Twenty years after Hurricane Katrina and the failures of the federal levees: Are we there yet?

by Mark S. Davis
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Overview

Twenty years on, Hurricane Katrina and the failure of the federal levees continue to be the defining points of reference for metropolitan New Orleans and coastal Louisiana—and for good reason. The massive storm and resulting floods in August 2005 delivered more than historic winds, rain and water into the city and surrounding metropolitan region; they transformed how we live and govern here, in Louisiana and across the United States.

Indeed, they changed how we see and define ourselves. As immense and powerful as the hurricane was, it was not the deliverer of most of the death, destruction and displacement that followed in its wake. No, it was the failures of governance, engineering, law, science, and civics that we have to look to for those devastating results.[1]

When I say failures, it is not to suggest that anyone wanted bad things to happen or that corruption and malfeasance reigned, though the results would scarcely have been different had that been the case. Much has been written and said about how decades of bad planning, poor engineering and construction, civic and governmental disfunction, and wishful thinking invited disaster.[2] Everyone knew that living in New Orleans involves living with risk, but nobody thought engineering

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malpractice, structural collapse, and institutional failures were the risks. That fact alone is an important benchmark for measuring progress in New Orleans.

On August 27, 2005, New Orleans was not on the road to resilience and sustainability but was, in fact, unsustainable as it had become reliant on infrastructure and governance models that were myopic, unfocused, and unaccountable. The region's vulnerability to water was baked in. It should not have taken Hurricane Katrina to expose that, but it did. And how we as a nation, state, city, and region responded was nothing short of historic in the most positive sense of that term.

Piecing New Orleans back together demanded more than pumps, roofs, and patience. It required a hard look at what went wrong and why. It required governmental agencies that lacked any meaningful accountability to at least acknowledge their failures and that the flooding of our city was not just local failure or just a federal one but an American one, one that needed to be fixed.

Now, 20 years later, as we survey things as they are now and consider how important it was to do things smarter, better, and with greater public purpose and accountability, the question is: Are we there yet? More specifically:

- Does the region have more honest and reliable storm surge protection?
- Is the region better able to prevent and manage flooding?
- Have the city and region succeeded in professionalizing resilience and risk management planning?
- Are we making progress with our coastal protection and restoration efforts?

The overarching answer, unsurprisingly, is no, but that is not the end of the story since we are really talking about a process that never ends rather than a destination. Indeed, if the question is whether New Orleans and its metropolitan area are better prepared today than 20 years ago, then the answer is yes, albeit a qualified yes. But that level of inquiry is really not very helpful since the matter of resilience and sustainability is not simple yes or no question, but rather a combination of intertwined questions presented in this essay that deserve to be addressed—and are followed by a series of recommendations to close out the report.

Does the region have more honest and reliable storm surge protection?

Yes. While it will ultimately require a Katrina-ish storm to prove the point, our system of floodwalls, floodgates, and levees have been designed and built with a higher confidence factor. Paired with the closure of the Mississippi River-Gulf Outlet, the result is a system that will withstand a 1-in-100-year storm event with much greater confidence than we had before.[3]

But there's the rub. A 1-in-100-year storm threshold is not good enough. That's true for two reasons. First, the nature of storms and the state of our coastline and metropolitan area are always changing, and our level of protection changes with them. Keeping up with those changes, even for federally built levees, is a constant challenge—one that is our city's responsibility, not that of the federal government, to meet.

The second reason is that even our storm and flood protection systems prior to Hurricane Katrina were supposed to be able to handle a 1-in-250-year event.[4] After the storm, The U.S. Congress directed the U.S. Army Corps of Engineers to get the region back to the 1-in-100 level quickly, not because it thought that was enough but because that is what would be necessary to make the area insurable and financeable again.[5] The Corps did that but also interpreted it as lowering the level of protection (risk reduction) the area is authorized to have, a conclusion that will make it much harder for New Orleans to boost confidence in its future and compete for investment.

A report by the Tulane Institute on Water Resources Law and Policy looked into this situation and recommended that Congress be asked to clarify its intentions about the authorized level of protection, but so far it does not appear to have happened.[6] That would be a wise thing to do.

Is the region better able to prevent and manage flooding?

With improved pumping, the Greater New Orleans Urban Water Plan, the adoption of a more comprehensive City Master Plan,[7] the installation of a number of "blue" infrastructure projects,[8] and some massive—and disruptive—mostly federally funded drainage improvements,[9] the answer to this is almost certainly yes. The recent consolidation of the City's drainage system under the New Orleans Sewerage and Water Board should also produce greater efficiency, coordination, and accountability.[10]

Even with all of those improvements in planning and infrastructure, however, this is a city (and metropolitan area) with a long way to go. While hurricane protection has—understandably—gotten lots of attention since 2005, it is not storm surges or river flooding (at this point a well-managed but still present risk) that threatens this metro most, but rain. For Gulf storms and river-related events we measure our risk and preparedness in terms of what might arise once in hundreds of years. For rain, we don't come close to that, measuring our protection in less than decade-scale events.

The City Master Plan calls for much more than that, especially when considered in tandem with the City's Hazard Mitigation Plan, which emphasize the need for a comprehensive approach and much higher levels of protection against storm and flood risks.[11] As significant as those steps are, the extent and frequency of mega-rain events such as those that have struck Houston, Baton Rouge, and other places make clear our need to pay more attention to water management continues to grow.

No city is equipped to handle 20 inches of rain, certainly no city that is dependent on forced drainage, but how well that city is prepared can be the difference between a major inconvenience and disaster. The Greater New Orleans Urban Water Plan, developed under the auspices of the regional economic development organization GNO Inc., laid out a vision for how the metropolitan area might combine improved drainage, land use, and building practices to improve its chances. That plan was enthusiastically received but until it is seen as an actionable blueprint for what needs to be done, as opposed to what would be nice to do, this is a region that will be living with high and growing risks.

Have the city and region succeeded in professionalizing resilience and risk management planning?

Remarkable strides have been made on this front, including reforming regional flood protection authorities, creating the Coastal Protection and Restoration Authority, updating the city's master plan and comprehensive zoning ordinance, and pioneering the creation of a chief resilience officer and an Office of Hazard Mitigation in the City of New Orleans. More important than the fact of each of these developments was the role that engaged citizens and civic organizations played in driving and shaping them.[12] It is not a stretch to say those efforts were an important reason for much of the investment in New Orleans and coastal Louisiana following the storms of 2005 and the 2010 Deepwater Horizon oil spill disaster.

But making progress and securing those gains are different things. There has been a drop in the levels of civic and philanthropic engagement alongside a resurgence of political intrusion that should concern everyone.[13] The fundamental truth is that the future of our region and state is going to depend on our ability to earn the trust and confidence of those with the talents and resources that a prosperous future

depends on. That will be true when it comes to attracting new Louisianians and keeping current ones.

To put it simply, for us to remain insurable, financeable, and affordable as a community that keeps and attracts people and businesses will require actual deeds and not just plans and talk. Those deeds, such as improved stormwater management, will require something from every part of our community and government. Too often civic discourse devolves into arguments about how big or small government should be, who should or should not pay taxes to support local services, and which sources of information we trust or over other sources.

There is nothing new in any of that but when it gets in the way of actually delivering necessary results, things need to change. When it comes to dealing with water, honesty is crucial. Water has no respect for half-measures. Again, Hurricane Katrina made that clear. The key to prosperous, growing communities is not who we elect but what the community expects of public servants and themselves. The civic activism following Hurricane Katrina proved this point.

Are we making progress with our coastal protection and restoration efforts?

The state of Louisiana's coastal protection and restoration efforts have been prominent examples of what can be done with strong science, deep public support, and political will (not to be confused with a political agenda). Systemic challenges demand systemic responses. To be sure, it has to include a coordinated network of levees, gates, and pumps, but it has to be more than that. It has to include a purposeful and methodical approach to living with water. It has to include wetland conservation and restoration, land use controls, evacuation plans, and adaptation to changing conditions such as sea level change and improved knowledge.[14]

All of that is a tall order, but there is nothing new about it. Wetland and barrier buffers, flood-proofing, and land use planning and regulation were recognized as important in the Task Force on Federal Flood Control Policy's 1966 report as well as President Lyndon B. Johnson's message transmitting the report to Congress.[15] President Johnson, while urging greater federal involvement in flood protection, wrote, "I cannot overemphasize that very great responsibility for success of the program rests upon State and local governments and upon private property owners in hazard areas. *The key to resolving the problem lies, above all else, in the intelligent plan for and State and local regulation of use of lands exposed to flood hazard.*" (Emphasis added).[16]

Sadly, what was intellectually clear was anything but clear in practice. The promise of levee protection spurred more development in low, wet areas, and the use of non-resilient building practices and materials. This over-reliance on structural flood protection actually created new vulnerabilities that were masked by each year that passed without a major storm. The result was that complacency grew. The idea took hold that all was well and life inside the levees could go on without worry.

That was never an intentional deception. Rather, it was the product of series of gradual compromises, tradeoffs, and mistakes. The far higher risks posed by rainwater flooding were trumped by the risk of hurricane storm-surge flooding. The desire for low-cost, quick housing, and an assumption that the levees had eliminated that risk trumped the need for land use controls and hurricane building codes. Similarly, dreams of economic development and private property rights issues trumped wetland conservation and restoration.

On the public works side, the pressure to build what had been planned and politically promised, often more than a generation before, trumped the need to adapt to improved knowledge about hurricanes, sea level rise, and coastal land loss. The result was a storm risk-reduction system that was more performance art than an exercise in engineering excellence.

On the private side, development patterns saw several generations of basic slab-on-grade construction, minimal building and zoning codes, and the attitude that if a development was legal, it was appropriate. It is hard to imagine a better example of the difference between what is legal and what is wise.

Underscoring those confounding public and private sector currents is the persistent—and growing—pressure to match financial resources to the tasks ahead. To put it bluntly, doing the wise thing is not always affordable and the appetite for funding governmental operations is not high. There are far more public office seekers promising to cut taxes than there are those promising to fund essential public services such as coastal restoration and protection.

While there have been helpful boosts from policies such as the bipartisan Infrastructure Investment and Jobs Act of 2021,[17] as well as the unprecedented dedication of fines and penalties from the Deepwater Horizon oil spill disaster of 2010 to fund coastal protection and restoration in Louisiana, the fact remains that resilience and sustainability demand regular investment. When catastrophe and occasional largesse are the financing plan, there really is no financing plan.

In 2005, much of the United States viewed the flooding of New Orleans as a tragic one-off, something that could not happen to other communities. That was not true then and it is demonstrably not true today amid stronger storms, rising seas, and subsiding lands (New Orleans is not America's only sinking city). In fact, Hurricane Katrina was a portent of the challenges that many places now face. The responses to that disaster offered other places a glimpse of the scale, scope, and cost of putting themselves on a more resilient and sustainable footing. One need look no further than New York and New Jersey's Hurricane Sandy experience in 2012 to see that.

Hurricane Katrina's fundamental lesson is that when faced with dynamic risks, communities have a choice to make. They can muddle along, content to be victims of change, or they can use the combined available knowledge, talents, and political capital to be purposeful managers of change. It really is that basic and we have known that a long time. We won't ever eliminate the risk of flooding or coastal change but the trade-offs we make matter and there is hell to pay when we get it wrong, as John Wesley Powell warned following the catastrophic Johnstown Flood in central Pennsylvania in 1889:

> *Modern industries are handling the forces of nature on a stupendous scale. .... Woe to the people who trust these powers to the hands of fools! Then wealth is destroyed, homes are overwhelmed, and loved ones killed.*[18]

Hurricane Katrina reminded us of that lesson in no uncertain terms, though it remains to be seen how well those lessons have been learned.

There is evidence that it is being learned. Restoring wetlands and accommodating sea level rise are now broadly considered essential components of regional sustainability and flood protection. The state of Louisiana recognizes that smarter land use choices are necessary and has adopted a statewide building code. The infamous Mississippi River-Gulf Outlet has been deauthorized and physically closed with a massive surge barrier.[19] And the U.S. Army Corps of Engineers has shifted from providing a levee system with a high protection target (against 1-in-200-year events) with a low confidence level to a lower level of authorized protection (1-in-100 year events) with a higher confidence factor.[20] That last point may not sound like progress but since it is more honestly robust, it qualifies.

As welcome as those developments are, they are just beginning. There is much more to do—in fact when it comes to the business of community resilience and viability the work never ends. Choosing which communities will get greater levels of flood protection, and when, is difficult. But conserving and enhancing Louisiana's coastal wetland landscape will always involve these considerations. And it is increasingly clear that keeping the New Orleans metropolitan region insurable and financeable will require approaches to

land use and climate change adaptation that go well beyond the current levels of planning and governance.

Looming over all of those challenges is the question of (even with the best intentions) whether we have the resources—the money, talent, information, and credibility—needed to succeed? The answer to that question is no, but we have enough and know enough to move forward—for a while. Serious questions exist about where the future funding might come from and how committed the state of Louisiana is to the science-based, publicly transparent Coastal Master Plan that earned it much of the support it has enjoyed.

These funding factors will persist in any event. Indeed, they are front and center today. Storm and flood protection and coastal restoration have never been easy. They always involve costs and displacements that are contentious and even unpopular. But even broaching those issues is now more politically fraught than it has been at any time in the more than 30-year history of the coastal restoration.

Just consider the stark divisions over the Mid-Barataria Sediment Diversion Project to divert fresh water from the Mississippi River to conserve and rebuild freshwater wetlands, as well as the operation of flood control structures such as the Bonnet Carre Spillway sending Mississippi River waters into Lake Pontchartrain. Those are real challenges, but it is important to keep in mind that some problems are the result of progress. Just as a steeple chaser who has cleared the first obstacle has only earned the right to confront the next, so it is with community resilience and vibrancy.

That is why the best metric of success following Hurricane Katrina is not what was built but what sorts of civic and governance commitments were forged. And that is why it is so noteworthy that in an era of community polarization and governance stagnation, coastal restoration and protection has been one of the few areas in which politics and partisanship took a back seat to science and civic consensus. Republican or Democrat, liberal and conservative, upstate and downstate, and environmental and commercial labels mattered less than finding ways to make and implement the best technically sound ways of restoring some degree of sustainable function to our coastal waters and wetlands and to pursue compatible ways to protect our communities.

Today, there are real questions as to whether that is still the case. We have been at critical crossroads before and have always found ways to listen to the better angels of our nature and move ahead. We are at another crossroads now, 20 years after Hurricane Katrina and 15 years after the Deepwater Horizon oil spill tragedy—and metropolitan New Orleans and the state of Louisiana face some hard questions: Are we as a people willing to give ourselves a shot at a vibrant and sustainable future by making the necessary changes to laws, polices, investments, and commitments?

How we answer those questions will determine what kind of future we get—and deserve. It will determine whether others outside the state have enough confidence in our possibilities, our communities, and our institutions to stand with us and invest in us. The stakes could not be higher, and time is shorter than many think.

Opportunities for continued progress exist but progress won't be measured by words but by actions. Actions such as:

- Increasing the authorized level of hurricane storm-surge protection from the 1-in-100-year event level to the 1-in-500-year level as called for in the New Orleans City Master Plan. A strong argument can be made that we are already authorized to the 1-in-200-year level, but that could still require congressional confirmation.
- Improving the capacity of the New Orleans metropolitan region to handle severe rain events and storm water, again as already called for in the City Master Plan. This will require investments that the city has not made in generations. The recent consolidation of stormwater management in the New Orleans Sewerage and Water Board was a very positive step, though one that may still require

the enactment of a drainage fee so that property-tax exempt parcels also pay into the system to make the necessary difference.

- Work with the insurance industry and others to identify practices and projects that would lead to the metropolitan area being more insurable and more affordably insurable. Since insurability is perhaps the single most significant metric of effective water risk management, the importance of this measure cannot be overstated. This effort must reach beyond the National Flood Insurance Program and include a broader spectrum of property, casualty, and business interruption insurance. Since insurability is now a national problem, New Orleans and surrounding parishes in the region must work with leaders in other states and communities to create workable options, such as a national catastrophic insurance program. This is neither a local issue anymore nor is it limited to yesterday's notion of perils.
- Resolve the issues preventing key features of the state's Coastal Master Plan from being built and operated. Metropolitan New Orleans' future is fundamentally tied to the future of coastal Louisiana, of which it is a part. The quiet stalemate over the future of the Mid-Barataria project has raised doubts about not just the project itself but also the science- and trust-based process that spawned it. Metropolitan New Orleans cannot afford to allow that process to be compromised regardless of the ultimate fate any single project.

These actions are not new ideas, but they are important. They also are clearly not presently the civic or governmental priorities that they will need to be to move them forward.

So are we there yet?

The answer is no, and it always will be because resilience and sustainability are a process not a destination. Are we in a better place than we were on August 27, 2005? The answer to that is a resounding yes, but that is less a cause for celebration than for recommitment. Just as personal health demands more than occasional visits to the doctor, the health and vitality of our city and metro depend on the availability of expert services, insurance, adequate financial resources, and most of all wise and consistent choices in how we live.

The fact that metropolitan New Orleans has not catastrophically flooded in 20 years, and that insurance and finance have been sufficiently available to let life and business go on should not be seen as proof that those problems have been solved. They have not been. The actions we have taken have improved our odds, but like many other places, we are relying more on good luck than good planning and management. It is always good to be lucky, but it is safer to be smart. That is the lesson metropolitan New Orleans continues to learn, and it is the lesson it still teaches other communities around the world. It is not an easy or inexpensive lesson, but it is a necessary one. And there will be a test.

Endnotes

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10. See paper by Joseph Kane in The New Orleans Index Collection.

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FOR MORE INFORMATION

Mark S. Davis,
Robert C. Cudd Professor of Environmental Law
Director, Tulane Center for Environmental Law
Tulane Law School
msdavis@tulane.edu

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The Data Center, a project of Nonprofit Knowledge Works, is the most trusted resource for data about Southeast Louisiana. Founded in 1997, we provide fully independent research and analysis to offer a comprehensive look at issues that matter most to our region. With a mission of democratizing data, The Data Center has, and continues to be, an objective partner in bringing reliable, thoroughly researched data to conversations about building a more prosperous, inclusive, and sustainable region.

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The New Orleans Index at Twenty collection includes contributions from The Data Center, the Brookings Institution, and a dozen local scholars. The aim of this collection is to advance discussion and action among residents and leaders in greater New Orleans and maximize opportunities provided by the 20-year anniversary of Hurricane Katrina.

The New Orleans Index at Twenty: Measuring Progress toward Resilience analyzes more than 20 indicators to track the region's progress toward metropolitan resiliency, organized by housing and infrastructure, economy and workforce, wealth and people. Essays contributed by leading local scholars and Brookings scholars systematically document major post-Katrina reforms, and hold up new policy opportunities. Together these reports provide New Orleanians with facts to form a common understanding of our progress and future possibilities.

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FOR MORE INFORMATION

Lamar Gardere
Executive Director
The Data Center
lamarg@datacenterresearch.org

Andre M. Perry
Senior Fellow and Director, CCU
Brookings
officeofandreperry@brookings.edu

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