



What can previous oil spills tell us about the Gulf of Mexico BP spill?

The best evidence on the rate that oil is being spilled comes from the size of the surface slick. In evaluating past oil spills, there is a predictive relationship, with the size of the slick increasing in proportion to the amount of oil spilled. The mean and median relationships in past spills are 2.3 to 8.0 square miles per 1,000 gallons of oil. As of May 7, satellite images show a slick size of approximately 2,500 square miles. This indicates that the average rate of spillage has been in the range of 170,000 to 630,000 gallons of oil per day since the accident occurred 18 days ago. At this upper rate of spillage, the Gulf of Mexico BP spill may already have matched the 10.8 million gallons of oil spilled in the Exxon Valdez disaster. At the lower rate of spillage, the Exxon Valdez volume will be reached in another month and half, if efforts to stop or curtail the spill prove unsuccessful. Before this latest accident, the Exxon Valdez was the largest oil spill to have ever occurred in the waters of the United States.

The past record for containment and clean-up of oil spills is not encouraging. Booms are seldom effective after major oil spills. In previous spills, only one example can be found where more than half of the spilled oil was contained and cleaned up: a spill in fairly protected coastal waters in Sweden in the 1970s. The lack of wind and tides, together with a very timely response by the Swedish navy, contributed to that success. Generally, less than 1% of spilled oil is ever cleaned up for most spills. Following the Exxon Valdez spill, only 10% of the oil was cleaned up despite a massive effort costing billions of dollars.

Dispersants should be used only with great care and close scrutiny of possible consequences. Dispersants reduce the amount of oil in a surface slick, which can reduce the risk to birds and to coastal wetlands. But the oil does not disappear. Rather, the dispersants increase the amount of oil that is actually dissolved into the water, and this can greatly increase the toxic effects of the oil on all of the organisms living in the water.

Following any oil spill, some oil ends up in bottom sediments. This oil can remain toxic and have ecological effects for quite some time. In one small but particularly well studied oil spill that happened over 40 years ago on Cape Cod, Massachusetts, toxic components of oil are still present in the sediments of a salt marsh. To the extent oil reaches the wetlands of Louisiana, Alabama, Mississippi, and Florida, we can expect to see continued effects of this spill for decades to come.

Once oil is spilled, the helpful responses to mitigate the damage are quite limited. The key to reducing the problems from oil pollution are to work harder to prevent spills before they happen.

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