SECURE WATER FUTURE NEWSLETTER

April - Sept. , 2025

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SWF Q2 - Q3 Highlights

- **Press Release**
  - **Cozy River Valley:** NSMU creates game to teach water conservation
  - **UC Merced Synopsium:** Regenerative Agriculture
- **Events**
  - Groundwater Accounting Showcase
    - Tues., Sept. 09
  - 2025 Watershed Symposium
    - Wed., Thurs., Nov. 19-20
- **Research**
  - *Reimagining Alfalfa as a flexible crop for water security in the Southwestern USA* - ***Link***
- **Undergraduate Research**
  - *Wildfire and Water Security: Post-Fire Erosion and Sedimentation Threaten Utah's Reservoirs*
  - *Post-Wildfire Erosion and Sedimentation: An Escalating Threat for Utah Fisheries*

Upcoming Events

- **Salt Lake County Watershed Symposium:**
  - Wed., Thurs., November 19-20
- **Spring Runoff Conference:**
  - Tues., Wed., March 24-25
- **Ground Water Accounting Showcase**
  - Tues. September 09



NMSU: Cozy River Valley - The player plays as Axel (left), a young farmer. Rodrigo (right), the local Cooperative Extension Service agent, helps to guide you throughout the game.

Press Releases

NMSU creates game to teach water conservation

Reporter: Dean Staley (2025)

Cozy River Valley simulates 60 years of farming challenging players to manage water strategically while adapting to environmental changes



Click below for another PR piece:
Amy Smith Muise SWF Team members mentioned: Barabara Chamberlin and Sam Fernald (2025)
Cozy River Valley: An Educational Game About Agricultural Water



Regenerative agriculture community charts way forward

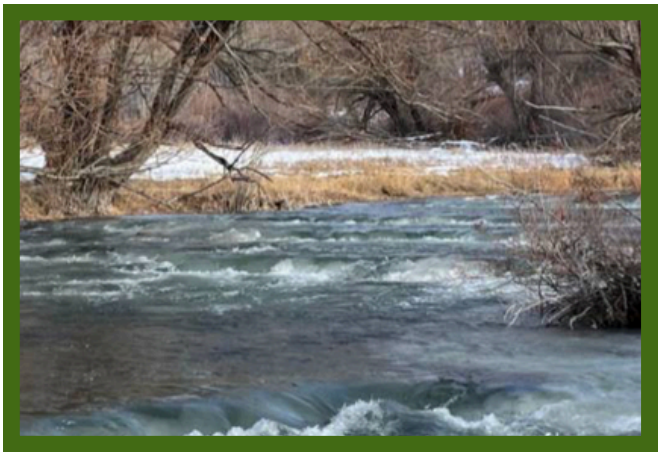
Srabani Das and Sara Rosenberg (2025)

In a UC Merced Symposium for Regenerative Agriculture, Joshua Viers kicked off a session about UC Merced and AES faculty engagement in regenerative Agriculture Research and Education followed by a panel of San Joaquin Valley farmers.

Farmers advocated for regenerative agriculture and its role in health, greater farmer profit margins, and efficient water management strategies. All speakers were from left to right: John Warmerdam, Amrik Singh Basra, Rizpah Bellard, Joe Del Bosque, Rosie Burroughs, Arshdeep Singh and Gary Martin.



EVENT HIGHLIGHTS



2026 Spring Runoff Conference

Tuesday Wednesday March 24-25 2026

USU Spring Runoff Conference is an annual conference that provides an opportunity to share ideas on water issues in Utah. Topics cover all aspects of water science, ecology, policy, engineering, and management.

Ground water Accounting Platform Showcase



Tuesday Sept. 09

California Water Data Consortium

With an introduction from Mike Myatt, panelists discussed how the Groundwater Accounting Platform has supported growers and water managers accross California since it launched in 2024. Two concurrent sessions will take place, a demonstration of the platform and a join a hackathon where you will work alongside the team on dashboards, visualizations, GIS, and scripting

2025 Salt Lake Watershed Symposium

Wednesday Thursday November 19-20 26

The Salt Lake Watershed Symposium is an opportunity to learn the importance of preserving Utah's watershed and how to get involved with conservation efforts. Great opportunity to network, listen to engaging speakers and informative sessions

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Recent Research

Reimagining Alfalfa as a flexible crop for water security in the Southwestern USA

Emily Waring [a i], Helen E. Dahlke [b], John T. Abatzoglou [c], Josué Medellín-Azuara [a], Matt A. Yost [d], Khaled M. Bali [e j], Colleen C. Naughton [a], Daniel H. Putnam [f g], Robert Sabie [h], Siddharth Kishore [a], Nicholas R. Santos [a], Joshua H. Viers [a]

Focusing on Arizona, California, Colorado New Mexico, Nevada, Utah, And Wyoming, the article demonstrates how the adoption of summer deficit irrigation for alfalfa production can yield larger water savings and better adapt to the changing water supplies. Cash-flow analysis also shows that this can be accomplished with minimal on-field economic impact. The results of the study highlight the importance of reassessing the role of alfalfa in water management to achieving agricultural resilience against recurring droughts.

- *Link to publication here*

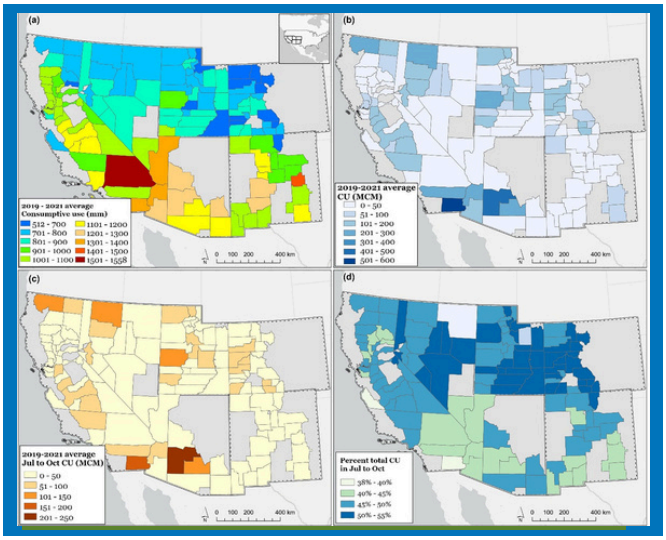


Figure presents satellite based estimates on how much water alfalfa crops used across counties in the U.S. from 2019-2021.

1. CU in millimeters per hectare - how much water the plants used in depth form
2. Total CU - total volume of water used
3. CU July to October - the hottest months when irrigation is most importance
4. Percent of annual CU that happens in July - October

Additional SWF Publications

Predicting California Water-Year Types Using Seasonal Climate Forecasts
John T. Abatzoglou, Charles A. Young, Vishal K. Mehta, Joshua H. Viers, and Katherine C. Hegewisch (2025). AMS Journals

Climate Change Increases Evaporative and Crop Irrigation Demand in North America
Emily L. Williams and John T. Abatzoglou (2025). Advancing Earth and Space Sciences

Do Water Markets Drive Ownership Consolidation? Evidence from California's Mojave Desert
Andrew Ayres, Ellen Bruno (2025). Association of Environmental and Resource Economists

Cozy River Valley: An Educational Game About Agricultural Water
Amy Smith Muice, SWF Team members mentioned: Barabara Chamberlin and Sam Fernald (2025). Innovative Media Research and Extension and the Learning Games Lab

A comparative life cycle assessment of drip and flood irrigation of in-shell pecan production in the Mesilla Valley, New Mexico, United States
Raji Lukkoor, Colleen C. Naughton, Sara M. Torres, Richard Heerema, Rolando A. Flores Galarza, Joshua H. Viers, Alexander G. Fernald (2025) ScienceDirect

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Undergraduate Research

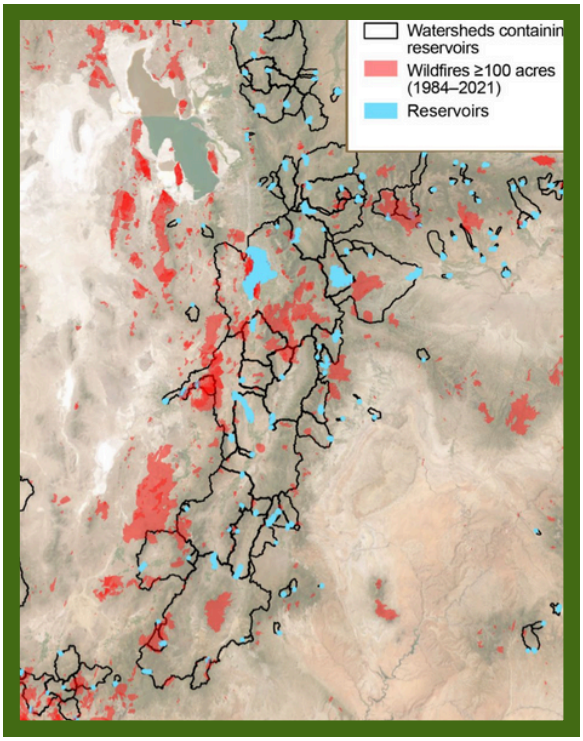
Wildfire and Water Security: Post-Fire Erosion and Sedimentation Threaten Utah's Reservoirs

Quinn Olpin, Kendall Becker, Scott Hotaling, Aish Chandrasekaran, Patrick Belmont

1 Utah State University (USU) Climate Adaptation Intern Program
2 USU Department of Watershed Sciences
3 USU Department of Environment and Society

Wildfires in Utah are creating an increasing threat towards the State's reservoirs. These reservoirs are critical for water supply. As hotter and longer fire seasons and decreasing snowpack increase risk, Utah faces chalenges with protecting its water security. Sustainable strategies like water conservation, prescribed burns, and sediment bypass are emerging as tools to safeguard reservoirs for the future.

- *Link to publication here*



Utah's Reservoirs and Wildfires, 1984–2021



Top: Wildfires can initially create difficult conditions for fish. Bottom: After fine sediments are washed away, logs, boulders, and gravel can create pools and shaded areas—optimal fish habitat.



Post-Wildfire Erosion and Sedimentation: An Escalating Threat for Utah Fisheries

Colton James, Kendall Becker, Scott Hotaling, Aish Chandrasekaran, Alex Fielder, Timothy E. Walsworth, Patricl Belmont

1 Utah State University (USU) Climate Adaptation Intern Program
2 USU Department of Watershed Sciences
3 USU Department of Environment and Society

While wildfoires were once a natural part of Utah's landscapes, they are now creaating threats to fish populations as hotter, longer fire seasons drive erosion and heavy sediments flow into rivers. Water run-off after fires can bury spawning grounds and clog fish gills which causes mass fish die-offs. With Blue Ribbon fisheries and native trout at risk, solutions like reconnecting streams, managing fuels, and installing sediment traps are emerging as strategies to protect Utah's aquatic ecosystems.

- *Link to publication here*

Team Member Spotlight



Bob Sabie is a research scientist at the New Mexico Water Resources Research Institute (NM WRRI), where he has worked since 2014. In his role, he manages the institute's GIS laboratory and contributes across a broad range of activities, including proposal development, leading scientific teams, advising graduate students, conducting research, and serving on advisory committees.

Bob has been involved with the Southwest Future (SWF) project since its proposal stage and primarily works with the measurement team. Over the course of the project, he has co-authored six publications, most of which focus on the use of remote sensing data to measure evapotranspiration. He was most recently involved in the publication, "Reimagining alfalfa as flexible crop for water security in the Southwestern USA", which was published in Science of the Total Environment in June. The findings from this study have the potential to significantly influence water use practices in New Mexico, offering new strategies for sustaining agriculture while addressing proposed reductions in groundwater pumping.

Bob holds a Bachelor of Arts in Environmental Policy and Planning from Western Washington University and a Master of Applied Geography from New Mexico State University. He is currently a PhD candidate in the Water Science and Management program at NMSU and is nearing completion of his degree.

Bulletin

- **Utah State University**
  - If you're interested in collaborating with Utah State University on developing factsheets in the semi-arid southwest, reach out to Dr. Scott Hotaling (*scott.hotaling@usu.edu*) to explore opportunities for engagement.

- **New Mexico State University**
  - Dr. Heerema (*rjheerem@nmsu.edu*) has plans for future Extension outreach opportunities to deliver practical research results to New Mexico agricultural stakeholders, including a field day in the Mesilla Valley during the upcoming growing season (tentatively, late August).

GOT ANYTHING FOR THE NEWSLETTER??

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