writing, Flood Forum boasts no partner organizations in Maine (though hopefully this story can help change that), the nearby Seabrook-Hampton Estuary Alliance in New Hampshire and the Massachusetts Coastal Coalition are both members.

Every month, Festing organizes a call to connect local leaders to the information they need. In this case, the call covered how and when to mount a lawsuit against unlawful wetland development. The speaker for the afternoon was attorney Eric R. Nowak of Harrell & Nowak in New Orleans, who explained what was required in order to file such a case and the opportunities for success. The tone was one of curiosity and care, and throughout the hour I watched Festing take notes on what kinds of resources were needed by whom.

“I don’t want each of these local leaders to have to reinvent the wheel every time they are under water,” he would later tell me. It seemed like a reasonable goal, one made perversely more possible by the existential and social threat flooding increasingly poses as cities around the world continue to pave over their remaining natural defenses while storms get stronger, and the very rate at which sea levels are rising accelerates.

Flood Forum—which has, in the year since its founding, already attracted more than 25,000 members—plays matchmaker, connecting local activists to the support they need in order to address the issue in an equitable manner. It introduces frontline communities to scientists, designers, and lawyers who are willing to donate their time and expertise to help residents understand their flood risk, communicate and foster solidarity, one that promises to rewrite power dynamics by whom.

“Once residents walk out and notice a flooding event, they change their behavior. They call us, they call the Department of Public Works. We go out and clear ditches. We do that all the time. We do that with creative solutions, fight future wetland development, and hold developers who have unlawfully built in wetlands financially accountable for their actions.”

All around the world, increased flooding is unsettling our very idea of who we are, where we come from, and the places we call home. And yet, in a strange twist of fate, these events are also bringing communities together even as they simultaneously threaten to break them apart.

We talk about resilience as if it were something we could add to the built environment by turning seawalls into dunes, and replacing concrete with rain gardens. This is one half of the equation and it is the costly half at that. It’s the half that many places aren’t likely to get because they have long been at the bottom of various municipal lists.

To all, but especially to those whose neighborhoods have always been under threat, let us also define climate change resilience this way: it is a human act, one of coalition building and fostering solidarity, one that promises to rewrite power relationships, and even mend our relationship with the land, as we continue to recognize that this vulnerability is widely shared.

ELIZABETH RUSH is the author of Rising: Dispatches from the New American Shore (nominated for a Pulitzer Prize in the general non-fiction category) and Still Lives from a Vanishing City: Essays and Photographs from Yangon, Myanmar. Her work explores how humans adapt to changes enacted upon them by forces seemingly beyond their control, from ecological transformation to political revolution.

In the fall of 2017, Hurricane Irma’s surge advanced toward my home in Key Largo, waves curling across the lawns of properties slightly closer to Largo Sound. After the storm passed, the neighborhood was excavated from beneath branch trees and roots that no longer provided shade, and piles rose in front of homes, those nearer the ocean punctuated by the stark colors and straight lines of refrigerators, stoves, and furniture ruined by inundation.

These storm events are likely to increase in frequency and power, which is unnerving because, according to Rhonda Hagg, director of sustainability and projects for Monroe County, which includes the archipelago, “The Florida Keys are the third most vulnerable community to sea level rise in the nation.”

“The Florida Keys, a string of islands consisting of once-submerged coral reef and oolith, stretches over a hundred miles southwest from mainland Florida, dividing the shallows of the Gulf of Mexico and Florida Bay from the Atlantic’s reefs and thrumming Gulf Stream. This nexus of habitats supports tremendous biodiversity, which in turn draws divers and fishermen from the world over. But the islands are low, and the residents have seen flooding before.

Alison Higgins, Key West’s sustainability coordinator, makes it clear that they are resilient. Even though tides are as predictable as, well, the tides, strong, consistent winds push waters onto the islands, adding mystery to when and where flooding occurs.

Even if an event can’t be anticipated, she says, “Once residents walk out and notice a flooding event, they change plans, adapt… Near Duval Street, our main tourist spot, some stores keep sand bags just inside their doors,” to keep the water out.

Higgins explains that Key West has been adapting its infrastructure “as the problems come. French drains helped in some areas. Miami Beach made news when it installed one-way valves so high tides didn’t flood into the streets through sewers. We did that in ’97. We still don’t have them everywhere, so

11 intersections flood during full moon high tides; during King Tides, even more so. A couple neighborhoods even put in injection wells, sucking everything up, injecting it deep underground.”

The Keys face unique flooding challenges because of the islands’ geology. Hagg explained that because the substrate is porous, “flooding comes not just from shore, but up from underground.” And, therefore, as Higgins explained, “We can’t build a wall like some European regions do. Flooding is worst during rain events in low-lying areas when it’s high tide because the rains have nowhere to go. During those events, our public works department knows when the flooding will stop:

BY STEVEN HARRIS

Florida Keys are vulnerable, and much is at stake

Whelmed in Key Largo

Increased, locally groups are organizing to urge regional, state, and federal leaders to address rising seas.

I'm seeking to change the narrative about the Florida Keys, a string of islands consisting of once-submerged coral reef and oolite, stretches over a hundred miles southwest from mainland Florida, dividing the shallows of the Gulf of Mexico and Florida Bay from the Atlantic’s reefs and thrumming Gulf Stream. This nexus of habitats supports tremendous biodiversity, which in turn draws divers and fishermen from the world over. But the islands are low, and the residents have seen flooding before.

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in about six hours, when the tide drops.”

Unless it doesn’t. Hagg told of a neighborhood in Key Largo where residents had sea water on their road for three weeks straight, due to a combination of heavy tides and strong winds pushing water from Florida Bay.

South Florida’s mainland is porous, too, and this endangers the Keys’ water supply. Fresh water is piped 150 miles from Dade County to Key West. Much of the island chain’s water comes from a freshwater lens that sits atop denser seawater that fills the subterranean honeycomb of Florida.

“As sea levels rise, it could threaten our wellfield not just from the coast. There are even concerns about the seawater coming up from below,” Hagg said.

And Lake Okeechobee’s water, now shunted to the sea, no longer sheets down Florida through the Everglades like water down glass, recharging the aquifers. Increased demands on the aquifer cause negative pressure, drawing seawater plumes closer.

The Turkey Point nuclear plant that provides the Keys’ power uses a network of seawater channels to cool its reactors. But the cooling capacity was not sufficient during a period of high demand, and the utility sucked subterranean water to cool the reactors, moving a saltwater plume closer to the fresh water supply. The state of Florida and Miami Dade County have lawsuits against the utility, Higgins said, and Monroe County and Key West have written letters advising against expansion.

In spite of these dramatic manifestations of sea level rise, most residents don’t have to rent cars for weeks to avoid driving their own vehicles through seawater, and their taps still run fresh, so sea level rise doesn’t seem urgent. “It’s hard to notice in an average person’s day,” Higgins observed. And it is difficult to keep people informed because many residents are recent transplants whose baselines, in reference to water quality, reef health, and sea levels, began upon their arrival, long-time residents having moved on.

Visitors rarely even know about the flooding because the rainy season comes during the off-season summer and, when the King Tides take place in the spring, skies are usually clear. And tourists don’t want the spell to be broken. They dance to the region’s music which tells them to fish, drink, and forget their worries. They watch the sun set over Florida Bay as they eat fish mostly farmed because of overharvested overseas, determined to believe that all is well.

But sea level rise is getting worse.

“In the last 100 years, we’ve had 9 inches of documented sea level rise, and the rate has gone up dramatically,” Hagg said. “Nuisance flooding occurred on an average of .67 times per year from 1980 to 1982. Between 2010 to 2012, it rose to 2.3 times per year. By 2060, if sea levels rise by 9 inches, flooding will occur 139 times per year. At the higher estimate of 24 inches, flooding would occur 672 times annually, so twice a day, during each high tide.”

For now, Higgins said, the pressure is felt in the wallet. “As far as people’s daily lives, it affects your annual insurance rates more than your live-ability.” And that might be where day to day adaptation is overtaken by long-term realities.

A friend of Higgins’, who has worked in real estate for years, said nobody is asking questions about such impacts. But some realtors say sea level rise will eventually diminish the value of homes on the island chain because more frequent storm events, even if they strike and saturate other parts of the country, will raise the cost of insurance.

Not only do warmer waters feed stronger storms, sea levels determine how far up the islands storm surges advance. I was lucky during Irma because my house sits at an elevation of nine feet, which means we are just high enough that we aren’t required by mortgage companies to have flood insurance. The Federal Emergency Management Agency (FEMA) is reevaluating its maps and will release findings in the spring which may change flood zones. As a resident, I am grateful that FIRM (Fair Insurance Rates in Monroe County) is verifying that FEMA is using accurate data. But accurate data might be bad news.

“If the worst estimates are realized, 36 percent of our population could be displaced by 2066,” Hagg said.
Thankfully, while margarita blenders whirr in the resorts, people like Hagg are trying to prepare the Florida Keys for the future. Sea level rise will require “alternate forms of living and transportation,” she said. “What should the future of the Keys look like? We can’t save everything. We’re going to concentrate on what we can adapt to make sure people can stay here.”

Roads will be the top challenge because half of the county’s 300 miles of roads will be subject to sea level rise effects by the year 2060. “It will be very expensive,” she said, “maybe $10 million or more per mile depending upon how high we have to raise it.”

With just 35,000 residents in Monroe County, state and federal funds will be needed.

The most important effort of all is restoring the Keys’ habitat, not only because every job, every resident, is in some way dependent upon its unique ecosystems. Coral reefs cover far less than one percent of the ocean floor yet support more than 25 percent of marine species. It is our duty to protect them and also because maintaining the natural systems will help protect us. Mangroves–trees which grow finger-roots that are anchored in, and anchor, the sea bottom–act as shock absorbers that diminish the impact of storm surges. Offshore reefs knock down storm waves, making them less destructive. These habitats are lynchpins in the tourism and fishing industries that will help fund our adaptation.

Due to warming waters, ancient coral formations are succumbing to bleaching and disease quickly. Algae blooms threaten fisheries, water quality, and wildlife, and warming waters lean hypoxic and diminish the vigor of ocean currents. With the stakes so high, and the challenges so broad, it is difficult not to at first be overwhelmed, then submerged in hopelessness. But turning away is hastening the flood.

STEVEN HARRIS is a freelance writer and photographer who lives in Key Largo.

Julie Crane, Rockport Harbor, 2018
Reduction Woodcut, 30” x 51”
Courtesy of the artist.

The Gift
By Elizabeth W. Garber

From Pierced by the Seasons: Living a Life on the Coast of Maine, Published in 2004 by The Illuminated Sea Press, Belfast, Maine, and reprinted here by permission.

On my birthday, I dream twice of being a seal woman alive at the surface of the ocean, in my embodied life, wide-eyed delight watching the world of granite islands, water and sky, and when I dive down the cold water flows across my eyes as I swim

My silky strong seal body, flowing muscles, moving, part of the water. Wide eyed awake and watching. I am as open to the enormous light sky as I am to the enormous dark water. Playing at the surface, choosing whether to go up to the light or down to the dark. I have no preference. Fearless, completely at ease, going into either realm.