



Republic of the Philippines
Department of Environment and Natural Resources
MIMAROPA Region
PROVINCIAL ENVIRONMENT AND NATURAL RESOURCES OFFICE

DEC 23 2022

MEMORANDUM

FOR : The Regional Executive Director
DENR MIMAROPA Region
1515 DENR By the Bay Building, Roxas Boulevard,
Barangay 668, Ermita, Manila

THRU : The ARD for Technical Services

FROM : The OIC, PENR Officer

SUBJECT : **SUBMISSION OF 2022 ANNUAL REPORT OF APO REEF
NATURAL PARK –PROTECTED AREA MANAGEMENT
OFFICE**

Forwarded is the memorandum dated December 20, 2022 of CENRO Sablayan regarding submission OF 2022 Annual Report of the Apo Reef Natural Park (ARNP)-Protected Area Management Office (ARNP-PAMO). The report contains the accomplishments of the Office under the Protected Area Management and Development and Coastal and Marine Rehabilitation Subprograms.

Likewise, other accomplishments of the PA includes the Blue Park Awards, given by Conservation International last July 1, 2022 at 2022 United Nations Ocean Conference in Lisbon, Portugal and recognition from national agencies and local government units (LGU) for its Blue Park Award. The means of verification (MOVs) may be accessed through bit.ly/ARNP-MOV2022.

Attached are the detailed narrative report of Annual accomplishment of ARNP-PAMO with photo documentation

For information and record.


ERNESTO E. TAÑADA

TSD-CDS12/22/2022

Copy furnished:

1. Planning Section
2. File

So. Pag-asa, Brgy. Payompon, Mamburao, Occidental Mindoro
Email: penroccemin@denr.gov.ph





Republic of the Philippines
Department of Environment and Natural Resources
MIMAROPA Region
COMMUNITY ENVIRONMENT AND NATURAL RESOURCES OFFICE

December 20, 2022

MEMORANDUM

FOR : The Regional Executive Director
DENR MIMAROPA Region
1515 DENR By the Bay Building, Roxas Boulevard,
Barangay 688, Ermita, Manila

THRU : The OIC, PENR Officer
Mamburao, Occidental Mindoro

FROM : The CENR Officer

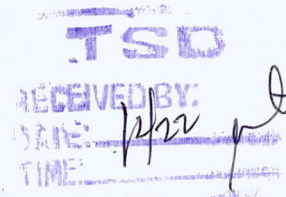
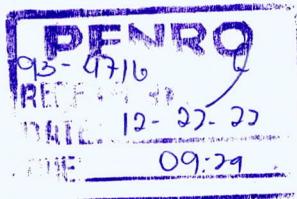
SUBJECT : SUBMISSION OF THE 2022 ANNUAL REPORT OF APO REEF
NATURAL PARK – PROTECTED AREA MANAGEMENT OFFICE

Respectfully forwarded is the 2022 Annual Report of Apo Reef Natural Park – Protected Area Management Office. The report contains the accomplishments of the Office under the *Protected Area Management and Development* and *Coastal and Marine Rehabilitation Subprograms*, as well as other accomplishments such as the Blue Park Awards. The Means of Verifications (MOVs) may be accessed through bit.ly/ARNP-MOV2022.

For your information and record.

For information and record.

FOR. ANASTACIO A. SANTOS, MPA





Department of Environment and Natural Resources
MIMAROPA Region
APO REEF NATURAL PARK
Protected Area Management Office



December 20, 2022

MEMORANDUM

FOR : The Regional Executive Director
1515 DENR By the Bay Building, Roxas Boulevard,
Barangay 668, Ermita, Manila

THRU : The OIC, PENR Officer
Mamburao, Occidental Mindoro

The CENR Officer

FROM : The Protected Area Superintendent

SUBJECT : SUBMISSION OF 2022 ANNUAL REPORT OF APO REEF
NATURAL PARK – PROTECTED AREA MANAGEMENT
OFFICE

Respectfully submitted is the 2022 Annual Report of Apo Reef Natural Park – Protected Area Management Office. The report contains the accomplishments of the Office under the *Protected Area Management and Development* and *Coastal and Marine Rehabilitation Subprograms*. It also includes other accomplishments such as the Blue Park Awards. The Means of Verifications (MOVs) may be accessed through bit.ly/ARNP-MOV2022.

For your information and record.


KRYSTAL DAYNE T. VILLANADA

Apo Reef Natural Park – Protected Area Management Office

2022 ANNUAL REPORT



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I. Executive Summary

Apo Reef Natural Park (ARNP) continues to face anthropogenic threats. For instance, its largest natural asset, the coral reefs, have seen a significant decrease from 2017 to 2020. Storms, which have been amplified by the rapidly changing climate, were reported as the likely cause of the decrease. With support from the University of the Philippines Los Baños, through the Spatio-temporal Monitoring and Rehabilitation of Coral Reefs (SMaRT-Corals) Project, we were able to acquire up-to-date condition of coral reefs within the Protected Area (PA). This year, the average hard coral cover is fairly the same with the estimates since 2020. While this may indicate that no significant disturbance has recently hit the coral reefs of ARNP, it also shows that the rate of recovery is slow. To assist the recovery of the reef, the Protected Area Management Office of ARNP (ARNP-PAMO) continued its law enforcement operations albeit the challenges it faced with its watercraft. Three groups of fisherfolks are now facing charges for illegally operating within the Protected Area. The ARNP-PAMO is also currently in-talks with the company of F/V Monalinda 85 which ran aground and damaged coral reefs within the PA on April of this year.

Aside from its coral reefs, several other ecosystems were monitored this year. The mangrove forest of Apo Island, the largest of the three islets within the PA, remains lush and in excellent condition. On the other hand, the sandy beach of the island continues to serve as conducive nesting habitat to both Green and Hawksbill turtles. As of this writing, 47 nests from both species have been recorded. Through the sea turtle nesting beach surveys, Park Rangers were also able to observe Black-naped Tern nest along the sandy beach. We conducted the first-ever ground counts for tern nests, in partnership with the Mindoro Biodiversity Conservation Foundation Inc. (MBCFI) and the Biodiversity Finance Initiative (BIOFIN), and recorded 273 eggs and 86 tern chicks in Apo Island and Tinangkapan. In addition to nesting tern species, other notable species of birds were recorded this year. These include 13 bird species that are first-time records for the PA. Most of which were documented by the Park Rangers such as the Common Myna and Fairy Pitta. The former only has two records in the Philippines while the latter has three. The astounding records are proof to the growing capacity and immense potential of Park Rangers, whether permanent or under Contract of Service.

This year marked the rebound of ecotourism in ARNP. It was finally opened to local, domestic, and foreign tourists at the start of April pursuant to Executive Order No. 14, series of 2022 issued by the Governor of Occidental Mindoro. This resulted to a great increase in revenue compared to last year. In fact, the income generated from ecotourism in April was already seven times more than the total amount earned from the entire 2021. From January to November 2022, we have already earned P1,094,937.00 yet this is still below pre-pandemic levels. Hence, we aim to improve protection of our natural assets and enhance visitors experience to increase revenue for ecotourism. We are also engaged with the Year of the Protected Area campaign to communicate the beauty of ARNP to a wider audience while inculcating the importance of its conservation.

ARNP was also awarded the prestigious Blue Park Award this year. The Award recognizes outstanding efforts by national governments, nonprofit organizations, MPA managers, and local communities *“to ensure that designated MPAs become places that truly safeguard biodiversity”*. ARNP is only the second Blue Park in the Philippines – next to Tubbataha Reefs Natural Park. It now joins a growing network of 24 awarded Blue Parks around the globe that have the highest science-based standards for conservation effectiveness. Moving forward, management is looking to become one of the Ramsar Wetlands of International Importance and ASEAN Heritage Parks.

II. Accomplishments

A. Protected Area Management and Development Subprogram

1. Protected Area Habitat Protection

a. Implementation of Biodiversity Monitoring System (BMS)

The four pre-established sites for transect swim were monitored during the dry and wet season of 2022. Higher abundance of coral-feeding butterflyfishes were recorded in Parolang Putol and San Antonio, likely indicating better coral reef health than Bahura 10 and Binanggaan (Figure 1). CoTS individuals were recorded in these coral-rich areas although in low numbers. Thorough searches for CoTS are recommended to be conducted in these sites. Among the four sites, Bahura 10 is the only site which showed a persistent decrease in terms of abundance of fish indicators after the major disturbances within late-2017 to 2019. These disturbances may have caused a larger HCC loss in the area which can result into a steep decline in reef fish community. More frequent patrolling should be conducted to ensure that illegal fishing activities do not impede with the recovery in this site, and other coral reef areas in ARNP which are facing continuous HCC loss based on Ticzon et al. (2022). The capacity of management staff on coral reef monitoring techniques, particularly fish identification and size estimation and benthic life form identification, should also be continuously developed.

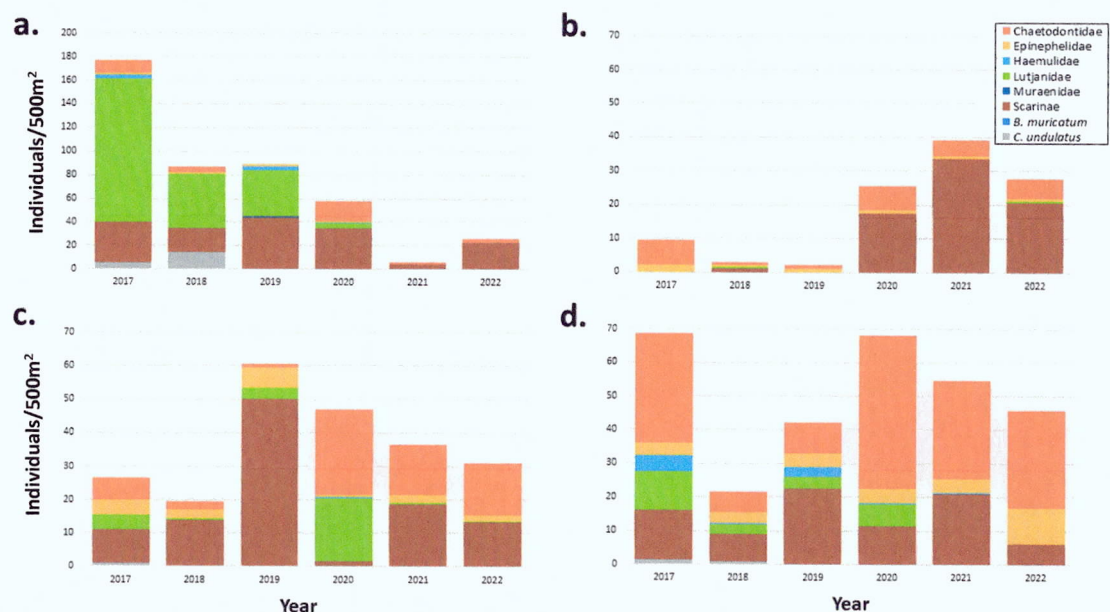


Figure 1. Average abundance of indicator fish per year from 2017 to 2022. a.) Bahura 10, b.) Binanggaan, c.) Parolang Putol, and d.) San Antonio.

The 1500-m transect at Apo Island was also surveyed twice this year using the transect walk method. The total count for the second semester was almost ten-fold the first semester primarily due to breeding Black-naped Terns in Apo Island (Figure 2). The most notable and numerous species was Black-naped Tern (*Sterna sumatrana*) with 368 individuals. This is the highest count of terns acquired around the same month in the last five years. Although this increase and the nesting of Black-naped Terns within the restricted area are good indications that human disturbance are minimized, initiatives addressing threats to different life stages of Black-naped Terns in the island

should be scaled-up. These shall include PA rules and regulations particularly in Apo Island in order to prevent the illegal entry of tourists to the important nesting area. Moreover, ways on minimizing disturbance to terns by foot traffic along the trail may be explored. Other threats to seabirds like marine litter and likely predation by invasive species should also be addressed.

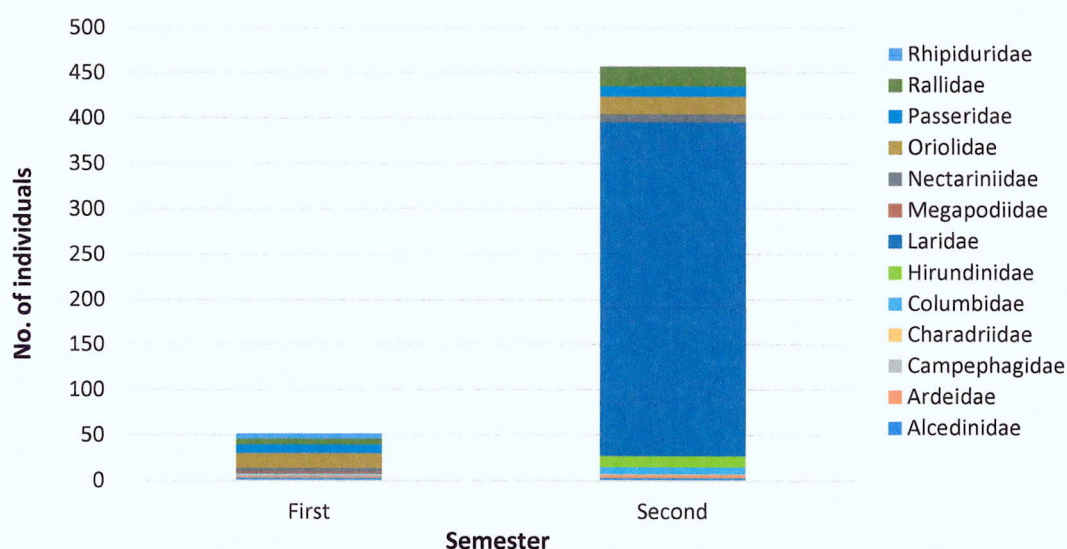


Figure 2. Count of birds during the first and second semester of 2022.

13 bird species have been recorded for the first time in Apo Reef Natural Park and its adjacent waters (Table 1). Two of which are accidental visitors with only a few records in the Philippines: the Pomarine Jaeger (*Stercorarius pomarinus*) and Fairy Pitta (*Pitta nympha*). The former has 20 records in the Philippines to date while the latter only has three. Ten of the 13 bird species, including the Fairy Pitta, were documented by Park Rangers Michael Dagdag, Temart Rebato, and Kelvin Zubiri during their regular foot patrols in Apo Island. The other two, the Pomarine Jaeger and Spotted Imperial Pigeon (*Ducula carola*) were spotted by volunteer birders during the bird surveys in January and July. Given these achievements, training programs on bird survey techniques involving Park Rangers, even those under Contract of Service, should be continuously supported and widened to include other skills aside from bird identification and counting such as bird photography.

Table 1. New bird records for ARNP from January to December 14, 2022.

| Common Name | Scientific Name | Range* | Conservation Status** | |
|--------------------------|--------------------------------|--------|-----------------------|-------------|
| | | | IUCN Red List | PH Red List |
| Chinese Pond-heron | <i>Ardeola bacchus</i> | M | LC | OWS |
| Schrenck's Bittern | <i>Ixobrychus eurhythmus</i> | M | LC | OWS |
| Pacific Golden Plover | <i>Pluvialis fulva</i> | M | LC | OWS |
| Oriental Dollarbird | <i>Eurystomus orientalis</i> | RM | LC | OWS |
| Common Myna | <i>Acridotheres tristis</i> | V | LC | OWS |
| Black-chinned Fruit-dove | <i>Ramphiculus leclancheri</i> | NE | LC | OWS |
| Metallic Pigeon | <i>Columba vitiensis</i> | R | LC | OWS |
| Spotted Imperial Pigeon | <i>Ducula carola</i> | R | VU | EN |
| White-breasted Waterhen | <i>Amaurornis phoenicurus</i> | M | LC | OWS |
| Fairy Pitta | <i>Pitta nympha</i> | A | VU | VU |
| White's Thrush | <i>Zoothera aurea</i> | M | LC | OWS |

| Common Name | Scientific Name | Range* | Conservation Status** | |
|---------------------|-------------------------------|--------|-----------------------|-------------|
| | | | IUCN Red List | PH Red List |
| Grey-tailed Tattler | <i>Tringa brevipes</i> | M | NT | OWS |
| Pomarine Jaeger | <i>Stercorarius pomarinus</i> | A | LC | OWS |

* R – Resident, M – Migrant, R/M – Resident and Migrant, A – Accidental, NE – Near Endemic

** OWS – Other Wildlife Species, LC – Least Concern, NT – Near Threatened, VU – Vulnerable EN – Endangered

Aside from the new bird records, one Marbled Water Monitor (*Varanus marmoratus*) was also recorded in the field diary after being captured with a noose trap (Figure 3). This species was recorded for the first time in 2020 and thus, it was determined to be potentially invasive. The individual was transported to mainland Sablayan, Occidental Mindoro and then to the Wildlife Rescue Center in San Jose, Occidental Mindoro.



Figure 3. Marbled Water Monitor captured from Apo Reef Natural Park. The individual was tied loosely for the collection of morphometric measurements.

b. Communication, Education, and Public Awareness (CEPA)

The ARNP-PAMO has produced two CEPA materials this year: a biodiversity magazine and a photographic field guide. Our goal in publishing these was to improve environmental education and compliance with policies within the MPA by providing a free, informative resource for tour operators, tour guides, and tourists. 100 copies of the biodiversity magazine and a copy of the photo checklist of species have been successfully delivered by JJ Asilo Advertising.

The biodiversity magazine entitled Apo Reef: Exploring the Largest Contiguous Reef System in the Philippines provides an introduction to the coral reef biodiversity of Apo Reef Natural Park. It features several reef builders, associated vertebrates, and associated macroinvertebrates that occur and interact within the Marine Protected Area (MPA). Meanwhile, the photo checklist is entitled A Photographic Field Guide to the Birds of Apo Reef Natural Park. 96 species of birds are included and described briefly in this field guide. These two CEPA materials aim to improve environmental education and compliance with policies within the MPA by providing a free, informative resource to stakeholders including tour operators, tour guides, and members of the academe.

2. Protected Area Management Board (PAMB) Operationalization

a. Capacity Building

A training needs assessment (herein referred to as TNA) of Protected Area Management Office (PAMO) staff and Protected Area Management Staff was conducted to measure their level of understanding on the following a) salient features of Republic Act 11038 as amended by Republic Act 7586 and its implementing rules and regulations (IRR), b) target-related and other technical competencies (specifically relevant Department Administrative Orders and BMB Technical Bulletins), and c) legal and policy framework for biodiversity conservation and environmental management. Four of the nine PAMB members participated in the TNA which was held at Las Piñas-Parañaque Wetland Park on July 7, 2022. Meanwhile, the training needs of the six PAMO staff were assessed on July 18, 2022.

The results of the TNA showed that the PAMB was most knowledgeable on legal and policy framework for biodiversity conservation and environmental management while PAMO was most knowledgeable on the salient features of the E-NIPAS Act and its IRR. Six trainings were proposed for the PAMB (Table 2). These were mainly focused on PAMB related processes such as manual of operations development, protected area management planning, and management effectiveness assessment. The total budget proposed for the trainings, which are strategically distributed across 2023 to 2033, is P1,025,000.00. On the other hand, 12 training activities were proposed for the PAMO (Table 3). These are primarily aimed at improving the technical knowledge/capacity of PAMO staff in ecological monitoring methods. The total budget for these was P1,870,000.00.

Lectures and discussions with open forum were the most preferred training or learning method by both groups. It is also important to highlight that PAMO equally prefers practicum or practical exercises. Both groups highly preferred invited experts and academe as resource persons. These received the highest score for PAMB while they were the second-highest for PAMO. The most preferred resource persons of PAMO were non-governmental organizations. This may reflect effective capacity building activities implemented by NGOs that are closely knit to the Office such as Mindoro Biodiversity Conservation Foundation Inc. and World Wildlife Fund of the Philippines. Another key finding taken into consideration in the formulation of the plan was the preferred frequency of training. The most preferred frequency for PAMO is four times in a year while it is twice a year for the PAMB. The latter may be due to the commitment of the PAMB to their respective agencies or organizations.

Table 2. Capacity building for ARNP-PAMB from 2023 to 2033.

| APO REEF NATURAL PARK | | | | | | | | | | | | | |
|---|--|---|---|-----|---------------|----------|------|------|------|------|------|------|--------------|
| CAPACITY BUILDING (TITLES/SUBJECT) | LEARNING OBJECTIVES | DESIRED OUTCOMES | TARGET LEARNERS | | | SCHEDULE | | | | | | | |
| | | | NAME OF ENTITY | NO. | POSITIONS | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | BUDGET (Php) |
| Orientation on ENIPAS Act | Provide orientation / refresher to the new and existing members of the PAMB regarding the provisions of the ENIPAS Act | Commitment and improved performance of the PAMB members on their duties and responsibilities in the fulfillment of the Vision and Mission of the PA | | 15 | | | | | | | | | 45,000.00 |
| Updating of Manual of Operations of Protected Area Management Board | To familiarized and to provide deeper understanding in the operation and management of the protected area | Committed and self-reliant members of the Board | MBCFI, PCGA, WWF, LGU SABLAYAN, PGO OCC MINDORO, NEDA, OFFICE OF THE REPRESENTATIVE, PUP SABLAYAN | 15 | PAMB and PAMO | | | | | | | | 45,000.00 |
| Management Effectiveness Assessment | To assess the management strategies in Apo Reef Natural Park | MEA Report/ Enhanced management strategies in ARNP | | 15 | | | | | | | | | 45,000.00 |
| Refresher course on Protected Area Planning (PAMP, Ecotourism, Finance Plan etc.) | To provide planning skills to members of the Board | Capacitated PAMB members on Dealing of PAMP and other PA plans | | 15 | | | | | | | | | 45,000.00 |
| Updating of Memorandum of Agreement with the Local Government Unit/ Orientation of LGU Code | To harmonize the operation of ARNP with the operation of LGU | Updated MOA | | 15 | | | | | | | | | 45,000.00 |
| Cross Visit to Other Protected Areas | To expose PAMB Members and PAMO Staff to other management strategies of different PAs | Adoption of best Practices of other PAs | | 20 | | | | | | | | | 800,000.00 |

Table 3. Capacity building for ARNP-PAMO from 2023 to 2033.

| APO REEF NATURAL PARK | | | | | | | | | | | | | | | | | |
|---|--|---|-----------------|-------------------------|--------------------------------|----------|------|------|------|------|------|------|------|------|------|--------------|------------|
| CAPACITY BUILDING (TITLE/SUBJECT) | LEARNING OBJECTIVES | DESIRED OUTCOMES | TARGET LEARNERS | | | SCHEDULE | | | | | | | | | | BUDGET (Php) | |
| | | | NO. | OFFICES | POSITION S | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | | 2033 |
| Refresher course on IRR of ENIPAS | To refresh personnel on the salient features of ENIPAS Act | Personnel who can well - implement the IRR of ENIPAS | 25 | ARNP PAMO/ LGU Sablayan | PASU, Park Rangers, CEPA Staff | | | | | | | | | | | | 250,000.00 |
| Refresher course on Protected Area Planning (PAMP, Ecotourism, Finance Plan etc.) | To refamiliarize the PAMO in the updating of the management plan in 2031 | Updated PAMP of ARNP | 3 | ARNP PAMO | Admin Staff, Technical Staff | | | | | | | | | | | | 18,000.00 |
| Workshop on Environmental Impact Assessment | To be able to determine the impact of ecotourism activities in the biodiversity of ARNP | Impact Assessment Report | 2 | ARNP PAMO | PASU, Technical Staff | | | | | | | | | | | | 12,000.00 |
| Workshop on the Delineation and Management Zoning of Protected Area | To prepare for the updating of management zone of ARNP as a component of PAMP | Updated Management Zone | 2 | ARNP PAMO | PASU, Technical Staff | | | | | | | | | | | | 12,000.00 |
| Capacity Building on Biodiversity Monitoring System (BMS) | To familiarize and review PAMO Staff on standard method and report writing using BMS | Capacitated PAMO Staff | 15 | ARNP PAMO/ LGU Sablayan | Park Rangers, Technical Staff | | | | | | | | | | | | 160,000.00 |
| Capacity Building on Biodiversity Assessment and Monitoring System (BAMS) | To familiarize and review PAMO Staff on standard method and report writing using BAMS | Capacitated PAMO Staff | 15 | ARNP PAMO/ LGU Sablayan | Park Rangers, Technical Staff | | | | | | | | | | | | 160,000.00 |
| Capacity Building on Coral Reef Assessment, Fish Visual Census and Bird Census, | To improve the capacity of PAMO in monitoring of resources | Capacitated PAMO Staff | 15 | ARNP PAMO/ LGU Sablayan | Park Rangers, Technical Staff | | | | | | | | | | | | 600,000.00 |
| Training on Basic Photography, videography and CEPA Materials Writing | To capacite PAMO Staff on using available photo and video deives | Better quality of photo and video documentation | 15 | ARNP PAMO/ LGU Sablayan | Park Rangers, Technical Staff | | | | | | | | | | | | 160,000.00 |
| Learning event on environmental guidelines for sustainable tourism | To refresh and review Staff on guidelines for sustainable tourism | Capacitated Staff and decreased pressure from ecotourism activities | 15 | ARNP PAMO/ LGU Sablayan | Park Rangers, Technical Staff | | | | | | | | | | | | 160,000.00 |
| Workshop on Valuation of Resources in Protected Areas | To be able to determine the value of resources | Valuation Report | 3 | ARNP PAMO | PASU, Technical Staff | | | | | | | | | | | | 18,000.00 |
| Orientation on Water Code of the Philippines (PD 1067) and amended IRR of 2005, Clean Water Act (RA 9275), Climate Change Act (RA 9729) | To have a basic knowledge on related laws | Capacitated Staff | 15 | ARNP PAMO/ LGU Sablayan | Park Rangers, Technical Staff | | | | | | | | | | | | 160,000.00 |
| Orientation on the Fisheries Code(RA 8550) | To mainstream the law enforcement of BFAR with PAMO as part of the operation of TIF MARLEN | PAMO staff well-capacitated with Fisheries Code | 15 | ARNP PAMO/ LGU Sablayan | Park Rangers, Technical Staff | | | | | | | | | | | | 160,000.00 |

b. PAMB Meetings

The Protected Area Management Board (PAMB) of Apo Reef Natural Park is currently comprised of nine members (Table 4). The National Economic and Development Authority - MIMAROPA Region officially became a member of the PAMB this year. The following sectors/offices are still not represented in the PAMB: Department of Agriculture, Department of Science and Technology, Philippine National Police, Department of National Defense, and the private sector.

Table 4. Existing members of the ARNP-PAMB.

| Name | Position/Affiliation |
|--------------------------------------|---|
| Lormelyn E. Claudio | Regional Executive Director, DENR MIMAROPA |
| Leody F. Tarriela | Representative, Office of the Representative, Lone District of Occidental Mindoro |
| Mr. John Paul C. Ramos | Representative, Office of the Provincial Governor |
| Fernando B. Dalangin | Representative, Office of the Mayor, LGU Sablayan |
| Mr. Algene Edward M. Francisco | Representative, Polytechnic University of the Philippines – Sablayan Campus |
| Capt. Roberto S. Rodil | Division Director, Philippine Coast Guard Auxiliary 506.2 Division, Sablayan |
| EnP Agustin Mendoza | Regional Director, National Economic and Development Authority – MIMAROPA |
| Ms. Apolonia Marie Grace C. Diamante | Executive Director, Mindoro Biodiversity Conservation Foundation, Inc. |
| Mr. David N. David | Fisheries Technical Officer, World Wildlife Fund Philippines |

The PAMB has conducted five meetings as of December 15, 2021: four of them were regular meetings while one was a special meeting. Furthermore, 14 resolutions are already approved by the PAMB. The PAMB meetings conducted and resolutions approved are summarized in Table 5.

Table 5. Resolutions passed by the ARNP-PAMB within 2022.

| Date of PAMB Meeting | Resolution No. | Resolution Title |
|-----------------------------|-----------------------|---|
| February 3, 2022 | 2022-01 | <i>Approving the CY 2022 Work and Financial Plan of Apo Reef Natural Park and Authorization the Utilization of Php 5,206,000.00 from Fund 104 – 344 (ARNP IPAF PA-RIA)</i> |
| | 2022-02 | <i>Supplementing the PAMB Resolution No. 2020-001, Establishment of Two Additional Water Quality Monitoring and Assessment Sites in Apo Reef Natural Park</i> |
| | 2022-03 | <i>Resolution Adopting the Sangguniang Bayan Resolution No. 2017-SDM044 and Sangguniang Bayan Resolution Signifying the Intent and Interest of the Municipality of Sablayan, Occidental Mindoro for the Inclusion of the Apo Reef Natural Park to be Recognized as Ramsar Sites, ASEAN Heritage Parks and Reserves in the Philippines</i> |
| May 4, 2022, | 2022-04 | <i>Restricting the SCUBA Diving Activities in Apo Reef Natural Park to Certified Divers Only</i> |
| | 2022-05 | <i>Requiring the RBL Fishing Corporation to Compensate the Damage on Coral Reef Brought</i> |

| Date of PAMB Meeting | Resolution No. | Resolution Title |
|----------------------|----------------|---|
| | | <i>About by the Grounding of F/V Monalinda 85 at Apo Reef Natural Park, Amounting to P2,298,720.00</i> |
| | 2022-06 | <i>Approving the Supplemental Work and Financial Plan for CY 2022 of Apo Reef Natural Park Amounting to P390,000.00 from Fund 104-334 (ARNP PA IPAF-RIA)</i> |
| | 2022-07 | <i>Providing Annual Dive Insurance to All Regular Employees of ARNP-PAMO that are Certified SCUBA Divers to be Charged Under Fund 104-334 (ARNP PA IPAF-RIA)</i> |
| | 2022-08 | <i>Allowing the Utilization of Helipad in Apo Reef Natural Park for Emergency Purposes Only and Restricting the Landing of Sea Planes and Helicopters for Any Other Purposes</i> |
| July 26, 2022 | 2022-09 | <i>Resolution Amending Resolution No. 12 Series of 2022 Re: Resolution Requiring the RBL Fishing Corporation to Compensate the Damage on Coral Reef Brought About by the Grounding of F/V Monalinda 85 at Apo Reef Natural Park Amounting to P2,298,720.00 Decreasing the Amount to P1,700,000.00</i> |
| November 28, 2022 | 2022-10 | <i>Resolution Allowing the Mindoro Biodiversity Conservation Foundation, Inc. (MBCFI) to Collect Derivatives in Apo Reef Natural Park for the Mindoro Biodiversity Conservation Center (MBCC)</i> |

c. Management Effectiveness Assessment

The management effectiveness in Apo Reef Natural Park was evaluated during the last quarter of the year. The Management Effectiveness Tracking Tool (METT) was the specific tool used in the assessment. The METT was filled in by the management of the Protected Area particularly the members of its PAMB.

Using the METT, the threats to the Protected Area were identified and ranked. The five major threat categories with the highest average percentage score were a) climate change and severe weather, b) human intrusions and disturbances, c) invasive and other problematic species and genes, d) pollution, and e) transportation and service corridors. Accordingly, climate change and severe weather was the sole category which was identified to have *medium* significance. Two of the four threats under this category (temperature extremes and habitat alteration and alteration) were among the ten threats with highest percentage scores (Table 7). These results agree with the recent findings of coral reef surveys in Apo Reef Natural Park that revealed that there has been a significant decrease in hard coral cover in the Protected Area, and corresponding increase in algae cover. The decrease is mainly attributed to Crown-of-Thorns Starfish (CoTS) outbreaks which may be caused by an increase in sea temperature. Sewage and waste water from Protected Area facilities, which was also identified as a top threat, may similarly be linked to the CoTS outbreaks.

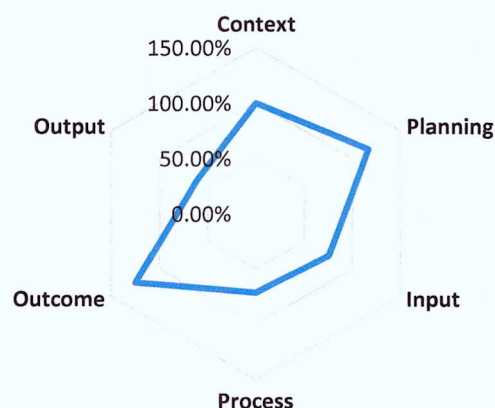
Table 6. Five major threat categories with the highest average percentage score.

| MAJOR CATEGORY OF THREAT | AVERAGE PERCENTAGE SCORE | INDICATIVE QUALITATIVE RATING |
|--|--------------------------|-------------------------------|
| Climate change and severe weather | 36% | Medium |
| Human intrusions and disturbances | 28% | Low |
| Invasive and other problematic species and genes | 24% | Low |
| Pollution | 17% | Low |
| Transportation and service corridors | 15% | Low |

Table 7. Ten threats and stressors with the highest percentage score.

| THREAT/STRESSOR | PERCENTAGE SCORE | FREQUENCY | | | |
|--|------------------|-----------|------------|---------|---------------|
| | | High (3) | Medium (2) | Low (1) | N/A or ND (0) |
| Temperature extremes | 61% | 3 | 0 | 2 | 1 |
| Shipping lanes and canals | 56% | 1 | 3 | 1 | 1 |
| Garbage and solid waste | 56% | 1 | 2 | 3 | 0 |
| Recreational activities and tourism | 50% | 1 | 1 | 4 | 0 |
| Invasive non-native/alien plants (weeds) | 50% | 2 | 1 | 1 | 2 |
| Habitat-shifting and alteration | 50% | 3 | 0 | 0 | 3 |
| Loss of support to communities and projects due to changes in political leadership possible impact in change of leadership | 44% | 1 | 1 | 3 | 1 |
| Invasive nonnative/alien animals | 39% | 0 | 2 | 3 | 1 |
| Sewage and waste water from protected area facilities | 39% | 0 | 2 | 3 | 1 |
| Erosion and siltation/deposition (e.g., shoreline or riverbed changes) | 39% | 0 | 2 | 3 | 1 |

The overall management effectiveness rating of ARNP is 91.63% which falls under the high performing protected areas. This rating includes both the score from the core questions as well as bonus points acquired from additional practices. The core score is 77.25%, while the score from the additional bonus points totals 14.38%. The bonus points are important indicators of progress in terms of the process and higher-level practices for Protected Area.

**Figure 4.** Summary of the current METT Score of ARNP.

3. Protected Area Operationalization

Ten PAMO staff (seven Park Rangers and three Support Staff) were hired for the first semester (Table 8). The same set of Park Rangers were re-hired during the second semester under the same fund source. Meanwhile, the three Support Staff was hired under IPAF PA-RIA during the second semester.

Table 8. PAMO Staff hired in 2022.

| Name | Position |
|----------------------------------|---------------|
| Sherwin R. Benozza | Park Ranger |
| Stephany Kenneth Khen B. Colesio | Park Ranger |
| Michael D. Dagdag | Park Ranger |
| Federico A. de Jesus | Park Ranger |
| Ludygario D. Matira | Park Ranger |
| Temart E. Rebato | Park Ranger |
| Kelvin U. Zubiri | Park Ranger |
| Ricky M. Dantayana | Support Staff |
| Jun G. Serquiña | Support Staff |
| Salvador M. Ciasico* | Support Staff |
| Rendel Jay Tulaylay** | Support Staff |

*Contract was not renewed in July 2022

**Contract terminated by November 2022

These PAMO staff has been integral to the accomplishment of all targets of ARNP-PAMO. They have been closely involved with ecological monitoring activities including the implementation of the Biodiversity Monitoring System. This year, they were able to record nine bird species that were first-time records for ARNP. They also captured the potentially invasive monitor lizard individual that was first recorded within the Protected Area in 2020.

4. Integrated Protected Area Fund (IPAF)

The Protected Area was finally opened to local, domestic, and foreign tourists in April. This was pursuant to Executive Order No. 14, series of 2022 issued by the Governor of Occidental Mindoro. The loosening of travel restrictions resulted to the more than 38-times increase in tourist arrivals compared to the same period last year. In fact, the number of tourist arrivals in April is already seven times more than the total number for the whole of 2021. The income generated from tourism from January to November 2022 was P1,094,937.00. Income generation was highest in November (P352,630.00), followed by April (P220,495.00) and May (P218,214.00).

While the recent figures confirm the gradual recovery of ecotourism in the Protected Area, income generation from January to November 2022 still remained below pre-pandemic levels (Figure 5). For instance, the income is 85% less than that of 2019 (P7,665,906.4). To assist the recovery of ecotourism, the ARNP-PAMO will be implementing stronger initiatives in a) protecting its natural assets and b) improving the quality of guest experiences.

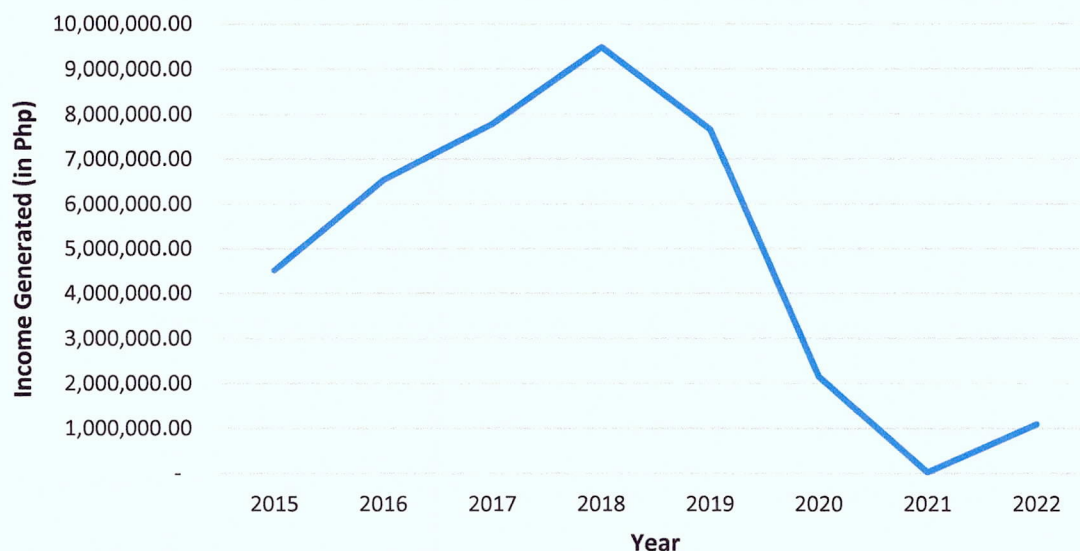


Figure 5. Income generated from ecotourism in ARNP from 2015 to 2022.

B. Coastal and Marine Rehabilitation Sub-Program

1. MPA Management, Strengthening, and Networking

a. Monitoring of Corals and Mangroves

Coral Reef Monitoring

The fifteen pre-established coral reef monitoring stations were sampled last March. The HCC estimate in ARNP is 10.41% which is at the lower threshold of HCC Category D (0-22%) and less than half of the reported HCC in 2017 (21.2%) (Figure 6). This is also much lower than the regional (WPS Bioregion) and nationwide estimates which are 21.2% and 22.8%, respectively. Contrastingly, coral diversity (as TAUs) in ARNP (22 TAUs) remained within the same category as that of the WPS Bioregion (Diversity Category C) (Figure 7).

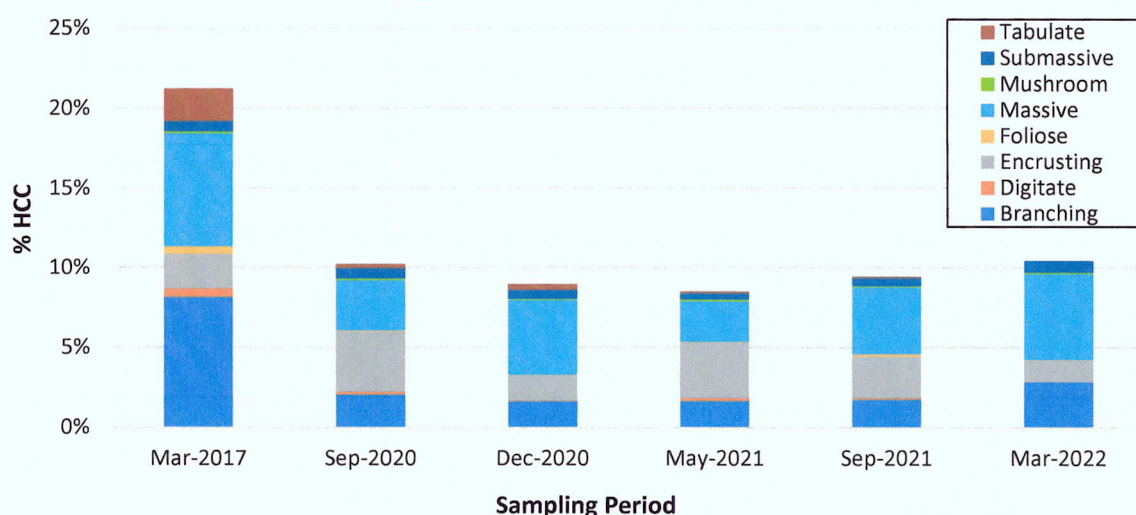


Figure 6. Changes in the overall average cover of coral growth forms from 2017 to 2022.

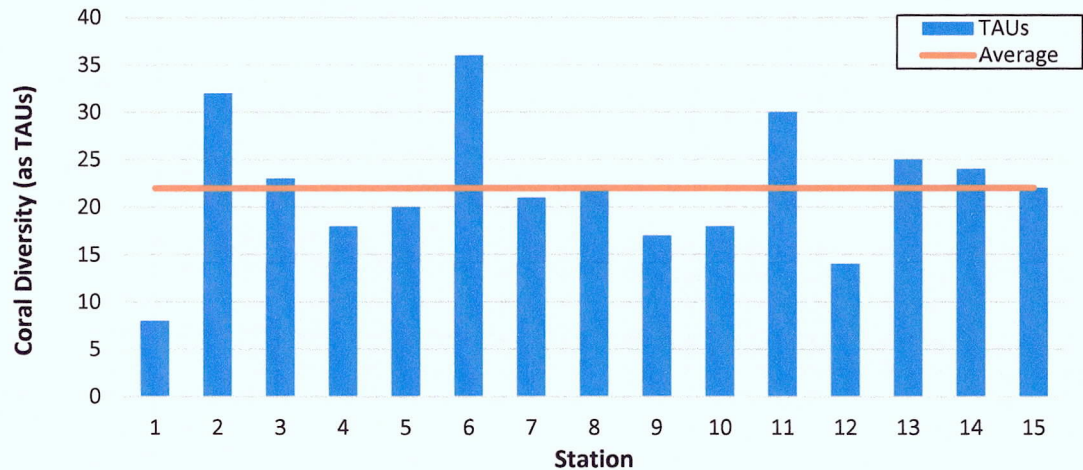


Figure 7. Average coral diversity (as TAU's) in the 15 monitoring stations in Apo Reef Natural Park.

Acute stressors, particularly storms and CoTS outbreaks, may be attributed for the more than 10% decrease in HCC from 2017 to 2020. Evidence of recovery following the major disturbances was only observed in few monitoring stations. The slow recovery of coral reef areas in ARNP may be the outcome of combined impact of smaller outbreaks of CoTS and storms (Typhoon Quinta and Typhoon Rolly) which followed the major disturbances. The increase in algal cover, excluding CCA cover, may also be exacerbating the effects of these stressors specifically by inhibiting the settlement of coral larvae, increasing the mortality of coral juveniles, and overgrowing adult corals.

Despite the more than observed decrease in HCC, communities of reef-associated macroinvertebrates and reef fish did not reflect a similar magnitude of change (Figures 8-11). For reef-associated macroinvertebrates, only crinoids showed a decrease in abundance and this may be attributed to the loss of structurally complex coral growth forms. Similarly, species richness and abundance as well as biomass of reef fish remained fairly similar pre-disturbance estimates. These findings may indicate that reef-associated macroinvertebrate and fish communities are more resilient and are able to recover at a faster rate than hermatypic corals. Although reef-associated macroinvertebrate and fish communities have remained stable in the recent years, further coral cover loss may cause these communities to decline sharply.

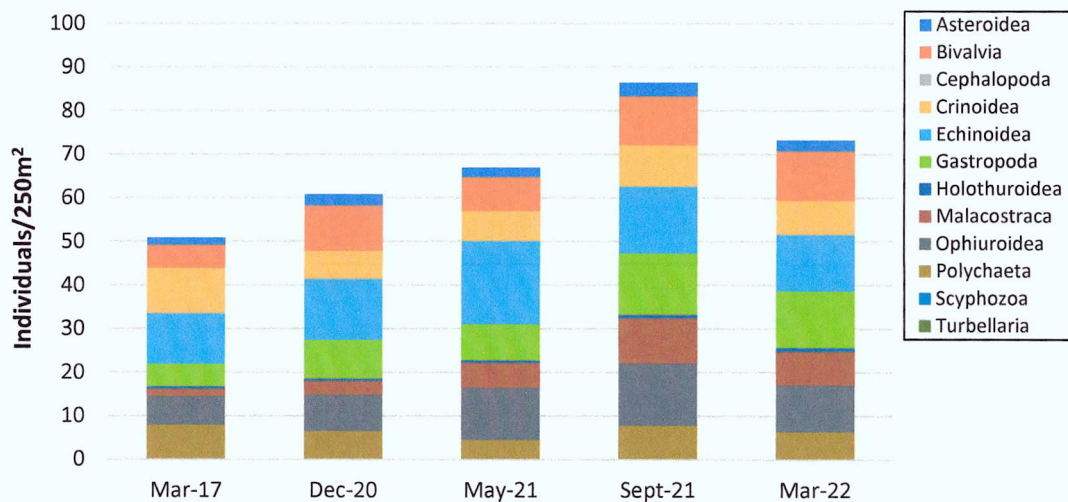


Figure 8. Overall average macroinvertebrate abundance in the 15 monitoring stations in Apo Reef Natural Park since 2017.

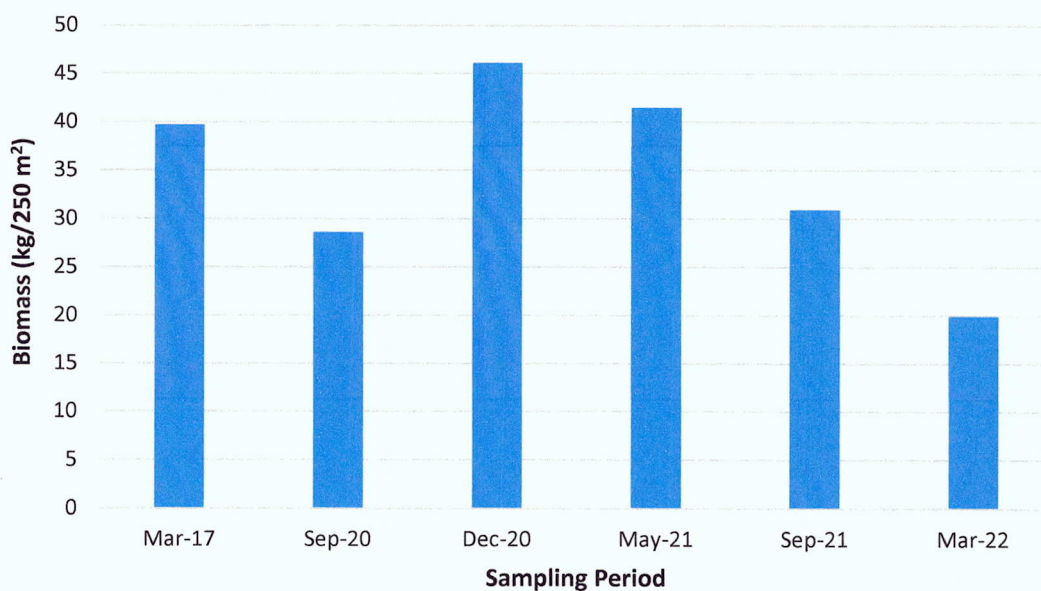


Figure 9. Overall average fish biomass (in kg/250 m²) in Apo Reef Natural Park from 2017 to 2022.

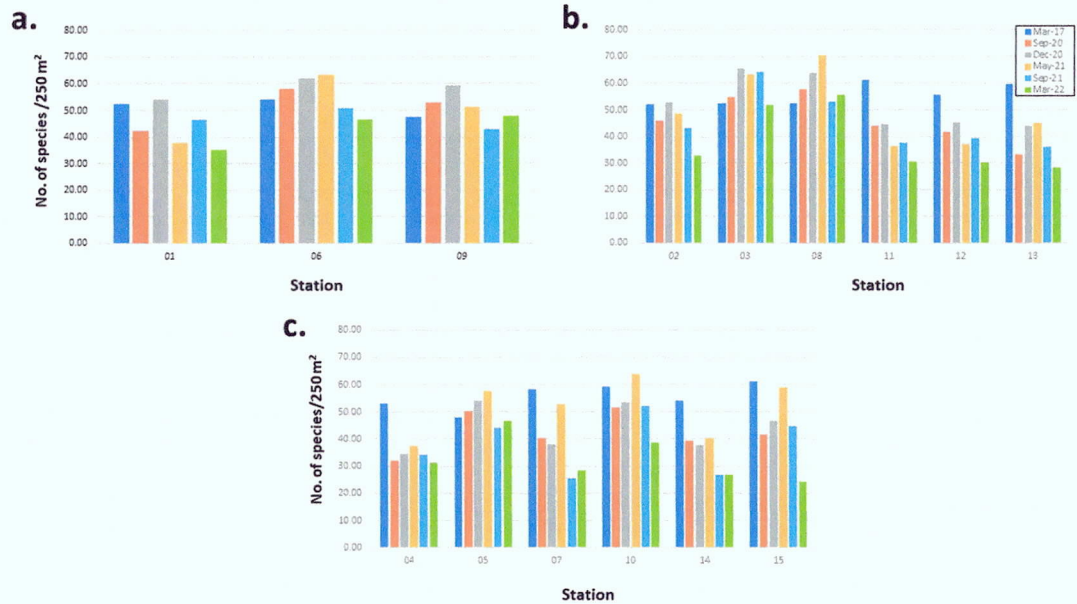


Figure 10. Average fish species richness in the 15 monitoring stations in Apo Reef Natural Park in 2017, 2020, 2021, and 2022. A) Apo Island stations, B) northern stations, and C) southern stations.

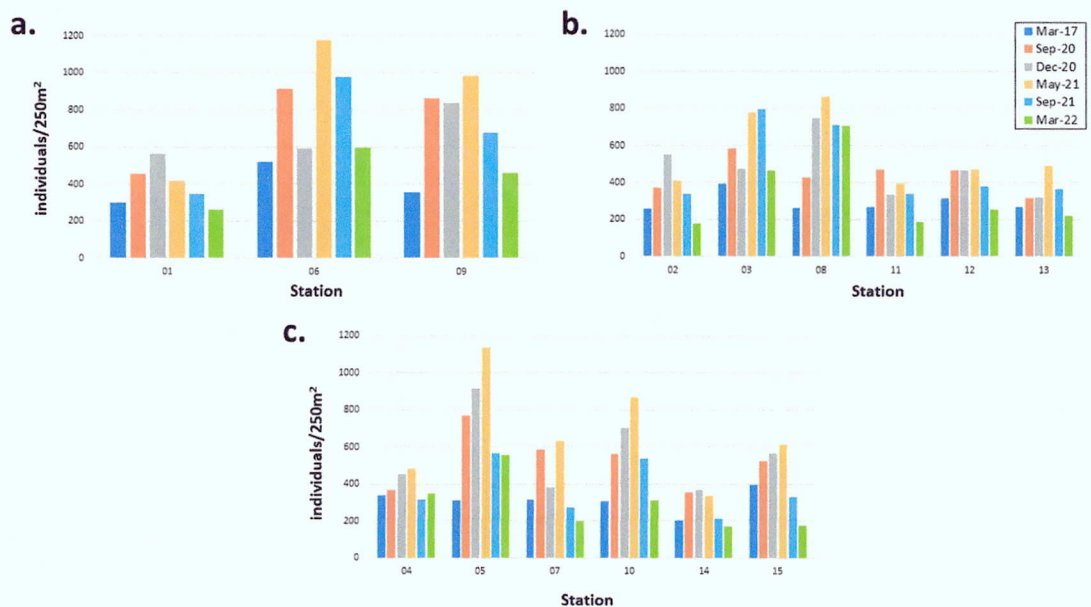


Figure 11. Average fish abundance in the 15 monitoring stations in Apo Reef Natural Park in 2017, 2020, 2021, and 2022. A) Apo Island stations, B) northern stations, and C) southern stations.

Mangrove Forest Monitoring

Seven of the 11 known species of true mangroves in the island were identified during the survey. These were namely, *B. cylindrica*, *R. apiculata*, *R. mucronata*, *R. stylosa*, *P. acidula*, *S. alba*, and *X. rumphii*. All of these species are listed under *Least Concern* in the IUCN Red List of Threatened Species however, *P. acidula* is also classified as *Endangered* under DENR Administrative Order 2017-11. *R. mucronata* is the most ecologically important species based on IVI (152.91), followed by *R. apiculata*.

(65.64) (Table 8). These two occurred in all zones, but specifically dominated the middle and seaward zone. *B. cylindrica*, *S. alba*, and *X. rumphii* were restricted in the landward margin of the mangrove forest. In terms of crown cover, total height, and level of disturbance, the mangrove forest still falls under *Excellent Condition* based on Deguit et al. (2017). Ultimately, this assessment suggests that the mangrove forest in Apo Island, Apo Island Natural Park is a well-conserved ecosystem.

Table 8. Relative density, frequency, and dominance, and importance value of mangroves in Apo Island, Apo Reef Natural Park.

| Species | Relative Density | Relative Frequency | Relative Dominance | Importance Value |
|-----------------------------|------------------|--------------------|--------------------|------------------|
| <i>Bruguiera cylindrica</i> | 11.54 | 20.95 | 12.90 | 45.39 |
| <i>Rhizophora apiculata</i> | 26.92 | 22.30 | 16.42 | 65.64 |
| <i>Rhizophora mucronata</i> | 46.15 | 53.38 | 45.16 | 144.70 |
| <i>Rhizophora stylosa</i> | 3.85 | 0.68 | 0.10 | 4.63 |
| <i>Sonneratia alba</i> | 7.69 | 1.35 | 23.98 | 33.02 |
| <i>Xylocarpus rumphii</i> | 3.85 | 1.35 | 1.43 | 6.63 |

It is recommended that monitoring plots be established at Binanggaan in the future. Tabaranza et al. (2014) reported small stands of *Rhizophora* spp. and *Sonneratia* spp. on this island. Furthermore, the management staff shall be capacitated in conducting more advanced methodologies such as, but not limited to, carbon stock assessment.

b. Water Quality Monitoring within Legislated NIPAS PAs

Seven monitoring stations were sampled for surface water and groundwater on May and August. The stations passed the set standard (Class SA and B) for most of the water quality parameters measured. Results suggest that the domestic wastewater coming from Apo Island is effectively controlled or treated given the consistently low levels of nutrients (nitrate and phosphate) and fecal coliform in monitoring stations proximal to the existing septic tank systems (Figure 12). Hence, the bathing beach and groundwater remains safe for bathing and domestic use, respectively.

Oil and grease was the only water quality parameter wherein the monitoring stations failed consistently (Figure 13). Marine transport activities remain to be the most likely source of the increased oil and grease recorded which ranged from 2 to 3 mg/L. Being proximal to navigational shipping lanes, the Protected Area is mainly exposed to oil discharge from Ropax and cargo vessels. Commercial and small-scale fishing boats and recreational boats operating inside or outside the Protected Area may also be contributing to oil pollution in the area but to a lesser extent.

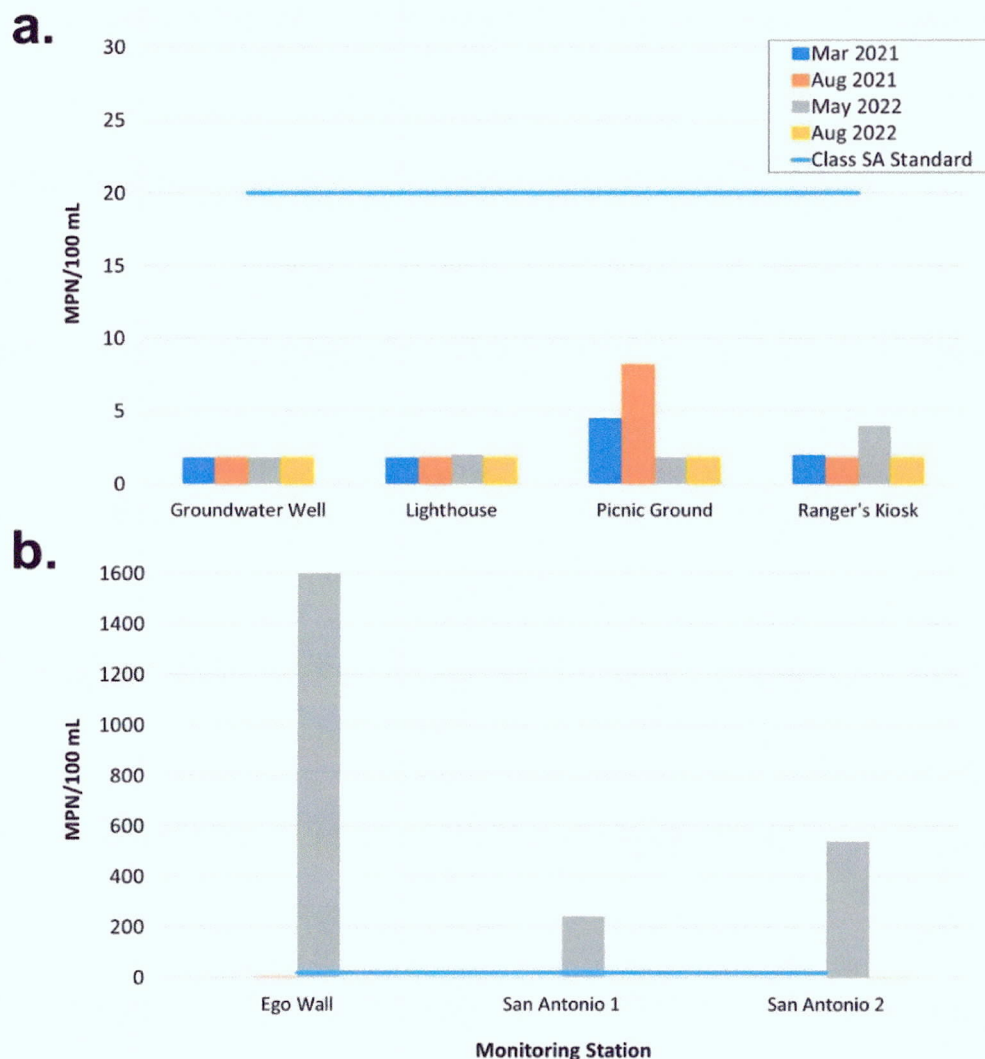


Figure 12. Fecal coliform count across the offshore (a) and island monitoring stations (b) from 2021 to 2022.

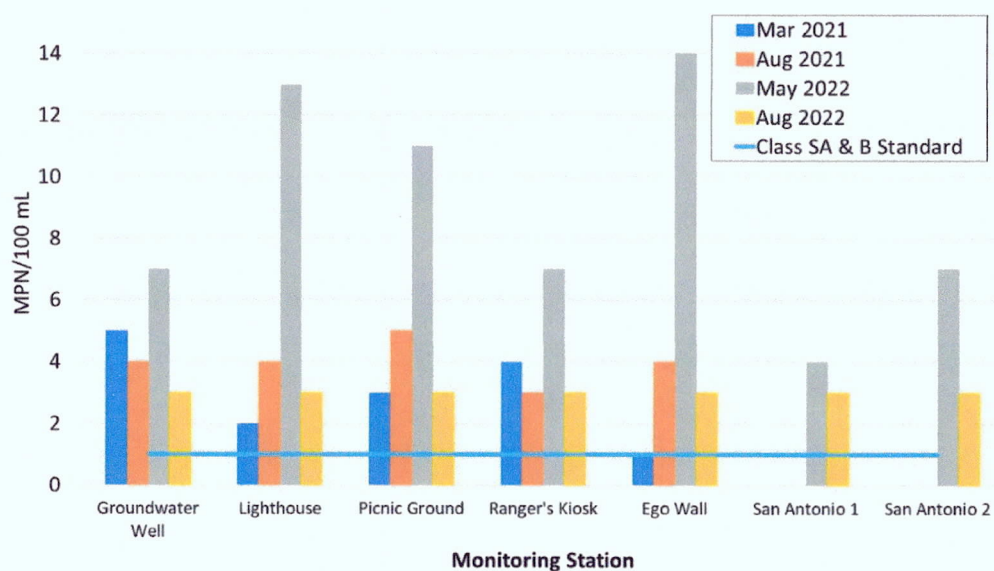


Figure 13. Oil and grease concentration across the monitoring stations from 2021 to 2022.

It is recommended that other quality assurance and control measures, like the collection of field blank, equipment blank, and field duplicates, be taken when more funding becomes available. Sampling sites within the Protected Area may be increased afterwards to improve the generality of the findings. Aside from these, the Maritime Industry Authority (MARINA) should be consulted for feasible actions addressing the increased oil and grease levels within the MPA and response plans for major accidents which may lead to oil spills should be developed.

c. Maintenance and Protection of Coastal and Marine Ecosystems

i. Patrolling

The 15,799.23-hectare core zone of ARNP was patrolled this year. Operations were greatly decreased in the last three quarters of the year because most watercraft of ARNP were nonfunctional and undergoing repair. To compensate for the decrease, the Park Rangers increased their foot patrols within Apo Island and surveillance effort from the lighthouse.

Three groups of fisherfolks were apprehended this year. The group that was intercepted on January 28, 2022, at approximately 3.5 km from Cajos del Bajo, were comprised of Darwin I. Arabis, Jeto P. Agbo, Jerick Agbo, and Jorven Trangeja. Criminal cases were filed against these fishermen in violation of Republic Act 11038 or the Expanded National Integrated Protected Areas System Act of 2018. Darwin I. Arabis and Jeto P. Agbo were acquitted of the crimes they were charged with on August 8, 2022. Meanwhile, the trial of Jerick Agbo and Jorven Trangeja is ongoing. The two other groups of fisherfolks composed of Roquito Francisco Dioso, Robert Caspillo Natumbo, and Jayar Arcelo Agustin were apprehended on December 13, 2022 within Bahura 7. The inquest of the fisherfolks was conducted on December 14, 2022.

The Park Rangers were also able to encounter two pieces of large debris on November 9, 2022. These were suspected to be from a Chinese Long March rocket. Parts of the debris were retrieved by Coast Guard Sub-station Sablayan on November 10, 2022, and it was transported back to mainland Sablayan on November 11, 2022.

ii. Habitat Survey

Nesting Beach Surveys

Nesting beach surveys are conducted at Apo Island, ARNP in the morning and night. During daytime surveys, the nesting activities of sea turtles were counted using crawls (also called tracks), body pits, and nests. Nesting activities include all attempts of female sea turtles to nest, whether successful or not. The data collected for each nesting activity includes the species of sea turtle, incident type (nesting emergence or false crawl), and GPS location of the nest or false crawl. Night-time surveys were also carried out but with much less effort than daytime surveys. When nesting sea turtles were encountered during the surveys, they were tagged with Inconel® tags with inscribed numbers and letters (i.e. PH1515K) on the flippers. Marine Turtle Tagging Forms (MT01) were then accomplished. The protocol for sea turtle tagging was adopted from the Philippine Aquatic Wildlife Rescue and Response Manual Series: Marine Turtles.

235 crawls have been recorded along the sandy beach of Apo Island from January 1, 2022 to November 28, 2022 (Figure 14). These crawls were from the two identified nesting species in ARNP: the Green Turtle (*Chelonia mydas*) and Hawksbill Turtle (*Eretmochelys imbricata*). Crawls from Green Turtles (n=199) were more numerous than Hawksbill Turtles (n=36). This was expected due to the higher abundance of green turtles than that of the latter which is Critically Endangered under the IUCN Red List. Of the total number of crawls recorded, only 47 are considered nesting emergences. Most of which were also from Green Turtles (n=42).

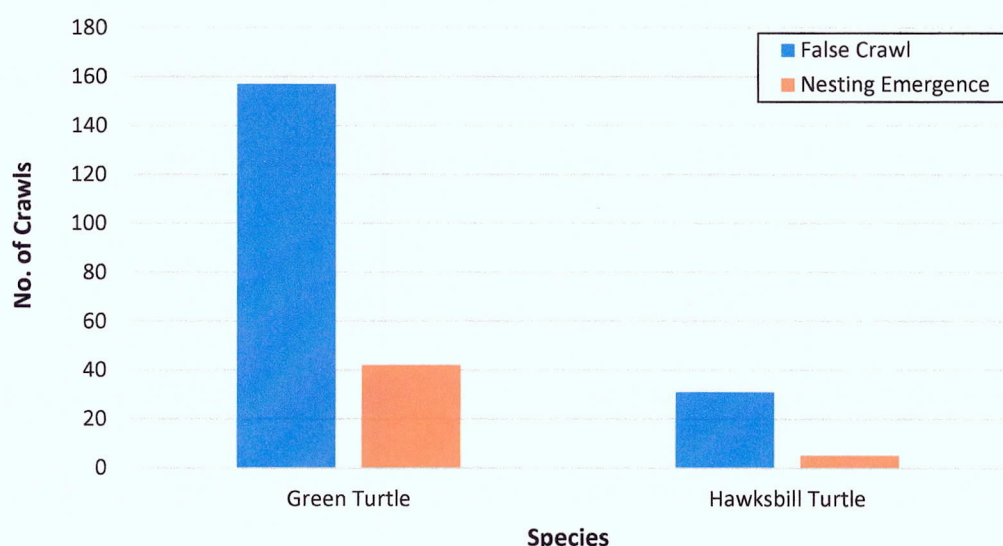


Figure 14. Crawls of Green Turtle and Hawksbill Turtle recorded from January 1, 2022 to November 28, 2022.

Six individuals have been tagged to date. Four of which are Green Turtles while the other two are Hawksbill Turtles. The most recent tagging activity was conducted on November 27, 2022. The mean curved carapace length and width for both species are shown in Table 8. None of the turtles had existing tags prior to tagging.

Table 9. Curved carapace length and width of the sea turtles tagged in 2022.

| Tag No. | Species | CCL (cm) | CCW (cm) |
|---------|-------------------------------|----------|----------|
| PH1538K | <i>Chelonia mydas</i> | 96 | 87.3 |
| PH1539K | <i>Chelonia mydas</i> | 97 | 90 |
| PH1540K | <i>Chelonia mydas</i> | 95 | 83 |
| PH1541K | <i>Eretmochelys imbricata</i> | 73 | 60 |
| PH1542K | <i>Eretmochelys imbricata</i> | 76.2 | 70 |
| PH1544K | <i>Chelonia mydas</i> | 100 | 95 |

Asian Waterbird Census

Transect cruise was the main method used to assess the population of waterbirds in ARNP. Dedicated transect cruises were conducted around the three islands (Apo Island, Apo Menor, and Cajos del Bajo) and within the buffer zone of the MPA (near Barkong Lutang and Parolang Putol). All waterbirds observed during at-sea surveys were identified and counted by the volunteer birders. This report also recorded opportunistic observations during transit and within the MPA.

Aside from at-sea surveys, transect walks were conducted in Apo Island from 5:30 AM to 7:00 AM to record other species of waterbirds. Species of non-waterbirds and their corresponding counts were also noted during transect walks. The highest count acquired for each waterbird and non-waterbird species during the four-day survey is presented in this report. Waterbird counts were also reported to Wetlands International as part of the AWC, and this was done using the site and count forms distributed by the DENR-Biodiversity Management Bureau.

Eight species and at least 54 individuals of waterbirds were recorded during the survey (Table 10). The most numerous species was the Barred Rail (*Hypotaenidia torquata*), with 40 individuals recorded in Apo Island. This species is often observed aggregating at the Ranger's Station to forage.

Table 10. List of the waterbird species recorded from January 13 to 16, 2022.

| Common Name | Scientific Name | Conservation Status** | | Highest Count |
|---------------------|---------------------------------|-----------------------|-------------|---------------|
| | | IUCN Red List | PH Red List | |
| Common Kingfisher | <i>Alcedo atthis</i> | LC | | 2 |
| Collared Kingfisher | <i>Halcyon chloris</i> | LC | | 3 |
| Peregrine Falcon | <i>Falco peregrinus calidus</i> | LC | | 1 |
| Streaked Shearwater | <i>Calonectris leucomelas</i> | NT | | 4 |
| Barred Rail | <i>Hypotaenidia torquata</i> | LC | | 40 |
| Black-winged Stilt | <i>Himantopus himantopus</i> | LC | | 1 |
| Pomarine Jaeger | <i>Stercorarius pomarinus</i> | LC | | 1 |
| Brown Booby | <i>Sula leucogaster</i> | LC | EN | 2 |

* R – Resident, M – Migrant, R/M – Resident and Migrant, A – Accidental

** LC – Least Concern, NT – Near Threatened, EN – Endangered

Of the recorded waterbird species in Figure 1, three were identified as seabirds which include the Pomarine Jaeger (*Stercorarius pomarinus*), Streaked Shearwater (*Calonectris leucomelas*), and Brown Booby (*Sula leucogaster*) (Figure 15). One male Pomarine Jaeger individual was observed while in transit to ARNP. This rare winter migrant species was confirmed by the Wild Bird Club of the Philippines; it was only the 20th sighting of this species in the Philippines. The two other seabirds recorded were the Streaked Shearwater and Brown Booby. During the survey, a group of four Streaked Shearwaters was encountered, which is identified as Near Threatened (NT) under the IUCN Red List of Threatened Species. Meanwhile, two individuals of Brown Booby were recorded, and it is only categorized as Least Concern (LC) in the IUCN Red List of Threatened Species. However, the species is Endangered (EN) in the National List of Threatened Fauna (DENR Administrative Order No. 2019-09).

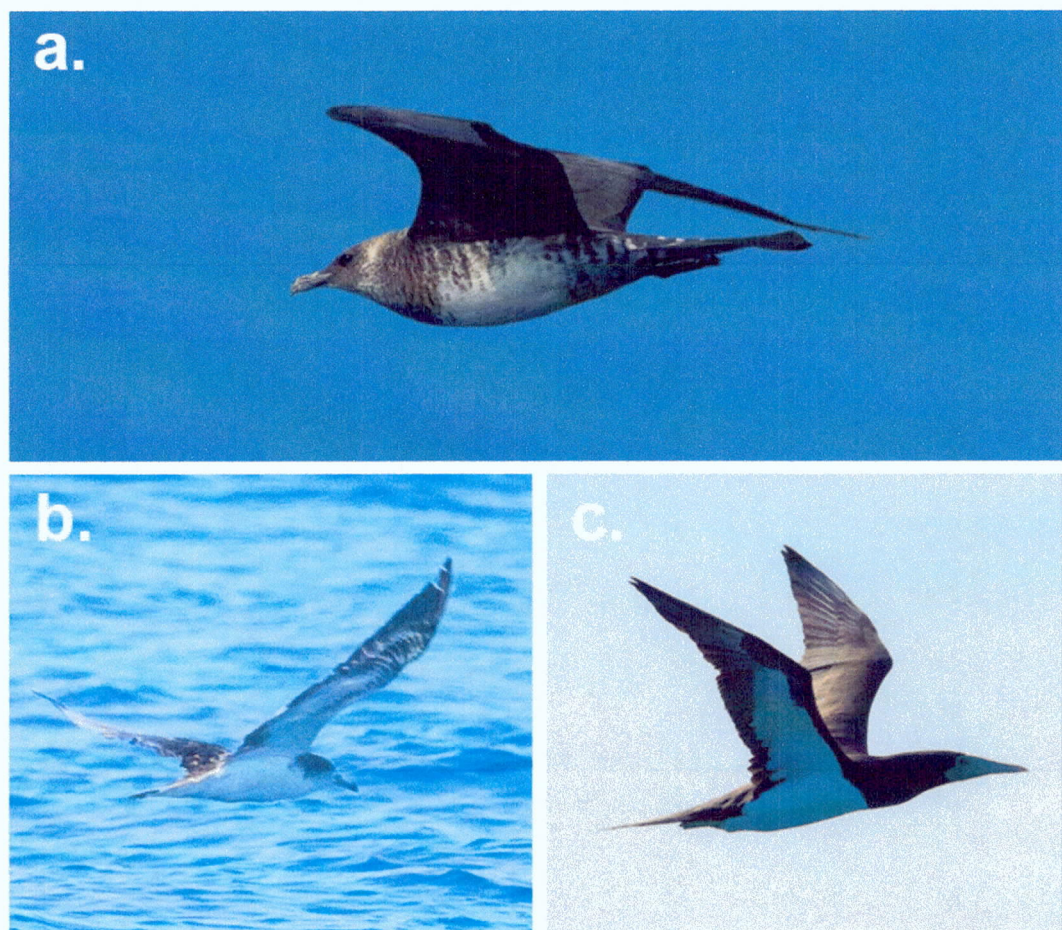


Figure 15. The seabirds recorded within and while in transit to Apo Reef Natural Park. Pomarine Jaeger (a); Streaked Shearwater (b); Brown Booby (c).

The other waterbird species recorded were Peregrine Falcon (*Falco peregrinus calidus*), Collared Kingfisher (*Alcedo atthis*), and Common Kingfisher (*Halcyon chloris*). The lone Peregrine Falcon recorded is possibly the same individual recorded during the survey in November 2021. During the two surveys, the species was recorded perching on a tree in Binanggaan, though it was also observed in Apo Island on the recent survey.

There were 12 non-waterbird species recorded. The notable ones were, namely, the Nicobar Pigeon (*Caloenas nicobarica*), Philippine Megapode (*Megapodus cumingii*), and Mantanani Scops-Owl (*Otus mantananensis*). All three are not listed under the IUCN Red List's threatened categories but are included in the National List of Threatened Fauna. The Mantanani Scops-Owl and Philippine Megapode are categorized as Vulnerable (VU), while the Nicobar Pigeon is listed as Endangered (EN).

The number of bird species observed within the survey duration was relatively low compared to previous surveys. Despite this, continuous participation in the AWC is still recommended, especially to monitor non-breeding season populations of seabirds within the MPA. The frequency of at-sea surveys may be increased in the following years. Based on the result of this survey, the monthly monitoring of birds in the protected area is still recommended. It is to understand further the movements, migration, and breeding activities all year round .

The volunteers also recommend the installation of birdbaths in Apo Island. It was pointed out during the survey that Apo Island possibly serves as a stopover for migratory birds. Thus, birdbaths in Apo Island may improve refueling opportunities for resting migrants. Regarding the matter, dead or sick migratory birds should not be handled without the proper protective equipment and expert supervision to prevent the transmission of diseases.

Lastly, citizen science is essential now in biodiversity research and conservation. Thus, the capacity development of park rangers in bird identification and counting should be continued. Regular lectures and in-situ training facilitated by the MBCFI remain an integral part of the capacitation of park rangers. There must be adequate birding equipment available to the rangers year-round to support the current efforts. It is important to note that the ARNP-PAMO is set to procure one birding camera, three binoculars, one spotting scope, and two field identification guides this year. However, more equipment should be purchased when the budget becomes available.

F/V Monalinda 85 Grounding Damage Assessment

F/V Monalinda 85 ran aground the southwestern portion of Apo Reef Natural Park on March 30, 2022 at approximately 2:00 AM (Figure 16). It was headed towards Navotas City, Manila carrying 1,700 crates of fish locally known as galunggong from a fishing ground in El Nido, Palawan. The Philippine Coast Guard – Sablayan Substation (PCGSS) visually inspected the vessel and its perimeter for oil leakage and there was no trace of an oil spill observed. At approximately 7:00 PM, F/V Monalinda 85 was towed by its sister vessel, F/V Monalinda 66.



Figure 16. F/V Monalinda 85 aground the southwestern portion of Apo Reef Natural Park.

The Protected Area Management Office mobilized an internal assessment team headed by the Protected Area Superintendent and mostly comprised of licensed SCUBA divers. The team conducted field surveys on April 20 and 26, 2022 to assess the damage incurred by the grounding of F/V Monalinda 85 to the seabed. The preliminary assessment aimed to a) delineate the area damaged by the grounding incident, b) collect photos and video footages representative of the

damaged area, and c) provide an initial estimate of the damage cost based on PAMB Ordinance No. AR07-001-1, series of 2011.

The physical damage of F/V Monalinda 85 to the coral reef was approximately 191.556 m². The linear strip of damage featured a central portion of severely damaged corals, wherein only reef rubbles were left (Figure 17). To its sides were piles of displaced and/or overturned corals and limestone as well as surviving but damaged coral colonies. Long-term impact to coral reef may be expected from the grounding incident due to the instability of resulting substrate, algal overgrowth, and possible antifoulant contamination which are barriers to coral reef recovery.

The estimated value of the damage caused by the grounding of F/V Monalinda 85 is P2,298,720.00. This was based on the PAMB Ordinance No. AR07-001-1 wherein it is stated that an administrative fine of P12,000.00 shall be paid for every square meter of coral reef damaged from a ship grounding incident. On top of the estimated value, another P50,000.00 to P100,000.00 shall be claimed from the shipping company for unauthorized entry into the MPA.

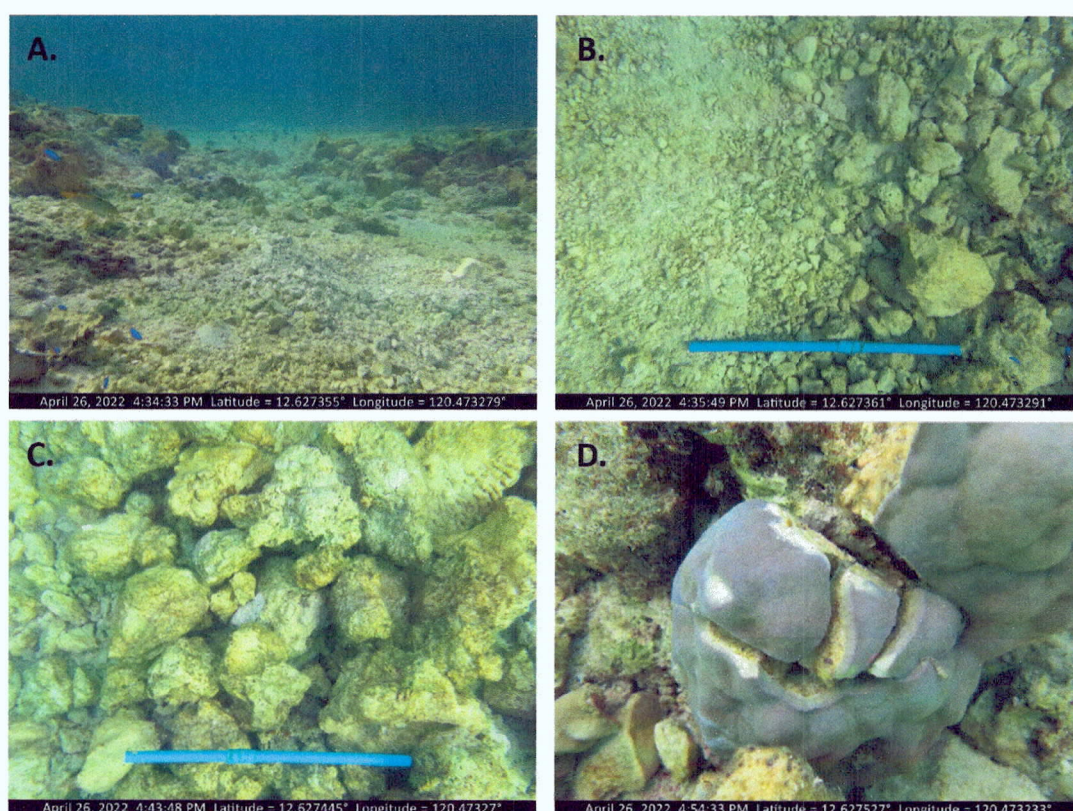


Figure 17. Representative photographs from the damaged area caused by F/V Monalinda 85. (A-B) Severely damaged seabed; (C) Piles or berms of dislodged and/or overturned corals and limestone; (D) Fractured yet intact coral colony. Scale bar = 50 cm.

Waterbirds Survey (Breeding Season)

Black-naped Terns (n=824) and Bridled Terns (n=757) were the most numerous bird species during the survey (Table 11 & Figure 18). The counts for both species this year were the highest since breeding season surveys began in 2018.

Greater Crested Tern (n=6) and Brown Noddy (n=1) were also recorded during the survey. Both species are listed as *Vulnerable* under the National Red List of Threatened Fauna.

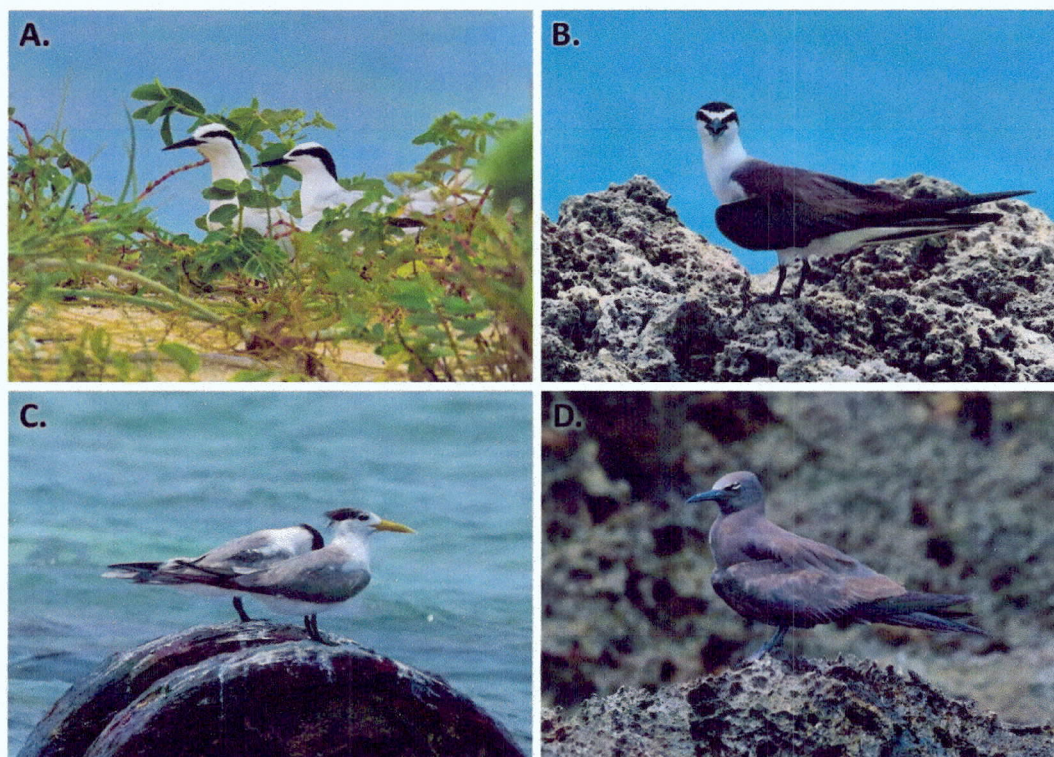


Figure 18. Four of the five seabird species recorded during the survey from July 16 to 19, 2022. A.) Black-naped Tern, B.) Bridled Tern, C.) Greater-crested Tern, and D.) Brown Noddy.

Table 11. Highest count of seabirds in ARNP from July 16 to 18, 2022.

| Species | Conservation Status | | Highest Count | | | | Total |
|----------------------|---------------------|------|---------------|-----|-----|----|-------|
| | PH | IUCN | | | | | |
| | | | AI | BG | TK | IT | |
| Bridled Tern | LC | OTS | 36 | 565 | 64 | 92 | 757 |
| Black-naped Tern | LC | OWS | 347 | 158 | 260 | 59 | 824 |
| Greater Crested Tern | LC | VU | 3 | 0 | 0 | 3 | 6 |
| Brown Noddy | LC | VU | 1 | 0 | 0 | 0 | 1 |
| Tern sp. | - | - | 0 | 0 | 0 | 50 | 50 |
| Brown Booby | LC | EN | 1 | 0 | 0 | 0 | 1 |

LC - Least Concern, OTS – Other Threatened Species, OWS – Other Wildlife Species, VU – Vulnerable, EN – Endangered

During the ground counts for nests, eggs and chicks of Black-naped Terns and Bridled Terns were recorded. In Tinangkapan, both Black-naped Tern and Bridled Tern nests were recorded. Partitioning of nesting space was observed in the 0.28-ha rocky islet. Bridled Terns occupied the portion of the island with slightly higher elevation and vegetation while Black-naped Terns nested on areas that were mostly bare and more prone to flooding. Eggs and chicks of Bridled Tern were more

numerous than Black-naped Tern in this islet (Table 12). Along the sandy beach in Apo Island, only Black-naped Tern nests were present. The nests were shallow depressions on coral rubble or bare sand with no nesting material. The number of eggs per clutch ranged from one to three eggs. A total of 253 eggs and 71 chicks were recorded and these were all within the southern section of the beach that is within the Strict Protection Zone.

Table 12. Number of eggs and chicks of Black-naped Terns and Bridled Terns in two of the three islets in ARNP.

| Species | Apo Island* | | Tinangkapan | |
|-------------------|-------------|--------|-------------|--------|
| | Eggs | Chicks | Eggs | Chicks |
| Bridled Terns | 0 | 0 | 13 | 11 |
| Black-Naped Terns | 253 | 71 | 7 | 4 |

**Only the sandy beach was surveyed*

Regular monitoring of bird populations within the breeding season should be continued along with other capacity-building activities for the management staff. Anthr`opogenic threats to the breeding seabirds should also be addressed. These threats include human visitation in nesting areas which are within the SPZ. Strict enforcement and effective communication of PA rules and regulations will be key in addressing this. Closing the south trail to tourists every breeding season may also be considered because Black-naped Terns were observed to flush when people pass the trail. This will be feasible once the other boardwalk, located at the northern portion of the island, has been repaired. Another threat is predation by invasive rats. Traps may be regularly deployed, with increasing trapping effort during the breeding season, to reduce the invasive rat populations in Apo Island.

iii. Direct Activities

Crown-of Thorns Starfish Surveillance

Crown-of-thorns starfish (CoTS) is a corallivorous starfish with venomous spines. It can have up to 23 arms and grow to over half a meter in diameter. CoTS naturally occur in coral reefs in low densities but populations of this organism can reach very high densities and cause significant damage to reefs. The largest CoTS outbreaks in Apo Reef Natural Park have occurred in 2018 and 2019 with 2,099 and 10,680 individuals culled, respectively.

This year, dedicated survey for CoTS were conducted in 21 sites within the Protected Area. These sites include the fifteen coral reef monitoring stations and four *transect* swim sites, and the frequency of survey ranged from 1-2. CoTS were only observed in two sites: Parolang Putol and San Antonio. Only 1 individual was observed in the former last August. Meanwhile, 8 individuals were recorded in the latter last March. Another survey was conducted in this site last August and the number of individuals recorded decreased to 2. Ultimately, no localized outbreak of CoTS was confirmed in 2022.

Coral Bleaching Monitoring

The occurrence of coral bleaching was also monitored this year albeit at much lower effort than CoTS. Three sites were monitored namely, Parolang Putol, San Antonio, and Barracuda Point. Reefscape photographs were taken at these sites.

The photographs were conservatively post-processed in Adobe Lightroom and then submitted to Philippine Coral Bleaching Watch (PCBW) through their Online Submission Form.

There were not any noticeable patches of bone-white corals in three sites on all monitoring dates. However, a few colonies in San Antonio and Parolang Putol were observed to exhibit fluorescent shades of green and violet in February. It cannot be determined whether these were the natural colors of the corals or they were showing signs of thermal stress thus, it was reported to the PCBW that the observers are uncertain whether there is an occurrence of coral bleaching in both sites. No signs of bleaching were recorded in the three sites in the following monitoring activities.

Coastal Clean-up Activity

Coastal clean-up activities are regularly conducted on Apo Island by management staff. 74 sacks of marine litter were collected from September to November 2022. To date, 214 sacks of mixed marine litter and 250 kilograms of derelict fishing gear have been collected within Apo Island (Table 13). All of these were transported back to mainland Sablayan for proper disposal. Larger debris like drift lumber was also removed from the sandy beach prior and during the peak of the sea turtle nesting season in the Protected Area.

Table 13. Marine litter collected within Apo Island from January to November, 2022.

| Month | Type | Approximate Quantity |
|--------------|------------------------|-----------------------------|
| January | Mixed | 15 sacks |
| February | Mixed | 28 sacks |
| | Derelict Fishing Gears | 150 kilograms |
| March | Mixed | 13 sacks |
| April | Mixed | 13 sacks |
| May | Mixed | 17 sacks |
| June | Mixed | 15 sacks |
| July | Mixed | 20 sacks |
| August | Mixed | 19 sacks |
| September | Mixed | 24 sacks |
| October | Mixed | 25 sacks |
| November | Mixed | 25 sacks |
| | Derelict Fishing Gears | 100 kilograms |

iv. Maintenance of Equipment

All watercraft of ARNP-PAMO is currently dry-docked (Table 14). The 30-footer hi-speed watercraft has been dry-docked since the first quarter of this year. To date, the repair of its hull, windshield, and roofing have been completed. The watercraft is expected to be fully functional by the end of the year after the installation of a new engine. Aside from the 30-footer hi-speed watercraft, the outrigger boat (MBca Jerlyn) is also dry-docked. The repair of its sternpost, outrigger boom, pilot house, and hull are ongoing. The completion of which is expected within the first quarter of 2023.

Table 14. Parts of watercraft that were repaired from January to December 2022.

| Watercraft | Parts Repaired | Status |
|-------------------------------|--|---|
| MBca Jerlyn | Engine generator, carburetor, and outriggers | For replacement of sternpost, outrigger boom, and pilot house, and strengthening of boat hull |
| 24-footer Hi-speed Watercraft | Hull | For replacement of steering cable and repainting of boat hull |
| 30-footer Hi-speed Watercraft | Stainless frame and fiber-coated roofing | For engine replacement and installation |
| Spotter Boat | None | Serviceable |

Radio transceivers and several diving equipment were also maintained during the year (Table 15). The two radio transceivers were kept in good condition but the unit in the office of ARNP-PAMO was replaced with a more recent model (ICOM Dual Band Transceiver IC-230A) that was purchased this year. Most of the diving equipment are presently in good condition. 23 diving tanks were inspected and subjected to hydrostatic testing by Aquamundo Sports Inc. on May 25, 2022. Meanwhile, five sets of the diving gears need replacement.

Table 15. Status of other equipment of ARNP-PAMO as of December 2022.

| Equipment | Quantity | Status |
|----------------------------|-----------------|---|
| Kenwood TM-271A Base Radio | 1 | Good condition |
| Kenwood TM-281A Base Radio | 1 | Good condition |
| Diving Tanks | 30 | Good condition |
| Dive Gears | 10 | 5 in good working condition; 5 functional but needs replacement |

2. Program Support and Management

a. Hiring of CMEMP Extension Officer

Hugo Ignacio G. Salvador was employed as the CMEMP Extension Officer for 2022. She is a graduate of Bachelor of Science in Biology (major in Zoology) from the University of the Philippines Los Baños. She has been the CMEMP Extension Officer of ARNP-PAMO since February 2020.

This year, she oversaw the accomplishment of CMEMP activities primarily monitoring of coral reef and mangrove forest, water quality monitoring, and sea turtle nesting beach surveys. She was also involved in the two bird surveys (breeding and non-breeding) conducted this year in partnership with the MBCFI. Accordingly, she has played a key role in the accomplishment of activities outside of CMEMP including implementation of biodiversity monitoring system and communication, education, and public awareness. As of this writing, she is also participating in the development of the localized action plan of Occidental Mindoro as part of VIP MPAN and LEN.

b. Hiring of Boat Captain

Two Boat Captains were hired this year: Romel M. Pacaul and Mark Dennis M. Barretto. The former has been in service to Apo Reef Natural Park for X years, while

the latter has been employed by the Office since last year. These two Boat Captains belong to separate teams of Park Rangers (Team Pating and Team Barracuda).

Romel M. Pacaul and Mark Dennis M. Barretto has primarily ensured the safety of the members of their respective teams while traversing the Mindoro Strait and during at-sea patrol operations day and night. To date, no maritime incident has occurred under their watch. Aside from this, these two boat captains are also highly skilled boat mechanics. This year, they have assisted in the repair of the three watercraft of ARNP-PAMO: MBCa Jerlyn and the 26- and 30-footer speed boats.

C. Other Accomplishments

1. Re-calibration, Refresher Course, and General Maintenance of Equipment for Assessment and Monitoring of Coastal and Marine Habitats in Apo Reef Natural Park

The Biodiversity Management Bureau is looking to conduct coastal and marine habitat assessments and monitoring to the Philippine Rise Region, and to other priority project sites, key biodiversity areas and NIPAS MPAs in the following years. In preparation for this, they conducted an activity in Apo Reef Natural Park to inspect and recalibrate their survey equipment, and refresh their personnel on using the equipment. This was held from April 20 to 24, 2022. ARNP-PAMO provided logistic support to the participants of the activity. The sub-allotment of P162,250.00 (SAA No. 2022-04-004) was also managed by the Office.

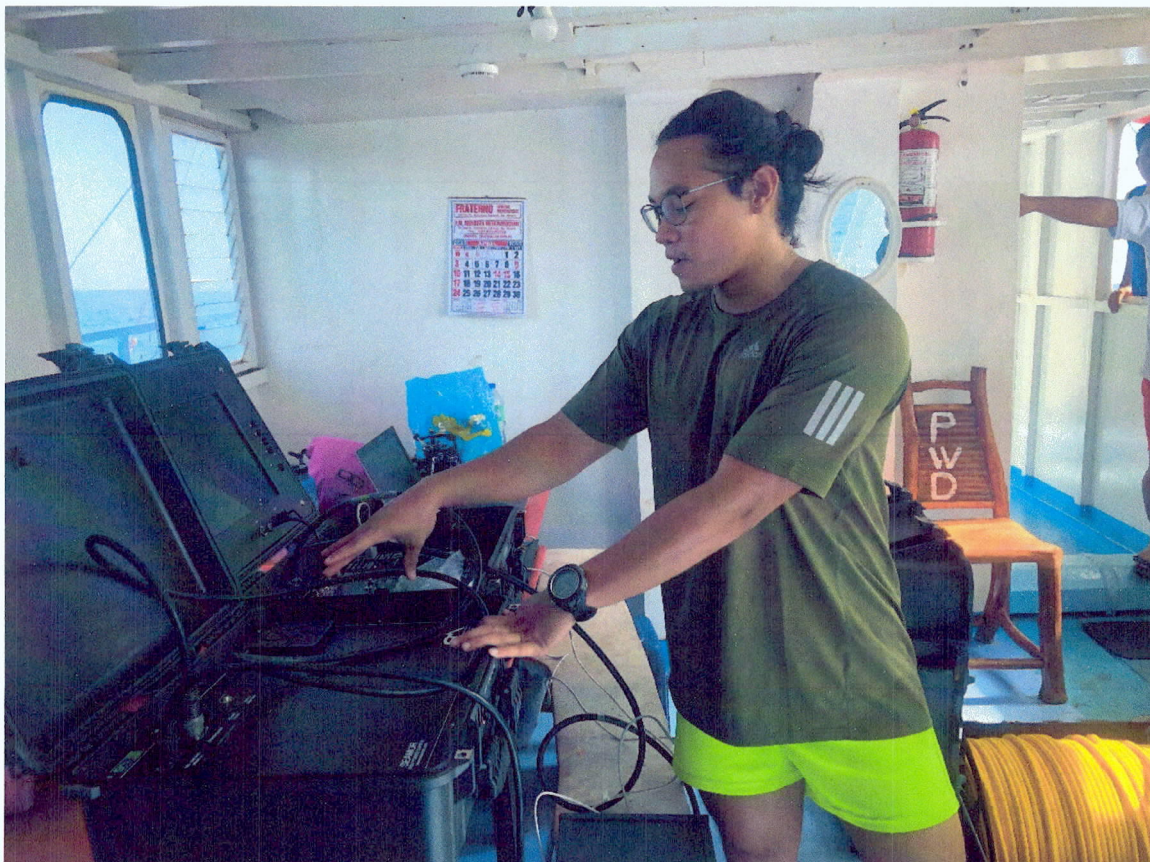


Figure 19. BMB personnel Joaquin Silvestre introducing the ROV to the participants of the activity.

2. Blue Park Awards

Apo Reef Natural Park was conferred a platinum-level Blue Park Award by Marine Conservation International last July 1st at the 2022 United Nations Ocean Conference in Lisbon, Portugal. The award was received by Protected Area Superintendent Krystal Villanada and Philippine Ambassador to Portugal Celia Anna Feria (Figure 20). Apo Reef Natural Park now joins a growing network of 24 awarded Blue Parks around the globe that have met the highest science-based standards for conservation effectiveness.



Figure 20. Philippine Ambassador to Portugal Celia Anna Feria (left) and PASu Krystal Dayne T. Villanada receiving the Blue Park Award of Apo Reef Natural Park.

After its nomination in April, an international council of marine conservation experts evaluated Apo Reef Natural Park against a rigorous, science-based set of criteria which ensure that only MPAs with the most effective marine life conservation qualify for the Blue Park Award. Apo Reef Natural Park earned the distinction this year alongside Raja Ampat Islands, Marine Conservation Area in Indonesia and Old Providence McBean Lagoon National Park in Colombia.

The Blue Park Award recognizes outstanding efforts by national governments, nonprofit organizations, MPA managers, and local communities “*to ensure that designated MPAs become places that truly safeguard biodiversity*”. The award has been given annually since its launch in 2017. Apo Reef Natural Park is the second Blue Park in the Philippines – next to Tubbataha Reefs Natural Park. Both Philippine MPAs have a platinum-level Blue Park Award which is the highest possible award that may be given to an MPA by Marine Conservation Institute.

Apo Reef Natural Park also received recognition from national agencies and local government units (LGUs) for its Blue Park Award. The Office of the Sangguniang Bayan

passed a resolution to laud the management of the Protected Area for earning the distinction. Accordingly, the Provincial Governor's Office and DOT MIMAROPA gave recognition to Apo Reef Natural Park during the culmination of Arawatan Festival and the 2022 MIMAROP Tourism Appreciation Awards, respectively.

3. Launching of the Year of the Protected Areas (YoPA) Campaign

The Year of the Protected Areas, with the theme "*Protected Areas for a Protected Future*" is a commemoration of the 90th year since the enactment of Republic Act 3915 or the National Parks Act. The YoPA campaign aims to raise the call for the urgent conservation of Philippine PAs, while also promoting them to the public as great ecotourism destinations. This year's campaign kicked-off by featuring six PAs in different regions, one of which was Apo Reef Natural Park.



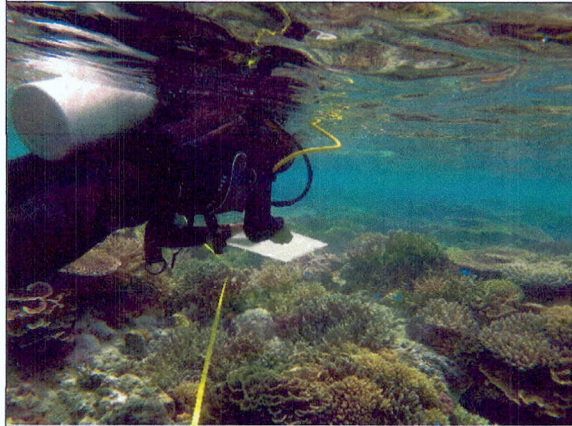
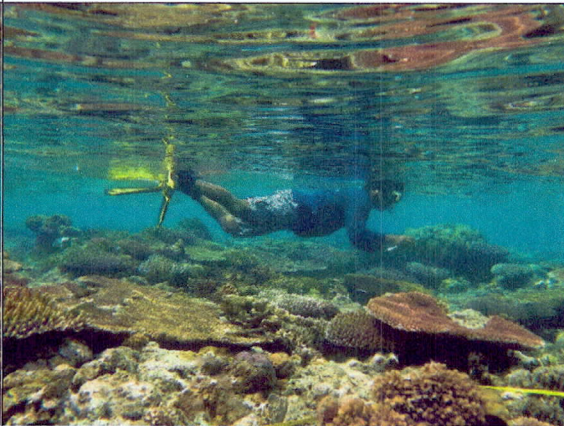
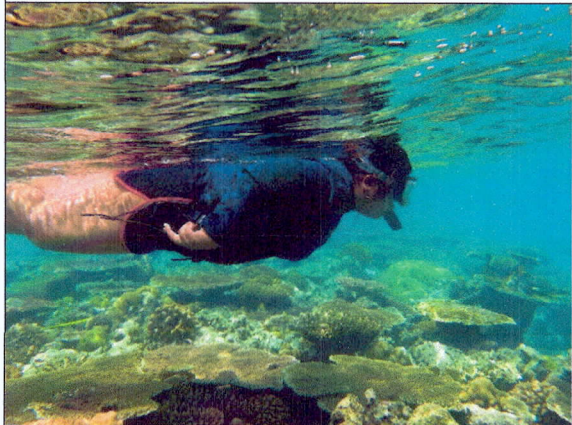

The launching event was attended by Protected Area Superintendent Krystal Dayne T. Villada last May 24, 2022. During the event, the Department of Environment and Natural Resources (DENR), Department of Tourism (DOT) and the Department of Interior and Local Government (DILG) signed a joint declaration supporting the Campaign. To date, two videos featuring Apo Reef Natural Park has been released under the Campaign.

4. Procurement of Water Quality Tools and Equipment

Sub-Allotment Advice (SAA) No. 2022-04-021 was issued by BMB Director Natividad Y. Bernardino to Apo Reef Natural Park for the procurement of various water quality tools and equipment. This SAA amounted to Php60,000.00, and it was used for the purchase of the following: one ice chest, 16 BOD bottle with stopper, 2 BOD bottle carrier, 18 sampling bottle with screw cap, 10 buckets, 10 plastic dipper, 10 plastic funnel, and one roll of nylon rope. The purchase of these tools and equipment was awarded to BEPER Shopping Center. The Purchase Order was issued on November 16, 2022 and the tools and equipment are expected to be delivered within December 2022.

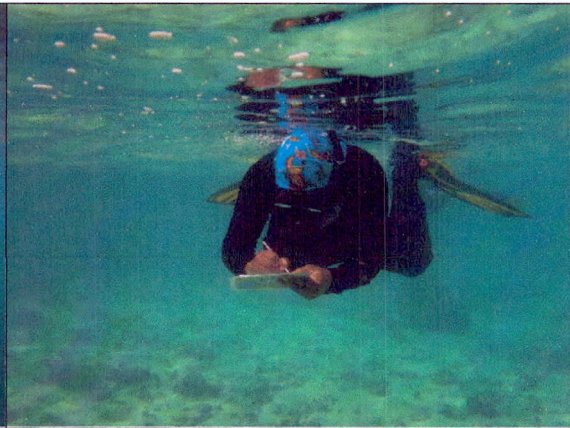
III. ANNEXES

A. Photo-documentation of the ecological monitoring using the BMS in ARNP.

| | |
|--|--|
|  |  |
| <p>CMEMP Extension Hugo Ignacio G. Salvador distributing tasks to Park Rangers prior to the transect swim.</p> | <p>Park Rangers searching for concrete block markers in San Antonio on August 9, 2022.</p> |
|  |  |
| <p>CMEMP-EO Salvador conducting a fish visual survey in Parolang Putol on August 10.</p> | <p>Park Ranger Roberto P. Beringuela participating in the fish visual survey as part of their in-situ training primarily in fish identification.</p> |
|  |  |
| <p>Protected Area Superintendent Krystal Dayne T. Villanada conducting a dedicated macroinvertebrate survey in Parolang Putol.</p> | <p>Forest Ranger Efraim Z. Pagador closely inspecting the features of a fish in Parolang Putol.</p> |



Park Ranger Michael D. Dagdag reeling the second transect in Parolang Putol.



Forest Ranger Efraim Z. Pagador assisting in recording fishes in Bahura 10.



Lunch provided Mylits Resto Bar on August 10, 2022.



PMF Roberto P. Beringuela recording their observations along the 0-250 m section of the transect walk route on August 11, 2022.



Park Ranger Temart E. Rebito collecting marine debris scattered amongst a rubble pile in Bora-boracay.



PMF Roberto P. Beringuela inspecting crevices of karstic rocks for invertebrates.



Boat Captain Mark Dennis M. Barretto sealing a garbage bag filled with marine debris from the first 500 meters of the transect walk route.



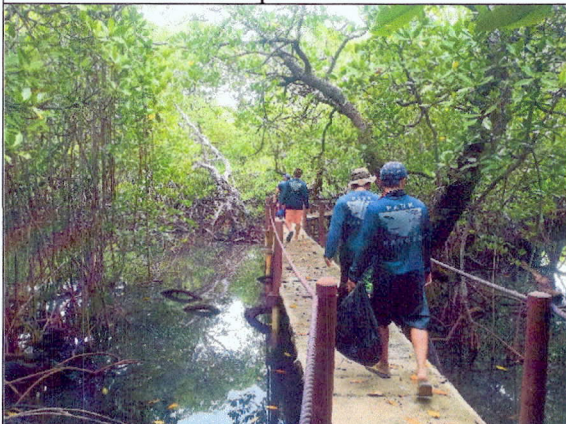
Park Ranger Temart E. Rebato taking charge as the recorder starting at the 750-m mark of the transect walk route



Park Rangers counting the Black-naped Terns along the sandy shore at the restricted portion of Apo Island



Black-naped Terns flying upon sensing the presence of the rangers even along the trail.

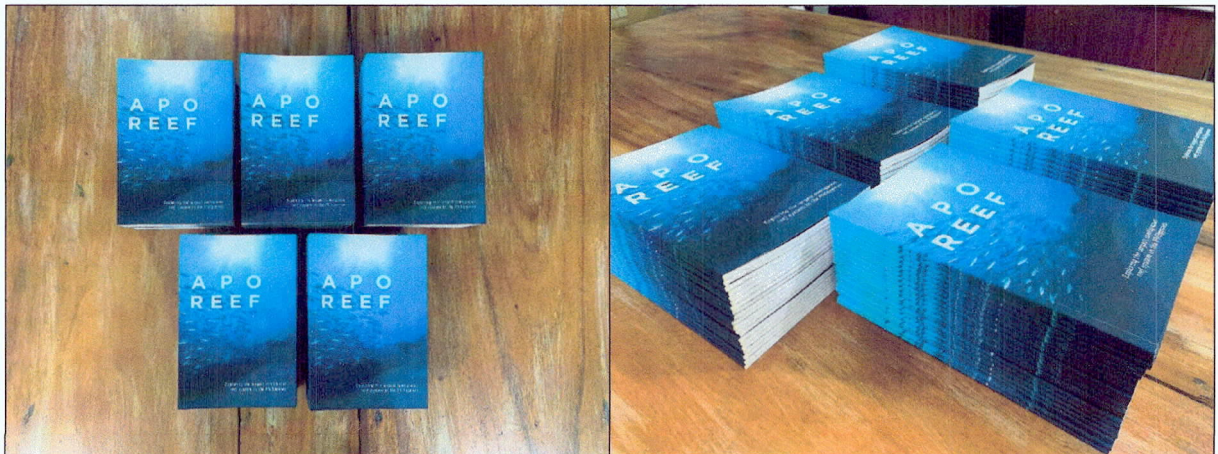


Park Rangers heading to the lagoon to observe birds and other notable fauna.



Park Ranger Kelvin U. Zubiri recording their observations at the lagoon

B. CEPA materials published in 2022.



100 copies of *Apo Reef: Exploring the largest contiguous reef in the Philippines*



1 copy of *A Photographic Field Guide to the Birds of Apo Reef Natural Park*

C. Photo-documentation of the four regular PAMB meetings held this 2022.



E. Photo-documentation of the coral reef and mangrove forest monitoring in ARNP



Park Ranger Kelvin U. Zubiri preparing the equipment of the participating divers on March 14, 2022.



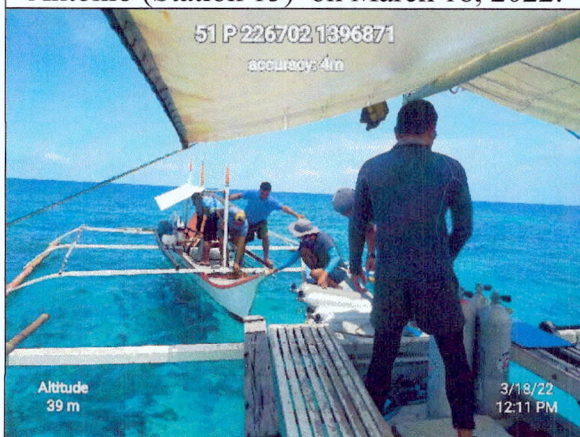
Boat Captain Romel M. Pacaul inspecting the speedboat prior to the field survey in Binanggaan on March 17, 2022.



Boat Captain Romel M. Pacaul operating the outrigger boat while in transit to San Antonio (Station 15) on March 18, 2022.



Forest Ranger Efraim Z. Pagador reeling the transect laid on Station 15.



Park Rangers transferring used diving tanks to the spotter boat for refilling.



Humphead Wrasse (*Cheilinus undulatus*) recorded off-transect at Station on March 18, 2022.



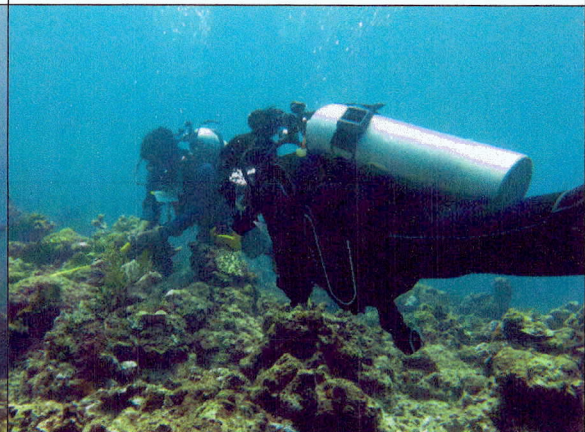
Park Maintenance Foreman Roberto P. Beringuela searching for the coral restoration blocks in Bahura Cinco on March 18, 2022.



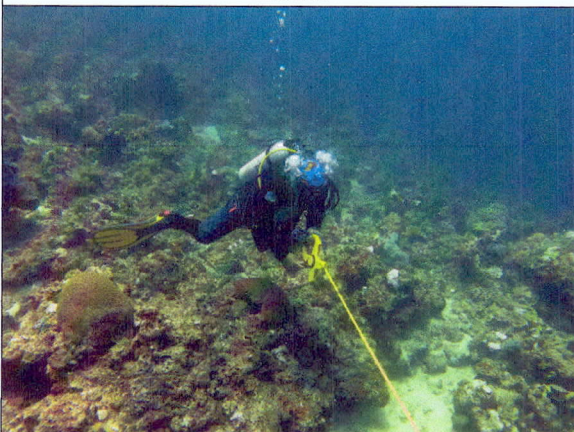
Park Ranger Sherwin R. Benozza filling up the diving tanks for the scheduled field survey on March 19, 2022.



PMF Roberto P. Beringuela preparing to reel Transect 3 at Station 11 on March 19, 2022.



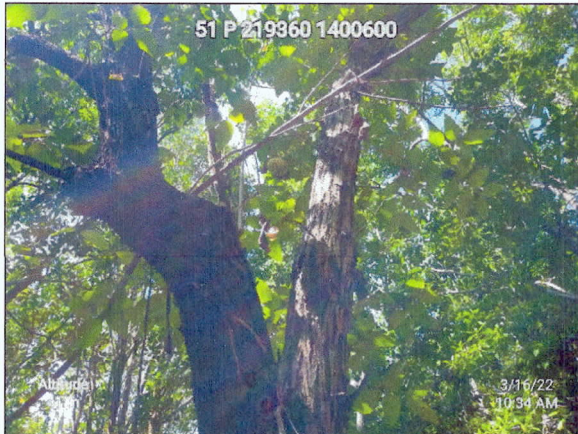
CMEMP Extension Officer Hugo Ignacio G. Salvador surveying invertebrates at Station 11.



Forest Ranger Efraim Z. Pagador reeling the transect surveyed for fish communities at Station 11.



Participants of the coral reef assessment in Apo Reef Natural Park for CY 2022.



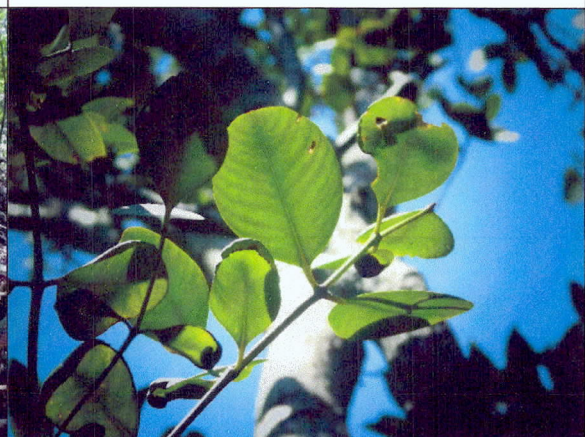
Xylocarpus rumphii recorded in Plot 1 on March 16, 2022.



Fruit of *Xylocarpus rumphii* photographed in Plot 1.



Park Rangers Sherwin R. Benzo and Ludygario D. Matira demarcating Plot 1 using a nylon wire.



Leaves of *Sonneratia alba* recorded in Plot 1.



Representative photograph of Plot 2 which was surveyed on March 16, 2022.



Flowers of *Rhizophora mucronata*, the most numerous species in Plot 2.



Representative photo of Plot 3 which was surveyed on March 16, 2022.



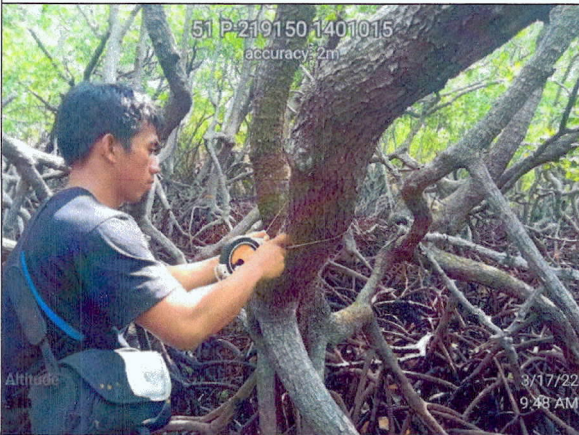
Flowers of *Bruguiera cylindrica*, the species that was most numerous in Plot 4. This plot was surveyed on March 17, 2022.



Park Ranger Ludygario D. Matira marking a *R. mucronata* tree in Plot 5 on March 17, 2022.



CMEMP Extension Officer Hugo G. Salvador recording the dbh and total height of the trees in Plot 6.



Park Ranger Sherwin R. Benozza measuring the dbh of a *Rhizophora apiculata* tree in Plot 6.



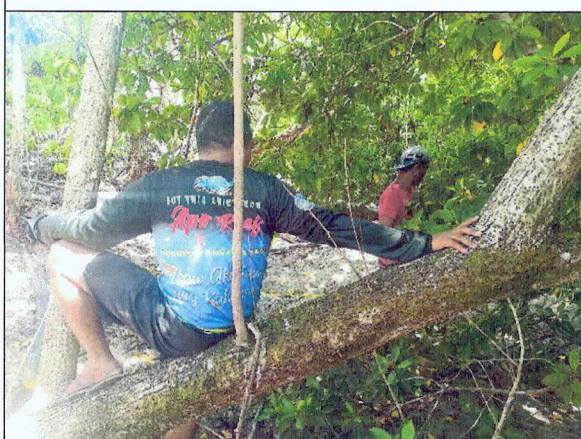
Park Ranger Ludygario D. Matira acquiring measurements for the computation of elliptical crown cover.



Park Ranger Sherwin R. Benzoza preparing to demarcate Plot 10 on June 10, 2022.



CMEMP-EO Hugo Salvador identifying the species of mangroves within Plot 10.



Park Ranger Ludygario M. Matira measuring crown diameter with assistance from Support Staff Ricky M. Dantayana



Park Rangers in transit to Plot 11.



Park Ranger Sherwin R. Benzoza demarcating Plot 8.



Members of the Mangrove Assessment Team for CY 2022.

F. Photo-documentation of the water quality monitoring in ARNP.

| | |
|---|---|
|  <p>23 May 2022 at 5:25:39 AM +12.774551,+120.725747 147° SE Altitude:5.1meter</p> |  |
| <p>EMS II Josephine Lovella M. Cruz collecting water samples in front of Picnic Ground.</p> | <p>Forest Ranger Efraim Z. Pagador closing the sampling equipment in San Antonio at 5-meter mark.</p> |
|  <p>12.62325 N, 120.43495 E Altitude: 42 m 5/23/22 5:44 AM</p> |  <p>12.62298 N, 120.4351 E Altitude: 46 m 5/23/22 5:45 AM</p> |
| <p>Environment Monitoring Officer Fenly M. Galindez collecting water sample for oil and grease using a 1L wide mouth bottle.</p> | <p>CMEMP Extension Officer and Support Staff Salvador M. Ciasico transferring water from the sampling equipment.</p> |
|  <p>23 May 2022 at 5:43:06 AM +12.774551,+120.725747 9° N Altitude:5.1meter</p> |  <p>23 May 2022 at 6:00:25 AM +12.554778,+120.900555 198° S Altitude:5.1meter</p> |
| <p>Josephine Lovella M. Cruz collecting water samples in front of the Rangers' Kiosk.</p> | <p>Park Rangers Kelvin U. Zubiri and Joel A. Pagador, Jr. sealing the water samples collected in front of the lighthouse.</p> |



Collection of water samples from the groundwater well beside the Rangers' Station.



Park Rangers transferring samples collected from Apo Island to MBca Jerlyn for transport.



SCDO Anna Ritchelle D. Nicanor ensuring the correctness of the chain-of-custody forms submitted.



CMEMP Extension Officer Hugo Salvador taking photographs of the forms duly signed by laboratory staff.



PAMO Staff purging stagnant water out of the groundwater well



CMEMP Extension Officer Hugo G. Salvador preparing to sample water from the groundwater well



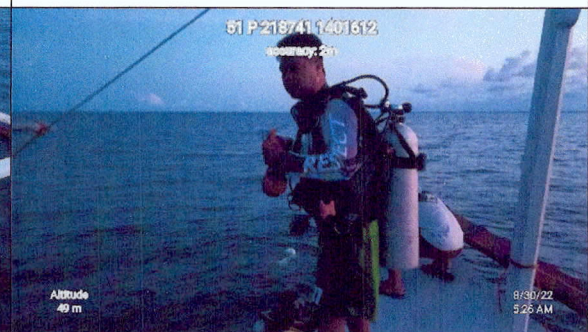
Water sampling along the bathing beach of Apo Island



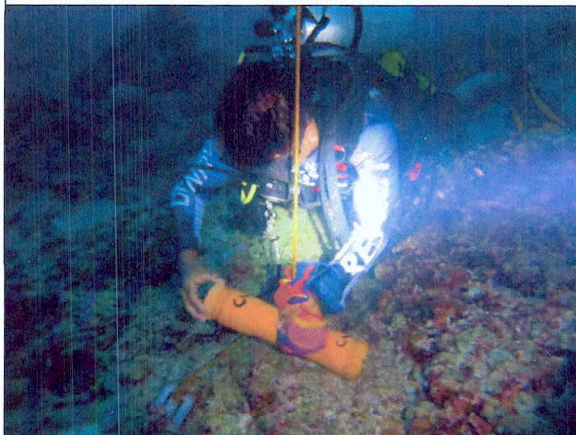
Park Rangers Temart E. Rebato organizing samples collected in front of the lighthouse



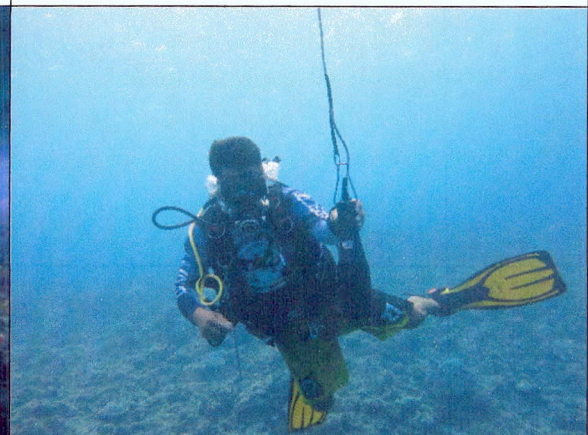
PASu Krystal Dayne T. Villanada measuring several parameters *in-situ* with a Horiba U-50 Multiparameter Water Quality Checker



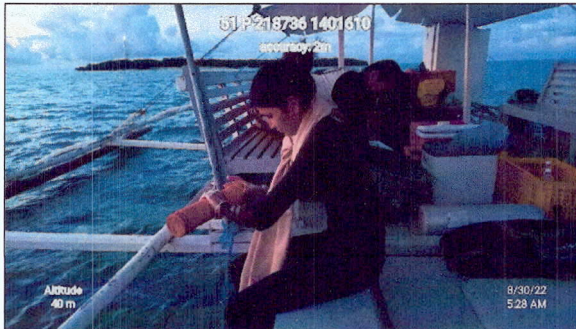
Park Maintenance Foreman Roberto P. Beringuela preparing to collect samples at different depths in Ego Wall



PMF Beringuela closing the improvised PVC sampler in Ego Wall at a depth of approximately 10-m



PMF Beringuela assisting the probe of the Horiba U-50 Multiparameter Water Quality Checker



CMEMP Extension Officer Hugo Salvador collecting water sample from the surface at Ego Wall



Boat Captain Romel M. Pacaul assisting the CMEMP-EO in transferring the samples from the equipment to containers



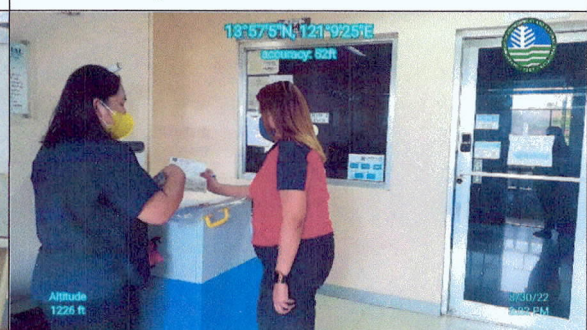
PASu Villanada measuring DO, pH, and temperature in San Antonio



Four ice coolers containing the water samples collected from ARNP

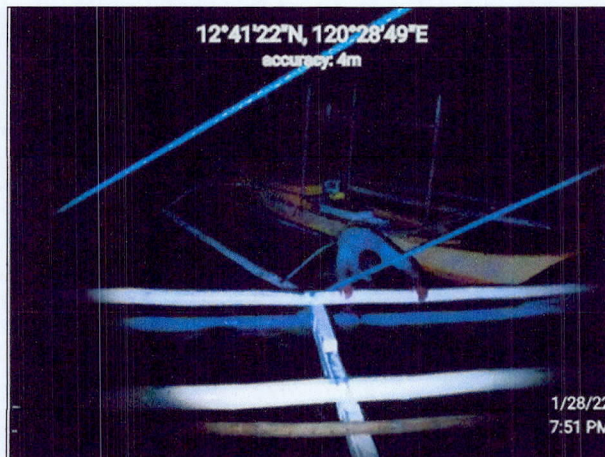


PASu Villanada filling out the Chain of Custody Form of Optimal Laboratories, Inc.

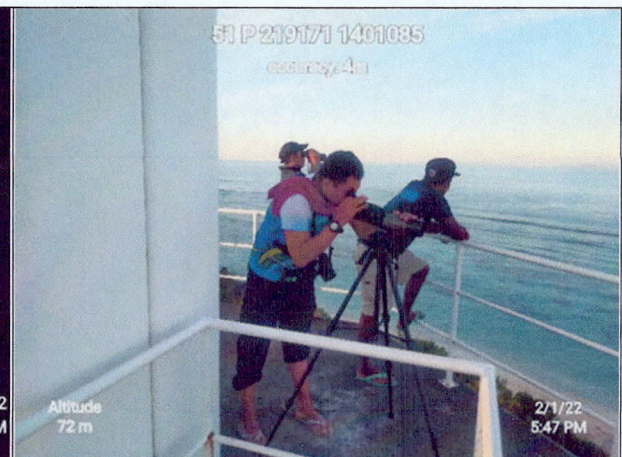


SCDO Anna Ritchelle D. Nicanor managing the payment for the laboratory analyses of the samples

G. Photo-documentation of the patrol operations conducted within ARNP from January to December 2022.



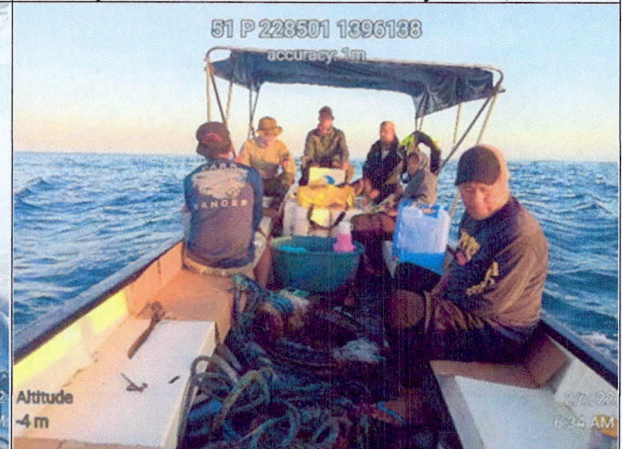
Boat Captain Romel M. Pacaul and Park Ranger Ricky M. Dantayana discussing PA regulations to a fisherman.



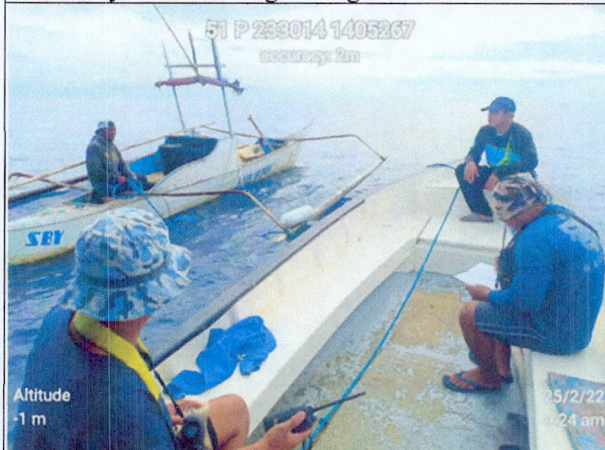
Park Rangers and Boat Captain returning from the at-sea patrol conducted from February 6 to 7, 2022.



Boat Captain Romel M. Pacaul and Park Ranger Ricky M. Dantayana discussing PA regulations to a fisherman.



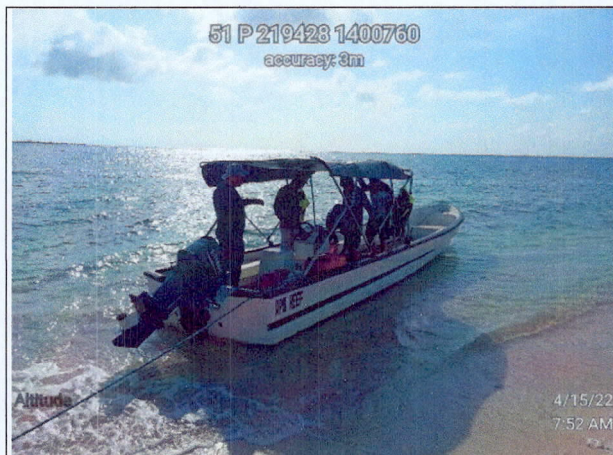
Park Rangers and Boat Captain returning from the at-sea patrol conducted from February 6 to 7, 2022.



Park Rangers Temart E. Rebuto and Kelvin U. Zubiri discussing PA rules and regulations to a fisherman on February 25, 2022.



PMF Roberto P. Beringuela and his teammates returning from an at-sea patrol conducted from February 27 to 28, 2022



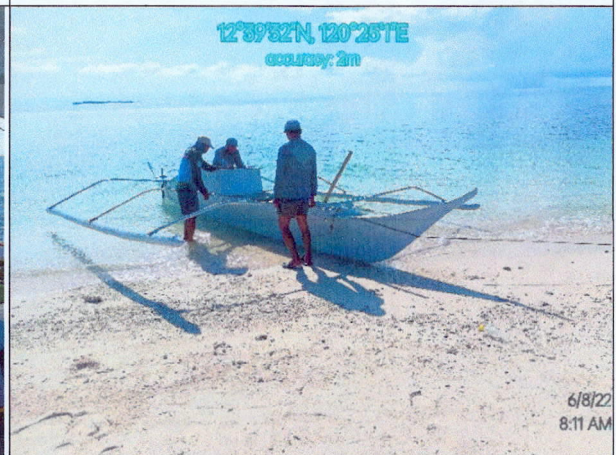
Park Rangers dislodging the 26-footer high speed watercraft after a seaborne patrol from April 14 to 15, 2022.



Motorized banca encountered within PA boundaries on June 7, 2022.



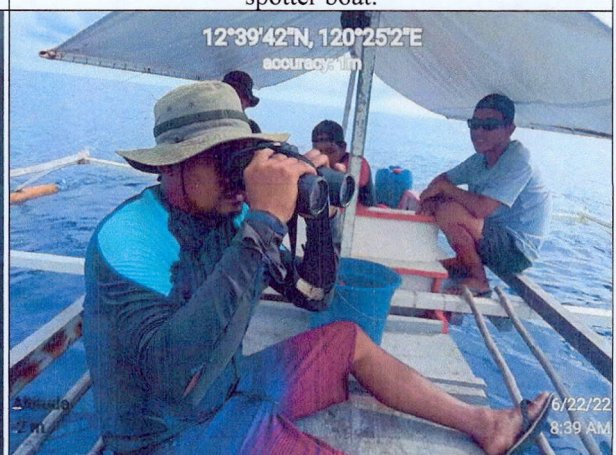
Park Ranger Temart E. Rebuto informing a motorized banca on PA rules and regulations.



Park Rangers preparing to conduct a seaborne patrol at Parolang Putol on June 8, 2022 using the refurbished spotter boat.



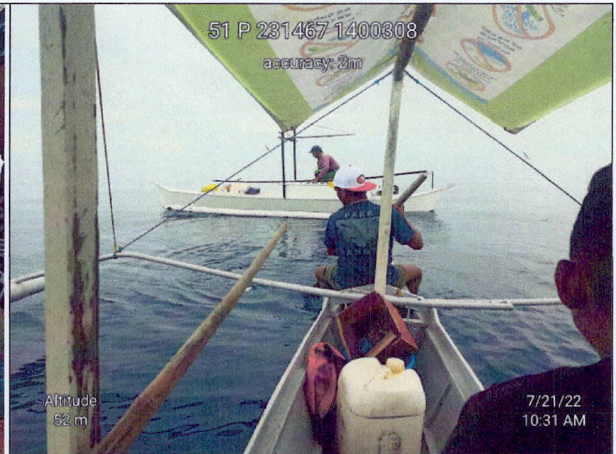
Park Ranger Kelvin U. Zubiri monitoring the vicinity from the lighthouse



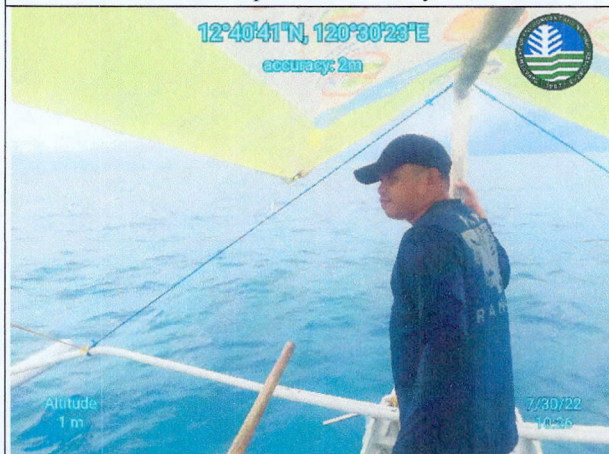
Support Staff Ricky M. Dantayana surveying the area with binoculars on June 22, 2022



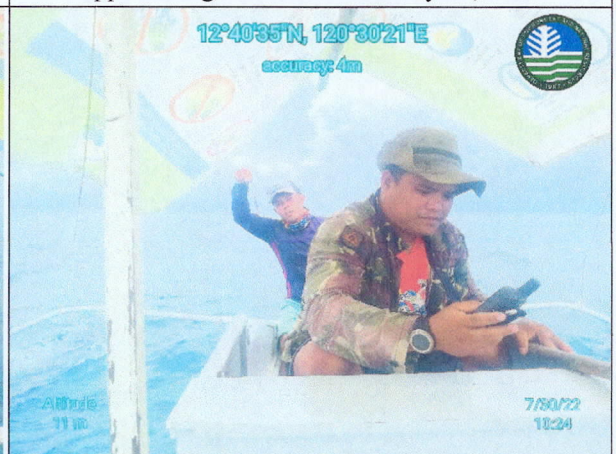
Fisherfolk (left) encountered by the Park Rangers during their seaborne operations on July 12, 2022.



Park Ranger Ludygario M. Matira (middle) approaching a fisherfolk last July 21, 2022



Park Ranger Kelvin U. Zubiri surveying the core zone for illegal fishing activity last July 30, 2022



Park Ranger Temart E. Rebito (right) heading the patrol operations



Salvador M. Ciasico (left) and Boat Captain Mark Dennis Barretto participating in the seaborne patrol last August 13, 2022



Park Ranger Temart E. Rebito telling a fisherfolk encountered during the seaborne patrol to stop the engine of his boat



Forest Ranger Efraim Z. Pagador attempting to retrieve one of the suspected rocket debris



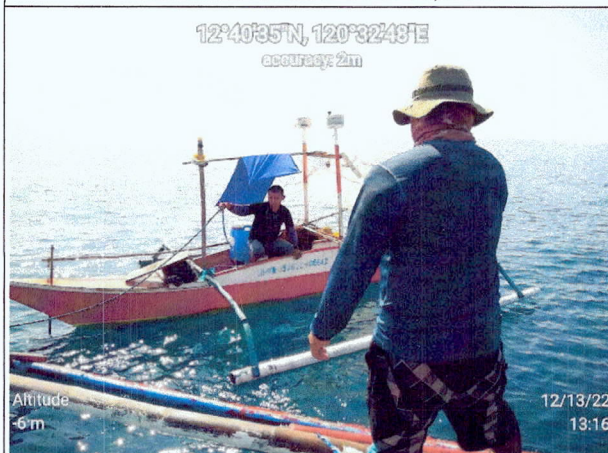
The other suspected rocket debris with blue Chinese inscription recorded in Apo Reef Natural Park last November 9, 2022.



Park Rangers and Coast Guards pulling the retrieved debris to the beach of Apo Island, Apo Reef Natural Park on November 10 to 11, 2022



Park Rangers and Coast Guards unloading the suspected rocket debris at Sablayan Pier on November 11, 2022



Park Ranger Temart E. Rebito (right) apprehending a fisherfolk operating within the PA on December 13, 2022

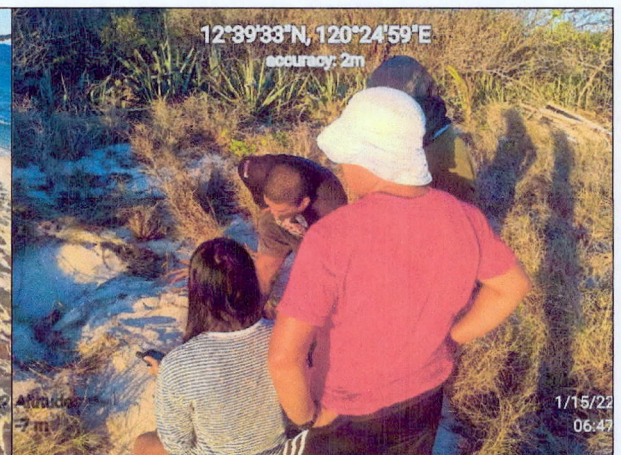


Another fisherfolk apprehended on December 13, 2022

H. Photo-documentation of the nesting beach surveys from January to December 2022.



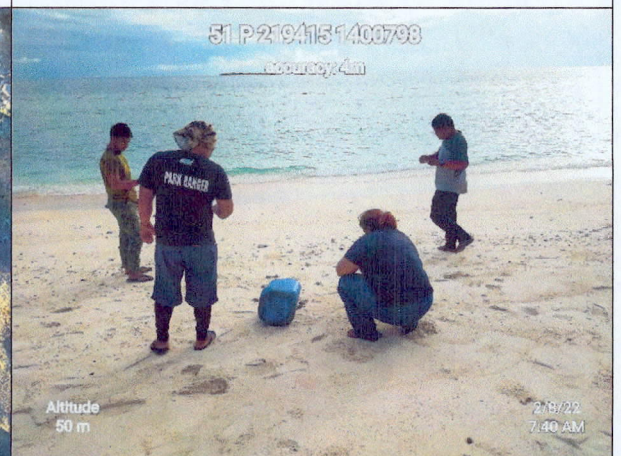
CMEMP-EO Hugo G. Salvador measuring the CCL of the Green Turtle prior to tagging with Tag No. PH138K.



CMEMP-EO Hugo G. Salvador conducting a refresher training on nesting beach surveys last January 15, 2022.



Park Ranger Michael D. Dagdag measuring a Green Turtle Track on February 3, 2022.



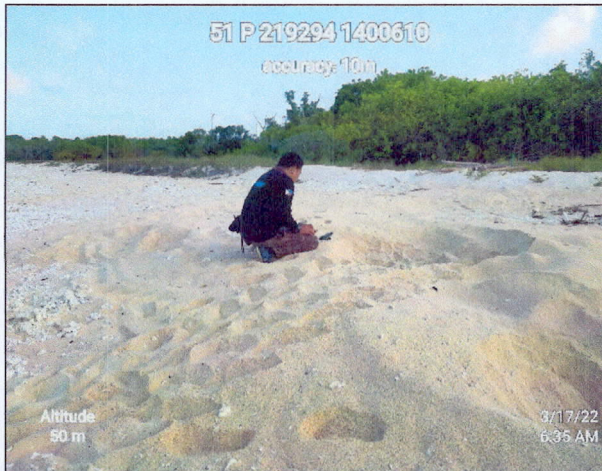
PASu Krystal Dayne T. Villanada and Park Rangers releasing Green Turtle hatchlings on February 8, 2022.



Newly emerged Green Turtle hatchlings recorded near the helipad on February 18, 2022.



Park Ranger Kelvin U. Zubiri acquiring the geolocation of a Green Turtle nest on February 23, 2022.



Park Ranger Michael D. Dagdag assessing the body pit of a green turtle on March 17, 2022.



Park Ranger Michael D. Dagdag recording the measurement of a crawl on March 21, 2022.



Park Ranger Michael D. Dagdag inspecting a mound beside a body pit.



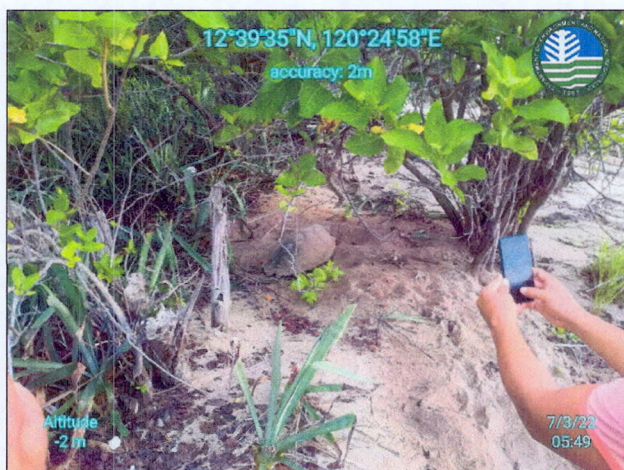
Hawksbill turtle track photographed on March 22, 2022.



Support Staff Ricky M. Dantayana identifying whether a track is a nesting emergence or a false crawl.



Incoming and outgoing tracks of a green turtle that was photographed by Park Ranger Kelvin U. Zubiri.



Hawksbill Turtle preparing the clutch for its eggs on July 3, 2022



Park Rangers attaching an Inconel tag (PH1541K) to the Hawksbill Turtle after nesting



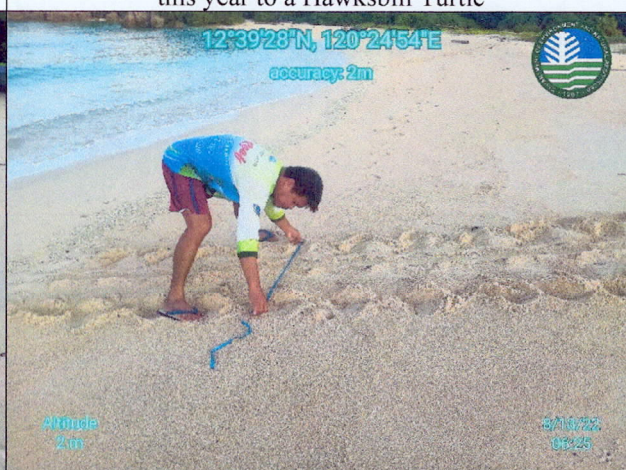
A different Hawksbill Turtle nesting beside the Ranger's Kiosk on July 14, 2022



Second Inconel tag (PH1542K) attached by Park Rangers this year to a Hawksbill Turtle

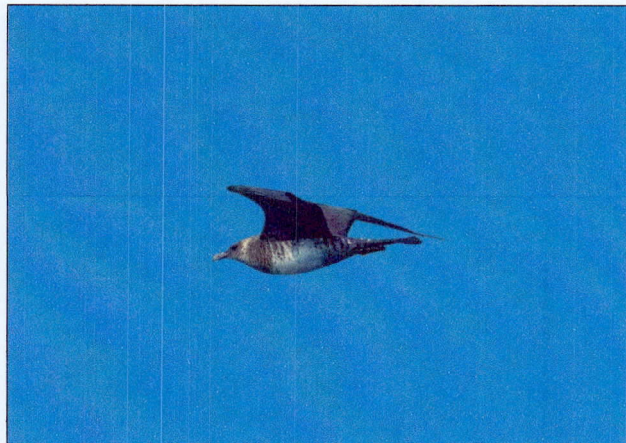


Park Ranger Michael D. Dagdag measuring the width of a Green Turtle turtle track on August 7, 2022



Park Maintenance Foreman Roberto P. Beringuela measuring the width of a Green Turtle track within the southern portion of the sandy beach

I. Photo-documentation of the Asian Waterbird Census 2022.



Pomarine Jaeger (*Stercorarius pomarinus*) encountered while in transit to Apo Reef Natural Park



Brown Booby (*Sula leucogaster*) near Cajos del Bajo (Tinangkapan)



Streaked Shearwater (*Calonectris leucomelas*) at Cayos del Bajo (Tinangkapan)



Barred Rail (*Hypotaenidia torquata*) at Apo Island



Peregrine Falcon (*Falco peregrinus calidus*) at Apo Menor (Binanggaan)



Nicobar Pigeon (*Caloenas nicobarica*) at Apo Island



Mantanani Scops Owl (*Otus mantananensis*) at Apo Island



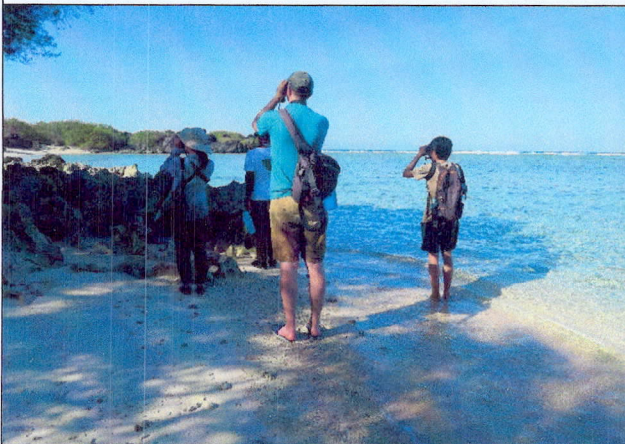
Eyebrowed Thrush (*Turdus obscurus*) at Apo Island



Olive-backed Sunbird (*Cinnyris jugularis aurora*) at Apo Island



Unidentified cetacean recorded while in transit to Apo Reef Natural Park

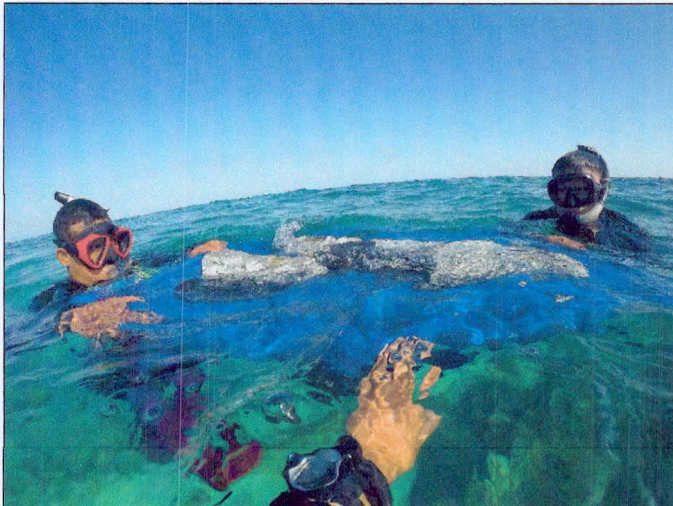


Three volunteers from WBCP with Michael D. Dagdag surveying Apo Island

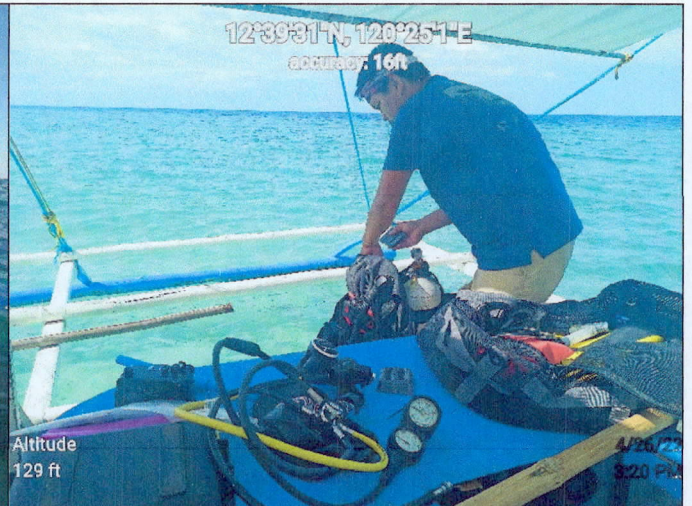


All participants of the 2022 Waterbirds Survey in Apo Reef Natural Park

J. Photo-documentation of the damage assessment for the F/V Monalinda 85 grounding incident.



Park Rangers and the weights that were collected from the grounding site on April 20, 2022.



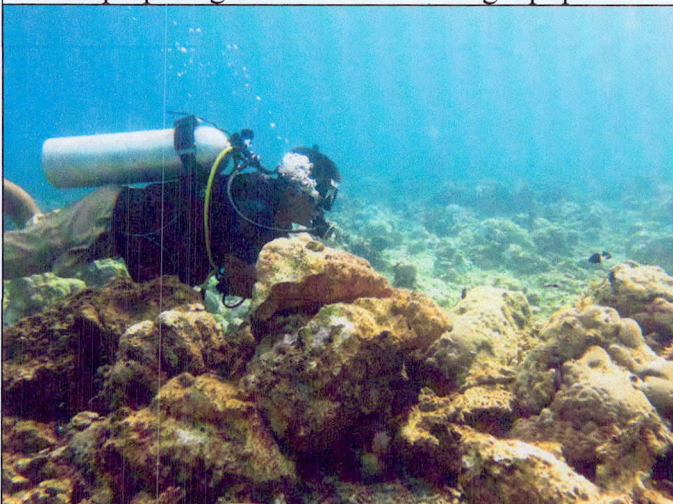
Park Maintenance Foreman Roberto P. Beringuela preparing his equipment on April 26, 2022.



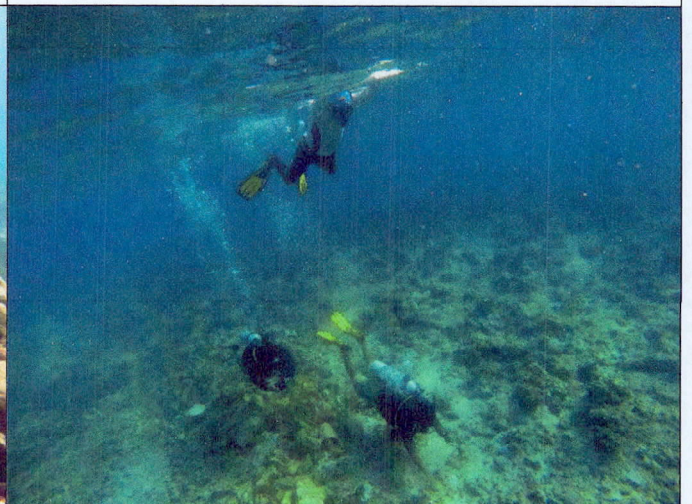
Other members of the internal damage assessment team preparing their SCUBA diving equipment.



Forest Ranger Pagador testing out the GPS float.



Park Maintenance Beringuela crawling over damaged benthos while attached to the GPS float.



The Internal damage assessment team delineating the damaged area.

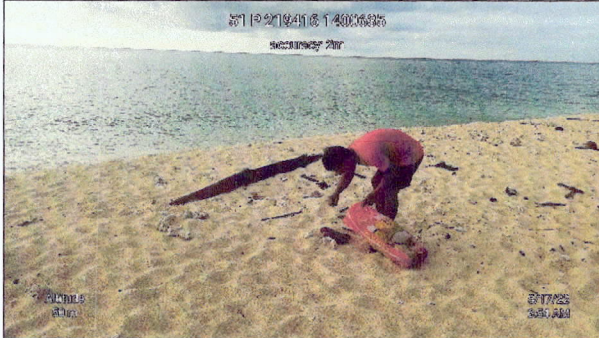
K. Photo-documentation of the coastal clean-up activities conducted from January to December 2022.



Park Rangers Ricky Dantayana and Ludygario Matira conducting a coastal clean-up activity on April 5, 2022.



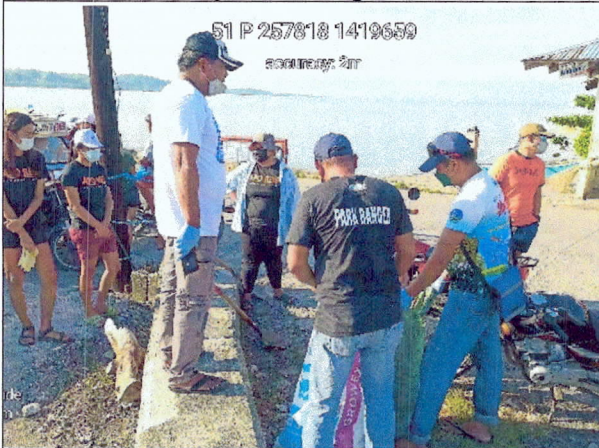
Participants of the coastal clean-up activity at Sitio Tabuk on May 6, 2022



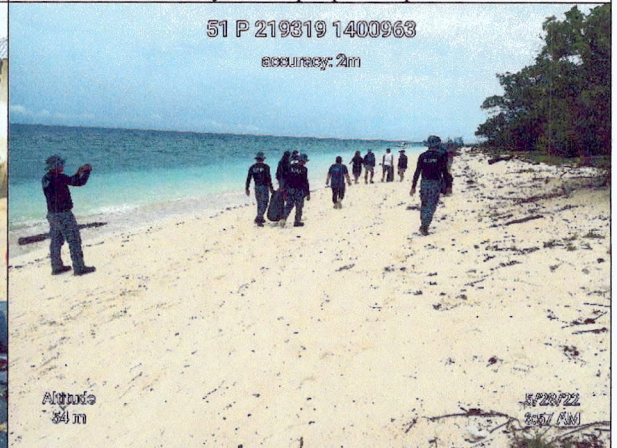
Park Ranger Sherwin Benosa collecting small marine litter dispersed amongst the sand.



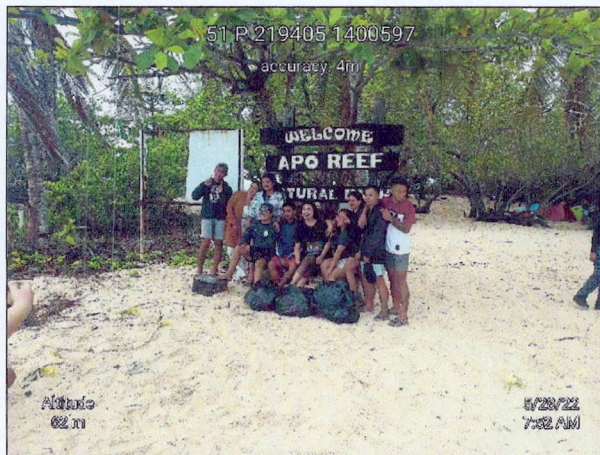
Wastes to be transported on May 17, 2022 to mainland Sablayan for proper disposal.



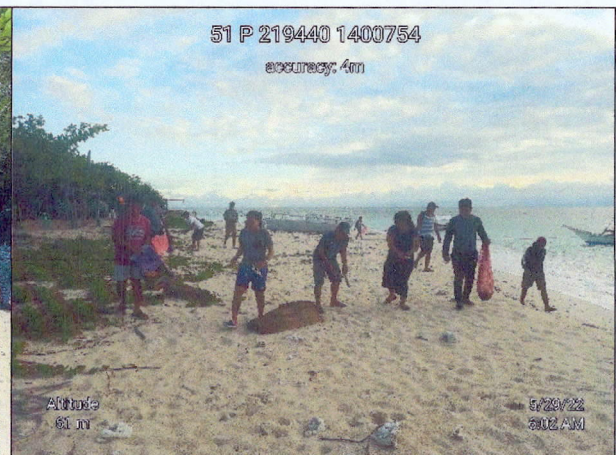
ARNP-PAMO staff participating in the coastal clean-up activity at Sablayan Pier.



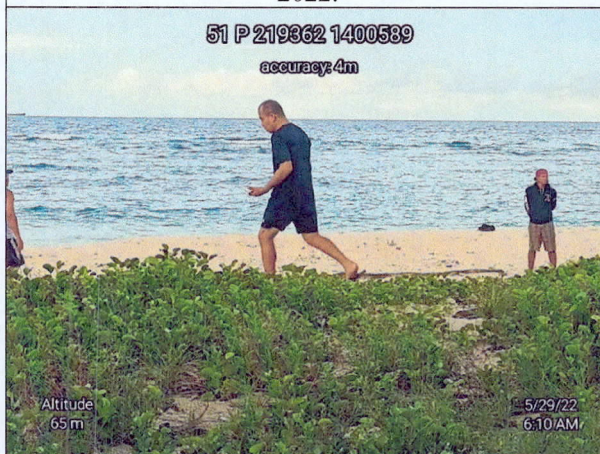
ARNP-PAMO staff and BJMP personnel joining youth leaders in cleaning up the sandy shore in Apo Island.



SK Members posing for a photo at the welcome signage after the coastal clean-up activity on May 28, 2022.



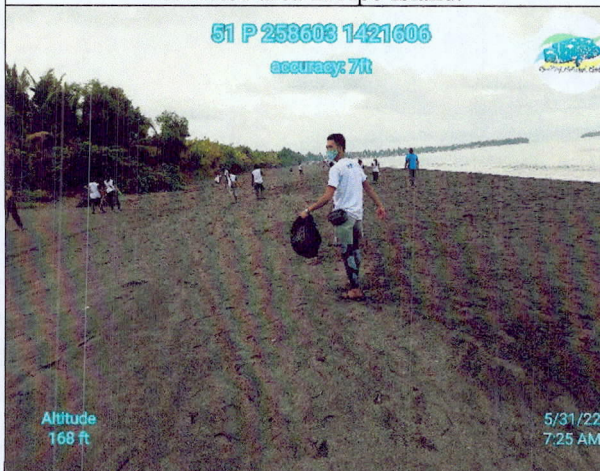
Park Rangers joining the personnel of the Municipal Trial Court in their clean-up activity on May 29, 2022.



Judge Jeicqpoi Politico collecting trash along the restricted area in Apo Island.



Park Ranger Michael D. Dagdag segregating wastes collected from coastal clean-up activities.



Park Ranger Salvador M. Ciasico participating in the second coastal clean-up at Sitio Tabuk on May 31, 2022.



Participants of the SCUBASura held at Free Beach, Barangay Poblacion on May 31, 2022.

| | |
|--|---|
| | |
| <p>Park Ranger Temart E. Rebito and MENRO personnel conducting a coastal clean-up activity on September 12, 2022</p> | <p>Park Ranger Jun G. Serquiña removing drifted lumber from the shore on September 27, 2022</p> |
| | |
| <p>Boat Captain Romel M. Pacaul collecting styrofoam pieces from the sandy beach of Apo Island on October 3, 2022</p> | <p>Park Ranger Jun G. Serquiña and MENRO staff conducting coastal clean-up activity in Apo Island on October 11, 2022</p> |
| | |
| <p>Park Ranger Sherwin R. Benozza collecting small pieces of styrofoam along the shore of Apo Island on November 7, 2022</p> | <p>Sacks of mixed garbage collected during the coastal clean-up activity in Apo Island on November 7, 2022</p> |



Forest Ranger Efraim Z. Pagador and Boat Captain Romel M. Pacaul segregating the wastes collected on November 15, 2022



Forest Ranger Pagador and Park Ranger Benozza retrieving derelict fishing gears entangled onto the reef last November 23, 2022

L. Photo-documentation of the ARMS monitoring for 2022.



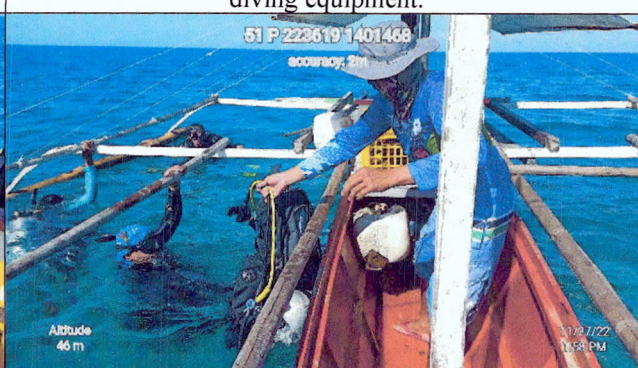
Park Rangers preparing while in transit to Ego Wall, one of the three stations where ARMS were installed.



Park Ranger Temart E. Rebito and Support Staff Salvador M. Ciasico assisting in the assembly and disassembly of diving equipment.



Park Rangers Sherwin R. Benoza and Ricky M. Dantayana geared up for the ARMS monitoring activity in Binanggaan on November 27, 2022



Boat Captain Romel M. Pacaul assisting Park Rangers in setting up their diving gears for the ARMS monitoring activity



Forest Ranger Efraim Z. Pagador and Park Ranger Ricky M. Dantayana searching for the ARMS in Binanggaan



Forest Ranger Efraim Z. Pagador inspecting the one of the six ARMS in Binanggaan