

# The New York Times

---

## Study Links Raised Carbon Dioxide Levels to Oyster Die-Offs

---



**Science**

### Environment.

April 12, 2012

By LESLIE KAUFMAN

Oyster hatcheries along the Washington and Oregon coastlines began experiencing calamitous die-offs beginning in 2006. Scientists suspected they were because of increased carbon dioxide levels in the air that were causing ocean acidification. That theory has now proved out, according to a study just published by the journal *Limnology and Oceanography*.

Researchers studied oysters at Oregon's Whiskey Creek Hatchery in 2009 after the hatchery reported that oyster production had declined by as much as 80 percent in recent years. The scientists paid close attention to the seawater that had bathed the oysters. Oceans absorb a significant portion of carbon dioxide in the air and when they do so a chemical process takes place called acidification. Laboratory studies have already shown that elevated carbon dioxide changes the pH and reduces the availability of calcium carbonate in the seawater. And calcium carbonate minerals are the material that sea creatures like oysters and corals use for building shells and skeletons.

The study breaks new ground, according to its authors, because this is the first time these theories on the impact of ocean acidification that were tested in laboratories were verified on an actual commercial shellfish farm with ambient

ocean waters. The findings linked the production failures of the farms to the carbon dioxide levels in the seawater in which the larval oysters were spawned and spent the first 24 hours of their lives. That is the time when oysters start to develop their first shells.

"I think that the clear take-home message from this research is that for the oceans, the Pacific Oyster larvae are the 'canaries in the coal mines' for ocean acidification. When the CO2 levels in the ocean are too high, they die; when we lower the CO2 levels, they live," Richard A. Feely, a co-author of the study and senior scientist at the National Oceanic and Atmospheric Administration, said in a statement released by the Center for Biological Diversity.

The center is deeply invested in the findings because in 2009, it filed a lawsuit demanding that the Environmental Protection Agency address ocean acidification in the waters off Washington State under the Clean Water Act. In a settlement, the E.P.A. agreed that states had a duty to look at the impact of ocean acidification. But the implication for sea life is national and global in scale.

"Oyster die-offs are an unmistakable warning that our oceans are in trouble and we've got to cut the carbon pollution if we want to have oysters, corals and whales," said Miyoko Sakashita, oceans director for the center, which last week petitioned the White House and E.P.A. to develop a national plan to address ocean acidification.