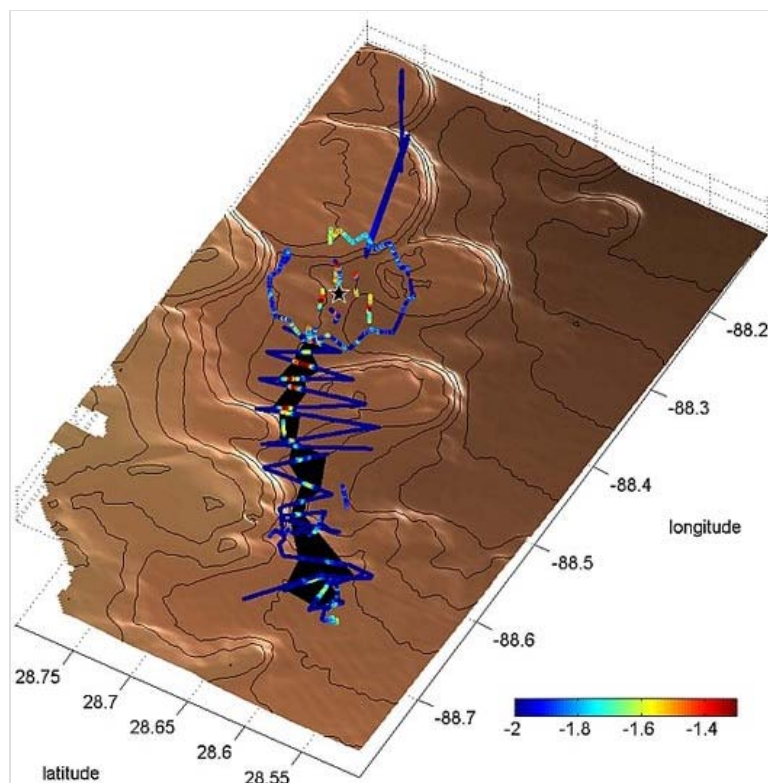


Newly Discovered Underwater Oil Plume Paints a Complex Picture of Gulf Leak Aftermath

Scientists have yet to agree on the scope of the disaster

By [Rebecca Boyle](#) Posted 08.19.2010 at 4:18 pm



The Oil Plume *Woods Hole Oceanographic Institution*

Oceanographers announced today the discovery of a wispy oil plume at least 22 miles long and 1.2 miles wide floating beneath the surface of the Gulf of Mexico, a sign that plenty of the oil from BP's Deepwater Horizon leak remains in the environment. It's the first conclusive proof that a deep-sea plume from the leak exists, which at least partially explains what happened to the oil in the three months since the Deepwater Horizon rig exploded. It also casts doubt on the federal government's statement earlier this month that most of the oil has dispersed or disappeared.

But the new study is merely a rough snapshot of what is happening in the depths. Wide disagreement persists among scientists who study the Gulf and oil spills, and they say it could take generations to fully understand the leak's scope. The best minds in marine science and geology can't say yet how bad it will be.

Woods Hole Oceanographic Institution researchers Richard Camilli and Chris Reddy followed the plume starting about three miles from the wellhead of the deep-sea Macondo well. Using autonomous submersibles, they took samples for 22 miles, until the approach of Hurricane Alex forced them to turn back.

As of now, they don't know how much oil (of the estimated 4.9 million barrels leaked) is in the plume, and they can't be certain how diffuse it is until they analyze more water samples, Reddy said. The researchers say the levels of dissolved oxygen within the plume had not dropped to levels that would suggest bacteria were breaking down the oil in significant volumes.

The report comes two weeks after a government study that most researchers said was widely misinterpreted. Other scientists dismissed the report as inaccurate or incomplete. That report, from the National Incident Command (NIC), said the majority of the oil had evaporated, been recovered or been dispersed — but dispersed does not mean gone.

Rick Steiner, a retired professor at the University of Alaska and marine conservationist who worked on cleaning up the Exxon Valdez oil spill, called that report fatally flawed.

"The estimate that chemical dispersants were successful at dispersing 8 percent of the leaked oil [as stated in the NIC report] is, quite frankly, ludicrous," he said in an e-mail message.

Many others agree, and [at least two studies emerged this week](#) that appear to directly contradict the government's findings. But none of them proves anything conclusively. Reddy said government scientists, along with those at universities and private institutions, are trying to account for all the oil like balancing a checkbook. But a checkbook is difficult to balance when none of the numbers being used are firmly accurate.

“This is a question that may never be answered.”

"This data that we're waiting for, as it becomes available, they will be able to put it into their calculations," he said. "When we have analyzed those samples, we'll be able to constrain what the inventory of those compounds was in there. And at that point, we may be able to see whether it's a penny in a big checking account, or maybe it's bigger."



Submarine Explorer: Woods Hole researchers used unmanned submarines to track the extent of the plume. Woods Hole Oceanographic Institution

The problem is that every variable is couched in terms of estimates. Without a firm grasp on where the oil settled — at the surface, in the middle, or at the bottom of the sea — it's nearly impossible to say what happened to it. The Woods Hole study uses oxygen as a proxy for microbial degradation, for instance. But scientists don't have good baselines for pre-existing oxygen concentrations, so it's hard to tell what has changed.

"In truth, no one really has any idea whatsoever of how much oil has gone where," Steiner said.

Some estimates suggested 80 percent of it went to the surface, and if that's so, then it's reasonable to assume much of it is gone, according to Louisiana State University emeritus professor Ed Overton. Oil at the surface would quickly evaporate and be consumed by naturally present bacteria, he said.

Overton reviewed the NIC report and generally accepts its findings, though he believes the government may have underestimated how much oil remains below the surface. He said the visible evidence looks promising — surface slicks are disappearing, and things seem to be returning to normal. He went swimming off the coast of Alabama last week and said it was wonderful, though he did find a few tar balls. Work, not oil, forced him to return home.

"I could still be swimming if there wasn't so much work to do associated with the spill," he said.

Others don't seem quite as eager to dive in. Ron Kendall, chair of the department of environmental toxicology at Texas Tech and director of the university's Institute for Environmental and Human Health, believes the oil's persistence, as well as the profligate use of dispersants, could lead to entirely new environmental effects. He compared the dispersants to mineral spirits used to clean up oil spots in a garage.

"If you pour mineral spirits on your skin, it'll burn. You breathe it, it'll be very antagonistic to your sinuses. You drink it, it'll be very harmful," he said. "There were a lot of organisms that came into contact with the use of dispersants deep in the ocean, and on the surface."

He thinks dispersants probably contributed to the plume's presence. If the oil had not been dissipated into microdroplets as it was spewing from the well, more of it would have floated to the surface, he said.

"A lot of that oil, and the toxic constituents in that oil, has probably been dispersed into the water column, and that is what these scientific discoveries are finding out — there appear to be these plumes," he said.

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12 COMMENTS



JohnR

08/19/10 at 4:46 pm

This article must be false because the goobermint told me that nearly all of the oil was gone.

[Link to this comment](#)

davek01521

08/19/10 at 5:10 pm

Follow the munny - The oceanographers are having a field day. Can anyone furnish me with the formula of ANY OIL that is MORE DENSE than salt water? If you can't the "plumes" are a lie. See they want to be

sure they extract every penny of that BP money and then some. I think the ability to track oil "plumes" is second only to their ability to predict active hurricane seasons.

[Link to this comment](#)

spoket

08/19/10 at 5:35 pm

Dave, You made me log in to respond to your rant. Oil can be under water when it is emulsified. Emulsions are like salad dressing: oil and water mixed. So yes, oil can be in underwater plumes when its emulsified. What do you think did it? Dispersants. Because they are . . . emulsifiers! Also, you said money and oceanographers in the same sentence. Which, to me, means you have never worked in the academic field. Nobody does academic work for money, respect from your peers maybe, not money. They could do alot better with BP than woods hole. It is a damn shame that you are passing judgment on people without the slightest idea.

[Link to this comment](#)

Alchemist1342

08/19/10 at 5:55 pm

spoket, you made me create an account. I work with and around a lot of academics and some of them do it for the money, not a large percentage, but some.

A couple of years ago NIH had issues with drug researchers and their ties to the drug manufacturers. It's pretty common for a researcher to develop something patentable and then start a company (especially tech and biotech) to exploit their research. I'm not objecting to this in any way, I believe people should be able to make money from their intellectual property, I'm just pointing out that some people do it for the money.

Also one correction to the article, it said "...of the estimated 4.9 million gallons leaked)..." the leak was actually 4.9 million BARRELS, or about 206 million gallons.

[Link to this comment](#)



gizmowiz

08/19/10 at 6:54 pm

It will mostly just slowly fade away by organic breakdown and dilution and evaporation. It will take years but it will fade just like the huge oil leak at Pemex owned by Mexico that leaked a similar amount in 1979. The reason is the warm gulf waters make it biologically more active and quicker to break down.

[Link to this comment](#)

Spacegeek

08/19/10 at 8:36 pm

Unfortunately, if they found an underwater plume 22 miles long and 1.2 miles wide (and that measurement was limited by an approaching hurricane) then I am going to go out on a limb and say that it's very likely not the only plume of oil out there. But did anybody really believe it just magically disappeared?

You gotta give BP credit for their political savvy though. Trying to hire an entire university department to keep the findings under wraps is a great idea. Too bad for them the university didn't take them up on it. Kudos to the professors!!

[Link to this comment](#)



Geawiel

08/19/10 at 9:17 pm

Emulsification isn't the only thing that would keep the oil in the deep ocean. As the water depth increases the pressure does as well as the temp drop. This helps to keep the oil down in a certain zone since it is the sweet spot to keep it suspended.

[Link to this comment](#)

jeditalian

08/20/10 at 2:20 am

OMG theres oil in the environment? people should really stop dumping that foreign material into our environment. oh wait, what? it came from that same environment? at least they found oil and not a 22 mile long 1.2 mile wide puddle of mercury chillin at the bottom of the ocean, although i could use some mercury for my vimana, and they both come from the environment.. i would rather have oil in my water than mercury, or worse.. fluoride.

its all part of the earth anyway. the ocean is massive, you will hardly notice it.. it will settle out. like.. if you leave a glass of coca-cola with ice in it, and the ice melts.. the coca-cola is still there, but so is a nice layer of reasonably pure, tasteless, colorless water. ok maybe im just mad i couldnt go help with the oil spill. a-holes!

look at it this way: the more crap that gets spilled into the ocean, the closer we are to running an engine on 'water', or even walking on it! :D

[Link to this comment](#)

Electrix

08/20/10 at 9:29 am

"BP's lawyers tried to hire his whole Department of Marine Sciences to do research for them."

Nice one bp, everyone's watching... then again, we all know the oil business is all about corruption and hard bearded greedy Gnomes.. right..?

This report put firm your stand against the truth and truly promotes your deception, carelessness for the environment and its people.

Tell you what, i'll be more than reasonable here. You start a campaign showing the world in Will and Deed that you are committed into going green in full. Yes... No more oil. And no more shady intentions. We might slowly start to let bygones be bygones. We're offering you a hand in the dark. It's not too late to change.

The Electic revolution is inevitable wether you are part of it or not. I would hope to see it turn out all bright and shiny for Bp. It's up to them to decide if they want to be a part of our green future.

[Link to this comment](#)

boka

08/20/10 at 10:33 am

Bush's disaster as President countinues to haunt this country.

[Link to this comment](#)

davek01521

08/20/10 at 1:20 pm

spoket - thanks for clarifying that "Nobody does academic work for money". Does that mean the government can stop the tens of billions in grants for research projects? I went to a capitalist engineering university, many of the professors held dozens of patents. They appreciated favorable peer review but liked the money too. Granted they don't live like Bill Gates of Obama but they live well.

But that's neither here nor there. What I meant is both BP and the government are funding research in the Gulf. The oceanographers are having a field day. When this thing hits the courts the "plume" and "no plume" experts are going to duke it out.

I also understand the process of emulsification. The story doesn't mention emulsified oil it only references oil. Naturally there is emulsified oil in the gulf that's the first step in getting rid of it. Emulsifier is added; the oil is agitated by ocean processes and converted to tiny droplets which are eaten by bacteria.

I frankly believe most of it evaporated. The gulf is hot in the summer and light crude is volatile. It's a mess, I'm sorry it happened. I'm sure BP cut a lot of corners and will pay dearly for each corner cut.

[Link to this comment](#)

John_Emerson

08/22/10 at 11:05 am

Some departments are full of moneygrubbers, some aren't. Engineering and economics are that way, oceanography isn't. Everyone in oceanography could make more money in some other field -- for example engineering or economics.

That's why it's especially despicable when some moron comes in with "Follow the munny". AS THE ARTICLE SAID, BP is buying off researchers. But the moron in question is implying that all oceanographers are equally corrupt, ha ha ha, big joke. But that's not how it is. What you need to do is decide who's honest and who's not, who's right and who's wrong. But the joker I'm talking about doesn't care about that, though he's willing to offer his own worthless, data-free, seat-of-the-pants guess.

If you're looking for a bright, highly educated, money-grubbing moron with imbecile political instincts, go to an engineering school. No, most engineers aren't like that, but that's where that kind of thing can be found.

These are harsh words, but everyone here should realize that the clown I'm describing is characteristic of a large chunk of American public opinion, and his kind of thinking may have the last word when the big decisions are made.

[Link to this comment](#)

To comment, please [Login](#).