Buoyant City

By Alastair Gordon

Amanda Vargas-Love:
A Resilient City, Re-imagined Wetlands, 2015

Everyone has a plan to save Miami, ranging from Dutch water experts to Danish architects, Harvard grad students, Swiss urbanists, New York engineers, not to mention all the hydrologists and climatologists from around the world who've been weighing in on the subject of sea-level resiliency and climate change. Meanwhile, Miami continues to build higher and higher towers in flood-prone areas as if waiting for something, some deus ex machina, to come to the rescue and make it all right.

Florida is the flattest, lowest state in the USA and has recently become the poster child for climate change. The region is under imminent threat, wedged as it is between the Atlantic on one side and the Gulf of Mexico on the other. "Miami, as we know it today, is doomed," says Harold Wanless, head of geological sciences at the University of Miami, who has become the local Obi-Wan Kenobi, terrifying real estate speculators and politicians with his dire predictions. "It's not a question of if," he warns. "It's a question of when."

But how does one begin to prepare for such a future when Governor Rick Scott, the state's highest political official, remains an avowed climate denier and even prohibits state employees from using terms like "climate change" and "sea-level rise"? He proclaims, "I am not a scientist" while ignoring the data that hundreds of real scientists have already gathered. By 2030 the sea may have risen more than two feet, say experts, and as much as six feet by the end of the century.

From the very beginning, South Florida was seen as a water-bound wilderness of swamps and interlacing streams, more aqua fria than terra firma. Botanist William Bartram came in the 1770s and was entranced by mysterious sinkholes and "expanding columns" of crystalline waters that appeared to be "diaphanous or transparent." From his boat, he gazed down in wonder at innumerable fish "floating like butterflies in the cerulean ether, as plain as though lying on a table."

During the 20th century, Florida's inherent liquidity was marketed to tourists through glass-bottomed boats, diving bells, extravagant water follies, mermaid displays, alligator wrestling, and dolphin shows that offered a kind of subaqueous suspension, an alternative to northern winters. At Weeki Wachee Spring, audiences sat in amphitheater seats and watched fin-tailed beauties through thick panes of glass. However banal the water shows may seem now, they foreshadowed a future realm in which actual buildings, actual cities, would one day be submerged beneath the sea, a grander, darker version of Weeki Wachee Spring.

There's a long tradition of people living on water, devising all manner of amphibious architecture. Over the centuries, the citizens of Venice, Italy, learned to accept the acqua alta period of seasonal flooding. Calmly, they pull on rubber boots and erect wooden walkways, passarelle, to negotiate the flooded streets and plazas. Architects also learned to adapt, most notably Carlo Scarpa, native son of Venice, whose remodeling of the Querini Stampalia Foundation in the early 1960s not only addressed the immediate problems but celebrated the liquid uncertainties of acqua alta, inviting water into the foyer and ground-floor galleries that he designed with small peripheral canals, sculpted sluices, and scuppers to carry the invasive liquid down through subterranean basins, or outside through a labyrinthine garden of pools and gurgling fountains.

Marlies Rohmer, a Dutch architect, designed an entire floating community, or Waterburt ("Water Quarter") for more than 1,000 residents at Ijburg in eastern Amsterdam that reaches into the waters of Lake IJmeer with an archipelago of seven artificial islands. The traditional Dutch wijk ("neighborhood") has become a stationary flotilla, but instead of building dikes, the tidal waters of the IJmeer were "invited in" with canals interlaced throughout the development.

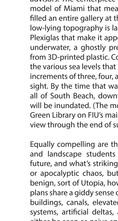
After New York City took a battering from Hurricane Sandy, Mayor Bloomberg announced a $19.5 billion plan to defend the city against future storm surge and rising seas. As part of that plan, the city and FEMA called for actionable proposals and ended up with several brilliant collaborative responses: one calling for 15-foot-high terraced berms to be built around the southern tip of Manhattan; another for a chain of artificial barrier islands to protect the harbor. (In February, 2015, three of these proposals were presented by their respective firms at the Coral Gables Museum.)

But, as every school child knows, Miami is not New York or New Orleans or even the Netherlands, all of which are anchored, in one way or another, to a semi-stable landmass. Here in Miami, there is no "there there." The city faces the ocean and backs onto the watery wash of the Everglades, penetrated by a filigree of inlets, bays, canals, streams, and wetlands; and no matter how many pumps, earthen berms, or floodgates are installed, it won't stop water from percolating up through the region's famously porous limestone substrate.

While local municipalities have been adjusting their building codes with sea-level rise in mind, Miami's problem calls for a much more comprehensive and long-range vision for a truly sustainable future, something on the scale of the New York/FEMA plan, but specific to this region's singular conditions. Instead of denial or full-scale panic, the region should invite interdisciplinary teams of architects, urban planners, landscape designers, hydrologists, biologists, and others to submit practical solutions and comprehensive visions that are both feasible and metaphorically viable. Without a brand-new set of metaphors, I suspect, true change is probably impossible.

Some are suggesting giant seawalls, artificial reefs, stilt housing, drainage canals, etc. Dutch flood experts have been flown in to consult on the matter and more than $1.5 billion has already been allocated for projects designed to hold back the rising tides. Miami-Dade established its own Sea Level Rise Task Force in 2013 with a mission to "design and build a re-engineered urban infrastructure that over time will withstand a worst case scenario." Miami Beach announced that its recently completed anti-flood pumps were working as promised, although I wonder why brackish waters were sloshing over my tires, just the other day. There's also a plan to raise certain roadways as much as two feet.

Frank Behrens, of the Dutch Docklands firm, along with Koen Olthuis of WaterstudioNL, has taken his cue from the Ijberg development in Amsterdam and proposed a series of artificial islands that will float in Lake Maule, a former quarry in North Miami Beach, but this seems more like a gimmick than a real solution, and like so many Miami developments, has been designed for the one percent with prices starting at $12.5 million, the "rich man's antidote to climate change," as one journalist described it (Laura Parker, National Geographic, February 2015). There have been numerous other proposals for floating towns and even entire cities, but most are unbuildable, science-fiction fantasies that may end up doing more damage than good as climate deniers can point to such wild-eyed speculation as yet another example of environmentalist hysteria. The truth is that change will more likely come in small-scale increments through a gradual process of trial and error.



Ioannis Varnava: Poro City, Alton Road, Miami Beach

If the paradigm could shift only a few degrees, the city might not only survive a rising sea surge but find itself leading the world in "wettable" urbanism as it becomes a kind of 21st-century Venice, the first truly buoyant city in America. What if water itself, instead of being seen as a dreaded intruder, becomes the driving force for new creation, a way of living in syncopation with the seas, while shaping beautiful visions and variations? Rather than denying climate change, as some of our deluded leaders have done, it's time to embrace the moment and even celebrate it as a driving force for change.

At least it's worth dreaming about. A good place to start is Miami 2100: Envisioning a Resilient Second Century, an exhibition on sea-level resilience curated by FIU Professors Marilys Nepomechie and Marta Canavés, along with a team of students and professional advisors. The centerpiece of the show was a sprawling model of Miami that measures 25 feet by 17 feet and filled an entire gallery at the Coral Gables Museum. The low-lying topography is laid out in layers of translucent Plexiglas that make it appear as if the city were already underwater, a ghostly presence, with buildings made from 3D-printed plastic. Computerized LED lights reveal the various sea levels that Miami will be experiencing in increments of three, four, and six feet, and it's a sobering sight. By the time that water rises to the six-foot mark, all of South Beach, downtown Miami, and the airport will be inundated. (The model is being re-assembled in Green Library on FIU's main campus, and will remain on view through the end of summer, 2015.)

Equally compelling are the plans that FIU architecture and landscape students proposed for an imagined future, and what's striking is that there's no mass panic or apocalyptic chaos, but rather a manageable, even benign, sort of Utopia, however damp it may be. All the plans share a giddy sense of optimism with sea-resistant buildings, canals, elevated walkways, water transport systems, artificial deltas, and archipelagos which can either be seen as naive speculation or, I prefer to think, prescient visions of things to come. In a rendering by Ioannis Varnava, Alton Road becomes a saltwater river, divided by a raised transit system and pedestrian/bike path. (Herzog & De Meuron's 1111 Lincoln Road can be seen looming in the background, like an ancient Roman ruin.) Amanda Vargas-Love paints a bucolic image of floating aquatic gardens, while Anabel Ehrmann and Silvia Baldoquin propose a carbon neutral tower that rises above the waters with a surge-resistant steel structure, wind turbines, landing places for kayaks, and waterborne stores that bob up and down with the tides.

What will it look like, and how will it announce itself: as a dramatic Hollywood moment, or as a barely perceptible gurgling in the basement? The proverbial tipping point may have already come and gone. Despite millions spent on pumping stations, there are major intersections along Alton and Collins that still flood during high tide or heavy rain. Sewage has already seeped into the bay and insurance policies have been cancelled in some high-risk areas.

The question remains: will Miami become the New Atlantis, or will it bob to the surface, undaunted and buoyant, like Queequeg's coffin in Moby Dick? Sometimes, people and places thrive under end-of-the-world duress—one thinks of Stephen Hawking, Stalingrad, the Weimar Republic—but can climate change foster a sustainable form of thinking, inspire harmonious ways of living in the natural environment, even create a new economic model in which a place like Miami ultimately exports its expertise to the rest of the world and makes a profit in the process? All of this remains to be seen. ■