Massive seaweed bloom headed to Florida is a mystery to scientists

The sargassum seaweed can emit hydrogen sulfide gas when it decomposes.

By **Peter Charalambous**
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Five thousand miles long, 400 miles wide, and over six million tons, a massive bloom of sargassum seaweed is drifting toward Florida and the Gulf of Mexico.

Scientists at the University of South Florida, with the help of the National Aeronautics and Space Administration, have been tracking the bloom of sargassum, a type of brown seaweed, using satellites. Originating in the Atlantic Ocean, the bloom is approaching the Caribbean Sea and the Gulf of Mexico, posing a threat to beaches across the Gulf, including tourism-centric Florida.

Florida beaches start to see the arrival of massive 5,000-mile-wide seaweed bloom

WPLG frame grab

“If you've ever been on a beach that had a huge abundance of this, it's not fun,” Dave Tomasco, executive director of the Sarasota Bay Estuary Program, told ABC News. "It rots, it uses up the oxygen water, and smells like rotten eggs.”

When the bloom hits a beach, it can pile one to two meters high on the shoreline and clog swimmable waterways, according to scientists. If the seaweed is not removed from the beach quickly, it will begin to rot, emitting hydrogen sulfide gas, most associated with the smell of rotting eggs that can irritate skin, eyes, and the throat, as well as make breathing difficult for those with asthma.

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According to Tomasco, the bloom is more likely to harm the tourism industry than harm wildlife by piling up and stinking up famous Florida beaches.

Octavio Penaloza, who manages Wings Beachwear in Miami Beach, said the bloom impacting Miami could impact his bottom line.

“If anything happens to the beach, it would impact us,” he said.

He noted that his busy season includes June and July – the same months when the sargassum peaks in size, according to scientists. While his customer base includes tourists buying souvenirs without visiting the beach, many customers stop by his store for beachwear, which would become unnecessary if beaches become less pleasant.

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“[If] the seaweed comes, we will have like less people coming to buy from our store because they mostly buy things to go to the beach,” Penaloza said.

For a measurable impact on Florida beaches, University of South Florida research professor Brian Barnes said that a concentrated amount of about "the size of a football field” of seaweed must land on a seashore at once.

“If it's a big enough blimp or big enough patch that hits a particular beach, then it can kind of overwhelm the capabilities [of the beach],” Barnes said.

While six million bloom spans over two million square miles, it only completely covers about .1 percent of the sea surface, spread in patches that vary in size significantly, according to Barnes. The bloom will take months to reach land ultimately and might increase in size as the water temperature increases; the location where it lands is also dependent on wind and currents, with Barnes warning that Southeast Florida, including Miami and the Florida Keys, are the areas in the United States most likely to be impacted.

When and if it arrives, the Florida Department of Health warns that decaying sargassum’s hydrogen sulfide will irritate the skin, eyes, throat, and nose. It is unlikely to injure seriously in an airy setting like a beach, but people with asthma might have trouble breathing due to the gas.

Tomasco also noted that the hydrogen sulfide could interact with paint molecules on homes, turning them into a grayish silver color and even tarnishing silverware.

Chuanmin Hu, a professor at the University of South Florida who works on tracking the bloom with Barnes, said the amount of seaweed heading to the coast is not a cause for alarm, emphasizing that sargassum is natural and not toxic to ocean life.

Cleaning of Playa Punta Esmeralda covered with sargassum seaweed in March 22, 2022, in Playa Del Carmen, Quintana Roo, Mexico.
Artur Widak/NurPhoto via AP, FILE

Hu said that this amount of seaweed is the “new normal” for the Atlantic Ocean; however, the current seaweed mass set the record for the largest bloom of sargassum recorded during January, though it decreased in size in February.

“At least it will be one of the major sargassum years, although we don't know if it will be a record year or not,” Hu said, emphasizing that the size of

the bloom reaches its peak in June and July.

Compared to the red tide, a toxic algae bloom that has wreaked havoc on Florida's Gulf Coast over the last decade by killing sea life and even manatees, sargassum is not harmful to wildlife under most conditions. Hu said that some animals, including sea turtles, fish, crabs, and shrimp could eat or find shelter in the blooms.

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However, Tomasco warned that sargassum on beaches could disrupt sea turtle nesting habitats. Hu also noted that if sargassum sinks to the ocean floor compactly, it could smother and kill coral and seagrass.

"They sink to the ocean floor and smother things," Hu said, noting that most of the bloom will likely end on the seafloor instead of the beach.

While the blooms are the "new normal" compared to the last few years, Barnes noted that they were "unheard of" before 2011, characterizing their sudden emergence as a mystery.

"Any type of bloom of any relative size is unheard of before 2011," Barnes said. "Like, we never saw any type of bloom like this; there's no reports of huge beachings or anything like that in the Caribbean."

While Hu said there is no direct evidence to link the blooms to climate change, Tomasco pointed to the nature of sargassum – including the fact that it grows larger in warmer waters – as an indication of why it has reemerged.

"The world is changing, and part of that is the oceans are getting warmer, and algae seems to be able to grow over a longer period of the calendar now then used to be the case," Tomasco said.

A discount sign is displayed at a shop in Miami Beach, Fla., on January 12, 2022.
Chandan Khanna/AFP via Getty Images, FILE

Tomasco also pointed to the increased use of fertilizing in Florida agriculture and landscaping, which runs off into the gulf and helps spur the seaweed's growth. Hu clarified that the fertilizer would impact the seaweed when it enters the Gulf of Mexico near the shore, not when the sargassum initially grows in the Atlantic.

Regardless of the reason for the growth, what is clear to all three scientists is that coastal communities will learn to manage the new normal of this seaweed.

“I don't see anything that indicates it's trending anywhere but up,” Barnes said.