

From Dennis Maley • Sunday, Aug 19, 2018

A catastrophic case of red tide, deadly green slime algae, and an epic bombardment of seaweed have formed a trifecta of coastal terror this summer, fouling beaches all along the gulf coast and leaving tens of thousands of tons of dead marine life in the wake. Some experts say this is only the beginning of a long-term trend. Can anything be done to save our pristine beaches and protect Florida's tourism-driven economy?

Green-blue algae

For 6,000 years Lake Okeechobee drained into the Everglades, feeding a "river of grass" that spawned one of the most ecologically diverse corners of the entire planet. Attempts to drain the ecological wonder for agricultural purposes began in the late 19th century. By the early 1900s, success enabled wide scale development in the area.

In 1926, Miami was hit with a Category 3 hurricane that caused Lake Okeechobee to flood surrounding towns, but it was the so-called Okeechobee Hurricane of 1928—the second deadliest natural disaster in U.S. history—that led to the damming of the lake via the Herbert Hoover Dike project, which was undertaken to keep the lake contained.

Canals sent water to both coasts when levels got too high, choking off the flow to the Everglades. This was the start of an ongoing state of crisis for the glades. Almost immediately there was a major drought and in 1939, 1 million parched acres of Everglades burned in wildfires.

Around this time, Miami also discovered that its groundwater came from the Everglades and as they dried up, salt water seeped into the wells. Draining the water also disturbed the balance of bacteria in the soil and soon it was crumbling. Some houses had to be moved, while many new ones were built on stilts. Despite many expensive attempts at restoration, the Everglades would never be the same.

Meanwhile, the state continued to develop at a rapid pace. To the south of the lake, sugarcane production soared after the dike and canals were built, and the surrounding towns saw their population balloon in direct proportion, putting even more stress on the land. To the north, central Florida became one of the biggest cattle-ranching hotbeds in the United States.

None of this was good for Lake Okeechobee. Phosphorus from fertilizers used at cattle ranches as well as from phosphate mining operations flowed into it from the north, while excess fertilized water from sugar cane fields fouled it from the south.

Record rains that hit the area this May are largely to blame for the blue-green algae that spawned this summer in the Caloosahatchee River and St. Lucie Estuary, as high amounts of nutrients were washed in from the watershed. Regular discharges from the lake compound the problem, adding algae and diluting the more brackish waterways.

The water was shown to contain microcystin, a toxin that can result in a rash just from skin exposure. If ingested, as often happens when swimming, especially with children, it can cause nausea, vomiting and, in severe cases, acute liver failure. Samples taken on the St. Lucie River last showed the water to be 10 times too toxic to touch. The iridescent slime has had a deadly impact on sea life as well, with Manatees and turtles having suffocated from the thick, goopy slime that lines the water surfaces.

Karenia Brevis (aka Red Tide)

This year's epic red tide blooms lined the beaches from Collier to Manatee County with tens of thousands of pounds of dead sea life, while also causing respiratory irritation to nearby residents. Even several miles inland, coastal canals are clogged with a covering of dead fish and noxious smells as residents were left to contract with local fisherman to clear the waters behind their houses until the county announced on Friday that it would begin doing so with the help of a contracted vendor this week.

So far 11 dolphins are suspected to have died because of the red tide epidemic, while the deaths of 29 Manatees have been confirmed to be red-tide related, with 51 more suspected. While it's more difficult to assess sea turtles, researchers say that the more than 400 dead turtles that were collected during the bloom in affected waters is more than twice the five year average for the time period.

Red tide algal blooms create a toxin that can pass through the food chain as they are transferred from tiny zooplankton to fish, aquatic mammals, birds and humans. When the toxins are inhaled by beach-goers and those who live directly on the coast, it often causes respiratory distress.

While there is a direct line from discharges from Lake Okeechobee to the toxic green algae, scientists say it's more complicated when it comes to red tide, which occurs naturally and starts way out in the gulf before being pushed into coastal waters by winds and tides. The algal blooms will, however, take advantage of high nutrient levels near the coast to multiply, but scientists say the mouth of the Caloosahatchee is too far south for its water to have an impact on our beaches.

Another suspect is the high-nitrogen runoff from fertilizers used to festoon residential and commercial properties throughout the state with non-native palm trees and grass coverings that don't otherwise do well in our dry sandy soil. Unwilling to go native, too many Floridians use phosphorus-based fertilizers and frequent watering to manufacture an environment the plant life can thrive in, but that runoff eventually finds its way into our waterways and empties into the gulf. Not only can nitrogen-rich coastal waters be bad for some sea life, but jellyfish thrive under such conditions, helping them to proliferate in swimming waters, increasing the number of stings.

Simply put, despite its 200-year relationship with our region, too little is known about red tide for scientists to have solid ideas about how to combat persistent blooms like this one. That's mostly because it hasn't historically been more than an occasional nuisance once thought to have a natural role in ocean life balance, sort of the way naturally-occurring forest fires do on land. But scientists can't find the same symbiotic relationship with the neurotoxin and while they don't know why this year's bloom is so bad, they do say that the warmer gulf waters associated with climate change aid the blooms and extend the red tide season. In other words, expect it to get worse.

Governor Rick Scott declared a state of emergency and directed \$100,000 in funding to the Mote Marine Laboratory this week to study the matter, though Scott, who's currently running for the U.S. Senate, consistently cut funding for red tide research and water quality monitoring while in office. The governor, in turn, blamed Congress this week.

Sargassum (aka Seaweed)

As if that weren't enough, South Florida's beaches also faced a seaweed assault this summer that some scientists have called the largest spread on record. From the key upward of about half of both coastlines, the brown algae of this nomadic marine weed-clogged waterways and stained coastlines.

Local beaches saw only a bothersome increase, but further south tourism was hampered yet again by the nuisance weed that gives off a foul odor and can be irritating to the skin. In June, the Caribbean Sea was bombarded by 1,158 square miles of seaweed—three times the coverage during the same time in a record-high 2015 bloom. Florida's folly is the result of two separate waves that have hit our shores and scientists say there's no guarantee we won't see a third one this season.

The Economy

While seaweed isn't nearly as bad to deal with as the red tide and algal blooms, consider that some beaches have had to deal with all three, over a beach season that has already been marked by brutally hot and humid weather conditions, all of which comes back to the most immediate impact, which is the economic effect on tourism. Coastal communities that rely on the state's number one industry for the bulk of their economic impact are hurt by bad summers and devastated by terrible ones.

Our historic 2004 hurricane season had already left many would be visitors questioning their Florida vacation plans when a red tide bloom that lasted 18 months through 2005 sullied the coasts from Alabama to the Florida Keys, devastating local economies to the tune of over a billion dollars, while thousands of tons of dead fish were collected on coasts from a dead zone that eventually grew to cover 2,000 square miles of the Gulf of Mexico. Ironically, it took the category 5 strength of Hurricane Katrina to finally begin breaking up the bloom, and some experts say this year's Hurricane season may be the only thing capable of coming to the rescue this year.

Solutions in Short Supply

This is the part of the story where I usually talk about what's to be done, only there's not much consensus on that score. What we can talk about is a culture in which defunding environmental research and departments associated with regulatory enforcement, while at the same time loosening regulations, and bowing before big-money special interests like Big Sugar and Big Ag when it comes to policy, creates an environment that seems likely to fall way short, given the scope of the crisis we're facing.

Until we start demanding accountability from our governors and legislators on environmental issues—and consider crossing party lines when they don't abide—we should expect more short-sided giveaways to special interests at the expense of the long-term viability of our most precious resource.

***** Dennis Maley is a featured columnist and editor for The Bradenton Times. He is also the author of several works of fiction.*