

NMSU BRACKISH WATER RESEARCH



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Community Partner Spotlight: Pueblo of Laguna

The NMSU SWS Support Program is proud to partner with the Pueblo of Laguna in support of the Montaña Brackish Water Feasibility Study. The project will evaluate brackish groundwater resources in the Montaña area and explore their potential to provide a reliable and sustainable future water supply.

Through field investigations, exploratory drilling, groundwater testing and modeling, and preliminary treatment planning, the study will assess the quantity and quality of available brackish water and the feasibility of developing it as a new water resource. The project supports the Pueblo's long-term efforts to strengthen water resilience, meet future community needs, and create opportunities for sustainable economic development.

Upcoming Events

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70th Annual New Mexico Water Conference
 Oct. 22–23 | Las Cruces, NM
 NM WRRP's annual gathering of water researchers, managers, communities, and decision-makers.
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New Water for New Mexico – Desalination Workshop
 Oct. 20 | Albuquerque, NM
 A New Mexico Desalination Association workshop focused on desalination and new water-supply opportunities.
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Western States Water Council Fall Meetings
 Oct. 21–23 | Las Cruces, NM
 Regional discussions on western water policy and resource-management priorities.
- 
NMWWA Northeast Section Workshop
 Oct. 14–15 | Española, NM
 Technical training and professional development for New Mexico water and wastewater professionals.

What Is Brackish Water and Why Does It Matter for New Mexico?

As New Mexico prepares for a hotter, drier future, finding reliable and sustainable water supplies is becoming increasingly important. One potential resource is already beneath our feet: brackish groundwater.

What Is Brackish Water?

Brackish water contains more dissolved salts and minerals than freshwater but is less saline than seawater. In New Mexico, significant brackish groundwater resources are stored in underground aquifers. Because of its salinity, this water generally requires treatment before it can be used for drinking or other beneficial purposes.

Technologies such as reverse osmosis can remove salts and other dissolved constituents, transforming brackish groundwater into a usable water supply. Before development can occur, however, scientists must understand the quantity and quality of the groundwater, its connection to freshwater aquifers, treatment requirements, costs, and potential environmental impacts.

Why It Matters for New Mexico

New Mexico's 50-Year Water Action Plan projects that the state could have approximately 25% less water available in its rivers and aquifers over the next 50 years. Meeting

future water needs will require a combination of conservation, water reuse, watershed protection, improved infrastructure, and development of new water supplies.

Brackish groundwater could become one piece of that strategy. Developing alternative supplies may help communities diversify their water sources while reducing pressure on limited freshwater resources.

From Research to Water Resilience

Through initiatives such as the Strategic Water Supply, communities, researchers, engineers, and state partners are investigating where brackish water can be developed responsibly and how treatment technologies can make these resources useful.

Projects across New Mexico are helping characterize aquifers, test treatment approaches, evaluate infrastructure needs, and determine whether brackish groundwater can provide reliable water for communities and other uses.

Brackish water is not a single solution to New Mexico's water challenges. But with careful research, responsible development, and strong community partnerships, it could become an important part of a more diverse and resilient water future.



Learn More: Explore New Mexico's 50-Year Water Action Plan to learn how the state is preparing for long-term water challenges through conservation, protection of existing water resources, and development of new water supplies, including treated brackish water. [▶ Click Here](#)

Meet Our Pls: Dr. Kenneth Carroll



Kenneth 'KC' Carroll, Ph.D.
Professor: Plant &
Environmental Sciences Dept.

Dr. Kenneth "KC" Carroll is a Professor in the Department of Plant and Environmental Sciences at New Mexico State University and a researcher with the New Mexico Water Solutions Collaborative. His work spans hydrology, hydrogeology, geochemistry, geophysics, and water resources, with a focus on groundwater systems and water supply and quality challenges in arid and semi-arid regions.

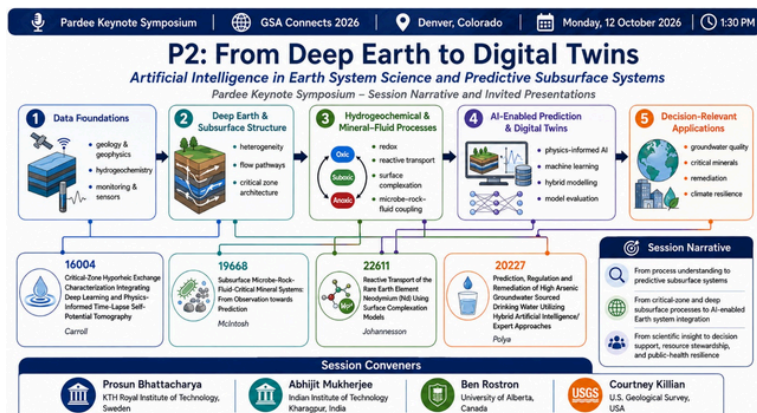
This summer, Dr. Carroll served as a Fulbright Specialist at the University of Panama, where he collaborated with researchers and water-resource professionals on groundwater

challenges associated with saltwater intrusion. Areas of Panama, including the Azuero Peninsula, are experiencing saltwater intrusion into freshwater aquifers, creating challenges similar to those encountered in brackish groundwater management. During his visit, Dr. Carroll met with watershed managers and environmental agencies to discuss water-resource management and presented research integrating hydrology, chemistry, and geophysics.

Dr. Carroll is also advancing the use of AI and machine learning in groundwater science. At the 2026 Geological Society of America Annual Meeting in Denver, he is co-convening the session "AI and Machine Learning in Predictive Groundwater Science: Integrating Hydrogeology, Geochemistry, and Geospatial Modeling." He will also give an invited presentation during a Pardee Keynote Symposium on AI in Earth system science and predictive subsurface systems.

His current research includes work with NMWSC postdoctoral researcher, Dr. Neshat Movahedi, on a forthcoming book chapter examining salinization and land subsidence during brackish groundwater development. He and NMWSC postdoctoral researcher, Dr. Yusen Yuan have also submitted research to Vadose Zone Journal examining the effects of salinity stress on crop biomass and fruit yield, with support from the New Mexico Water Solutions Collaborative.

Through these efforts, Dr. Carroll continues to connect groundwater science, emerging technologies, and interdisciplinary research to address water challenges in New Mexico and beyond.



Alamo Navajo Water Quality Assessment

The NMSU SWS Support Program recently completed water quality testing for the Alamo Navajo School Board as part of the Strategic Water Supply Project. Samples from two wells were analyzed for a broad range of water quality and chemical constituents, including salts, minerals, metals, PFAS, and organic compounds. Results characterized the groundwater as somewhat brackish, with elevated mineral content and very little measurable organic material. PFAS were not detected at quantifiable levels in either well.

These findings provide valuable baseline information about groundwater quality in the Alamo area and can help inform continued evaluation of the wells, including potential treatment considerations and future water supply planning.



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