



Oso Creek's dry weather sampling IDs sources of bacteria contamination

Understanding dry weather flows may be the key to improving overall water quality in Oso Creek.

Previous studies have documented elevated fecal bacteria levels in Oso Creek, even in dry weather. A recent study, funded by the Coastal Bend Bays & Estuaries Program, sent researchers up the creek to identify flow sources and analyze for bacteria contamination.

Researchers walked or kayaked the 25 mile section from Staples Street to the Robstown wastewater treatment plant looking for water running into the creek.

High levels of enterococci, a bacterium found in the feces of humans and other warm-blooded animals, put Oso Creek and Oso Bay on the state's impaired water bodies list, and the waters don't meet water quality standards for contact recreation. The presence of bacteria indicates there is an increased risk for

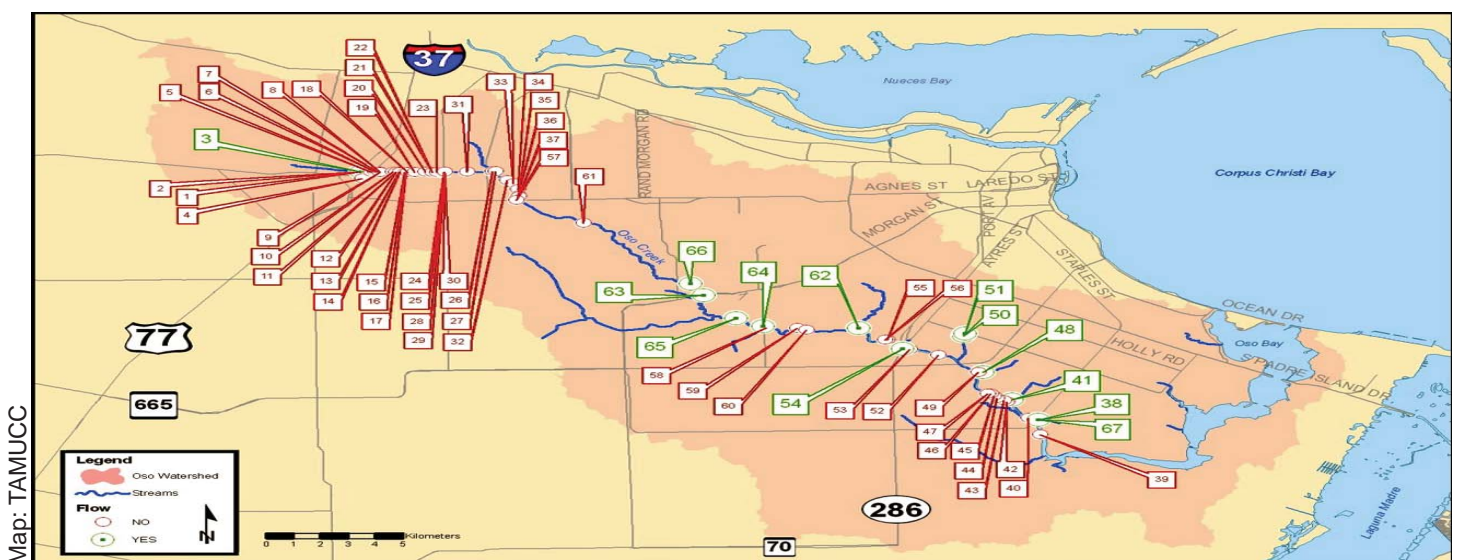
illness for those who come in contact with the water.

"Oso Creek does have some water quality concerns," said Dr. Joanna Mott, chair of the department of life sciences at Texas A&M University-Corpus Christi. "We are trying to come to some sort of answers about where the bacteria is coming from in an effort to remediate that. In the mean time, there is contamination of the creek, and that's something the public should be aware of."

Most flows into the creek come from runoff after storms. Studying what is flowing during dry times may best isolate the ongoing sources of bacteria.

"This would be one step in further identifying the source of this bacteria," Mott explained.

Previous research indicated the dry weather bacteria count was kicking the creek out of compliance with state standards for safe recreation.



This map shows outfall sites, without water in red and with active flows in green, for the section observed.

“What we found was that on many of the stations if we could eliminate the dry weather loading then these stations would be in compliance with regulations,” said Richard Hay, assistant director of the center for water supply studies at TAMUCC and a researcher on this project. “Without eliminating this dry weather loading, we can’t get into compliance.”

In this study, researchers documented 67 outfall sites along the site, 13 with flowing water, including a neighborhood drainage ditch and several wastewater treatment plant outflows.

They documented each site with photographs, GPS coordinates, flow volumes and water samples were collected for bacteria testing. Sites were sampled on multiple dates between August 2008 and May 2009. Bacteria counts from the 13 sites ranged from low to higher with little consistency. One test site, at Staples Street, numbered 67 on the map, was above the limit of 104 colony-forming units, or cfu, six out of seven times, with samples ranging from 68 to 680 cfu. Another site, the Clarkwood ditch, labeled number 66, was high on four of six times, with samples ranging from 23 to 3,650 cfu.

This study confirmed that dry weather inflows are contributing to the creek’s high bacteria levels, researchers said. There is more study to be done, however.

“Although we did find contributing sources, I don’t

really think this entirely answered the question of the sources,” Mott said.

This study showed bacteria coming in from the mid-to lower-sections of the creek, but isolated only one such inflow in the upper section, at the Robstown wastewater treatment plant, she explained.

That upstream area will be the site of further study by Mott’s team with a three-year effort through the Texas State Soil and Water Conservation Board that will examine both physical sources and animal sources of fecal bacteria in that part of the watershed, Mott said.

Ray Allen, CBBEP executive director, said the study showed where cleanup efforts should begin. “It’s clearly identified some obvious inflows that need to be addressed to begin improving water quality in Oso Creek,” he said.



Photo: CBBEP

Megan Hoch, standing, and Rachel Brewton sample locations with active flows.



Read the full report online at www.cbbep.org.

The Coastal Bend Bays & Estuaries Program is a non-profit organization dedicated to protecting and restoring bays and estuaries in the 12-county region of the Texas Coastal Bend. CBBEP is partially funded by the Texas Commission on Environmental Quality and the U.S. Environmental Protection Agency.

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