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Tropical Depression Bonnie could draw oil up from the depths to form new slicks

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Dave Martin / AP Photo

A worker prepares to secure cleaned and repaired oil retention booms at a staging area in Grand Isle, La., Friday, July 23, 2010. Tropical Storm Bonnie is expected to make landfall sometime Saturday along the Louisiana coast. BP has recalled much of the oil skimming efforts in anticipation of bad weather.

Starved of its daily dose of crude and under assault by wind, waves, sun, oil-eating bacteria and the largest fleet of oil skimmers ever assembled, the massive blob that stalked the Gulf for three months had already been shrinking and scattering for more than a week.

Now, a blustery tropical system could blow much of its remnants away, whipping the countless drifting streamers of ooze, mats and balls so far and wide the surface slick could virtually vanish overnight.

But Tropical Depression Bonnie, expected to hit the main spill area Saturday afternoon, also could drive a toxic tide even deeper into the rich and fragile estuaries of coastal Louisiana or perhaps propel tar balls back toward beaches along the Florida Panhandle. It might even draw suspended oil up from the depths to form new slicks -- plumes that scientists at the University of South Florida on Friday definitively traced to BP's blown-out well with chemical fingerprinting.

``What we have learned completely changes the idea of what an oil spill is,'' said David Hollander, a chemical oceanographer at USF. ``It has gone from a two-dimensional disaster to a three-dimensional catastrophe.''

Experts predict Bonnie could help some spots and hurt others depending on which way the wind blows as the storm races across the Gulf.

``In some areas, it may disperse oil. In other zones, it may shove it inland,'' said Ron Kendall, director of the Institute of Environmental and Human Health at Texas Tech University.

CREWS AT THE READY

Coast Guard Adm. Thad Allen, the Obama administration's point man on the spill, said Friday that he had flown over the area the previous day and ``there's not a lot of oil out there.''

But he acknowledged the storm could drive much of what is out there onto beaches or into wetlands yet untouched by the spill. He said crews were ``prepared to move out and aggressively attack this once the threat is passed through.''

With seas up to 10 feet likely to swamp miles of boom set to protect coastal areas, there was little question

that portions of low-lying coastal marshes would be inundated. The federal government's daily shoreline report showed heavy oiling already in some spots at the tip and both sides of the delta, from Barataria Bay to the Chandeleur Islands.

Hurricane Alex, which passed far south of the spill site in June, managed to push oil as far north as Lake Pontchartrain. Bonnie, though less powerful, was tracking dead center toward the Deepwater Horizon site some 50 miles off the delta's tip and pushing an expected storm surge of two to five feet.

In 1979, Hurricane Frederic actually removed tons of oil hardened with sand that had piled on Texas beaches three months after the Ixtoc well blowout in Mexico's Bay of Campeche.

But Kendall said the consistency of the vast volume of oil in the Gulf, much of it suspected to lie below the surface, bodes badly for wetlands in Louisiana that already had suffered the brunt of the oil exposure.

Much of it, he said, had congealed into a pudding-like ooze that, once the tide falls out, could suffocate plants or tiny wetlands denizens or act as pockets of slow-release poison.

Jerry Galt, a physical oceanographer with the National Ocean and Atmospheric Administration, said the intense sloshing would most likely dilute impacts, reducing the concentration and breaking material into smaller pieces more easily consumed by oil-hungry microbes common in the Gulf.

Just how much oil remains in the Gulf is uncertain, but the surface slick has visibly shriveled in the eight days since BP finally corraled its raging well.

The day before BP closed the last valve to seal the flow, skimmers slurped 25,000 barrels, most of it oil. By late last week, daily volume skimmed had plunged to 56 barrels, half of it water. NOAA's trajectory maps also showed a dramatic reduction in both the size of the slick and the density.

There is also an undetermined amount of submerged oil -- ``plumes'' that BP had initially denied existed.

NOAA issued its own report on the plumes Friday, confirming clouds of oil stretching 12 miles with the concentrations dropping farther from the site and moving with deep sea currents.

DEEP PLUMES

USF's study, led by Hollander, documented plumes of microscopic droplets at similar depths, both two-thirds and three-quarters of a mile deep, 24 miles to the east of the well. USF researchers also found a 100-foot thick plume much closer to the surface, one-quarter of a mile deep, 45 miles north-northeast of the well.

Nick Shay, a physical oceanographer at the University of Miami Rosenstiel School of Marine and Atmospheric Science, said researchers will be looking for any submerged oil that Bonnie might dredge up as it passes across the Gulf.

Wind and waves typically churn the ocean with enough force to wreck coral shallow reefs and create internal waves that reach much deeper, forcing an ``upwelling'' that draws cool water closer toward the surface -- an effect, Shay say, that can last for weeks in the wake of hurricane.

The influence of a typical tropical storm is usually confined to depths between 300 to 600 feet, he said, though Category 5 monsters like Hurricane Katrina can create upwellings from down as deep as 4,000 feet.

``Is there are shallow subsurface plumes,'' Shay said, ``we should see them after this.''

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