email us at wpnews@water.ca.gov.
▶ [February 20, 2008](#) ▶ [eNews archives](#)
- 2008 Regional Workshops Announced** -- DWR in cooperation with other State agencies, invites you to participate in a series of regional public workshops to gather and share information about the California Water Plan Update 2009. (02/20/2008)
[more info...](#)
- Delta Vision Workshop** -- The Water Education Foundation presents a FREE one-day workshop to outline the Delta Vision Blue Ribbon Task Force implementation plan and includes a unique opportunity to provide input to key decision makers about the future of the Delta. The workshop is all-day and will be held in Suisun City. (02/06/2008)
[Workshop Flyer](#), [Web site](#)

