

FINAL REPORT

SENATE RESOLUTION NO. 154 OF THE 2017 REGULAR SESSION



STATE OF LOUISIANA
**DEPARTMENT OF
NATURAL RESOURCES**



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INTRODUCTION

STATEMENT OF ISSUE

During the 2017 Regular Session of the Louisiana Legislature, the Louisiana State Senate passed Senate Resolution No. 154 (SR154) authored by Sen. Fred Mills urging the Department of Natural Resources (DNR) to study potential solutions that may mitigate spoil banks within the Atchafalaya Basin. SR154 (Appendix A) recognized that Louisiana's lower Atchafalaya Basin has been adversely impacted by spoil banks, which were historically created during the construction of pipelines, and can block natural water flows restricting the flood way and damaging water quality.

SR154 requested DNR to study potential solutions that may mitigate spoil banks created on the lower Atchafalaya Basin affecting the natural water flows and fishing activities, relying on the input and participation of specific entities impacted by or involved in the topic addressed within this legislation. In response to this request, DNR subsequently created a study group comprised of representatives from the following entities:

- The United States Army Corps of Engineers(USACE)
- The Coastal Protection and Restoration Authority(CPRA)
- The Atchafalaya Basin Research and Promotion Board
- The Sierra Club Delta Chapter
- The Louisiana Crawfish Producers Association West
- The Atchafalaya Basinkeeper
- The Louisiana Landowners Association(LLA)
- The Louisiana Mid-Continent Oil and Gas Association(LMOGA)
- The Department of Wildlife and Fisheries(LDWF)
- The Louisiana Association of Business and Industry(LABI)
- The Department of Natural Resources, Office of Conservation, Division of Pipeline Safety
- The Office of State Lands
- The Department of Justice, Natural Resources Division(LDOJ)
- The Louisiana Oil and Gas Association(LOGA)
- A crawfish wholesale buyer located on the east side of the Atchafalaya Basin

Furthermore, SR154 charged DNR, with the explicit participation and involvement of this study group, with studying potential solutions that may mitigate spoil banks created on the lower Atchafalaya Basin affecting the natural water flows and fishing activities, including but not limited to addressing the following questions:

- (1) Whether any spoil banks are adversely affecting fishing activities.
- (2) Whether the spoil should be placed into the water bottom or removed off site to an approved location such that there be no remaining spoil bank.
- (3) Whether the pipeline should be removed at the end of its useful life.
- (4) Whether any construction, maintenance, or any other work should be permitted between the East Atchafalaya Basin Protection Levee and West Atchafalaya Basin Protection Levee.
- (5) Whether permits for new pipelines should be granted to companies that are out-of-compliance with prior issued permits, until such time as those previously-issued permits are brought back into compliance.

Finally, SR154 stipulated that DNR shall provide a report to the Senate Committee on Natural Resources no later than February 1, 2018 with recommendations based on these focus areas.



BACKGROUND

The Atchafalaya Basin is the nation's largest river swamp and one of America's most productive ecological regions. However, like other water resources, this system faces many stresses and challenges, including several cited in a 2001 U.S. Geological Survey Fact Sheet, "[The Atchafalaya Basin - River of Trees.](#)" These include:

Ever-Changing Hydrology

Natural changes and human-induced modifications have resulted in the alteration of the ecology of this resource and will continue to do so.

Sedimentation

Since 1932, there has been a net accretion of nearly 2.5 billion cubic meters of sediment in the Basin floodway, converting much open water and cypress swamps to bottomland forest.

Hypoxic Conditions

Spoil banks, oil field canals, and natural levees inhibit the historical sheeting pattern of water flow, causing hypoxic conditions (poor water quality) within nearly all of the large, interior swamps.

Invasive Exotic Plant Species

Massive growth of hydrilla, salvinia, giant salvinia, and water hyacinth restricts access to many areas in the Basin and exacerbates hypoxic conditions in the swamps.

Land Use/Resource Management

Diverse and sometimes conflicting activities within the Basin occur with regard to flood control, commercial fisheries, navigational, petrochemical, silviculture, recreational, environmental, and cultural interests.

The stresses placed upon the Atchafalaya Basin system are in many instances cumulative and have occurred over its modern history. Below is a short historical synopsis of the Atchafalaya Basin found on DNR's website:

SETTLING THE BASIN

The Atchafalaya River became a tributary of the Mississippi River about 1,500 years ago. Its drainage basin is naturally bounded by former Mississippi River paths, forming the Bayou Teche ridge to the west and the Bayou LaFourche ridge to the east. Native Americans have resided in the Atchafalaya Basin for at least 6,000 years, and the Acadians, who provided the basis of the modern Cajun culture, began to settle there in 1764. The Acadians built their homes on high ground along natural waterways and constructed levees to keep floodwaters out. After the Louisiana Purchase, large numbers of more affluent settlers from the Atlantic coast began moving to Louisiana and developing plantations (Reuss 2004). With the influence of these settlers, the importance of flood control and drainage for agriculture increased. Increased agricultural production meant that the importance of navigable waterways for commerce also increased. Bayou Teche, Bayou Plaquemine, and Bayou LaFourche were all important navigation routes within the Atchafalaya Basin.

DRAINING THE WETLANDS



As human population grew, pressure to change the natural attributes of the Atchafalaya Basin increased. Until very recently, wetlands were not recognized as having inherent value but were seen as wastelands not fit for human habitation and as areas that needed to be drained in order to be developed or put into agricultural production (Patrick 1994). This was the general attitude toward the Atchafalaya Basin throughout the 1800s and for most of the 1900s. Efforts to "improve" or "reclaim" the area were focused on centralizing and channelizing flow and removing obstacles to navigation such as beaver dams and log jams (Reuss 2004). All of these actions effectively reduced floodplain connectivity. Connectivity allows regular flooding and draining of forested wetlands and is essential for a healthy, functioning ecosystem. The Swamplands Act of 1849 furthered the goal of wetland drainage by allowing the United States to cede all of Louisiana's wetlands to the state, which the state then sold to private interests in order to raise money for reclamation projects, primarily levee-building and de-snagging projects. Additionally, the Timber and Stone Act of 1878 sold public lands "unfit for agriculture" to be used for lumber and mining activities. These actions resulted in the harvesting of all old growth forests in the Atchafalaya Basin, though some isolated patches of trees remain. Only in recent decades have scientists begun to understand and relay the important functions of wetlands for water quality, flood control, and carbon storage; in the Atchafalaya Basin, these developments in human thought came after major irreversible changes to the region's hydrology and ecology.

RE-ROUTING THE RIVER

The first major human intervention changed the relationship between the Mississippi and Atchafalaya Rivers. In 1831, Henry Shreve built "Shreve's Cutoff" in the Mississippi River, which substantially decreased flow to the Atchafalaya by shifting the main channel of the Mississippi River eastward, away from the Atchafalaya. To counter increasingly diminished flow and improve navigability, the second major human intervention was initiated. Work to clear a series of massive log jams in the Atchafalaya River began in the 1830s and was completed in 1860. This action drastically increased flow to the Atchafalaya River (primarily from the Red River), and channel depth below Old River increased from about 2 feet to more than 20 feet by the 1880s (Reuss 2004). The increased carrying capacity convinced many engineers that a large flood could allow the Atchafalaya River to capture the entirety of the Mississippi River's flow. Because the Atchafalaya River provides a shorter, steeper path to the Gulf of Mexico, it is the preferred route for waters of the Mississippi River. In the absence of human intervention, the Mississippi River would have likely taken this route eventually.

DEBATING FLOOD CONTROL

Noting decreased flooding after Shreve's cutoff was constructed, Atchafalaya Basin residents began to advocate for the complete separation of the Atchafalaya and Red Rivers from the Mississippi (Reuss 2004). The question of whether to close the Atchafalaya River to the Mississippi River or to keep it open as a floodway was debated by scientists, engineers, and politicians from the late 1800s until 1963 when the Old River Control Structure literally cemented the Atchafalaya River's future. Flood control along the Mississippi River was the primary directive for the Corps, so the needs of the Atchafalaya Basin were secondary considerations. However, closing the Atchafalaya River (and all distributaries of the lower Mississippi River) was supported by some as a means of forcing the Mississippi River to scour a deeper channel with greater carrying capacity. Others argued that the Mississippi River alone could not contain a large flood and that the Atchafalaya River should remain open to provide an emergency outlet for the inevitable floodwaters. Ultimately, the Atchafalaya River was left open to provide a floodway for the Mississippi River, but the general policy of closing outlets to increase river capacity was adopted. All of the natural outlets on the Mississippi River, with the exception of the Atchafalaya River, were eventually closed. Similarly, 22 of the Atchafalaya River's natural distributaries were later closed to accelerate development of the main channel (Reuss 2004).



BUILDING THE FLOODWAY

Between 1850 and 1950, the combined flow of the Red and Mississippi Rivers entering the Atchafalaya River increased from less than 10 % to approximately 30 % (Reuss 2004). By 1954, the Corps had decided that a major intervention would be necessary to prevent the Atchafalaya River from capturing the flow of the Mississippi River. Additionally, the great flood of 1927 made it clear that levees alone could not protect life and property along the Mississippi River in the event of a major flood and that a "safety valve" would be necessary. These factors resulted in the Atchafalaya River being designated as a floodway, and the Old River Control Structure was completed in 1963 to maintain the flow to the Atchafalaya River at 30 % of the combined Red and Mississippi River flows. Soon after, the environmental movement gained momentum in the United States, and ecological considerations were mandated for large federal projects. The Corps completed its Environmental Impact Statement (EIS) for the Atchafalaya Basin Floodway System in 1982, which included a system of levees to contain the floodwaters to a designated area as well as measures to protect or improve environmental quality.

CONSIDERING THE ENVIRONMENT

The Atchafalaya Basin Floodway System EIS assessed the environmental effects of the Corps' efforts to convert the Atchafalaya Basin into a floodway. Acknowledging that the primary negative environmental effect of the project was sedimentation, the Corp included two potential modifications for sediment control. These were 1) the realignment of the four principle distributaries of the Atchafalaya River to minimize sediment transport out of the main channel, and 2) construction of sediment traps at the heads of these distributaries to further reduce sediment transport. Citing the high cost of maintaining sediment traps as well as the environmental degradation that would be caused by spoil disposal into backswamps, the Corps selected only channel realignment as a sediment control measure. Additionally, the selected alternative included 13 water management units, which would be designed "to retain or restore unique environmental values." Two of these units, Buffalo Cove and Henderson Lake, were chosen as pilot projects. Another component of the selected alternative was the acquisition of real estate for recreational opportunities and public access.

FUNDING THE FLOODWAY

The Water Resources Development Act of 1985 and 1986 authorized funding for the Floodway System including channel realignments, water management units, and recreational features. It also laid out a cost share formula between the federal and state governments in which the state was required to pay 25% of the operation and maintenance costs of projects associated with the water management units, and 100 % of the operation and management costs associated with recreation projects. In 1996, Governor Mike Foster directed the Department of Natural Resources to be the lead agency in the development of a plan to meet the state's responsibility. The State Master Plan was completed in 1998, and the Atchafalaya Basin Program was created to carry out its goals.

The Atchafalaya Basin Program was formed over several years starting in 1996 when the New Orleans District of the US Army Corps of Engineers requested that Louisiana's Governor designate a lead agency to coordinate the State's participation in the Federal Atchafalaya Basin Floodway System, Louisiana Project. Governor Mike Foster directed the Louisiana Department of Natural Resources to be the lead agency on September 27, 1996. In 1997, the Atchafalaya Basin Advisory Committee formed to develop a comprehensive long-range plan for the role of the non-Federal sponsor in meeting project authorization requirements. In 1998, the Atchafalaya Basin Advisory Committee completed the Atchafalaya Basin State Master Plan which provided a mission statement, goals, and objectives. The Atchafalaya Basin Program was established within the Department of Natural Resources by the Louisiana Legislature in the first extraordinary session of 1998 to coordinate, oversee, and



provide a funding vehicle for these activities. Since inception, the Atchafalaya Basin Program has worked to accomplish the goals and objectives laid out by the State Master Plan. Projects are selected through the Annual Plan Process in a series of board and committee meetings that culminate in the Atchafalaya Basin Program Annual Plan, which must be approved by the Louisiana Legislature. In carrying out these projects, considerations such as technical feasibility, access to private property, and costs for construction and maintenance of the projects are a constant challenge.

The Goals of the State Master Plan are:

1. PUBLIC ACCESS

Public access provides for "fish and wildlife oriented recreation in a manner which protects the environment and does not unduly encroach on landowner rights."

This goal is to be accomplished by "purchase in fee title, less minerals, from willing sellers, 50,000 acres of land in the Basin" by the U.S. Army Corps of Engineers.

2. ENVIRONMENTAL EASEMENTS

Environmental Protection: The goal is "preservation of fish and wildlife habitat and maintaining the 'wet and wild' environmental appeal of the lower floodway by prohibiting the destruction of habitat through the conversion of land to other uses (e.g. clearing of forests for agricultural development) and providing control over the method of cutting timber by controlling clear-cutting and promoting sustained yield forestry practices."

Developmental Control: The goal is "to prevent development within the floodway that would interfere with the continued unrestricted use of the floodway for flood control purposes and help preserve the environmental values of the Basin by preventing destruction of fish and wildlife habitat (e.g. clearing of forests for industrial development and permanently habitable structures)."

3. WATER MANAGEMENT

The goal is to "restore, where possible, and to preserve, where feasible, the natural habitat [of] the Atchafalaya Basin" and to accomplish this by "prolong[ing] the expected life of some habitats that may become scarce through time (primarily aquatic and cypress/tupelo habitats) by managing sediments, while at the same time achieving a healthy water circulation pattern that will maintain or restore water quality.

4. RECREATION

The goal is to "assist the Corps of Engineers in providing increased emphasis on, and opportunities for recreation at water resources projects... operated by the Corps of Engineers."

Recreational opportunities include: bicycling, bird watching, tent and trailer camping, hiking, horseback riding, nature walks, picnicking, multi-use fields and courts, sightseeing, playgrounds, boating (power and non-power), fishing (bank and boat), crabbing, crawfishing, lake swimming, and waterskiing.

OVERVIEW OF REGULATIONS AND AUTHORITIES

To fully understand the issues to the questions outlined in SR154, it is important to understand the different entities that are involved with the regulation of pipelines. The following serves as a summary of these regulations and corresponding



authorities, as outlined in greater detail within Section 1 of the HCR 143 Report (Appendix B), which was required by the adoption of House Concurrent Resolution 143 of the 2014 Regular Legislative Session.

OVERVIEW

The pipeline networks in Louisiana are regulated by different entities and in different ways depending on location, function, and jurisdiction. The federal Office of Pipeline Safety (OPS), under the United States Department of Transportation (USDOT), the Office of Conservation – Pipeline Division (OOC – PD), the Office of Coastal Management (OCM), the United States Army Corp of Engineers (USACE) and the United States Coast Guard (USCG) all play different roles in the regulation of pipelines in Louisiana. Some entities roles are limited in scope while others are more comprehensive.

FEDERAL JURISDICTION

Regulatory processes and jurisdictional authority concerning pipelines in coastal areas are shared by several Federal agencies, including the Department of the Interior (DOI), DOT, USACE, the Federal Energy Regulatory Commission (FERC), and USCG. These agencies also have responsibility for overseeing and regulating the placement of structures and pipelines in areas that affect navigation, and the certification of proposed projects involving the transportation or sale of interstate natural gas. In addition, DOT is responsible for regulating the safety of interstate commerce of natural gas, liquefied natural gas (LNG), and hazardous liquids by pipeline. This responsibility includes all offshore pipelines on state lands beneath navigable waters, which originate in federal waters.

PIPELINE LOCATIONS

The locations of pipelines provide important context surrounding the key considerations outlined in SR154. A map detailing pipelines located in both the north and south areas of the basin, along with supporting pipeline lists, can be found in Appendix C: North & South Pipeline Maps and Keys. It should be noted that not all pipelines located within the Atchafalaya Basin have an associated spoil bank and also that not all spoil banks within the Atchafalaya Basin are the result of pipeline installation. That being said, the language of SR154 clearly focuses on spoil banks within the Atchafalaya Basin associated with pipelines. Without performing a comprehensive and expensive survey of the entire Atchafalaya Basin, the creation of a list including the number, location, and associated pipeline information for every spoil bank is not possible. Therefore, the attached maps and keys constitute a good faith effort to provide the requested information taking into account these limitations. All of this information is publicly available and can be found on PHMSA's website at <https://www.npms.phmsa.dot.gov/>.

SR154 STUDY SCOPE OF WORK

STUDY GROUP COMPOSITION

In response to the requests outlined in SR154, DNR recruited the following representatives to serve on the SR154 Study Group while working to ensure all entities named within the legislation were invited to participate and involved in related study discussions or deliberations.

Name	Organization
Jonathan Robillard	Office of State Lands
Stuart Brown	CPRA
Kent Bollfrass	CPRA
Jody Meche	LCPA-West, Atchafalaya Basinkeeper, Commercial Fisherman
Steven Giambrone	OOC
Vic Blanchard	LA Landowners Association



Rudy Sparks	LA Landowners Association
Ryan Mabile	Crawfish Producer - West
Dean Wilson	Atchafalaya Baskinkeeper
Tyler Gray	LMOGA
Don Briggs	LOGA
Keith Lovell	DNR
Harold Schoeffler	Sierra Club
Haywood Martin	Sierra Club
Gifford Briggs	LOGA
Harry Vorhoff	LDOJ
Ryan Seidemann	LDOJ
Raynie Harlan	LDWF
Brac Salyers	LDWF
Brad Inman	USACE
Lauren Chauvin	LABI

To support the completion of this study, DNR engaged Emergent Method – a Louisiana-based management consulting firm – with the goal of ensuring all study activities and facilitation of study group discussion would be conducted by an objective, third party with no preconceived notions surrounding the past, present, or future of spoil bank activity in the lower Atchafalaya Basin.

PRIMARY AND SECONDARY RESEARCH

Given the intricate history associated with the topic of spoil banks in the lower Atchafalaya Basin, Emergent Method conducted background research focused on developing a comprehensive understanding of the issues outlined in SR154. This research included a review of relevant literature, interviews with DNR staff, and discussions with other key stakeholders that are experts on the issue of spoil banks. In addition, Emergent Method developed and distributed a survey to all SR154 Study Group members to collect initial and individual opinions on the five questions outlined in SR154. The results from this survey were compiled in a report (Appendix E), distributed in aggregate to SR154 Study Group members, and used to inform SR154 Study Group meeting agendas.

STUDY GROUP MEETINGS

The SR154 Study Group met on three separate occasions from November 2017 to January 2018, with all meetings publicly advertised in accordance with State law and held at the LaSalle Building in Baton Rouge, Louisiana. Each meeting featured presentations from SR154 Study Group members containing research and/or recommendations for the group's consideration along with corresponding levels of robust discussion, whereby the group explored and debated the answers to the five questions outlined in SR154 with the goal of developing recommendations for a path forward.

The public notices, agendas, attendance sheets, and key outcome summaries for each meeting can be found in Appendices F - N of this report.

EXTERNAL RESEARCH SUBMITTED

From the outset of this study, SR154 Study Group members were encouraged to submit relevant external research and resources for DNR and the group's consideration. This information helped to ensure the study group was taking a



comprehensive approach to addressing the issues outlined in SR154, leveraging all available inputs toward the formulation of corresponding recommendations.

The list below includes external research and related documents submitted by SR154 Study Group members for consideration, all of which can be found in Appendices O – KK:

- Brac Salyers and Raynie Harlan, LDWF
 - **Appendix O:** LDWF Crawfish Production Data
 - **Appendix P:** LDWF Report - Spoil Bank Mitigation Feedback and Suggestions
 - **Appendix Q:** Buffalo Cove Environmental Assessment
 - **Appendix R:** LDWF Atchafalaya Basin Lake History and Management Issues
 - **Appendix S:** LDWF Atchafalaya Basin Waterbody Evaluation and Recommendations
 - **Appendix T:** LDWF Henderson Lake History and Management Issues
 - **Appendix U:** LDWF Henderson Lake Waterbody Evaluation and Recommendations
 - **Appendix V:** LDWF Trip Ticket Procedures Manual
 - **Appendix W:** Louisiana Commercial Crawfish Harvesters Survey Report 2011
 - **Appendix LL:** Raynie Harlan Presentation_Crawfish Regulations, Management, and Research
 - **Appendix MM:** Dr. Kelso LSU Presentation_Atchafalaya Basin Water Quality
- Dean Wilson, Atchafalaya Baskinkeeper
 - **Appendix X:** Bayou Sorrel Pipeline Restoration Proposal
- Tyler Gray, LMOGA
 - **Appendix Y:** 2016 AP-AOPL Annual Pipeline Safety Excellence Performance Report Strategic Plan
 - **Appendix Z:** 2016 AP-AOPL Pipelines by the Number
 - **Appendix AA:** About Pipeline SMS
 - **Appendix BB:** Liquids Pipeline Industry Performance Summary
 - **Appendix CC:** PHMSA Pipeline Basics
 - **Appendix DD:** PHMSA Pipeline Construction Index
 - **Appendix EE:** PHMSA Pipeline Construction
 - **Appendix FF:** PHMSA Regulator Fact Sheet: Louisiana
 - **Appendix GG:** Pipeline 101: Are Pipelines Safe?
 - **Appendix HH:** Pipeline 101: How Can You Help With Safety?
 - **Appendix II:** PST: Pipeline Safety Statistics
 - **Appendix JJ:** U.S. Liquids Pipeline Usage and Mileage Report_Oct 2014
- Thomas Harris, DNR
 - **Appendix KK:** State Master Plan - Atchafalaya Basin Floodway System Louisiana Project
- Rudy Sparks, LLA
 - **Appendix NN:** LLA Opinion Letter

STUDY FINDINGS

OVERVIEW

As previously noted, DNR was requested by SR154 to address five key questions related to potential solutions that may mitigate spoil banks created on the lower Atchafalaya Basin affecting the natural water flows and fishing activities – a process that was heavily informed and guided by the input of SR154 Study Group members. The findings below represent a summary of facilitated discussions held by the SR154 Study Group, organized by these five questions, with relevant research and resources, issues to further explore in the future noted accordingly.



5 KEY QUESTIONS

1. ARE SPOIL BANKS ADVERSELY AFFECTING FISHING ACTIVITIES?

DISCUSSION SUMMARY

- The study group spent an ample amount of time exploring this issue through external research and robust discussion. Ultimately, the opinions were split – some members strongly believed spoil banks were adversely affecting fishing activities while others did not believe the data or research exists to support this claim as a general matter.
- Study group members that believed spoil banks have negatively impacted fisheries pointed to firsthand accounts from fishermen that spend time in the Atchafalaya Basin. They pointed out that spoil banks create barriers that restrict water flow and the natural sediment deposition process highlighting that even when gaps are cut in the banks, the flow of water is limited and the further one gets from the gaps “dead zones” still exist. Some participants highlighted the fact that the crawfishermen are the only fishermen left in the basin and other forms of commercial fishing have declined over time due in part to the poor water quality. They also pointed out that pipelines and the resulting spoil banks have changed the elevation of the basin creating greater flood risk and suggested this could be fixed with dredging.
- Study group members that did not fully agree that spoil banks are negatively affecting fisheries stressed that there isn't enough data to support this claim. They stressed that the issue is more complicated than one cause and the negative impacts on fisheries can be traced back to some combination of levee construction, sediment delivery, and changing water levels. Additionally, several participants stated that spoil banks also have positive benefits, such as providing habitats to wildlife during high water periods.
- At the request of study group members, Brac Salyers and Raynie Harlan, LDWF Representatives, collected and presented data on crawfish production. Salyers presented a table taken from the Atchafalaya Basin Management Plan – B that included the annual landings and the value of landings of blue crab and wild crawfish in the Atchafalaya Basin for the years 2000 to 2016. Salyers explained that this data is taken from LDWF's trip ticket program, which includes anyone with a commercial fishing license or processing plant who sells fish or crawfish to the public or a processing plant. He highlighted that these are non-confidential reports, which means reports are omitted in which there were only one or two buyers involved in order to protect the financial information of private companies. Additionally, he noted that this data is organized by parish and therefore not completely exclusive to the Atchafalaya Basin, and not inclusive of production outside of the ticket program. Salyers provided a high-level analysis highlighting that production was highly variable from year to year, and that there isn't a clear trend, upward or downward, over this time period. Furthermore, he stated that a decline in production can't be traced specifically to spoil banks and highlighted other factors such as changing markets and the number of fishermen needed to be considered when drawing conclusions about production trends.
- Harlan provided a detailed overview of the regulations surrounding the crawfish industry. Specifically, she walked through the expectations for crawfish traps, the lack of a specified season, and licenses. Additionally, she presented the results from a 2016 survey of crawfishermen that concluded most crawfishermen preferred the year-round crawfish season and single areas designation for ticket entries.
- Harlan asked Dr. William Kelso, LSU Professor, to present his research on the water quality in the Atchafalaya Basin. Dr. Kelso presented three different reasons for low water quality in the Atchafalaya Basin area, as well as suggestions for improving conditions in the area. First, he stated that flood pulse timing is unpredictable and early flood years have the best crawfishing conditions, but managing the Old River Control Structure to promote early floods is only partially achievable. Second, he said that spoil banks limit flood bank circulation and allow non-moving water to sit and heat up. He said that the state must find a balance between moving and sitting water. He believes there needs to be sediment traps put in key locations to stop large accumulation of sediment from occurring, though he acknowledged that maintaining and operating such traps can be costly. Finally, he reiterated the effect invasive plant species have on aquatic habitats and pointed out that this is a complicated problem that won't be fixed overnight. He concluded by suggesting that studies be done to test out potential solutions to improve water quality and stressed that these studies should have experiment and control sites that are in close proximity to each other.
- In addition to the crawfish production data, LDWF prepared a report with supporting resources that outline opinions and relevant data needed to identify potential solutions relevant to the scope of this study group. This report outlined several



main conclusions. First, LDWF does not have the ability to statistically analyze if spoil banks within the basin have directly impacted crawfish landings. Second, LDWF is taking steps to manage the recreational and commercial crawfish industries through regulations. Third, LDWF recommends shifting the focus of this effort from the direct impacts on fisheries to the impacts on hydrologic flow patterns, sedimentation patterns, and impacts on water quality.

- Several members stated that due to a seeming lack of quantitative data regarding fisheries prior to the relatively recent past, reports by individuals with firsthand knowledge of the fisheries within the Atchafalaya Basin need to be considered.
- Rudy Sparks, Louisiana Landowners Association Representative, submitted an opinion letter from the LLA that addresses the organization's beliefs about this issue and the other issues addressed throughout this report. This letter was submitted at the conclusion of this effort and can be found in Appendix NN.
- While there were split opinions on this issue, there were several relevant points that most study group members agreed on. All members agreed the main issue that is negatively impacting fisheries, regardless of the root cause, is the water quality in the basin and specifically the lack of oxygen caused by stagnation ("dead zones"). Furthermore, most participants agreed that the best solution to the water quality issue is taking steps to restore "dead zones" to their natural state by improving circulation and one approach to this would be removing spoil banks. All agreed this should be approached on a case-by-case basis by identifying solutions tailored to each area, particularly given the downstream impacts that can result from directly modifying water circulation in one area, and that heavily impacted areas should be addressed first. Lastly, most participants acknowledged that the pipeline industry plays a critical role in fueling Louisiana's economy and all parties should search for solutions that allow industry and fishermen to co-exist in a mutually beneficial manner.

RELEVANT RESEARCH AND RESOURCES

- **Appendix O:** LDWF Crawfish Production Data
- **Appendix P:** LDWF Report - Spoil Bank Mitigation Feedback and Suggestions
- **Appendix Q:** Buffalo Cove Environmental Assessment
- **Appendix R:** LDWF Atchafalaya Basin Lake History and Management Issues
- **Appendix S:** LDWF Atchafalaya Basin Waterbody Evaluation and Recommendations
- **Appendix T:** LDWF Henderson Lake Lake History and Management Issues
- **Appendix U:** LDWF Henderson Lake Waterbody Evaluation and Recommendations
- **Appendix V:** LDWF Trip Ticket Procedures Manual
- **Appendix W:** Louisiana Commercial Crawfish Harvesters Survey Report 2011
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- **Appendix MM:** Dr. Kelso LSU Presentation_Atchafalaya Basin Water Quality
- **Appendix NN:** LLA Opinion Letter

ISSUES TO FURTHER EXPLORE

- Some participants suggested compiling data on the change in depth in the basin over time, data on "dead zones" that were once productive fisheries, and data on water oxygen levels over time. While study group members acknowledged the challenges with collecting this data, they believed it could be used to ascertain a research-based answer to this question and identify the root issues of the negative impacts on fisheries.
- LDWF's report recommends shifting the focus of this effort from the direct impacts on fisheries to the impacts on hydrologic flow patterns, sedimentation patterns, and impacts on water quality. Along these lines Dr. Kelso recommended that studies be done to test out potential solutions to improve water quality and stressed that these studies should have experiment and control sites that are in close proximity to each other. Furthermore, this report includes research and specific suggestions for further exploration.



2. SHOULD THE SPOIL BE PLACED INTO THE WATER BOTTOM OR REMOVED OFF SITE TO AN APPROVED LOCATION SUCH THAT THERE BE NO REMAINING SPOIL BANK?

DISCUSSION SUMMARY

- Some study group members did not like the two options provided in the resolution regarding spoil removal – placing spoil on water bottom or removing spoil to an offsite location – and offered other potential solutions. These alternative solutions included: creating berms across the canal to stop the pipeline from capturing water flows, cutting gaps in existing spoil banks, placing spoil into the pipeline canal, removing the spoil and creating islands that would not restrict north to south waterflows, and placing spoil on high land that won't impact natural water flow. One participant suggested exploring the use of horizontal drilling to avoid negative impacts all together.
- Several participants cautioned that unintended consequences can come from gapping – while one area might benefit it could have an adverse impact on another area. For example, in some areas, large habitats have been created by spoil banks and removing them would be a large and unreasonable resource commitment and has the potential to create negative impacts on wildlife. Most participants agreed that these impacts should be taken into consideration when implementing solutions. Additionally, they suggested that it could be beneficial to consult a hydrologist in reviewing the potential of utilizing this process as a solution.
- Several participants disagreed that spoil banks provide beneficial shelter for wildlife pointing out that during flood events spoil banks could become “death traps” for stranded wildlife.
- Most participants agreed that spoil removal should be addressed on a case-by-case basis and areas where spoil is interrupting the natural flow of water should take priority. Additionally, most participants agreed that hauling spoil outside of the basin is extremely expensive, making it an unrealistic solution to apply across the board.
- Dean Wilson, Atchafalaya Baskinkeeper Representative, presented a graphic which outlined a potential project focused on removing spoil banks in Bayou Sorrel. He suggested this is an area that has been negatively impacted by these banks and has had a decrease in crawfish production. He pointed out restoration is a complicated issue and provided several examples. He stated that in some places backfilling the canals could be the best option but in other places it could make the problem worse because the canal is already filled with sediment. Additionally, he suggested that in some cases removing the spoil from the basin and placing it on islands would provide the most benefits, but in other places islands and berms could stop the canal from capturing flows. Lastly, he pointed out that pipelines provide sediment traps in some places, but in others he believes the pipelines have negatively impacted the basin by filling in the wetlands and reducing water flow. He acknowledged that solutions have to be tailored to the area based on the impacts.
- Lastly, several participants highlighted the need for landowner involvement in discussions regarding spoil removal, regardless of the method. They pointed out that landowners have agreements with pipeline companies and should be allowed to give input on the placement of spoil as a function of their private landowner rights. Other participants disputed the reach of these private property rights and the efficacy of allowing private landowners to determine how to move or displace spoil.

RELEVANT RESEARCH AND RESOURCES

- **Appendix X:** Bayou Sorrel Pipeline Restoration Proposal

ISSUES TO FURTHER EXPLORE

- DNR Secretary Harris commended Mr. Wilson for bringing a specific proposal to the table and suggested that the parties work with the Atchafalaya Basin Program to develop a written proposal for consideration through the Annual Plan process.

3. SHOULD THE PIPELINE BE REMOVED AT THE END OF ITS USEFUL LIFE?

DISCUSSION SUMMARY

- To provide study group members with a more robust understanding of the location and quantity of pipelines throughout the basin, Steven Giambrone with DNR's Office of Conservation presented a map for both the north and south areas of the basin with supporting pipeline lists. He provided hard copies of each and explained how to access this information online.



Giambrone explained that the location of the pipelines and layers that exist on the map show both gas transmission pipelines and hazardous liquid pipelines. He also emphasized that these resources can be used to identify and track where pipelines are located throughout the basin and highlighted that they are regularly updated by PHMSA.

- Study group members that regularly deal with pipeline regulations stressed the importance of understanding the difference in interstate and intrastate pipelines when evaluating this issue. DNR-Office of Conservation staff clarified that while both interstate and intrastate pipelines are required to be capped and purged at the end of their useful life, flow lines fall under more general regulations. DNR and LMOGA staff stated that anyone can report compliance issues and they will work with the owners to address. Both parties reiterated that neither the State nor the oil companies want to see negative impacts from these pipelines.
- Permits issued by the USACE or DNR-Office of Coastal Management for installation of pipelines within their jurisdictional areas may require removal of the pipeline facility once their use has terminated. In the case of DNR-Office of Coastal Management, the removal of permitted structures is enforced once their use has terminated, except in rare cases with extenuating circumstances. Pipeline activities permitted through individual Coastal Use Permits will likewise contain a prohibition against “abandoning” structures once their use is complete. Requiring removal is a standard condition in individual Coastal Use Permits unless it is determined that leaving the pipeline in place would be in the public interest, provided that letters of “no objection” to leaving the pipelines in place are received from the appropriate State and Federal agencies. Additionally, regulation of navigational hazards by the US Coast Guard may in specific cases play a role in pipeline removal following termination of its use.
- Several participants highlighted that the quality of pipeline installation has been inconsistent over the years – some companies have buried them deep below the surface with no negative impact to the basin while others have left elevated spoil banks impeding water flow. DNR staff pointed out that most of the troublesome areas were constructed in the 1950s and 1960s prior to regulatory guidelines being in place and current permits don’t allow the construction of new spoil banks. Additionally, DNR staff reminded participants that out of compliance pipelines should be reported.
- Tyler Gray with LOGMA highlighted that there is a robust amount of information available on pipeline safety and how the oil and gas industry is addressing this issue. Mr. Gray provided this information for inclusion in the report where they are marked Appendices Y – JJ.
- While several participants stated that pipelines should be removed at the end of its useful life, others pointed out that as long as a pipeline is properly maintained, removal shouldn’t be necessary. Several participants said the location of the pipeline should dictate the removal. Specifically, they recommended that if the pipeline is on private property, the landowner should be consulted on the decision as long as there is not hazardous material that is negatively impacting the basin.

RELEVANT RESEARCH AND RESOURCES

- **Appendix C:** North & South Pipeline Maps and Keys
- **Appendix Y:** 2016 AP-AOPL Annual Pipeline Safety Excellence Performance Report Strategic Plan
- **Appendix Z:** 2016 AP-AOPL Pipelines by the Number
- **Appendix AA:** About Pipeline SMS
- **Appendix BB:** Liquids Pipeline Industry Performance Summary
- **Appendix CC:** PHMSA Pipeline Basics
- **Appendix DD:** PHMSA Pipeline Construction Index
- **Appendix EE:** PHMSA Pipeline Construction
- **Appendix FF:** PHMSA Regulator Fact Sheet: Louisiana
- **Appendix GG:** Pipeline 101: Are Pipelines Safe?
- **Appendix HH:** Pipeline 101: How Can You Help With Safety?
- **Appendix II:** PST: Pipeline Safety Statistics
- **Appendix JJ:** U.S. Liquids Pipeline Usage and Mileage Report_Oct 2014

ISSUES TO FURTHER EXPLORE

- DNR staff requested anyone with knowledge of potential noncompliance report out of compliance pipelines to DNR or the USACE so that they can be addressed by the appropriate party. Pipelines that are out of compliance can be reported to the OOC – Pipeline Division at 225-342-5505 and non-compliance in the coastal zone can be reported through the OCM



Compliance and Enforcement website at <http://www.dnr.louisiana.gov/index.cfm?md=pagebuilder&tmp=home&pid=849>. Reporting compliance issues to the USACE on their website is also advised.

4. SHOULD ANY CONSTRUCTION, MAINTENANCE, OR ANY OTHER WORK BE PERMITTED BETWEEN THE EAST ATCHAFALAYA BASIN PROTECTION LEVEE AND THE WEST ATCHAFALAYA BASIN PROTECTION LEVEE?

DISCUSSION SUMMARY

- All participants acknowledged the need to grant permits for construction and maintenance in the basin and instead focused the discussion on compliance and enforcement. DNR staff clarified that the State does not have the authority to enforce USACE permits, as that is the responsibility of USACE. Several participants stressed that the USACE does not have the proper manpower or resources to properly enforce permits which makes it easier for companies to “cheat the system” and “cut corners” when it comes to pipeline installation and maintenance. Furthermore, study group members explained that companies that “do the right thing” are placed at a competitive and financial disadvantage given the lack of USACE enforcement that exists for those who are noncompliant. Some of these study group members suggested this should be addressed before new construction is allowed to ensure proper accountability moving forward. Most participants agreed that the companies with a history of non-compliance should not be granted new permits until they fix noncompliant pipelines and restore the negatively impacted areas.
- Several study group members stressed that the USACE needs more resources citing their understanding that the USACE does not have a person in charge of reviewing permits for compliance, nor do they have a boat to navigate the basin and see issues firsthand. Furthermore, these participants cited a recent lawsuit against the USACE when they did not enforce violations by a company that dammed several waterways.
- Several participants pointed out pipeline ownership is an obstacle to compliance. Because pipelines often change hands to new operators, it can be difficult to hold new owners accountable for non-compliance issues the previous owner was responsible for addressing or maintaining prior to the change in ownership. DNR-Office of Conservation staff noted that Office of Conservation regulations state that regardless of the ownership transfer, the new operator is held responsible for proper compliance.
- One participant commented that technology and in-depth knowledge of the basin should be leveraged to address many of these issues. This participant suggested exploring a program that would set aside production revenues to be used to restore the basin, highlighting the desire for all parties to work together to develop creative solutions to address these issues.

RELEVANT RESEARCH AND RESOURCES

- N/A

ISSUES TO FURTHER EXPLORE

- Identification of USACE resources required to strengthen enforcement capabilities and whether such resources might require Congressional approval.
- Exploration of potential revenue streams to fund basin restoration through industry partners (e.g., LOGA), the federal government, and state funding as available



5. SHOULD PERMITS FOR NEW PIPELINES BE GRANTED TO COMPANIES THAT ARE OUT-OF-COMPLIANCE WITH PRIOR ISSUED PERMITS, UNTIL SUCH TIME AS THOSE PREVIOUSLY-ISSUED PERMITS ARE BROUGHT BACK INTO COMPLIANCE?

DISCUSSION SUMMARY

- Similar to the issues outlined in question 4 above; study group members focused the discussion on compliance, stressing the need to strengthen the USACE's enforcement capabilities.
- Several participants reiterated the opinion that the companies with a history of non-compliance should not be allowed to do new work until they fix non-compliant pipelines and restore the negatively impacted areas. Others believed this should be a case-by-case basis, taking into account the company's history and past performance, previous ownership of the pipeline, and regulatory standards that were in place when the pipeline was installed.
- DNR-Office of Coastal Management staff noted that their department only issues coastal use permits when the proposed pipeline impacts jurisdictional areas in the coastal zone and a company's history of compliance is taken into consideration during this decision-making process. They highlighted that this information is received from the USACE and that DNR-Office of Coastal Management relies on USACE enforcement records in making its decision.
- Several fishermen stated they have seen numerous instances of non-compliance from companies that continue to receive permits. DNR staff reiterated that they want to know about these examples in order to address non-compliance with the appropriate regulatory agencies – a stance that was supported by industry to ensure it fulfills its own self-regulation functions.
- One participant suggested the State and USACE explore the implications and benefits of requiring horizontal drilling across the basin and cited Mobile Bay and parts of Florida as success stories for this method.

RELEVANT RESEARCH AND RESOURCES

- N/A

ISSUES TO FURTHER EXPLORE

- DNR staff requested anyone with knowledge of potential noncompliance report out of compliance pipelines to DNR or the USACE so that these violations can be addressed by the appropriate party.

SUMMARY AND RECOMMENDATIONS

In summary, through the detailed review of the requests for solutions outlined in this legislation, DNR, along with the SR154 Study Group, have identified four key issues that impact recommendations for addressing the negative impacts of spoil banks:

- Exploring ways to promote expanded USACE enforcement surrounding pipeline construction, maintenance, and decommissioning requirements;
- Identifying specific high priority areas that are negatively impacted by spoil banks and restoration projects that can be successfully implemented to address these areas;
- Securing necessary funding to operate and maintain these projects and;
- Securing necessary property access to implement these projects

SR154 Study Group members have noted on several occasions that it will take organized coordination from all agencies and stakeholders involved in order to fully address these issues. To facilitate this level of collaboration and coordination while outlining a blueprint for future success, the SR154 Study Group recommends the Louisiana Legislature immediately request and authorize the Atchafalaya Basin Program to lead an effort focused on developing a Master Plan for the Atchafalaya Basin Floodway System.



The most recent Basin Master Plan (Appendix KK) was created in 1998 and hasn't been updated since. Furthermore, many of the projects outlined in this plan were never pursued due to a lack of federal, state, or other funding or a lack of landowner access. Therefore, this study group believes a new Basin Master Plan would provide the guidance, framework, and coordination needed to tackle the issues explored throughout this study. Specifically, SR154 Study Group members believe this new plan should address:

- Improved processes for studying and monitoring hydrologic flow patterns, sedimentation patterns, and water quality to inform research on the impacts of spoil banks and other alterations to the natural state of the Atchafalaya Basin.
- A list of high priority restoration projects, developed in conjunction with stakeholders, targeted at restoring areas with poor water quality and flow that are negatively impacting the fisheries.
- Targeted funding mechanisms to be spent on projects that will incrementally begin restoring natural water quality and water flow within the Atchafalaya Basin.
- Explore property access challenges and possible solutions.
- Consideration of any new requirements for pipeline construction and maintenance that are aimed at preserving the health and future of the Atchafalaya Basin;
- Increased resources for the USACE and other regulatory agencies charged with monitoring pipeline operators and facilities;
- Improved enforcement to address pipeline companies with a history of non-compliance.



APPENDICES

■ Background

- **Appendix A:** Senate Resolution 154
- **Appendix B:** HCR 143 Report
- **Appendix C:** North & South Pipeline Maps and Keys

■ Study Group

- **Appendix D:** Study Group Roster
- **Appendix E:** Study Group Survey Results
- **Appendix F:** Study Group Meeting 1 Agenda
- **Appendix G:** Study Group Meeting 1 Sign In Sheet
- **Appendix H:** Study Group Meeting 1 Recap
- **Appendix I:** Study Group Meeting 2 Agenda
- **Appendix J:** Study Group Meeting 2 Sign In Sheet
- **Appendix K:** Study Group Meeting 2 Recap
- **Appendix L:** Study Group Meeting 3 Agenda
- **Appendix M:** Study Group Meeting 3 Sign In Sheet
- **Appendix N:** Study Group Meeting 3 Recap

■ External Research

- **Appendix O:** LDWF Crawfish Production Data
- **Appendix P:** LDWF Report - Spoil Bank Mitigation Feedback and Suggestions
- **Appendix Q:** Buffalo Cove Environmental Assessment
- **Appendix R:** LDWF Atchafalaya Basin Lake History and Management Issues
- **Appendix S:** LDWF Atchafalaya Basin Waterbody Evaluation and Recommendations
- **Appendix T:** LDWF Henderson Lake History and Management Issues
- **Appendix U:** LDWF Henderson Lake Waterbody Evaluation and Recommendations
- **Appendix V:** LDWF Trip Ticket Procedures Manual
- **Appendix W:** Louisiana Commercial Crawfish Harvesters Survey Report 2011
- **Appendix X:** Bayou Sorrel Pipeline Restoration Proposal
- **Appendix Y:** 2016 AP-AOPL Annual Pipeline Safety Excellence Performance Report Strategic Plan
- **Appendix Z:** 2016 AP-AOPL Pipelines by the Number
- **Appendix AA:** About Pipeline SMS
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- **Appendix II:** PST: Pipeline Safety Statistics
- **Appendix JJ:** U.S. Liquids Pipeline Usage and Mileage Report_Oct 2014
- **Appendix KK:** State Master Plan - Atchafalaya Basin Floodway System Louisiana Project
- **Appendix LL:** Raynie Harlan Presentation_Crawfish Regulations, Management, and Research
- **Appendix MM:** Dr. Kelso LSU Presentation_Atchafalaya Basin Water Quality
- **Appendix NN:** LLA Opinion Letter