



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

JUN 08 2023

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 MILESTONE ACTIVITY REPORT FOR
CORAL REEF MONITORING

Forwarded is the memorandum dated May 31, 2023 of CENRO Sablayan regarding Submission of Milestone Activity Report for the Coral Monitoring in Apo Reef Natural Park conducted on May 19-26, 2023. The activity is under 310203100001000.c.2-Coastal and Marine Rehabilitation Sub-Program.

The activity was conducted in cooperation with the University of the Philippines Los Baños as a component of the Spatio-temporal Monitoring and Rehabilitation Technology for the Enhanced Recovery Coral Reefs (SMaRTER-CORALS). The final report, with results and discussions, will be submitted on 3rd Quarter, after the analysis of underwater photos using Coral Point Count with Excel extensions (CPCe v.4.1) has been completed.

For information and record.


ERNESTO L. TAÑADA

TSD-CDS6/7/2023

Copy furnished:

1. Planning Section
2. File



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

May 31, 2023

MEMORANDUM

FOR : The PENR Officer
Mamburao, Occidental Mindoro

RECORDED
Date: 5-31-23
By: 9

FROM : CENR Officer

SUBJECT : SUBMISSION OF MILESTONE ACTIVITY REPORT FOR
CORAL MONITORING IN APO REEF NATURAL PARK

Respectfully submitting with this the Milestone Activity Report for the Coral Monitoring in Apo Reef Natural Park conducted on May 19-26, 2023. The activity is under the 310203100001000.c.2- Coastal and Marine Rehabilitation Sub Program. The final report will be submitted in the 3rd Quarter of this year.

For information and record.


FOR. ANASTACIO A. SANTOS, MPA

RECORDS

RECEIVED BY: <u>W</u>
DATE: <u>6/6</u> TIME: <u>1:00</u>
RELEASED BY: _____
DATE: _____ TIME: _____

PENRO

RECEIVED BY: <u>W</u>
DATE: <u>6/6</u> TIME: <u>3:00 PM</u>
RELEASED BY: _____
DATE: _____ TIME: _____

TSD

RECEIVED BY: <u>W</u>
DATE: <u>6/7/23</u> TIME: <u>1:30 PM</u>
RELEASED BY: _____
DATE: _____ TIME: _____

CDS

RECEIVED BY: <u>9</u>
DATE: <u>6/7/23</u> TIME: <u>3:20 PM</u>
RELEASED BY: _____
DATE: <u>6/8/23</u> TIME: <u>8:30 PM</u>



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



May 31, 2023

MEMORANDUM

FOR : The Regional Executive Director
DENR MIMAROPA Region
1515 DENR By the Bay, Roxas Blvd.
Brgy 668, Ermita Manila

THRU : The PENR Officer
Mamburao, Occidental Mindoro

The CENR Officer
Sablayan, Occidental Mindoro

FROM : The Protected Area Superintendent

SUBJECT : SUBMISSION OF MILESTONE ACTIVITY REPORT FOR
CORAL MONITORING IN APO REEF NATURAL PARK

Respectfully submitting with this the Milestone Activity Report for the Coral Monitoring in Apo Reef Natural Park conducted on May 19-26, 2023. The activity was in cooperation with the University of the Philippines Los Banos as a component of the Spatio-temporal Monitoring and Rehabilitation Technology for the Enhanced Recovery Coral Reefs (SMaRTER-Corals). The final report, with results and discussions, will be submitted on the 3rd Quarter, after the analysis of underwater photos using Coral Point Count with Excel extensions (CPCe v.4.1) has been completed.

For information and record.


KRYSTAL DAYNE T. VILLANADA

I. INTRODUCTION

Apo Reef Natural Park (ARNP), situated approximately 33 km off the western coast of Occidental Mindoro, spans 15,799.23 ha and covers a 34 km² sub-triangular, atoll-like coral reef divided by a deep channel (Figure 1). The Natural Park hosts several ecosystems including mangrove forests and coral reefs and rich biodiversity. To date, Apo Reef Natural Park is known to host at least 313 species of fish, 45 genera of hard corals, 8 species of mangroves, and 4 species of seagrasses (REECS, 2017). It is also an important habitat for at least 100 species of waterbirds and non-waterbirds (Tabaranza et al., 2014).

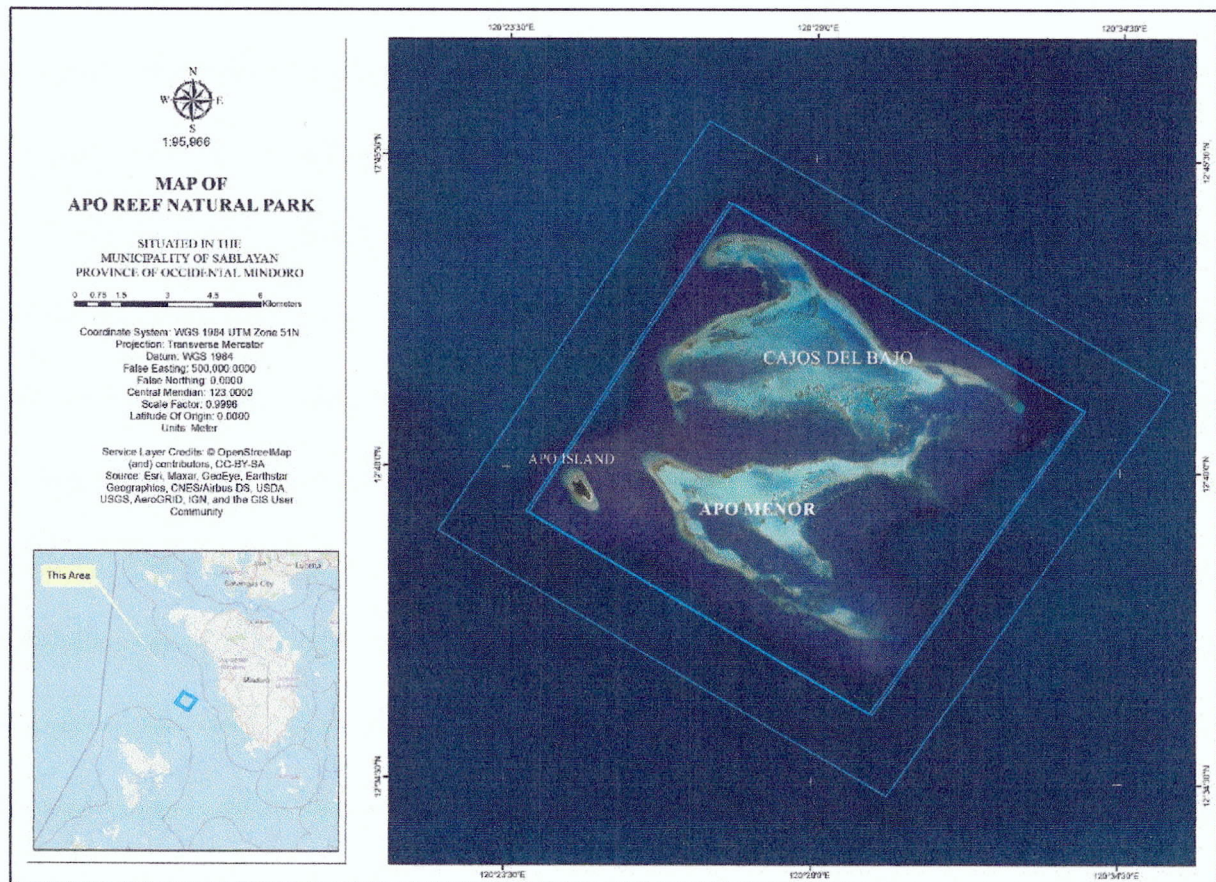


Figure 1. Map of Apo Reef Natural Park.

Monitoring activities play an important role in the management of marine resources, especially in Marine Protected Areas (MPAs). The coral reefs in ARNP were monitored in fulfilment of an activity under MPA Management, Strengthening, and Networking, a subcomponent of the Coastal and Marine Ecosystems Management Program. Specifically, the objectives of the coral reef monitoring conducted are the following:

1. Determine the hard coral cover and community structure;
2. Assess the reef fish and invertebrate communities in the monitoring stations established by World Wildlife Fund Philippines (WWF Philippines); and
3. Develop and implement management actions, if necessary.

II. MILESTONE ACTIVITY

Fifteen stations were established by the WWF-Philippines for the survey of corals, fish, and mobile benthic invertebrates (Figure 2) and were distributed across the MPA to capture differential exposure to prevailing winds (southwest and northeast monsoon). These stations were monitored in partnership with a team of researchers from the University of the Philippines Los Baños from May 19-21, 2023, and May 24-26, 2023, as a subcomponent of their research - Spatio-temporal Monitoring and Rehabilitation Technology for the Enhanced Recovery Coral Reefs (SMaRTER-Corals). One station was subjected to the substrate rehabilitation which was conducted on May 22-23, 2023. Ground control points for remote sensing from the southern stations of the protected area was also conducted to update the data on the coral reef habitat of ARNP.

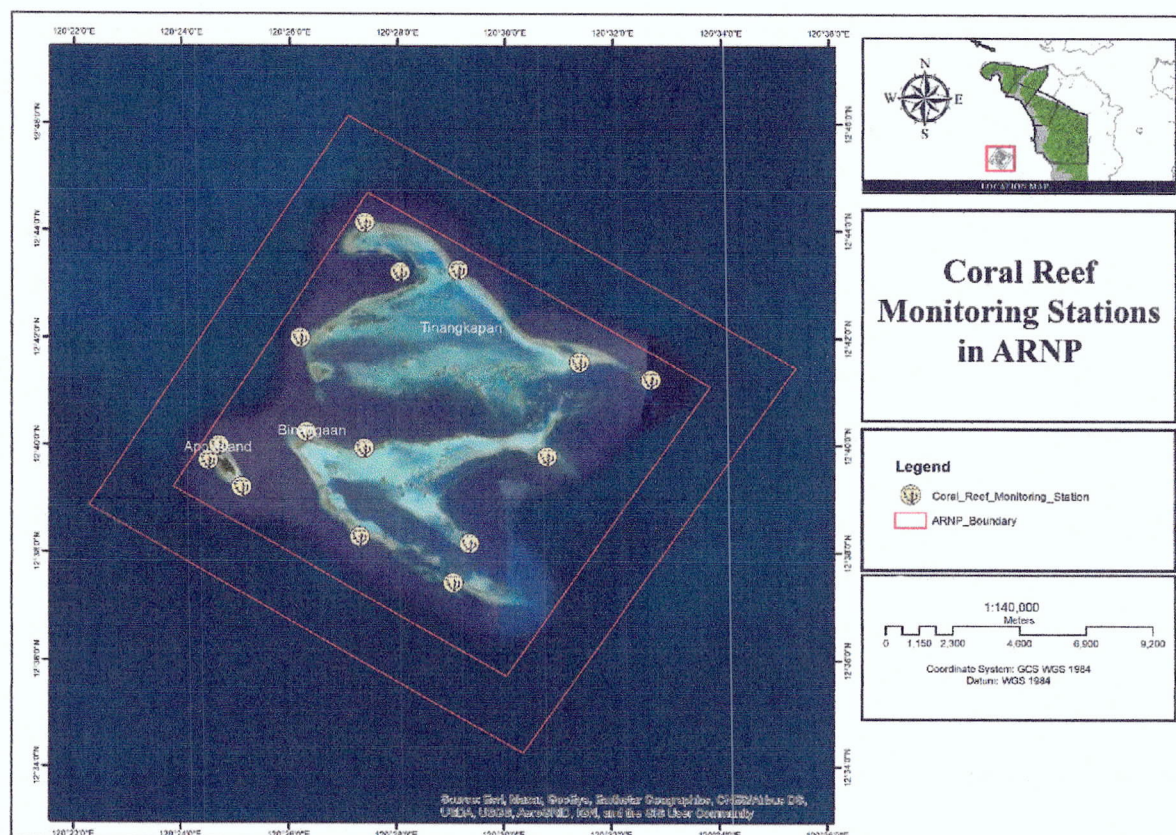


Figure 2. Fifteen coral reef monitoring stations established by WWF Philippines.

During the field surveys, five 50-m transects with an area of 75 x 25 m were laid on each station, parallel to the contour of the reef based on the protocol of van Woessik et al (2009). The base transect, reaching 75 m, was laid in parallel with the contour of the reef. The four subsequent transects were randomly placed within the length of 25 m towards the shallower section of the reef slope. The photographs of corals were taken every 1-m interval starting from the zero-mark using a housed digital camera (Canon G15 with Recsea underwater housing) mounted on an aluminium monopod. The coral photographs will be post-processed in Adobe Lightroom Classic and subsequently analysed using Coral Point Count with Excel extensions (CPCe v.4.1). Ten points will be randomly placed in the images and the benthos intercepted by each point will be identified.

Fish visual census and benthic marine invertebrates were done simultaneously with the coral phototranssect survey, following the methods of English et al. (1997), where three out of

the five transects were analysed. Fishes encountered within 2.5 meters on each side along these three 50-m transects were counted and identified to species level. The total length of the individuals was recorded for the computation of biomass. Moreover, the microbenthic invertebrates observed along the 2 m width on each side were counted and identified to the genus level.

Table 1 presents the participants of the activity. They include personnel from Apo Reef Natural Park – Protected Area Management Office (ARNP-PAMO) and UPLB. The analysis of data and submission of the final report will be conducted in the succeeding quarters of this year.

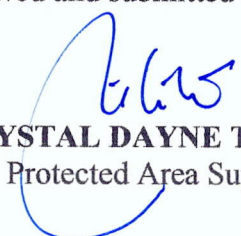
Table 1. Participants of the coral reef monitoring for CY 2023 from ARNP-PAMO and UPLB.

Name	Position	Task
Victor S. Ticzon	Volunteer	Coral photoquadrats/Laying of transects
Kristyl Ckaye E. Pardo	Volunteer	Coral photoquadrats
Marion Michael Bacabac	Volunteer	Invertebrate survey
Clarisse Anne Pereira	Volunteer	Invertebrate survey
Jesus Gabriel Fetil	Volunteer	Coral photoquadrats/Invertebrate survey
Kent Elson Sorgon	Volunteer	Fish survey
Kexya Gustilo	Volunteer	Fish survey
Krystal Dayne T. Villanada	Protected Area Superintendent	Invertebrate survey
Roberto P. Beringuela	Park Maintenance Foreman	Laying and reeling of transects
Efraim Z. Pagador	Forest Ranger	Fish survey
Jane Frances T. Senosa	CMEMP Extension Officer	Coral photoquadrats
Romel M. Pacaul	Boat Captain	Operation of outrigger boat and hi-speed watercraft (26-footer)
Jaysrael Urieta	Park Ranger	Operation of speed boat
Mark Dennis M. Barretto	Boat Captain	Operation of outrigger boat
Sherwin R. Benoza	Park Ranger	Filling of SCUBA tanks
Ludygario D. Matira	Park Ranger	Assembly and disassembly of diving equipment
Kelvin John U. Zubiri	Park Ranger	
Temart E. Rebito	Park Ranger	
Federico A. de Jesus	Park Ranger	
Billy Calabio	Park Ranger	Maintenance of diving equipment
Jun G. Serquiña	Park Ranger	
Raymart Dangeros	Park Ranger	
Ricky M. Dantayana	Support Staff	

Prepared by:


JANE FRANCES T. SENOSA
 CMEMP Extension Officer

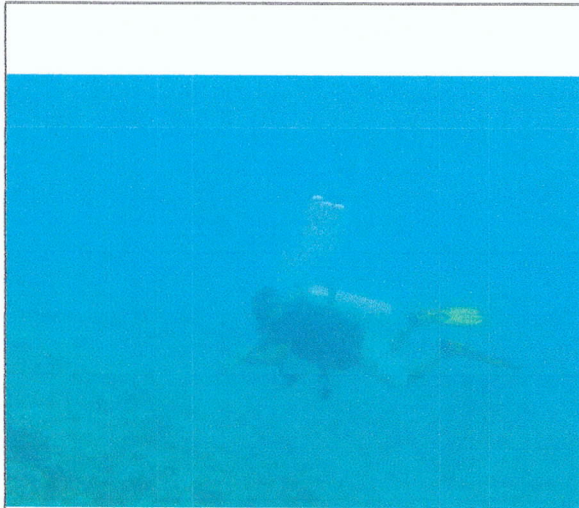
Reviewed and submitted by:


KRYSTAL DAYNE T. VILLANADA
 Protected Area Superintendent

III. REFERENCES

- English S, Wilkinson C, Baker V. 1994. Survey manual for tropical marine resources. Townsville, Australia: Australian Institute of Marine Science. 378 pp.
- REECS. 2017. Comprehensive assessment of marine and coastal resources of Apo Reef Natural Park: Baseline information for the Pilot Testing Project. Quezon City: Resources, Environment, and Economics Center of Studies, Inc.
- Tabaranza DGE, Cielo KLS, Natural Jr, Dela Rosa Jr G, Molina EP, Abes JL, Capoquian R, Abes ML, Francisco AN, Diamante GC. 2014. Apo Reef Natural Park Rapid Site Assessment Report. Muntinlupa City: Mindoro Biodiversity Conservation Foundation Inc.
- Van Woesik R, Gilner J, Hooten AJ. 2009. Standard operating procedures for repeated measures of process and state variables of coral reef environments. Melbourne: Coral Reef Targeted Research and Capacity Building for Management Program, The University of Queensland. 34 p.

IV. PHOTODOCUMENTATION



Park Maintenance Foreman Roberto P. Beringuela searching cement blocks at Station 1 on May 19, 2023.



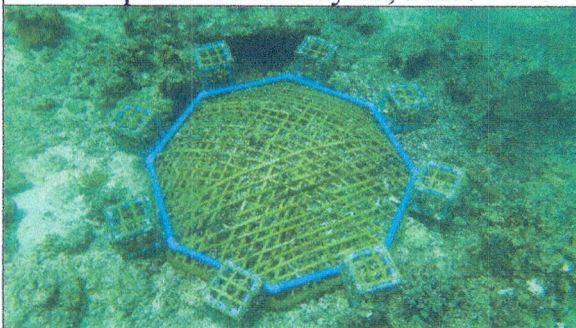
Forest Ranger Efraim Z. Pagador preparing for the dive at Station 8 on May 20, 2023.



Boat Crew Jaysrael Urieta and Park Ranger Sherwin R. BENOZA loading diesel on the speedboat on May 22, 2023.



Live coral substrate recorded at the depth of 1.5 m during the gathering of ground control points on May 22, 2023.



Installation of substrate stabilization set-up at Station 7 on May 23, 2023.



Park rangers putting coral rubbles required for the set-up at Station 7 on May 23, 2023.



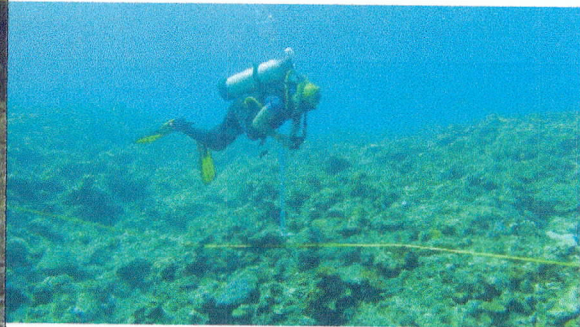
Park Ranger Sherwin R. Benoz and Forest Ranger Efraim Z. Pagador filling up the diving tanks for the scheduled field survey on May 25, 2023.



Park Rangers transferring diving tanks to the boat on May 21, 2023.



Block of Autonomous Reef Monitoring Structure (ARMS) recorded within the transect at Station 10 on May 25, 2023.



CMEMP Extension Officer Jane Frances T. Senosa performing phototransect at Station 6 on May 26, 2023.



CMEMP Extension Officer Jane Frances T. Senosa recording the coordinates and description for the ground control points around the southern stations on May 22, 2023.



Participants of the coral reef assessment in Apo Reef Natural Park for the duration of May 19-26, 2023.