

Scientists call for urgent conservation of deep reefs, one of the planet's largest and least protected ecosystems

- New study finds very few deep reefs have any form of protection, and face a multitude of threats, set only to escalate in the near future.
- Deep reefs are found below 30m and have a larger geographic range than shallow reefs.
- Deep reefs are biological hotspots, essential for climate change resilience, ocean health and food security, and a refuge for ocean life threatened in shallow waters
- Ahead of the UN Biodiversity Conference, COP15, researchers call on policy makers to put in place specific actions and targets to protect deep reefs.

As world leaders, government negotiators, scientists and conservationists gather ahead of UN Biodiversity Conference, COP15, to agree a halt and reverse nature loss, an international team of marine scientists and conservationists have made an impassioned plea for the urgent conservation of deep reefs.

Their calls are based on a new study, recently published in the journal, *Conservation Letters*, led by scientists from Nekton, the Western Indian Ocean and University of Oxford. This confirms for the first time that deep reef habitats, notably in the Western Indian Ocean (WIO), are largely unprotected despite being under threat from a multitude of stressors, including overfishing, pollution, climate change and, in the near future, seabed mining.

Their calls follow COP27 in Egypt, where many scientists, politicians and campaigners concluded that the 1.5C climate goal died, signing the death warrant on the vast majority of shallow reefs.

Deep reefs (found >30 m) provide essential ecosystem services for climate change resilience, ocean health, food security whilst also acting as a refugia for organisms threatened in shallow water, including commercially important species. Despite this, deep reefs are barely protected, even though they have a larger geographic footprint than their shallower counterparts. Furthermore, the scarcity of fish in shallow waters combined with modern deep sea fishing technologies is resulting in deep reefs being increasingly exploited by coastal communities who need fish for their food security.

“We strongly encourage deep reefs to be included in conservation and sustainable management action to complement global targets, notably 30% protection of the global ocean by 2030” said the study’s lead author, Dr Paris Stefanoudis, a marine biologist at the University of Oxford’s Department of Biology and a Research Scientist at Nekton. “Deep reefs are critical to a healthy marine ecosystem and face similar threats from overfishing, pollution and climate change faced by the much-imperilled shallow reef system.”

Covering over 8% of the global ocean, the Western Indian Ocean is one of the least known, least protected, and most threatened marine regions of our planet. Shallow and deep coral reefs of the WIO are marine biodiversity hotspots with high numbers of species that are found nowhere else on Earth. They are essential to the region’s 100million people living within 100km of the coastline, including over three million people who are directly dependent on artisanal fishing for their

livelihoods. Population is projected to double over the next 30 years driving greater stressors on the ocean's biological capacity to support lives and livelihoods.

The scientific team has co-developed a new framework for conserving deep reefs including practical recommendations and specific actions for regional policy-makers, conservationists and scientists.

Ahead of the UN Biodiversity Conference, COP15, they urge policy makers to use the summit to agree to the following:

1. Highly protect 30% of ecosystems by 2030 ('30 by 30'), and include deep reefs in this target.
2. Conserve deep reef ecosystems and their resources by specifically including them in fishery regulations, marine protected areas, and marine spatial planning.
3. Extend current management efforts on shallow reefs to include deep reefs as these ecosystems are often connected.
4. Invest in foundational, fundamental, and applied research on deep reef biodiversity, ecosystem functioning and provided services.
5. Develop national, international, transnational cross-stakeholders collaborations to survey and conserve deep reefs in national and international (High Seas) waters

Co-author Melita Samoilys, CORDIO East Africa explains: "Our framework was jointly developed with a range of stakeholders from academia, research, management and government, and provides a list of actions across three themes: capacity, information collection, and information sharing. Given the scale of the issue, we have also identified which parties – such as funding agencies, government, Institutions or the research community - are needed to work together to realise those actions".

"To ensure a prosperous and resilient Western Indian Ocean, it is essential that deep reefs are no longer ignored by scientists and policy makers, and they must be specifically considered in conservation and management strategies", shared co-author Athur Tuda, Executive Director of the Western Indian Ocean Marine Science Association, WIOMSA.

"To halt and reverse nature loss, the UN Biodiversity Conference, COP15 must prioritise the conservation of unique ecosystems such as deep reefs, one of the least protected ecosystems on Earth" stated co-author Professor Lucy Woodall, Professor of Marine Biology at the University of Oxford, Nekton Principal Scientist, "We hope our recommendations and actions will be useful for decision makers in the WIO, be applied within the new Western Indian Ocean regional policy and provide the springboard for deep reefs to become protected across the global ocean", continued Professor Woodall.

Notes for Editors

The Publication

'Stakeholder-derived recommendations and actions to support deep-reef conservation in the Western Indian Ocean' co-authored by 18 scientists representing 18 different organisations including from South Africa, Tanzania, Seychelles, Kenya, Mozambique, UK and USA.

https://conbio.onlinelibrary.wiley.com/doi/epdf/10.1111/conl.12924?utm_source=google&utm_medium=paidsearch&utm_campaign=R3MR425&utm_content=LifeSciences

Video, photographic and infographic content: <https://nektonmission.org/about/press-news>

WIO Conservation Framework: The UNEP's Nairobi Convention provides the regional framework for governments, civil society and the private sector to strengthen the health and resilience of the Indian Ocean. At the Nairobi Convention's COP10 in November 2021, the WIO nations unanimously agreed to co-create an ambitious new regional ocean strategy and accompanying policies to support sustainable ocean development underpinned by science-based management. '*The Western Indian Ocean – Resilience & Prosperity Initiative*' (WIO-RPI), as it's known includes establishing a just, equitably designed and managed connected network of ecologically and culturally representative protected areas in national and international waters, complementing global targets. Nekton and University of Oxford scientists are the technical partners supporting the implementation of the WIO-RPI.

Deep Reefs: Deep reefs include mesophotic (30-150 m), rariphotic (150-300 m), and cold-water coral reefs (>300 m) and have a great geographic

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Nekton: Nekton works to accelerate the scientific exploration and conservation of the ocean for people and the planet. Nekton is an independent, not-for-profit research institute and is a UK registered charity. www.nektonmission.org

University of Oxford: Oxford University has been placed number 1 in the Times Higher Education World University Rankings for the seventh year running, and number 2 in the QS World Rankings 2022. At the heart of this success are the twin-pillars of our ground-breaking research and innovation and our distinctive educational offer. Oxford is world-famous for research and teaching excellence and home to some of the most talented people from across the globe. Our work helps the lives of millions, solving real-world problems through a huge network of partnerships and collaborations. The breadth and interdisciplinary nature of our research alongside our personalised approach to teaching sparks imaginative and inventive insights and solutions. Through its research commercialisation arm, Oxford University Innovation, Oxford is the highest university patent filer in the UK and is ranked first in the UK for university spinouts, having created more than 200 new companies since 1988. Over a third of these companies have been created in the past three years. The university is a catalyst for prosperity in Oxfordshire and the United Kingdom, contributing [£15.7 billion to the UK economy](#) in 2018/19, and supports more than 28,000 full time jobs.