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MAY RIVER WATERSHED DATA STREAM PAYING OFF

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Water sampling and lab analysis program brings focus to river protection effort.

The May River watershed sampling and laboratory analysis project is starting to pay off with findings that can make a difference for fixes, as environmental watchdogs had hoped for when it was created in 2008.

Analysis of result averages for 25 sample sites over periods of months this year has identified seven of them as hot spots for high fecal coliform bacteria averages, mostly in wetlands, according to a color-coded map posted on Beaufort County's Web site.



The results from grab samples pulled from May River tributaries and ponds in the Rose Dhu Creek and Stoney Creek sub-basins also generally indicate the stormwater from developments and their settling ponds is clean, according to Dan Ahern, Beaufort County Stormwater Utility manager.

But higher runoff volumes from the developments, even if the runoff is clean, may still be creating fecal coliform increases in the wetlands, he said.

"We think good water running at larger amounts into those wetlands is flushing out more fecal coliform that would normally occur (in the wetlands.)" Ahern said that presumption "changed the whole philosophy" about stormwater regulation and river protection and brought the push, now before the County Council, to set tough limits on stormwater runoff volumes.



Bluffton officials are following the county moves and have said they will consider adopting a companion measure.

“Something’s happening, putting that stormwater into the wetlands in larger amounts than used to occur... . All of a sudden you’re getting high fecal coliform levels in those wetlands and they’re working their way into the May River.”

That, he said, is what’s causing higher volumes of fecal coliform in the May River and the DHEC decision to limit oystering in the May River headwaters.

Fecal coliform is an indicator of bacteria that can harm people, and the state Department of Health and Environmental Control limits or closes oystering in waters with fecal coliform counts exceeding limits set by the U.S. Food and Drug Administration. In a first, because of fecal coliform counts, DHEC has set oystering restrictions in the headwaters of the may for the season that opened Oct. 1.



Pinpointing the drainage basin's trouble areas and spots with better grades, through the sampling and analysis, is helping officials shape river protection plans, according to Ahern.

"We're starting to identify opportunities where we can make a difference," Ahern said Tuesday. "We're trying to use this data to figure out some way can we improve the situation. This is just better defining the problem we have."

THE LAB TESTING COMPONENT

For quick, reliable testing of water samples in the May River watershed, which is facing runoff pollution pressures from rapid development, the town of Bluffton last year committed \$325,000 over a three-year period to fund a water-quality lab at the University of South Carolina Beaufort's Bluffton campus.

The town bought lab equipment and USCB agreed to provide a full-time water quality analyst. That lab manager, Danielle Mickel, now not only runs analysis tests on the samples but also helps town natural resources technician Barrett Baxter collect grab samples at the town monitoring sites every Wednesday.

Danny Polk, a county stormwater utility inspector, goes out with a county maintenance technician every Thursday to draw samples from the county sites, some of them "far into the wetlands," Ahern said.

Mickel also analysis the county samples. According to a town report, "The county is now subsidizing a portion of the (lab) costs associated with its weekly testing."

All but one of the fecal coliform hot spots were identified from samples pulled by Beaufort County Stormwater Utility two-man teams since June 4, when the county expanded upon the 10 sites the town began sampling for tests in February.

Five of them are in wetland areas within a square bounded by May River Road to the south, Old Miller Road to the east, Hampton Lake to the north and Kenzie Park to the west.

The single town sample site highlighted as a red hot spot on the county map is near Rose Dhu Creek about an eighth of a mile north of May River Road, according to the county's plotting map.

The other two hotspots, both county sites, are in Gascoigne Bluff, south of May River Road, and the closest to May River in the bunch. Ahern said they are of particular interest because they are also closest to DHEC's water-monitoring station 19-19, where high fecal coliform readings led to DHEC this past spring to set new restrictions on oyster harvesting in the headwaters. The change to "conditionally approved" from the previous unrestricted status is in effect for the current oystering season, which opened Oct. 1 and runs into

May, and will require shutting down oystering in the headwaters zone for at least 14 days after each rainfall event of 1.1 inches, DHEC officials have said.

The seven sites labeled in red as hotspots on the map have fecal coliform averages above 2,400 fecal coliform colony-forming units per 100 milliliters. The map also identifies seven sites with fecal coliform averages between 400 and 2,400 colony-forming units per 100 milliliters and seven sites with averages below 400 colony-forming units per 100 milliliter.

"If you get above 400 (colony-forming units per 100 milliliters) theoretically it raises questions of contact" and becomes questionable for swimming and fishing if more than 10 percent of the readings are above 400. So, in the 11 sites with counts averaging between 400 and 2,400 "we potentially have recreational problems," Ahern said.

The shellfish safety standard keeps shellfish waters open when the average is below 14 colony-forming units per 100 milliliters, and "if it's above it, then they'll close it," Ahern said.

He said fecal coliform levels drop dramatically when the colonies hit salt water in the May River and other intertidal estuaries, both from contact with ultraviolet light and the salt, and the average at Station 19-19 is not much above the 14 average.

In the hotspots with the highest fecal coliform averages, there are weekly variations, with fecal coliform counts rising when rainfall increases stormwater runoff volumes.

"What we're finding, and it's not very good, is that when the flows are higher the concentrations are higher," Ahern said. In contrast, the counts in areas with the lowest fecal coliform averages don't go up and down a lot.

"This is just a theory, and I'm not advocating it's true, is that wetlands have a large amount of fecal coliform naturally in them, and generally it stays there. Like what happens in Las Vegas stays in Las Vegas. But when you put more flow in there, that stuff is getting stripped out. It's a theory, but it explains what we're seeing," Ahern said.

Maybe slowing the rate of runoff into the areas after heavy rainfalls by new stormwater runoff controls and better retention efforts will help, he said.

For other areas, like Gascoigne Bluff, where the high fecal coliform readings probably have wildlife sources, "we're actually exploring possibly doing some treatment," Ahern said.

ON THE NET

Volumes of data and reports from May River watershed studies are posted on the town of Bluffton and Beaufort County's Web sites

- On the town's site www.townofbluffton.com, go to the environmental protection link On the county's Web site, check out these pages:
- Stormwater regulations overview — www.bcgov.net/stormwater/index.php
- River monitoring efforts — www.bcgov.net/stormwater/MayRiver.php
- Fecal coliform sample averages locator map — www.bcgov.net/stormwater/documents/StoneyCreekFCsingleslide.pdf