



Gordon, T., Radford, A. N., Simpson, S. D., & Meekan, M. (2020). Marine restoration projects are undervalued. *Science*, *367*(6478), 635 - 636. https://doi.org/10.1126/science.aba9141

Peer reviewed version

Link to published version (if available): 10.1126/science.aba9141

Link to publication record on the Bristol Research Portal PDF-document

This is the author accepted manuscript (AAM). The final published version (version of record) is available online via [insert publisher name] at [insert hyperlink]. Please refer to any applicable terms of use of the publisher.

University of Bristol – Bristol Research Portal General rights

This document is made available in accordance with publisher policies. Please cite only the published version using the reference above. Full terms of use are available: http://www.bristol.ac.uk/red/research-policy/pure/user-guides/brp-terms/

Marine restoration projects are undervalued

Coral reefs, mangroves, and seagrass beds support the livelihoods of many millions of people worldwide. These ecosystems are rapidly degrading, leading governments and foundations to dedicate billions of dollars to their active restoration. Such initiatives are often criticized for being too small in scope and too expensive to combat the extent of anthropogenic threats driving habitat loss [e.g., (1, 2)]. However, this criticism undervalues key attributes of restoration projects that are not contingent on spatial scale.

Restoration accelerates the recovery of biological communities at local scales. Although restored habitats remain vulnerable to subsequent disturbance events, their biodiversity has the potential to increase ecosystem resilience of larger areas by providing seed material for recovery (3). Restoration can also counter the economic, socio-cultural, and psychological impacts of habitat degradation for local communities (4), even if techniques are too expensive to upscale globally. The pessimistic view of marine restoration as a fruitless exercise differs from attitudes about the rehabilitation of forest habitats that suffer equivalent large-scale degradation. Generally, socioeconomic, ecological, and cultural values are appreciated in tree planting, whether it involves a few saplings or millions (5, 6).

Political agreements for global reductions in atmospheric carbon have been slow to emerge. Relying on their implementation as the only solution to the degradation of tropical habitats is a major gamble. In the meantime, restoration projects could help maintain species survival and ecosystem services, ultimately providing humanity with the breathing space to stabilize the climate.

> Timothy A. C. Gordon^{1,2}*, Andrew N. Radford³, Stephen D. Simpson¹, Mark G.

¹University of Exeter, Exeter EX4 4PS, UK. ²Australian Institute of Marine Science, Perth, WA 6009, Australia. ³University of Bristol, Bristol BS8

*Corresponding author. Email: tg333@exeter.ac.uk

REFERENCES AND NOTES

1. T. P. Hughes et al., Nature 546, 82 (2017).

2.D. R. Bellwood et al., Biol. Conserv. 236, 604 (2019).

3. E. S. Darling, I. M. Côté, Science 359, 986 (2018).

4.M. Y. Hein et al., Biol. Conserv. 239, 14 (2019).

5. K. D. Holl, Science 355, 455 (2017).

6.W. D. Newmark et al., Proc. Natl. Acad. Sci. U.S.A. 114, 9635 (2017).

10.1126/science.aba9141