'Wave reserves' may help ensure conservation of ecologically valuable coastal areas

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Scientists at the University of Portsmouth believe a strategy used to protect popular surfing spots could now be more widely adopted to help preserve endangered coastal environments.

A new research paper, published this week in *Trends in Ecology & Evolution*, says "wave reserves," initially aimed at protecting treasured surf spots, are also a way to ensure the conservation of ecologically valuable coastal areas.

The concept of wave reserves has gained popularity over the past few decades. The first wave reserve was established in Bells Beach, Australia in 1973 by surfers keen to defend their prized waves from damaging human activity. But it is especially since the beginning of the 2000s that the surfing community has established dozens of wave reserves around the world.

Waves can be affected by any number of factors such as the dredging of the seabed, building of dikes, changes in sediment regime and ocean acidification. The strategy has been so successful that in some locations there are now several large wave reserves being planned, with support from international NGOs such as Save The Waves.

The research from the University of Portsmouth finds this approach could help low and middle-income countries achieve global sustainability goals. Waves are not just important to surfers, they are also a vital part of the marine ecosystem. Waves play an active role in the gas exchange between the ocean and the atmosphere and in the movement of sediments. They also provide a favorable living environment for many aquatic species.

During the last 20 years the creation of wave reserves as a measure to preserve sports and recreational activities has aligned with initiatives to conserve the coastal environment. What is emerging is a win-win situation.

Academics believe a desire for corporations to put money behind surfing projects could also be a useful funding stream that benefits the coastal

environment. The growing surf market, and its adoption as an Olympic sport could help generate significant revenues for conservation.

Gregoire Touron-Gardic, from the Centre for Blue Governance at the University of Portsmouth, says: "What is new and exciting—in addition to seeing increasingly large reserves and with legal protection statuses—is the private sector is now interested in wave reserve projects. We are now seeing sports, cosmetics and drinks brands finance international ocean conservation programs. Brands wish to be associated with responsible ecological and social projects, whilst benefiting from the image of surfing."

Touron-Gardic predicts wave reserves will become a popular tool of coastal conservation in countries recognized as surfing destinations, such as the Maldives, Indonesia, Costa Rica, Fiji and Chile. The reserves make it possible to combine preservation of the coastal environment, local economic prosperity and human well-being.

Professor Pierre Failler, Director of the Centre for Blue Governance, University of Portsmouth says, "The potential impact of wave reserves on the future of sustainable ocean management is huge. Wave reserves can become the foundation for an environmental approach to sport tourism. When large enough, wave reserves will allow low- and middle-income countries to increase their relatively weak area-based conservation systems at a lower cost, and therefore progress in achieving their international commitments such as the UN Sustainable Development Goals."

Professor Failler, who is also UNESCO Chair in Ocean Governance, says: "It is achievable and accessible initiatives like these that will help improve the governance of the world's oceans. There are many challenges to overcome during the UN Decade of Ocean Sciences for Sustainable Development and collaboration is key to safeguarding the

future of our oceans."

More information: Grégoire Touron-Gardic et al, A bright future for wave reserves?, *Trends in Ecology & Evolution* (2022). DOI: 10.1016/j.tree.2022.02.006

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