

Published on *OpenChannels* (<https://www.openchannels.org>)

MPA Science Corner: Blue Economy - Coral bleaching - Effectiveness of community-based MPAs - MPAs in Oceania - MPA targets - Large-scale MPAs

These recent articles or preprints on MPA-related science and policy are all free to access.

Preprint: Voyer, M., et al. Shades of blue: what do competing interpretations of the Blue Economy mean for oceans governance? *Journal of Environmental Policy & Planning* 20, 595 - 616 (2018).

Finding: This paper examines different interpretations and applications of the term *blue economy*, in which oceans are viewed variously as a source of natural capital; as opportunities for poverty reduction; or as the basis for major maritime industry sectors. Areas of consensus and conflict in these definitions are explored.

Article: Jackson, R., Gabric, A. & Cropp, R. Effects of ocean warming and coral bleaching on aerosol emissions in the Great Barrier Reef, Australia. *Scientific Reports* 8, (2018).

Finding: When Great Barrier Reef coral reefs are stressed by heat, they release volatile sulfur compounds that help them cope with stress. These compounds contribute substantial aerosols to the atmosphere, which acts as a natural, biological ocean thermostat, changing atmospheric conditions so as to lower heat stress. But there seems to be tipping point. As sea temperatures rise, corals may be losing this ability to form these climate-moderating emissions.

Preprint: Smallhorn-West, P. F., Bridge, T. C. L., Malimali, S., Pressey, R. L. & Jones, G. P. Predicting impact to assess the efficacy of community-based marine reserve design. *Conservation Letters* e12602 (2018). doi:10.1111/conl.12602

Finding: In Tonga, no-take marine reserves designed with, and managed by, local communities are predicted to achieve a conservation impact – i.e., increased target species biomass – that is nearly as great as reserves designed to maximize conservation impact. (The community-based MPAs are projected to achieve 84% of potential recovery, compared to 100% for systematically designed sites.) The result suggests that community-based marine management can be highly effective, in this case because reserves are located near villages that exert fishing pressure.

Preprint: Friedlander, A. M. Marine conservation in Oceania: Past, present, and future. *Marine Pollution Bulletin* 135, 139 - 149 (2018).

Finding: In Oceania, there is a resurgence of ocean management that incorporates customary local practices and governance. This review explores how this renaissance has resulted in more effective management, but also requires hybrid approaches that incorporate elements of both modern and traditional practices.

Preprint: Smallhorn-West, P. & Govan, H. Towards reducing misrepresentation of national achievements in marine protected area targets. *Marine Policy* (2018) doi:10.1016/j.marpol.2018.05.031

Finding: In the World Database on Protected Areas – which tracks progress toward achieving the Convention on Biological Diversity's Aichi Target for marine protection by 2020 – MPA coverage for the Pacific Island nation of Tonga is misrepresented by two orders of magnitude, while MPA coverage for Kiribati is effectively double-counted. This case study highlights a larger-scale issue in ensuring accuracy and accountability in the WDPA data and also questions the wisdom of using protected area coverage as a metric.

Preprint: Nikitine, J., Wilson, A. M. W. & Dawson, T. P. Developing a framework for the efficient design and management of

large scale marine protected areas. Marine Policy 94, 196 - 203 (2018).

Finding: The 840,000-km² Pitcairn Islands Marine Reserve, designated by the UK in September 2016, is examined as a case study in the effective design and management of large-scale MPAs. The reserve is evaluated against 10 criteria, which could be adapted for other large-scale MPAs, and initial findings show its design to be satisfactory.

For a free, weekly list of the latest publications on ocean planning and management, including MPAs, [subscribe to the OpenChannels Literature Update here](#).

In addition, [OCTO](#) – the organization that produces MPA News and OpenChannels – also runs [MarXiv](#), the free research repository for marine conservation science and marine climate change science. Each week the MarXiv team produces [brief, one-page summaries of selected papers](#) in its repository for an audience of managers and policymakers. Share your research in MarXiv now and we may summarize your paper, too!

Source URL: <https://www.openchannels.org/news/mpa-news/mpa-science-corner-blue-economy-coral-bleaching-effectiveness-community-based-mpas#comment-0>