

Gulf surface cleaner, but questions lurk far below

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In this Aug. 16, 2010 file photo, faint streaks of weathered oil are seen on the Gulf of Mexico near the coast of Louisiana. Scientists studying the Gulf oil spill differ on the amount of oil that was spilled into the Gulf of Mexico from the BP Deepwater Horizon rig, how much remains in the water and the long term effect on the environment. (AP Photo/Patrick Semansky)

(AP) -- Researchers are warning that the Gulf of Mexico oil spill is a bigger mess than the government claims and that a lot of crude is lurking deep below the surface, some of it settling perhaps in a critical undersea canyon off the Florida Panhandle.

The evidence of microscopic amounts of oil mixing into the soil of the canyon was gathered by scientists at the University of South Florida, who also found poisoned plant plankton - the vital base of the ocean food web - which they blamed on a toxic brew of oil and dispersants.

Their work is preliminary, hasn't been reviewed by other scientists, requires more tests to confirm it is BP's oil they found, and is based on a 10-day research cruise that ended late Monday night. Scientists who were not involved said they were uncomfortable drawing conclusions based on such a brief look.

But those early findings follow a report on Monday from Georgia researchers that said as much as 80 percent of the oil from the spill remains in the Gulf. Both groups' findings have already been incorporated into lawsuits filed against BP.

Both groups paint a darker scenario than that of federal officials, who two weeks ago announced that most of the oil had dissolved, dispersed or been removed, leaving just a bit more than a quarter of the amount that spewed from the well that exploded in April.

At the White House on Aug. 4, National Oceanic and Atmospheric Administration chief Jane Lubchenco said: "At least 50 percent of the oil that was released is now completely gone from the system, and most of the remainder is degrading rapidly or is being removed from the beaches."

That's not what the scientists from South Florida and Georgia found.

"The oil is not gone, that's for sure," University of South Florida's David Hollander said Tuesday. "There is oil and we need to deal with it."

University of Georgia's Samantha Joye said: "It's a tremendous amount of oil that's in the system. ... It's very difficult for me to imagine that 50 percent of it has been degraded."

Marine scientist Chuck Hopkinson, also with the University of Georgia, raised the obvious question: "Where has all the oil gone? It hasn't gone

anywhere. It still lurks in the deep."

NOAA spokesman Justin Kenney defended his agency's calculations, saying they are "based on direct measurements whenever possible and the best available scientific estimates where direct measurements were not possible." But the vast majority of it is based on "educated scientific guesses," because unless the oil was being burned or skimmed, measurements weren't possible, NOAA response scientist Bill Lehr said earlier this month.

What is happening in the Gulf is the outcome of a decision made early on in the fighting of the spill: to use [dispersants](#) to keep the surface and beaches as clean as possible, at the expense of keeping oil stuck below the surface, said Monty Graham, a researcher at the Dauphin Island Sea Lab in Alabama who was not part of the latest work. Oil degrades far more slowly in cooler, deeper waters than it would at the surface.

At the surface and the top 100 feet or so, it is obvious why oil is harmful, fouling marshes and hampering sea turtles, fish, birds and other life. Deep down, the effects are subtler, less direct. Oil at that depth can chip away at the base of the food web - plant plankton - and that could cause animals to go hungry. Reduced oxygen levels from natural gas and oil could also starve creatures of oxygen.

At depths of 900 to 3,300 feet, the University of South Florida researchers found problems with plant plankton. About two-fifths of the samples showed "some degree of toxicity."

"We found general phytoplankton health to be poor," Hollander said. By comparison, in non-oiled southern parts of the Gulf, the plant plankton were healthy, researchers said.

That makes sense because past research has shown that when oil when

gets into the cell membranes of plankton, it causes all sorts of problems, said Paul Falkowski, a marine scientist at Rutgers University who was not part of the research. However, he said plant plankton don't live long anyway. They have about a week's lifespan, he said, and in a few months this insult to the base of the food web could be history.

Still, the brew that is poisoning the plankton may linger and no one knows for how long, Hollander said.

The Florida researchers used ultraviolet light to illuminate micro-droplets of oil deep underwater. When they did that, "it looked like a constellation of stars," Hollander said.

He also found the oil deposited in the sea bottom near the edges of the significant DeSoto Canyon, about 40 miles southwest of Panama City, Fla., suggesting oil may have settled into that canyon. The canyon is an important mixing area for cold, nutrient-laden water and warmer surface water. It is also key for currents and an important fisheries area.

"Clearly the oil down in the abyss, there's nothing we can do about it," said Ed Overton of Louisiana State University. He said the environment at the surface or down to 100 feet or so is "rapidly going back to normal," with shrimpers starting their harvest. But [oil](#) below 1,000 feet degrades much more slowly, he said.

Joye has measured how fast natural gas, which also spewed from the BP well, can degrade in water, and it may take as much as 500 days for large pools to disappear at 3,000 feet below the sea. That natural gas starves oxygen from the water, she said.

"You're talking about a best-case situation of a year's turnover time," Joye said.

More information: University of Georgia's oil spill page:
<http://oilspill.uga.edu>

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