

## COMMUNITY ENGAGEMENT AND EDUCATION

# Resilience on Native American Lands of the Intermountain West: Native Waters on Arid Lands



Water scarcity and limited access to resources contribute to the vulnerability of Native American communities of the Intermountain West to the concurrent crises of climate change-induced drought and the COVID-19 pandemic. Native Waters on Arid Lands (NWAL) brings together Tribal Nations, the 1862 and 1994 Land-Grant Universities, the U.S. Geological Service, and the Desert Research Institute to address these concurrent crises. NWAL increases tribal capacity through the co-production of knowledge, increasing communication and coordination, leveraging federal resources, and developing and sharing educational materials.



*Monsoons Falling on Navajo Nation*

## KEY ISSUES ADDRESSED

There is a lack of synergy between Traditional Ecological Knowledge and scientific data in regards to the effects drought has on Native American Communities. Furthermore, the scientific contributions of Indigenous researchers are undervalued. This impedes drought planning, response, and climate predictions. There is also limited organizational and financial support for sharing knowledge that can help respond to climate change-induced drought and the COVID-19 pandemic among Tribal communities, academic institutions, and federal agencies. Furthermore, many programs that exist to address impacts of drought and COVID-19 on agriculture and rural communities do not consider the cultural, geographical, and economic context of Native American Communities. Responding to these concurrent crises requires engagement from youth but there is a lack of environmental and public health educational programs.

## PROJECT GOALS

- Fill data gaps and analyze climate risks to agriculture and water resources on Tribal lands
- Support coordination, and knowledge sharing with Tribal and non-Tribal partners on drought & COVID-19
- Develop plans, policies, practices, and educational materials to address drought and COVID-19 that incorporate TEK and the unique context of Native American Communities

## INDIGENOUS SCIENTISTS

NWAL highlighted the contributions of Indigenous scientists to developing responses to drought through the Water in a Native World publication and the Native Voices in STEM seminar series.



Grey Farrell, FRTEP, Teaches About Landscape and Climate Change

## PROJECT HIGHLIGHTS

**Tribal Summits:** Annual Tribal summits provided opportunities for inter-Tribal knowledge sharing and interactive discussions.

**Focus on Education:** NWAL partners developed curriculum and supported teachers in creating place-based environmental education for K-12 students. They also developed the Water in a Warming World modules for undergraduate students and created a dual-credit program between a High School and Technical University.

**Co-Producing Knowledge:** Indigenous and non-Indigenous scientists, Tribal experts, and knowledge holders analyzed climate trends, vulnerabilities, and data gaps to plan for future drought impacts.

**Planning Together:** Community members, experts, and Tribal elders from the Pyramid Lake Paiute Tribe walked through worst-case scenarios together to plan for future drought. This included over 20 interviews and focus group sessions with elders and knowledge holders.

**Creating Knowledge Portals:** The [NWAL website](#) provides access to information from the NWAL project, resources to respond to the COVID-19 pandemic, and information about water sources, quality, and stability.

**Responding to COVID-19:** A virtual working group was formed to coordinate between federal agencies with resources for COVID-19 response and Tribal partners in the fifth year of the NWAL project.

## Collaborators

- See online for full list of Collaborators

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Photos courtesy of Maureen McCarthy/DRI  
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## LESSONS LEARNED

NWAL research and TEK was shared with the community during Tribal Summits, community meetings, workshops, and presentations. Ensuring that this information was presented in an accessible and useful manner allowed NWAL project leads to get critical community feedback and involvement and make data accurate and usable.

Listening to the needs, values, and solutions provided by community members by including ample time for participant-led discussion in every aspect of the project was critical to building relationships of trust and mutual understanding. It also allowed for NWAL researchers to understand how drought and COVID-19 were impacting community members and co-develop appropriate responses.

Stable, multi-year sources of funding supported the development of deep, long-term relationships based on trust and communication among all parties involved in NWAL. These relationships allowed for NWAL to rapidly respond to the COVID-19 pandemic and drought conditions as they developed. Tribal partners and researchers from NWAL became liaisons between communities and federal agencies providing resources for pandemic and drought relief.

## NEXT STEPS

- Expand outreach to Tribal Communities throughout the intermountain West
- Facilitate regional climate-resilient Tribal agriculture webinars
- Continue developing educational materials
- Continue sharing lessons learned from NWAL through online and multimedia resources

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Students at a NWAL Climate and Drought Impacts Workshop