

California Drought



California Institute for Water Resources

Doug Parker

Director, California Institute for Water Resources
Strategic Initiative Leader, UC ANR Water Initiative

doug.parker@ucop.edu

ciwr.ucanr.edu | [@ucanrwater](https://twitter.com/ucanrwater)



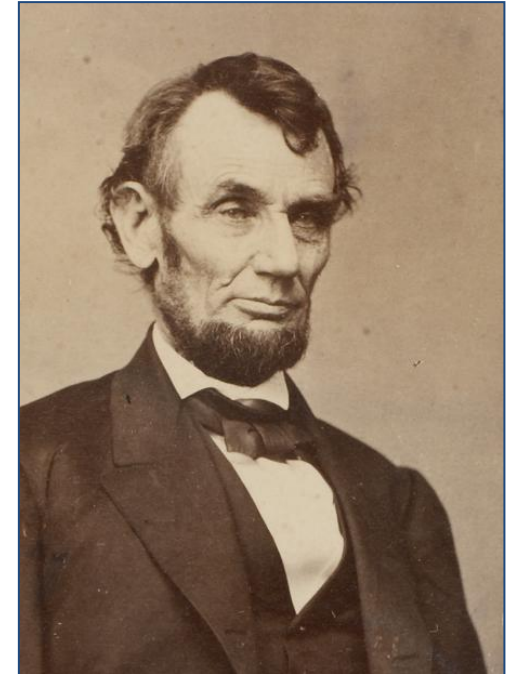
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Agriculture and Natural Resources

■ *A Celebration of Science and Service*

UC Division of Agriculture and Natural Resources

- 1862 Morrill Act creates the Land-Grant institutions
- 1868 the University of California becomes California's Land-Grant Institution (systemwide)
- 1887 Hatch Act Creates Agricultural Experiment Station System. In the Division of Agriculture and Natural Resources with faculty on the Berkeley, Davis and Riverside Campuses.
- 1914 Smith-Lever Act Creates Cooperative Extension Service. In the Division of Agriculture and Natural Resources with academics in all California counties and on multiple UC campuses.



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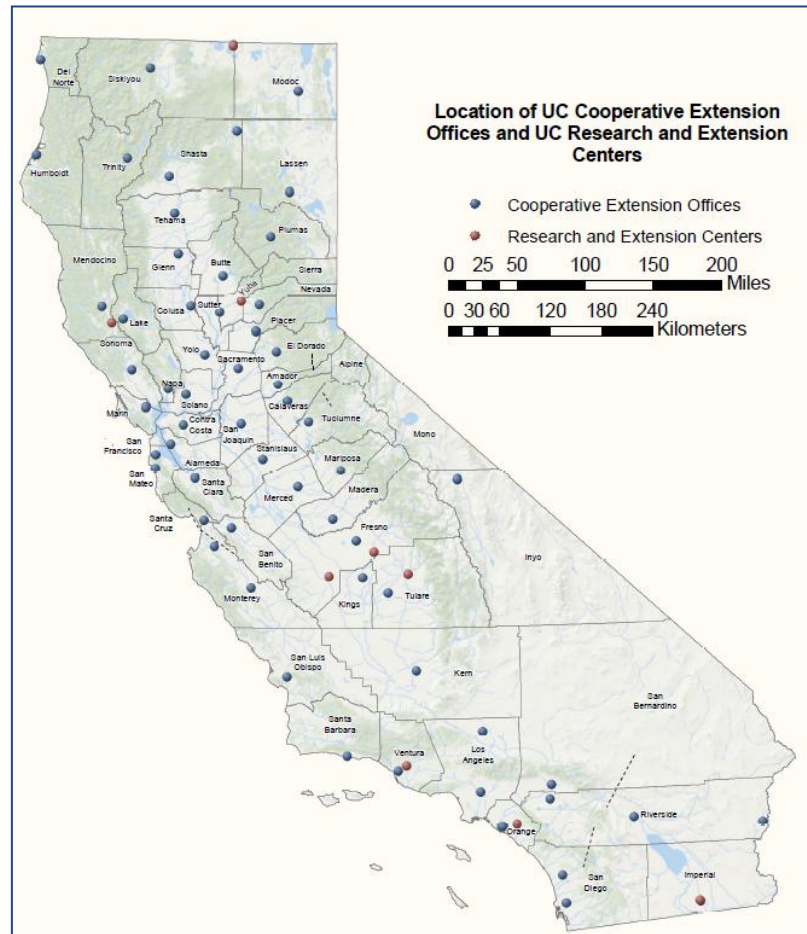
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UC Division of Agriculture and Natural Resources

Where is the Division of Agriculture and Natural Resources in the UC System?

- Headquartered in UCOP
- Reports directly to the President
- Staff and academics in every part of the State
 - Programs in every county
 - Nine Research and Extension Centers
 - Academics on four UC campuses





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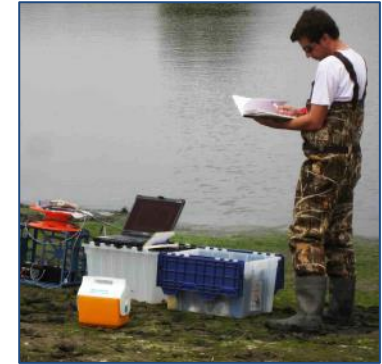
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California Institute for Water Resources



An Institute within the Division of Agriculture and Natural Resources with statewide responsibilities.

The Institute develops and supports water-related research, education, and outreach. It is the California hub for the national network of water research institutes supported by the federal Water Resources Research Act of 1964.



Goals

- Integrating California's research, extension, and education programs to develop solutions to water resource challenges
- Connecting water resource expertise in California's academic institutions with the needs of water managers and users
- Developing relevant and timely science-based information on water issues to inform decision-making



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California Agriculture Facts

- 80,000 + farms
- \$45 billion industry
- 26 million acres of agricultural lands
 - 13 million acres pasture and rangeland
 - 9.5 million acres of irrigated cropland
 - 6 million acres annuals
 - 3 million acres orchards/vineyards
- 200 MAF precipitation in average year
 - 24 MAF agricultural water use



California Agriculture

- #1 US producer of 78 commodities
- Only US producer of 14 commodities (99% or greater)



Almonds	Kiwifruit	Pomegranates
Artichokes	Olives	Rice, Sweet
Dates	Peaches, Clingstone	Seed, Ladino Clover
Figs	Pistachios	Walnuts
Grapes, Raisin	Plums, Dried	

Source: USDA, NASS, "California Agricultural Statistics, 2011 Crop Year".

U.S. Drought Monitor California

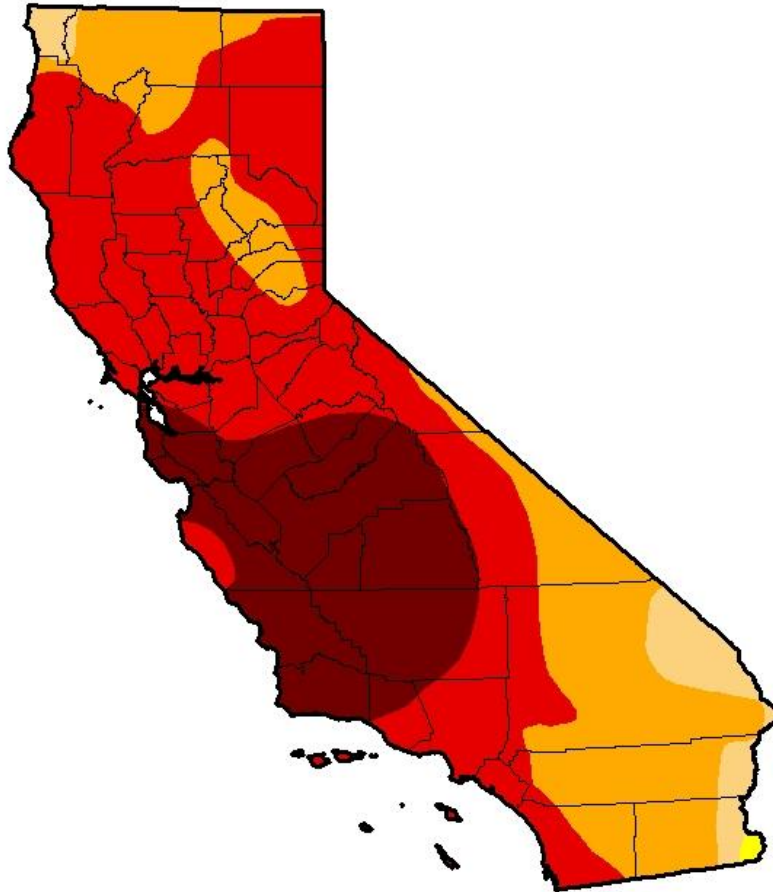
April 15, 2014

(Released Thursday, Apr. 17, 2014)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	99.80	95.21	68.76	23.49
Last Week 4/6/2014	0.00	100.00	99.81	95.21	68.76	23.49
3 Months Ago 1/14/2014	1.43	98.57	94.18	89.91	62.71	0.00
Start of Calendar Year 12/31/2013	2.61	97.39	94.25	87.53	27.59	0.00
Start of Water Year 10/1/2013	2.63	97.37	95.95	84.12	11.36	0.00
One Year Ago 4/16/2013	2.84	97.16	48.39	23.22	0.00	0.00



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

Brian Fuchs
National Drought Mitigation Center



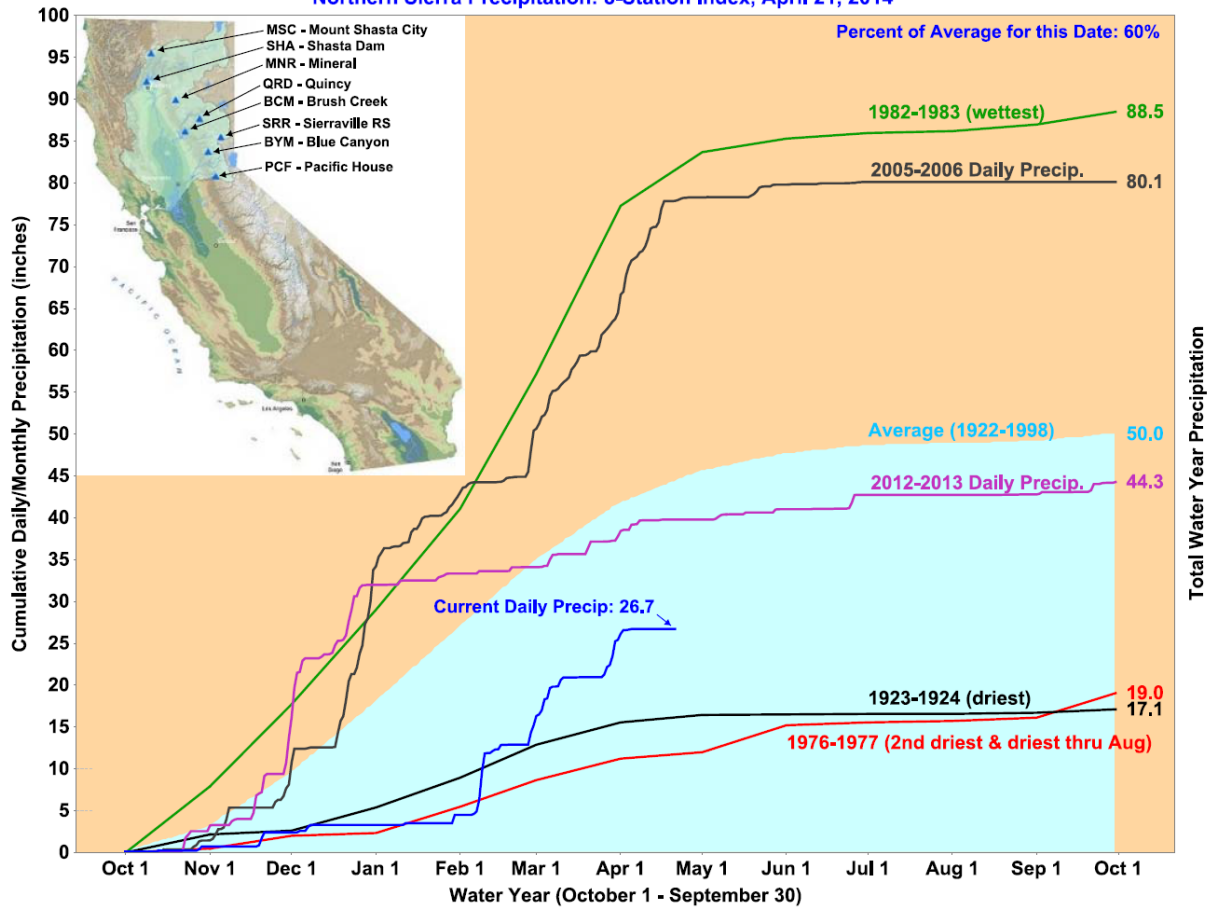
<http://droughtmonitor.unl.edu/>



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Northern Sierra Precipitation: 8-Station Index, April 21, 2014

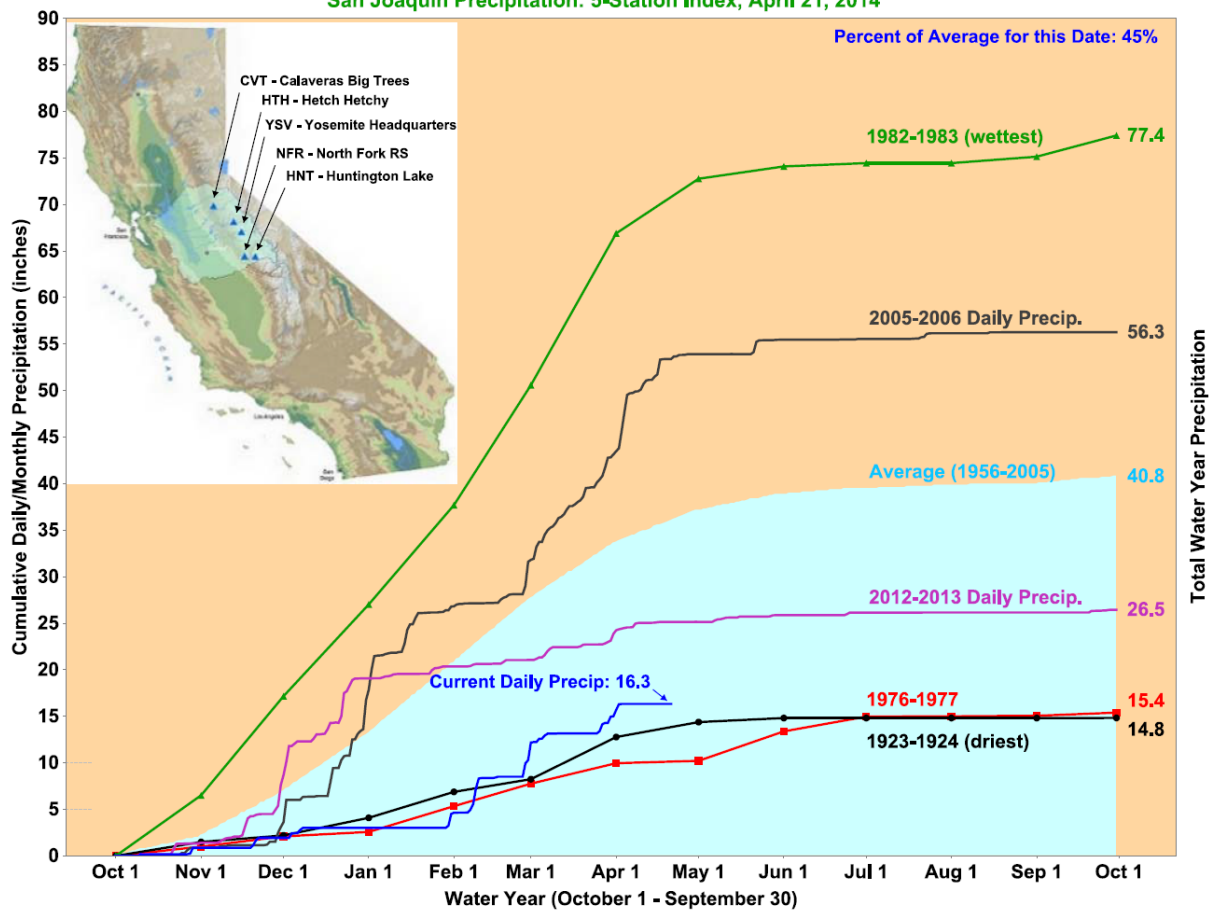


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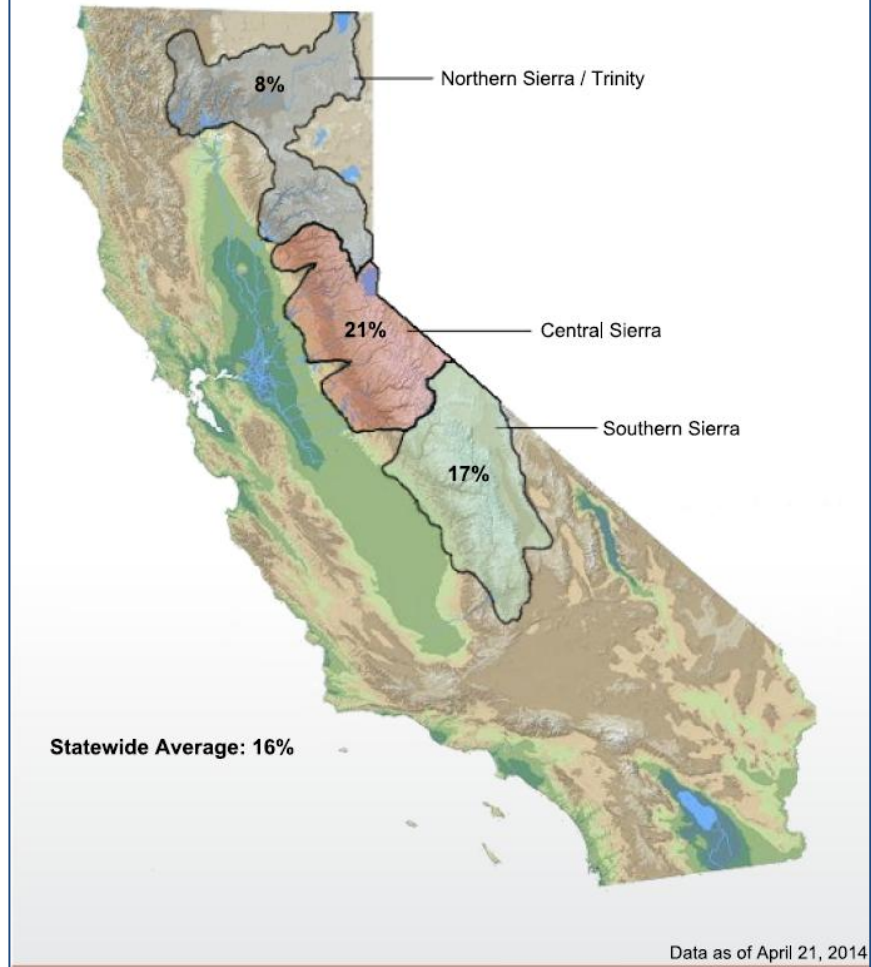
San Joaquin Precipitation: 5-Station Index, April 21, 2014



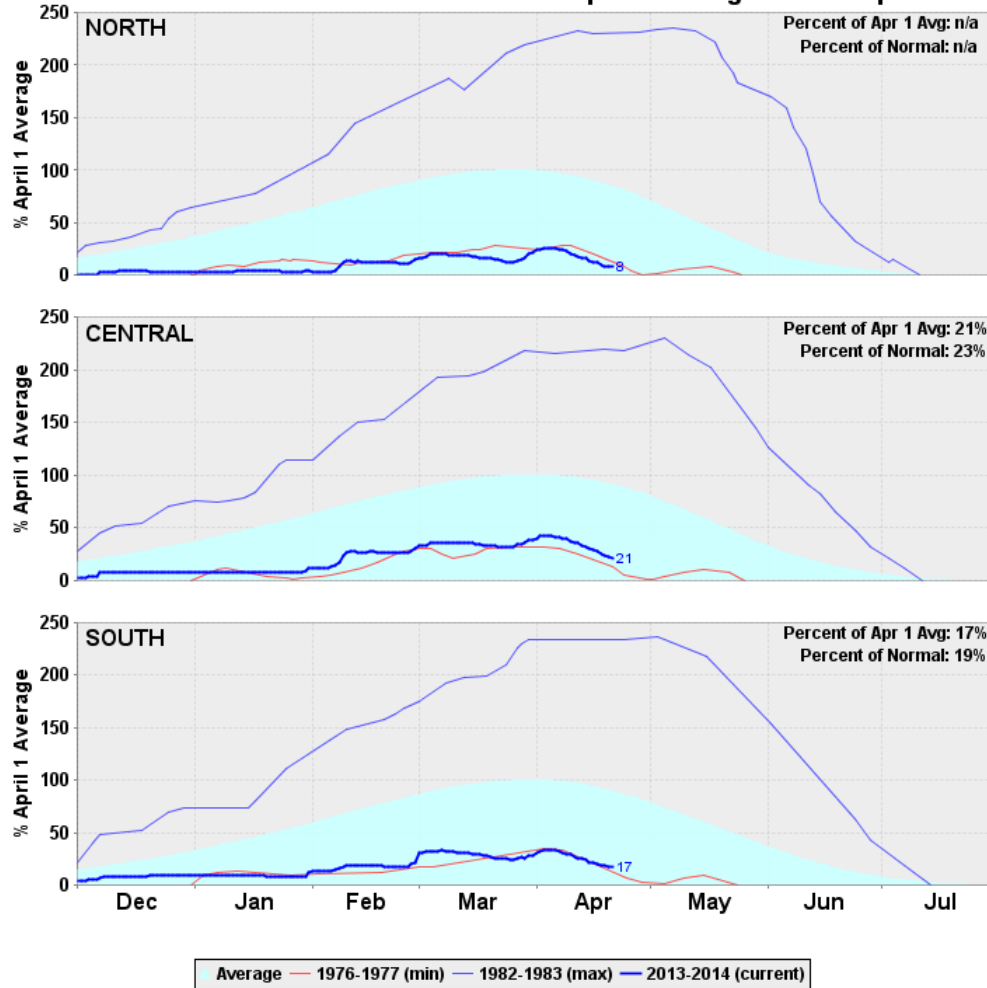
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Current Regional Snowpack from Automated Snow Sensors - % of April 1 Average



California Snow Water Content - Percent of April 1 Average For: 21-Apr-2014



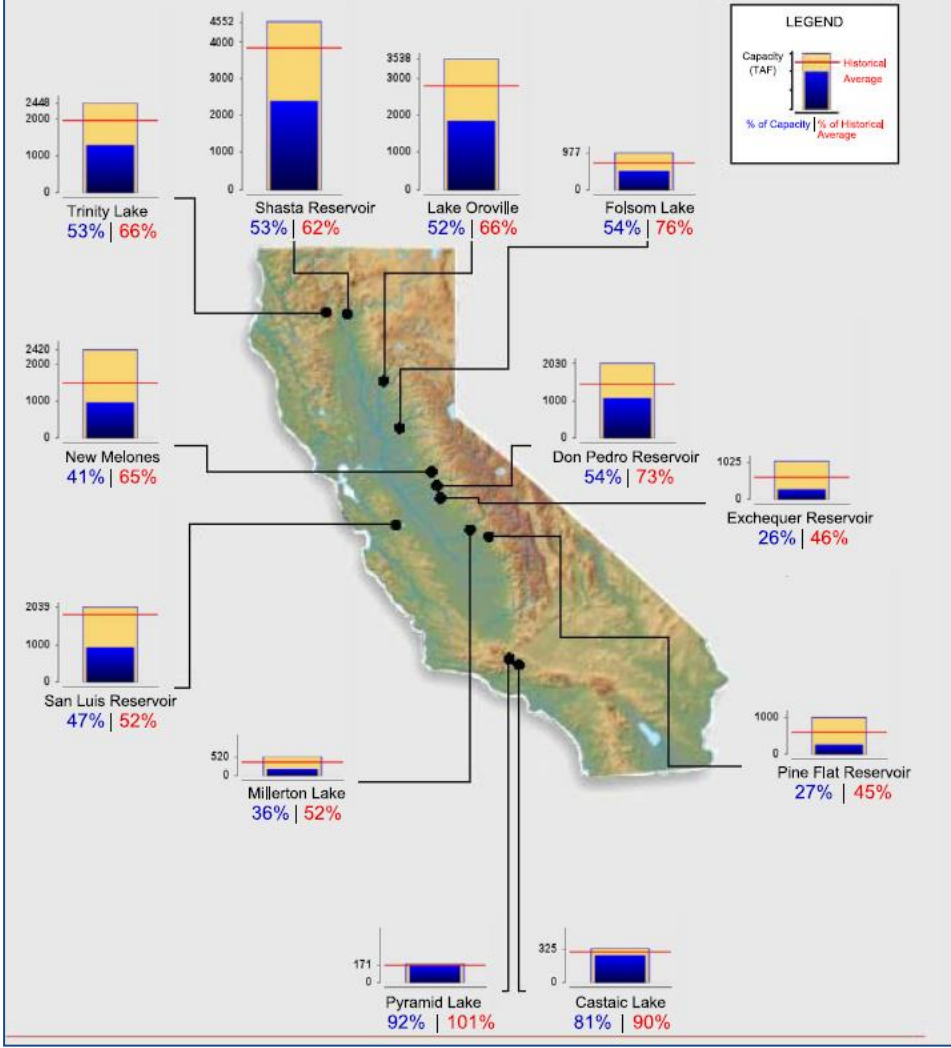
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Ending At Midnight - April 20, 2014

CURRENT RESERVOIR CONDITIONS

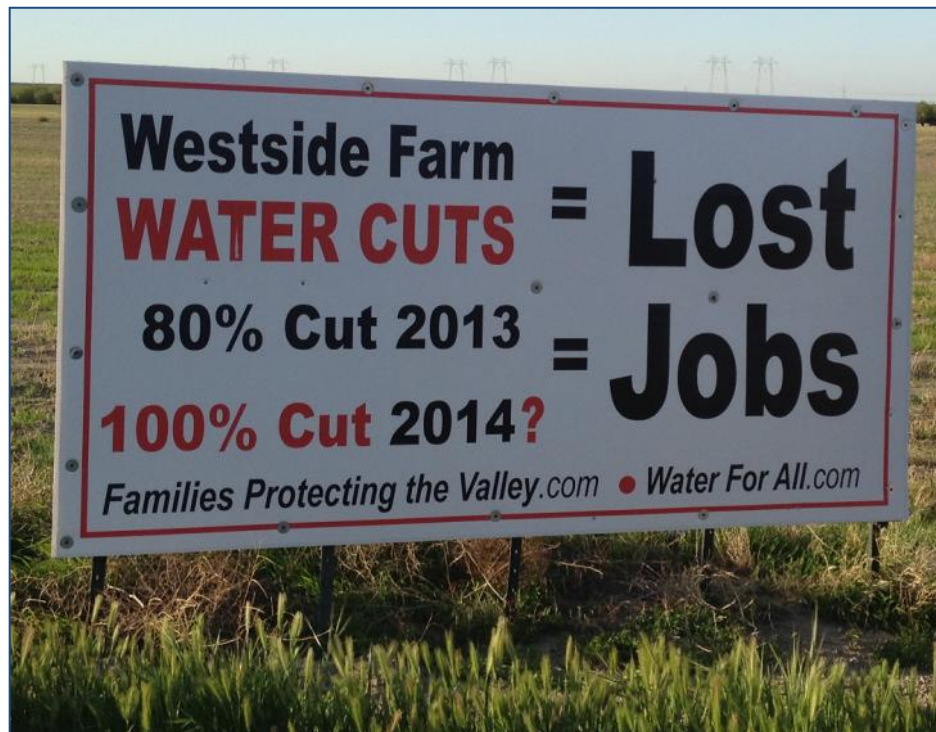


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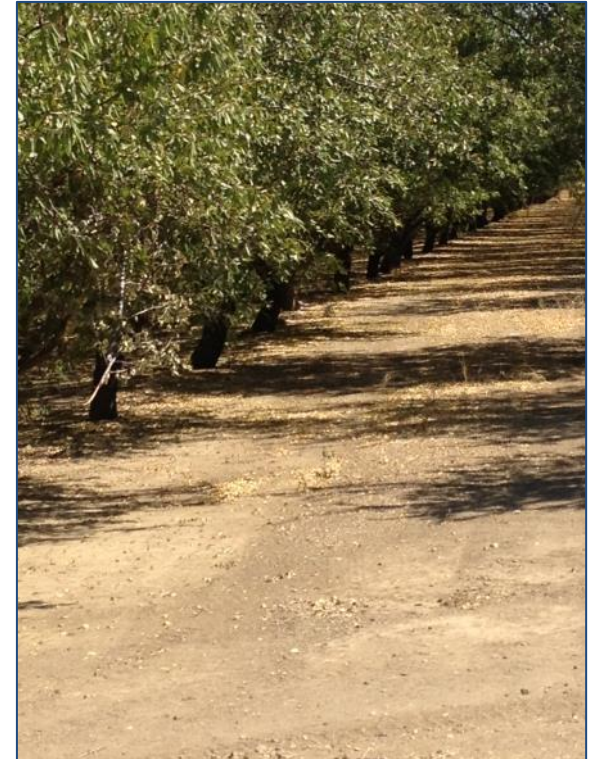
Impacts to California

- Fallow crop land
- Import feed for livestock and dairy
- Cull herds
- Increase wildfire
- Impact ecosystem health
- Impact ecosystem restoration efforts
- Residential and urban water demand




UC Response to Drought: Long-term


- Drought not new to California
- 40+ years of research and outreach
 - Irrigation efficiency
 - Irrigation management
 - Rangeland management
 - Managed Aquifer Recharge
 - Recycling/reuse
 - Desalination
 - Master Gardener
 - Stormwater capture and recharge
 - Real-time monitoring stream and snowpack



UC Response to Drought: Short-term



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Developing research-based solutions to water-related challenges

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Nitrogen Hazard Index
Rosenberg Forum
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New! Drought resources

As we enter 2014 in the midst of historic drought, California's academic institutions serve as a tremendous resource.



[Visit our drought pages](#) for events, experts, and informational resources.

Follow us on Twitter

UC Water Institute:
Combo of #climatechange, growth & groundwater a train wreck says @JayFamiglietti <http://t.co/1d4LbgTong>
#drought <http://t.co/VTMRJiffqa>
Posted less than a minute ago

UC Water Institute:
The politics of allocating water between ag, residents, environment in CA, with Ellen Hanak of @PPIcnotes <http://t.co/BMnWFz2nJK>
#drought
Posted less than a minute ago

Fulfilling our mission

"As California faces its worst drought in decades, water supply and quality for agricultural, urban, and environmental systems has become one of our biggest challenges. UC's California Institute for Water Resources is vital to integrating California's research, extension, and education programs to help mitigate the current problem and develop practical long-term solutions."

Secretary Karen Ross, California Department of Food and Agriculture

Current Drought Resources

The screenshot shows the website header with the University of California logo and the text 'University of California Agriculture and Natural Resources | California Institute for Water Resources'. Below the header is a navigation menu with links like 'Home', 'About the Institute', and 'Programs'. The main content area is titled 'California Drought Resources' and contains a paragraph about drought resources, a list of links, and a comparison of satellite images from January 2013 and January 2014 showing the state of California. The list of links includes 'Drought-related events', 'Drought information and resources', 'Drought experts list', 'Media coverage featuring our experts', and 'Story highlights'. At the bottom of the page, there is a social media link to follow the organization on Twitter.

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Developing research-based solutions to water-related challenges

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California Drought Resources

As we enter 2014 in the midst of historic drought, California's academic institutions serve as a tremendous resource both in offering everything from near-term management advice to farmers and ranchers to the innovative work being carried out by researchers on a vast array of issues from drought resistant crops to snow sensors to climate change.

These pages are being continuously updated as we work to bring the resources of the state's universities and colleges to a broad range of communities.

- [Drought-related events](#)
- [Drought information and resources](#)
- [Drought experts list](#)
- [Media coverage featuring our experts](#)
- [Story highlights](#)

Follow us on Twitter [@ucanrwater](#) for drought-related news and updates.

Web: ucanr.edu/drought

Twitter: [@ucanrwater](https://twitter.com/ucanrwater)

for up-to-date resources

for daily updates



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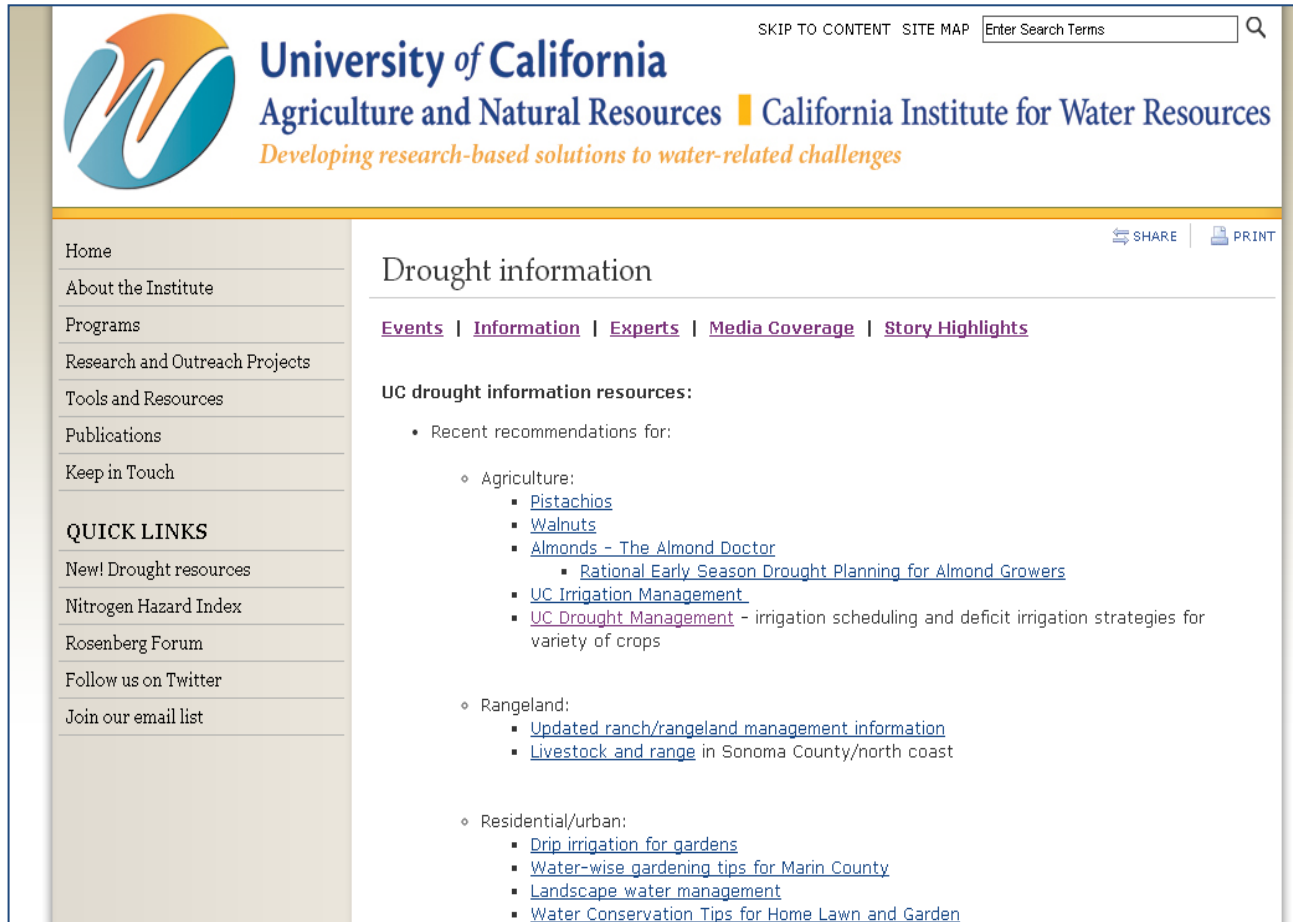
UC Drought Events





Veterinarian Dr. Nancy Martin talks with ranchers about how to help their herds survive drought at a UC ANR workshop in Browns Valley in January.

- Over 50 events in 3 months. Approximately 4,000 attendees.
- Many events with video capture now on the web.
- Over 15 more events planned with more to come

UC Drought Information



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Developing research-based solutions to water-related challenges

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Drought information

[Events](#) | [Information](#) | [Experts](#) | [Media Coverage](#) | [Story Highlights](#)

UC drought information resources:

- Recent recommendations for:
 - Agriculture:
 - [Pistachios](#)
 - [Walnuts](#)
 - [Almonds - The Almond Doctor](#)
 - [Rational Early Season Drought Planning for Almond Growers](#)
 - [UC Irrigation Management](#)
 - [UC Drought Management](#) - irrigation scheduling and deficit irrigation strategies for variety of crops
 - Rangeland:
 - [Updated ranch/rangeland management information](#)
 - [Livestock and range](#) in Sonoma County/north coast
 - Residential/urban:
 - [Drip irrigation for gardens](#)
 - [Water-wise gardening tips for Marin County](#)
 - [Landscape water management](#)
 - [Water Conservation Tips for Home Lawn and Garden](#)



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UC Drought Media Coverage



SCIENCE

Hundred Years of Dry: How California's Drought Could Get Much, Much Worse

Bryan Walsh | @bryanwalsh | Jan. 23, 2014

Scientists fear California's long-ago era of mega-droughts could be back

As he gave his State of the State speech yesterday, California Gov. Jerry Brown had reason to feel pretty good. The 75-year-old governor has helped rescue the state from fiscal insolvency and presided over the addition of 1 million new jobs since 2010. But as he spoke, Brown hit a darker note. Last week, amid the driest year for the state since record-keeping began in the 1840s, Brown declared a



California is the driest it has been on record, but its geologic history indicates the drought could get far worse.
David White - Getty Images

The New York Times

Severe Drought Has U.S. West Fearing Worst

By ADAM NAGOURNEY and IAN LOVETT | FEB. 4, 2014



LOS ANGELES — The punishing drought that has swept California is now threatening the state's drinking water supply.

With no sign of rain, 17 rural communities providing water to 40,000 people are in danger of running out within 60 to 120 days. State officials said that the number was likely to rise in the months ahead after the State Water Project, the main municipal water distribution system, announced on Friday that it did not have enough water to supplement the dwindling supplies of local agencies that provide water to an additional 25 million people. It is first time the project has turned off its spigot in its 54-year history.

State officials said they were moving to put emergency plans in place. In the worst case, they said drinking water would have to be brought by truck into parched communities and additional wells would have to be drilled to draw on groundwater. The deteriorating situation would likely mean imposing mandatory water conservation measures on homeowners and businesses, who have already been asked to voluntarily reduce their water use by 20 percent.

"Every day this drought goes on we are going to have to tighten the screws on what people are doing" said Gov. Jerry Brown, who was governor during the last major drought here, in 1976-77.



Max Whitaker for The New York Times

It's gone. [Undo](#)

What was wrong with this ad?

- Inappropriate
- Repetitive
- Irrelevant

Mother Jones

It Takes HOW Much Water to Make Greek Yogurt?!

Dairy products require a whole lot of water—and many of them come from drought-ridden California.

by Julia Larie and Alex Park | Mon, Mar. 10, 2014 10:00 AM PDT

238 | [Twitter](#) | [LinkedIn](#) | [Facebook](#) | [StumbleUpon](#)

How Thirsty Is Your Milk?

The water footprint, in gallons, of raw ingredients in our favorite creamy foods



One glass of soy milk



One glass of almond milk



One glass of milk



Over 300 articles in a variety of media outlets including the *New York Times*, *Washington Post*, *Los Angeles Times*, *Time*, *Businessweek* and *Mother Jones*.

Media Experts from UC ANR and each UC Campus.



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UC ANR Centennial Celebration – Join us!

May 8, 2014

Visit:
Beascientist.ucanr.edu

Everyone is
a scientist

100
UC Cooperative
Extension
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Division of Agriculture and
Natural Resources

On May 8, 2014, be a scientist for a day. Create a buzz. Get outside, record your observations, share your pictures, and tell us what's happening in your community.



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