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

NOV 17 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 THE 4TH QUARTER ACCOMPLISHMENT REPORT FOR MAINTENANCE AND PROTECTION OF COASTAL AND MARINE ECOSYSTEM REHABILITATION SUBPROGRAM OF APO REEF NATURAL PARK**

Forwarded is the memorandum dated November 14, 2023 of CENRO Sablayan regarding submission of the 4th quarter accomplishment report for maintenance and protection of Coastal and Marine Ecosystem Management Program (CMEMP). Accomplishments for response plan, habitat surveillance of threats and damages, repair and maintenance of equipment and conduct of direct activities are included in the report.

Attached herewith is the narrative report with it appendices

For information and record.

For and in the absence of PENR Officer:

EMILIZA A. CALABIO
SVEMS

TSD-CDS11/17/2023

So. Pag-asa, Brgy. Payompon, Mamburao, Occidental Mindoro
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Department of Environment and Natural Resources
MIMAROPA Region
APO REEF NATURAL PARK
Protected Area Management Office

14 November 2023

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

FROM : The CENR Officer

SUBJECT : **SUBMISSION OF THE 4TH QUARTER ACCOMPLISHMENT REPORT FOR MAINTENANCE AND PROTECTION OF COASTAL AND MARINE ECOSYSTEMS REHABILITATION SUBPROGRAM OF APO REEF NATURAL PARK**

Respectfully submitted is the 4th Quarter Accomplishment Report of Apo Reef Natural Park for the *Maintenance and Protection,* an activity under the Coastal and Marine Ecosystem Management Program (CMEMP).

For your information and record.

FOR. ANASTACIO A. SANTOS, MPA

National Highway, Brgy.Sto. Niño, Sablayan, Occidental Mindoro
E-mail: aporeefnaturalpark@gmail.com

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

14 November 2023

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 THE 4TH QUARTER ACCOMPLISHMENT REPORT FOR MAINTENANCE AND PROTECTION OF COASTAL AND MARINE ECOSYSTEMS OF APO REEF NATURAL PARK**

Respectfully submitted is the 4th Quarter Accomplishment Report of Apo Reef Natural Park for *Maintenance and* Protection, an activity under the Coastal and Marine Ecosystem Management Program (CMEMP). Accomplishments for response plan, habitat surveillance of threats and damages, repair and maintenance of equipment, and conduct of direct activities are included in the report. Attached herewith is the narrative report with its appendices.

For your information and record.

KRYSTAL DAYNE T. VILLANADA

National Highway, Brgy.Sto. Niño, Sablayan, Occidental Mindoro
E-mail: aporeefnaturalpark@gmail.com

I. Introduction

Apo Reef Natural Park (ARNP) is a 15,799-hectare offshore Marine Protected Area (MPA) approximately 30 kilometers away from the coast of the Municipality of Sablayan in Occidental Mindoro. The MPA covers two adjacent oceanic atolls, a fringing reef, and three limestone islands (Apo Island, Binanggaan, and Tinangkapan). ARNP hosts a diverse range of flora and fauna, and it is both recognized as a Key Biodiversity Area and an Important Bird Area. To date, the ARNP is known to host at least 481 fish species, 63 hard coral genera, and 109 bird species.

The efficient day-to-day management and operations of ARNP are ensured by the Apo Reef Natural Park - Protected Area Management Office (ARNP-PAMO), headed by the Protected Area Superintendent (PASu). This report contains the accomplishments of the Office under *Maintenance and Protection*, an activity under the Coastal and Marine Ecosystem Management Program (CMEMP), from 16 September to 15 November 2023, with corresponding means of verification (MOVs).

II. Accomplishments

c. Maintenance and Protection of Coastal and Marine Ecosystems

c.2. Habitat surveillance of threats and damages

Illegal activities within the core and buffer zones of ARNP, including fishing, are combatted and prevented by an inter-agency task force known as Task Force Marine and Apo Reef Law Enforcement (TF-MARLEN). TF-MARLEN was established in 2004 and it is primarily composed of the following: DENR, LGU Sablayan, Philippine Army, Philippine National Police, Philippine Coast Guard, and WWF-Philippines (Tabaranza et al., 2014).

The Park Rangers of ARNP-PAMO and MENRO Sablayan (including boat captains and crew members) play an integral role in the multi-sectoral task force. Among others, they regularly patrol the core and buffer zones of ARNP with or without assistance from the military and uniformed personnel. As of September 15, 2023, they have logged at least an estimate of 101.49 seaborne patrol hours and travelled 463.82 nautical miles around the reef complex. Park rangers also patrolled Apo Island on foot to monitor tourist activities and conducted surveillance from the lighthouse.

An apprehension on an unnamed motorized banca, with white and black colour, was done last 8 November 2023 (Figure 1). The fisher onboard was Willy G. Arizala. A criminal case was filed against him for the violation of Paragraphs a and g, Section 18 of the Republic Act 11038 or the ENIPAS Act of 2018 and Article III, Section 10 Paragraph 10.1.1 of ARNP PAMB Ordinance No. AR07-001-1, Series of 2011.

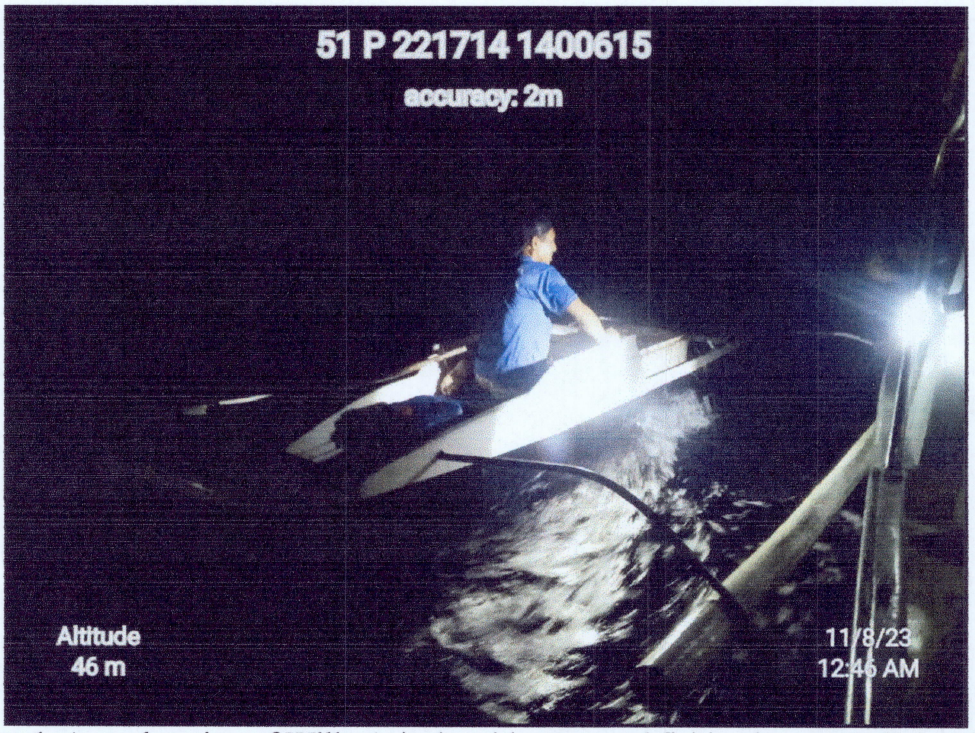

Figure 1. Apprehension of Willy Arizala with unnamed fishing boat at Bahura Binanggaan on 8 November 2023.

He was found at Bahura Binanggaan at around 12:47 am by the Task Force MARLEN (Figure 15). An arraignment of the accused was set on 16 November 2023 followed by the Pre-Trial Conference, which will be attended by PASu Krystal Dayne T. Villanada, Park Ranger Robert B. Beringuela, Park Ranger Temart E. Rebito, and Park Ranger Ricky M. Dantayana,

Refer to Appendix A for the photo-documentation of seaborne patrols conducted from 16 September to 15 November 2023.

c.3. Repair and maintenance of equipment

Two of the four watercraft of ARNP-PAMO are nonfunctioning: the 24-footer hi-speed watercraft and outrigger boat (M/Bca Jerlyn) (Table 1). However, the former has been undergoing repair since the last quarter of last year and it is expected to be fully functional by this year. Several parts have been repaired since the start of the year including the prow, sternpost, and outriggers. The boat hull was also laminated with putty and painted. The remaining repair activities are the construction of the motor mount and the installation of the constructed boat seats and ladder.

Table 1. Status of watercraft as of 15 November 2023.

Watercraft	Current Status
MBca Jerlyn	Serviceable
26-footer Hi-speed Watercraft	For repair (replacement of steering cable, repainting of boat hull, and repair of engine)
30-footer Hi-speed Watercraft	Serviceable
Spotter Boat	Serviceable

The other items being maintained are mostly in good condition (Table 2). However, most diving gears are for replacement. Although these gears are still functional, they should be replaced to ensure the safety of divers.

Table 2. Status of other equipment of ARNP-PAMO as of 15 November 2023.

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

Refer to Appendix B for the photo-documentation of the maintenance activities conducted from 16 September to 15 November, 2023.

c.4. Conduct of Direct Activities

Coral Bleaching Monitoring

Coral bleaching is the process in which corals expel symbionts from their tissues in response to stress and turn white. Under the rapidly changing climate, corals are more prone to bleaching due to increased ocean temperature. Detecting and monitoring coral bleaching events allows for better management of coral reefs. Few surveys were conducted to see if there were sightings of the threatening species during this quarter (Table 3). It was observed that few corals around Apo Island and monitoring sites were bleached but may be due to the presence of predation by microbenthic invertebrates and herbivorous fishes (Figure 2).

Table 3. Summary of survey for CoTS within ARNP.

Date surveyed	Location	Remarks
25-29 September 2023	15 monitoring stations	Few bleached corals
17 October 2023	Apo Island	None observed
10 November 2023	Apo Island	Observed few corals bleached but may be due to the presence of CoTS

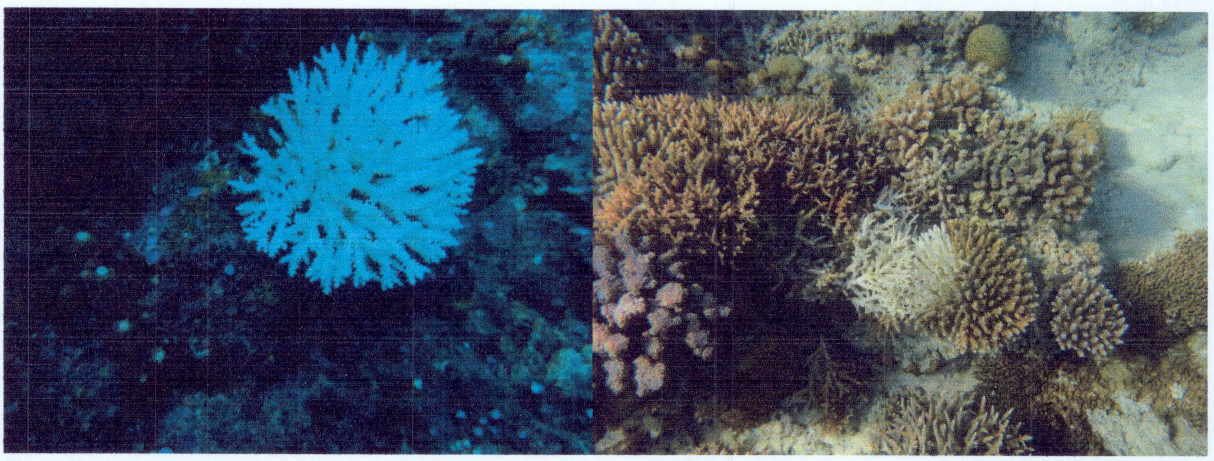

Figure 2. Bleached corals during the survey period (a) at one of the monitoring sites and (b) in front of the Ranger's Kiosk of Apo Island.

It is recommended that the NOAA Coral Reef Watch and its associated sites be visited regularly, and survey effort be increased especially in coral reef monitoring stations with relatively higher coral cover if the stress level is raised to Alert Level 1 or higher. Furthermore, it was recorded that ARNP is under *Watch* on the duration of the survey with sea surface temperature of around 30°C.

Crown-of-Thorns Starfish Surveillance and Control

Crown-of-thorns starfish (CoTS; *Acanthaster* sp.) is a corallivorous starfish with venomous spines. It has four known species, and an individual 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. Large CoTS outbreaks in ARNP occurred in 2018 and 2019 with 2,099 and 10,680 individuals culled, respectively. Few surveys were conducted to see if there were sightings of the threatening species during this quarter (Table 4). 3 CoTS were present during the observation done.

Table 4. Summary of survey for CoTS within ARNP.

Date surveyed	Location	Remarks
25-29 September 2023	15 monitoring stations	2 CoTS found near Apo Island
17 October 2023	Apo Island	No CoTS observed
10 November 2023	Apo Island	1 CoTS observed in front of Ranger's Kiosk

ARMS Monitoring

Nine units of Autonomous Reef Monitoring Structures (ARMS) were deployed in Apo Reef Natural Park in 2017. The deployment was a part of the research collaboration between the DENR-BMB and Smithsonian Institution which aims to utilize ARMS in assessing reef cryptobenthic diversity in the Philippines across different geographical and anthropogenic impact gradients.

Table 5. Observation of ARMS in Binanggaan and Ego Wall.

Location	Rec. Number	Remarks
Binanggaan	1	Covered with a coral and few tunicates; surrounded by rubbles
	2	Corals present, covered by algae; grazing marks on top; surrounded by rubbles
	3	Hard coral and soft corals present; tube dislodged
	4	Covered with algae, sponges, and corals
	5	Covered with algae, sponges, and corals; brittle star present; grazing marks on top
	6	Covered with algae, sponges, and corals
Ego Wall	1	A coral has grown almost the size of ARMS.

The ARNP-PAMO has been monitoring these structures every quarter since its deployment. A survey was done this quarter to monitor the remaining ARMS units. Table 5 shows the summary of the observation. During the monitoring activity, seven units of ARMS were found to be intact in their original locations: Ego Wall (n=1) and Binanggaan (n=6) (Figure 3). One of the three ARMS units that were deployed in Ego Wall has been lost, likely due to strong wave action in the area. Meanwhile, the other one has been dislodged in previous years and it was re-installed in front of the Ranger's Kiosk. Additionally, the University of the Philippines Los Baños was tapped for help for the assessment of cryptobiota found on ARMS and other possible research studies.

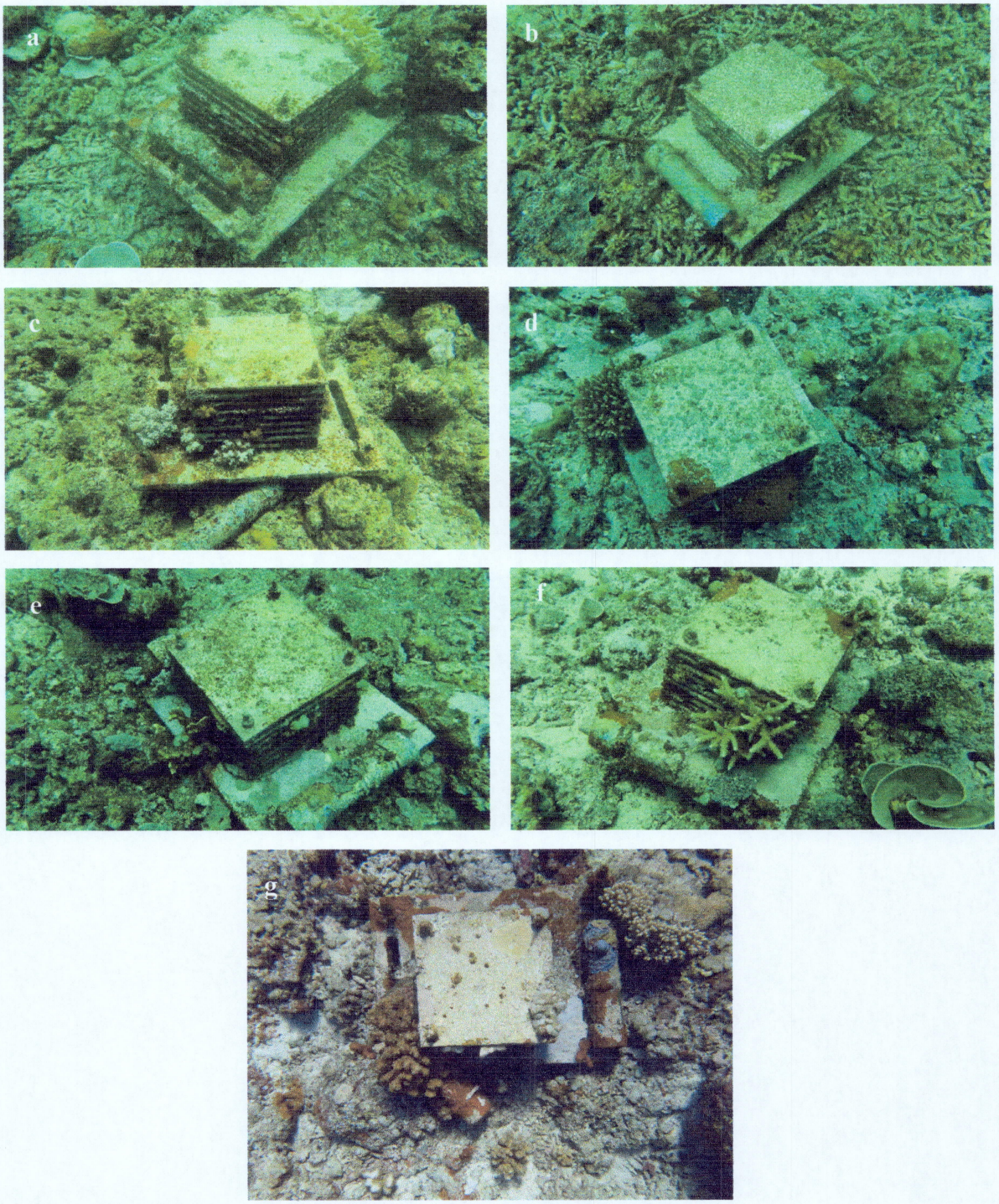

Figure 3. Seven intact ARMS in Binanggaan (a-f) and Ego Wall (g).

Refer to Annex C for the monitoring of coral bleaching, coral disease, CoTS, and ARMS.

Coastal Clean-up Activities

Marine litters are regularly collected from the shoreline of Apo Island, ARNP. 45 sacks were collected during the period from 16 September to 15 November 2023 (Table 4). These were all transported back to mainland Sablayan for proper disposal.

Table 6. Sacks of marine litter collected within Apo Island from 16 September to 15 November 2023.

Period	Type	Quantity (Number of bags)
16-30 September 2023	Mixed	15
1-31 October 2023	Mixed	25
1-15 November 2023	Mixed	5
	Total	45

Refer to Annex D for the photo-documentation of the coastal clean-up activities conducted from 16 September to 15 November 2023.

Prepared by:

JANE FRANCES T. SENOSA
CMEMP Extension Officer

Reviewed and submitted by:

KRYSTAL DAYNE T. VILLANADA
Protected Area Superintendent

III. APPENDICES

Appendix A. Photo-documentation of the seaborne patrol and inspection operations conducted from 16 September to 15 November2023.

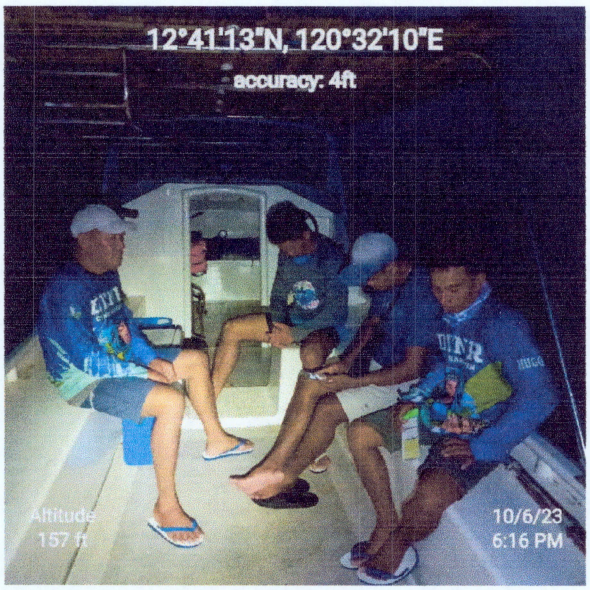

Figure A.1. Preparation of Team Shark for the patrolling.

Figure A.2. Look-out for possible illegal fishers entering the PA.

Figure A.3. Patrolling of Team Barracuda.

Figure A.4. Preparation of Team Barracuda for the patrolling.

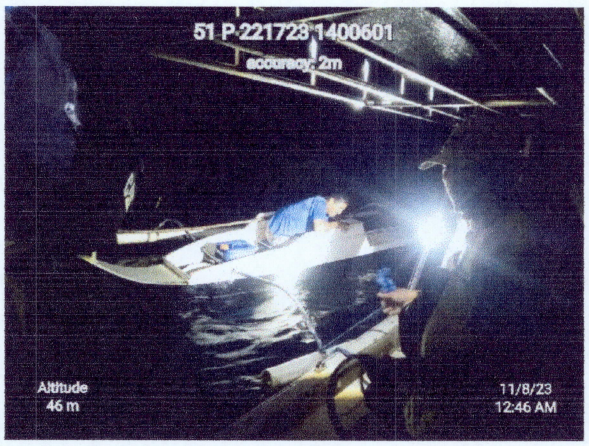

Figure A.5. Apprehension of Willy Arizala at Binanggaan.

Figure A.6. Reef fishes caught by the apprehended fisher.

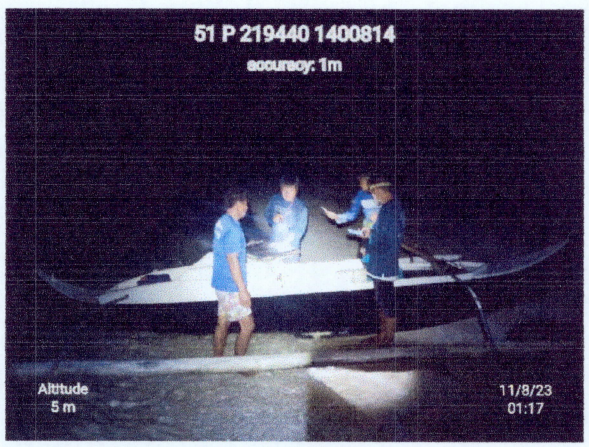

Figure A.7. Team Barracuda informing the apprehended fisher of his rights at Apo Island.

Figure A.8. Inspection and inventory of the fishes caught.

Figure A.9. Patrolling of Team Shark along the waters of ARNP.

Appendix B. Photo-documentation of the maintenance activities conducted from 16 September to 15 November 2023.

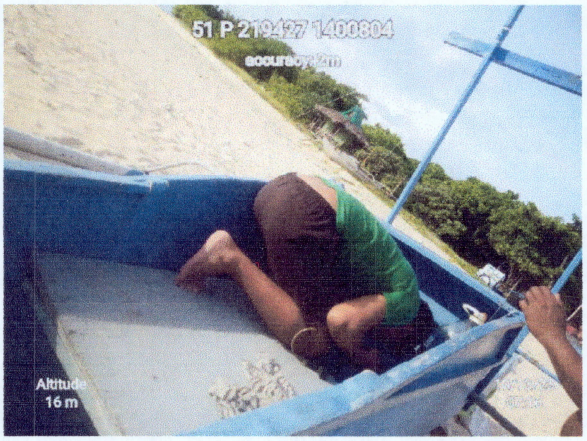

Figure B.1. Checking and repairing the spotter boat.

Figure B.2. Checking the motor of the compressor.

Figure B.3. Changing of oil of the compressor.

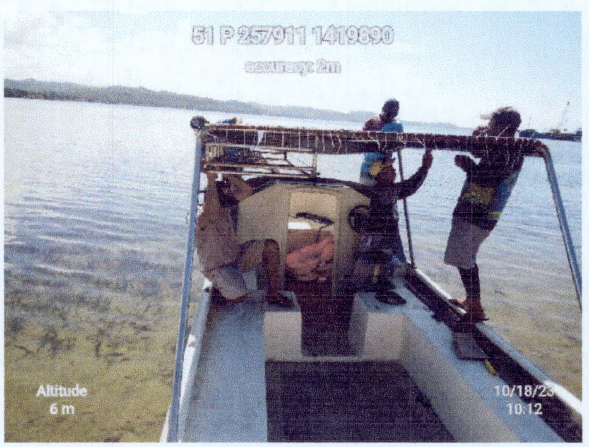

Figure B.4. Repairing the roof of the speed boat.

Figure B.5. Scrubbing of algae from the boat hull.

Figure B.6. Changing the oil for the spotter boat.

Appendix C. Photo-documentation of the ARMS, CoTS, coral bleaching, and coral disease monitoring activity conducted from 16 September to 15 November 2023.

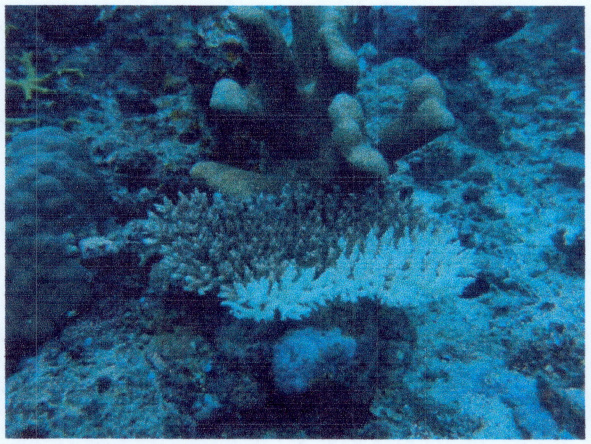

Figure C.1. Possible bleached coral at one of the monitoring stations.

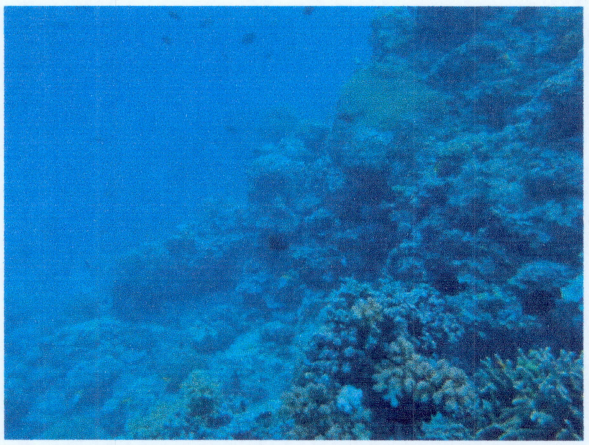

Figure C.2. Underwater view of the station with some bleached corals.

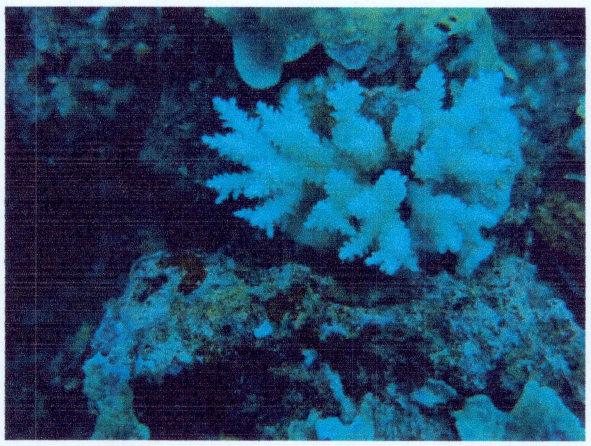

Figure C.3. Bleached coral found during the monitoring.

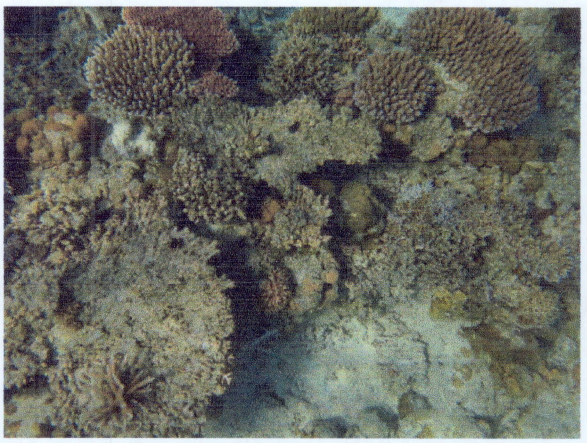

Figure C.4. Some corals covered with algae in front of Apo Island.

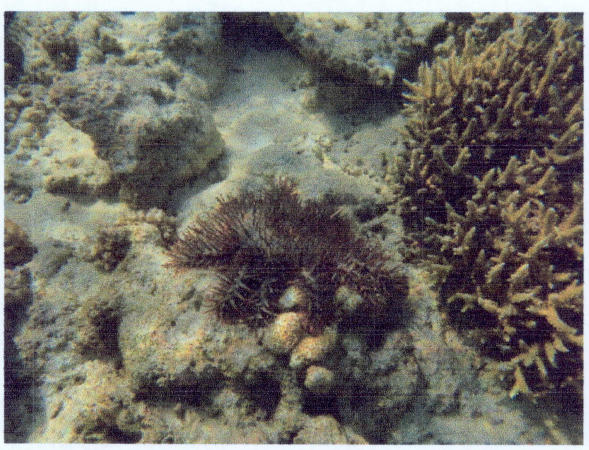

Figure C.5. Crown of Thorns Starfish found in front of Apo Island.

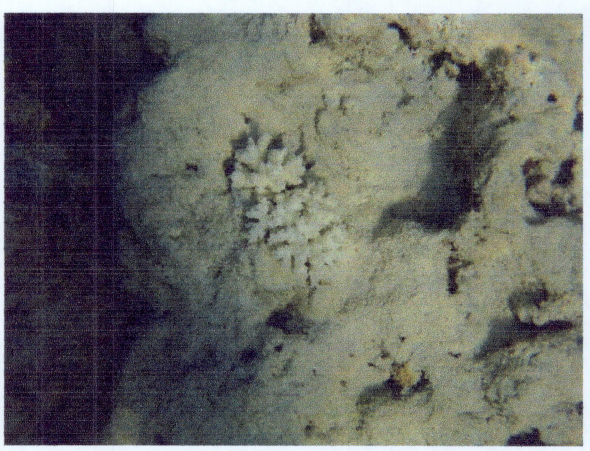

Figure C.6. Possibly bleached by the CoTS.

Appendix D. Photo-documentation of coastal clean-up activities conducted from 16 September to 15 November2023.

Figure D.1. Park Rangers of Team Barracuda removing marine litters at Binanggaan.

Figure D.2. Park Rangers of Team Barracuda unloading the garbages gathered from Binanggaan.

Figure D.3. Rangers cleaning up the shoreline near the lighthouse.

Figure D.4. Park Rangers sorting the garbages at Apo Island.

Figure D.5. Team Shark Park Ranger sorting the gathered garbages.

Figure D.6. Park Rangers of Team Shark sorting their collected garbages.