



LOUISIANA DRINKING WATER PROTECTION PROGRAM



2015 newsletter

OCTOBER 2015 • ISSUE 19

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GROUNDWATER PROTECTION IN LOUISIANA

Louisiana is water rich. Bayous, rivers, creeks, canals and lakes dot the map of the state. What is unseen is the water under the ground. The state is veined with freshwater aquifers that contain enormous resources, so much that only the southeast coastal parishes and a few smaller areas have no access to fresh groundwater. According to the United States Geological Survey (USGS) over half of Louisiana's 4.5 million people use groundwater supplied by public water systems (1.95 million) or privately owned domestic water wells (587,507) for their homes, businesses, schools, etc.

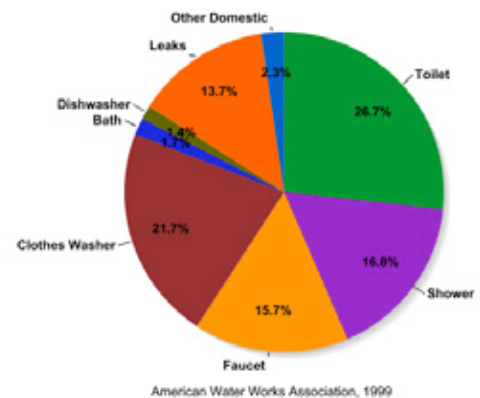
Consider the following: The Environmental Protection Agency reports that the average American family of four uses 400 gallons of water a day. The American Water Works Association estimates that most of this water is used to flush toilets and that leaky plumbing contributes 13.7 percent of household water use.

According to the USGS, in 2013 the three highest uses for groundwater in Louisiana were rice irrigation, public supply and general irrigation, and the state's total withdrawal rate was approximately 1.7 million gallons of groundwater per day.

In addition to public or domestic water supplies, uses for groundwater include power generation, livestock, irrigation, aquaculture and industrial usage.

The challenge for the stewards of this resource is to protect groundwater quality while maintaining a sustainable supply. At the state level, the Department of Environmental Quality (DEQ) is tasked with protection of groundwater quality through regulations to prevent pollution of waters of the state. DEQ is also charged with protecting aquifers used by public water systems. The Office of Conservation ensures groundwater sustainability and regulates water well construction and installation, underground injection wells, and the oil and gas industry. The Department of Health and Hospitals regulates public water systems, ensuring that water provided to the public is treated properly, while the Department of Agriculture and Forestry regulates pesticide use. In addition, there are local entities in Louisiana with authority for specific water resource oversight.

What is the quality of Louisiana's aquifers? DEQ's data indicate that for aesthetic water quality (taste, odor and appearance), the youngest aquifers generally are poorest, the mid-aged aquifers are the best, and the oldest aquifers vary depending on location. There have been occurrences of groundwater contamination over the years. Most were caused by gasoline releases. However, most of the contamination has been limited to shallow groundwater units. Incidents of pollution of the main water producing aquifers have been isolated and uncommon.



Center Pivot Irrigation System

Continued on page 2

LOUISIANA DRINKING WATER PROTECTION PROGRAM

Despite the fact that most of Louisiana has access to abundant, clean, fresh groundwater, there are problems in some areas. Ecology and Environment, Inc. listed the following issues in their Dec. 7, 2011, report "Recommendations for a Statewide Ground Water Management Plan."

Summary of Impacts to Major Aquifer Systems in Louisiana		
Aquifer	Location	Impact
Mississippi River Alluvial Aquifer	Aquifer wide	Total dissolved solids (TDS), metals
	Franklin Parish, southeast Ouachita Parish	Naturally-occurring chlorides
	Coastal Parishes	Saltwater intrusion from Gulf of Mexico and potential upward migration of saltwater
	Sporadic throughout aquifer	Occurrence of methane in shallow sands, agricultural applications (pesticides/herbicides, fertilizers), TDS, metals, naturally occurring chlorides
Chicot Aquifer	Iowa, LA	Shallow saltwater, possibly from Iowa Salt Dome
	Lake Charles	200' and 500' sand have been impacted by water level decline from industrial activity/overpumping and increased TDS impact and also exhibit the presence of methane; 700' sand is being impacted by saltwater intrusion
	Opelousas	Possible saltwater intrusion from naturally occurring chlorides, salt domes in the area
	Coastal Zone	Saltwater intrusion from Gulf of Mexico, subsidence and land loss
	Eastern edge of Chicot	Contact with Atchafalaya Aquifer provides potential increased TDS impact
Jasper Aquifer	Leesville, Alexandria	Water level decline and increased TDS impact
Cockfield Aquifer	Southern Winn, northern Grant parishes	Water level decline and increased TDS impact
Sparta Aquifer	Monroe, Ruston, Winnfield	Water level decline and increased chlorides
	Minden, Jonesboro Hodge	Water level decline and increased TDS impact
Carrizo-Wilcox Aquifer	Sporadic throughout	Water level decline and increased TDS, chlorides
	South of Shreveport	Water level decline and increased TDS impact
Southern Hills Aquifer	Baton Rouge	Water level decline and saltwater intrusion
	Bogalusa	Water level decline and increased TDS impact

Following are examples of how some of these issues are addressed:

- Louisiana's Coastal Protection and Restoration Authority maintains and restores coastal marsh areas which should help mitigate saltwater intrusion into aquifers along the coast;
- The Louisiana Sparta Ground Water Commission has contributed to stabilization of withdrawal rates over the past decade from the Sparta aquifer through conservation education, groundwater use reporting and by assisting local governing bodies in pursuit of alternative water sources;
- The City of West Monroe also contributed to a decrease of water withdrawn from the Sparta Aquifer by the local paper mill by providing highly treated wastewater for use as process water;
- The Capital Area Groundwater Conservation Commission regulates groundwater withdrawals in the Baton Rouge area to mitigate local declining water levels and saltwater encroachment. It also commissions hydrologic studies to assist decisions about local groundwater management;
- The Office of Conservation has implemented groundwater conservation education in the Baton Rouge area to further address local declining water levels and saltwater encroachment;
- The Baton Rouge Water Company operates a scavenger well to intercept salt water coming across the Baton Rouge Fault; and
- The Office of Conservation ordered water conservation measures and groundwater use restrictions which contributed to an improvement of declining groundwater levels reported in south Caddo Parish by the Red River Watershed Management Institute.

Groundwater conservation and protection is a collaborative effort and everyone can impact water quantity and quality. How can we make a difference and help protect our groundwater? First of all, know the source of your water. Unless you have your own well, you most likely get your water from a public water system which draws water from an aquifer or a water body. Second, try alternatives to chemical usage for household activities like cleaning, gardening, etc. If chemicals must be used, acquire only the amount needed and use them according to the label. Also store, recycle or dispose of any leftover chemicals properly. Third, try to limit the amount of water you use on a daily basis. By simply turning off the water while brushing your teeth you can save 25 gallons a month. Use a nozzle on water hoses to limit wasting water. A running hose can discharge up to 10 gallons per minute. Shortening your showers could save 150 gallons per month. Matching water level to laundry load and running the dishwasher only when full could save up to 1,000 gallons per month. And repairing dripping faucets or running toilets could save 300 gallons per month or more. These are just a few ideas we all should consider. For more ideas, go to DEQ's Drinking Water Protection Program website at <http://www.deq.louisiana.gov/portal/PROGRAMS/DrinkingWaterProtectionProgram.aspx>.

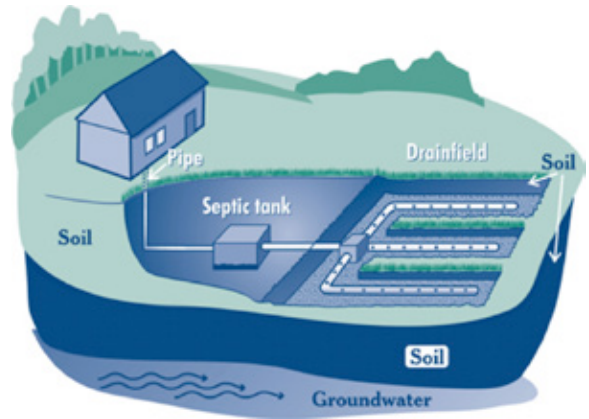
Louisiana currently has abundant groundwater, but unless we are diligent in protecting it, this may not always be the case. Groundwater is a renewable resource, but contamination and over pumping can cause irreparable damage. We should not take our water resources for granted. Follow the practical steps listed above, and you will help ensure a clean, sustainable water supply.

LOUISIANA DRINKING WATER PROTECTION PROGRAM

WATER QUALITY IMPAIRED BY SUBSTANDARD SEPTIC SYSTEMS

Nearly one in four households in the United States depends on an individual septic system or small community cluster system to treat wastewater, according to the U.S. Environmental Protection Agency. Septic systems are underground wastewater treatment structures consisting of a tank and a drainfield, or soil absorption field. They use a combination of nature and time-tested technology to treat wastewater from household plumbing produced by bathrooms, kitchen drains, and laundry. However, new research suggests that septic systems fail to prevent fecal bacteria from seeping into rivers and lakes.

In the largest watershed study of its kind, water expert Joan Rose and her team at Michigan State University found contamination from septic systems after sampling 64 river systems in Michigan for *E. coli* and the human fecal bacteria B-theta. Advances in source-tracking allowed the scientists to trace the origin of the pollution more accurately than ever before. Identifying specific sources of fecal contamination in rivers cannot be achieved using ubiquitous bacteria such as *E. coli*. However, microbial source tracking markers, such as the human-specific B. theta marker, can provide a more refined tool to identify the impacts of nonpoint sources of human fecal pollution. The sample results showed bacterial concentrations were highest in locations where there were higher numbers of septic systems in the watershed area. This research challenges the assumption that soil can filter human sewage, working as a natural treatment system. Reliance on soil filtration as a method of wastewater treatment is not keeping pathogens out of water supplies, at least not as well as hoped. Soil conditions, system design and installation, temperature, quantity of wastewater, introduction of chemicals, pharmaceuticals, fats, oil and grease, and maintenance all contribute to the performance of a septic system.



The results of this study have important implications for the understanding of relationships between land use, water quality and human health. The influence of septic systems in riparian zones indicates that additional localized control measures, including septic system maintenance and construction, should be implemented to protect water quality and human health.

The study has been published in the Proceedings of the National Academy of Sciences. <http://www.pnas.org/content/112/33/10419.full>

ASK THE DWPP TEAM

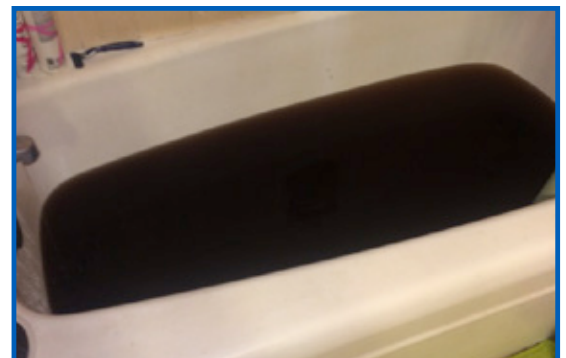
Question: Why does my water smell like rotten eggs?

Answer: A frequent cause of musty, earthy odors in surface water is naturally occurring organic compounds derived from the decay of plant material in lakes and reservoirs. Drinking water from groundwater can contain small amounts of hydrogen sulfide gas, which smells just like rotten eggs. This can occur when water comes into contact with organic matter or with some minerals (such as pyrite) in the aquifer or is produced by sulfur-reducing bacteria present in the groundwater. It doesn't take much - a few tenths of a milligram of hydrogen sulfide per liter can cause drinking water to have a rotten-egg odor. Water containing hydrogen sulfide can have an objectionable taste and odor, but is not harmful to health at the levels found in drinking water. Filling a pitcher with water and allowing it to sit in the refrigerator overnight should allow the gas to dissipate enough to make the water more palatable. Sometimes hydrogen sulfide may be noticeable only in the hot water in the home. In this case, chemical reactions within the water heater may be the source of the rotten egg odor. Many water heaters are fitted with a magnesium rod to inhibit corrosion of the heater. The magnesium rod can chemically reduce sulfates to form hydrogen sulfide. Replacement of the magnesium rod with an aluminum rod should eliminate the rotten egg odor while maintaining corrosion protection for the heater.

Question: Why is my water brown or black?

Answer: Discolored water (brown or black) contains iron and/or manganese sediment. It is non-toxic but can have a metallic taste and can stain laundry and plumbing fixtures. There are generally five possible causes:

1. Water main flushing to remove rust and sediment.
2. Firefighting or a main break causes a sudden change in flow that stirs up sediment in the pipes.
3. Water heaters can build up rust and sediment and should be flushed periodically.
4. Pipe corrosion (especially cast iron and galvanized) either in the distribution system or in the home itself.
5. Naturally occurring iron and/or manganese in the aquifer.



Discolored water due to line flushing

LOUISIANA DRINKING WATER PROTECTION PROGRAM

POSSIBLE CONTAMINATION CONCERNS - WHO YOU GONNA CALL?

Submitted By: Susan Robbins, Source Water Protection Specialist – Louisiana Rural Water Association

While I was visiting a water system in northwest Louisiana last September (2014), the Operations Specialist there said he would like me to take a look at something. I said sure, and followed him to one of the system's well sites. The Operations Specialist was concerned about possible contamination coming from an obviously leaking compressor/treatment station distillate (saltwater/produced water) tank near one of the system's public supply wells. You can see (in the photo below) the tank had been leaking for a while. All vegetation around and beyond the containment berm was dead.

Just how close was this site from the public supply well? It's slightly more than a football field away, and the well is downhill from a Significant Potential Source of Contamination (SPSOC) site. Another reason for concern was the well was rated "High" by the Source Water Assessment (SWAP) Sensitivity Analysis based on the well depth, well age, the average ground water velocity in the aquifer, and the soil recharge potential.

I advised the Operations Specialist to call the Louisiana Department of Environmental Quality (LDEQ) hotline, and followed-up with my contacts at LDEQ. Within a week of the Operations Specialist's call, an investigator from the LDEQ regional office was on-site, taking pictures, talking to company representatives, and reviewing their spill prevention and control (SPC) plan. The investigator also notified the local office of the Louisiana Department of Natural Resources (LDNR).

Several months passed and the site remained the same until March 25, 2015, when the Operations Specialist reported another release from the tank. The next day LDEQ was on-site again, stating in their report "the saltwater/produced water exited the tank through holes on the side and breached the firewall, approximately 100 yards of grass is dead where the release ran off." The release came within approximately 150 feet of the wellhead.

A week later another release was reported to the Sheriff's Department. The company responsible said they were in the process of replacing the tank and remediating the site from the last release. During this entire process, LDEQ inspection division was conducting phone interviews with the company as well as making site visits.

By my next visit to the site in April 2015, La One Call had been notified and heavy equipment had been moved to the site.

The site was eventually sent on to the enforcement division at LDEQ.

Sometimes as Operation Specialists, we go about our daily routines, reading meters, repairing leaks, taking samples and filling out paper work – so busy that we forget to take a look at our surroundings. A list of SPSOCs can be found on our Source Water Protection page on our website at www.lrwa.org.

So who do you call, when you have an environmental concern? You can call the LDEQ Citizen 24-hour Hotline Environmental Complaints & Spills and Customer Information Number, at the Department of Environmental Quality (225) 342-1234 or toll-free in Louisiana (888) 763-5424. Or, you can give us a call at LRWA at (800) 256-2591.

The distillate tank had been removed as of my last visit to the site in August 2015, and the contaminated area seems to have been cleaned up. Grass is now starting to grow.

Susan Robbins is a Source Water Protection Specialist with the Louisiana Rural Water Association. She assists LDEQ in implementation of the Drinking Water Protection Program statewide and plays a valuable role on the Drinking Water Protection Team.

¹LaDEQ doc #9485886; ²LaDEQ doc #9747269; ³LaDEQ doc #9747273 (AI#193780)



LOUISIANA DRINKING WATER PROTECTION PROGRAM

COMMUNITY OUTREACH ACTIVITIES



Mary Gentry, LDEQ Geologist, gives a presentation on the Drinking Water Protection Program at an Oakdale Rotary Club meeting in Allen Parish.



Joey Breaux from the Louisiana Department of Agriculture & Forestry gives a presentation on prescribed burning of sugar cane fields at a St. Mary Parish Drinking Water Protection Committee meeting.



Tiffani Barth, LDEQ Geologist, explains the Drinking Water Protection Program at the Evangeline Parish community meeting in Ville Platte, LA.

WATER RESOURCES OF LOUISIANA'S PARISHES

The USGS is summarizing basic information on water resources for each parish in Louisiana and presenting the information in fact-sheet format. Information presented includes groundwater and surface water availability, quality, development, use, and trends. These brief summaries of water resources will provide parish officials, local officials and concerned citizens with information needed to make decisions about current and future development in their parish. The work is cooperatively funded by the Louisiana Department of Transportation and Development and the U.S. Geological Survey. Thirty-three reports have been published to date and the remainder will be completed within three years. The reports can be found online at <http://la.water.usgs.gov/ParishWaterResources.html>.

LOUISIANA DRINKING WATER PROTECTION PROGRAM

DRINKING WATER PROTECTION PROGRAMS 2014 - 2015

Allen. The Drinking Water Protection Program’s work began in Allen Parish in August 2014. Allen Parish has 10 active public community water systems, all using groundwater as their drinking water source. A community meeting to inform the public about their drinking water source and how they can protect it was held on September 11, 2014. Visits to 41 owners and operators of businesses identified as significant potential sources of contamination (SPSOC) were conducted to inform them on best management practices. Source water assessments were also updated. A groundwater protection ordinance to prevent new SPSOCs from locating within 1,000 feet of public supply wells was adopted by the Town of Elizabeth and the City of Oakdale.

Evangeline. The Drinking Water Protection Program’s work in Evangeline Parish began in January 2015. Evangeline Parish has 15 active public community water systems. All systems use groundwater as their drinking water source. A community meeting to introduce the program to the public and solicit volunteers for a parish-wide drinking water protection committee was held on February 26, 2015. Ten people volunteered to serve on the committee and assist LDEQ with drinking water protection activities. Source water assessments were updated, and visits to 64 owners and operators of SPSOCs were made to inform them on best management practices. A guest speaker was invited to a committee meeting to give a presentation on backflow prevention. The committee also hosted a screening of the documentary Liquid Assets: The Story of Our Water Infrastructure. A groundwater protection ordinance to prevent new SPSOCs from locating within 1000 feet of public supply wells was adopted by the Village of Pine Prairie.

St. Mary. The Drinking Water Protection Program’s work in St. Mary Parish began in September 2014. St. Mary Parish has 11 active public community water systems; seven are surface water systems and four use groundwater as their drinking water source. A community meeting to introduce the program to the public and solicit volunteers for a parish-wide drinking water protection committee was held on October 30, 2014. A committee of 14 local citizens and officials met and worked with LDEQ on drinking water protection activities. These activities included visits to 179 owners and operators of SPSOCs to inform them on best management practices, updates to source water assessments, and a guest speaker presentation on prescribed burning of sugar cane fields.



LDEQ Geologists Jesse Means and Mary Gentry meet with St. Mary Parish Waterworks District #5 Plant Superintendent Jamie Miller to review and update the source water assessment for the water system.



John Fromenthal, Superintendent, receives the LRWA Source Water Protection System of the Year award (Photo courtesy of LRWA)

CITY OF MORGAN CITY WINS LOUISIANA RURAL WATER ASSOCIATION AWARD

The City of Morgan City Water System received highest honors this year at Louisiana Rural Water Association’s Annual Awards Banquet when they were named the Source Water Protection System of the Year. The awards were presented July 15 at LRWA’s 30th Annual Training and Technical Conference held in Lake Charles.

LRWA is a nonprofit organization established to aid small water and wastewater systems through training and on-site technical assistance. The LRWA Awards Program was established to recognize the outstanding efforts of Rural Water and Wastewater Systems and their personnel. Of all the systems across the state, the City of Morgan City was selected as this year’s winner for their dedication to providing safe drinking water and helping to maintain a cleaner environment through their efforts in the water industry in the State of Louisiana. Superintendent John Fromenthal went above and beyond assisting LDEQ in implementing the Drinking Water Protection Program, updating the source water assessment for the City of Morgan City, including re-delineation of the source water protection area, visiting and educating numerous local business owners about drinking water protection and preparing a contingency plan for the water system. Congratulations to the City of Morgan City and John Fromenthal on this achievement in protecting our environment and water resources!

LOUISIANA DRINKING WATER PROTECTION PROGRAM

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

Allen Parish

Town of Elizabeth
City of Oakdale

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 Parish

Village of Rodessa
Town of Vivian
Village of Ida

Caldwell Parish

Town of Columbia

Catahoula Parish

Village of Harrisonburg
Town of Jonesville

Concordia Parish

Town of Clayton
Concordia Parish Police Jury
City of Vidalia

East Feliciana Parish

Village of Norwood
Town of Wilson

Evangeline Parish

Village of Pine Prairie

Grant Parish

Town of Pollock

Iberia Parish

Village of Loreauville

Iberville Parish

Town of Maringouin
Village of Rosedale
Town of White Castle

Jefferson Davis Parish

Jeff. 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

Livingston Parish

City of Denham Springs
Village of Killian
Village of Albany
Town of Livingston
City of Walker

Morehouse Parish

City of Bastrop
Village of Bonita

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

Richland Parish

Town of Mangham
Town of Rayville

St. Landry Parish

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

Tangipahoa Parish

Village of Tickfaw
City of Ponchatoula
Town of Amite
Town of Kentwood
Village of Tangipahoa

Tensas Parish

Town of St. Joseph

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
City of Minden
Town of Sibley
Town of Cullen
City of Springhill

West Baton Rouge Parish

Town of Addis

West Feliciana Parish

Town of St. Francisville



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LOUISIANA DRINKING WATER PROTECTION PROGRAM



2015 *newsletter*

The Drinking Water Protection Team is a part of the Aquifer Evaluation and Protection Unit within the Business Community Outreach and Incentives Division. This Division is under the Office of the Secretary at the Louisiana Department of Environmental Quality. Drinking Water Protection Team members educate the public about 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.

This newsletter and all previous issues are available online at: <http://www.deq.louisiana.gov/aepsnews>. Please visit this site regularly for future newsletter delivery options.

WE LOOK FORWARD TO HELPING YOU PROTECT YOUR COMMUNITY'S DRINKING WATER!

VISIT US AT WWW.DEQ.LOUISIANA.GOV/AEPS