Where have all the seagrass gone… gone to algae everyone

DR. RICHARD WHITMAN
Heal Our Harbor

COURTESY OF CAT CHASE

Heal Our Harbor volunteer Phyllis Wojcik, left, holds a bag of algae, after it was collected by Richard Whitman. Also pictured studying the blue green algae samples are Bruce Wojcik, and Forest Hecker. Heal Our Harbor, in cooperation with Sea Grant, surveys algae that may detach and accumulate as massive rotting mats along Charlotte Harbor shorelines.

Full disclosure I asked AI about the status and causes of seagrass loss in Charlotte Harbor. It told me that 50% of the meadows along the East Wall have disappeared over the past 20 years, 23% harborside. It said the reasons are complicated.

Yes, like most things in science, it is complicated—especially in a dynamic estuary like Charlotte Harbor. But if I had to sum up the root cause of our seagrass decline in a single word, it would be-eutrophication. The main culprit? Overfertilization.

Whitman

But let me digress.

I enjoy sampling fixed plots and watching how ecosystems change with the seasons and over the years. Unfortunately, change isn't always for the better. In our first three years, we worked near the Cattle Dock and Trout Creek areas, where we watched seagrass steadily decline. Eventually, we were left with no meadows at all — only bare sand and muck.

The Myakka River plays a dominant role here. Its excessive nutrient loads, recurring algal blooms, decreased water clarity, and stormwater runoff overwhelm the fragile persistence of seagrass. In search of healthier meadows, we relocated last year to sites offshore of Burnt Store Marina and Pirate's Cove. It was a mixed experience.

We count seagrass twice a year — in late spring and late summer. In April, the water is still cool, stormwater contamination hasn't begun, and conditions are relatively favorable. Nutrients are low, visibility is better, salinity is more stable, and invasive blue-green algae are minimal. Under these conditions, seagrass is free to flourish.

By August, everything changes. Seasonal rains bring large swings in salinity, reduced water clarity, warmer water, and higher nutrient loads — ideal conditions for nuisance blue-green algae.

We found the once-healthy Shoal Grass meadows off Pirate's Harbor smothered by thick mats of blue-green algae.

LYNGBYA IS NOW DAPIS

Old-timers call it Lyngbya, but its updated name is Dapis. It's not algae at all, technically — it's cyanobacteria, photosynthetic bacteria that outcompete seagrass for light. It chokes out the grass, depletes oxygen, and transforms a vibrant ecosystem into a lifeless tangle of decaying vegetation and rotting Dapis mats. These meadows can no longer serve as natural nurseries for fish, crabs, shrimp, and other vital marine life. What used to be a promising fishing trip or boat ride becomes a disheartening journey through a damaged ecosystem.

These mats eventually detach and drift, creating even more problems around the harbor.

Cyanobacteria are ancient survivors — they've been around since the dawn of life on Earth. They defend themselves with neurotoxins, slimy coatings, and buoyant bubble rafts that allow them to float and block sunlight from below.

As they accumulate in mangroves and shallow areas, they suffocate surrounding marine life, clog our waterways, and ruin our recreational and fishing experiences. These blue-green blooms are often teeming with other harmful bacteria, which can lead to beach closures and increased health risks. When they decay, the stench resembles raw sewage.

In upstream, fresher waters, phosphorus plays a key role in fueling these blooms. But in the Gulf-dominated lower estuary, nitrogen tends to be the controlling factor. Cyanobacteria have even learned to "hack the system" by fixing atmospheric and dissolved nitrogen into usable forms. The result both attached and floating mats of algae, along with phytoplankton blooms, darken the already tea-colored water—blocking light from reaching the seagrass below.

AUTOPSY REPORT SUFFOCATION

Yes, the full story is complex. Estuaries are dynamic, and the nitrogen cycle and ecological responses are tangled and variable. Hurricanes, for example, can stir up sediments, uproot vegetation, release nutrients, fuel algal blooms, and reduce oxygen — leading to fish and horseshoe crab kills. They can also lower salinity to levels intolerable for seagrass.

Estuaries are naturally adapted to disturbances, but eutrophication has stacked the ecological deck against them. As a community, we must intervene.

Where Does It Come From?

Residential Yards Over-fertilizing, improper disposal of yard waste, or fertilizing during the rainy season.Septic Systems and Sewage Poorly treated waste leaches into waterways.

Agriculture Fertilizer runoff is costly to both farmers and the environment.Stormwater Runoff The primary vehicle delivering nutrients and contaminants into Charlotte Harbor.

THE GOOD NEWS

Eutrophication can be reversed. But it requires community-wide commitment.

Here's where to start

Follow fertilizer ordinances and use products wisely.Talk with neighbors and lawn care providers about responsible practices.

Maintain or upgrade your septic system.Support best management practices in agriculture to keep nutrients where they're needed.Stay engaged. Connect with Charlotte County, FDEP, Sea Grant Extension, CHNEP, and Heal Our Harbor — organizations committed to protecting our waters.

What began as a perfect field day ended in disappointment. Many of our favorite nearshore seagrass meadows are dying — victims of eutrophication, an insidious disease attacking Charlotte Harbor at its foundation.

But the story doesn't have to end there.

With your assistance and advocacy, we can bring the seagrass back, restore our fisheries, unclog our waterways, and heal our harbor. Homeowners, managers, and decision-makers all have a role to play. Reach out to supporting agencies and find out how you can help.

SHUTTERSTOCK PHOTO

Seagrasses are primary food sources for manatees. When the grass dies off, sea cows will starve if they can't find alternatives.