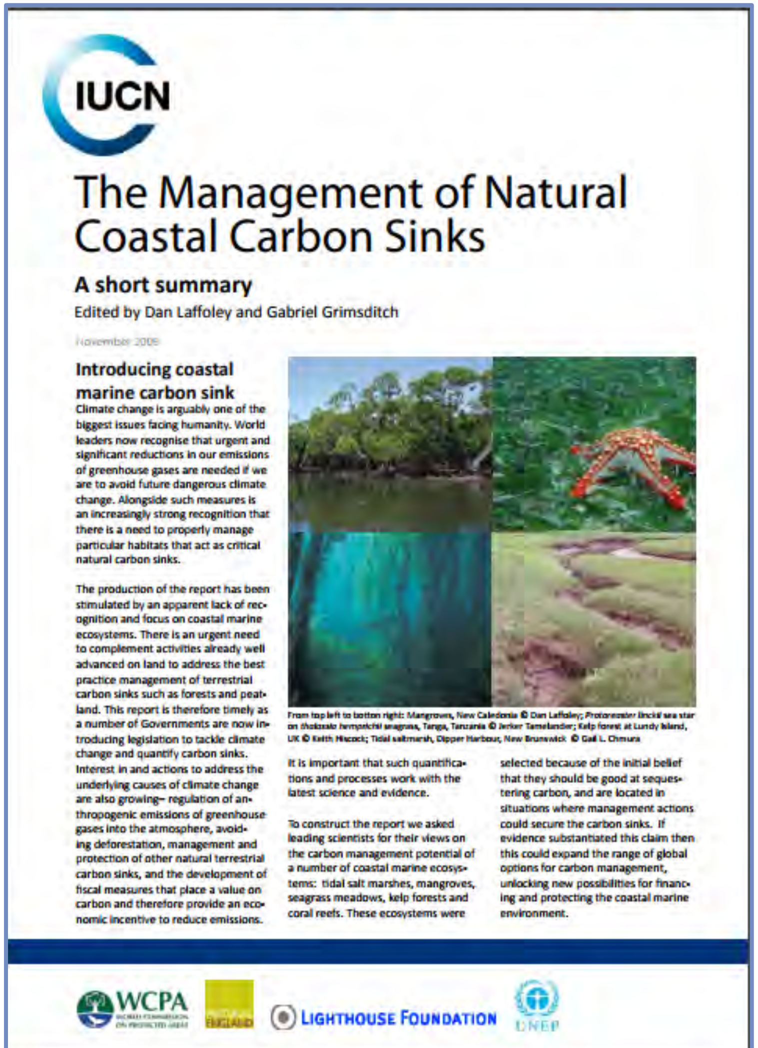
Dan Laffoley, Marine Vice Chair, IUCN World Commission on Protected Areas

(Illustrations – Dorothee Herr & Dan Laffoley)

Coastal (carbon) wetlands

Photos clockwise from top left: © Steve Crooks, © CI/photo by Sarah Hoyt, © M.A. Mateo, © Keith Ellenbogen, © Jeff Yonover, © CI/photo by Sarah Hoyt



IUCN

The Management of Natural Coastal Carbon Sinks

A short summary

Edited by Dan Laffoley and Gabriel Grimsditch

November 2009

Introducing coastal marine carbon sink

Climate change is arguably one of the biggest issues facing humanity. World leaders now recognise that urgent and significant reductions in our emissions of greenhouse gases are needed if we are to avoid future dangerous climate change. Alongside such measures is an increasingly strong recognition that there is a need to properly manage particular habitats that act as critical natural carbon sinks.

The production of the report has been stimulated by an apparent lack of recognition and focus on coastal marine ecosystems. There is an urgent need to complement activities already well advanced on land to address the best practice management of terrestrial carbon sinks such as forests and peatland. This report is therefore timely as a number of Governments are now introducing legislation to tackle climate change and quantify carbon sinks. Interest in and actions to address the underlying causes of climate change are also growing– regulation of anthropogenic emissions of greenhouse gases into the atmosphere, avoiding deforestation, management and protection of other natural terrestrial carbon sinks, and the development of fiscal measures that place a value on carbon and therefore provide an economic incentive to reduce emissions.

From top left to botton right: Mangroves, New Caledonia © Dan Laffoley; Protoreaster linckii sea star on thalassia hemprichii seagrass, Tanga, Tanzania © Jerker Tamelander; Kelp forest at Lundy Island, UK © Keith Hiscock; Tidal saltmarsh, Dipper Harbour, New Brunswick © Gail L. Chmura

It is important that such quantifications and processes work with the latest science and evidence.

To construct the report we asked leading scientists for their views on the carbon management potential of a number of coastal marine ecosystems: tidal salt marshes, mangroves, seagrass meadows, kelp forests and coral reefs. These ecosystems were selected because of the initial belief that they should be good at sequestering carbon, and are located in situations where management actions could secure the carbon sinks. If evidence substantiated this claim then this could expand the range of global options for carbon management, unlocking new possibilities for financing and protecting the coastal marine environment.

WCPA World Commission on Protected Areas · Natural England · Lighthouse Foundation · UNEP

IUCN

The Management of Natural Coastal Carbon Sinks

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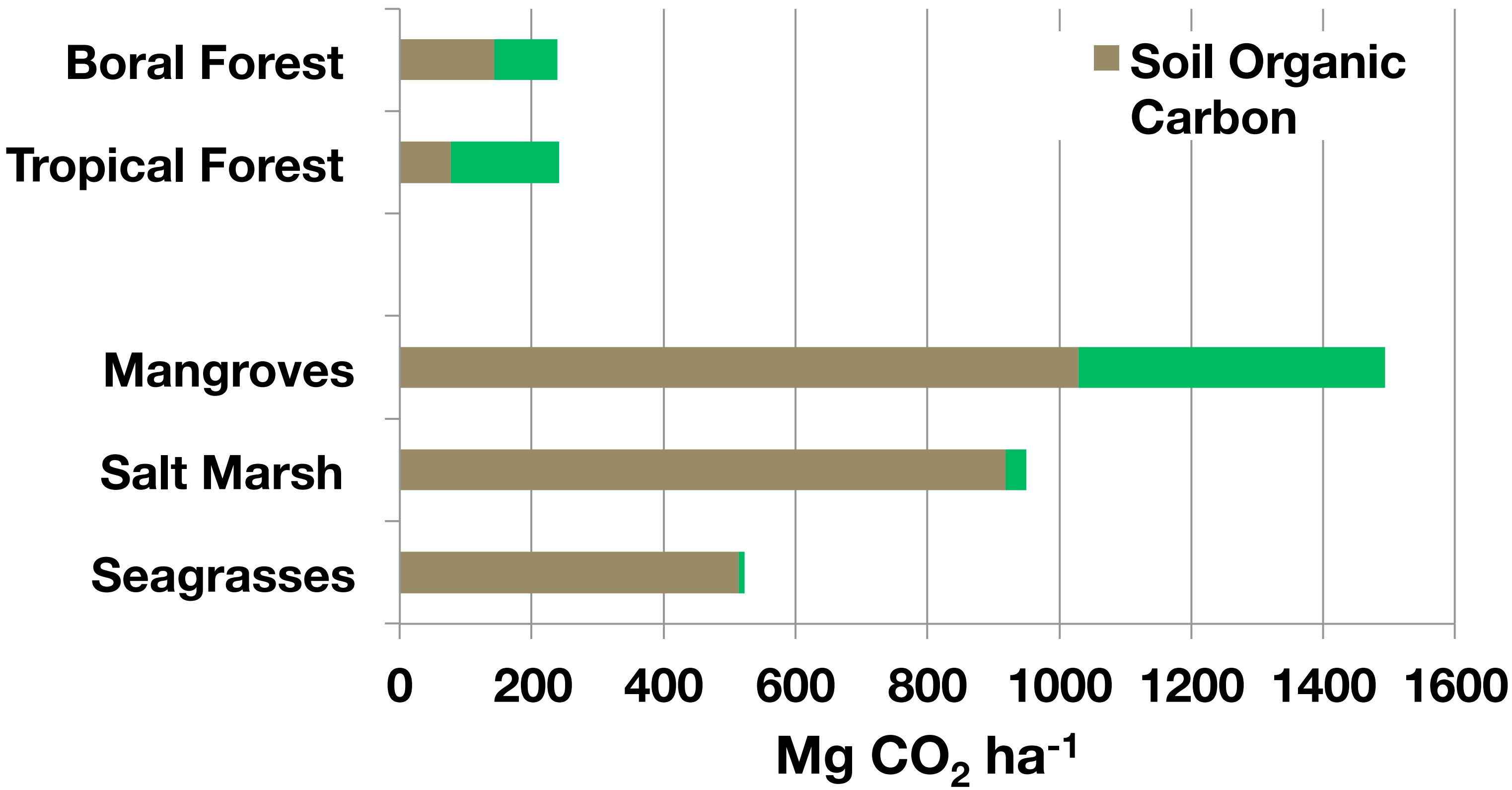
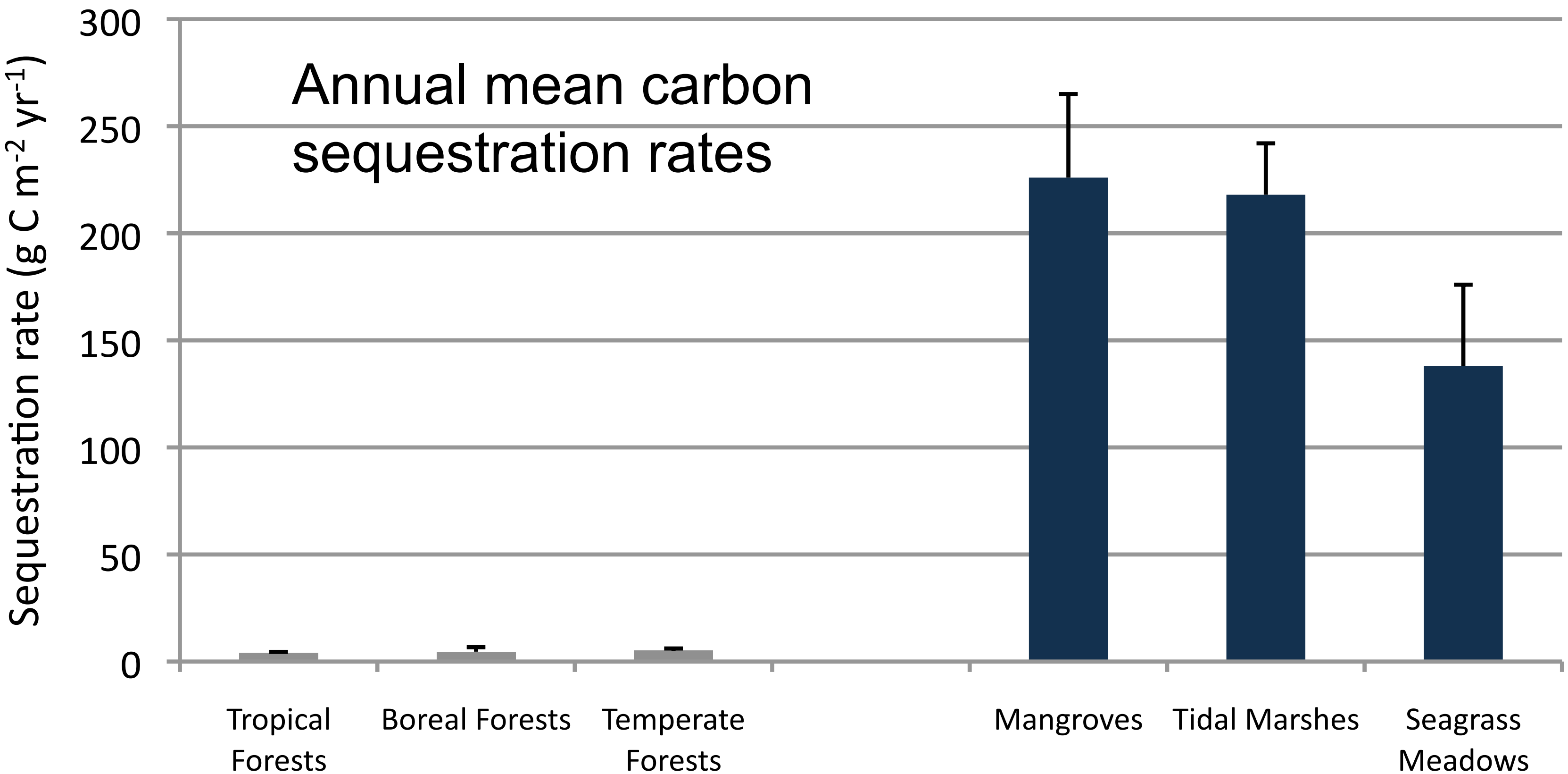
The 2009 stimulus

Coastal Ecosystem Have Rich Carbon Stores



(Fourqurean et al. 2012; Pan et al. 2011; Pendleton et al. 2012)

Costal Ecosystems Highly Efficient at Carbon Sequestration



Modified from McLeod et al. 2011

Coastal ecosystem loss >> Carbon emissions






upstream disruptions
land-based pollution
aquaculture
rice & agriculture
road development
hydrological disruption
coastal development

2% area of tropical forests
10% of the emissions

Nature-based solutions to climate change

Coastal and marine ecosystems and their contribution to:

* Mitigation
* Adaptation



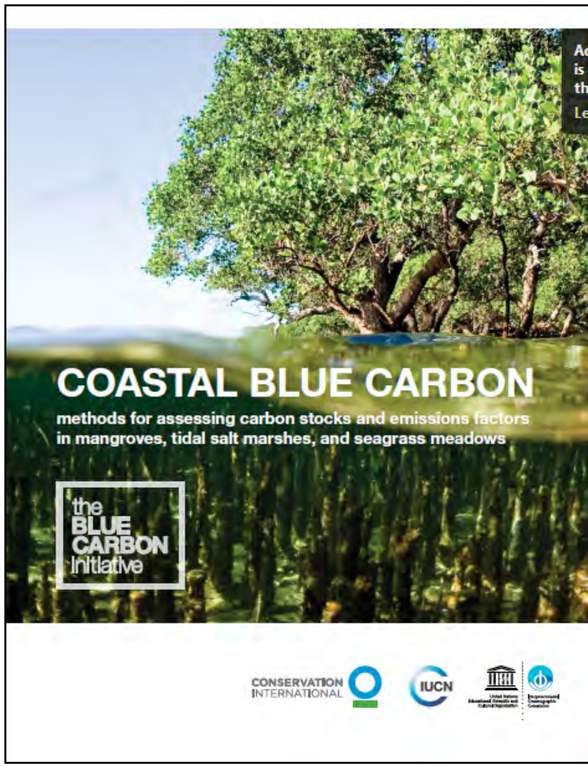


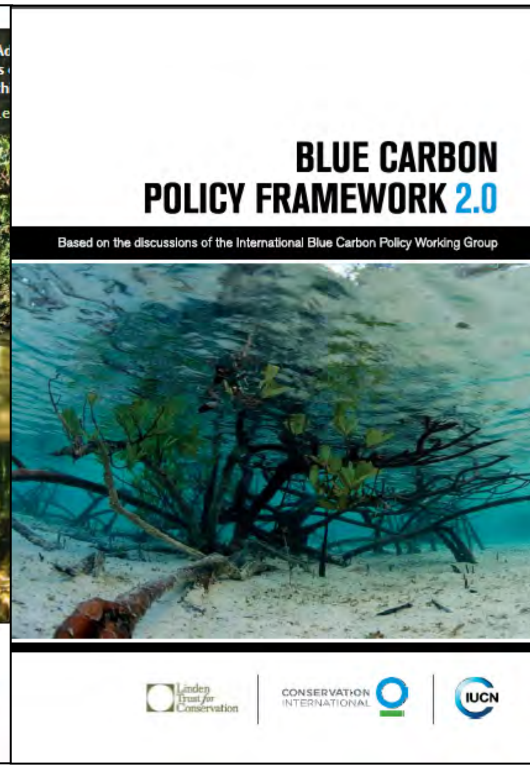




the BLUE CARBON initiative

- Active since 2009
- First group of its kind
- Policy and scientific advise
- Negotiations and national implementation






GUIDANCE FOR NATIONAL BLUE CARBON ACTIVITIES

Fast-tracking national implementation in developing countries

Coastal ecosystems – in particular mangroves, tidal marshes and seagrasses – contain rich carbon reservoirs. When these ecosystems are converted or degraded, they release this stored carbon into the atmosphere and oceans and become sources of greenhouse gas (GHG) emissions. The conservation, restoration and sustainable use of these systems can support climate change, as well as conserve many other benefits these ecosystems provide, such as fisheries support and coastal protection.

A number of developing countries, such as Indonesia, have started to address the conversion and degradation of coastal 'blue carbon' ecosystems through national policy, management and planning. These countries can reduce their GHG emissions and contribute to climate change mitigation.

This brief provides guidance on how to efficiently include blue carbon activities and priorities into national climate change mitigation efforts. It is intended to support national government representatives, NGOs, research institutions and other stakeholders engaged in national climate change policy development and implementation.

High Priority activities for national policy and management include:

- Development of national blue carbon action plans, outlining specific national circumstances, opportunities, needs and limits;
- Conducting national scientific carbon, ecological and socio-economic assessments of shallow coastal marine ecosystems;
- Conducting national cost-benefit analysis of including blue carbon activities into national climate change mitigation strategies, together with a description of the short and long-term benefits of carbon-related finance and activities in coastal areas.

Many countries will likely need to focus on readiness activities that increase national understanding and capacity on the technical, policy and institutional aspects of emissions and removals from blue carbon sinks and reservoirs. Below is an indicative list of activities that should be conducted on a national level to ensure blue carbon is comprehensively included into national level mitigation activities.

CONSERVATION INTERNATIONAL

IUCN

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

Global Distribution of Blue Carbon Ecosystems

Mangroves Salt Marsh Seagrass

http://thebluecarboninitiative.org/

BLUE CARBON SCIENTIFIC WORKING GROUP

The objectives of the Scientific Working Group are to:

- ❑ Describe the **global relevance** of coastal carbon;
- ❑ Create internationally applicable **standards for quantifying** and monitoring coastal carbon;
- ❑ Develop internationally acceptable **standards for data collection**, quality control and archiving;
- ❑ Identify and support **priority resea**rch on carbon dynamics in coastal ecosystems;
- ❑ Develop coastal conservation, **planning and management guidelines** for coastal carbon activities; and
- ❑ Support the development of **pilot projects** for carbon in coastal ecosystems.

BLUE CARBON POLICY WORKING GROUP

The objectives of the Scientific Working Group are to:

- Provide a **framework for policy development** that maximizes conservation of carbon in coastal ecosystems and mobilizes the implementation of that framework; and
- Build an **integrated blue carbon community** that supports policy implementation.

Coastal Blue Carbon under the UNFCCC - Overview

igure 1.1 Blue carbon ecosystems: mangroves (top left, © Sterling Zumbrunn, CI), seagrasses (bottom left, © Miguel Angel Mateo), and tidal salt marshes (right, © Sarah Hoyt, CI)

1992

Aware of the role and importance in … **marine and coastal ecosystems of sinks and reservoirs** of GHGs

2005

REDD negotiations started - **R**educing **E**missions from **D**eforestation and forest **D**egradation

2009

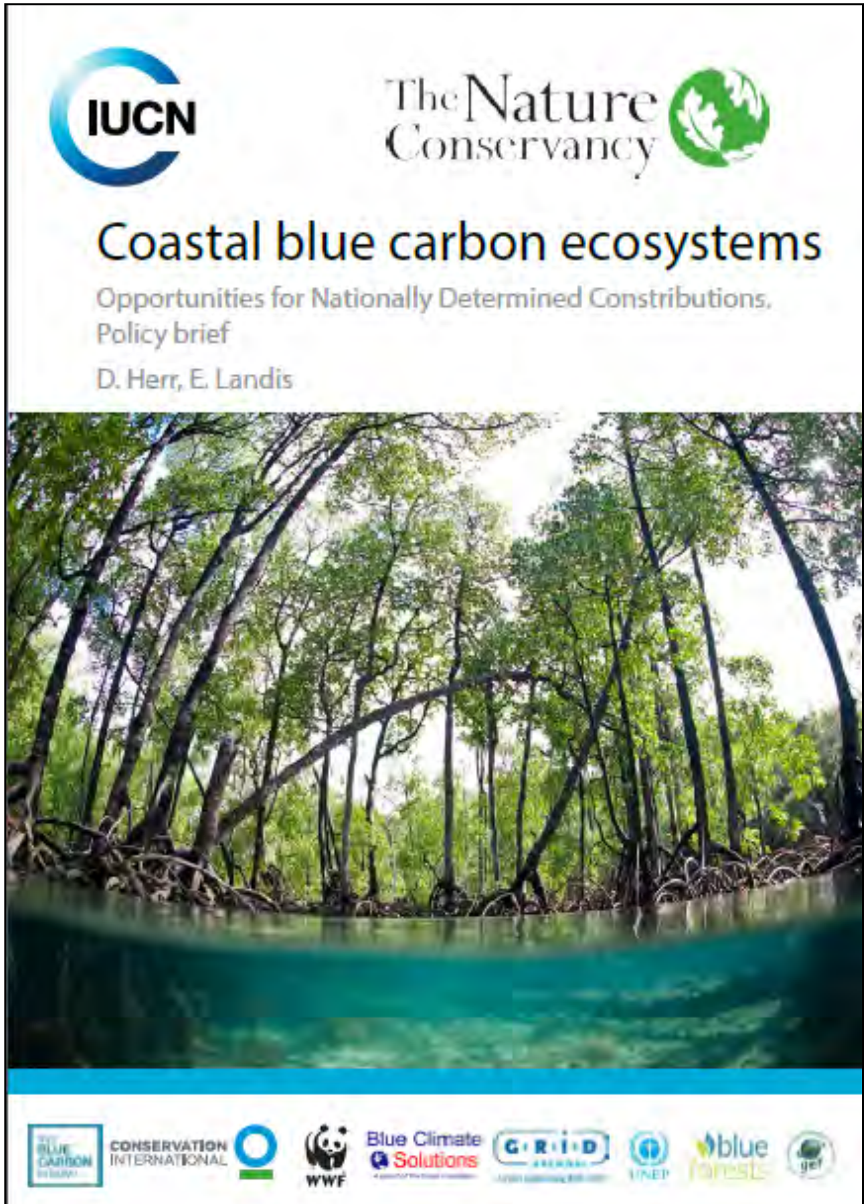
Coastal ecosystems discussed as sinks and sources

2013

Technical and scientific aspects
IPCC Wetlands Supplement

2015

INDCs

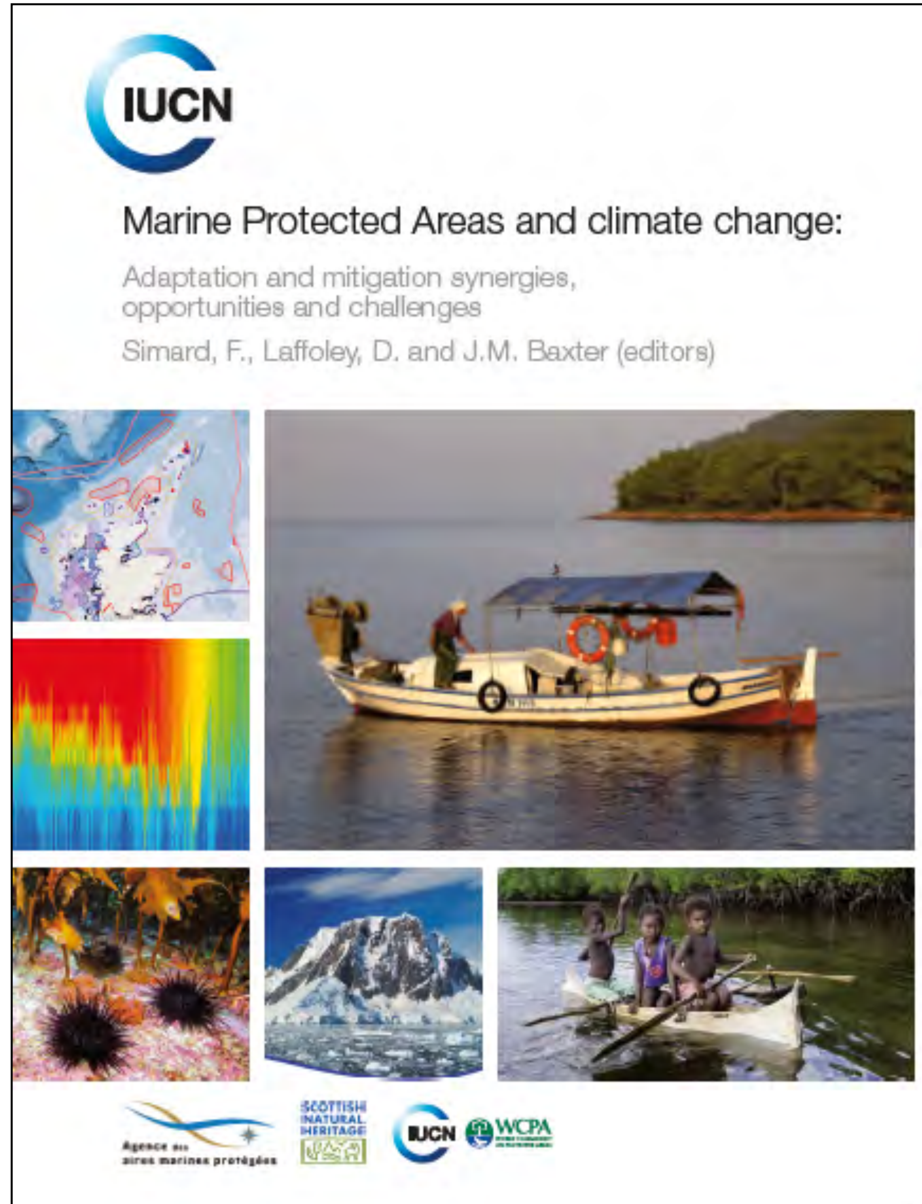

IUCN
The Nature Conservancy

Coastal blue carbon ecosystems

Opportunities for Nationally Determined Constributions.
Policy brief

D. Herr, E. Landis

CONSERVATION INTERNATIONAL
WWF
Blue Climate Solutions
GRID ARENDAL
UNEP
blue forests


IUCN

Marine Protected Areas and climate change:

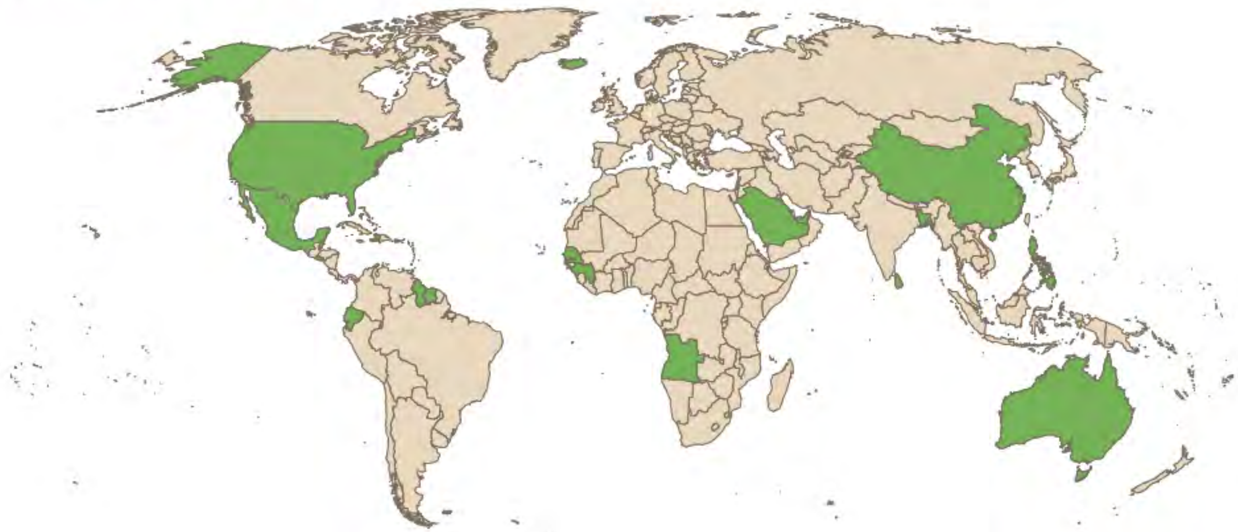
Adaptation and mitigation synergies,
opportunities and challenges

Simard, F., Laffoley, D. and J.M. Baxter (editors)

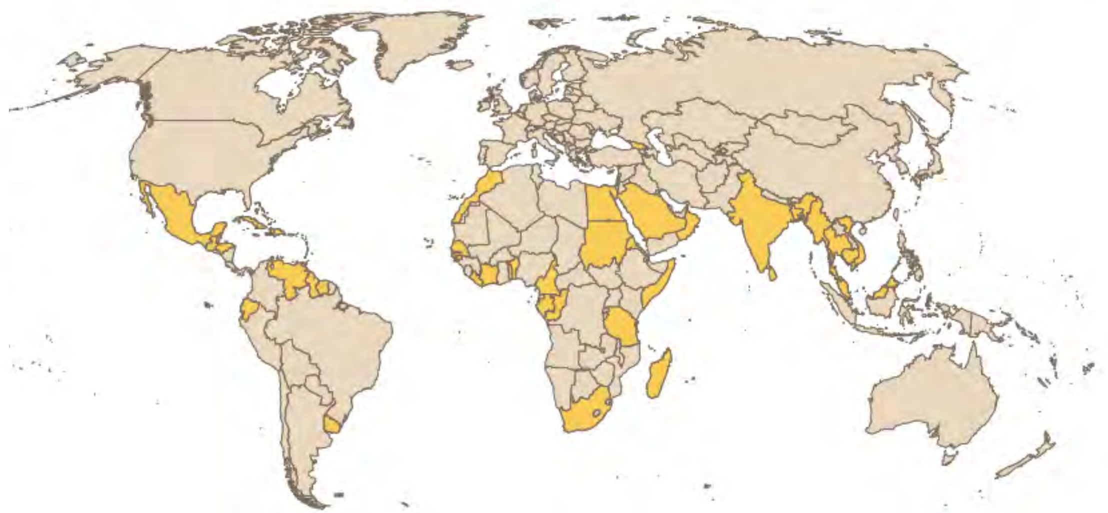
Agence des aires marines protégées
SCOTTISH NATURAL HERITAGE
IUCN
WCPA

Blue Carbon in Nationally Determined Contributions

MITIGATION



ADAPTATION



The Nature Conservancy
IUCN
Blue Climate Solutions
A project of The Ocean Foundation
Conservation International
WWF
GRID Arendal
the Blue Carbon initiative
UNEP
blue forests
gef

Maps produced by Elsa Lindevall, GRID-Arendal

Coastal ecosystem conservation and restoration lead to:

* Ecosystem-based adaptation / EbA

Reduced coastal erosion

Coastal defense

Reduced coastal flooding

Maintained fisheries nursery ground

Benefits and co-benefits

- biodiversity
- fish nurseries
- water quality

>> Local livelihoods
>> Commercial interests

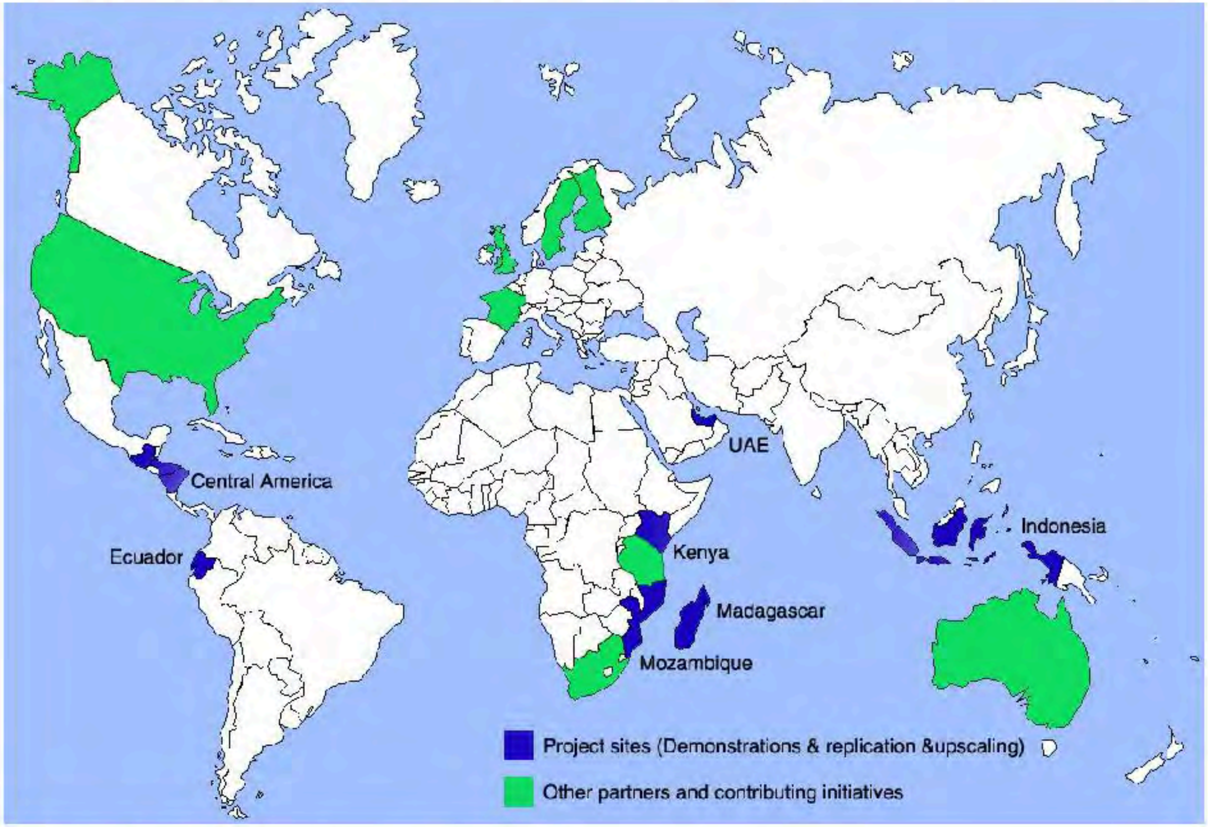
LMMAs MSP

Fisheries

ICZM MPAs

blueforests

GEF/UNEP **Blue Forests Project** *www.gefblueforests.org*



Key outputs:

- International demonstration and application of "blue forests" values
- Active experience sharing, learning and replication

UNEP gef GRID-Arendal A Centre Collaborating with UNEP AGEDI Blue Climate Solutions blue ventures beyond conservation CHARLES DARWIN UNIVERSITY CONSERVACIÓN INTERNACIONAL Ecuador Duke UNIVERSITY

IUCN blue carbon center THE OCEAN FOUNDATION SOUTH AFRICAN INSTITUTE OF INTERNATIONAL AFFAIRS African Perspectives. Global Insights. Stockholm University UBO UNEP WCMC WWF blue forests

- **National policy assessments**
- Support capacity building
- Upscaling and replication

- Goal … to trace the policy, legal, and regulatory context for blue carbon ecosystems in five countries
  Ecuador, Mozambique, Madagascar, Indonesia & UAE

- … to extrapolate common trends, best practices and opportunities for climate-change-based protection and restoration policies

International Partnership for Blue Carbon

INTERNATIONAL PARTNERSHIP FOR BLUE CARBON

Founding Partners	
Indonesia	Costa Rica
Blue Carbon Initiative: Conservation International, International Union for Conservation of Nature, IOC - UNESCO	Pacific Islands Forum Secretariat and Office of the Pacific Ocean Commissioner
Secretariat of the Pacific Regional Environment Program (SPREP)	University of Queensland Global Change Institute
Centre for International Forestry Research	GRID-Arendal
Australia	

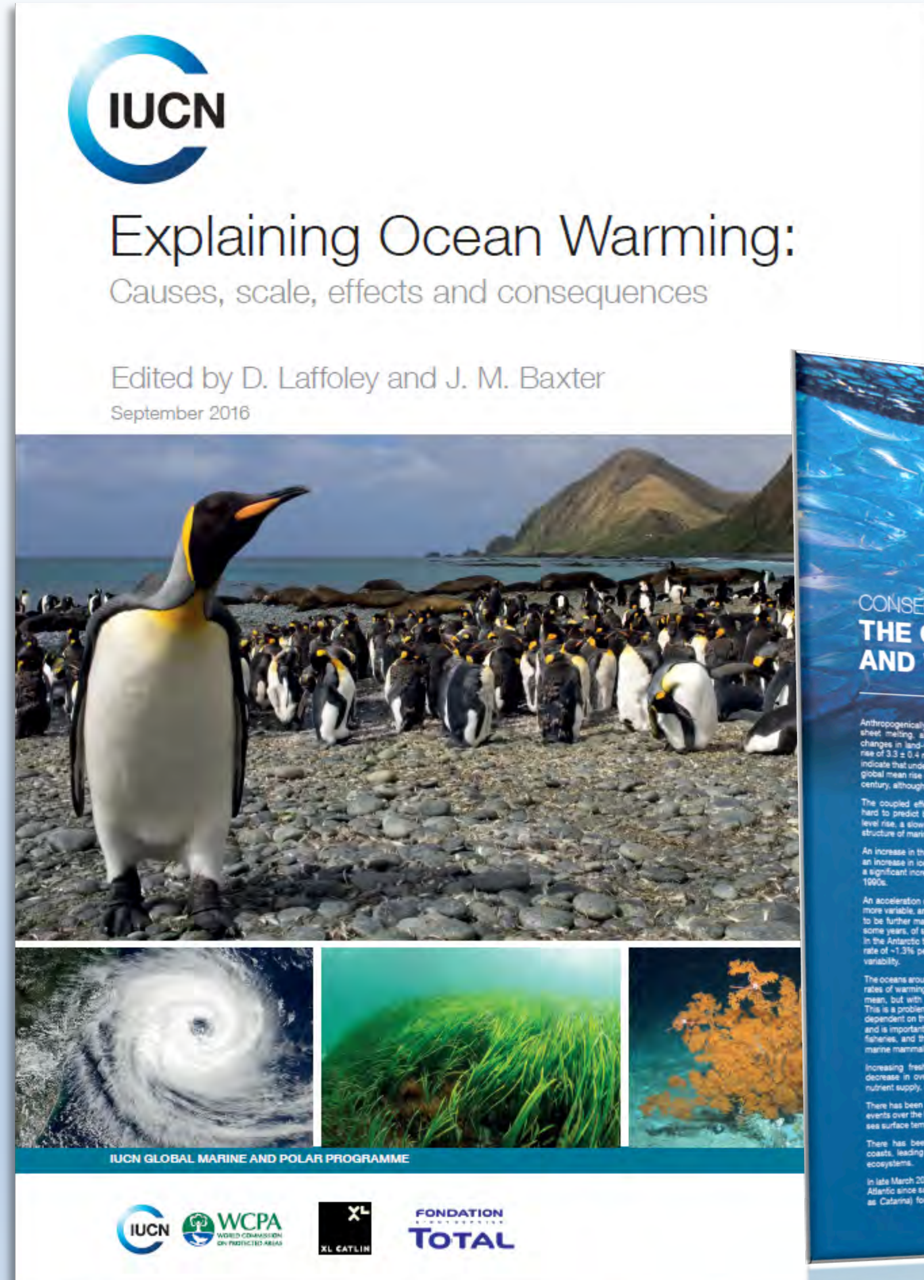
The United States and France recently joined and several other countries and organisations are interested in being involved

INTERNATIONAL PARTNERSHIP FOR BLUE CARBON

The Partnership aims to enhance the protection and restoration of coastal blue carbon ecosystems that sequester carbon in mangroves, tidal marshes and seagrasses by:

- Building awareness;
- Exchanging knowledge; and
- Accelerating practical action in priority regional ‘hot-spots’.

- Australia launched the *International Partnership for Blue Carbon* at the Paris climate change conference in December 2015.
- First Partnership meeting held in Indonesia in August 2016 refined the Partnership's objectives and developed priority actions.
- The Partnership is not a funding body, but instead aims to better connect the efforts of governments, research organisations and non-government organisations. It also aims to build on the significant initiatives already under way in this area.



"Tampering can be dangerous. Nature can be vengeful. We should have a great deal of respect for the planet on which we live."

Rossby, 1956


Blue Carbon Initiative 2017
When: September 2017
Where: Ibiza
Why: Focus on seagrass and tidal marsh