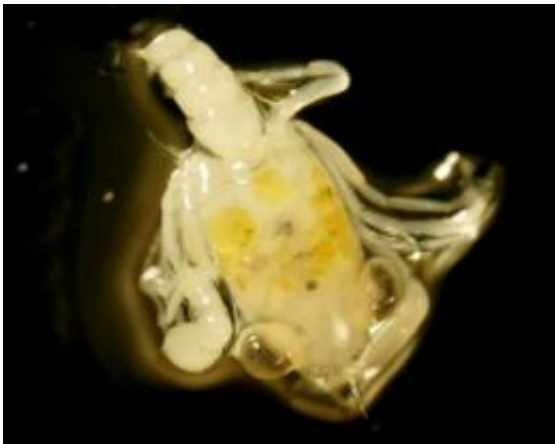


Scientists say Gulf spill altering food web

July 14 2010, By MATTHEW BROWN and RAMIT PLUSHNICK-MASTI , Associated Press Writers



In this undated photo provided by University of Southern Mississippi and Tulane University Gulf Coast Research Laboratory small oil droplets are visible trapped inside the shell of an immature blue crab collected near Grand Isle, La. by researchers from the University of Southern Mississippi and Tulane University. Scientists are reporting early signs that the Gulf of Mexico oil spill is altering the marine food web by killing or tainting some creatures and spurring the growth of others more suited to a fouled environment. (AP Photo/USM Gulf Coast Research Laboratory)

(AP) -- Scientists are reporting early signs that the Gulf of Mexico oil spill is altering the marine food web by killing or tainting some creatures and spurring the growth of others more suited to a fouled environment.

Near the spill site, researchers have documented a massive die-off of pyrosomes - cucumber-shaped, gelatinous organisms fed on by

endangered sea turtles.

Along the coast, droplets of [oil](#) are being found inside the shells of young crabs that are a mainstay in the diet of fish, turtles and [shorebirds](#).

And at the base of the food web, tiny organisms that consume oil and gas are proliferating.

If such impacts continue, the scientists warn of a grim reshuffling of sealife that could over time cascade through the ecosystem and imperil the region's multibillion-dollar fishing industry.

Federal wildlife officials say the impacts are not irreversible, and no tainted seafood has yet been found. But Rep. Ed Markey, D-Mass., who chairs a House committee investigating the spill, warned Tuesday that the problem is just unfolding and toxic oil could be entering seafood stocks as predators eat contaminated marine life.

"You change the base of the food web, it's going to ripple through the entire food web," said marine scientist Rob Condon, who found oil-loving bacteria off the Alabama coastline, more than 90 miles from BP's collapsed Deepwater Horizon drill rig. "Ultimately it's going to impact fishing and introduce a lot of contaminants into the food web."

The food web is the fundamental fabric of life in the Gulf. Once referred to as the food chain, the updated term reflects the cyclical nature of a process in which even the largest predator becomes a food source as it dies and decomposes.

What has emerged from research done to date are snapshots of disruption across a swath of the northern [Gulf of Mexico](#). It stretches from the 5,000-foot [deep waters](#) at the spill site to the continental shelf off Alabama and the shallow coastal marshes of Louisiana.

Much of the spill - estimated at up to 176 million gallons of oil and almost 12 billion cubic feet of natural gas - was broken into small droplets by chemical dispersants at the site of the leaking well head. That reduced the direct impact to the shoreline and kept much of the oil and natural gas suspended in the water.

But immature crabs born offshore are suspected to be bringing that oil - tucked into their shells - into coastal estuaries from Pensacola, Fla., to Galveston, Texas. Oil being carried by small organisms for long distances means the spill's effects could be wider than previously suspected, said Tulane professor Caz Taylor.

Chemical oceanographer John Kessler from Texas A&M University and geochemist David Valentine from the University of California-Santa Barbara recently spent about two weeks sampling the waters in a six-mile radius around the BP-operated Deepwater Horizon rig. More than 3,000 feet below the surface, they found natural gas levels have reached about 100,000 times normal, Kessler said.

Already those concentrations are pushing down oxygen levels as the gas gets broken down by bacteria, Kessler and Valentine said. When oxygen levels drop low enough, the breakdown of oil and gas grinds to a halt and most life can't be sustained.

The researchers also found dead pyrosomes covering the Gulf's surface in and around the spill site. "There were thousands of these guys dead on the surface, just a mass eradication of them," Kessler said.

Scientists said they believe the pyrosomes - six inches to a foot in length - have been killed by the toxins in the oil because there have no other explanation, though they plan further testing.

The researchers say the dead creatures probably are floating to the

surface rather than sinking because they have absorbed gas bubbles as they filtered water for food.

The death of pyrosomes could set off a ripple effect. One species that could be directly affected by what is happening to the pyrosomes would be [sea turtles](#), said Laurence Madin, a research director at the Woods Hole Oceanographic Institution in Cape Cod, Mass. Some larger fish, such as tuna, may also feed on pyrosomes.

"If the pyrosomes are dying because they've got hydrocarbons in their tissues and then they're getting eaten by turtles, it's going to get into the turtles," said Madin. It was uncertain whether that would kill or sicken the turtles.

The BP spill also is altering the food web by providing vast food for bacteria that consume oil and gas, allowing them to flourish.

At the same time, the surface slick is blocking sunlight needed to sustain plant-like phytoplankton, which under normal circumstances would be at the base of the food web.

Phytoplankton are food for small bait fish such as menhaden, and a decline in those fish could reduce tuna, red snapper and other populations important to the Gulf's fishing industries, said Condon, a researcher with Alabama's Dauphin Island Sea Lab.

Seafood safety tests on hundreds of fish, shrimp and other marine life that could make it into the food supply so far have turned up negative for dangerous oil contamination.

Assuming the BP gusher is stopped and the cleanup successful, government and [fishing industry](#) scientists said the Gulf still could rebound to a healthy condition.

Ron Luken, chief scientist for Omega Protein, a Houston-based company that harvests menhaden to extract fish oil, says most adult fish could avoid the spill by swimming to areas untainted by crude. Young fish and other small creatures already in those clean waters could later repopulate the impacted areas.

"I don't think anybody has documented wholesale changes," said Steve Murawski, chief scientist for the National Marine Fisheries Service. "If that actually occurs, that has a potentially great ramification for life at the higher end of the [food web](#)."

©2010 The Associated Press. All rights reserved. This material may not be published, broadcast, rewritten or redistributed.

Citation: Scientists say Gulf spill altering food web (2010, July 14) retrieved 6 May 2024 from <https://phys.org/news/2010-07-scientists-gulf-food-web.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.
