

# Two-Inch Layer of Oil Found on Gulf Floor

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NEW ORLEANS (AP) — Far beneath the surface of the Gulf of Mexico, deeper than divers can go, scientists say they are finding oil from the busted BP well on the sea's muddy and mysterious bottom.

Oil at least two inches thick was found Sunday night and Monday morning about a mile beneath the surface. Under it was a layer of dead shrimp and other small animals, said University of Georgia researcher Samantha Joye, speaking from the helm of a research vessel in the Gulf.

The latest findings show that while the federal government initially proclaimed much of the spilled oil gone, now it's not so clear.

At these depths, the ocean is a cold and dark world. Yet scientists say that even though it may be out of sight, oil found there could do significant harm to the strange creatures that dwell in the depths — tube worms, tiny crustaceans and mollusks, single-cell organisms and Halloween-scary fish with bulging eyes and skeletal frames.

"I expected to find oil on the sea floor," Joye said Monday morning in a ship-to-shore telephone interview. "I did not expect to find this much. I didn't expect to find layers two inches thick. It's weird the stuff we found last night. Some of it was really dense and thick."

Joye said 10 of her 14 samples showed visible oil, including all the ones taken north of the busted well. She found oil on the sea floor as far as 80 miles away from the site of the spill.

"It's kind of like having a blizzard where the snow comes in and covers everything," Joye said.

And the look of the oil, its state of degradation, the way it settled on freshly dead animals all made it unlikely that the crude was from the millions of gallons of oil that naturally seep into the Gulf from the sea bottom each year, she said. Later this week, the oil will be tested for the chemical fingerprints that would conclusively link it to the BP spill.

"It has to be a recent event," Joye said. "There's still pieces of warm bodies there."

Since the well was capped on July 15 after some 200 million gallons flowed into the Gulf, there have been signs of resilience on the surface and the shore. Sheens have disappeared, while some marshlands have shoots of green. This seeming recovery is likely a result of massive amounts of chemical dispersants, warm waters and a Gulf that is used to degrading massive amounts of oil, scientists say.

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Animal deaths also are far short of worst-case scenarios. But at the same time, a massive invisible plume of oil has been found under the surface, shifting scientists' concerns from what can be easily seen to what can't be.

For Ian MacDonald, a Florida State University biological oceanographer who wasn't part of Joye's team, the latest findings confirm that government assessments about how much oil remains — especially a report on the subject by the National Oceanic and Atmospheric Administration in August — were too optimistic.

The oil "did not disappear," he said. "It sank."

Not all scientists agree with this assessment.

Ed Overton, a Louisiana State University chemist who has analyzed the spill for NOAA, doubted much oil was resting on the bottom. He said the heavier components in oil — the asphalts — make up only about 1 percent of the oil that was spilled.

And Roger Sassen, an organic geochemist at Texas A&M University who has studied natural oil seeps, said so much oil seeps naturally into the Gulf each year that it's hard to argue that the BP spill will make a significant difference.

Nonetheless, the big questions now are exactly how much oil is at the bottom and how many organisms are being exposed to it, said Robert Carney, an oceanographer and deep-sea expert at Louisiana State University. The answers to those questions could shed some light on the unseen damage to wildlife from the oil spill.

"Deep-sea animals, in general, tend to produce fewer offspring than shallower water animals, so if they are going to have a population impact, it may be more sensitive in deep water," he said. "There is also some evidence that deep-sea animals live longer than shallower water species, so the impact may stay around longer."

At first, scientists, the media and the federal government focused their attention on tracking rainbow sheens approaching land, tar balls hitting beaches, measuring oil in marshes and scouting for oiled birds and sea turtles. But a spate of recent studies increasingly points to the deep.

NOAA's Aug. 4 pronouncement that the oil was mostly gone also indicated that some 53 million gallons remained in the Gulf. At the time, federal officials said some of that could be on the sea floor, adding that the rest was mostly broken down naturally or by the widespread use of chemical dispersants.

"As we get into weathered oil, there is more likelihood that it will get into the sediment," said Steve Murawski, chief scientist at the National Marine Fisheries Service, a division of NOAA.

Getting a handle on where the oil is at extreme depths will not be easy. Scientists

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will have to use expensive 1,000-pound devices that look like moon landers. The spindly legged machines land on the bottom and shoot tubes into the sea floor to collect 20-inch-long samples.

The terrain is exceedingly difficult. The area where the busted BP well sits is on the continental slope, formed by millions of years of deposits from the Mississippi River. It's a region of bumps and valleys, salt domes, canyons and slopes.

Government scientists acknowledge they've not done enough to look for oil in the obscure corners of the Gulf's bottom, but promise to do a better job.

"There are plans to do a considerable amount of that" sampling, said Debbie Payton, an oceanographer with NOAA's Office of Response and Restoration. In the coming weeks, NOAA and BP vessels will sample the deep bottoms, she said.

Joye's latest discovery backs up the findings of a University of South Florida crew that reported pulling up oily sediment in August.

"What we saw were flecks, little discontinued droplets, or spots" of oil on the sediment, said John H. Paul, a biological oceanographer on the USF survey. The oiled sediment was found about 1.4 miles down in the De Soto Canyon, an underwater canyon east of the blown-out well.

Sediment brought up still needs to undergo laboratory testing to verify that the oil found on the bottom comes from the BP oil spill.

For oil to sink, it must attach itself to materials that are heavier than water, such as detritus, flecks of mud, sands and other particles. Such materials are abundant in the Gulf in places where rivers, especially the Mississippi, flush mud and sand into the open sea. Oil also can sink as it ages and becomes more tar-like in a process known as weathering.

Scientists also say the oil may be sinking because it was broken up into tiny droplets by dispersants, making the oil so small that it wasn't buoyant enough to rise. One problem with oil at the sea floor is that it will take longer to degrade because of cold temperatures in the deep.

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Borenstein reported from Washington, D.C.

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