



NASA EARTH OBSERVATORY
An algae bloom in Lake Okeechobee, Florida is affecting water quality all the way to the Atlantic Ocean.

This algae bloom can be seen from space

BY BRADY DENNIS
THE WASHINGTON POST

By now, you may have seen pictures of the foul-smelling, tourist-repelling, guacamole-thick algae that has been spreading along some South Florida waterways, including along the state's "Treasure Coast."

But images this week from the NASA Earth Observatory help underscore the massive size of the algae bloom, which has caused Florida's governor to declare a state of emergency in some counties and ask for help from Washington.

One image is of a portion of Lake Okeechobee, the state's largest freshwater body of water, which has been inundated with toxic chemicals in recent months after a heavy year of rainfall. The shot was captured by NASA's Landsat 8 satellite on July 2. Algae blooms are not uncommon in Lake Okeechobee during the summertime, given the runoff from farms and other pollution. As the lake's water warms during summer, it creates an ideal environment for the growth of the blue-green algae, also known as cyanobacteria.

According to NASA, the algae bloom that grew this spring covered roughly 33 square miles of Lake Okeechobee. The conditions that gave rise to the bloom have persisted ever since, and have been blamed for affecting water quality downstream all the way to the Atlantic Ocean.

How did the algae bloom spread far beyond the shores of Lake Okeechobee? In part, it's because the Army Corps of Engineers, which monitors water levels in the lake, had to make a decision as water levels continued to rise from huge amounts of rainfall. The Corps discharged excess water from the lake into rivers and estuaries that lead to the coast in order to avoid putting thousands of people and the towns they live in near the lake at risk of life-threatening flooding.

That discharge flowed through the St. Lucia Canal on the lake's eastern side into the Atlantic Ocean near Stuart, Florida. With it came the hideous algae that state officials are now scrambling to contain.

Last week, Gov. Rick Scott, declared a state of emergency in multiple counties after algae blooms appeared in local waterways. On Wednesday, Scott vowed to push state legislators to spend millions to fight the bloom, which residents have described as smelling like "a hundred dead animals." He also appealed to President Barack Obama to declare a federal emergency in the area.

The Corps of Engineers has said the huge amount of rain and runoff entering the lake this year "would cover the entire state of Delaware in two feet of water," according to Jacksonville District Commander Col. Jason Kirk.

Gypsy moths a scourge in the Northeast

Pest may pose significant ecological harm to trees, crops

BY BEN GUARINO
THE WASHINGTON POST

In Massachusetts, Rhode Island and Connecticut, the gypsy moths are out in force. And the fuzzy crawlers have demonstrated their appetite for destruction.

The voracious pests chewed their way through New England and beyond, divorcing nearly a hundred thousand acres of trees from their leaves in Massachusetts alone. It is possible, as the Boston branch of the National Weather Service recently pointed out on Twitter, to observe the caterpillar-induced defoliation from space.

"Gypsy moths are having an enormous, explosive year," said Brian Cassie, founder of the Massachusetts Butterfly Club, to the Sun Chronicle.

On the ground, the bugs are causing agricultural damage and are threatening to pose a significant ecological problem. Some environmentalists fear that if the caterpillars too severely harm oak trees, the wild turkeys, bears and other animals that rely on oak acorns will in turn be affected. Firefighters worry that trees, stripped of their greenery, will be more susceptible to combustion. One Boston Globe reporter took to coating his trees with Vaseline in a futile attempt to keep the animals from climbing into the canopy.

Houses have turned black under the deluge of caterpillar poo. David Hanson, a Massachusetts farmer, told the Associated

Press on Sunday that the little bits of chewed-up plant matter are raining down so thick homeowners need brooms to scrape it up.

This may be the worst infestation of gypsy moths since the 1980s, according to the Associated Press

"Some people are telling me they're raking their lawn because there's so much leaf litter on them from the gypsy moth damage," he said.

This may be the worst infestation of gypsy moths, according to the Associated Press, since the 1980s.

To trace the source of the infestation requires going back not three decades but a century. Etienne Leopold Trouvelot, a French astronomer living near Boston who was a better artist than he was an entomologist, wanted to see if he could find an animal superior to the silkworm for textile production. His experiment with gypsy moths, imported from Europe, was doubly a failure: The moths did not produce better fibers, and on a blustery day in 1868 or 1869, a gust of wind blew some of Trouvelot's bugs free from a windowsill.

The insects took to the Medford, Massachusetts, countryside with gusto. There, the caterpillars grew rapidly in number; there were no familiar carnivores to keep the animals in check, and the insects sport irritating



IOWA DEPARTMENT OF NATURAL RESOURCES
A common sight right now in the Northeast is the gypsy moth caterpillar, munching on a leaf.

spines that deter most North American insect-eaters. (There are a few native birds that are capable of munching on the gypsy moth larvae: Specifically, as Massachusetts NPR station WCAI noted Wednesday, the yellow- and black-billed cuckoos are capable of collecting the spines in their stomach linings and then expelling the hairs as concentrated pellets.)

Each year, in late spring and summer, the caterpillar populations swell. What may be effective in culling the animals, as The Washington Post's Angela Fritz wrote in June, is the fungus Entomophaga maimaga. The spores, native to Japan, infect the gypsy moth larvae, often fatally so — Cornell University's mushroom blog describes it as the "caterpillar killer" for its efficiency at consuming the critters from within.

During unseasonably

dry springs, however — as May 2014 and 2015 were in New England — the fungus cannot take root, and the cycle continues. The dry spell continued this year, too, threatening a bleak outlook for the next crop of trees.

"Connecticut is potentially facing a huge gypsy moth infestation next summer," Connecticut Agricultural Experiment Station state entomologist Kirby Stafford told the Hartford Courant.

By now, most of the caterpillars have metamorphosed into moths. But that does not mean they have ceased to inconvenience New Englanders.

A Boston-area radio producer wrote on Twitter that the moths were so numerous at Logan International Airport, his Tuesday flight was delayed for 20 minutes while the pilots waited for the insects to clear.

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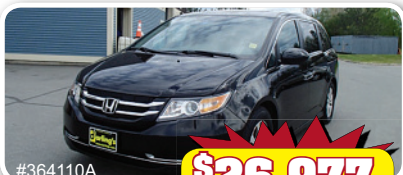
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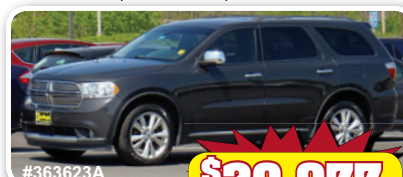
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