

Deepwater Horizon: The Worst-Case Scenario

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Reports from the Gulf of Mexico just keep getting worse. Estimates of the rate of oil spillage from the Deepwater Horizon wellhead just keep gushing (the latest official number: up to 60,000 barrels per day). Forecasts for how long it will take before the leak is finally plugged continue pluming toward August—maybe even December. In addition to the oil itself, BP has (in this case deliberately) spilled a million gallons of toxic Corexit dispersant. Biologists' accounts of the devastation being wreaked on fish, birds, amphibians, turtles, coral reefs, and marshes grow more apocalyptic by the day—especially in view of the fact that the vast majority of animal victims die alone and uncounted. [Warnings are now being raised](#) that the natural gas being vented along with the oil will significantly extend the giant dead zones in the Gulf. And guesses as to the ultimate economic toll of this still-unfolding tragedy—on everything from the tourism and fishing industries of at least five coastal states to the pensioners in Britain whose futures are at risk if BP files for bankruptcy or is taken over by a Chinese oil company—surge every time an analyst steps back to consider the situation from another angle.

We all want the least-bad outcome here. But what if events continue on the current trajectory—that is, what if the situation keeps deteriorating? Just how awful could this get?

For weeks various petroleum engineers and geologists working on the sidelines have speculated that the problems with the Deepwater Horizon may go deep—that the steel well casing, and the cement that seals and supports that casing against the surrounding rock, may have been seriously breached far beneath the seabed. If that is true, then escaping oil mixed with sand could be eroding what's left of the well casing and cement, pushing out through the cracks and destabilizing the ground around the casing. According to [Lisa Margonelli in The Atlantic](#):

There is the possibility that as the ground and the casing shift, the whole thing collapses inward, the giant Blow Out Preventer falls over, the drill pipe shoots out of the remains of the well, or any number of other scenarios," that could making it virtually impossible ever to cap the well or even to plug it at depth via relief wells.

Read, for example, [this comment](#) at [TheOilDrum.com](#), a site frequented by oil industry technical insiders who often post anonymously. The author of the comment, "dougr," argues fairly persuasively that disintegration of the sub-surface casing and cement is the best explanation for the recent failure of "top kill" efforts to stop the oil flow by forcibly injecting mud into the wellhead.

Concerns about the integrity of the sub-seabed well casing appear also to be motivating some seriously doomerish recent public statements from Matt Simmons, the energy investment banker who decided to go rogue a couple of years ago following the publication

of his controversial Peak Oil book *Twilight in the Desert*. [Simmons says](#), for example, that “it could be 24 years before the deepwater gusher ends,” a forecast that makes little sense if one accepts the conventional view of what’s wrong with the Deepwater Horizon well and how long it will take to plug it with relief wells.

Are these concerns credible? From a technical standpoint, it is clear that improperly cemented wells [can and do rupture and cause blowouts](#). It’s fairly clear that this is part of what happened with Deepwater Horizon. But is the well casing further disintegrating, and is oil escaping the well bore horizontally as well as vertically? We just don’t know. And that is largely due to the fact that BP is as opaque on this score as it has been with regard to nearly every sensitive technical issue (including the rate of leakage) since its drilling rig exploded two months ago.

So far, up to 3.6 million barrels of oil have spilled into the Gulf. The size of the Macondo oilfield has been estimated as being anywhere from 25 to 100 million barrels. It is unclear how much of that oil-in-place would escape upward into Gulf waters if its flow remained completely unchecked, but it is safe to assume that at least half, and probably a much greater proportion, would eventually drain upward. That means many times as much oil would enter the Gulf waters as has done so until now.

Already Deepwater Horizon is the not only the worst oil spill, but the worst environmental disaster in U.S. history. Multiplying the scale of this existing catastrophe multiple times sends us into truly uncharted territory.

Already, coastal ecosystems are being shredded; for a sense of how bad it is for wildlife in the Gulf now, just read “[Biologists fear Gulf wildlife will suffer for generations](#).” In a truly worst case, oil — and perhaps dissolved methane as well — would hitch a ride on ocean currents out to the deep Atlantic, spreading ecological destruction far and wide.

For the economies of coastal states, a worst-case leakage scenario would be utterly devastating. Not only the fishing industry, but the oil industry as well would be fatally crippled, due to the disruption of operations at refineries. Shipping via the Mississippi River, which handles 60 percent of all U.S. grain exports, could be imperiled, since the Port of South Louisiana, the largest bulk cargo port in the world, might have to be closed if ships are unable to operate in oil-drenched waters. Unemployment in the region would soar and economic refugees would scatter in all directions.

The consequences for BP would almost certainly be fatal: it is questionable whether the corporation can survive even in the best case (that is, if “bottom kill” efforts succeed in August); if the spill goes on past the end of the year, then claims against the company and investor flight will probably push it into bankruptcy. Americans may shed few tears over this prospect, but BP happens to be Great Britain’s largest corporation, so the impact to the British economy could be substantial.

The consequences for the oil industry as a whole would also be dire. More regulations, soaring insurance rates, and drilling moratoria would lead to oil price spikes and shortages. Foreign national oil companies could of course continue to operate much as before, but the big independent companies, even if they shifted operations elsewhere, would be hit hard.

For President Obama, an environmental disaster of the scale we are discussing could have political consequences at least equivalent to those of the Iranian hostage crisis during the

Carter presidency. Obama's only chance at survival would be an FDR-like show of leadership backed by bold energy and economic plans and ruthless disregard for partisan bickering and monied interests.

For the U.S. economy, already weakened by a still-unfolding financial crisis, a worst-case scenario in the Gulf could be the last straw. The cumulative impacts—falling grain exports, soaring unemployment in southeastern coastal states, higher oil prices—would almost certainly spell the end to any hope of recovery and might push the nation into the worst Depression in its history.

We would all prefer not even to contemplate such a scenario, much less live with it. It is irresponsible to inflict needless worry on readers on the basis of entirely speculative and extremely unlikely events. But the more I learn about the technical issues, and the worse news gets, the more likely this scenario seems. We all hope that a relief well will succeed in stopping the oil flow sometime around August, and that until then BP will be able to siphon off most of the oil escaping through the riser and damaged blowout preventer. But one has to wonder: is anyone at the White House seriously considering the worst-case scenario? And what should citizens be doing to prepare, just in case?

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