



**MONARCH
ENVIRONMENTAL**

Consulting Experts

TREES-WATER-SOIL-PLANTS





Built on over 200 acres, South Coast Research and Extension Center (South Coast REC) was established by the University of California in 1956 as a representative site for agricultural and horticultural research in California's south coastal plain-temperate climatic zone.

Intensive research efforts are focused on fruits and vegetables including, but not limited to, avocados, citrus, stone fruits, strawberries, cherimoyas, persimmons, carrots, celery, sugarbeets, and tomatoes. Considerable effort is also directed at agronomic crops, turfgrass and landscape shrub/tree management, and ornamental plant nursery production in the greenhouse and in the field.

SCREC is on Recycled Water.







In 1986, 7,000 homeowners associations, or HOAs, existed in the state of California. *OC Register*

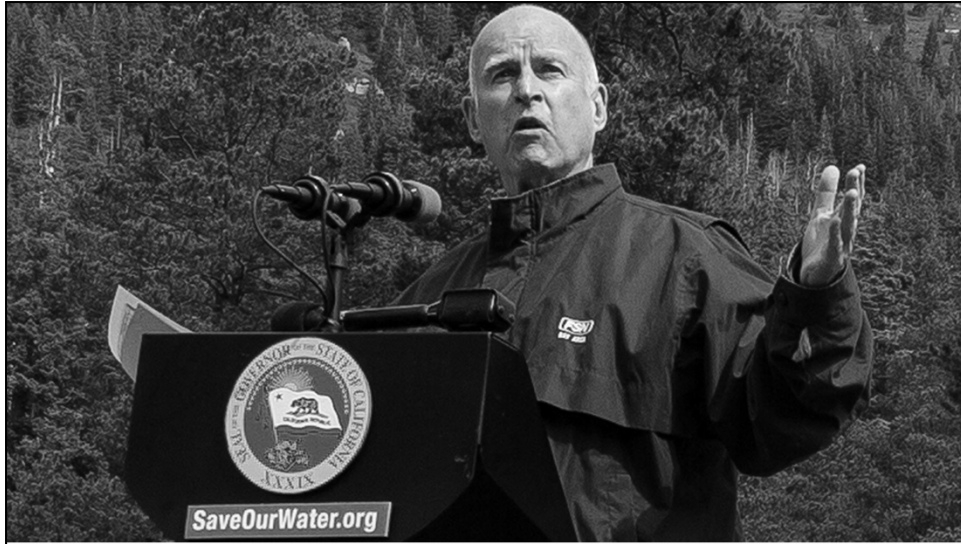
By 2012, California had approximately 47,000 homeowner associations- 9 million people.

- One-quarter of the population in California live in HOAs

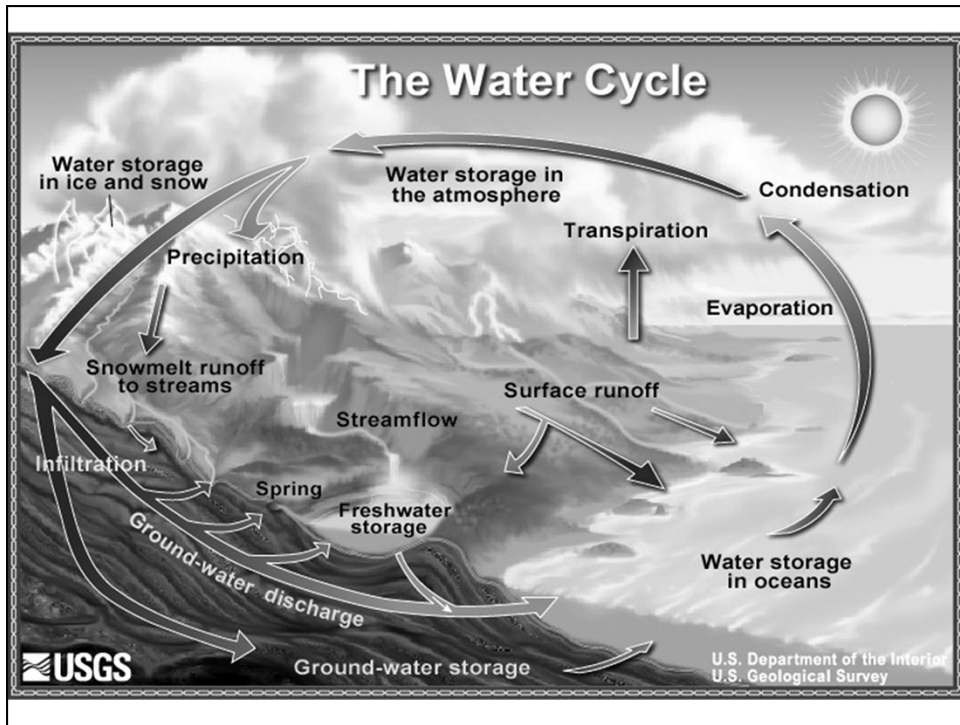
-According to the **Orange County Chapter** of (CAI) there are approximately **4,772 homeowners associations in Orange County**. More than 1 million people in Orange County living in HOAs.

-1 Out of 3 State and County Wide





25% STATEWIDE MANDATE

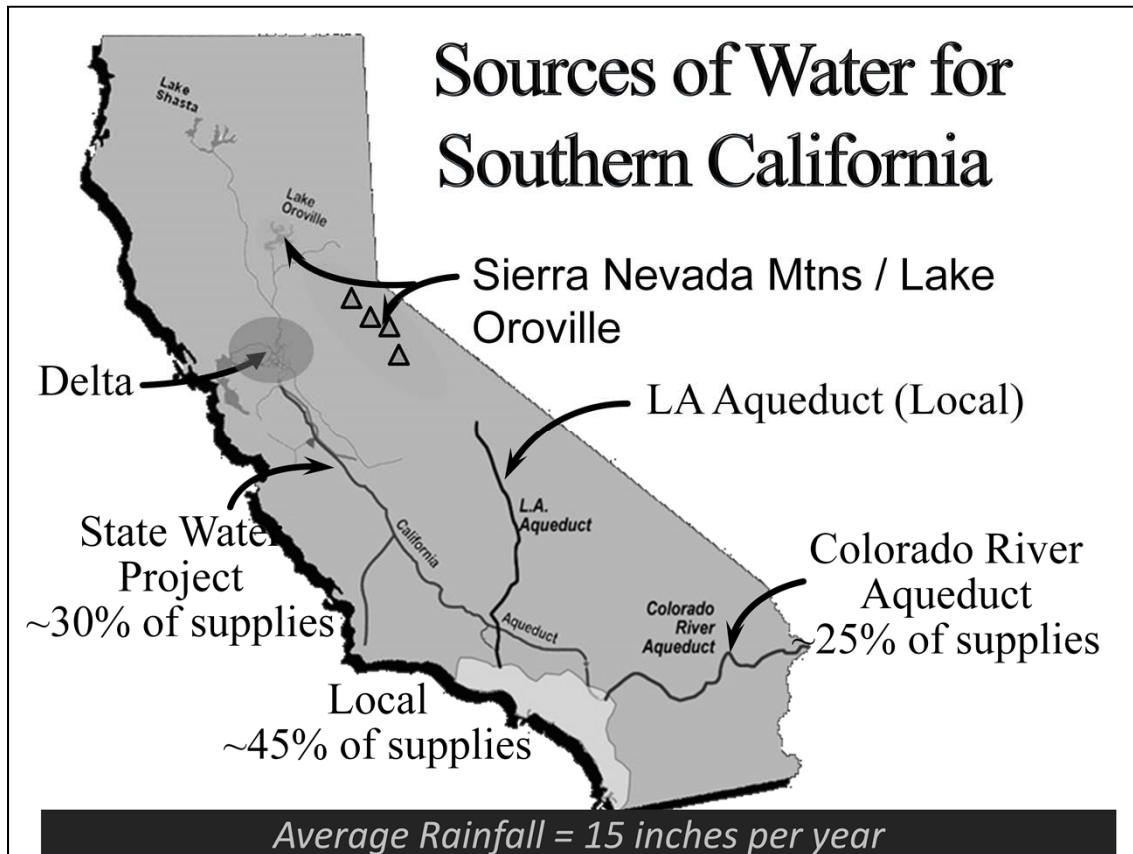


Metropolitan Water District



- Regional water wholesaler
- 26 Member Agencies
- 6 Counties
- 5,200 square mile service area
- Serving Approximately 19 million residents
- Meet ~50% of potable water demand
- \$1 trillion economy

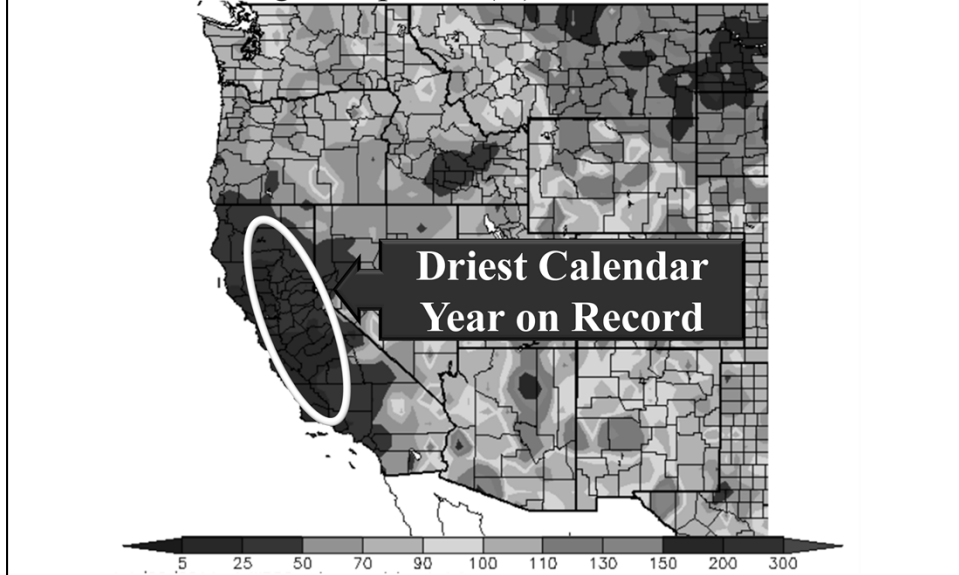




- ~25% Colorado River
- ~30% State Water Project
- ~45% local:
 - LA Aqueduct
 - Groundwater recovery
 - Recycling
 - Desalination
 - Conservation

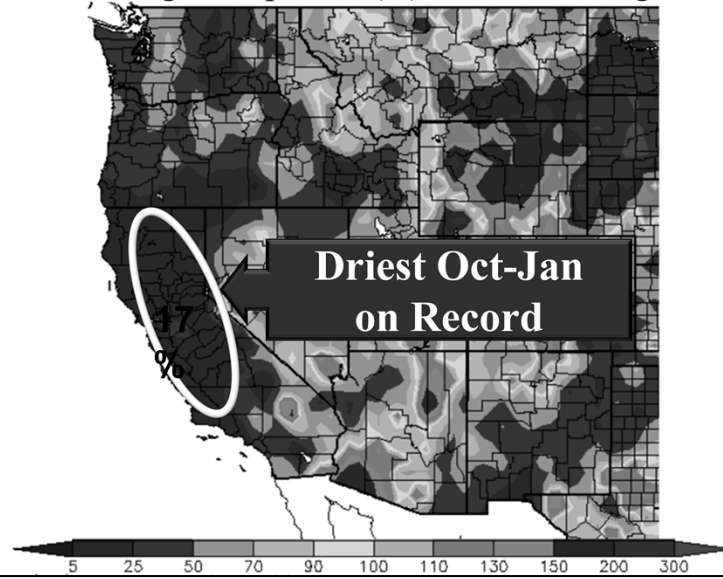
2013 Hydrologic Conditions

Percent of Average Precipitation (%) for Calendar Year 2013

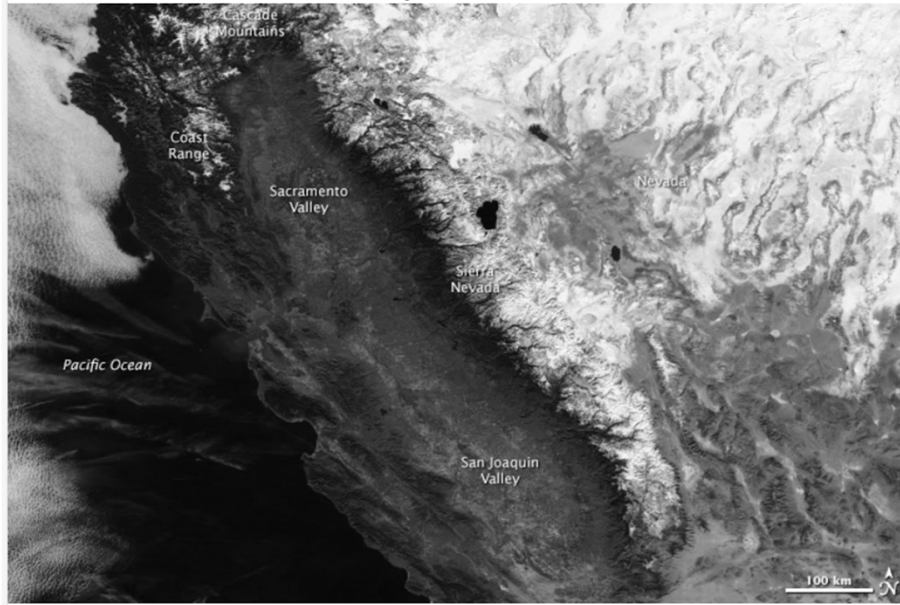


2014 Hydrologic Conditions

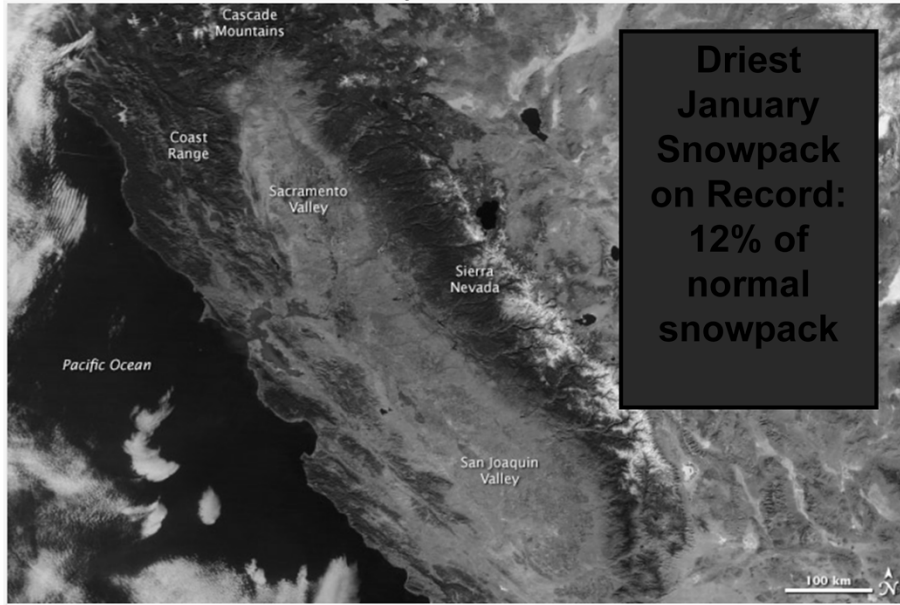
Percent of Average Precipitation (%) Oct 2013 through Jan 2014



January 18, 2013



January 18, 2014



What Can We Do?



1. Plant Selection- Salt Tolerant plants

http://slosson.ucdavis.edu/newsletters/wu_200129031.pdf

2. Find Common Ground- eliminate waste

3. How are You Managing Water?







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LET'S GET
SMART ABOUT **WATER**

- Eliminate Waste
- 100% Opportunity
- Meter Reading



Water budgets 101

What is a water budget?

Are we talking \$ or gallons?

What's my budget?

WHAT IS A WATER BUDGET?

$$\int \sin x \, dx = -\cos x + c$$

$$(\ln x)' = \frac{1}{x} \quad \int \frac{1}{x} \, dx = \ln|x| + c$$

$$\int \csc x \, dx = \ln|\csc x - \cot x| + c$$

$$(\tan x)' = \sec^2 x \quad (e^x)' = e^x$$

$$\int \ln x \, dx = x \ln x - x + c$$

$$(x^n)' = nx^{n-1} \quad \frac{du}{dx} = \frac{du}{dy} \cdot \frac{dy}{dx}$$

WHAT IS A WATER BUDGET?

The budget equation is actually quite simple:

$$\text{Sqft} \times \text{ET} \times \text{ETAF} = \text{Budget (Ga. H}_2\text{O)}$$

It's managing to your budget that CAN BE complicated.

The budget changes daily with the weather.

Requires weekly meter reading to manage to budget.

Requires knowledge of rate structure and billing cycles.

then you have "do the math"... weekly for each meter.

And then take action!

Are we talking \$ or gallons?

The budget equation is actually quite simple:

$$\text{Sqft} \times \text{ET} \times \text{ETAF} = \text{Budget (Ga. H}_2\text{O)}$$

Water budgets are in gallons

You need to understand rate structure to calculate \$

Your cost of water can change daily with the weather

You cannot "bank" savings from one month to next

You cannot "bank" savings from one meter to another

What's my budget?

It depends on where you live and your water district

It changes every day with the weather

You cannot know what your budget will be tomorrow

For 10,000 SQFT of landscape, and $ET = 0.25$:

Moulton Niguel	=	1.45	CCF
Santa Margarita Water District	=	1.67	CCF
El toro water district	=	1.67	ccf
Irvine ranch water district	=	2.10	CCF



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