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Gulf Oil Spill: An Opportunity for Conservation?

by Emily Voigt

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A large drum fish lies washed up on the shore in Long Beach, Mississippi.

AP Photo/Dave Martin

Q&A with fisheries expert Daniel Pauly

On Sunday, the federal government closed a large section of the Gulf of Mexico to offshore fishing. Normally this news would have elated the eminent marine biologist Daniel Pauly -- if only it hadn't come as the result of millions of gallons of oil pollution gushing from the seafloor. The French-born fisheries expert and founder of the online encyclopedia Fishbase has long been a proponent of marine protected zones, where sea life may grow large, breed, and regenerate from its current depleted condition. The Gulf of Mexico, which supplies somewhere between a fifth and a third of America's domestically caught seafood, depending on who's estimating, is a prime candidate for such marine protected areas.

Pauly, a professor at the Fisheries Centre of the University of British Columbia, spoke with OnEarth about the Deepwater Horizon disaster in the Gulf and the as-yet-unknown extent of its impact.

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There's a lot of talk about the effects of oil pollution onshore as the slick reaches wetlands along the Gulf Coast. But what about offshore, where we can't see it? How is sea life being affected?

The first inch of water under the ocean's surface is full of insects, fish eggs, all kinds of little animals. The first effect of the oil spill is that all those animals will be wiped out. And as waves mix up the slick, there will be oil bubbles in the water column. These will either touch the animals or be ingested by them, and that is deadly for plankton. But these tiny animals are short lived, and they will be replaced very soon. The problem is that larger animals eat the plankton that has been polluted. They accumulate the oil and can concentrate it.

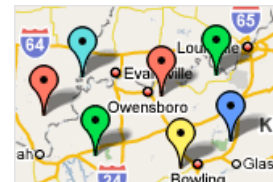
Does the oil also suffocate animals? Do they choke on it in addition to being slowly poisoned by it?

Yes, if an oil bubble is picked up as if it's another plankton, the zooplankton that eats it would choke. The larger animals that come to the surface for breathing, such as dolphins and sea turtles, will be affected because the film from the oil slick is uninterrupted on the water's surface. Their breathing hole or nostrils will become coated in oil, and that will be very bad for them.



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What about some of the clean-up techniques that are being employed -- the controlled burns, the dispersants being added to the water to break up the petroleum. What kinds of effects can those have on sea life?

The chemicals in question differ in their effect, but I understand that most of them are highly toxic, and many of them are more toxic than the oil.

Fishing is an enormous industry in the Gulf of Mexico. From a food supply perspective, will the spill affect how we eat?

It depends how far up or down the market chain you go. I don't think that at the level of consumers in New York City, for example, there will be any effect, because the market is globally integrated, and people don't differentiate between different kinds of shrimp. Perhaps there will be a small effect on prices. At the level of communities, that is different. Fishing communities will be strongly affected. And the fisheries that are closed may not be reopened for months and perhaps years, because seafood from the area will taste like oil.

Do you have any sense of the overall economic impact that we're going to see from this?

It's going to be immense, because the fisheries are going to take a huge loss. Sport fishing is also going to be affected. If this stuff reaches western Florida and eventually the Keys, you're talking about the highest concentration of sport fishing in the world.

There's been some concern that the oil could hitch a ride on the Gulf Stream and end up in the Atlantic.

That depends entirely on whether we are at the end or the beginning of the catastrophe. The loop current that circulates through the Gulf of Mexico runs more or less parallel to the Florida coast and goes around and north into the Atlantic. Even the Bahamas might be touched by the oil spill, and then the mid-Atlantic states. On the other hand, the Gulf Stream -- it becomes the Gulf Stream from Florida on -- is a bit off the coastline, so that could help keep the oil out at sea.

But the oil would still be harming sea life, presumably. Would that affect fishing in the Atlantic?

The fisheries there would also have to be closed, as in the Gulf, because even fish that stayed under the oil would have to be pulled through a film when they're caught. But coastlines tend to be more affected than the open ocean. The open ocean is readily recolonized from the sides, so to speak. The temperature of the water is very high, so you can have a quick mineralization of the oil, and you can have also a quick evaporation of the most volatile components of the oil. Basically then you're left with the harder-to-process part of the oil, which the bacteria can get rid of in a few weeks or months. Normally when the coast is not touched, tropical waters can clean themselves up in a short time, whereas Arctic waters cannot because bacteria work slowly in cold waters. So for example, Pemex (Mexican Petroleum) had an explosion in the Yucatán Peninsula (in 1979). It did lots of damage, but within two or three years it was kind of gone.

Lots of the comparisons with what could happen in the Arctic and even Prince William Sound (where the *Exxon Valdez* spill occurred in 1989) are not appropriate for that reason. The acute symptoms are just as bad, though. An oiled bird is an oiled bird -- it dies. And an oiled landscape stinks, and that's exactly the same. But the bacteria's processing of the oil is much more rapid in the tropics, so nature is a bit more resilient.

But I must say that the sea grass and other coastal habitats are already stressed in Louisiana, so the oil will not be good for them. The whole system of estuaries and of banks is slowly losing ground in the Gulf. The oil may contribute to the roots of these sea grasses being wiped out, and then the banks where they sit transform into mud flats.

It's obviously going to take time for fish populations to replenish themselves. I know you've been a big advocate of marine protected areas or so-called "no take" zones. Should setting up more of those areas be part of our response to the oil spill?

The Gulf has just been declared a large marine protected area as a result of the spill -- no fishing! It is possible that a massive rebound of the fish population will occur because we are not fishing them. If the fishing is discontinued for a month or two, or a season, we may see massive changes in the Gulf.

I would use the opportunity of having to dole out compensation for lost jobs to make some of the changes permanent and to have some areas permanently closed to fishing -- especially the areas adjacent to parks on land and to coastal protected zones. And I would establish a quilt of protected, unprotected, and partly protected zones in the Gulf.

You've described the most advanced fishing boats these days as being so heavily laden with technology that they're like the *Starship Enterprise*. They use sonar, GPS, all these wartime technologies to find and kill fish. Can we use any of these technologies to monitor the welfare of sea life?

Sure we could. For example if we declare a marine protected area, a big one, as was recently done for the Northwest Hawaiian Islands -- this big natural park that has been declared protected by President Bush -- people say, "Oh, you cannot monitor it." But you can see a boat from a satellite. So modern technology can enhance the fishing power of fishermen, but it can also help the managers monitor the fisheries. In fact, there are several fisheries in the world that are managed this way. All the boats have a transponder. They give the position to a satellite that monitors them. If a boat doesn't do that, it's poaching.

From your article "[Aquacalyse Now](#)" in *The New Republic*, it seems like there's an analogy to made between the lengths we're going to catch fish, and the lengths we're going to find oil. In both cases, we're really at the final frontier, aren't we?

Yes. With oil it cannot be otherwise, because it's a non-renewable resource. But basically we have exploited natural resources at an exaggerated rate. Natural resources such as fish and trees and such provide a certain interest, so you can leave the capital in the bank and live off the interest. And that you can do forever. But we have extracted more than the interest. In other words, we have gone into the capital. So we have in effect run a Ponzi scheme on natural resources, and we have depleted the ocean everywhere, including in the Gulf where only shrimp and menhaden (a small fish used for fertilizer) sustain seasonal fisheries.

What's the answer when it comes to the future of fish as a food source -- to limit consumption?

Well, let's say the sea is inherently limited as to the amount of fish that it produces -- at least fish that you can simply catch. And basically, as our demand increases, we have the option of either devastating the resource, robbing the bank so to say, or we can protect it and accept that it will not be meeting the demand, that price will have to go up. But that is OK. Nobody would expect to eat venison everyday, because venison comes from the wild, and the wild cannot supply our needs for meat, for example. But we have decided for some reason that we will have fish everyday. Then we go to the market and we expect to find it. But there is not enough fish to go around. It's as simple as that. Will we have to limit our demand? If we don't, nature will, because you cannot argue with nature.

TAGS

BP | Daniel Pauly | Deepwater Horizon | fish | fisheries | Gulf of Mexico | Gulf spill | marine mammals | marine protected areas | Sea turtles

COMMENTS

muddog wrote on May 07, 2010, 10:59PM : ▶

I have heard Mr. Pauly gets \$\$\$ from Pew (Sun Oil Co.). Just follow the money. You can't eat oil.

The Oil Co.s want rid of fishermen. We're a liability to them. They don't want to pay for their mistakes.

Pam wrote on May 08, 2010, 05:08PM : ▶

Our Gulf Red Snapper have rebounded dramatically due to forced recent sacrifices from NOAA Fisheries on the anglers. It hasn't needed to be that way. NOAA fisheries was asleep at the wheel for 20-30 years and did not manage the fisheries as they should have until forced by the implementation of the MSRA of 2007. With that they lowered the boom on anglers across the Nation eliminating jobs and small businesses. Fish are a healthy source of protein food source and fun to catch. Both are causing demand to increase. Instead of eliminating access to the wonderful resource, why not implement ways to increase their habitat so many more will survive-add to your 'capital' so there will be an increase in 'interest'. There is a lot of sand out there in those waters that would not be hurt by some artificial reefs.

bryandfasdfd wrote on May 08, 2010, 06:32PM : ▶

FUK...stop killing the damn animals you greedy bastards. Show some love to the world ;[.

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