



State of Louisiana Drinking Water Protection Program

October 2011

LDEQ

Issue 15



Bayou Lafourche Fecal Coliform Sampling Project

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Bayou Lafourche is located in the Barataria Basin in southeast Louisiana. The flow of the bayou is maintained by a pump station at the Mississippi River at Donaldsonville. The bayou flows 110 miles through Ascension Parish, Assumption Parish, and Lafourche Parish before discharging into the Gulf of Mexico. Six public water systems serving over 300,000 residents utilize Bayou Lafourche as a drinking water source.

LDEQ's Integrated Reports (IR) have consistently listed subsegment 020401 - Bayou Lafourche from Donaldsonville to Intracoastal Waterway at Larose - impaired due to fecal coliform bacteria. This is the same portion of Bayou Lafourche the public water intakes utilize. The bayou's water quality isn't meeting the primary contact recreation (swimming) standard for fecal coliform of 400 colonies/100 ml. Fecal coliform data collected in conjunction with LDEQ's ambient surface water quality monitoring network of sample sites consistently shows levels exceeding the primary contact recreation standard and spikes in the data over the secondary contact recreation (boating/fishing) and

drinking water supply standards of 2000 colonies/100 ml. In accordance with the Federal Clean Water Act, a total maximum daily pollutant load has been developed for subsegment 020401 requiring a reduction of fecal coliform levels in the bayou.

Many businesses and residents along Bayou Lafourche do not have access to community sewage service. In such areas individual homes and businesses are responsible for their own sewage treatment. The negative impact of improperly functioning sewage treatment systems or the lack of disinfection has been exacerbated

with the growth of the community. Individual sewage treatment systems, package plants, and unpermitted sewage discharges are considered the suspected causes of elevated fecal coliform levels in Bayou Lafourche in LDEQ's IRs. According to local stakeholders the improper treatment of sewage from individual homes is the most likely source of high fecal coliform levels in the bayou.

The Drinking Water Protection Program team is working with stakeholders to address the fecal coliform issue. This effort includes identifying the sources of fecal coliform in the bayou and means of ad-

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Location of Bayou Lafourche



On the Radar

Targeted parishes for drinking water protection programs in 2012

- Morehouse
- Tangipahoa
- Webster

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dressing them. The initial investigation into the cause(s) of elevated fecal coliform in the bayou included inspection of all non-residential sewage systems along Bayou Lafourche by LDEQ's Inspection Division. LDEQ regulates the discharge from all sewage treatment systems other than individual homes, which are regulated by the Louisiana Department of Health and Hospitals (LDHH).

LDEQ also contracted with Nicholls State University (NSU) to identify areas contributing fecal coliform from sewage. The NSU investigation was conducted from Labadieville to just below Lockport. To help identify potential human fecal coliform (FC) sources from sampling sites, relative levels of fluorescence of optical brighteners (OBs) from laundry detergents were correlated to FC levels at that same site. A high OB number in conjunction with a high fecal coliform (FC) level is a good indication that the FCs are of human origin. However, high FC levels combined with very low OBs at a site indicate that the contamination is probably from animal origin. High OB numbers in conjunction with low FC numbers can indicate a source of "gray water (wash water) without input from actual human fecal matter from toilets or other facilities that normally empty into a septic tank, package plant, or other source of sewage disposal. (Cao et al, 2009, Hartel P.G. et al. 2008, Saluta et al. 2007, Hartel P.G. 2006).

The initial NSU investigation identified eleven locations as "hot spots" that are conveyances of sewage to the bayou from surrounding neighborhoods. Staff with LDEQ's Bayou Lafourche Regional Office has performed additional inspections around these hot spots to address contributing sewage systems that LDEQ regulates.

Another project with NSU is currently underway to identify areas contributing fecal coliform from sewage for the upper portion of subsegment 020401 from the Assumption/Lafourche parish line upstream to Donaldsonville. This project will be similar to the original contract

and will be complete in the summer of 2012.



Stacy Martinez of NSU collects a water sample

In addition to this work a number of options have been explored to address sewage discharges to the hot spots, in particular to address malfunctioning or improper home sewage systems. The solutions include utilizing existing LDHH regulations with more local oversight, connecting individual sewage systems to existing community sewage systems, establishing new community systems, repairing and/or replacing malfunctioning individual sewage treatment systems, and educating the public on how to properly maintain individual sewage systems.

While much of the work to address the findings of the initial NSU investigation is still in planning stages, LDEQ's regulatory response is well under way. In order to track the success of this work and the additional work to address sewage from individual homes, additional data is needed; therefore an in-stream fecal coliform sampling project has been developed. Sample locations downstream of each hot spot NSU identified in its first project have been chosen. Once the second NSU project has identified more hot spots, additional sample locations downstream from them will be added to this in-stream sampling project. Each

sample location will be sampled monthly for fecal coliform and optical brighteners.

The overall goal of the work conducted for Bayou Lafourche is to reduce the amount of fecal coliform entering the bayou from human sources and subsequently removing the bayou from LDEQ's 303(d) impaired waters list. High fecal coliform levels in conjunction with high optical brightener readings (detergents) indicate that the fecal coliform origin is from sewage. Tracking optical brighteners along with fecal coliform will enable LDEQ to better assess any reductions in sewage loading as a result of its efforts.

When the Well is Dry, We Learn the Worth of Water

Benjamin Franklin, one of America's founding fathers, shared this wisdom in *Poor Richard's Almanac* more than two centuries ago...but are we paying attention now?

Americans are among the world's largest water consumers. Typically, after showering, using the bathroom, brushing our teeth and enjoying our cup of coffee, we've used more than 30 gallons of water each morning. By the time we go to bed we've used up to 150 gallons after washing the dishes (12 gallons per load), running the washing machine (43 gallons per load) and watering the lawn (10 gallons per minute). By contrast, people in the U.K. use about 40 gallons of water a day and in the poorest countries such as Kenya, people use less than 13 gallons a day to cover basic needs. (www.CBSNews.com)

The world's population tripled in the 20th century and the use of renewable water resources has grown six-fold. Within the next fifty years, the world population is expected to increase by another 40 to 50 %. This population growth - coupled with industrialization, urbanization and climate change - will result in an increasing demand for water and will have serious consequences on

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the environment and our way of life. The looming “water crisis” is not about having too little water to satisfy our needs; it stems from the enormous inefficiencies and waste that characterize our water management. In order to forestall water shortages we must redefine how we think of water, how we value it, and how we use it.

America could do a far better job of educating its citizens about water conservation. There needs to be an increasing awareness that our freshwater resources are limited and need to be protected both in terms of quantity and quality. This is especially true in states such as Louisiana where, historically, water has been abundant and often taken for granted. Significant declines in water levels in the Sparta aquifer in north Louisiana and recent droughts are finally starting to get our attention. Business as usual is no longer going to be an option.

While changes in water management policy and technological solutions will ultimately have to be implemented, doing more with less is the first and easiest step along the path toward water security. At the local level measures to restrict water use can be put in place to conserve water. These measures may include watering schedules restricting watering of lawns or washing of cars to odd or even addresses on certain days of the week and during certain hours. The restrictions may prohibit certain uses of water or require use of hand watering instead of sprinkler systems that use much more water. Metering and tiered water pricing also encourage conservation.



Here are a few tips everyone can use to conserve water:

- ◆ Turn off the tap water while brushing your teeth, washing your face or shaving.
- ◆ Take shorter showers.
- ◆ Clean sidewalks and driveways with a broom, not the water hose.
- ◆ Water your lawn in the early morning to reduce evaporation and position sprinklers so that water lands on the lawn and shrubs, not paved areas.
- ◆ Run the dishwasher only when it is full.
- ◆ Run the washing machine only when fully loaded, or adjust the water level for the size of your load.
- ◆ Repair dripping faucets, one drop per second wastes 2,700 gallons of water a year!

For more tips and water-saving ideas visit www.wateruseitwisely.com.

Did You Know?

Half the world's hospitalizations are due to water-borne disease.

Source: www.water.org

An Ounce of Prevention Is Worth More Than a Pound of Cure

The proverb from Benjamin Franklin’s *Poor Richard’s Almanac* remains timeless wisdom. In the State of Louisiana in 2010, \$162 million was spent on consulting services and assistance on groundwater environmental issues such as control of contamination (Barnes & Co. 2010a) and \$129 million was spent on remediation and cleanup of subsurface contamination (Barnes & Co. 2010b). The cost to operate the state’s Drinking Water Protection Program is less than 0.25% of the \$291 million spent on consulting and remediation. That’s roughly 25 cents spent on protection for every \$100 spent on cleanup....far more than a pound of cure!

**NEW WELLHEAD PROTECTION PROGRAMS AND NEW
SURFACE WATER PROTECTION PROGRAMS APPROVED
SEPTEMBER 2010—SEPTEMBER 2011**

New Wellhead Protection Program Approvals

Bel-Di-Gil Water System
 Concordia Waterworks District #1
 Dubach Water System
 Fellowship Water System
 Four Forks Water System
 Greater Ward 1 Waterworks District
 Iberville Waterworks District #4
 Lake St. John Waterworks
 Lincoln Parish Waterworks District #1
 Lincoln Parish Waterworks District #3
 Mt. Olive Waterworks District
 Town of Grambling
 Town of Maringouin
 Town of Vidalia
 Town of Vivian
 Tyson Community Water System
 Village of Clayton
 Village of Hosston
 Village of Ridgecrest
 Village of Rodessa

New Surface Water Approvals

Iberville Waterworks District #3
 Tensas Water District Association
 Town of Blanchard
 Town of Ferriday
 Village of Mooringsport



**THE DRINKING WATER PROTECTION TEAM SALUTES
MUNICIPALITIES AND PARISH GOVERNMENTS WHO HAVE
ADOPTED A GROUND WATER PROTECTION ORDINANCE:**



Acadia Parish - Acadia Parish Police Jury, Town of Church Point, City of Crowley, Town of Iota, City of Rayne

Avoyelles Parish - Avoyelles Parish Police Jury, City of Marksville, Town of Mansura, Town of Moreauville, Town of Simmesport

Beauregard Parish - City of DeRidder, Town of Merryville

Bossier Parish - Town of Haughton, Town of Plain Dealing, Bossier Parish Police Jury

Calcasieu Parish - City of Westlake, City of DeQuincy, Town of Vinton

Caddo - Village of Rodessa, Town of Vivian, Village of Ida

Concordia - Town of Clayton

East Feliciana Parish - Village of Norwood, Town of Wilson

Grant Parish - Town of Pollock

Iberia Parish - Village of Loreauville

Iberville - Town of Maringouin, Village of Rosedale

Jefferson Davis Parish - Jefferson Davis Parish Police Jury, Town of Welsh, Town of Lake Arthur, City of Jennings

Lafayette Parish - City of Youngsville, Town of Duson, City of Carencro

LaSalle Parish - Town of Jena, Town of Olla

Lincoln Parish - City of Grambling, Lincoln Parish Police Jury

Natchitoches Parish - Village of Goldonna

Ouachita Parish - City of West Monroe

Rapides Parish - Town of Lecompte, Village of Cheneyville, Village of McNary, Town of Glenmora, Town of Woodworth

St. Landry Parish - City of Eunice, Town of Melville, City of Opelousas, St. Landry Parish Council, Town of Washington

Tangipahoa - Village of Tickfaw

Vermilion Parish - City of Abbeville, Town of Delcambre, Town of Erath, Town of Gueydan, Town of Kaplan, Town of Maurice, Vermilion Parish Police Jury

Vernon Parish - Village of Anacoco, Town of Hornbeck, Vernon Parish Police Jury, City of Leesville, Town of Rosepine, Village of Simpson

Washington Parish - Town of Angie

Webster Parish - Webster Parish Police Jury

West Baton Rouge Parish - Town of Addis

West Feliciana Parish - Town of St. Francisville

Boring Business: The History of Water Distribution in America

Early settlers knew nothing of lead or iron pipe - they knew only to build with a readily available and plentiful material - wood. Water pipes were made of bored-out logs, preferably felled from hemlock or elm trees. The trees would be cut into 7-9 foot lengths, their trunks around 9-10 inches thick.

With a five-foot steel auger, the borers would fix the log by eye, size it up with a point of an ax, and drill or bore out the center. Ramming one end to make a conical shape, they would jam the logs together in a series, using a bituminous-like pitch or tar to caulk the joints. Sometimes they would split the log and hollow it out, put it together, connect the logs with iron hoops, or get the blacksmith to caulk the logs with lead.



Wooden Water Pipe

(Photo courtesy of David Wittner, City of Mandeville)

In 1652, Boston incorporated the country's first waterworks, formed to provide water for firefighting and domestic use. Since open wells provided easy access to contamination from nearby privies, the new supply of fresh water contributed to lowering the death rate from water-

borne disease. As fire was a common hazard in those days of wood-framed houses and stores, and chimney fires were always a risk, it was imperative that a ready water supply be on hand.

Crude by almost anyone's standards, these new pipelines were nonetheless invaluable to firefighters. They would punch a hole into the wooden pipe along the edge of the street, insert a smaller pipe pre-sized to fit the newly bored hole and harness the hose of their fire wagon, a two man pumper. Once the fire was out, they would plug up the hole again with a pre-cut conical stopper on the end of a long pole, insert it into the hole, and bang it shut. This was the "fireplug", the wooden pole left sticking out of the ground marking the plug, ready to be pulled out for the next chimney fire.

Wooden pipe laid below ground created several problems, however, especially in larger settlements or towns. Uneven ground would cause sags in the log where water would stagnate, infest with insects, and generally leave a woody taste. Wooden pipes were common until the early 1800s when the increased pressure required to pump water into rapidly expanding streets began to split the pipes. A change was made to iron.

Source: www.Theplumber.com

Water has become a highly precious resource. There are some places where a barrel of water costs more than a barrel of oil.

Lloyd Axworthy, Foreign Minister of Canada (1999—News Conference)

Town of Jena Wins Louisiana Rural Water Association Award



The Town of Jena water system was the winner of the Louisiana Rural Water Association (LRWA) 2011 Source Water Protection System of the Year Award. The award was presented on July 20th at the LRWA's 26th annual training and technical conference held in Alexandria. The LRWA is a non-profit organization established to aid small water and wastewater systems through training and on-site technical assistance. The LRWA awards program recognizes the outstanding efforts of rural water and wastewater systems and their personnel. Town of Jena Mayor Murphy McMillin and water system personnel Don Jones, Willis Atwell, Chris Cockerham, Charles Stevens and Kunta Walker were active members of the LaSalle Parish Drinking Water Protection Committee and hosted monthly meetings at the town hall. The town adopted a ground water protection ordinance to protect their drinking water supply. The Town of Jena also helped establish and hosted the first household hazardous materials collection day for LaSalle Parish in 2010. Congratulations to the Town of Jena on this achievement in protecting our environment and water resources!



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Visit us at our website:

<http://www.deq.louisiana.gov/aeps>



**GOT NEWS?
IDEAS?**

If you have any news or ideas that you would like to share with other communities in next year's issue of the newsletter, please submit them to deqdwpteam@la.gov or to the following mailing address:

Louisiana Department of
Environmental Quality
Aquifer Evaluation and Protection Unit
Post Office Box 4301
Baton Rouge, LA 70821-4301
225-219-3510

DRINKING WATER PROTECTION TEAM



Drinking Water Protection Team Members (left to right): Tiffani Cravens, Jesse Means, and Mary Gentry

The Drinking Water Protection Team is a part of the Aquifer Evaluation and Protection Unit. This Unit is under the Office of the Secretary at the Louisiana Department of Environmental Quality. Drinking Water Protection Team members educate the public on the importance of protecting drinking water sources. The team plays a vital role in working with Louisiana communities to establish local drinking water protection programs. The team is available to give presentations on water protection issues to your school or organization. Please call 225-219-3510 for more information.

**We look forward to helping you protect
your community's drinking water!**

This newsletter and all previous issues are available online at: <http://www.deq.louisiana.gov/aepsnews>
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