



## The contribution of blue carbon ecosystems to climate change mitigation

### Purpose

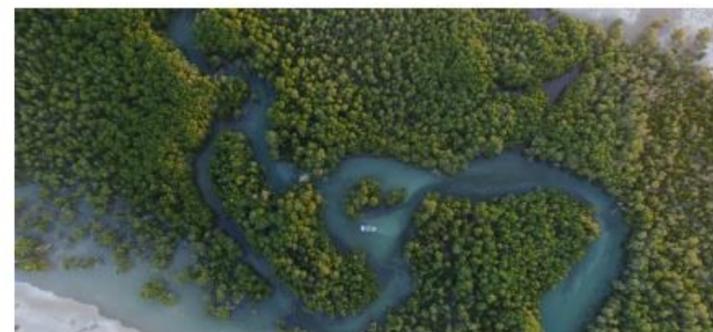
The purpose of this Briefing Note is to expand knowledge on the extent and status of blue carbon ecosystems in Wetlands of International Importance (Ramsar Sites) and explore the contributions these ecosystems can make to climate change mitigation and adaptation through nature-based solutions. This Briefing Note also supports the application of the Convention on Wetlands' wise use guidelines to blue carbon ecosystems to protect their capacity to sequester and store carbon, as well as the many other benefits they provide, contributing towards the Convention's mission of promoting the wise use of wetlands.

### Background

This Briefing Note was prepared by the Scientific and Technical Review Panel (STRP) of the Convention on Wetlands, in response to Resolution XIII.14, Promoting conservation, restoration and sustainable management of coastal blue-carbon ecosystems. This Briefing Note, which is based on a desktop study of blue carbon ecosystems in Ramsar Sites, describes the spatial extent, ecological characteristics and condition of coastal blue-carbon ecosystems across Ramsar Sites<sup>1</sup>.

Blue carbon ecosystems, specifically mangrove forests, intertidal marshes and seagrass beds, are coastal wetlands that continuously take up atmospheric carbon dioxide, storing large amounts of this carbon in soils and sediments. The conservation and restoration of blue carbon ecosystems constitutes a nature-based approach to climate mitigation and adaptation, whilst also providing a range of other valuable ecosystem services.

Protection, management and restoration of blue carbon ecosystems can be strengthened through the designation of new Ramsar Sites, enhanced management of existing sites and minimization of threats that lead to coastal wetland degradation and loss. Such actions can be included in Nationally Determined Contributions (NDCs) towards meeting the objectives of the Paris Agreement of the UN Framework Convention on Climate Change (UNFCCC). Continued effort is needed to address uncertainty about the extent of blue carbon ecosystems, which currently limits the ability of Contracting Parties to manage them effectively for climate mitigation and adaptation and account for their carbon uptake and emissions.



<sup>1</sup> Beers, L., S. Crooks, S. & Fennessy, S. (2020). Desktop Study of Blue Carbon Ecosystems in Ramsar Sites. Report by Silvestrum Climate Associates for the Scientific and Technical Review Panel of the Convention on Wetlands.



## Ramsar Briefing Note 12

# The contribution of blue carbon ecosystems to climate change mitigation

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# STRP Briefing Note 12

Provides knowledge on the extent and status of **blue carbon ecosystems** in Wetlands of International Importance and the contributions these ecosystems can make to climate change mitigation and adaptation.

Prepared by the STRP in response to **Resolution XIII.14: *Promoting conservation, restoration and sustainable management of coastal blue-carbon ecosystems.***

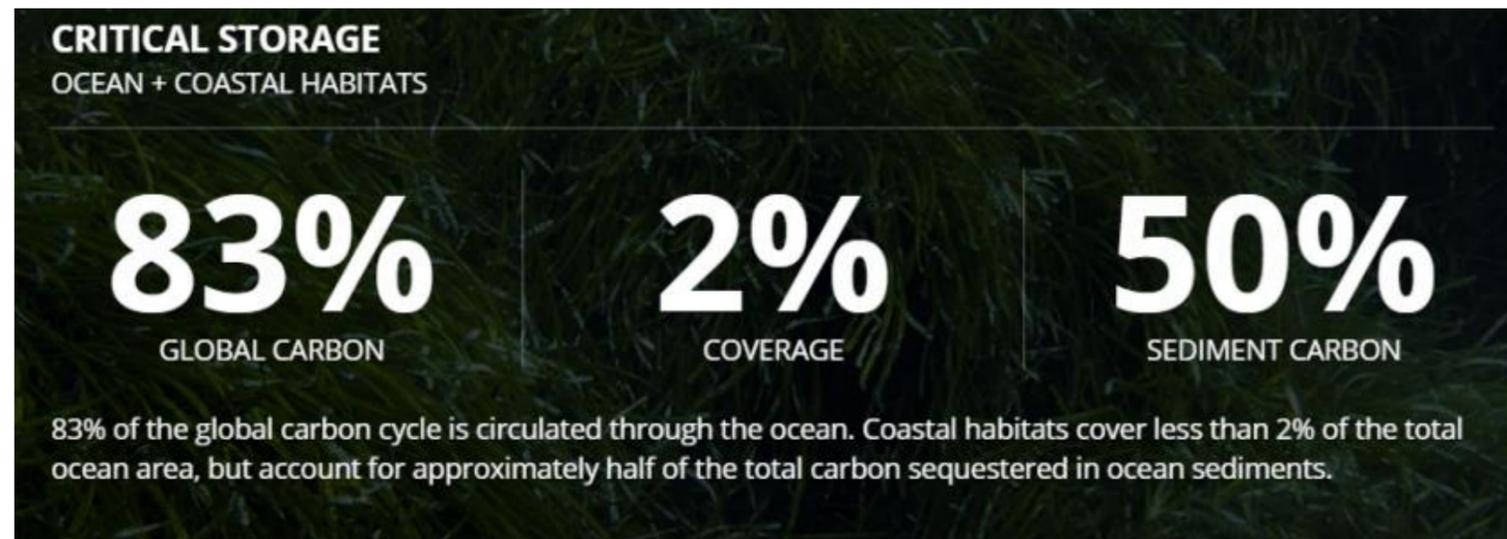


# Blue Carbon Definition

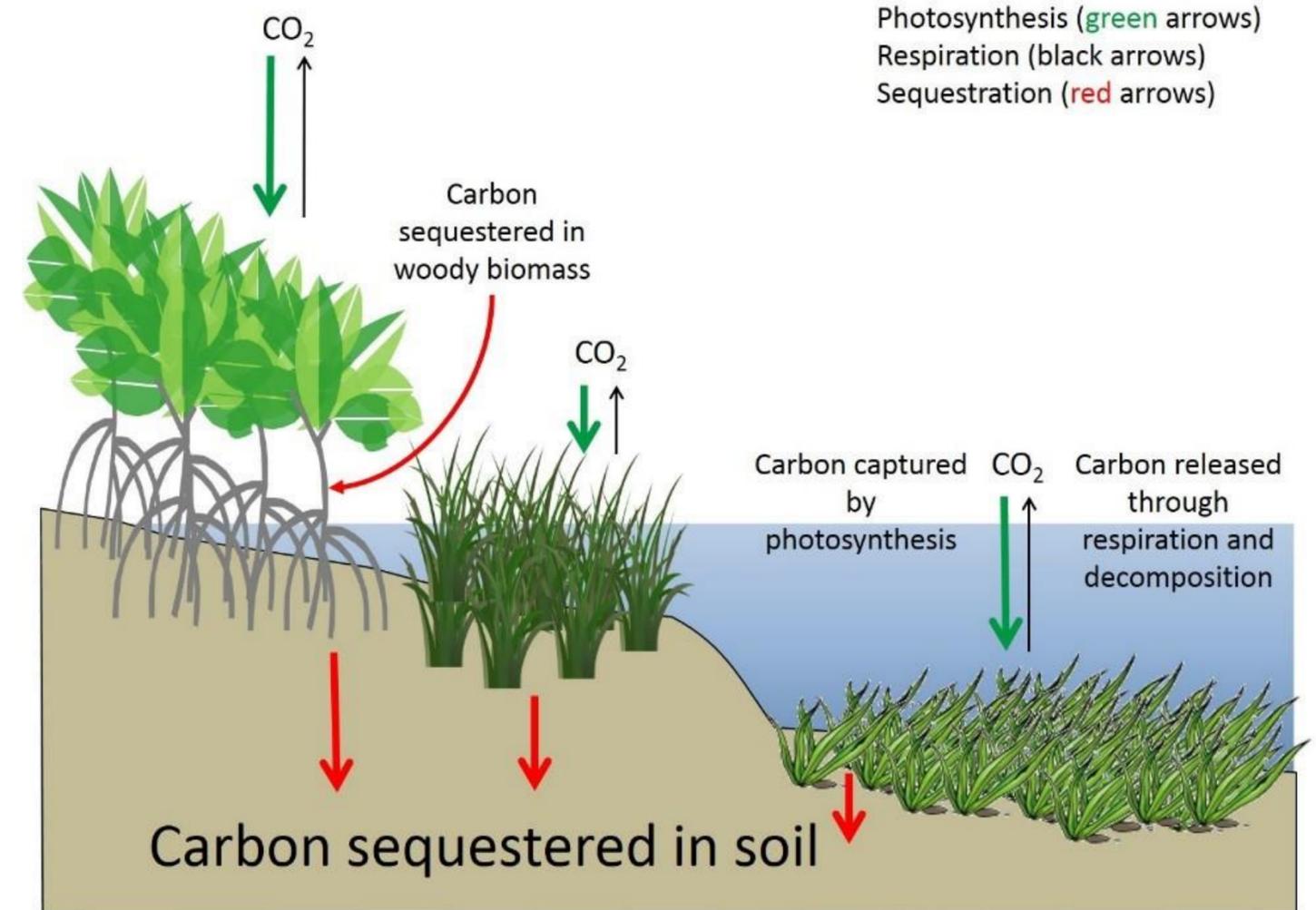
Under the Ramsar Convention, blue carbon is “*the carbon captured by living organisms in coastal (e.g. mangroves, salt (intertidal) marshes and seagrasses) and marine ecosystems and stored in biomass and sediments*”



# Blue Carbon Ecosystems provide critical carbon storage in vegetation and in soils/sediments

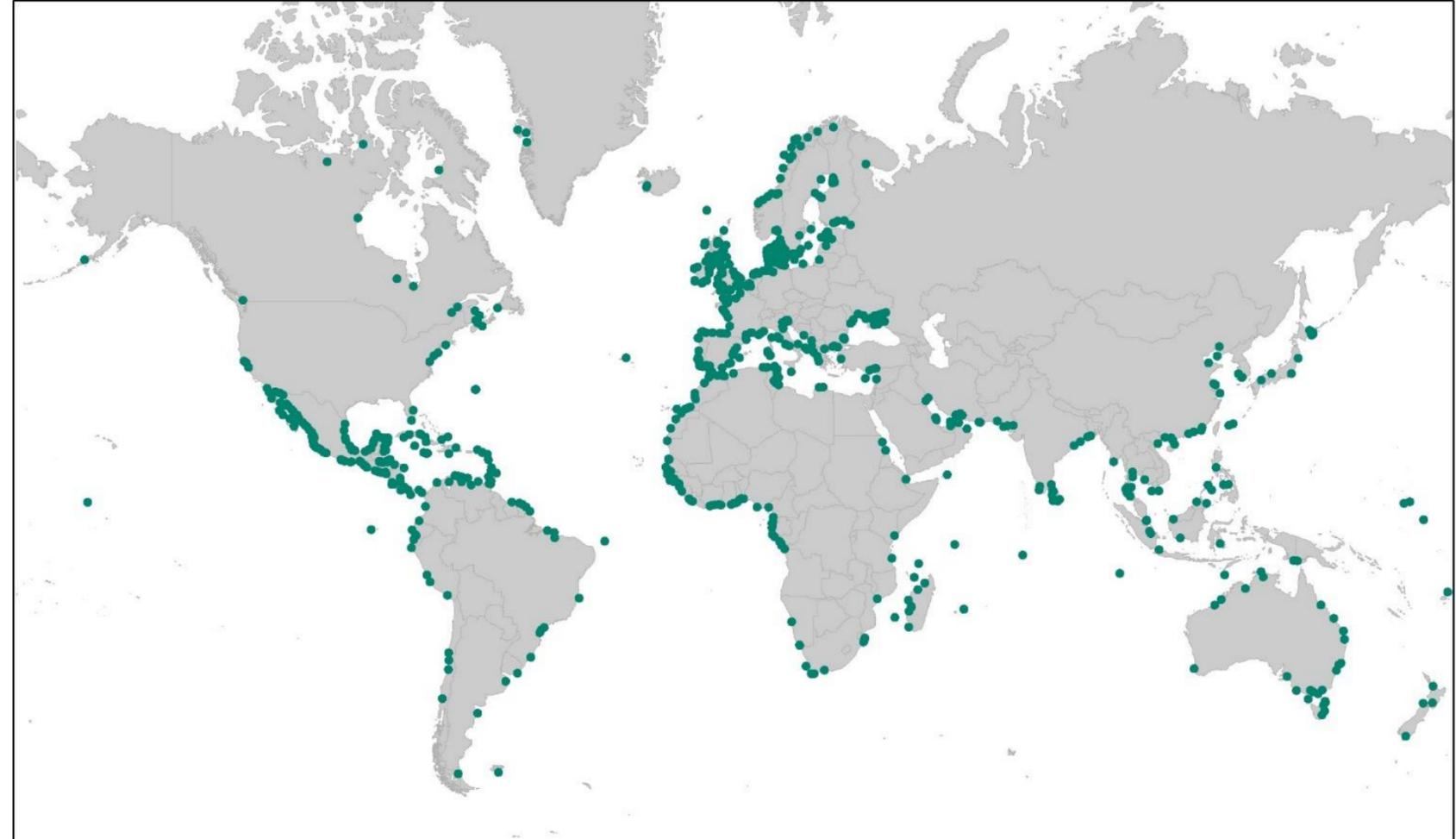


<https://www.thebluecarboninitiative.org/>



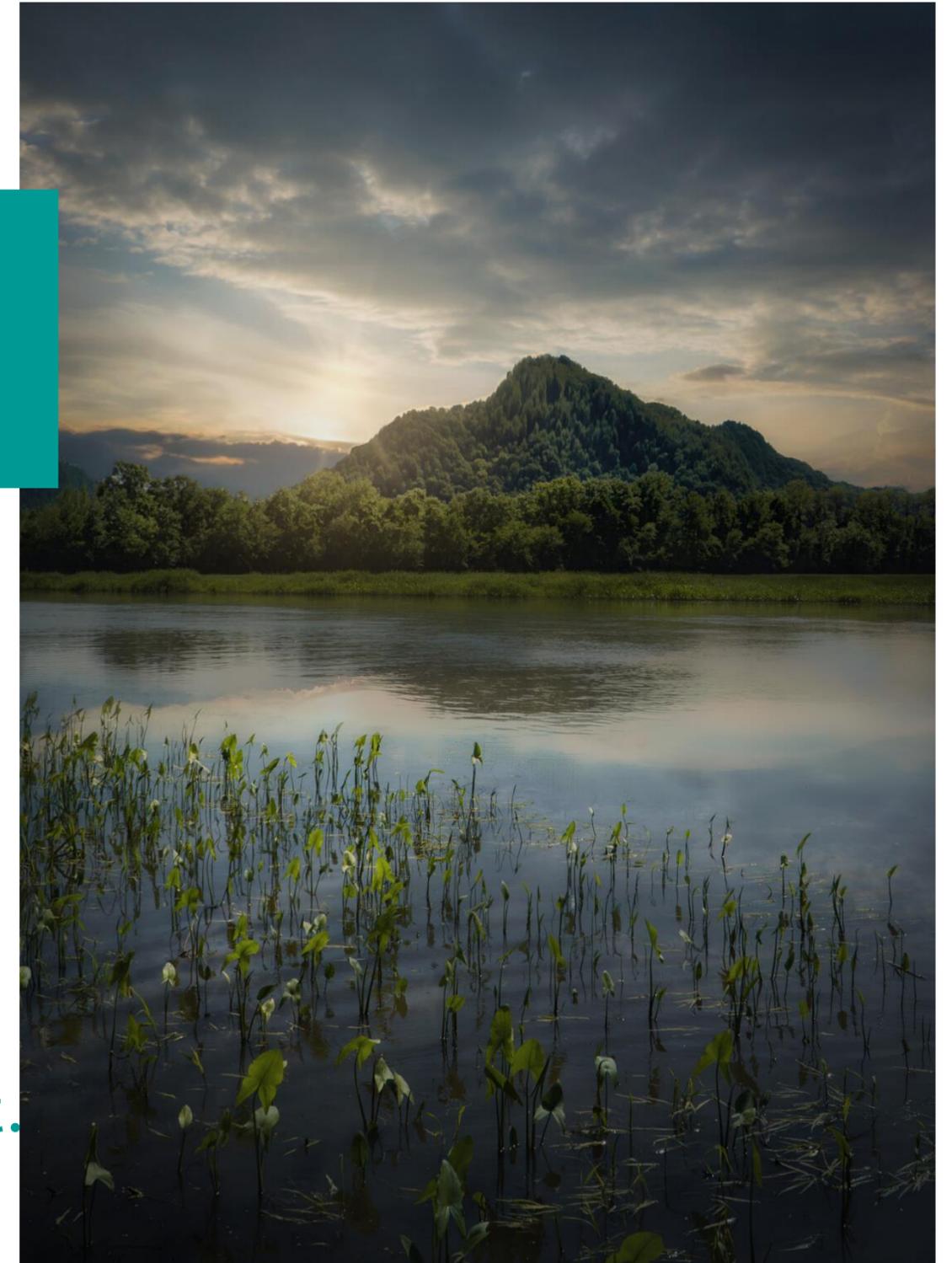
# Distribution of Blue Carbon Ecosystems in the Ramsar Network

- 💧 Globally, blue carbon ecosystems (BCEs) cover an estimated 49 million hectares.
- 💧 However, and consistent with global data, BCEs located within Ramsar sites have not been fully mapped

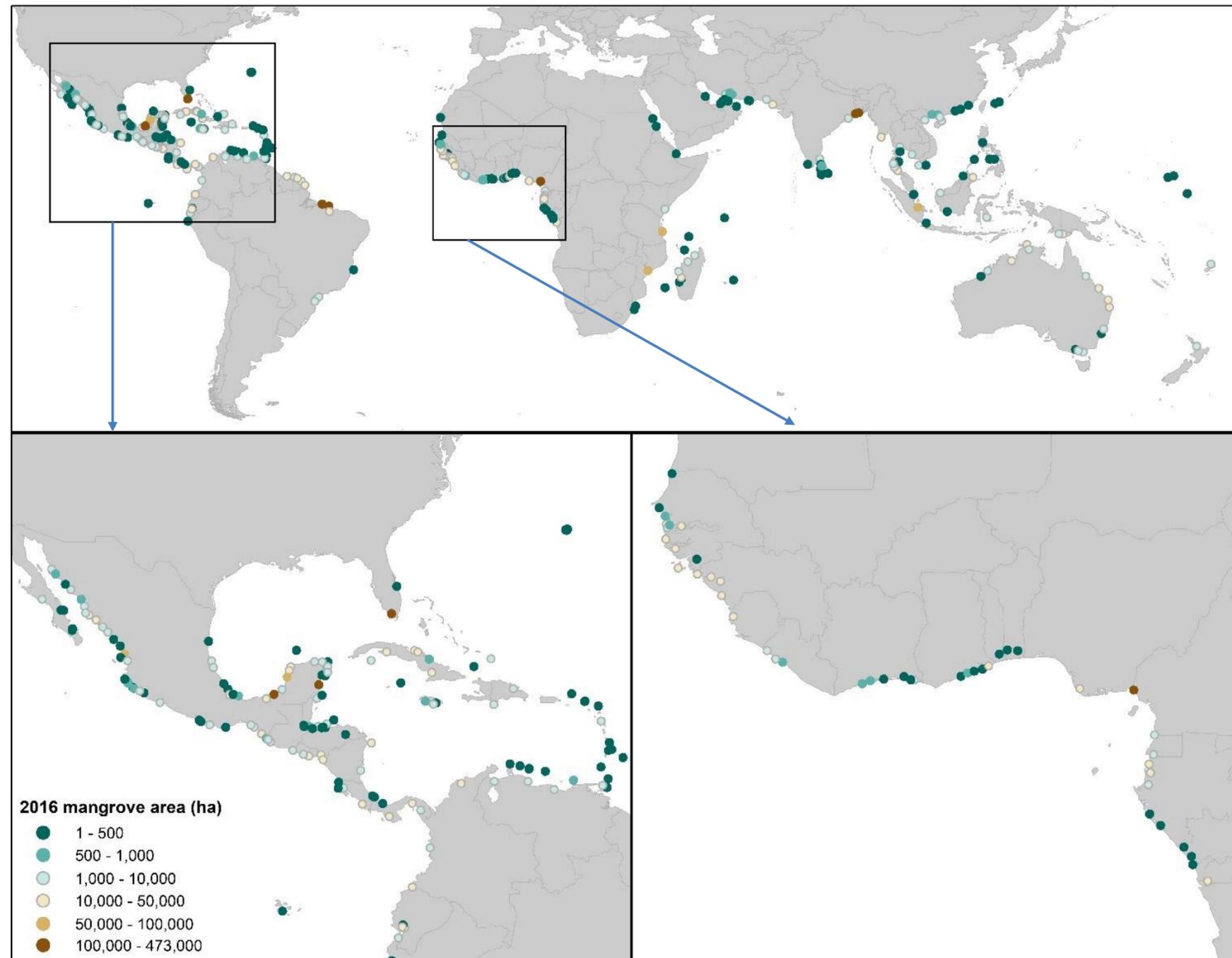


# Methods: The Challenges of Geospatial Data

- Most Ramsar sites had no spatial data (no digitized boundary) so >330 site boundaries were manually delineated
- Mangroves (301 sites): Global Mangrove Watch-mangrove extent assessed at seven yearly intervals (Bunting et al. 2018)
- Intertidal Marshes (547 sites): partial spatial data coverage at 230 sites (Mcowen et al. 2017)
- Seagrass beds (271 sites): no global dataset on extent. Partial coverage by World Atlas of Seagrasses (Green and Short 2003)



# Distribution and Area (ha) of Mangrove Forests in Ramsar Sites



# Change in Mangrove Area and Carbon Storage in Wetlands of International Importance (1997-2016)

Ramsar Region	1997 to 2016 change (ha)	% Change 1997 to 2016	Total C stock (soil + biomass; tC ha <sup>-1</sup> )	Total C loss 1997 – 2016 (million metric tonnes, MT)
Africa	-31,299	-5%	399.51	-13.77
Asia	-15,537	-2%	426.44	-4.97
Europe	5,284	14%	522.84	1.92
Latin America & Caribbean	-51,082	-4%	514.81	-26.38
North America	-63,473	-8%	353.53	-27.85
Oceania	-2,123	-1%	378.22	-0.81
<b>Total</b>	<b>-158,230</b>	<b>-4%</b>	<b>432.6</b>	<b>--</b>



Accurate **global mapping of BCEs** remains a significant gap in the understanding of the overall geographic coverage, particularly for intertidal marshes and seagrass beds.



**Policy gaps** need to be addressed, such as the inclusion of **blue carbon ecosystems protection and restoration** in Nationally Determined Contributions and as part of national greenhouse gas inventories.



BCEs are considered '**hot-spots**' of carbon storage and they offer many other benefits, such as contributing to climate change adaptation, flood and shoreline protection, water quality protection.

# Key Messages



Briefing Note 12 available via:  
[ramsar.org/about/strp-outputs](https://ramsar.org/about/strp-outputs)

**Thank you!**