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LOCAL

For manatees on Florida's west coast, red tide is a complicated, deadly nemesis

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Red tide in the water and in the air contribute to manatee deaths on Florida's west coast, setting the region's waterways apart from other troubled areas of manatee mortality in Florida, researchers say.

In the long run, the loss of seagrass connects both coasts' investigations into the marine mammals' well-being, but, according to Dr. Thomas K. Frazer, dean and professor in the University of South Florida College of Marine Sciences, the reasons behind the decline in water quality can often be linked to different factors.

"The last several years have been very difficult for manatees, for a variety of reasons. Particularly on the east coast, and similarly, maybe to a lesser degree, on the west coast," he said.

Seagrasses, which flourish in shallow water, are the bedrock of coastal marine life. They filter pollutants, act as a nursery to marine life and offer manatees and sea turtles their main food source.

Seagrasses also serve as a canary in the coal mine, its health and vitality an indicator of potential problems. Starting in 2016, seagrass numbers have generally declined around the state and specifically in Sarasota Bay – a warning of the decline of the delicate ecosystems along the Gulf of Mexico.

"One of the reasons why we've lost so many manatees in the last two and a half years is from starvation. Not boat strikes, but starving to death, due to the lapse in water quality in (Sarasota Bay), which affects their food source," said Dr. Dave Tomasko, director of the Sarasota Bay Estuary Program, adding that the Indian River Lagoon on Florida's east coast is the epicenter for seagrass loss and manatee deaths.

“It might be as high as 30 to 50 percent of the east coast manatee population basically starved to death in the last two and a half years,” said Tomasko.

Closer to home, in 2018, a massive red tide bloom in the Gulf of Mexico affected marine ecosystems of surrounding communities, contributing to seagrass losses and the highest recorded manatee mortality rate in over a decade, with 824 deaths statewide. Over a third of the deaths were suspected or confirmed to be from red tide toxicity due to inhalation or ingestion of red tide, also known as brevetoxicosis.

That year, Sarasota and Manatee counties reported 82 manatee mortalities, the highest number recorded in a single year. In 2021, manatee mortalities across the state rose to 1,100, before declining to 800 in 2022, and declining again to 442, as of Sept. 1.

The rate of red tide-related manatee mortalities has remained steady. This year, these rates appear to have risen slightly from 2021, with 112 reported as of Sept. 1.

“The cause of death (has been) attributed in large part to starvation. There are certainly other factors involved in Manatee deaths; there are boat strikes, which can be a real problem," said Frazer. "The issue related to starvation is a complex one. (That’s) because of the loss of seagrass beds, largely in the Indian River Lagoon. That in turn is a water quality issue, and so persistent degradation of water quality in our nearshore coastal waters can often lead to the loss of seagrass … and as a consequence of that, the manatees lose their forage base.”

“We (on the Gulf coast) experience some relatively large red tide events, and those red tide events can also lead to manatee mortalities in a couple of different ways, because they rely heavily on seagrasses,” said Frazer, “For food, those seagrasses can harbor what we call epiphytes.”

Epiphytes are a plant or plant-like organism that grows on another plant and deprives it of nutrients.

“These red tide organisms have toxins and those toxins cause problems for manatees as they do for a number of other animals … Just for the direct ingestion of red tide and the toxins associated with red tide cells can cause death. Manatees are mammals, so they breathe air like we do, and they have to come to the surface (to breathe), and when they’re breathing they can inhale aerosolized toxins if they’re in the area where a ride tide event is present, and because those toxins are a neurotoxin, essentially … it compromises the ability of the animals to move, so they lose motor control, and ultimately, they can drown. So that’s the problem on the west coast.”

The Florida Fish and Wildlife Conservation Commission (FWC) released findings on the presence of brevetoxin due to red tide, concluding that the most dangerous time for manatee mortalities is in the spring, when “red tide bloom coincides with manatee migration away from warm-water sites,” according to the agency’s website.

Brevetoxin can weaken or paralyze a manatee or cause seizures. Signs of a manatee suffering from brevetoxicosis include struggling to surface and breathe, seizures, facial tremors, abnormal position in the water, weakness or breaching in shallow water.

“Manatee exposure to red tide is mostly through ingestion of brevetoxin accumulated in seagrass,” says the FWC, “Even after red tide dissipates, seagrasses can still retain brevetoxins for one to two months after a bloom.”

Frazer and Tomasko encourage care for the environment by paying attention to the fertilizers that are being applied in upland areas, which can wash into drainage structures and into the bay, cleaning up pet droppings before rainstorms, especially in coastal communities, and maintaining septic systems to avoid releasing damaging nutrients that may cause a red tide surge. In short, limiting the amount of nitrogen and other harmful compounds that can cloud bay waters and cut off sunlight to seagrasses below.

Individuals who encounter a manatee in distress or find a carcass are encouraged to call FWC’s Wildlife Alert Hotline at 1-888-404-3922.

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