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Responsibility

# Ocean 'dead zones' are growing, with human activity exacerbating the problem

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By Responsible Seafood Advocate

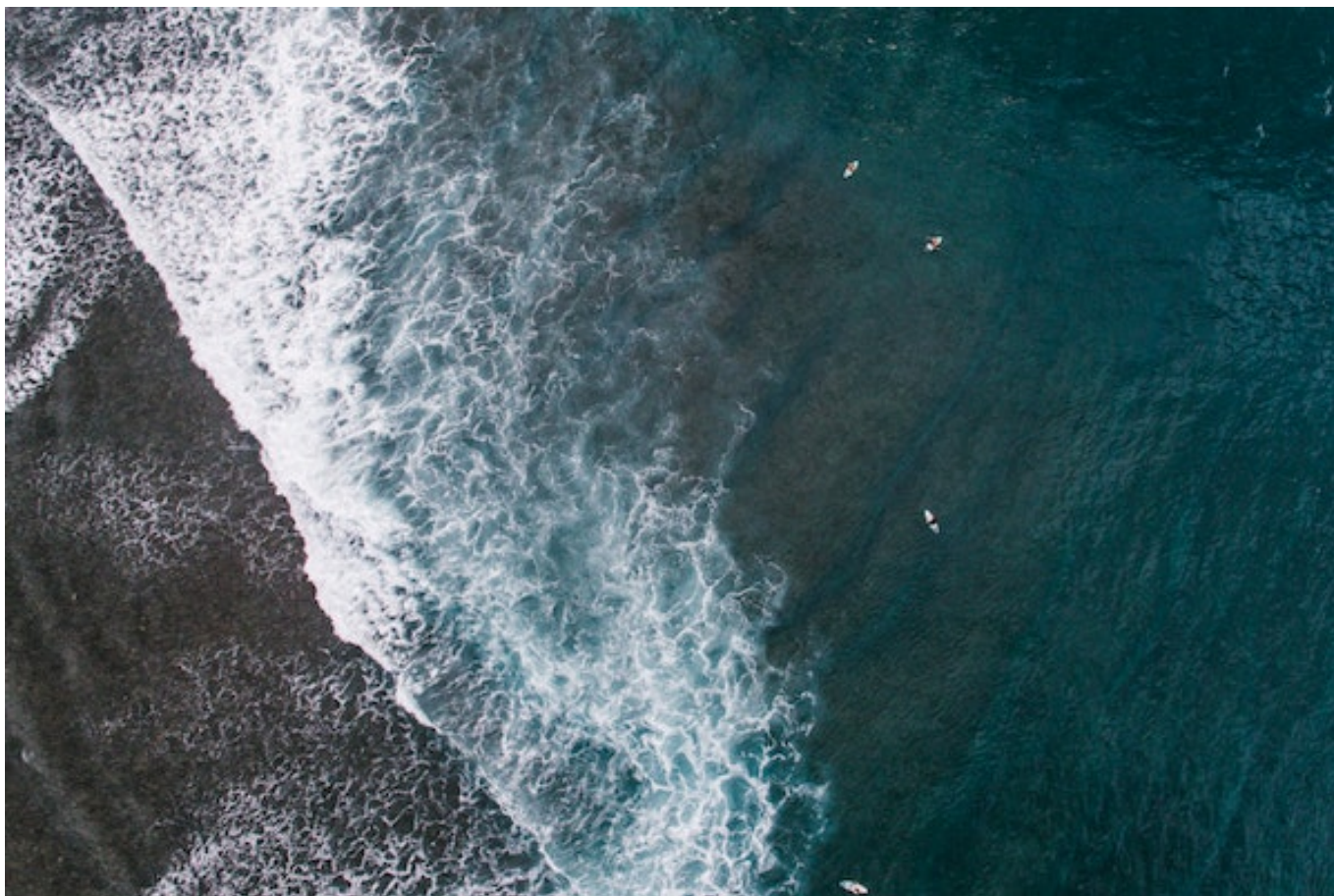
## Oceans have been losing oxygen for the past 50 years, study says

Oxygen-deficient "dead zones" in the Pacific Ocean are continuing to expand, according to a new study that included researchers at the University of Western Australia (UWA).

The study, published in the *[Proceedings of the National Academy of Sciences](https://www.pnas.org/doi/10.1073/pnas.2204986119)* (<https://www.pnas.org/doi/10.1073/pnas.2204986119>), found oceanic "dead zones" – an area of low to no oxygen that can kill fish and marine life – had been expanding for eight million years and human activity is contributing to the problem. The researchers said oxygen is critical to the health of marine ecosystems and predicting future changes in ocean deoxygenation is important for societies that rely on fisheries.

The study's findings showed oceans had been losing oxygen for the past 50 years in the open ocean and coastal areas partly because of climate change and coastal nutrient discharge.

"Our study indicates that the modern oxygen-deficient zones are underpinned by a historically high



The study's findings showed oceans had been losing oxygen for the past 50 years in the open ocean and coastal areas partly because of climate change and coastal nutrient discharge. Photo courtesy of Mikhail Nilov (<https://www.pexels.com/photo/top-view-of-an-ocean-waves-8332249/>).

oceanic concentration of phosphate," Birger Rasmussen, a professor at UWA's School of Earth Sciences.

An advertisement banner for ADM. On the left is the ADM logo (a green leaf-like shape next to the letters 'ADM'). To the right, the text reads "Early life nutrition for future growth success." Below this text is a microscopic image of a shrimp larva. In the bottom right corner of the banner, there is a green button with the text "LEARN MORE".

(<https://www.global.admanimalnutrition.com/activities/aquaculture/>).

A rise in nutrients fuels increased biological activity in the surface ocean. When the organic particles sink, they undergo bacterial degradation which consumes oxygen, leading to oxygen-poor zones which may be deadly to marine life. The study noted there were three major oxygen-depleted zones, at depths of 100 to 150 meters, with two in the Pacific Ocean.

"Coastal ocean 'dead zones' are mainly caused by the input of products such as fertilizer," said Rasmussen.

Rasmussen said the oxygen-depleted zones occurred naturally in the open ocean, but it was unclear how they would change with global warming and an increase in nutrients.

“This study might help better predict the future behavior of open ocean zones with depleted oxygen,” he said.

**[Read the full study \(https://www.pnas.org/doi/10.1073/pnas.2204986119\)](https://www.pnas.org/doi/10.1073/pnas.2204986119)**.

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