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Blue Carbon: A transformational tool for marine management and conservation globally

Dr. Emily Pidgeon
Conservation International

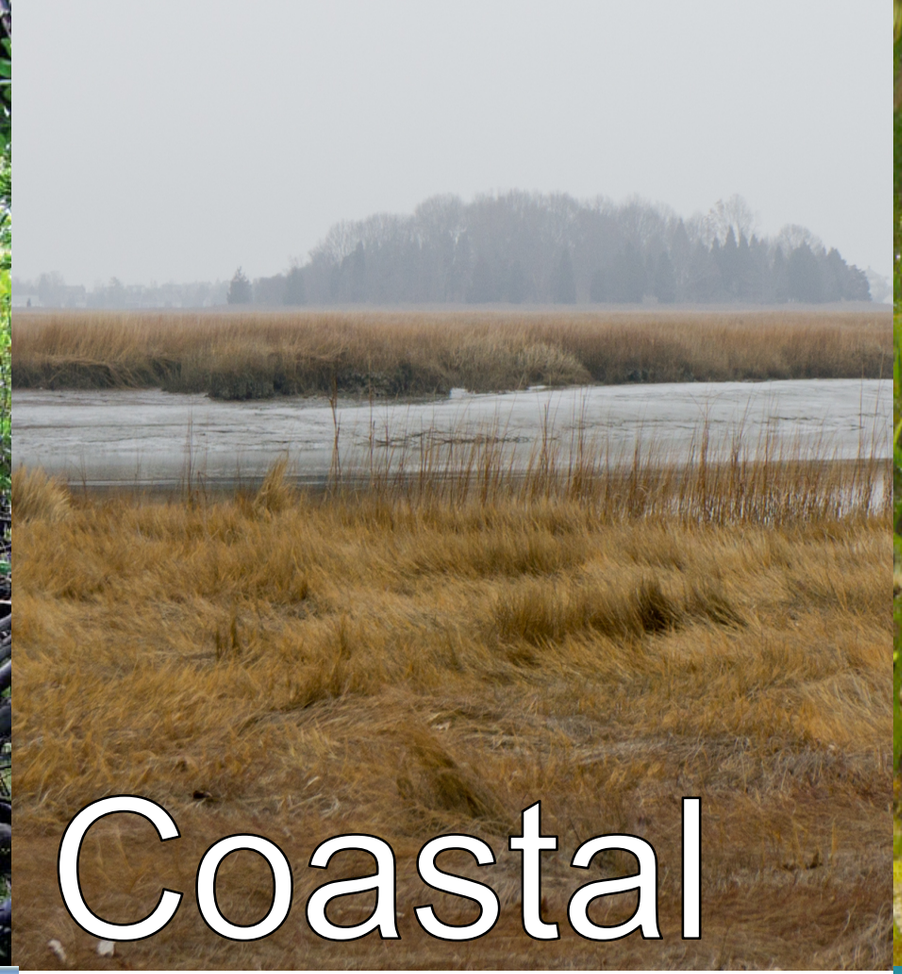
the BLUE CARBON initiative

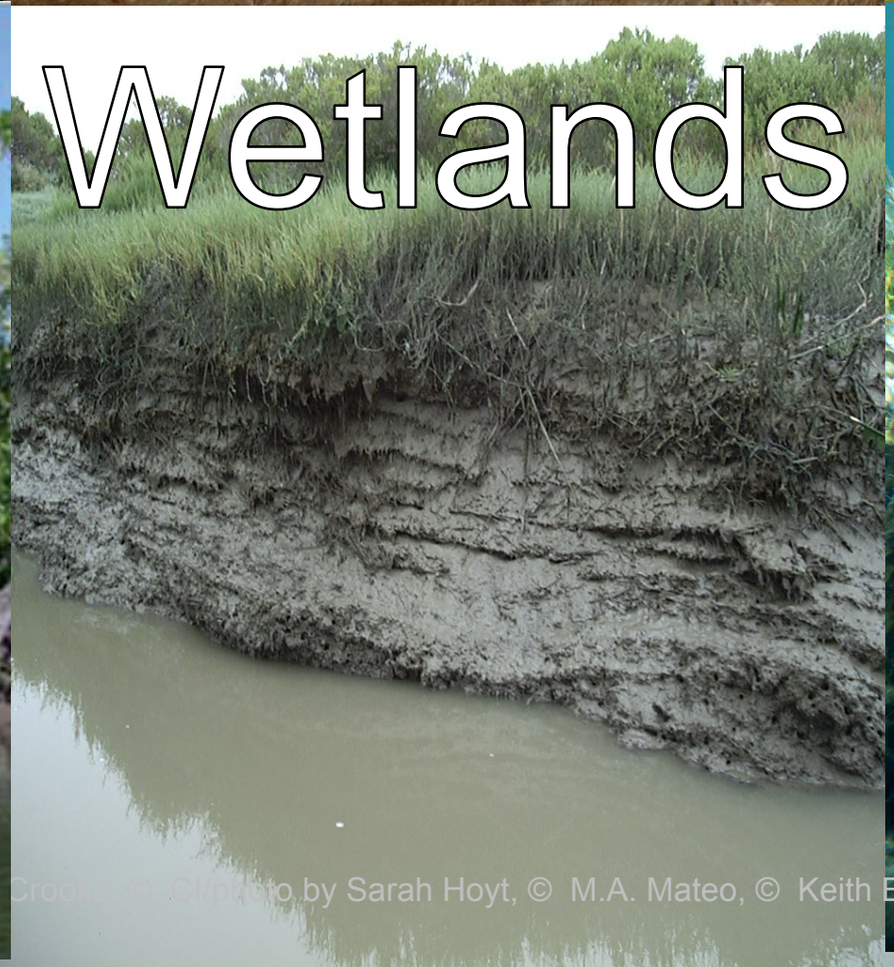
CONSERVATION INTERNATIONAL

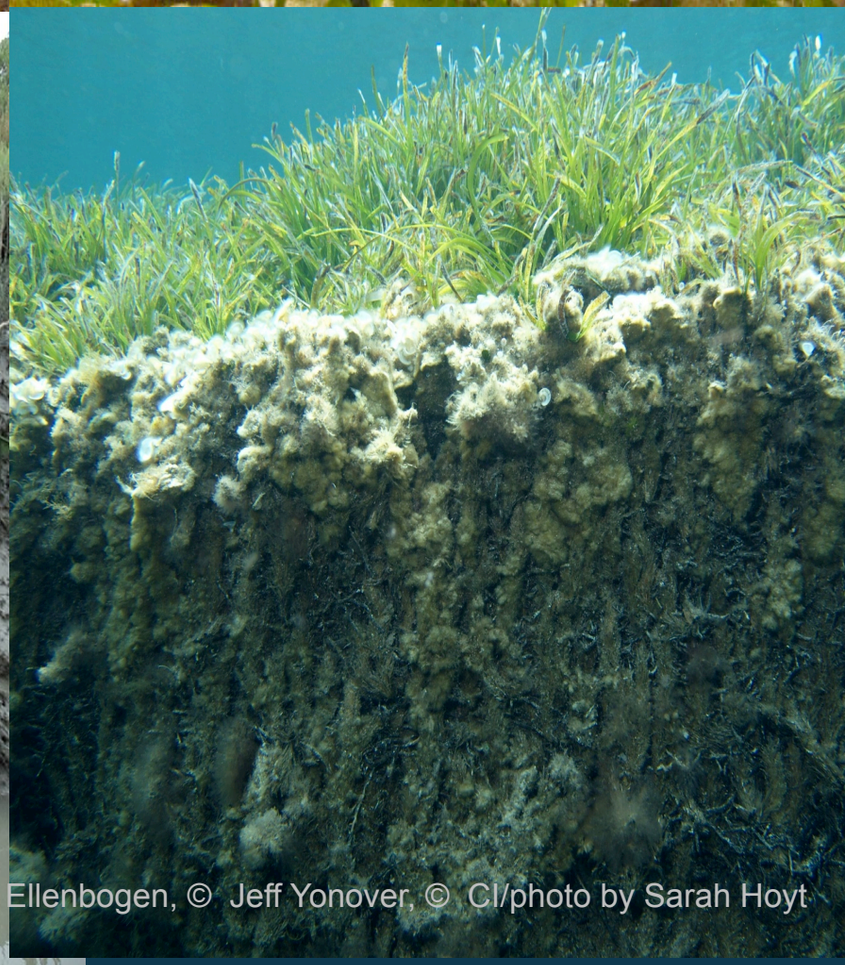
IUCN

United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission





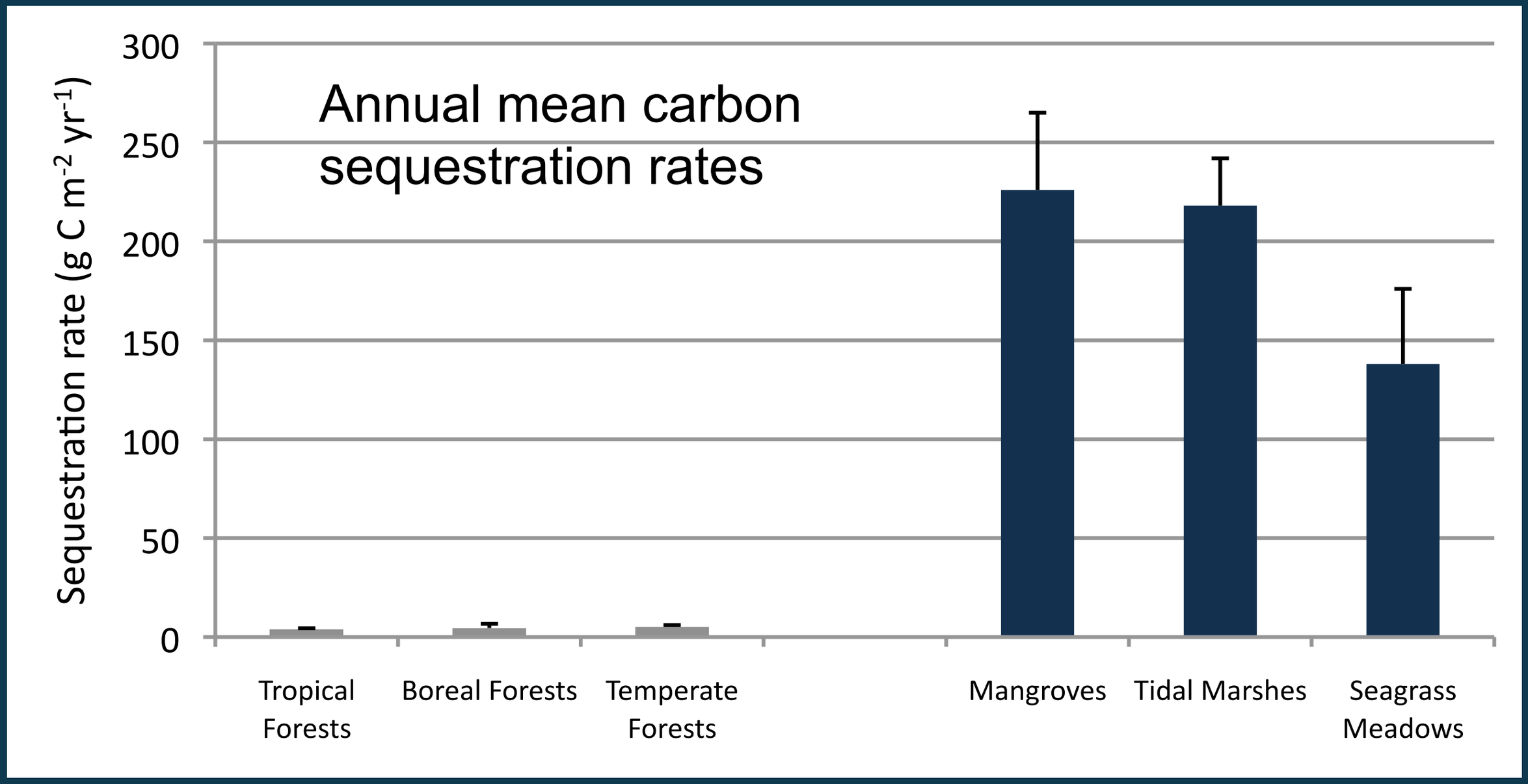


Crooks, © CI/photo by Sarah Hoyt, © M.A. Mateo, © Keith Ellenbogen, © Jeff Yonover, © CI/photo by Sarah Hoyt

Coastal Ecosystems – many critical ecosystem services

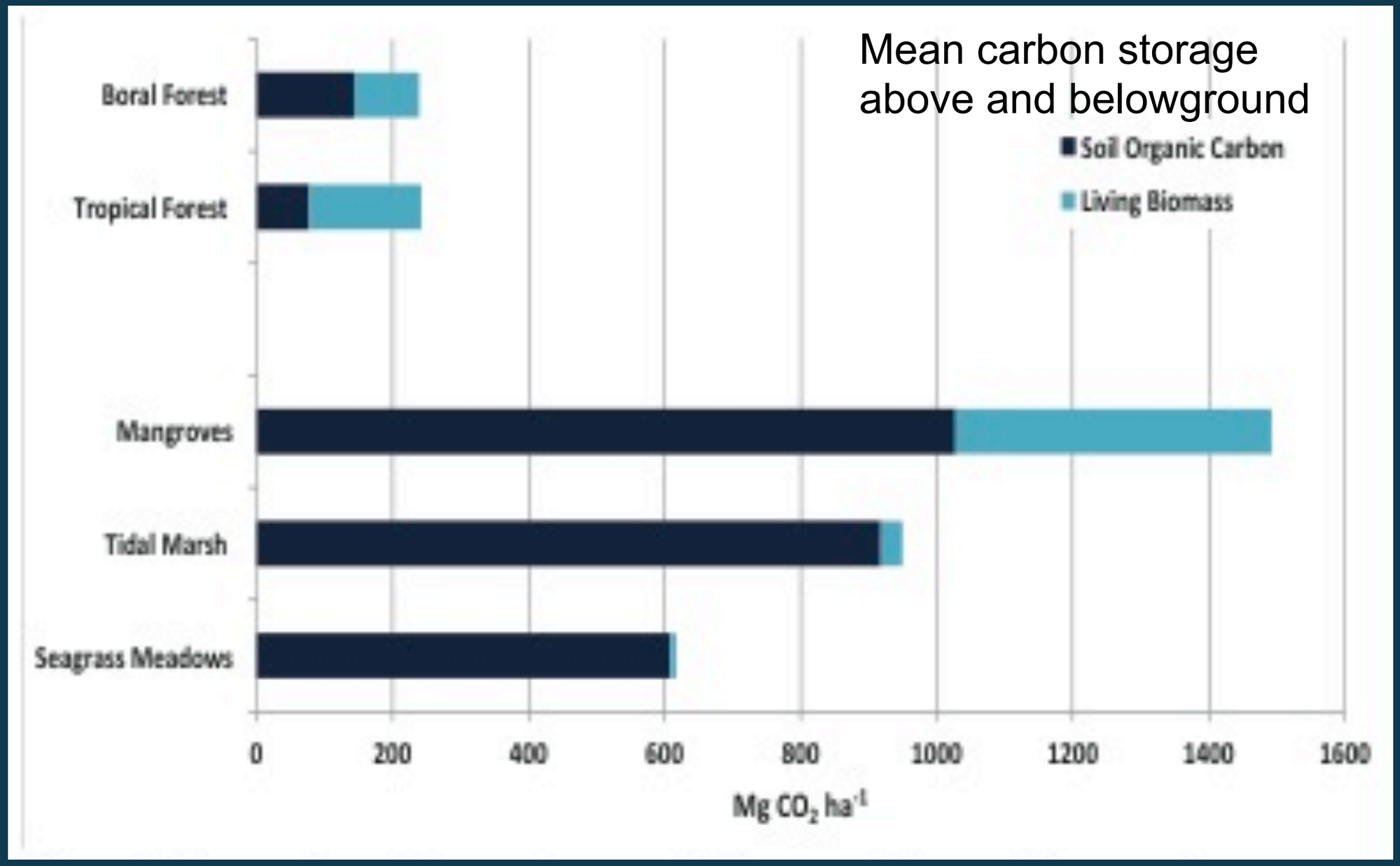
Fisheries
Coastal protection & erosion control
Coastal Water Quality
Livelihoods (tourism etc.)
Cultural value
Food
Biodiversity
Carbon sequestration and storage

Costal Ecosystems Highly Efficient at Carbon Sequestration



Modified from McLeod et al. 2011

Coastal Ecosystem Have Rich Carbon Stores



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

These ecosystems are being rapidly lost

Ecosystem	Global extent (Mha)	Current conversion rate (% yr^{-1})
Mangroves	13.8-15.2 (14.5)	0.7-3.0 (1.9)
Tidal Marsh	2.2-40 (5.1)	1.0-2.0 (1.5)
Seagrass Meadows	17.7-60 (30)	0.4-2.6 (1.5)
Total	33.7-115.2 (48.9)	

(Modified from Pendleton et al. 2012).

Globally significant emissions from Coastal Ecosystems

Ecosystem	Global extent (Mha)	Current conversion rate (% yr^{-1})	Near-surface C susceptible (top meter sediment+biomass, Mg CO_2 ha^{-1})	C emissions (Pg CO_2 yr^{-1})
Mangroves	13.8-15.2 (14.5)	0.7-3.0 (1.9)	373-1492 (933)	0.09-0.45 (0.24)
Tidal Marsh	2.2-40 (5.1)	1.0-2.0 (1.5)	237-949 (593)	0.2-0.24 (0.06)
Seagrass Meadows	17.7-60 (30)	0.4-2.6 (1.5)	131-522 (326)	0.5-0.33 (0.15)
Total	33.7-115.2 (48.9)			0.15-1.02 (0.45)

For comparison:
Tropical deforestation net emissions = 4.8 Pg CO_2 y^{-1}

(Modified from Pendleton et al. 2012; Pan et al. 2011).

Can coastal “blue” carbon leverage better management, conservation and restoration of coastal ecosystems?

- Increase recognition of mitigation value
- Improve management and regulation
- Provide basis for incentives to conserve or restore

the BLUE CARBON initiative

Increased conservation, restoration and sustainable management of coastal blue carbon ecosystems

http://thebluecarboninitiative.org/

CONSERVATION INTERNATIONAL

IUCN

UNESCO
United Nations Educational, Scientific and Cultural Organization

Intergovernmental Oceanographic Commission

United Nations Framework Convention on Climate Change (UNFCCC)

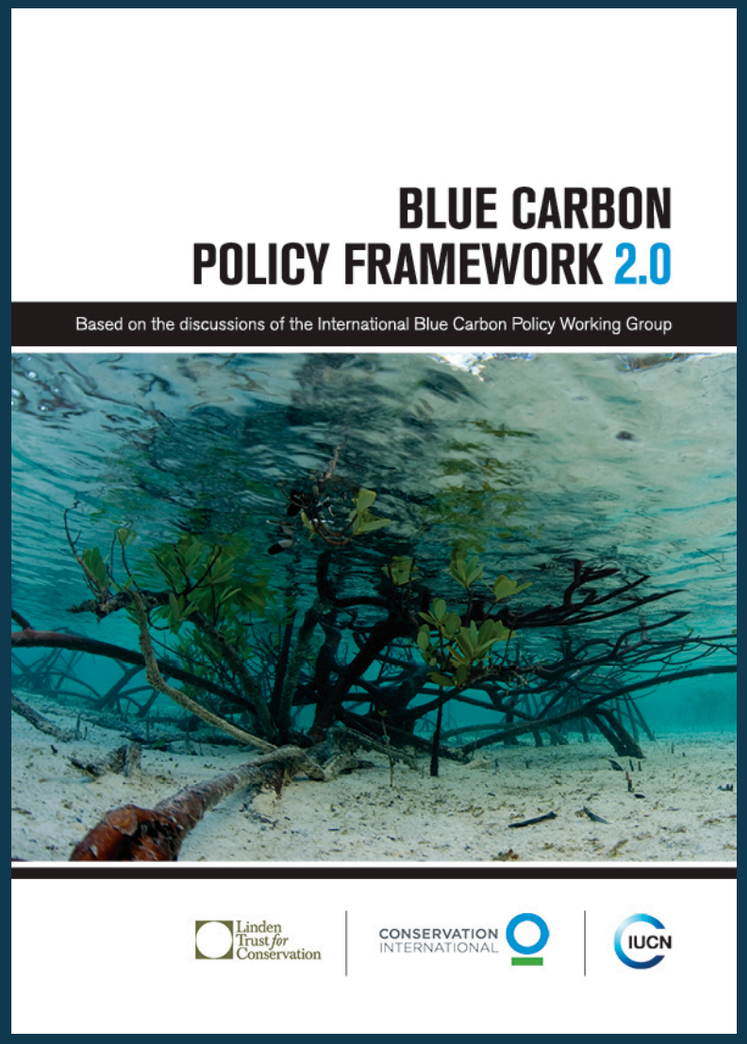
"stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system" (1992)

Overarching framework for other treaties or protocols (e.g. Kyoto Protocol, Bali Action Plan……)

How to integrate coastal ecosystems?

International Blue Carbon Policy Working Group

- Provide guidance for blue carbon policy development
- Build integrated blue carbon community



2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands

Chapter 4
Coastal Wetlands

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Coastal Ecosystems in UNFCCC mechanisms

Nationally Appropriate Mitigation Actions (NAMAs)

- Measurable, reportable and verifiable nationally appropriate mitigation commitments or actions
- Funding through multi-/bilateral initiatives providing fast-start finance
- *Coastal Carbon projects should be eligible*

Reducing emissions from deforestation and forest degradation (REDD)

- Mechanism for recognizing the climate mitigation value of forest management within developing countries
- Climate mitigation value must be measured, monitored and verified
- Numerous funding sources support readiness activities including improving data on carbon content and drivers of deforestation and degradation
- *Mangrove systems are eligible (generally)*

Climate Change Mitigation Funding

Funds exclusively supporting REDD+ (USD millions)

Fund / Initiative	Pledged	Deposited	Approved	Disbursed	No of projects approved
Amazon Fund	1032.44	102.79	168.71	45.94	33
Forest Carbon Partnership Facility - Carbon Fund (FCPF-CF)	218.3	138.1	0.57	0.2	1
Forest Carbon Partnership Facility - Readiness Fund (FCPF-RF)	239.4	212.59	31.03	11.46	27
Forest Investment Program (FIP)	612	446	50.96	3.59	24
Norway International Climate and Forest Initiative (ICFI)	1,607.82	1,607.82	533.21	276.44	13
UN-REDD	151.49	118.89	116.13	97.93	18
Australia's International Forest Carbon Initiative (IFCI)	216.27	67.06	125.54	31.7	9
Congo Basin Forest Fund (CBFF)	165	165	95.38	18.59	37

Schalatek et al 2012

Nationally Appropriate Mitigation Actions (NAMA) Facility
- Initial funding $100 million (UK and Germany)

Green Climate – 2020 Fundraising Goal
- $100 billion per year

UNFCCC recognition of coastal ecosystems

October 2013 Workshop

"Ecosystems with High-Carbon Reservoirs Not Covered by Other Agenda Items under the Convention"

- Current scientific knowledge sufficient to include coastal systems in UNFCCC efforts
- Support developing countries to include coastal systems in GHG inventories

December 2014

- Endorsed IPCC guidelines on GHG accounting in wetlands

- General Recognition of mangroves in REDD+
- Increasing recognition of coastal ecosystems generally

UNFCCC COP 21
Paris, December 2015

Expected Outcomes

- Post 2020 Intended Nationally Determined Contributions (INDCs)

- New agreement under the convention

Include ecosystem-based mitigation (and adaptation) in both.

UNFCCC COP 21 Paris, December 2015

From draft text:

The governing body shall elaborate the rules related to transparency of action and support, including MRV, as well as related to accounting, in particular rules on the use of market mechanisms and to the land sector in relation to mitigation commitments / contributions, which:

d. Recognize the importance of greenhouse gas emissions by sources and removals by sinks resulting from **landuse change and forestry activities** for understanding mitigation contributions and progress in achieving targets, commitments and implementing actions;

What UNFCCC Policy Needs Now…

Global and local scale mapping of mangroves, salt marshes, seagrasses

- extent
- carbon
- monitoring

Emissions from healthy and degraded systems

- measurements
- Models (carbon change, ecosystem shifts…)
- Estimates of storage and emissions from priority regions (Indonesia …)

Globally accessible, quality controlled, Coastal Carbon Data Archive

Seagrasses!

- Distribution, carbon estimates, rates of loss, monitoring techniques…….

Standards and methodologies for carbon accounting, emissions estimates, monitoring (and related issues….)

Thank you

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