

# HYPOXIA IN OREGON WATERS

Along Oregon's coast, low-oxygen (or hypoxic) zones can form in the spring and summer. Such zones can cause dramatic die-offs of marine animals and disrupt coastal fisheries. Unlike Gulf States and East Coast hypoxic zones that are caused by nutrient run-offs from the land, low-oxygen zones along our coast are the result of ocean currents that bring oxygen-poor but nutrient-rich water up from depths. While this process is natural, shifting ocean and wind conditions over the past decade have combined to make the low oxygen events, and their negative effects, much worse.

## THE SCIENCE OF STUDYING HYPOXIA

Identifying the changes that are underway beneath the surface of the ocean presents daunting challenges. Fortunately, scientists continue to develop new "beneath the waves" ocean observing techniques and partnerships with fishermen. These tools include underwater gliders, buoys, and collaborative research that enable collection of critical information more quickly and over a much larger area than ever before.

In addition to providing an early warning system for ocean changes, this new information provides an emerging picture of potential hotspots for, and refuges from, hypoxia and ocean acidification. Combined with new scientific understanding of ecological connections in the sea, this information can provide further guidance for predicting the likely changes ahead and for managing marine ecosystems and fisheries in ways that will maximize their resilience to these emerging threats.

## WHAT CAN WE DO?

While the ocean circulation changes that exacerbate hypoxia along the Oregon coast cannot be directly managed, communities can reduce other stressors to help the system cope. Managing controllable stressors – such as not fishing during reproductive periods or taking steps to reduce nutrient run-off – can help make our coastal ecosystems healthy enough to withstand and recover from severe hypoxia. Furthermore, management of Oregon's coastal waters will benefit from a clear understanding of where and when hypoxic zones occur.



Oregon Fishermen in Ocean Observing Research (OrFIOR) take an innovative approach to research. Using fishing boats and fishing gear outfitted with scientific instruments, OrFIOR is now collecting more information over a bigger area – and more cheaply – than the science community could do alone. Additionally, these partnerships provide a way to engage stakeholders with science and can inform fisheries and marine resource management decisions.

## FOR MORE INFORMATION

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