



WORLD
RESOURCES
INSTITUTE



Social, Economic and Threat Assessment in the Wider Caribbean

W O A , Caribbean, Miami, November 2012

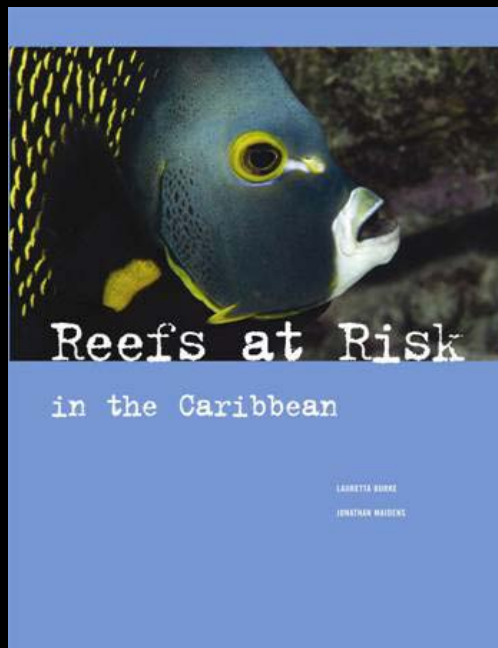
Lauretta Burke, World Resources Institute (WRI)

Assessments Covered

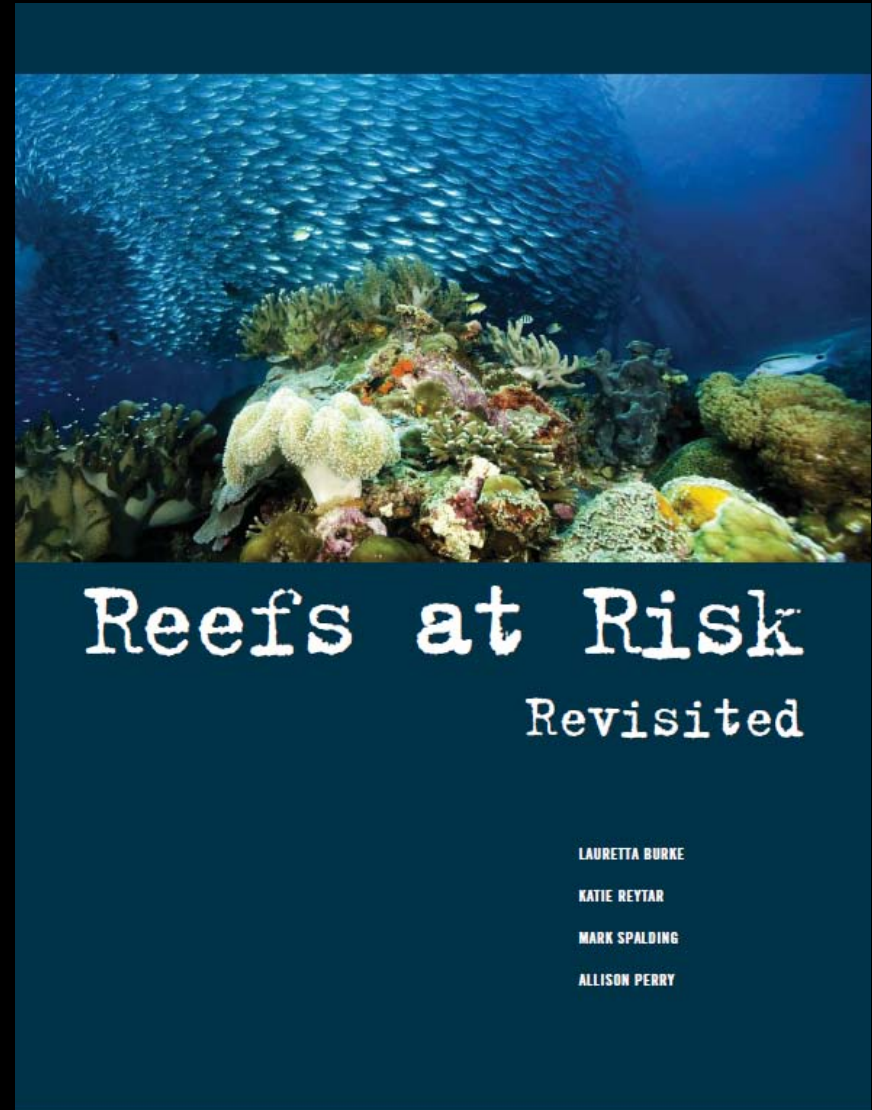
1. Threat Assessment
 2. Social and Economic Vulnerability
 3. Coastal Management
 4. Economic Contribution
 5. Climate Vulnerability
- Recommendations



1. Threat Assessment: Reefs at Risk Revisited



(2004)



(2011)

Local Threats

- Coastal development
- Land-based pollution
- Marine pollution and damage
- Overfishing
- Destructive fishing

Global Threats

- Warming seas
- Ocean acidification

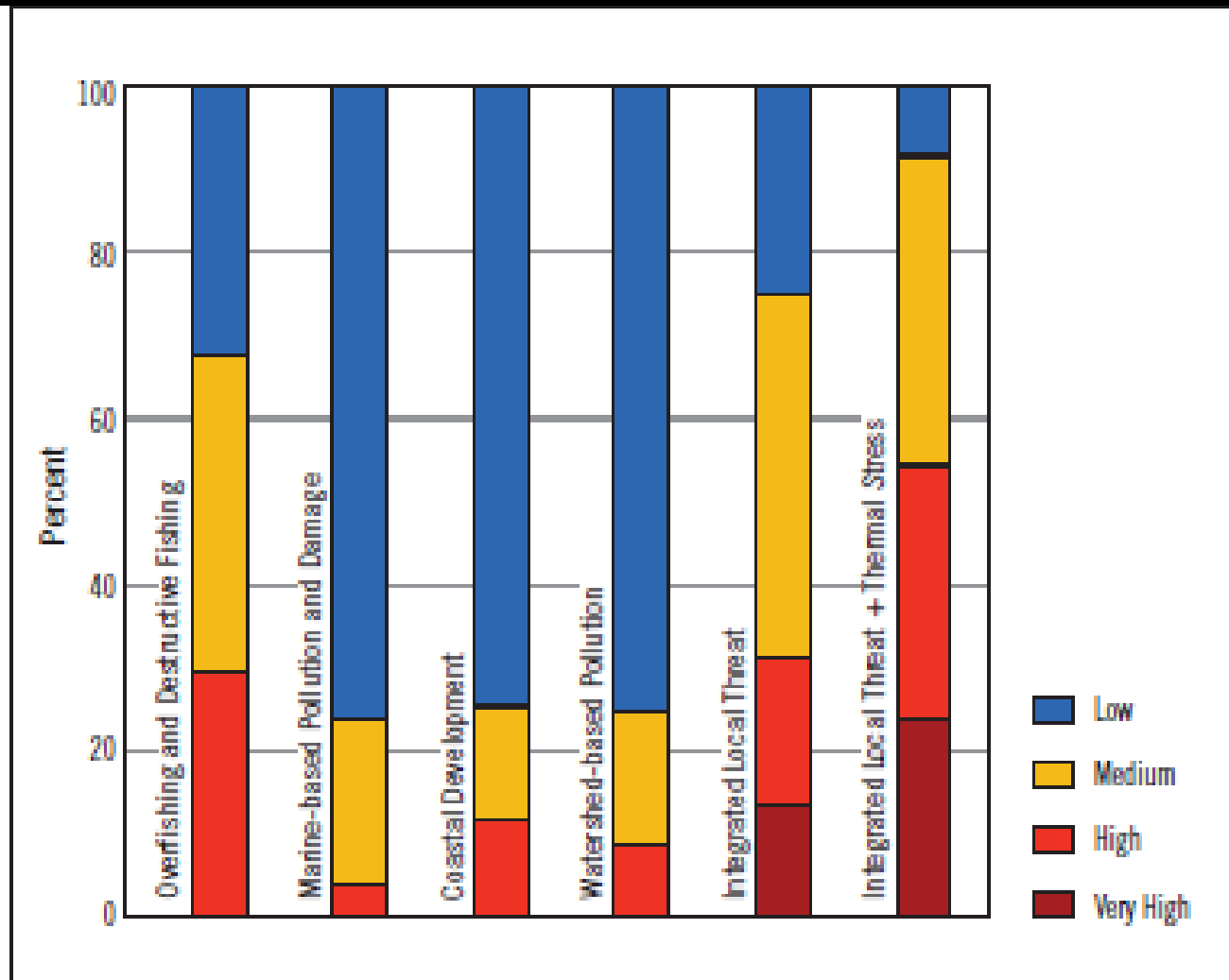


Integrated threat from local activities: today



■ Low ■ Medium ■ High ■ Very High

Present Local Threats - Caribbean



Integrated threat from local activities: today



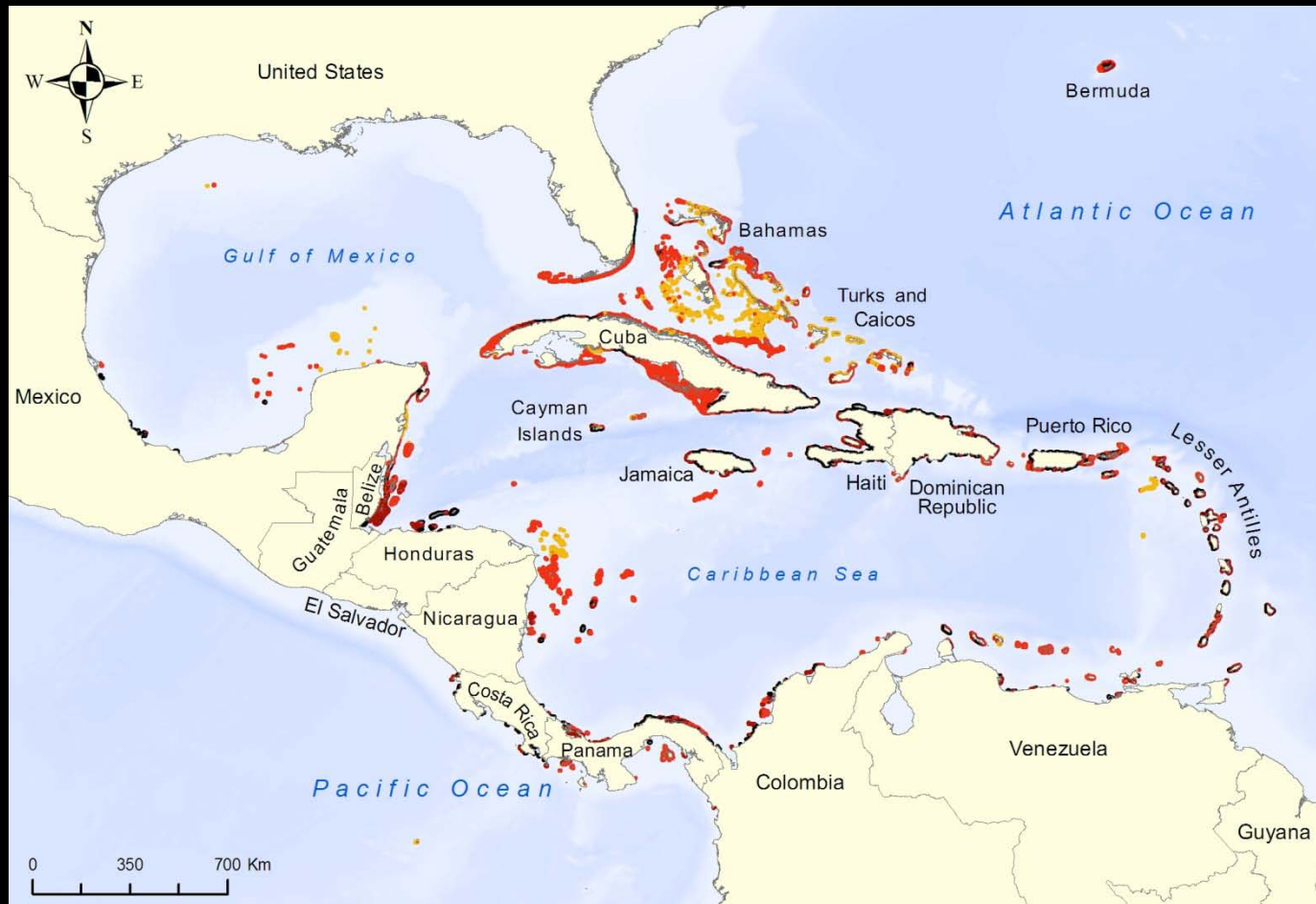
■ Low ■ Medium ■ High ■ Very High

Integrated threat from local activities: 2030



Low Medium High Very High Critical

Integrated threat from local activities: 2050

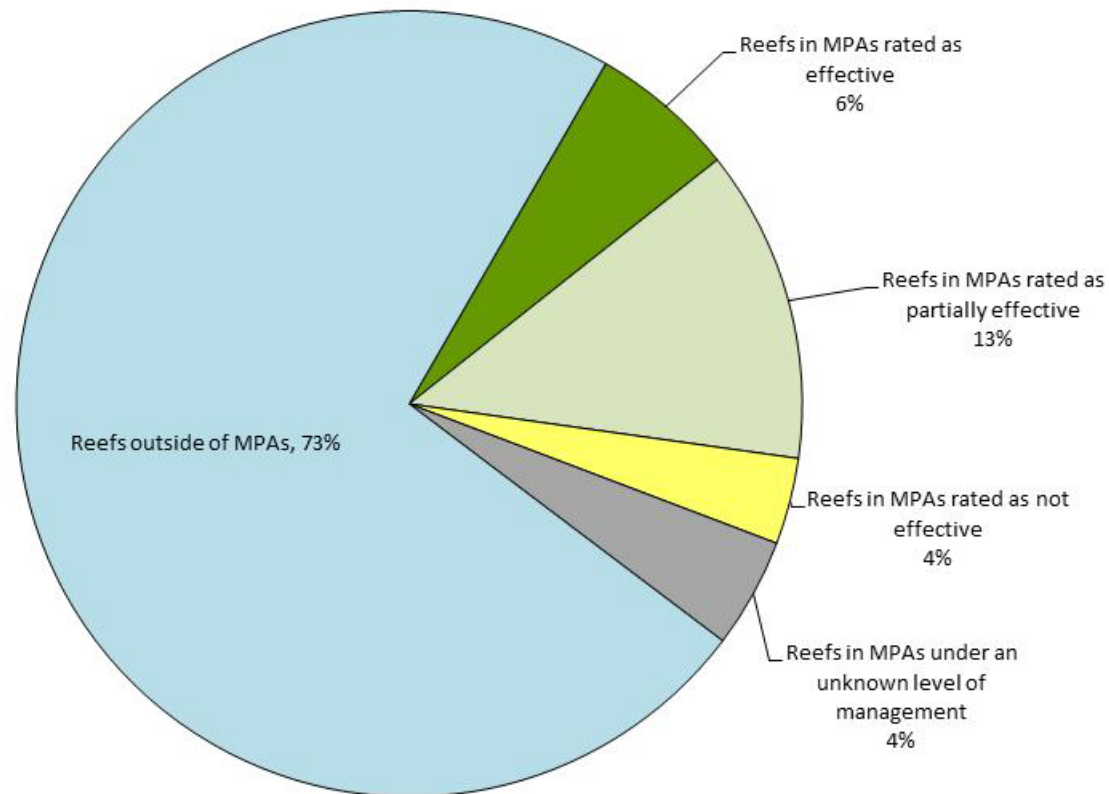


Low Medium High Very High Critical

Marine Protected Areas – Global

27% of reefs in MPAs

Coverage of the world's coral reefs by MPAs and effectiveness level

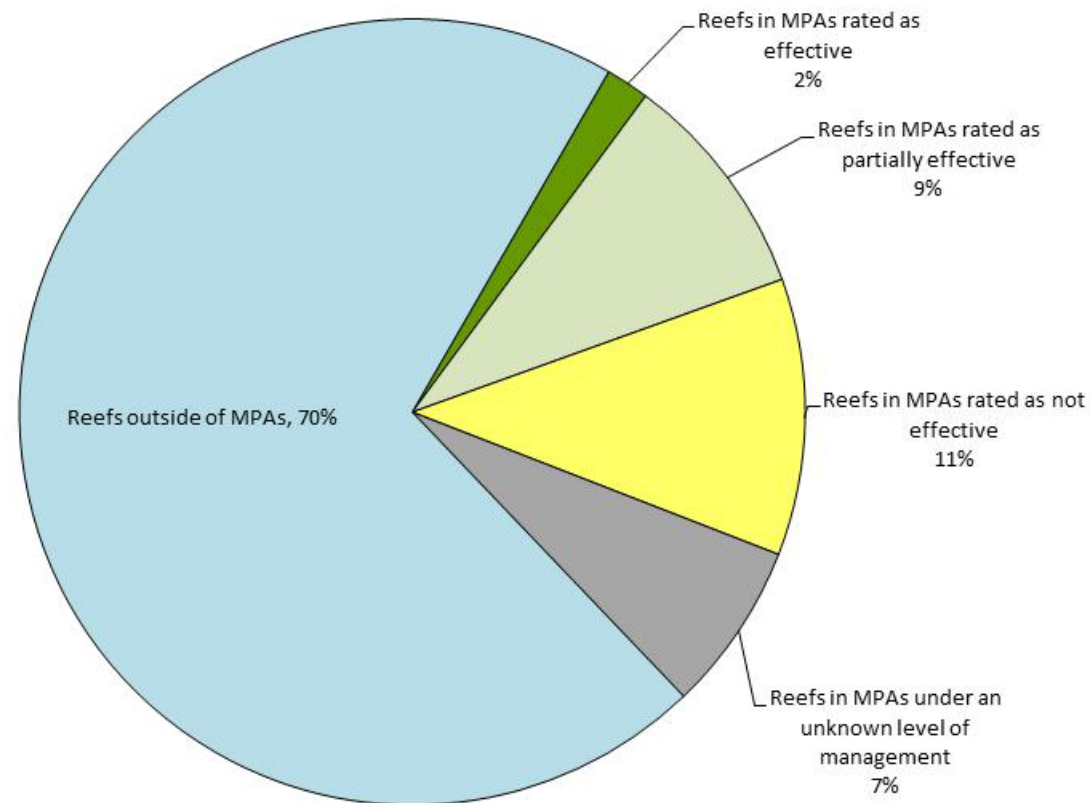


The global area of coral reefs is 250,000 sq km (which represents 100% on this chart), of which 67,350 sq km (27%) is inside MPAs.

Marine Protected Areas – Caribbean

30% of reefs in MPAs

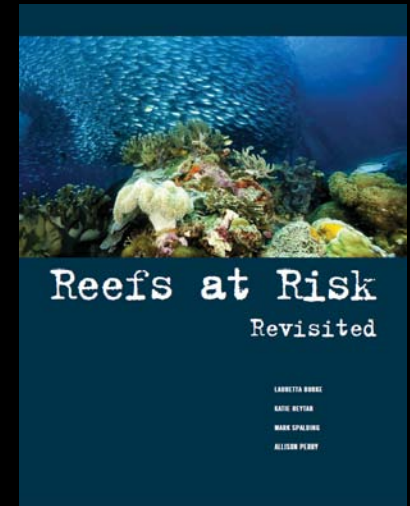
Coverage of the Caribbean's coral reefs by MPAs and effectiveness level



The area of Caribbean coral reefs is 26,000 sq km (which represents 100% on this chart), of which 7,650 sq km (30%) is inside MPAs.

2. Social and Economic Vulnerability Assessment

Where are threats to reefs likely to have the most serious social and economic consequences for reef nations?



Vulnerability of 108 countries and territories

1. Reef threats

2. Reef-dependence

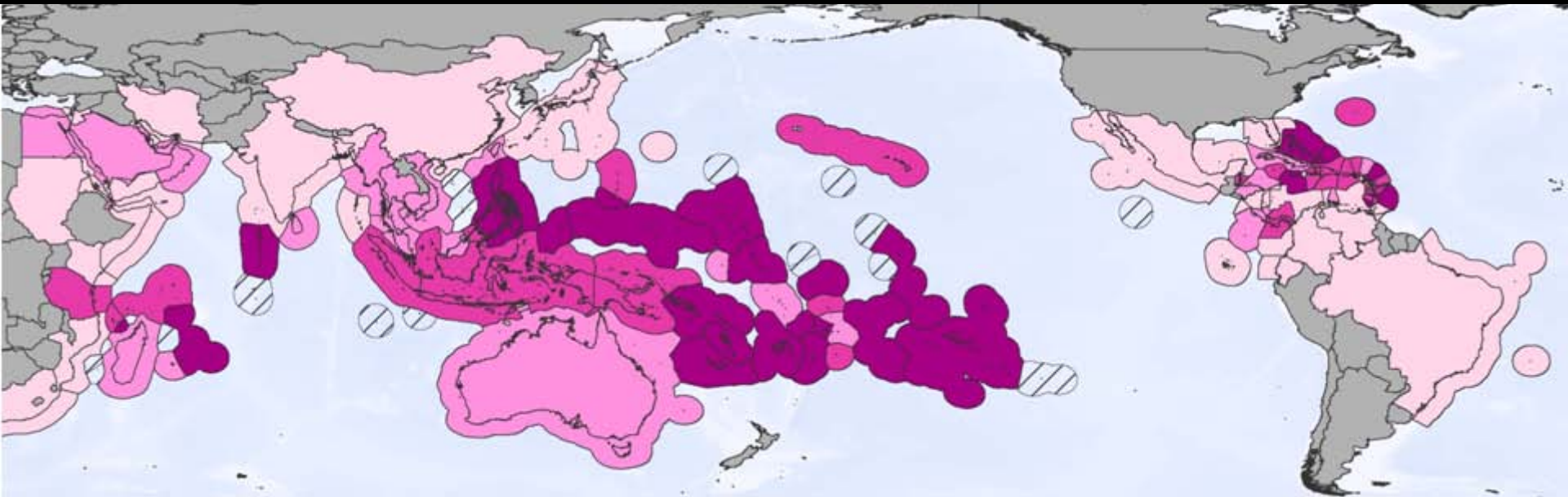
- population
- fisheries employment
- exports
- nutritional dependence
- tourism
- shoreline protection



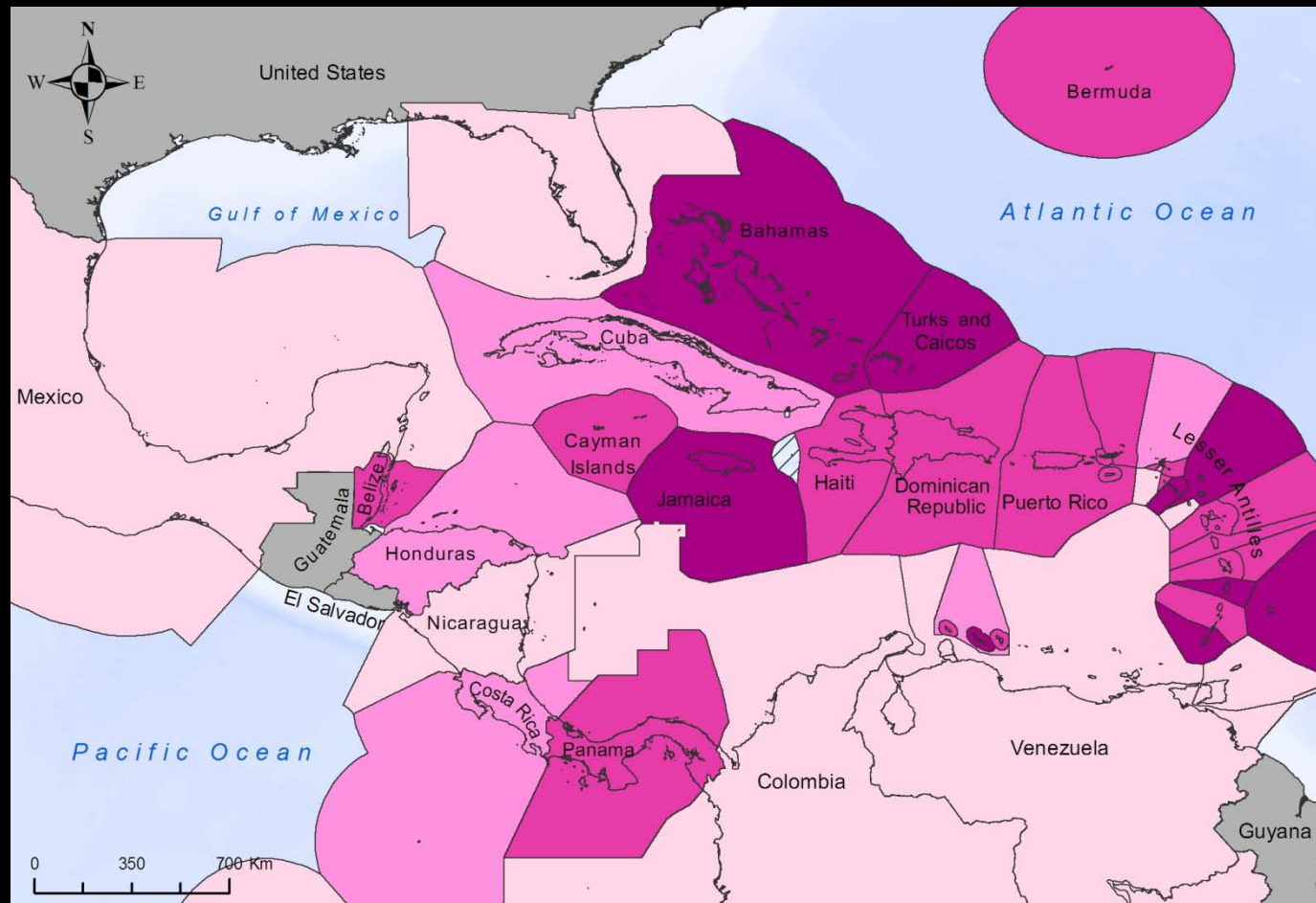
3. Adaptive capacity

- economic resources
- education
- health
- governance
- access to markets
- agricultural resources

Social and economic dependence on coral reefs

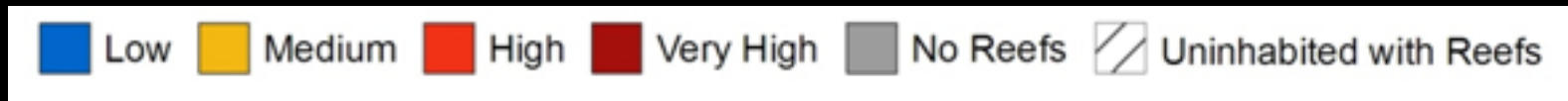
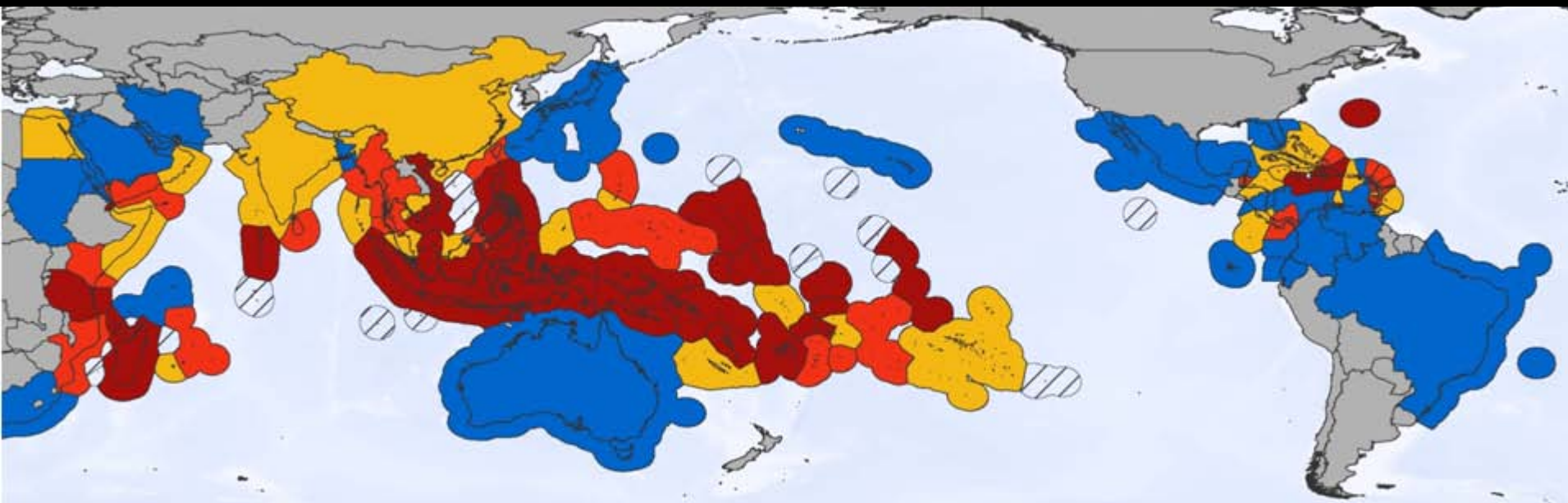


Social and economic dependence on coral reefs

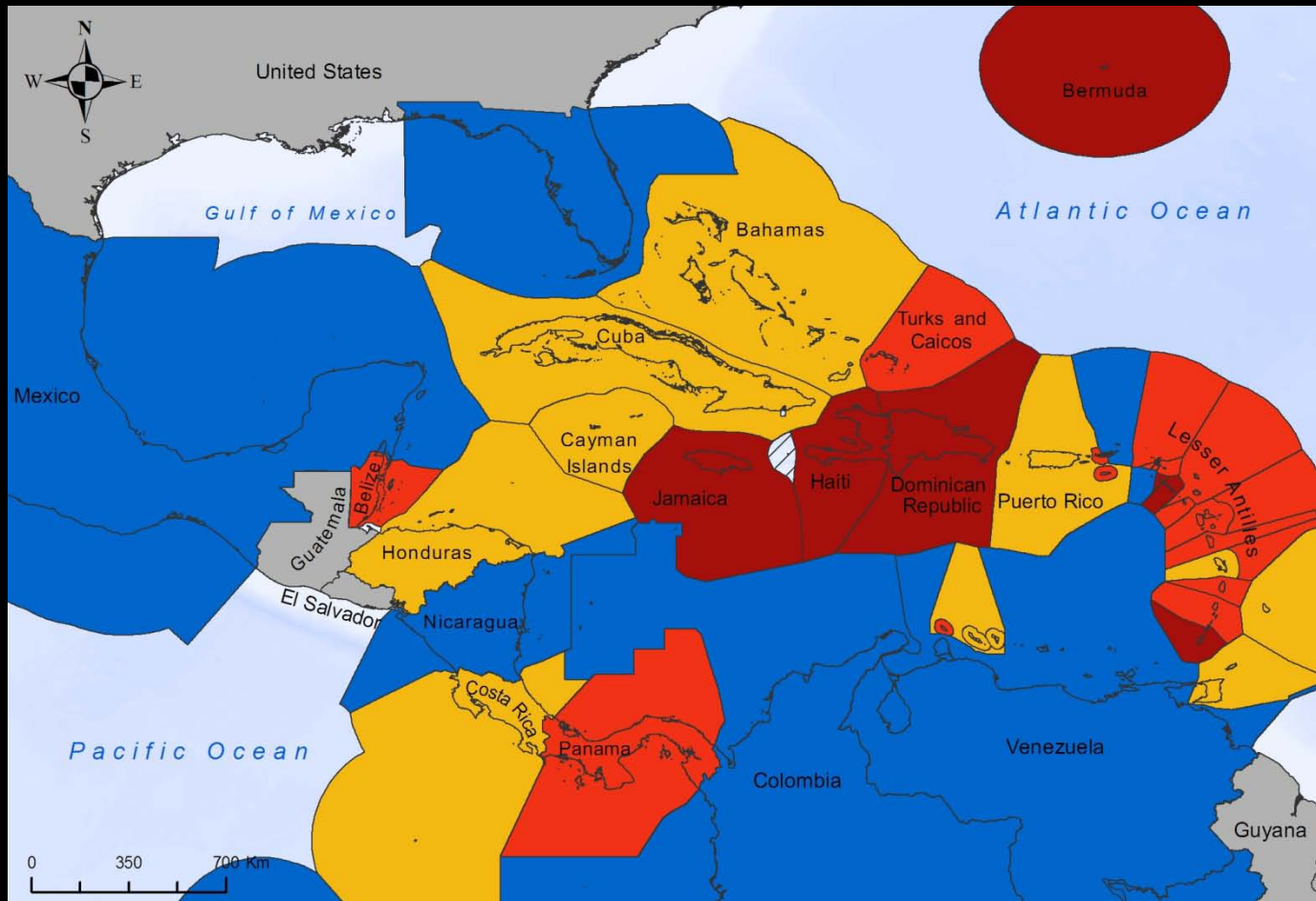


Low Medium High Very High No Reefs Uninhabited with Reefs

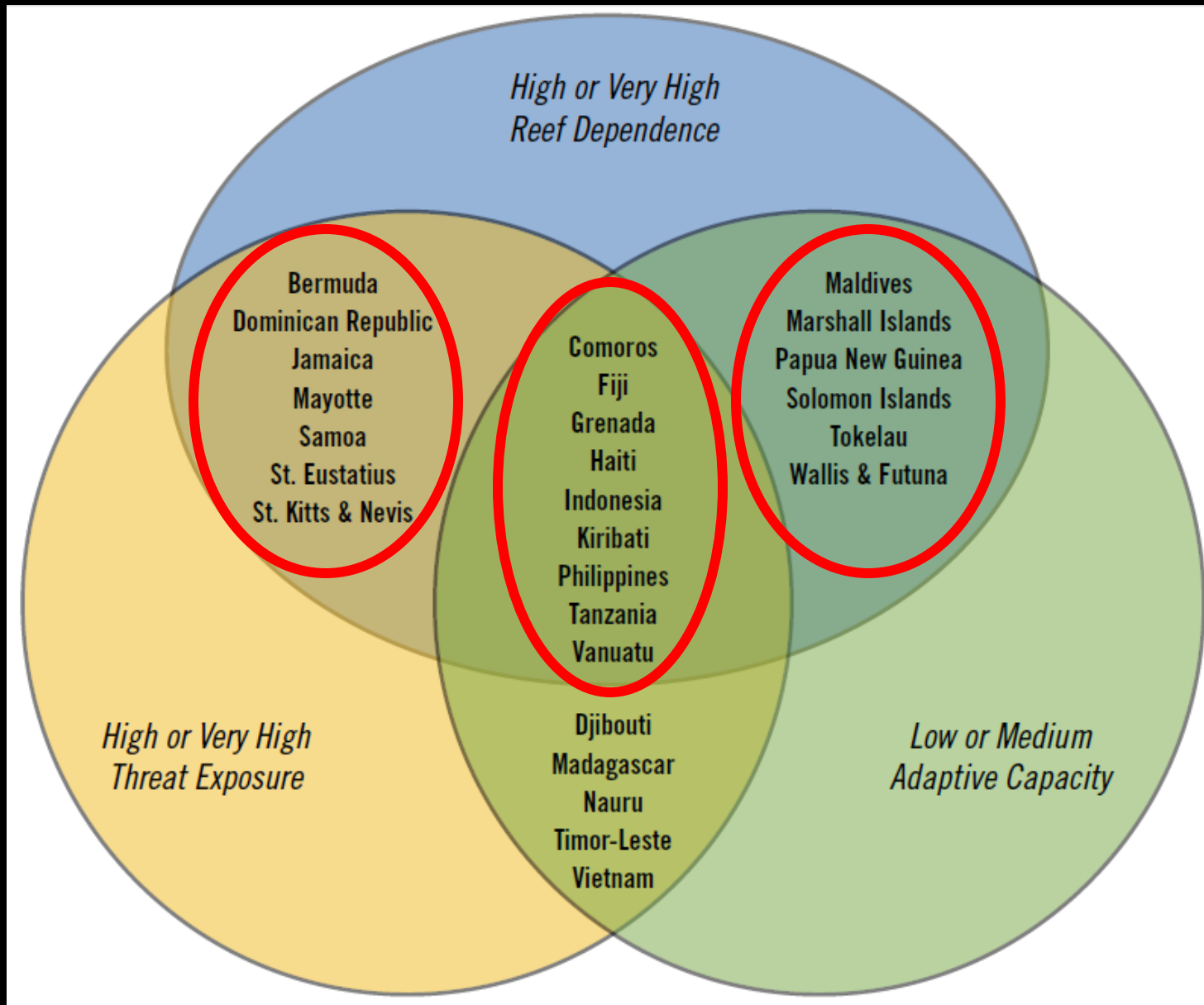
Social and economic vulnerability to reef degradation



Social and economic vulnerability to reef degradation



Highly vulnerable nations



Thoughts / Recommendations

- Standardized method has merit
- Data compilation / weightings
- Local analyses using standard method could contribute

3. Assessment of Coastal Management: Eco-Audit of the MAR



The Mesoamerican Reef (MAR) provides a diverse array of goods and services to the people of Belize, Guatemala, Honduras, and Mexico. It is our shared heritage. Unfortunately, the health of the reef is declining, as documented by the 2008 and 2010 Report Cards published by the Healthy Reefs Initiative. The decline stems, at least in part, from inadequate management of threats to coral reefs. This Eco-Audit **evaluates** our efforts to protect and sustainably manage the region's coral reefs; **celebrates** management success stories; and **documents** the extent to which recommended management actions have been implemented in Belize, Guatemala, Honduras, and Mexico. It seeks to **catalyze** faster, more effective management responses and to **increase accountability** within the public and private sectors and among nongovernmental organizations (NGOs).

AN INNOVATIVE, RIGOROUS PROCESS

The Healthy Reefs Initiative (HRI), in collaboration with the World Resources Institute (WRI) and local partners, developed and implemented this first-ever multinational Eco-Audit of the Mesoamerican Reef Countries.

Evaluation criteria are comprehensive and inclusive.

Twenty-two standardized management indicators were developed across seven themes, such as fisheries management and coastal zone management. The Eco-Audit draws on input from a variety of NGOs, governmental agencies, and the private sector, and includes transparently verified and publicly available results. In September and October 2011, HRI and WRI convened four national workshops, whose purpose was for participants to collectively rank each indicator and to compile documents to verify the rankings.

Analysis is objective, science-based, and validated.

HRI and its regional partners are committed to maintaining audit standards that are unbiased, fact-based, transparent, and replicable. The financial and management auditing firm of PricewaterhouseCoopers Costa Rica (PwC) reviewed the methodology and provided feedback on the processes, indicators, and quality of the verification documentation.

Data quality will be enhanced over time.

This first Eco-Audit establishes a baseline regarding the status of reef ecosystem management efforts. The results are intended to guide data collection and compilation for future Eco-Audits, which will occur every two years. These biennial Eco-Audits and the biennial HRI Reef Report Cards will occur in alternating years, thereby providing a routine accounting of reef health and efforts to improve it. As data collection becomes more complete and the database grows, we anticipate that the Eco-Audit will evolve, becoming more quantitative and comprehensive in its evaluation of management efforts.

A CALL TO ACTION

The results of the Eco-Audit are intended to instill a sense of urgency, accountability, and shared purpose among all institutions: NGOs, governments, and the private sector - with a stake and responsibility for maintaining the MAR as a healthy, biologically vibrant, and economically viable resource for generations to come. The audit seeks to hold high-level decision-makers accountable, while identifying actions needed to protect the MAR.



Mesoamerican Reef Ecoregion Map

WHAT IS AN ECO-AUDIT?

An eco-audit is a systematic, multinational evaluation of the implementation of recommended reef management actions by governments, NGOs, and the private sector. This Eco-Audit includes 22 indicators across 7 themes and over 300 supporting documents within the following components:

- An orientation document that provides an overview of each indicator, including its justification, ranking criteria, and data collection methods (McField and Kuhnert 2011P)
- Detailed worksheets of Eco-Audit results and observations for each country
- Compilations of all publicly available verification documentation for each indicator by country

These products, along with additional information about the Eco-Audit, are available online at www.healthyreefs.org and www.wri.org/reefs.

- Four countries
- Over 40 organizations
- Over 100 individuals
- Over 300 supporting documents collected
- Serves as basis for measuring future progress

Conducted by:



Funded by:



The 2011 Eco-Audit Partners



The 2011 Eco-Audit Process



- Seven Themes
- Twenty-two Indicators/Criteria
- Means of Verification

Key for Results



Regional Average for MAR

2.7



FAIR

THEMES

Marine Protected Areas

3.0



Ecosystem-based Fisheries Management

2.8



Coastal Zone Management

2.5



Sanitation and Sewage Treatment

2.3



Research, Education and Awareness

3.9



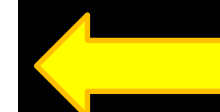
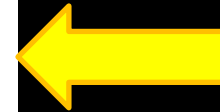
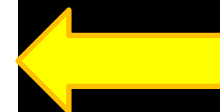
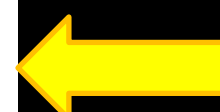
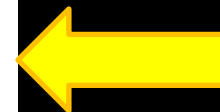
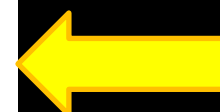
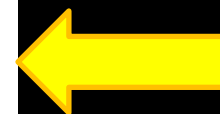
Sustainability in the Private Sector

2.2



Global Issues

2.5



RESULTS BY THEME

REGION

BELIZE

GUATEMALA

HONDURAS

MEXICO



Marine Protected Areas

Ecosystem-based Fisheries Management

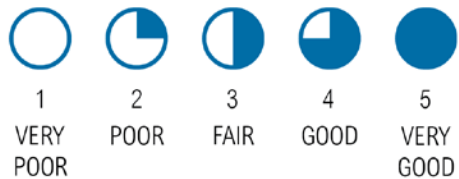
Coastal Zone Management

Sanitation and Sewage Treatment

Research, Education and Awareness

Sustainability in the Private Sector

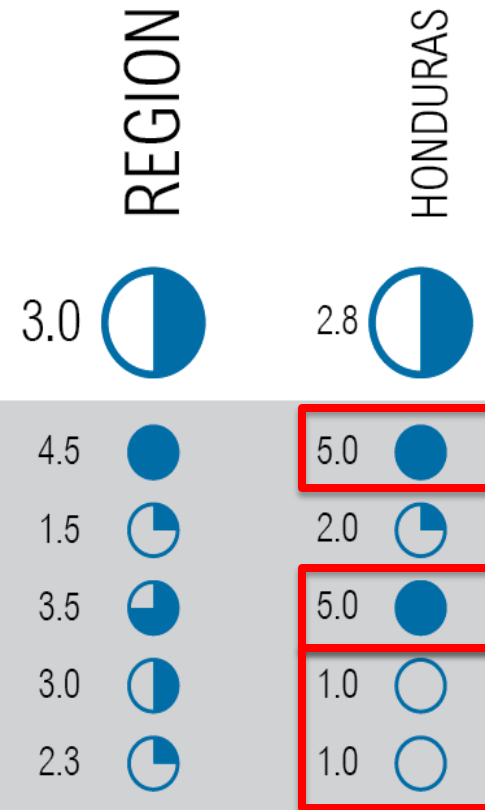
Global Issues



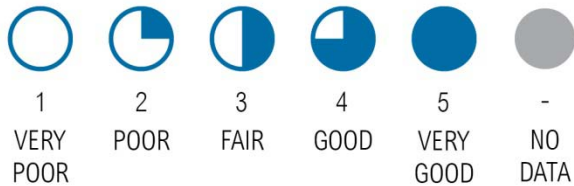
Theme – MPAs

Marine Protected Areas

- Percent of a country's territorial sea included in gazetted MPAs
- Percent of a country's territorial sea included in fully protected zones
- Percent of mapped coral reef area included in fully protected zones
- Percent of MPAs with good management
- Percent of MPAs with good enforcement



KEY



Recommendations

- Pilot the Management Scorecard concept in other locations
- Develop standardized themes, indicators, and criteria
- Apply widely

4. Economic Assessment: Coastal Capital



Coastal Capital – study locations







3 Goods and Services Evaluated

Fisheries

Tourism

Shoreline Protection



3 Goods and Services Evaluated

Benefits:

Fisheries

Tourism

Shoreline Protection

- *Tangible*
- *Relevance to national and local economies*
- *Data available*



3 Goods and Services Evaluated

Fisheries

Tourism

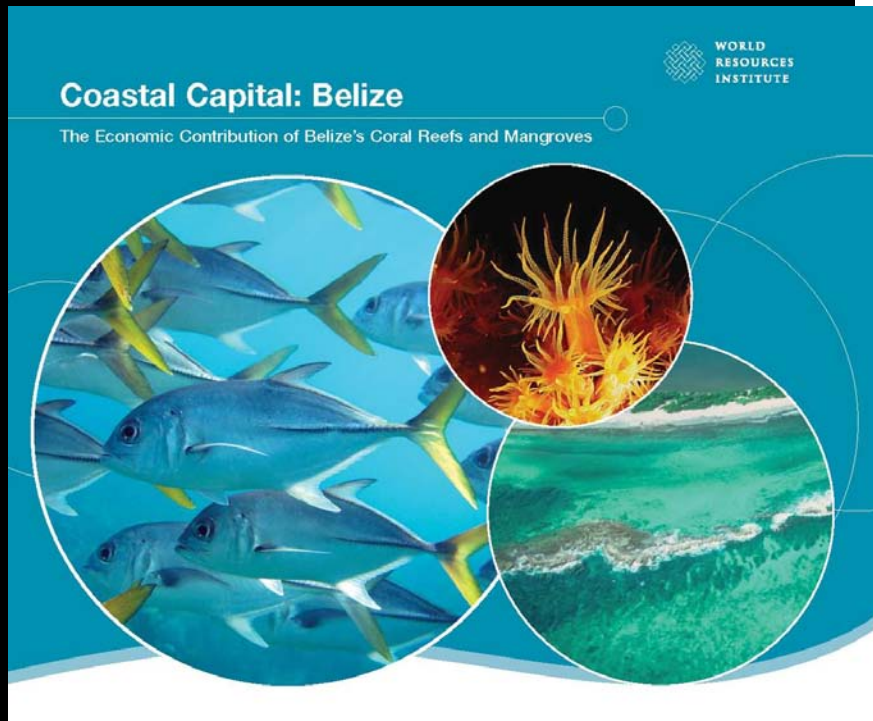
Shoreline Protection

Limitations:

- *Omitted Values –*
 - *Pharmaceutical*
 - *Local use*
 - *Raw materials*
 - *Existence / spiritual*

Project Intention

- Standardized method
- Tools



Coastal Capital – Economic Valuation of Coral Reefs in Tobago and St. Lucia

by Laretta Burke, Suzie Greenhalgh, Daniel Prager and Emily Cooper

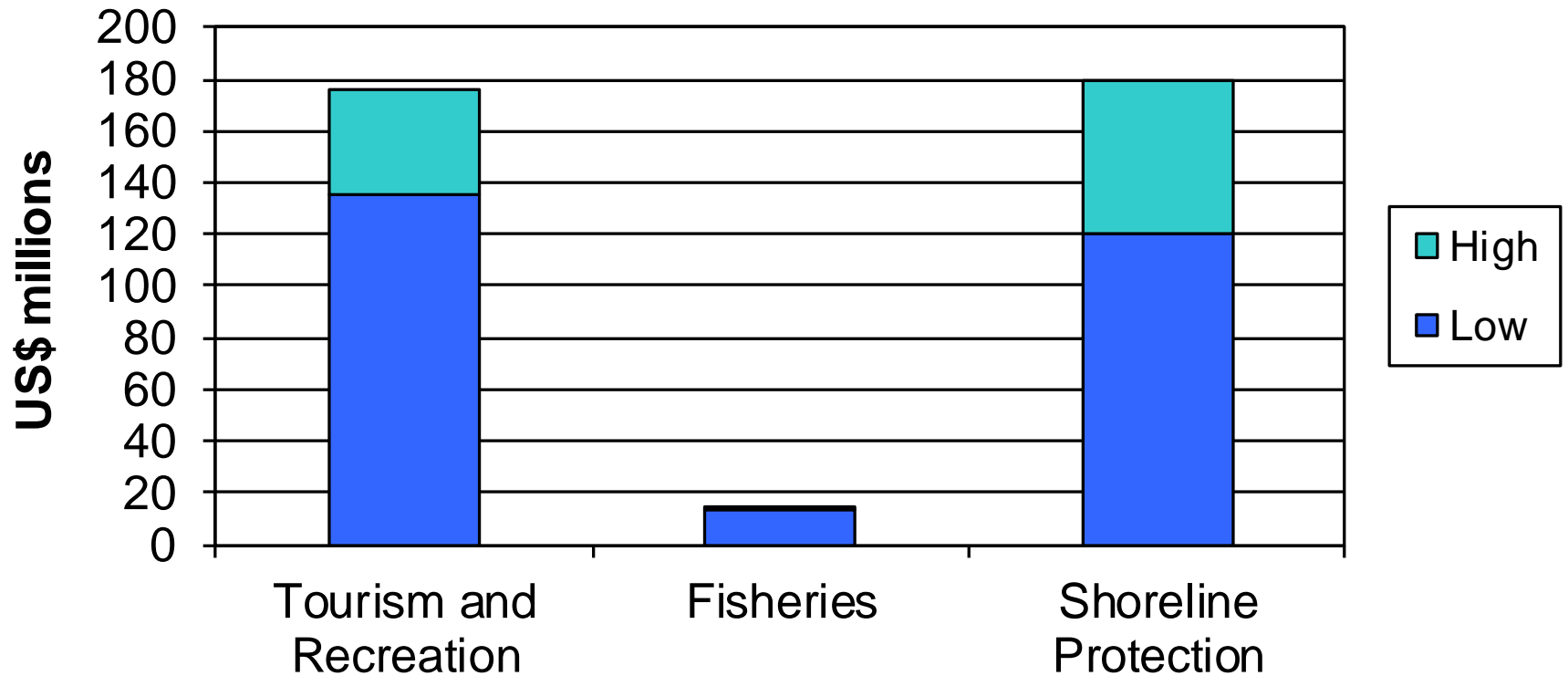
Final Report - June, 2008



Valuation Results (annual benefits from coral reefs)

Country	Tourism	Fisheries	Shoreline Protection
Tobago	\$101-130M	\$0.8-1.3M	\$18-33M
St. Lucia	\$160-194M	\$0.5-0.8M	\$28-50M
Belize	\$135-176M	\$13-14M	\$120-180M

Coral Reef Goods and Services in Belize - (Annual Values)



Influence in Belize



Influence Review - Enabling Conditions

- local demand for valuation
- a clear policy question
- strong local partnerships
- access to decision-makers
- good governance with high transparency
- study areas with a high dependence on coastal

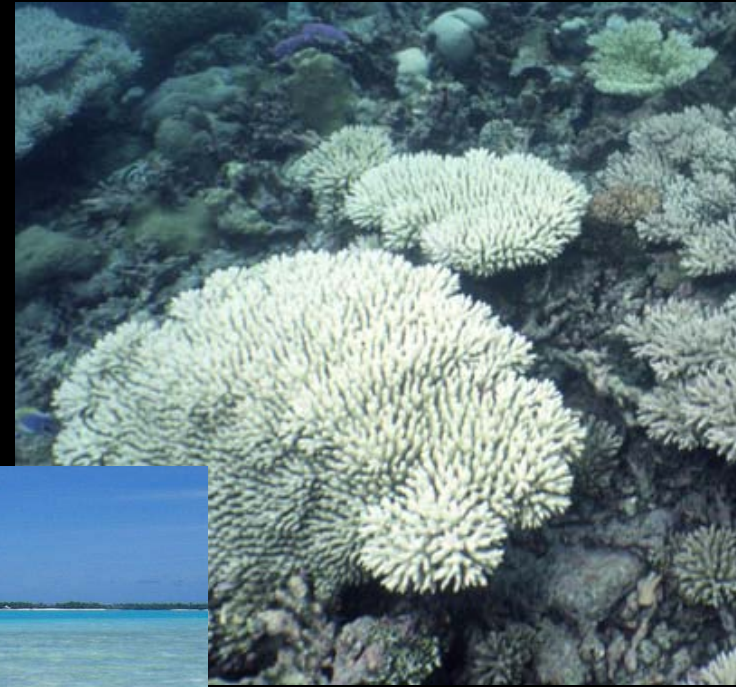
- Precision and method over-rated
- Transparency about assumptions is key



Thoughts / Recommendations

- Valuation has merit, but does not always influence policy
- Think before you commission / embark
- How many of the enabling conditions exist?
- Is simply knowing the value useful?
- Is there a specific policy consideration?

5. Assessment of Vulnerability to Climate Change



Vulnerability

- The degree to which a system is susceptible to adverse effects of something.....
 - Climate variability
 - Extreme events
- Uncertainties
- (and compound uncertainties)

Components of Vulnerability

1. **Sensitivity** of a system to a stress
2. **Exposure** to that stress
3. Its **Capacity to Adapt** to the changes

Recommendations (and Opinion)

1. Consider **Climate Change** in planning assessments
2. Global and Regional “**economic values**” don’t mean much. Won’t be able to track trends. Local values derived for policy are useful.
3. **Standardized approach** – Can be top-down or bottom-up
4. Identify data sources to **validate** assessments

Thank you!



For more information on WRI's
Coastal projects:
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