

Team working to safeguard the shoreline

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An NJIT research team has estimated the total mass of oil that reached the Gulf of Mexico shore in the wake of the BP Deepwater Horizon blowout. It's the first time such an estimate was reported, and the study is published in the August issue of *Environmental Science and Technology*.

The researchers found that 22,000 tons of [oil](#) reached the Gulf shoreline in 2010. This finding will help officials determine the persistence of oil on the shore and identify potential harm to the ecosystem.

The study was conducted by the Center for Natural Resources Development and Protection (NRDP) at NJIT, whose director, Michel Boufadel, is known internationally for oil-spill research. Three researchers from the center—Xiaolong Geng, Ali Abdollahi Nasab, and Jagadish Torlapati – assisted Boufadel in the study.

The researchers found that the mass of oil reaching the shoreline was between 10,000 and 30,000 tons, with an average value of 22,000 tons. That amount represents about 5 percent of the total oil released in the Gulf from the blowout. More than 90 percent of the oil mass, moreover, landed in Louisiana, suggesting the severe impact on Louisiana in comparison to other states.

In comparison, the Exxon Valdez spill in 1989 deposited 15,000 tons of oil on the shorelines of Prince William Sound, Alaska. Boufadel, who researched the Exxon spill, said the amount of oil reaching the shore from Deepwater is comparable to the Exxon Valdez spill.

Many researchers have studied the Deepwater Horizon spill, but none have been able to estimate the mass of oil that reached the Gulf shore, says Boufadel. That's because the oil spread over the [surface water](#) in minute particles—100 microns or less – and made it difficult to measure. The paper found that due to evaporation and sinking the oil disappears off the surface at a rate of 20 percent per day. Therefore, only about 50 percent of the oil remains on the water surface after four days.

Adopting the latest computational models from the National Oceanic and Atmospheric Administration, Boufadel's team used sophisticated satellites to evaluate the depletion of oil from the surface water.

"That is what gave us an integrated view of the oil that other researchers were not aware of," says Boufadel, who is also a professor of civil and environmental engineering at NJIT. "The NRDP research team was successful as it was able to combine engineering and environmental capabilities with computational skills."

Provided by New Jersey Institute of Technology

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