

# Debunking the Seven Big Myths of Louisiana Coastal Protection and Restoration

Bob Jacobsen PE  
Environmental/Coastal/Flood Hydrologist  
[www.bobjacobsenpe.com](http://www.bobjacobsenpe.com)

First, a tremendous THANK YOU to all the folks who worked hard in developing our State's 2017 Coastal Master Plan! This marks the third five-year milestone in an ever evolving evaluation and strategy toward making the best coastal investments possible.

I've been professionally involved in Louisiana coastal work since the early 1980s, and privileged to be acquainted with numerous coastal leaders since that time. It has been interesting to watch several waves of new talent come on the scene over the years. I've heard charges of "Coastal Baggers" directed at recent arrivers by some in the "Old Guard." This is unfortunate since most newcomers bring welcome shots of optimism, enthusiasm, and enterprise. (Perhaps a few, as has always been the case, are just in it for the money, to burnish their resumes, or both.)

But what I also hear from the Old Guard that has a ring of truth is that some current coastal leaders are not strongly affirming and reinforcing reasonable expectations for our coast that were already starting to become clear over a decade ago. Put another way, we are not sufficiently debunking crucial persistent myths, or in today's vernacular "fake news." *Of course not all in the Old Guard even agree on every myth!*

In my opinion there are seven big, long-standing myths that we should elucidate:

1. **Hurricane Protection.** In coastal Louisiana (unlike the Netherlands) it is only practical to build levees to modestly *mitigate* community flood damage risks. The New Orleans post-Katrina levees have been renamed the Hurricane and Storm Damage "Risk Reduction" System. When viewed over decades, Louisiana coastal levees have a significant chance of failure. A hurricane is expected to threaten overtopping somewhere around the New Orleans East Bank perimeter, about once every 20 years on average. Hence, to protect people, investment in comprehensive, effective evacuation (and/or relocation) is absolutely essential.

Notably, levee heights are developed to cost-effectively complement the risk management afforded by flood insurance. Thus, broad participation in flood insurance is also essential to sustaining leveed communities. In fact, broad participation in flood insurance is the foundation for resiliency for all coastal (and riverine) floodplain communities.

2. **Coastal Restoration.** Just like The Emperor's New Clothes, Empire's New Coast is a fable. Vast portions of our coastal landscape are irreparably gone and more that are incapable of being maintained will continue to disappear. Rebuilding any large portion of the state's dynamic coastal landscape—anywhere from the Chandeleur Islands to the Sabine River—to any historic footprint, is impossible and out of the question. This conclusion derives from a century-plus of scientific observations and is explained by basic coastal geology, hydrology, and biology. *From a purely ecosystem perspective*, the one and only rational goal is using dollars to construct coastal features which maximize long-term productivity—particularly fish/shellfish, but also birds, mammals, etc.—across the full delta-chenier complex, to whatever extent practical, regardless of other interests. From a human perspective, we can choose to sacrifice some of this goal to enhance—but not assure—the short-term resiliency of some coastal facilities, infrastructures, and communities.
3. **We Know How to Fix the Coast.** What we KNOW is how to do local projects with relatively short lifespans (one decade, perhaps two), such as hardening shorelines with rock and dredging up sand to rebuild beaches/dunes or mud for a marsh platform. We understand their construction costs and their *economic* value when used for reliably extending the life of nearby assets—such as roads, levees, and oil, gas, and marine facilities—and, importantly, how to optimize them. However, for a longer design-life, maintenance unknowns increase drastically, particularly if multiple

reconstructions are anticipated. Making optimal *economic* decisions about such longer-term projects thus becomes difficult.

Reliably quantifying *ecosystem* benefits for projects is even more difficult. From an ecological perspective and especially for multi-decadal time scales it is more accurate to describe projects as “experiments.” Larger regional projects with longer intended lifespans have enormous experimental uncertainty. The estimated long-term ecosystem productivity achievements for a Mississippi River sediment diversion can range by orders of magnitude. That really qualifies as a highly educated guess—one which costs tens of millions of planning and engineering dollars to develop and which tens of millions more may barely improve. It is thus more accurate to say “We have some experiments we’d like to try” and prudent to select, design, and carefully manage only the most valuable experiments.

4. **The Coast Belongs to Everybody.** Much of our coast—lands, shallow water bottoms, subsurface resources, and some fisheries—are subject to the legal claims of private parties. Many coastal wetlands projects use public dollars to enhance private land and assets and more are constrained by private interests. Louisiana’s laws—and perhaps its constitution—would have to be changed in order to give greater weight to a public interest in long-term ecosystem productivity.
5. **Multiple Lines of Defense.** This concept has crucial practical limitations. Structural approaches to mitigate the cost of storm surge flood insurance require engineered risk reduction levees or substantial embankments (road/railroad). Exterior coastal dunes, forested ridges, marsh platforms, and other raised features designed for ecosystem purposes can reduce the surrounding impacts of more frequent modest surges and winter storms. However, such designs cannot typically be relied on to lower the height of extreme surges—or to substantially lower the cost of flood insurance. Increasing investment in exterior raised features to the point of reliably reducing extreme surge risk is unlikely to be cost effective, and can even be detrimental for ecosystem purposes.
6. **Coastal Protection and Restoration.** *The coastal mission for federal, state, and local government really boils down to three simple, fundamental, tangible government coastal priorities:*
  - i. *Protecting lives by ensuring effective, comprehensive hurricane evacuation.*
  - ii. *Increasing coastal community resiliency by broadening participation in flood insurance and reducing its cost—with engineered risk reduction levees and support for elevating homes and businesses where feasible.*
  - iii. *Maximizing long-term ecosystem productivity (e.g., fisheries)—across the full delta-chenier coastal complex, but holding no footprint sacred—balanced as necessary with other economic interests (navigation, oil and gas production, tourism, etc.).*
7. **The Corps of Engineers and the Oil & Gas Industry are Responsible for Destroying the Coast.** Mother Nature has always been in the process of dramatically reshaping Louisiana’s deltaic coast—a phenomenon which began attracting the attention of premier coastal scientists over a century ago. Dating even to the pre-Columbian, a very wide range of human activities has interfered with Louisiana coastal processes—accelerating some and decelerating others. Significant clearing of local forests, cutting of trainasses, and building of river and back levees began almost 300 years ago! By the mid-19<sup>th</sup> Century, the pace of deforestation, dredging, and leveeing across the coast had quickened and these and other interventions became more mammoth and extensive. Ultimately these interventions became entwined with federal government and big corporate interests. Louisiana’s coast is not at all unique in this respect as similar stories of environmental exploitation have transpired in sensitive regions across the nation.

# Debunking the Seven Big Myths of Louisiana Coastal Protection and Restoration

Bob Jacobsen PE  
Environmental/Coastal/Flood Hydrologist  
[www.bobjacobsenpe.com](http://www.bobjacobsenpe.com)

Importantly though, Louisianans—through their elected representatives—have never not been partners in the growing post-colonial interventions; (an exception possibly being changes to the Mississippi River itself). And furthermore, the vast majority of Louisianans have enjoyed countless benefits from these interventions. Therefore, we should all acknowledge, as Pogo said on the second Earth Day in 1971: “We have met the enemy and he is us.” (*See bottom note.*)

Moreover, the past coastal impacts of Mother Nature and human interventions may be dwarfed by those of impending man-made global sea level rise!

***A greater consensus on reasonable expectations for public safety, and for the role of flood insurance and risk reduction measures, for future coastal ecosystem landscapes and productivity, for project performance, and for who benefits, will lead to better decisions.*** The values, limitations, and uncertainties of projects will be more clearly considered. Crucial tradeoffs magnified by finite funds will be more directly addressed. And more optimal results can be targeted:

- Public safety dollars toward ensuring the readiness of comprehensive hurricane evacuation.
- Surge risk reduction dollars toward substantially lower flood insurance costs.
- Ecosystem dollars toward maximizing fauna, with asset owners contributing fairly for other benefits received.

***A greater consensus on the three real coastal priorities will allow our Governor and Legislature to better manage the State’s efforts.*** Agency organizations can be refined to better apply limited budgets and staff to these priorities, including devolving governmental duties and authorities to—and expanding funding of—regional and local agencies where appropriate.

***Finally, a greater consensus on coastal accountability will make plain the financial responsibilities of Louisianans themselves and facilitate further agreement on how to address the three coastal priorities.***

Putting the seven myths to rest once and for all is essential to a *well-grounded faith* in the coastal planning process—to amassing not just a wide but also a deep commitment from the public, the media, and the state’s “movers and shakers.” As the recent documentary *Finding Common Ground* showed, we desperately need such faith in order to expedite directing our very limited fraction of needed dollars to their best use.

---

Of course the general participation of Louisianans in modifying coastal processes does not absolve specified legal obligations. Where the Corps, an O&G operator, or any other entity has recognized coastal liabilities, including liabilities to restore local coastal footprints, they should be directed to address them by the appropriate authority.

With regard to Corps and O&G there have clearly been interventions with significant long-term local ecosystem impacts. But these impacts have not always been perceived as negative by all coastal Louisianans. A detailed, coast-wide analysis of the relationship between the accumulation of various Corps and O&G interventions—together with deforestation, Mississippi River changes (flows, sediments, nutrients), other interventions, and *Mother Nature*—versus long-term ecosystem productivity would be an important undertaking. A detailed coast-wide breakdown of the impacts of various interventions and *Mother Nature* in the simpler terms of land area and land cover change would also be important. But, even using today’s best science we should expect these analyses to acknowledge considerable uncertainty in attributing causes for coastal change.

With regard to interventions in hurricane surge risk, the most significant is the surge blocking action of the massive Mississippi River and New Orleans hurricane surge levees themselves, which of course while reducing risk for the interior, significantly raise risk in the exterior. Other Corps and O&G coastal interventions, such as canals and their associated land losses—along with historic deforestation, other interventions, and *Mother Nature*—have moderately increased the more frequent modest storm surges at some exterior locations, as well as contributed minor impacts at a few locations along coastal risk reduction levees.