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Low-oxygen zone found again off Oregon Coast

By Seattle Times staff and The Associated Press

For the sixth year in a row, low-oxygen water has been surveyed off the Oregon Coast, raising the possibility of another dead zone forming this summer that can kill bottom-dwelling sealife.

"It does, indeed, appear to be the new normal," said Jane Lubchenco, professor of marine biology at Oregon State University.

"The appearance of the low-oxygen water again is consistent with predictions of climate change. The fact that we are seeing six in a row now tells us that something pretty fundamental has changed about conditions off our coast."

This water forms in a bottom layer, and as July began, it appeared to be approaching the severity of last year's dead zone that killed some crab and other sealife.

But later in July, shifting winds appeared to ease the risk of the dead zones.

The next few weeks will be critical in determining whether oxygen supplies decline to dangerous levels, said Jack Barth, a professor of physical oceanography at OSU.

Unlike the dead zone in the Gulf of Mexico, which is caused by fertilizer washing down the Mississippi River, the Oregon Coast dead zone is triggered by northerly winds, which create an ocean-mixing condition called upwelling.

This brings low-oxygen waters from deep in the ocean close to shore, and spreads nitrogen and other nutrients through the water column, kicking off a population boom of plankton, the tiny plants and animals at the foundation of the ocean food web.

Normally, this is good for salmon that swim higher in the water column, giving them lots of food to eat.

Ocean researchers who cruised the Pacific Northwest offshore waters in the spring reported conditions were excellent, with upwellings and a surge of cold water from the Gulf of Alaska bringing a smorgasbord for salmon to eat.

"This spring, all the signs were really good," said Bill Peterson, a federal fishery researcher who worked on a survey from Newport, Ore., to La Push, Clallam County, and is hopeful that the abundant zooplankton will increase salmon survival rates.

But when huge amounts of zooplankton and plankton die, they fall to the bottom of the ocean, where they decompose, depleting the water of oxygen and harming sealife that cannot move out of the way. That's what happened last summer and could happen again this summer.

The wind patterns responsible for the dead zones are consistent with what is expected with global warming: warmer temperatures on land strengthen a low pressure area that draws more air in from the cooler ocean, creating the winds that set up the upwelling, and driving the dead zone closer to shore.

After dissipating with a change in wind patterns in the fall, the dead zone was reforming in early summer this year, when an abrupt cooling on land switched the wind around to the south, turning off the upwelling and allowing the dead zone to dissipate, said Francis Chan, a research professor of marine ecology at OSU.

Then the northerly winds returned, and so did the dead zone.

Instruments towed back and forth last week from one mile offshore to 12 miles offshore between Cape Perpetua and Newport found oxygen levels as low as one-sixth of normal, Chan said.

That is not as bad as last year, but weather forecasts call for strong northerly winds the rest of this week.

"The system is primed for a replay of last year," Lubchenco said. "But that doesn't mean it will necessarily happen. It may not be as bad as last year and it all depends on the winds."

Last year, video from a remotely operated submersible showed a crab graveyard on the Perpetua Reef south of Newport, and fishermen reported unusually large numbers of rockfish — apparently able to swim away from the dead zone — in unexpected areas on its edges, Lubchenco said.

New video from May showed some rockfish and sea stars had returned, but less mobile creatures such as sea anemones and sea cucumbers had not.

"The current low oxygen conditions may knock the system back to the starting line, delivering another setback to an already stressed system," Lubchenco added. "This

marine ecosystem may take as long to recover as the terrestrial ecosystem did from the eruption of Mount St. Helens."

Seattle Times Reporter Hal Bernton contributed to this story.