

Scientists Find Thick Layer Of Oil On Seafloor

by RICHARD HARRIS



Courtesy of Samantha Joy

A core sample from the seafloor of the Gulf of Mexico shows a 2-inch layer of oily material. Researchers are finding oil on the seafloor miles away from the blown-out BP well. Though researchers have yet to chemically link the oil deposits to the BP well, "the sheer coverage here is leading us all to come to the conclusion that it has to be sedimented oil from the oil spill because it's all over the place," says one scientist



This control core, by comparison, shows no oil sediment.
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Scientists on a research vessel in the Gulf of Mexico are finding a substantial layer of oily sediment stretching for dozens of miles in all directions. Their discovery suggests that a lot of oil from the Deepwater Horizon didn't simply evaporate or dissipate into the water — it has settled to the seafloor.

The Research Vessel Oceanus sailed on Aug. 21 on a mission to figure out what happened to the more than 4 million barrels of oil that gushed into the water. Onboard, Samantha Joye, a professor in the Department of Marine Sciences at the University of Georgia, says she suddenly has a pretty good idea about where a lot of it ended up. It's showing up in samples of the seafloor, between the well site and the coast.

"I've collected literally hundreds of sediment cores from the Gulf of Mexico, including around this area. And I've never seen anything like this," she said in an interview via satellite phone from the boat.

Joye describes seeing layers of oily material — in some places more than 2 inches thick — covering the bottom of the seafloor.

"It's very fluffy and porous. And there are little tar balls in there you can see that look like microscopic cauliflower heads," she says.

It's very clearly a fresh layer. Right below it she finds much more typical seafloor mud. And in that layer, she finds recently dead shrimp, worms and other invertebrates.

'A Slime Highway'

How did the oily sediment get there? Joye says it's possible that chemical dispersants might have sunk some oil, but it's also likely that natural systems are playing an important role.

"The organisms that break down oil excrete mucus — copious amounts of mucus," Joye says. "So it's kind of like a slime highway from the surface to the bottom. Because eventually the slime gets heavy and it sinks."

That sticky material can pick up oil particles as it sinks. Joye can't yet say with certainty that the oily layer is from BP's blown-out well.

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- Samantha Joye, professor of marine sciences, University of Georgia

"We have to [chemically] fingerprint it and link it to the Deepwater Horizon," she says. "But the sheer coverage here is leading us all to come to the conclusion that it has to be sedimented oil from the oil spill, because it's all over the place."

So far, the research vessel has traveled in a large "X" across the Gulf within a few dozen miles of the well. Scientists have taken eight sets of samples, and Joye says they all contain this layer. It's thin in some places, inches thick in others. Eventually, scientists hope to collect enough samples to figure out how much oil is now settling to the seafloor.

"It's starting to sound like a tremendous amount of oil. And we haven't even sampled close to the wellhead yet," she says.

A Blizzard Of Oil

Last month, another research group also reported finding oil on the seafloor. Researchers at the University of South Florida say they saw oil particles sprinkled on top of the mud. These new findings strongly suggest that it didn't just drizzle oil — in some places it was a blizzard.

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David Hollander, from the University of South Florida, says the government's original attempt to figure out what happened to the oil totaled up how much washed ashore, how much evaporated and how much might have stayed under the waves. But it didn't consider that oil could also end up on the seafloor.

"And so now the bottom really is turning out to be an important sink for the oil," Hollander says.

But the ecological impacts of oil on the seafloor depend on the depth of the ocean where it lies. Joye's findings so far have found oil in depths ranging from 300 to 4,000 feet. Shallower waters, in particular, are potentially important not just for life on the bottom but for the entire marine ecosystem.

"A lot of fish go down to the bottom and eat and then come back up," Hollander says. "And if all their food sources are derived from the bottom, then indeed you could have this impact."

Figuring all that out though, will probably take many years.