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FISH AFTER THE BIG SPILL



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Fish in the Gulf of Mexico: How safe?

The fire and deadly explosion of the Deepwater Horizon drilling rig on April 20, 2010 spewed a gusher of crude oil — about 4.4 million barrels — into the Gulf of Mexico.

The blowout flooded all levels of the Gulf with oil. And that oil, combined with millions of gallons of an oil-degrading chemical, raised questions about the health of Gulf seafood, both shellfish and finfish.

Fishing is major in the Gulf of Mexico, which in 2008 produced 15 percent of total weight of U.S. commercial fishing, and which has more sport fishers than any other American region.

Within two weeks, as a precaution to prevent the sale of contaminated fish, the government began closing parts of the Gulf to commercial fishing.

A report published today in Environmental Health Perspectives reviews the aftermath: How big was the threat? Did the closures harm the fishing industry by giving, in effect, official endorsement to the idea that the fish were contaminated? Were there any gaps in protection?

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Photo: [Gulf of Mexico Oil Spill Blog](#)

The 2010 BP spill threatened the Gulf economy. Was Gulf seafood really dangerous after the spill of 4.4-million barrels of crude oil?



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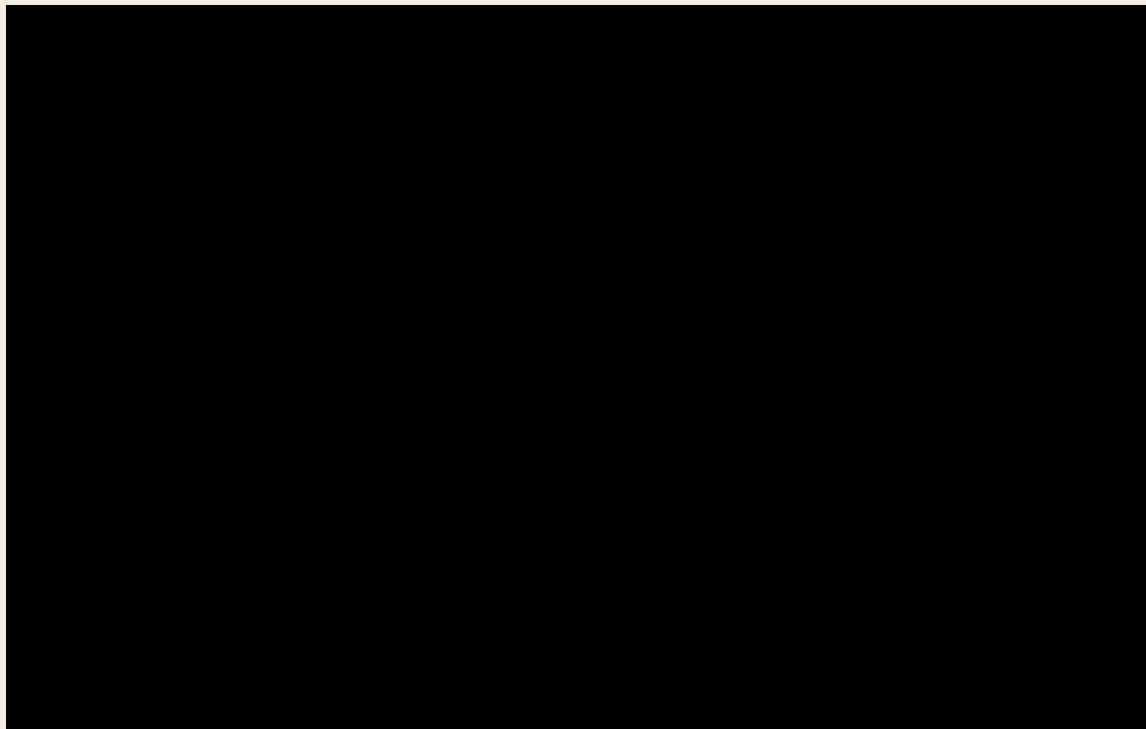
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Satellites tracked the movement of surface oil after the Deepwater Horizon blowout.

Not very filthy

The report came to an optimistic conclusion: government-sponsored studies of Gulf fish since the blowout found no significant contamination with heavy, persistent compounds called polycyclic aromatic hydrocarbons. "I don't know that we have any evidence that the fish were contaminated, ever," says study first author Julia Gohlke, an assistant professor of environmental health science at the University of Alabama-Birmingham.

PAHs can cause cancer and are often used as a measure of hydrocarbon contamination. According to the new study, "Federal seafood testing results released to date" show PAH levels at roughly 1 percent of the "level of concern" that the Food and Drug Administration established for assessing food safety after the Deepwater blowout.

Other results, she says, have focused on total hydrocarbons derived from oil, rather than PAHs. "My analysis looked at what the government has done," she says. "There are independent reports of contamination that I tried to include, but they did not measure PAHs, only total petroleum hydrocarbons."

Did the regulators ignore important hazards, or were they over-cautious?

Large oil spills are so ominous that people can overreact, says Gohlke. "People see an oil spill and fisheries closures and assume everything must be contaminated, and nobody wants to eat anything. There is a misunderstanding of what is considered contamination. There is now a large dataset, at this point, to show there hasn't been significant hydrocarbon contamination to date."

Gohlke and colleagues looked at data on the BP blowout, and previous oil spills from around the world, to compare toxicity

levels and evaluate the procedures used to close and open fisheries. The project was funded by a grant from the Walton Family Foundation to the Environmental Defense Fund.

Looking at samples taken during and after the blowout, no results suggested that eating fish – whether with shells or fins – would contain elevated levels of PAHs, says Gohlke, who cautions that monitoring should continue for years because buried oil may re-enter the water and contaminate fish.

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How necessary were the fishing closures in the Gulf of Mexico?



Photo: NOAA

An inspector from the National Oceanographic and Atmospheric Administration takes a whiff of Gulf fish to determine whether it's contaminated by crude oil. "Sniff tests" look primitive, but they were used more widely than instruments to check food safety in the Gulf.

The authors still saw room to improve post-spill monitoring and closure procedures:

- 🍤 PAH standards rely on calculations to summarize the health effects of many specific hydrocarbons; the methods used to evaluate the impact of diverse chemicals can always stand refinement.
- 🍤 Crude oil contains heavy metals like lead, cadmium, zinc and vanadium, but these metals were not monitored in fish, Gohlke says. "They should have some monitoring on metals, and they should do it broadly. When you test for one metal, you can look for all of them in the same machine."
- 🍤 Eating patterns: Some people, especially those who live near the Gulf, eat more seafood than regulators have assumed. "We need to take the worst case scenario- — extremely high consumption — into account," Gohlke says.

After the BP spill, fishing was banned in as much as 37 percent of the Exclusive Economic Zone in the Gulf of Mexico, which extends 200 nautical miles from the coast. These bans were precautionary, since they were made in advance of contamination tests, says Gohlke.

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May, 2010, Petty Officer 3rd Class Patrick Kelley, U.S. Coast Guard.

Shrimp boats trail an oil-containment boom instead of nets, helping clean up after Deepwater Horizon. How justified were the fishing bans enacted after the spill?

Although “safe, not sorry” can be justified, closures can also have unintended consequences, or even backfire, she says. “Part of me thinks the precautionary approach is appropriate, but I don’t know how it has contributed to consumer confidence. Without sufficient risk communication, precautionary closures may create an expectation that the fish is contaminated. The last survey I saw, from February, suggested people were still considering Gulf seafood to be contaminated.”

“I think they make some pretty good recommendations to continue monitoring for PAHs,” says Ron Kendall, director of the Institute of Environmental and Human Health at Texas Tech University. “There is a lot of debate about underwater oil mats that are still floating, and how much oil may still be on the seafloor or in coastal marshes. With hurricane season approaching, we don’t know what kind of remobilizing of suspended oil and the mats will take place.”

To date, Kendall says, the data show that seafood has safe levels of PAHs, but “You’ve got to understand that all this oil is not gone. This story is still unfolding.”

— David J. Tenenbaum has been a freelance contributor to Environmental Health Perspectives.

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