**INSIGHT BRIEF** 



# "BLUE CARBON" COASTAL WETLAND ECOSYSTEMS:

TRENDS IN NDC
PARTNERSHIP SUPPORT

NOVEMBER 2023



## **KEY MESSAGES**

- An increasing number of countries have included commitments to protect and restore their "blue carbon" coastal wetland ecosystems mangroves, seagrasses, and salt marshes as nature-based solutions to enhance the ambition of their nationally determined contributions (NDCs).
- These coastal wetlands, central to the livelihoods of local populations, not only help to mitigate climate change by sequestering carbon, but also provide a wide range of benefits that help communities adapt and become more resilient to a changing climate, such as storm surge and flood protection benefits.
- While many countries' previous NDCs referenced the potential of these ecosystems, very few NDCs included specific, measurable targets for the protection and restoration of their coastal wetlands prior to the 2020-2021 update. Among the most specific and ambitious commitments to coastal wetlands outlined in the updated NDCs were those of Belize, Costa Rica and Seychelles.
- Countries can submit requests for support to achieve their NDC targets to the NDC Partnership. This insight brief looks at requests for support related specifically to "blue carbon" coastal wetlands in addition to other requests relating more broadly to oceans and coasts.
  - As of July 2023, only 37% of these requests are supported by partners, compared to an average support rate of 55% across all sectors and themes.
- Supporting entities can aid countries' efforts to conserve and restore their coastal wetlands by working with countries to identify potential sources of funding for the implementation of the coastal wetlands sections of their NDCs.

#### **ABOUT INSIGHT BRIEFS**

Insight Briefs are analyses developed by the NDC Partnership's Support Unit, members, or its partner institutions to share insights into thematic issues based on requests received by countries and the support provided by the Partnership. The following Insight Brief, developed by The Pew Charitable Trusts and the NDC Partnership Support Unit, highlights the benefits that coastal wetlands can provide as nature-based solutions, profiles the experience and learnings of these three countries as case-studies, addresses requests related to "blue carbon" coastal wetland ecosystems circulated through the NDC Partnership, and offers resources that countries considering the including coastal wetlands in their NDCs can utilize.

Recommendations for countries to better protect and restore these ecosystems, as well as increase social and economic benefits to local communities, through NDCs include:

- > Identify knowledge gaps as early as possible.
- Clarify data sharing arrangements and the institutional arrangements for the management of coastal wetlands.
- Carry out robust public engagement and involve local partners in the NDC design and implementation process.
- Emphasize both mitigation and adaptation benefits in communication around blue-carbon-related activities.
- > Seek to simplify the policy frameworks around coastal wetlands.
- Ensure that gender equality is considered in the development and implementation of NDC commitments.

## INTRODUCTION

As countries contend with the increasingly severe impacts of climate change, an increasing number are conserving and restoring their coastal wetlands to help them mitigate and adapt to the climate crisis. These ecosystems can store three to five times more carbon per unit than tropical forests, resulting in coastal wetlands often being referred to as "blue carbon" ecosystems. However, if these ecosystems are degraded or lost, they release the carbon they have stored into the atmosphere.

The 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands recognizes the measurable contribution that the management, protection and restoration of coastal wetland ecosystems can make to emissions reductions — and fluxes — accounted for within national greenhouse gas inventories (GHGi). While the Intergovernmental Panel on Climate Change (IPCC) acknowledges that all biologically driven carbon fluxes and storage in marine systems have the scope to be considered "blue carbon," these three coastal wetlands — mangroves, saltmarshes and seagrasses — are currently the only marine nature-based solutions with approved IPCC methodology for the measurable contribution that can be made to emissions reductions commitments. Other marine and coastal ecosystems, such as kelp forests, macroalgae and unvegetated marine sediments continue to be studied. However, while these ecosystems may confer benefits in adapting and becoming more resilient to climate change that can be reflected within an NDC, they currently lack the methodological baseline to be similarly included for measurable mitigation benefits.

The NDC Partnership is a global coalition, bringing together more than 200 members, including more than 120 countries, developed and developing, and more than 90 institutions to deliver on ambitious climate action that helps achieve the Paris Agreement and the sustainable development goals (SDGs). Governments identify their NDC implementation priorities and the type of support that is needed to translate them into actionable policies and programs via their NDC Implementation Plan, or other targeted mechanisms. Based on these requests, the NDC Partnership membership offers a tailored package of expertise, technical assistance and funding.

Many countries are now requesting support from NDC Partnership institutional, associate and developed country members to conduct blue-carbon-related activities to enhance and implement their NDCs. The case studies and analysis of trends and gaps from these requests for support presented in this brief highlight the importance of the NDC Partnership in providing guidance and support for blue carbon ecosystem and other oceans and coasts-related efforts. This brief also shows the essential role of coastal wetlands in mitigation and adaptation efforts.

## **BENEFITS OF BLUE CARBON**

### **COASTAL WETLANDS**



#### Sequester carbon.

Although they comprise less than 5% of global land area and less than 2% of the ocean, these habitats store roughly 50% of all carbon buried in ocean sediments.



#### Provide flood protection.

Mangroves alone help avert <u>\$65 billion in flood-related losses</u> and provide flooding protection for more than 15 million people living in coastal communities worldwide every year.



#### Shield communities from storm surges.

As climate change causes storms to increase in frequency and magnitude, coastal wetlands help buffer coastal communities from storm surge. <u>A recent study</u> found that coastal wetlands can reduce the height of storm surge by five to 50 centimeters for every kilometer of mangrove width.



#### Provide critical support for coastal biological diversity and abundance.

Coastal wetlands are critical habitats for a wide range of species of fish and other wildlife — for example, 20% of the world's largest fisheries depend on seagrasses for their habitats.



#### Positively impact local communities' social and economic conditions.

Investment in coastal wetlands can support local livelihoods, such as small-scale fisheries and tourism, and protect local communities from natural disasters. Engaging communities living in coastal wetlands can also strengthen NDC design and implementation.

## HOW COUNTRIES HAVE INCLUDED BLUE CARBON COASTAL WETLANDS IN THEIR NDCS

Most commitments to blue carbon coastal wetlands currently included in NDCs are not expressed as quantitative emission reduction/mitigation targets; rather, the benefits of their protection, restoration and management are more frequently captured within the adaptation sections of countries' NDCs as area-based commitments to protect, restore and/or manage ecosystem extent.

This is partly in recognition that in many countries the frameworks and capacities to measure, manage and monitor the emission fluxes of blue carbon ecosystems are still developing. Many countries require technical assistance to carry out carbon quantification assessments for their blue carbon ecosystems as well as technical assistance for the inclusion of these ecosystems within their GHGi.

That the majority of coastal wetlands commitments in NDCs are primarily positioned through the lens of adaptation also demonstrates the value these ecosystems provide in protecting vulnerable populations and helping local communities adjust to the impacts of climate change. For example, while Belize includes coastal wetlands in the mitigation section of its updated NDC, the country also includes these critical ecosystems in the adaption section.

Additionally, while some countries' commitments are nonconditional, many have also included conditional commitments dependent on factors such as the receipt of climate financing. For example, in its updated NDC, Seychelles notes that it will protect "at least 50% of Seychelles seagrass and mangrove ecosystems by 2025, and 100% of seagrass and mangrove ecosystems by 2030, subject to external support and identification of financing mechanisms to support the implementation and protection..."



### Case study — Costa Rica

With an energy grid that already runs on 100% renewable energy on most days of the year and a National Decarbonization Plan that looks to achieve net-zero emissions by 2050, Costa Rica already has impressive environmental credentials. The Costa Rican coastline is over 1,100 kilometers long on the Pacific Ocean and 200 kilometers along the Caribbean Sea. The updated NDC that Costa Rica submitted in December 2020 continues its strong environmental legacy by including language to protect, restore and sustainably use its coastal wetlands.

During the NDC updating process, the country received support through the NDC Partnership (including its Climate Action Enhancement Package and Economic Advisory Initiative) from several stakeholders such as the International Institute for Sustainable Development (IISD), the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety, and Consumer Protection (BMUV), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, UN Environment Programme (UNEP), Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), The Pew Charitable Trusts (Pew) and Conservation International (CI). These partners helped the country identify the best ways to include nature-based solutions within its updated NDC under a chapter dedicated solely to oceans and freshwater resources.

Costa Rica's updated NDC outlines a suite of detailed commitments to protect and restore coastal wetlands as key carbon sinks, including:

- Protecting 100% of coastal wetlands recorded in the country's National Wetland Inventory—including 22,000 hectares of mangroves.
- Restoring priority coastal wetlands areas by 2025, as established under the National Landscape Restoration Strategy.
- Developing management and monitoring plans that will enable sustainable community stewardship of mangrove areas that are key to local livelihoods.
- > Exploring innovative conservation financing mechanisms, including the potential of expanding the existing payment for environmental services (PES) in forest areas towards coastal and marine areas under an ecosystem services approach.

Costa Rica is currently in the process of implementing its updated NDC. In February 2022, Costa Rica was announced as one of the first EarthShot Prize winners — a prize awarded by The Royal Foundation of the Duke and Duchess of Cambridge. Some of these funds will be used to support the piloting of the Payment for Marine Ecosystem Services program, which can help the country restore and protect its coastline and mangroves.

In February 2023, Costa Rican officials launched the country's National Blue Carbon Strategy which provides a framework to implement their 2020 NDC commitments. The strategy not only promotes wetland protection measures, but it also calls for Costa Rica to establish, by 2025, official guidance and criteria for the registration of any blue carbon projects — and to establish financial mechanisms for effective blue carbon ecosystems management. In addition, the strategy calls for Costa Rica's Central Bank, by 2030, to develop and standardize a methodology for the economic evaluation of the benefits — including but not limited to carbon sequestration — that are provided by blue carbon ecosystems. Notably, the strategy provides a structure for the various government entities responsible for ensuring that Costa Rica's NDC commitments are met, including the Ministry of the Environment and Energy (MINAE) and the National System of Conservation Areas (SINAC) to coordinate their efforts.

In collaboration with key stakeholder organizations, the country hosted a workshop and field visits in July 2023 to bring together key government representatives to plan the next steps for implementing the Payment for Marine Ecosystem Services program and other aspects of Costa Rica's National Blue Carbon Strategy, all of which move the country closer to achieving its 2020 NDC goals.

## **Case study** — **Belize**

Belize is already considered a carbon sink, but that has not stopped the country from continuing to take aggressive action to fight climate change and safeguard the country's critical ecosystems and biodiversity. Belize submitted its **updated NDC** in September 2021, and it contained a number of ambitious climate commitments, including protection and restoration targets for its coastal wetlands. Key commitments in Belize's updated NDC include:

- Protecting a minimum of 6,000 additional hectares of mangroves by 2025 and 6,000 hectares by 2030, which will double the current levels of protection.
- Restoring at least 2,000 hectares of mangroves by 2025 and 2,000 more hectares by 2030.
- > Halting net loss of coastal wetland habitat by 2025.
- Developing a National Seagrass Policy, including the identification of a portfolio of priority areas for protection.

To ensure these coastal wetlands commitments were backed by robust science, the country undertook its first ever comprehensive above- and below-ground carbon assessment in September 2022. Led by the Smithsonian Institution in partnership with the University of Belize, World Wildlife Fund (WWF) and supported by The Pew Charitable Trusts, the project brought together government departments, local nongovernment organizations and international researchers to take soil cores and tree measurements to estimate the amount of carbon stored in Belize's mangroves.

In May 2022, with support from the NDC Partnership, Belize launched its NDC Implementation plan which will help guide its NDC implementation efforts through 2025, and the country has already taken many important steps to implement the coastal wetlands sections of its NDC. In March 2023, the Belizean government, WWF and The Pew Charitable Trusts held a workshop to share the findings of the mangrove carbon assessment, and it included a special session with the Forest Department to begin the process of incorporating the data into its national inventory.

## Case study — Seychelles

Seychelles is a small island developing state and it is very vulnerable to the impacts of climate change. The country has moved to take strong climate mitigation and adaptation actions, which is reflected in its **updated NDC** that was submitted in July 2021. The updated NDC included strong protections for seagrass and mangroves, such as:

- > Fully mapping the extent of mangrove and seagrass ecosystems and conducting a first-time assessment of seagrass carbon stocks within Seychelles' waters.
- > Ensuring that at least 50% of the nation's mangrove and seagrass ecosystems are protected by 2025 and 100% are protected by 2030.
- > Establishing a long-term monitoring program for seagrass habitats and including the nation's blue carbon ecosystems within Seychelles' National Greenhouse Gas Inventory by 2025.

Critical to the inclusion of seagrass within the country's NDC has been the completion of an EEZ-wide seagrass mapping and carbon assessment effort, which was funded by The Pew Charitable Trusts and led by the University of Oxford in partnership with Seychelles Conservation and Climate Adaption Trust (SeyCCAT), the University of Seychelles, Island Conservation Society, the German Aerospace Agency and others. The project was completed in August 2022, and the maps and the data were delivered to the government in December 2022.



The mapping and carbon assessment data that was delivered to the government can be used to help implement the country's NDC and to allow the country to add seagrass to its GHGi.

The NDC Partnership's engagement in Seychelles is comprehensive and covers multiple issues impacting climate change adaptation and emissions mitigation. The first phase of Seychelles' engagement resulted in the implementation of the Partnership Plan 2018-2022 and is now entering a new phase of implementation.

The commitment to ensure that at least 50% of the Seychelles' mangrove and seagrass ecosystems are protected is the result of a comprehensive effort supported by multiple stakeholders, including The Pew Charitable Trusts, the World Bank and the European Commission through the NDC Partnership's Climate Action Enhancement Package, to develop a holistic NDC that recognizes both marine and terrestrial ecosystems in Seychelles.

## REQUESTS FOR SUPPORT THROUGH THE NDC PARTNERSHIP RELATED TO BLUE CARBON, OCEANS AND COASTS

In recent years, the NDC Partnership has seen an influx of requests from country members seeking support to address blue carbon and other needs related to oceans and coasts within their NDC implementation or enhancement priorities.

The analysis below outlines key trends in countries' support needs related to "Oceans and Coasts" and the types of requests where support is still needed. These requests can be broader than simply blue carbon coastal wetlands requests, and they are defined as including at least one of the following areas: protecting and restoring ocean and coastal ecosystems, covering coastal zones where sea and land processes occur and using the sustainable development of the ocean as an engine for sustainable economic growth (blue economy). For the remainder of this report, the data on "Oceans and Coasts" requests and support is referred to as "Blue Carbon, Oceans and Coasts."

The analysis below also provides an understanding of which sectors, service offerings, activity types, key topics and focus areas attract the most and least support from partners. These gaps in support can help partners to tailor projects, programs and funding to better respond to developing countries' "Blue Carbon, Oceans and Coasts" priority needs.

NDC Partnership country request data: The data presented here was drawn from the NDC Partnership's knowledge management system, the Knowledge Nook (kNook), in July 2023, by
filtering for requests tagged with the "Oceans and Coasts" key topic. This reflects requests received between October 2017 and July 2023. The kNook draws together data from official requests
for support on NDC implementation or enhancement submitted to the NDC Partnership by country members. These data enable users to quickly access global trends on country priorities
and support needs. Where available, the system also includes data on partner responses. The kNook system is accessible to all NDC Partnership members upon request. Follow this link to gain
access or to request an account: https://ndcpartnership.knack.com/knook#home.

## **GEOGRAPHIC SCOPE**

**25 countries** have submitted 183 "Blue Carbon, Oceans and Coasts" requests for support. Of these requests, 73% came from three countries: Belize, São Tomé and Príncipe and Tunisia and 53% came from Small Island Developing States (SIDS)/Alliance of Small Island States (AOSIS).

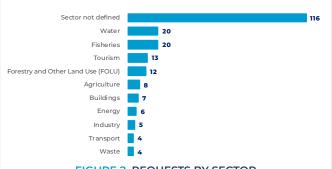


FIGURE 1. ALL "BLUE CARBON, OCEANS AND COASTS" REQUESTS BY COUNTRY



## **COUNTRY REQUESTS<sup>2</sup>**

Blue carbon, oceans and coasts requests account for 4% of all active requests received by the NDC Partnership (183 out of 4,747 total requests).



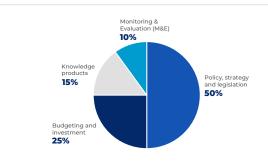


FIGURE 2. REQUESTS BY SECTOR

FIGURE 3. REQUESTS BY VALUE CHAIN OF SERVICES



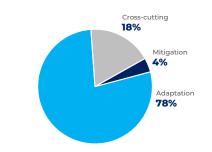


FIGURE 4. REQUESTS BY KEY TOPIC

FIGURE 5. REQUESTS BY FOCUS AREA



#### FIGURE 6. REQUESTS BY ACTIVITY TYPE

#### "Oceans and Coasts" country request examples

Tunisia requested support to design and implement an evaluation that will inform the Coastal Protection and Development Agency's (APAL) coastal adaptation action plan.

São Tomé and Príncipe requested support to improve fisheries management in vulnerable communities by building small marinas and structures for boat moorings. This was supported by the World Bank.

#### "Blue Carbon" country request examples

Belize requested support to enhance the capacity of the country's mangrove and seagrass ecosystems to act as a carbon sink and strengthen adaptation and resilience benefits by expanding mangrove protection and restoration efforts. This was supported partially by Pew and WWF.

Papua New Guinea requested support to build capacity to assess and account for the country's blue carbon sequestration potential by assessing and accounting for carbon stocks and emission factors in mangroves, salt marshes and seagrass meadows. This request is partially supported by FAO and GIZ (Germany).

## **PARTNER SUPPORT**

**Only 37%** of "Blue Carbon, Oceans and Coasts" requests **are fully or partially supported**, compared to an average of 55% across all sectors and themes.

**61**% of **unsupported requests** are from countries' **NDC Implementation/Partnership Plans**. Since these plans reflect more comprehensive requests with deeper support needs, partner support often takes **months or even years to formalize**.

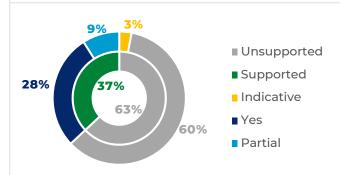


FIGURE 7. SUPPORT STATUS OF BLUE CARBON, OCEANS, AND COASTS REQUESTS

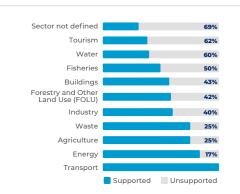


FIGURE 8. SUPPORT STATUS BY SECTOR

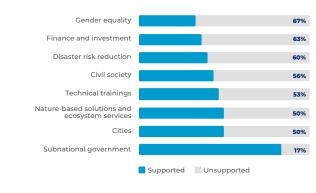
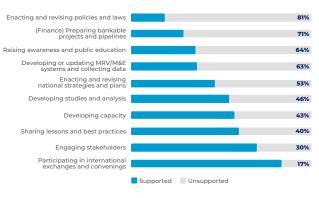


FIGURE 9. SUPPORT STATUS BY KEY TOPIC





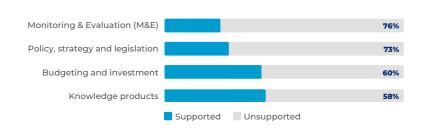


FIGURE 11. SUPPORT STATUS BY VALUE CHAIN OF SERVICES

The most common "Blue Carbon, Oceans and Coasts"-related sectors have the largest support gaps. Focusing support on **Fisheries, Water and related Tourism** would enable coastal countries to harness the adaptation and mitigation potential of their natural environments.

Many countries are still working to develop **mechanisms and frameworks to measure emissions from blue carbon ecosystems**. Where countries are prioritizing the measurement aspect of their blue carbon ecosystems, they struggle to attract support to implement this work.

## RECOMMENDATIONS



Coastal countries should identify knowledge gaps as early as possible.

The inclusion of conservation and restoration targets for coastal wetlands within an NDC can require new research efforts, such as baseline habitat mapping and carbon stock assessments. Countries should seek to understand what research gaps they currently have. Requests to "Develop studies and analysis" are the most requested activity type amongst "Blue Carbon, Oceans and Coasts"-related requests, but nearly half of these requests are still seeking support from partners. Conducting data and research gap analyses for blue carbon ecosystems, oceans and coasts takes time and coordination, which could be supported by a range of organizations.



Countries should clarify data-sharing arrangements and the institutional arrangements for the management of coastal and ocean ecosystems.

For example, some governments have different and/or multiple agencies responsible for mangroves and seagrasses. Clarifying data-sharing arrangement and management structures be critical to the development and implementation of coastal wetland and oceans and coast-related NDC commitments. Where possible, countries should seek to simplify the policy frameworks around coastal wetlands. This can make management of these ecosystems and implementation of NDC commitments easier.



Countries should carry out robust public engagement and involve local partners in the NDC design and implementation process. The development and implementation of any NDC commitment can be strengthened by involving local communities and partners. Notably, there is a significant support gap for requests related to "raising awareness and public education."



Countries should emphasize both mitigation and adaptation benefits in communication around blue-carbon-related activities. The benefits provided by coastal wetlands go beyond carbon sequestration – messaging and public engagement should not be limited to "blue carbon". For many local communities, the adaptation benefits of coastal wetlands are far more immediately obvious and valuable, and should be represented in NDC commitments and relevant financial and technical support. This prioritization of adaptation benefits is reflected in the data noted in Figure 5, 78% of requests are for adaptation, 4% are for mitigation and 18% are for cross-cutting activities.



Countries requesting support and supporting members of the NDC Partnership should ensure that gender equality is considered in all types of actions, including the development and implementation of NDC commitments related to "Blue Carbon, Oceans and Coasts." Within "Blue Carbon, Oceans and Coasts" requests, those also tagged with the "Gender equality" key topic have the lowest support rate. Gender equality is an integral aspect of support to countries and to the success of blue carbon initiatives. For example, in Costa Rica, mangrove restoration as a nature-based solution in some sites is implemented by women's cooperatives. Mangrove restoration activities in Costa Rica provide incomegenerating opportunities to women in coastal communities, linked mostly to mangrove ecotourism and environmental education. Including gender considerations in the development and implementation of NDC commitments will lead to more inclusive outcomes.



Implementing and development partner members of the NDC Partnership should work with countries to identify potential sources of funding for the implementation of the coastal wetland commitments of countries' NDCs. The data above shows a significant gap in support for key topics and activity types related to climate finance, which are some of the most common within "Blue Carbon, Oceans and Coasts" requests. Preparing bankable projects and pipelines is the second-most requested "Blue Carbon, Oceans and Coasts"-related activity type. Support for these requests is essential to ensure the sustainability of blue carbon, oceans and coasts initiatives.



The 2025 updating cycle represents a huge opportunity for countries to increase mitigation and adaptation ambition through stronger blue carbon targets. The Partnership's Global Call for NDCs 3.0 & LT-LEDS provides an opportunity to mobilize support for this as well as the knowledge and experience of members and partners of the Partnership.

## RESOURCES FOR INCLUDING COASTAL WETLANDS IN NDCS

Additional resources related to including coastal wetlands in NDCs can be found in the NDC Partnership's Climate Toolbox. This toolbox draws together tools, guidance, platforms and advisory support from leading institutions in a searchable database to help countries plan and implement their NDCs. At the time this brief was created, the Climate Toolbox contained 41 resources related to blue carbon, identified by filtering for "Oceans and Coasts" in the "Sectors and Themes" focus area. This includes, for example, Conservation International's Guide to Including Nature in NDCs and the Guidelines for Blue Carbon and Nationally Determined Contributions. Funding opportunities for nature-based solutions and coastal and oceans-related projects can also be accessed through the NDC Partnership's Climate Funds Explorer.

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**About The Pew Charitable Trusts**: Founded in 1948, the Pew Charitable Trusts uses data to make a difference. Pew addresses the challenges of a changing world by illuminating issues, creating common ground, and advancing ambitious projects that lead to tangible progress.

About the NDC Partnership: The NDC Partnership is a global coalition, bringing together more than 200 members, including more than 120 countries, developed and developing, and more than 80 institutions to deliver on ambitious climate action that helps achieve the Paris Agreement and the Sustainable Development Goals (SDGs). Governments identify their NDC implementation priorities and the type of support that is needed to translate them into actionable policies and programs. Based on these requests, the membership offers a tailored package of expertise, technical assistance, and funding. This collaborative response provides developing countries with efficient access to a wide range of resources to adapt to and mitigate climate change and foster more equitable and sustainable development.



## "Blue Carbon" Coastal Wetland Ecosystems: Trends in NDC Partnership Support Investment Planning Guide

**INSIGHT BRIEF** 

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