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FLORIDA

## What's red tide doing to Florida's marine life? 'We really need to get our act together'

BY RYAN BALLOGG

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Manatee grass, scientific name *Syringodium filiforme*, is one species of seagrass commonly found in Tampa Bay and Sarasota Bay. *FWC Fish and Wildlife Research Institute*



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00:00

New surveys of seagrass on Florida's Gulf Coast shows the vital marine plant is continuing to lose ground at a rapid pace in Tampa and Sarasota Bay.

Since 2016, the Southwest Florida Water Management District has documented losses of almost 30% of Tampa Bay's seagrass and around 26% in Sarasota Bay.

The decline comes after local waters were swamped with pollution from the Piney Point industrial site and severe red tides over the past several years.

But the seagrass losses also have increased despite many areas meeting state water quality targets, which environmentalists say need changing.

Scientists say action must be taken to prevent Tampa and Sarasota's seagrass ecosystem from collapsing like the one in the Indian River Lagoon on Florida's east coast, where [manatee deaths are highest](#).

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## **IMPORTANCE OF SEAGRASS**

Any ecologist will tell you that seagrasses are one of the ocean's MVPs (most valuable plants).

From sheltering and feeding marine life to storing carbon and preventing erosion, the marine greens are a vital part of the ecosystem — not to mention the preferred produce of the iconic Florida manatee.

Unfortunately, seagrass meadows are also one of the [most imperiled](#) ecosystems in the world; climate change, pollution, [red tides](#) and other human-influenced problems are top threats.

A die-off is now playing out on Florida's Gulf Coast, where seagrass meadows are disappearing at an alarming rate.

Scientists take it as a warning sign for the overall health of area waters.

“It's further evidence that we really need to get our act together quickly,” said David Tomasko, executive director of the Sarasota Bay Estuary Program.

## **ARE WATER QUALITY STANDARDS STRONG ENOUGH?**

In Tampa Bay and Sarasota Bay, the seagrass losses came despite many areas meeting state water quality targets.

“Old Tampa Bay and Hillsborough Bay are examples of that,” said Chris Anastasiou, chief scientist of water quality and the lead of seagrass mapping efforts for the Southwest Florida Water Management District (SWFWMD). “We are meeting the criteria, yet we're still seeing reductions of seagrass and in some cases increases in macroalgae or drift algae.”

Tomasko and SBEP are recommending that the state adopts stronger and more comprehensive water quality standards to address the disconnect.

“The State of Florida reports on the health of estuaries based only on what was captured in a water bottle,” Tomasko said. “We think that's not enough.”

Currently, [Florida Department of Environmental Protection standards](#) call for measuring phosphorous and nitrogen (nutrients that can feed harmful algal blooms) and levels of chlorophyll-a, an indicator of algae abundance, in samples collected from from waterways.

But a water sample collected at the surface doesn't necessarily capture a complete picture of an ecosystem's health.



**Macroalgae in upper Sarasota Bay**  
Sarasota Bay Estuary Program · [Follow](#)

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SBEP staff visited the upper bay yesterday. Dr. Dave Tomasko is sharing what we found:

“You can have a macroalgae bloom that’s burying a seagrass meadow, but the water looks fine at the surface,” Tomasko said. “The current standards are missing a lot of the problem.”

The estuary program issues [“ecosystem health report card”](#) for Sarasota Bay that considers a more diverse set of factors. It includes concentrations of nitrogen, but also seagrass health and the presence of various types of algae throughout the water column.

Water managers are also taking another look at how much nitrogen the bays can handle.

When it is overabundant, nitrogen can feed multiple kinds of algae that can grow out of control, choking seagrass beds and blocking their access to sunlight.

“We’re trying to understand the pathway of nitrogen once it’s in the water,” said Anastasiou.

He and the SFWMD work closely with estuary programs to monitor the health of bays and develop new recommendations for improving conditions. The recent seagrass losses have underlined that a new approach may be necessary to keep up with the increasing strain on Florida’s waters as population and development expand.

“What we’re doing more and more is taking that holistic approach,” Anastasiou said. “Do all the indicators suggest that this estuary is healthy?”

With the proper response, Anastasiou believes seagrass can bounce back.

“It absolutely can be turned around,” he said.

## **REPORT SHOWS RECORD SEAGRASS LOSS, BUT SOME SILVER LININGS**

Every two years, the state [conducts a seagrass survey](#) of five estuaries along the Suncoast, including Tampa Bay and Sarasota Bay.

The 2020-22 survey showed major seagrass declines for both bays. Tampa Bay lost 12% of its seagrass coverage, or over 4,100 acres, and Sarasota Bay took a 6% hit of over 570 acres.

In Tampa Bay, it’s the third survey in a row that has revealed [shrinking seagrass meadows](#) — a record since the monitoring program began in 1988. Within that region, Hillsborough Bay lost 51% of mappable seagrass, and Old Tampa Bay lost 38%.

Sarasota Bay’s losses are also stacking up.

“It’s a mixed bag,” Tomasko said. “In 2020-22, we lost 5% of our seagrass meadows. The two years before that, we lost 18%.”

If there's any good news, it's that it doesn't look like the losses are accelerating," he added. "This isn't necessarily going to get worse and worse. We hope it's bottoming out."

Up until 2016, Tampa Bay and Sarasota Bay seagrass abundance was at healthiest levels seen in decades. But six years marred with severe red tides, industrial pollution and sewage spills wiped out a big chunk of that progress.

"If you lose too much seagrass, there's a concern that you'll be a different system moving forward," Tomasko said. "You won't have seagrass; you'll have a system dominated by algae."

The Manatee River, which feeds into Lower Tampa Bay, lost 19% of its mappable seagrass between 2020 and 2022.

Most of the loss was in areas populated by patchy seagrass, which are more likely to recede for a time and come back, Anastasiou said. The densest, most healthy sections of seagrass in the Manatee River actually grew by 22 acres in the two-year window — a gain of 11%.

"All the loss we saw was much further up the river," Anastasiou said. "It's not good, we don't want to see loss. But when you look at it in context, it's not as bad as the numbers might suggest."

There were also pockets of seagrass gain in Sarasota and Tampa Bay despite the overall loss.

A bright spot in the survey was at the north end of the district near the Pinellas-Pasco border. In St. Joseph Sound and Clearwater Harbor, SWFMD's survey found net seagrass gains that put the estuaries at record high levels of seagrass coverage.

Estuaries in Southwest Florida did not fare so well. Overall seagrass losses were recorded in Dona and Roberts Bay, Lemon Bay and Charlotte Harbor.



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## **IS PINEY POINT TO BLAME FOR SEAGRASS DECLINE?**

On March 30, 2021, the Florida Department of Environmental Protection authorized the emergency release of [215 million gallons of contaminated water](#) from Piney Point, a retired phosphate processing plant in Manatee County on the edge of Lower Tampa Bay.

According to estuary program scientists, the environment is still reeling.

“Piney Point was probably the worst thing that happened to Tampa Bay for 50 years,” said Tomasko, who has worked on multiple studies tracing the pollution event’s impact. “It was like 200 million gallons of liquid fertilizer. It’s going to take awhile for us to get through this. It’s going to have manifestations.”

Tomasko estimates that 80% of the seagrass loss in the most recent survey is in areas affected by the plume of the spill.

A study published in May 2022 in *Marine Pollution Bulletin* found that the spill likely made that year's red tide much more severe by feeding it about 180 metric tons of nitrogen. The untimely bloom killed hundreds of tons of marine life in Tampa Bay and Southwest Florida waters.

“We believe that a certain amount of this loss of seagrass is attributed to Piney Point,” Tomasko said. “We also believe that it created some of the worst macroalgal blooms in upper Sarasota Bay in people’s memory.”



*Sarasota Bay Estuary Program*

## **COULD FLORIDA'S GULF COAST BE THE NEXT INDIAN RIVER LAGOON?**

What happens when a key species like seagrass disappears from its ecosystem? The effects can be disastrous. Once sand and seagrass, the bottom of the Indian



River Lagoon on Florida's east coast is now covered in muck and [wildlife are in crisis](#).

Anastasiou said Florida's Gulf estuaries and the Indian River Lagoon are ecologically very different. However, the threat of major marine habitat loss for Florida's Gulf Coast is very real, he said.

"There is always that danger," Anastasiou said. "Fortunately, we still have a long way to go before we get to that point. But we don't want to be in a position where we're worried about that.

"Now is the time to really take action and understand what's happening."

## **WHAT CAN BE DONE TO BRING BACK SEAGRASS?**

Scientists believe the best way to help seagrass meadows return and thrive is to crack down on water pollution, especially nitrogen, from all sources.

Everyone has a part to play, Tomasko said.

"The government needs to upgrade stormwater systems. The regulators need to be more timely in fixing problems and enforcing. And the general public needs to do their part," Tomasko said.

If you've got a green lawn and you're complaining about an algal bloom, maybe you're part of the problem."

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Some changes are already underway.

In the Sarasota Bay region, Tomasko said local governments in Manatee and Sarasota counties have allocated a combined one billion dollars for wastewater

upgrades and stormwater retrofits.

Anastasiou with SWFWMD said the seagrass survey is doing exactly what it's designed to do: getting everyone's attention when something is going wrong beneath the surface.

"We have many groups that are working on tackling these issues on the technical level all the way up to the policy level," Anastasiou said.

He also encouraged Floridians to get involved in citizen science programs that help monitor the health of the water.

"These people go out on the water every day. They are our eyes and ears," Anastasiou said.

"Being educated on the things that are affecting the bay is really important," Anastasiou added. "We want to be very conscious of our footprint in these systems."

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