

# Scientists warn of 'deadly trio' risk to ailing oceans

October 3 2013, by Mariette Le Roux

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Buildings are seen near the ocean as on March 14, 2012 in North Miami, Florida.

Marine scientists warned Thursday that our oceans are declining more rapidly than previously thought—becoming ever warmer and more acidic and losing oxygen at an alarming rate.

"We have been taking the [ocean](#) for granted," states a report that warns

of a "deadly trio" of [ocean warming](#), acidification, and [oxygen](#) loss.

"We are... exposing organisms to intolerable evolutionary pressure," it said. "The next mass (species) extinction event may have already begun."

The scientific review by the International Programme on the State of the Ocean (IPSO) and the International Union for the Conservation of Nature cautioned of unprecedented ocean acidification as humans keep burning oil and coal and pump out carbon dioxide (CO<sub>2</sub>)—about a third of which is absorbed by the sea.

Today's rate of carbon release, about 30 gigatonnes of CO<sub>2</sub> per year, was at least 10 times faster than that which preceded the last major species extinction on Earth about 55 million years ago, it said.

The level of [ocean acidification](#) is unparalleled in at least 300 million years, said the review released just a week after the UN's Intergovernmental Panel on Climate Change said the ocean was absorbing more than 90 percent of the heat trapped on Earth by greenhouse gas emissions.

The new report said the average upper ocean temperature has increased by 0.6 degrees Celsius (1.08 deg Fahrenheit) over the last 100 years. Further warming will likely cause the disappearance of Arctic summer sea ice, further oxygen depletion and the release of Earth-warming methane trapped in the Arctic seabed.

It also warned of a fast drop in dissolved oxygen in seawater—with predictions of a 1-7 percent decline by 2100 caused by the effects of [global warming](#) and nutrient runoff into the sea from agricultural fertilisers and sewage.

"It is the simultaneous occurrence of the 'deadly trio' of [acidification](#),

warming and deoxygenation that is seriously affecting how productive and efficient the ocean is," said a summary of the reports that make up the review.

"Many organisms will find themselves in unsuitable environments" as the water consistency changes, the number of oxygen-poor "dead zones" increase and coral reefs die off.

This is all happening in marine ecosystems already damaged by human activities like overfishing and pollution, said the document.

Its authors propose urgent interventions: reducing Earth-warming [greenhouse gas emissions](#) to make sure we contain the global temperature rise to 2.0 C (3.6 F) over pre-Industrial Revolution levels—a UN target that seems ever more out of reach.

They also called for the elimination of harmful fishing subsidies that drive overexploitation, and banning destructive fishing practices like bottom-trawling that indiscriminately damage the ocean floor and the creatures that live there.

The ocean covers nearly three quarters of the Earth's surface, provides about half of the oxygen we breathe and feeds billions of people every year.

"The health of the ocean is spiralling downwards far more rapidly than we had thought," IPSO scientific director Alex Rogers said of the review.

"We are seeing greater change, happening faster, and the effects are more imminent than previously anticipated. The situation should be of the gravest concern to everyone since everyone will be affected by changes in the ability of the ocean to support life on Earth."

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