

Study Identifies Reefs with Potential to Survive Climate Change's Impacts

Scientists identify reefs that, if protected from overfishing, pollution and other threats, may have the potential to revive marine ecosystems

New York – June 28, 2018 – A new study published in *Conservation Letters* identifies reefs globally that have the potential to survive the growing threat of climate change and to help revive degraded marine ecosystems if they are protected from other threats. Currently, coral reef ecosystems around the globe face near total loss by 2050. As climate change becomes the largest threat to the survival of reefs around the world, those identified in this coral reef climate-risk study point to areas where conservation efforts may have the greatest chance of succeeding over the long term.

The first research of its kind to create a global portfolio of coral reefs anticipating climate-risk:

The climate-risk study brought together leading scientists and conservation practitioners from around the world to identify reefs likely to be least vulnerable to climate change. The study can act as a foundation for developing and strengthening coral reef conservation efforts at a global scale, and opens up important opportunities for strategic planning that can reduce the risk of widespread collapse of reef ecosystems.

“Coral reefs are the source of income and food for hundreds of millions of people around the world, but without urgent action, reef ecosystems face widespread collapse,” said Antha Williams, head of environmental programs at Bloomberg Philanthropies, one of three funders of this research. “This climate-risk study for coral reefs represents an important first step in understanding the substantial opportunity for reef resilience that still exists, especially if we take action now to protect reefs from harmful threats including overfishing and pollution.”

The study used global datasets to create a profile of “risk” for each coral reef, including its past and projected future exposure to heat stress and storm damage. The study also examined which of those reefs were well-positioned to spread coral larvae to other degraded reefs, thus helping to regenerate those reefs in the future. It then used “Modern Portfolio Theory” – an approach primarily used in sophisticated financial analysis to reduce risk – to create a global selection of reefs that, collectively, have a higher chance of surviving climate change impacts and being able to help regenerate other reefs when the global threat of climate change is diminished.

“This welcome study, coming as it does during the International Year of the Reef, provides both a message of hope and a warning about coral reefs,” said Xavier Sticker, French Ambassador for Environment. “It identifies coral reefs in many parts of the world that may be able to resist or recover from the impacts of climate change, but it also challenges us to work at a global scale to protect the reefs before it is too late.”

The study cautions that action to protect the reefs from over-fishing, water pollution and other local threats is not a substitute for vigorous efforts at the global level to reduce the greenhouse gas emissions that drive climate change.

“The research uses an advanced tool borrowed from economics – Modern Portfolio Theory – in an unusual way: to prioritise the conservation of a robust suite of coral reefs with the best chance of giving this unique ecosystem a long-term future in the increasingly uncertain world that we have created,” said Professor Hugh Possingham, Chief Scientist, The Nature Conservancy.

“I remain optimistic that a strategic, climate smart approach to conservation can help identify and protect reefs in regions around the world, so that they have a chance to rebound in the future,” said Ove Hoegh-Guldberg, Director of the Global Change Institute and Professor of Marine Science at the University of Queensland, who helped lead this work. “But we will ultimately succeed only if current

efforts to combat climate change are also accelerated, so that we can give coral reefs a fighting chance to survive.”

Conservation recommendations based on the climate-risk study:

A conservation team led by the Wildlife Conservation Society is undertaking the process of evaluating new and existing reef conservation approaches, building on lessons learned from across the coral reef conservation community. The aim will be to create an evidence-based package of strategies that could be used to achieve effective, long-term protection of coral reefs in the face of the inevitable impacts of climate change. Strategies will vary substantially, depending upon the current state of the reef, the protections already in place, and the local context, and may include new approaches to financing reef protection through trusts or insurance, enforcing marine protected areas and working with local government.

"The global impact from climate change continues to decimate the planet's reefs on an unprecedented scale," said Cristian Samper, CEO of the Wildlife Conservation Society. "These findings present evidence for optimism for people and reefs. While the global climate stress is immense, it is not the same for all reefs. We need a portfolio of reefs that provide a far greater likelihood of survival through both short and longer-term climate shocks. Having worked in coral reef conservation science and conservation for nearly a century, WCS is enthusiastic to incorporate these findings into our global conservation strategy, protecting habitat, improving water quality and promoting sustainable fisheries."

The results of this climate-risk study for coral reefs mark the climax of the 50 Reefs Initiative, a partnership between Bloomberg Philanthropies, The Tiffany & Co. Foundation, and Paul G. Allen Philanthropies. The partnership was established in 2017 with the ambitious goal of identifying a global portfolio of coral reefs with a good chance of both surviving the impacts of climate change and being able to help repopulate neighboring reefs. The funders, and the conservation community, are encouraged that the study actually identified a greater number of reefs than they originally anticipated.

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