

## Scientists lower Gulf health grade

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In this Oct. 14, 2010 picture, an oil-covered crab crawls on a glove worn by Plaquemines Parish coastal zone director P.J. Hahn in Bay Jimmy near the Louisiana coast. Six months after the rig explosion that led to the largest offshore oil spill in U.S. history, damage to the Gulf of Mexico can be measured more in increments than extinctions, say scientists polled by The Associated Press. The scientists saw a hit for the region's wetlands, an already weakened massive natural incubator for shrimp, crabs, oysters and fish. (AP Photo/Patrick Semansky)

(AP) -- Six months after the rig explosion that led to the largest offshore oil spill in U.S. history, damage to the Gulf of Mexico can be measured more in increments than extinctions, say scientists polled by The Associated Press.

In an informal survey, 35 researchers who study the Gulf lowered their rating of its ecological health by several points, compared to their

assessment before the BP well gushed millions of gallons of oil. But the drop in grade wasn't dramatic. On a scale of 0 to 100, the overall average grade for the oiled Gulf was 65 - down from 71 before the spill.

This reflects scientists' views that the spilled 172 million gallons of oil further eroded what was already a beleaguered body of water - tainted for years by farm runoff from the [Mississippi River](#), overfishing, and oil from smaller spills and natural seepage.

The spill wasn't the near-death blow initially feared. Nor is it the glancing strike that some relieved experts and officials said it was in midsummer.

"It is like a concussion," said Larry McKinney, who heads the Gulf of Mexico research center at Texas A&M University-Corpus Christi. "We got hit hard and we certainly are seeing some symptoms of it."

Will the symptoms stick around or just become yesterday's headaches? That's the question that couldn't be answered at a conference earlier this month of 150 scientists at a hotel on a Florida beach untainted by the spill. The St. Pete Beach gathering was organized by the White House science office to coordinate future research.

"There's the sense that it's not as bad as we had originally feared; it's not that worst case scenario," said Steve Lohrenz, a biological oceanographer at the University of Southern Mississippi. "There's still a lot of wariness of what that long-term impact is going to be."

Steve Murawski, the chief fisheries scientist for the National Oceanic and Atmospheric Administration, compared scientists research to a TV crime drama: "It's the end of the story that counts, not all the steps along the way."

We're only at the 30-minute break in an hour-long drama, Murawski said.

And there's a plot twist. Research findings already released have led scientists and the government to shift their focus from the sea's surface to deeper waters and the ocean bottom.

A month-long cruise by Georgia researchers on the ship *Oceanus* reported oil on the sea floor that they suspect is BP's but haven't proven yet. Government officials still question whether there is oil on the sea floor, but the Georgia scientists say the samples smelled like an auto repair shop. They took 78 cores of sediment and only five had live worms in them. Usually they would all have life, said University of Georgia scientist Samantha Joye. She called it a "graveyard for the macrofauna."

"The fact that there isn't living fauna is a signal that something happened to these sites and these sediments," Joye said in a phone interview Friday. "The horrible thing is they've been inundated with this oily material... There's dead animals on the bottom and it stinks to high heaven of oil."

University of South Florida's Ernst Peebles said the oil on the floor "is undermining the ecosystem from the bottom up."

David Hollander, also at South Florida, found some of the first plumes of the oil beneath the surface, something that government officials first disputed but now concede is real. Keeping the oil off the surface minimized damage to wetlands, beaches and some wildlife, so in some ways, "we dodged the bullet," he said.

There are several reasons a sizable amount of oil didn't make it to the surface where it could do more visual harm. For one thing, BP used 1.8

million gallons of chemical dispersants to break up the oil. But scientists give more credit to the high pressure and high temperature of the gusher that spewed the oil in droplets so tiny, they didn't float to the surface.

"We still don't know the long-term effect," Hollander said.

Scientists worry the oil deep below will get into plankton and the food web, maybe not killing species directly but causing genetic mutations, stress or weakening some species, with effects that will only be seen years later.

"I think populations are going to be affected for years to come," said Diane Blake, a Tulane University biochemist. "This is going to cause selective (evolutionary) pressure that's going to change the Gulf in ways we don't even know yet."

It was a long-term assault from the well. From April 20, when the Deepwater Horizon rig exploded, killing 11 people, to July 15 when the well was initially plugged, oil bled at a prodigious rate that BP and government officials had a hard time understanding. Initially, officials said only 42,000 gallons a day was flowing, but government scientists eventually said it was as much as 2.6 million gallons a day.

One of the species mentioned most often during two days of scientific sessions in Florida doesn't even live in the Gulf. It's herring. After 1989's much smaller Exxon Valdez spill, it took awhile for the effects on Alaska's herring to be noticed, but the once prolific species crashed to extremely low levels. While other species in Prince William Sound recovered, the herring population has yet to bounce back. And Gulf researchers are wondering if that sort of thing will happen again.

If one species in the Gulf is likely to wind up like the herring, it's probably the bluefin tuna. And answers about its fate may be sitting in a

lab in Poland.

Thanks to a 30-year agreement that dates to Cold War politics, that distant lab is analyzing samples of Gulf water collected in the spill area for the U.S. government. The tests are to find out what the oil did to the larvae. The bluefin was already in trouble before the spill, its spawning stock down 90 percent in the last 30 years.

The spill, 50 miles off the Louisiana coast, happened in the precise place at just the right time to threaten the bluefin larvae bobbing on the surface. The [Gulf of Mexico](#) is the only known spawning area for western Atlantic bluefin.

"Was it catastrophic for the bluefin? Probably not," said NOAA's John Lamkin, who expects data back from Poland near the end of the year. But he added: "Any larvae that came into contact with the oil doesn't have a chance."

Scientists participating in the AP survey were not optimistic about the bluefin. They ranked the health of the tuna before the spill at a fragile 55. That's now down to about 45.

The Associated Press initial survey in July asked Gulf scientists to give the region and several categories baseline grades for ecosystem health before the spill. The scale was 0 to 100, with 0 being dead and 100 being pristine. Seventy-five responded and the overall grade averaged 71, a respectable C.

This month, the AP asked scientists to grade the Gulf's health now; 35 scientists responded. The overall average dropped less than 10 percent, to 65, a struggling D. Scientists were asked about detailed categories and calculated the most noticeable harm to bluefin tuna, oysters, sea turtles, crabs, the sea floor and marshes.

The region's wetlands, an already weakened massive natural incubator for shrimp, crabs, oysters and fish, slipped from 65 pre-spill to 60 now.

But the oil has not pushed Louisiana's fragile marshlands to the edge of collapse.

Robert Moreau, the director of Turtle Cove Environmental Research Station at Southeastern Louisiana University, said, "Obviously, the news so far has been pretty good.

"At first, you look at the TV, you see all this oil pouring out, you think the worst," he said.

There is no comprehensive calculation for how much marshland was oiled, but estimates range from less than a square mile to just a handful of square miles. Regardless, in the big picture that's hardly alarming: Louisiana loses roughly 25 square miles of marsh each year due to a host of environmental and manmade causes. The state is the site of one of the most ferocious rates of land loss in the world.

About 390 miles of Louisiana shoreline was oiled, according to federal surveys and BP.

About 167 miles around Lake Pontchartrain basin was oiled, an important area because it buffers New Orleans. But John Lopez, the science director for the Pontchartrain Basin Foundation, said most of the affected shore saw "light or moderate oiling."

"The marshland folks I work with don't see it as something that is a major catastrophe," said Loyola University marsh biologist David White, who has studied the quiet stands of marsh for 30 years.

The oiling was minimal, but "the jury is still out," White said, on the

long-term ecological effects because the massive oil spill may be rewiring the invisible and hard-to-detect inner workings of nature.

"The longer-term unknown is the impact on the food chain," he said.

Surprisingly, there are some wildlife winners from the [oil](#) spill. That's because there was a commercial fishing ban for months in parts of the northern Gulf, offering respite to some overfished species. More than 90 percent of the Gulf's federal waters are now open to fishing.

"Red snapper are unbelievable right now," said Mike Carron, head of the Northern Gulf Institute in Mississippi. "Now you could put a rock on the end of string and they'll bite it."

That's the good news for one fish. As for the future? USF's Hollander shook his head as he left the science conference: "We'll never have a full accounting of the biological impacts."

**More information:** U.S. government's oil spill page:

<http://www.restorethegulf.gov/>

BP's Gulf of Mexico response page: <http://tinyurl.com/2cpfazu>

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