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Межправительственная
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комиссия

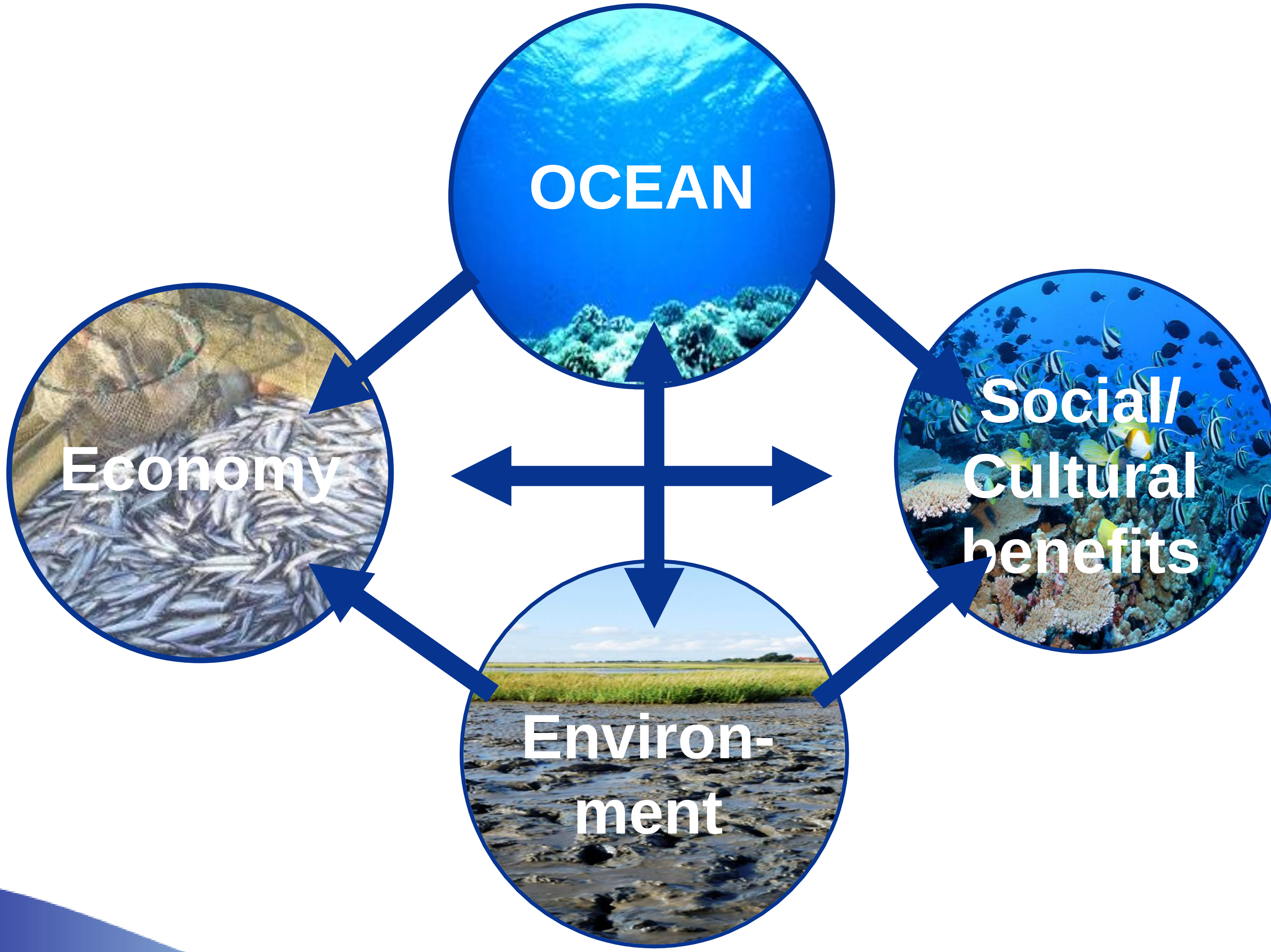
Anthropogenic impacts on wetlands - and how to address them

Dr. Kirsten Isensee

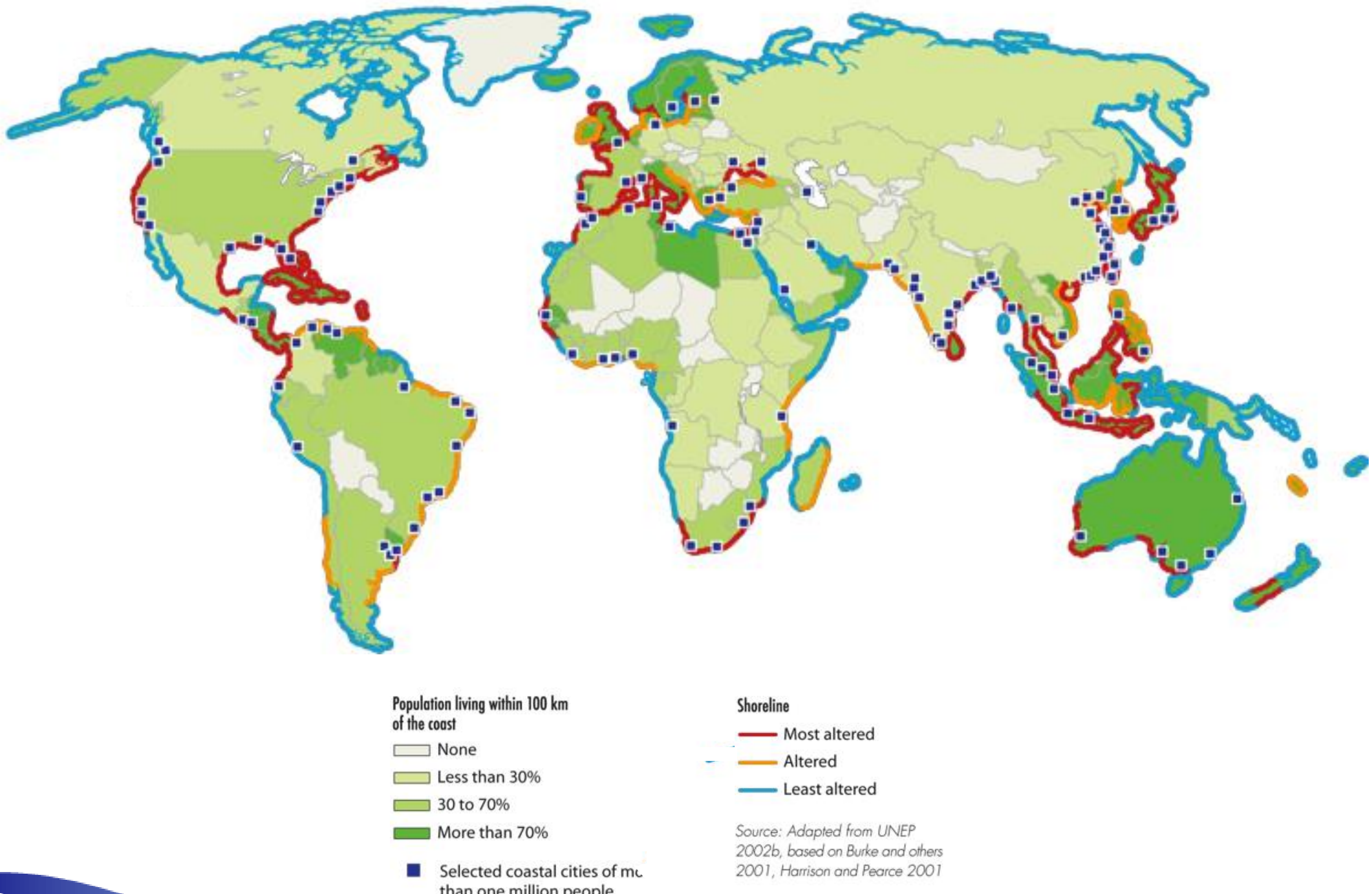
Intergovernmental Oceanographic Commission of UNESCO

Bonn, 25 October 2013

The Ocean -
A source of social and economic wealth



Coastal population and shoreline degradation



Loss of wetlands

Coastal habitat	Est. Global area (km^2)	Annual loss	Total Loss
 Seagrasses	177,000 - 600,000	1 - 3%	29%
 Salt Marshes	22,000 - 400,000	1 - 2%	50%+
 Mangroves	137,760 - 152,000	0.9 - 1.8%	35%

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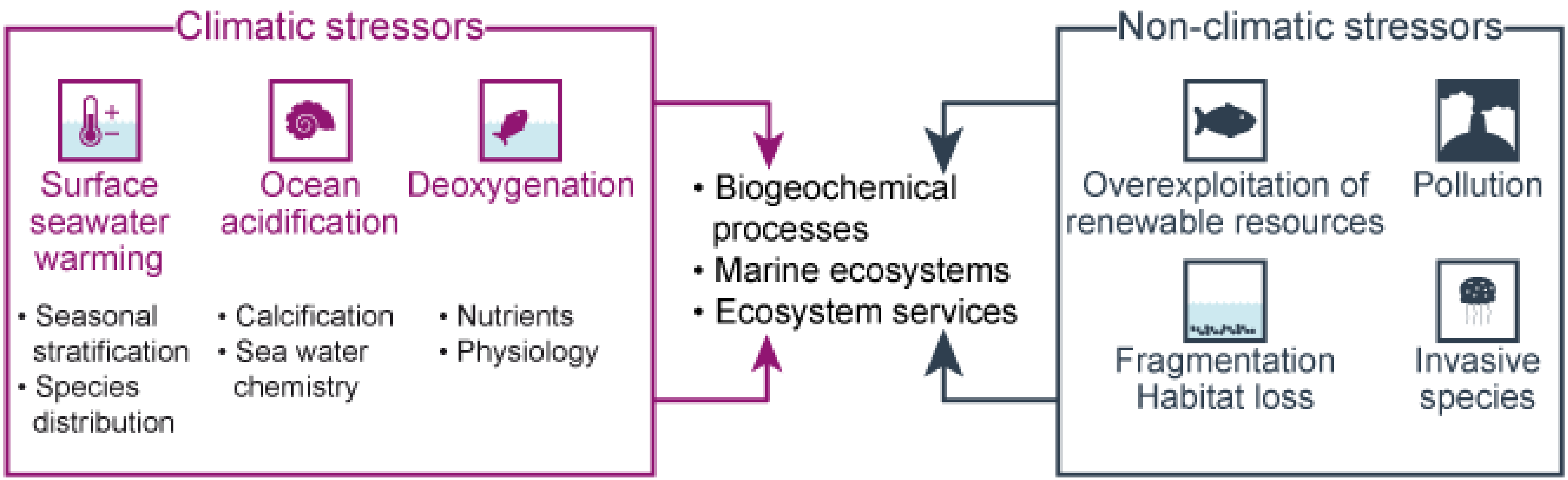
Multiple stressors



Possible effects of combining different stressors:

Amplification

Compensation

Are we able to detect changes in coastal carbon?

Carbon Stocks:

Scientists have developed proven technical methods to measure and monitor the carbon stored in CMEs, including in the plants and soils.

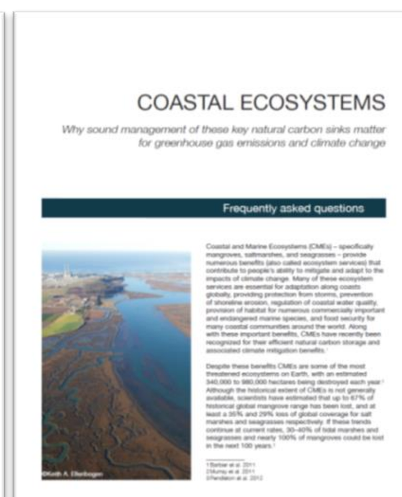
Carbon Loss:

Effective methods exist to estimate the loss of carbon from these systems if they are degraded or converted.

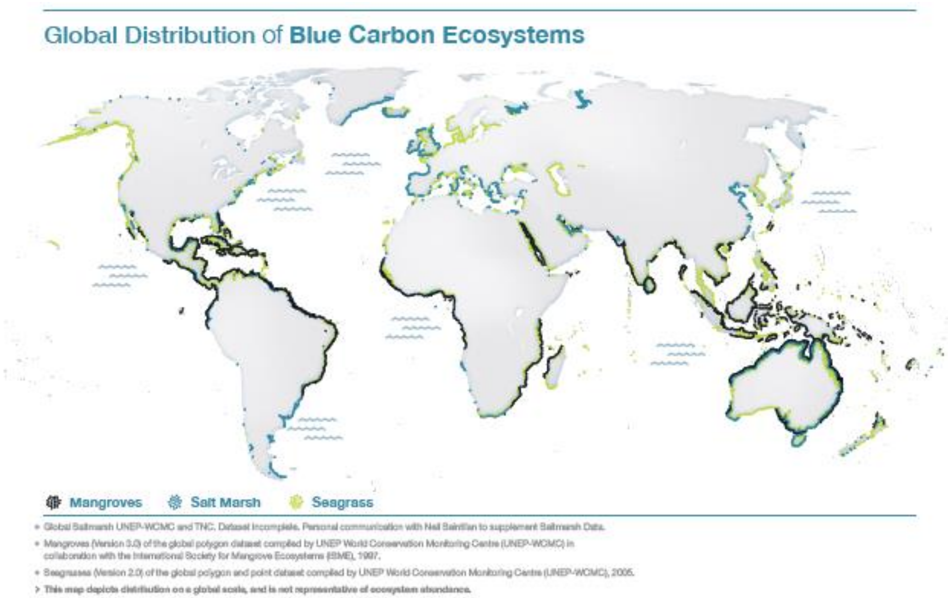
A detailed field guide for "Methods for Assessing Carbon Stocks and Emissions Factors in Mangroves, Tidal marshes and Seagrasses" is currently in preparation.

Carbon Flux:

???



Difficulties we face



1. **Differences in technical infrastructure and expertise**, may restrict the application of certain methods and techniques, thus developing countries may need additional support for effective implementation.

2. **Combined effects** are difficult to detect, like for example the combined impact of **pollution with Ocean Acidification** and **temperature rise with Ocean Acidification.**

3. **Laboratory experiments** need a high human capacity, require huge financial resourcesand due the complexity of those environments they cannot reflect ecosystem responses

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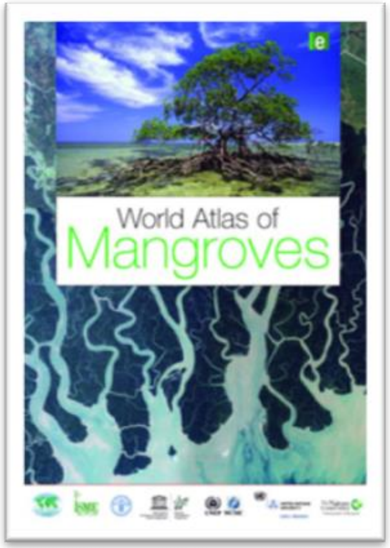
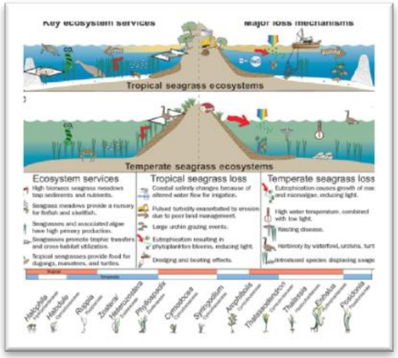
Priority areas for future research

1. **Geographical extent** - While mangroves are fairly well mapped, large areas containing seagrasses and salt marshes remain largely unsurveyed.
2. **Sequestration and storage.**
3. **Emissions** - Additional mapping of converted and degraded CMEs and the quantification of emissions from exposed organic soils, and from disturbed or degraded seagrasses, is needed to enable inclusion in relevant databases.
4. **Human drivers** - Emission rates over time for a range of drivers of ecosystem degradation or loss are limited at the moment, especially for seagrasses.
5. **Coastal erosion** - The fate of carbon eroded from CMEs and carried offshore by ocean waves and currents is an ongoing topic of scientific research.







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and COASTAL CARBON



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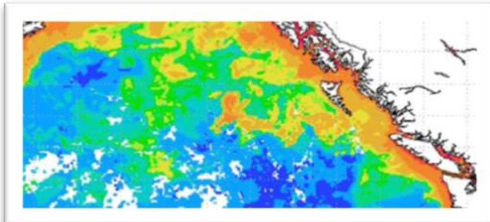
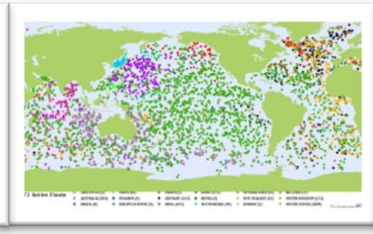
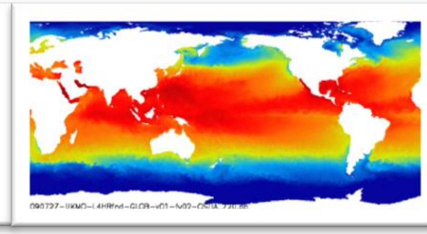
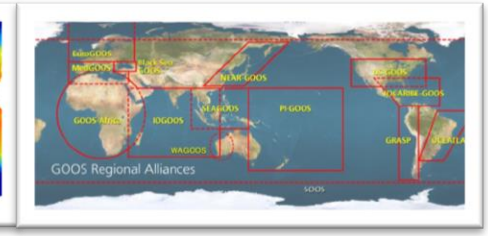
Global Ocean Observing System

GOOS – a collaborative system of sustained ocean observations

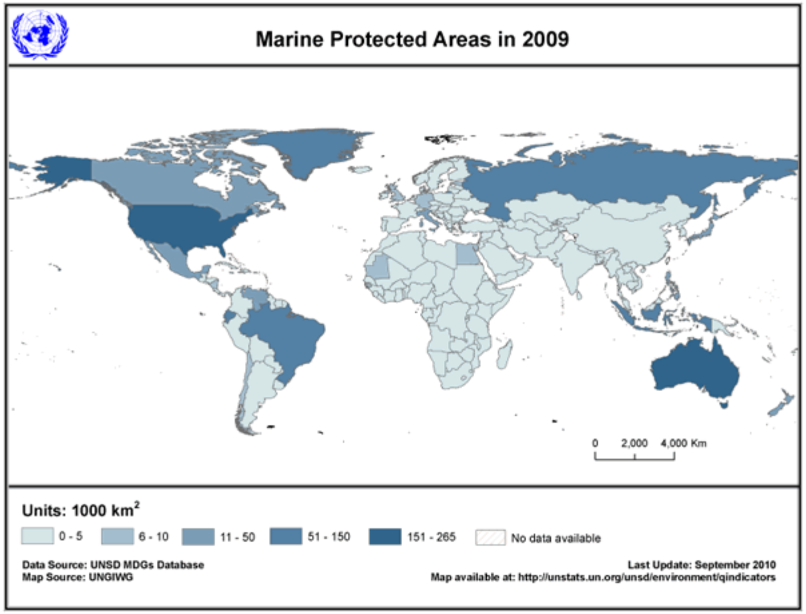
Sustained ocean observations are necessary to:

Improve scientific **knowledge** about ocean climate, ecosystems, human impact, and human vulnerability

Apply that **knowledge** through: early warning for ocean-related hazards, climate forecasts and projections, ecosystem assessment and management, good ocean governance based on sound science – ensuring a healthy ocean and a healthy blue economy

We can't manage what we don't measure!

Marine Protected Areas – Marine Spatial Planning approach



There are **685 protected areas containing mangroves** (73 countries and territories).

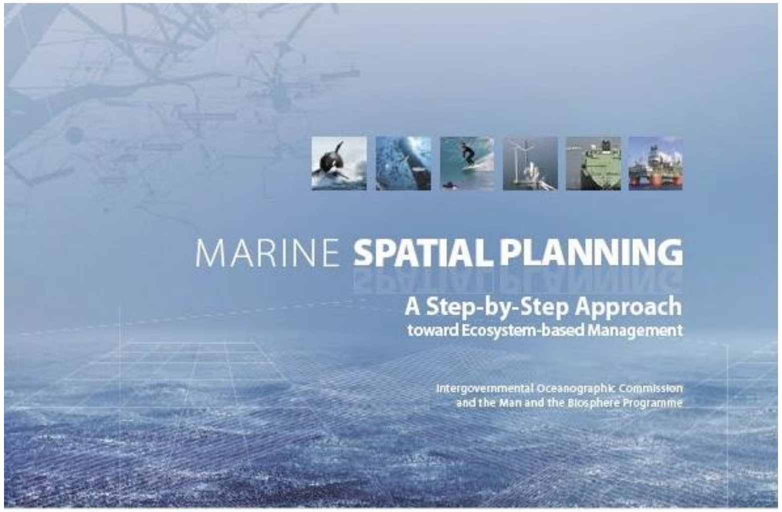
Countries with very large areas of mangroves have a significant number of MPAs:

Australia (180), Indonesia (64) and Brazil (63).

Due to the vague number/distribution of seagrasses/salt marshes the number of MPAs covering seagrasses/ salt marshes is not available.

TOOL: Marine Spatial Planning

While MSP is **not conservation planning,** a network of MPAS might be one outcome of MSP, to balance **economic** development and **environmental conservation**.



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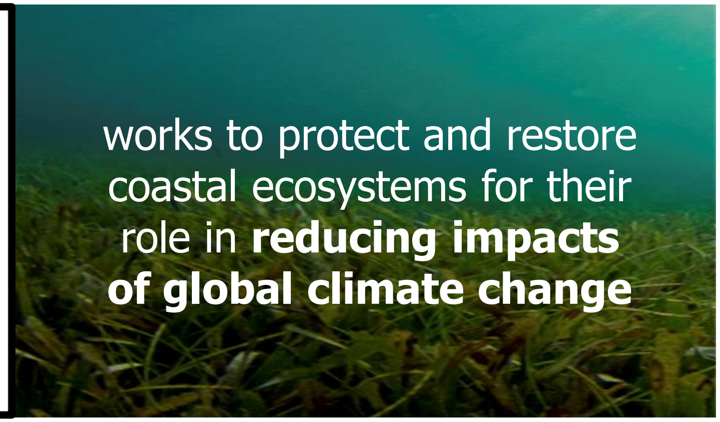
the BLUE CARBON initiative



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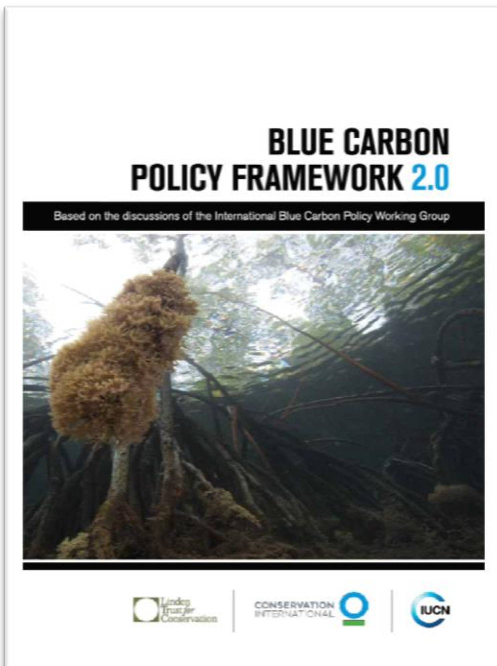
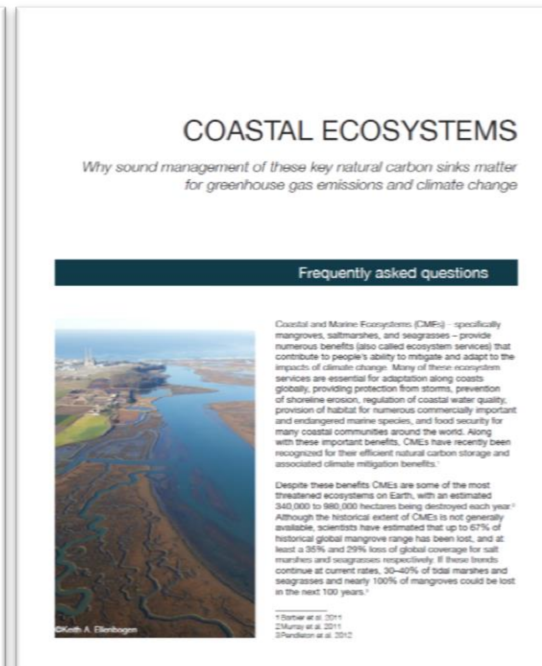
OUTCOME DOCUMENTS





Moving forward:

WE NEED

- To align Coastal Carbon methods to assure high **intercomparability** between measurements
- To ensure a direct **commitment of member states**
- To increase **capacity building and technology transfer** to fill the gaps existing for coastal conservation
- To highlight the importance of the **Coastal Carbon environments for human activities and progress**
- To **provide tools and mechanisms to facilitate** the blueing of green economy, coastal management plans and the development of new technologies

Moving forward:

WE NEED

- To align Blue Carbon methods to assure high **intercomparability** between measurements
- To ensure a direct **commitment of member states**
- To increase **capacity building and technology transfer** to fill the gaps existing for coastal conservation
- To highlight the importance of the **Blue Carbon environments for human activities and progress**
- To **provide tools and mechanisms to facilitate** the blueing of green economy, coastal management plans and the development of new technologies

BLUE CARBON INITIATIVE's Role

- Tool for the scientific community to speak with one strong voice, communicating the role of Coastal Carbon for **human well being and sustainable use of the ocean**
- To provide **guidance** for Coastal Carbon measurements
- To enhance **communication** between scientists, policy makers and stakeholders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Science for sustainability

Economy
Investing in new opportunities, innovation & sustainable activities

+

Society
Promoting well-being & equal access to services & resources

+

Environment
Preserving ecosystems and their potential

Space equity
Developing geographical balance in access & use of marine resources

+

Time equity
Managing the means of subsistence for inhabitants of today & generations to come

Policy making
Fostering good ocean governance

BLUE SOCIETY
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BLUE SOCIETY
Ocean a new opportunity for all

No Science =

No Sustainability