BP oil spill likely picked up by Gulf currents

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Researchers say that the oil spill resulting from the April 20 explosion of the BP Deepwater Horizon drill rig, which killed 11 workers, has very likely been picked up by a powerful Gulf current known as the "loop current," which moves from the area south of the Mississippi Delta to the southern tip of Florida. There it feeds into the Gulf Stream, moving up the eastern seaboard and crossing the Atlantic Ocean to northern Europe.

It is not yet clear how much of the oil will be taken into the current, but the millions of gallons lodged in plumes under the surface make it likely that the spill will have major effects far from its original site some 40 miles off Louisiana's coast.

The plumes also confirm fears that the worst of this spill's disaster is likely being felt underwater. The size and number of plumes found—more than can be counted according to one account—indicate that the Gulf spill is far larger than official estimates. One of the plumes was estimated at about 40 miles long by 3 miles wide by 300 feet deep.

Paul Montagna, a marine biologist at Texas A&M University Corpus Christi who studies the coral reefs in the Gulf of Mexico, explained that the underwater impacts of the spill are likely to be much greater than what has appeared on the surface, itself a slick the size of the state of Delaware.

"There is now a great deal of concern that oil is moving up and down the entire water column in and around important ecological areas," Montagna told the *World Socialist Web Site*. "To the northwest is the Pinnacle reef complex, and to the east is the Esoto canyon. These are very rich breeding grounds for a large number of marine species."

Montagna pointed out that the behavior of the oil under deep water conditions is likely to be very different than on the surface. In particular, it is unlikely the oil will break down as it does when it is exposed to the heat and light of surface conditions. "It's a cold, high pressure environment, which should act to preserve the oil," Montagna said. "I think of my refrigerator. I put my fruit in the cold so it won't spoil."

Scientists also warn that the underwater oil will remove large amounts of oxygen from the water, effectively suffocating parts of the sea. The removal of oxygen from the sea by microbes that feed on the oil will threaten coral reefs as far away as the Florida Keys. Reefs, some of which are hundreds of feet beneath the surface, providing critical habitat for numerous species, including blue fin tuna and the endangered sperm whale.

"Deepwater coral are abundant on the sea floor in this part of the Gulf, and they need oxygen," Samantha Joye, a professor of marine sciences at the University of Georgia, told the Associated Press. "Without it, they can't survive."

Dr. George F. Crozier, a marine biologist and the head of Alabama's Dauphin Island Sea Lab, told the WSWS that he believes the first species to suffer from the oil plumes will be the simplest life forms in the sea. "Within two or three years, the microbial community can degrade that oil," he said. "But like us, they use oxygen to eat, putting carbon into the water that can cause other forms of life to asphyxiate. Some of the bigger forms of sea life will avoid the plumes, but the very bottom of the food chain, like plankton, could be wiped out in whole layers of the sea." Damage to the lower life forms will work its way up the food chain, Crozier said.

There is also the question of what becomes of crude oil's toxicity in deep sea conditions. Crozier said that two weeks ago he asked BP an important question. "If much of the spill is under the water, and not on the surface, where is the toxicity?" he asked. "They still have not explained that."

In a surface spill, Crozier said, a number of toxic and carcinogenic chemicals that inhere in crude oil quickly evaporate into the atmosphere, "leaving behind a gooey mess similar in its constituency to melted candle wax." But if the oil is not making it to the surface, the toxic elements are not being released into the atmosphere. "BP can't seem

to answer that question for me," he commented.

A number of scientists have warned that both the massive size of the spill—very likely tens of millions of gallons—and its location close to the Gulf loop current make it likely that it will move far beyond its current location.

"All the water moving into the Gulf of Mexico passes through between Mexico's Yucatan peninsula and Cuba, charting a course northward toward the Gulf Coast," Crozier said. "At a certain point it encounters the continental watershed coming from the Mississippi and Mobile Bay. It turns right—currents in the northern hemisphere tend to turn right—and passes out of the Gulf between Florida and Cuba. Here it becomes the Gulf Stream, and goes up the Atlantic Seaboard."

Montagna pointed out that there are also countervailing currents produced, eddy currents, that could well move the spill west, toward Texas and Mexico.

Robert Bea, an engineering professor at the University of California Berkely, told the WSWS that in 1970 he tracked the movement of an oil spill off Louisiana's coast, Shell Oil's Bay Marchand spill.

"We used both aerial techniques and sub-sea techniques to trace where the oil was going," Bea said. "Half went out on the surface and half went out subsurface, and we tracked it across the continental shelf, down the continental slope, across the abyssal plain; the last place where we stopped was the Yucatan peninsula" in Mexico. Bea, who is investigating the Deepwater Horizon spill, said he has seen no evidence that BP is tracking the movement of the current spill.

The Deepwater Horizon spill's subsurface effects, including the depletion of oxygen, could be exacerbated by the unprecedented use of toxic chemical dispersants. BP has used nearly 600,000 gallons of the dispersant Corexit and has another 400,000 gallons on order. Corexit is one of the most toxic dispersants available and one of the least effective, according to data from the Environmental Protection Agency (EPA). Its only market advantage appears to be close links between executives at its manufacturer, Nalco, and BP and Exxon Mobil.

On Monday, efforts to contain the spill continued to falter. After three days of attempting to insert a hose inside the ruptured pipe on the seafloor, BP claimed that the device was syphoning off about 42,000 gallons, a tiny fraction of the nearly 3 million gallons per day some scientists have estimated are pouring out of the wellhead. BP said it will only gradually increase the amount of oil drawn up through the tube in order to avoid the sort of ice compounds that derailed its attempt to place a four-story box over the spill site.

None of BPs claims can be verified since the corporation refuses to allow independent analysis of its actions below or above water.

Scientists who have spoken with the WSWS are in agreement that understanding the rate of the spill is critical to predicting its environmental impact. BP and the Obama administration have claimed that it is impossible to know the magnitude of the spill and that, in any case, knowledge of its dimensions would not affect necessary steps to respond to the disaster.

Both claims are false. Scientists insist that there are simple and precise means of measuring the rate oil is gushing forth on the ocean floor. And if the spill is larger than official estimates by a factor of 10, as appears likely, there arises the risk of a "breaking point" for the very survival of the Gulf.

"The head of BP [CEO Tony Hayward] came out and said that the volume of the spill is minuscule compared to the volume of the water in the Gulf of Mexico, and we know that ecosystems have a degree of tolerance," said Montagna. "This is what we today call assimilation capacity. But we also know that at some point a large-scale tipping point can be reached when the ecosystem starts to break down. We don't have a clue at what point that tipping point might come in the Gulf of Mexico."