Republic of the Philippines
Department of Environment and Natural Resources
Provincial Environment and Natural Resources Office
MIMAROPA Region
Bgy. Sta. Monica, Puerto Princesa City, Palawan
E-mail: penropalawan@denr.gov.ph
Telfax No. (048) 433-5638 / (048) 433-5638

December 27, 2022

MEMORANDUM

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

THRU : The OIC, ARD for Technical Services

FROM : The Provincial Environment and
Natural Resources Officer

SUBJECT : **REPORT ON THE CONDUCTED ASSESSMENT AND MONITORING OF SEAGRASS FOR MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE (MSPLS)**

Forwarded is the memorandum dated December 20, 2022 of CENRO Taytay along with the report on the conducted assessment and monitoring of seagrass for Malampaya Sound Protected Landscape and Seascape (MSPLS) that serves as **Means of Verification (MOV)** to the target activity under Management of Coastal and Marine Resources/Areas – Monitoring of Seagrass in MSPLS.

Please be informed that five (5) monitoring sites were identified and established in Malampaya Sound Protected Landscape and Seascape (MSPLS). A total of four (4) species of seagrass were recorded, namely; *Enhalus acoroides*, *Cymodocea rotundata*, *Halophila ovalis*, and *Syringodium isoetifolium*. The monitoring of seagrass is 100% accomplished.

For information and record.

FELIZARDO B. CAYATOC

Republic of the Philippines
Department of Environment and Natural Resources
MIMAROPA Region
COMMUNITY ENVIRONMENT AND NATURAL RESOURCES OFFICE
By the National Highway, Poblacion, Taytay, Palawan 5312
Mobile: 0926-505-9335 TM 0912-171-3889 TNT
Email: cenrotaytay@denr.gov.ph

DENR CENRO
PALAWAN RECORDS
RECEIVED
BY:
DATE: 12-21-2022 CN 21-1585

December 20, 2022

MEMORANDUM

FOR : The Provincial Environment and Natural Resources Officer- Palawan
Sta. Monica, Puerto Princesa City

FROM : The Community Environment and Natural Resources Officer
This jurisdiction

SUBJECT : **REPORT ON THE CONDUCTED ASSESSMENT AND MONITORING OF SEAGRASS FOR MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE (MSPLS), TAYTAY-SAN VICENTE, PALAWAN**

Respectfully forwarded is the Memorandum dated November 28, 2022 of Protected Area Superintendent (PASu) Clarissa P. Pador being an accomplishment and **Means of Verification (MoV)** on the target Monitoring of Corals, Mangroves and Seagrass under 001 Management of Coastal and Marine Resources/Areas activity of Malampaya Sound Protected Landscape and Seascape (MSPLS). Taytay-San Vicente, Palawan.

Please be informed that, based on the ground truthing conducted a total of 117.06 hectares of seagrass was assessed and the five (5) sampling stations is located at Barangay Tumbod, Turao Island, Barangay San Jose, Sitio Binataan and Sitio Malaya, Barangay Banbanan and Sitio Katsi, Barangay Pancol, all within the municipality of Taytay, Palawan. The assessment disclosed about the four (4) species recorded in which *Enhalus acoroides (Ea)* have the highest occurrence and the status of the seagrass is in poor condition.

Further, this Office recommends that Sitio Katsi, Barangay Pancol should be considering as permanent monitoring site due to higher diversity.

For his information, record and approval.

CONRADO M. CORPUZ

Cc: PAMO-MSPLS

DENR CENRO
TAYTAY, PALAWAN
RELEASED
BY:
DATE: DEC 20 2022 3747

Republic of the Philippines
Department of Environment and Natural Resources
MIMAROPA Region
PROTECTED AREA MANAGEMENT OFFICE
MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE (MSPLS)
Taytay-San Vicente, Palawan
Barangay Old Guinlo, Taytay, Palawan
Email add: pamomspls@gmail.com/Contact #: 0938-786-3728 (SMART)

November 28, 2022

DENR CENRO TAYTAY, PALAWAN RECEIVED BY: [illegible] DATE: NOV 29 2022 CN 6958

MEMORANDUM

FOR : The Community Environment and Natural Resources Officer
Taytay, Palawan

FROM : The Protected Area Superintendent
Malampaya Sound Protected Landscape and Seascape (MSPLS)
Taytay-San Vicente, Palawan

SUBJECT : **REPORT ON THE CONDUCTED ASSESSMENT AND MONITORING OF SEAGRASS FOR MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE (MSPLS), TAYTAY-SAN VICENTE, PALAWAN**

This pertains to the target activity on the Monitoring of Corals, Mangroves and Seagrass under 001 Management of Coastal and Marine Resources/Areas of Malampaya Sound Protected Landscape and Seascape (MSPLS), Taytay-San Vicente, Palawan.

Respectfully forwarded is the memorandum dated November 25, 2022 of CMEMP Extension Officer Maria Lilibeth E. Arojo concerning the above subject. Please be informed that this Office conducted the mentioned activity covering the period from October to November, 2022. Based on the ground truthing conducted the MSPLS has a total seagrass cover of 117.06 hectares were the five (5) sampling stations is located at Barangay Tumbod, Turao Island, Barangay San Jose, Sitio Binataan and Sitio Malaya, Barangay Banbanan and Sitio Katsi, Barangay Pancol, all within the municipality of Taytay, Palawan.

During the assessment and monitoring, a total of four (4) seagrass species were recorded namely *Enhalus acoroides (Ea), Cymodocea rotundata (Cc), Halophila ovalis (Ho),* and *Syringodium isoetifolium (Si)* in which *Enhalus acoroides (Ea)* have the highest occurrence and the status of the seagrass is in poor condition.

Further, based on the result of the assessment, this Office recommends that Sitio Katsi, Barangay Pancol should be consider as permanent monitoring site due to higher diversity. It is also recommends on increasing awareness through Communication, Education and Public Awareness (CEPA) campaign on the role of seagrass in marine ecosystem and their significant contribution to fisheries production and ecological functions.

For his information and record.

Clarissa Pador
CLARISSA P. PADOR

MSPLS TAYTAY/PALAWAN
DATE: 12.28.22
CN: 0340

De[illegible]nent of Environment and Natural Resour[illegible]
MIMAROPA Region
PROTECTED AREA MANAGEMENT OFFICE
MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE (MSPLS)
Taytay-San Vicente, Palawan
Barangay Old Guinlo, Taytay, Palawan
Email add: pamomspls@gmail.com/Contact #: 0938-786-3728 (SMART)

November 25, 2022

MEMORANDUM

MSPLS, TAYTAY, PALAWAN
RECEIVED
BY:
DATE: 11. 25. 2022
CN: 0791

FOR : The Protected Area Superintendent
Malampaya Sound Protected Landscape and Seascape
Taytay, Palawan

FROM : CMEMP Extension Officer
MSPLS, Taytay, Palawan

SUBJECT : **REPORT ON THE CONDUCTED ASSESSMENT AND MONITORING OF SEAGRASS FOR MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE (MSPLS), TAYTAY-SAN VICENTE, PALAWAN.**

This pertains to the target activity on the Monitoring of seagrass of Coastal and Marine Ecosystems Rehabilitation Sub-Program under Management of Coastal and Marine Resources/Areas for Malampaya Sound Protected Landscape and Seascape (MSPLS), Taytay, Palawan.

Please be informed that the undersigned together with Forest Ranger Ricardo S. Tandoc, Francis Abe G. Bose and Office Support Staff of Protected Area Management Office (PAMO) of MSPLS in coordination with BLGU's and partner's conducted seagrass assessment/monitoring from October to November 2022 within the jurisdiction of MSPLS in accordance with Technical Bulletin No. 2019-04. Based on the ground truthing conducted the MSPLS has a total seagrass cover of 117. 06 hectares which 5 sampling stations and established one monitoring site. The said sampling stations is located in Bgy. Tumbod, Sitio Katsi, Bgy. Pancol, Turao Island, Bgy. San Jose, Sitio Binataan, Bgy. Banbanan, and Sitio Malaya, Bgy. Banbanan, Taytay, Palawan.

A total of four (4) seagrass species were recorded during the assessment/monitoring. These includes *Enhalus acoroides (Ea), Cymodocea rotundata (Cr), Halophila ovalis (Ho), and Syringodium isoetifolium (Si)*. Among these species, *Enhalus acoroides* have the highest occurrence (see the attached table) and the status of the seagrass is in poor condition.

Based on the result of assessment, the undersigned recommends to consider Sitio Katsi, Bgy. Pancol, Taytay, Palawan as permanent monitoring site due to higher diversity.

The undersigned also recommends increasing awareness through intensive Information Education Communication (IEC) campaign on the role of seagrass in the marine ecosystem and their significant contribution to fisheries production and their ecological functions.

Attached are the maps, photos and complete seagrass data monitoring sheet with graphs.

For information and record.

MARIA LILIBETH E. AROJO

ASSESSMENT AND MONITORING OF SEAGRASS FOR MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE FOR CY

Executive Summary

Seagrasses are submerged flowering marine plants adapted to live in saline waters. Seagrass beds are one of the most productive components of the marine ecosystem, being ecologically significant and of the same rank with corals and mangroves. It serves as nursery, feeding, and breeding grounds to a variety of marine organisms. The sea grass assessment in Malampaya Sound Protected Landscape and Seascape (MSPLS), Taytay-San Vicente was conducted from October-November 2022. The main objectives of the activity is to map out the extent and assess the general condition of the seagrass beds in the selected sites. The total area of the seagrass beds validated/ground truthed, mapped and assessed in MSPLS is 117.06 hectares.

A total of four (4) seagrass species, were recorded during the assessment. These includes *Enhalus acoroides, Cymnodoceae rotundata, Halophila ovalis and Syringodium isoetifolium.* Among these species, *Enhalus acoroides* has the highest occurrence and was observed in all five (5) sites. The status of the seagrass beds are in poor to very poor condition. Based from the assessment the following actions are proposed: Include in the Communication Education and Public Awareness (CEPA) campaign of MSPLS the role of seagrasses in the marine ecosystem and their significant contribution to fisheries production as well as their ecological functions; Policy formulation for the inclusion of portion of seagrass areas as Strict Protection Zone (SPZ) and; establishment of So. Katsi, Brgy. Pancol, Taytay as the permanent monitoring plot due to its higher species diversity among the sampling sites and retain the other areas identified by the WPU as additional monitoring sites.

I. Introduction

Seagrasses are seed-producing marine plants that occur in shallow, nearshore waters, the only group of submerged flowering plants in tropical and marine environments. Seagrasses have very high primary productivity that helps support and provides nutrients and physical habitat to a variety of organism. Their main role as a nutrients source occurs when the dead seagrass decomposes and releases it nutrients to the water. It filters nutrients and contaminants from the water and stabilize sediment formation to lessen the degree of soil particles reaching the coral reefs. It is also serve as a buffer against wind and wave action to protect corals as well as the shoreline. It is associated with mangrove forest and coral reefs and is considered as an ecotone between the two ecosystems.

Within seagrass communities, a single acre (half a hectare) of seagrass can produce over 10 tons of leaves per year. This vast biomass provides food, habitat, and nursery areas for a myriad of adult and juvenile vertebrates and invertebrates. Because seagrassess support such high biodiversity, and because of their sensitivity to changes in water quality, they have become recognized as important indicator species that reflect the overall health of coastal ecosystem (CCEF 2019).

Worldwide, a total of 60 species of seagrass grouped into 13 genera and 5 families have been identified and described (Short et al. 2001). In the Philippines, 16 species have been identified (Fortes 1986) and variably distributed in all parts of the country of which 13 of its are found in Palawan (PCSDS 2005).

II. Methods

The methodology used was in accordance with the BMB Technical Bulletin No. 2019-04.

III. Mapping

Mapping of the seagrass beds was done on August to September 2022. The team identified the extent of the seagrass beds through contours and guided by the local fishermen in the area using Garmin GPS and locus map. The coordinates were projected using ArcGIS to generate map showing the distribution of seagrass within the protected area (Annex 1).

IV. Assessment

The activity was conducted in Bgy. Tumbod, Sitio Katsi, Bgy. Pancol, Turao Island, Bgy. San Jose, Sitio Binataan, Bgy. Banbanan, and Sitio Malaya, Bgy. Banbanan, Taytay, Palawan. The five sites were selected based on the extent of segrass beds in those areas.

The 50-meter transect line were laid out perpendicular to the shoreline, starting at the shallow point where the seagrass first appear, going seaward. A 0.5 m x 0.5 m stainless steel quadrat was place every 5 meters, on the right side of the transect. Reading and recording of parameters were done for the three replicated transect per station to get the substrate type, seagrass species, percent cover, shoot density and canopy height. Furthermore, the percent cover of algae and epiphytic algae found on the seagrass were also noted. For documentation, photos were taken every 5, 25 and 45 meters of the transect line.

V. Data Analysis

Seagrass cover were computed by dividing the sum for each seagrass species with the total number of quadrats (11) per transect. The following are the result of tabulated and graphed Seagrass beds in different sampling stations within MSPLS.

Table 1. Species composition of seagrasses in five selected sites within MSPLS.

Sites	Species				
	Enhalus acoroides	***Cymodocea rotundata***	***Halophila ovalis***	***Syringodium isoetifolium***	
Bgy. Tumbod	✓		✓		
Sitio Katsi, Bgy. Pancol	✓	✓		✓	
Turao, Bgy. San Jose	✓				
Sitio Binataan, Bgy. Banbanan	✓				
Sitio Malaya, Bgy. Banbanan	✓				

A total of four (4) seagrass species were recorded during the assessment. These includes *Enhalus acoroides, Cymodocea rotundata, Halophila ovalis* and *Syringodium isoetifolium*. Among these species *Enhalus acoroides* has the highest occurrence and was observed in all four (4) stations. On the other hand, *Cymodocea rotundata* and *Syringodium isoetifolium* were only recorded in Sitio Katsi, Bgy. Pancol, while *Halophila ovalis* was observed in Bgy. Tumbod, Taytay, Palawan.

Table 2. Percent cover of seagrass species in MSPLS.

Sites	Species	T1	T2	T3	Average
Bgy. Tumbod	*Enhalus acoroides*	27.72	90.91	72.72	**63.78**

	Halophila ovalis	54.09	**0**	**0**	**18.03**
	Subtotal	**81.81**	**90.91**	**72.72**	
Sitio Katsi, Bgy. Pancol	*Enhalus acoroides*	0	6.82	12.27	**19.09**
	Cymodocea rotundata	79.09	76.82	80.45	**78.78**
	Syringodium isoetifolium	11.82	8.67	7.27	**9.25**
	Subtotal	**90.91**	**92.31**	**99.99**	
Turao, Bgy. San Jose	*Enhalus acoroides*	81.82	81.82	90.91	**84.85**
	Subtotal	**81.82**	**81.82**	**90.91**	
Sitio Binataan, Bgy. Banbanan	*Enhalus acoroides*	81.82	81.82	72.72	**78.77**
	Subtotal	**81.82**	**81.82**	**72.7**	
Sitio Malaya, Bgy. Banbanan	*Enhalus acoroides*	**90.91**	**100**	**100**	**96.97**
	Subtotal	**90.91**	**100**	**100**	

Seagrass cover in MSPLS was dominated by *Enhalus acoroides* except in So. Katsi, Bgy. Pancol where *Cymodocea rotundata* has the highest occurrence with an average of 78.78. *Enhalus acoroides* was the only species found in Bgy. Banbanan and Tumbod due to its muddy substrate.

Table 3. Seagrass cover and condition in selected sites in MSPLS

Sites	Seagrass cover %	Condition
Bgy. Tumbod	11.68	Poor
Sitio Katsi, Bgy. Pancol	19.70	Poor
Turao, Bgy. San Jose	5.00	Very Poor
Sitio Binataan, Bgy. Banbanan	4.40	Very Poor
Sitio Malaya, Bgy. Banbanan	7.88	Poor

The seagrass cover in Sitio Katsi, Bgy. Pancol, Sitio Binataan, Bgy. Banbanan and Bgy. Tumbod was in poor condition. While in Sitio Binataan, Bgy. Banbanan and Turao, Bgy. San Jose is very poor. These seagrass condition was categorized based on Amran, 2010. The result may be attributed to the presence of fishing activities and human settlement in the nearby area.

Graphs

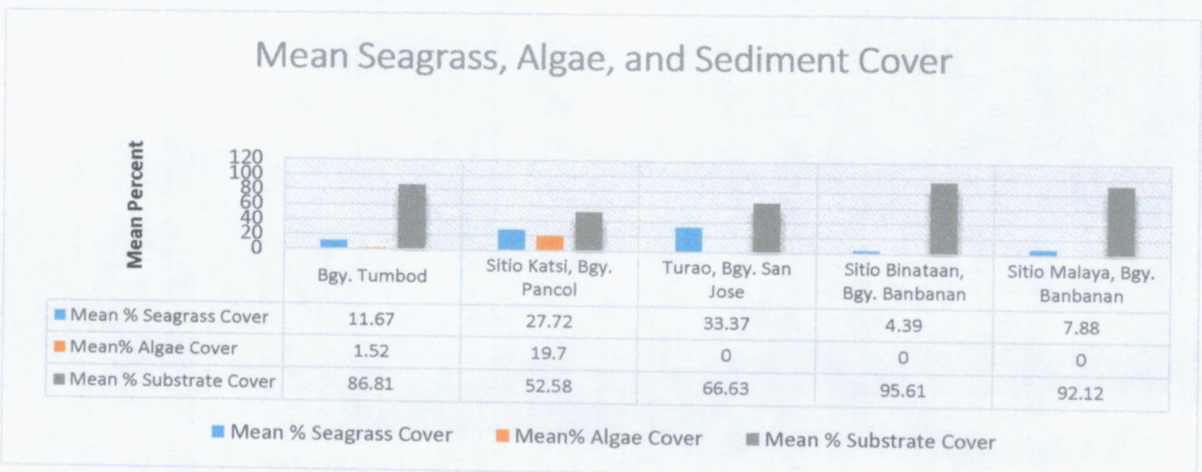
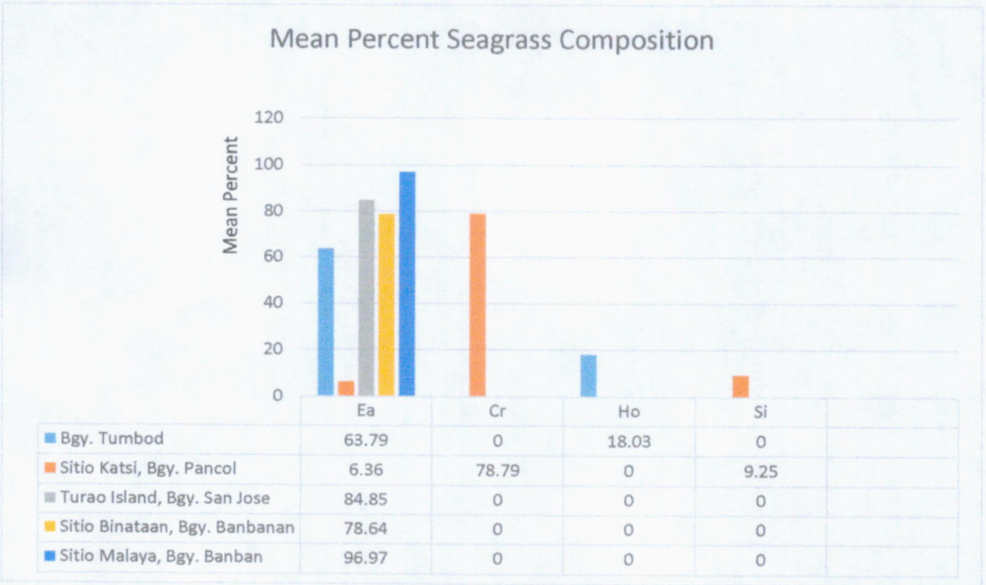
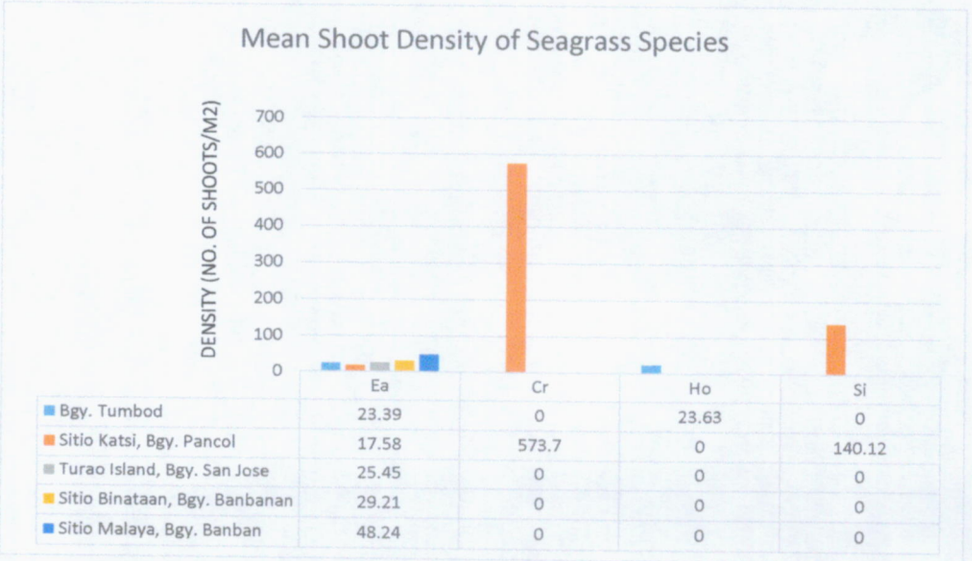


Figure I. Showing the mean seagrass cover, algae and sediment of five sites in MSPLS. The highest percentage of mean seagrass cover was recorded in Turao, Bgy. San Jose covering 33.37 %, while Sitio Katsi, Bgy. Pancol, Taytay, Palawan has the highest percentage in algae cover.



	Ea	Cr	Ho	Si
Bgy. Tumbod	63.79	0	18.03	0
Sitio Katsi, Bgy. Pancol	6.36	78.79	0	9.25
Turao Island, Bgy. San Jose	84.85	0	0	0
Sitio Binataan, Bgy. Banbanan	78.64	0	0	0
Sitio Malaya, Bgy. Banban	96.97	0	0	0

Figure 2. Showing the mean percent seagrass composition of five (5) sites within MSPLS. *Enhalus acoroides* is the most dominant species in all sites except in Sitio Katsi, Barangay Pancol wherein *Cymodocea rotundata* is the most dominant species with an average of 78.79 percent.



	Ea	Cr	Ho	Si
Bgy. Tumbod	23.39	0	23.63	0
Sitio Katsi, Bgy. Pancol	17.58	573.7	0	140.12
Turao Island, Bgy. San Jose	25.45	0	0	0
Sitio Binataan, Bgy. Banbanan	29.21	0	0	0
Sitio Malaya, Bgy. Banban	48.24	0	0	0

Figure 3. Showing the mean shoot density of seagrass species (m2) within the five (5) sampling sites. *Cymodocea rotundata* has the highest shoot density with an average of 573.7.

Table 4. Site characteristics and biodiversity indices of five (5) sampling sites

Site Characteristics	Bgy. Tumbod	Bgy. Pancol	Bgy. San Jose	Bgy. Banbanan	Bgy. Banbanan
Sitio		So. Katsi	Turao Island	So. Binataan	So. Malaya
Longitude	10°59'33.516"N	10° 52'14.29"N	10° 52'9.325"N	10° 48'37.641"N	10° 47'38"N
Latitude	119°18'3.854"E	119°23'24.846"E	119°16'58.737"E	119°20'55.285"E	119°22'32"E
Number of quadrats	11	11	11	11	11
Sediment type	Sandy-Muddy-	Muddy-Silt	Muddy-Silt	Muddy	Muddy
Water condition	High tide	Low tide	Turbid	Turbid	Turbid
Other observations/ remarks	Strong water movement				
Estimated seagrass (ha)	4.46	9.45	22.66	5.16	16.97
Diversity Indices					
Shannon-Weiner diversity index (H')	0.53	0.64	0	0	0
Simpson's diversity index (DMg)	0.34	0.35	0.00	0.00	0.00
Evenness of species (E)	0.27	0.21	0	0	0
Number of seagrass species (in quadrats)	2	3	1	1	1

Table 4. Shows the result and findings of the site characteristics and biodiversity indices of five (5) sampling sites. Each sites were composed of eleven (11) quadrats per transect. The substrate in five (5) sites varied from sandy to muddy. Shannon-Weiner diversity index (H') is used to determine the seagrass diversity and shall be categorized based on Odum, 1983. The result shows that species diversity in Sitio Katsi, Bgy. Pancol is higher compared to other sampling sites.

VI. Seagrass species present across within the assessment sites.

Sites	*Cymodocea rotundata*	*Enhalus acoroides*	*Halophila ovalis*	*Syringodium isoetifolium*
Bgy. Tumbod		/	/	
Sitio Katsi Bgy. Pancol	/	/		/

Turao, Island San Jose	/
Sitio Binataan Bgy. Banbanan	/
Sitio Malaya Bgy. Banbanan	/

VII. Conclusion and Recommendation

The seagrass cover and condition within the assessment sites were categorized as poor to very poor based on Amran, 2010. Higher diversity of seagrass was observed in Sitio Katsi, Barangay Pancol, Taytay with three (3) species recorded. Excessive sedimentation causing turbidity in the water were observed in the area especially in So. Binataan and So. Malaya both in Barangay Banbanan, Taytay, Palawan.

Based on this assessment, the following actions are recommended:

1. Include in the Communication Education and Public Awareness (CEPA) campaign of MSPLS the role of seagrasses in the marine ecosystem and their significant contribution to fisheries production as well as their ecological functions;

2. Policy formulation for the inclusion of portion of seagrass areas as Strict Protection Zone (SPZ) and;

3. To established the area in So. Katsi, Brgy. Pancol, Taytay as the permanent monitoring plot due to its higher species diversity among the sampling sites and retain the other areas identified by the WPU as additional monitoring sites.

VIII. References

JBecira Consultancy Services 2018. Mapping and Assessment of 4,000 hectares Seagrass for Potential Livelihood Opportunities within Malampaya Sound Protected Landscape and Seascape and El Nido-Taytay Managed Resource Protected Area 2018.

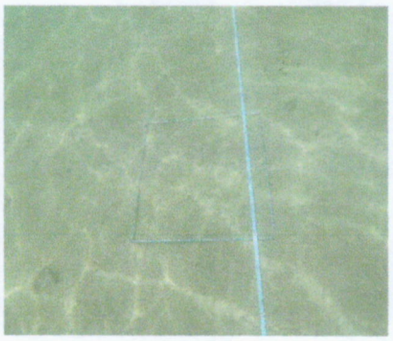
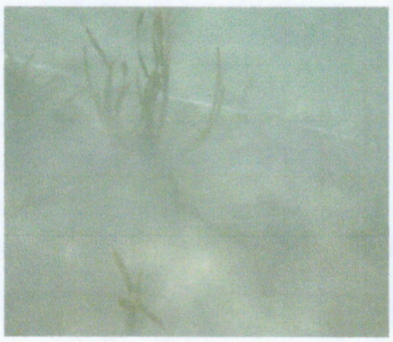
Coastal Conservation and Education Foundation, Inc. Seagrasses: the Philippine's forgotten

Seagrass-Watch Global Monitoring. Philippine Seagrass.

IX. Annexes

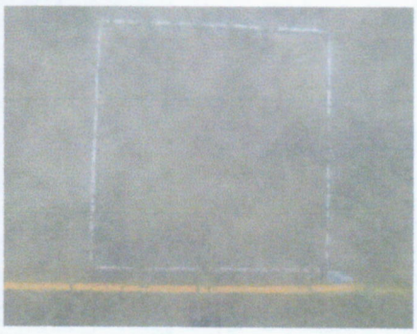
Annex 1. Location of five (5) sampling sites within MSPLS (see the attached map)

Annex 2. Pictures taken from 5, 25, 45 of T1, T2 and T3 of Bgy. Tumbod, Taytay, Palawan.

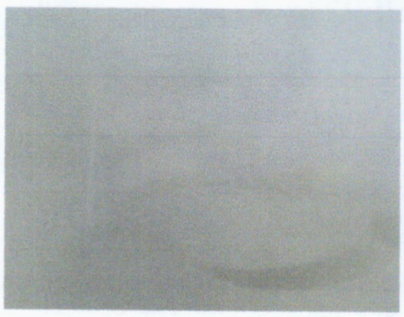



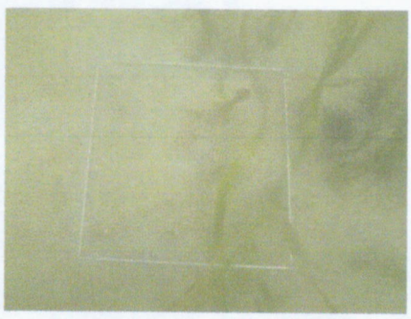

Annex 3. Pictures taken from 5, 25, 45 of T1, T2 and T3 of Sitio Katsi, Bgy. Pancol Taytay, Palawan.
Note: Pictures are not clear due to low tide and low visibility during sampling.





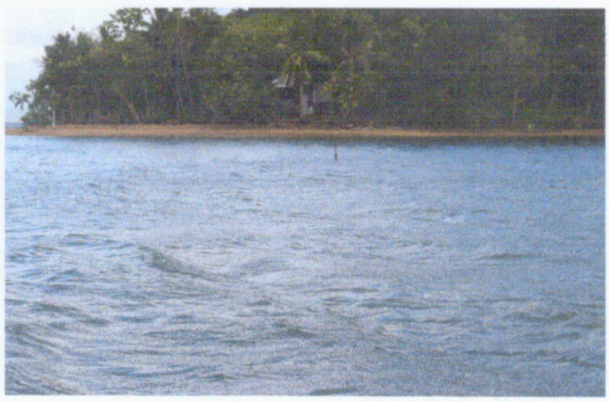
Annex 4. Pictures taken from 5, 25, 45 of T1, T2 and T3 of Turao Island, Bgy. San Jose, Taytay, Palawan.
Note: Pictures are not clear due to low tide and low visibility during sampling.





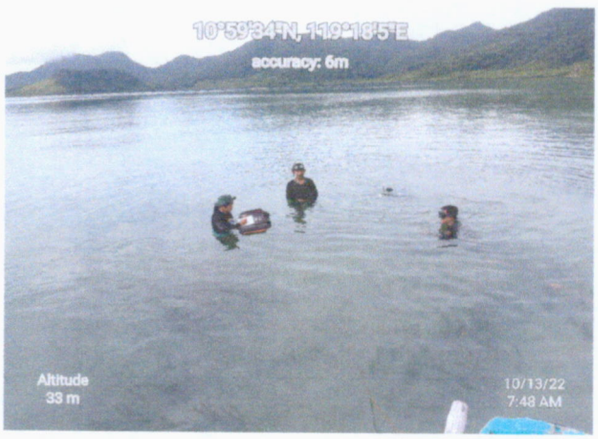
Annex 5. No pictures captured of seagrass species during the conduct of the activity within the sites due to low tide and low visibility.

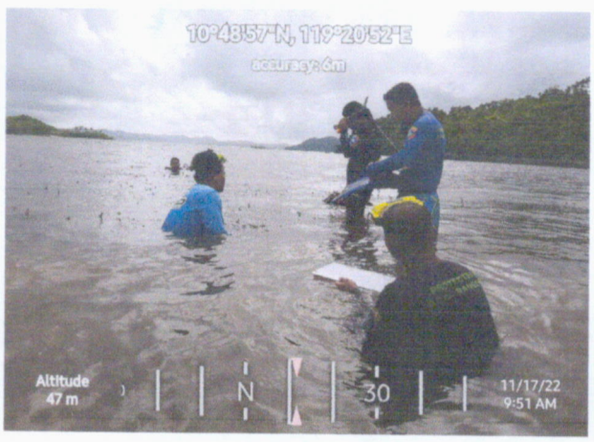
Sitio Binataan, Bgy. Banbanan

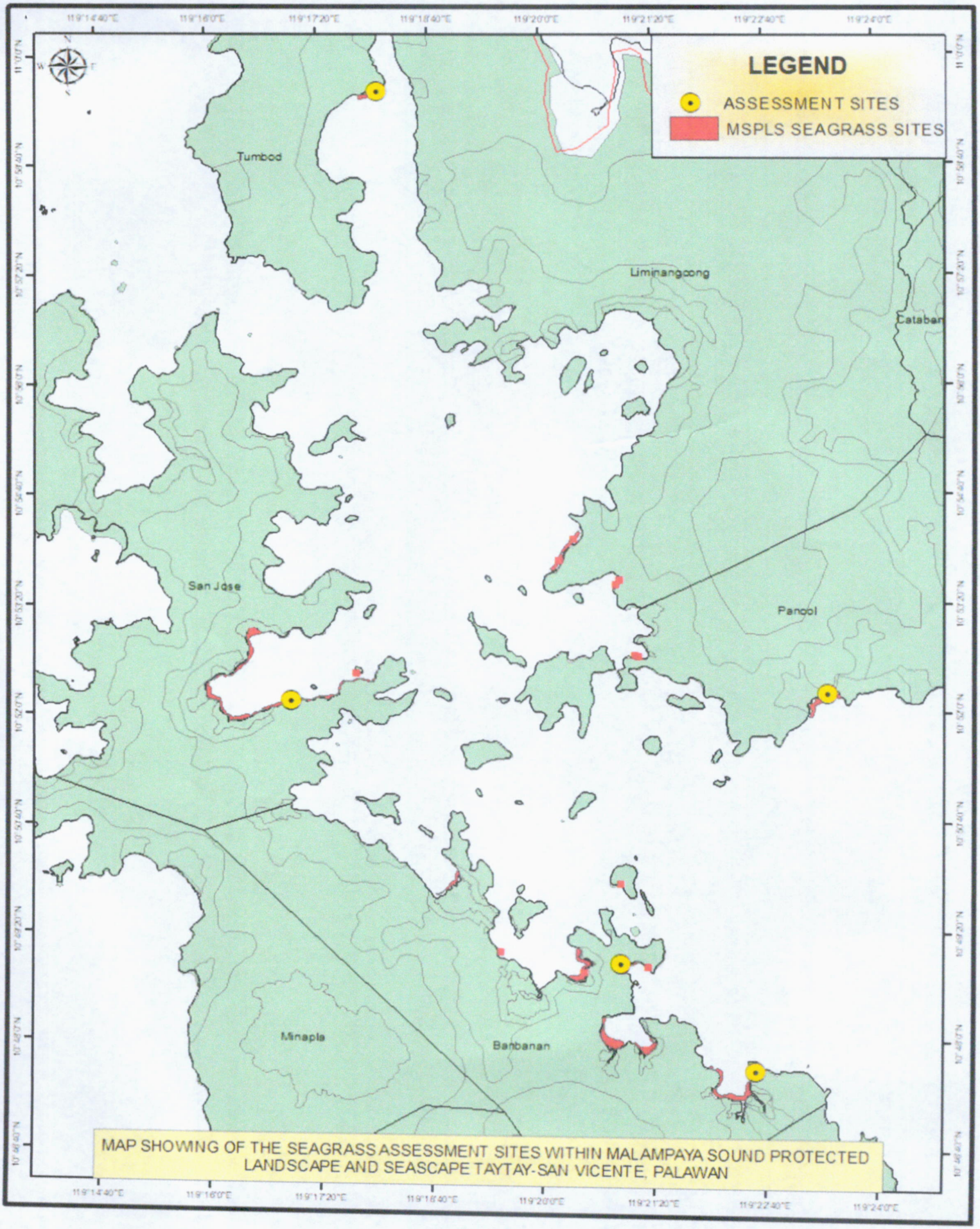


Sitio Malaya, Bgy. Banbanan

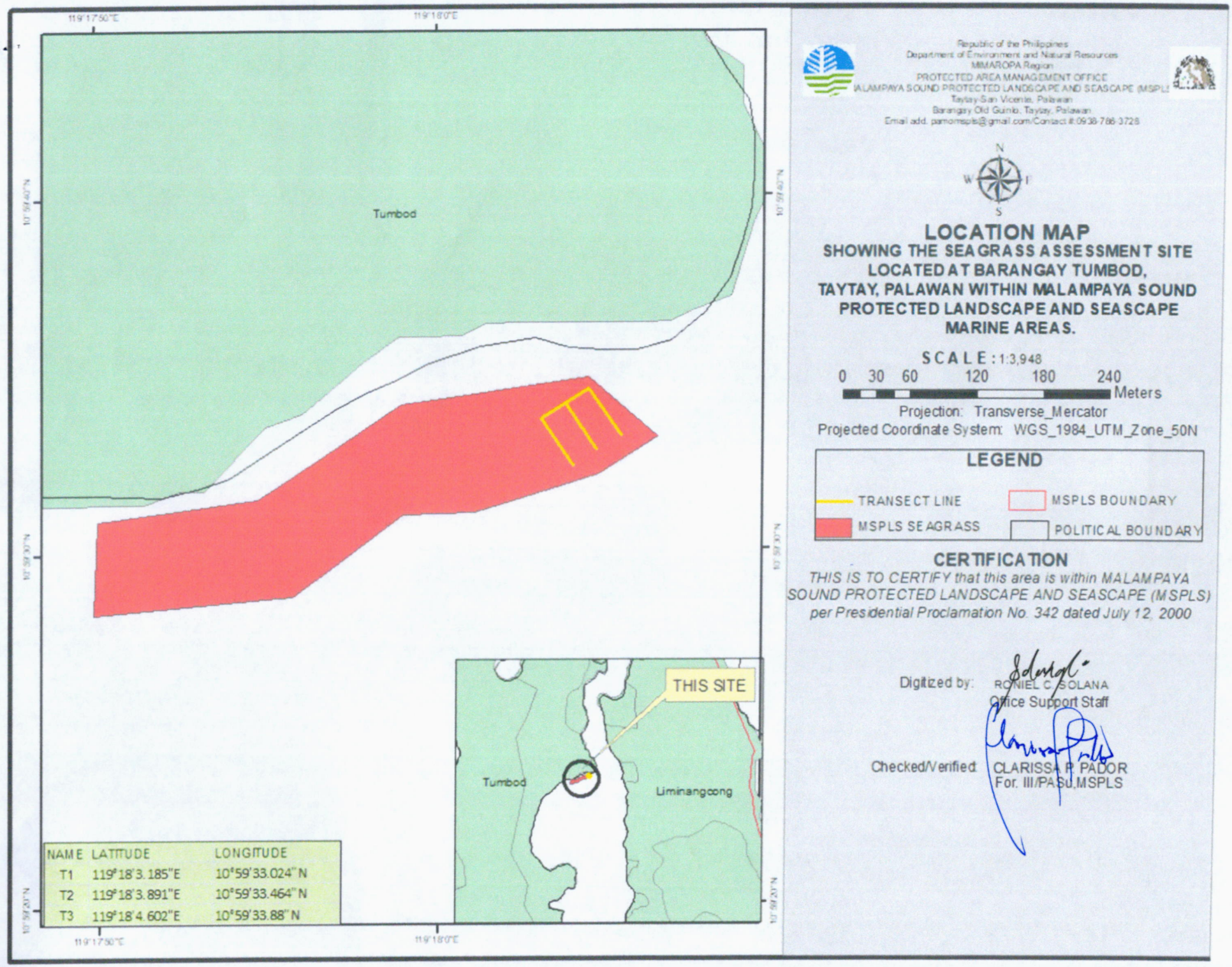
Annex 6. Photos during the conduct of the activity within the five (5) sampling sites of MSPLS.







MAP SHOWING OF THE SEAGRASS ASSESSMENT SITES WITHIN MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE TAYTAY-SAN VICENTE, PALAWAN



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Department of Environment and Natural Resources
MIMAROPA Region
PROTECTED AREA MANAGEMENT OFFICE
MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE (MSPLS
Taytay-San Vicente, Palawan
Barangay Old Guinlo, Taytay, Palawan
Email add. pamomspls@gmail.com/Contact #:0938-786-3728

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LOCATION MAP

SHOWING THE SEAGRASS ASSESSMENT SITE LOCATED AT BARANGAY TUMBOD, TAYTAY, PALAWAN WITHIN MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE MARINE AREAS.

SCALE : 1:3,948

0 30 60 120 180 240

Meters

Projection: Transverse_Mercator

Projected Coordinate System: WGS_1984_UTM_Zone_50N

LEGEND

- TRANSECT LINE
- MSPLS BOUNDARY
- MSPLS SEAGRASS
- POLITICAL BOUNDARY

CERTIFICATION

THIS IS TO CERTIFY that this area is within MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE (MSPLS) per Presidential Proclamation No. 342 dated July 12, 2000

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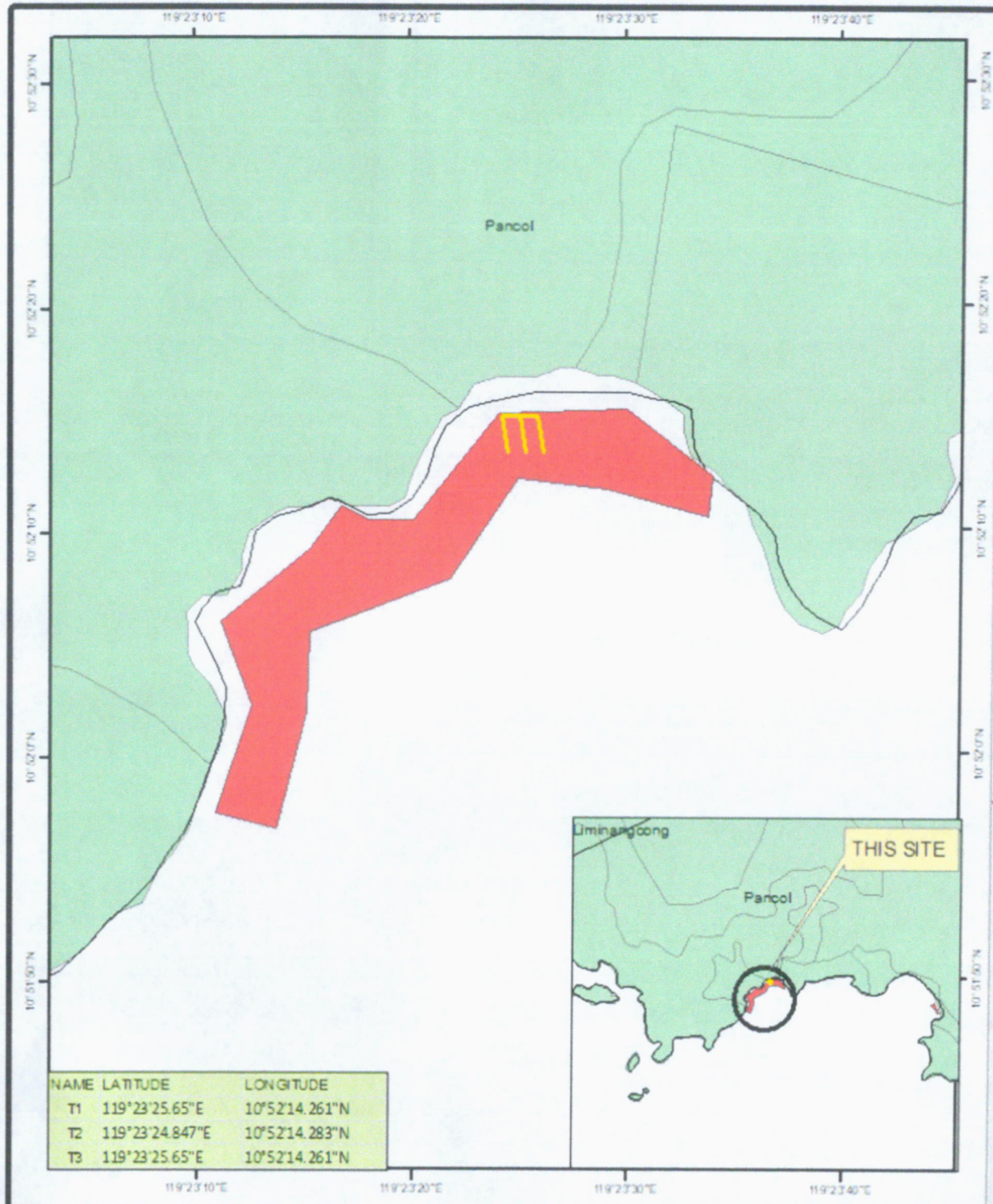
Office Support Staff

Checked/Verified: CLARISSA P. PADOR
For. III/PASu,MSPLS



NAME	LATITUDE	LONGITUDE
T1	119°23'25.65"E	10°52'14.261"N
T2	119°23'24.847"E	10°52'14.283"N
T3	119°23'25.65"E	10°52'14.261"N

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LOCATION MAP

SHOWING THE SEAGRASS ASSESSMENT SITE LOCATED AT KATSI AREA, SITIO OLD PANCOL BARANGAY PANCOL, TAYTAY, PALAWAN WITHIN MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE MARINE AREAS.

SCALE : 1:7,895

0 65 130 260 390 520 Meters

Projection: Transverse_Mercator
Projected Coordinate System: WGS_1984_UTM_Zone_50N

LEGEND

- TRANSECT LINE
- MSPLS SEAGRASS
- MSPLS BOUNDARY
- POLITICAL BOUNDARY

CERTIFICATION

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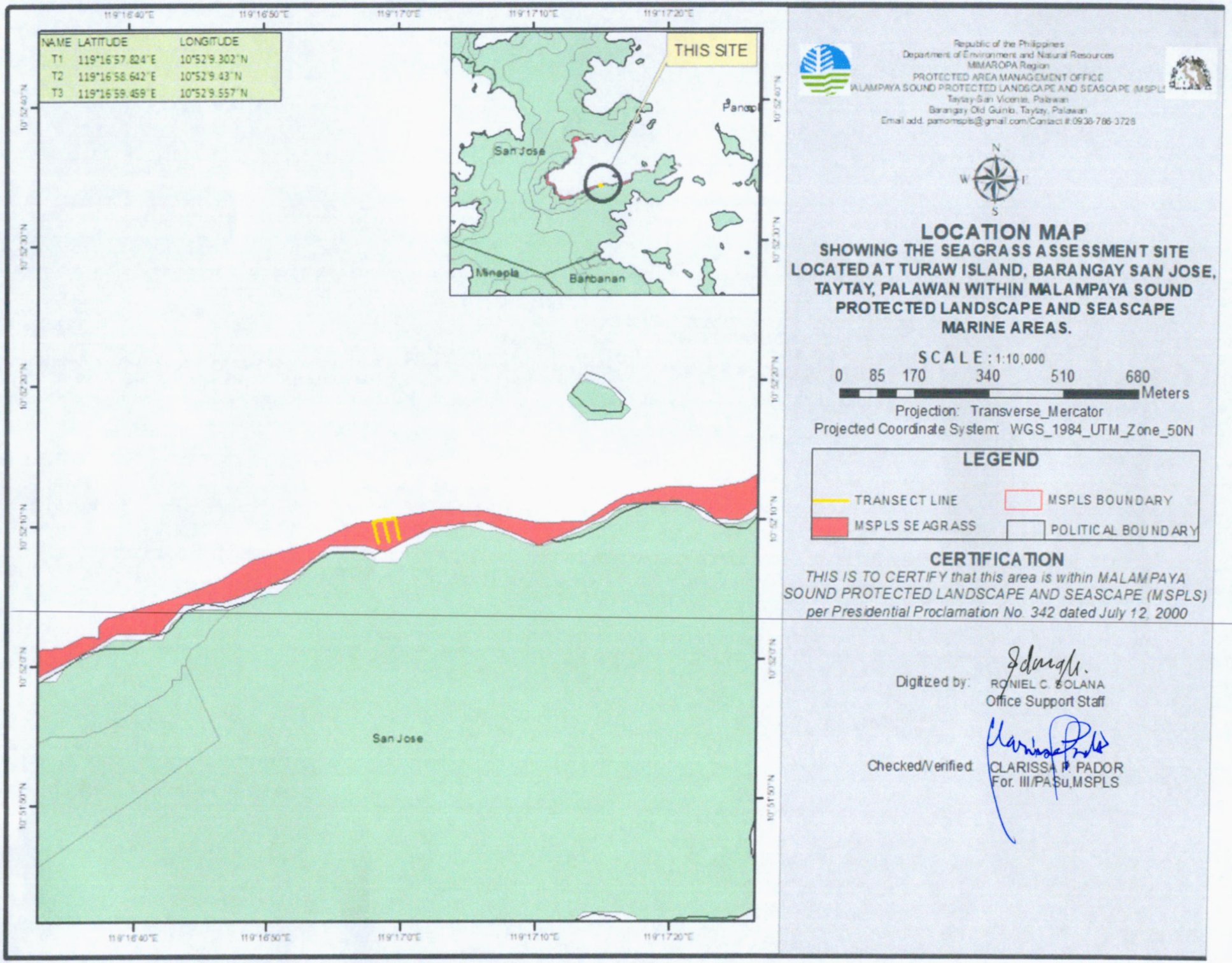
Checked/Verified: CLARISSA P. PADOR
For. III/PASu, MSPLS



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Barangay Old Guinlo, Taytay, Palawan
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LOCATION MAP

SHOWING THE SEAGRASS ASSESSMENT SITE LOCATED AT TURAW ISLAND, BARANGAY SAN JOSE, TAYTAY, PALAWAN WITHIN MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE MARINE AREAS.

SCALE : 1:10,000

0 85 170 340 510 680 Meters

Projection: Transverse_Mercator
Projected Coordinate System: WGS_1984_UTM_Zone_50N

LEGEND

- TRANSECT LINE
- MSPLS BOUNDARY
- MSPLS SEAGRASS
- POLITICAL BOUNDARY

CERTIFICATION

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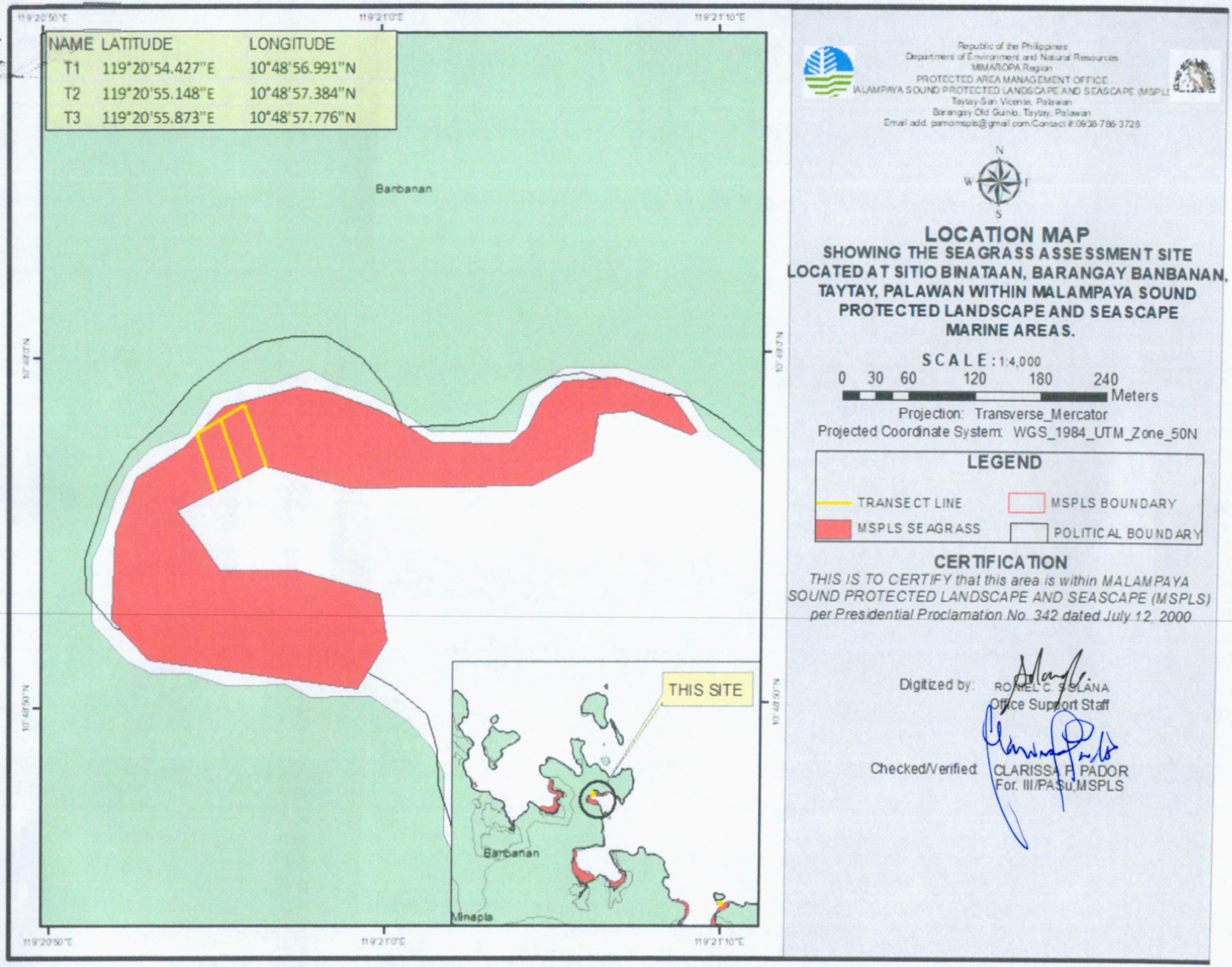

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LOCATION MAP

SHOWING THE SEAGRASS ASSESSMENT SITE LOCATED AT SITIO BINATAAN, BARANGAY BANBANAN, TAYTAY, PALAWAN WITHIN MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE MARINE AREAS.

SCALE : 1:4,000

0 30 60 120 180 240 Meters

Projection: Transverse_Mercator
Projected Coordinate System: WGS_1984_UTM_Zone_50N

LEGEND

- TRANSECT LINE
- MSPLS BOUNDARY
- MSPLS SEAGRASS
- POLITICAL BOUNDARY

CERTIFICATION

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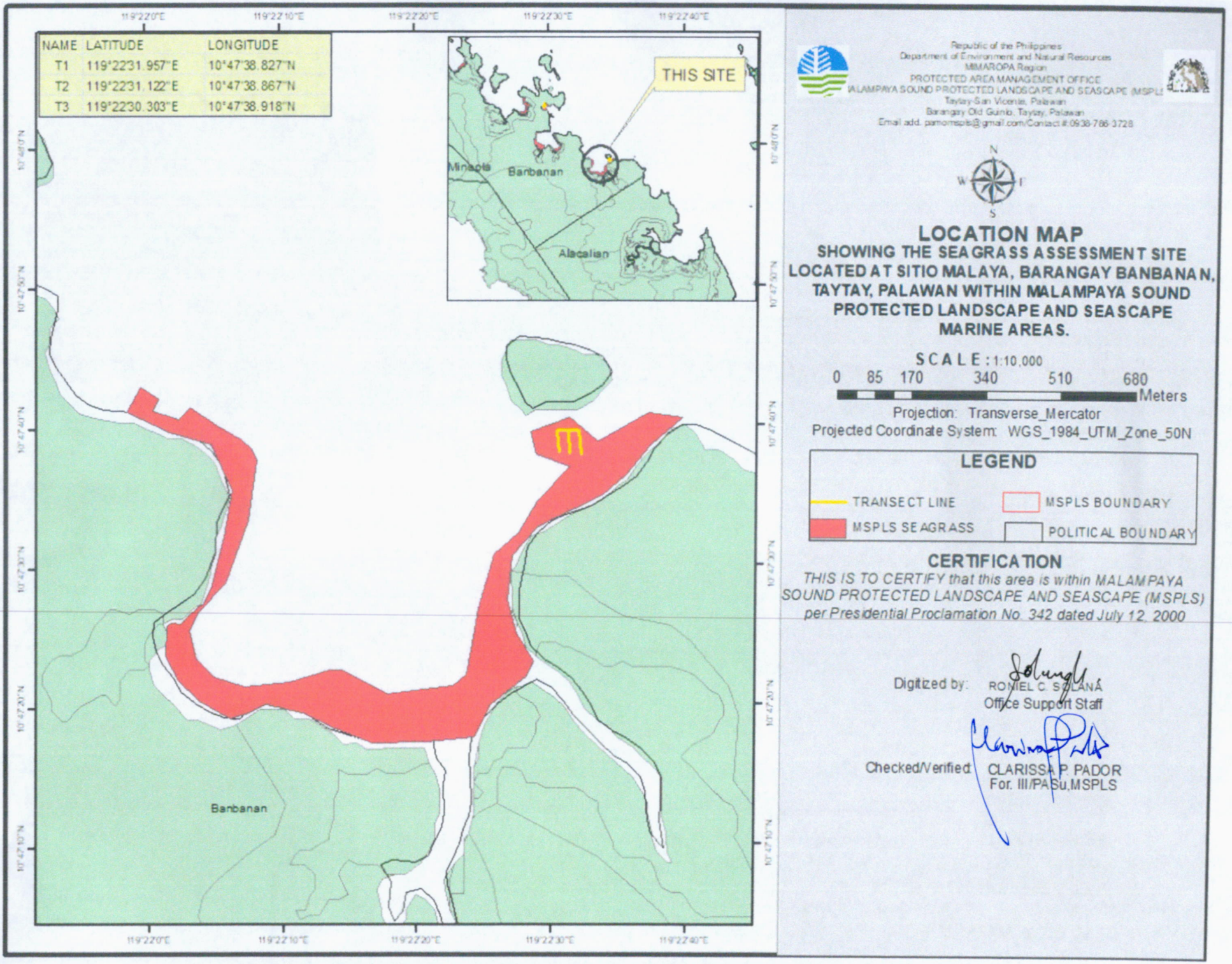
Checked/Verified: CLARISSA P. PADOR
For. III/PASu,MSPLS



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LOCATION MAP

SHOWING THE SEAGRASS ASSESSMENT SITE LOCATED AT SITIO MALAYA, BARANGAY BANBANAN, TAYTAY, PALAWAN WITHIN MALAMPAYA SOUND PROTECTED LANDSCAPE AND SEASCAPE MARINE AREAS.

SCALE : 1:10,000

0 85 170 340 510 680 Meters

Projection: Transverse_Mercator
Projected Coordinate System: WGS_1984_UTM_Zone_50N

LEGEND

- TRANSECT LINE
- MSPLS SEAGRASS
- MSPLS BOUNDARY
- POLITICAL BOUNDARY

CERTIFICATION

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Checked/Verified: CLARISSA P. PADOR
For. III/PASu,MSPLS

Transect 1
Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit
Location: Bgy. Tumbod, Taytay, Palawan

Date: October 13, 2022
Time Start: 7:35 am
Time End: 7:55 am

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition		Shoot Density		Canopy height	%Algae Cover	%Ephiphyte Cover
					EA	HO	EA	HO			
1 (0m)	0			0	0	0	0	0	0	0	0
2 (5m)	Muddy/Silt	Starfish	X	5	100	0	40	0	210, 600, 640	0	10
3 (10m)	Sand/Silt			5	100	0	36	0	80, 440, 480	0	10
4 (15m)	Sand/Silt			5	100	0	40	0	50, 100, 110	0	5
5 (20m)	Sand/Silt			0	0	0	0	0	0	0	0
6 (25m)	Sand/Silt		X	10	5	95	4	212	20,30, 20	5	10
7 (30m)	Sand/Silt			15	0	100	0	92	20, 30, 30	5	10
8 (35m)	Sand/Silt			10	0	100	0	136	20, 30, 40	0	5
9 (40m)	Sand/Silt			30	0	100	0	132	30, 40, 50	20	10
10 (45m)	Sand/Silt		X	15	0	100	0	96	30, 40, 50	0	5
11 (50m)	Sand/Silt			20	0	100	0	112	10, 40, 50	0	5
			Average	10.45	27.73	54.1	10.91	70.91	0	2.72	6.36

Transect 2
Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit
Location: Bgy. Tumbod, Taytay, Palawan

Date: October 13, 2022
Time Start: 8:00 am
Time End: 8:32 am

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition	Shoot Density	Canopy heigh	%Algae Cover	%Ephiphyte Cover
					EA	EA			
1 (0m)	Muddy/Silt			15	100	44	380,800,850	0	10
2 (5m)	Muddy/Silt		X	5	100	24	280, 410, 570	0	5
3 (10m)	Sand/Silt			0	0	0	0	0	0
4 (15m)	Sand/Silt			20	100	36	120, 270, 350	0	20
5 (20m)	Sand/Silt			10	100	32	260, 420, 440	0	10
6 (25m)	Sand/Silt		X	25	100	44	420, 560, 680	0	10
7 (30m)	Sand/Silt			5	100	24	60, 80, 90	5	5
8 (35m)	Sand/Silt			15	100	24	200, 600, 700	0	10
9 (40m)	Sand/Silt			5	100	44	100, 360, 380	0	5
10 (45m)	Sand/Silt		X	5	100	24	210, 600, 640	0	5
11 (50m)	Sand/Silt			30	100	48	80, 500, 550	0	10
			Average	12.27	90.91	31.27	0	0.45	8.18

Transect 3
Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit
Location: Bgy. Tumbod, Taytay, Palawan

Date: October 13, 2022
Time Start: 8:40 am
Time End: 9:12 am

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition	Shoot Density	Canopy height	%Algae Cover	%Ephiphyte Cover
					EA	EA			
1 (0m)	Muddy/Silt			10	100	40	440,450, 470	0	5
2 (5m)	Muddy/Silt		X	5	100	24	400,420, 450	0	5
3 (10m)	Sand/Silt			0	0	0	0	0	0
4 (15m)	Sand/Silt			5	100	8	30, 130, 135	0	5
5 (20m)	Sand/Silt			20	100	44	160, 230, 600	0	10
6 (25m)	Sand/Silt		X	40	100	60	236, 380, 580	0	10
7 (30m)	Sand/Silt			20	100	32	380, 410, 420	0	15
8 (35m)	Sand/Silt			30	100	72	310, 500, 540	20	10
9 (40m)	Sand/Silt			0	0	0	0	0	0
10 (45m)	Sand/Silt		X	0	0	0	0	0	0
11 (50m)	Sand/Silt			5	100	28	30, 40, 120	0	5
			Average	**12.27**	**72.73**	**28**	**0**	**1.82**	**5.1**

Transect 1

Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit

Location: Sitio Katsi, Bgy. Pancol, Taytay, Palawan

Date: October 20, 2022

Time Start: 10:54 am

Time End: 11:23 am

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition		Shoot Density		Canopy height	%Algae Cove	%Ephiphyte Cover
					CR	Si	CR	Si			
1 (0m)	0			55	100	0	940	0	50, 190, 210	0	10
2 (5m)	Muddy/Silt		X	60	100	0	1020	0	40, 60, 130	0	10
3 (10m)	Sand/Silt			25	100	0	480	0	10, 70, 80	0	10
4 (15m)	Sand/Silt			30	100	0	640	0	30, 90, 120	0	15
5 (20m)	Sand/Silt			25	100	0	520	0	30, 120, 150	0	10
6 (25m)	Sand/Silt		X	20	70	30	460	220	40, 200, 220	0	10
7 (30m)	Sand/Silt			25	60	40	540	100	50, 110, 140	5	15
8 (35m)	Sand/Silt			35	70	30	780	220	80, 120, 140	5	10
9 (40m)	Sand/Silt			25	80	20	520	140	30, 100, 110	0	10
10 (45m)	Sand/Silt		X	20	90	10	400	80	50, 90, 100	0	10
11 (50m)	Sand/Silt			0	0	0	0	0	0	0	0
			Average	29.09	79.09	11.82	572.73	69.09	0	0.91	10

Transect 2

Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit

Location: Sitio Katsi, Bgy. Pancol, Taytay, Palawan

Date: October 20, 2022

Time Start: 11:30 am

Time End: 12:01 am

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition			Shoot Density			Canopy height	%Algae C	%Ephiphyte Cover
					CR	EA	Si	CR	EA	Si			
1 (0m)	Muddy/Silt			5	55	45	0	164	208	0	30, 40, 80	0	15
2 (5m)	Muddy/Silt			10	100	0	0	940	0	0	30, 60, 70	0	10
3 (10m)	Sand/Silt			20	80	0	20	1100	0	220	100, 120, 140	0	10
4 (15m)	Sand/Silt			20	80	0	20	1092	0	200	30, 40, 170	0	10
5 (20m)	Sand/Silt			20	85	0	15	1180	0	180	60, 100, 140	5	10
6 (25m)	Sand/Silt			15	80	0	20	1120	0	180	50, 120, 140	5	10
7 (30m)	Sand/Silt			10	85	0	15	572	0	104	70, 100, 130	0	10
8 (35m)	Sand/Silt			10	90	0	90	276	0	160	40, 90, 100	0	10
9 (40m)	Sand/Silt			25	80	0	20	800	0	216	30, 80, 150	0	15
10 (45m)	Sand/Silt			35	65	5	30	696	0	244	90, 130, 150	0	15
11 (50m)	Sand/Silt			10	45	25	30	412	0	160	70, 80, 90	0	10
			Average	16.36	76.82	6.82	8.67	759.27	18.91	151.27	0	0.91	11.36

Transect 3
Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit
Location: Sitio Katsi, Bgy. Pancol, Taytay, Palawan

Date: October 20, 2022
Time Start: 12:11 pm
Time End: 12:40 pm

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition			Shoot Density			Canopy height	%Algae Cover	%Ephiphyte Cover
					CR	EA	Si	CR	EA	Si			
1 (0m)	Muddy/Silt			5	100	0	0	640	0	0	20, 50, 70	0	15
2 (5m)	Muddy/Silt			10	100	0	0	580	0	0	40, 50, 110	0	10
3 (10m)	Sand/Silt			10	100	0	0	404	0	220	50, 70, 110	0	10
4 (15m)	Sand/Silt			15	85	0	15	328	0	360	30, 100, 120	0	10
5 (20m)	Sand/Silt			15	80	0	20	496	0	704	30, 110, 140	0	10
6 (25m)	Sand/Silt			20	70	0	30	448	0	500	30, 90, 120	0	10
7 (30m)	Sand/Silt			20	100	0	0	544	0	0	60, 110, 140	0	10
8 (35m)	Sand/Silt			10	100	0	0	324	0	0	50, 80, 110	0	10
9 (40m)	Sand/Silt			20	85	0	15	260	0	416	70, 130, 150	0	15
10 (45m)	Sand/Silt			20	65	35	0	256	312	0	20, 80, 90	0	10
11 (50m)	Sand/Silt			5	0	100	0	0	60	0	200, 230, 410	0	10
			Average	**13.64**	**80.45**	**12.27**	**7.27**	**389.09**	**33.82**	**200**	**0**	**0**	**10.91**

Transect 1

Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit
Location: Turao Island, Bgy. San Jose, Taytay, Palawan

Date: November 11, 2022
Time Start: 10:30 am
Time End: 10:58 am

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition	Shoot Density	Canopy height	%Algae Cover	% Substrate Cover	%Ephiphyte Cover
					EA	EA				
1 (0m)	0			0	0	0	0	0	0	0
2 (5m)	Muddy/Silt		X	5	100	32	330,360,700	0	0	10
3 (10m)	Sand/Silt			10	100	56	240,560,650	0	0	10
4 (15m)	Sand/Silt			5	100	32	270,820,910	0	0	10
5 (20m)	Sand/Silt			5	100	24	60,120,370	0	0	10
6 (25m)	Sand/Silt		X	5	100	64	70,390,520	0	0	10
7 (30m)	Sand/Silt			5	100	24	270,320,630	0	0	10
8 (35m)	Sand/Silt			5	100	20	130,370,350	0	0	10
9 (40m)	Sand/Silt			0	100	0	0	0	0	0
10 (45m)	Sand/Silt		X	5	100	12	270,480,800	0	0	10
11 (50m)	Sand/Silt			5	100	48	190,220,270	0	0	10
			Average	**4.55**	**90.91**	**28.36**	**0**	**0**	**0**	**8.18**

Transect 2

Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit
Location: Turao Island, Bgy. San Jose, Taytay, Palawan

Date: November 11, 2022
Time Start: 11:08 am
Time End: 11:35 am

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition	Shoot Density	Canopy height	%Algae Cover	% Substrate Cover	%Ephiphyte Cover
1 (0m)	Muddy/Silt			5	100	4	340,680,740	0	0	10
2 (5m)	Muddy/Silt		X	10	100	64	90,460,640	0	0	15
3 (10m)	Sand/Silt			5	100	16	180,250,470	0	0	10
4 (15m)	Sand/Silt			5	100	48	50,360,450	0	0	10
5 (20m)	Sand/Silt			5	100	28	170,220,470	0	0	10
6 (25m)	Sand/Silt		X	5	100	36	210,420,480	0	0	10
7 (30m)	Sand/Silt			0	0	0	0	0	0	0
8 (35m)	Sand/Silt			0	0	0	0	0	0	0
9 (40m)	Sand/Silt			5	100	16	90,340,420	0	0	10
10 (45m)	Sand/Silt		X	5	100	8	60,100,160	0	0	10
11 (50m)	Sand/Silt			5	100	8	50,110,270	0	0	10
			Average	**4.55**	**81.82**	**20.73**	**0**	**0**	**0**	**8.64**

Transect 3

Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit

Location: Turao Island, Bgy. San Jose, Taytay, Palawan

Date: November 11, 2022

Time Start: 11:08 am

Time End: 11:35 am

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition	Shoot Density	Canopy height	%Algae Cover	% Substrate Cover	%Ephiphyte Cover
					EA	EA				
1 (0m)	Muddy/Silt			5	100	12	80,370,580	0	0	10
2 (5m)	Muddy/Silt		X	5	100	48	90,160,200	0	0	10
3 (10m)	Sand/Silt			0	0	0	0	0	0	0
4 (15m)	Sand/Silt			5	100	12	70,380,450	0	0	10
5 (20m)	Sand/Silt			5	100	20	310,380,700	0	0	10
6 (25m)	Sand/Silt		X	5	100	16	240,470,660	0	0	15
7 (30m)	Sand/Silt			10	100	32	80,330,540	0	0	10
8 (35m)	Sand/Silt			5	100	64	90,400,450	0	0	15
9 (40m)	Sand/Silt			5	100	20	400,430,740	0	0	10
10 (45m)	Sand/Silt		X	15	100	64	180,300,520	0	0	20
11 (50m)	Sand/Silt			5	100	12	40,140,320	5	0	15
			Average	5.1	90.91	27.27	0	0.45	0	11.36

Transect 1
Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit
Location: Sitio Binataan, Bgy. Banbanan, Taytay, Palawan

Date: November 17, 2022
Time Start: 9:15 am
Time End: 9:45 am

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition	Shoot Density	Canopy height	%Algae Cover	%Ephiphyte Cover
					EA	EA			
1 (0m)	0			5	100	20	490, 760, 790	0	15
2 (5m)	Muddy/Silt		X	5	100	76	390, 720, 820	0	15
3 (10m)	Sand/Silt			10	100	76	140, 410, 520	0	10
4 (15m)	Sand/Silt			10	100	96	220, 300, 480	0	10
5 (20m)	Sand/Silt			5	100	32	200, 220, 430	0	10
6 (25m)	Sand/Silt		X	5	100	32	320, 430, 720	0	10
7 (30m)	Sand/Silt			5	100	100	240, 520, 620	0	10
8 (35m)	Sand/Silt			5	100	36	80, 440, 520	0	10
9 (40m)	Sand/Silt			5	100	32	200, 300, 360	0	10
10 (45m)	Sand/Silt		X	0	0	0	0	0	0
11 (50m)	Sand/Silt			0	0	0	0	0	0
			Average	5	81.82	45.45	0	0	9.1

Transect 2
Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit
Location: Sitio Binataan, Bgy. Banbanan, Taytay, Palawan

Date: November 17, 2022
Time Start: 9:55 am
Time End: 10:20 am

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition	Shoot Density	Canopy height	%Algae Cover	%Ephiphyte Cover
					EA	EA			
1 (0m)	Muddy/Silt			5	100	28	320, 460, 520	0	10
2 (5m)	Muddy/Silt		X	5	100	52	240, 540, 700	0	10
3 (10m)	Sand/Silt			5	100	60	430, 520, 610	0	10
4 (15m)	Sand/Silt			5	100	32	250, 520, 610	0	15
5 (20m)	Sand/Silt			5	100	24	270, 320, 620	0	15
6 (25m)	Sand/Silt		X	5	100	24	320, 370, 610	0	10
7 (30m)	Sand/Silt			5	100	4	80, 190, 320	0	10
8 (35m)	Sand/Silt			5	100	20	550, 770, 930	0	10
9 (40m)	Sand/Silt			5	100	12	170, 220, 340	0	10
10 (45m)	Sand/Silt		X	0	0	0	0	0	0
11 (50m)	Sand/Silt			0	0	0	0	0	0
			Average	4.1	81.82	23.27	0	0	9.1

Transect 3

Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit

Location: Sitio Binataan, Bgy. Banbanan, Taytay, Palawan

Date: November 17, 2022

Time Start: 10:28 am

Time End: 11:00 am

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition	Shoot Density	Canopy height	%Algae Cover	% Substrate Cover	%Ephiphyte Cover
					EA	EA				
1 (0m)	Muddy/Silt			5	100	20	120, 540, 790	0	0	10
2 (5m)	Muddy/Silt		X	10	100	64	280, 690, 760	0	0	10
3 (10m)	Sand/Silt			5	100	32	540, 730, 890	0	0	10
4 (15m)	Sand/Silt			5	100	20	80, 390, 440	5	0	10
5 (20m)	Sand/Silt			0	0	0	0	0	0	0
6 (25m)	Sand/Silt		X	5	100	8	130, 480, 500	0	0	10
7 (30m)	Sand/Silt			5	100	4	60, 250, 330	0	0	10
8 (35m)	Sand/Silt			5	100	24	40, 100, 200	5	0	15
9 (40m)	Sand/Silt			5	100	36	280, 470, 670	5	0	10
10 (45m)	Sand/Silt		X	0	0	0	0	0	0	0
11 (50m)	Sand/Silt			0	0	0	0	0	0	0
			Average	4.09	72.73	18.91	0	1.36	0	7.73

Transect 1

Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit

Location: Sitio Malaya, Bgy. Banbanan, Taytay, Palawan

Date: November 17, 2022

Time Start: 2:15 pm

Time End: 2:45 pm

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition	Shoot Density	Canopy height	%Algae Cover	%Ephiphyte Cover
					EA	EA			
1 (0m)	0			10	100	64	260, 560, 760	0	10
2 (5m)	Muddy		X	10	100	60	320, 400, 470	0	10
3 (10m)	Muddy			10	100	68	60, 140, 390	0	10
4 (15m)	Muddy			10	100	80	130, 480, 600	0	10
5 (20m)	Muddy			10	100	44	160, 500, 680	0	10
6 (25m)	Muddy		X	10	100	48	470, 590, 920	0	15
7 (30m)	Muddy			10	100	56	230, 330, 460	0	10
8 (35m)	Muddy			5	100	32	410, 470, 800	0	10
9 (40m)	Muddy			0	0	0	0	0	0
10 (45m)	Muddy		X	5	100	36	80, 340, 480	0	10
11 (50m)	Muddy			10	100	72	320, 560, 670	0	15
			Average	8.18	90.91	50.91	0	0	10

Transect 2

Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit

Location: Sitio Malaya, Bgy. Banbanan, Taytay, Palawan

Date: November 17, 2022

Time Start: 2:55 pm

Time End: 3:27 pm

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition	Shoot Density	Canopy height	%Algae Cover	%Ephiphyte Cover
					EA	EA			
1 (0m)	Muddy			5	100	16	100, 320, 490	0	10
2 (5m)	Muddy		X	5	100	24	400, 490, 640	0	10
3 (10m)	Muddy			5	100	36	100, 330, 530	0	10
4 (15m)	Muddy			5	100	32	460, 610, 640	0	10
5 (20m)	Muddy			10	100	60	120, 210, 370	0	10
6 (25m)	Muddy		X	10	100	76	170, 460, 750	0	15
7 (30m)	Muddy			10	100	76	310, 600, 820	0	10
8 (35m)	Muddy			10	100	64	180, 550, 750	0	10
9 (40m)	Muddy			10	100	52	140, 360, 560	0	10
10 (45m)	Muddy		X	10	100	68	260, 580, 720	0	10
11 (50m)	Muddy			5	100	36	330, 440, 680	0	10
			Average	7.73	100	49.1	0	0	10.45

Transect 3

Observer: Maria Lilibeth E. Arojo, Francis Abe G. Bose, Richard M. Valones and Joseph Agbisit

Location: Sitio Malaya, Bgy. Banbanan, Taytay, Palawan

Date: November 17, 2022

Time Start: 3:36 pm

Time End: 4:05 pm

Quadrat	Sediment	Comments	Photos	%Seagrass Cover	% Seagrass Species Composition	Shoot Density	Canopy height	%Algae Cover	%Ephiphyte Cover
					EA	EA			
1 (0m)	Muddy			5	100	32	590, 720, 910	0	10
2 (5m)	Muddy		X	5	100	32	260, 540, 700	0	15
3 (10m)	Muddy			10	100	56	190, 370, 520	0	15
4 (15m)	Muddy			10	100	64	150, 710, 880	0	10
5 (20m)	Muddy			10	100	64	300, 520, 650	0	10
6 (25m)	Muddy		X	5	100	32	220, 480, 570	0	10
7 (30m)	Muddy			5	100	28	280, 410, 720	0	15
8 (35m)	Muddy			10	100	60	120, 400, 470	0	10
9 (40m)	Muddy			5	100	24	340, 510, 750	0	10
10 (45m)	Muddy		X	10	100	64	340, 570, 761	0	15
11 (50m)	Muddy			10	100	60	230, 420, 600	0	10
			Average	7.73	100	46.91	0	0	11.82