# Challenges and Opportunities for Conservation in the South Pacific

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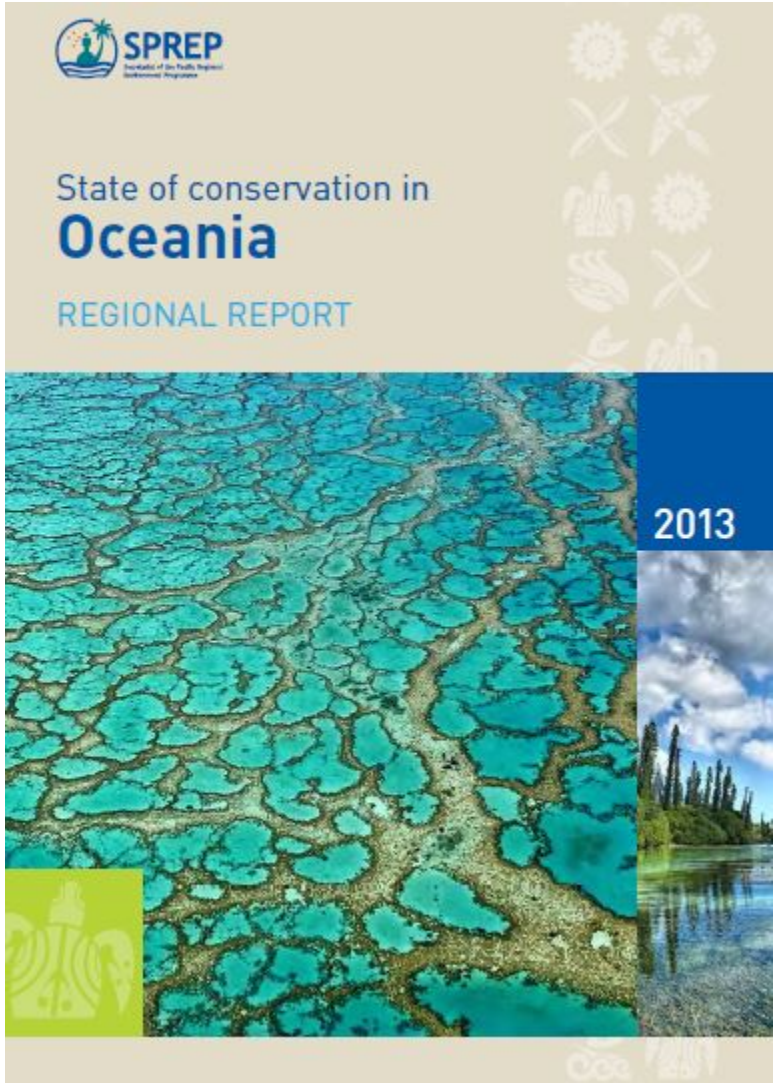
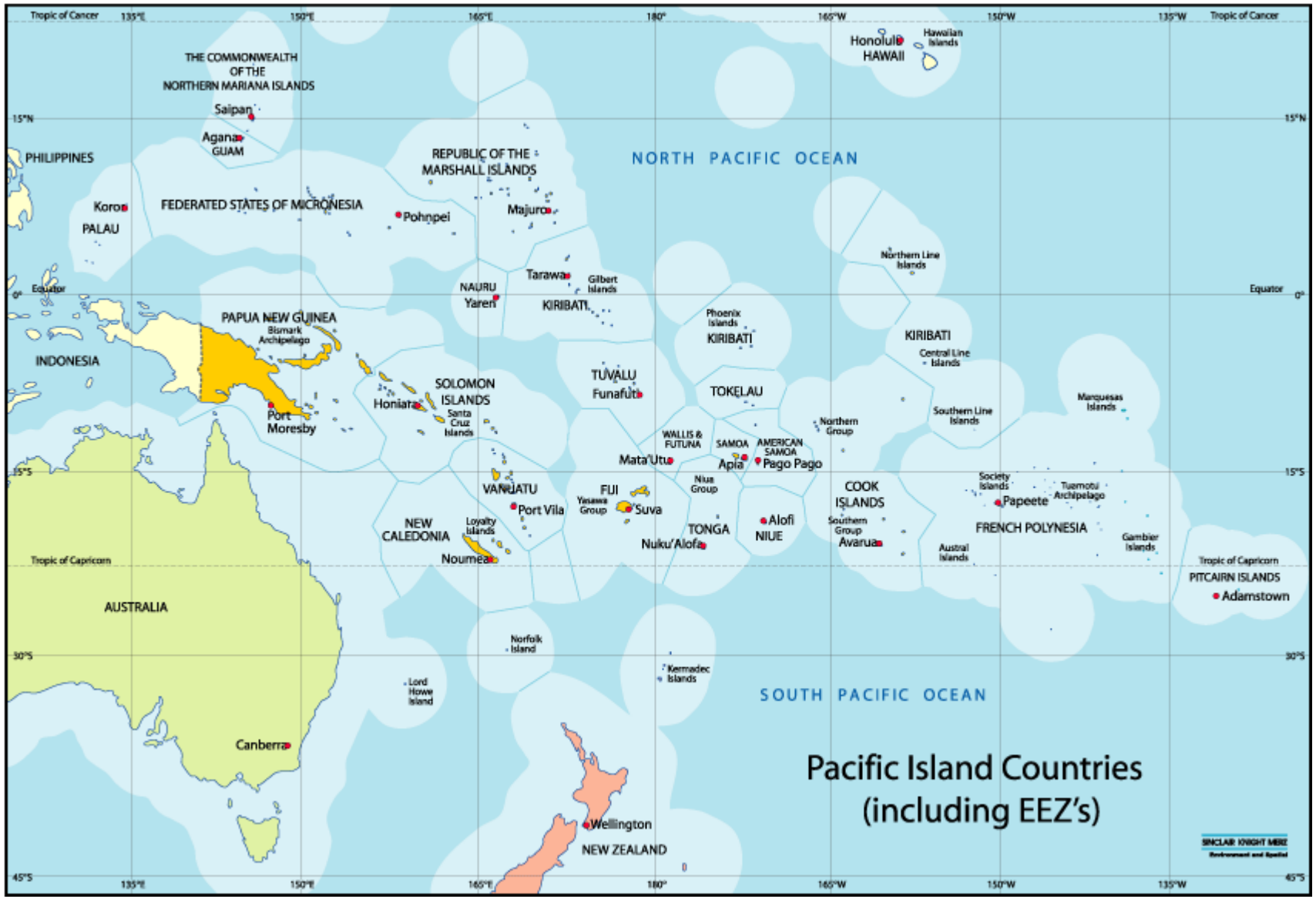
# Overview

Introduction the Pacific
Pressures and Threats
Ridge-to-Reef-Ocean Management
Innovations in Community Engagement
Opportunities – moving forward



# Big Ocean Countries



# Cultural Diversity Hotspot

# Pressures and Threats: Habitat Loss and Degradation

# Pressures and Threats: Invasive Species


Table 1.1 IAS observed in the Pacific Islands along with their impacts

| Invasive alien species | Impacts | Islands most affected |
|---|---|---|
| Brown tree snake | Extinction of almost all native and endemic birds and many bats and reptiles | Guam |
| Avian malaria, rats, mongooses, cats, pigs, goats, ants and predatory snails | Local extinction and population losses of birds, land snails and land crabs | Hawaii, French Polynesia and many other Pacific Islands |
| Taro leaf blight | Loss of almost all traditional taro varieties, at recurrent annual costs of millions of dollars | Samoa |
| Taro beetle | Devastation of taro, bananas, sweet potatoes and other crops | Solomon Islands, Kiribati and Fiji |
| Electric or little fire ant | Loss of endemic insects, birds, geckos and dogs and decreased farming and tourist numbers | New Caledonia, Hawai'i and Guam |
| Yellow crazy ant | Serious damage to native, agricultural and urban ecosystems | Hawai'i, Tokelau, Kiribati and other islands |
| Oriental fruit fly | Losses in export earnings and food security on over 30 economically important fruits and vegetables. (Unsuccessful attempts at fruit fly eradication have been carried out on Nauru and other islands at costs of millions of dollars) | Rarotonga and Aitutaki in the Cook Islands, Nauru and other islands |
| Introduced moths and wasps | Extinction of coastal *Cordia* and *Erythrina* trees that have for millennia protected coastlines and garden areas from erosion and salt incursion, two of the main threats from climate change and sea-level rise | Tuvalu, Hawaii and other islands |
| Asian subterranean termites | Millions of dollars of damage to housing and destroyed livelihoods, in addition to driving millions of dollars spent on control costs since the mid-2000s | Fiji |
| Green or American iguana | Deliberately introduced into Fiji, it threatens vegetation and the endemic Fiji iguanas | Fiji and four additional islands |

# Pressures and Threats: Overexploitation

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Planning the use of fish for food security in the Pacific

Johann D. Bell[a,*], Mecki Kronen[a], Aliti Vunisea[a], Warwick J. Nash[b], Gregory Keeble[a], Andreas Demmke[a], Scott Pontifex[a], Serge Andréfouët[c]

"Forecasts of the fish required in 2030 to meet recommended per capita fish consumption, or to maintain current consumption, indicate that even well-managed coastal fisheries will only be able to meet the demand in 6 of 22 PICTs."

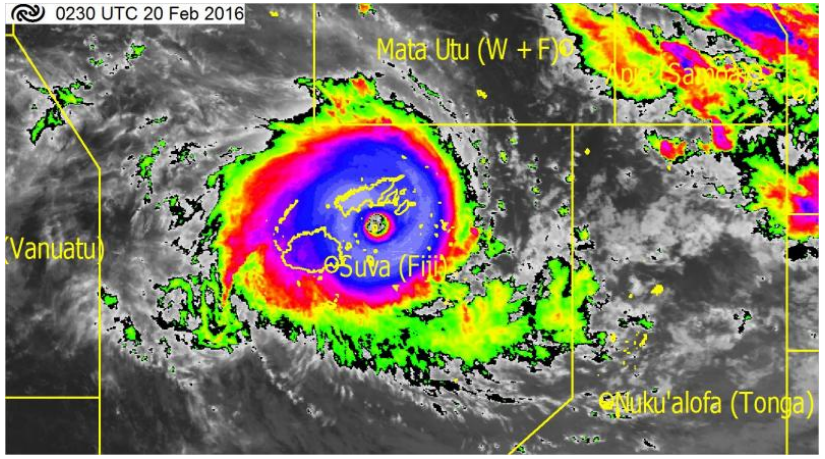
# Pressures and Threats: Pollution

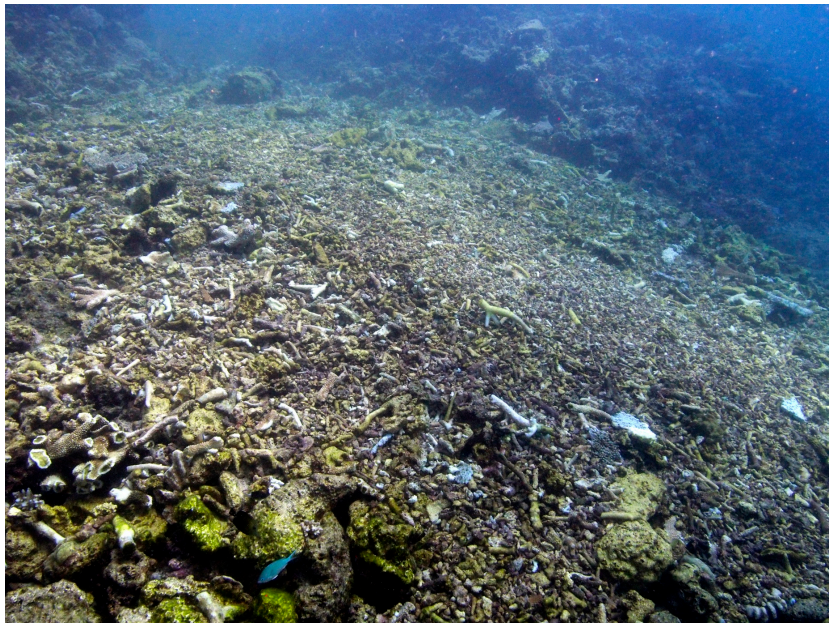
Great Pacific Garbage Patch. Art by Bonnie Monteleone

**“The world’s largest ‘waste dump’ is found in the Pacific Ocean” – Mongabay**

Tarawa Atoll, Kiribati © Sangeeta Mangubhai/WCS

# Pressures and Threats: Climate Change and Natural Disasters



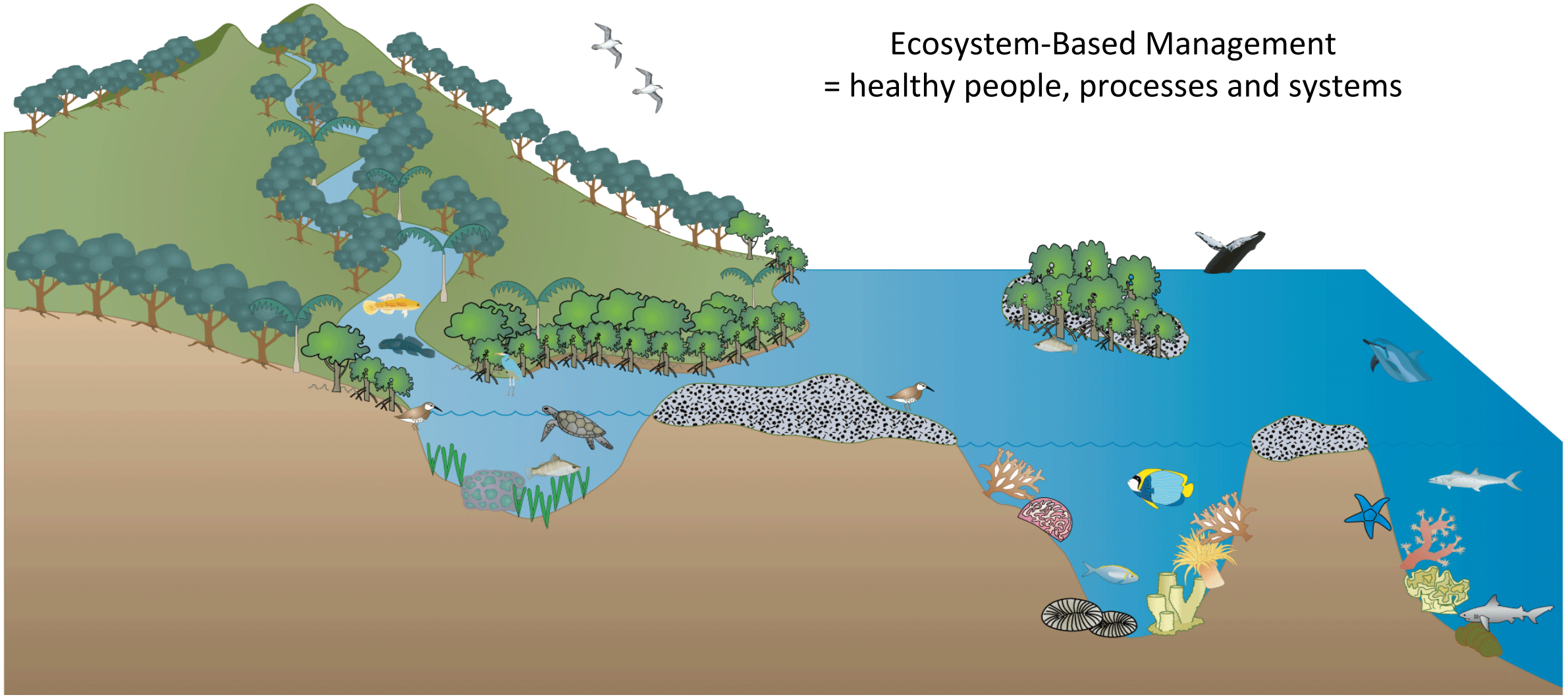
Damage to coral reefs from Cyclone Winston. ©Jack & Sue Drafahl

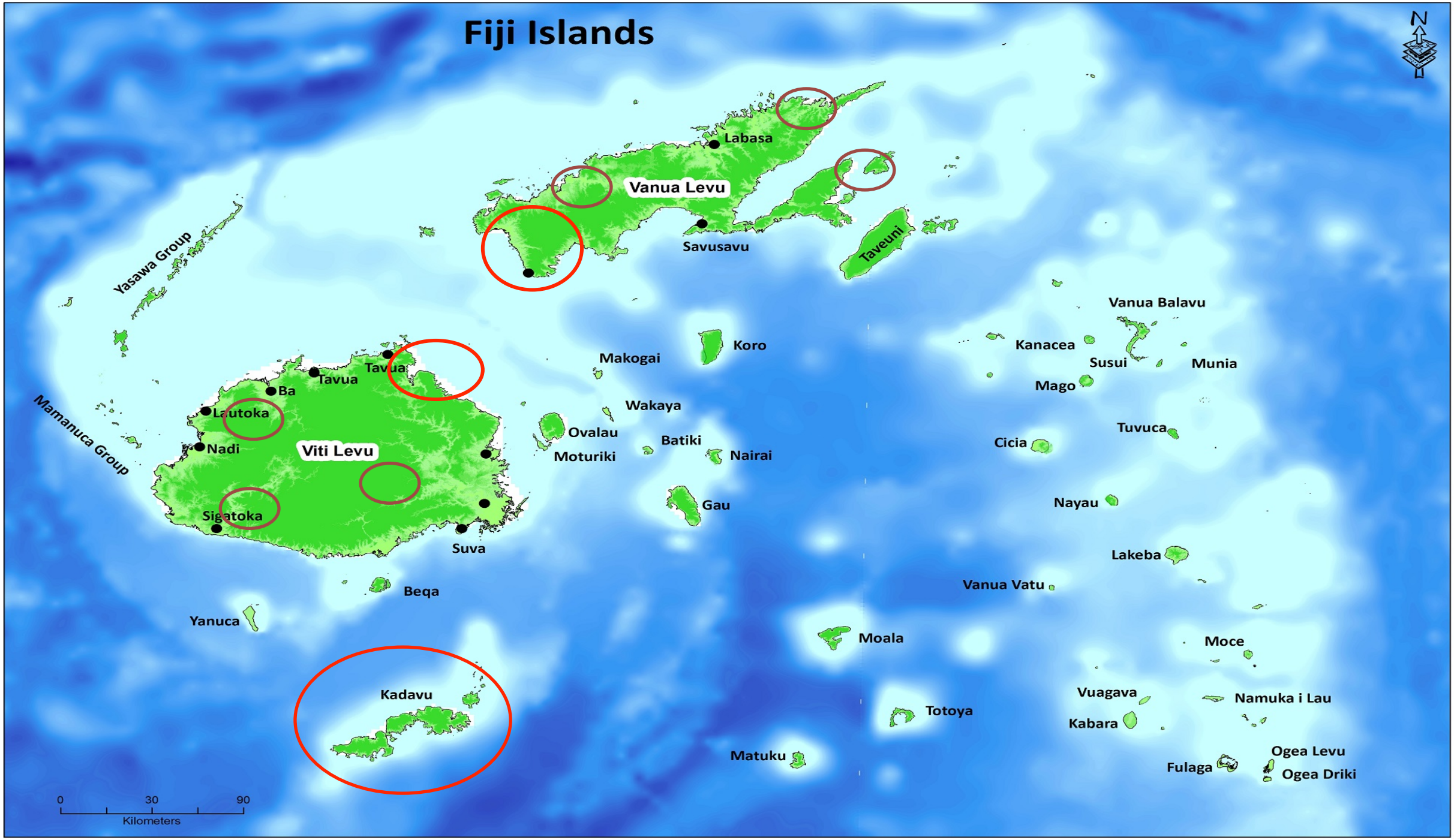
Damage to Local communities by Cyclone Winston, 16 February 2016. ©Fiji Times

# Conservation = Culture + People + Nature

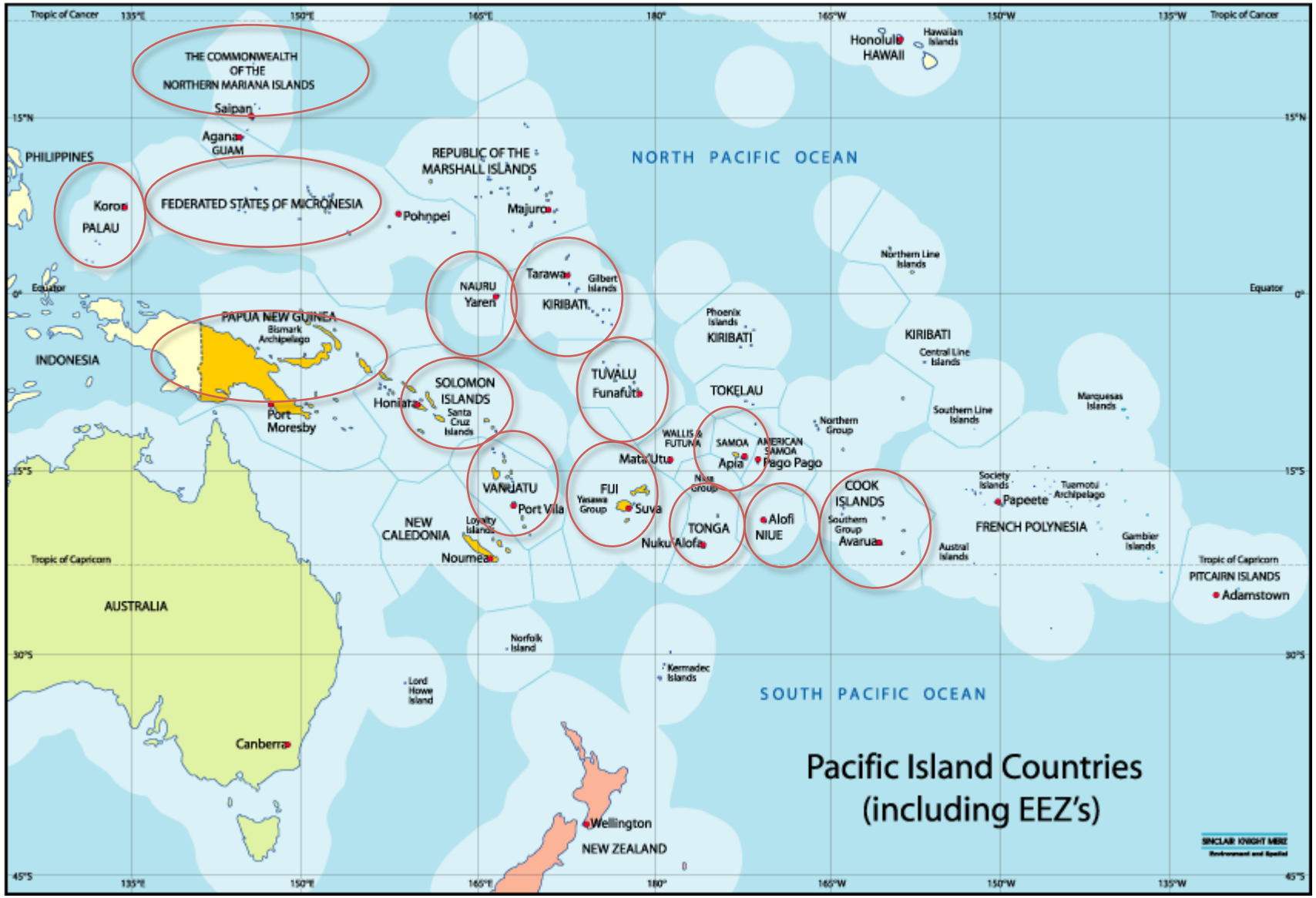
# Ridge-to-Reef-Ocean Management

Ecosystem-Based Management
= healthy people, processes and systems

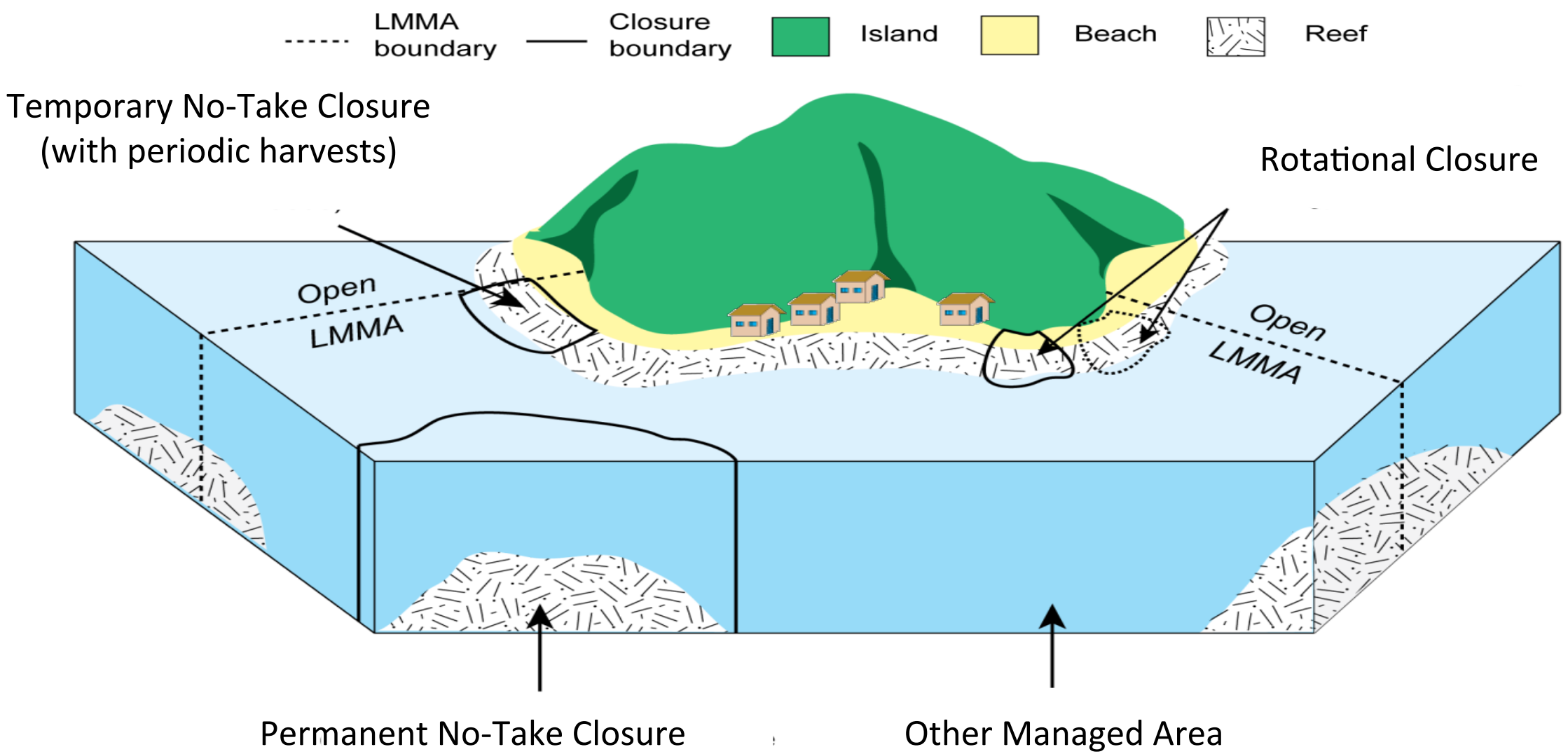



Fiji Islands
N
Labasa
Vanua Levu
Savusavu
Taveuni
Yasawa Group
Mamanuca Group
Tavua
Ba
Lautoka
Nadi
Viti Levu
Sigatoka
Suva
Beqa
Yanuca
Kadavu
Makogai
Koro
Wakaya
Ovalau
Moturiki
Batiki
Nairai
Gau
Vanua Balavu
Kanacea
Susui
Munia
Mago
Tuvuca
Cicia
Nayau
Lakeba
Vanua Vatu
Moala
Moce
Totoya
Vuagava
Namuka i Lau
Kabara
Matuku
Ogea Levu
Fulaga
Ogea Driki
0
30
90
Kilometers

# Big Ocean Countries



# Locally-Managed Marine Areas




*Source: Govan and Jupiter 2013*

# Locally-Managed Marine Areas

## Locally-managed marine areas: multiple objectives and diverse strategies

STACY D. JUPITER[1]*, PHILIPPA J. COHEN[2,3], REBECCA WEEKS[1,3], ALIFERETI TAWAKE[4,5] and HUGH GOVAN[5]

(Pacific Conservation Biology)

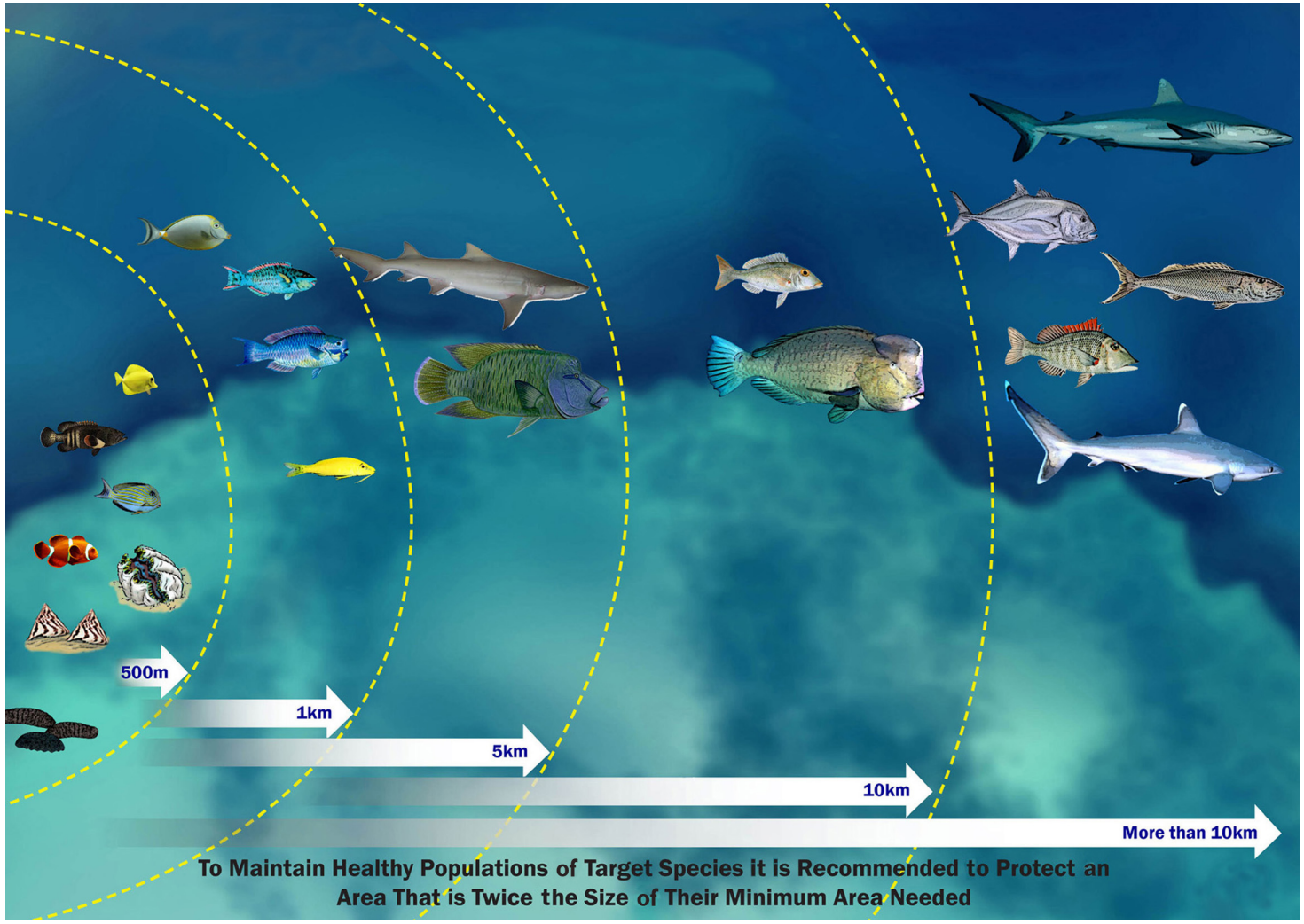
- ✓ Have fish for the future
- ✓ Easier to catch fish/inverts for food or to sell
- ✓ Protect species and habitats
- ✓ Earn money
- ✓ Keep up traditional Fijian practice
- ✓ Keep outsiders from fishing
- ✓ Improve how community works together

# Social Goals

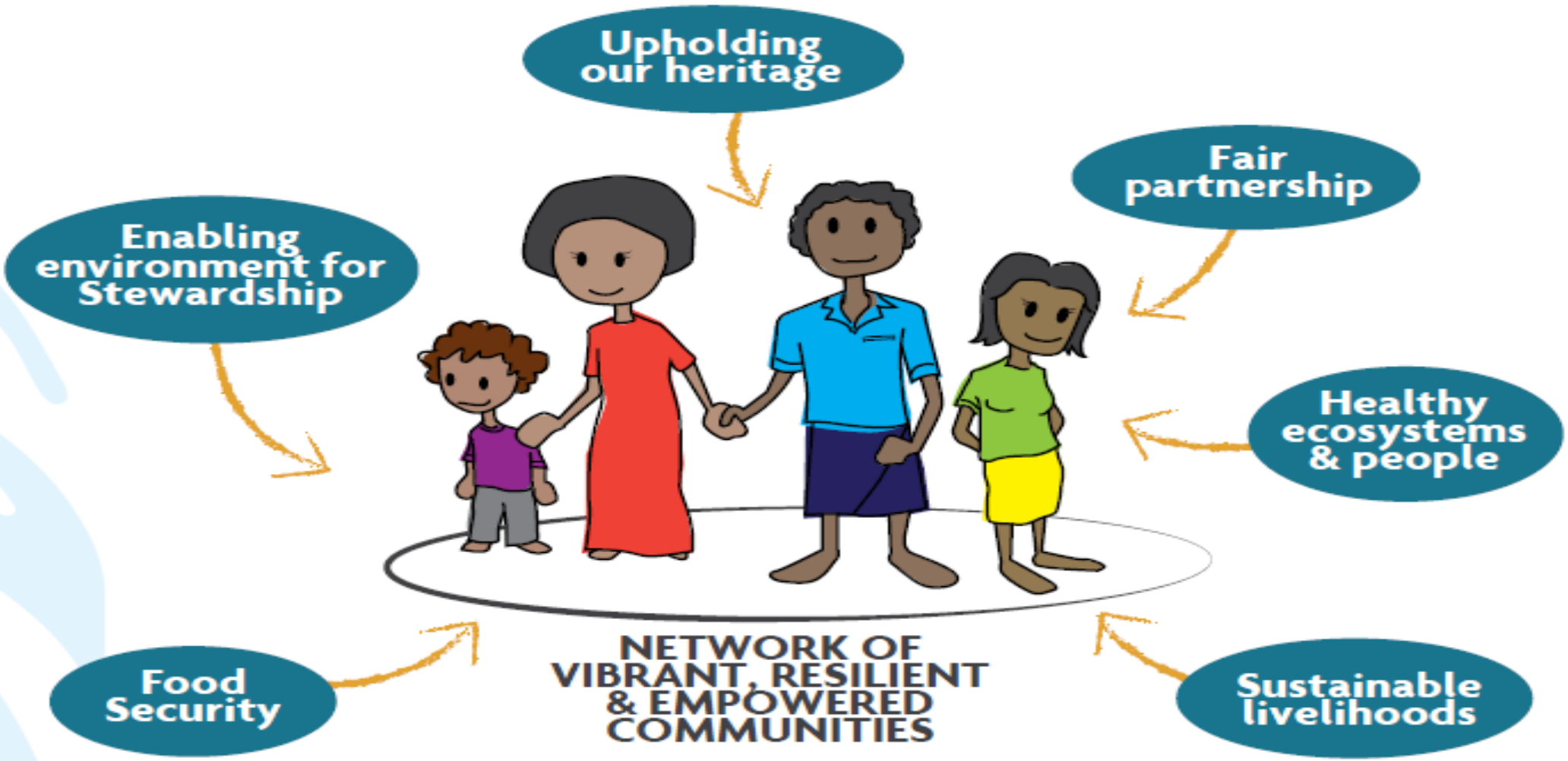
- Food as wealth
- Ability to stockpile resources for social occasions
- (**More recently**) Ability to periodically access resources for economic needs

# Designing MPAs and *tabu* areas

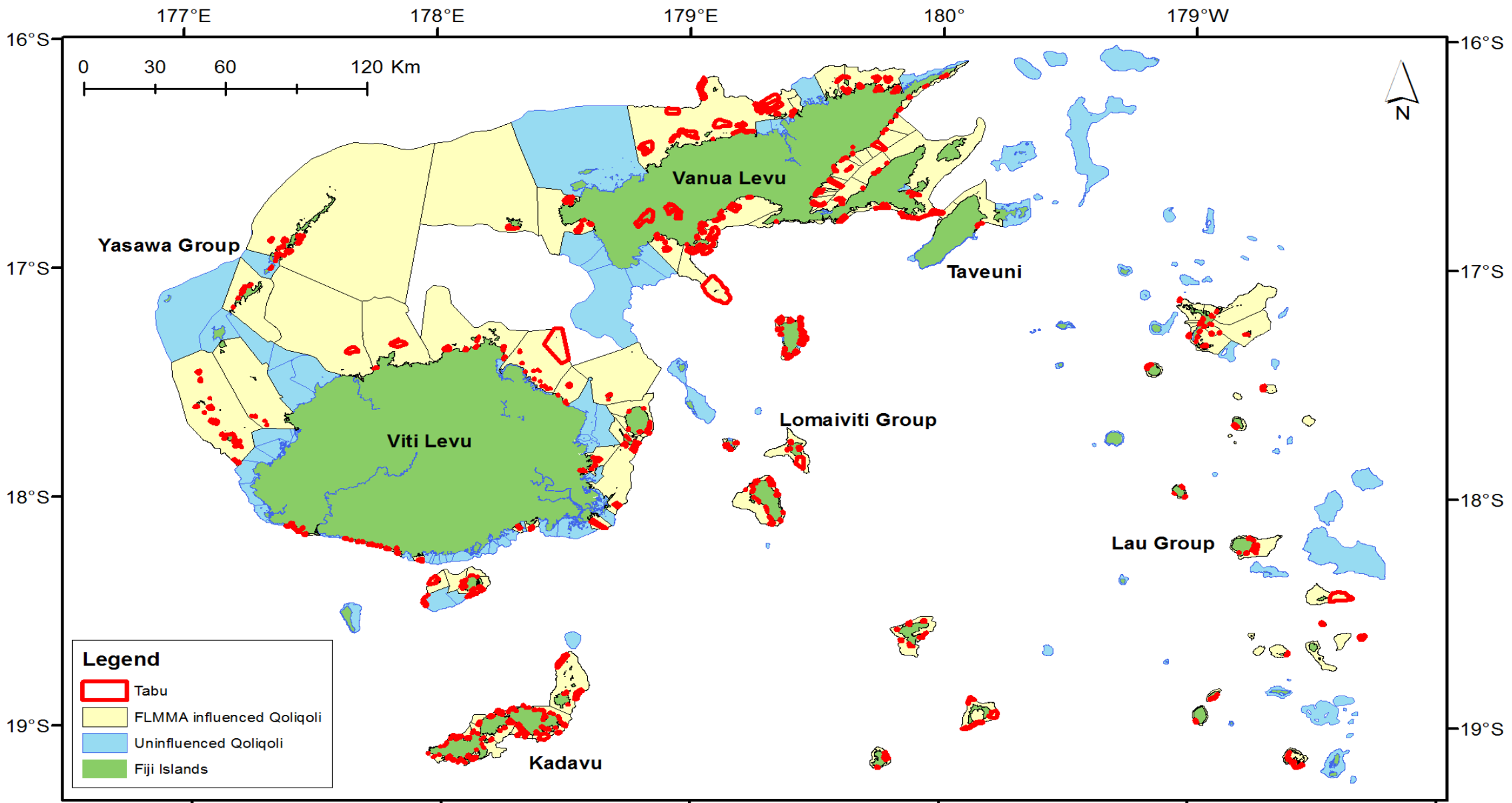
- Identify *tabu* areas of historical importance
- Areas of high productivity
- Large enough size to protect key species
- Ease of enforcement



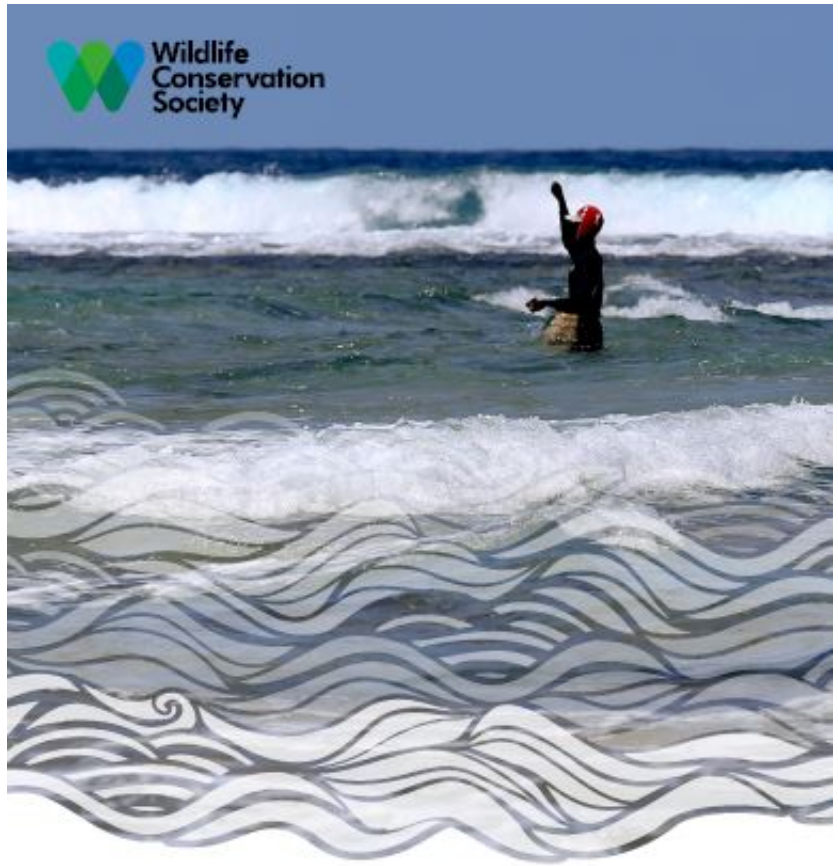
# *FLMMA's Shared Vision*



# Locally-Managed Marine Areas



# Social-Ecological Systems Monitoring

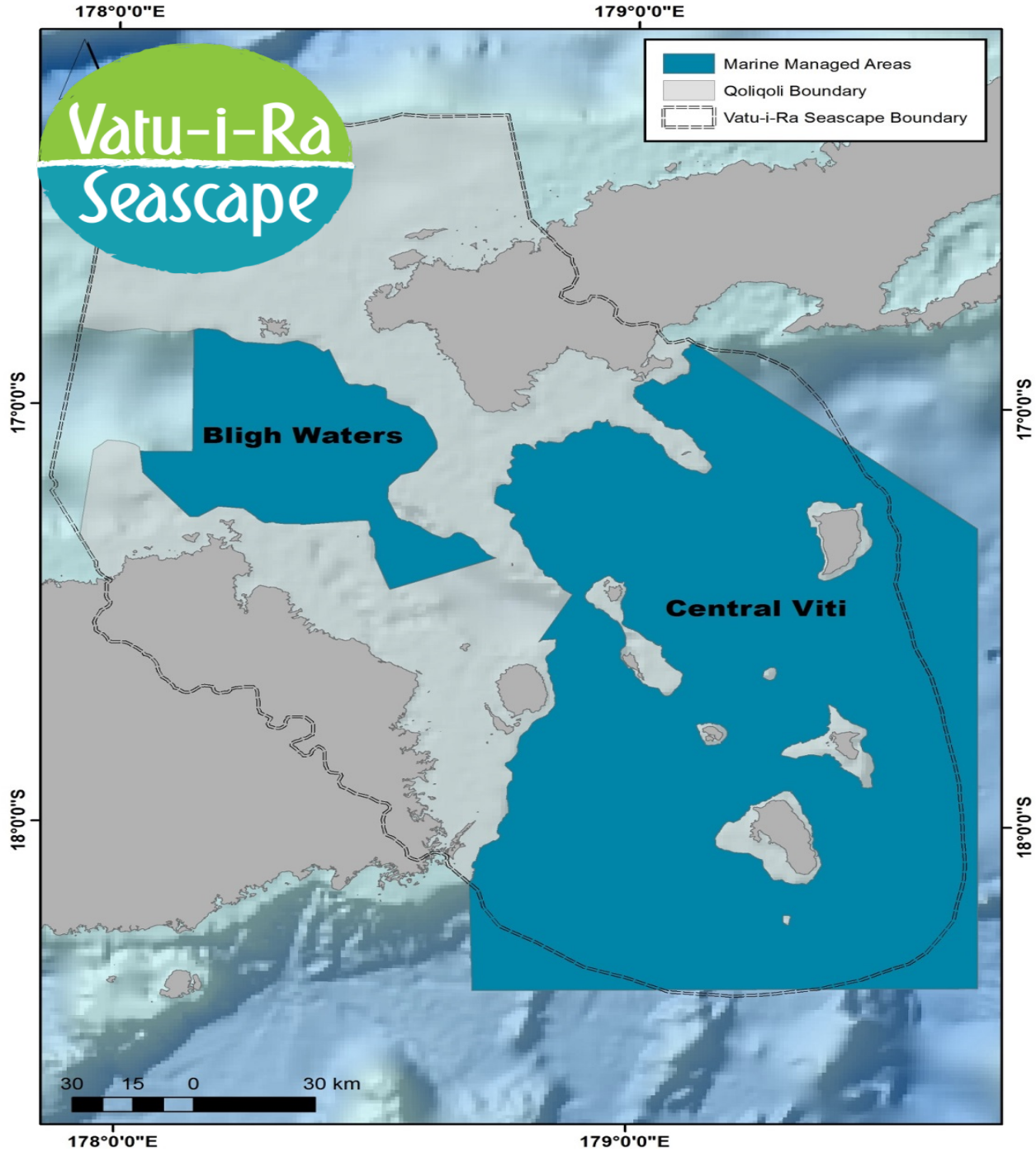



# Locally-Managed Marine Areas

## A Social–Ecological Systems Approach to Assessing Conservation and Fisheries Outcomes in Fijian Locally Managed Marine Areas (Society and Natural Resources)

Stacy D. Jupiter, Graham Epstein, Natalie C. Ban, Sangeeta Mangubhai, Margaret Fox & Michael Cox

| | | |
|---|---|---|
| Fish for the future | | The fish biomass higher in the *tabu* area |
| | | The fish biomass same or lower in the *tabu* area |
| Protect species | | The number of fish species is higher inside the *tabu* area |
| | | The number of fish species is the same or lower inside *tabu* |
| Harvest frequency | | *Tabu* is opened and harvested once or less per year |
| | | *Tabu* is opened and harvested more than once per year |
| Biophysical boundaries | | *Tabu* boundaries are clearly defined and understood by fishers |
| | | *Tabu* boundaries are not clearly defined and poorly understood by fishers |
| Monitoring | | Fish wardens present, and ensure high levels of compliance of *tabu* rules |
| | | Fish wardens present, but there is low compliance of *tabu* rules |
| | | No fish wardens are present |
| Participation | | >80% of respondents participate in resource use decisions |
| | | Between 50% to 80% of respondents participate in resource use decisions |
| | | <50% of respondents participate in resource use decisions |
| Coordination | | Decisions on *tabu* area and LMMA done by the same people |
| | | Decisions on *tabu* area and LMMA are not done by the same people |


178°0'0"E
179°0'0"E
Vatu-i-Ra Seascape
Marine Managed Areas
Qoliqoli Boundary
Vatu-i-Ra Seascape Boundary
Bligh Waters
Central Viti
17°0'0"S
18°0'0"S
30 15 0 30 km

# Looking forward …

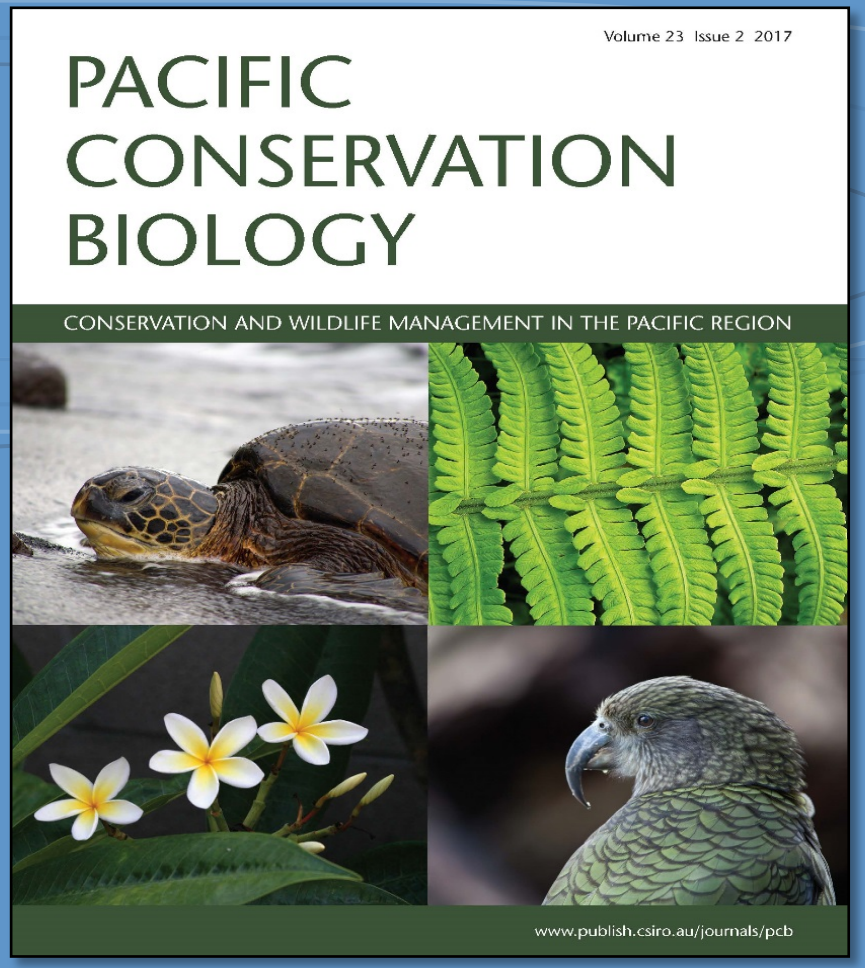
© Margaret Fox/WCS

## Conservation of Biodiversity in the Pacific Islands of Oceania: Challenges and Opportunities

STACY JUPITER[1*], SANGEETA MANGUBHAI[1] and RICHARD T. KINGSFORD[2]

Pacific Island biodiversity has a notorious record of decline and extinction which continues due to habitat loss and degradation, invasive species, overexploitation, pollution, disease and human-forced climate change. In terrestrial systems, these global and local pressures are more acute because of relatively small land to sea area, high endemism and poor adaptations to resist predation. Regional policy and learning frameworks exist to combat biodiversity loss and environmental degradation, but implementation remains patchy across the 22 Pacific Island countries and territories (PICTs) within Oceania. PICTs are challenged by small, under-resourced government departments, limited data, and strong political will for rapid economic development at the cost of ecological sustainability. In this synthesis of the special issue, we identify the challenges and opportunities for biodiversity conservation on Pacific islands. We identified bright spots of implementation occurring through regional initiatives, knowledge-sharing networks, and community-based management. The challenge looms large, given the relatively small-scale efforts compared to the core drive for development of natural resources which continues to pervade island communities. Five key initiatives promise improved conservation effectiveness: 1) alignment of national biodiversity strategies to the Aichi Targets, under the Convention on Biological Diversity; 2) increased engagement with local communities to promote wise stewardship and local environmental monitoring; 3) dissemination of best practice guidelines for management through learning networks; 4) cost-benefit analyses that drive investment in biosecurity and invasive control; and 5) implementation of integrated island management that accounts for the multiple synergistic benefits of ecosystem management (e.g., climate adaptation, disaster risk reduction, improved health).

Key words: Pacific Island countries and territories, habitat loss, invasive species, overexploitation, pollution, disease, climate change, policy.

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# Vinaka vakalevu (thank you!)