



Newsletter | Volume 3, Issue 1 | March 2016

## Announcing our new research projects

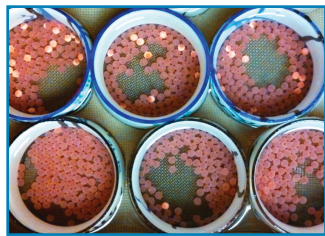
In collaboration with the California Institute for Water Resources, California academics provide solutions to address water-related issues. The Institute leverages federal investment to focus its attention on the most critical water issues in the state.

This year, the Institute supported new projects on a range of timely topics. Please read more about these projects below, and visit us at [ciwr.ucanr.edu](http://ciwr.ucanr.edu) for further details.

*Doug Parker, Director, California Institute for Water Resources*

### Influence of temperature on juvenile salmonids

Pacific salmon populations in California have rapidly declined, in large part due to dams and water diversions that block habitat and increase water temperatures. Recent work shows that Pacific salmon exposed to high temperatures during incubation have decreased heat tolerance later in life, impacting their health and survival. Fish exposed to high temperatures early in development may exhibit reduced aerobic performance later in life. This project will shed light on the underpinnings of salmonid declines in California, and provide valuable information for management decisions. *Investigator: Amanda Banet, CSU Chico. [READ MORE](#)*



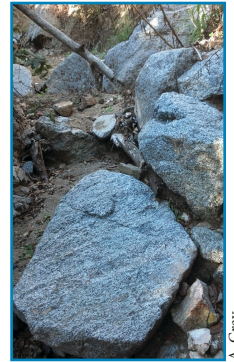
A. Banet

### Estimating soil nitrogen for fertilizer adjustment

Due to high groundwater nitrate concentrations, California growers are facing increasing pressure to improve nitrogen use efficiency. To maintain high yield levels, growers need accurate estimates of nitrogen availability that don't come from fertilizer so that they can adjust application rates with confidence. This project will determine nitrogen mineralization rates in the field and lab, and data will be used to develop an online tool that allows growers and crop advisers estimating field-specific nitrogen mineralization rates. The tool has the potential to increase nitrogen use efficiency in crop production, resulting in lower risks of nitrate leaching to groundwater. *Investigator: Daniel Geisseler, UC Davis. [READ MORE](#)*

### Debris flow and debris basin management impacts on water quality

Debris flows in the southern California mountains pose acute hazards to local populations and may have far reaching water quality effects. Although debris flows in urban areas are contained in part by basins constructed to impound sediments, fine sediments are routinely discharged, and little is understood about the impacts downstream water bodies. For this project, researchers will monitor water and sediment discharge from waterways to quantify suspended sediment impacts. The results will be used to help local agencies enhance debris basin management as it relates to water quality. *Investigator: Andrew Gray, UC Riverside. [READ MORE](#)*



A. Gray

### The Confluence: New on our blog

We have a new blog focused on California water issues. You can follow and subscribe at: [ucanr.edu/blogs/confluence](http://ucanr.edu/blogs/confluence).

#### From surviving to thriving: trees in street-side stormwater facilities from Faith Kearns

Street-side stormwater facilities are turning runoff once seen as a nuisance into a resource. Also known as bioretention areas, rain gardens, and bioswales, these small stormwater facilities provide a decentralized approach to alleviating peak stormwater runoff and subsequent flood damages...[READ MORE](#)

#### All the water we can get – managed groundwater recharge in California from Faith Kearns

How best to capture and store water for many different uses is a big question in California. After years of drought and a wet, El Niño-driven winter, safe-keeping any precipitation that does fall is a big priority for water managers. One approach with a lot of potential that has received little attention so far, at least in California, is managed aquifer recharge...[READ MORE](#)



UCSC Hydrogeology



F. Kearns

## Responding to California drought & El Niño

In the midst of historic drought and record setting El Niño, California's academic institutions serve as a tremendous resource.

UC researchers are offering everything from near-term management advice to farmers and ranchers to innovative work on a vast array of issues from drought resistant crops to snow sensors to climate change.

For up-to-the-minute resources and expertise, please visit us at [ciwr.ucanr.edu](http://ciwr.ucanr.edu) and follow us on Twitter [@ucanrwater](https://twitter.com/ucanrwater).

## Drought tipsheets for growers

New drought strategy tipsheets for managing alfalfa and many other crops are now available for free on our website. As California endures another year of drought and ever-tightening water supplies, water-management strategies have become even more critical to farmers.

To help farmers make the best use of the water they have available, this series of new and updated drought fact sheets has been developed by UC scientists and supported by the California Department of Water Resources.

Many peer-reviewed drought tips are currently available, including:

- Drought strategies for alfalfa
- Drought management for California almonds
- Fog contribution to crop water use
- Reclaiming saline, sodic and saline-sodic soils
- Use of graywater in urban landscapes in California

New tipsheets are continually being added to the website.

Explore the series at: [ucanr.edu/drought-tips](http://ucanr.edu/drought-tips)

## Proven Solutions to Drought Stress -- Video from international workshop now available

On January 12-13, water and drought experts from the U.S., Israel, and Australia gathered in California for stimulating workshop designed to inform participants about diverse drought management strategies from arid environments across the globe.

This workshop was the result of a partnership among the U.S. Department of Agriculture-Agricultural Research Service, California Institute for Water Resources, and Israel Ministry of Agriculture-Agricultural Research Organization.

Video for the workshop presentations can now be found on [our website](#). A full agenda for the workshop is at [www.droughtmgt.com](http://www.droughtmgt.com).

## Upcoming: Groundwater conference

The upcoming international conference "Toward Sustainable Groundwater in Agriculture" will be held in June 28-30, 2016 in the San Francisco Bay Area. We are co-sponsoring this UC-led gathering that will bring leading scientists, policy analysts, decision makers, and agricultural and environmental stakeholder groups together to define and highlight the science, challenges, and potential policy solutions in agricultural groundwater resources management and groundwater quality protection that will provide a sustainable future at regional, national, and global scales.

Groundwater is the lifeline for many rural and agricultural regions and their associated cultures and populations around the globe and a cornerstone of global food production. Groundwater constitutes nearly half the world's drinking water and much of the world's irrigation water supply. Population growth, overexploitation, salinization, nonpoint source pollution from agricultural activities (including animal farming, ranching, and forestry activities), impacts to surface water, and groundwater quality and quantity conflicts at the urban-rural interface have reached global dimensions and threaten the health and livelihood of this planet.

For more information, visit the conference website at [ag-groundwater.org](http://ag-groundwater.org).

*"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 Dept. of Food & Agriculture  
Secretary John Laird, California Natural Resources Agency