

Once and future Katrinas

August 31 2015, by Richard Campanella



A Tulane University geographer speculates about what once was, what might have been and what still can be in New Orleans' relationship with water. Credit: Kenny Harrison

When hurricanes approached New Orleans in historical times, city dwellers generally did not worry about Katrina-like surge flooding; wind was usually their major concern. Nor did they evacuate the city; indeed, coastal denizens would flock to New Orleans, not away from it, and locals took shelter in sturdy buildings if they left home at all. New Orleanians in the 1800s saved their deepest fears for far deadlier and more destructive disasters—epidemics, fires and Mississippi River

floods, in that order.

Today it's the exact opposite. We no longer worry about river floods, and fret no more or less about fire and disease than other Americans. But as for hurricanes, we now dread their fatal surges much more so than their winds, and join our coastal neighbors in fleeing the entire region when a big one approaches.

What changed was our environment, courtesy of our actions.

We scored and scoured the [coastal wetlands](#) with oil, gas and navigation canals, allowing saltwater to intrude and marshes to erode.

We drained the backswamp—a low part of the floodplain—which caused it to sink below sea level, and encouraged its urbanization without ensuring sturdy flood protection.

We put the Mississippi River in a straitjacket of artificial levees, and inadvertently starved the deltaic plain of its two most critical resources, freshwater and sediment.

We viewed every drop of rainwater falling within the metropolis as an enemy, and strove (less than successfully) to pump every drop out, rather than storing as much as possible on the landscape and letting it recharge the groundwater.

We abandoned our architectural tradition of building houses raised on piers, in favor of poured concrete slabs flush with the ground, so that water accumulation in the street became water in our homes.

In sum, we imposed engineering and architectural rigidity on a natural environment that is fundamentally fluid, and convinced ourselves we had mastered it even as it collapsed.

Make no mistake: The catastrophe of 10 years ago can be blamed, proximately at least, on the failure of underfunded, underengineered federal levees and floodwalls in the face of a very powerful storm surge. But ultimately, the Katrina deluge happened because a century of environmental degradation made the task of preventing that deluge more and more tenuous.

Imagine this

I offer here an "alternative history"—that is, a geography of New Orleans that might have been, vis-à-vis Hurricane Katrina, had we made different decisions over the past century.

Imagine, for example, if we had never drained the backswamp in the early 1900s, and places like Metairie, Lakeview, Gentilly, eastern New Orleans and the fringes of the West Bank remained swamp and marsh.

One might argue we'd have missed the growth opportunities enjoyed by rival American cities and ended up a smaller metropolis, perhaps the size of Mobile or Pensacola. All the great family stories and local culture of those neighborhoods would not have played out in those spaces, and we might be the lesser for it today.

But one could also argue that, undrained, metro New Orleans would still be above [sea level](#) and buffered by expansive wetlands. If any of Katrina's surge made it upon the landscape, it would have flooded uninhabited wetlands—and barely, because they would not have been bowl-shaped in their topography and able to impound water. Katrina would have been a windy day, not a lethal catastrophe. We'd be living on a sinuous urban footprint, following the shape of the Mississippi, at higher population densities entirely on higher ground.

What if we never dug those canals across thousands of linear miles of

coastal Louisiana? The region would have been deprived of much of the wealth and jobs produced by two of its largest industries, petroleum and port commerce. But it would also have benefited from well over a thousand additional square miles of coastal wetlands, which have otherwise eroded. There would have been no Mississippi River-Gulf Outlet Canal (MR-GO) to allow saltwater to intrude, no "funnel" at the juncture of the Intracoastal Waterway and the MR-GO, and no

Industrial Canal to bring the seawater to the doorsteps of adjacent neighborhoods. Katrina's surge would have had no eastern ingress, and instead would have encountered friction as it moved across healthier marshes. Cypress swamps, which never would have died, would have thwarted the surge's advance toward the city.

What if we placed our circa-1900 drainage pumps at the lakefront perimeter, rather than the interior of the city? The 17th Street, Orleans Avenue, and London Avenue outfall canals would have been designed to flow below grade level; there would have been no floodwalls to rupture, and thus no floodwaters in Metairie and Gentilly.

What if we had developed an "open" drainage system a hundred years ago, one that stored runoff on the landscape, like those in Rotterdam and Amsterdam? We would have had less subsidence and a whole lot less bimonthly street puddling.

What if we had built all residential structures well above the grade, as we did historically? There would have been substantially less damage from Katrina's flood, and we'd all be enjoying lower flood insurance rates today.

And what if the U.S. Army Corps of Engineers had built suitable levees, if Congress had adequately funded them, and if local authorities had properly inspected them? You wouldn't be reading this article right now.

Future plans

"Alternative history" gets us nowhere in remaking the geographical decisions of times past. But it does encourage us to think long and hard before repeating past decisions that have proved to bear more costs than benefits.

- May we drain, levee and urbanize no more wetlands on this deltaic plain.
- May we dig no more canals except for minor ones needed for coastal restoration.
- May we mitigate the impact of future disasters by building above the grade, raising existing houses, strengthening architectural codes and ensuring evacuation is available for everyone.
- May we prioritize for radical coastal restoration, using all tactics available as soon as possible.
- May we recognize that difficult decisions lie ahead, and that there is no way we can sustain this region into the 22nd century without returning parts of it to nature in the 21st century.

Provided by Tulane University

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