

November 2025

 **MANGROVE  
BREAKTHROUGH**

 **GLOBAL  
MANGROVE  
ALLIANCE**

# Mobilizing the Mangrove Breakthrough in the Philippines





# Mobilizing the Mangrove Breakthrough in the Philippines

This Country Summary forms part of the Mobilizing the Mangrove Breakthrough in Asia Regional Report. It highlights country-specific enabling conditions, policies, finance mechanisms, and opportunities for mangrove action in the Philippines.

For regional priorities, shared challenges, and the wider context of Mangrove Breakthrough goals, see the corresponding **Regional Report for Asia**.

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Traditional Philippine boat on the mangrove river at Busuanga island, Palawan, Philippines  
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With support from:



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The **Mangrove Breakthrough** aims to catalyze both the ambition and necessary technical and financial support to:



### Restore half

Restore mangroves to cover at least half of all recent loss



### Double protection

Ensure long term protection is increased from 40% to 80% of remaining mangroves



### Halt loss

Reduce net mangrove losses driven by direct human action to zero



### Sustainable financing

Ensure sustainable finance for existing mangrove extent

Philippines



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## Key Messages

- There is a **high degree of alignment** between mangrove Breakthrough goals and existing national targets for mangroves included in the Philippines (2025-2040) NBSAP.
- **The NBSAP update process represents a significant opportunity to strengthen mangrove conservation and restoration targets** through quantifiable goals, enhanced protection measures, specific blue carbon accounting frameworks, and robust local community engagement provisions.
- With **Philippine mangroves distributed over more than 7,000 islands**, there are significant challenges around financing and implementation of national programs.
- Priority areas for implementing national plans include establishing a central coordinating body to streamline approval processes, and developing standardized assessment and monitoring protocols with regular reporting systems.
- There are a **considerable number of outstanding experts in mangrove restoration techniques in Philippines**, however knowledge and skills are not evenly distributed geographically or across institutions or local governance units.
- With more than one NGO working on providing training and resources, there are clear opportunities to support capacity building and restoration success.
- While various studies have examined specific aspects of mangrove value or focused on particular locations, a systematic nationwide assessment of mangroves' economic contribution to household incomes, local economies, and the national economy remains to be conducted.
- This report estimates that **Philippines current mangroves sequester more than 1.6 million metric tonnes of CO<sub>2</sub> equivalent each year**. However, this is a low accuracy estimate for illustrative purposes only. A peer reviewed study of the carbon sequestration potential of Philippines mangroves launched in March 2025.





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# 1. Introduction

**The Philippines, an archipelagic nation of 7,641 islands with one of the world's longest coastlines, is home to approximately 3.4% of the world's remaining mangrove forests.**

Despite this relatively small percentage of global coverage, the Philippines mangroves are globally significant, hosting 39 true mangrove species—approximately 47% of the world's mangrove species. They support marine life across the Coral Triangle global biodiversity hotspot, an essential nursery and foraging area. The high species richness relative to the country's total mangrove area combined with high animal biodiversity and their importance for bird migration make Philippine mangroves particularly valuable from a biodiversity conservation perspective.

**60%**  
of the population living  
in coastal areas  
of the Philippines



Aerial view of Twin Lagoon, Philippines  
© Petero, Envato



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People living among the mangroves in siargao, Philippines © Tatiana Nurieva, iStock

**39**  
true mangrove species  
make the Philippines a  
global hotspot for  
mangrove diversity

Mangroves are vital lifelines that sustain traditional Filipino livelihoods. They provide direct resources such as food, wood for construction, fuelwood, and materials for traditional medicine and handicrafts. The Nypa palm supports local economies through the production of vinegar, wine, and roofing materials. These ecosystem-based livelihoods are especially crucial for marginalized coastal communities with limited alternative income sources.

The coastal defense provided by mangroves is crucial in a country that experiences an average of 20 typhoons annually and where 60% of the population lives in coastal areas vulnerable to extreme weather. During the devastating Typhoon Haiyan in 2013, areas with intact mangrove forests experienced notably less damage than those without, demonstrating their significant role in climate adaptation and disaster resilience.





# Driver of loss

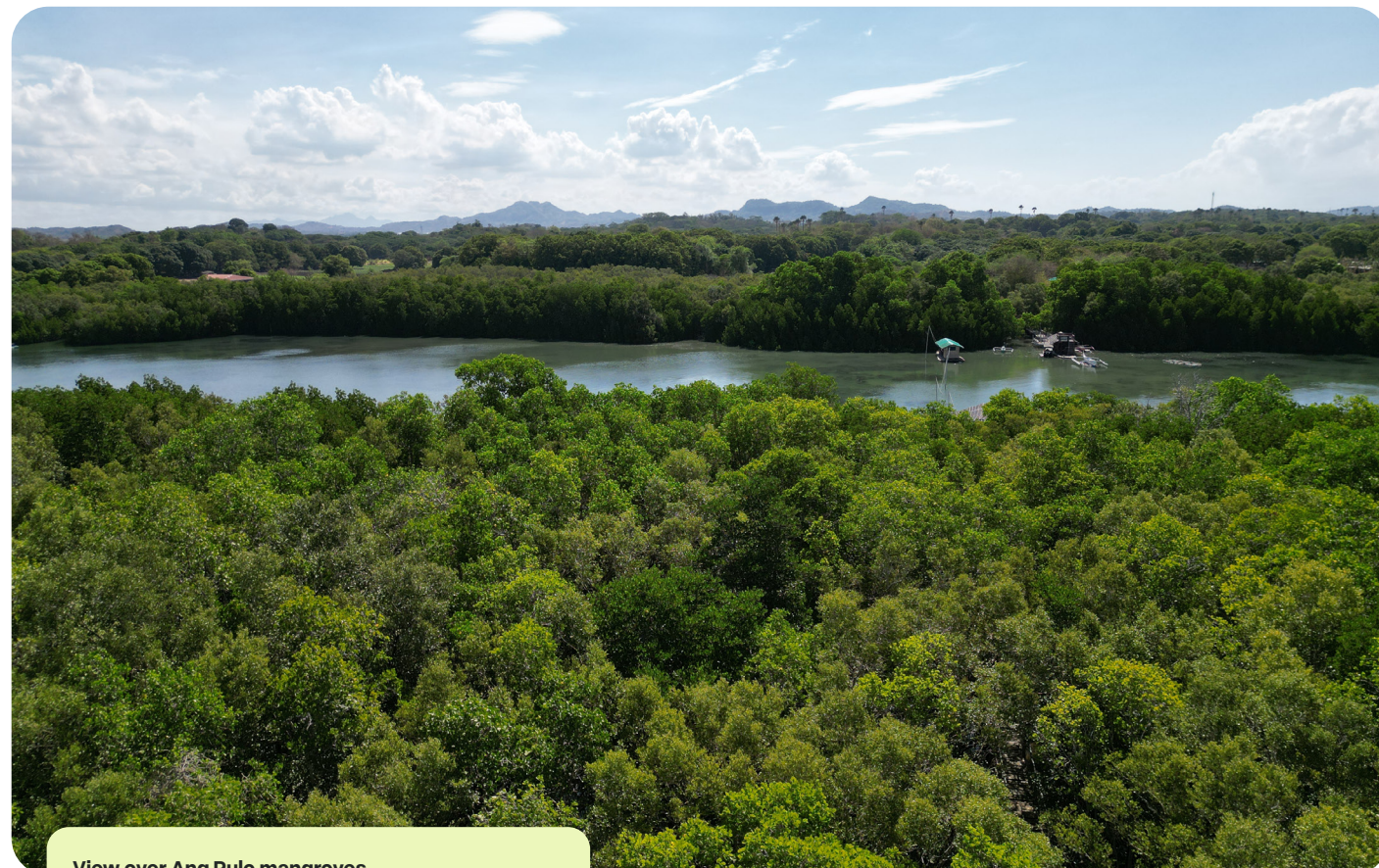
Recent assessments of Philippine mangrove coverage reveal varying estimates and a concerning trend of decline. While the Forest Management Bureau of the Department of Environment and Natural Resources (DENR-FMB) estimated the country's mangrove cover at 311,400 ha in 2020, other studies indicate lower figures: approximately 256,185 ha in 2000, 240,824 ha in 2010, 227,808 ha in 2019 and 264,818 in 2020 (Baloloy et al 2023). Global Mangrove Watch identified 285,772ha in 2020 (GMW 2024) The largest remaining mangrove areas are concentrated in Palawan, Sulu, and the Zamboanga Peninsula, regions that serve as critical biodiversity corridors and fish spawning grounds.

The primary driver of mangrove loss in the Philippines has been large-scale conversion into brackish-water aquaculture ponds, particularly during the aquaculture boom of the 1970s and 1980s (Primavera et al. 2014; Goldberg et al. 2020).

## 100,000 hectares

of mangrove forests were released to BFAR for pond development

Of the estimated 100,000 hectares of mangrove forests released to the Bureau of Fisheries and Aquatic Resources (BFAR) for pond development, only around 50,000 hectares were formally issued with Fishpond Lease Agreements (FLAs). The remaining 50,000 hectares were largely converted into aquaculture ponds without formal tenure documentation or transformed into other land uses, creating a complex landscape of informal occupation and unauthorized conversion.

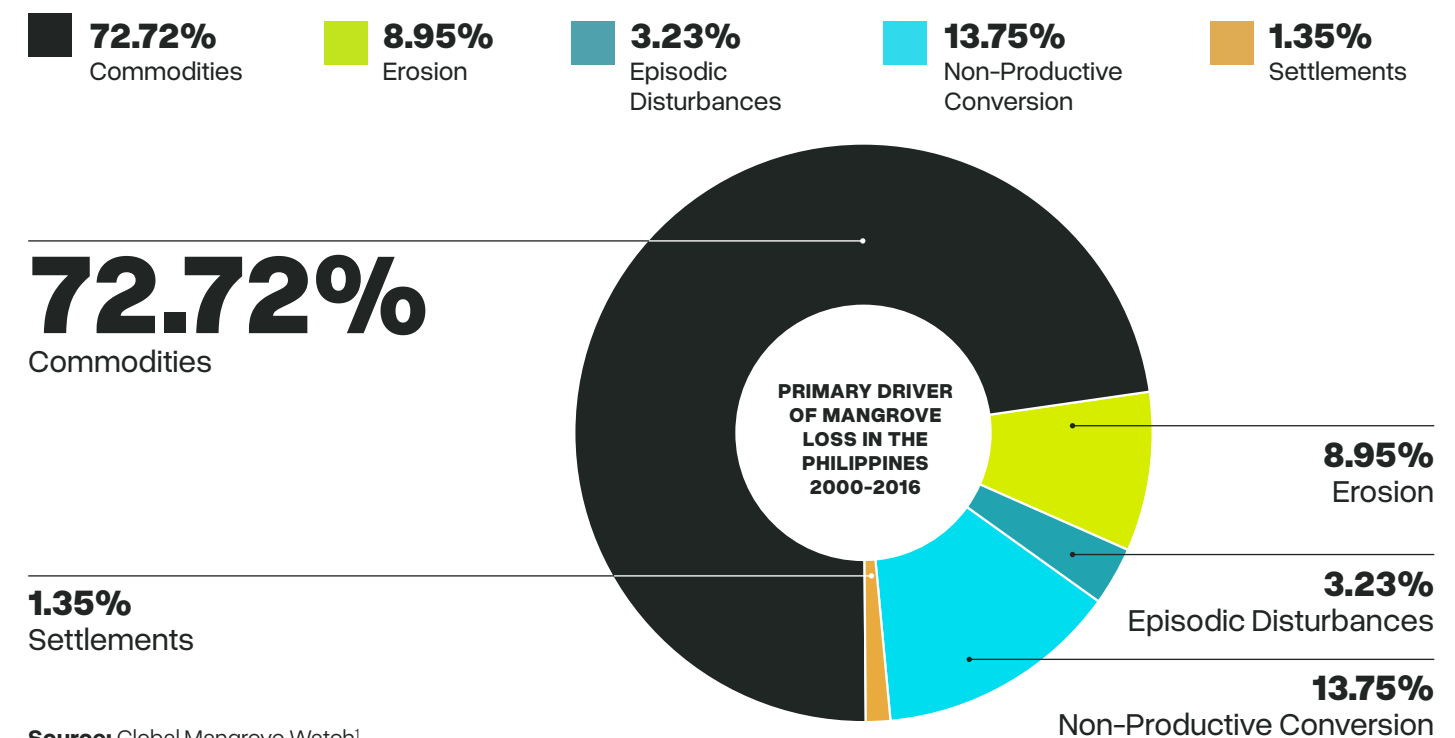


View over Ang Pulo mangroves  
© Wetlands International Philippines



To advance mangrove restoration goals in the Philippines, a multi-faceted approach is required to secure support and align political will at multiple levels of governance, from local to national, combining policy reform, scientific expertise, community engagement, and sustainable financing mechanisms. Success in these efforts would enhance coastal protection, support biodiversity conservation, secure local livelihoods, and contribute to climate change mitigation while ensuring the long-term resilience of Philippine coastal communities.

The primary driver of mangrove loss in **Philippines** between 2000 and 2016 was conversion for the production of **commodities**, including fishpond aquaculture:







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## 2. Potential for achieving the Mangrove Breakthrough

Vietnam

Philippines



Brunei

Malaysia

Indonesia

**Map 1:** Spatial data for Breakthrough goals

**Key**

-  Mangroves
-  National borders



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# Achieving the Mangrove Breakthrough targets in the Philippines

The Philippines Department of Environment and Natural Resources (DENR) officially endorsed the Mangrove Breakthrough in November 2024. There is a high degree of alignment between the Breakthrough goals and existing national targets for mangroves included in the Philippines NBSAP.<sup>1</sup> The complexity and cost of implementing coherent national programs across an archipelago remains a significant challenge. The Philippines is currently updating its NBSAP to align with the Post-2020 Global Biodiversity Framework (GBF), incorporating lessons from previous implementation phases and reflecting an enhanced understanding of blue carbon ecosystems.



Launching a drone to start monitoring activities of mangrove restoration  
© Wetlands International Philippines

## Halt Loss

The Philippines 2024–2024 NBSAP includes specific targets to achieve, at a minimum, no net loss in natural ecosystems and in priority areas such as mangrove, intertidal areas, seagrass, softbottom, and coral reef habitats.<sup>2</sup> The use of the word “net” is key here and provides a way of both maintaining mangrove coverage and balancing the needs of coastal development. However, when considered at a national scale, there is already minimal net loss of mangroves (Table 1).

Table 1: Comparison of net change and gross loss of mangrove area in The Philippines and proportion of loss attributable to human causes<sup>1</sup>

NET CHANGE 1996–2020 (KM²)	NET CHANGE 2010–2020 (KM²)	GROSS LOSS 2010–2020 (KM²)	PROPORTION OF LOSS FROM DIRECT HUMAN DRIVERS (%)	TOTAL HUMAN DRIVEN LOSS 2010 – 2020 (KM²)
-79.34	+35.23	-114.54	80	91.72

The key challenge will be in halting loss in more remote areas where the conversion of mangroves may result from economic need, without the ability to finance compensatory restoration.

Well-designed programs to reduce clearance for ponds (already restricted, but some conversion still occurs) and support transition to mangrove-friendly livelihoods will be needed to address and reduce socio-economic drivers of loss.

## Restore Half

Philippines NBSAP targets for mangrove restoration exceed the “restore half” goal of the Breakthrough. Many restorable areas in the low intertidal zone have already been rehabilitated, leaving limited scope for further restoration in these areas. The greatest potential for recovery now lies in the mid to high intertidal zones where aquaculture ponds are located, though these areas face complex land tenure issues that complicate restoration efforts.

This is addressed in the Philippines BSAP with a clear aim to “revert idle, abandoned and illegally acquired fishponds” and develop “appropriate guidelines for tenurial instruments for both titled and untitled mangrove areas to enable restoration of 30,000ha (300km²) of fishponds, plus mangrove friendly use of a further 30,000ha”. The ability to legally acquire management of ponds would increase potential restorable area beyond the 231km² modeled on the GMW 2020 extent map (Table 2).

Table 2: Mangrove Breakthrough restoration goals in The Philippines, based on Global Mangrove Watch data

TOTAL MANGROVE AREA 2020 (KM²)	TOTAL RESTORABLE AREA (KM²)	RESTORE HALF GOAL (KM²)
2,848	230.78	115.39

In the Philippines, reforestation is defined as the re-establishment of forests through planting and/or deliberate seeding of previously forested lands. Species used in reforestation may or may not be the same species that used to thrive in the area (DAO, 2021), however the NBSAP text also highlights the need to “restore/rehabilitate degraded coastal and marine ecosystems using site-appropriate methods”. Although these aren’t defined for mangroves, it does imply a positive shift towards science-based restoration based on site assessments.

Government restoration ambition is evident: target 14 states that 1 million ha of degraded ecosystems will be restored and/or will be under various stages of restoration by 2028.

Fisher boat in mangrove forest  
© Wetlands International Philippines







Double protection

According to GMW data, around a third of the Philippines mangroves are within designated protected areas in 2020 (Table 3), with a planned 20% increase in the coverage of established MPAs/sanctuaries (compared to 2015 extent) across various aquatic habitats by 2028 explicitly stated in NBSAP target 20.

Table 3: Mangrove area under formal protection, according to Global Mangrove Watch. Expansions in protected area in the last year may not be included in this measurement.

PROTECTED AREA (KM <sup>2</sup> )	UNPROTECTED AREA (KM <sup>2</sup> )	PORTION OF MANGROVE AREA WITH PROTECTED STATUS (%)	ADDITIONAL PROTECTED AREA BY ACHIEVING NATIONAL GOALS (KM <sup>2</sup> )	PORTION OF MANGROVE AREA WITH PROTECTED STATUS BY ACHIEVING NATIONAL GOALS (%)
951.16	1,896.82	33	951.16	67

Mangrove ecosystems are specifically highlighted in the Philippines commitment to the GBF global 30x30 Initiative, with expanded mangrove protection integrated into its broader marine protected area network expansion plans. Current progress toward this goal includes ongoing protected area declarations and the development of the National Mangrove Restoration Map.

Within protected areas, Republic Act 7586, as amended by RA 11038 (ENIPAS Act), Section 20 prohibits the cutting, gathering, removing, or collecting of timber.

In addition to the protection offered by MPAs, all mangroves in the Philippines, including those outside of designated protected areas, are explicitly protected by several complementary legal mechanisms prohibiting cutting or conversion. However, some coastal communities might still be reliant on mangrove products for income or subsistence. As such, the extraction of mangrove wood is likely to have been reduced rather than halted.

While national laws provide a strong foundation for mangrove protection, implementation at the local level often faces challenges due to insufficient monitoring capacity and competing economic interests.



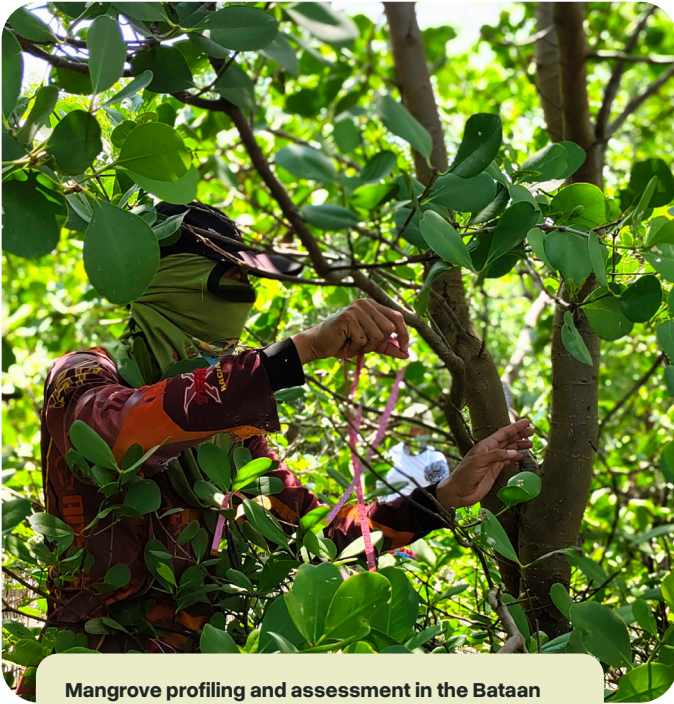
Associated Mangrove Aquaculture combines aquaculture with forestry to create a greenbelt of mangroves along shorelines of waterways in estuaries © Wetlands International Philippines



Sustainable financing

The Philippines currently lacks dedicated incubator or accelerator funds specifically for mangrove conservation, though several general environmental funds operate in the region. Similarly, while some business models incorporate mangrove conservation (such as eco-tourism and sustainable aquaculture), there is limited documentation of scalable “mangrove-positive” business models. Project Finance for Permanence (PFP) approaches have not been widely implemented in the Philippines’ mangrove sector, though the concept aligns well with existing protected area management strategies. Debt-for-nature swaps, while historically implemented in the Philippines for terrestrial conservation, have not been specifically targeted at mangrove conservation in recent years.

Some locations are viable for the production of carbon credits for the international voluntary market, however there is a lack of clarity on legal operational frameworks.



Mangrove profiling and assessment in the Bataan national Park © Wetlands International Philippines

Coordinated efforts among government agencies, financial institutions, and conservation organizations are essential to build robust frameworks and effectively mobilize conservation finance

Priority areas for developing mangrove financing in the Philippines include:

- Standardizing and scaling successful local PES schemes
- Clarifying legal frameworks for blue carbon crediting projects
- Creating specific incubator funds for mangrove-positive business models
- Establishing long-term financing mechanisms for sustained conservation efforts

Success in these areas would require coordinated effort between government agencies, financial institutions, and conservation organizations to develop robust frameworks and mechanisms that can attract and effectively deploy conservation finance.





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### 3.

# Mangrove policy & governance

## Mangrove management

Mangrove governance in the Philippines is characterized by a complex institutional framework, with primary jurisdiction shared between key government agencies. Under Presidential Decree No. 705 (Revised Forestry Code), mangrove ecosystems are generally classified as forests hence regulatory jurisdiction falls under the Department of Environment and Natural Resources (DENR), particularly the Forest Management Bureau (FMB), however under new DENR directives, mangroves are now under the Biodiversity Management Bureau (BMB) including all mangroves located within a protected area.

Mangrove jurisdiction is complicated by the Department of Agriculture's Bureau of Fisheries and Aquatic Resources (DA-BFAR), which holds authority over mangrove areas that have been converted to fishponds under Fishpond Lease Agreements (FLAs). Finally, the Climate Change Commission (CCC) has a policy coordinating role for any activities that are related to climate change mitigation and adaptation such as the NDC and NAP development, which in some cases have involved mangrove related activities.

**Mangrove governance in the Philippines involves multiple government agencies with overlapping jurisdictions**

The governance framework extends to the local level through the Local Government Code (RA 7160), which devolves significant environmental management responsibilities to Local Government Units (LGUs). LGUs are tasked with developing localized mangrove conservation plans, often embedded within broader coastal resource management frameworks. While this devolution aims to enable more effective local-level conservation by bringing management closer to the communities, implementation has faced challenges due to varying capacities, priorities and resources across different localities.



Monitoring the water quality in the Bataan national Park © Wetlands International Philippines



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## LGUs

**must create local mangrove conservation plans, often as part of coastal resource management frameworks**

Executive Order No. 263 (1995) instituted the Community-Based Forest Management Agreement (CBFMA). This is a land tenure program that caters to communities living within or adjacent to the forestlands and entitles the tenure holder rights to occupy, possess, utilize and develop the forest lands and resources in designated zones within the CBFMA area and claim ownership of introduced improvements. The subsequent 2004 Protected Area Community Based Resource Management Agreement (PACBRMA) extends this program to provide tenure to migrant communities and indigenous peoples within protected areas and buffer zones.

Supporting these primary laws, several DENR administrative orders strengthen the implementation framework, including guidelines for Community-Based Forest Management in mangrove areas, protocols for integrated coastal resource management, and coastal and marine ecosystem management programs (DENR Administrative Order 2004-24; joint DENR-DA-DILG Administrative Order No. 1 (2008) and DENR Administrative Order 2016-07).

Together, these administrative policies create a detailed operational framework for translating legislative mandates into actionable conservation measures. Navigating this framework can be challenging for external or international organizations and highlights the necessity of working with local partners who are able to secure permissions to implement mangrove conservation or restoration work under the correct governance mechanism.

Mangrove tree in Palawan  
© Daniel Deak Bardos, Adobe Stock

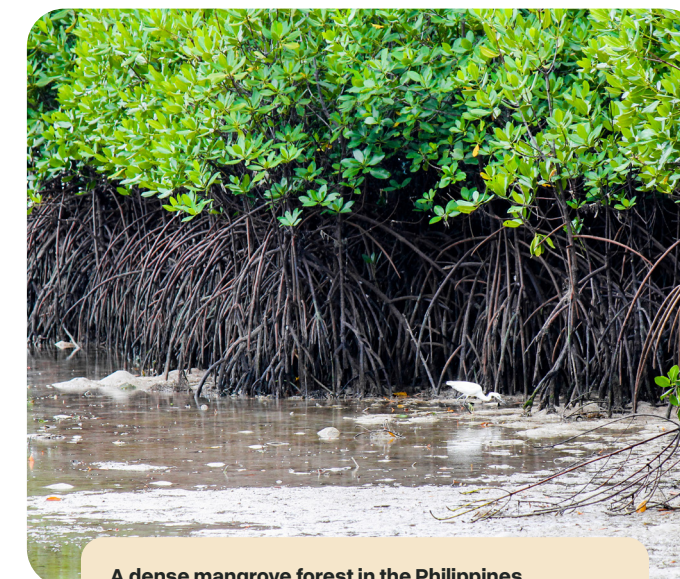




# Legal protection of mangrove ecosystems

The Philippines has established a comprehensive legal framework for mangrove protection, consisting of primary legislation and supporting administrative policies anchored by several key pieces of legislation:

- The Wildlife Resources Conservation and **Protection Act (RA 9147)** specifically protects mangroves as critical wildlife habitats and provides a comprehensive framework for biodiversity conservation.
- **Presidential Proclamation 2152** declares all mangrove swamps as protected areas.
- **Republic Act 7586**, as amended by **RA 11038** (ENIPAS Act), Section 20 prohibits the cutting, gathering, removing, or collecting timber within protected areas.
- This is strengthened by the amended **Forestry Code (RA 7161)**, which explicitly prohibits mangrove cutting and establishes penalties for violations.



**A dense mangrove forest in the Philippines**  
© Nieuwen Kamp, Adobe Stock

The Philippines has a **comprehensive legal framework** safeguarding mangroves, backed by multiple national laws and administrative policies that **recognize mangroves as critical for biodiversity, fisheries, and climate resilience.**

- **Republic Act 8550**, as amended by RA 10654 (Amended Fisheries Code), prohibits the conversion of mangroves for any other purpose. This law also recognizes and protects mangroves as essential fish nursery areas, mandating local government participation in their management, prohibits new mangrove conversion and mandates the restoration of abandoned, underdeveloped, or underutilized fishponds to their original mangrove state. [protects mangrove areas as fish sanctuaries.]
- **The Climate Change Act (RA 9729)** and its subsequent policies acknowledge mangroves' vital role in climate change adaptation and mitigation strategies.

However, enforcement capacity varies across regions and is often hampered by limited resources and funding, while individuals cutting mangroves may not have access to alternative fuel or income sources.





# National policies and initiatives for mangroves

Mangroves have emerged as a clear government priority, evidenced by recent policy developments and initiatives. The proposed Integrated Coastal Management (ICM) bill, under review in Congress at the time of writing, includes a National Coastal Greenbelt Program specifically focused on mangrove and beach forest protection and expansion. Additionally, DENR's recent Memorandum Order (2024-01) directing the assessment of Abandoned, Undeveloped or Underutilized (AUU) fishponds for potential reversion demonstrates the government's commitment to mangrove restoration and supports the implementation of NBSAP mangrove restoration targets.

## NATIONAL BLUE CARBON STRATEGY

Under development, with an existing framework through the Climate Change Commission that integrates with NDC implementation. Local Climate Change Action Plans (LCCAP) also incorporate mangrove components, though implementation varies significantly by locality. These initiatives are complemented by integration with coastal development plans at the local level. The Philippines has also strengthened its commitment by signing onto the **National Blue Carbon Action Partnership**.

The Philippines is a **signatory** to the **National Blue Carbon Action Partnership**, reinforcing its international commitment to blue carbon ecosystems

## THE NATIONAL GREENING PROGRAM (NGP)

An ambitious undertaking to restore 1.5 million hectares of degraded forests, including mangrove areas, with implementation scheduled from 2011 to 2028. Mangrove restoration responsibilities primarily fall under DENR-BMB's coastal and marine program, which aligns with international biodiversity commitments including the 30x30 Initiative of the GBF and the updated Philippine NBSAP.



## NATIONAL MANGROVE ROADMAP

DENR, along with related agencies, government offices, NGOs, and academic institutions, has initiated the production of a framework for mangrove conservation and restoration, which emphasizes science-based approaches, supported by technological advances in mapping and monitoring. While a national restoration training program exists, it remains somewhat fragmented across multiple agencies including DENR, BFAR, and various academic institutions, highlighting the need for improved standardization and coordination.



Boat sails in the mangroves  
© Alex Traveler Adobe Stock

## NATIONAL MANGROVE CONSERVATION PLAN

Led by the DENR, this provides comprehensive mapping of existing mangrove areas and outlines protection strategies with a focus on community-based management approaches. The Philippine Space Agency (PhilSA) and DENR's Geospatial Database Office (DENR-GDO) are mapping all mangrove areas that have been converted to aquaculture ponds, along with documenting the tenure arrangements and status of these ponds.

Estimates suggest that approximately 30,000 hectares of AUU ponds are suitable for full restoration, while another 30,000 hectares of active aquaculture areas could adopt mangrove-friendly practices. This work serves as the foundation for developing a potential Mangrove Restoration Map and enabling more strategic restoration planning in support of the National Mangrove Roadmap.

**1,500,000**  
**hectares**

of degraded forests, including mangrove areas, are targeted for restoration under the National Greening Program (2011–2028)

These governance structures and initiatives demonstrate the Philippines' recognition of mangroves' importance, though challenges remain in coordinating across jurisdictions and implementing effective protection and restoration measures.





# Challenges to mangrove restoration

Several critical gaps persist in the current policy and implementation framework. Institutional arrangements remain fragmented, with multiple agencies holding overlapping jurisdictions, leading to coordination challenges. Monitoring and evaluation systems show limitations in tracking long-term success and maintaining adequate reporting mechanisms. Financial mechanisms also present significant gaps, with limited sustainable funding sources and underutilized potential in the blue carbon market.

Land tenure and governance present significant challenges to mangrove management and restoration. The complex tenurial arrangements include areas under Fishpond Lease Agreements (FLAs), private titles, tax declarations, and informal occupations.

Financial support for mangrove programs is limited, with few sustainable funding sources and underused **blue carbon market opportunities**

This mosaic of tenure systems creates substantial obstacles for restoration efforts, particularly in Abandoned, Underutilized, and Underdeveloped (AUU) fishponds. While legal mechanisms exist for reverting AUU fishponds from DA-BFAR to DENR for restoration, the process faces significant bureaucratic and political bottlenecks.

The challenge is even more complex for AUU fishponds held under alternative tenurial arrangements, including private titles and tax declarations, which require a more aggressive approach through the termination of property rights in strict adherence to national legislation and regulatory frameworks. Comprehensive ground-truthing is needed to assess the restoration potential and clarify the tenurial situation and legal status of these fishponds.

# Cross-boundary collaboration by non-government entities

Organizations in the Philippines have established itself as an active participant in regional mangrove conservation efforts through strategic partnerships and international initiatives. Examples of these are the country's involvement in the ASEAN Mangrove Network (AMNet), which facilitates collaborative research, knowledge sharing, and capacity building programs with neighboring nations.

As well as engagement in the Coral Triangle Initiative (CTI-CFF), where the Philippines works alongside Indonesia, Malaysia, Papua New Guinea, Solomon Islands, and Timor-Leste to integrate mangrove protection within broader marine ecosystem conservation efforts.

Additionally, the Philippines' participation in PEMSEA (Partnerships in Environmental Management for the Seas of East Asia) has enhanced its implementation of Integrated Coastal Management and advanced blue carbon partnerships. This multi-stakeholder partnership has proven instrumental in developing regional approaches to coastal ecosystem management and conservation.

The civil society commitment to regional cooperation was further strengthened in June 2022 with the establishment of the Philippine Chapter of the Global Mangrove Alliance.

## 2022

marked the establishment of the Philippine Chapter of the Global Mangrove Alliance, strengthening civil society's commitment to regional mangrove cooperation.



Children playing on mangrove tree on a tropical beach, Philippines © Evgenii Bakhchev, Shutterstock







# International commitments

## NATIONALLY DETERMINED CONTRIBUTION (NDC)

The **Philippines first NDC** commits to a projected GHG emissions reduction and avoidance of 75%, of which 2.71% is unconditional and 72.29% is conditional for the period 2020 to 2030, covering agriculture, wastes, industry, transport, and energy. This commitment is referenced against a projected business-as-usual cumulative economy-wide emission of 3,340.3 million tCO<sub>2</sub>e for the same period.

Currently neither mangroves or blue carbon are explicitly referenced in Philippines NDC for either mitigation or adaptation benefits, although coastal and marine ecosystems and biodiversity are mentioned in the adaptation text.



Del Carmen Municipality, Siargao, Surigao del Norte, Philippines © Wetlands International Philippines

This is expected to change with the ongoing update of NDCs, and while the strength of language remains to be determined, NGOs and others working with government are cautiously optimistic. Philippines second NDC is planned for submission in late 2025.

**75%**  
reduction and avoidance of GHG emissions from 2020 to 2030 is committed under the Philippines' first Nationally Determined Contribution (NDC)

## THE NATIONAL GREENHOUSE GAS INVENTORY (NGHGI)

The official definition of forest in the Philippines is based on FAO's (2001) forest definition and includes mangroves. As of 2020, the Philippine Forest cover is estimated at 7.2 million hectares in which 30.7% is closed forest, 65% is open forests and 4.3% is mangrove forests. In the NGHGI the forest data was based on the NAMRIA 2010 forest data, categorized into closed, open, mangrove, and forest plantations (based on FMB data).

In the FRL only the emission from deforestation activities and the removals from reforestation activities are included in the Philippines submission. As far as the emission is concerned, emission from deforestation is the biggest source and most significant category.

Two carbon pools were considered in the emission calculation: (1) Above Ground Biomass (AGB) and (2) Below Ground Biomass (BGB). The Dead Organic Matter (DOM) will be included in the NFI in the future improvement plan, but is not currently available, so only AGB and BGB values were included. There is no reliable country-specific data for soil organic carbon.

## NATIONAL BIODIVERSITY STRATEGIES

### AND ACTION PLAN (NBSAP)

The Philippines is currently updating its National Biodiversity Strategy and Action Plan (NBSAP) to align with the Post-2020 Global Biodiversity Framework (GBF), incorporating lessons from previous implementation phases and reflecting an enhanced understanding of blue carbon ecosystems. The revised NBSAP is being designed to integrate seamlessly with other national commitments, including the updated NDC, National Climate Change Action Plan, and Sustainable Development Goals, while supporting the country's Marine Protected Area and/or conservation area expansion targets. This alignment aims to create a more cohesive approach to biodiversity conservation and climate action, with mangroves playing a central role in both strategies.

Expected outcomes from this update include more robust ecosystem monitoring systems, clear biodiversity conservation indicators, improved inter-agency coordination, and enhanced reporting mechanisms. The update process embraces a participatory approach, engaging multiple stakeholders through consultations with indigenous peoples, local government units, academic institutions, and research organizations. This inclusive process ensures that the updated NBSAP reflects diverse perspectives and needs while strengthening the framework for mangrove ecosystem protection and management. The text of the updated NBSAP is still forthcoming, however the committed targets under the Post-2020 GBF has been uploaded in the CBD Secretariat Online Reporting Tool.

**The new NBSAP integrates blue carbon ecosystems, with mangroves playing a central role in biodiversity and climate strategies**

## RAMSAR

**The Philippines is an active participant in the Ramsar Convention**, primarily working with the Ramsar Regional Center - East Asia (RRC-EA) based in South Korea, which provides technical support and capacity building for wetland conservation in the region.

Efforts have been made to inventory its wetlands including mangroves, though historically the process has been fragmented. The country has begun systematic wetland mapping in cooperation with the ASEAN Centre for Biodiversity, including mapping and monitoring of mangrove areas.

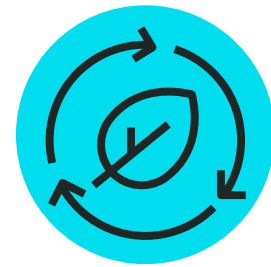
The country has ten designated Ramsar sites (Wetlands of International Importance), several of which include mangroves, such as the 89,607 ha Negros Occidental Coastal Wetlands Conservation Area (NOCWCA), designated in 2016 and providing crucial habitat for migratory birds, and the 3,828ha Sasmuan Pampanga Coastal Wetlands, designated in 2021 providing critical habitat for migratory waterbirds and supporting local fisheries. Two new sites added in 2024 include large areas of mangrove, including the 175,551ha Sibugay Wetland Nature Reserve.







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## 4. Ecosystem Services

### Adaptation and Resilience Benefits

#### COASTAL PROTECTION AND EROSION CONTROL

Mangroves act as natural barriers against storms, typhoons, and storm surges, protecting a significant portion of the Philippines' coastal communities. This is especially crucial for vulnerable coastal households, where many structures are considered non-engineered or semi-engineered. A 2017 world bank WAVES **technical report** modeled that annually Philippine mangroves reduce flooding to 613,000 people of whom more than 23% live below poverty, while averting more than US \$1 billion in damages to residential and industrial stock.

Global Mangrove Watch have published broadly similar figures, with mangroves providing protection to 591,079 individuals and 557.6km<sup>2</sup> of land, including infrastructure and other property assets valued at US\$ 758 million, during an average annual storm. For a 100-year storm event this increases to 2 million individuals and 1,728.7km<sup>2</sup> of land with an asset value of just over US\$ 2 billion.

#### FUTURE RESILIENCE

As climate change impacts intensify, the adaptation and resilience benefits provided by mangroves become increasingly critical. Investment in mangrove conservation and restoration represents a cost-effective strategy for enhancing coastal resilience while addressing poverty, food security, and gender inequality. Current initiatives combining mangrove protection with sustainable livelihood development have demonstrated potential for scaling up, particularly when they incorporate gender-responsive approaches and traditional ecological knowledge.

**\$1 billion**  
in damages is prevented each  
year as Philippine mangroves  
shield vulnerable coastal  
communities from storms  
and flooding



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## Biodiversity Benefits

[Forty seven] “true mangrove” species are recorded in the Philippines—approximately 47% of the world's mangrove species.

These forests manifest in six distinct formations: *Rhizophora*-dominated, *Avicennia*-dominated, *Sonneratia*-dominated, *Rhizophora stylosa*-dominated, *Nypa*-dominated, and mixed trees, shrubs, and thorny bushes. Of these *Avicennia rumphiana* and *Camptostemon philippinense* are listed as Vulnerable and Endangered, respectively, on the IUCN Red List.

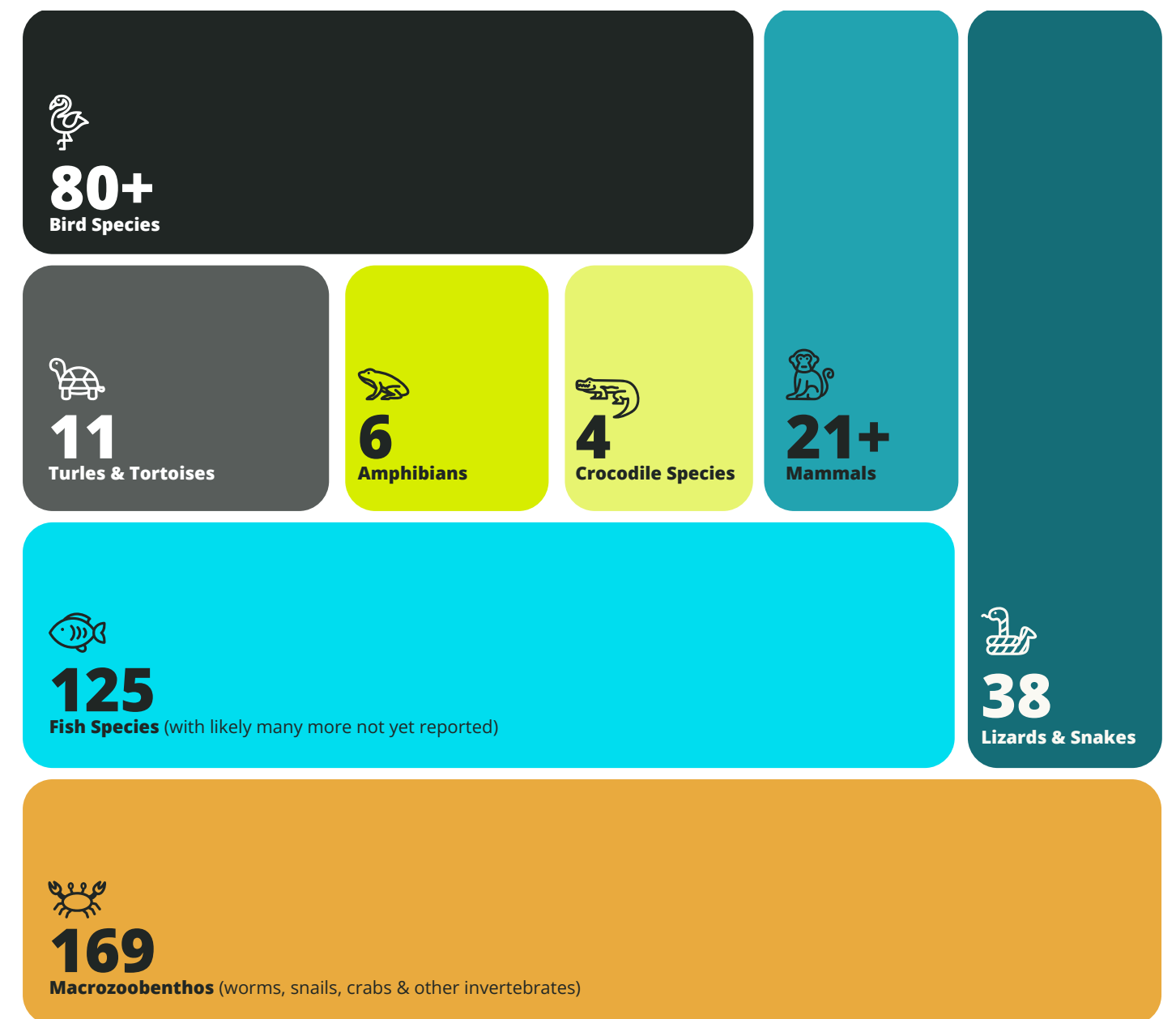


Figure 1: Infographic showcasing the biodiversity within a Philippine mangrove ecosystem





Mangroves provide essential habitats for a wide range of fauna, including fish, crustaceans, birds, and reptiles. The critically endangered Philippine crocodile (*Crocodylus mindorensis*) relies on mangrove habitats in parts of its range, while the endangered Philippine duck (*Anas luzonica*) uses mangroves as feeding grounds. Several vulnerable marine species, including dugongs (*Dugong dugong*) and various sea turtle species, depend on mangrove-associated seagrass beds. The recently established Sibugay Wetland Nature Reserve (SWNR) in Zamboanga Sibugay is home to the endemic and endangered Golden-crowned flying fox (*Acerodon jubatus*).



Crocodile, Giant golden-crowned flying fox and hawksbill turtle are endemic to the Philippines © Shutterstock

As in many countries, biodiversity assessments of species diversity in all of the countries mangrove ecosystems are unavailable, any value provided here are minimum diversity values as the true biodiversity of Philippines mangrove ecosystems is yet to be discovered.

# 47%

of the world's mangrove species are 'true mangrove' species recorded in the Philippines, totaling 39 species.

The mangroves of the Philippines serve as an essential feeding ground in the East-Asian-Australasian flyway for a multitude of bird species. Multiple threatened bird species are associated with Philippine mangrove habitats, including the vulnerable Chinese egret (*Egretta eulophotes*), which uses these areas during migration and winter periods. The Far Eastern Curlew (*Numenius madagascariensis*) and Great Knot (*Calidris tenuirostris*), both endangered species, also utilize mangrove areas during their migratory stopovers.

## BIODIVERSITY DATA GAPS

Significant knowledge gaps exist in Philippine mangrove biodiversity documentation. While basic vegetation surveys exist for many areas, there is limited systematic monitoring of fauna populations within mangrove ecosystems. Species distribution data, particularly for mangrove-associated invertebrates and smaller vertebrates, remains incomplete. The lack of standardized, long-term biodiversity monitoring programs makes it challenging to assess population trends and ecosystem health accurately. Additionally, genetic diversity studies of mangrove species and their associated fauna are limited, creating uncertainties about population viability and adaptation potential.

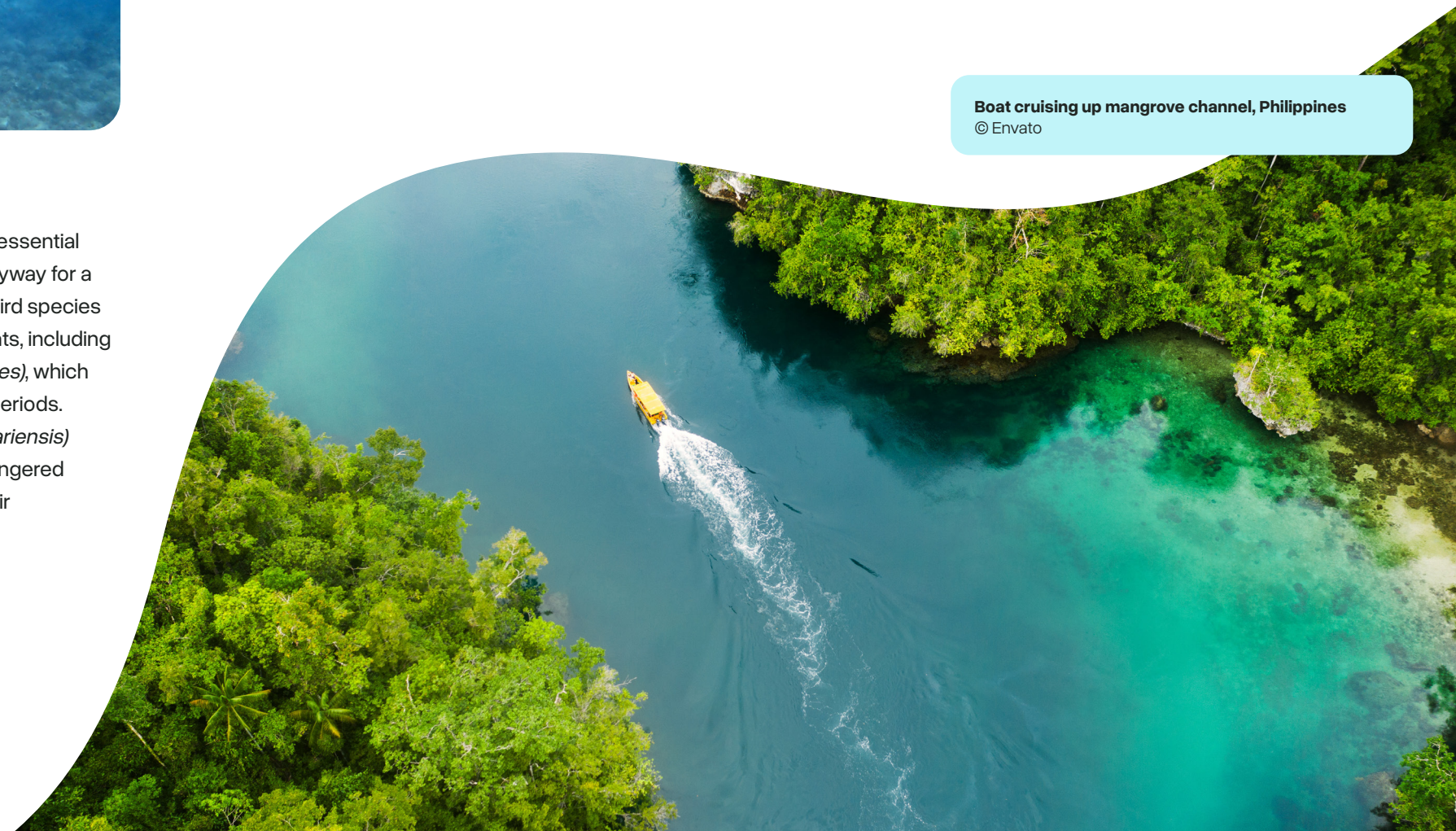
Historical records indicate the presence of critically endangered sawfish species in Philippine mangroves, however current population status is unknown due to significant decline. Many other fish species use mangroves as nursery grounds including critically endangered hammerhead shark species.

**Mangroves serve as nursery grounds for many fish species, including critically endangered hammerhead sharks.**

## ECOSYSTEM RISK ASSESSMENT

While the Philippines' mangrove ecosystems have not yet been fully assessed under the IUCN Red List of Ecosystems criteria, preliminary assessments suggest they face significant threats. The Southeast Asian mangrove ecosystem complex, which includes the Philippines, shows indicators of being at risk due to historical losses and ongoing pressures from coastal development, aquaculture expansion, and climate change impacts. However, a comprehensive national-level ecosystem risk assessment specific to Philippine mangroves remains a critical data gap that needs to be addressed to inform conservation planning and management.

Boat cruising up mangrove channel, Philippines © Envato







# Economic Values

## FISHERIES AND FOOD SECURITY

Both the national fishing industry and many small-scale fishers directly depend on mangrove-associated species, with a significant portion of commercial fish species spending part of their lifecycle in mangrove habitats. Coastal households routinely supplement their diet with mangrove-associated fish, crabs, and shellfish, highlighting these ecosystems' crucial role in local food security. Studies estimate that each hectare of healthy mangrove forest can produce up to 1.08 metric tons of fish, crabs, shrimp, and mollusks annually. However, overfishing remains a significant challenge, and mangrove loss compounds this problem by reducing critical fish breeding and nursery grounds.

**\$1.08**  
metric tons

of fish, crabs, shrimp, and mollusks can be produced annually by each hectare of healthy mangrove forest, supporting both local diets and commercial fisheries.

Successful local initiatives have demonstrated that protecting mangroves while implementing sustainable fishing practices can reduce illegal fishing activities and improve fish catch for local communities. Community-based mangrove management programs have shown promise in addressing both habitat conservation and sustainable fishing practices.

## POVERTY AND GENDER DIMENSIONS

Coastal communities near mangrove areas often face higher poverty rates, with many households living below the poverty line. Women are key stakeholders in mangrove-based livelihoods, playing a significant role in mangrove-gleaning activities (collecting shells, crabs, and other marine products) alongside children. This activity provides crucial supplementary income and food security for households, especially during lean fishing seasons. However, women often face unequal access to resources, limited decision-making power in coastal management, and fewer opportunities for alternative livelihoods.

**Clear economic valuations are needed to guide policy, management, and assess returns from mangrove conservation and restoration**

There is currently a gap in comprehensive economic valuations of Philippine mangroves at both national and local scales.

Economic assessment of mangroves in the Philippines commenced through the World Bank-led **Wealth Accounting and Valuation of Ecosystem Services (WAVES)** project in Palawan. Outcomes included this **Valuation of the Protective Services of Mangroves** but did not generate a national scale economic model. Per hectare total economic valuations, including direct use by local communities, coastal protection, carbon sequestration, and recruitment of commercially important species to fisheries have produced values of up to US\$ 39,753 /ha/year. Several other studies have assessed the economic value of specific patches of mangroves in the Philippines, however the methods used – and results – are highly variable.

Similarly, a handful of studies focus on the economic value of different ecosystem services in isolation from each other, and at local rather than national scales.

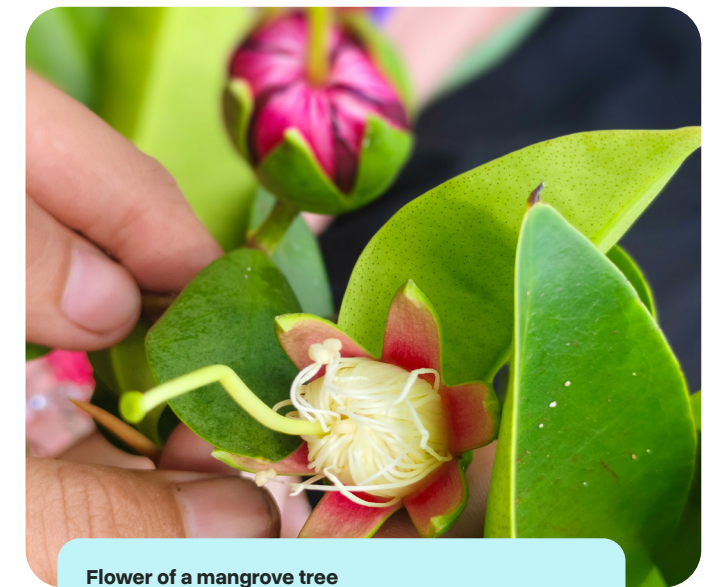
Clear economic valuations of these services beyond the WAVES project are needed to guide policy and management decisions, and to provide estimates of the return on investment provided by different mangrove conservation and restoration interventions. The newly enacted Philippine Ecosystems and Natural Capital Accounting (PENCAS) law seeks to account and value the natural assets such as mangroves.

# Mitigation Benefits

Beyond physical protection, mangroves are powerful allies in climate change mitigation. Based on 64 studies, Philippine mangrove total ecosystem carbon stock has a mean value of  $\pm$  SE:  $400 \pm 51$  Mg ha<sup>-1</sup>, or between 350 to 450 metric tons per hectare, of which 13% was from the above-ground biomass, 5% from the below ground biomass and 82% in soil. However, this is highly variable based on local ecological conditions. For example, Sharma et al. (2021) found that mangrove sediments in Bohol could store up to 1,215 Mg C ha<sup>-1</sup> in the top meter of soil, significantly higher than the global average.

Using an average carbon sequestration rate of 1.6 Mg C/ha/year (Castillo et al 2023, Salmo et al 2019) and a stable mangrove area of 285,772 ha, we estimate mangroves in the Philippines sequester 457,235 Mg C annually—equivalent to 1.7 million tonnes of CO<sub>2</sub>e, or about 0.05% of national emissions (Philippines NDC). Achieving the Breakthrough goal of restoring 115.39 km<sup>2</sup> would raise this to 1.8 million tonnes CO<sub>2</sub>e/year, assuming a stable extent of 297,311 ha after 20–25 years.

Recognizing this data gap, the **“Assessing Mangrove and Seagrass Ecosystem’s Blue Carbon Potential in FMA 6 and 9 of the Philippines”** project began in March 2025. Led by Dr. Sev Salmo III of UP Institute of Biology, this study aims to document and assess the total carbon stocks in select areas in FMA 6 and 9, and provide a scientifically accurate basis for the conservation and restoration of mangroves. The Zoological Society of London (ZSL) also completed a blue carbon assessment of mangrove forests within FMA 8 and 2 (Siargao Island) in 2023–2024.



Flower of a mangrove tree  
© Wetlands International Philippines

The Philippines also has more than a quarter billion metric tons of **irrecoverable carbon** – carbon stocks which will not be recovered if lost, much of which is concentrated in its coastal ecosystems — mangroves and seagrasses.





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**An average of 20 typhoons strike the Philippines annually, making mangroves essential for mitigating storm surges, erosion, and flooding along coastal areas**



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## 5. Finance

# National Finance Mechanisms

### EXISTING PARTNERSHIPS AND MARKETS

The Philippines government has joined several partnerships supporting sustainable finance for mangrove conservation, including membership of the **Mangrove Alliance for Climate**, and the **Blue Carbon Action Partnership (BCAP)**. BCAP specifically targets the finance and policy needed for the effective restoration and conservation of mangroves and other blue carbon ecosystems, demonstrating the country's commitment to nature-based climate solutions. The partnership aims to develop blue carbon projects and establish frameworks for carbon credit generation from coastal ecosystems..

While the Philippines does not have a formal national carbon market, it has been actively participating in the voluntary carbon market. Several mangrove projects are in various stages of development for carbon credit generation, though the full potential remains largely untapped. The development of biodiversity credits is still in its early stages, with ongoing discussions about frameworks and methodologies that could apply to mangrove ecosystems.

The global Biodiversity Finance Initiative (**BIOFIN**) is working with the DENR to close the financing gap for the Philippine Biodiversity Strategy and Action Plan. This includes improving biodiversity expenditure reports, supporting policies and increasing investments in protected areas, while also collaborating with the private sector to promote nature-related financial disclosures, aiming to integrate environmental considerations into financial decisions.

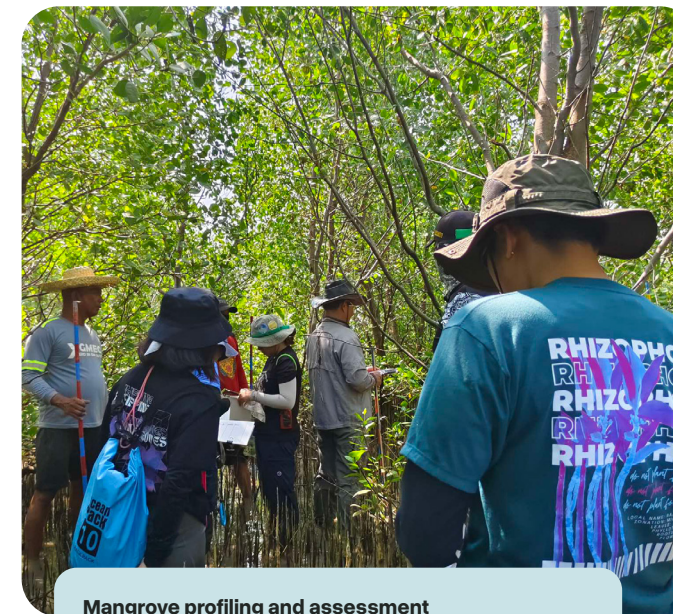
BIOFIN's **efforts in the Philippines are expected to conclude in 2027**, pending the identification of new funding sources.

**The Philippines is part of the Blue Carbon Action Partnership, driving finance for mangrove and coastal ecosystem restoration**

### FINANCIAL MECHANISMS AND INSTRUMENTS

Within the Philippines there have been experiments with various Payment for Ecosystem Services (PES) schemes at the local level, particularly through integrated coastal management programs, including community-based mangrove management projects where local communities receive benefits for protection and restoration activities.

However, these programs remain relatively small-scale and would benefit from standardization and expansion. There are some examples of innovative conservation financing mechanisms, with a notable one being the Mount Mantalingahan Protected Landscape (MMPL) Endowment Fund in Palawan. Established in 2016, this pioneering project created a \$2.7 million endowment fund through collaboration between Conservation International Philippines, the provincial government of Palawan, and local stakeholders. The fund supports biodiversity conservation, sustainable resource management, and community development in the protected landscape, providing a potential model for similar endowment funds that could be adapted for mangrove conservation areas.



**Mangrove profiling and assessment**  
© Wetlands International Philippines

It also employs the Integrated Protected Areas Fund (IPAF), now restructured under the Enhanced National Integrated Protected Areas System (ENIPAS). This fund, managed by the DENR, retains a significant percentage of revenues generated within protected areas for site-specific management, while the remaining percentage goes to a central fund supporting the broader protected area system. While this mechanism exists for terrestrial and marine protected areas, its application to mangrove conservation could be strengthened through specific policy guidance and implementation frameworks.

Blue bonds represent a promising opportunity for financing mangroves. The necessary policy frameworks and market infrastructure exist, and large-scale coral and mangrove conservation and restoration initiatives are eligible. The Asian Development Bank issued the **Blue Bond for Ocean Investments** in the Asia-Pacific in 2021, and its first **Biodiversity and Nature Bond** in 2024. The first blue bonds in the Philippines were issued in 2022 by **BDO** and 2024 by **Maynilad**, with a focus on sustainable water and wastewater management.

### EMERGING OPPORTUNITIES

Recent developments in insurance products for natural ecosystems, particularly in the context of disaster risk reduction, show promise. The Philippines' high vulnerability to typhoons and storm surges makes mangrove-based insurance products particularly relevant, though such products are still in early stages of development. Conservation easements, although provided for in Philippine environmental law through the National Integrated Protected Areas System (NIPAS) Act, remain underutilized for mangrove protection. The potential exists to develop these mechanisms further, particularly in areas where private land ownership intersects with critical mangrove habitat.

The Public-Private Partnership Code of the Philippines has provisions specifically providing for projects that involve Green Financing, defined as investments that create environmental benefits in support of green growth, low-carbon, carbon avoidance, and sustainable development, and the use of alternative assets such as carbon credits, such as those pursuant to Article 6 of the Paris Agreement, or ecosystem services. This law provides an opportunity to increase investments towards mangrove related projects.

**The Philippines Central Bank** (Bangko Sentral ng Pilipinas) has also developed the **Sustainable Financing Roadmap** for financial institutions.







# Civil Society Working Towards Mangrove Conservation



## GLOBAL MANGROVE ALLIANCE: PHILIPPINES CHAPTER

The Global Mangrove Alliance Philippines (GMAP) is a collaboration of leading conservation organizations working at the national level. Established in 2022, the chapter has nine member organizations: Conservation International Philippines, RARE Philippines, Wetlands International Philippines, WWF Philippines, Zoological Society of London (ZSL), Oceanus Conservation, Oceana, Mangrove Matters and individual experts from the Philippines scientific community.

Currently led by Wetlands International Philippines with ZSL coming in as the new chair in 2026, this chapter serves as a crucial bridge between international conservation efforts and national implementation. Working closely with government agencies and local partners, these organizations work to advance the GMA's global mission within the Philippine context, aiming to increase mangrove habitat through conservation, restoration, and equitable management.



The chapter has set ambitious goals for 2035, including:

- **Halting mangrove loss**, particularly from coastal infrastructure development
- **Restoring 150,000 hectares** of mangrove cover
- **Rehabilitating 50,000 hectares** of degraded mangroves
- **Expanding protected areas** by an additional 20,000 hectares
- **Securing community conservation agreements** for 10,000 hectares



The Global Mangrove Alliance launches its Philippine chapter 2023 © Global Mangrove Alliance

Notable ongoing projects by member organizations include:

- ZSL's work on abandoned fishpond reversion, green-gray infrastructure, training programmes on mangrove and beach forest rehabilitation and management, and blue carbon assessment
- WWF's Sustainable Infrastructure Program (SIPA) initiative, Balabac Ecosystem Restoration Project
- Wetlands International's "Building with Nature" program, To Plant or Not to Plant
- Conservation International's collaboration with USAID-Climate Resilient Cities project on nature-based solutions policy

Additional partners include local government units, people's organizations, and indigenous peoples' groups that maintain their own mangrove conservation initiatives. A list of key organizations working on mangrove conservation in the Philippines is presented below. Note that this list is not exhaustive, as numerous smaller organizations, community-based groups, and local initiatives work on mangrove conservation across the Philippines.

Many operate at municipal or provincial levels and may not have national visibility despite doing significant work in their areas.

## Local NGOs and Organizations active in the mangrove space:

- Coastal Conservation and Education Foundation (CCEF) - Central Visayas
- Guiuan Development Foundation Inc. (GDFI) - Eastern Samar
- Center for Conservation Innovations Philippines (CCIP)
- Philippine Association of Marine Science (PAMS)
- Xavier Science Foundation
- Tambuyog Development Center
- Center for Empowerment and Resource Development (CERD)
- Foundation for Philippine Environment
- KINAIYAHAN Foundation
- Malampaya Foundation
- PATH Foundation Philippines
- Philippine Business for Social Progress (PBSP)
- Philippine Partnership for the Development of Human

## Resources in Rural Areas (PhilDHRRA)

### Academic Institutions:

- University of the Philippines - Marine Science Institute
- University of the Philippines - Visayas
- Silliman University
- Xavier University
- De La Salle University
- University of San Carlos
- Mindanao State University
- Aklan State University

### Technical Support Networks:

- Mangrove Action Project (MAP) - provides technical training support
- ASEAN Centre for Biodiversity - offers regional capacity building
- SEAFDEC Aquaculture Department - provides technical expertise
- Philippine Council for Agriculture and Natural Resources Research and Development (PCAARRD)
- Partnership in Environmental Management for the Seas of East Asia (PEMSEA)



November 2025

 **MANGROVE  
BREAKTHROUGH**

 **GLOBAL  
MANGROVE  
ALLIANCE**



# Mobilizing the Mangrove Breakthrough in the Philippines

