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## Science for the long now

Marshall Swearingen | Apr 04, 2013 04:00 AM



High in eastern Nevada's Snake Mountain Range, just below treeline, live gnarled bristlecone pines as old as 4,900 years. Core samples taken from the trees have helped researchers understand how the region has changed over millennia. That's part of the reason why the Long Now Foundation, a San Francisco-based group whose mission is to "creatively foster long-term thinking and responsibility in the framework of the next 10,000 years," bought 180 acres of former mining land on the flank of the mountains as a possible site for its ambitious project: building a massive "10,000 Year Clock."



Ultimately, the group decided to construct the clock in the mountains of west Texas, but the Long Now is using its Nevada land for another long-term purpose: the Nevada Climate-Ecohydrological Assessment Network, or NevCAN. Long Now allowed researchers to install three monitoring stations there that will collect temperature and precipitation data, plus a variety of other information, over future decades in order to better understand climate change. That's particularly relevant here, where snowmelt from the Snake Range replenishes groundwater in the Spring Valley below. That groundwater, along with water beneath three other nearby valleys, will be piped to Las Vegas under a controversial Southern Nevada Water Authority plan.

The NevCAN project is not directly linked to the SNWA pipeline, but it does address a lack of good long-term hydrological and climate data in the area that has made the pipeline more controversial. When the Nevada State Engineer first approved the pipeline scheme in 2007, he ordered SNWA to create a comprehensive monitoring and mitigation plan to address uncertainties about how pumping groundwater would impact the valleys' springs, wetlands and agricultural community. But in 2009, a district judge found the State Engineer's decision "arbitrary, oppressive, and a manifest abuse of discretion," saying it wasn't based on concrete scientific evidence.

The NevCAN project started about seven years ago as the pipeline controversy was heating up, when researchers decided to expand climate research in the region. In 2008, the group, which includes the Universities of Nevada (Las Vegas and Reno) and the Desert Research Institute, got a \$15 million National Science Foundation grant to install the climate monitoring stations. The stations, eight in the Snake Range and five in the Sheep Range further south, are located at different elevations up and over each mountain range in order to monitor conditions in the area's different ecosystems -- desert shrub, sagebrush, pinon juniper, montane and subalpine. The scientists hope the data will give them a more

nuanced understanding of how the region is impacted by climate change over time. It will be freely available online, in real-time, on the Nevada Climate Change Portal.

The NevCAN researchers are not shy about their desire to influence policy. In late March, to kick off the launch of the portal, the researchers held a conference in Las Vegas. Among the 150 people in attendance were many water planners, including from SNWA. Pat Mulroy, SNWA's heavy-handed leader, was a speaker, affirming her intentions to siphon eastern Nevada's groundwater to compensate for the toll that drier, hotter years are taking on the Colorado River, which Las Vegas relies on for most of its water.

NevCAN aside, much more is now known about the potential impacts of the pipeline than during the project's inception. SNWA has gathered its own data about the valleys' aquifers. And the Bureau of Land Management's massive Environmental Impact Statement for the pipeline's right-of-way across public lands elaborates how the pumping plan is likely to dry up springs and wither vegetation by dropping the water table across thousands of square miles. The BLM's analysis grapples with future climate change, too, but is quick to recognize the lack of local data that makes predicting impacts difficult.

The lack of good climate data is going to be a problem not just in Nevada, says Scott Mensing, one of the NevCAN researchers and a professor of geography at University of Nevada, Reno, but everywhere across the West, which has "a very mountainous and complex landscape where the microclimatic effects are probably as important as the macroclimatic effects." A lack of local data will make it difficult for water planners and land managers to understand how their projects fit into a specific area as it changes over time.

That's not to say that good data guarantees good decision-making. Dennis Ghiglieri, conservation chair for the Toiyabe Chapter of the Sierra Club, says "even with the information we already have (about the SNWA pipeline), it looks like the decisions that have already been made until now have been very poor ones." SNWA "thinks that all things can be delayed to the future, after they've started pumping."

And SNWA is eager to push the project ahead. "This new (NevCAN) climate study ... is going to be very valuable," says Rob Mrowka, conservation advocate for the Center for Biological Diversity. "The question is, are we going to have anything in a timeframe to impact the decisions at hand."

The Long Now Foundation's involvement in the Spring Valley controversy has so far been focused on advocating for better science. But it has also shared its long-term perspective at SNWA's public hearings, lending a certain clarity to the situation. "If you're pulling water out of the ground that's 16,000 years old, trying to pay for a pipeline in 25 years," says Alexander Rose, Long Now's executive director, "that's the kind of thing we like to point out."

*Marshall Swearingen is a High Country News intern.*

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