

Study: Dispersants did not help oil degrade in BP spill

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Samantha Joye, a professor of marine sciences in the University of Georgia Franklin College of Arts and Sciences, studies the oil plumes generated by the 2010 Deepwater Horizon blowout. Credit: Todd Dickey/University of Georgia

The chemical sprayed on the 2010 BP oil spill may not have helped

crucial petroleum-munching microbes get rid of the slick, a new study suggests.

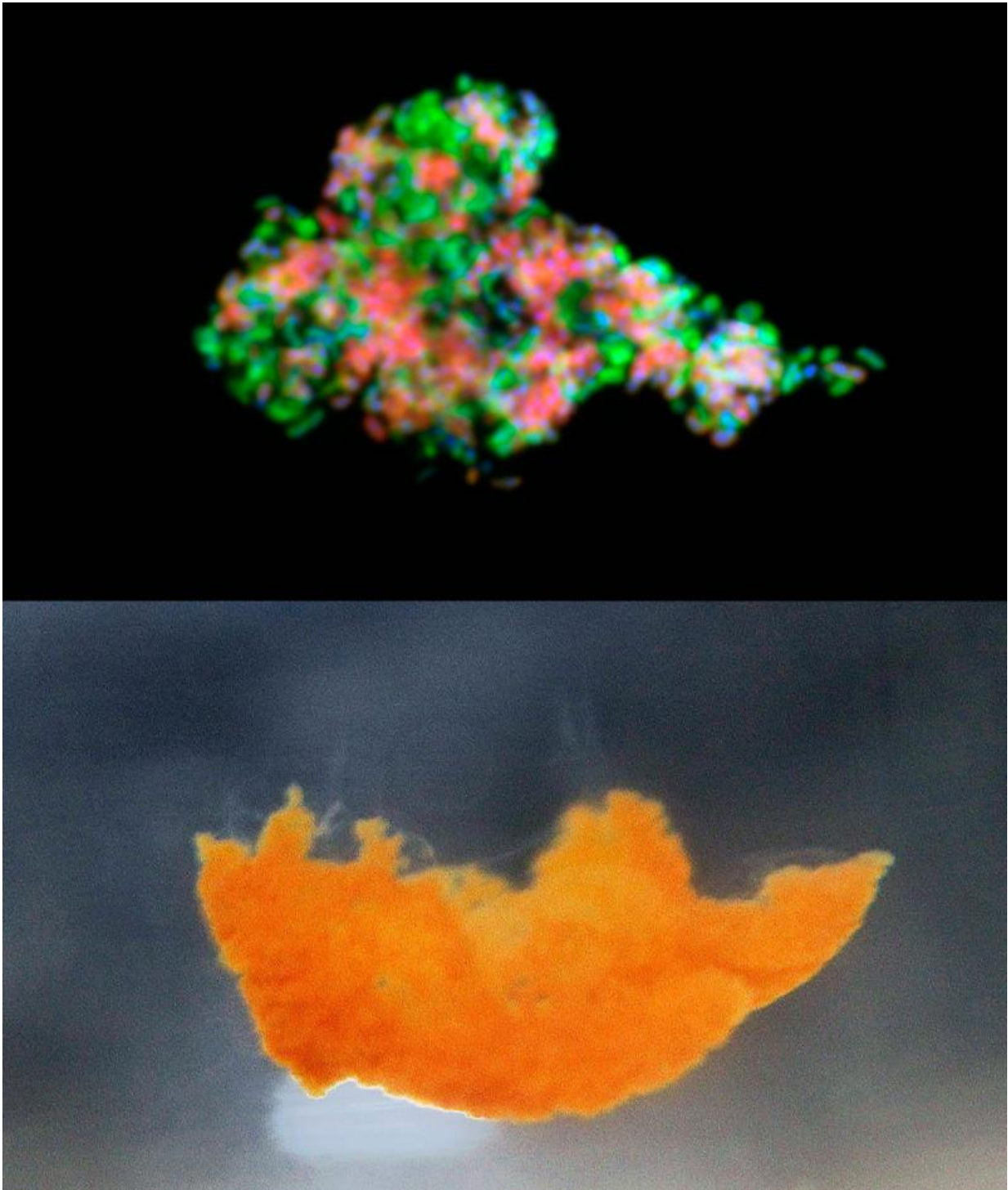
And that leads to more questions about where much of the Deepwater Horizon oil spill went. If the new results are true, up to half the oil can't be accounted for, said the author of a new study on the spill in the Gulf of Mexico.

After the 172 million gallon (650 million liter) spill, the chemical dispersant Corexit 9500 was applied by airplane on the slick to help it go away and help natural microbes in the water eat the oil faster. The oil appeared to dissipate, but scientists and government officials didn't really monitor the microbes and chemicals, said University of Georgia marine scientist Samantha Joye.

So Joye and colleagues recreated the application in a lab, with the dispersant, BP oil and water from the gulf, and found that it didn't help the microbes at all and even hurt one key oil-munching bug, according to a study published Monday in the journal *Proceedings of the National Academy of Sciences*.

"The dispersants did a great job in that they got the oil off the surface," Joye said. "What you see is the dispersants didn't ramp up biodegradation."

In fact, she found the oil with no dispersant "degraded a heckuva lot faster than the oil with dispersants," Joye said.



A microbially derived oil-containing aggregate (lower image), stained with bacterial and group-specific DNA probes (upper image) showing the abundance of oil-degrading microorganisms on the aggregate. Credit: Sara Kleindienst.

Joye's team chronicled nearly 50,000 species of bacteria in the Gulf and what they did to the water with oil, and water with oil and dispersant.

One of the main groups of oil munchers are fat little sausage-shaped bacteria called marinobacters, Joye said. They eat oil all the time and comprise about 3 percent of the bacteria in normal [water](#). But when there's oil, they eat and multiply like crazy until they are as much as 42 percent of the bacteria, Joye said.

But when the dispersant was applied, they didn't grow. They stayed around 3 percent, Joye said.

Instead, a different family of bugs called colwellia multiplied more, and they don't do nearly as good a job at munching the oil, Joye said. She theorized that for some reason the [dispersant](#) and marinobacters just don't work together.

So if the [oil](#) wasn't degraded by the [bacteria](#), the question remains: Where did it go? Joye guesses it might still be on the floor of the gulf.

Outside scientists Jeff Chanton and Ian MacDonald of Florida State University said the study seemed to make sense. Chanton called the results important and surprising.

The National Oceanic and Atmospheric Administration welcomed the study and will evaluate to determine how well dispersants work in the future, said agency spokeswoman Keeley Belva.

More information: Chemical dispersants can suppress the activity of natural oil-degrading microorganisms, *PNAS*,

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