




*Incorporating mangroves and seagrasses In WIO into regional climate agenda and SDGs*

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WIO Mangrove Network





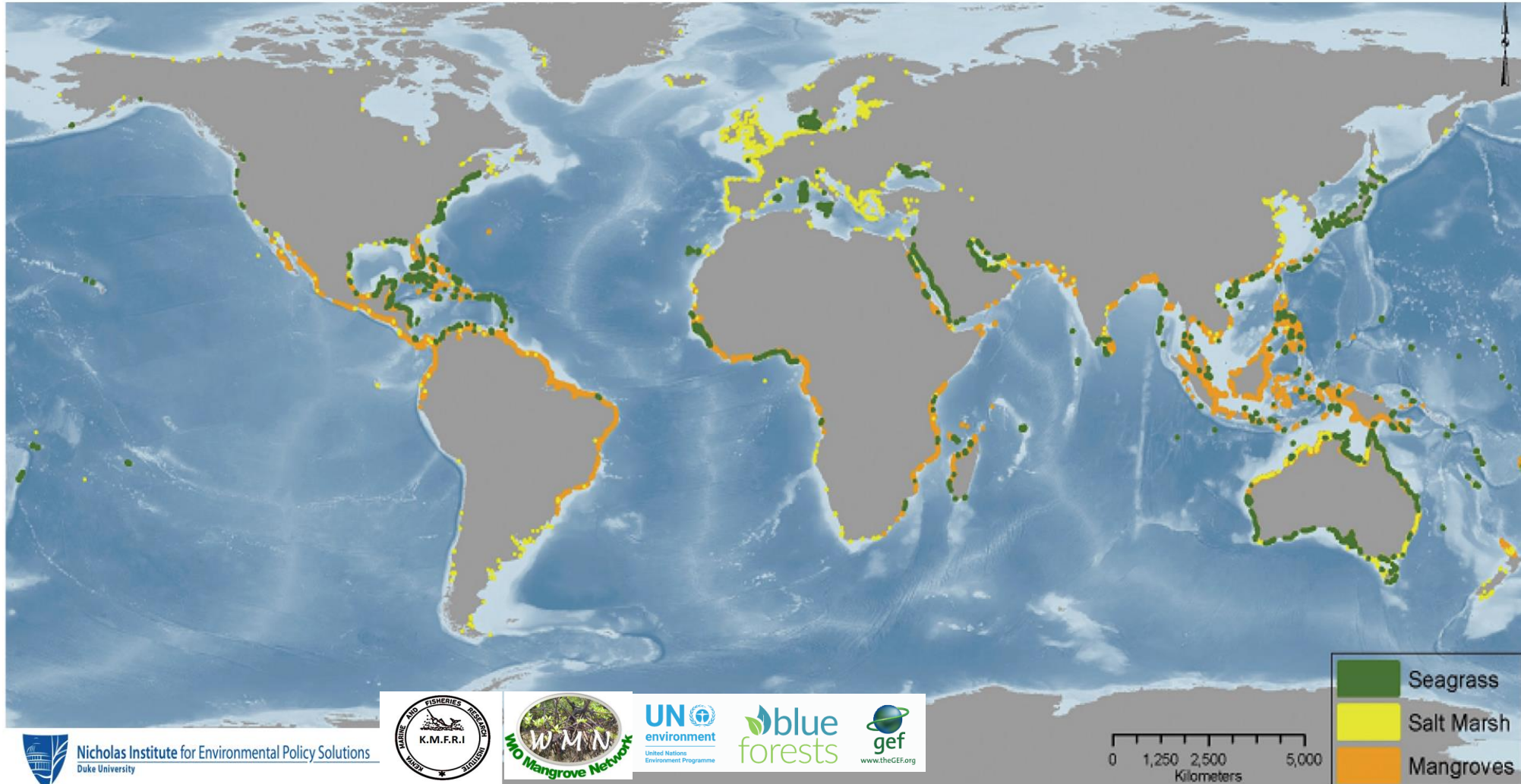
Blue Carbon = carbon associated  
with coastal & open ocean  
ecosystems

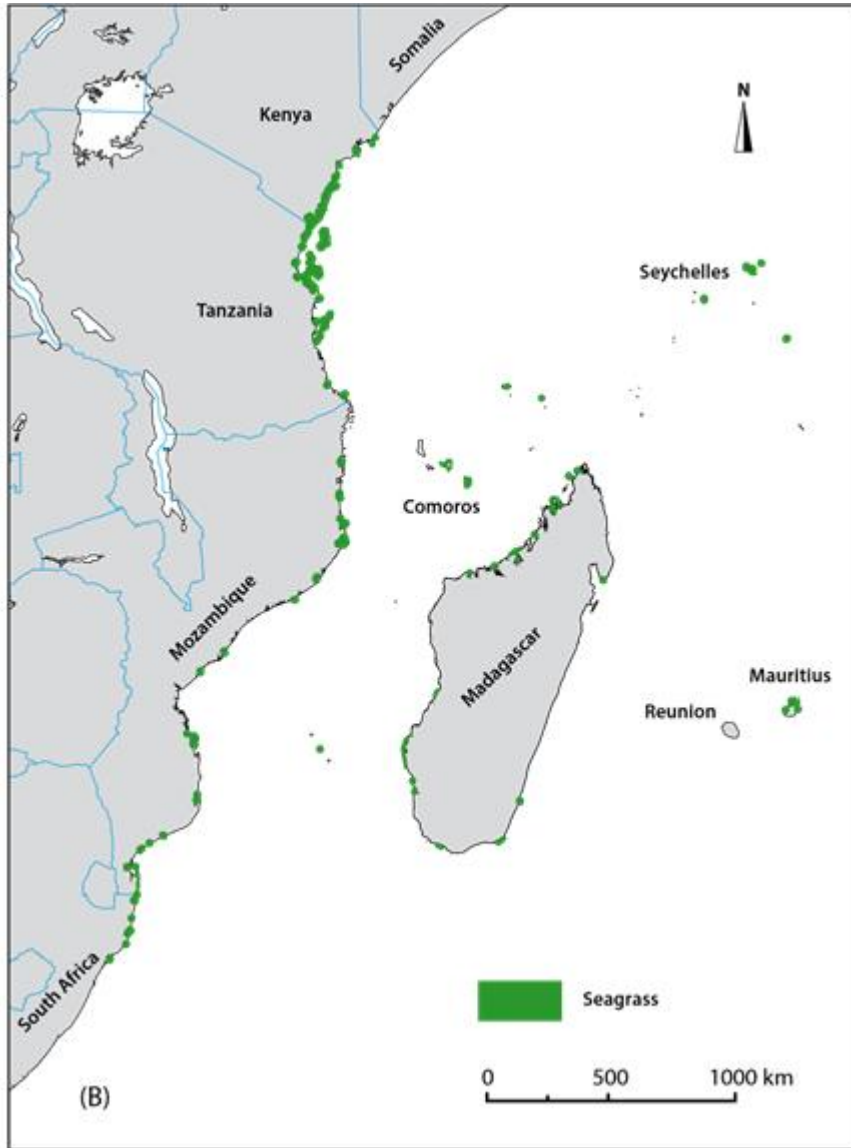




# Locations of Coastal Blue Carbon

## GLOBAL DISTRIBUTION OF MANGROVES, SALT MARSHES AND SEAGRASSES





Seagrass meadows  
distribution in the WIO  
region.

Source: <http://data.unep-wcmc.org/datasets/10>,  
accessed 16 August 2014.

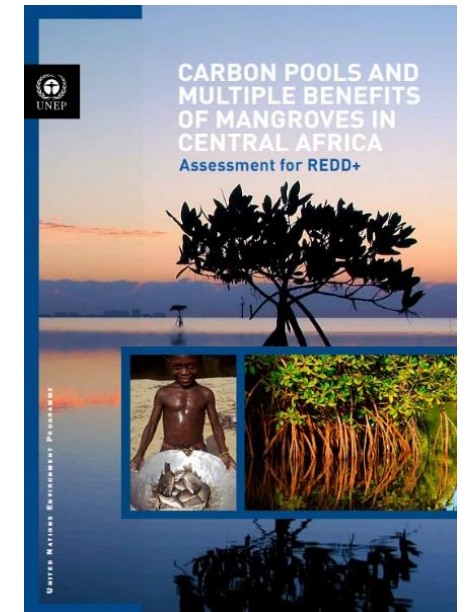
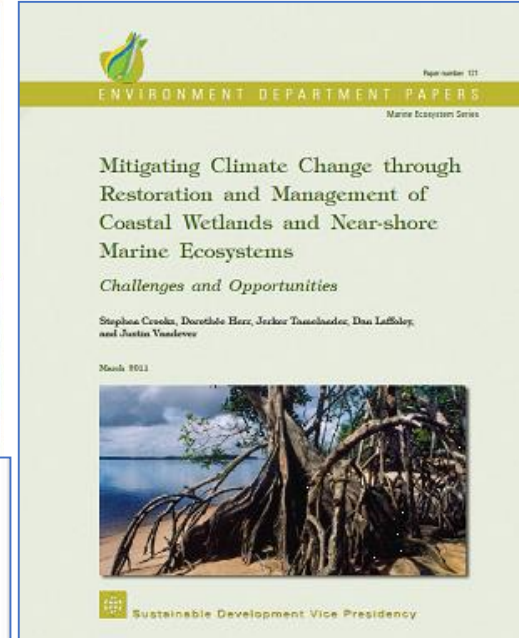
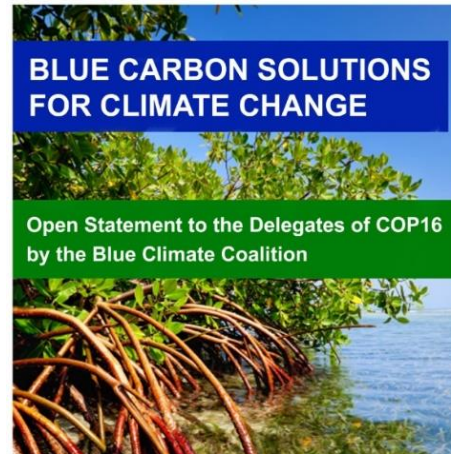
**1.1million ha of  
mangroves in WIO (or 5%  
of global coverage)**

# Estimates of seagrass areas in WIO, also seagrass species (after Lugendo 2015)

Country	Species	Area
Somalia	7	unknown
Tanzania	11	unknown
Kenya	11	unknown
Mozambique	12	over 40 000 Ha, Bandeira & Gell 2003
		estimated 2535.42 ha (62 estuaries)
South Africa	4	Adams et al 2016
Comoros	8	unknown
Madagascar	10	unknwon
Mauritius	6	unknown
Seychelles	8	unknwon
Reunion	1	unkwnon



# Blue Carbon Knowledge



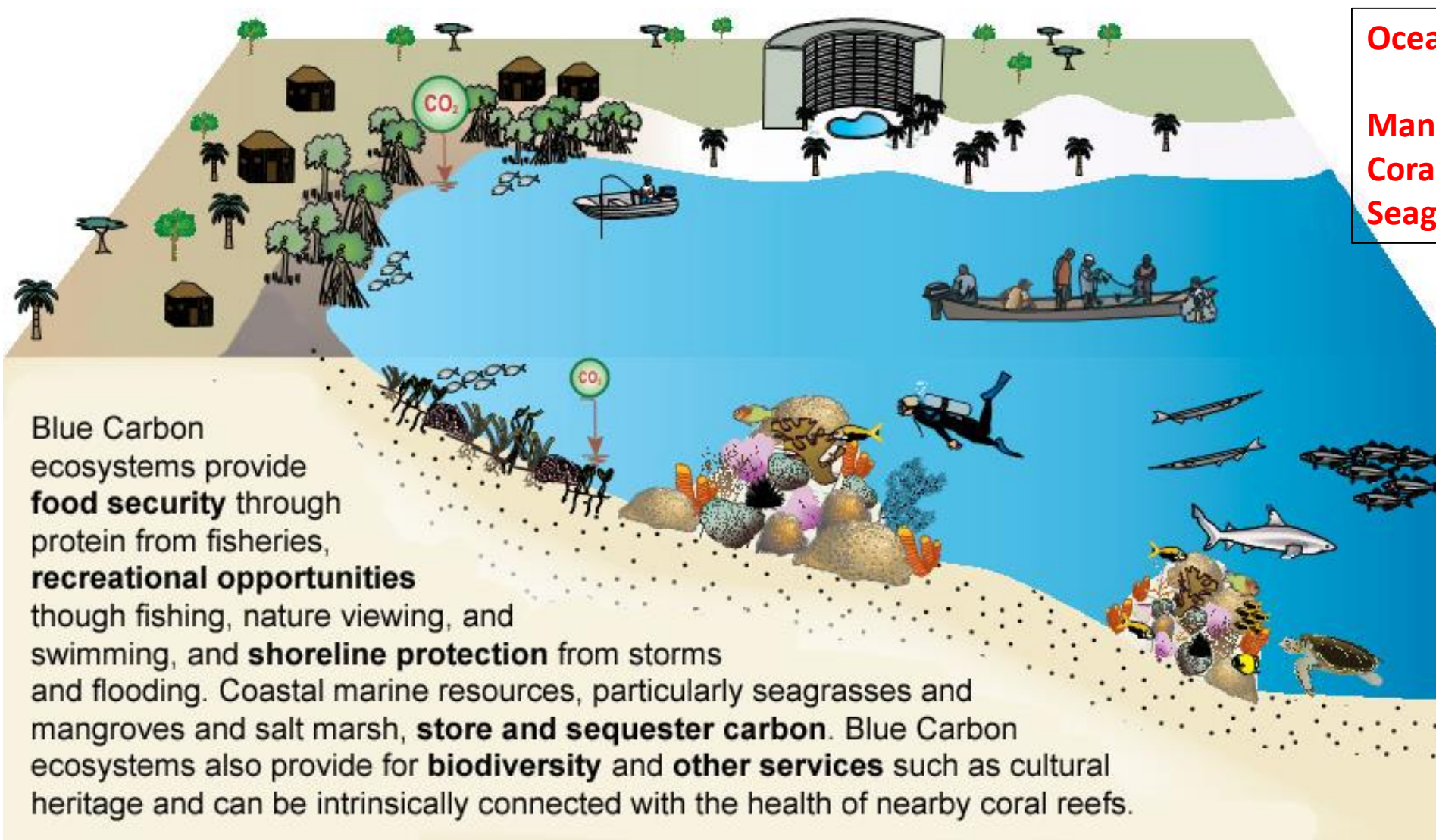


# Why Blue carbon ecosystems are important!

- Healthy coastal ecosystems store and sequester carbon
- They also support coastal communities around the world
- Degraded coastal ecosystems release carbon
- Blue carbon can be part of climate mitigation and adaptation strategies



# Blue carbon and SDG/NDC



Ocean Asset in WIO – US\$ 333.8bn

Mangroves – US\$ 42.7 bn

Coral Reefs – US\$ 18.1 bn

Seagrass - US\$ 20.8 bn

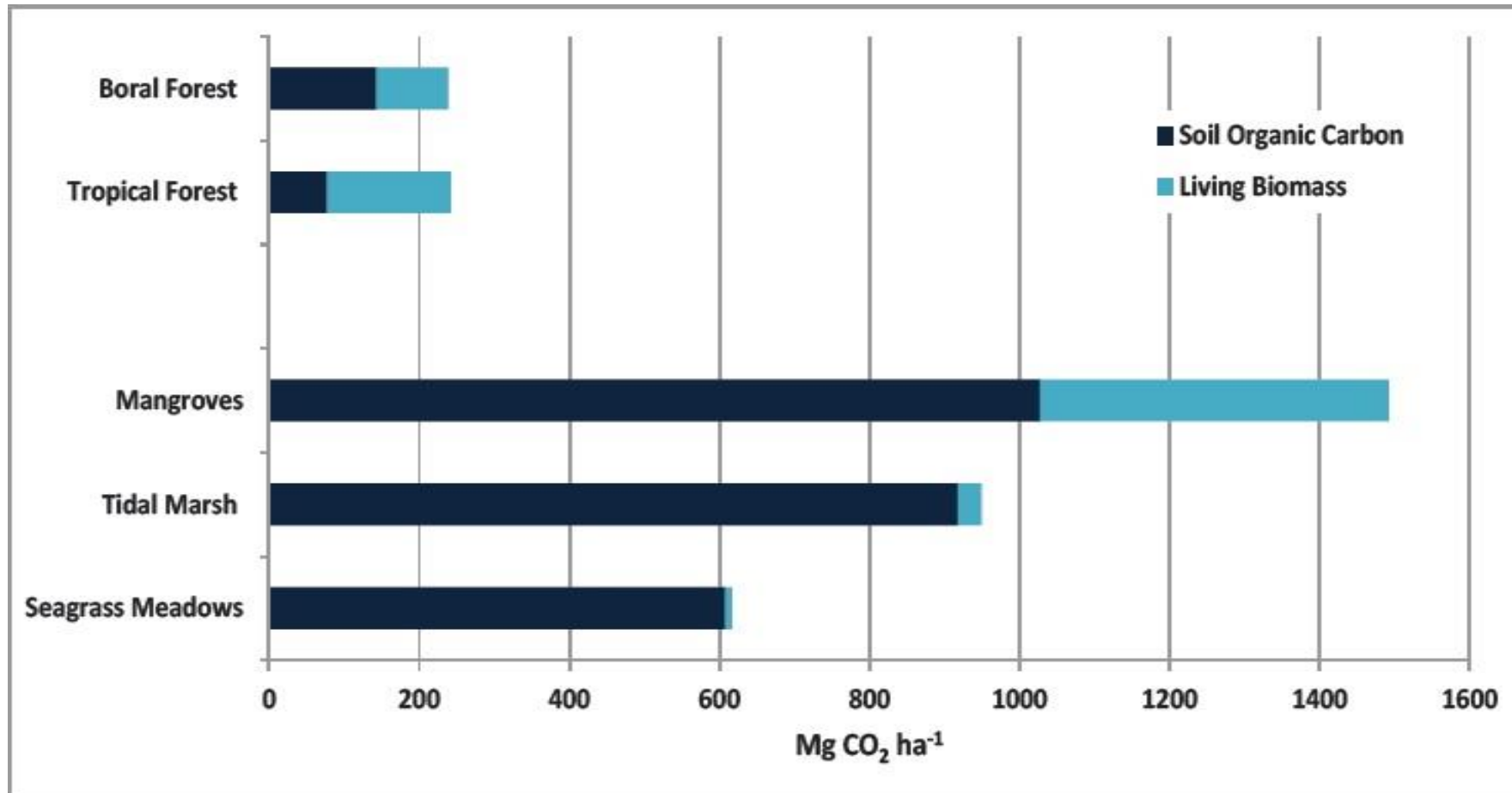
Source: Obura et al., 2017

Blue Carbon ecosystems provide **food security** through protein from fisheries, **recreational opportunities** through fishing, nature viewing, and swimming, and **shoreline protection** from storms and flooding. Coastal marine resources, particularly seagrasses and mangroves and salt marsh, **store and sequester carbon**. Blue Carbon ecosystems also provide for **biodiversity** and **other services** such as cultural heritage and can be intrinsically connected with the health of nearby coral reefs.



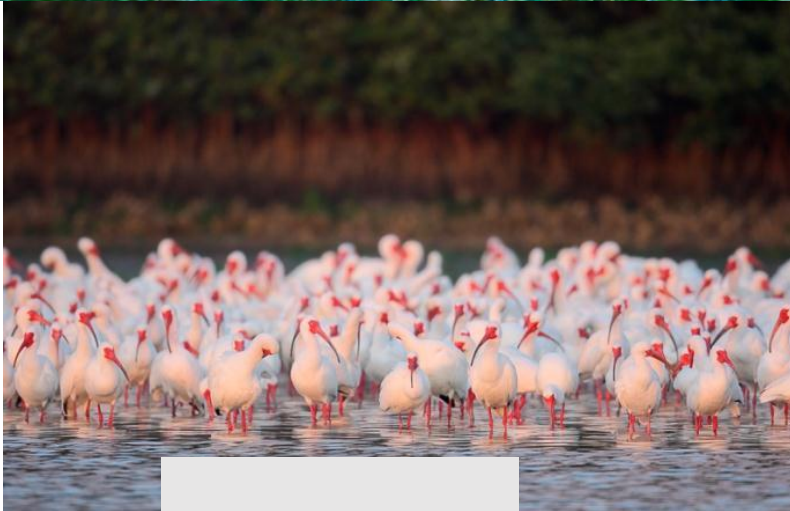
# Hidden treasure!

.... most carbon is stored in sediments and less in biomass





## Beyond carbon benefits: Habitat value



SDG 14: Life Under Water



# Other benefits of blue carbon habitats: Storm Protection

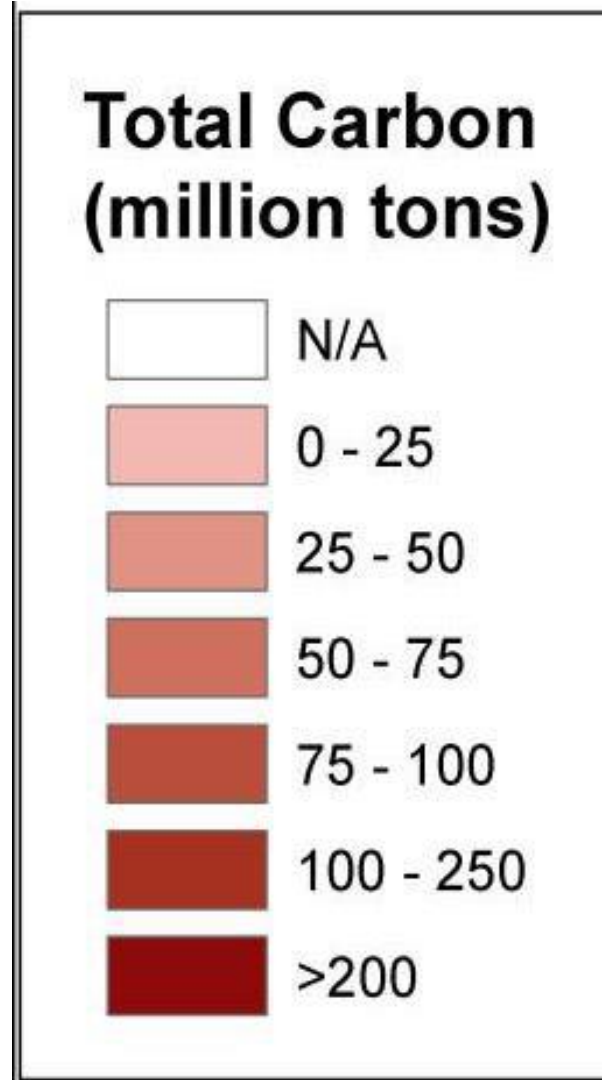


During the 2004 Asian Tsunami, protective value of mangroves was estimated at \$1m/km (UNEP, 2009)

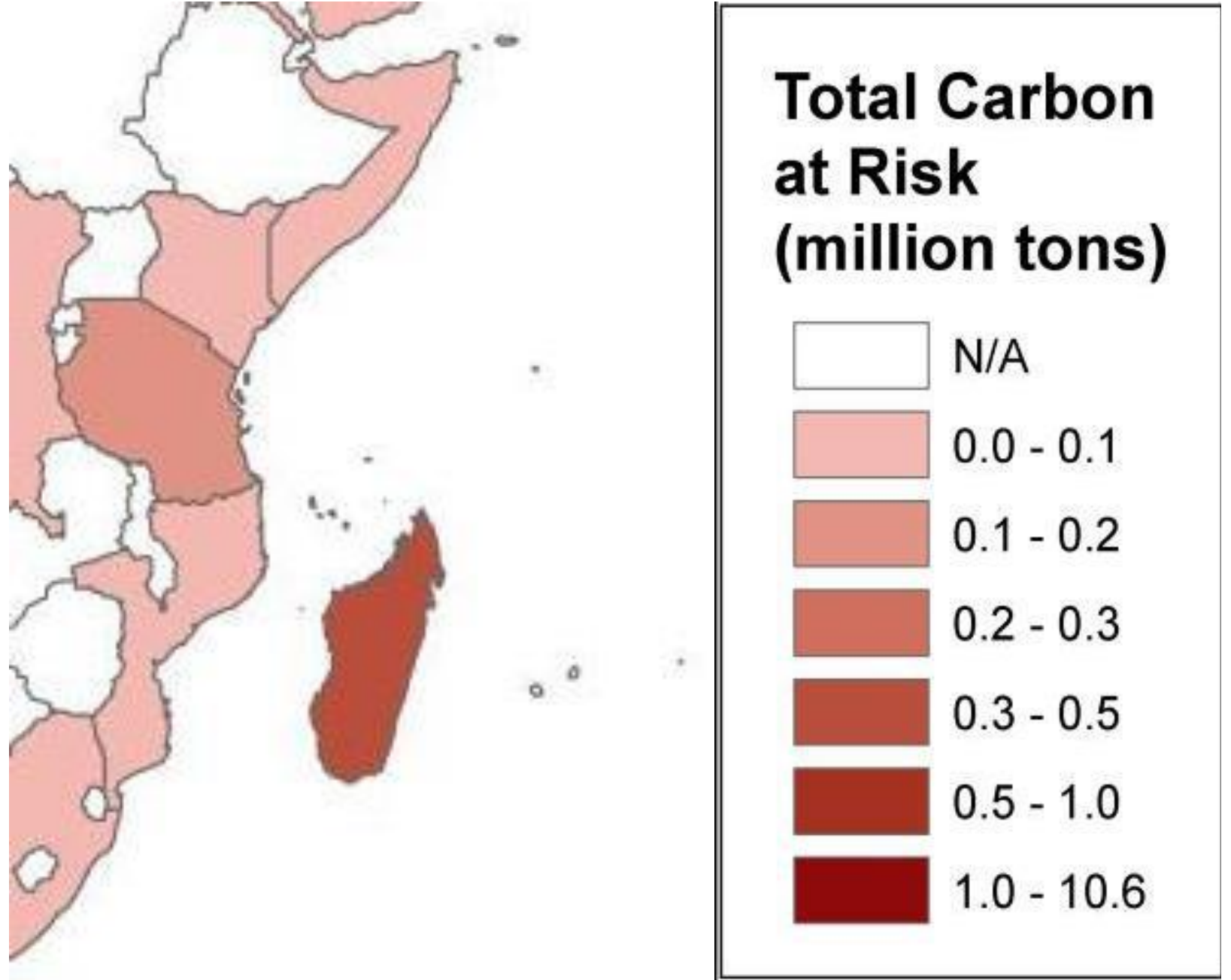




# Mangrove Carbon stocks by country in WIO

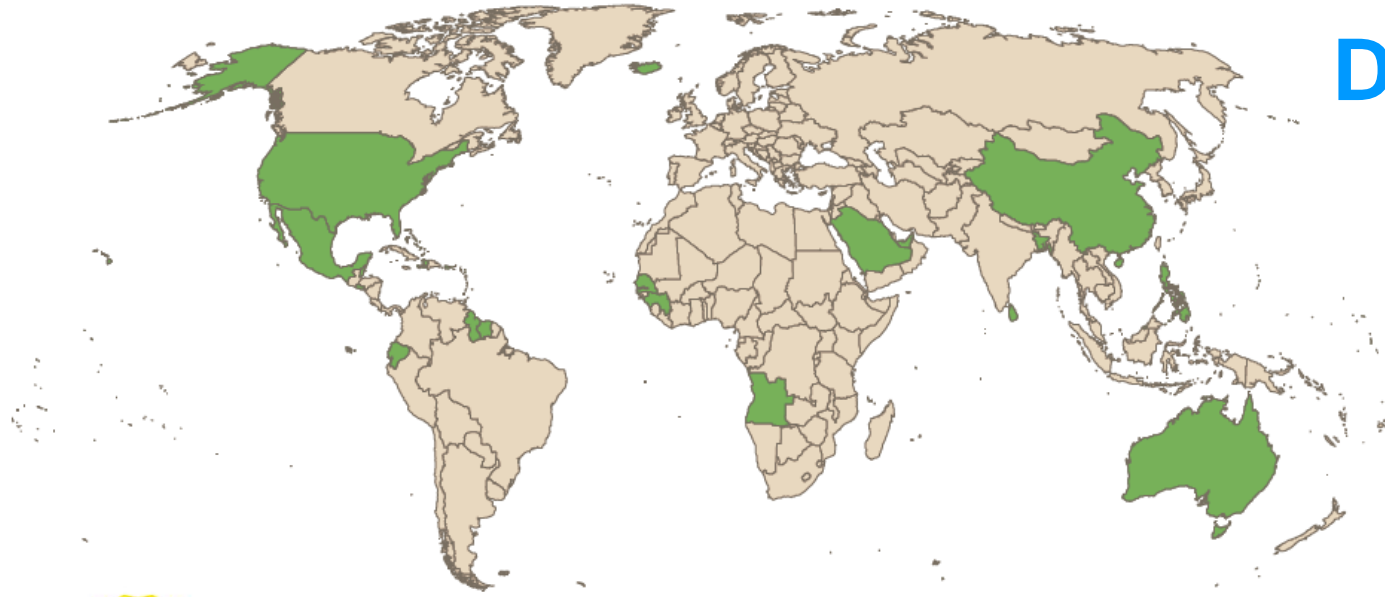


# Emissions from loss and degradation of mangroves

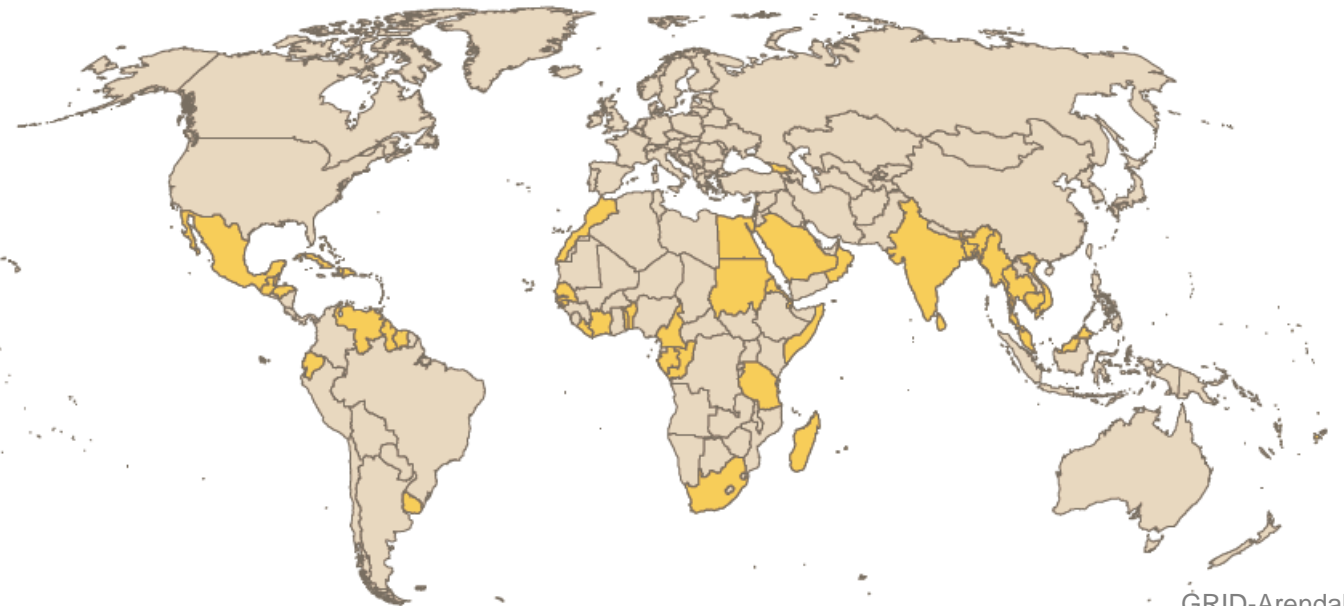




## Blue carbon in Nationally Determined Contributions (NDCs)



## 59 ADAPTATION



MARRAKECH 2016  
COP22 | CMP12 | CMA1  
UN CLIMATE CHANGE CONFERENCE



Blue Climate  
Solutions  
A project of The Ocean Foundation



# Blue carbon and NDC actions in WIO



## **Somalia** *Adaptation*

coastal management and mangrove replanting

## **Kenya** – *Not included* –

## **Comoros** *Mitigation*

marine protected areas

## **Tanzania** *Adaptation*

mangrove restoration, coastal and fishery resource management

## **Madagascar** *Mitigation & Adaptation*

mangrove conservation and restoration

## **Mauritius** *Adaptation*

rehabilitation of wetlands, sea-grass, mangrove and coral reefs

## **Mozambique** – *Not included* –

## **Seychelles** *Mitigation & Adaptation*

ocean biomass, blue carbon, and mangrove protection

## **South Africa** *Adaptation*

wetlands programmes







## Blue carbon projects in WIO

*Mostly on mangroves, a little on seagrasses*

Lamu, Kenya - exploration (WWF Kenya)

Gazi Bay, Kenya - Mikoko Pamoja (KMFRI)

Vanga Bay – Upscaling Mikoko Pamoja (KMFRI)

Rufiji delta, Tanzania: mangrove carbon assessment and reporting

Blue Forests Madagascar (Blue Ventures)

Integrated planning of mangrove resources (WWF, USFS)

# Future blue carbon opportunities in WIO

- Blue carbon ecosystems are absent from only 2 NDCs (Kenya and Mozambique)
- There is significant opportunity to include and expand blue carbon ecosystems into the revised NDC's of WIO countries
- If annual loss of blue carbon ecosystems in WIO is halted, there would be significant reduction in GHG emissions (**estimated at xx**)
- If blue carbon ecosystems were restored to their 1990 extent, it would have the potential to increase annual carbon sequestration (**estimated at xx**)
- Restored blue carbon ecosystems would enhance fisheries, shoreline stability and community livelihood (**SDGs**)
- Incorporation of Blue carbon in NDCs would accelerate achievements of international commitments incl. Paris agreement

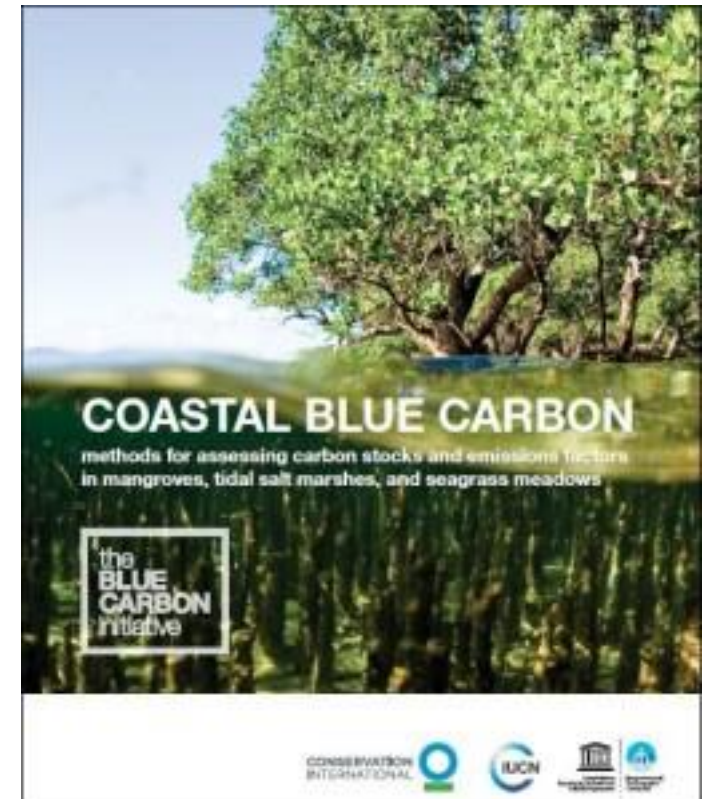


# Action needed

- **Habitat cover** from remote sensing data needs to be validated in order to improve its accuracy
- **Change analysis** to calculate loss rates needs to be conducted
- Carbon data is growing in WIO but more needed, **especially for soil**
- Communicate **results to government** and stakeholders
- **Regional coordination** on achieving blue carbon in NDCs
- leverage national and international support towards restoration and conservation of blue carbon ecosystems in WIO

# International Efforts

- GEF/UNEP/GRID Blue Forests Project
  - Activities in Kenya, Mozambique and Madagascar
- CI/IUCN/UNESCO Blue Carbon Working Group –
- New manual on measuring carbon stocks
- Ipcc SROCC - include Blue carbon
  - Due date Dec. 2019
- <http://bluecarbonportal.org>





THANKS YOU