



**CORAL TRIANGLE
INITIATIVE**
ON CORAL REEFS, FISHERIES
AND FOOD SECURITY

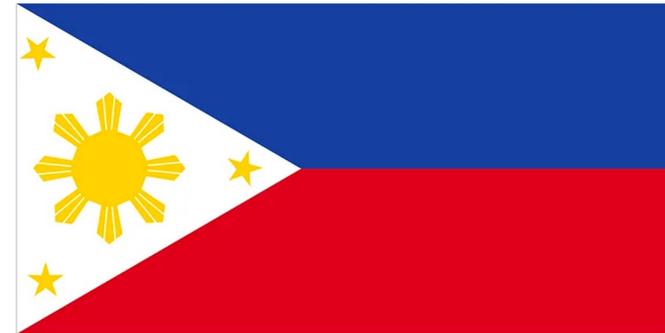


SOM17

PHILIPPINE Report

Presented by:

PHILIPPINE NCCC





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SOM17

Outline of Presentation

- *Members (Agencies) of the National Coordination Committee*
- *Progress/Accomplishments towards NPOA*
 - *Seascape, EAFM, MPA, CCA, Threatened Species, WLF and GESI Adoption*
- *Challenges/Constraints Affecting Implementation*
- *National Roadmap 2023*
 - *Seascape, EAFM, MPA, CCA, Threatened Species, WLF and GESI Adoption*
- *Potential Regional Program and Support Required*
- *Publications*





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SOM17

Members (Agencies) of the National Coordinating Committee

- *Department of Environment and Natural Resources (DENR)*
- *Department of Agriculture-Bureau of Fisheries and Aquatic Resources (DA-BFAR)*
- *Department of Agriculture- National Fisheries Research Development Institute (DA-NFRDI)*
- *Department of Foreign Affairs (DFA)*
- *Department of Finance (DoF)*
- *National Economic Development Authority (NEDA)*
- *Department of Interior and Local Government(DILG)*
- *UP Marine Science Institute (UPMSI)*
- *Department of Tourism (DOT)*
- *DENR Climate Change Commission (CCC)*
- *Conservation International-Philippines (CI-P)*
- *World Wide Fund for Nature-Philippines (WWF-P)*



Progress/Accomplishments towards NPOA



Progress – Seascope CTI-CFF National Programs

1. Verde Island Passage (VIP)

- Orientation to the members of the Batangas Marine Protected Area Network (BMPAN) and Batangas Bantay Dagat Network (BBDN) on the significance of VIP for the proposed establishment under RA as MPA under RA 7586 as amended by RA 11038
- Conducted of the Protected Area Suitability Assessment (PASA) in Marinduque for the proposed establishment of Verde Island Passage (VIP) as MPA under RA 7586 as amended by RA 11038
- Participated in the review process for the application of Environment Compliance Certificate (ECC) as required under RA 1586 of development projects proposals within the VIP



Progress – Seascape CTI-CFF National Programs

2. West Philippine Sea

- Regular conduct of Scientific Marine Research Expeditions to the Kalayaan Island Group UP Marine Science Institute – led
- Proposed declaration of Lawak Island as Critical Habitat pursuant Republic Act No. 9147, by virtue of Palawan Council for Sustainable Development Resolution No. 22-827 and as adopted by the Municipality of Kalayaan Resolution No. 047-015 of 2022
- PH (thru NFRDI) in collaboration with Indonesia, Malaysia, China and Vietnam conducted a Common Fisheries Resource Analysis (CFRA) of Skipjack Tuna in the WPS/SCS
- NFRDI and BFAR conducted Fisheries Resource and Ecological Survey of Kalayaan Island Group from April - May 2022



Progress – Seascape CTI-CFF National Programs

3. Philippine Rise Marine Resource Reserve (PRMRR)

- Regular conduct of Scientific Marine Research Expedition to the PRMRR and Aurora Province (BMB in partnership with the UPMSI)
- Finalization of the Project Document of Philippine Rise Integrated Conservation for Enduring Legacies through Ecosystem Support Services (PRICELESS) under GEF-7, preparation for GEF CEO Endorsement
- PRICELESS project was approved by the GEF Secretariat on 17 November 2022



Orientation on "Philippine Rise Integrated Conservation for Enduring Legacies through Ecosystem Support Services" for funding by the Global Environmental Facility

Featured Events

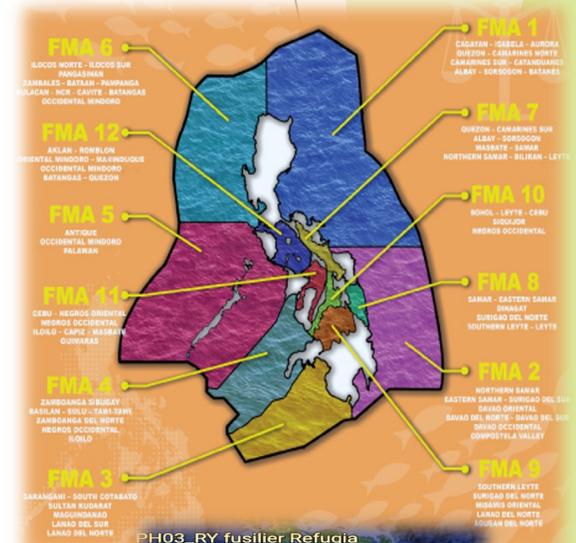
ISO 14001:2015 Internal Audit Training Course CY 2022 Region III
Date: 17 November 2022, 08:00

Follow-up Meeting with IAs on GEF National Dialogue Exhibit Virtual Meeting
Date: 16 November 2022, 10:00

Progress – EAFM

Research and Monitoring Program on Fisheries

- BFAR lead the establishment and implementation of the Management Boards (MBs) and Scientific Advisory Groups (SAGs) of the 12 Fisheries Management Areas (FMAs)
- NFRDI implemented the National Stock Assessment Program (NSAP), a landed catch and effort monitoring program, to assess fisheries performance indicators and reference points for policy recommendation on harvest control rules (HCRs)
- NFRDI and BFAR led the implemented the Fisheries Refugia Project:
 - Establishment and Operation of a Regional System of Fisheries Refugia in the South China Sea and the Gulf of Thailand funded by GEF and executed by SEAFDEC
- NFRDI and BFAR implemented the West Pacific East Asia Improved Tuna Monitoring Project (WPEA-ITMP) of the Western and Central Pacific Commission (WCPFC)



Progress – EAFM

- Dialogue between Indonesia and Philippine governments to advance Harvest Control Rules and Harvest Strategies of Yellowfin Tuna Stocks at the Western Central Pacific Fisheries Commission (WPFCA)
- Baseline study on fish aggregating devices interaction with shark and shark finning in Lagonoy Gulf and Mindoro Strait-Gender Sensitivity training
- A new project to tackle post-harvest loss of tuna and income diversification among tuna fishers



Progress – EAFM

- Issuance and amendment of policies and regulations on Port State Measures and vessel monitoring as part of strengthening measures against IUU Fishing
- Updated Comprehensive National Fisheries Industry Development Plan (CNFIDP) for year 2021-2025
- Intensification of IEC and Conservation programs and activities
 - National Search for Outstanding Coastal Communities or Malinis at Masaganang Karagatan Program
 - Conduct of Major Commodity Industry Congress (.e., Tuna, Sardine, Tilapia, Shrimp)
 - Participation to Coastal Clean-up Drives
- Continuous implementation of Seasonal Closures in Major Fishing Grounds



Progress – MPA

COASTAL AND MARINE ECOSYSTEMS MANAGEMENT PROGRAM

Marine Key Biodiversity Areas (MKBAs): 77 Marine

National Integrated Protected Area System (NIPAS)

- Protected and Partially Protected KBAs: 2,061,583 .07
- Unprotected: 2,346,841.78

1. Marine Protected Area Network (MPAN)

- No. of MPANs: 39 MPANs as of 2020 (3.1M has)
- 61 MPAN as of 2021

Habitat Assessment (Hard Coral Cover)

HCC Categories	Cat A >44%	Cat B 33-44	Cat C 22-33	Cat D <22%
2021 Status	13	5	11	7
2022 PDP Target	8	10	12	6

2. Biodiversity Development Friendly Enterprise (BDFE)

- No. of POs assisted (Technical and Financial): 130

3. Technical Assistance

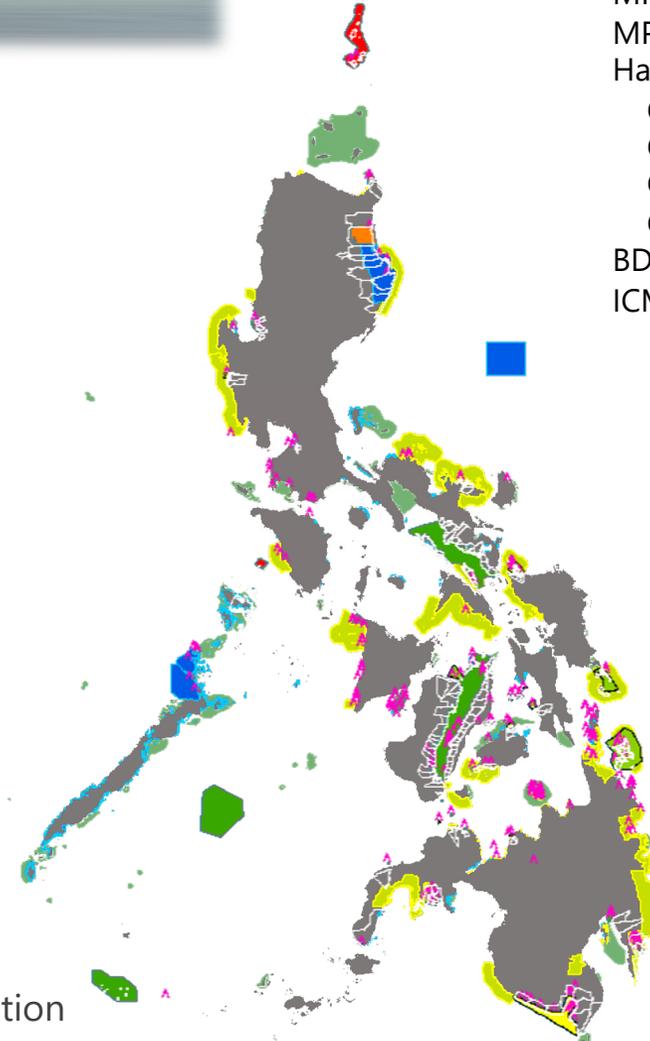
- No. of LGUs inventoried for ICM Mainstreaming: 253

Other CMEMP components

4. Social Marketing and Mobilization
5. Capacity Building
6. Knowledge Management
7. Monitoring and Evaluation

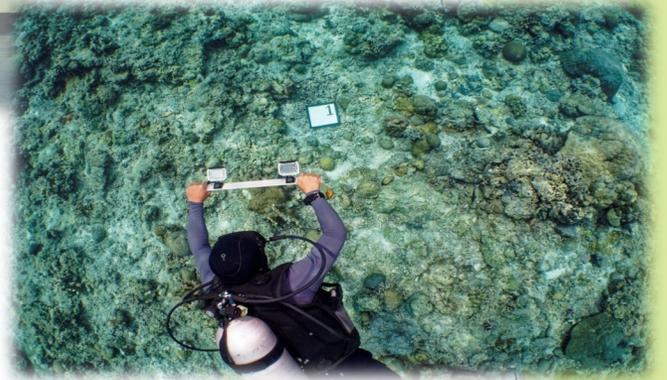
Legend

- mKBAs
- MPAs
- MPAN
- Habitat Assessment
- Cat A
- Cat B
- Cat C
- Cat D
- BDFE POs
- ICM LGUs



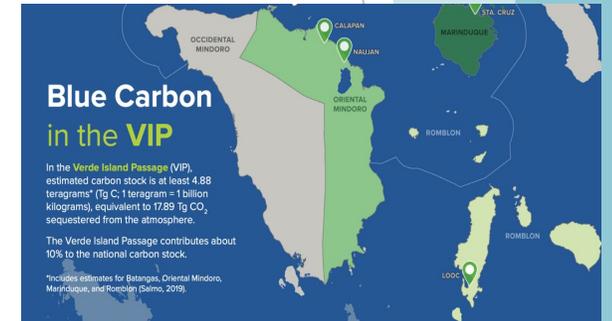
Progress – MPA

- Updated Tubbataha resource map covering 100,000 has
- Completed Ticao-Burias Pass baseline data and stakeholder consultations (414,244 hectares), mapped 2,622 hectares mangrove
- Current project in Palawan will improve management of 1M ha of municipal waters in NE Palawan.
- Conducted the MEA using METT for the drafting of Project Document “Effectively Managing Networks of MPAs in Large Marine Ecosystems in the ASEAN Region” to be submitted to GEF 8
- Continuous eradication of Crown of Thorns (*Acanthaster planci*) in Sarangani Bay Protected Seascape)



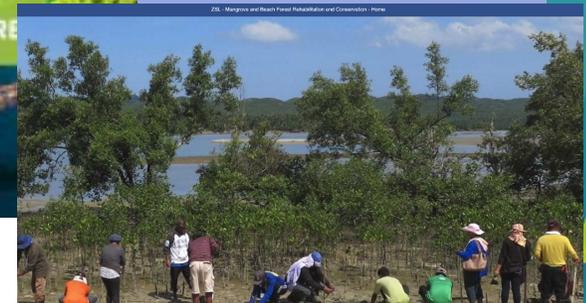
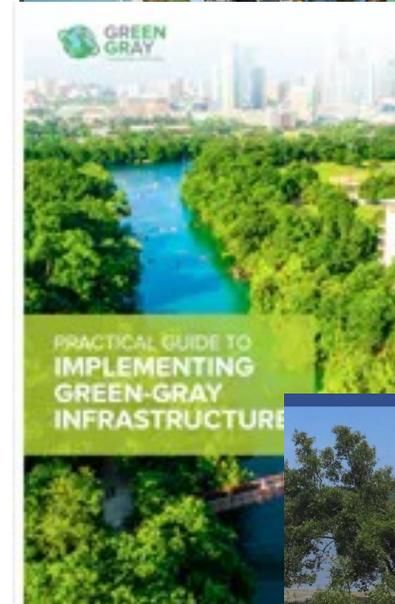
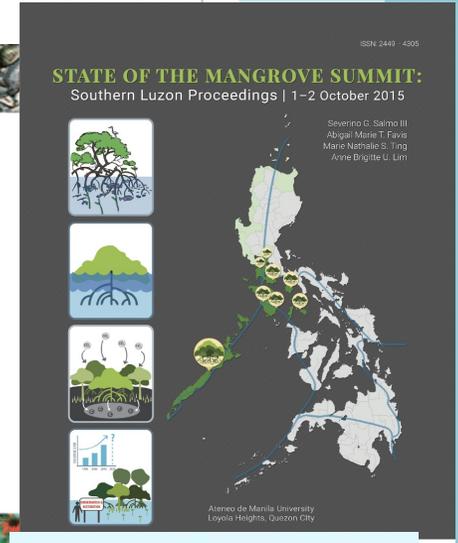
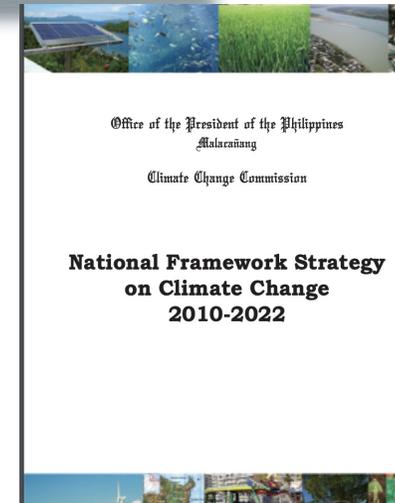
Progress – CCA

- NFRDI completed a Climate Change (CC) program entitled “Nationwide Vulnerability and Suitability Assessment of the Capture Fisheries and Aquaculture” funded by the Philippine Rural Development Program of the Department of Agriculture. Results such as the vulnerability and suitability indices and maps are now being mainstreamed in regional offices of DA and BFAR as part of their CC adaptation strategies.
- NFRDI, together with UPLBFI, CIAT, DA-Region2 and BFAR-Region2, is developing and pilot-testing a Climate Risk and Vulnerability Assessment (CRVA) for fisheries framework funded by the DA-Climate Resilient Agriculture Office.
- Blue Carbon in VIP: Quantifying carbon storage in mangroves helps in better understanding their role in climate change adaptation and mitigation
- Sining-Likhasan: Nationwide Short Film Competition Theme: Stories of Resilience and Adaptation in the Face of Climate Change (Earth day Jam in cooperation with the DENR: Film Making Competition



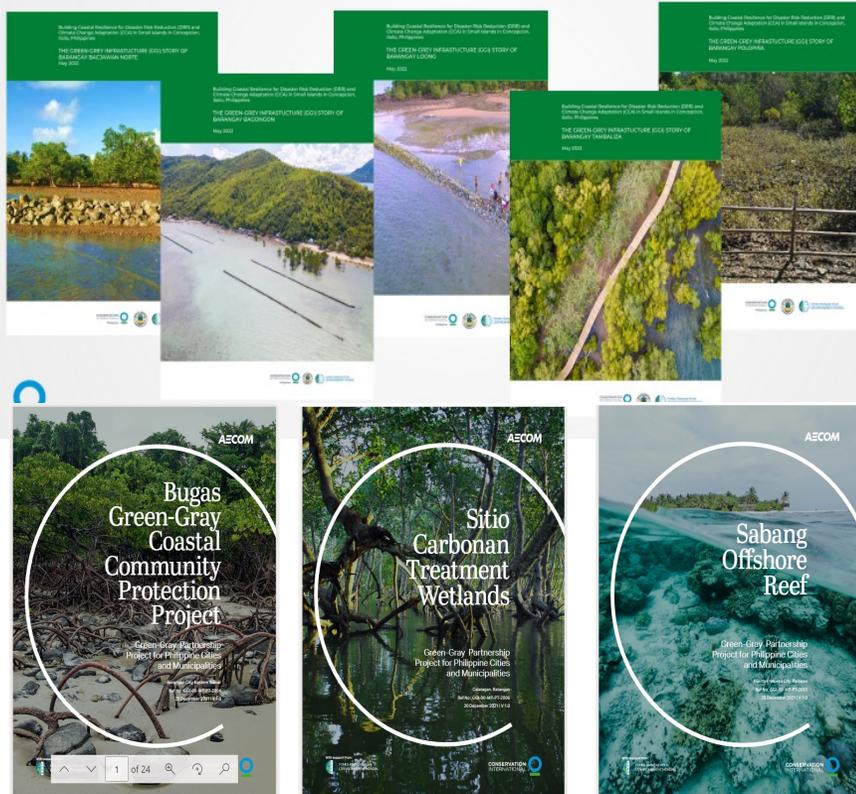
Progress – CCA

- FFEM Green-Grey Infrastructure implementation in Iloilo (engineering setup with ecosystems restoration/conservation plus livelihood incentive complement) completed
- The MOU re: establishment of the Philippine chapter of the Global Mangrove Alliance was finalized and signed on October 14, 2022
- Finalization of the National Mangrove Roadmap facilitated.
- Improving the management of the sustainable landscape targets (forest land, protected areas, and other conservation sites) in six cities under the Climate Resilient Cities Project of USAID.

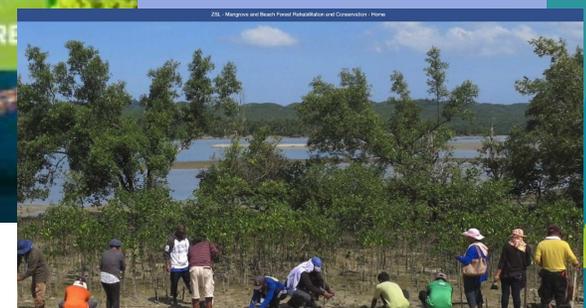
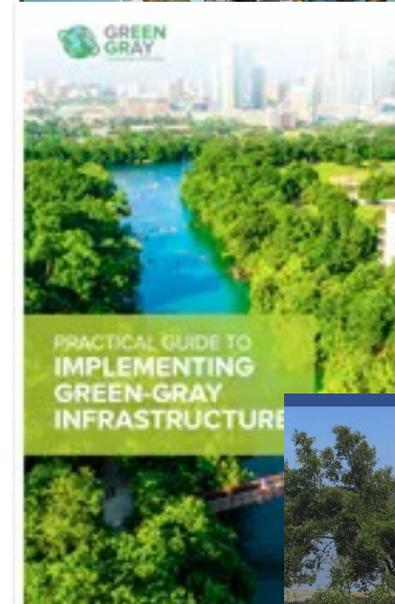
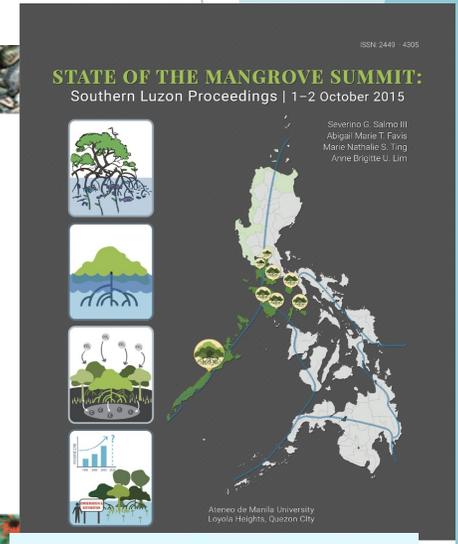
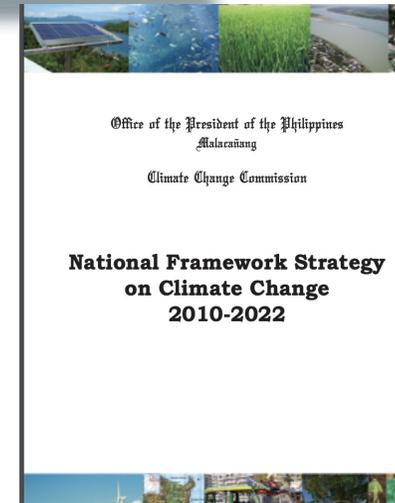


Progress – CCA

Green-Grey Stories



FFEM Green-Grey Infrastructure implementation in Iloilo (engineering setup with ecosystems restoration /conservation plus livelihood incentive complement) completed; published 5 case studies of GGI experience in project sites; developed new GGI concepts for vulnerable ecosystems in 11 municipalities and cities in the Philippines



Progress – CCA

- NGOs operating in the Philippines including Conservation International Philippines (CI-P), Wetlands International Philippines convened partner conservation NGOs and the Department of Environment and Natural Resources (DENR) to establish the Global Mangrove Alliance (GMA) Philippines Chapter on 26 April 2022
- Action planning and finalized the National Mangrove Roadmap in July 2022; Established the Global Mangrove Alliance (GMA) Philippines Chapter through a Memorandum of Understanding (MOU) in October 2022.



E Global Mangrove Allia... ⋮

- 📍 ProCoast Project
- 📍 Community, Conservation and Natural Clima...
- 📍 Strengthening Mangrove Management in Sir...
- 📍 Sustainable mangrove rehabilitation: Lesson...
- 📍 Economic valuation for sustainable mangro...
- 📍 A materialist-idealist divide? Policy and prac...
- 📍 ACCCOAST Project
- 📍 Abandoned/ Underutilized, and Underdevelo...
- 📍 Accounting and Mapping the Ecosystem Car...
- 📍 An Integrated Assessment of the Navotas M...
- 📍 Assessment of blue carbon stock of mangro...
- 📍 Climate Change Resiliency Through Mangro...
- 📍 Collaborative Assessment of Abandoned, U...
- 📍 Community-based Mangrove Rehabilitation ...
- 📍 Ecological Mangrove Restoration of Abando...
- 📍 Effectively Managing in Ecological Network ...
- 📍 Establishment of Pagbilao Mangrove Experi...
- 📍 Fish Forever Program
- 📍 Fishing for Climate Resilience
- 📍 Implementing the Strategic Action Program...

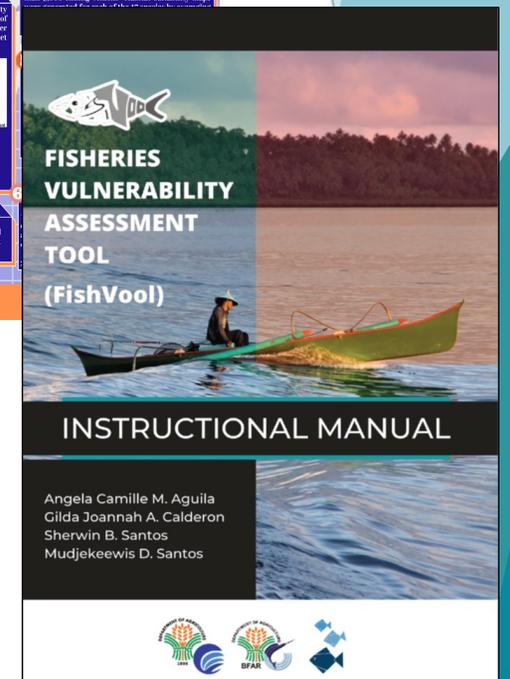
Progress – CCA

- Mantalingahan Landscape Conservation Project aims to protect 13,457 hectares and restore 1,800 hectares of mangrove ecosystems within and outside ancestral domains in Southern Palawan. At least 22 POs have also been identified as potential partners for restoration, protection, and community livelihoods and enterprises interventions in mangrove sites; Community consent process (FPIC) and approvals from local government units have been completed and MOA negotiations are ongoing
- The CRC Project is mapping the sustainable landscape targets and all management elements needed to develop the menu of NBS for the six city LGUs. Based on climate scenarios and impact models, the plan of action is to prescribe adaptation measures to help establish resiliency in the landscape targets



Progress – CCA

- DENR Revisited DENR GAD Strategic Plan for 2020-2025
- Conducted the Habitat Suitability of Captured Fisheries Commodities in the Philippines
- Fisheries Vulnerability Assessment Tool (FishVool) Instructional Manual



Progress – Threatened Species

- Illegal wildlife trade (IWT): preparations are underway for the conduct of Countering Transnational Organized Crime (CTOC) and Care for Confiscated Wildlife (CCW) training for law enforcement officers in January 2023
- Conducted capacity building for the DENR PENRO and CENROs and LGUs concerned on marine turtle conservation in Dumanquilas Bay Protected Landscape and Seascape in Zamboanga del Norte
- NFRDI will soon launch interactive posters for protected and regulated aquatic species in PH for law enforcement and awareness of general public to be distributed and displayed in various ports and fishery offices in the country. The project was funded by the Fisheries Management Fund administered by BFAR



Progress – Threatened Species

Protect our dolphins

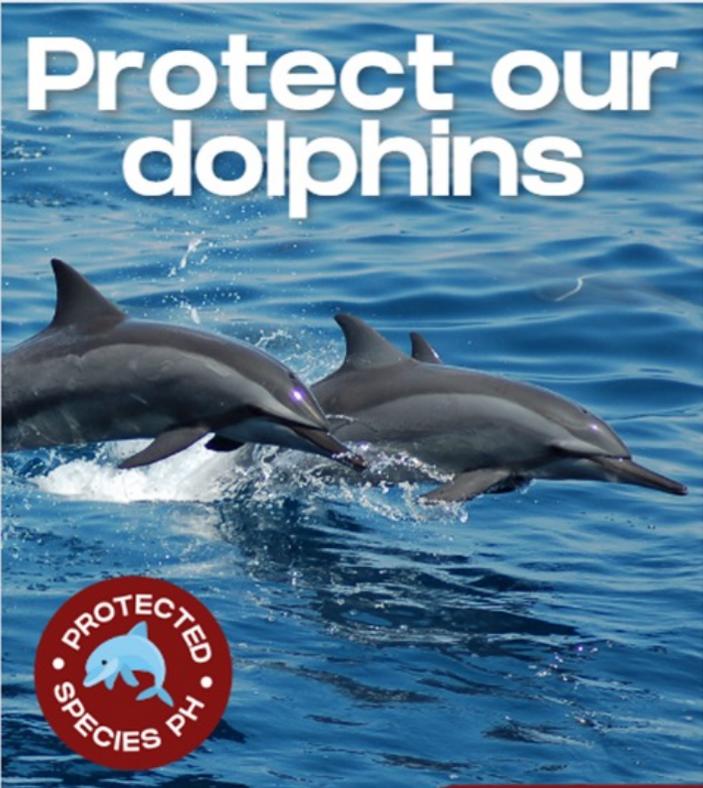


Photo from Teri Aquino

ON THE FLIP SIDE

Dolphins – considered as small whales, are mammals that require air to breathe. This makes them susceptible to drowning when caught in fishing gear.



Scan this QR code to learn more info about dolphin conservation in the Philippines

FOLLOW US ONLINE

In collaboration with Marine Wildlife Watch of the Philippines and Philippine Aquatic Red List Committee (PARLC)

- NFRDI Philippines
- DA-NFRDI
- NFRDI Philippines
- nfrdi.da.gov.ph

Protect our coconut crabs

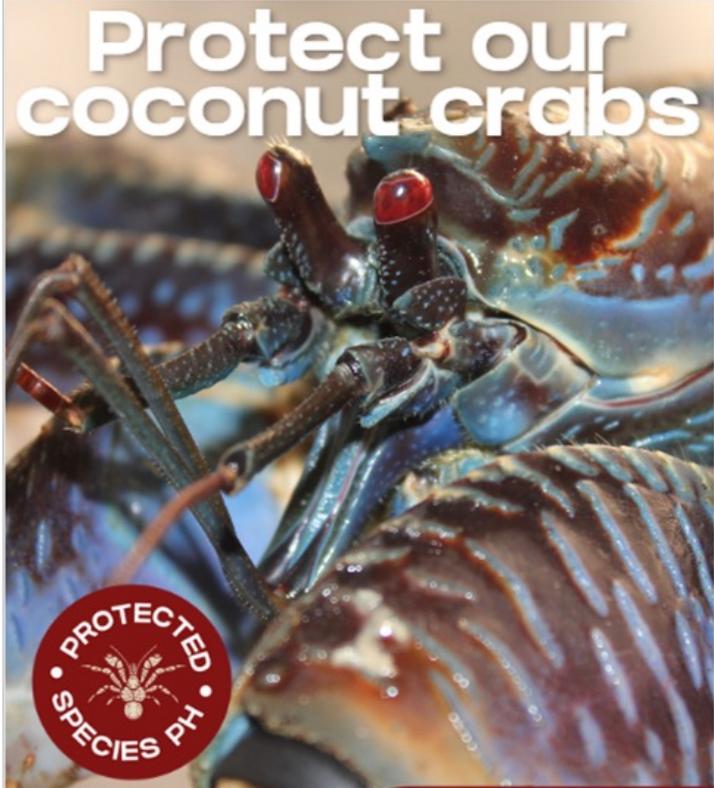


Photo from Doc Mudjje
facebook.com/docmudjje

COCONUTS ABOUT CRABS?

A delicacy where they are found, coconut crabs have become endangered due to harvesting.



Scan this QR code to learn more info about coconut crab conservation in the Philippines

FOLLOW US ONLINE

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- NFRDI Philippines
- DA-NFRDI
- NFRDI Philippines
- nfrdi.da.gov.ph

Protect our seahorses



Photo from Edwin Dumalagan
ZSL/Project Seahorse

HORSING AROUND

All species of seahorses found in the Philippines continue to be under threat from habitat loss, pollution, and poaching.



Scan this QR code to learn more info about seahorse conservation in the Philippines

FOLLOW US ONLINE

In collaboration with Marine Wildlife Watch of the Philippines, Project Seahorse, and Philippine Aquatic Red List Committee (PARLC)

- NFRDI Philippines
- DA-NFRDI
- NFRDI Philippines
- nfrdi.da.gov.ph

Progress – WLF and GESI Adoption

- Conducted the 2022 assessment of BMB GAD and 2023 planning workshop in Clark, Pampanga-2-4 November 2022
- Conducted the GAD Checklist for Designing and Evaluating Environmental and Natural Resources Management Projects (HGDOG) for the BMB's Coastal and Marine Ecosystems Management Program-9-11 November 2022
- Attendance to CTI CFF WLF and GESI meetings



Challenges/Constraints Affecting Implementation



Challenges

- Insufficient manpower due to turn-over of staff (job order appointment)
- Changing priorities of management resulting in continuity issues of existing programs and projects
- Overlapping of laws/policies-national & local
- Lack of prioritization of local government units on conservation activities.

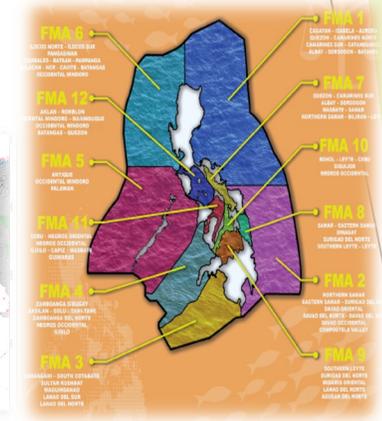
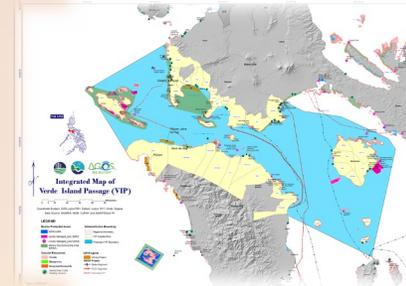


National Roadmap 2023



Roadmap – Seascape

- Continuation of the conduct of Protected Area Suitability Assessment for Verde Island Passage (VIP) for the establishment of the area as protected area under RA 7586 as amended by RA 11038
- Continue implementation of the National Stock Assessment Program (NSAP) to monitor status of various fish stock in the country using performance indicators and reference points in support of the implementation of the Fisheries Management Areas (FMAs). Policy briefs will be generated from the results of the assessments
- BMB – CMD to continue support to the implementation of the Fisheries Management Area 12 FMA 12 Scientific Advisory Group
- PRICELESS project for endorsement to the GEF7 CEO



Roadmap – EAFM

- Dialogue between Indonesia and Philippine governments to advance Harvest Control Rules and Harvest Strategies of Yellowfin Tuna Stocks at the Western Central Pacific Fisheries Commission
- Baseline study on fish aggregating devices interaction with shark and shark finning in Lagonoy Gulf and Mindoro Strait-Gender Sensitivity training
- A new project to tackle post-harvest loss of tuna and income diversification among tuna fishers
- Reversion of Abandoned, Undeveloped and Unutilized and (AUU) Fishponds Reversion to Mangrove Areas (Regions with AUU fishponds reverted back to Mangrove areas)



Roadmap – MPA

- Continuous implementation of the Coastal and Marine Ecosystems Management Program
- Targeted 3 for establishment as a protected area under NIPAS (Verde Island Passage, Pag-asa Island incl. Eastern Kalayaan Island PLS and Panaon Island PS)
- Increase MPAN and OEEM areas within PH Exclusive Economic Zone (EEZ)
- Ecologically and Biologically Significant Fisheries Management Areas (FMAs)
- Continuous monitoring of the implementation of NIPAS areas (Protected Areas) nationwide



Roadmap – CCA

- Mainstreaming and capacity building activities to various regional and provincial offices to train them on the use of climate change vulnerability and suitability indices and maps for the capture fisheries and aquaculture sectors

Roadmap – Threatened Species

- Dissemination and capacity building of various regional and provincial fishery offices on the use of the interactive poster on protected and regulated aquatic species for law enforcement purposes as well as for increasing general awareness of the general public.
- Conduct of national species assessments and publish country aquatic species list by the Philippine Aquatic Red List Committee (PARLC) to be funded by the Aquatic Wildlife Management Fund (AWMF) administered by BFAR
- Continuous conduct of research program on nesting marine turtles in TIWS by BARMM Staff (MENRE-BERDS)

Roadmap – WLF and GESI Adoption

- Participation of women in consultation processes, community organizations and decision making bodies towards the sustainable management of the country's environment and natural resources
 - *Training or seminars on various sustainable resource management technology in the subsectors (forest, management, protected area, coastal resources, watershed management, biodiversity, wildlife enforcement, solid waste management)*
- Ensure equal access of women and men to environment and natural resources goods and services
 - *Orientation and information disseminations seminars, including production of information materials, on accessing natural resources and services*
- Enhanced resiliency of women and men in natural resource-based communities
 - *Conduct seminars, orientation on basic information on climate change, health emergency and disaster risks and hazards and on effective preparedness and counter measures*

Potential Regional Program and Support Required

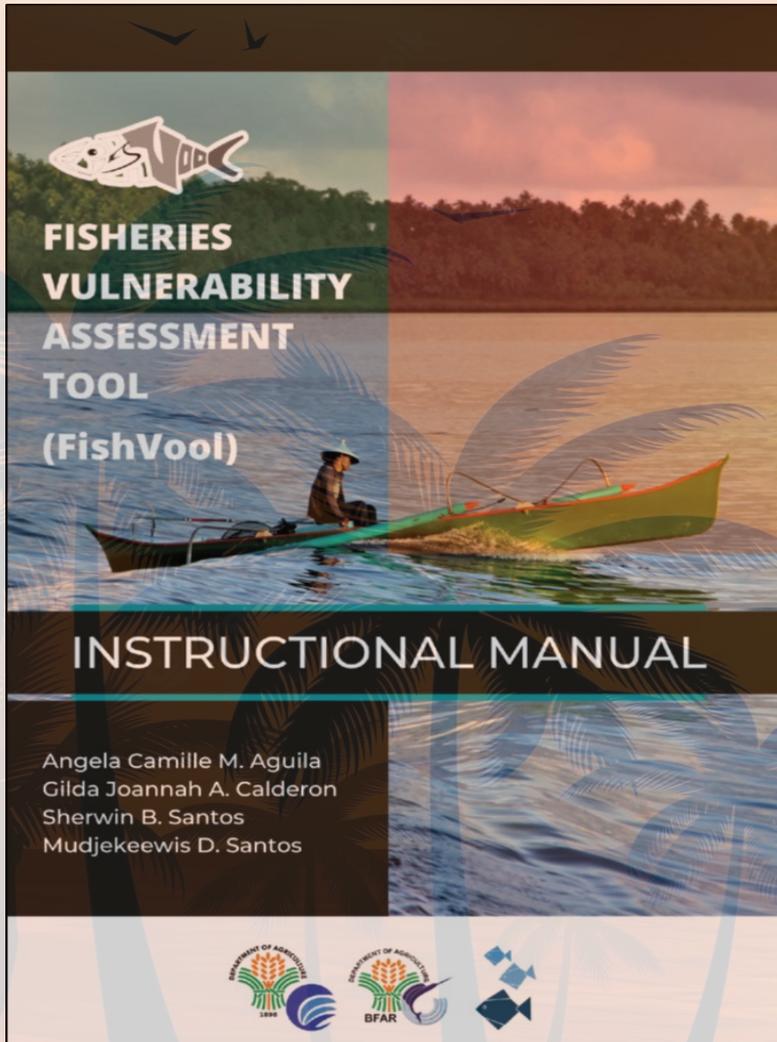


Publications



Publications

- *Aguila, A.C.M., G.J.A. Calderon, S.B. and M.D. Santos. 2021. Fisheries Vulnerability Assessment Tool: Instructional Manual. National Fisheries Research and Development Institute, Quezon City, Philippines. 30 pp.1.*
- *Poniente, J.A., J.M.R. Pereda, J.T. Dela Peña, M.F.H. Ventolero and M.D. Santos. 2022. DNA barcoding confiscated aquatic wildlife species in the Philippines. Forensic Science International: Animals and Environments. doi.org/10.1016/j.fsiae.2022.100051.*
- *Acebes, J.M., T. Yamada, J. Poniente, A. Matsuda, M.L.Dolar, M. Espiritu, J.M.L. Tan and M.D. Santos. 2022. Strandings of Longman's beaked whale (*Indopacetus pacificus*) in the Philippines. Journal of Cetacean Research and Management. doi.org/10.47536/jcrm.v23i1.351.*



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journal homepage: www.sciencedirect.com/journal/forensic-science-international-animals-and-environments



Mitochondrial DNA-based species testing of confiscated aquatic wildlife in the Philippines

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Genetic Fingerprinting Laboratory, National Fisheries Research and Development Institute, Quezon City, the Philippines

ARTICLE INFO

Keywords:
 Illegal wildlife trade
 Endangered aquatic species
 Fisheries management
 Marine biodiversity conservation

ABSTRACT

Illegal wildlife trade (IWT) is a global concern and a major threat to biodiversity conservation. In the Philippines, enforcement of laws related to aquatic wildlife is actively pursued pursuant to the Republic Act (RA) 9147 otherwise known as the Wildlife Resources Conservation and Protection Act and RA 8550 or the Philippine Fisheries Code of 1998 as amended by RA 10654. The National Fisheries Research and Development Institute - Genetic Fingerprinting Laboratory (NFRDI-GFL), functions as lead laboratory for identifying aquatic species in the country using genetic markers pursuant to Philippine Executive Order 154, series of 2013. Philippine law enforcement agencies send confiscated aquatic wildlife samples to NFRDI-GFL for identifying species since 2012 to present. DNA-based species identification of wildlife often uses mitochondrial genes such as Cytochrome c oxidase 1 (CO1) and Cytochrome b (Cytb). Here, a total of 114 individual from confiscation events mostly from Metro Manila and Davao regions were identified using CO1 and Cytb, and their trace files stored in the NFRDI-GFL database. Of the 114 individuals, 26 species have been identified; 16 are under threatened category under IUCN, 17 are listed under the CITES Appendices and 21 are considered as regulated under Philippine Laws. Taken together, this study shows that IWT for aquatic species is evident in the country. Moreover, the use of mitochondrial DNA-based methods can provide accurate species identification, hence allowing for better monitoring and tracking of IWT to support fisheries management and conservation in the country.

Strandings of Longman's Beaked Whale (*Indopacetus pacificus*) in the Philippines

JO MARIE V. ACEBES^{1,2}, TADASU YAMADA³, JENNIFER A. PONIENTE⁴, AYAKA T. MATSUDA⁵, MA. LOUELLA L. DOLAR⁶, MARCO M. ESPIRITU⁷, JOSE MA. LORENZO TAN⁸ AND MUDJEKEEWIS D. SANTOS⁴

Contact e-mail: jacebes@balyena.org.ph

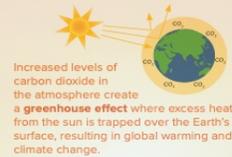
ABSTRACT

Longman's beaked whale, *Indopacetus pacificus*, is one of the least known of all cetacean species, with just six specimens recorded prior to 2004. Although at least twenty more specimens have been recovered from strandings since then, knowledge on the species is still very limited. In the Philippines, a stranding in Davao in 2004 was considered the first confirmed sighting of the species in the country until 2021, when a photograph of a stranded animal in Calauag, Quezon from 1965 was found in an archive and confirmed to be of *I. pacificus*. Sightings of *Indopacetus pacificus* alive at sea from the early 1990s to 2000s in the Philippines were previously unconfirmed. Subsequent review of photographs from past surveys and at-sea sightings revealed live sightings in the eastern Sulu Sea near Negros in 1994, off the Maconacon coast in northern Sierra Madre in 2004, and near Arena Island in the Sulu Sea in 2006. Herein this study accounts for all the known strandings of the species in the Philippines and describe the specimens collected, the status of specimens to-date based on examined stranding reports, and examination of the specimens conducted by one or more authors. To date, there are five confirmed strandings of the species, which occurred at five different sites: (1) Calauag, Quezon in 1965 (unverified length and unknown sex); (2) 5.73m male at Matina-Aplaya, Davao in 2004; (3) 5.02m male at General Nakar, Quezon in 2016; (4) 5.4m male at Gonzaga; and (5) 5.6m male at Santa Ana, both in Cagayan Province in 2018. Two individuals stranded alive but died shortly after. From three of these, the stomach contents and tissue samples were examined and collected, while the skeletons of two specimens were collected and examined. Squid beaks of *Taonius* sp. and *Histioteuthis* sp. and unidentified fish eye lenses were found in the stomach. DNA analysis using mitochondrial Cytb and COI sequences showed that the specimens were indeed *I. pacificus*. The skeleton collected from Santa Ana, Cagayan is by far the most complete in the country. For a cetacean species that is poorly known, examination of stranded specimens offers a rare opportunity to collect information. Hence, the importance of standardising necropsy and stranding data collection protocols, training stranding first-responders and establishing a database are emphasised.

KEYWORDS: LONGMAN'S BEAKED WHALE, STRANDINGS, DNA BARCODING, PHILIPPINES

Publications

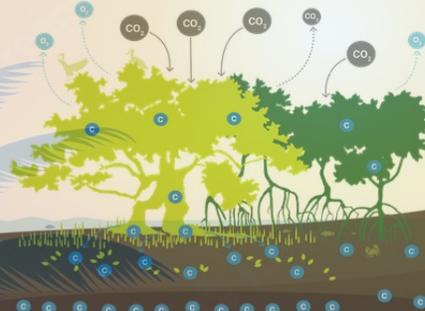
MANGROVE BLUE CARBON



Increased levels of carbon dioxide in the atmosphere create a **greenhouse effect** where excess heat from the sun is trapped over the Earth's surface, resulting in global warming and climate change.

Mangroves and seagrass beds are blue carbon ecosystems.

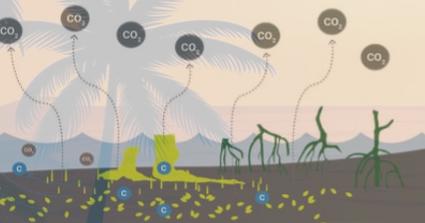
Like forests, these coastal wetlands can trap and store large amounts of carbon from the atmosphere. However, blue carbon ecosystems can sequester 4-5 times more carbon dioxide per hectare than tropical upland forests.



Mangroves are a natural, long-term solution to reducing carbon dioxide emissions. In mangroves, carbon can be stored in living plant parts (leaves, stems, and roots) for up to several years, and in the soil (or "sediment") for up to centuries.

Mangroves are effective **carbon sinks** when they are healthy, but can become **carbon emitters** when they are disturbed or damaged.

Degraded coastal ecosystems release at least 1 billion tons of carbon dioxide per year.



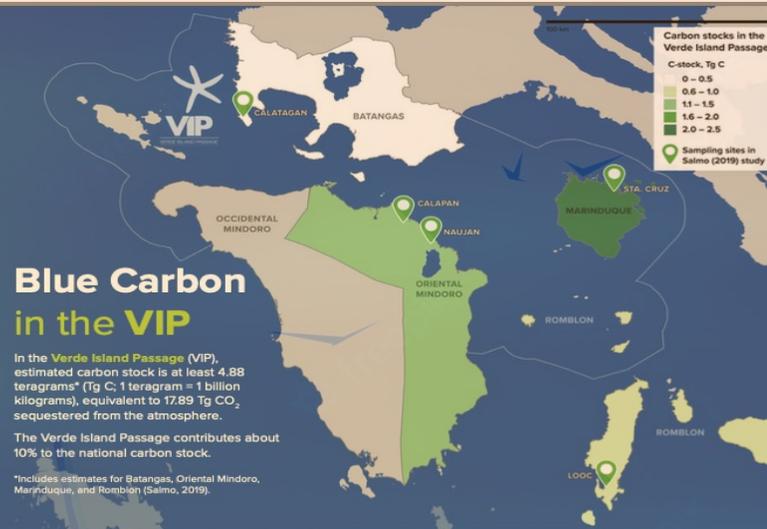
Mangroves are critical in climate change adaptation and mitigation. When healthy, mangroves have great potential to contribute to reducing carbon dioxide emissions. Further, they are able to provide other ecosystem services and benefits including coastal protection, fisheries, and tourism.

Blue Carbon in the VIP

In the **Verde Island Passage (VIP)**, estimated carbon stock is at least 4.88 teragrams* (Tg C; 1 teragram = 1 billion kilograms), equivalent to 17.89 Tg CO₂ sequestered from the atmosphere.

The Verde Island Passage contributes about 10% to the national carbon stock.

*Includes estimates for Batangas, Oriental Mindoro, Marinduque, and Romblon (Salmo, 2019).



Quantifying carbon storage in mangroves helps in better understanding their role in climate change adaptation and mitigation.

In 2018, five representative mangrove forests in the Verde Island Passage were assessed for their carbon stocks (see map, Salmo, 2019). Carbon stock estimates were based on field sampling and lab analyses.

Key findings:

- The average total carbon stock across sites was 626.70 megagrams per ha (Mg C/ha; 1 megagram = 1,000 kg), which is slightly higher than the Philippine average (624 Mg C/ha).
- The highest total carbon stock was in Sta. Cruz, Marinduque, which had the widest and most contiguous mangrove forest.
- Most of the carbon was found in the sediment, specifically in the upper soil layer, i.e., depths of 0-10 cm.
- In mangroves, carbon stocks typically increase from the seaward fringe to land, but a couple of sites showed the highest measurements in the middle zone.

The Verde Island Passage is an ideal demonstration site for blue carbon in the Philippines.

- Mangroves here are relatively healthy and well-protected.
- Long-term conservation programs in the area can provide necessary baseline and monitoring information.
- There are opportunities for further research.

Blue carbon is further incentive for mangrove management and conservation.

Mangrove management in the Verde Island Passage can support blue carbon initiatives.

- Conservation International Philippines is implementing the Green Wall Program, which aims to establish a greenbelt in the entire province of Oriental Mindoro.
- There are opportunities to revert abandoned, underutilized, and underdeveloped (AULU) fishponds to their original state as mangroves.

Blue carbon is an added ecosystem service from mangroves.

The carbon sequestration service of mangroves is valued at USD 3.3-4.8 per ton of carbon dioxide, so the mangroves in the Verde Island Passage are worth at least USD 59-78.7 million, on top of the other ecosystem services they already provide.

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