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Huge Oil Plumes Confirmed, But Effects Remain Unknown

by Erik Stokstad on June 9, 2010 5:50 PM | [Permanent Link](#) | [2 Comments](#)

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Researchers have confirmed that two large plumes in the Gulf of Mexico consist, as suspected, of dissolved hydrocarbons. Early analyses of samples from recent cruises have found hydrocarbons up to 78 kilometers from the leaking well, as well as encouraging signs that microbes are already degrading components of the oil. Although Jane Lubchenco, head of the National Oceanic and Atmospheric Administration (NOAA), describes the concentrations as "very low," she and other researchers caution that there still may be ecological impacts.

One cruise was led by Ernst Peebles, a biological oceanographer at the University of South Florida in St. Petersburg. He and colleagues aboard the *Weatherbird II* took samples in late May to the north of the *Deepwater Horizon* wellhead. Yesterday, they described at a news conference finding hydrocarbons in [two layers](#) (pdf), one 400 meters deep and another between 1000 and 1400 meters deep. The compounds were present in both layers at several hundred parts per billion.

Peebles's team gave portions of the water samples to NOAA, which ran its own tests. NOAA released an [analysis](#) yesterday, which describes similar concentrations.

The report notes that the 16 polycyclic aromatic hydrocarbons tested were all below ecotoxicological benchmarks. "That does not mean [the oil] doesn't have significant impact," Lubchenco said at a press conference yesterday. "The impact that it has we remain to understand."

Toxicologists echo that concern. "We're glad [the concentrations] are not higher, but it's just a snapshot of an unfolding event," says Ronald Kendall, an ecotoxicologist at Texas Tech University in Lubbock. He points out that organisms are likely to experience a "soup of exposure" that likely also contains many other chemicals, including sulfur, metals, and dispersants.

Two other worrisome factors—methane and low oxygen—were measured by Samantha Joye, an oceanographer at the University of Georgia, Athens, who returned 6 June from a 2-week cruise on the *Walton Smith*. Her team confirmed the presence of a separate plume of hydrocarbons to the southwest of the well, at a depth of 1100 to 1300 meters. They have not yet measured the concentrations of the oil but found methane throughout the water column at concentrations 100 to 10,000 times higher than usual. (The well is leaking methane as well as oil.)

Within 16 km of the well, Joye said yesterday at a press conference ([webcast here](#)), there is a "substantial depletion" of oxygen in the water column, presumably consumed by bacteria that are metabolizing the methane. She suspects that the bacteria will probably run out of one of their key nutrients before they consume all the oxygen. Peebles notes that although shrimp, fish, and squid can swim away from low-oxygen areas, benthic animals can't. "They'll be exposed and can't do anything about it."

Researchers are still trying to figure out the exact dimensions of the plumes and where they are headed, as

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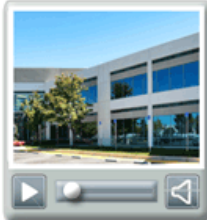
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well as trying to chemically fingerprint the oil as having come from the leaking well. Samples from NOAA's research vessel *Gordon Gunter* are still being analyzed, and the *Thomas Jefferson* is collecting more samples.

For more on the gulf oil spill, see our [full coverage](#).

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Seeing Red

"Effects remain unknown" Who's writing this stuff? The oil is going to kill everything it comes in contact with. The gulf is going to become a sterile wasteland, like some apocalyptic science fiction novel. Florida, Cuba, coast of Mexico....all dead, all gone. This article was written to fill space.

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Huh?

"This article was written to fill space." What space would that be? It's a web story.

Also not every compound in oil is immediately toxic. Some of the most toxic ones evaporate or microbes chew them up by the time the plume travels out 42 miles. The concentrations may also be too low to be acutely toxic, but instead they could lead to chronic toxic issues, such as growth abnormalities.

So the issues is a tad more complex than you assume.

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