

The Oregonian

'Dead zone' forms again off Oregon's coast

Pacific - Scientists say the return of low-oxygen waters suggests a long-term shift in ocean patterns

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For the sixth year in a row, a suffocating blanket of oxygen-starved water is forming off the central Oregon coast, with marine life struggling to endure the repeated trauma, Oregon State University scientists say.

The return of the "dead zone," where water holds so little oxygen that fish and other life cannot survive, suggests a fundamental shift in wind and water patterns off Oregon that may reflect global warming trends, the scientists said.

Last year's unusually severe and long-lasting dead zone turned sections of the seafloor into graveyards of dead crabs, starfish and sea anemones.

Observations by a remote control submarine this summer suggest that marine life such as starfish may take as long to return as plants and animals did after the eruption of Mount St. Helens, said Jane Lubchenco, an OSU professor of marine biology. "The system is showing early signs of rebounding" after last year, she said, "but a full recovery may be a long way off."

Where researchers used to find seven species of starfish, they now find only one, OSU marine biologist Francis Chan said. "The concern is that whatever road to recovery the system started on, it's getting knocked back."

Conditions this year have not turned as lethal for marine life as they did last year, when wind patterns held the suffocating layer in place throughout the summer.

Low-oxygen water, an essential ingredient in Oregon's rich marine environment, wells up from the deep each summer, bringing essential nutrients with it. That upwelling, driven by winds, has always left some waters short of oxygen, even as it helped nourish salmon and other valuable fish.

But especially strong and steady upwelling feeds booms of tiny marine organisms that then sink and die, their decay drawing even more oxygen out of the water, scientists say. That can quickly turn flourishing waters lifeless.

"It's basically telling us that the difference between a normally productive system and one that goes haywire is not too far," Chan said.

Since 2002, the low-oxygen waters have intruded closer to shore than had been known before, Lubchenco said. Winds that normally keep the water moving have weakened. "We're not getting that flushing. That water just sits there and incubates."

Fish might flee to waters with more oxygen, but crabs, starfish and other slower-moving creatures can be trapped and killed.

Terry Thompson, a fisherman and Lincoln County commissioner, said fish have always been scarce in some areas during the summer -- suggesting that dead zones are not an entirely new phenomenon along the Oregon coast. But he agreed that conditions last summer were severe.

Thompson said he's excited that scientists are now tracking conditions closely, because that may help explain patterns fishermen have long noticed but never entirely understood.

Researchers said long-term monitoring indicates that severe dead zones off Oregon are becoming a more regular event and hovering closer to shore than they used to. "We're really confident in saying this is a new phenomenon for our coast," Chan said.

Oxygen levels in June began to mirror last year's, but relief came in July when southerly winds pushed the low-oxygen water farther offshore. Last week, the winds reversed, and northerly winds pulled the suffocating layer back toward shore from about Florence to Newport, the researchers said.

Oxygen concentrations have dropped to about 0.5 milliliter per liter of water, far below the concentration of 1.5 milliliters per liter that is considered "hypoxic" and lethal to most marine life.

"If somebody would have told me 20 years ago that this system would be vulnerable to hypoxia, I would have laughed at them," Lubchenco said.

OSU scientists are expanding the reach of their monitoring as researchers aboard ships surveying fish populations track oxygen levels elsewhere along the coast. Stephen Pierce, an OSU researcher aboard a federal ship, has detected low oxygen levels in waters between Coos Bay and Florence, some of the first such readings along the south coast.

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