Reef Protection, Coral Restoration, and Responsible Diving: A Fijian perspective

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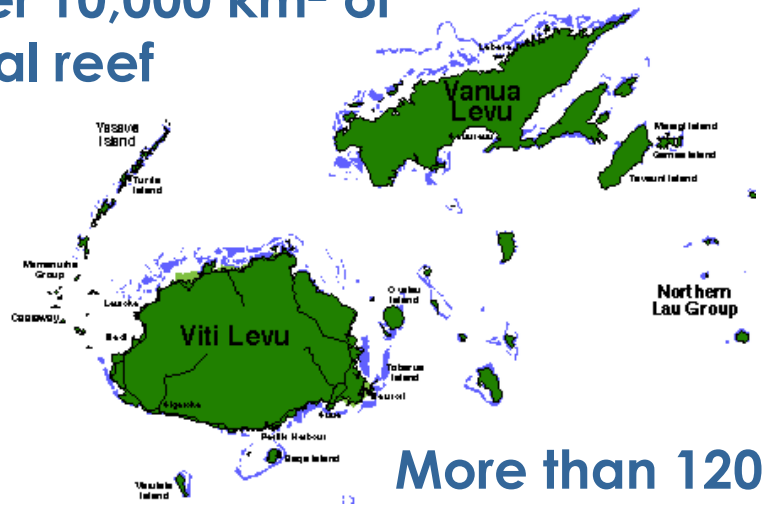
Over 10,000 km^2 of coral reef



More than 120 coastal resorts

GSTC
Global Sustainable Tourism Council

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Coral Restoration in Fiji

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- Most restoration projects in Fiji involve fragmentation and replanting of corals
- Most use branching *Acropora* and similar fast-growing “weedy” coral species

Coral fragments grown on tray tables and artificial reef substrate in Fiji

Rope and metal frame floating nurseries

Corals of several species growing in a rope nursery near Bolinao in the Philippines. Each colony started as small fragment (G. Levy).

A coral tree nursery in the Commonwealth of the Northern Mariana Islands. Credit: Pheona David, Division of Coastal Resources Management, CNMI.

A few sculpture parks have been proposed

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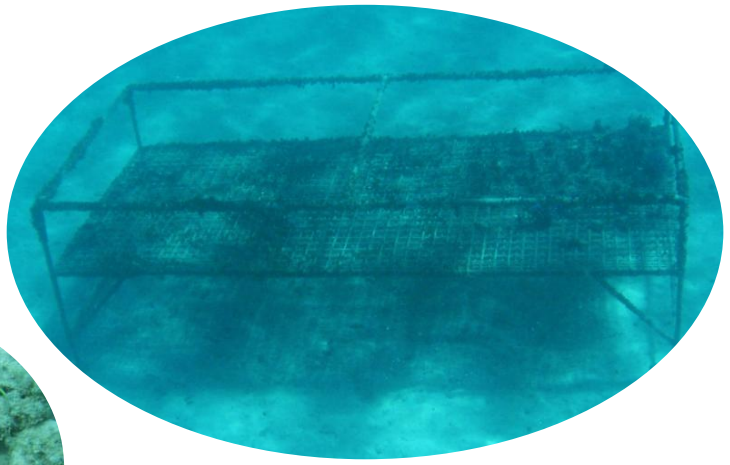
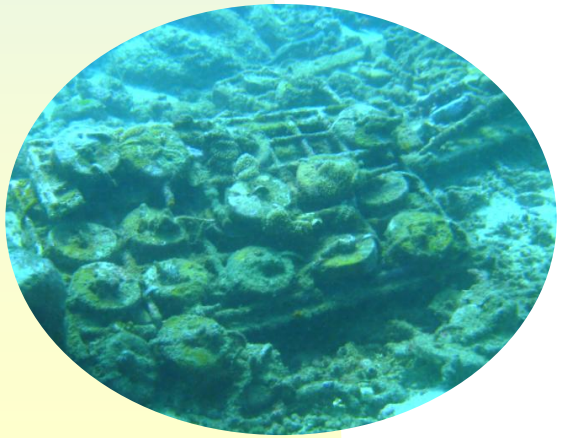
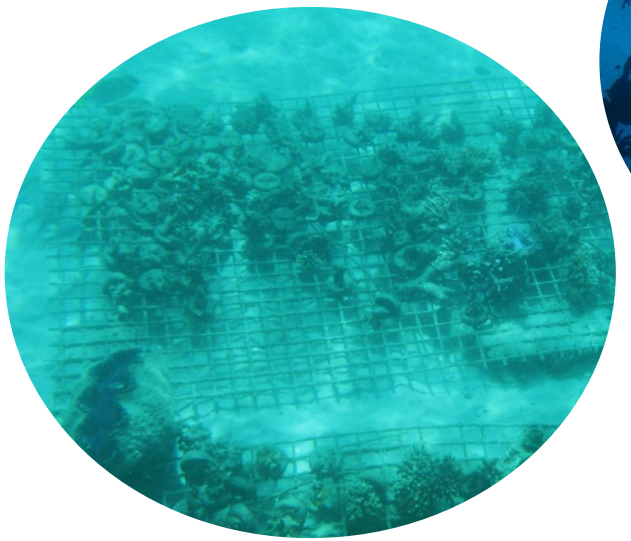
Coral Restoration: Why Some Projects Fail

- Breaking up healthy corals and planting them in **areas** where corals die
- Not addressing reasons **why** corals did not grow, or died in the first place
- Planting a **low diversity** of species
- No plan to remove **nursery gear** if projects fail

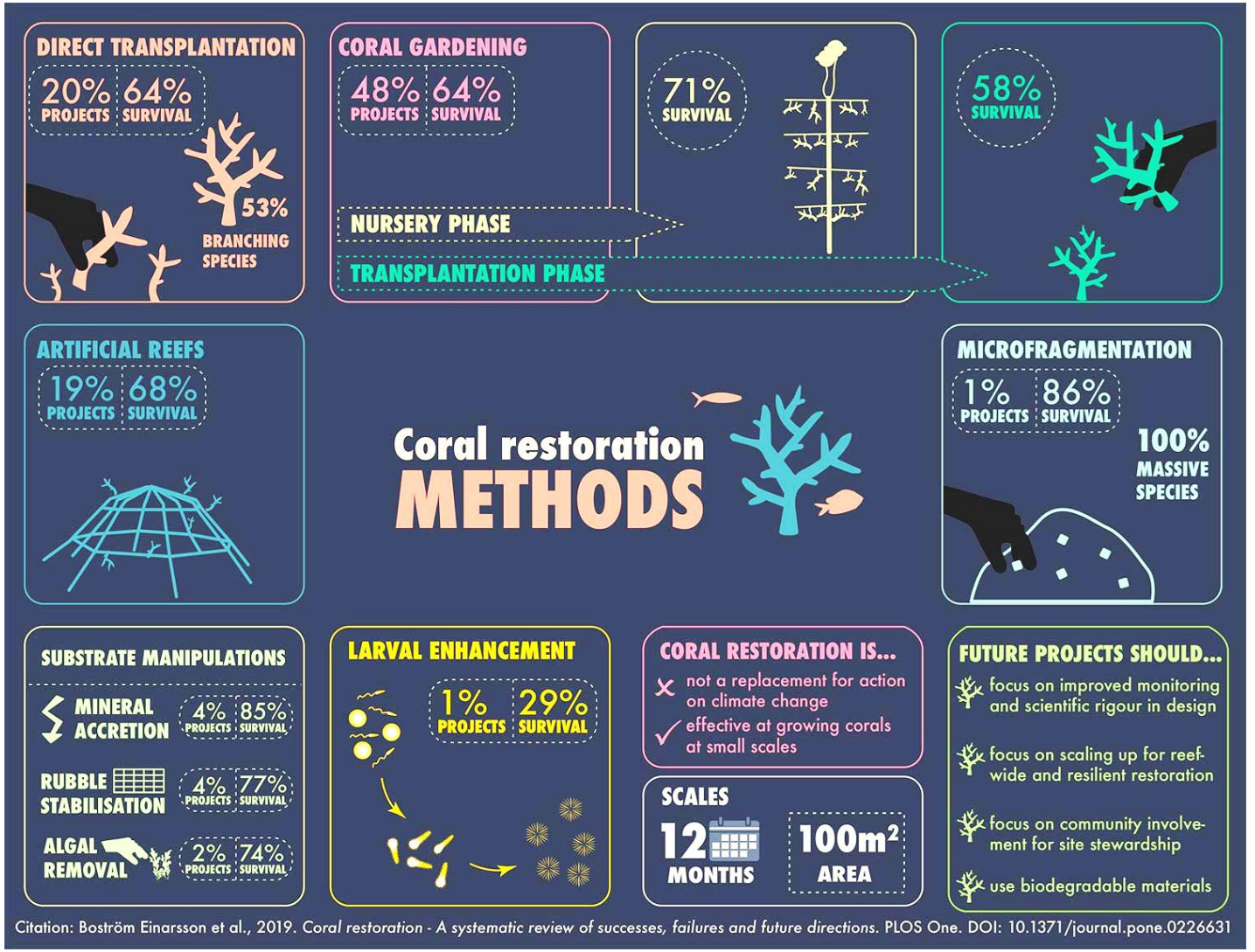






Yasawa Islands, Viti Levu & Taveuni

Coral Restoration Success Rates



Small Scale Restoration is Not Going to "Save the Reefs"

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CORAL RESTORATION IS...

- ✗ not a replacement for action on climate action
- ✓ effective at growing corals at small scales

FUTURE PROJECTS SHOULD...

- focus on improved monitoring and scientific rigour in design
- focus on scaling up for reed-wide and resilient restoration
- focus on community involvement for site stewardship
- use biodegradable materials

Coral restoration is a speculative, feel-good science that won't save our reefs

https://doi.org/10.1038/s41558-024-02063-6

Coral reefs deserve evidence-based management not heroic interference

Robert P. Streit, Tiffany H. Morrison & David R. Bellwood

Check for updates

nature ecology & evolution

Article

https://doi.org/10.1038/s41559-025-02667-x

Restoration cannot be scaled up globally to save reefs from loss and degradation

Received: 25 June 2024

Accepted: 18 February 2025

Clelia Mulà[1], Corey J. A. Bradshaw[2,3,4], Mar Cabeza[1], Federica Manca[1], Simone Montano[5,6] & Giovanni Strona[7]

Coral Restoration Future

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A project being piloted across the Pacific and projected for Fiji in the near future:

ReefSeed: portable aquaculture system

- Collection of coral larva at time of spawning and aquaculturing in near-site tanks before planting out.
- Increased biodiversity
- No broken “parent” corals
- Too high-tech for outer islands?
- Possibly located in tourism areas

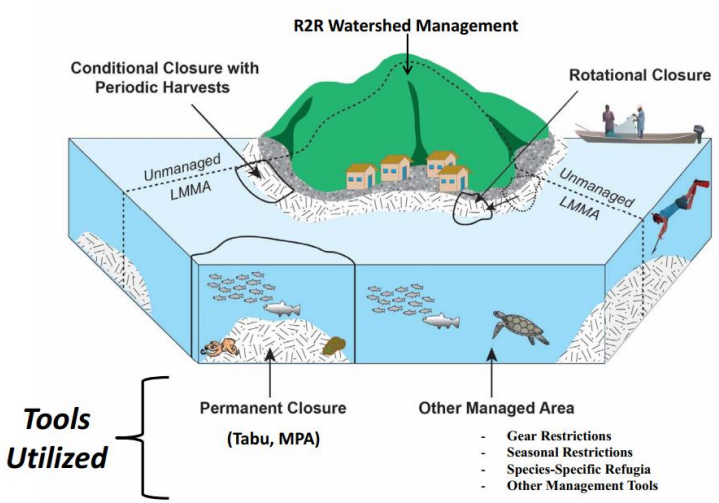
RRAP
REEF RESTORATION & ADAPTATION PROGRAM

Australian Government | Reef Trust | Great Barrier Reef Foundation | Australian Government | Australian Institute of Marine Science

CSIRO | James Cook University Australia | QUT | Southern Cross University | The University Of Queensland Australia

Alternatives: Reef Protection

- Traditional resource owners can create “Tabu” marine protected and locally managed areas by mutual agreement. More than 440 in Fiji, many over 20 years old.
- Tourism operators work with local resource owners to partner on marine conservation. More than 50 current agreements.
- Government can create legally recognised statutory marine reserves under the Fisheries Act. Fewer than 5 at present



Sykes H, Mangubhai S, Manley M (2018) Contribution of Marine Conservation Agreements to Biodiversity Protection, Fisheries Management and Sustainable Financing in Fiji. Report No. 02/18. Wildlife Conservation Society, Suva, Fiji. 98 pp.

Wildlife Conservation Society

https://fiji.wcs.org/Resources/Reports.aspx

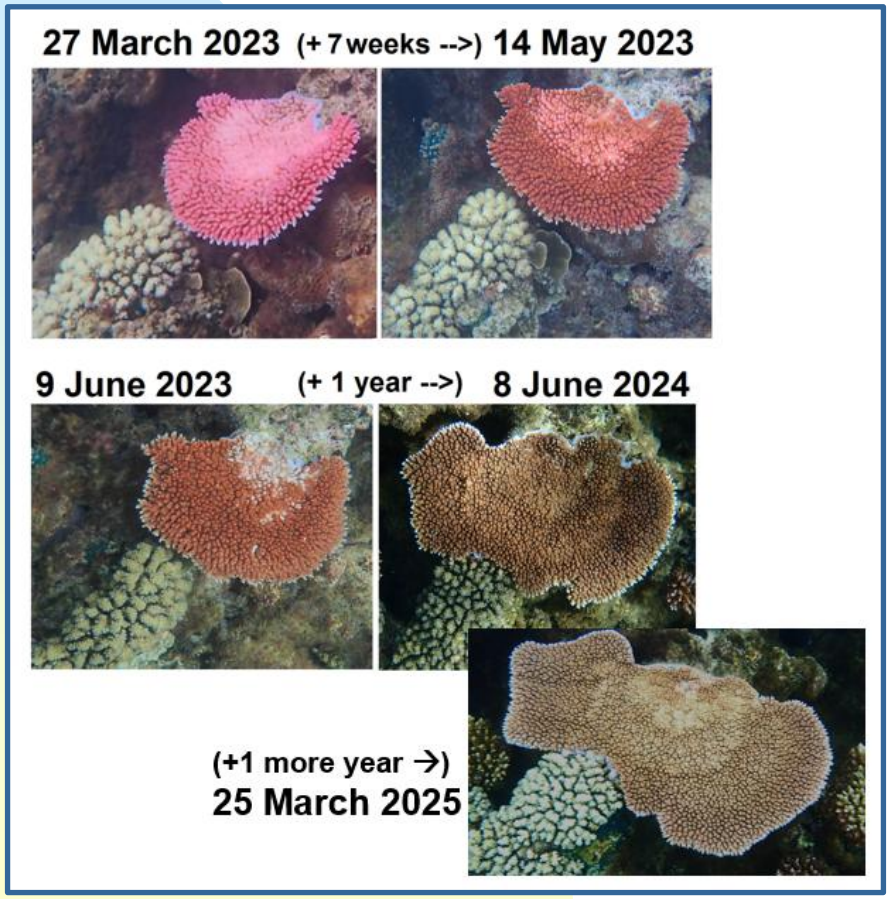
https://www.marineecologyfiji.com/category/publications/

[LEGAL NOTICE NO. 41]

FISHERIES ACT
(CAP. 158)

Fisheries (Shark Reef Marine Reserve) (Serua) Regulations 2014

Reef Protection and Coral Recovery



https://edition.cnn.com/2020/05/21/world/colorful-coral-bleaching-climate-scn/index.html
https://doi.org/10.1016/j.cub.2020.04.055

- Protection from fishing more herbivores
- More herbivores Less algae More coral settlement
- Bright corals adapting to heat stress
- More settlement higher survival of adapted corals

Responsible Diving and Tourism Contributes to Protection

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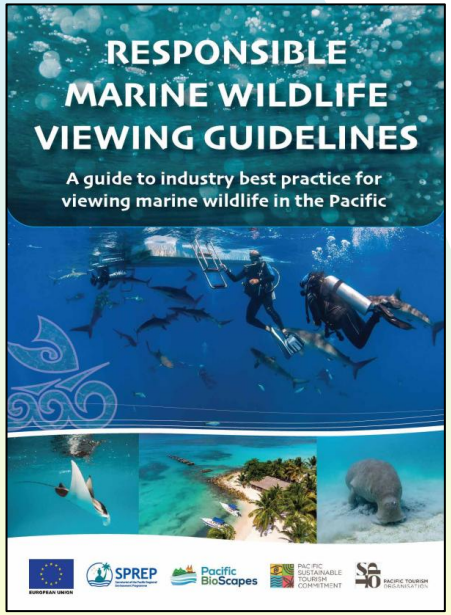
Wildlife Viewing Guidelines

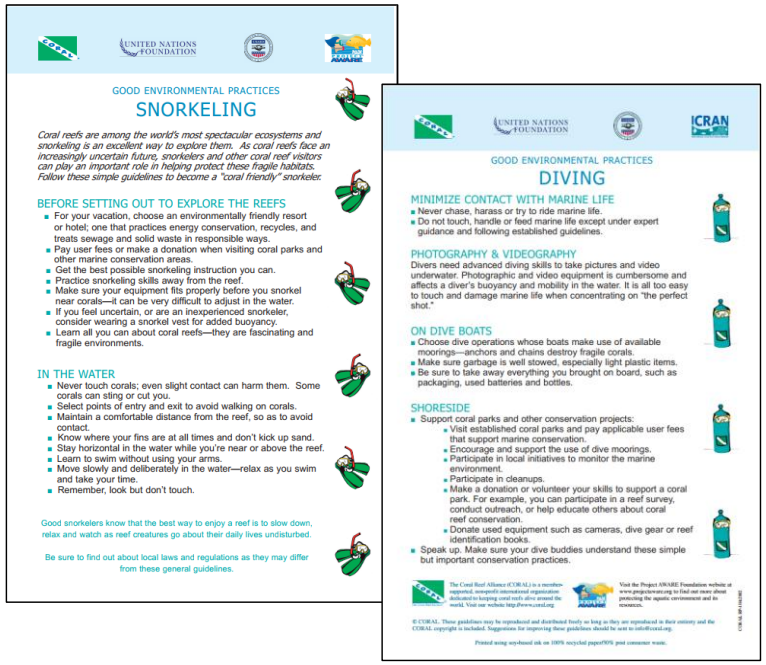


SPREP Library Cataloguing-in-publication data
Responsible marine wildlife viewing guidelines: a guide to industry best practice for viewing marine wildlife in the Pacific. Apia, Samoa : SPREP, 2024

Protected Area Rules and Financial Support

https://fiji.wcs.org/Resources.aspx

Briefings and Principles for Water Users



Coral.org

Lessons Learned in Fiji

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- Small scale coral restoration may not be scalable to the larger environment, and if subject to poor imitation of good practice, can actually contribute to coral mortality
- There is little point in planting coral if initial stress factors are not addressed
- Coral restoration projects must be well designed, well planned, well maintained and well monitored, and should address coral biodiversity as well as the amount of coral
- Measures should be in place to remove failed project structures and avoid “trashing” the reef
- In some areas corals will self-restore if stress factors are removed
- Protected areas are one way of removing certain stress factors, and can contribute to coral adaptation to climate change and to survivability of restored corals
- Education of, and support by, reef users such as divers, snorkellers, kayakers, paddle-boarder etc., can help to maintain protected areas, and is one way tourism can contribute to reef health

Vinaka vaka levu!

Note: All photo credits H Sykes except where stated.