ABOUT PONTCHARTRAIN / BRETON

The most densely populated region on the coast, the Pontchartrain/Breton region is known across the world for its celebrated cultural heritage. The allure of its music, food, and celebrations is matched by the beauty of the swamps, marshes, lakes, and rivers that define its landscape. The 2023 Coastal Master Plan builds on the extensive work undertaken since Hurricane Katrina, and proposes a suite of projects to safeguard the region's rich cultural and environmental assets for future generations.

The Pontchartrain/Breton region includes all or part of East Baton Rouge, Livingston, Tangipahoa, St. Tammany, Orleans, St. Bernard, Plaquemines, Jefferson, St. John the Baptist, St. James, and Assumption parishes, and is home to population centers like New Orleans, Metairie, the North Shore communities, the River Parishes, and smaller towns along the lowermost Mississippi River. The region boasts a diversity of residents with significant Black, Creole, Indigenous, Southeast Asian, and Latin American populations in the area.

New Orleans is a popular tourist destination with distinct French and Spanish Creole architecture, cross-cultural and multilingual heritage, and a large annual Mardi Gras celebration. Just outside the city, it is clear why this region is considered a paradise for fishing, hunting, and bird watching – St. Bernard Parish has several stops on the America's Wetlands Birding Trail, and St. Tammany Parish includes recreational assets like the Tammany Trace and North Shore Fontainebleau State Park.

Other managed lands include Joyce Wildlife Management Area, St. Tammany Wildlife Refuge, the Big Branch Marsh, Bayou Sauvage, Delta and Breton National Wildlife Refuges. To the east, the Breton Wildlife Refuge provides important wintering habitat for the federally threatened piping plover. At the other end of the region, the Maurepas Swamp includes more than 100,000 acres of cypress tupelo swamp, bottomland hardwood forest, and fresh and intermediate marshes. Between these is a productive estuary, including Lake Pontchartrain, Lake Borgne, Breton Sound, and Chandeleur Sound and includes extensive areas of marsh on the Orleans Landbridge and Biloxi Marsh.

This landscape supports vibrant recreational and commercial fisheries. In 2020, the region accounted for 37% of the statewide crab landings. It also supports major industrial activity such as ports and petrochemical industries, as well as agriculture, including extensive sugarcane along the Mississippi River corridor.

Many communities within the Pontchartrain/Breton region have levees and other structures to protect them from storm surge-based flooding. Following Hurricane

1.1M residents at risk from storm surge-based flooding

Home to New Orleans and surrounding communities

100,000+ acres of forested wetlands

Includes the Port of New Orleans

Image: Delacroix, Louisiana (CPRA)

Katrina in 2005, HSDRRS was built to reduce flood risk in Orleans, Jefferson, St. Bernard, Plaquemines and parts of St. Charles parishes; much of the area on the East Bank; and other areas in this region. Master plan modeling suggests that, with prescribed maintenance, including authorized lifts, the system will continue to provide a 1% AEP level of risk reduction over the next 50 years even under the higher environmental scenario. In 2021, construction began on the West Shore Lake Pontchartrain Hurricane Protection project. Once complete, the structure will provide 100-year storm surge flood protection to 60,000 Louisianans in St. Charles, St. James, and St. John the Baptist parishes.

A number of innovative restoration projects have also been implemented in this region to maintain or restore degrading wetlands. The Caernarvon Freshwater Diversion, constructed in 1991, was initially designed to manage salinity levels in the Breton Sound area to be suitable for oysters in the public seed grounds. It has since shown that it can build and sustain land and is now operated to better support ecosystem restoration. The West Bay Sediment Diversion, completed in 2003, is an uncontrolled diversion of Mississippi River freshwater and sediments on the west bank above Head of Passes in the Bird's Foot Delta. The success of these projects supports the currently planned diversion projects in the region, including the River Reintroduction to Maurepas Swamp and the Mid-Breton Sediment Diversion.

In recent years, many communities from East Baton Rouge Parish to Slidell have experienced substantial growth. In these areas, communities are developing in previously undeveloped lowland and flood prone areas. As these areas are developed, risk of damage due to storm surge-based flooding rises substantially. As CPRA and its partners work to mitigate this risk, it is imperative that local authorities support smart growth and development by enacting appropriate policies, ordinances, and rules. Requiring building design to utilize freeboard and build above the base flood elevation and limiting unfettered development in flood-prone areas now can pay dividends later by eliminating unnecessary damages and the need to retrofit structural or nonstructural strategies. Only proper land use planning and appropriate building practices will allow Louisiana to keep up with the changing landscape of risk.

Image: Lafitte Post Hurricane Isaac, 2012 (CPRA)

HURRICANE ISAAC

Hurricane Isaac first made landfall at Southwest Pass before returning to water and making a second landfall at Port Fourchon on August 29, 2012. The slow-moving storm made landfall as a Category 1 hurricane with maximum sustained winds of 80 mph. Storm surge from Hurricane Isaac reached 11 ft at Shell Beach and 6-8 ft in the surrounding areas of southeast Louisiana. Inundation over ground level reached 17 ft in parts of Plaquemines Parish and overtopped levees in Braithwaite. Its unusual track and speed produced flooding and damage to Terrebonne, Barataria, Breton, and Pontchartrain basins. North Shore communities of Mandeville, Slidell, and Eden Isles saw significant impacts as well as areas of Livingston and Tangipahoa parishes. Using ADCIRC, Hurricane Isaac was modeled on the existing landscape and on the landscape 50 years from now under the lower environmental scenario to illustrate how land loss, sea level rise, and subsidence lead to greater flooding and damage without further action. The results show an additional 2-3 ft of storm surge in communities like Lafitte, Delacroix, Mandeville, and Maurepas. Hurricane Isaac would have produced three times as much economic damage (measured in 2020 dollars) across southeast Louisiana if it occurred 50 years in the future with no additional restoration or risk reduction measures in place. Much of the increase in damage is concentrated in St. Tammany Parish, particularly in Slidell, which illustrates the importance of the Slidell Ring Levee.

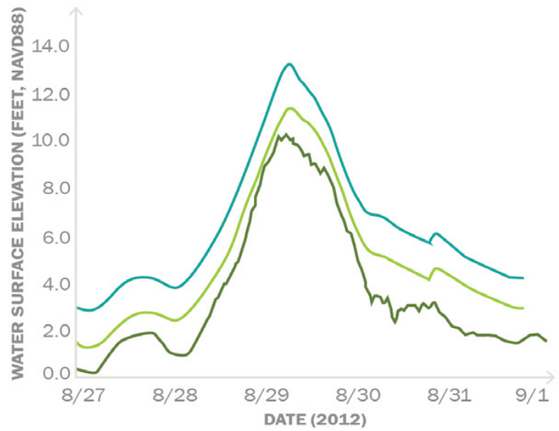

Figure 6.21: Hurricane Isaac Storm Surge Simulations.

Image: Maurepas Swamp (CPRA)

COASTAL FORESTS

One of the most extensive areas of coastal forest, including cypress tupelo swamp and bottomland hardwoods, occurs in the upper Pontchartrain Basin, west of Lake Maurepas. During storms, forested areas can mitigate storm damage as the forest canopy reduces the effects of the wind on the water surface, and the trees slow water movement. The presence of forests can result in piling up of surge within the forested areas and in areas closer to the Gulf. Predictive modeling showed that if coastal forests were replaced with herbaceous marshes, storm surge can penetrate further inland leading to a greater extent of flooding. Communities, such as Ponchatoula and Hammond, may experience more frequent flooding. In addition, some storms could result in deeper flooding in areas presently inland of extensive coastal forests, such as Sorrento. The surge attenuation provided by coastal forests can provide significant economic benefits, especially in communities like Gonzales, Prairieville, Livingston, Ponchatoula, Springfield, and Tangipahoa. Projects, such as River Reintroduction to Maurepas Swamp, could indirectly reduce storm surge-based flood risk by helping to sustain coastal forests.

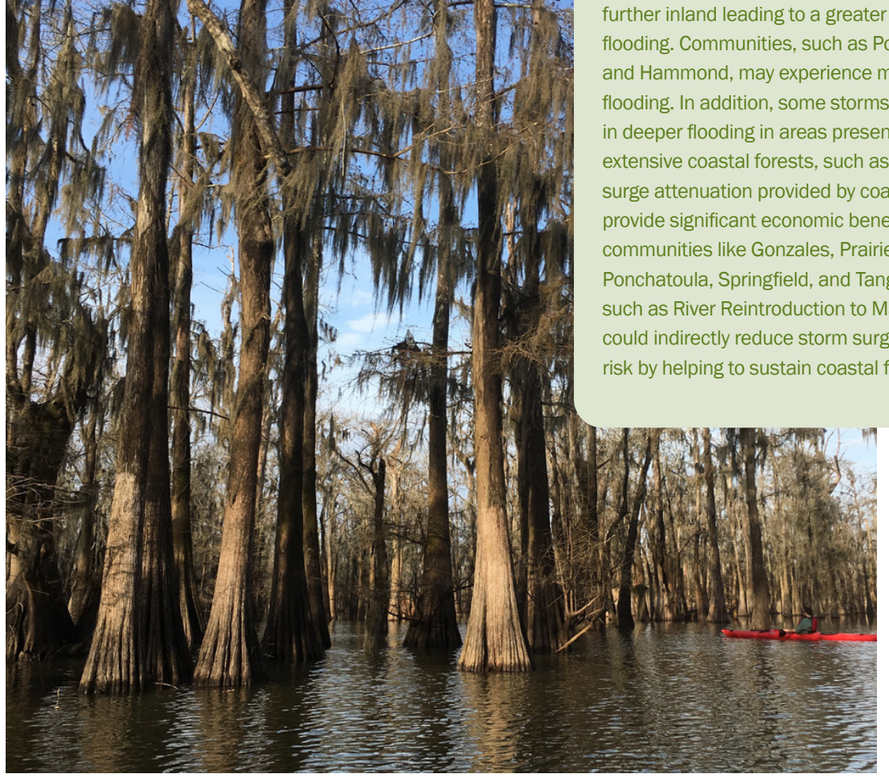

Image: Maurepas Swamp (CPRA)

Explore more on CPRA's website. https://coastal.la.gov/our-plan/2023-coastal-master-plan/

>>> Shoreline protection is most effective in areas with acutely high erosion rates (e.g., the Pointe Aux Marchettes area from the vicinity of Bayou Grande to Malheureux Point on the eastern shore of Lake Borgne) and is considered consistent with the master plan and can be evaluated on a case-by-case basis. See **Chapter 4: Evaluate** for more information on programmatic restoration.

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>>> The Mississippi River Gulf Outlet (MRGO) Ecosystem Restoration plan has identified projects to restore and protect areas that had been impacted by the MRGO prior to its closure in 2009. The Ecosystem Restoration plan was completed in 2012 and with the 2022 Water Resources Development Act (WRDA) Congress clarified that the plan would be carried out at full federal expense. This represents a tremendous opportunity for restoration in the region.

PONTCHARTRAIN / BRETON

REGIONAL 2023 PROJECTS MAP

For the 2023 Coastal Master Plan, 23 projects were selected for the region. These projects include several marsh creation projects and other project types intended to maintain important landscape features and functions, such as a broad estuarine gradient. Structural risk reduction projects were selected that benefit several communities on the east bank of the Mississippi River as well as communities on the North Shore, which are expected to face significantly increased storm surge-based flood risk into the future.

Structural Risk Reduction
Ridge Restoration
Marsh Creation
Diversion
Barrier Island Maintenance

Map 6.18: Pontchartrain/Breton 2023 Coastal Master Plan Projects.

N 0 2 4 8 MILES

ID#	PROJECT NAME	DESCRIPTION	IP	COST
310	**Three Mile Pass Marsh Creation and Hydrologic Restoration**	Creation of marsh within a footprint of approximately 11,000 acres including a 660 acre footprint filling areas deeper than 2.5 feet to create new wetland habitat and restore degraded marsh in Malheureaux Point and Grand Pass. 20,000 feet of oyster reef creation along the created marsh in Three Mile Bay to reduce hydrologic connectivity between Mississippi and the interior of the Biloxi Marsh Complex.	2	$ 560M
035	**Hopedale Marsh Creation**	Creation of marsh within a footprint of approximately 1,900 acres in northern Breton Sound in the vicinity of Hopedale to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	2	$ 160M
037e	**New Orleans East Marsh Creation**	Creation of marsh within a footprint of approximately 29,000 acres in a portion of the New Orleans East Landbridge Marsh Creation project to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	2	$ 1.1B
040	**Central Wetlands Marsh Creation**	Creation of marsh within a footprint of approximately 3,800 acres in Central Wetlands near Bayou Bienvenue to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	1	$ 49M
246	**Sunrise Point Marsh Creation**	Creation of marsh within a footprint of approximately 2,200 acres on east bank of Plaquemines Parish around Auguste Bay to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	1	$ 47M
247	**Uhlan Bay Marsh Creation**	Creation of marsh within a footprint of approximately 960 acres on east bank of Plaquemines Parish around Uhlan Bay to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	1	$ 33M
248c	**Pointe a la Hache and Carlisle Marsh Creation**	Creation of marsh along the east side of the Mississippi River from White Ditch to Bohemia to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	1	$ 860M
249	**Fritchie North Marsh Creation**	Creation of marsh within a footprint of approximately 4,400 acres in St. Tammany Parish along the eastern Lake Pontchartrain shoreline to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	1	$ 110M
250	**Oak River to Delacroix Marsh Creation**	Creation of marsh within a footprint of approximately 2,400 acres in Plaquemines Parish between Grand Lake and Lake Lery to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	1	$ 170M
251	**Spanish Lake Marsh Creation**	Creation of marsh within a footprint of approximately 840 acres in Plaquemines Parish along the eastern shore of Spanish Lake to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	2	$ 61M
253	**Tiger Ridge/Maple Knoll Marsh Creation**	Creation of marsh within a footprint of approximately 4,700 acres in Plaquemines Parish near Tiger Ridge to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	1	$ 150M
313	**West Delacroix Marsh Creation**	Creation of marsh within a footprint of approximately 5,100 acres south and west of Delacroix Island to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	1	$ 390M
314	**Belle Pass Island Marsh Creation**	Creation of marsh within a footprint of approximately 3,800 acres on Belle Pass Island near Bohemia to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	1	$ 99M
315	**North and East Lake Lery Marsh Creation**	Creation of marsh within a footprint of approximately 14,000 acres in north and east Lake Lery to create new wetland habitat, restore degraded marsh, and reduce wave erosion.	2	$ 890M
316	**Chandeleur Sound Island Restoration Projects**	Creation of marsh within a footprint of approximately 940 acres in the eastern Biloxi Marsh Complex to create new wetland habitat, restore degraded marsh, and reduce wave erosion on Comfort Island, Mitchell Island, Martin Island, and Brush Island.	2	$ 57M
054	**Bayou LaLoutre Restoration**	Restoration of approximately 110,000 feet of historic ridge along Bayou LaLoutre to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	2	$ 26M
318	**Tchefuncte River Ridge Restoration**	Restoration of approximately 3,600 feet of historic ridge at the mouth of the Tchefuncte River to provide coastal upland habitat, restore natural hydrology, and provide wave and storm surge attenuation.	1	$ 1.9M
014a	**Central Wetlands Diversion**	Diversion into Central Wetlands near Violet to provide sediment for emergent marsh creation and freshwater to sustain existing wetlands, 5,000 cfs capacity (modeled at a constant flow of 5,000 cfs, independent of the Mississippi River flow). The location of the diversion channel will be further evaluated during feasibility studies.	2	$ 270M
361a	**Upper Basin Diversion Program - Pontchartrain**	Multiple freshwater and sediment diversions into the swamps of the Western Pontchartrain and Upper Barataria basins were modeled for inclusion in the plan. These projects showed complex interactions with other diversions assumed to be operating on the landscape. This program will evaluate how diversions into the upper basins could be operated in conjunction with currently planned diversions to maintain swamps and coastal marshes, sustain estuarine gradients, and aid in Mississippi River flood control. These studies will lead to the construction of one or more diversion features into Barataria or Maurepas basins.	1	$ 750M
029	**Lake Pontchartrain Barrier**	Construction of closure gates and weirs to an elevation of 2 feet NAVD88 across the passes at Chef Menteur and the Rigolets for storm surge risk reduction within the Lake Pontchartrain Basin.	1	$ 2.4B
032	**Slidell Ring Levees**	Construction and improvement of a levee to an elevation between 13 to 17 feet NAVD88 around the City of Slidell. Project features approximately 76,000 feet of earthen levee, approximately 11,000 feet of T-wall, a 30-foot barge gate, a 180-foot barge gate, a 220-foot barge gate, a 20-foot stop log gate, and a 30-foot stop log gate.	1	$ 420M
319	**Braithwaite to White Ditch**	Improvements of a levee to an elevation of 15 feet NAVD88 between Braithwaite and White Ditch. Project features approximately 94,000 feet of earthen levee and approximately 280 feet of T-wall.	1	$ 440M
320	**St James-Ascension Parishes Storm Surge Protection**	Construction of a levee to an elevation of 16 feet NAVD88 protecting areas between Geismer and Gramercy. Project features approximately 140,000 feet of earthen levee, approximately 6,800 feet of T-wall, a 40-foot roller gate, two 40-foot roller gates, four sluice gates, a one-way culvert for the Panama Canal Connector, and four pump stations.	2	$ 730M

Figure 6.22: Pontchartrain/Breton Project List.

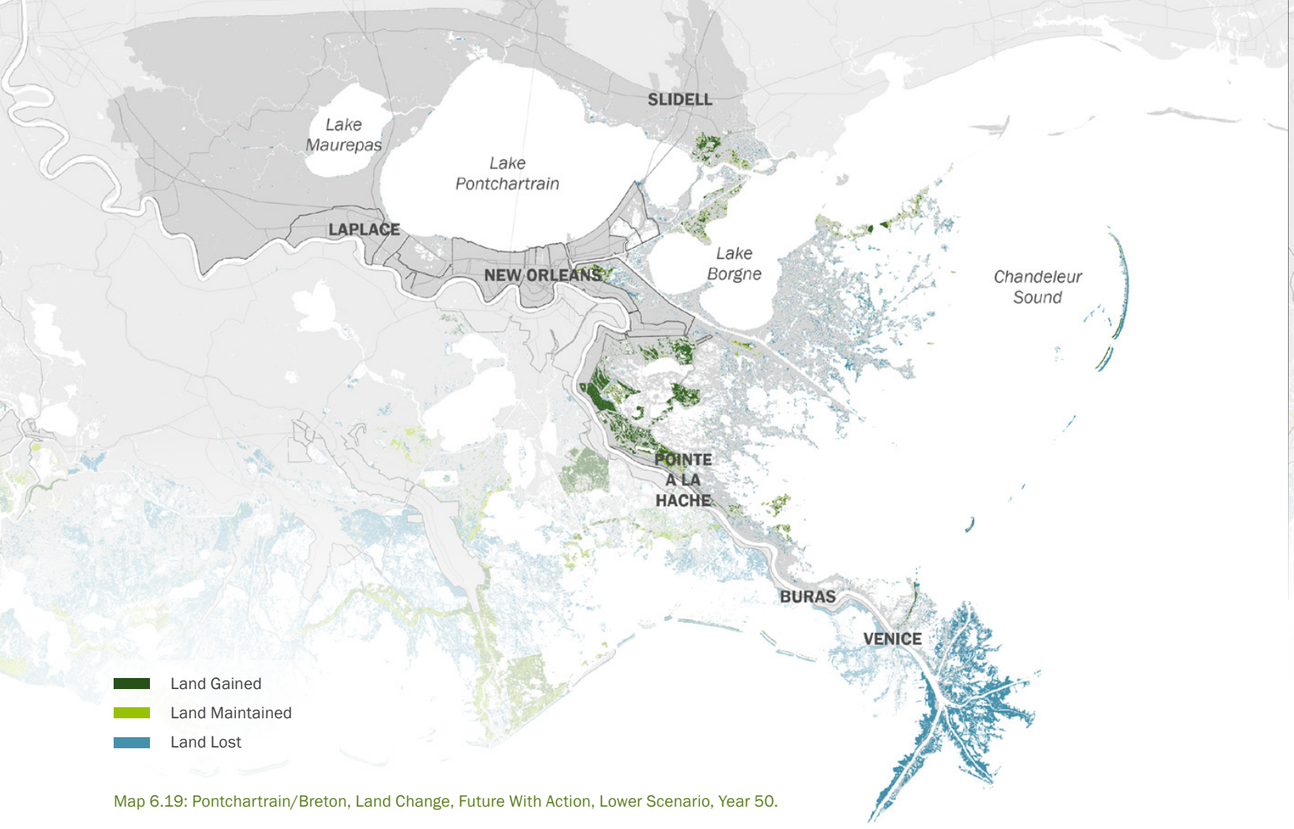
Image: Marsh Creation construction of the New Orleans Landbridge, 2022 (CPRA)

NORTH SHORE STRUCTURAL RISK REDUCTION

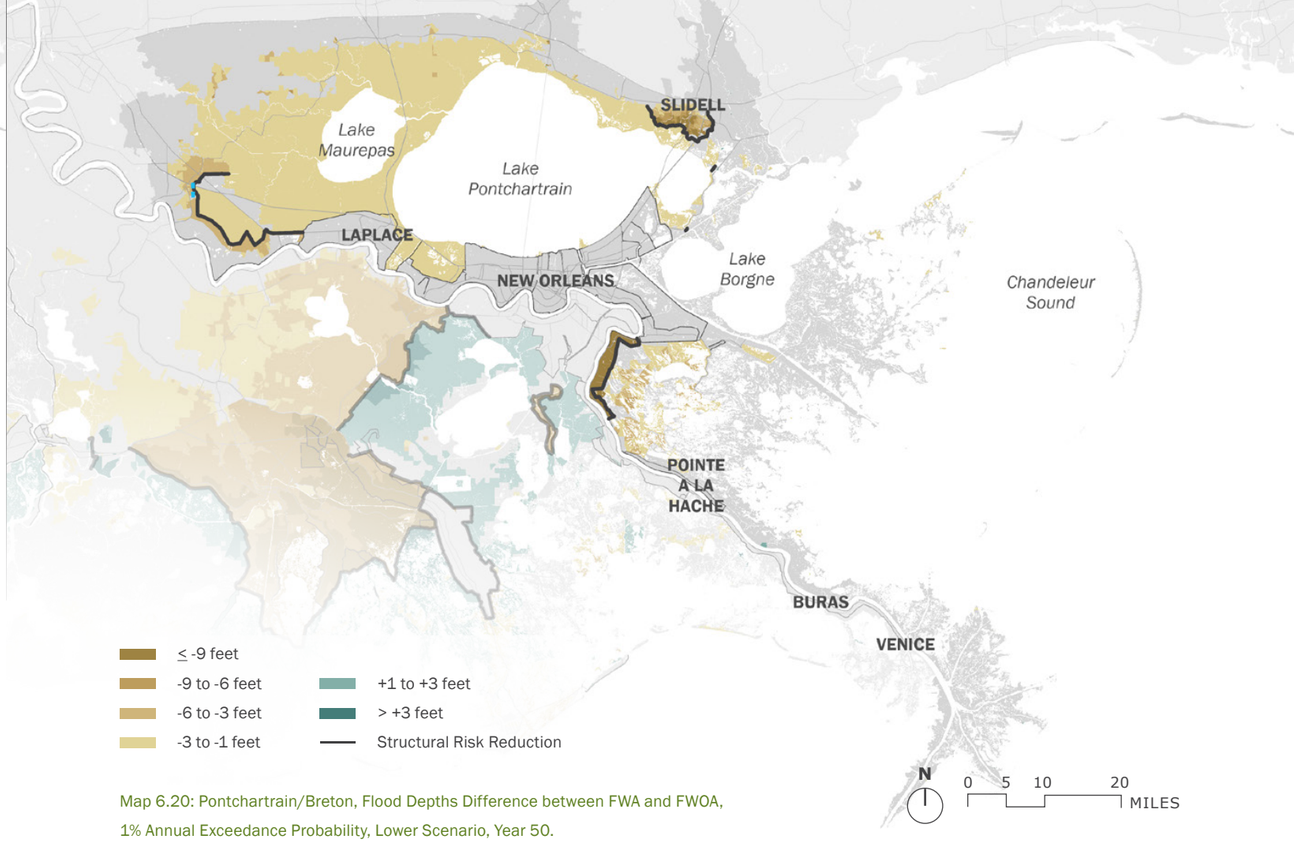
The communities of Slidell, Eden Isles, and Pearl River collectively have among the highest risk from storm surge-based flooding in coastal Louisiana – an estimated $845 million EADD under current conditions, which is expected to triple over the next 50 years under the lower environmental scenario. The Slidell Ring Levee project reduces roughly 35% of the risk in these communities. Fully addressing this risk will require both structural and nonstructural mitigation measures. The Slidell Ring Levee project includes the construction or improvement of nearly 17 mi of levees and floodwalls around Slidell. The levee alignment is based on USACE's St. Tammany Parish Feasibility Study Tentatively Selected Plan (TSP). USACE's TSP included a significant nonstructural component, but excludes structural protection for communities like Eden Isles. CPRA will implement structural risk reduction measures (e.g., flood gate, pump station, road elevation) for that community to supplement the TSP. Such efforts have the potential to further reduce risk for over 2,100 homes.

MARSH CREATION PROJECTS

Several large-scale marsh creation projects were selected in the area of Breton Sound just east of the Mississippi River, including West Delacroix Marsh Creation and Pointe a la Hache and Carlisle Marsh Creation. These projects plan to use sediment dredged from the Mississippi River. The proximity to the Mississippi River as a source of sediment makes these more cost-effective than similar projects without nearby borrow areas. As these projects move into feasibility and design, there may be additional opportunities to coordinate construction of multiple projects and utilize pipeline corridors.



Map 6.19: Pontchartrain/Breton, Land Change, Future With Action, Lower Scenario, Year 50.



Map 6.20: Pontchartrain/Breton, Flood Depths Difference between FWA and FWOA, 1% Annual Exceedance Probability, Lower Scenario, Year 50.

REGIONAL PROJECT BENEFITS

With action, we build and maintain 37,000 acres of land in the lower environmental scenario and 65,000 acres in the higher scenario. Restoration includes extensive marsh creation in the Breton Basin and east of Lake Pontchartrain, as well as a small diversion into the Central Wetlands. The Mid-Breton Sediment Diversion is included in FWOA. In the lower scenario, these projects result in a major increase in land area in the next 50 years. Despite implementation of the plan, land loss continues in the Bird's Foot Delta. In the higher scenario, most of the projects are locally effective in maintaining land over 50 years, although there is extensive loss in the Biloxi marshes and around Lake Borgne. In both scenarios, the swamps and fresh and intermediate marshes around Lake Pontchartrain and in the upper Pontchartrain Basin remain intact, in part due to the influence of the River Reintroduction to Maurepas project, which is in FWOA.

Four structural risk reduction projects were selected in the Pontchartrain/Breton region. In aggregate, they reduce future surge-based flood risk in the region by 35%. These projects provide a $1.6 billion reduction in EADD at Year 50 under the lower scenario and a $2.5 billion reduction in EADD at Year 50 under the higher scenario. Even with the implementation of these structural risk reduction projects, significant residual risk remains, especially on the North Shore. Our analysis shows a significant need and opportunity for nonstructural risk reduction in these communities.

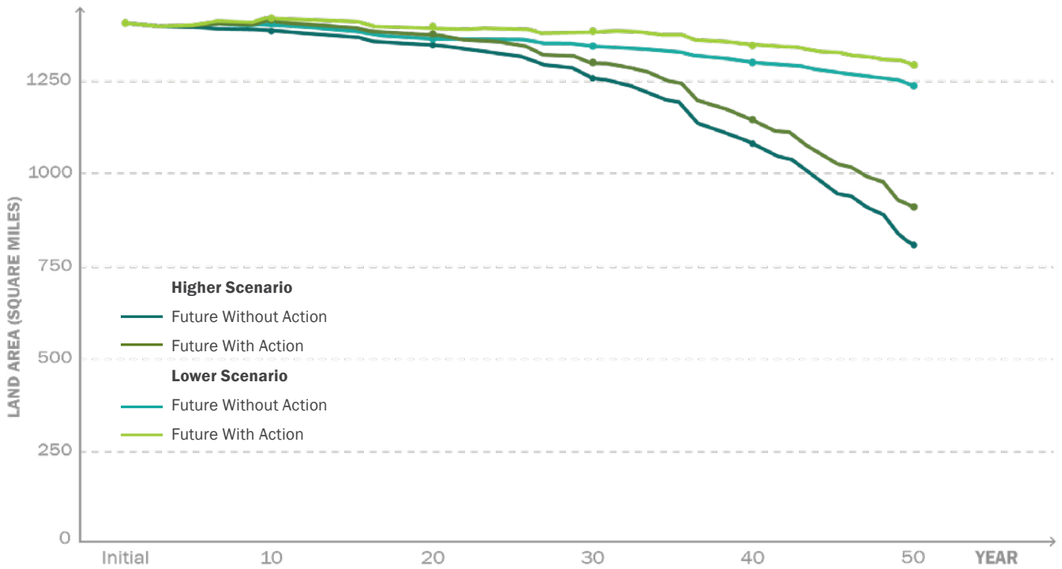


Figure 6.23: Pontchartrain/Breton Land Area Over 50 years, Future With and Without Action, Higher and Lower Scenario.

CHAPTER 7

BEYOND THE MASTER PLAN

In addition to the 2023 Coastal Master Plan, the State of Louisiana is involved in several programs and initiatives intended to benefit coastal landscapes and residents. More information about some of those can be found in this section.

Image: Lake Hermitage, 2020 (CPRA)

BEYOND THE MASTER PLAN

PROGRAMS AND INITIATIVES

This chapter outlines projects, programs, and initiatives that work with the master plan to actively shape the future of coastal Louisiana's communities and landscape.

In support of these efforts, data and information generated through the master plan process are available to all stakeholders, from the general public to government program managers, researchers, and educators. While some are led by CPRA, others are led by CPRA's state and federal agency counterparts whose directives focus on topics related to coastal restoration and protection. Several example efforts highlighted in this chapter are briefly described below.

Most directly tied to the master plan is the 2023 Master Plan Data Viewer. The data viewer complements the master plan by providing access to data and information developed as part of this most recent planning process. This interactive tool displays projected flood risk and land change data that helps viewers visualize what change might look like over time in their communities and across the coast. The data viewer also provides detailed information about recommended protection and restoration projects.

Each six-year master plan update cycle is an adaptive management exercise and includes evaluating and redefining the problem, revisiting overarching goals and objectives, developing and refining system models, identifying uncertainties, formulating the plan, monitoring actions, and assessing the system. The science that underpins the master plan is continually being advanced as the master plan is developed our team evaluates recent analysis and incorporates new research into the process. Field investigations undertaken by CPRA and our partners are also used to refine our understanding of coastal processes. This approach maximizes the success of the coastal protection and restoration program by iteratively incorporating new information into each step of the planning and decision-making process.

In addition to updating and implementing the master plan, CPRA is also responsible for administering several programs tied to specific regions of the coast. Examples of these programs include the Atchafalaya Basin Program (ABP), the Lowermost Mississippi River Management Program (LMRMP), and the Barrier Island System Management Program (BISM).

The ABP was established to develop and implement a comprehensive plan to address the priority issues affecting the Atchafalaya Basin Floodway System. Implementation of the program occurs through an annual planning process.

Of key importance to the nation, and Louisiana is another river – the Mississippi River. The LMRMP is a $9.3 million effort that aims to move toward a more holistic approach for water and sediment management that supports the long-term sustainability of the Lowermost Mississippi River.

Barrier islands are another critical component of the coastal landscape that CPRA works to maintain. BISM is a holistic, system wide approach to island management that guides when and where to focus restoration resources (funding and sediment) to maintain barrier island systems.

Although CPRA is solely responsible for developing and implementing many coastal projects, programs, and initiatives, CPRA's leadership and staff understand the importance of collaborating with and leveraging the efforts of other state and federal partners across the coast. Collective efforts forged through both long-standing and more recent collaborations yield synergistic results. Example collaborative efforts include the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) program, the Southwest Coastal Louisiana Study, and the Louisiana Watershed Initiative (LWI).

The purpose of the CWPPRA program is to identify, prepare, and fund construction of restoration projects throughout coastal Louisiana as well as to promote research and implement wetland preservation. This program has a long history of implementing restoration and monitoring across the coast. The Chairman of the CPRA Board sits on the CWPPRA Task Force.

The Southwest Coastal Louisiana Study was completed in 2016 by USACE with CPRA as the local sponsor; it recommended both risk reduction and ecosystem restoration measures across Calcasieu, Cameron, and Vermilion parishes. Through the Infrastructure Investment and Jobs Act of 2022 and Fiscal Year 22 Community Projects Funding, $296 million has been secured for implementation of voluntary nonstructural risk reduction measures recommended by the study.

Although CPRA primarily focuses on coastal restoration and protection, the agency participates in important initiatives that extend beyond the coastal area. One example is LWI. CPRA serves as one of five state agencies on the Council on Watershed Management, which administers LWI. LWI represents a new watershed-based approach to floodplain management in Louisiana and seeks to reduce flood risk and improve floodplain management across the state, including through maximizing the natural and beneficial functions of the floodplain.

One of the programs that LWI is implementing through the Office of Community Development, is a voluntary buyout program. This program was created to provide assistance to willing landowners in flood prone areas. While not limited to the coastal zone, this program provides benefits, primarily to low to moderate income residents, to help move residents out of harm's way and relocate to higher and drier ground.

In addition to efforts in which CPRA is directly involved, other critical efforts are being carried out which affect coastal Louisiana communities. For example, the Climate Initiatives Task Force was established by Executive Order in 2020 to develop strategies and actions to address the causes of climate change, identify strategies to improve resilience, and develop policies to reduce greenhouse gas (GHG) emissions to put Louisiana's efforts in line with the goals of the Paris Climate Agreement. The Louisiana Climate Action Plan was approved in 2022 and contains strategies and actions to reduce GHG emissions across the state's economy. Restoring and conserving coastal wetlands is one of 28 strategies outlined in the plan.

Another example initiative with direct impacts to Louisiana's citizens is the Federal Emergency Management Agency's (FEMA) Risk Rating 2.0. Through this effort, FEMA is updating the National Flood Insurance Program's risk rating methodology through the implementation of a new pricing methodology. The methodology leverages industry best practices and cutting-edge technology to enable FEMA to deliver rates that are actuarially sound, equitable, easier to understand and better reflect a property's flood risk.

2023 MASTER PLAN DATA VIEWER

For the 2017 plan, CPRA made public access to information a priority and worked to develop a new tool, the Master Plan Data Viewer, to serve as a complement to the plan document.

This interactive tool increases the accessibility of complex model output information and enables coastal Louisiana residents to see how the landscape and their flood risk from storms may change over time 50 years into the future.

Similarly, the 2023 Master Plan Data Viewer is an interactive online companion to the 2023 plan and includes land change, vegetation type, flood depth, damage, and 2023 Coastal Master Plan project information. The land change and vegetation type data can be explored by decade, by environmental scenario, for both with and without the master plan in place. Flood depth and damage information can be explored in the same way, with the added layers of seeing how depth and damage change when the frequency of occurrence (annual exceedance probability) varies and how projected damage is quantified over time either in dollars or by structures.

Not only has the viewer been updated with the 2023 plan information, which includes the most up to date model outputs at a higher resolution, but the viewer's style and functionality has also been improved. While the viewer's goal is to make the master plan data accessible to residents, the viewer holds a wealth of information also used by community planners, businesses, parish officials, other state agencies, and academia. Many of the changes made were a result of feedback received directly from all of these stakeholders.

One significant improvement to the user experience is that the landing screen now has the option to take a guided tour that explains why there is a need for a master plan and illustrates the viewer's features and the types of information available. This new guided tour option allows us to share important context and background on the viewer's data to improve coastal Louisiana residents' understanding and usability of the information, and in turn increases their flood risk awareness and provides them with important information needed to prepare and plan for their futures.

Other important updates to highlight are the ability to access and easily use the 2023 Master Plan Data Viewer on mobile phones and tablets, literally putting the data within arm's reach. This has proved to be invaluable in sharing information and discussion both with and among community members. In addition, the viewer's search bar functionality has expanded beyond entering addresses so you can now search for keywords, such as part of a project name. Additional features include new zoom and highlighting functions whereby clicking on a project name zooms to that location, and clicking on a project type highlights them across the coast.

Explore the 2023 Master Plan Data Viewer and send any questions or feedback to masterplan@la.gov.

Explore more on CPRA's website: https://coastal.la.gov/our-plan/2023-coastal-master-plan/

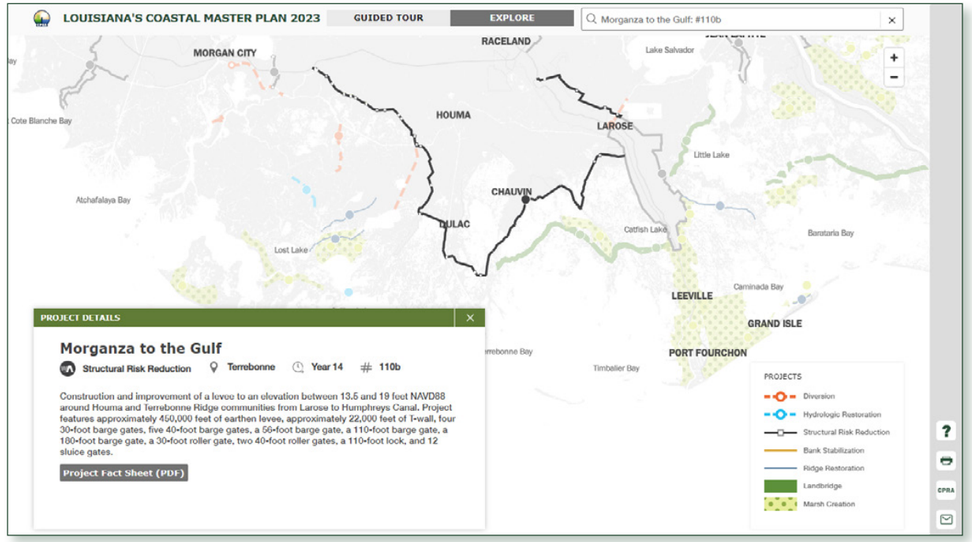


Figure 7.1: Desktop View of the Master Plan Data Viewer Showing Project Information.

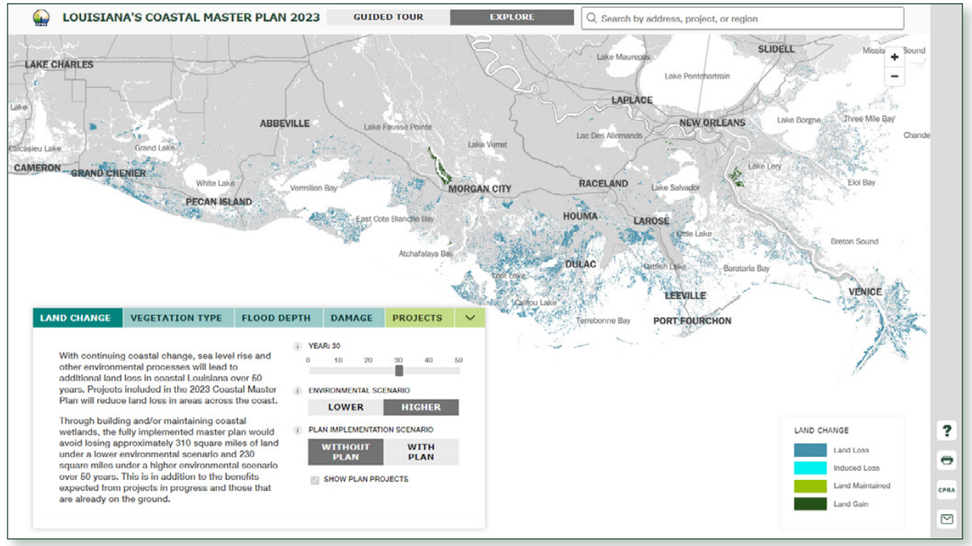


Figure 7.2: Desktop View of the Master Plan Data Viewer Showing Coastwide Land Change Data.

ADAPTIVE GOVERNANCE INITIATIVE

The impacts of Louisiana's coastal crisis extend beyond the immediate effects of land loss or hurricane storm damage and demand interventions outside the scope of hurricane protection and coastal restoration projects.

The impacts of coastal change on local communities present significant challenges to stage agencies charged with the continued management of state-owned assets and the provision of services to coastal residents and communities. Recognizing the wide-ranging impacts associated with our changing coast, Governor Edwards signed Executive Order 2020-19 on Coastal Resilience in August of 2020.

Executive Order 2020-19 began the process of building a broader, cross-government approach to resilience by appointing an inaugural Chief Resilience Officer for the state and charging each executive agency with appointing a resilience coordinator to be the agency's point person for advancing responses to the demands of a changing coast. These resilience coordinators are tasked with conducting vulnerability assessments to identify the ways their agencies are impacted by coastal change both now and in the future. They are also responsible for developing adaptation actions that address their agencies' most significant vulnerabilities.

Although each agency in the Executive Branch has a distinct mission and its own expertise, resources, and responsibilities, they are all impacted and tested by the monumental changes occurring across Louisiana's coast.

Each of these agencies also has a role to play in building a more resilient coast. Coastal resilience spans several spheres of state government — it includes a robust built environment, a sustainable natural environment, a strong economy, and health and opportunity for all coastal residents.

The Adaptive Governance Initiative (AGI) asks agencies to consider their role in proactively planning for coastal resilience and ensuring that they can continue to meet their mission in the face of increasing coastal change. Such a multi-sector, holistic approach to the coastal crisis is necessary to support coastal residents and business in the face of rapid change.

The crisis on the coast is punctuated by singular disasters like hurricanes, but it also brings chronic stressors for the people, communities, natural resources, and economies of Louisiana as water levels rise and land degrades. These chronic issues often manifest in higher management costs, increased workloads, and extended periods of emergency operations within state agencies. Through the AGI each agency is identifying ways to adapt to these changes while also elevating the challenges and needs that are common across several agencies.

Together, agencies are helping to build a more resilient state by supporting more comprehensive and adaptable programs and assets that meet the changing needs of our coastal populations.

Louisiana's master plan offers a foundation for the agencies' work by providing analysis and insights into how the coast will change over time, including

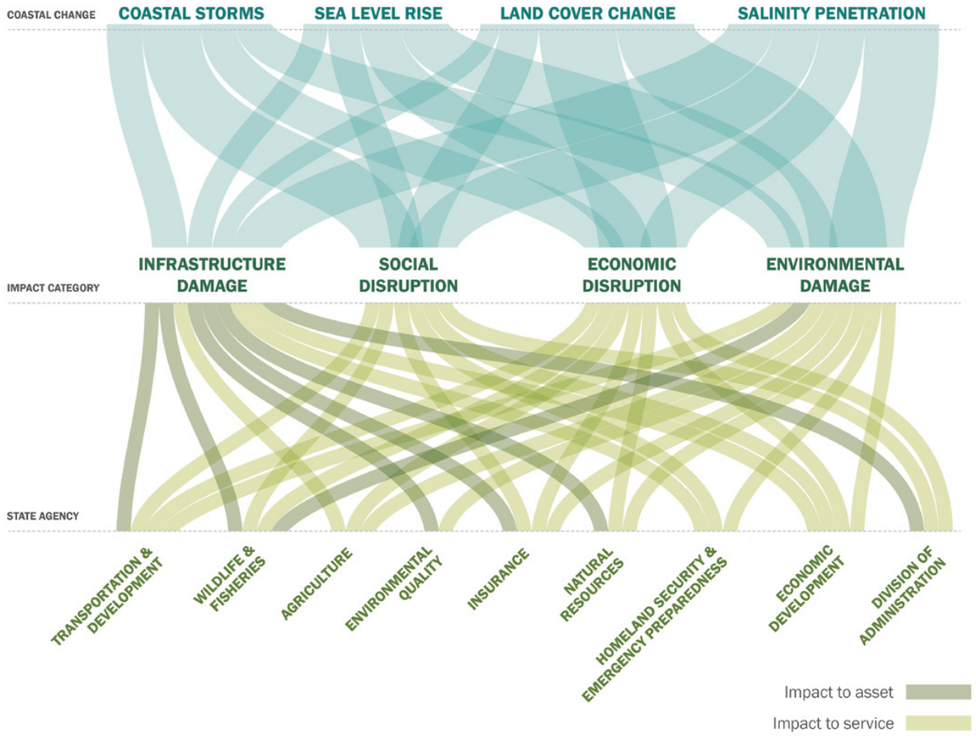


Figure 7.3: Cascading Impacts of Coastal Change to a Selection of State Agencies.

which areas may face increasing environmental risk and which may have more time to adapt. Equipped with this critical information, agencies across government can better plan their investments in assets and adjust their programs to serve the people of Louisiana and carry out their missions more effectively and efficiently today and in the future.

The AGI is a joint effort of the Office of the Governor and the Center for Planning Excellence (CPEX) and is being implemented with support from the Walton Family Foundation, the Kresge Foundation, Foundation for Louisiana, Greater New Orleans Foundation, and CPRA.

"...Whereas the full breadth of tools, expertise, and missions of Louisiana's various state agencies must be brought to bear to more fully and more directly address the economic and social implications of Louisiana's degrading coast; and whereas this multi-agency approach will ensure the best outcomes for the people of Louisiana and better position the state to partner with the parishes and municipalities most at risk from coastal change..."

- Governor John Bel Edwards
Executive Order JBE 2020-19

ATCHAFALAYA BASIN PROGRAM

The Atchafalaya Basin is the nation's largest river swamp, containing almost one million acres of America's most significant bottomland hardwoods, swamps, bayous, and backwater lakes. The basin begins near Simmesport, LA, and stretches 140 mi southward to the Gulf of Mexico. Currently, the Atchafalaya Basin is bound by ridges formed by levee building along active and abandoned courses of the Mississippi River and serves as a critical relief valve for extreme flood events on the Mississippi River.

Authorized in 1928 by the Flood Control Act, the Atchafalaya Basin Floodway System serves as a system of public works within the lower Mississippi Valley, providing flood risk management and a stable, efficient navigation channel using levees and floodwalls, floodways, channel improvements and stabilization. Over time, however, modifications to the natural flow regime of the Atchafalaya River and its swamp have caused sedimentation and water quality issues in the basin. Poor water quality is the result of poor connectivity of waterways in the basin, leaving many areas stagnant and with low dissolved oxygen that, in turn, promotes an overabundance of invasive, aquatic plants, such as water hyacinth and hydrilla. These pervasive issues threaten the ecosystem, navigation, flood control, and the communities that rely on the basin's natural and cultural resources.

The Atchafalaya Basin Program (ABP) was established to develop, implement, and manage a comprehensive state master plan for the Atchafalaya Basin Floodway System. ABP is part of CPRA's overall annual planning process. The primary goal of ABP is to improve water quality and improve access to the basin through the implementation of hydrologic restoration projects. Through the implementation of these projects, the program ensures that the ongoing work aligns with the state's coastal priorities.

Although ABP is administered by CPRA, many entities provide recommendations and guidance such as the Atchafalaya River Basin Restoration and Enhancement Task Force (ARBRE). ARBRE is made up of stakeholders that include state and local leaders, academics, private citizens, and state agency representatives. ARBRE is chaired and staffed by the Governor's Office of Coastal Activities (GOCA). ARBRE was created to identify major concerns and develop strategies and recommendations to the CPRA Board.

ARBRE works to elevate critical issues facing the Atchafalaya Basin, identify and build support for new and recurring sources of funding, identify shared goals and values for restoration and enhancement of the basin, and serve as a proactive means to build consensus and advise ABP on matters relating to the implementation of the Atchafalaya Basin Floodway System. Once ARBRE was established, its primary mission was to study the Atchafalaya Basin and develop an initial report on findings for the CPRA Board. The recommendations included the following:

- Enhance outreach that highlights the importance of the Atchafalaya Basin locally
- Urge and request Congress to fully fund construction of finalized USACE studies relevant to the management of the Atchafalaya Basin as well as fund authorized studies
- Urge USACE to approach management of the Atchafalaya Basin holistically, designating ecological restoration as a primary component along with flood control and navigation
- Request the CPRA Board evaluate inclusion of the remainder of the Atchafalaya Basin within the Louisiana Coastal Zone
- Restore the north/south sheet flow within the basin
- Restore and conserve deep water habitats within the basin
- Examine ways to better manage sediment within the Atchafalaya Basin
- Examine the current hydrology of the Atchafalaya Basin, including management of the Old River Control Complex and the Atchafalaya Basin channel outlets
- Update the state's Atchafalaya Basin Master Plan to include current conditions and challenges as determined by the ARBRE Task Force
- Recommend the CPRA Board and CPRA enhance public engagement concerning the management of the Atchafalaya Basin
- Recommend the ARBRE Task Force be used to discuss and inform potential management actions within the Atchafalaya Basin
- Explore opportunities for significant recurring funding for ABP

These recommendations inform CPRA on the implementation of future projects. CPRA considers projects for funding on an annual basis. All projects submitted through CPRA's ABP solicitation process are screened on a variety of metrics, including master plan consistency, geographic areas with issues of water quality, sedimentation, public access, and nonduplication of submissions previously turned down. CPRA, as the non-federal sponsor for USACE Floodway Projects, provides the mechanisms to match federal dollars used in the mitigation of the Atchafalaya Basin Floodway System.

Image: Atchafalaya Swamp, 2018 (Louisiana Sea Grant College Program)

CLIMATE INITIATIVES TASK FORCE

In August 2020, Governor John Bel Edwards signed an Executive Order to create the Louisiana Climate Initiatives Task Force in response to the 2018 Intergovernmental Panel on Climate Change (IPCC) Special Report on greenhouse gas (GHG) emissions reduction pathways. The Task Force was established to develop strategies and actions to address the causes of climate change, identify strategies to improve resilience, and develop policies to reduce GHG emissions in an effort to help avoid the worst impacts of climate change as well as put Louisiana's efforts in line with the goals of the Paris Climate Agreement.

The Louisiana Climate Initiatives Task Force was a 2-year initiative to support the state achieving net zero GHG emissions by 2050. In order to achieve net zero emissions, the Task Force has set the following emission reduction goals:

- By 2025, reduce net GHG emissions by 26-28% of 2005 levels
- By 2030, reduce net GHG emissions by 40-50% of 2005 levels
- By 2050, reduce GHG emissions to net zero

More than 140 experts participated as members of the Task Force, its committees, or its advisory groups and engaged across nearly 50 public meetings held since November 2020. The Task Force includes scientists, state administrators, academics, oil industry representatives, and environmental advocates. The Task Force was supported by volunteers from diverse backgrounds organized into six sector committees, representing different sectors of the state's economy and four advisory groups focused on equity, science, legal, and financial considerations. The 23-member body set priorities for the overall planning process as well as an approved set of recommendations for the Climate Action Plan. The Task Force was chaired and staffed by the Governor's Office of Coastal Activities (GOCA). Under leadership of the Governor's Executive Assistant for Coastal Activities, GOCA served as the staff and managers of the Task Force, advisory groups, and sector committees in coordination with advisory and committee chairs.

Louisiana is among the most vulnerable states in the United States to the impacts of climate change. The state's hot and humid climate and location at the mouth of the Mississippi River and the edge of the Gulf of Mexico carry environmental challenges that have direct and indirect impacts on local communities. Throughout the state, whole communities are being displaced. Louisiana is home to people, critical industries, cultural resources, and tourism economies. The coastal plain and low-lying regions of the southeast are extremely vulnerable to climate change impacts. Flood frequencies, extreme rainfall events, and sea level rise affect property values and the viability of infrastructure. Extreme heat and changing seasonal climates are projected to have impacts on exposure-linked health and economic vulnerabilities in agricultural, timber, and manufacturing sectors.

The Louisiana Climate Action Plan contains 28 strategies and 84 specific actions to reduce GHG emissions across the state's economy. The report provides details from activities across the economy about where Louisiana's GHG emissions originate, where they are naturally absorbed from the atmosphere, and direction about how to approach GHG emissions reductions in a focused way. The planning process for developing the Final Climate Report was developed through the Structured Decision Making approach, which integrates science and policy to break down complex decisions and identify solutions that achieve the desired ends.

With the technical support of the Louisiana State University (LSU), the LSU Center for Energy Studies conducted an update to Louisiana's GHG inventory using the United States Environmental Protection Agency's State Inventory Tool methodology to ensure consistency with the methodology used to prepare the state's previous inventory. A Science Advisory Group provided oversight and direction to guide the GHG inventory update process, including two rounds of comments. The inventory estimates and assesses the state's GHG emissions from all major sources, activity types, economic sectors, and pollutant types and provides an important updated snapshot in time of Louisiana's GHG baseline. Overall, the findings of this inventory suggest that industrial decarbonization is critical to achieve future GHG emission goals in Louisiana.

A presentation of draft findings was shared with the Task Force in its July 2021 meeting. The plan recommends strategies (high-level approaches) and actions (practical and implementable policy steps) to reduce GHG emissions to net zero by 2050 and avert the worst impacts of climate change.

The recommendations span eight sections and include the following:

- Clean energy transition
- Industrial decarbonization
- Actively managed methane emissions
- Transportation, development, and the built environment
- Natural and working lands and wetlands
- An inclusive, low-carbon economy
- Collaboration and partnership to ensure successful implementation
- Accountability and adaptability to ensure lasting success

The plan also includes three priority policy pillars:

- Renewable electricity generation
- Industrial electrification
- Industrial fuel switching to low- and no-carbon hydrogen.

The plan also offers strategies and actions that can improve health outcomes and the quality of life of Louisiana residents immediately. These actions include reducing the amount of fossil fuel combustion in the production of electricity and manufactured goods and from buildings and transportation while helping to slow the warming of the atmosphere that causes other climate impacts that harm health, safety, and quality of life.

The Climate Action Plan was approved on January 31, 2022, and the final plan, Louisiana's Climate Action Plan was sent to the Governor for his consideration on February 1, 2022. The Task Force met again in March 2022 to move forward with the plan's implementation. As the state's first effort to address the root causes of climate change, the Climate Action Plan also contains a detailed description of the science of climate change and details how a warmer planet is impacting Louisiana people, environment, and economy with increasing severity and frequency.

SOUTHWEST COASTAL LOUISIANA

The people, economy, environment, and cultural heritage of Southwest Coastal Louisiana are at risk from damages caused by hurricane storm surge-based flooding. The area's flat, low elevation, proximity to the Gulf of Mexico, subsiding lands, and rising seas, are all contributing factors that cause coastal flooding, shoreline erosion, saltwater intrusion, and loss of wetland and Chenier habitats.

The Southwest Coastal Louisiana Study is the first federally authorized feasibility level study with the dual purpose of addressing hurricane and storm damage risk reduction and restoring the coastal ecosystem of southwest Louisiana. The study focuses on 4,700 sq mi in the Calcasieu, Cameron, and Vermilion parishes. In 2016, the study established the Southwest Coastal Louisiana Final Integrated Feasibility Report and Environmental Impact Statement (2016 Feasibility Report).

After the study was completed in 2016, Congress authorized the Southwest Coastal Louisiana Hurricane and Storm Surge Damage Risk Reduction and Ecosystem Restoration Project in the Water Infrastructure Improvements for the Nation Act of 2016 (WIIN Act of 2016). This project will decrease damages related to storm surge-based flooding by implementing risk reduction strategies, such as floodproofing, structural elevation, and localized storm surge risk reduction measures (berms). Implementation of the project will benefit social and economic factors related to housing, tax revenue and property values, and community cohesion. Participation in this project is completely voluntary. Benefits that structure owners may experience as a result of the project may include reduced storm damages for little-to-no out of pocket expenses and increased community resilience.

Construction funding was added to the 2022 Infrastructure Investment and Jobs Act in the amount of $120 million. The funds are only available for the storm damage risk reduction features of the project. Additional USACE guidance is forthcoming once the funds are made available. The $296 million investment is projected to elevate over 500 structures.

USACE will work closely with the CPRA Board, who will serve as the non-federal sponsor, to execute a Project Partnership Agreement. Once the agreement is in place, USACE will solicit and award a Design/Build Construction Contract to prepare individual plans. Once agreed to by the homeowner, the CPRA Board and USACE will issue a notice to proceed to elevate the structure to the projected Year 2075 100-year base flood elevation. Homeowners will be required to sign a floodproofing agreement stating that they cannot use the space below the first floor for living space along with other terms.

To date, 27 structures have been approved for construction and elevation — 10 in Calcasieu Parish and 17 in Vermilion Parish. USACE prioritized the structures by their first floor elevation and the low to moderate income area status. Approximately 150 voluntary applications have been received for inclusion in the project from the targeted list of homeowners, and elevation of the first structures is expected in early 2023.

BARRIER ISLAND SYSTEM MANAGEMENT

Coastal Louisiana's barrier island systems are an important component of the Mississippi River Delta Plain, providing a variety of ecosystem services, such as habitat, storm surge buffering, and maintenance of marine and estuarine gradients. For decades, there have been efforts to restore and protect these rapidly degrading barrier islands. In 2021, CPRA developed the Barrier Island System Management (BISM) program with facilitation by the Water Institute of the Gulf. BISM is a holistic, system-wide approach to barrier island management that guides when and where to focus restoration resources to maintain barrier island integrity, while minimizing overall system maintenance costs and reducing project implementation times.

Two databases were created to support the BISM program. The BISM Database of Databases is an inventory of data relevant to barrier island restoration decisions. The BISM Stakeholder Concern Inventory details decision-maker and stakeholder interests relevant to barrier island restoration, including potential funding entities and regulatory authorities.

Louisiana has also developed the Barrier Island Restoration Tradeoff Analysis (BIRTA) toolkit to support quantitative analysis of restoration project consequences, identify future sediment and funding needs, and provide input into the design of monitoring programs. Because the model is probabilistic and driven directly by available data, it can identify the largest uncertainties and most critical gaps in barrier island restoration prioritization.

There are several additional steps that can be taken to advance the programmatic objectives of BISM, including:

- Expansion of Louisiana Sediment Availability and Allocation Program for broader use in Regional Sediment Management and linkage with the BISM BIRTA toolkit
- Coordination of BISM and Barrier Island Comprehensive Monitoring Program (BICM) as part of an adaptive management approach to barrier island and headland restoration and monitoring
- Enhance linkages of BISM with the master plan
- Working Group to streamline project permitting

COASTAL WETLANDS PLANNING, PROTECTION, AND RESTORATION ACT

The Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) was established in 1990 through federal legislation to identify, prepare, and fund construction of coastal wetland restoration projects throughout Louisiana. While restoration is a major part of the initiative, CWPPRA also aims to promote research and implement wetland preservation. Since its foundation, Louisiana has benefited from the continued efforts of CWPPRA in overseeing and implementing roughly 210 coastal restoration or protection projects.

The CWPPRA Program is managed by the CWPPRA Task Force comprised of representatives of the Louisiana's Governor's Office of Coastal Activities as well as five federal agencies, including USACE, NOAA, the U.S. Fish and Wildlife Service, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Services, and the U.S. Environmental Protection Agency. The Task Force plans and implements projects that create, protect, restore, and enhance wetlands throughout coastal Louisiana.

Because CWPPRA projects are partially funded by the state, all CWPPRA projects are required to be consistent with the master plan. Input and public participation are essential parts of project design, planning, and selection each year. The selection process consists of four regional planning teams accepting projects nominated by the public, with a coastwide planning team selecting up to 20 engineering and design projects and six demonstration (planning) projects from the nominated list. Ten candidate projects and three demonstration projects are selected for more detailed assessments. Work groups review and evaluate project costs, need, feasibility, and the overall benefit. The CWPPRA Technical Committee conducts public hearings to release findings and receive comments about the candidate projects. The Technical Committee recommends up to four of the 10 candidate projects for the CWPPRA Task Force to select projects to receive funding.

CWPPRA project funding is allocated through an annual funding stream, with a mix of federal and state funds. Federal funding comes through the Sport Fish Restoration and Boating Trust Fund, which is funded by taxes on marine fuel, boater registrations, and fishing equipment. There is an 85% federal, 15% state cost share, with roughly $5 million allocated for planning, $3 to $4 million allocated for engineering and design projects, and project-dependent funding for construction and post completion monitoring/maintenance. Funded projects provide for the long-term conservation of wetlands and dependent fish and wildlife populations with cost-effective plans for creating, restoring, protecting, or enhancing coastal wetlands.

Considered the backbone for restoration throughout the state, CWPPRA has an entire suite of projects identified for restorative habitat. Administered by USACE, typical projects undertaken through CWPPRA include marsh creation, shoreline protection, hydrologic restoration, beneficial use of dredged material, terracing, sediment trapping, vegetative planting, barrier island restoration, and bank stabilization. Funded projects provide for the long-term conservation of wetlands and dependent fish and wildlife populations by creating, restoring, protecting, or enhancing coastal wetlands.

LOWERMOST MISSISSIPPI RIVER MANAGEMENT PROGRAM

The Lowermost Mississippi River Management Program (LMRMP) aims to move toward a more holistic approach for water and sediment management that supports the long-term sustainability of the Lowermost Mississippi River (LMR), defined for purposes of the program as the Mississippi River and its outlets in southern Louisiana below, and inclusive of, the Old River Control Structure.

LMRMP effort was launched in 2018 and will conclude in fall 2023 and is supported primarily by a $9.3 million award to CPRA from the Gulf Coast Ecosystem Restoration Council-funded Component of the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies of the Gulf Coast States (RESTORE) Act. CPRA also leveraged external funding from the National Wildlife Federation. It builds upon the Louisiana Coastal Area Mississippi River Hydrodynamic and Delta Management Study previously conducted by USACE and CPRA and serves to further develop the science needed to adequately inform decision-makers on future LMR management.

LMRMP is structured to strengthen partnerships, improve/develop science and technical tools, and help advance holistic water and sediment management that yield practical benefits across all interests. CPRA objectives for managing LMR include:

- Support the long-term sustainability of the coast and reduce land loss to the extent possible,
- Maintain and enhance channels that support use of the LMR for navigation,
- Enhance the health of ecosystems associated with the LMR,
- Mitigate threats to communities and infrastructure posed by river flooding, and
- Support holistic management of LMR water and sediment resources to maximize benefits across all missions.

LMR's response to previous and ongoing management, sea level rise, subsidence, and watershed-scale precipitation trends related to climate change will continue to test our knowledge and management capabilities. Data and decision support tools are needed to evaluate existing river conditions and approaches for future management strategies.

Specific tasks include synthesizing existing and newly collected data, conducting numerical and physical modeling, performing economic analyses, investigating existing river management, identifying and evaluating high-level "what if" river management strategies and future environmental scenarios, and coordinating with other programs and initiatives such as the Mississippi River Mid-Basin Sediment Diversion Program.

Efforts associated with LMRMP will result in greater understanding of river hydrodynamics and flow, sediment transport and dredging, and landscape condition and change, and will support progression toward holistic management of Mississippi River sediment and water resources. More information on the program and individual tasks, links to task overviews, team members, and deliverables, can be found at https://cims.coastal.la.gov/outreach/Projects/LMRMP. All deliverables associated with LMRMP will be made available through CPRA's Coastal Information Management System (CIMS), and river-focused datasets will be made available on the RESTORE-funded Mississippi River Data Portal (https://cims.coastal.la.gov/river/).

LOUISIANA WATERSHED INITIATIVE

In 2016, historic flooding throughout Louisiana exposed deficiencies in the state's approach to floodplain management at all levels of government, prompting a reassessment of how Louisiana prepares for increasing flood events. An early investigation into innovative solutions identified regional watershed-based floodplain management as a means to systemically address water management and avoid interventions that may unintentionally increase runoff or subsequent flooding on adjacent communities, whether upstream or downstream.

In 2018, Governor John Bel Edwards issued Executive Order JBE18-16 to create the Council on Watershed Management (Council) to reform the state's approach to flood risk mitigation. The Council is composed of five state agencies — the Office of Community Development (OCD), the CPRA, the Department of Transportation and Development (DOTD), the Governor's Office of Homeland Security and Emergency Preparedness (GOHSEP), and the Department of Wildlife and Fisheries (DWF). These agencies are working together to provide funding, technical support, data, and resources for flood risk reduction across the state. The Council administers the Louisiana Watershed Initiative (LWI) — a new watershed-based approach to floodplain management in Louisiana. LWI's mission is to reduce flood risk and improve floodplain management across the state, including through maximizing the natural and beneficial functions of the floodplain. The state agencies composing LWI are actively implementing this mission through a holistic approach that includes:

- Improving the way residents and governments understand, address, and respond to flood risk
- Organizing a structure for making decisions and improvements on a regional scale
- Developing the modeling, planning, and data tools needed to inform and support effective watershed-based decisions and projects

In August 2019, the Council agreed to use eight watershed regions as a starting point to coordinate efforts among parishes and distribute project funds.

Following the launch of LWI, the U.S. Department of Housing and Development (HUD) allocated approximately $1.2 billion to Louisiana in Community Development Block Grant Mitigation (CDBG-MIT) funding for the purpose of mitigating current and future flood risk, providing an unprecedented opportunity to enhance and expedite LWI efforts. Guided by a federally approved Action Plan, LWI is utilizing these funds to support statewide planning, watershed modeling, data collection, and flood mitigation projects that reduce flood risk across the state. In administering this grant, the state and its various jurisdictions and political subdivisions are coordinating expenditures and activities throughout LWI to improve statewide floodplain management.

More information on LWI, including its various programs — many of which are ongoing and supported by the CDBG-MIT funding stream —can be found at https://watershed.la.gov/.

HYPOXIA TASK FORCE

The Mississippi River/Gulf of Mexico Watershed Nutrient Task Force, or "Hypoxia Task Force," is a partnership of 12 states along the Mississippi River, five federal agencies, and Tribes working in collaboration to reduce nutrient pollution in the Mississippi/Atchafalaya River Basins and the extent of the hypoxic zone in the Gulf of Mexico. Established in 1997 to understand the causes and effects of eutrophication in the Gulf of Mexico and to coordinate management activities throughout the Mississippi-Atchafalaya River Basin, Hypoxia Task Force activities include improvements in management of both point sources and nonpoint sources of nutrient pollution to reduce inputs into the river system. The goal of the Hypoxia Task Force is to reduce the hypoxic zone to less than 5,000 km^2 by 2035 with an interim target to reduce nitrogen and phosphorus loading 20% by 2025 (relative to the 1980-1996 baseline average loading to the Gulf).

Every five years, the Hypoxia Task Force updates its Gulf Hypoxia Action Plan to assess actions taken, discuss success stories, and prioritize future efforts. A critical component to the state aligning to the goals of the Gulf Hypoxia Action Plan has been development and implementation of Louisiana's Nutrient Reduction and Management Strategy.

The implementation strategy focuses on six key areas: river diversions, nonpoint source pollution management, point source pollution management, incentives, leveraging opportunities, and new science-based technologies and applications. The Louisiana Nutrient Reduction and Management Strategy is being implemented by an interagency team with members from CPRA, the Louisiana Department of Environmental Quality, Department of Agriculture and Forestry, Department of Natural Resources, and the Governor's Office of Coastal Activities. Also, with the development of the System-Wide Assessment and Monitoring Program, water quality and nutrient sampling has been implemented coastwide to improve spatial and temporal understanding of water quality within our coastal waters. These additional monitoring sites not only provide improved baseline water quality data but will also help inform master plan models and measure proposed changes to water quality in coastal Louisiana.

RISK RATING 2.0

UPDATES TO THE NATIONAL FLOOD INSURANCE PROGRAM AND COASTAL LOUISIANA

Flooding – whether from storm-surge, high water levels in rivers and bayous, or from heavy rain events – is a risk that residents throughout Louisiana face every year. Options to address this risk include implementation of flood protection features (such as levees and flood gates) and proper floodplain management. However, even with mitigation measures in place, flooding events can still impact the lives and livelihoods of Louisianans, therefore we recognize the benefits of a strong National Flood Insurance Program (NFIP); and strongly encourage all Louisianans (especially those in coastal areas) to assess their flood risk and purchase flood insurance if their situation and financial resources allow.

The Federal Emergency Management Agency (FEMA) administers the NFIP and has, among other programmatic goals, a statutory responsibility to clearly communicate flood risk to citizens. FEMA recently modified its flood insurance rating methodology for the first time since the 1970s. The new methodology, known as Risk Rating 2.0 (RR2.0), is intended to help individuals and communities to make more informed decisions when purchasing flood insurance and to provide details on mitigation options that may reduce flood risk and lower flood insurance rates.

When setting NFIP premiums using RR2.0, FEMA now takes multiple variables into account for each individual property. These variables include the ground elevation, proximity to a flooding source, first floor elevation, foundation type, construction details, and whether the property is located in a community that is protected by levees or has otherwise implemented additional flood mitigation measures such as participating in the Community Rating System (CRS). Prior to RR2.0, all NFIP policyholders had been subject to premium increases; the annual rate increases were capped at 18% for most policyholders and increases were applied to all properties. Under RR2.0, premiums are tailored to an individual property and annual rate increases will continue at no more than 18% per year until an individual property's "full risk-based rate" is met. With the implementation of RR2.0, 80% of Louisiana policyholders saw an increase in insurance rates.

While the goals of the NFIP are in line with the 2023 Coastal Master Plan's goal of reducing flood risk, there are concerns about the impact of the implementation of the RR2.0 methodology in Louisiana. Increases to flood insurance rates may make it harder to ensure a stable and affordable housing market which is necessary to not unduly disrupt local revenues, culture, productive fisheries, and the productive economy of Louisiana's working coast. Because the storm surge-based flood risk modeling undertaken for the master plan incorporates the latest details on Louisiana's storm surge risk reduction activities, it could be leveraged by FEMA for determining tractable, accurate, and defensible flood risk exposure values for use in NFIP policy-writing within coastal Louisiana.

Additionally, the proposed structural and nonstructural risk reduction projects, as well as wetland restoration projects, identified in the 2023 Coastal Master Plan provide a direct path forward for reducing storm surge-based flood risk for coastal residents in Louisiana. The construction of new levees, such as those included in this plan, as well as individual nonstructural mitigation activities should be taken into account and regularly updated in the NFIP premium-determination process. However, under RR2.0, the benefits of structural and nonstructural flood protection are no longer tightly coupled to premium rates due to a smaller impact of home elevation (relative to base flood elevation) in the overall rate-setting calculations. Incorporating additional factors such as proximity to water complicates the rate-setting and likely has the unintended consequence of reducing the insurance-related incentive for homeowners to elevate their homes.

The state, parishes, levee districts, congressional delegates, and Governor John Bel Edwards have all asked for clarity from FEMA; specifically, that details are provided on exactly how the new "full risk-based rates" were determined in our state in areas protected by levees or otherwise. The information that FEMA has provided to date has been insufficient for Louisianans to fully understand how the rates are set and, importantly, what the impact of coastal risk reduction projects would have on premiums. While we continue to ask for clarity, parish and municipal governments should continue to implement flood mitigation policies and projects with the direct intention of increasing the communities' participation in CRS in order to reduce their residents' NFIP premiums. As of 2022, only 12% of NFIP-participating communities in Louisiana are enrolled in CRS. Communities already enrolled should continue to implement projects and policies to further reduce their residents' premium rates; those communities not enrolled should be encouraged by their constituents to explore CRS enrollment.

Image: Pointe-aux-Chênes, 2020. (Louisiana Sea Grant College Program)

committed to **our coast**

Image: Looking towards Lake Washington from the Mississippi River, 2016 (Lindsey Janies)

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GLOSSARY

Annual Exceedance Probability (AEP) Flood Depth: The flood depth, at a specific location, that has a likelihood of being met or exceeded in any given year. For example, a 1% AEP flood depth is the depth that has a 1% (or 1-in-100) chance of occurring (or being exceeded) in any given year; this specific example is often referred to as a 100-year flood.

Environmental Scenarios: Sets of assumptions about key environmental drivers affecting land change and flood risk. These include several climate and non-climate drivers of change such as sea level rise, precipitation, and subsidence. To evaluate and prioritize projects, this process utilized two scenarios that represent a range of plausible future environmental conditions that were utilized to account for uncertainty in planning.

Expected Annual Damage in Dollars (EADD): An annualized estimate of storm surge damage. Includes damage to structures, their contents, and other direct losses incurred during the recovery period after a storm event, such as lost wages, costs associated with evacuation and temporary displacement, and other considerations. Measured in $USD.

Expected Annual Structural Damage (EASD): An annualized estimate of structural damage that represents an aggregate risk to structures, with damage to each structure expressed as a proportion of its replacement cost. Considers equity in project selection process by eliminating the role of property values in estimating damages. Measured in structure equivalents.

Future With Action (FWA): A modeling condition in which 2023 Coastal Master Plan projects are represented on the modeled landscape and outputs are a result of the impact of their implementation.

Future Without Action (FWOA): A modeling condition in which 2023 Coastal Master Plan projects are not represented on the modeled landscape. Outputs provide an understanding of what the future coast could look like without the investments outlined in the 2023 Coastal Master Plan.

Land Loss: The loss of land in coastal Louisiana is caused by a combination of many natural and human-caused factors, including altered hydrology, sea level rise, and land subsidence. Limiting land loss is a decision driver for master plan project selection.

Land Subsidence: Lowering of the land surface due to a combination of natural and human-induced processes such as the removal of oil and natural gas, soil compaction, etc. A major component of relative sea level rise in coastal Louisiana.

Risk: In the master plan context, risk is a term used to mean the potential for damages from storm surge-based flooding. There are additional types of risk that impact coastal communities as a result of the adverse consequences of climate-related and other hazards.

Storm Surge-Based Flooding: Flooding generated by a hurricane or tropical storm, over and above the predicted astronomical tides. Limiting damages from storm surge-based flooding is a decision driver for master plan project selection.

FIGURES & MAPS

FIGURES

MAPS

COASTAL PROTECTION AND RESTORATION AUTHORITY OF LOUISIANA
coastal.la.gov

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