BIODIVERSITY MANAGEMENT BUREAU
Quezon Avenue, Diliman, Quezon City
Telefax No. 924-6031 local 220

Date: **10-Jun-21**
Quotation No: **0166-06-21**

REQUEST FOR QUOTATION

_____
Company Name

_____
Address

Please quote your lowest price on the item/s listed below, stating the shortest time of delivery and submit your qutotation duly signed by your representative not later than _____.

RACHELLE JENINE D. ABUEL
Head, BAC Secretariat

NOTES:
1. ALL ENTRIES MUST BE TYPEWRITTEN OR PRINTED LEGIBLY.
2. DELIVERY PERIOD IS WITHIN **15** CALENDAR DAYS.
3. WARRANTY SHALL BE FOR A PERIOD OF **SIX (6) MONTHS** FOR SUPPLIES & MATERIALS/**ONE (1) YEAR** FOR EQUIPMENT, FROM DATE OF ACCEPTANCE BY THE PROCURING ENTITY.
4. PRICE VALIDITY SHALL BE VALID FOR A PERIOD OF **30** CALENDAR DAYS.
5. PHIL-GEPS REGISTRATION CERTIFICATE SHALL BE ATTACHED UPON SUBMISSION OF THE QUOTATION.
6. BIDDERS SHALL SUBMIT ORIGINAL BROCHURES SHOWING CERTIFICATIONS OF THE PRODUCT BEING OFFERED.

Title of Procurement:
Supply and Printing of Various Policy Briefs

Purpose:
To be distributed to regions during PAMB meetings and WPS/PH Rise-related events

Approved Budget for the Contract (ABC):
P192,500.00

ITEM NO.	ITEMS/DESCRIPTIONS	QTY./ UNIT	UNIT PRICE	TOTAL PRICE
1	Policy Brief 1. Kalayaan Islands Group	500 pcs.	P_____	P_____
2	Policy Brief 2. PH Rise Marine Resource Reserve	500 pcs.	P_____	P_____
3	Policy Brief 3. Management of Ecologically Connected Marine Protected Areas	500 pcs.	P_____	P_____
4	Policy Brief 4. Saving the Remaining Philippine Coral Reefs	500 pcs.	P_____	P_____
5	Policy Brief 5. Inclusion of Deep Reefs in MPA Design & Monitoring	500 pcs.	P_____	P_____
6	Policy Brief 6. Intergrated Marine Management	500 pcs.	P_____	P_____
7	Policy Brief 7. Efficient Mangrove Monitoring	500 pcs.	P_____	P_____
8	Policy Brief 8. Ridge-to-Reef Protection	500 pcs.	P_____	P_____
9	Policy Brief 9. Maintaining Coastal Integrity	500 pcs.	P_____	P_____
10	Policy Brief 10. Scaling up Livelihood Initiatives into Biodiversity-Friendly Enterprises	500 pcs.	P_____	P_____
11	Policy Brief 11. Manpower Development of DENR Coastal and Marine	500 pcs.	P_____	P_____

(continued next page)

Kindly address all proposal to the Chairperson, Bids and Awards Committee

Additional Requests from Procuring Entity:
[] Please provide sample upon request of end-user
[/] Please see full specifications/attached sample design for reference.
[ ] Other conditions to this request, please state:
_____

Award of contract shall be made to the Bidder per:
[ ] Item basis
[/] Lot basis

Bidders must submit the following requirements:*
1. DTI/SEC Registration Certificate
2. Mayor's Permit
3. PHILGEPS Certificate of Registration
4. BIR Certificate of Registration

Important Note:
For goods, conforme of the winning bidder must be done within seven (7) calendar days upon serving of the PO.
For services,conforme of the winning bidder must be done within fourteen (14) calendar days upon serving of the JO.

*Non-submission of these requirements shall be grounds for disqualification from the bidding process.

Brand : _____
Delivery Period : _____
Warranty : _____
Price Validity : _____

After having carefully read and accepted your Request for Quotation, I/We quote you on the item at prices noted above.

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Printed Name/Signature | Tel. No./Cellphone No. | Email Address | Date

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	Briefer Specifications: -1 page each briefers except for 1 and 3 -Briefer No. 1 and No. 3 back to back -A4 size [210mm (w) x 297 (h)] -C2S paper (180-200 gsm) -Full color -Matte lamination -Offset printing -Borderless xxx nothing follows xxx Kindly address all proposal to the Chairperson, Bids and Awards Committee **Additional Requests from Procuring Entity:** [] Please provide sample upon request of end-user [/] Please see full specifications/attached sample design for reference. [ ] Other conditions to this request, please state: _____ **Award of contract shall be made to the Bidder per:** [ ] Item basis [/] Lot basis **Bidders must submit the following requirements:*** 1. DTI/SEC Registration Certificate 2. Mayor's Permit 3. PHILGEPS Certificate of Registration 4. BIR Certificate of Registration Important Note: For goods, conforme of the winning bidder must be done within seven (7) calendar days upon serving of the PO. For services,conforme of the winning bidder must be done within fourteen (14) calendar days upon serving of the JO. *Non-submission of these requirements shall be grounds for disqualification from the bidding process.			

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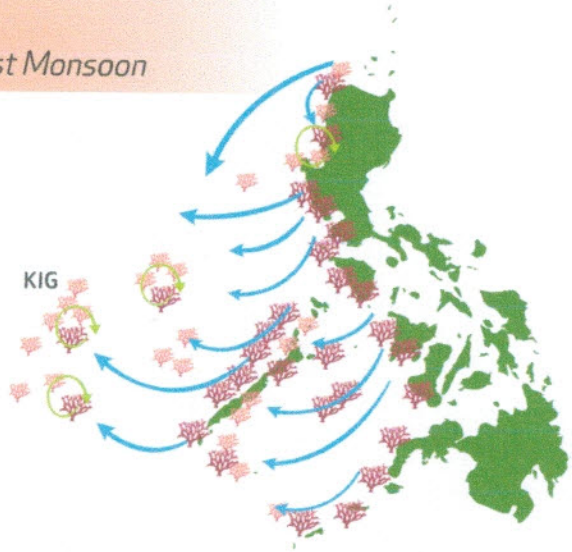
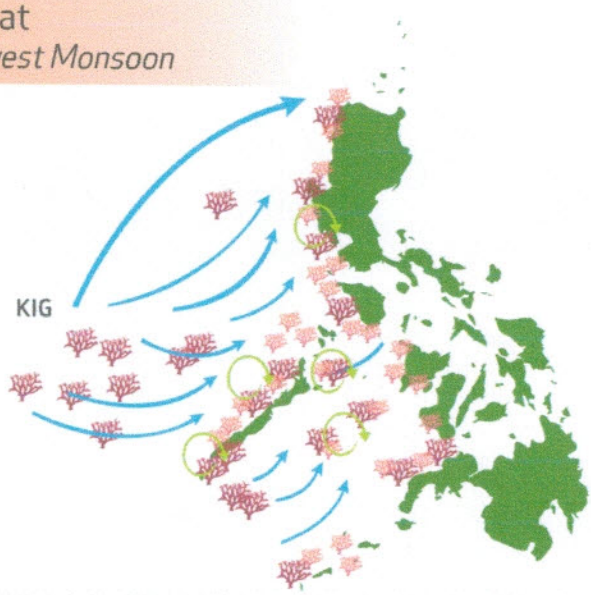
Connectivity between the Reefs of WPS

Amihan
Northeast Monsoon



Habagat
Southwest Monsoon



Coral and fish larvae can be brought to far distances by ocean currents . Connectivity relates how habitats are connected by this type of movement.

Source reefs are able to provide larvae for export to suitable growing sites, called sinks . Some sites are self-seeding , and depend on their local marine populations for larval supply.

The monsoon seasons influence source-sink patterns due to the differences in wind and current dynamics.

Establishing marine protected area networks will guarantee continuous larval supply for the reefs in the entire WPS region. The Philippines stands to benefit the most from the ecosystem services that the KIG reefs are providing.

current source sink self-seeding

RECOMMENDATIONS

- Collaboration with other National Agencies for protection and management of the KIG is crucial to biodiversity conservation and food security
- Continuous monitoring of offshore reefs and fisheries in the KIG can ensure timely and appropriate management responses amidst persistent and emerging threats
- Establishment of marine protected areas (MPAs) and MPA Networks will greatly improve management of marine resources in the KIG

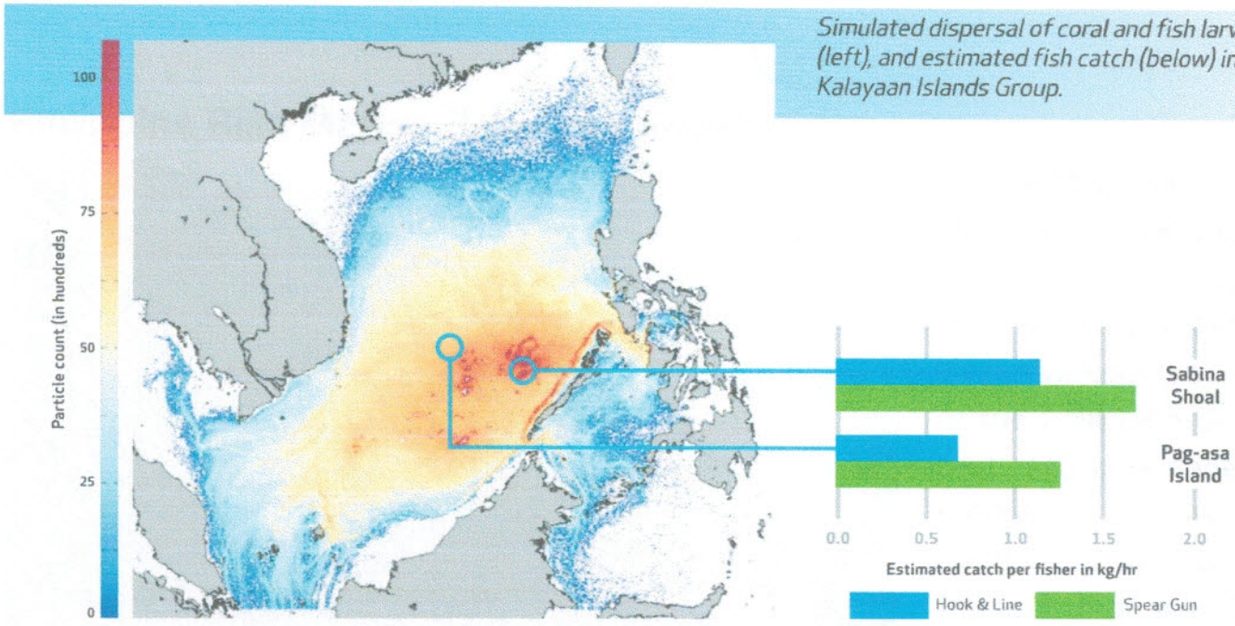
Reference: DENR-BMB Coastal Assessment for Rehabilitation Assessment: Capability Development and Resiliency of EcoSystems(CARE-CaDRES) Report (2019)

DENR-BMB Policy Brief No. 1
2019

Biodiversity Resource Profile

Kalayaan Island Group

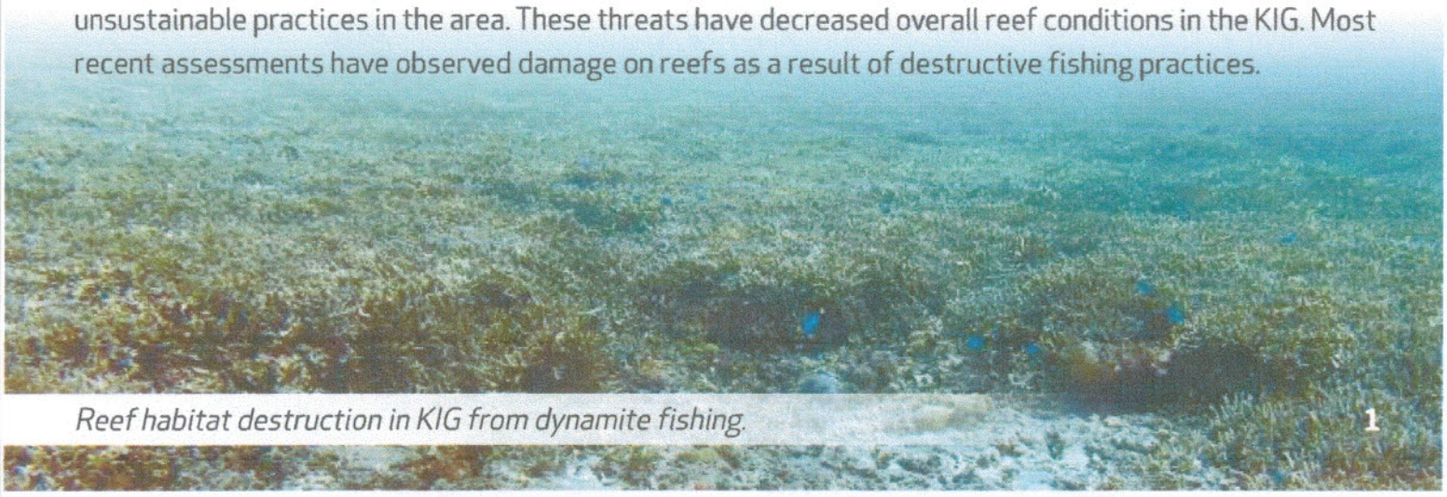
The coral reefs in the West Philippine Sea (WPS) cover an estimated area of 600 to 1,000 km², or about 30% of the total reef area of the Philippines. Most of these reefs are found in the Kalayaan Islands Group (KIG). The KIG is also a source of coral and fish larvae for neighboring reef systems along the western Palawan coast and as far as the Sulu Sea and the Indo-China coast.



Simulated dispersal of coral and fish larvae (left), and estimated fish catch (below) in the Kalayaan Islands Group.

The KIG and neighboring Palawan reefs are major fishing grounds for thousands of Filipino fishers — contributing to food security and livelihood of coastal communities. The reef fisheries productivity of these reefs is still high compared to other areas of the country.

However, the area is threatened by illegal, unreported, and unregulated fishing, as well as other unsustainable practices in the area. These threats have decreased overall reef conditions in the KIG. Most recent assessments have observed damage on reefs as a result of destructive fishing practices.



Reef habitat destruction in KIG from dynamite fishing.

among national agencies

Recommendations

- In working towards Philippine Rise becoming a fully fledged/operational MPA, the following are essential steps to be conducted:
  a. Development of the management plan, followed by its finalization and adoption, and implementation; and
  b. Institutionalization of the PRMRR PAMB, in accordance with the ENIPAS Act and its Implementing Rules and Regulations.
- Given the offshore nature of the PRMRR, maintain open communication channels and continuous collaboration and coordination between agencies involved in research, management

DENR-BMB Policy Brief No. 2
2019

Biodiversity Resource Profile
Philippine Rise Marine Resource Reserve

The Philippine Rise is a vast underwater plateau measuring 34 million hectares, averaging about 3,000 to 5,000 meters deep. It exhibits a massive deep sea formation of basalt (a common volcanic rock) larger in area than the entire Luzon island. Although a generally barren region with depths unexplored, its shallowest portion, a 17,000 hectare spur at 30-70 meter depths called *the Benham Bank*, is bustling with life.

To date, over 200 species have been found and documented in the Benham Bank[1] with certain portions covered completely in corals, some in meadows of *Halimeda* (algae), it serves as a refuge and nursery for commercial fishes, such as mackerel, marlin, and bluefin tuna; a natural and national treasure for our fisheries resources.

Initiatives on the PH Rise

For years, national government agencies, and other partner organizations have made efforts in pushing for its protection, sustainable use, and management. Below is the timeline of initiatives for PH Rise.

2016
- Benham Bank as Ecologically or Biologically Significant Marine Area (EBSA)
- Initial drafting of the Executive Issuance declaring parts of PH Rise as Marine Protected Area (MPA) under RA 7586
- Initial drafting of the PH Rise Management Framework

2017
- Conduct of inter-agency policy dialogues
- Finalization of the PRMRR Management Framework

2018
- Conduct of the 3rd PH Rise Expedition, "SECURE PH RISE"
- Declaration of PH Rise (Benham Bank) as Marine Resource Reserve (PRMRR)
- Formation of an interim PRMRR Protected Area Management Board

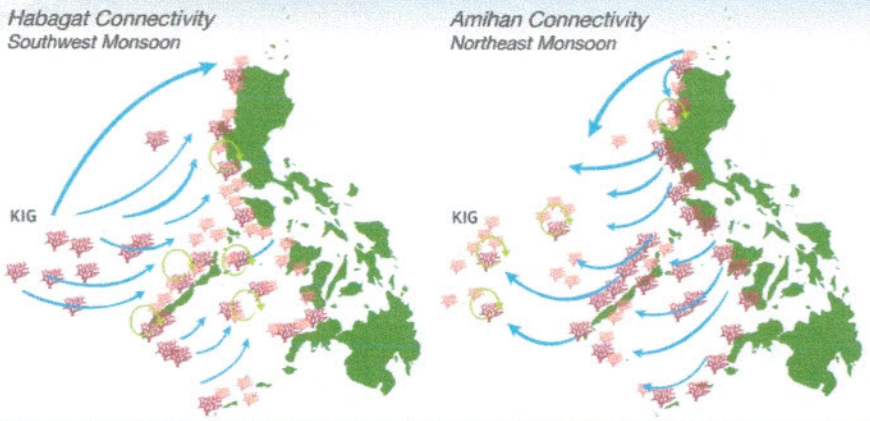
2019
- Continuation of SECURE PH RISE Expedition
- Development of the PH Rise Management Plan, and the Strategic Communication Plan

1 *"Benham Bank Expedition 2016," DOST-BFAR-UP and Oceana Philippines*

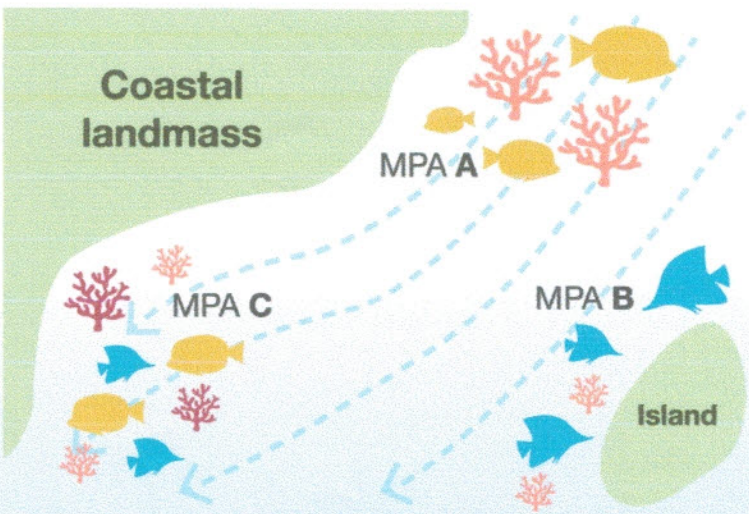
DENR-BMB Policy Brief No. 3
2019

Management of Ecologically Connected Marine Protected Areas

Coral and fish larvae can be brought to far distances by ocean currents. Connectivity relates how habitats are connected by this type of movement. Source reefs are able to provide larvae for export to suitable growing sites, called sinks. Some sites are self-seeding and depend on their local marine populations for larval supply. The monsoon seasons influence source-sink patterns due to the differences in wind and current dynamics.



Monsoonal larval source-sink patterns. *Red reefs are larval sources, pink reefs are sinks, and green arrows are self-seeding.*



Connectivity within and between marine protected areas is important for maintaining diversity, fish stocks, and ecological resilience. Although the benefits of MPAs are well-documented, they need to be embedded within a broader management framework for these to be more effective. This maximizes connectivity between individual MPAs to ensure the protection of ecological functionality and productivity.

Connectivity of related marine populations across different sites. *Upstream MPAs (A & B) could be larval sources for downstream ones, like MPA C. Protection of all three will benefit the entire network.*

Recommendations

- Connectivity studies form the basis for the prioritization, design, and establishment of Marine Protected Area Networks (MPANs).
- Protection is critical for larval source habitats and self-seeding sites.

Data Source: DENR-BMB Coastal Assessment for Rehabilitation Assessment: Capability Development and Resiliency of EcoSystems(CARE-CaDRES) Report (2019)

References: Dorman et al. 2016; Kool et al. 2011; Weeks et al. 2014; Wood et al. 2014

coastalandmarine@gmail.com | www.bmb.gov.ph | www.facebook.com/DENRAgos

Threats to coral reefs

Natural	Man-made
Typhoon damage	Destructive fishing practices
El Niño phenomenon	Fisheries overexploitation
	Irresponsible tourism
	Unmanaged coastal development
	Roas and port building

Recommendations

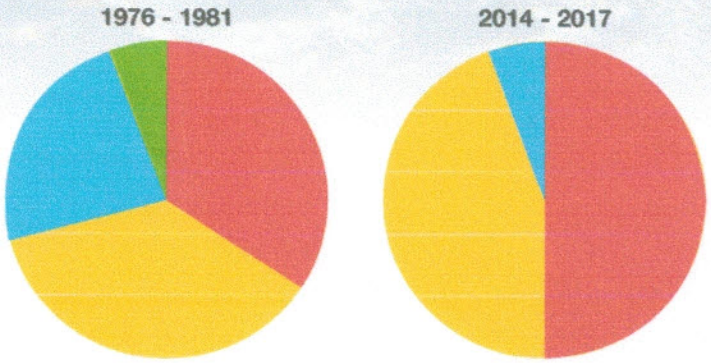
- **Implement a sustained nationwide reef monitoring system, especially for the nationally- and locally-managed reef areas.** Monitoring allows us to respond to changes in reefs as they happen. With a more rigid system and standard data collection, we can identify specific impacts and act on every threat with data to back all management decisions. In the case of environmental calamities, sites must be assessed immediately after every disaster and monitoring must be implemented until recovery. At a minimum, all sites must be monitored every year due to the increased threats experienced.
- **Eliminate human-derived stressors on reefs.** Sedimentation and sewage pollution caused by unmanaged coastal development and road building remain to be common threats to reefs all over the Philippines. With loose regulation on reclamation and port building, impact to coral reefs and associated habitats are often overlooked.
- **Review and update the laws and regulations concerning coral reefs.** There is no clear definition of coral reefs under the Philippine law. If we will continue to follow the definition according to the Presidential Proclamation 2146 Series 1981, 93% of our reefs will remain unprotected by law as it does not categorize them as environmentally critical.
- **Crypto-biodiversity should be monitored** for early signs of ocean acidification impact.

Reference: DENR-BMB Coastal Assessment for Rehabilitation Assessment: Capability Development and Resiliency of EcoSystems(CARE-CaDRES) Report (2019)

DENR-BMB Policy Brief No. 4
2019

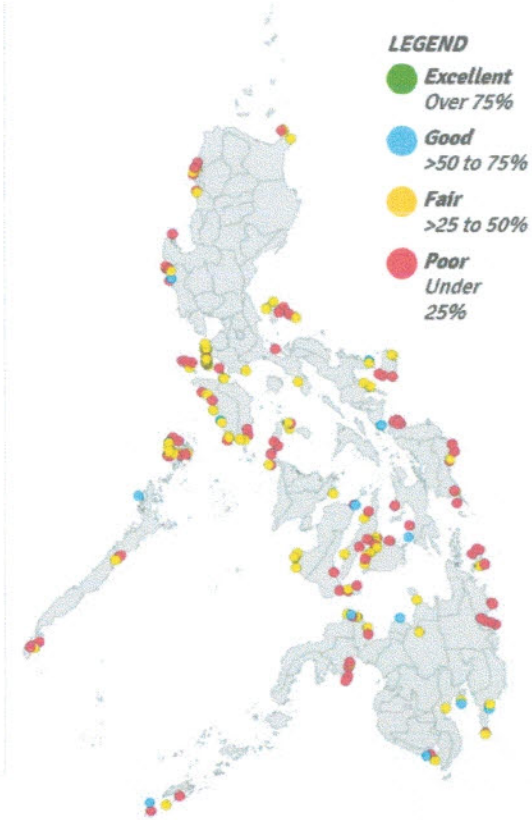
Saving the Remaining Philippine Coral Reefs

The Philippines has lost one third of the corals that make up the massive geologic structures called coral reefs, according to the recently completed nationwide reassessment of Philippine reefs. In that same study, it was revealed that there are no more reefs in the Excellent live coral cover category, when they used to make up 5% of our reefs 40 years ago.



Proportion of surveyed reefs across the Philippines according to live coral cover. *The categories are determined by how much of the observed coral cover is live coral (see legend).*

Philippine coral reefs are vital to support the different coastal habitats, which in return support at least 60% of the total population living in the coastal zone or people directly depending on ecosystem services provided by coral reefs.



Live coral cover of surveyed reefs across the Philippines as of 2017.

Coral reefs ensure food security.

Much of the Philippines' renowned marine biodiversity depends on the health of its coral reefs. These reefs also support a substantial (up to 25%) proportion of the country's marine fisheries production.

Coral reefs boost eco-tourism.

The Philippines has the third largest reef area and the most diverse coral reefs in the world. Apart from being ideal snorkeling, and diving spots, a square meter of a healthy coral reef produces 1 to 5 kilograms of white sand per year, making reefs an even more vital component of coastal tourism.

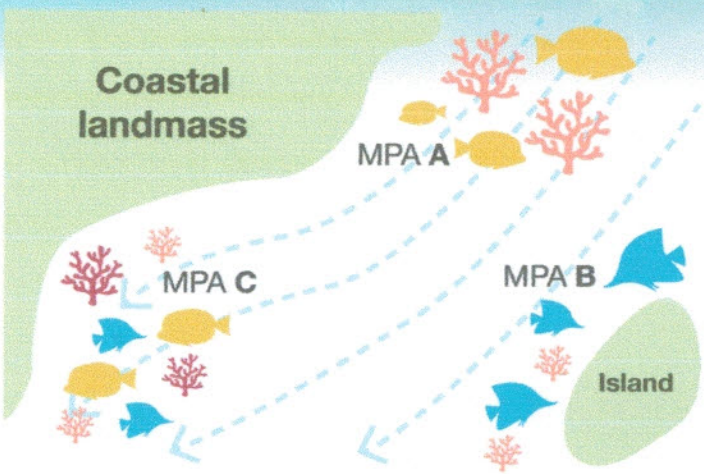
Corals reefs serve as coastal protection.

As geologic structures, coral reefs are natural wave-breakers, protecting coastal communities from tidal waves, strong currents, and storm surges.

DENR-BMB Policy Brief No. 5
2019

Inclusion of Deep Reefs in MPA Design & Monitoring

Marine protected areas (MPAs) are legally established sections of the sea dedicated to the conservation of its marine resources and ecological functions. It provides benefits for fisheries and local economies. Effective MPA design integrates ecological connectivity between various ecosystems in shallow reef areas, as each site influences the other. Marine organism life stages and feeding activities can involve multiple habitat types.



***Horizontal connectivity**. Upstream MPAs (A & B) could be larval sources for downstream ones, like MPA C.*

While shallow reefs are more vulnerable to climate-related stressors, the mesophotic deep reefs — ranging from 30 to 150 meters in depth — are not. These latter areas serve as a refuge where fish retreat and can persist in under changing environmental conditions or even high fishing pressure in shallow areas. The deep reefs can eventually feed depleted shallow reefs. Deep reef fishes are larger than their counterparts in shallow reefs; this means they are able to produce more eggs for reproduction.

Vertical connectivity illustrating mesophotic deep reefs as refugia.

The field tools for deep reef assessment and monitoring are simple and merely consist of a small rugged action underwater camera and depth gauge. Deep diving (SCUBA) may be conducted depending on resource (technical expertise)/ financial availability.

Recommendations

- DENR field assessment and monitoring should **include the mesophotic deep reefs**, wherever applicable.
- MPA design should **integrate vertical ecological connectivity** that covers the deep reefs. It enhances the climate resilient feature of the MPA.

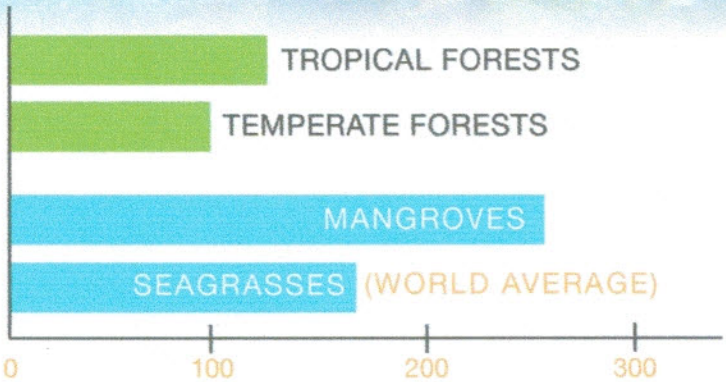
Data Source: DENR-BMB Coastal Assessment for Rehablitation Assessment: Capability Development and Resiliency of EcoSystems(CARE-CaDRES) Report (2019)

References: Quimpo JR et al. a, 2018; Quimpo JR et al. b, 2018; Cabaitan PC et al., 2019 (In Press)

DENR-BMB Policy Brief No. 6
2019

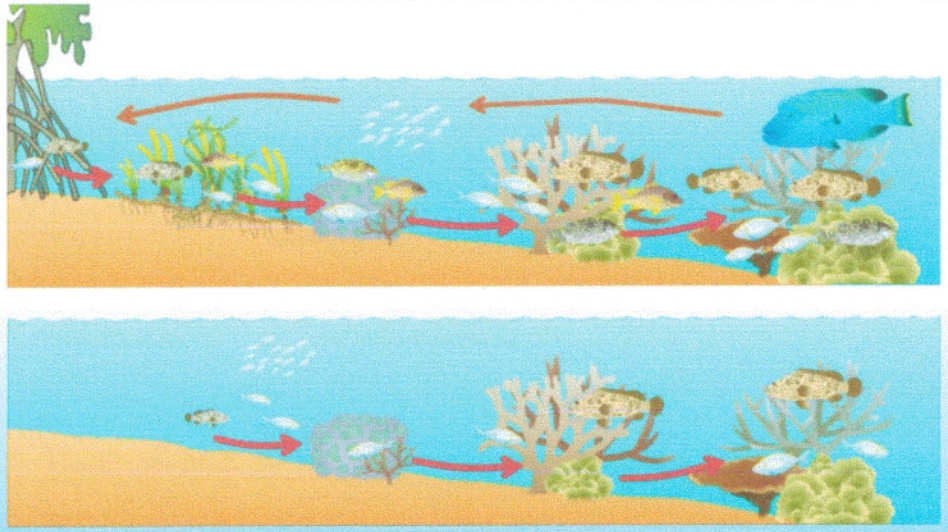
Integrated Marine Ecosystems Management

Coastal ecosystems are known to be among the most productive on Earth. In the Philippines, as much as 30% of total marine production come from reef fisheries. From mangrove and seagrass ecosystems, we receive essential ecosystem services such as coastal protection from storms and nursery ground for fish. They also store large amounts of "blue" carbon from the atmosphere and oceans, playing a significant role in mitigating climate change.



Total organic carbon stock per hectare of ecosystem (tC/ha)

Intertidal mangrove forests and seagrass beds provide habitats to various fish, invertebrates, and birds, including species that support important nearshore fisheries. Studies have shown that coral reefs that have adjacent mangroves and seagrass harbour higher fish diversity and biomass, as compared to coral reefs without.



Mangroves and seagrasses in the Philippines have decreased in the past seventy years. This has lead to a decrease in local fisheries and the natural carbon sequestration potential of our ecosystems. Inclusion of mangroves and seagrasses in marine protected areas would ensure food security and adaptation to climate change.

The figures above illustrate that MPAs that have mangrove, seagrass, and corals perform better at being fish refugia and have a higher overall biodiversity.

Recommendations

- Each ecosystem serves a purpose and **one should not be sacrificed for another.** E.g., mangroves should not be planted in seagrass beds.
- **Seagrassess and mangroves must be included** in designing marine protected areas.

Data Source: DENR-BMB Coastal Assessment for Rehablitation Assessment: Capability Development and Resiliency of EcoSystems(CARE-CaDRES) Report (2019)

References: Kennedy and Björk, 2009; Fourqurean et al., 2012, Duarte et al, 2013, Röhr et al., 2018. Alcala and Russ, 2002. Mumby and Hastings, 2008

DENR-BMB Policy Brief No. 7
2019

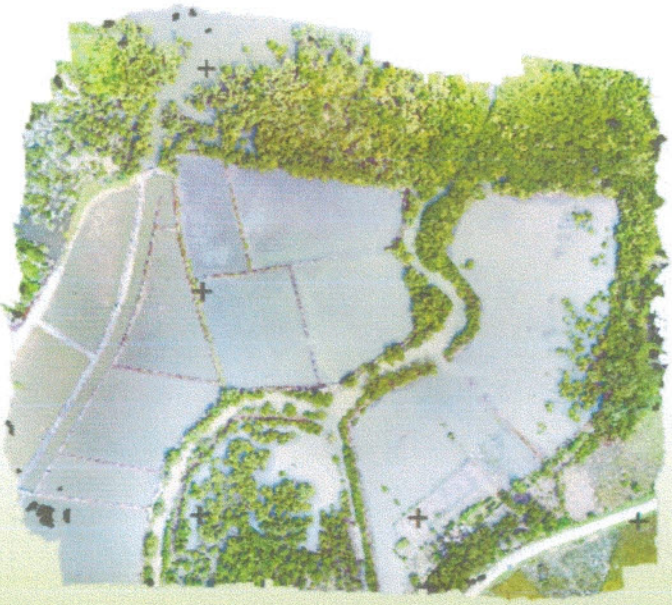
Efficient Mangrove Monitoring

Abra de Ilog, Occidental Mindoro © Digital Globe

Google Earth and other freely available remotely sensed data can be used for time series monitoring of mangrove areas. Historical mangrove sites can be identified by remote sensing and thus can be an aid for decision making in the site selection process of National Green Program (NGP) for mangrove reforestation. Remote sensing will also aid the DENR in the monitoring of illegal conversion of mangrove areas.

Additionally, remote sensing can be used to show the locations of existing and abandoned fishponds. It is essentially more cost-effective to reclaim abandoned fishponds than in planting in foreshore areas. Locations of these abandoned fishponds may be initially identified in Google Earth and verified by ground-truthing using kites and drones.

Fishpond Lease Agreements (FLAs) of Abandoned, Underdeveloped and Underutilized (AUU) fishponds may then be reviewed hand in hand with the Bureau of Fisheries and Aquatic Resources (BFAR) to prioritize for mangrove rehabilitation sites by the NGP.



Converted mangroves as photographed by aerial drone in Barangay Tilik, Occidental Mindoro

Recommendations

- Land use changes in mangrove areas should be monitored using Google Earth and other free remote sensing products.
- Regional offices should be trained to utilize Google Earth and other free remotely sensed data in monitoring of mangrove forests.

Data Source: DENR-BMB Coastal Assessment for Rehablitation Assessment: Capability Development and Resiliency of EcoSystems(CARE-CaDRES) Report (2019)

References: Primavera J. H., Yap, W. G., Savaris, J. P., Loma, R. J. A., Moscoso, A. D. E., Coching, J. D., ... & Tayo, I. (2014).

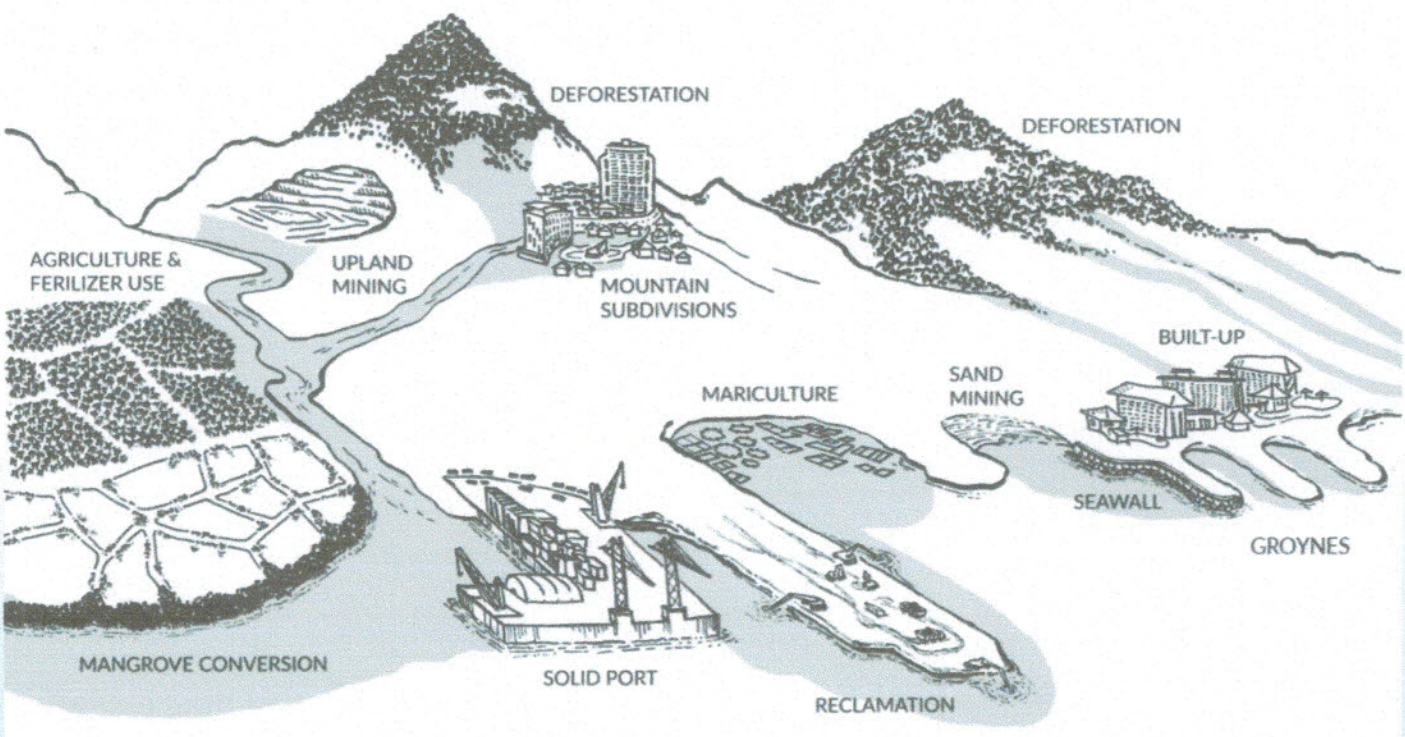
DENR-BMB Policy Brief No. 8
2019

Ridge-to-River-to-Reef Protection

In a catchment basin, all parts of the natural system—from the ridge of the mountains, upland forests, to river systems, wetlands, mangroves, and up to seagrass meadows and coral reefs—interact with and rely on one another. Activities that take place on land can have harmful effects on the coastal and marine habitats.

Deforestation and mangrove conversion release sediments which are usually stored naturally by the trees. Built-up areas without proper sewage systems, such as residential & commercial zones, dump nutrients into waterways. Mining dumps sediments into the water. Fertilizers and nutrients from agriculture and mariculture can lead to harmful algal blooms. Solid ports, seawalls, and groynes interfere with the water's natural flow. Lastly, reclamation areas destroy natural coastal ecosystems via deposition of huge amounts of sediment.

Therefore, the entire catchment basin must be protected in order to protect areas along the coast.



Sediment flow (in gray) from mountain to coast from common human activities.

Recommendations

- Protection and monitoring of an area must encompass **the entire catchment basin,** from ridge to reef.

Data Source: DENR-BMB Coastal Assessment for Rehablitation Assessment: Capability Development and Resiliency of EcoSystems(CARE-CaDRES) Report (2019)

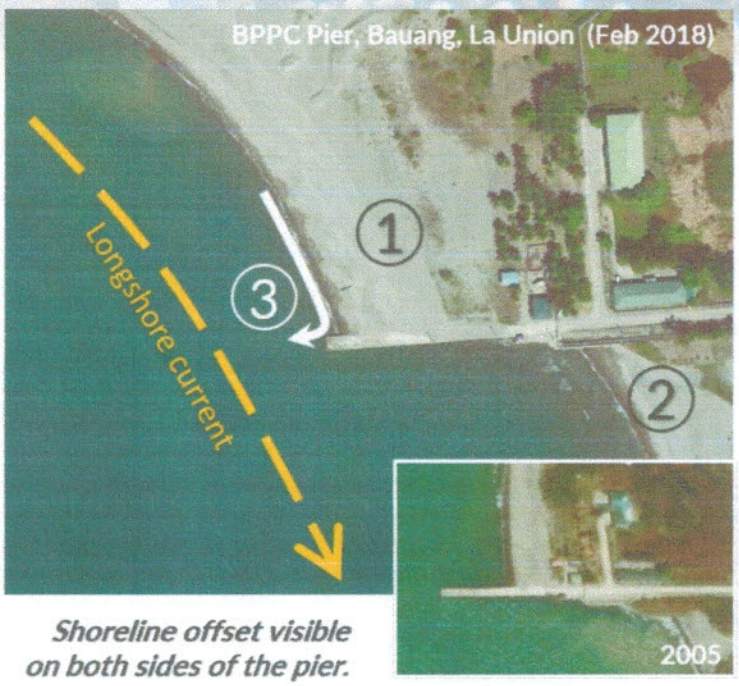
Diagram: © Laura T. David, Ph.D.; Illustrated by Rebecca V. Yu.

DENR-BMB Policy Brief No. 9
2019

Maintaining Coastal Integrity

Coastal erosion is prevalent in the Philippines. One major cause of coastal erosion is solid-based piers and ports, which block the natural flow of materials (e.g. sand, pebbles, sediment particles) along the coast through longshore currents.

1. Solid ports trap materials on its updrift portion, leading to shoreline advance.
2. These parts also starve the downdrift coastal segment of materials, causing shoreline retreat or erosion.
3. Solid ports and piers also cause sedimentation by sending materials offshore.

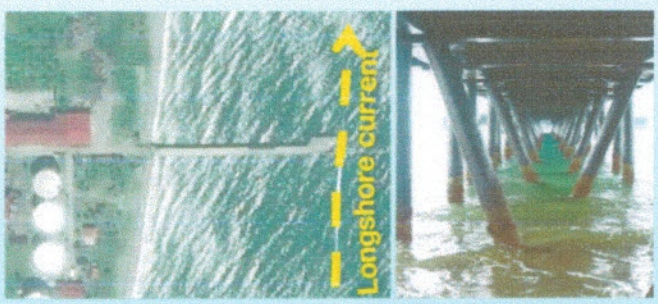


Shoreline offset visible on both sides of the pier.

Increase in offshore sedimentation due to solid-based piers and parts may suffocate the corals and other benthic organisms that can eventually lead to their death.

Recommendations

- **Hydrodynamic studies should be required** as input to development planning.
- In places where it is necessary to put up a pier, **building piers on stilts should be made mandatory.**
- Decision-making on foreshore infrastructures should not rest solely on the LGU, PPA and BFAR, but should also involve the DENR, specifically BMB, EMB and LMB, and DPWH.
- Since coastal processes cut across political boundaries, there should be **better coordination between neighboring LGUs** located along a continuous stretch of coastline or within the same embayment.



Pier-on-stilts in Tolosa, Eastern Samar

Data Source: DENR-BMB Coastal Assessment for Rehablitation Assessment: Capability Development and Resiliency of EcoSystems(CARE-CaDRES) Report (2019)

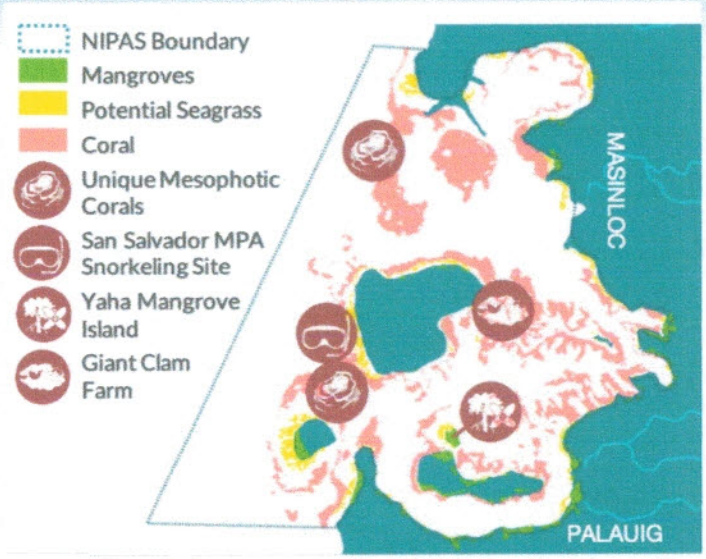
References: Siringan, F.P., Jordan, J.C.J, Sta. Maria, M. Y.Y,. (in press). Coastal erosion in the Philippines: A Guidebook; Sagip Baybay PH (2018). Modules available at www.sagipbaybayph.com.

Credit: Pier-on-stilt image by Angel Doctor.

DENR-BMB Policy Brief No. 10
2019

Scaling up Livelihood Initiatives into Biodiversity-Friendly Enterprises

With dwindling resources, coastal communities are relying on supplemental and/or alternative livelihood activities to augment their meager income. Biodiversity-friendly enterprises (BDFEs) provide an important balance between the use of natural resources and the communities' economic needs. Government efforts to assist local communities in pursuing BDFEs should not be limited to identifying and recognizing potential BDFEs, but should also include clear guidelines for sound planning and implementation.



Coastal resources & notable ecotourism sites of Masinloc, Zambales

Some of the essential elements that need to be emphasized in planning for BDFEs are:

- Detailed ecological information as a requisite to determine natural assets and potential impacts;
- Assessment of support facilities (e.g. policy, legal, institutional, financial) which are important factors in the sustainability of livelihood projects;
- Evaluation of livelihood enhancement needs for existing community enterprises to move towards BDFE.

Masinloc's Ecotourism IEC Materials

The success and sustainability of BDFEs will require appropriate and timely capacity-building programs, partnership-building, establishment of an effective monitoring and evaluation system, and a provision of start-up capital, if necessary.

Recommendations

- **Ecological information must be made a requisite** in the early stages of the BDFE identification and planning process.
- Existing guidelines should **include essential components in the planning and implementation of BDFEs** such as the ecological, equitable, economic, and the legal soundness of the enterprise and the mechanisms to assess and identify enhancement needs for existing enterprise initiatives so that they can scale up into BDFEs.

Reference: DENR-BMB Coastal Assessment for Rehablitation Assessment: Capability Development and Resiliency of EcoSystems(CARE-CaDRES) Report (2019)

DENR-BMB Policy Brief No. 11
2019

Manpower development of DENR Coastal and Marine

With more than 7,000 islands, the Philippine archipelago has one of the longest coastlines in the world. But even if our territorial waters is seven times larger than our land area, with more than 50% of the population living near the coast, most expertise [of DENR personnel] are still terrestrial-focused. The growing awareness on the importance of coastal and marine resources of the country necessitates DENR to go towards the direction of coastal and marine protection and management.

Philippine Coastal and Marine Statistics	
Land area	300,000 km^2
Number of islands[a]	7,641
Coastline	36,289 km
Territorial waters (w/ EEZ)	2,263,816 km^2
Population (2015 Census)	100,981,437
Coastal provinces[b]	66 (of 81)
Coastal cities & municipalities[b]	905 (of 1,634)
Coral area[c]	~3,700 km^2
Mangrove area[c]	~1,500 km^2

Short-term Capacity Development

Training Manuals & Module Series

A. MANAGEMENT MODULE

Module 1: Applying Drivers-Pressures-State-Impact-Response framework in the marine environment

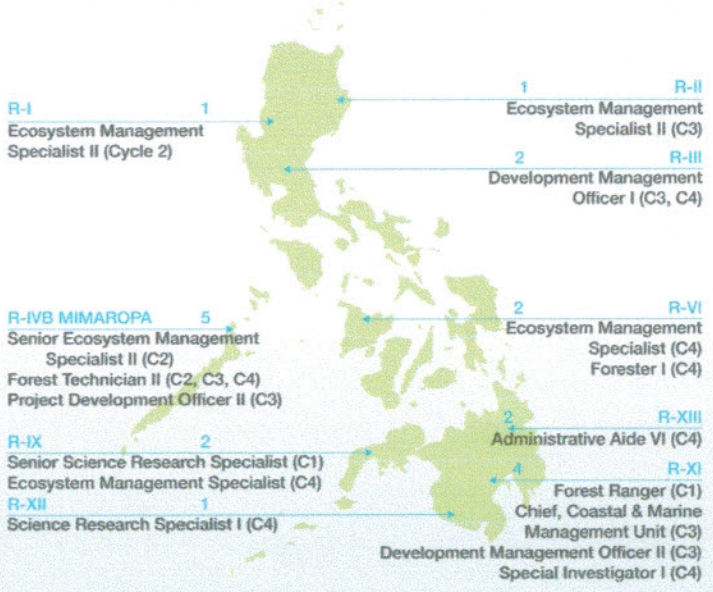
B. BIOPHYSICAL ASSESSMENT AND MONITORING MODULES

Module 2: Reconnaissance
Module 3: Coastal integrity
Module 4: Mangrove
Module 5: Seagrass
Module 6: Corals
Module 7: Fish
Module 8: Coral reef restoration
Module 9: Giant clam rehabilitation

C. GOVERNANCE & SOCIO-ECONOMIC MODULES

Module 10: Enforcement training in Marine Protected Areas
Module 11: Strategic Planning in Marine Protected Areas
Module 12: Sustainable financing in Marine Protected Areas

DENR Scholars of UP PM-TMEM



Long-term Capacity Development

Professional Masters in Tropical Marine Ecosystems Management (PM-TMEM)

A collaborative academic program jointly offered by UP Diliman, UP Visayas, and UP Los Baños that integrates science and experience to address social and ecological concerns important to biodiversity and marine conservation.

Recommendation

- It is best that coastal and marine managers and staff have a **background in tropical marine ecosystem management, marine biology or other allied fields.**

Data Source: DENR-BMB Coastal Assessment for Rehablitation Assessment: Capability Development and Resiliency of EcoSystems(CARE-CaDRES) Report (2019)

References: [a]NAMRIA 2016; [b]2015 Data from League of Cities of the Philippines (LCP) and League of Municipalities of the Philippines (LCM); [c]CARE-CaDREs Project: PhilCoMaRS–classified nationwide RS data based on 2017 LANDSAT