Are We Killing the Oceans?

Dead zones spread in the world's oceans.

A map of the Mississippi Gulf Coast region.

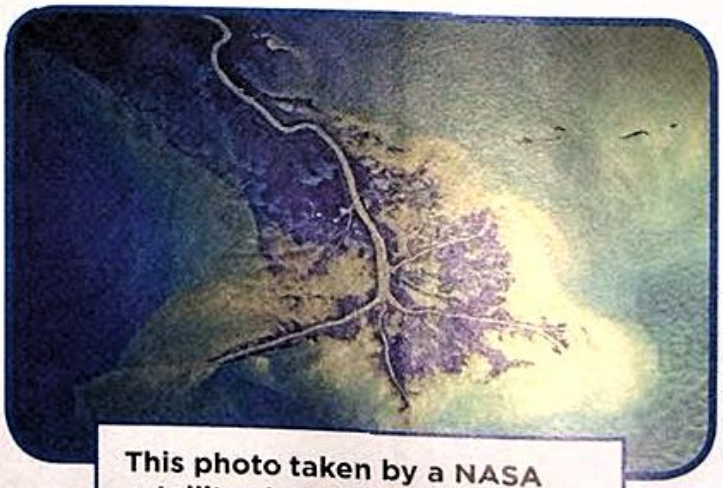
The world's oceans are teeming with life, from microscopic organisms to whales, the largest animals on Earth. In a strange twist, however, we may be killing the oceans, or at least large parts of them. Human activity on land is creating "dead zones" in coastal waters around the globe.

Over the past four decades, these dead zones have appeared in almost 150 places, mostly in Europe and the east coast of the United States. Some are less than one square mile, and some are vast. The dead zone in the Gulf of Mexico is 7,000 square miles, or about the size of New Jersey.

Our oceans overflow with animal and plant life. Unlike the rest of the ocean, no animals live in dead zones. The reason is that the water below the surface has no oxygen in it. Without oxygen, fish or other animals cannot survive.

Too Much of a Good Thing

The causes of ocean dead zones are as clear as day. They can be traced to places far away from the coastline. Chemical fertilizer used on farms and lawns is the main cause. Pollution from power plants and other industries adds to the problem. Runoff caused by rain and soil erosion carries fertilizer and other chemicals into a river. Then, the river carries them along toward the ocean. The river flows into the ocean, and all those chemicals are dumped in one place. That's why ocean dead zones usually appear at the mouths of rivers. Giant river systems, like the Mississippi, collect runoff fertilizer from millions of square miles.



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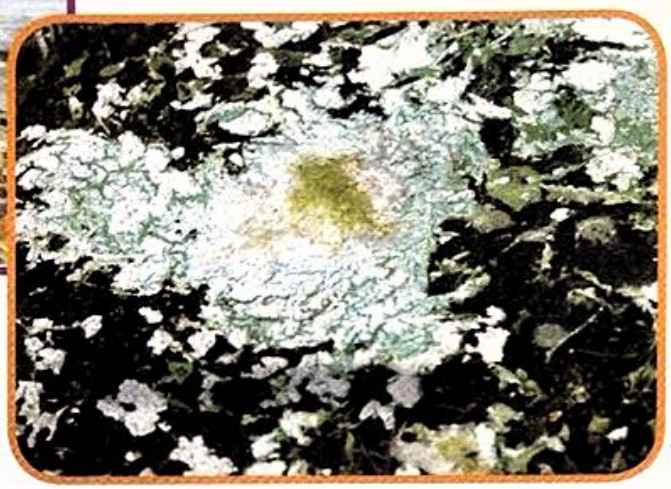
This photo taken by a NASA satellite shows the Mississippi River carrying tons of sediment into the Gulf of Mexico.

Oxygen-starved zones created by fertilizer runoff are spreading.

Pilar Olivares/Reuters/Corbis

Algae blooms like this are a major reason why ocean dead zones form. ▼



Nick Hanna; Web: World Photos/AP Images

On land fertilizer helps plants grow. When fertilizer reaches the oceans, it feeds tiny plants called algae. Just as on land, the abundance of food causes algae blooms. The surface of the ocean can be covered with algae for hundreds of miles. When the algae die, they sink to the bottom and are eaten by bacteria. The bacteria use oxygen and release carbon dioxide. As more and more algae die, more and more bacteria grow. Eventually the bacteria use up all the oxygen in the lower levels of the dead zone. Once all the oxygen is gone, nothing can live there. Like a broken scale, the ecosystem tips too far in one direction. There is no life at the bottom of the dead zones because there is too much life at the top.

Saving the Oceans

Governments around the world have been trying to come up with ways to halt the spread of these oxygen-free areas. For example, in Europe governments along the Rhine River, a larger river like the Mississippi, have agreed to cut nitrogen levels in half. One solution is to plant trees and grasslands alongside rivers, especially at their mouths. These plants will soak up the fertilizer before it reaches the ocean. Reducing pollution from industry, the use of chemical fertilizer, and untreated sewage would go a very long way to solving the problem.

The solutions are clear, but few of them have been attempted on a large scale. As a result, the dead zones continue to grow. Much more work is needed if we are to make these stricken ocean zones well again. Most people agree it's a good cause.