

Statement of Steve Cochran
Director, Restore the Mississippi River Delta
Regarding America's Water Infrastructure Needs and Challenges
Before the Committee on Environment and Public Works
United States Senate

January 10, 2018

Thank you Mr. Chairman, Ranking Member Carper and members of the Committee for inviting us to be here today. I also want to thank Senators Cassidy and Kennedy for their diligent work on behalf of our state's vulnerable communities and the protection strategies and natural resources on which they rely.

I am Steve Cochran, Assoc. Vice President with Environmental Defense Fund, and the Director of a coalition called Restore the Mississippi River Delta. We are a coalition of 3 national organizations (EDF, the National Audubon Society, and the National Wildlife Federation) and 2 Louisiana based organizations (Coalition to Restore Coastal Louisiana and the Lake Pontchartrain Basin Foundation). For over 10 years, our coalition has worked together on landscape scale restoration across the Louisiana coast. In addition to my own statement, Coalition members NWF and Audubon have also submitted written testimony, to which I hope the Committee will give its full consideration.

Through our work in coastal Louisiana, and through our national organizations' experiences in coastal areas around the country, we have gained knowledge and experience around coastal restoration and protection, and particularly around the synergies between natural infrastructure and built infrastructure that, when properly paired, can work for optimal delivery of the Corps' multiple missions of navigation, flood control, and restoration. We are committed to helping communities find, fund, and implement means to shape their futures as they work to avoid being at the mercy of the next storm or flood. And we urge the Committee to enhance investments in our critical natural infrastructure as a better-integrated strategic component in that effort.

This morning I will tell you a little about the challenges in my home state of Louisiana, give you a few numbers about the risks and challenges in other parts of the country, and focus on possible solutions.

The Louisiana Experience, and Beyond

As the Committee is well aware, the Louisiana Coast is in the midst of a land loss crisis with dramatic implications for our economy, our natural environment, our culture, and our people. Since the 1930s, we have lost about 1,900 square miles of land to the Gulf. Recent catastrophes, such as Hurricanes Katrina and Rita, and the Deepwater Horizon oil disaster, exacerbated the coastal crisis. Without action, we are projected to lose up to another 4,000 sq. miles within the next 50 years.

These statistics underlie a serious challenge for our communities and for the nation's economy. Currently these threatened coastal lands and wetlands provide protection and support for:

- close to 2 million people;

- nationally significant oil and gas production and transportation, and petroleum and chemical refining;
- globally significant port facilities, as the five south Louisiana ports along the Mississippi River are together the largest port complex in the nation; and
- World-class habitat for countless wildlife species, including a huge diversity of commercial and recreational species.

While the crisis on the Louisiana Coast and the Mississippi River Delta – one of the world’s most important and vulnerable estuaries – is unique, its challenges are mirrored all across the Southeastern US and the rest of the country, where flood and storm damage and the costs of these disasters are escalating at an alarming rate. America’s coastal areas are responsible for 42 percent of national economic output, according to the National Oceanic and Atmospheric Administration¹. They contribute 51 million jobs and \$2.8 trillion in wages². They are home to some 40 million of our fellow Americans. And without significant upgrades in coastal resiliency, those coastal residents, communities, environments, and economic assets are at substantial, intolerable risk.

In fact, Moody’s³ reported in November that in the Northeastern US alone, the current projected economic effects of forecast storm surges are significant, with average annual property losses projected to increase by between \$6 billion and \$11 billion by 2100. Given the devastation and costs associated with the recent storms with which Congress continues to grapple, it would surprise no one if these projections are understated. And in the Gulf Coast Region – where 72 percent of ports, 27 percent of major roads, and 9 percent of rail lines exist less than 4 feet above sea level – the level of exposure poses constant dangers to lives and livelihoods.⁴

Solutions for a changing future

So what is the solutions set for these challenges? Our experience in Louisiana provides us with some key perspectives on sustaining coastal environments and communities:

- Coastlines are complex systems, and each area requires carefully considered measures to adapt to changing conditions.
- No engineered structure is 100% effective against all storms – but structural solutions can be rendered far more effective in concert with restored natural features and processes.
- Our nation’s wetlands and floodplains are themselves critical infrastructure that need to be restored to reduce the impact and costs of floods and storms.

In Louisiana, rather than pitting “grey” vs “green”, we have by necessity pursued the integration and utilization of these infrastructure types for maximum, sustainable benefits and protections for communities. Central to this approach is “Louisiana’s Master Plan for a Sustainable Coast,” a comprehensive state planning initiative that is based on cutting edge science and modeling; is driven by priorities, recognizing finite funding; and enjoys powerful bipartisan support within the state of Louisiana itself, where the issue of coastal restoration is existential in nature. It is an iterative plan

¹ Kidlow, J.T., Colgan, C.S., & Scorse, J. (2009). State of the U.S. ocean and coastal economies. National Ocean Economic Program, Nevada City, CA.

² NOAA, 2001, State of the Coast Report

³ Moody’s Investor Service, “Evaluating the impact of climate change on US state and local issuers” November 27, 2017

⁴ Globalchange.gov

that requires updating every five years so that the latest science is continually incorporated. Each update must be passed through the legislature – and each of its three iterations have been unanimously approved — and its annual funding plan must also pass the legislature, which it has always done. As important, it is informed by an exceptional public engagement process, which gives communities a voice in its development. We strongly recommend that other areas facing significant flooding challenges examine the Coastal Master Plan’s approach as a useful guide.

In the Louisiana Coastal Master Plan, grey projects like rocky shorelines or levees are combined with restored wetlands, barrier islands, and oyster reefs, as well as non-structural approaches like elevated buildings. These different measures are often organized to create a “multiple lines of defense” approach to protection and sustainability. The broad, consistent bipartisan support for the plan is easy to understand: this all-of-the-above approach – restoring critical natural ecosystem functions while addressing structural needs and community resiliency measures – provides the best chance to minimize losses and to maintain the vibrancy and security of the Louisiana Coast.

The graphic included as Attachment A to this statement demonstrates how the State’s plan seeks to integrate these natural and structural components. It is important to note that many natural defenses like the ones illustrated in that image offer significant co-benefits. Healthy shell fish beds can reduce wave heights, while wetlands can absorb flood waters and storm surges (Cunniff 2016⁵). Maritime and mangrove forests can lower wind speeds. Meanwhile all these features can enhance the integrity of engineered features and extend the useful life of traditional infrastructure, protecting ports and other coastal assets. In addition, these features double as wildlife habitat and recreational areas, supporting the outdoor and natural resource economies. Our local groups, Lake Pontchartrain Basin Foundation, and Coalition to Restore Coastal Louisiana have done great work in analyzing and communicating about these kinds of approaches.

We were pleased to see a similar integrated framework in the Corps of Engineers North Atlantic Coast Comprehensive Study, post Sandy. As the graphic included here as Attachment B shows, a conceptual integration of natural and man-made defenses provide better protection, and more resilient and sustainable defenses over time. It also includes other measures to reduce the impacts of floods if they do occur, and ensure human safety. These elements range from “speed bumps” for storm surge (breakwaters, oyster and coral reefs, barrier islands and dunes), to supported and protective habitat (vegetated dunes, wetlands, maritime forests), to more built protections, (living shorelines, levees, seawalls) to the range of inshore-based efforts (retention ponds, elevated buildings, evacuation plans, and even relocation and resettlement).

One key component in the integrated strategy for coastal Louisiana is a series of sediment diversions that are the absolute key to sustainable restoration along the Louisiana coast. These control structures will be built into the Mississippi River levee and used to capture and divert the natural land building abilities of the Mississippi River, to recreate a managed flow of fresh water and sediment to rebuild and sustain functioning wetland habitat that is currently being lost at an alarming rate. These restored wetlands in turn help to protect coastal infrastructure and assets, including the Mississippi River levees themselves, ports, and coastal communities. Large scale sediment diversions will be used in strategic places along the Mississippi River, starting with the

⁵ S.E. Cunniff 2016. “The time to start is now: How implementing natural infrastructure solutions can improve and protect our coasts” *Shore & Beach*, Vol. 84, No. 1, Page 29.

Mid-Barataria Sediment Diversion south of New Orleans. See Attachment C for a visual depiction of the project structure.

The Mid-Barataria Sediment Diversion, originally authorized in WRDA 2007 under a different name, will take fresh water and sediment from the Mississippi River and, at strategic times in the river's cycle, deliver it into threatened wetlands on the western side of the river. In doing so, this project will build new wetlands and sustain existing wetlands, including those created through dredge and fill projects. Its location, and area of influence is shown in Attachment D.

This innovative approach to natural resource restoration, wetland enhancement, and community protection is the kind of thinking, adapted to the particular needs of different areas, that we would encourage – synergistic, function and outcome-oriented, and efficient -- particularly as needs are more and more pressing, and resources stretched thin.

Given the project's surpassing importance and the availability of state funding to construct it through the Deepwater Horizon settlement, the State has assumed responsibility for building the Mid-Barataria Sediment Diversion - subject to federal agency permitting. The project is currently listed on the Federal Permitting Dashboard, a platform established under the Fixing America's Surface Transportation Act (FAST-41). That platform is intended to increase transparency and provide important mechanisms to improve coordination between agencies involved in the permitting process. Nonetheless, our organizations view the posted timeline for project permitting – nearly 5 years – as unacceptable given the urgency of the land loss crisis, and the length of time that these projects have been studied. We will be encouraging permitting agencies including the Corps to work cooperatively and expeditiously to find ways to consolidate the permitting timeline for this critical project, and will be happy to keep the Committee apprised of its progress.

Other recommendations

When considering broader approaches to improve the relevancy, effectiveness and efficiency of the Corps of Engineers, our organizations submit the following thoughts and suggestions. We also include additional ideas from some of the coalition's component members, as an appendix to this testimony.

Our comments reflect 3 related themes: systems thinking, modernization, and funding.

Systems Thinking: In building resilience to extreme weather and other effects of climate change, we can no longer afford to separately address related issues such as flood risk reduction, groundwater recharge, water quality, and habitat restoration. To realize more effective solutions, the Corps should undertake more regional approaches that reflect systems thinking. Currently siloed efforts to address flood control, navigation, and environmental restoration are out of step with the complexity and integrated nature of river and coastal systems, and the need for solutions that address multiple challenges at once.

Modernization: Congress should also require the Corps to evaluate and update operations plans and water control manuals for large-scale Corps projects at least every 10 years, and implement needed operational changes as appropriate. Many major Corps projects are being operated under antiquated, decades-old manuals and plans. Outdated plans often fail to account for system changes, resulting in projects that are not optimized to do the work for which they were designed,

or worse that are operated in such a way that increases risk to communities and causes harm to wildlife habitat and the environment.

To improve project outcomes, we also encourage Congress to direct the Corps to modernize their benefit-cost analyses for flood protection and navigation projects. Current Army Corps benefit-cost analyses are often very inaccurate, with *actual* costs and benefits bearing little to no relation to the benefit-cost ratio used to justify Congressional approval. Among other problems, Corps benefit-cost analyses typically significantly understate actual construction costs, and fail to account for the costs of environmental damage, or the value of the ecosystem services lost as a result of the project.

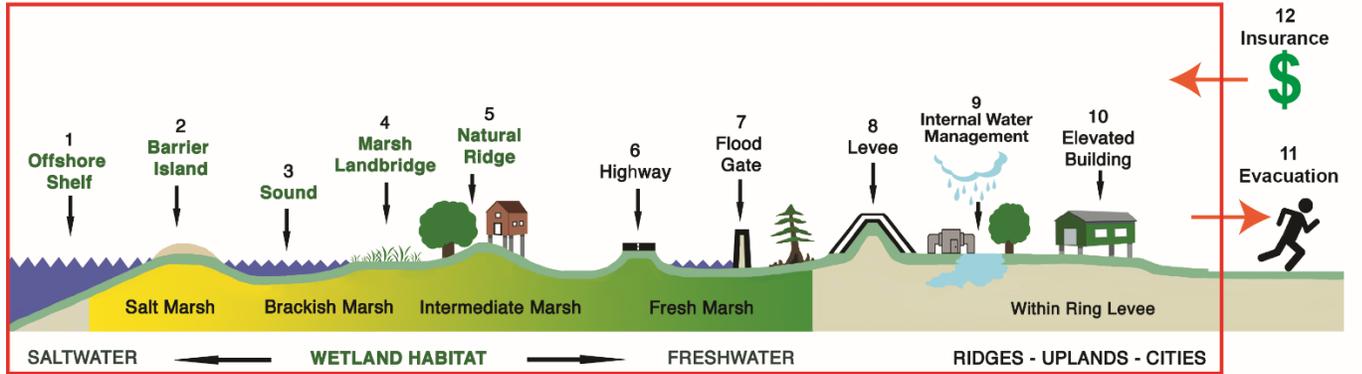
Funding: As coastal and inland flooding challenges mount, and as landscape scale issues require larger projects, the question of how to pay for them grows in urgency. Governmental funding options will be critical, but alone insufficient. A strong federal partner is needed to catalyze partnerships and make a serious commitment to resiliency. We encourage the Committee to ensure that federal agencies including the Corps are, as much as possible, equipped with the tools, capabilities, and financing flexibilities to do large scale restoration.

For example, in the case of the Gulf Coast Ecosystem Restoration Council, on which the Army Corps sits, dollars available to fund restoration projects pursuant to the BP settlement are disbursed in increments over the course of 15 years, making large scale restoration difficult. This could be addressed by granting the RESTORE Council bonding and borrowing authority – providing them the flexibility to make strategic investments in large-scale projects across the Gulf upfront, rather than having to wait for the money to gradually accumulate before it can be used.



Attachment B: Integrated coastal framework based on Corps of Engineers North Atlantic Coast Comprehensive Study

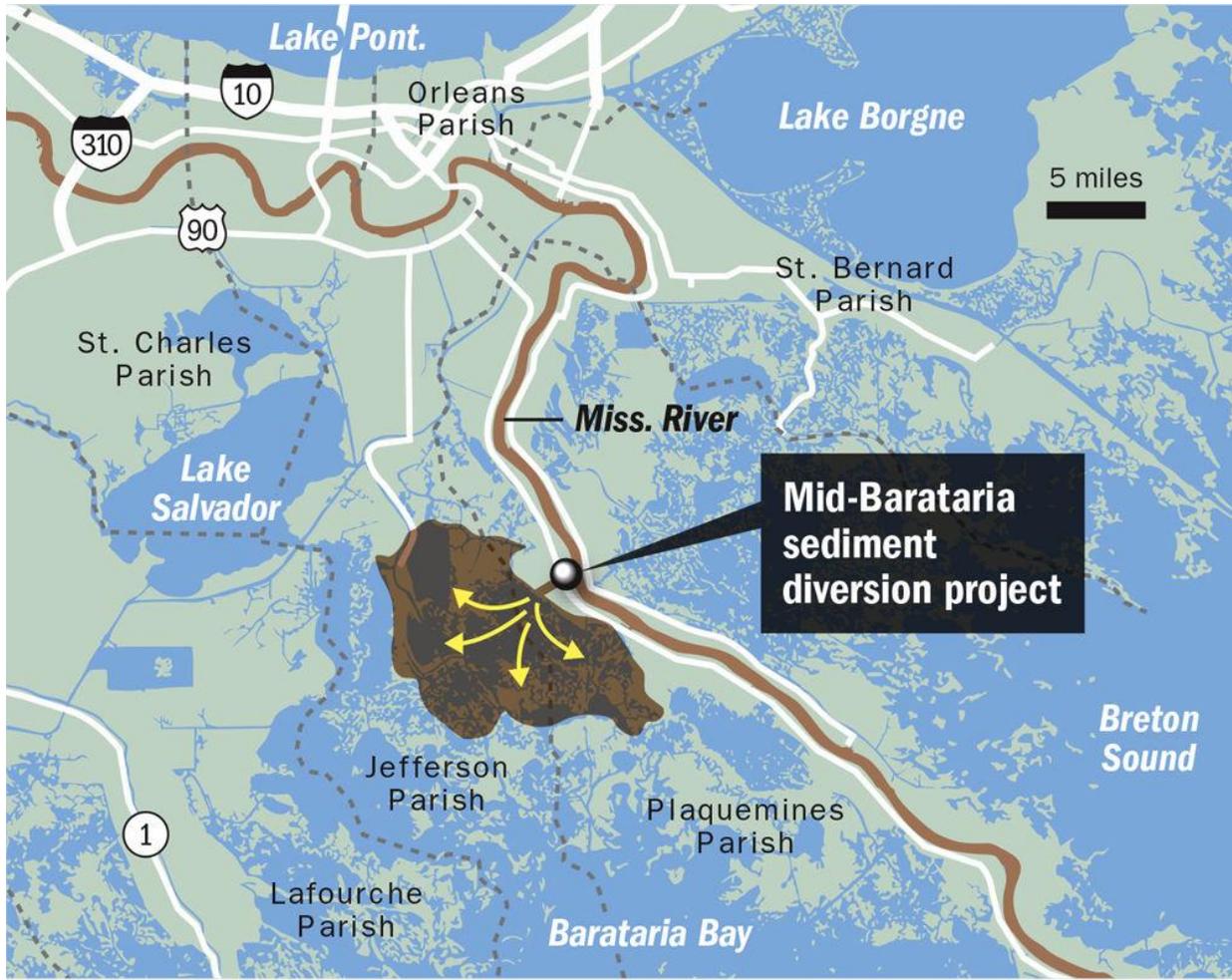
Multiple Lines of Defense System



Attachment C: Mid-Barataria Sediment Diversion



Attachment D: Location and Area of Influence for Mid-Barataria Sediment Diversion



Advocate map