

Microplastics are harming the Gulf of Maine's baby lobsters, study finds

by Bill Trotter July 13, 2020 Click to share on Twitter (Opens in new window) Click to share on Facebook (Opens in new window) Click to share on Reddit (Opens in new window) Click to print (Opens in new window) Click to email this to a friend (Opens in new window)

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In this March 13, 2020, file photo, lobsters await shipping at a wholesale distributor in Arundel. Credit:

Robert F. Bukaty / AP

A study by scientists at a marine research laboratory indicates that plastic pollution in the Gulf of Maine likely is creating problems for the lobster population.

Researchers at Bigelow Laboratory for Ocean Sciences in Boothbay examined how microplastics — pieces of plastic broken down into tiny particles — affect lobster larvae in the gulf. They found that lobster larvae, which float in the water column and typically are found in shallow water, get fibers caught under their shells and sometimes ingest particles.



The issue of pollution in the Gulf of Maine, where millions of pounds of [lobster fishing gear](#) is deployed each year, has environmental and economic implications for Maine. The commercial statewide lobster harvest in 2019 alone accounted for [more than \\$485 million in fishing revenue](#) in the state, nearly three-quarters of all of Maine's fisheries landings value that year.

The study, published in the scientific journal [Marine Pollution Bulletin](#), showed young larvae are more likely to get microplastic fibers trapped under their shells that protect their gills, and were the least likely to survive heavy concentrations of microplastics. Older larvae had less fiber accumulation under their shells but were shown to ingest the plastic, which

could pose health consequences as they get older.

Plastics usually are found at the ocean's surface, where they are exposed to sunlight and wave action that eventually break them down into small particles, Bigelow scientists said. Animals that inhabit surface waters are more likely to come into contact with them – including larval lobsters.

"Even relatively low levels of plastics can be harmful for the animals that encounter them, and where an animal lives in the water column can amplify the problem," said David Fields, a research scientist at Bigelow and co-author of the study.

"A lobster larva that eats a plastic fiber is just like us eating a candy wrapper. It's not great, but it will probably just pass through. But if all you're eating is candy wrappers, it's certainly going to have other repercussions for your health."

The broad long-term impact of microplastics in the gulf is unknown, according to Bigelow scientist Paty Matrai, but its effect could aggravate how lobsters already are affected by [warming water temperatures](#) and [ocean acidification](#). Other studies have shown that [fewer lobster larvae](#) are appearing in the Gulf of Maine, and microplastics could be among the reasons why, she said.

"It is a third factor. We need to look at them all together," said Matrai, a co-author of the study. "In today's ocean, organisms are exposed to so many environmental factors that affect how many make it to the next stage of life."

Matrai said Friday that the study did not examine where plastic in the Gulf of Maine comes from, but that it is believed to have many sources. Often, it is lost fishing gear such as plastic rope or plastic foam lobster buoys that

people see [washed up on Maine's beaches](#), but tiny particles of plastic are known to wash into the ocean from wastewater treatment plants or even to be transported by winds through the atmosphere, she said.

The study showed there are relatively low levels of microplastics in coastal Maine waters, but Matrai said there is no reason to think that any level of plastic build-up in the ocean is acceptable. Ocean currents usually determine where [floating plastic accumulates](#) — such as the so-called Great Pacific Garbage Patch in the north Pacific ocean — but it can be found anywhere, including the Arctic Ocean, she said.

“Plastics have been very helpful” to people, Matrai said. “My phone is made from plastics. My glasses are made from plastics. But it shouldn't be in the ocean.”

Here's a look at Maine's lobster industry