Louisiana Water Resources Commission

Annual Report

May 2020

INTRODUCTION

The Louisiana Legislature has vested the Water Resources Commission with the authority to promote and assist in the effective management of the state's water resources. The Commission has specific information-gathering, evaluative, and support responsibilities for both ground and surface water resource management. Its purview includes the study and evaluation of overall resource management, current and projected demands, alternative source use opportunities, conservation programs and practices, and the utilization of incentives and new technologies.

Part I of this report provides an overview of the Commission's activities for calendar year 2019 under the leadership of Chairman Thomas Harris, Secretary of the Department of Natural Resources. The group convened in two regular meetings on July 31, 2019, and December 5, 2019. The agendas for both meetings are attached at the end of this report as Appendix A. Transcripts of the meetings along with accompanying slide presentations provided by the speakers are available at the Office of Conservation's Ground Water Resources Program web page: http://dnr.la.gov/groundwater, specifically accessed through the "Events, Meetings, & Workshops" tab, or directly at: http://www.dnr.louisiana.gov/index.cfm/page/1502.

Part II of this report provides a review of several relevant reports on water management in Louisiana that were released over the past year, two being performance audit reports compiled by the Louisiana Legislative Auditor and the last a legislative study report authored by the Office of Conservation upon request by House Concurrent Resolution No. 31 of 2019. The full reports are available on-line at the addresses below:

Capital Area Ground Water Conservation Commission: Regulation of Groundwater Resources—Greater Baton Rouge Area
https://lla.la.gov/go.nsf/get?OpenAgent&arlkey=40180019APPP-BBZRAA

Louisiana's Management of Water Resources
https://lla.la.gov/go.nsf/get?OpenAgent&arlkey=40190007APPP-BLFTWS

Report on Current Groundwater Conditions in Baton Rouge and Recommendations for the Sustainable Management of Local Groundwater Resources into the Future
http://dnr.louisiana.gov/HCR31

In light of some of the findings in the above-noted reports, Part III of this report revisits the 2012 publication *Managing Louisiana's Groundwater Resources: An Interim Report to the Legislature* and offers commentary on "current major issues," then and now, in the world of water management—what has changed, what hasn't, and why. The original report is on-line at: http://www.dnr.louisiana.gov/assets/docs/conservation/groundwater/12.Final.GW.Report.pdf.

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RESOLUTION OF THANKS TO BRADLEY E. SPICER

Louisiana Water Resources Commission
December 5, 2019

On motion of Mr. Knotts and second by Mr. Davis, with unanimous approval,

A RESOLUTION

of the Louisiana Water Resources Commission

TO COMMEND Vice-Chairman Bradley E. Spicer for his more than fifty-five years of public service and to thank him particularly for his service to the Water Resources Commission and its predecessor, the Ground Water Resources Commission, and for his activism in the conservation and management of Louisiana's water resources.

WHEREAS, Mr. Spicer, a native of Pennsylvania, came to Louisiana after service in the United States Air Force and received a Bachelor of Science degree in agronomy from the University of Southwestern Louisiana and later a Master of Science degree in agronomy from LSU; and

WHEREAS, Mr. Spicer worked for 20 years with the USDA's Soil Conservation Service on soil and water issues across Louisiana, often as a special liaison to the Governor's Office and various state and Federal agencies; and

WHEREAS, Mr. Spicer began service with the Louisiana Department of Agriculture and Forestry in January 1986, serving as the Assistant Commissioner for the Office of Soil and Water Conservation and Executive Director of the State Soil and Water Conservation Commission; and

WHEREAS, Mr. Spicer, through his service on numerous task forces and committees, has been at the forefront of many of Louisiana's important natural resources conservation initiatives of the past decades, including the passage of the State and Local Coastal Resources Management Act in 1978, the creation in 1989 of the Wetlands Conservation and Restoration Authority—forerunner to the Coastal Protection and Restoration Authority (CPRA)—and the formation of the Ground Water Resources Commission in 2001; and

WHEREAS, Mr. Spicer has championed over the years many other initiatives that support natural resources conservation, including nonpoint source pollution management in Louisiana's agricultural community, implementation of GIS technology in landform and watershed management, intensive participation by local Soil and Water Conservation districts in the protection of coastal wetlands and other wetlands around the state through the Wetlands

Reserve Program and the 2011 Migratory Bird Habitat Initiative, and development of the Macon Ridge Conservation Reserve Enhancement Program; and

WHEREAS, Mr. Spicer was instrumental in creation of the state Ground Water Resources Commission in 2001, predecessor to today's Water Resources Commission, and has seen continuous service since as a vocal advocate of comprehensive, common-sense water management policies for Louisiana; and

WHEREAS, Mr. Spicer has served for decades as an advisor to state leaders and policymakers and mentor to many government employees and private sector individuals working in the field of natural resources management, always evincing a strong character marked by honesty, passion, determination, focus, and collegiality.

NOW, THEREFORE, BE IT RESOLVED that the Louisiana Water Resources Commission does hereby commend and thank Bradley E. Spicer for his years of service to the State of Louisiana and its people and environment, recognizing in this legacy of service a model for all citizens to follow.

On behalf of the Members of the Louisiana Water Resources Commission,

Thomas F. Harris
Chairman

PART I: SUMMARY OF MEETING PRESENTATIONS

Meeting: July 31, 2019

1. Sean Duffy, Executive Director of the Big River Coalition, presented on the challenges facing the maritime community during a period of historic high water on the Mississippi River. He discussed the character and impact of this high water on river traffic and also evaluated expected funding needs to keep this important shipping highway open in the future. With 500 million tons of cargo shipped annually through Louisiana's five deep-draft Mississippi River ports—Baton Rouge, South Louisiana, New Orleans, St. Bernard, and Plaquemine—there is a massive economic incentive to keep the river dredged and navigable.

   Impacting the navigability in 2019 was an unprecedented amount of precipitation that began back in 2018, what Mr. Duffy called "the wettest 12-month period we had ever had," based on records going back to 1895. That amount of precipitation impacted navigation severely with "21 days of black-out fog in January [and] February," in which river crews "couldn't move ships; couldn't dredge; [and] couldn't survey." The days above flood stage on the Mississippi River broke almost every historic record.

Consecutive Days Above Flood Stage

Lower Mississippi River Forecast Center — Current data as of July 31st 2019

Forecast Location	Record (Days/Year)	2019 (Days/Period)	2011 (Days)	1973 (Days)	1927 (Days)
Cairo, IL	156	156 Feb 8th – Jul 13th	59	97	76
Memphis, TN		39 Feb 19th – Mar 29th	35	64	65
Arkansas City, AR		94 Apr 16th – Jul 19th	44	72	197
Greenville, MS	155	155 Feb 17th – Jul 21st	46	71	115
Vicksburg, MS		162 Feb 17th – July 28	48	83	185
Natchez, MS	209	209 Jan 4th – Today	53	90	77
Red River Landing, LA	217	217 Dec 27th – Today	59	95	152
Baton Rouge, LA	207	207 Jan 6th – Today	79	99	135

Numbers in Red are records for this year — Data provided by U.S. Army Corps of Engineers

Fig. 2, Consecutive Days above Flood Stage, As of 7/31/2019, National Weather Service.

Dealing with this amount of water and its consequences, such as sediment build-up or "shoaling," requires a huge investment of money and materials; it is a recurring cost, moreover. Mr. Duffy pointed out that only now, with an annual appropriation of about $244 million, is the country beginning to meet the needs for open and clear navigation on the Mississippi River. Even more funding is necessary to deepen and maintain the Mississippi

River channel at 50 feet to accommodate the larger ships coming through the Panama Canal. One added benefit of this work along the lower Mississippi is the opportunity to rebuild wetlands with the material dredged by these efforts. He reviewed some of the successes to date, highlighting much the work in the West Bay Receiving area: "That's 10,000 acres in ten years, and I do like to call it the largest wetlands restoration project in the world, over 120 billion cubic yards of material."

News Update, February 2020

"After years of hard work, I'm very glad that the Corps included over $160 million for critical infrastructure projects in Louisiana, including $85 million to deepen the lower Mississippi River to 50 feet. As home to the mouth of the Mississippi River, this is excellent news for Southeast Louisiana and our ability to move commerce through the Port of New Orleans."

"The Mississippi River Basin has an unprecedented impact on our national economy, global competitiveness, and American job creation. Modernizing our infrastructure and deepening the river to 50 feet will help strengthen Louisiana's dominance in domestic and international commerce."

"This critical project also provides a dual benefit of rebuilding Louisiana's vanishing coastline. Deepening the river will give the state the ability to take that sediment and use it rebuild our coast, increasing lifesaving flood protection. I applaud the Corps for advancing this project and for their commitment to maintaining our waterways which are not only vital to Louisiana's economy, but also to our national economy."

--- **Rep. Steve Scalise**, announcing $85 million in funding for deepening of the lower Mississippi River, quoted in Dredging Today, February 12, 2020

2. Senator Dan Claitor followed Mr. Duffy with a discussion of two bills he introduced in the 2019 legislative session, SB 228 and SB 230. SB 228 proposed limited tax credits for individuals who purchased water savings equipment, including high efficiency toilets and washing machines, for their homes. SB 230 proposed a tax credit for manufacturing facilities that purchased and installed equipment that reduced their reliance upon potable groundwater. Within the context of these bills, Senator Claitor discussed the state's "right of capture" legal framework for groundwater, noting that, "Capture was a method of law that we used when we didn't have a concept that somebody could pump millions of gallons of water a day. It made sense in Napoleon's time, and I don't see it being changed any time soon." He stated his interest in water conservation generally around the state but also his interest more particularly in the importance of groundwater to his district and the need to find a solution to the saltwater intrusion issue in Baton Rouge area aquifers.

The bills he proposed were aimed at both of these matters. He considered them "worthy" of consideration and, while they did not make it out of committee, he nonetheless hoped that they would create "the conversation that leads us to a place to where we actually do something." He challenged the Water Resources Commission to "continue to consider what is smart policy for the state and make some real suggestions." He especially stressed the need for "education, education, education" and "more engagement with the community," since in his experience, "most people don't get engaged until the barbarians are at the gate." In his closing remarks, Senator Claitor stated his belief that "our children are much better about being engaged on this issue than we are" and emphasized the need for the current generation to "make a smooth, thoughtful, kind handoff when the time comes."

3. Following Senator Claitor on this topic was Dr. Alyssa Dausman, Vice-President for Science with the Water Institute of the Gulf, who provided an update on the status of the long-term strategic planning effort her organization has been managing for the Capital Area Ground Water Conservation Commission (CAGWCC). Created by the Louisiana Legislature in 1974, the CAGWCC is charged with the front-line management of local groundwater resources in the Baton Rogue area. In June 2018, the board engaged the Water Institute to help initiate and shepherd to completion a sustainable groundwater management plan for the region's aquifers.

   The effort was arranged in three phases. Phase I work began in January and February of 2019 with the goal of creating a "structured process to have productive discussions" that ultimately would lead to the establishment of several "fundamental long-term objectives" well before any discussion of alternatives took center stage. Also, Phase I included an evaluation of available science and recommendations for additional research and modeling to fill the needs for a truly comprehensive plan. At the time of the Water Resources Commission meeting at the end of July, the Water Institute was just beginning to move into larger-format, facilitated meetings with the board and public after having met with 16 of 18 CAGWCC members individually.

   One of the things that stood out from these individual meetings, Dr. Dausman noted, was that in talking about long-term objectives—"50 and 100 years out"—"everybody is pretty much on the same page." There was an agreement on the need for "clean water available for drinking, [and] for industry. We would like to have jobs. We would like for that growth to continue." In short, agreement on long-term objectives was consistent but "the means on how you get there is where a lot of the conflict occurs . . . and it's not an easy path to follow. But by stepping back and looking at the problem in its whole . . . then you [can] start talking about what are the alternatives or individual actions." Phase II and Phase III of the effort that would yield a long-term management plan for regional groundwater sustainability had not yet been budgeted or approved at the time (July 2019). As Dr. Dausman commented, the scope of these phases largely would be dependent on the results of Phase I, which was anticipated to be complete by the end of the calendar year.

4. John Lovelace with the Baton Rouge office of the U.S. Geological Survey closed the meeting presentations with an overview of the cooperative research and study program between his agency and the Department of Transportation and Development, a relationship

that dates back "probably into the 1940s" (when DOTD's relevant water resource responsibilities were housed in the now-defunct Department of Public Works). He discussed the status of the state's groundwater and surface monitoring networks as well as the investigations program, the funding of which is "roughly split 50/50" between data collection and investigative studies, which are "special research and applied science studies that we reprogram from year to year." He outlined the new and ongoing studies for 2019-2020.

One of the largest of these efforts includes planning and data collection for Louisiana's 2020 water use study (or census), which includes "monitoring the usage by the top 175 water users in the state [including] public supplies, industries, [and] power plants that typically pump over a million gallons a day." He also noted that the USGS was working to improve its estimates on water use for domestic populations. With regards to groundwater, which is heavily utilized in Louisiana, Mr. Lovelace reiterated the importance of this water-use data: "Everything you see is in response to withdrawals, in particular, problems we're looking at, and sometimes it's surface water too. So it's very important to keep track of our water usage, and hopefully ensure that water use needs are met across the state in a sustainable way."

Mr. Lovelace discussed the other study projects as well, including: the completion over the coming year of the highly useful parish water resources fact sheets, which are available in hard copy and digital versions; continued work on the Baton Rouge Groundwater Model in cooperation with DOTD and the CAGWCC; mapping water levels, recharge, and withdrawals along with the aquifer structure in southwest Louisiana (the Chicot, Evangeline, and Jasper Aquifer Systems); and several projects in the Mississippi River Alluvial Aquifer (MRAA) in support of a larger Federally-funded Mississippi Alluvial Plain (MAP) project stretching across the whole Lower Mississippi Valley. The Louisiana work as part of the MAP project includes potentiometric mapping of the heavily used MRAA in the northeast part of the state as well as the evaluation of some local saltwater (chloride) issues in the aquifer.

Another project just getting underway is a corrosivity study which will evaluate available data to show "the possible impact of untreated [groundwater] on certain types of plumbing, particularly metal and lead pipes, and the potential for the water to leach harmful metals out into your drinking system." There has been ongoing concern about this issue in recent years, especially across many of Louisiana's rural communities.

Finally, Mr. Lovelace summarized some additional ongoing potentiometric (water-level) mapping across a few of the state's lesser-used aquifers and the implementation of a web-based application known as StreamStats. As he explained, StreamStats allows planners, especially ones working on roads and bridges, to "go into a map and put a dot on any stream and this application will estimate the statistics for that stream." StreamStats provides average flow characteristics and chances of flood, which are crucial for highway and bridge design. The program can also give information about local aquatic habitat and the capacity of streams to carry "various pollutants and discharges." The GIS-based StreamStats program has been implemented across the nation and Mr. Lovelace expected it "to be pretty heavily used when we get finished with it [here]."

Meeting: December 5, 2019

1. Mary Kincaid, manager of the New Orleans Sustainable Infrastructure Program, opened the meeting with a deep look at the work of her agency with regards to how the city of New Orleans is planning to "live" with water in the coming decades. As she noted in her opening remarks, "in New Orleans, we are surrounded by water, and we're limited in our pump capacity. So part of what we've done is we've looked at having a new approach to living with water so that we're not trying to shush it away as quickly as possible but that we're actually trying to use it as a resource." A tremendous amount of this effort has gone into incorporating stormwater storage into green spaces, streets, homes, and yards. Recent flood events in New Orleans and elsewhere along the Gulf Coast have made this type of work a priority. Ms. Kincaid recounted some of the financial resources available, including FEMA's Hazard Mitigation Program and HUD's Disaster Resilience Program, and provided an evaluation of the benefits and limitations of each. She then provided examples of both gray infrastructure and green infrastructure at work in the city.

   In many cases, the projects required cross-agency cooperation, such as efforts with the New Orleans Redevelopment Agency to retrofit abandoned parcels as underground stormwater storage areas without taking the properties "out of public use, or out of public benefit." Rather than creating a concrete reservoir with a fence around it, these type projects merge "green space" concepts with the very real need in New Orleans to hold and manage the release of large amounts of runoff in periods of heavy rain. In other projects, bioswales serve this same purpose, holding stormwater for a short time while also allowing for biologic action as natural plantings actually work to clean the water before its release into the system. The Hagan Lafitte project, for example, uses a combination of underground storage and bioswales and is expected to reduce peak flooding in its area by 14 inches. Ms. Kincaid highlighted this project as a good example of hazard mitigation that has not only tangible economic benefits but social ones as well.

   She provided the examples of the St. Roch and Broadmoor projects to show the integration of other types of infrastructure combinations to achieve the same goals, including the use of permeable paving and plantings of trees, shrubs, and other flora to improve groundwater infiltration and storage. The Lakeview City Park project involves the creation of a wetland that has the capacity to store up to 320 million gallons of water during a Hurricane Isaac-type event. The Mirabeau Water Garden project involves a planting of pines in the sandy Pine Island Trend that slashes across New Orleans to create a unique and useful green space for the public. Many of the other projects have this same emphasis: to manage water while improving biodiversity and creating quality living space for the urban residents of New Orleans.

2. Although listed on the agenda, the presentation from the Department of Environmental Quality on the Water Quality Trading Program had to be postponed.

3. Leslie Durham from the Rural Water Infrastructure Committee (RWIC) discussed the genesis of the committee during the response to the St. Joseph, Louisiana, water crisis and the realization at that time among many state leaders of the serious challenges faced by rural communities in meeting the need for quality drinking water. Her assessment was stark: "60

percent of the infrastructure in Louisiana is similar to St. Joseph. It's failing." From her position as Governor Edwards' representative on the Delta Regional Authority, Ms. Durham was able to assist with securing emergency funding to help resolve the issue in Tensas Parish but then began to open discussions with other rural communities around the state about their own water supply problems. They all faced a similar challenge in the lack of access to money and resources. The main work of the RWIC has been to secure access to these in the service of a common good.

Composed of "mainly regulatory end funders" such as the USDA, Department of Health, Department of Environmental Quality, GOHSEP, and others, along with influential voices like those of the Louisiana Rural Water Association and the Police Jury Association, the RWIC works with small towns and villages to do field assessments and to educate local leaders on the major issues. "We sit down with them," Ms. Durham stated, "and we have the hard conversations about their rates, about [the number of connections] that they have on their water system and how many it needs to be to have a sustainable water system."

The focus has been on providing as much information and advice as possible, thereby enabling local leaders to rigorously assess infrastructure needs and funding sources and find potential solutions. Ultimately, these communities must be open to evaluating all available options, including consolidation with neighboring systems. As Ms. Durham noted, it is a statewide crisis and the RWIC is working according to a prioritized plan, seeking to address the most impaired systems first.

4. Commission Vice-Chairman Brad Spicer closed the meeting with a discussion of the high points of his many years in public service in Louisiana working on natural resources conservation issues, first with the USDA's Soil Conservation Service and later with the Department of Agriculture and Forestry's Office of Soil and Water Conservation. Many of these achievements are outlined in the Resolution of Thanks at the beginning of this document. Mr. Spicer is retiring after a long and successful career; hopefully his deep knowledge will continue to be available to his friends and associates still in the field.

PART II: FINDINGS OF RELEVANT RECENT REPORTS

Performance Audit Report, Capital Area Ground Water Conservation Commission, May 9, 2019

DARYL G. PURPERA, CPA, CFE

Report Highlights

Capital Area Ground Water Conservation Commission

Regulation of Groundwater Resources

Audit Control # 40180019

Performance Audit Services • May 2019

Why We Conducted This Audit

We evaluated whether the Capital Area Ground Water Conservation Commission (Commission) has sufficiently regulated groundwater usage from the Southern Hills Aquifer System that supplies water for the greater Baton Rouge area, including Ascension , East Baton Rouge, East Feliciana, Pointe Coupe, West Baton Rouge, and West Feliciana parishes. We conducted this audit because, according to the United States Geological Survey (USGS), groundwater withdrawals from the aquifer have resulted in saltwater intrusion. Without effective regulation, saltwater intrusion threatens the long-term sustainability of the aquifer and groundwater resources.

What We Found

While the Commission has taken some actions to regulate water usage from the Southern Hills Aquifer (aquifer), the Commission does not effectively regulate water withdrawals from the aquifer to reduce and manage saltwater encroachment and ensure the sustainability of fresh groundwater for the future. The exhibit below summarizes the top 10 users of the aquifer. Specifically, we found the following:

- **The Commission does not have a complete inventory of all wells it should be regulating. Maintaining a complete inventory of wells is necessary to effectively regulate water withdrawal from the aquifer.** We found that 2,255 (86.7%) of the 2,600 wells in the Commission's database did not have a record of how much water the well is capable of pumping daily, which is a key component in determining whether the Commission should regulate a well. We also identified seven wells for which the Commission did not have any record of in its database.

Top 10 Users in the Capital Area District Calendar Year 2018

User	Gallons Used
1. Baton Rouge Water Company (public supply)	24.2 Billion
2. Georgia-Pacific (industry)	13.1 Billion
3. ExxonMobil (industry)	10.0 Billion
4. Entergy Louisiana (industry)	3.0 Billion
5. West Baton Rouge Gas and Water (public supply)	2.1 Billion
6. Eco-services (industry)	1.6 Billion
7. Honeywell (industry)	972.7 Million
8. City of Zachary (public supply)	926.4 Million
9. Louisiana State Penitentiary (public supply)	792.8 Million
10. City of Baker (public supply)	659.5 Million

Source: Prepared by legislative auditor's staff using information from the Commission.

- **While the Commission has implemented certain measures to regulate the aquifer, these measures have not sufficiently addressed saltwater intrusion caused by the withdrawal of groundwater from the aquifer.** For example, limiting groundwater withdrawals from the aquifer is one of the primary actions the Commission has taken to regulate saltwater intrusion. While the Commission has set limits to restrict withdrawals from the 1,500- and 2,000-foot sands, these limits have not resulted in reducing the amount of water users withdraw from the aquifer, which according to USGS, is causing saltwater intrusion.

Continued on next page

Capital Area Ground Water Conservation Commission

Regulation of Groundwater Resources

What We Found (Cont.)

- **Unlike other districts that regulate groundwater, the Commission does not limit withdrawal amounts by well, which is another way to regulate groundwater usage.** Limiting withdrawal by well would allow the Commission to better manage aquifer usage and give it a mechanism to enforce the limits they do set for each sand.

> The Commission failed to restrict the 1,500/1,700 foot sands for public use, which resulted in approximately **14.25 years-worth of public consumption water used for industry purposes** since 1975 in these sands based on 2018 production rates.

- **The Commission did not monitor the withdrawal of water on 62 wells during calendar year 2018 that appear to meet its standards for regulation.** As a result, the Commission cannot ensure it collected all fees owed from these wells. In addition, the Commission relies on self-reported production amounts when assessing fees on well owners and does not conduct inspections to verify the reported amounts.

- **Although the Commission raised the withdrawal fee in 2016 from $5.00 to $10.00 for every million gallons of water withdrawn, the current fee is still lower than five other districts that regulate groundwater.** Raising the withdrawal fee to be consistent with the rates charged by districts in other states may help the Commission improve its regulatory activities.

- **The Commission did not permit the drilling and construction for 25 (23.4%) of the 107 new wells constructed since 1997 in the Capital Area District, as required by a policy established by the Commission and state regulations.** In addition, it does not charge fees for issuing permits or issue penalties when wells are drilled before obtaining a permit.

- **While the Commission has a plan to manage the aquifer as required by law, this plan is not as comprehensive as plans in other districts that regulate groundwater.** Specifically, the Commission's plan does not include a timeline or specific performance measures on controlling saltwater, and does not include a financial plan on how to fund future projects.

- **Even though the Commission added Ascension Parish as part of its District in June 2018, it has not begun regulating or collecting fees from the wells in this area.** Additionally, with the addition of the Ascension Parish member, the board currently has 18 members; state law says it should have no more than 17 members.

- **Some Commission members receive salaries or benefits from entities that are regulated by the Commission, which may be in violation of state law.** According to R.S. 42:1111(C)(2)(d), all public servants are prohibited from receiving anything of economic value, including a salary, from any person or entity who has a contractual relationship with their agency or who conducts operations or activities that are regulated by their agency.

- **The Commission could improve its public outreach when compared to other districts in Arkansas, Colorado, Florida, Mississippi, and Texas that regulate groundwater.** According to the USGS, groundwater withdrawals have caused saltwater to encroach into the freshwater-bearing aquifers beneath Baton Rouge, Louisiana. Despite the seriousness of this issue, the Commission has not allocated any funds for public outreach to educate users of this issue and encourage conservation of water.

View the full report, including management's response, at **www.lla.la.gov**.

Recommendation 1: The Commission should ensure all information is complete in its database so the information can be used to monitor water withdrawal from the Southern Hills Aquifer System.

Recommendation 2: The Commission should reconcile its population of wells against the Office of Conservation's well registry to help ensure they have a complete population of wells to regulate.

Recommendation 3: The Commission should consider setting limits to restrict withdrawals from the 1,500- and 2,000-foot sands that actually will decrease production from the aquifer in order to address saltwater intrusion.

Recommendation 4: The Commission should ensure it reserves the 1,500-/1,700- foot sands for public supply by not allowing any new wells to be installed in these sands unless they are for public consumption purposes.

Recommendation 5: The Commission should continue to monitor the scavenger well in the 1,500-foot sand to determine if it is successful in addressing saltwater intrusion and whether it is an appropriate option for the 2,000-foot sand.

Recommendation 6: The Commission should define "northward away" when approving how close a new well can be installed to the Baton Rouge Fault Line.

Recommendation 7: The Commission should consider limiting usage by well in order to better manage the withdrawal of water from the aquifer and give it a mechanism to enforce the limits it sets for each sand.

Recommendation 8: The Commission should consider other fee structures to encourage conservation, such as implementing a fee structure that charges a higher fee at a higher rate of production. This should include working with the Legislature to clarify that R.S. 38: 3076(A)(14) allows the Commission to enforce a fee structure for rates of usage as long as it is the same rate structure for all users of the aquifer.

Recommendation 9: The Commission should ensure it collects fees on all wells that meet the regulation standards.

Recommendation 10: The Commission should consider using its authority in state law to require all wells regulated by the Commission to be metered for recording withdrawal amounts.

Recommendation 11: The Commission should develop a process to conduct inspections to verify withdrawal amounts on wells to ensure they are collecting the correct amount in fees.

Recommendation 12: The Commission should periodically evaluate the withdrawal fees and decide whether the fees should be raised to in order to meet its regulatory needs.

Recommendation 13: The Commission should ensure all wells are permitted before being constructed.

Recommendation 14: The Commission should consider charging an application fee for new well permits and developing penalties to well owners if they fail to obtain a permit before installing a new well.

Recommendation 15: The Commission should ensure its management plan includes a timeline to control saltwater movement, specific performance measures on controlling saltwater, and a financial plan to ensure the Commission's revenues meet their regulatory priorities they establish.

Recommendation 16: The Commission needs to start taking actions to incorporate Ascension wells into its district, including regulating water withdrawal and collecting fees based on the amounts withdrawn.

Recommendation 17: The Commission needs to work with the Legislature to amend R.S. 38:3071 to include Ascension Parish as part of its district. This will allow Ascension Parish to have representation on the Commission.

Recommendation 18: The Commission should obtain an opinion from the Ethics Board regarding whether the composition of the board is in violation of R.S. 42:1111(C)(2)(d).

Recommendation 19: The Commission should consider investing in educating citizens on the need for conservation and how to reduce withdrawals from the aquifer to help reduce saltwater migration.

Performance Audit Report, Louisiana's Management of Water Resources, February 5, 2020

DARYL G. PURPERA, CPA, CFE

Report Highlights

Louisiana's Management of Water Resources

Audit Control # 40190007
Performance Audit Services • February 2020

Why We Conducted This Audit

We conducted this audit because multiple studies, which are cited throughout this report, have documented various threats to Louisiana's water resources. These threats include a decline in water levels because of drought or over pumping, which in turn have resulted in low surface water flows, impaired surface water quality, and degraded groundwater quality due to saltwater intrusion in some areas of the state. These studies have also recommended various solutions, such as the implementation of regional planning processes and the development of a comprehensive statewide management plan, many of which have not been implemented.

What We Found

Overall, Louisiana must improve its management of water resources throughout the state. Although Louisiana is perceived as a "water rich" state, it faces threats to its water resources, including declining water levels, saltwater intrusion, and attempts from other states to use our water. Therefore, it is important for Louisiana to properly manage its water resources and develop a comprehensive statewide plan to guide these efforts. Specifically, we found the following:

Why is it important to protect the water resources in Louisiana?

"Just as oil came to define much of the economic and social development in the twentieth century, water is increasingly seen as the defining resource of the twenty-first century. Whether or not water is 'the new oil,' as some have claimed, it is clear that the availability of dependable supplies of fresh water is already transforming our economic and cultural landscapes. As the state's and the nation's growth, energy, and environmental priorities evolve, water is often the common denominator."

Source: *A Defining Resource: Louisiana's Place in the Emerging Water Economy*

- **Louisiana is experiencing multiple issues related to water, including water level decline and saltwater intrusion due to excessive groundwater withdrawals.** In addition, because the future sustainability of Louisiana's water resources may be threatened by other states that seek to obtain our water, it is important that Louisiana know how much water it will need for its own use. For example, in 2011, a Texas entity approached the Sabine River Authority (SRA) to purchase water from Toledo Bend at a rate of $0.28 per thousand gallons for an initial period of 50 years. However, according to SRA's board, it suspended out-of-state water sales because of public concern with the length of the contract and the lack of information on how the purchase would affect water levels.
- **Louisiana has taken some steps to mitigate its water issues, but state and local entities may need to be given more authority to better manage their water resources.** For example, the state has increased its groundwater and surface water monitoring sites that measure water levels and chloride concentration in aquifers. However, some state and local entities do not have sufficient authority to regulate water use, and others are not using their authority effectively.
- **Since 1956, Louisiana has spent at least $5.3 million to conduct 12 studies on water resources and management strategies, and many of these recommended that the state develop a comprehensive management plan. However, Louisiana still does not have a comprehensive water management plan.** A comprehensive water management plan would help ensure that the state's water resources are protected, conserved, and replenished for the health, safety, and welfare of Louisiana citizens.

Appendix E contains USGS water use fact sheets for each parish, including how much water is withdrawn by water source and category of use.

View the full report at **www.lla.la.gov**.

Matter for Legislative Consideration 1: The Legislature may wish to ensure that the statewide water resource monitoring network is continually reviewed and evaluated to determine that oversight entities have the information necessary to properly manage the state's water resources.

Matter for Legislative Consideration 2: The Legislature may wish to consider determining whether broader authority needs to be given to DNR or other state and local entities to restrict water withdrawals on new and existing water wells in order to proactively address water sustainability issues.

Matter for Legislative Consideration 3: The Legislature may wish to consider developing (or direct a person or entity to develop) regional bodies over the state's water resources that are aligned with water location and common water use. If regional bodies are not developed, the Legislature may wish to consider requiring that a regional planning process be used to develop a statewide water management plan.

Matter for Legislative Consideration 4: The Legislature may wish to consider amending R.S. 30:961 to require a person or entity to enter into a cooperative endeavor agreement in order to withdraw running water.

Matter for Legislative Consideration 5: The Legislature may wish to consider directing a person or entity to develop a valuation model for determining the fair market value of Louisiana's water resources and reevaluations over time.

Matter for Legislative Consideration 6: The Legislature may wish to consider designating a person or entity to develop a comprehensive water resource management plan that ensures water resources are protected, conserved, and replenished for the health, safety, and welfare of the people, as stated in Louisiana's Constitution. The development and implementation of the plan should be appropriately funded and include, at a minimum, the following elements to ensure sustainable water usage:

- Establishment and description of a statewide water vision;
- Identification and directive for the agency that has the lead responsibility for developing and updating the comprehensive plan;
- Identification of collaborative or advisory entities;
- Requirements for interagency coordination;
- A water budget – an evaluation of the state's surface water and groundwater resources including current inventory and usage, projected demands, and potential future deficit areas;
- Identification of water challenges with detailed and actionable strategies to address those challenges;

- Development of a water use conservation program;
- Evaluation of alternatives to groundwater use, such as surface water usage, to include a treatment and transmission system, and reclaimed water;
- Evaluation of alternatives to surface water use, including treatment, transmission systems, and reclamation;
- Incentives for conservation;
- An outline of how alternative technologies can be used;
- Outline of a process for how water transfers will be handled, including the development of a valuation model for determining the fair market value of Louisiana's water over time; and
- Description of how often the water plan will be updated.

INTRODUCTION AND EXECUTIVE SUMMARY –

REPORT ON CURRENT GROUNDWATER CONDITIONS IN BATON ROUGE AND RECOMMENDATIONS FOR THE SUSTAINABLE MANAGEMENT OF LOCAL GROUNDWATER RESOURCES INTO THE FUTURE, AS REQUESTED BY HOUSE CONCURRENT RESOLUTION NO. 31 OF 2019

LOUISIANA OFFICE OF CONSERVATION, FEBRUARY 14, 2020

The purpose of this report is to provide an evaluation of current groundwater conditions in Baton Rouge and to make recommendations for the sustainable management of local groundwater resources into the future. The Office of Conservation also will address specifically the requests found in House Concurrent Resolution No. 31 of 2019, namely that the Commissioner of Conservation: 1) "study, outline the requirements, and make recommendations as to the necessity of an area of groundwater concern or a critical area of groundwater concern declaration in the Baton Rouge area to limit saltwater intrusion and protect regional groundwater supplies for the future"; and 2) "include recommendations [in the study] that provide for the role and necessary actions required of the Capital Area Ground Water Conservation Commission in any plan to preserve and manage the groundwater resources of the Baton Rouge area."

The sustainable management of Baton Rouge's groundwater resources is an issue that has commanded the attention not only of the current Commissioner of Conservation but also his immediate predecessor. Saltwater intrusion in local aquifers is a serious threat to sustainability that must be addressed. It is well-documented and accepted by all scientists and regulatory agencies involved in the study of the situation as well as by the largest regulated users of groundwater in the area. The Office of Conservation has been deeply involved in working towards the sustainable management of Baton Rouge's groundwater resources for many years. Previous findings on this subject were included in a study report prepared in response to House Concurrent Resolution No. 115 of 2016.

This report is divided into three parts. Part I addresses the role of the Commissioner of Conservation in the declaration of an Area of Groundwater Concern and provides a review of the Area of Groundwater Concern/Critical Area of Groundwater Concern statutory law and the application, hearing, and decision process. Part II evaluates current groundwater conditions in Baton Rouge, particularly groundwater use and withdrawals along with water level declines and saltwater intrusion in local aquifers. This part also assesses the issue of local groundwater sustainability under the Commissioner's authority, specifically whether the situation at Baton Rouge meets the requirements for a groundwater emergency or an Area of Groundwater

Concern/Critical Area declaration. Part III considers the role and authority of the Capital Area Ground Water Conservation Commission (CAGWCC) in regional groundwater management and offers recommendations for improvement. Part III also offers specific recommendations to the Legislature for consideration.

Briefly, the Office of Conservation finds:

1. **The expansion of groundwater withdrawals in East Baton Rouge Parish after 1940 and especially between 1960 and 1980 and the maintenance of these historically high-volume withdrawals in the decades since have caused water level declines and the encroachment of saltwater across the Baton Rouge Fault in certain local aquifers, particularly in the 1500- and 2000-foot sands.**

2. **There are no major plans to reduce the current high-volume use of groundwater close to the Baton Rouge Fault that initially caused water level declines and induced saltwater intrusion in certain local aquifers.**

3. **The maintenance of current high-volume groundwater withdrawals close to the Baton Rouge Fault will continue to cause water level declines inside certain local aquifers and allow the flow of saltwater into previously freshwater areas north of the fault.**

4. **Unacceptable environmental damage to local aquifers is continuing.**

5. **The economic costs of water level decline and saltwater intrusion have not been effectively measured but are significant and assured to increase in the coming years.**

6. **The social consequences of increased costs for water and/or a conversion from groundwater to surface water in the Baton Rouge area have not been defined or evaluated.**

7. **The public health consequences of a conversion from groundwater to surface water in the Baton Rouge area have not been evaluated although it is expected that any and all public supply providers will continue to meet Environmental Protection Agency (EPA) and state Office of Public Health standards for safe drinking water.**

8. **The current groundwater conditions in Baton Rouge <u>do not</u> constitute a groundwater emergency as provided for by statute because the impacts of continued withdrawals are not "unanticipated occurrences" and a large supply of groundwater remains available for "beneficial use" into the future.**

9. **Previous studies and evidence presented to various governmental bodies over recent years appear to provide ample material for an affected water well owner to warrant making a request for initiating a public hearing and investigation process into the**

possibility of declaring either an Area of Groundwater Concern or a Critical Area of Groundwater Concern. Following receipt of an application requesting such a declaration as required under state law, the Commissioner of Conservation can open an official investigation, hold public hearings, and/or issue potential conservation orders. No such application has been received to date.

10. There is a shared jurisdiction over regional groundwater management in the Baton Rouge area between the Commissioner of Conservation in his responsibilities for groundwater sustainability and the Capital Area Ground Water Conservation Commission (CAGWCC).

11. The Louisiana Legislature created the CAGWCC in 1974 as the governing board of the Capital Area Ground Water Conservation District (CAGWCD) and vested this board with significant regulatory authority as the front-line manager for regional groundwater resources in the Baton Rouge area, specifically to resolve the problems of water level decline, saltwater intrusion, and land subsidence caused by high-volume groundwater withdrawals.

12. Based upon the Legislature's creation of the CAGWCD and the authority provided to the CAGWCC in the discharge of its duties, the Office of Conservation consistently has recognized the CAGWCD as a *de facto* Critical Area of Ground Water Concern.

13. The Louisiana Legislative Auditor reported in May 2019 multiple deficiencies (listed on pp. 29-30) in the CAGWCC's performance of its duties as a regulatory agency charged with regional groundwater management.

14. The Commissioner of Conservation recommends substantive improvements (listed on pp. 30-32) to the CAGWCC's planning and operations based on the audit findings.

15. The Commissioner of Conservation also recommends to the Legislature:

    a. Enact legislation mandating and/or funding the development, completion, implementation, and enforcement by the CAGWCC of a long-term groundwater management plan to address saltwater intrusion in the Baton Rouge area, said plan to be completed and operational effective July 1, 2023.

    b. Enact legislation requiring the CAGWCC to present comprehensive updates annually before the appropriate committees of the Legislature on progress towards the development, completion, implementation, and enforcement of a long-term groundwater management plan to address saltwater intrusion in the Baton Rouge area ahead of the July 1, 2023 plan deadline.

c. **Enact legislation requiring the CAGWCC to complete a periodic management plan revision and update process every five years after July 1, 2023, said revision and update process to be similar to that conducted for the state Coastal Master Plan by the Coastal Protection and Restoration Authority.**

d. **Consider an evaluation of the adequacy and appropriateness of the organization and governing structure of the CAGWCD in meeting the above recommendations for developing, completing, implementing, and enforcing a long-term groundwater management plan (see Appendix, pp. 34-36).**

e. **Failing suitable progress by the CAGWCC towards the development, completion, implementation, and enforcement of a long-term groundwater management plan to address saltwater intrusion in the Baton Rouge area by July 1, 2023, consider providing the Commissioner of Conservation with adequate funding and/or additional authority to pursue necessary groundwater management planning and plan implementation in the CAGWCD.**

--- Editorial Board Opinion, *Baton Rouge Advocate*, March 3, 2020

Develop a sound groundwater plan for the future

The devil is in the details, and there is scientific disagreement about solutions, but we hope that people can agree as we do with Marylee Orr, executive director of the Louisiana Environmental Action Network: "Our drinking water is a precious but finite resource that the people feel must be managed correctly and protected for future generations."

How to do that? There is the hard part.

As everyone in Louisiana knows, much of the continental United States is drained by the Mississippi River through the center of our region. But drawing drinking water from the river, as New Orleans does, requires a hugely expensive treatment plant.

In Baton Rouge, drinking water comes from the Southern Hills Aquifer, which is suffering from some level of saltwater intrusion that has been recognized as threatening to drinking water wells. Some experts think that the intrusion can be stopped with relatively inexpensive "scavenger" wells.

Others, including the state Office of Conservation in a new report, say that potentially far more costly responses are needed.

Orr's group wants action. What does that entail? If the Conservation report is accepted, reducing use - that would mean largely by major industries - is "the most effective way to remediate water level declines and saltwater intrusion in local aquifers."

That's not exactly encouraging for highly competitive manufacturers of petrochemical products that are sold in both national and international markets. Every additional cost counts.

However, there are differing views from scientists.

Two hydrologists from the Louisiana Geological Survey reported last year that Southern Hills is good for 250 years, so long as the intrusion problem is dealt with in the next dozen years or so.

The Conservation report, notably, stopped short of saying it might intervene through emergency orders on the issue pondered for years by the Capital Area Groundwater Conservation Commission. We don't know if the commission is too favorable to industry, as some have argued. But we appreciate that the commission has asked the Water Institute of the Gulf, based on the river south of the Interstate 10 bridge, to develop a long-term plan for groundwater management. That might be a model for the rest of the state.

Our region's long-term growth, indeed existence, depends on drinking water. And that's as true for economic competitiveness in terms of water used copiously by industries.

If you have any doubts about the importance of groundwater management, ask folks in water-starved regions like California and Arizona. Louisiana is working on the longterm issues, for we think there is a recognition of the common sense in Marylee Orr's statement.

Water is a great asset for us. We should be willing to invest in its management and protection.

PART III: REVISITING 2012'S *MANAGING LOUISIANA'S GROUNDWATER RESOURCES: AN INTERIM REPORT TO THE LEGISLATURE*

In March 2012, the Louisiana Ground Water Resources Commission (GWRC)—then chaired by Scott Angelle, Secretary of the Department of Natural Resources—released *Managing Louisiana's Groundwater Resources: An Interim Report to the Louisiana Legislature*. The GWRC was shortly to be transformed by the state Legislature into the Louisiana Water Resources Commission, with added advisory responsibilities over the state's surface water as well. In fact, the GWRC anticipated this change and broadened its scope in the report to evaluate ongoing surface water management issues at the time. *Managing Louisiana's Groundwater Resources* was not a "management plan" in any sense of the word but simply an analysis of current issues facing the state and recommendations for agency and legislative action to meet these challenges.

Based on extensive canvassing of commission members and numerous public meetings, the report identified 12 "current major issues" in state water management:

- Inadequate monitoring network
- Coastal Restoration and Saltwater Intrusion
- Area of Ground Water Concern: Sparta Aquifer System
- Saltwater Encroachment in Capital Area Aquifers
- High Water Use in Southwest Louisiana
- Temporary Ground Water Emergency: Southern Caddo Parish
- Toledo Bend Reservoir
- Act 955 of 2010: Procedure for Authorizing Withdrawals from Running Waters of the State for Non-Riparian Owners
- Emerging Technologies for Energy Exploration
- Surface Water Quality Impairment Management
- Safe Drinking Water Supply
- Conservation Education and Public Outreach

All of these issues have been addressed to varying degrees over the near decade since publication of the 2012 report. And yet, as evidenced by this report and previous reports from the Water Resources Commission, many of them continue to be matters of concern and interest to state leaders and water resource management professionals.

Statewide Monitoring Network

At the top of the list in 2012 was the state's inadequate groundwater and surface water monitoring network, which had deteriorated over several decades from the more robust network that existed in the 1980s. Certainly, one of the greatest successes for overall state water management since 2012 has been the expansion of this network, which is fundamental to any local, regional, or state planning effort.

Initially, DNR utilized Federal dollars to double the size of the network through a cooperative effort with the USGS; when this funding ran its course, DOTD and DNR committed to maintaining

the network footprint within the existing budget and developed creative solutions with USGS staff to achieve this goal. It is expected that additional monitoring sites will be added as part of the Louisiana Watershed Initiative. At the very least, the current framework will enable local and state decision-makers to evaluate potential areas of further study and seek funding to expand the network in those places as needed. As noted in the Legislative Auditor's report on water management, the Legislature "may wish to ensure that the statewide water resource monitoring network is continually reviewed and evaluated to determine that oversight entities have the information necessary to properly manage the state's water resources."

Groundwater Issues

Among the groundwater issues highlighted in the 2012 report, the situation in the Sparta Aquifer overlay of north-central Louisiana remains mostly static. The USGS reported recently some significant recovery towards overall regional sustainability but there are still some areas with cones of depression that require continued monitoring and reporting according to the Office of Conservation's Area of Ground Water Concern directives. Creating additional water capacity for public supply and economic development remains an important goal for leaders in the area, as evidenced by the Union-Lincoln Regional Water Supply Initiative which has proposed utilizing surface water from Lake D'Arbonne to meet this need.

Saltwater encroachment in Baton Rouge area aquifers remains a serious challenge that has resulted in increased expenditures for infrastructure and planning since 2012 and has attracted increased attention from state leaders, the media, and the local public. Importantly, the CAGWCC is now engaged in a long-term management plan process. The commission should stay the course and complete this process and work to implement the plan's provisions, as recommended by the Louisiana Legislative Auditor and the Office of Conservation in their separate reports outlined earlier in this document.

High volume groundwater use in southwest Louisiana for agriculture, industry, and public supply likewise continues to attract the attention of regional stakeholders. Local universities and the USGS have invested considerable time and money in studying local water use, recharge rates, and aquifer capacity to better understand possible solutions for the future. Groundwater use in the region requires continued evaluation and monitoring in order for state and local water managers to address future needs.

In northwest Louisiana, the south Caddo Parish temporary groundwater emergency that was declared by the Office of Conservation in 2011 in response to intense drought technically remains in place but use restrictions were lifted in 2014. While the groundwater situation is not particularly acute at present, Louisiana has endured two prolonged droughts in the past 20 years, and will likely do so again in the future. Conditions in this locale continue to be monitored by the USGS, Red River Watershed Management Institute, and the Office of Conservation.

Regarding the concept of regional water management, the Legislative Auditor suggested in its audit report released in February 2020 that "the Legislature may wish to consider developing (or direct a person or entity to develop) regional bodies over the state's water resources that are aligned with water location and common water use," or, if no such regional bodes are developed,

"consider requiring that a regional planning process be used to develop a statewide water management plan." The idea of "regional bodies" was a recommendation in the 2012 report of the GWRC and La. R.S. 38:3097.4 authorizes the Water Resources Commission to "direct the commissioner [Commissioner of Conservation] to promulgate rules and regulations for the appointment or designation of up to five regional bodies based on the general location of major aquifer systems and water sources of the state and composed of local stakeholders who are representative of current users. Such bodies may gather data and provide local input to the commission and the commissioner." The Office of Conservation did prepare such rules and regulations for potential promulgation as a consequence of the 2012 report but later was directed by the Water Resources Commission to hold on this process pending completion of work by the Louisiana State Law Institute's Water Code Committee on possible changes to the state's water law.

Surface Water, Coastal, and Other Issues

Surface water quality issues such as discharge, pollution, and habitat disruption continue to be managed by DEQ and the Department of Wildlife and Fisheries through their assorted programs. The recently created Water Quality Trading Program inside DEQ is the latest effort to mitigate some of these challenges as they emerge.

The out-of-state sale of surface water from the Toledo Bend reservoir by the Sabine River Authority has been studied by the Water Resources Commission (report released in December 2018) but some serious questions remain to be answered as to price indices and environmental impacts, among others. The Legislative Auditor in fact noted that the Legislature "may wish to consider directing a person or entity to develop a valuation model for determining the fair market value of Louisiana's water resources and reevaluations over time."

Also, while the Act 955 cooperative endeavor agreement for non-riparian use of surface water has carried on from year to year and is proposed for re-enactment during the 2020 legislative session, the larger underlying issue of enforcement of a non-voluntary regime to maintain the state's fair interest in its running waters remains unresolved. As a remedy, the Legislative Auditor suggested that the Legislature, "may wish to consider amending R.S. 30:961 to require a person or entity to enter into a cooperative endeavor agreement in order to withdraw running water."

Coastal issues and challenges are managed by CPRA through implementation of the state's Coastal Master Plan. CPRA undertakes a rigorous planning process that includes a close evaluation of all available scientific data and significant public input with the goal of developing a realistic plan for the next five years that addresses a wide variety of concerns.

The issues surrounding water use for energy development similarly are being managed through DNR and the Office of Conservation. The Office of Conservation reorganized its reporting and evaluation regime for water use associated with oil and gas operations—particularly for hydraulic fracture—and has worked extensively with operators in the field to educate them on the new regulatory framework. The experience gained during the "rush" in the early years of the

Haynesville Shale play led to major improvements that will pay big dividends for managing water use in any future energy development activities.

Obviously, concern for safe drinking water remains a priority among state leaders and the public at large. The St. Joseph crisis and the emerging understanding of the width and breadth of water supply issues across the state, and especially in rural communities, has resulted in increased attention being placed on this problem. The Office of Public Health plays a large role in the overall regulatory scheme, but other state and Federal agencies have important parts to play in this effort, as seen in the composition of the new Rural Water Infrastructure Committee. The response to this challenge is continuing to evolve.

As noted in the 2012 report, education and public outreach needs to be a key part of any overall water management effort or plan. Pursuant to that end, the Office of Conservation launched its "Water-Wise in BR" public outreach and classroom education initiative in December 2012, while many other state agencies such as DWF, DAF, DEQ, and CPRA continue to include water conservation, water management, and coastal restoration education as part of their general outreach activities.

APPENDIX A
AGENDAS OF WATER RESOURCES COMMISSION MEETINGS, 2019

JOHN BEL EDWARDS
GOVERNOR

State of Louisiana
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF CONSERVATION

THOMAS F. HARRIS
SECRETARY

RICHARD P. IEYOUB
COMMISSIONER OF CONSERVATION

Louisiana Water Resources Commission

1st Regular Meeting, 2019
Wednesday, July 31st, 11:00 a.m.
LaSalle Bldg. – 1st Floor, LaBelle Room
617 N. 3rd St., Baton Rouge, La.

1. **Call to Order**
2. **Roll Call**
3. **Welcome of New Members**
4. **Adoption of Previous Meeting Summary (Full Transcript Available)**
5. **High Water Challenges for Navigation and Commerce on the Mississippi River**
   Sean Duffy, Executive Director, Big River Coalition
6. **Legislative Review – Groundwater Conservation Incentives and Water Resources Management**
   The Honorable Dan Claitor, Louisiana State Senate
7. **Update on Baton Rouge Area Groundwater Management Planning**
   Alyssa Dausman, Ph.D., Vice-President for Science, Water Institute of the Gulf
8. **U.S. Geological Survey – Planning and Research Projects in Louisiana**
   John Lovelace, Assistant Director, Lower Mississippi-Gulf Water Science Center
9. **Public Comments**
10. **Adjournment**

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JOHN BEL EDWARDS
GOVERNOR

State of Louisiana

DEPARTMENT OF NATURAL RESOURCES
OFFICE OF CONSERVATION

THOMAS F. HARRIS
SECRETARY

RICHARD P. IEYOUB
COMMISSIONER OF CONSERVATION

Louisiana Water Resources Commission

2nd Regular Meeting, 2019
Thursday, December 5th, 11:00 a.m.
LaSalle Bldg. – 1st Floor, LaBelle Room
617 N. 3rd St., Baton Rouge, La.

1. **Call to Order**

2. **Roll Call**

3. **Adoption of Previous Meeting Summary [Full Transcript Available]**

4. **Work of the New Orleans Sustainable Infrastructure Program**
   Mary Kincaid, P.E., Program Manager

5. **Water Quality Trading Program Update**
   Amanda Vincent, La. Department of Environmental Quality

6. **Update from the Louisiana Rural Water Infrastructure Committee**
   Leslie Durham, Chair and Governor's Designee to the Delta Regional Authority

7. **Comments on Water Resource Management in Louisiana**
   Brad Spicer, WRC Vice-Chair, La. Dept. of Agriculture and Forestry

8. **New Business**

9. **Public Comments**

10. **Adjournment**

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APPENDIX B
MEMBERS OF THE WATER RESOURCES COMMISSION, 2019

THOMAS HARRIS, CHAIRMAN, DEPARTMENT OF NATURAL RESOURCES
BRADLEY SPICER, VICE-CHAIRMAN, DEPARTMENT OF AGRICULTURE AND FORESTRY

KYLE BALKUM, DEPARTMENT OF WILDLIFE AND FISHERIES
HON. STUART BISHOP, HOUSE OF REPRESENTATIVES COMMITTEE ON NATURAL RESOURCES AND ENVIRONMENT
CAPT. MICHAEL BOPP, LOUISIANA RIVER PILOTS' ASSOCIATION
HON. GLENN BRASSEAUX, LOUISIANA MUNICIPAL ASSOCIATION
HON. NORBY CHABERT, SENATE COMMITTEE ON NATURAL RESOURCES
HON. GUY CORMIER, LOUISIANA POLICE JURY ASSOCIATION
DAVID CULPEPPER, GOVERNOR'S APPOINTEE (GEO-SCIENTIST)
MARK DAVIS, GOVERNOR'S APPOINTEE (WATER LAW)
ANTHONY DUPLECHIN, CAPITAL AREA GROUND WATER CONSERVATION DISTRICT
JOHAN FORSMAN, DEPARTMENT OF HEALTH
WARREN FOUNDS, III, SABINE RIVER AUTHORITY
BRANDON FREY, PUBLIC SERVICE COMMISSION
LINDSAY GOUEDY, SPARTA GROUND WATER CONSERVATION DISTRICT
TYLER GRAY, LOUISIANA CHEMICAL ASSOCIATION/LOUISIANA MID-CONTINENT OIL AND GAS ASSOCIATION/LOUISIANA ASSOCIATION OF BUSINESS AND INDUSTRY/LOUISIANA PULP AND PAPER ASSOCIATION
JIM HARPER, LOUISIANA FARM BUREAU
RICHARD IEYOUB, COMMISSIONER OF CONSERVATION
CHRISTOPHER KNOTTS, DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
BENJAMIN MALBROUGH, SENATE COMMITTEE CHAIR APPOINTMENT (RESIDENTIAL CONSUMERS)
DAVID RABALAIS, PORTS ASSOCIATION OF LOUISIANA
J.P. STOSHAK, HOUSE COMMITTEE CHAIR APPOINTMENT (RESIDENTIAL CONSUMERS)
CHARLES SUTCLIFFE, GOVERNOR'S OFFICE OF COASTAL ACTIVITIES
ELLEN TORGRIMSON, LOUISIANA WILDLIFE FEDERATION/LEAGUE OF WOMEN VOTERS/COALITION TO RESTORE COASTAL LOUISIANA
ELLIOT VEGA, DEPARTMENT OF ENVIRONMENTAL QUALITY
GLENN VICE, LOUISIANA LANDOWNERS' ASSOCIATION
PATRICK WITTY, DEPARTMENT OF ECONOMIC DEVELOPMENT
FREDERICK ZAUNBRECHER, GOVERNOR'S APPOINTEE (CHICOT AQUIFER REGION)

LOUISIANA WATER RESOURCES COMMISSION

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