

Letter to *Science* – Tropical marine restoration projects are undervalued arks of survival

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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 criticised for being too small in scope and too expensive to combat the extent of anthropogenic threats driving habitat loss (e.g. 1, 2).

We argue that 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). Additionally, restoration can 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 contrasts with very different attitudes to the rehabilitation of forest habitats that suffer equivalent large-scale degradation. Generally, socioeconomic and ecological 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 provide refugia to maintain species survival and ecosystem services, ultimately providing humanity with the breathing space to stabilise the climate. To aid the recovery of tropical marine ecosystems facing extinction, we need to build arks.

References

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