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NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION • US DEPARTMENT OF COMMERCE

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Oregon Researchers Study Widespread Areas of Low Oxygen off Northwest Coast

A team of scientists studying the California Current – a slow-moving mass of cold water that travels south along the coast from British Columbia to Baja California – are seeing increasing areas of water off Washington and Oregon with little or no oxygen, possibly resulting in the deaths of marine animals that cannot leave the low-oxygen areas.

“We’re now seeing low oxygen levels that are much more widespread and far more intense than what has been recorded in the past,” according to William Peterson, one of the researchers and an oceanographer at the NOAA Fisheries Service’s science center in Newport, Ore.

“The fish have simply moved out of these areas and are probably doing fine elsewhere,” said Peterson. “But animals that can’t move to better waters like Dungeness crabs, sea urchins and starfish will perish.”

Peterson added that during the summer of 2006, anoxia – a complete lack of oxygen in the water – was recorded off the central Oregon coast for the first time.

In a paper published today in *Science* magazine, the researchers say that data going back to the 1950s show little evidence of widespread low-oxygen levels along the narrow continental shelf before about 2000. Since then conditions have begun to change.

The team conducted a submersible-based survey in the summer of 2006 and discovered no fish living along the rocky reefs that are normally healthy habitat for varieties of commercially important rockfishes. This is in contrast to similar surveys completed from 2000 through 2004 which registered abundant fish populations. In shallow areas in particular, the team found almost complete absence of bottom-dwelling organisms and a rise in bacteria that flourish under conditions of little or no oxygen.

Although the causes of these low- and no-oxygen conditions are not fully understood, it is known that low-oxygen water is associated with coastal upwelling – the process by which nutrient-rich waters are brought from deep water to the sea surface. There these nutrients fuel extraordinarily high production of tiny plants and animals off the coasts of the Pacific Northwest during summer.

Eventually, much of this plankton production dies and falls to the seafloor where it decomposes, reducing the water’s oxygen content, and causing hypoxia (low oxygen) or even anoxia (no oxygen).

The *Science* paper, “Emergence of Anoxia in the California Current,” was written by F. Chan, J.A. Barth, J. Lubchenco, A. Kirincich and B.A. Menge at Oregon State University, H. Weeks with the Oregon Department of Fish and Wildlife, and Peterson.

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On the Web:

NOAA Fisheries Service: <http://www.nmfs.noaa.gov>