

**Preliminary Survey for MPA in
Western Myanmar Coast
(Nathar Kyun and Manaung Islands)**



January, 2019

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Summary

Preliminary Survey for Marine Protected Area (MPA) was conducted with the collaboration of WCS, Department of Fisheries, Rakhine region coastal conservation association-RCA, Kyeintali inshore fishery co-management association-KIFCA and fishing communities in November and December 2018. The preliminary survey aimed to study marine and coastal habitats, sea used zones (fishing activity areas) and Key biodiversity zones and the collection of baseline data on subtidal and coastal habitats of the Manaung islands and Nathar Kyun island in the West coast of Myanmar. Participatory mapping, snorkeling check was used to identify the location of habitats, important species and fishing gears which local community used.

5 species of seagrasses; *Syringodium isoetifolium*, *Cymodocera rotundata*, *C. Serrulata*, *Halodule uninervis* and *H. pinifolia* was recorded at the southern and northeast coast of Manaung Island. No seagrasses were found around the Nathar Kyun island. Several coral species were found north and south of Manaung island. Very few of coral (may be <10%) were found around Nantha kyun island (active mud volcano).

Participants in survey team

Name	Title	Organization	Nanthar	Manaung
U Kyaw Sint	Staff officer, Thandwe District	DoF	√	
U Kyaw Thinn Latt	Deputy country program director	WCS	√	
U Thaug Htut	Marine fishery monitoring officer	WCS	√	√
U Antt Maung	Marine species conservation officer	WCS	√	√
U Phoe Cho	Marine program officer	WCS	√	
U Min Khant San	Research assistant	WCS	√	
U Aung Myo Naing	Deputy chairman	RCA	√	
U Min Min Htun	Field officer	RCA	√	
U Naing Htoo	Field officer	RCA	√	
U Myint Oo	Field officer	RCA	√	
U Khin Aung	Field officer	RCA	√	
U Soe Myint	Chairman	KIFCA	√	
U Thar Gyi	Secretary	KIFCA	√	
U Zaw Oo	Vice-chairman	KIFCA	√	
U Myo Zin Tun	Deputy Staff officer, Manaung Township	DoF		√
U Thet Phyo Wai	Deputy Staff officer, Manaung Township	DoF		√

Survey Itinerary

Daily activity of the survey team during the Manaung island and Nathar Kyun Trip (23st to 29th November and 24th to 28th December, 2018)

Date	Activities
Manaung island survey trip	
23 Nov 2018	Left Yangon for Taungup by bus in the morning. Halt at Nan Taw Oo Guest house, Taungup.
24 Nov 2018	Left Taungup for Manaung by ferry boat in the morning. Made meeting with DoF and fishers for next day activities. Halt at Shwe Eden Guest house, Manaung.

25 Nov 2018	Conducted the fishery and habitats participatory mapping with fisher communities at Konetan and Khaohnmaw villages, Manaung Township and then data processing and review of trip at night.
26 Nov 2018	A trip to the Ye and Taik Islands and the south of Manaung coast. Investigation of corals, seaweeds and seagrasses and then data processing and review of trip at night.
27 Nov 2018	A trip to Zeetaw villages by car and then went to Bacon Light house island, the north of Manaung coast by boat. Conducted the fishery and habitats participatory mapping surveys at Zeetaw village. Investigation of corals, seaweeds and seagrass at Bacon Light house and north of Manaung coast. The data processing and review of trip at night.
28 Nov 2018	Left Manaung for Taungup by ferry boat in the morning and then went to Yangon by express bus in the evening.
29 Nov 2018	The team arrived back Yangon in the morning.
Nathar Kyun island survey trip	
24 Dec 2018	Left Yangon for Kyeintali by car in the morning. Halt at San Yaik Nyein Guest house, Kyeintali.
25 Dec 2018	A trip to Nathar Kyun in the morning. The team arrived at Nathar Kyun in the afternoon and then went to Army Camp and discussed about the survey trip in the evening. Conducted the fishery interview survey and participatory mapping with local fishermen from Palinmaw village who temporarily settle on the island for fishing.
26 Dec 2018	Conducted ROV testing, snorkeling check, compressor diving to investigate the situation of habitat at the east and south of island in the morning and west and north of the of the Nathar Kyun in the afternoon. Interview with fishermen and army officers in the evening. Made data processing and review of trip at night.
27 Dec 2018	Visited to creator of Mud volcano and around the Nathar island in the morning. Later left this island for Kyeintali by boat. The survey team arrived back Kyeintali at 21:00pm. Halt at San Yaik Nyein Guest House, Kyeintali.
28 Dec 2018	Meeting with RCA and KIFCA for the future work plan and co-management strengthening. Left Kyeintali for Yangon by car after noon. We arrived back Yangon in the evening.

Introduction

Manaung (Cheduba) is an island of 523 km² located approximately 30km from mainland of West coast of Myanmar. It is an island of 56966 inhabitants (MIMU, 2016) and the surrounding waters are designated a medium priority key biodiversity area (KBA) by WCS (2013).

Manaung is notable for coral reefs and the majority of included conservation features intersected planning units around the island. The occurrence of hawksbill, green and olive ridley turtle nesting beaches were the most significant feature.

There are three potential significant Marine Protected Areas; Winbaik reserve, the east of the Manaung and south of Ramree Islands in west coast of Myanmar (Rakhine Marxan report, 2017)

Nanthar kyun is an island of active mud volcano located approximately 30 km from mainland. During the consultation process with local fishermen and women to be able to establish co management area in Kyeintali area, local community proposed Nanthar kyun as a MPA site for the benefit of their co-management area because of shark and ray habitat around the island. According to Marxan analysis conducted by University of Exeter in 2017, Manaung and Nanthar island were potential sites for MPA.

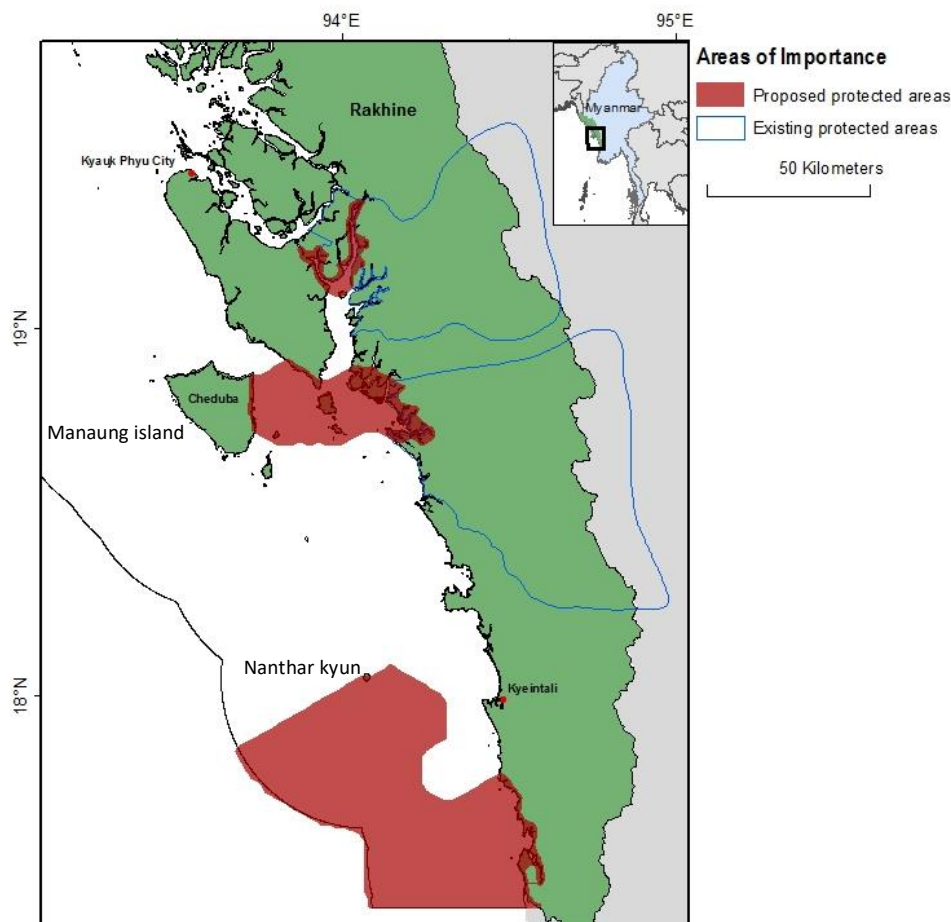


Figure 1. Key Marine Protected Area of importance propose locations of further research and possible MPA designation. (Rakhine Marxan Report. 2017)

Material and methods

Participatory mapping and snorkeling check survey methods were used in this survey. ROV testing and compressor diving were also used in some places.

Participatory mapping

Equipment: survey area map, transparent paper, color pen, survey forms, paper tape, pens, pencils, ruler

Participatory mapping surveys were conducted in Nathar Kyun, Zeetaw, Konetan and Khaohnmaw villages. The objectives of participatory mapping surveys were to collect the data of Coral reef, Seagrass and Mangrove habitats. Moreover, fishing ground on each fishing gear type which were used the fishers, high fishing pressure areas, key marine species areas such as Dugongs, Whales, Dolphins and Porpoises, Sea Turtle nesting beaches, Sharks and Rays around the Manaung Island. Experienced and skillful fishers were invited and explained our objectives of survey firstly. Then participants were asked about their fishing ground and key habitat areas which were recorded on the map.

Snorkeling check

Equipment: underwater camera, mask, snorkel, boots, flappers, water proof note-paper, pencils

Snorkeling check surveys was aimed to study habitats of coral reef, seagrass and fish abundance. Furthermore, it is the pilot data collection and to decide where were the most important areas for future surveys. Choosing the survey stations was based on the map which was drawn by the local fishers in the participatory mapping survey.

Snorkeling was used to investigate and survey the submersed habitats of seagrasses growing in the subtidal zone of the coast in depths between 5-10 m. The collections were initially washed, cleaned. Any promising sites were checked for seagrass.

Identification

All specimens were identified using the standard monograph of seagrasses prepared by den Hartog (1970), and Kuo et al. (2006). This study followed the classification system used by Fortes (1993). Samples of seagrasses from each site were examined mainly on the vegetative characters, and cannot keep and pressed on herbarium sheets as voucher specimens during this survey.

Coral reef species, seaweeds and fishes collected and took photos of some specimens but can't identify details in this trip. We have limited times and rare resource persons for our survey team during this survey trip.

Finding

A total of 5 field surveys were conducted in November and December 2018 to check for seagrasses. Among these survey sites, we found seagrass at 3 sites; the southeast of Taik Kyun, south and northeast of Manaung islands.

A total of 5 species of seagrasses were recorded during this survey: *Syringodium isoetifolium*, *Cymodocea serrulata*, *C. rotundata*, *Halodule uninervis*, and *H. pinifolia*, (Table).

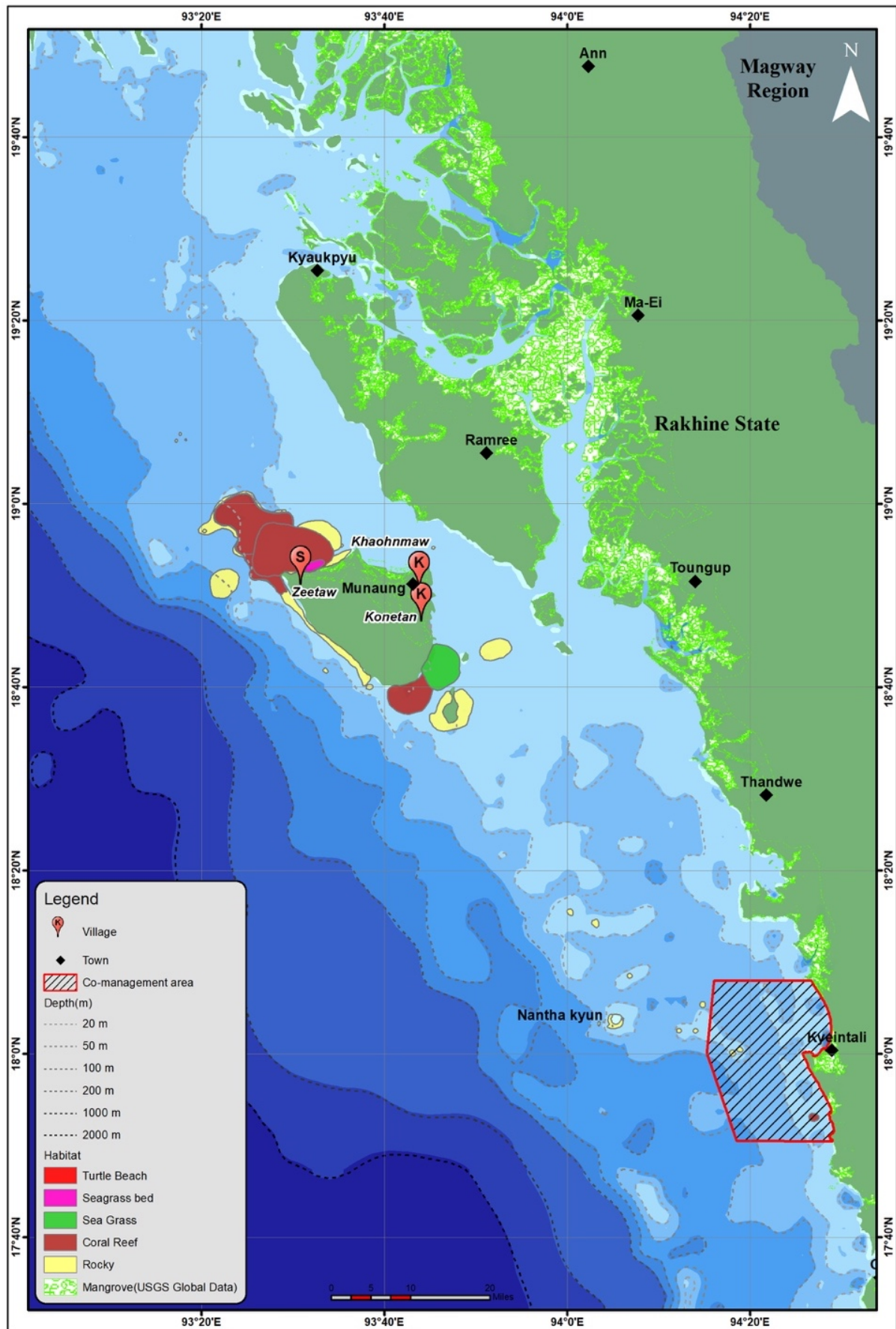


Figure.. Map showing habitats around Nanthar Kyun and Manaung islands

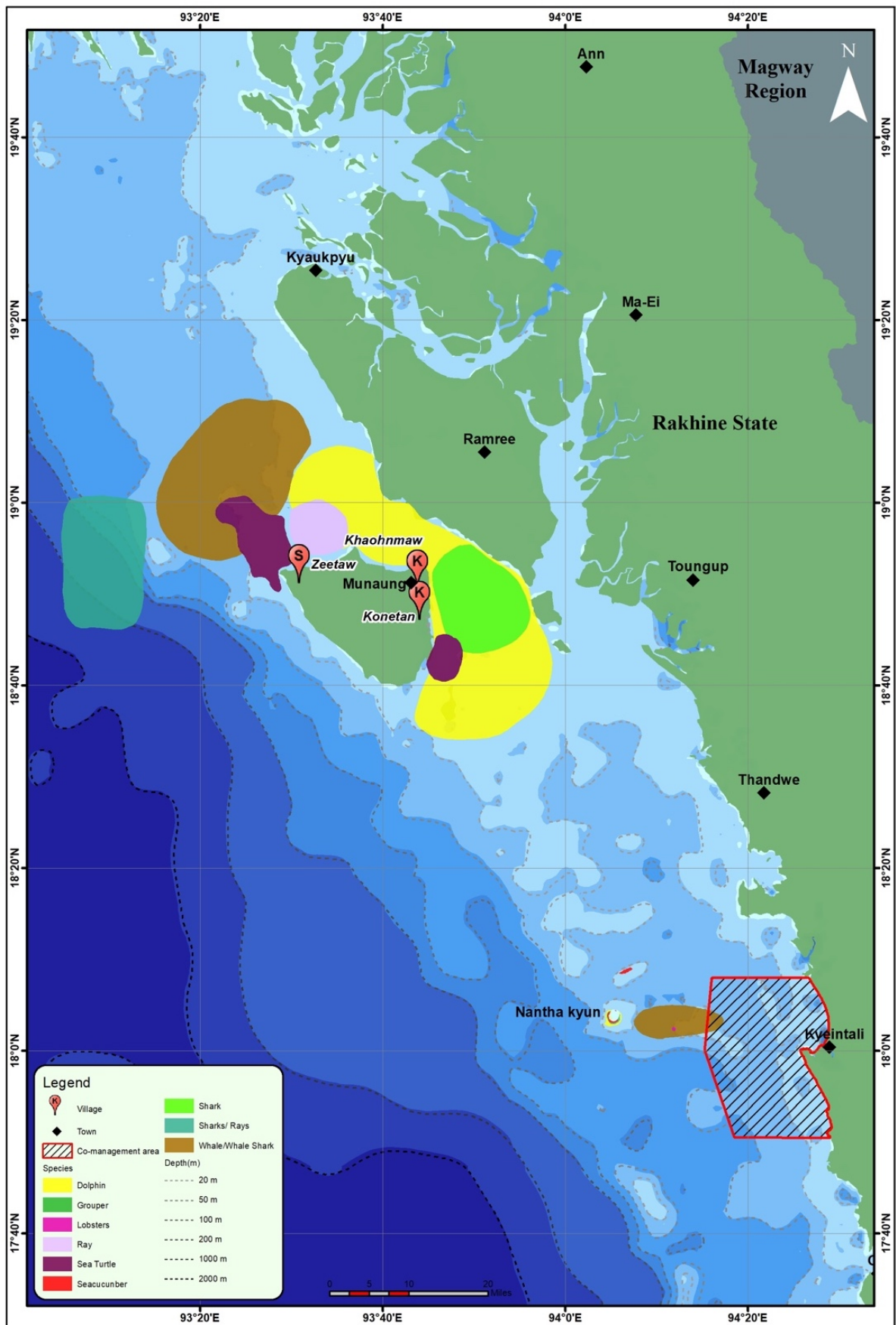


Figure.. Map showing key species around Nanthar Kyun and Manaung islands

Recommendations

There are limited baseline available data and limited capacity for project implementation in terms of data collection and analysis.

Potential Local partner(s) are exist (including NGOs, CSOs, networks) and are interested in working with us.

There are no ongoing other projects related to marine fisheries and MPA.

Site is accessible and safe to visit: Site is reasonably accessible during all seasons and does not have security concerns.

Proposed for the next survey

- Detail habitat survey should be conducted.
- Fisheries, coral and coral fish, mangrove and seagrass assessment and more rigorous quantitative survey for MPA will be needed.
- Survey design and workplan should be developed.

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Tables

Table. : survey sites of Manaung Island

No.	Place	Date	Location	Time	Tide	Depth	Weather	Trans:	Substrate	Note
St.1	Ye Island	26 Nov 2018	N:18°43.292' E:93°48.348'	11:00	Low	17.4'	Sunny, Clear sky	1m	Sandy, Algae on boulder, Porites species on some boulder	Found S.isotifolium and H.uninervis floating, no fish
St.2	Ye Island	26 Nov 2018	N:18°44.069' E:93°48.537'	12:00	Low	12.1'	Sunny, Clear sky	1m	Sandy and gravel	Cannot check well because of strong water current
St.3	Tite Island	26 Nov 2018	N:18°37.664' E:93°46.300'	13:10	Low	14.5'	Sunny, Clear sky	2m	Good diversity of massive type coral	Estimate coral cover is ~40%, Butterfly fishes and warrases
St.4	South of Manaung Island	26 Nov 2018	N:18°44.853' E:93°45.463'	15:30	Low	7.2'	Sunny, Clear sky	1m	Sandy and gravel, Seagrass bed (pachy)	In front of Palin Taw Village
St.5	Manaung Island	26 Nov 2018	N:18°47.450' E:93°46.093'	16:25	Low	6.8'	Sunny, Clear sky	1m	Patchy coral bed, Massive type and foliose type	Sign of trawling, in fornt of Pan Fal Village
St.6	Bacon Light house (Manaung)	27 Nov 2018	NA	14:30	Low		Sunny, Clear sky	5m	Rocky, Algae on boulder, Porites species on some boulder	Angelfish, Parrot fish and Wrasses
St.7	North of Manaung island	27 Nov 2018	NA	15:20	Low		Sunny, Clear sky	7m	Rocky, Algae on boulder, Porites species on some boulder	Grouper, Bream, butterfly, Parrot fish & Angelfish

Table. : survey sites of Nanthar Kyun

No.	Place	Date	Location	Time	Tide	Depth	Weather	Trans:	Substrate	Note
St.1	Nanthar kyun	26 Dec 2018	NA	09:10	High	24'	Sunny, Clear sky	7m	Rocky, Algae on boulder, Porites species on some boulder	Grouper, Humphead wrasse, Wrasses and Angelfish
St.2	Nanthar kyun	26 Dec 2018	NA	09:25	High	45'	Sunny, Clear sky	8m	<i>Padina</i> meadow on rock and boulder	Sweetlip and Grouper
St.3	Nanthar kyun	26 Dec 2018	NA	10:10	High	45'	Sunny, Clear sky	5m	Rocky sand and boulder	Grouper, Strong current
St.4	Nanthar kyun	26 Dec 2018	N-18° 04.486' E-94° 04.953'	16:20	Low	30'	Sunny, Clear sky	3m	Rocky sand and boulder	<i>Padina</i> on rocks
St.5	Nanthar kyun	26 Dec 2018	N-18° 04.123' E-94° 06.038'	16:50	Low	18'	Sunny, Clear sky	7m	Boulder and rocky, <i>Porites</i> species	Angelfish, Parrot fish and Wrasses

Figures

Figure. Coral Genera in Manaung Island (26.11.18)

St.1



Porites sp.



Seaweed on the rock

St.3



Acropora sp.



Heliopora sp.



Leptastrea sp.



Galaxea sp.



Platygyra sp.?



Stylophora sp.



Potites sp.



Platygyra sp.



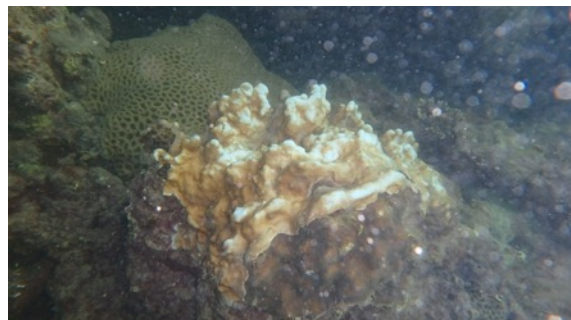
Acanthastrea sp.?



Goniastrea sp.



Favia sp.?



Coral bleaching

St.4



H. uninervis and *H. pinifolia* mixing



H. uninervis and *H. pinifolia* mixing

St.5



Turbinaria sp.



Favia sp.



Porites sp.



Goniopora sp.

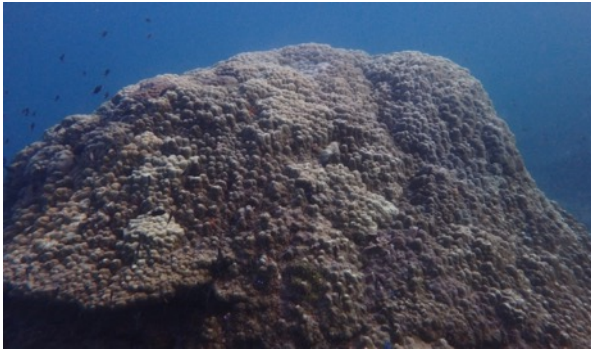


Lion fish on the coral reef

Figure. Coral Genera and other species in Nathar Kyun



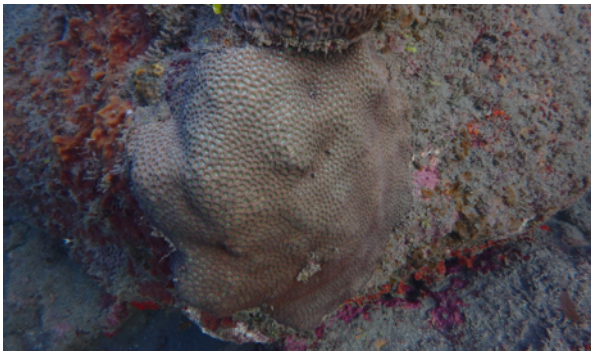
Himantura jenkinsii



Porites sp.



Goniastrea sp?



Favites sp.



Favites sp.



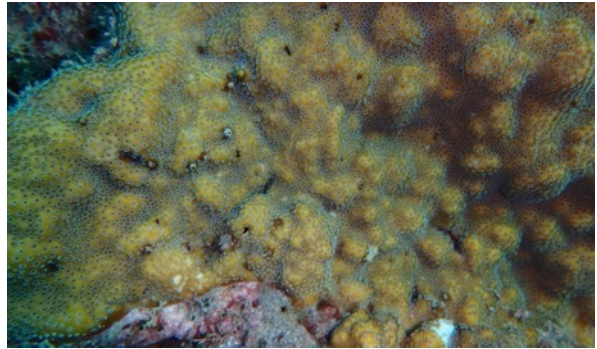
Montastrea sp.



Acropora sp.



Hydnophora sp.



Porites sp?



Turbinaria sp.



Acropora sp.



Acropora sp.



Favia sp.



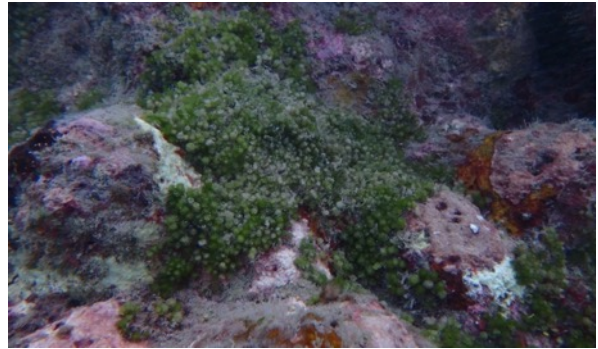
Sponge and prites sp.



Old fishing line on Acropora



Padina meadow



Caulerpa sp.



Padina sp.



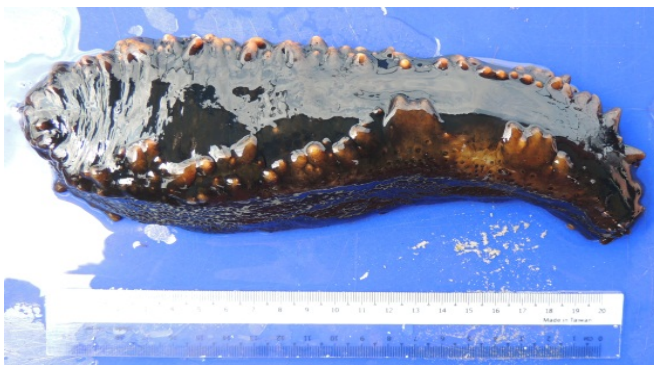
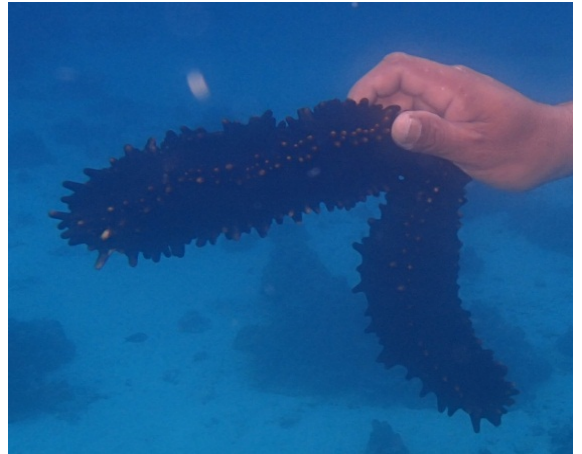
Seaweed found in Nant Thar Island



Seaweed found in Nant Thar Island



Greenfish Sea Cucumber (*Stichopus chloronotus*)



Greenfish Sea Cucumber (*Stichopus chloronotus*)



Blackspotted Sea Cucumber (*Bohadschia graeffei*)



Blackspotted Sea Cucumber (*Bohadschia graeffei*)