



Environment

Alarming nutrient pollution in Río Pueblo

High levels of nitrogen, phosphorus downstream from treatment facility pose challenge to Taos Valley

By Meg Scherch Peterson For Taos News Sep 17, 2020 Updated Sep 21, 2020 1

One morning in July after a nighttime sprinkle of rain, the day's heat already was amping up when Stephen Fabrey climbed across a broken slab of concrete and slid down the embankment to a stream of water less than 5 inches in depth. He sported a face covering and toled an assortment of water quality monitoring instruments. What Fabrey will detect is pollution en route to the Río Pueblo. Angling his tall frame within the narrow confines of the embankment, Fabrey dipped a pH meter into the flow, then called the acidic-alkalinity level to Teresa Seamster, who wore a face mask, too.

The growing heat of the day plus the face coverings meant they were breathing in a lot of hot air, but neither complained. Seamster, the Northern New Mexico conservation chair of the Río Grande Chapter of Sierra Club, penned the reading onto a monitoring form on her clipboard. Earlier in the day Seamster and Fabrey, a Taos volunteer, had picked up the monitoring kit at the home of Shannon Romeling, projects and foundations coordinator for Amigos Bravos, a water conservation nonprofit in Northern New Mexico. Romeling, like many other Taoseños during the coronavirus pandemic, was working from home. Seamster took the kit, adding, "It sure feels good seeing real live people instead of looking at faces at a Zoom meeting!"

Each summer for nearly two decades, Amigos Bravos has taken the pulse of Taos County rivers. Despite the pandemic, this summer was no exception. The little stream Fabrey and Seamster sampled flows just west of the Taos Valley Regional Wastewater Treatment and Reclamation Facility and does not even have a name. But it supports a vibrant wetland of song sparrows, yellow warblers and other critters before it trickles into the Río Pueblo. And it has a big job to do: It carries off the treatment facility's effluent. The treatment facility serves the town and

Taos Pueblo, with a combined population of about 7,000; El Prado Water and Sanitation District, with 1,200 customers; El Valle de Los Ranchos Water and Sanitation District, with 975 sewer customers; as well as individual residences and septic haulers. The challenge A year ago this August, the New Mexico Environment Department informed the mayor and councilors at a town meeting that the department had tested the effluent and found the treatment facility a principal source of high levels of nitrogen and phosphorus in the Río Pueblo. A spokesperson for the department told Taos News it sampled seven sites along the river from upper Ranchitos to lower Ranchitos and through Los Cordovas to a few miles upstream from the confluence with the Río Grande. They sampled 65 feet before and after the point where the unnamed stream that bears the effluent meets the Río Pueblo. Nitrogen and phosphorus are labeled nutrients because they are essential for plant and animal growth. But too much nitrogen - in the form of nitrite, nitrate and ammonium - and phosphorus leads to nutrient pollution and an overgrowth in plants, bacteria and algae in waterways.

Algae is a broad term that covers many kinds of naturally occurring organisms, but an overabundance leads to an increase in dead organic matter that then becomes food for bacteria. As bacteria increase, they use up the dissolved oxygen in the water. And when that happens, fish are unable to breathe and die. According to the Natural Resources Defense Council, freshwater algal blooms are now a problem in all 50 states, exacerbated by climate change. Such algal blooms in the Gulf of Mexico have led to dead zones as large as New Jersey. Here in New Mexico nutrient pollution in Abiquiú Lake in August 2019 led the Army Corps of Engineers to restrict most water-related activities due to a toxic bloom of blue-green algae, a form of cyanobacteria. Blue-green algae produces toxins that damage the liver and nervous system as well as irritate the eyes, ears, nose and skin of humans and other mammals, like dogs and livestock. High exposure can lead to death. Inching closer So far, there are no harmful algal blooms recorded in Taos valley's waterways. But the valley may be inching closer. As part of the monitoring protocol, Seamster and Fabrey scanned the little stream for signs of an overabundance of algae. Evidence of algae was less than on their May visit. "That's a good thing," said Seamster. Fabrey used a handheld meter to take a reading of the stream's level of dissolved oxygen. The data will be tabulated and charted by Romeling.

According to data supplied to the *Taos News* by Romeling, the Río Pueblo has been an impaired stream for some pollutants and high temperatures since 2007. Data from 2017 showed that "nitrates and occasionally phosphates continued to greatly exceed the standards given to neighboring waterways." By 2018, the situation had worsened. Phosphate levels at two sites were elevated above the standard by two to five times. Nitrate levels at one site "approached a level that encourages algal blooms." In the Río Pueblo the likely sources of nitrogen pollution include fertilizer runoff from farms, ranches and home gardens. Leaky septic systems can be a source, too. Phosphorus pollution is related to phosphates in soaps and detergents. Laundromats, car washes, hotels and households are all sources of phosphates.

The current technology at the wastewater treatment plant can't clean up the pollutants and installing one that can would be expensive. Progress toward a plan When the environment department's surface water quality bureau chief Shelly Lemon addressed the town, she explained that the town could take advantage of what are called "temporary" water quality standards. Lemon pointed out that the department has not yet developed what are termed "numeric measurements" for allowable amounts of nutrient pollutants. Instead, the department uses a narrative standard, which is a somewhat subjective description of how a healthy stream should look and smell.

According to the Environmental Protection Agency, "Numeric nutrient criteria are a critical tool for protecting and restoring a water body's designated uses related to nitrogen and phosphorus pollution." Many states, including New Mexico, still lack these measures. By email Rachel Conn, Amigos Bravos projects director, took issue with the whole idea of temporary standards. "Amigos Bravos is in general opposed to variances of water quality standards because these standards ... are what have been determined to be protective of public health and the environment," she wrote. If there have to be temporary standards, Amigos wants to maintain a limit of five years before "real" standards kick in. New Mexico's temporary standards would allow the town to make progress toward a state standard instead of having to comply immediately. In fact, Lemon said the town could take 15 or more years to comply. But the state has yet to develop a measurable standard, leaving the town in a kind of limbo. Lemon said by email that the state's proposal would likely be ready in 2021. She added, "The treatment plant

is in compliance with its permit." That permit is good through June 2023. This past January and February discussions to address the pollution took place between the town and treatment plant personnel, according to Public Works director, Francisco Espinoza. He said that any plan would likely involve stakeholders throughout the valley. "The plan ultimately can mean 40 to 50 different action items over a period of 10 to 15 years as we make progress toward meeting the state's standard," said Espinoza.

Some actions the town might take to remedy the pollution could be the purchase of new technology, upgrades to the system's infrastructure, identifying upstream sources of the pollution, imposing a moratorium on the use of certain detergents and soaps and getting buy-in from the community. Everything was on the table, according to Espinoza.. But then in March the coronavirus pandemic hit. Suddenly both the town and the environment department had much more on their plates than pollution in the Río Pueblo. In August, town manager Richard Bellis responded by email that the process is in the hands of the state and EPA. "The state is representing the proposal along with others in the state to the feds. We really don't have any control of it at this point," he wrote. Any fix is going to be expensive.

According to the environment department, the most effective and expensive technology is to install a reverse osmosis system at the wastewater treatment plant. This technology has an estimated price tag of \$34 million and operational and maintenance costs in the neighborhood of \$3 million per year. Its implementation would raise sewer rates for a median income Taos household from an average of \$470 per year to nearly \$2,000 per year. Less expensive options are on the table, but they likely would mean continued and possibly increased pollution for a longer period of time. Looking ahead Through the end of summer Fabrey and Seamster along with other volunteers with the Amigos Bravos chapter of Sierra Club's Water Sentinels continued to gather water quality data from dozens of sites on local rivers. The nonprofit, together with the town, worked on a grant about a decade ago to revitalize the little stream and wetland west of the treatment facility. They never got the grant but hope to continue to work with the community. Meanwhile Amigos is updating its Río Pueblo Watershed Plan, which addresses the overall health of the Río Pueblo. Eventually the town together with the people of Taos Valley will have to address the river's health, too.