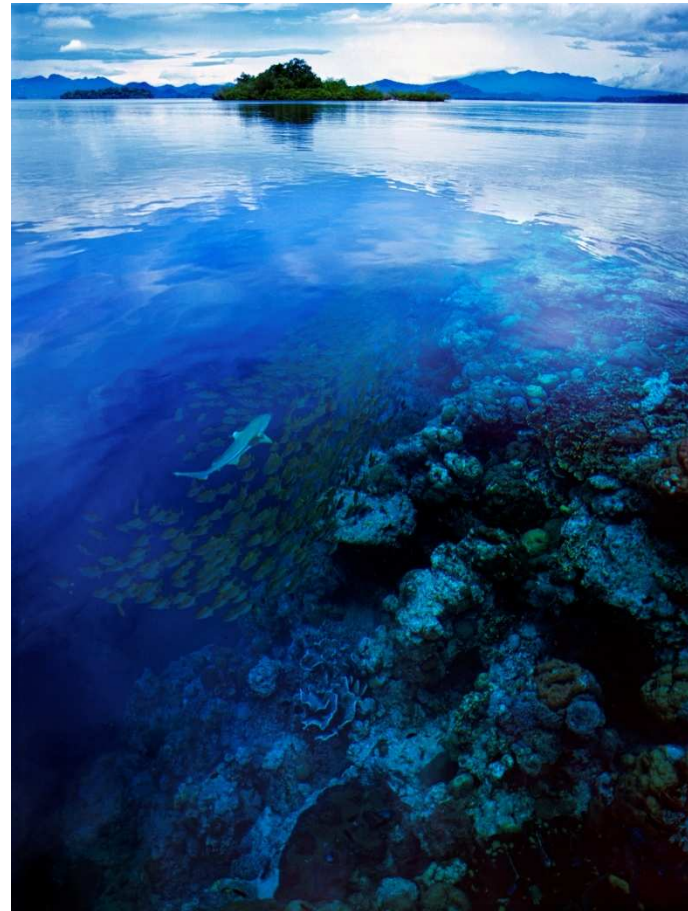




Strengthening capacity to support Marine Protected Areas

PoWPA workshop, 3rd October 2011
Tim Carruthers



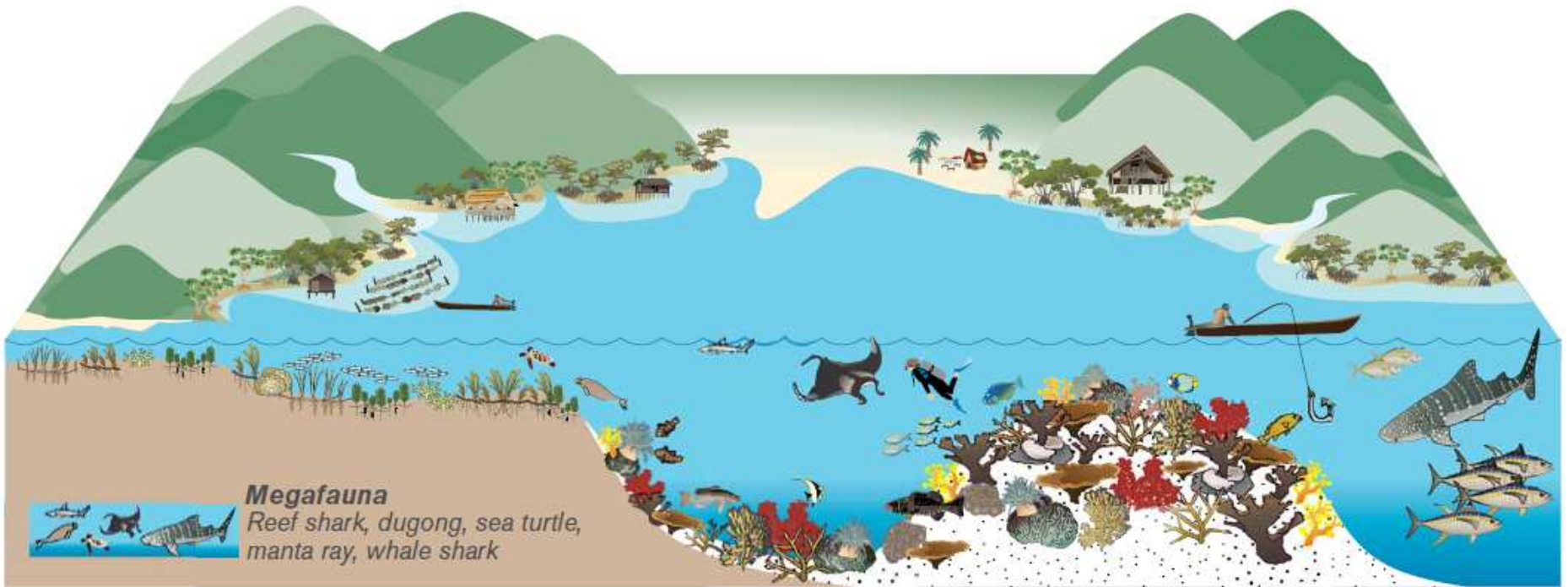
Stuart Chape

CONSERVATION
INTERNATIONAL





Ecosystem services supported by MPA's



Megafauna
Reef shark, dugong, sea turtle,
manta ray, whale shark



Mangrove
Mangrove forests reduce storm effects and stabilize shorelines.



Seagrass
Seagrass meadows reduce erosion and improve water quality.



Seaweed
Seaweed communities support a range of invertebrates and are the cement of coral reefs.



Coral
Predominantly fringing coral reefs support abundant and diverse fish communities.



Fish
Abundant fish provide food and livelihood for commercial and municipal fishers.



Localized threats



*long-lines
overfish with
excessive by-
catch*



*dynamite
fishing kills
fish and
destroys reef*



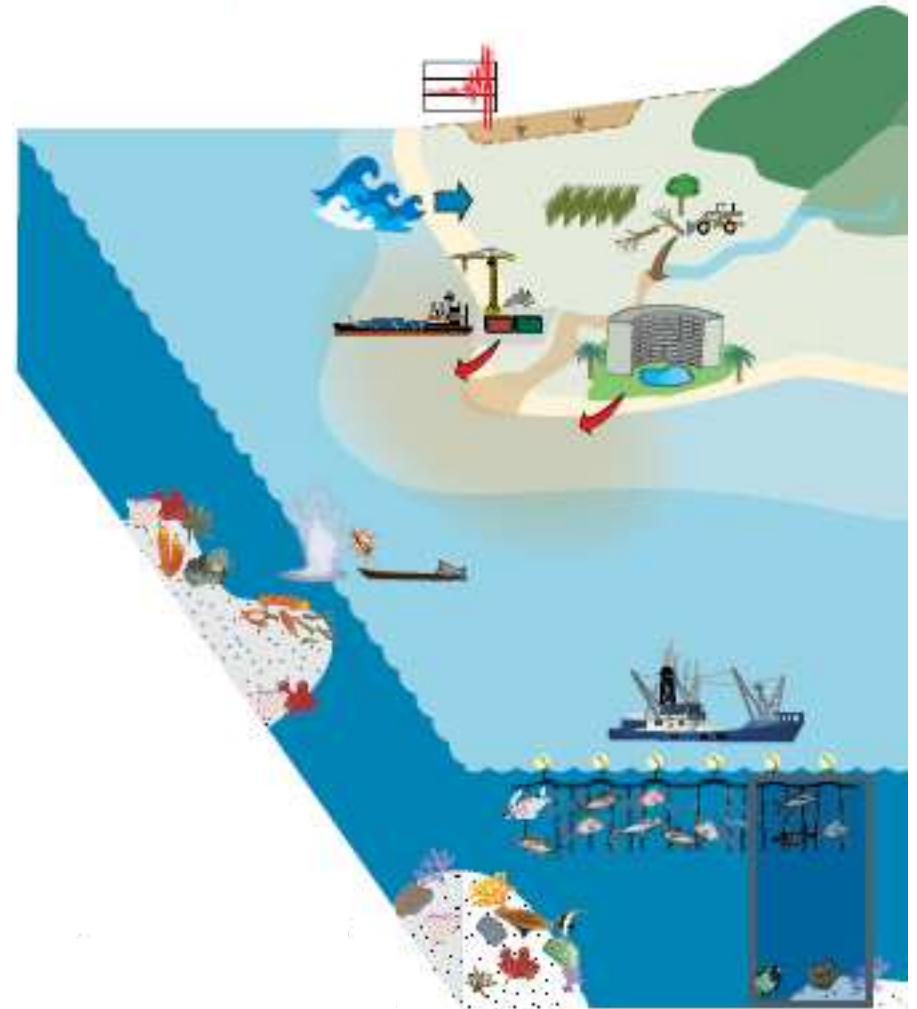
*plantation
logging loads
streams with
sediment*



*development
runoff sends
nutrients to
ocean*

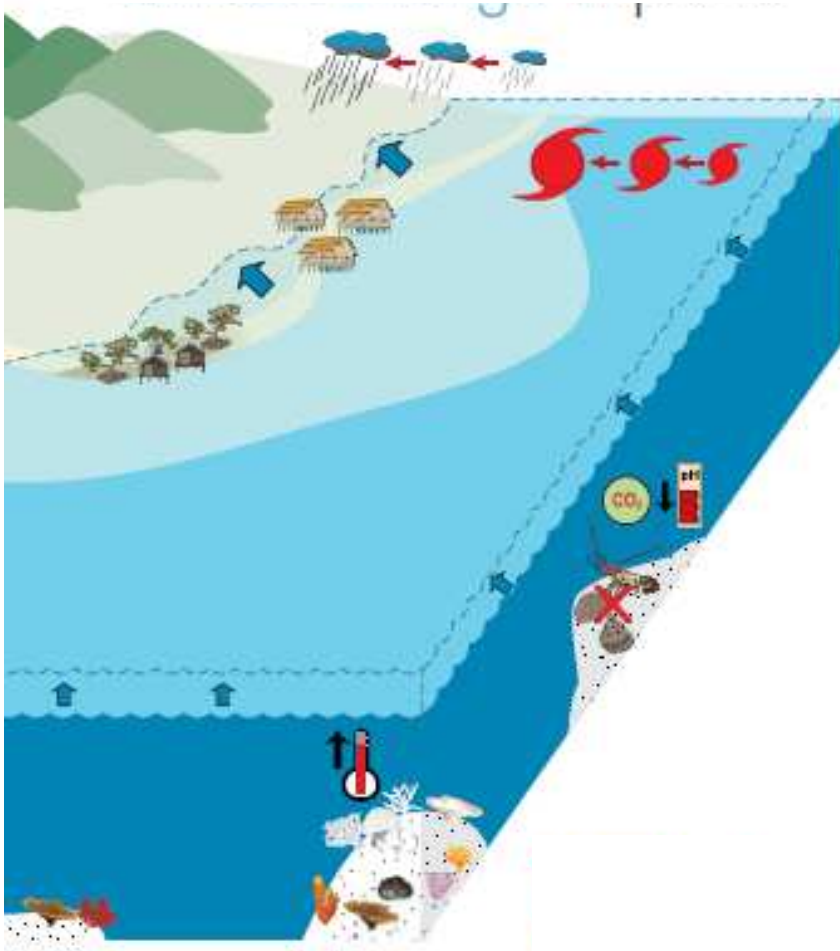


*earthquakes
and tsunamis
cause earth
slumping and
flooding*





Climate change threats



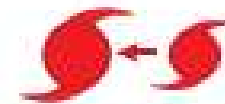
sea level rise
inundates
coastal areas



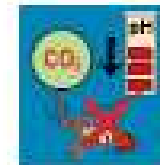
increased
rainfall
causes
flooding



high sea
surface
temperatures
bleach coral



the frequency
and intensity
of storms
increase

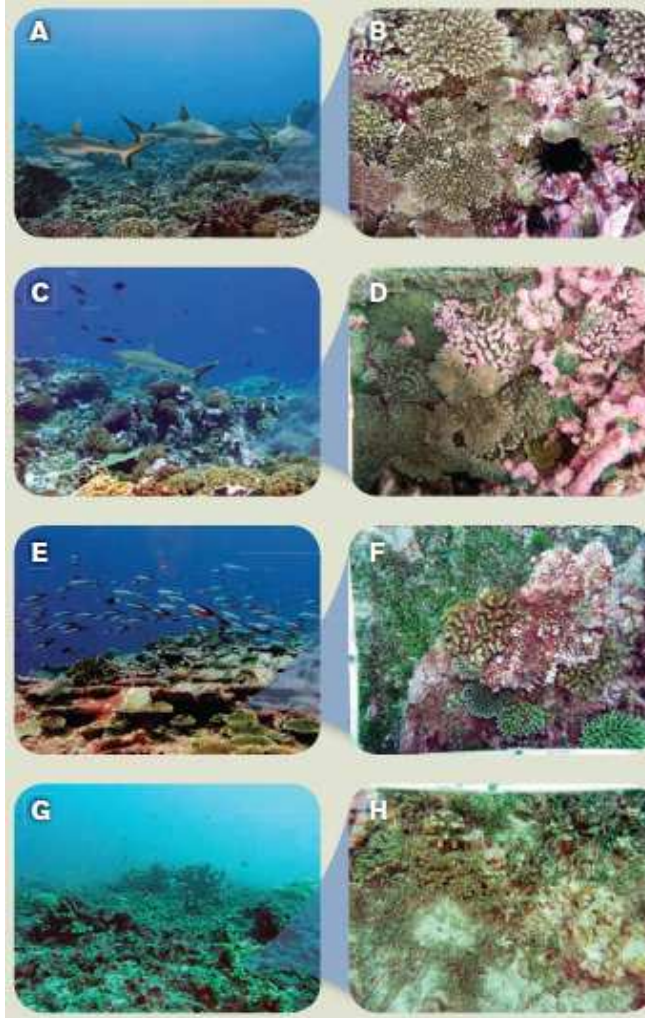
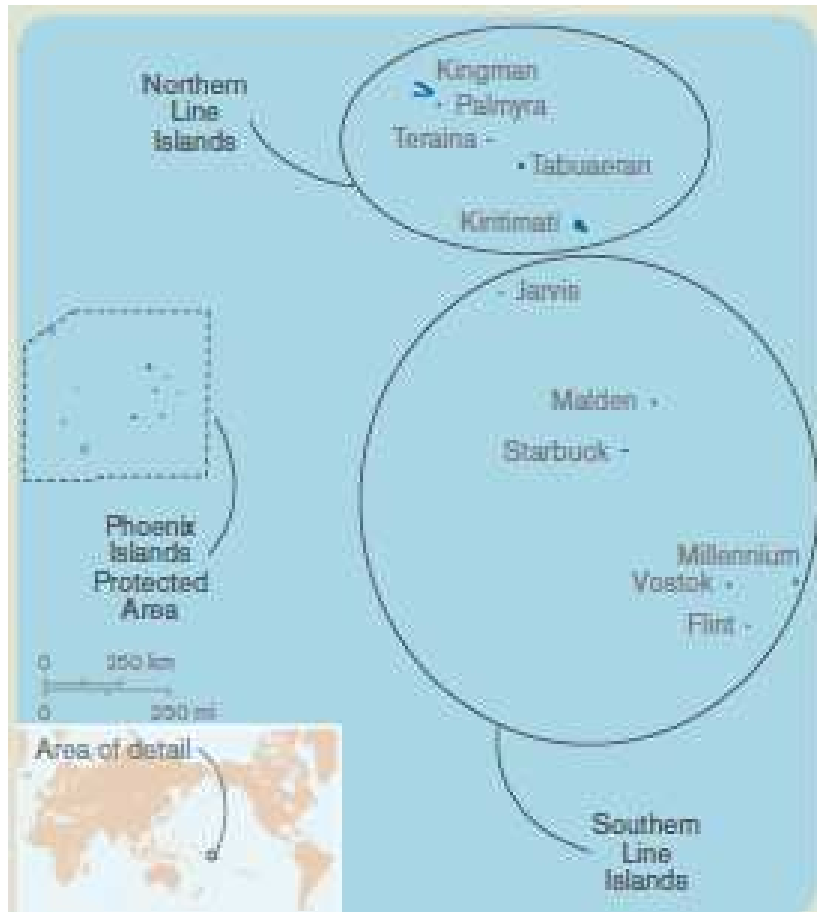


acidic ocean
threatens
shellfish and
corals



Positive benefits of protection

Fish biomass and coral cover decrease with increased human population in the northern Line Islands



Kingman

Palmyra

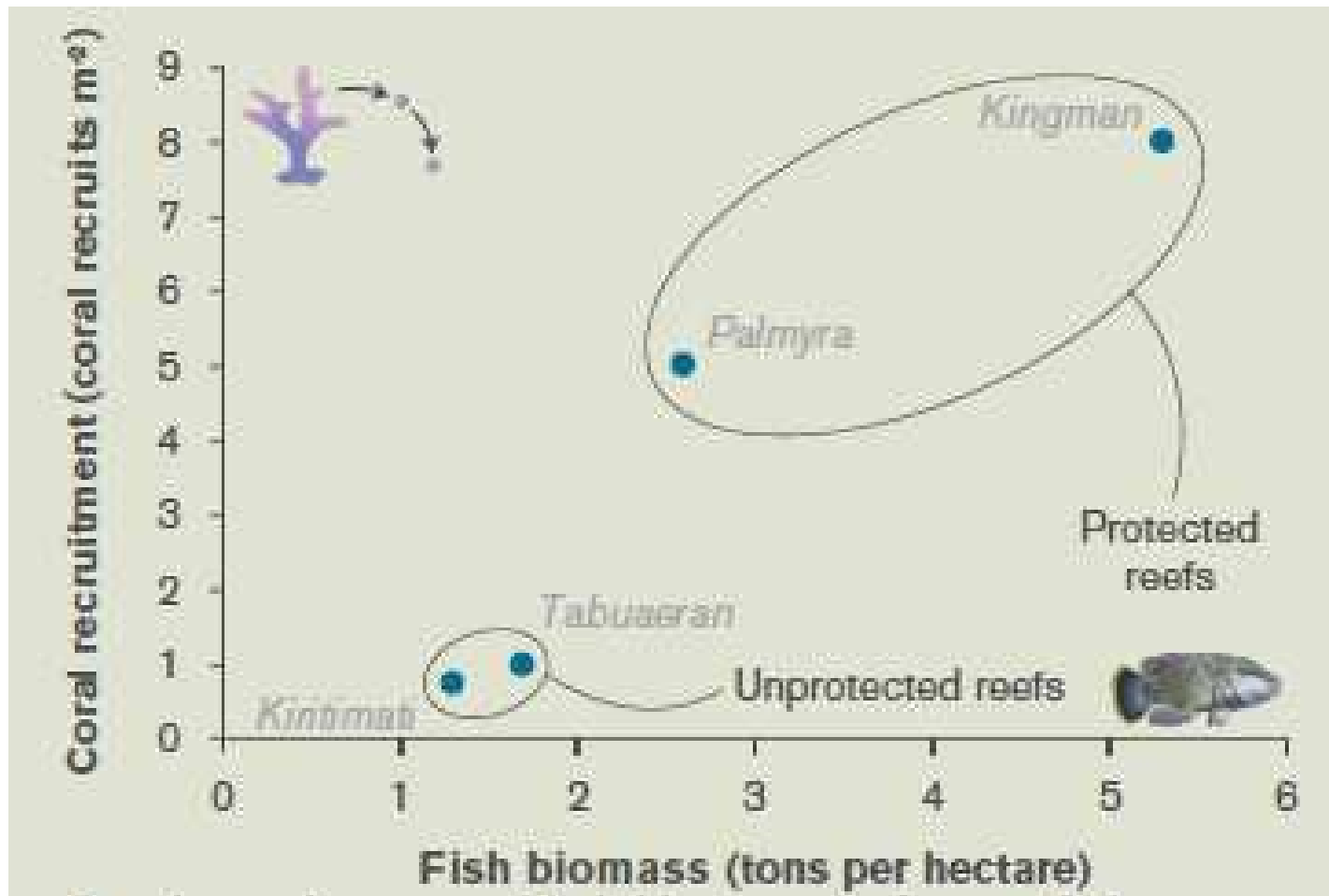
Tabuaeran

Kiritimati



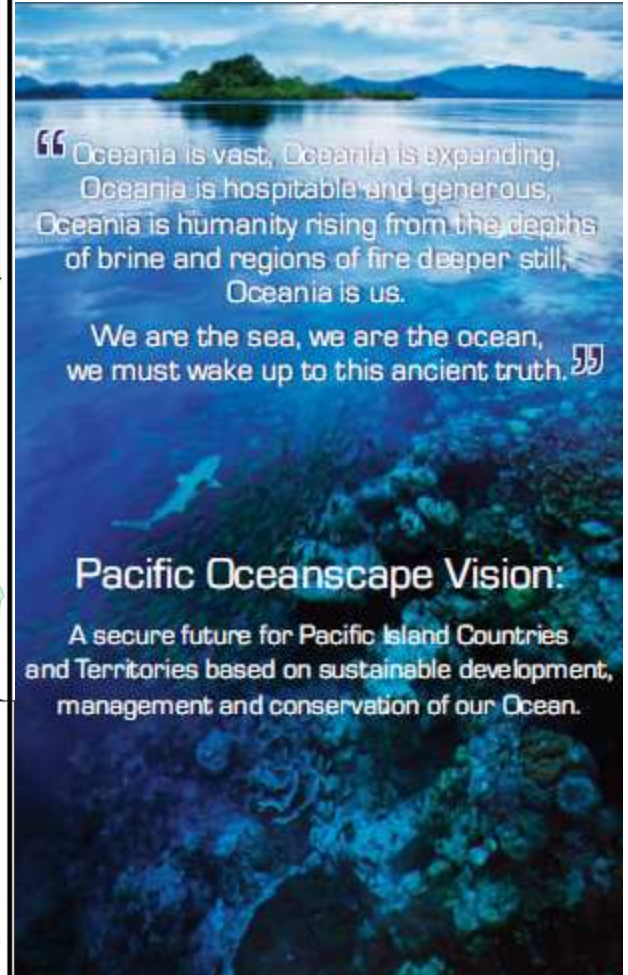
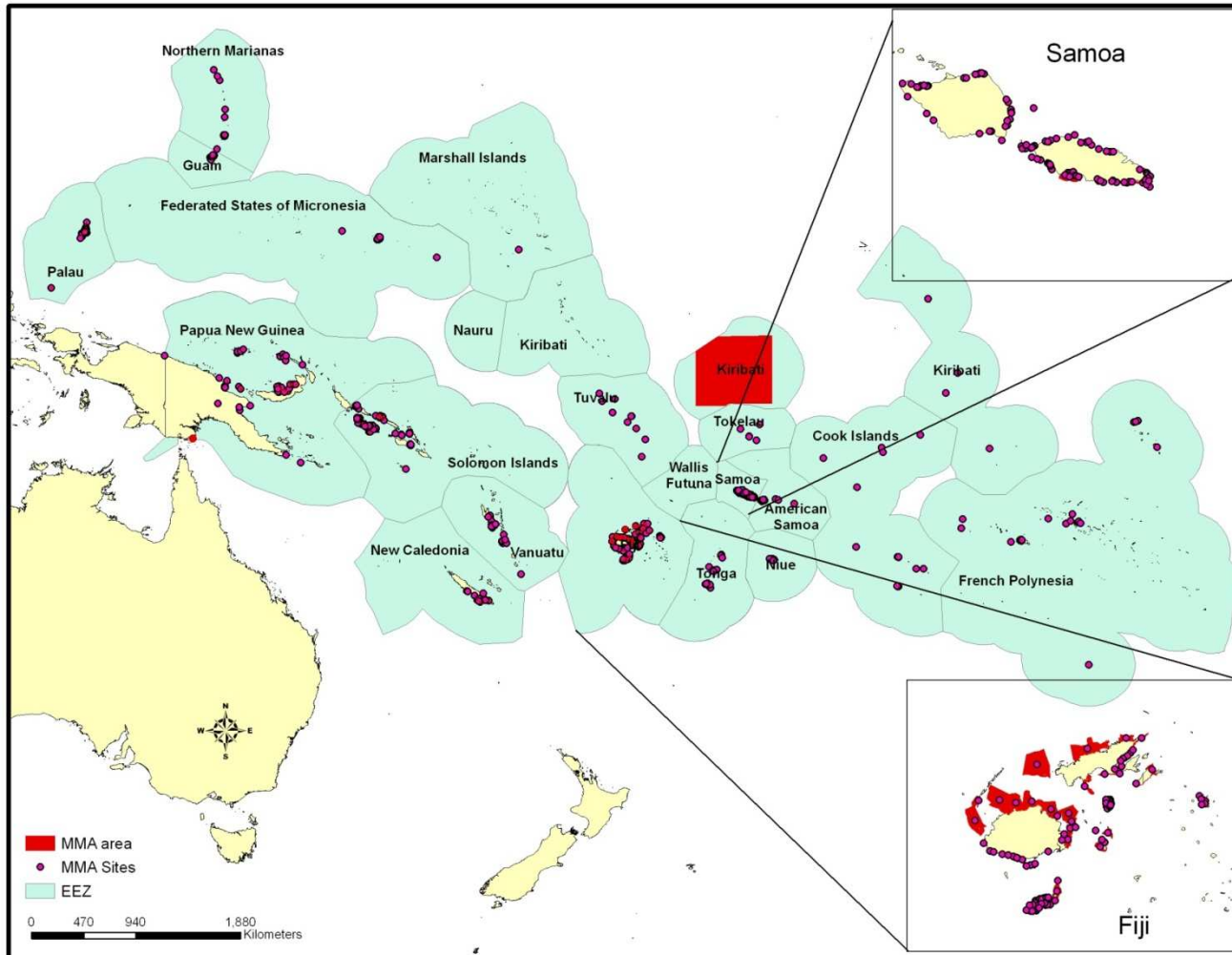


The more healthy reefs showed more resilience (faster recovery) from 1997-98 bleaching event





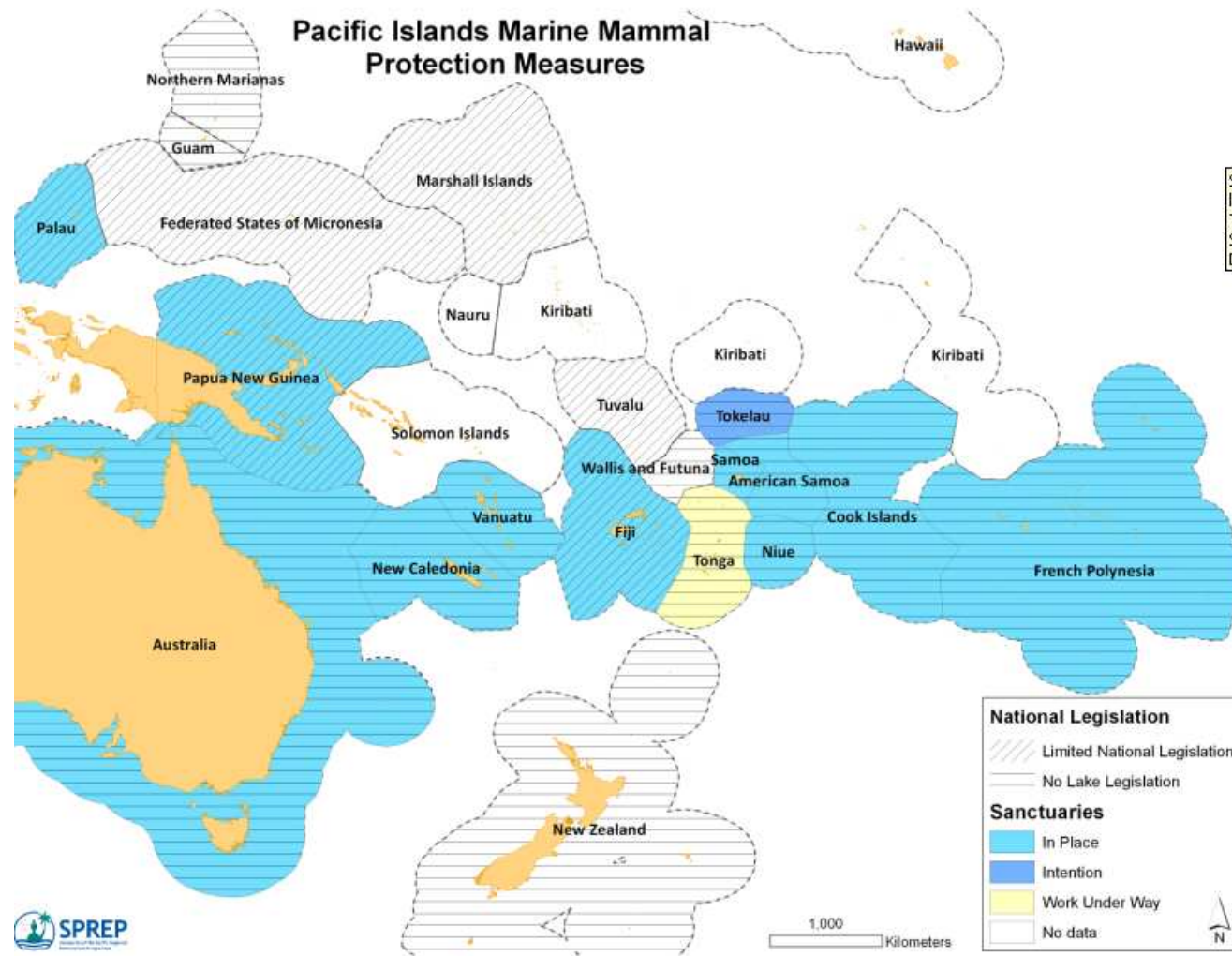
Marine Protected Areas in the region



Goal 1.1: Establish and strengthen national, regional and global MPA networks



Protection of migratory species requires networks of protected areas



Goal 1.1: Establish and strengthen national, regional and global MPA networks



Many of the threats to marine habitats are land based: a 'ridge to reef' approach is recommended

- Unsustainable road development
- Forest clear-felling
- Strip mining
- Hill-slope erosion
- Unsustainable agriculture
- Pesticide runoff
- Nutrient input from urban areas
- Nutrient inputs from farming



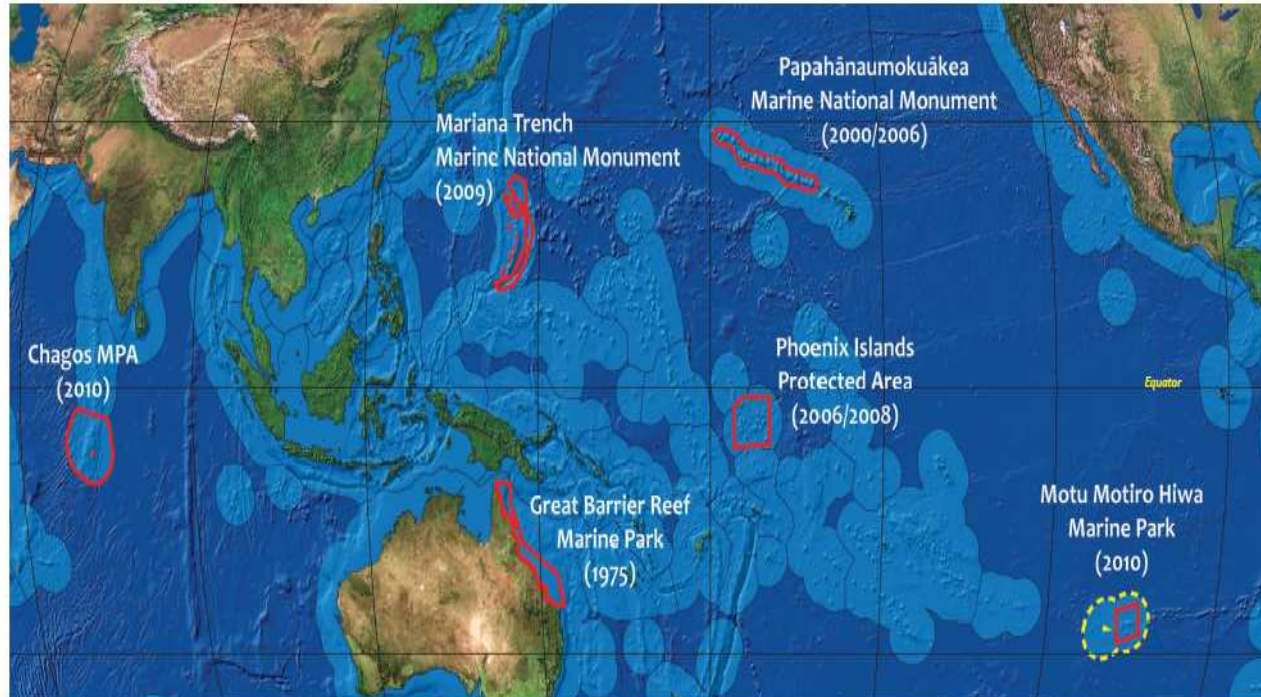


Sister parks assisted in world heritage status and park establishment



BIG OCEAN

A Network of the World's Large Scale Marine Managed Areas

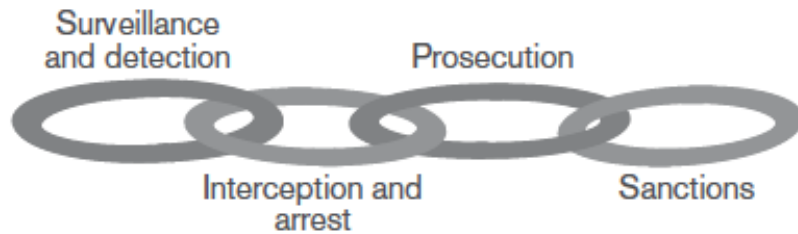


Founding Member Sites • December 6, 2010 • www.BigOceanManagers.org

Goal 1.3: Transboundary protected areas and MPA collaborations



Ability and capacity to enforce an MPA is essential for success



- All links in the enforcement chain need to be strong

Enforcement chain	Factors affecting enforcement
Surveillance and detection	<ul style="list-style-type: none">▪ Strong nongovernmental organization commitment▪ Appropriate boats available at least 80% of time▪ Well-coordinated operations among MMA, environmental police, and central government environmental agency
Interception and arrest	<ul style="list-style-type: none">▪ Proper boarding procedures▪ Proper crime scene investigation procedures▪ Adequate management of evidence▪ Correct and timely presentation of evidence
Prosecution	<ul style="list-style-type: none">▪ Efficient processes▪ Resolution of cases▪ Clear communication▪ Clear legal framework▪ Political independence
Sanctions	<ul style="list-style-type: none">▪ Strong implementation of international regulations▪ Timely processes

Goal 1.4: Substantially improve site based MPA planning and management



Internal issues as well as identified external threats influence enforcement efforts

External threats



- Overfishing
- Destructive fishing
- Land-based sources of pollution and eutrophication
- Sedimentation from upland land clearing
- Physical destruction from coral mining or mangrove clearing
- Introduction of invasive species

Internal issues



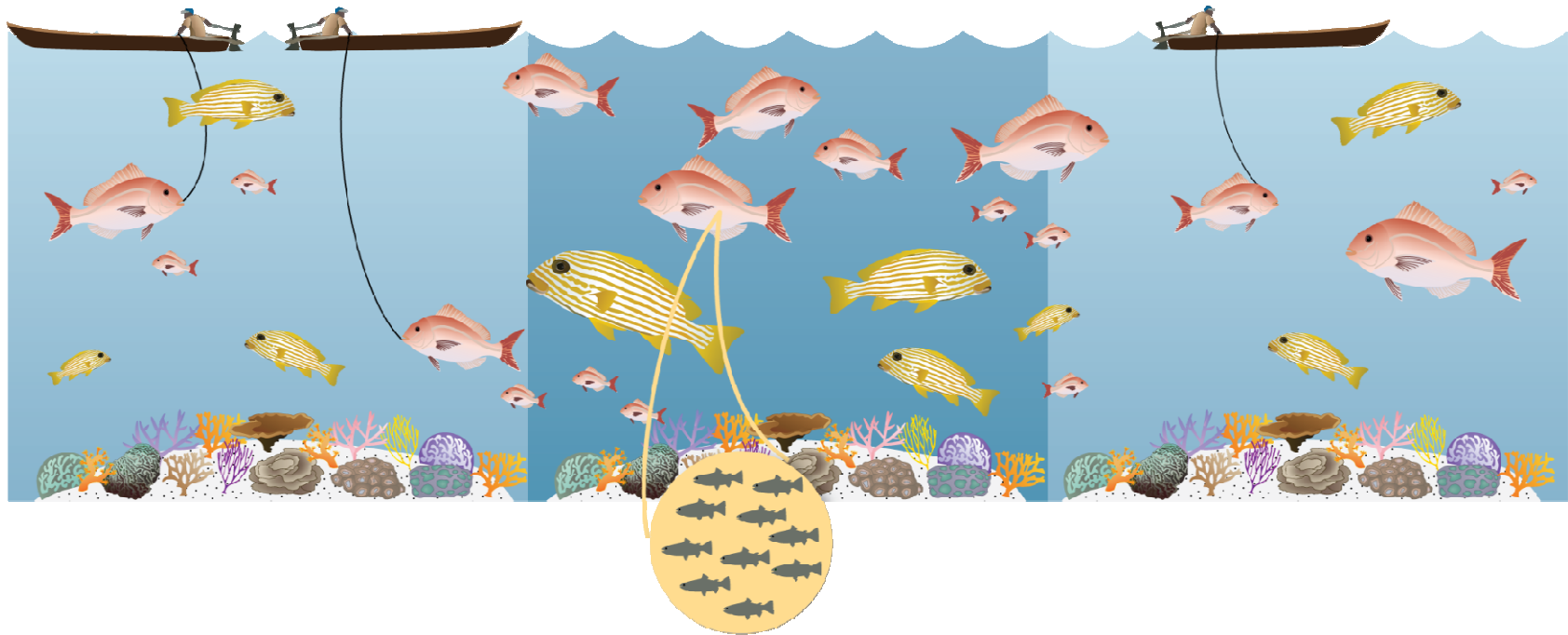
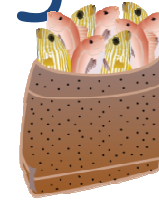
- Underfunded budgets
- Inadequate regulations
- Overlapping and uncoordinated responsibilities
- Inadequate resources
- Insufficiently trained park wardens

Goal 1.5: Prevent and mitigate impacts of key threats



No take zones can increase catches in surrounding areas

Fish banks support sustainable reef fisheries

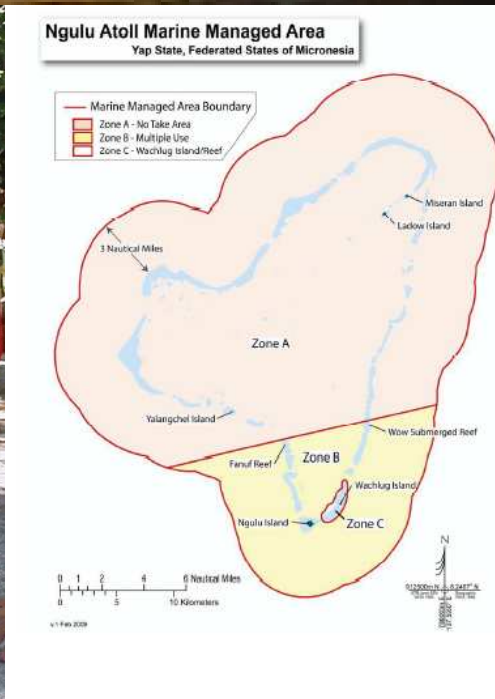
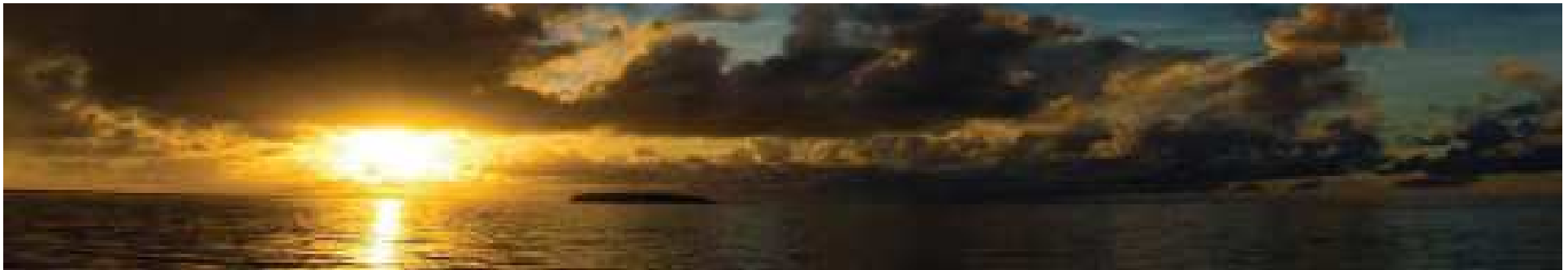


- This was measured after establishing 'no take' zones in Great Barrier Reef Marine Park

Goal 2.1: Promote equity and benefit sharing



In Yap, Ngulu Atoll management plan supports traditional system of use and technological solutions, with radar monitoring for non allowed boat activity.



“Building effective partnerships, learning from others, sharing skills and lessons learned, and practicing “adaptive management” can all help with program sustainability.” mgmt plan

Goal 2.2: Enhance and secure indigenous, stake holder and community involvement



The multiple effective scales of MPA's

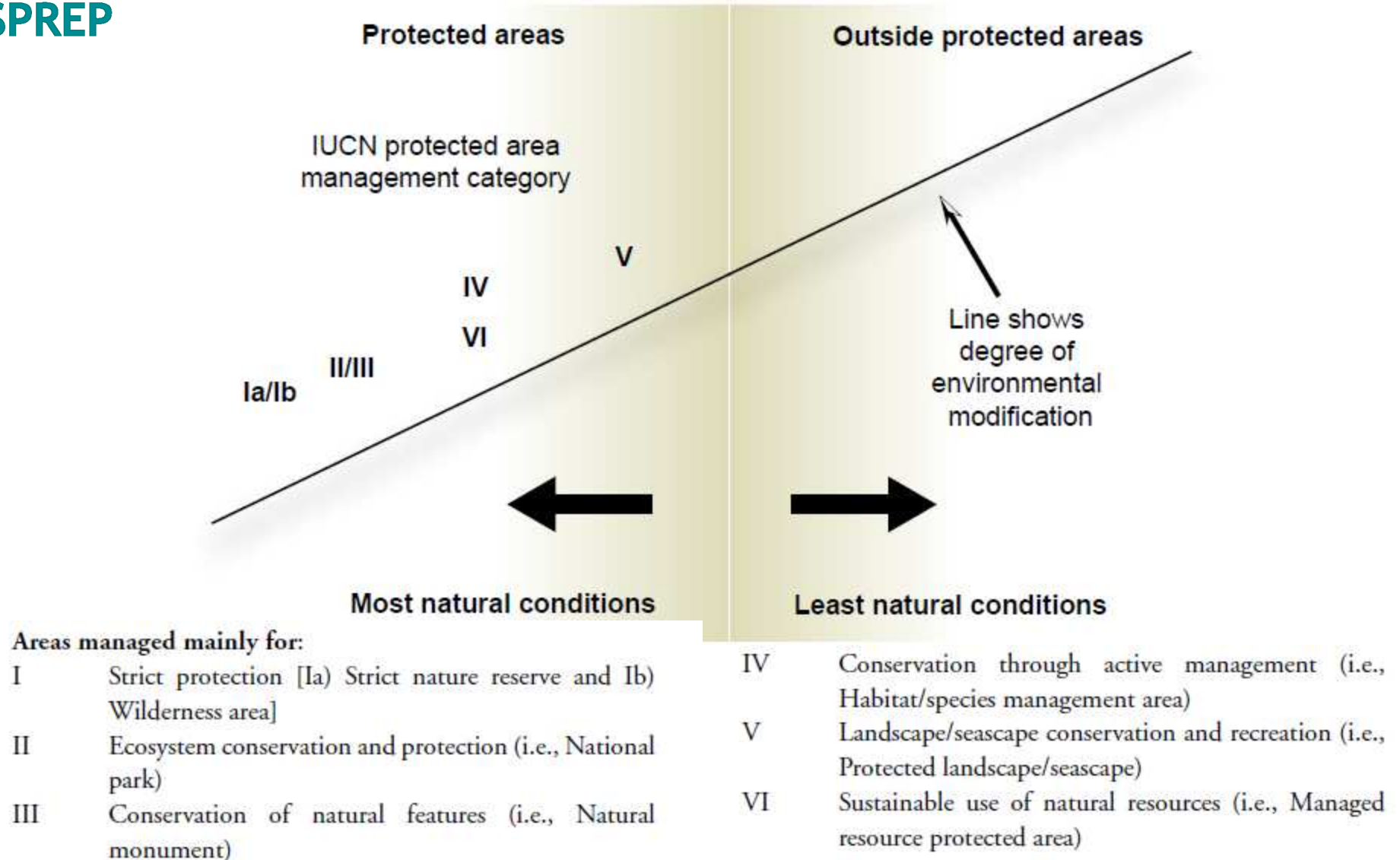
- **Global: Convention on Biological Diversity**
- **Mesoamerican reef (annual report card)**
- **National level: governance uniformity**
- **MPA – Specifically established National Park**



Goal 3.1: Provide enabling policy, institutional and socio-economic support



IUCN classification of MPA's



Goal 3.2: Build capacity for planning, establishment and management



Marine Protected Areas can contain zoning for multiple uses



Goal 3.3: Develop, apply and transfer appropriate technologies



Great Barrier Reef Marine Park history

- **1975:** establishment
- **1979:** first formal zoning (12, 000 km²)
- **1981:** first formal zoning plan (4.7% of area 'no take')
- **1988:** zoning strategy for 98% of area
- **2004:** implemented revised zoning plan (including 33% of area 'no take')





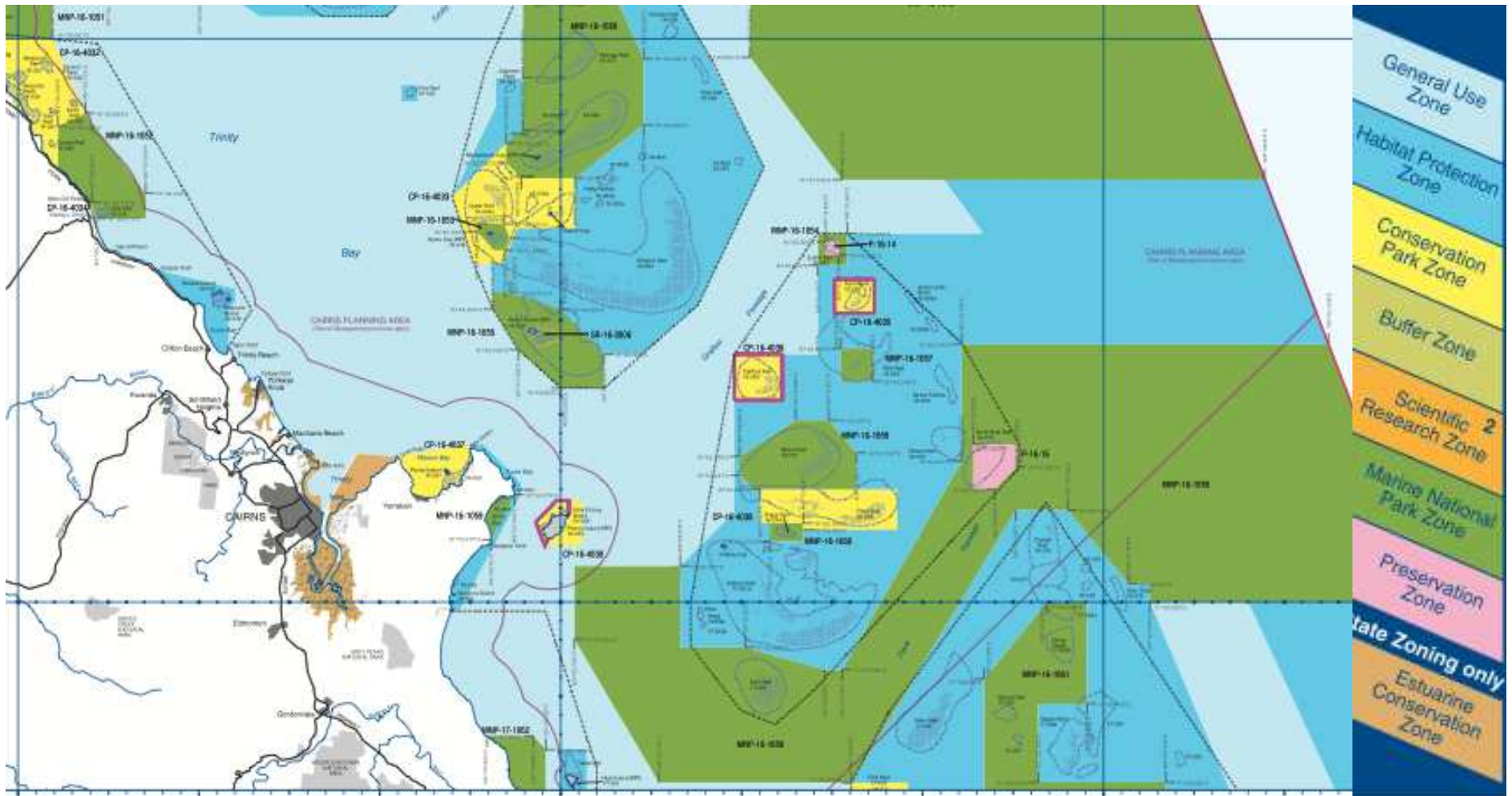
Great Barrier Reef Marine Park

ACTIVITIES GUIDE (see relevant Zoning Plans and Regulations for details)	General Use Zone	Habitat Protection Zone	Conservation Park Zone	Buffer Zone	Scientific ² Research Zone	Marine National Park Zone	Preservation Zone	State Zoning only	Estuarine Conservation Zone
	Aquaculture	Permit	Permit	Permit ¹	X	X	X	X	State Zoning only
Bait netting	✓	✓	✓	X	X	X	X	✓	
Boating, diving, photography	✓	✓	✓	✓	✓ ²	✓	X	✓	
Crabbing (trapping)	✓	✓	✓ ³	X	X	X	X	✓	
Harvest fishing for aquarium fish, coral and beachworm	Permit	Permit	Permit ¹	X	X	X	X	X	
Harvest fishing for sea cucumber, trochus, tropical rock lobster	Permit	Permit	X	X	X	X	X	X	
Limited collecting	✓ ⁴	✓ ⁴	✓ ⁴	X	X	X	X	✓	
Limited spearfishing (snorkel only)	✓	✓	✓ ¹	X	X	X	X	✓	
Line fishing	✓ ⁵	✓ ⁵	✓ ⁶	X	X	X	X	✓	
Netting (other than bait netting)	✓	✓	X	X	X	X	X	✓	
Research (other than limited impact research)	Permit	Permit	Permit	Permit	Permit	Permit	Permit	Permit	
Shipping (other than in a designated shipping area)	✓	Permit	Permit	Permit	Permit	Permit	X	Permit	
Tourism programme	Permit	Permit	Permit	Permit	Permit	Permit	X	Permit	
Traditional use of marine resources	✓ ⁷	✓ ⁷	✓ ⁷	✓ ⁷	✓ ⁷	✓ ⁷	X	✓ ⁷	
Trawling	✓	X	X	X	X	X	X	X	
Trolling	✓ ⁵	✓ ⁵	✓ ⁵	✓ ^{5,8}	X	X	X	✓	

Goal 3.4: Ensure financial sustainability



Example GBR zoning map, Cairns FNQ



Goal 3.4: Ensure financial sustainability



Effective development and implementation of an MPA requires

- Adaptive management: built in flexibility



- Appropriate boundary definition: biological, cultural, political



- Transparent and highly participatory process



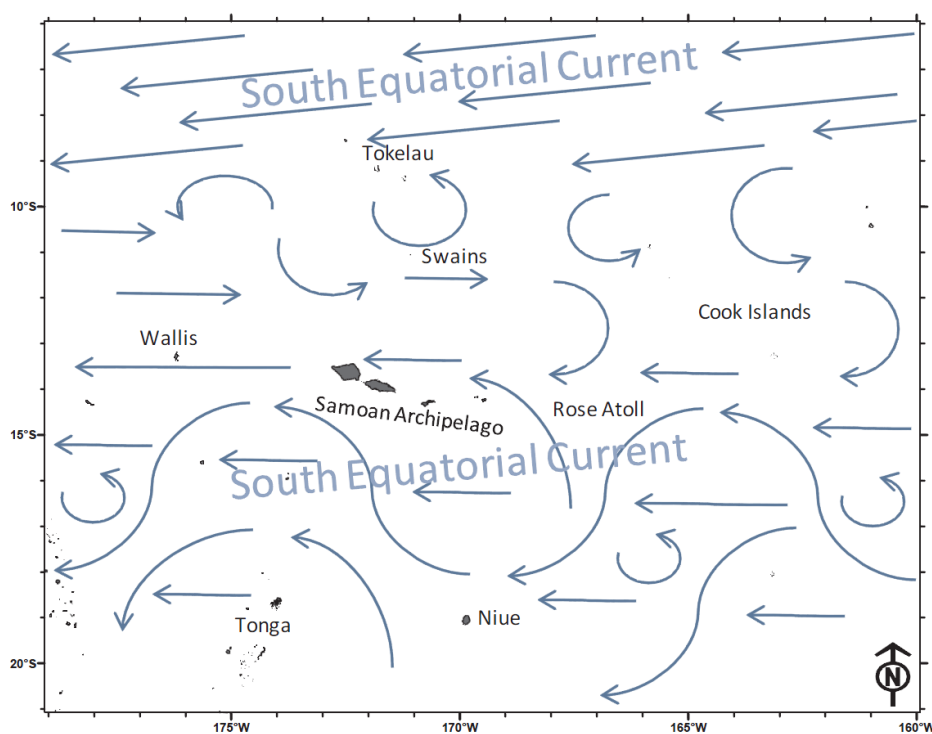
- Incorporation of both scientific and traditional knowledge



Goal 3.5: Strengthen communication, education and public awareness



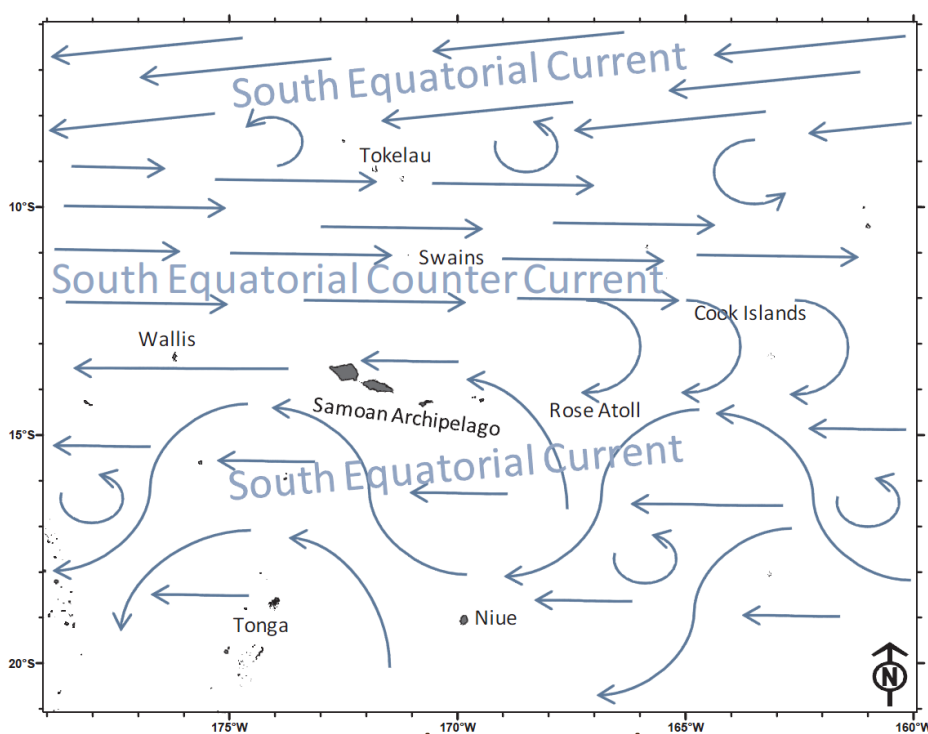
Connectivity has large implications for marine protected areas



May to September

Defined 2 generalized current seasons and 3 current features (used drifters to quantify heading and speed by season and ENSO)

- South Equatorial Current
- South Equatorial Counter Current
- Tonga Trench Eddy

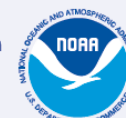


October to April

A BIOGEOGRAPHIC ASSESSMENT OF THE SAMOAN ARCHIPELAGO

Matthew Kendall and Matthew Poti (Editors)

Prepared by NOAA/NOS/NCCOS/CCMA Biogeography Branch
with Support from NOAA's Office of National Marine Sanctuaries and Coral Reef Conservation Program



Goal 4.1: Nationally and regionally, develop and adopt minimum standards and best practices

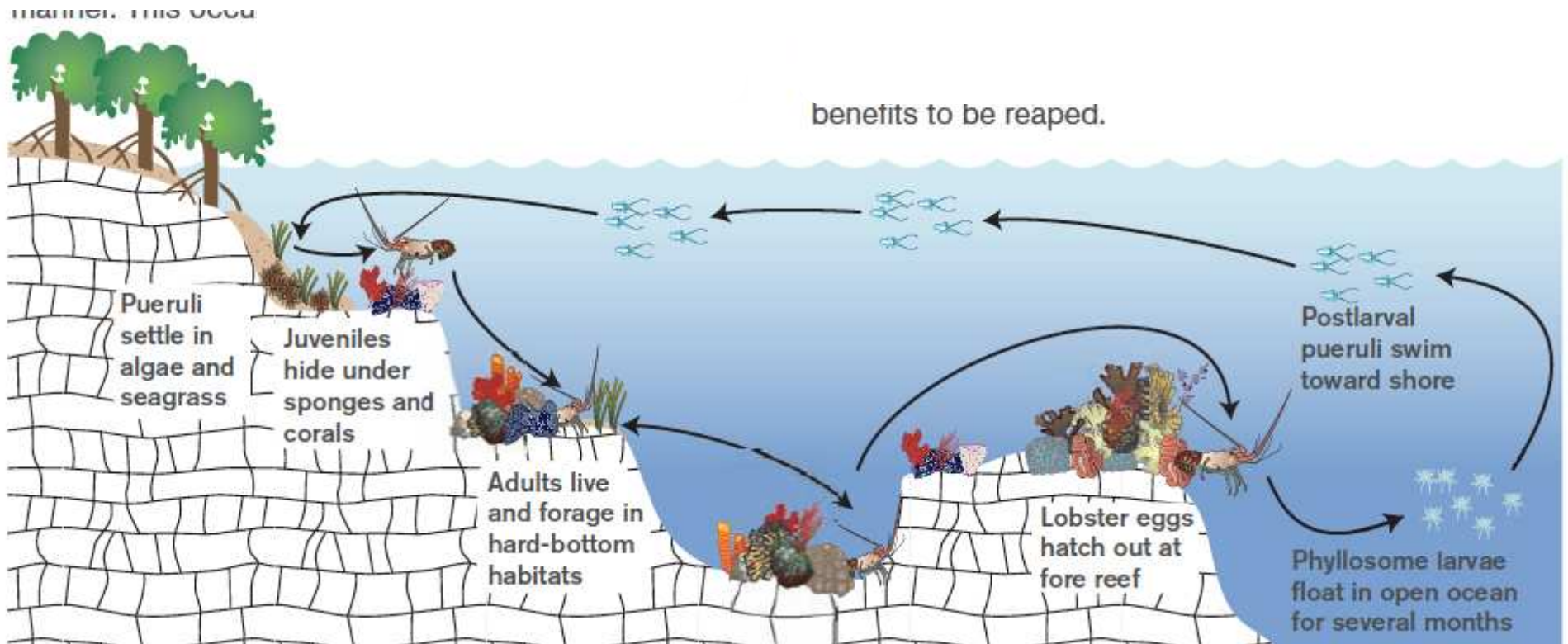


Spawning corals and fish potentially recruit between countries

Goal 4.2: Evaluate and improve effectiveness of management



Benefits of large scale zoning

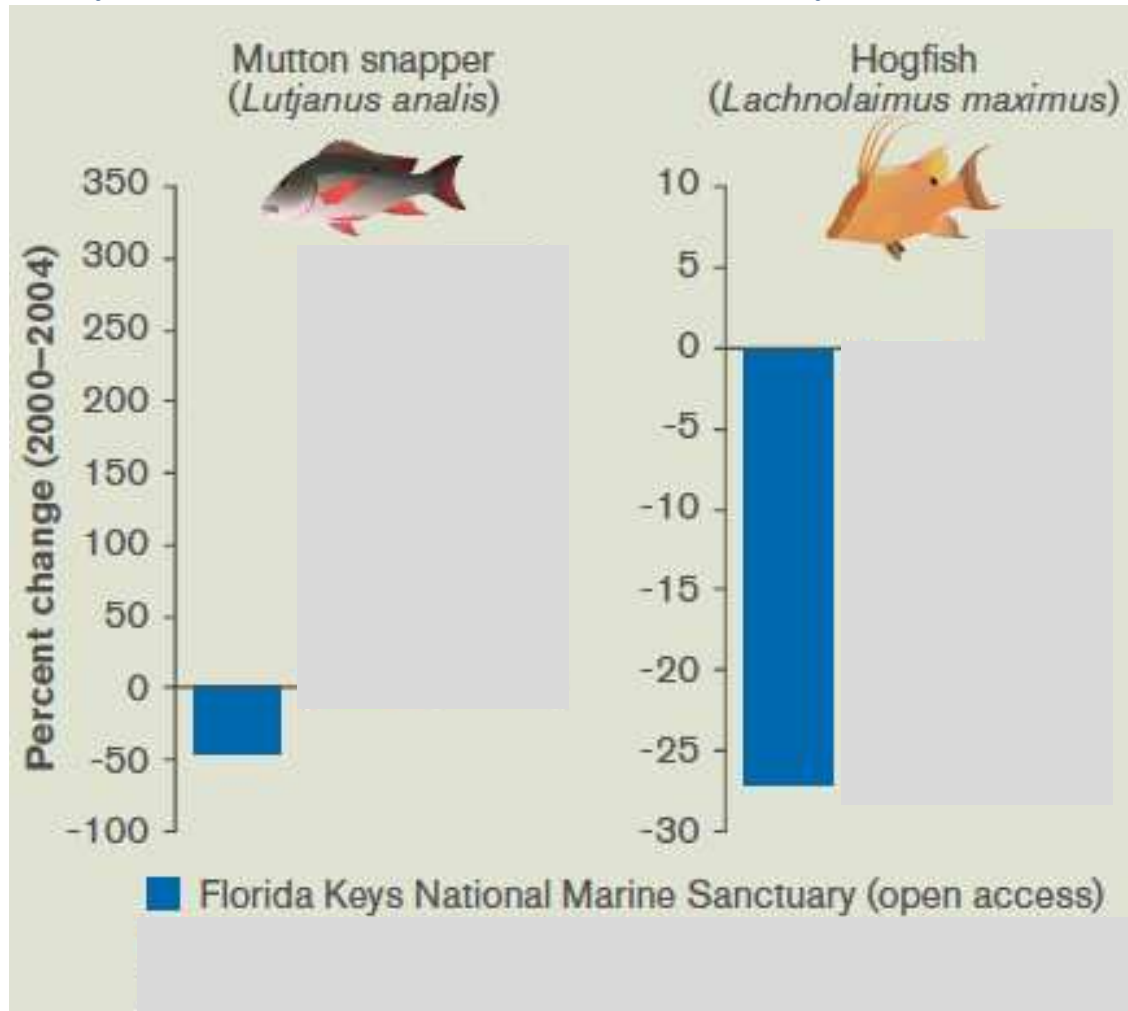


- Many organisms require multiple habitats, or have large ranges

Goal 4.2: Evaluate and improve effectiveness of management



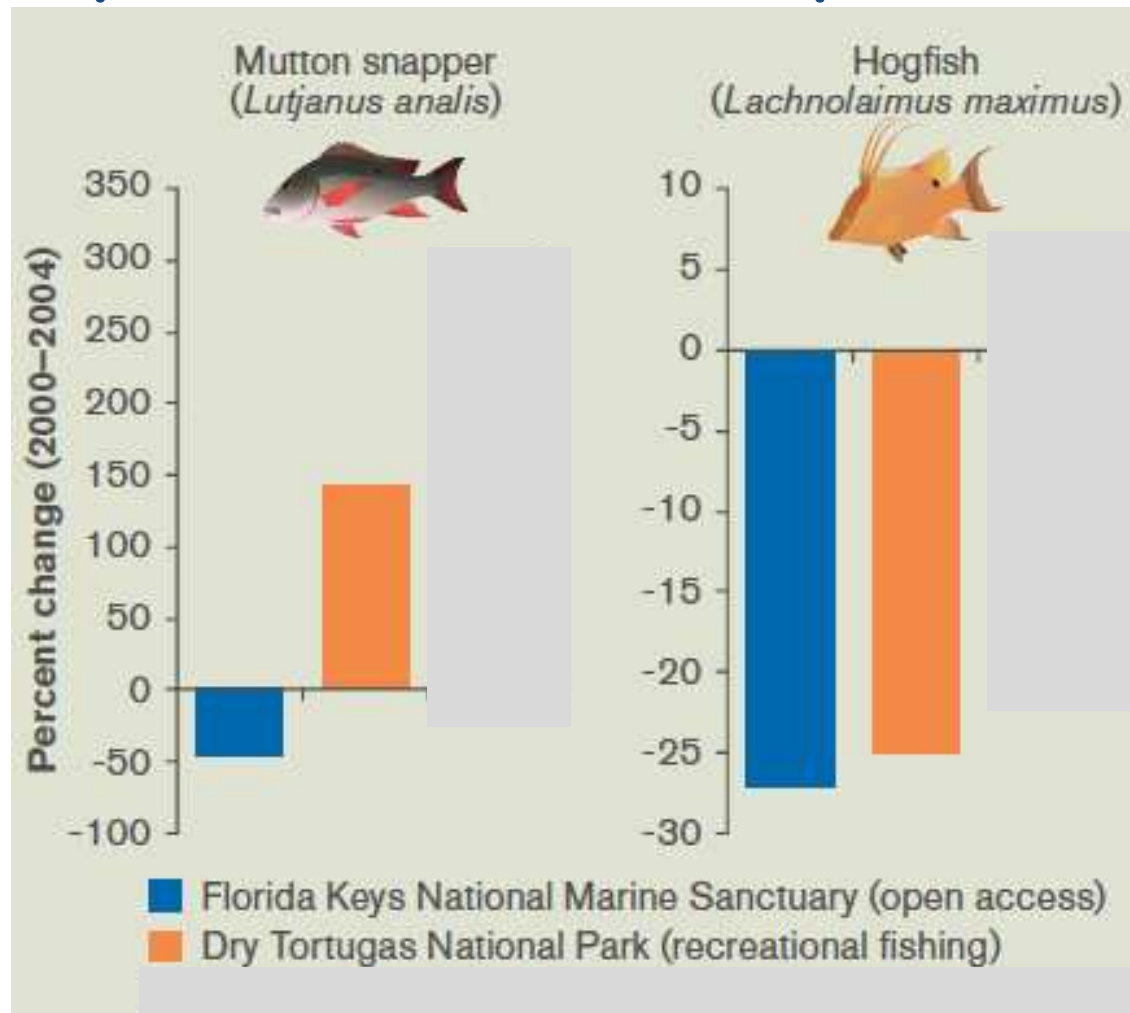
Rapid recovery of fish populations with protection



Goal 4.3: Assess and monitor ecosystem status and trends



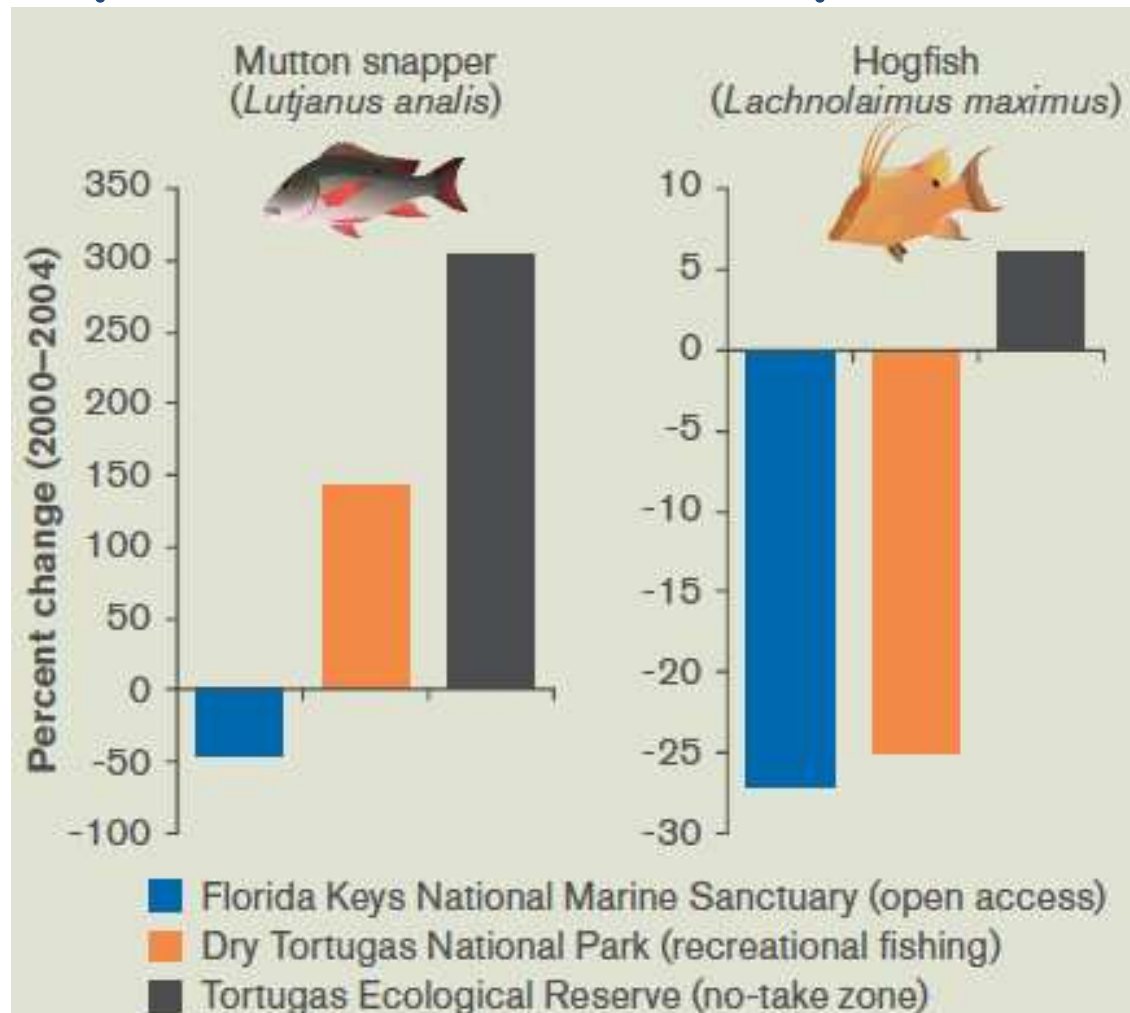
Rapid recovery of fish populations with protection



Goal 4.3: Assess and monitor ecosystem status and trends



Rapid recovery of fish populations with protection



Goal 4.3: Assess and monitor ecosystem status and trends

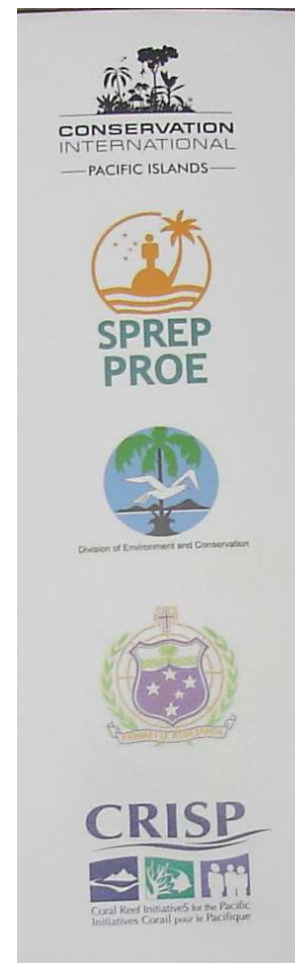


Assessment of Key Biodiversity Areas (KBA's) used to identify MPA areas in Samoa



Aleipata MPA, Samoa

Stuart Chape



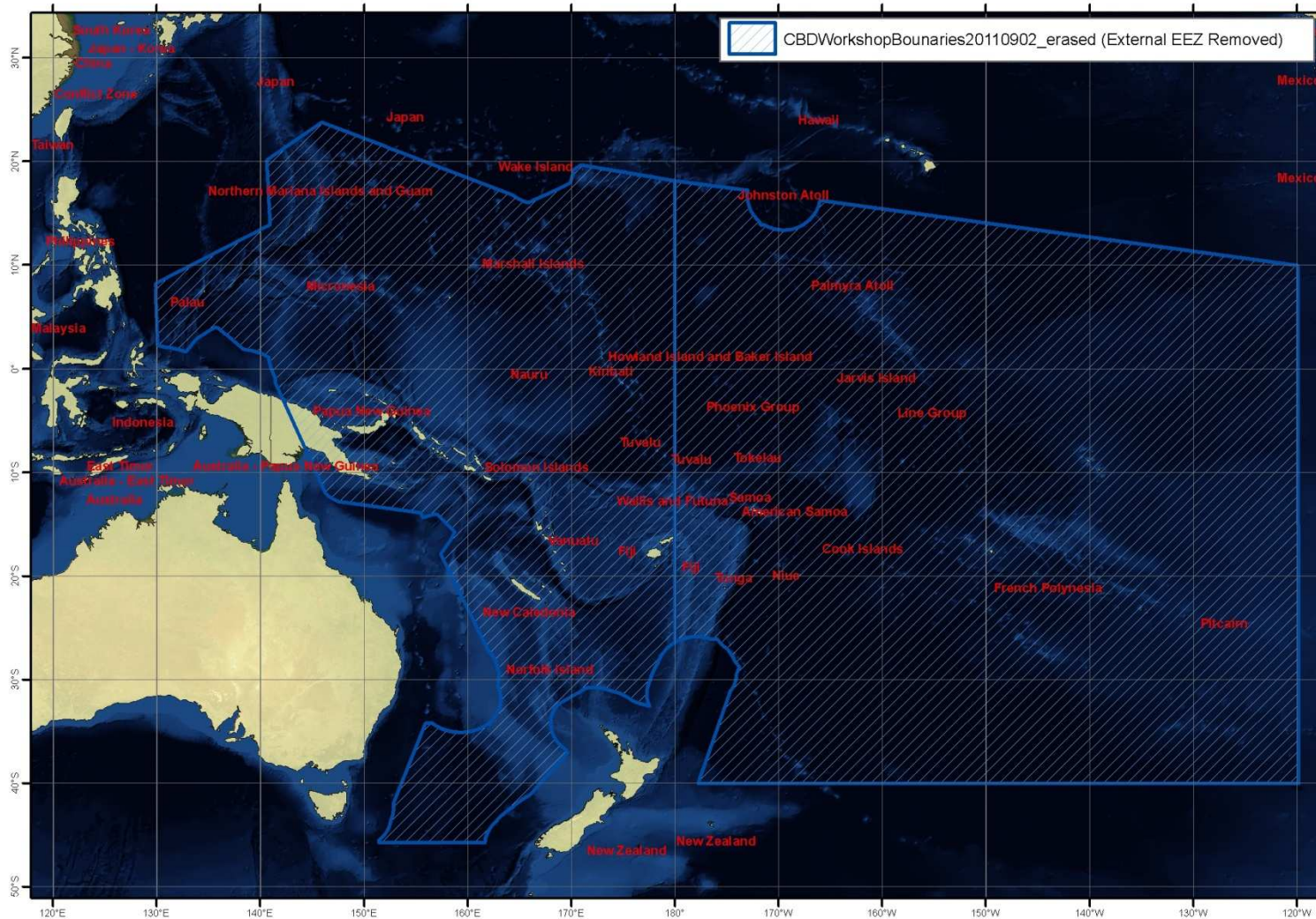
Goal 4.4: Scientific basis to establishment and management



Opportunities: EBSA

Ecologically and Biologically Significant Areas

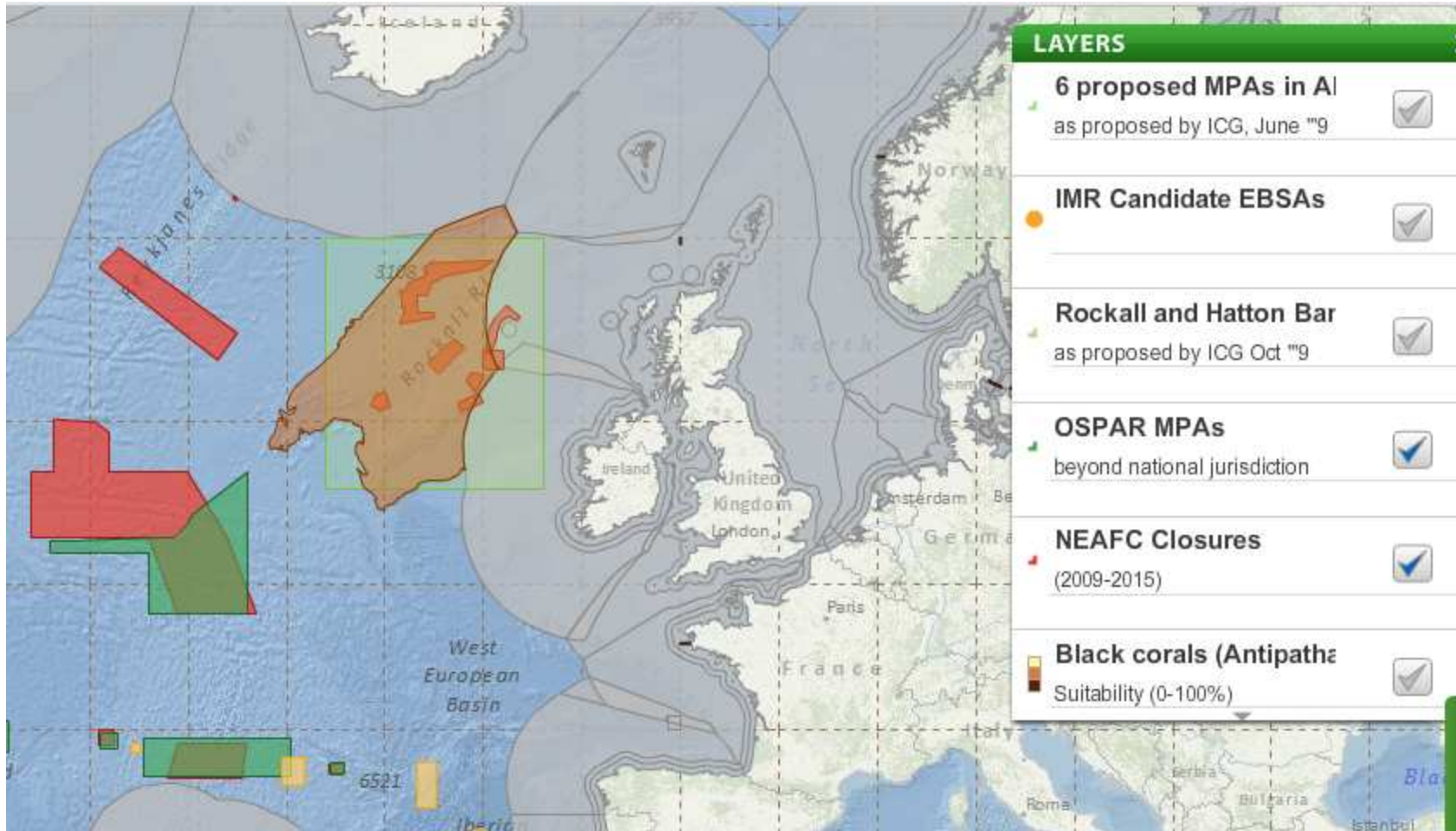
22-25th November 2011, Nadi





Opportunities: EBSA

Ecologically and Biologically Significant Areas 22-25th November 2011, Nadi





Resources...

Convention on Biological Diversity

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The Convention | Cartagena Protocol | Nagoya Protocol | Programmes | Information | Secretariat

Protected Areas

About Protected Areas and the CBD

Overview

Protected areas and the CBD

> Protected Areas > Resources > E-learning curricula

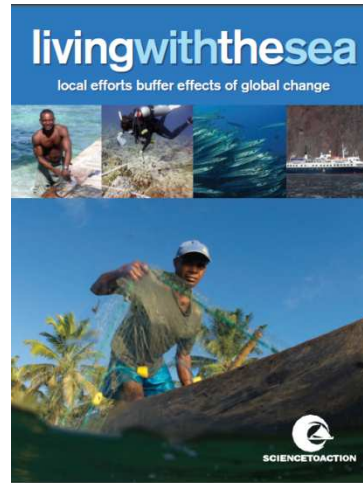
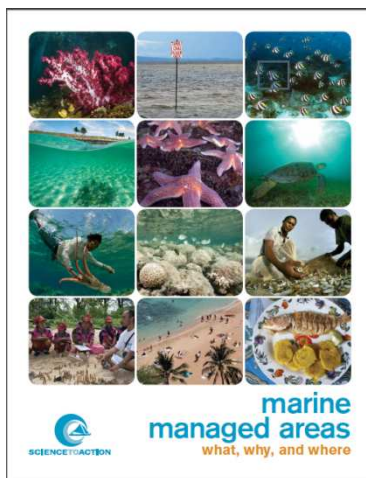
E-learning curricula

There is no shortage of guides, case studies, methodologies and other materials to help implement the Programme of Work on Protected Areas. In fact, there is so much material that it can be overwhelming to read everything. The

Module 18: Marine Protected Areas

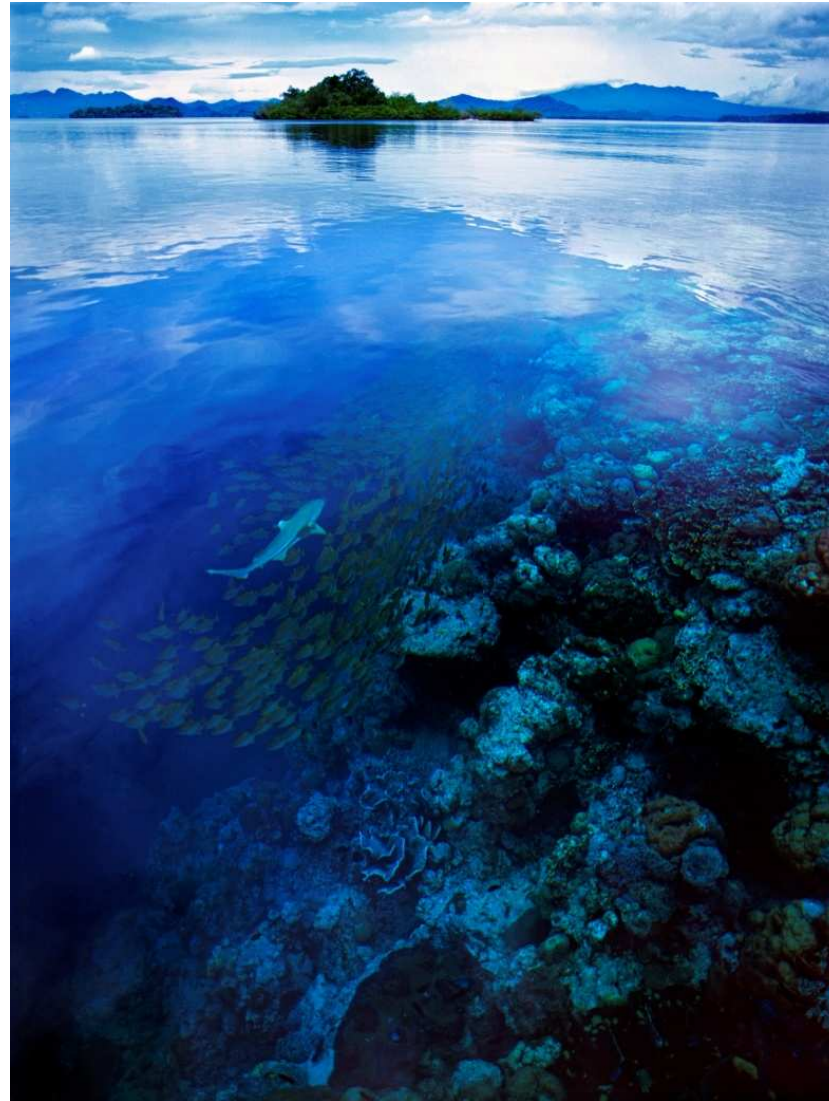
This module shows how the CBD Programme of Work on Protected Areas applies in a marine environment, and enables protected area planners to increase marine protection, improve the marine protected area network, and reduce threats to the marine environment.

[Take the course](#)





Thanks!



Stuart Chape