

WEEKLY WAVE



THE UNIVERSITY OF ARIZONA
COOPERATIVE EXTENSION

WATER RESOURCES RESEARCH CENTER



September 29, 2023 / Volume 11, Issue 26

The Water Resources Research Center - a research unit of the [College of Agriculture, Life and Environmental Sciences](#) and an Extension unit in [UA Cooperative Extension](#) within the Division of Agriculture, Life & Veterinary Sciences & Cooperative Extension. [Land Acknowledgement.](#)

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IN THIS ISSUE: Weekly Wave, WIFA, San Pedro River, Factsheet, ITCA, Heinz Award

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WRRC Celebrates 10 Years of the Weekly Wave

The *Weekly Wave* is ten years old this month! We are pleased to celebrate this significant milestone. Our weekly WRRC e-news digest launched in 2013 as a small project managed by a single, part-time staff member. Over the years it has grown, becoming a team effort and a content-rich community resource offering stories on a wide range of interesting water topics and highlighting events, publication notices, and job opportunities. Since 2018, the *Weekly Wave* has been the WRRC's primary channel for sharing news and announcements with the water community. Currently, we have nearly 3,700 subscribers and would appreciate your help in reaching 4,000! Please feel free to send the [subscribe link](#) or forward this email to your colleagues, friends, and family. We would also like to thank you for your readership and support. The *Weekly Wave* team looks forward to bringing you water news for years to come.

EVENTS



The graphic features a blue background with white and light blue text. On the left, a blue box contains the text 'WRRC 2024 ANNUAL CONFERENCE' in white. To the right is a photograph of a large conference room with many people seated at round tables. Below the photo, the text 'SAVE THE DATE' is written in large white letters, with 'THE' in a white circle. Underneath, 'MARCH 12-13' is written in light blue, flanked by white arrows pointing outwards.

ENVS Colloquium Series: Upland Land Management Influences on Hydrogeologic Processes – Co-sponsored by the WRRC

Date: Monday, October 2, 2023

Time: 3:00 pm – 4:00 pm Arizona Time

Location: University of Arizona (Marley 230), 1145 E 4th St, Tucson, AZ; [Zoom](#)



Speaker:

Abe Springer, *Professor, School of Earth and Sustainability, Northern Arizona University*

Abe Springer is a Professor of Ecohydrogeology and was the Inaugural Director of the School of Earth and Sustainability at Northern Arizona. He has been the Fulbright Visiting Chair of Water and Environment at the University of Lethbridge, Alberta, Canada, studying the ecohydrology of springs of Western Canada. In 2022, he was the Birdsall-Dreiss Distinguished and LaMoreaux International Lecturer for the Hydrogeology Scientific Division of the Geological Society of America. Since arriving at NAU in 1994, he has taught courses in hydrogeology, geology of Arizona, environmental geology, applied geology, groundwater modeling, contaminant transport modeling, university colloquium, and others. Dr. Springer and his students study local and regional groundwater flow systems and human impacts on them, apply principles of sustainability to aquifer management through models, quantify the hydrological function of groundwater-dominated ecosystems, the role of land-use change and disturbance on groundwater flow systems, study karst hydrogeology, and restoration of riparian ecosystems.

Dr. Springer was awarded the Arizona Hydrological Society's Outstanding Service Award at the 2023 AHS Symposium held in Flagstaff earlier this month. Springer's talk is co-sponsored by the [Water Resources Research Center](#) and the [Center for Climate Adaptation Science and Solutions](#).

[Event Flyer](#)
[Zoom Link](#)

NVIS Fall 2023 Seminar: Merging Western Science and Traditional Knowledge of Produce Safety Within Arizona's Tribal Lands – Co-sponsored by the WRRC



Date: Tuesday, October 3, 2023
Time: 12:00 pm – 1:00 pm Arizona Time
Location: University of Arizona (ENR2 - N595), 1064 E Lowell St, Tucson, AZ; [Zoom](#)

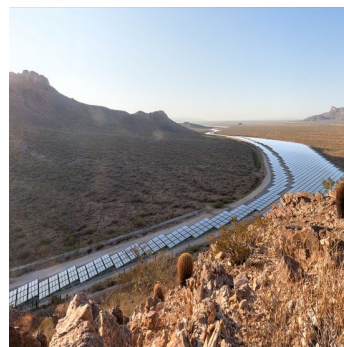
Speaker:

Valerisa Gaddy, *Post-doctoral Researcher, Water Resources Research Center, UArizona*

Valerisa Gaddy, PhD, is currently a post-doctorate research associate at the University of Arizona – Water Resources Research Center in Tucson, AZ. Gaddy is originally from Gallup, NM, and is of the Diné (Navajo) people. Gaddy is an alumna of the University of Arizona receiving both her PhD and MS in Environmental Science with an emphasis in microbiology. Prior to UArizona, she received her BS in Microbiology from New Mexico State University. Gaddy's research and extension interests include developing and validating methods to assess microbial water quality and communicating modern water quality and produce safety methods to growers. Most recently, Gaddy was a 2022–2023 MIT Solve fellow and a 2022–2023 Agent of Change in Environmental Health fellow and is using her research to advocate for Tribal irrigation resources in Arizona. Gaddy is passionate about environmental science literacy and serving the Diné people through outreach and engagement.

- [Event Flyer](#)
- [Zoom Link](#)
- [NVIS Fall 2023 Lineup](#)

WRRC Water Webinar: Solar River, Covering and Powering Canals with Photovoltaic Energy



Date: Thursday, October 12, 2023
Time: 12:00 pm – 1:15 pm Arizona Time
Location: [Webinar Only](#)

Speakers:

Ben Lepley, Architect and Researcher, Tectonicus
David H. DeJong, PhD, Director, Pima-Maricopa Irrigation Project

Moving water is the largest energy user in Arizona and thermo-electric power is the largest user of water in the US, according to the USGS. Arizona's energy is still dominated by thermo-electric power at 83%, with renewables at 17%, thus Arizona energy's consumptive water footprint is massive. In 2015, Tectonicus started researching the feasibility of deploying canal-solar systems in the US. Reports published in 2014 and 2016

by the US Bureau of Reclamation cited the challenges to this idea, such as canal access, security, structure cost, constructability, and operations and maintenance. Taking these hurdles as design challenges in 2015, Tectonicus started researching ways to solve these issues. This WRRRC Water Webinar will provide information about how Tectonicus has built a controlled environment to test evaporation, algae growth, and photovoltaic performance to measure the micro-climate effects to the water and air, and to cover the implications of the research. The tested effects, measured through instrumentation, are then mathematically modeled and applied to a larger system-scaled analysis of central Arizona canals for techno-economic impact analysis. The analysis compares the economics of existing utility-scale solar systems with canal-solar projects of the same size. The lab analysis will continue through to 2024; however, the preliminary results show canal-solar has a greater net present value than utility scale solar, with water quality being the biggest benefit. Tectonicus is working with George Cairo Engineers on several full-scale projects throughout the state including on the Gila River Indian Community canals.

[Register Here](#)
[More Info](#)

Upcoming WRRRC Events

Oct 30: [ENVS Colloquium Series Featuring Dave White, Director, Global Institute of Sustainability and Innovation, Arizona State University – Co-sponsored by the WRRRC](#)

Nov 7: [NVIS Fall 2023 Seminar: From Metal Mining to Data Mining: How Indigenous Data Governance Supports Indigenous Sovereignty Within an Open Science Ecosystem – Co-sponsored by the WRRRC](#)

Dec 5: [NVIS Fall 2023 Seminar: Culture, Education, and Water Sovereignty in Southern California Tribal Communities – Co-sponsored by the WRRRC](#)

Other Events

Nov 6–7: [Tribal Water Law Conference](#)

NEWS

WIFA Requests Information on Long-Term Water Solutions

Last week, the Water Infrastructure Finance Authority of Arizona (WIFA) released a request for information (RFI) on innovative water solutions. Among its funding opportunities, WIFA administers the Long-Term Water Augmentation Fund (LTWAF), a forward-thinking \$1 billion investment to finance water augmentation projects that expand Arizona's water portfolio. The RFI states, "WIFA is seeking to develop a list of potential water augmentation opportunities that result in new water supplies for the state of Arizona." The results will help guide decision-making. Anyone with "interest or concern about the current or future adequacy, reliability, or sustainability of Arizona's water supply" is invited to provide input. On October 4, WIFA is holding a forum to share ideas, which will be held in person at the WIFA office in Phoenix. Zoom registration is also available.



Responses to the RFI will be collected until Wednesday, November 15, 2023. Questions may be directed to Chelsea McGuire at cmcguire@azwifa.gov.

- [More Info](#)
- [Full RFI Text](#)
- [Oct. 4 Zoom Registration](#)

Two Recent Developments in Managing the San Pedro River

The San Pedro River, running south to north from its headwaters in the mountains in northern Sonora, Mexico, to its confluence with the Gila River in Arizona, is a critical riparian corridor and hotly contested water resource. Recently there have been two noteworthy developments in the region's management: a ruling from the Maricopa County Superior Court quantifying federal reserved water rights for the San Pedro River National Conservation Area (SPRNCA), and a petition sent to ADWR to designate the Upper San Pedro Basin as an Active Management Area (AMA).

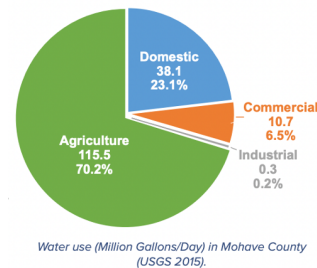


[Read More](#)



Did You Know?

Agriculture makes up 9% of Mohave County's total land area, contributes to 1% of the county's GDP, and accounts for 70% of the county's water use. From 2010 to 2015, there was an 80% increase in irrigated agricultural acreage within the Hualapai Valley Basin, which attributed to 14% and 178% increases in the county's surface water and groundwater use, respectively. Mohave County is a significant producer of alfalfa hay, ranking in the top 5% of counties nationally for alfalfa production. Other top agricultural commodities produced within the county include cotton, cattle, and other livestock, along with fruit and nut trees.



[Mohave County Water Factsheet](#)

US Senate Committee Hears Testimony on Tribal Water Issues

On Wednesday, September 20, the US Senate Environment and Public Works Committee's Fisheries, Water and Wildlife Subcommittee held a hearing on "Drinking Water Infrastructure and Tribal Communities." Brian Bennon, director of the Tribal water department at the Inter Tribal Council of Arizona (ITCA), Jola WallowingBull, director of the Northern Arapaho Tribal Engineering Department, and Ken Norton, director of the Hoopa Valley Tribal Environmental Protection Agency, testified to the committee on the issue of insufficient support for Tribal water systems. Citing data from the EPA, Bennon observed

that “Tribal public water systems have two times more violations and over three times more priority violations compared to non-tribal systems.” However, all three panelists emphasized that simply building new infrastructure will not solve these problems, with Norton noting that “an important root cause” of water systems failing to meet health and sanitation standards is “lack of operation and maintenance capacity.” Similarly, WallowingBull testified that delays in receiving federal support mean that “Leaks and other issues continue while our requests slowly move through the approval process,” and “we are always addressing emergencies rather than allocating our resources to planning future development.” A recording of the hearing and written testimonies from the panelists are available to the public.



[Recording & Testimonies](#) [Arizona Daily Star Article](#)

Nicole Horseherder Honored with Heinz Award

Nicole Horseherder, co-founder and director of the non-profit Tó Nizhóní Ání (TNA), or Sacred Water Speaks, was recently named a winner of the prestigious Heinz Award for the Environment for her work protecting the water, air, and land of Black Mesa, Arizona; fighting for energy justice; and positioning the region to be a leader in the transition to renewable energy. The award, which also recognized climate justice champion and human rights lawyer Colette Pinchon Battle, co-founder of Taproot Earth, included an unrestricted cash prize of \$250,000. Through her work with TNA, Horseherder successfully coordinated efforts to shut down the Black Mesa coal mine, ending the industrial use of groundwater to transport coal slurry to the Navajo Generation Station. TNA is also engaged in efforts to clean up the now-closed power plant and repatriate cultural artifacts and ancestral remains displaced when mining began in the region. TNA has also worked on a collaborative project between the Navajo Nation and the City of Los Angeles Department of Water and Poer to identify Navajo land for renewable energy projects. The Heinz Award was established in 1993 in memory of US Senator John Heinz to recognize individuals and their achievements in the Arts, the Economy, and the Environment.



Image: Joshua Franzos

[Press Release](#)

As we approach October 5, one year since the profound loss of Dr. Thomas Meixner, the WRRRC will postpone its Weekly Wave release to Saturday, October 7, in remembrance of the beloved professor and head of the Department of Hydrology and Atmospheric Sciences. Thank you for your understanding.



WATER JOBS

- APW [Outreach Instructional Specialist I](#)
 - City of Chandler [Water Conservation Program Manager](#)
 - Grand Canyon Trust [Water Advocacy Manager](#)
 - USDA Natural Resources Conservation Service [Engineer \(Civil or Agricultural\)](#)
- Please visit [WRRC's website](#) for a complete listing of water jobs & opportunities.

ANNOUNCEMENTS

- **Sep 29:** [AWRA 2024 Geospatial Water Technology Conference – Abstract Deadline](#)
- **Sep 30:** [Water Resources Management & Sustainability: Solutions for Arid Regions 2nd International Conference – Abstract Deadline](#)
- **Sep 30:** [Sonoran Institute: Guided Dragonfly Tours](#)
- **Oct 1:** [Drylab: A 30-Day Challenge to Live Water Wise – Kick-Off Event](#)
- **Oct 1:** [RiversEdge West 2024 Conference – Oral Presentation Abstract Deadline](#)
- **Oct 2:** [BIO5 Postdoctoral Fellowship – Application Deadline](#)
- **Oct 2:** [ENVS Colloquium Series: Upland Land Management Influences on Hydrogeologic Processes; Dr. Abe Springer – Co-sponsored by the WRRC](#)
- **Oct 2–5:** [Global Symposium on Soils and Water: Soil and Water, a Source of Life](#)
- **Oct 3:** [NVIS Fall 2023 Seminar: Merging Western Science and Traditional Knowledge of Produce Safety Within Arizona's Tribal Lands; Dr. Valerisa Gaddy – Co-sponsored by the WRRC](#)
- **Oct 3–5:** [AWWA WaterSmart Innovations 2023 Conference](#)
- **Oct 4:** [HAS Seminar – A Talk by Anastassia Makarieva: The Role of Ecosystem Transpiration in Creating Alternate Moisture Regimes by Influencing Atmospheric Moisture Convergence](#)
- **Oct 4:** [Governor's Water Policy Council Rural Groundwater Committee Meeting](#)
- **Oct 5:** [CAP Board Meeting](#)
- **Oct 6:** [AWRA 2024 Spring Conference – Abstract Deadline](#)
- **Oct 7:** [Urban Wildlife Conservation Day: Rio Reimagined Salt River Clean-Up](#)
- **Oct 9:** [New Regional Leader for Rio Reimagined – Proposal Submission Deadline](#)
- **Oct 12:** [CAP Briefing & Updates on 2024-2025 Budget](#)
- **Oct 12:** [WRRC Water Webinar: Solar River, Covering and Powering Canals with Photovoltaic Energy](#)
- **Oct 13:** [NGWA Presents: Develop Your Professional Skills: Young Professionals and Students Virtual Conference](#)

- [Oct 17: Governor's Water Policy Council Assured Water Supply Committee Meeting](#)
- [Oct 19: Imagine a Day Without Water](#)
- [Oct 21: 19th Annual Research Insights in Semiarid Ecosystems \(RISE\) Symposium](#)
- [Oct 23: BSMAR18 — Abstract Submission Deadline](#)
- [Oct 25: Water Education Foundation's 39th Annual Water Summit: Taking on the Improbable in Western Water](#)
- [Oct 27: Arizona Water Protection Fund Fiscal Year 2024 Grant Applications – Deadline to Submit Public Comments](#)
- [Oct 30: ENVS Colloquium Series Featuring Dave White, Director, Global Institute of Sustainability and Innovation, Arizona State University – Co-sponsored by the WRRC](#)
- [Nov 5–9: AWWA Water Quality Technology Conference](#)
- [Nov 6–7: Tribal Water Law Conference](#)
- [Nov 6–8: AWRA 2023 Annual Water Resources Conference](#)
- [Nov 6–9: Amsterdam International Water Week 2023](#)
- [Nov 7: NVIS Fall 2023 Seminar: From Metal Mining to Data Mining: How Indigenous Data Governance Supports Indigenous Sovereignty Within an Open Science Ecosystem – Co-sponsored by the WRRC](#)
- [Nov 14–16: US Water Alliance One Water Summit 2023](#)
- [Dec 5: NVIS Fall 2023 Seminar: Culture, Education, and Water Sovereignty in Southern California Tribal Communities – Co-sponsored by the WRRC](#)
- [Dec 5–7: AWWA North American Water Loss Conference & Exposition](#)
- [Dec 11–15: AGU23: Wide. Open. Science](#)
- [Dec 13–15: 2023 Colorado River Water Users Association \(CRWUA\) Annual Conference](#)
- [Dec 15: WRRC 2023 Photo Contest: Water Scarcity & Extreme Weather – Submission Deadline](#)
- [Jan 1, 2024: RiversEdge West 2024 Conference – Poster Presentation Abstract Deadline](#)
- [Jan 22–24, 2024: Growing Water Smart: Integrated Water and Land Use Planning Workshop](#)
- [Feb 11–13, 2024: AWWA/WEF Young Professionals Summit](#)
- [Feb 26–28, 2024: Water Resources Management & Sustainability: Solutions for Arid Regions 2nd International Conference](#)
- [Feb 27–29, 2024: 2024 Southwest Adaptation Forum – Save the Date](#)
- [Mar 5–7, 2024: RiversEdge West 2024 Conference – Restoration for the Future: Promoting Resilience in Our Rivers and Communities](#)
- [Mar 11–14, 2024: AWWA WateReuse 2024 Symposium](#)
- [March 12–13, 2024: WRRC 2024 Annual Conference – Save-the-Date](#)
- [Mar 25–27, 2024: AWRA 2024 Geospatial Water Technology Conference](#)
- [Apr 3–6, 2024: BSMAR18](#)
- [Apr 8–10, 2024: AWRA 2024 Spring Conference](#)
- [Jun 10–13, 2024: AWWA 2024 Annual Conference & Expo \(ACE24\): Transforming Our Water Future](#)

PUBLICATIONS & MEDIA

New Online Tool: Water Adaptation Techniques Atlas

The Water Adaptation Techniques Atlas (WATA) compiles information about responses to water scarcity in the southwestern US, presented in the form of case studies. Each case is pinned to a geographic location where the action takes place. [More Info](#)

Now Available: A Living River Report for the Santa Cruz River - Downtown Tucson to Marana

Check out the latest news and learn about the technology used to care for the river. This report includes Santa Cruz River conditions in the flowing reaches of the Heritage Project and northwest Tucson to Marana during the 2022 water year (October 1, 2021, to September 30, 2022). To explore more data, download the [supplementary report](#). Living River reports were launched in 2008 when Sonoran Institute began tracking conditions of the stretch of Santa Cruz River in Santa Cruz County that flows year-round. The effort expanded in partnership with Pima County and the Regional Flood Control District in 2012, and the City of Tucson in 2020, to report on conditions in the flowing reaches of Pima County. [Read the Report](#)

Waterloop Podcast Interview with Peter Gleick: A View From The Year 2099

It's the year 2099 and civilization has finally achieved global water sustainability. In this positive era, water is a human right, properly valued, efficiently and productively used, extensively reused, and part of thriving ecosystems. The path to this future is discussed in this episode with Peter Gleick, author of *The Three Ages of Water* and President Emeritus of the Pacific Institute. He explains the fundamental choice made in the 2020s that led to a sustainable water world and how obstacles were overcome in politics, pricing, efficiency, energy, and agriculture. [Listen to Episode #194](#)

OTHER NOTICES

Water Quality Standards Triennial Review and State Rulemaking: Draft Preamble for Public Comment

The federal Clean Water Act requires that at least every three years each state must review and update its water quality standards for surface waters. This process helps ensure water quality standards are up-to-date and protective of Arizona's surface waters. It also provides opportunities for public input and involvement in the water quality management process. We are combining the Clean Water Act requirements of the Triennial Review with a state rulemaking to adopt revisions for criteria applied to health-related standards and make technical corrections to waterbody descriptions. A draft preamble to a Notice of Public Rulemaking (NPRM) is available online. Please carefully review the draft preamble and [provide input](#) by October 13, 2023.

[View the Draft Preamble](#)

Drylab 30-Day Challenge to Live Water Wise

Calling together all of us concerned about the present and future of our water! Despite recent wet weather patterns, multi-year droughts throughout the Southwest US and the extreme depletion of the reservoirs connected to the Colorado River have made it clear that fresh, clean water is a limited (not endless) natural resource. What can we do?! It turns out, especially if we come together, there are a lot of actions we can take.

[More Info](#)

In Memoriam: Frank Barrios

Frank Barrios, Arizona historian, engineer, community activist, author, retired St. Vincent de Paul President, and a heritage family descendant of Phoenix, AZ, passed away after a battle with a year-long illness. He was born on April 8, 1942. His lifelong career of service to his beloved Arizona began with the US Bureau of Reclamation and the Arizona Department of Water Resources. After graduating from Arizona State University, Frank worked at the BOR Phoenix Development Office in 1966. He left BOR in 1975 and moved to the state office called the Arizona Water Commission, later transitioned to the Arizona Department of Water Resources. He spent time as a director for both the Pinal and Phoenix Active Management areas. He was a genuinely good person and well-respected in the water community. [Obituary](#)

ACTIVATE Research Team's Study Wins NASA Group Achievement Award

After conducting 179 research flights over the western Atlantic Ocean, an international team of scientists led by UA Arizona CHEE professor Armin Sorooshian has won the NASA Group Achievement Award, one of the agency's prestigious Honor Awards. The ACTIVATE (Aerosol Cloud meTeorology Interactions oVer the western ATlantic Experiment) research team won the award for resilience while conducting critical atmospheric studies. The ACTIVATE mission investigates aerosol-cloud interactions, which are one of the largest uncertainties in simulating and studying climate change. [More Info](#)

Do you have a story idea, water job announcement, or event to share?
[Contact us here](#)