Students to pinpoint source of bacteria in Rio Grande

Jared Janes, VALLEY FREEDOM NEWSPAPERS
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A lingering problem with high a concentration of bacteria in the Rio Grande may result in a bi-national approach to water quality issues.

A team of researchers is working to find the source of excessive levels of E. coli in a 23-mile section of the river near Brownsville.

The bacteria — which aren't considered dangerous unless people have direct contact with the water — are regularly found near Brownsville in annual water quality surveys, said Stephen Niemeyer, the border affairs manager for the Texas Commission on Environmental Quality.

The first step to clear the water is to pinpoint the contamination's source, which could be from multiple areas, Niemeyer said. The challenge from there will be to create a bi-national agreement to stop the contamination.

"The Rio Grande is an international river and you get sources of pollutants from both ends," Niemeyer said. "We can't solve this on our own."

Since an intensive study of the contamination hasn't been conducted, officials are unsure of the source of the E. coli, though they speculate it's caused by wastewater from old septic tanks or other sources.

E. coli is bacteria normally found in the intestinal tract of humans and animals that sometimes causes illness or death when consumed in tainted food products.

University of Texas-Brownsville students will collect water samples and survey drains and areas emptying into the river this fall, said Elizabeth Verdecchia, an environmental protection specialist with the International Boundary and Water Commission, the bi-national agency that oversees work along the river.

Their study will provide information to pinpoint the source of the contamination.

The findings will be collected in a database to help researchers curb the pollution, she said. An agreement between officials from the United States and Mexico — likely through a decision by the IBWC —will be needed to stop the practices causing the contamination.

The Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency are using the Brownsville study as a pilot that can be expanded to other parts of the river.

Despite the E. coli problem near Brownsville, Verdecchia said, the river's overall water quality isn't suffering.

"There are no major water quality issues (elsewhere)," she said. "It's not as bad as its reputation."

Lessons learned on the river near Brownsville can still be used to improve water quality elsewhere, said Elizabeth Heise, an assistant professor in environmental science at UTB who will lead the field surveys.

To identify the source of the bacteria, students will collect water samples every half-mile along the river, she said. Previous studies only collected samples at one site, meaning researchers don't know exactly where the bacteria start in the 23 miles.

After finding where the contamination begins, Heise hopes to then trace it to a source on land.

She said doing so would end years of speculation on where the E. coli is actually coming from.

“The perfect and easy solution is that there’s one big pipe spewing out green gunk,” she said. “But if it were a big pipe, somebody would have found it by now."