

Down on the Bayou –

The Orange County TMDL Project

by Ward Ling, Texas Commission on Environmental Quality

The small alligator—“small” by bayou standards is anything less than 8 feet long—is keenly aware of our presence. We attempt a closer look, but as the boat approaches zoom-lens range, the gator slowly sinks out of sight, leaving only a swirl of coffee-colored water to indicate where it was. A few jokes are made about going swimming, then we make our way farther up the oxbow, past large bald cypress trees and a multitude of different birds, the names of which I don’t know. It is midmorning and the day is already hot and humid. Today, I am part of a field sampling crew and will be on the water from sunup to sundown collecting water samples and field measurements. We will swat a few mosquitoes during the day, but they are nothing compared to the clouds of the pesky critters that will descend on the crew as night falls. It will be a long, hot day on Cow Bayou as part of another intensive survey for the Orange County Total Maximum Daily Load (TMDL) Project.

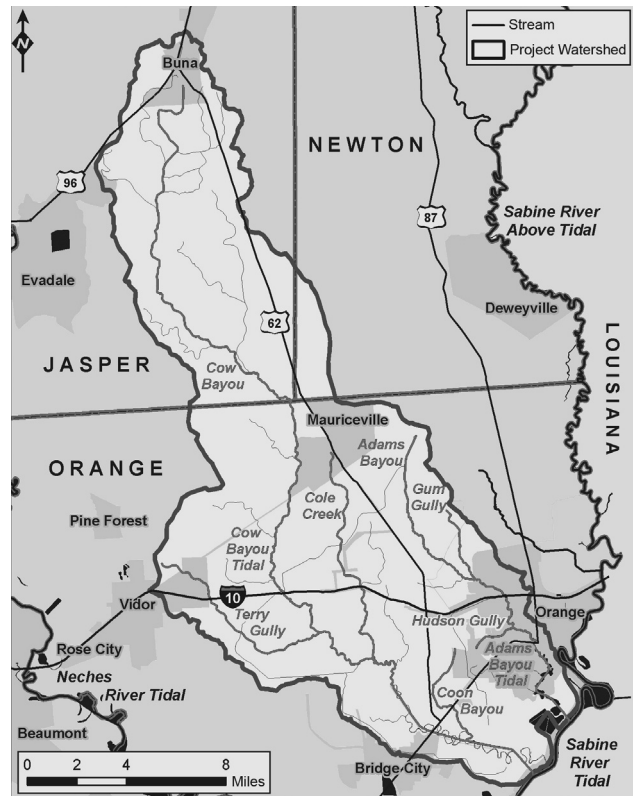
The day before, I was up at the crack of dawn driving all over Jasper, Newton, and Orange counties, retrieving water samples collected by boat crews and waste water treatment facility (WWTF) operators. My job was to transport these samples to the Sabine River Authority of Texas Environmental Services Laboratory. The only difficulty of the day was trying to navigate using a road map that, as it turned out, didn’t list all the necessary small county roads and farm-to-market roads that I would need. However, that was no problem since small East Texas towns are full of helpful folks who always got me back on the road heading the right way (when I would stop for directions).

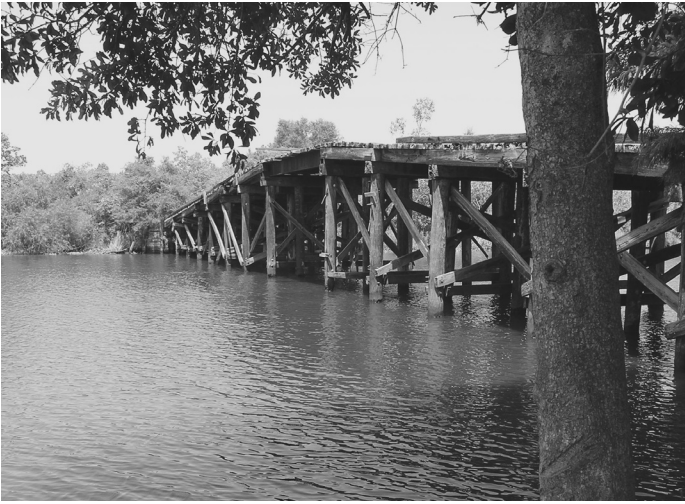
Dawn of the third morning finds me in a truck driving to road crossings to, again, collect water samples and field measurements from tributaries of Cow Bayou. I am thankful for the air-conditioned vehicle and padded seat, and the reprieve from the little flying bloodsuckers. The field crews and I chalked up another of the eight intensive surveys planned for this TMDL project.

Why Put Ourselves Through That?

Adams Bayou and Cow Bayou were identified as impaired in the 2004 Texas Water Quality Inventory and 303(d) List. Concentrations of dissolved oxygen do not support the aquatic life use in eight water bodies, and concentrations of bacteria do not support the contact recreation use in eight water bodies. In one, there is an impairment to the general use due to low pH. The total number of impairments is seventeen—in just nine water bodies. The Texas Commission on Environmental Quality (TCEQ) initiated a Total Maximum Daily Load (TMDL) project for these waterways in Orange County to identify the causes of the impairments. The project’s goal is to determine what reduction in pollutant load is needed to get the bayous back to a healthy state.

Adams Bayou, Cow Bayou, and their tributaries are a mixture of above-tidal and tidally influenced bayous. Adams Bayou and Cow Bayou are unique water bodies because they do not have a conventional flow pattern like most perennial streams. Negative flow, or reversing flow, has been observed and recorded in the bayous due to the tidal





This railroad bridge over Cow Bayou is a familiar landmark to citizens living in the watershed.

influence. This alternating forward-reverse flow action slows the overall travel time considerably, further compounding the complexity of assessing impairments to the bayous. The lower portions of both bayous have been channelized and dredged for navigation, creating numerous oxbows in what were formerly more sinuous natural channels.

Field Time

In order to fully develop a water quality model, a data collection effort was conducted. Two 48-hour intensive surveys were performed on the Cow Bayou system and two on the Adams Bayou system, to provide new data for calibration and verification of the models. Two rainfall sampling events for each system were also conducted, and sediment oxygen demand was measured at several sites.

So What is Causing the Problem?

According to the draft TMDL report, the sources of pollution contributing to the impairments in Adam Bayou, Cow Bayou, and their tributaries are a combination of point and nonpoint sources. Potential sources include failing onsite sewage facilities, waste water treatment facilities, and nonpoint pollution.

How Do We “Fix It”?

The Orange County TMDL project has benefitted since the project was initiated by having a very active stakeholder group. Continuing the strong stakeholder involvement, the development of a workable Implementation Plan is on the near horizon. The stakeholders have already had their first implementation planning meeting, and look forward to “fixing the problem.” The result will be the improvement of water quality in these unique East Texas bayous. ●