

Oceans in distress foreshadow mass extinction

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Dying [coral reefs](#), biodiversity ravaged by [invasive species](#), expanding open-water "dead zones," toxic algae blooms, the massive depletion of big [fish stocks](#) -- all are accelerating, they said in a report compiled during an April meeting in Oxford of 27 of the world's top ocean experts.

Sponsored by the International Programme on the State of the Ocean

(IPSO), the review of recent science found that ocean health has declined further and faster than dire forecasts only a few years ago.

These symptoms, moreover, could be the harbinger of wider disruptions in the interlocking web of biological and [chemical interactions](#) that scientists now call the [Earth system](#).

All five mass extinctions of life on the planet, reaching back more than 500 million years, were preceded by many of the same conditions now afflicted the [ocean environment](#), they said.

"The results are shocking," said Alex Rogers, an Oxford professor who heads IPSO and co-authored the report. "We are looking at consequences for humankind that will impact in our lifetime."



A colourful variety of coral grow at Pink Beach off Komodo island. Pollution and global warming are pushing the world's oceans to the brink of a mass extinction of marine life unseen for tens of millions of years, a consortium of scientists warned.

Three main drivers are sickening the global marine environment, and all are a direct consequence of humans activity: global warming,

[acidification](#) and a dwindling level oxygen, a condition known as hypoxia.

Up to now, these and other impacts have been studied mainly in isolation. Only recently have scientists begun to understand how these forces interact.

"We have underestimated the overall risks, and that the whole of marine degradation is greater than the sum of its parts," Rogers said. "That degradation is now happening at a faster rate than predicted."

Indeed, the pace of change is tracking or has surpassed the worst-case scenarios laid out by the UN [Intergovernmental Panel on Climate Change](#) (IPCC) in its landmark 2007 report, according to the new assessment.

The chain reaction leading to increased acidification of the oceans begins with a massive influx of carbon into Earth's climate system.

Oceans act as a massive sponge, soaking up more than a quarter of the CO₂ humans pump into the atmosphere.

But when the sponge becomes too saturated, it can disrupt the delicately balanced ecosystems on which marine life -- and ultimately all life on Earth -- depends.



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"The rate at which carbon is being absorbed is already far greater now than during the last globally significant extinction of marine species 55 million years ago," when some 50 percent of deep-sea life was wiped out, the report said.

That event, called the Paleocene-Eocene Thermal Maximum, or PETM, may be an ancient dress rehearsal for future climate change that could be even more abrupt and more damaging, some scientists fear.

Pollution has also taken a heavy toll, rendering the oceans less resilient to climate change.

Runoff from nitrogen-rich fertiliser, killer microbes, and hormone-disrupting chemicals, for example, have all contributed to the mass die-off of corals, crucial not just for marine ecosystems but a lifeline for hundreds of millions of people too.

The harvesting up to 90 percent of some species of big fish and sharks, meanwhile, has hugely disrupted food chains throughout the ocean,

leading to explosive and imbalanced growth of algae, jellyfish and other "opportunistic" flora and fauna.

"We now face losing marine species and entire marine ecosystems, such as coral reefs, within a single generation," said Daniel Laffoley, head of the International Union for Conservation of Nature's (IUCN) World Commission on Protected Areas, and co-author of the report.

"And we are also probably the last generation that has enough time to deal with the problems," he told AFP by phone.

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