

Water Quality Survey on the Navajo Nation



Figure 6: A sign adjacent to an artesian well in Shiprock, New Mexico on the Navajo Nation.

Although this well was clearly marked as being contaminated, many, which were supplied by windmills, had unknown water quality and were used by residents for water supply

Project Name: Water quality survey on the Navajo nation	
<i>Background/Need for Project:</i>	Residents of the Navajo nation in New Mexico and Arizona rely on widely distributed small water supplies that are not regularly checked for chemical and microbiological contamination. It is unclear if these water supplies are safe to drink, though it is thought that residents of the sparsely populated portions of the reservation rely on such supplies to meet many types of water needs, including drinking water for households.
<i>Location:</i>	New Mexico, Nevada, Arizona, Utah, Colorado
<i>People involved:</i>	Mark Walker, Marnee Carroll
<i>Started/ Expected end date:</i>	5/2008—9/2008
<i>Brief project description:</i>	<p><i>Project objectives:</i> The objectives included:</p> <ul style="list-style-type: none"> • <i>Collect samples from unregulated water supplies to evaluate chemical and microbiological quality of water</i> • <i>Work collaboratively with students and faculty from Diné College, in Shiprock, NM</i> <p><i>Project activities to date:</i> Members of the Student Association for International Water Issues (SAIWI) at the University of</p>

	<p>Nevada worked with students from Diné College (based at the Shiprock, NM and Tsaile, AZ campuses) on the Navajo reservation in Arizona, Utah, Colorado and New Mexico. SAIWI students were part of teams led by Diné College faculty and coordinators. SAIWI students travelled to Shiprock, NM from Reno, NV and were housed on the Diné College campus. Mark Walker and Marnee Carroll led the sampling effort with assistance from faculty (Linda Chavez, Perry Charlie) from Diné College. The participants from Diné College were supported by grants from the National Science Foundation and the National Aeronautics and Space Administration.</p> <p><i>Accomplishments/Findings:</i> Student sampling teams, with faculty mentors, sampled 81 unregulated water sources in a portion of the reservation approximately 2000 mi² in size, which included portions of New Mexico, Arizona, Utah and Colorado. All samples were analyzed for <i>E. coli</i>, using equipment provided by the CSREES Region 9 effort, and a range of metals, including arsenic and uranium. This project also provided valuable mentoring for underrepresented science students.</p> <p><i>Plans for the future:</i> We plan to continue this effort in Summer, 2009, with continued collaboration between the University of Nevada and Diné College supported by regional project funds.</p>
<p><i>Outcomes:</i></p>	<p>We are in the process of examining data produced by this effort. Our intended products include:</p> <ol style="list-style-type: none"> 1. A peer-reviewed paper reporting results of the survey (pending Navajo Nation Independent Review Board approval) 2. A report useful for the Navajo Nation Environmental Protection Agency, local communities and chapters, characterizing water quality among households that rely on unregulated water supplies and suggested treatments for households. 3. A preliminary data set that would be useful in a proposal related to water and water quality.