

CLIMATE NEWS

From Sheldon Whitehouse, Barbara Boxer, and Jeff Merkley

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Vital Part of Food Web Dissolving in the Pacific



New NOAA research published in *Proceedings of the Royal Society B* found that tiny sea snails called pteropods are being dissolved by Pacific Ocean waters that have been made more acidic by carbon dioxide emissions. This research is the broadest and most detailed indication ever that ocean acidification is already damaging native creatures in the wild. It raises many new questions about whether other sea life might also already be harmed—directly by acidifying seas, or by shifts in parts of the food chain. “These changes are happening years earlier than we had projected,” said lead author Dr. Nina Bednarsek. “It is really a first indication of what is going on in our ecosystem.” The oceans absorb about a quarter of human-caused carbon emissions, which makes marine water more acidic. That change reduces the availability of carbonate ions, which creatures like oysters, mussels, and pteropods need to build their shells. Herring, mackerel, and some seabirds eat pteropods. In the open ocean, some small fish, squid, and large shrimp eat them, too. Some of those animals then become important in the diet of tuna, salmon, and Alaska pollock, the centerpiece of a \$1 billion fishing industry based in Seattle and Alaska. (*Seattle Times/rspb.2014.0123*)

Climate Change Is Harming Economy, New Report Says

According to the third National Climate Assessment (NCA), climate change is already disrupting Americans’ way of life and damaging the U.S. economy as extreme weather brings flooding, droughts, and other disasters to every region in the country. The NCA, produced by more than 300 experts overseen by a panel of 60 scientists, concludes that the nation has already suffered billions of dollars of damage from severe weather-related disruptions, which will continue to get worse. “This national climate assessment is the loudest and clearest alarm bell to date signaling the need to take urgent action,” said Dr. John Holdren, assistant to the president for science and technology. It details the effects of climate change on every U.S. state and every sector of the economy, from rapidly receding ice in Alaska to heat waves and coastal flooding in the Northeast. Rising seas in the South put major cities like Miami at risk, the report says. The last NCA, released in 2009, said generally that climate change is affecting the country. The new report, released Tuesday, explains how climate change could hurt sectors of the economy such as transportation and force local populations to relocate. (*Wall Street Journal*)

Atmospheric CO₂ above Record Level Every Day in April

For the first time in human history and likely for the first time in at least 800,000 years, the average level of carbon dioxide (CO₂) in Earth’s atmosphere topped 400 parts per million (ppm) for an entire month. The Scripps Institution of Oceanography in San Diego reported that April’s average CO₂ value was 401.33 ppm, and each day in April had a reading above 400 ppm. The “Keeling curve,” started in the late 1950s on Hawaii’s Mauna Loa volcano and overseen by Scripps, is the longest continuous record of CO₂ measurements. Curve manager Dr. Ralph Keeling said the measurements at Mauna Loa are representative of the level of CO₂ around the world. Increasing amounts of CO₂ and other gases are enhancing the natural “greenhouse effect,” causing the planet to warm to levels that climate scientists say can’t be linked to natural forces. CO₂ levels were about 280 ppm before the Industrial Revolution, when humans first began releasing large amounts into the atmosphere by burning fossil fuels. When Keeling’s father Charles began the measurements in 1958, CO₂ was 316 ppm. Records of past CO₂ levels are found in old air samples preserved as bubbles in the Antarctic ice sheet. (*USA Today*)

Air Pollution Levels Could Rise Dramatically as Climate Warms

As the climate warms and temperatures rise, concentrations of lung-irritating ground-level ozone could increase significantly in the next four decades, according to new research from the National Center for Atmospheric Research (NCAR). The study, published in the *Journal of Geophysical Research-Atmospheres*, forecasts this spike in ozone pollution levels by 2050 across the U.S. if current emissions of ozone-forming pollutants persist. Ground-level ozone forms when nitrogen oxides from tailpipes, smokestacks, and other sources mix in the sunlight and heat with volatile organic compounds emitted from numerous sources, including trees. At high concentrations, ozone can trigger asthma attacks and inflame the conditions of those with bronchitis, emphysema, and other respiratory diseases. “It doesn’t matter where you are in the United States—climate change has the potential to make your air worse,” said lead author Dr. Gabriele Pfister. “A warming planet doesn’t just mean rising temperatures, it also means risking more summertime pollution and the health impacts that come with it.” (*Greenwire/2013JD020932*) *Shelby*