



Status of Exposed Coral Reef and Threatened Mollusk Associates in Pag-asa Island, Kalayaan Island Group, Philippines

Jeric B. Gozalez

MS Marine Biology

CFAS-WPU



Introduction

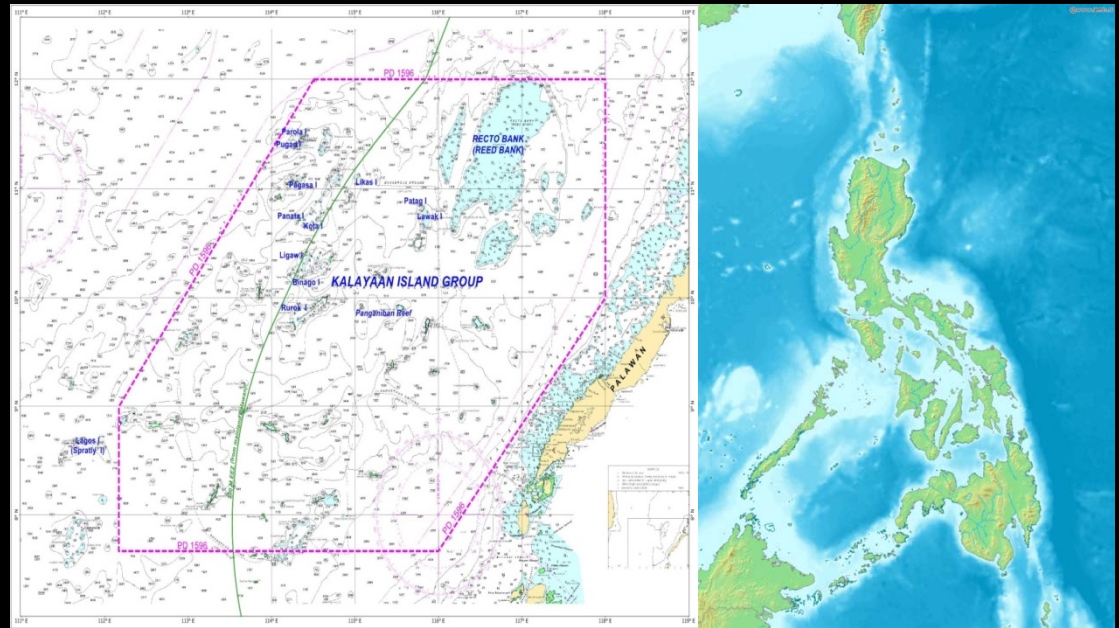




Introduction

Kalayaan Island Group

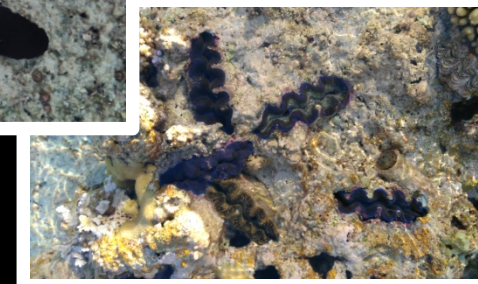
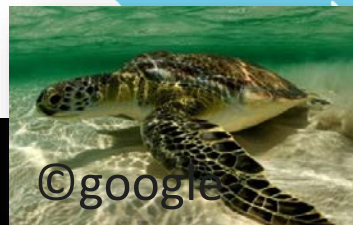
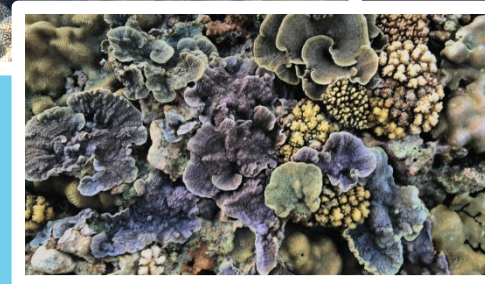
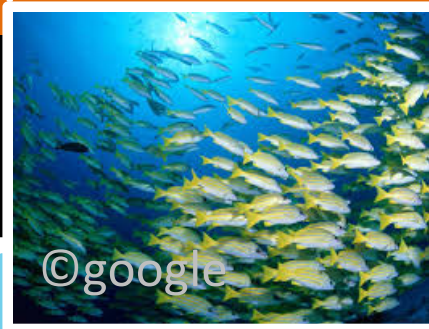
- 5 Islands
- 2 Sand Bars
- 2 Reefs



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Introduction



Considered as the backbone of the Coral Triangle (Aliño and Quilaban 2003)



Introduction

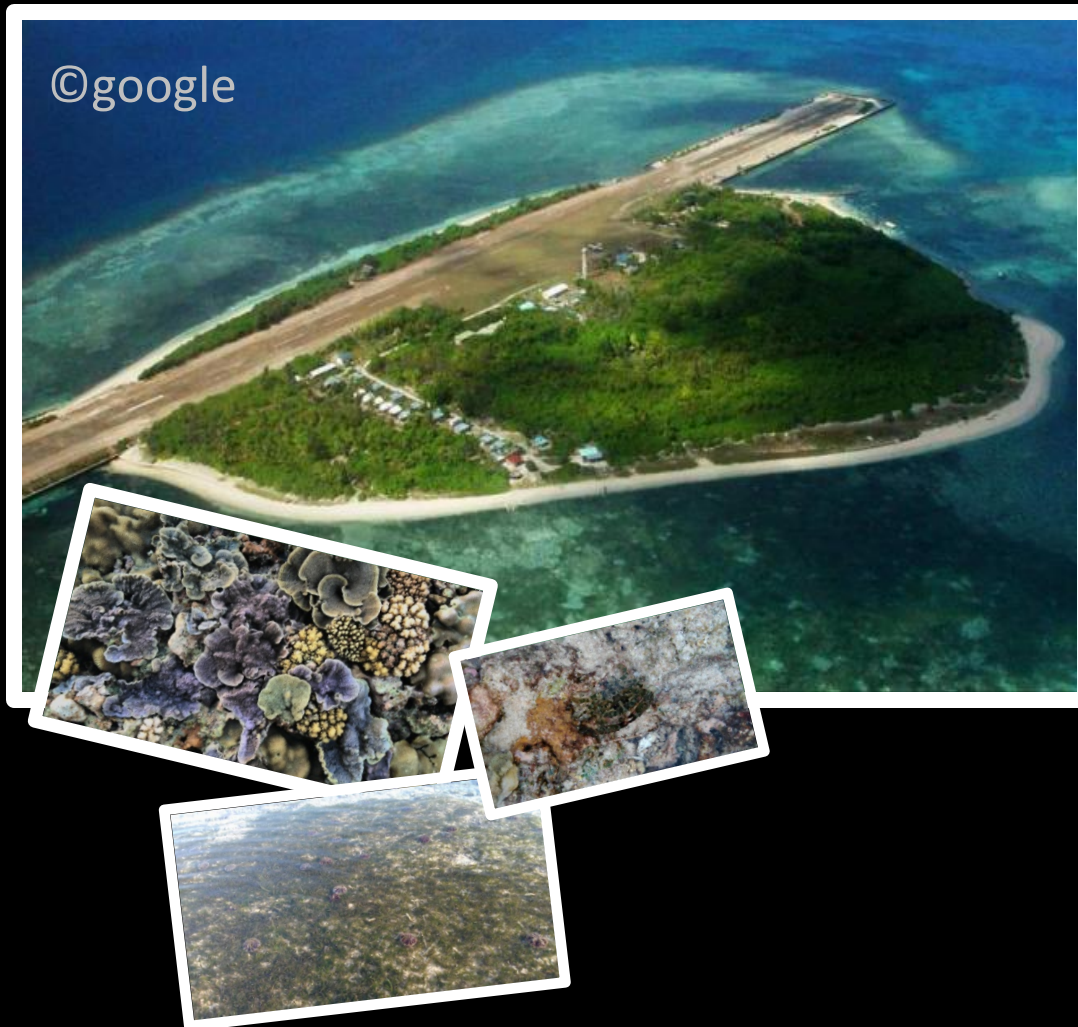
Threats to Marine Resources of Pag-asa Island, KIG, Philippines

- Dynamite Fishing
- Coral Harvesting
- Massive Giant Clam poaching
- Poaching of sea turtles and eggs
- Overfishing





Previous studies



- The Kalayaan Island: Our Natural Heritage
(Alino and Quibilan 2003)
- Resource assessment, Kalayaan Island Group, Kalayaan, Palawan
(Gonzales 2008)

Objectives



Objectives

1. To assess the current state of the coral cover of the exposed coral reef of Pag-asa Island;
2. To identify the species composition and its density of giant clams; and
3. To determine the population density and size structure of top shell in the island.

Methodology





Sampling Area and Procedure



- Pag-asa Island, KIG
- May 1-4, 2016
- Low Tide
- Reef Check Method
- 4 Stations with 2 replicates
- 100m Transect Line
- Caliper (Shell Measurement)
- Counting
- Photograph
- Interview



Results and Discussion





State of Exposed Coral Reef in Pag-asa Island

Coral Cover Category	Station 1	Station 2	Station 3	Station 4	Mean
Hard Coral	66.67	83.33	11.90	9.52	42.86
Soft Coral	0.00	0.00	7.14	4.76	2.98
Sponge	0.00	0.00	0.00	2.38	0.60
Live Benthic Cover	66.67	83.33	19.05	16.67	46.43
Dead Coral	0.00	0.00	33.33	30.95	16.07
Rubble	0.00	0.00	26.19	33.33	14.88
Rock	28.57	11.90	21.43	7.14	17.26
Sand	4.76	4.76	0.00	11.90	5.36
Non-Living Component	33.33	16.67	92.86	83.33	53.57



Station 1

Station 2

Station 3

Station 4



Coral Reef Condition

Station	Hard Coral	Soft Coral	Total Coral Cover	Reef Condition
1	66.67	0	66.67	Very Good
2	83.33	0	83.33	Excellent
3	7.14	7.76	14.9	Fair
4	9.52	4.76	14.28	Fair
Mean	41.67	3.13	44.80	Good





Comparison of coral condition of exposed coral reef to different areas in Palawan

Site	Coral Cover (%)	Category	Author
Exposed Coral Reef of Pag-asa Island	44.80	Good	This Study (2016)
Deep Coral Reef of Pag-asa Island	26.09	Fair	Becira et al. 2008
Kalayaan Island Group	14.00	Fair	Aliño and Quilaban 2003
Palawan Shelf	27.00	Fair	Aliño and Quilaban 2003
Sulu Sea	41.00	Good	Aliño and Quilaban 2003





Species Composition of Giant Clams



Tridacna crocea



Tridacna maxima



Tridacna squamosa,



Tridacna gigas



Hippopus hippopus



Hippopus porcellanus

Represents the 6 or 85.71% of the seven reported species in the Philippines and 60% of the 10 species noted across the globe. It was only the *T. derasa* that was not noted in Pag-asa Island.



Density of Giant Clams in Pag-asa Island

Giant Clams	Station 1	Station 2	Station	Station 4	Total	Mean
Number of Individuals	28	41	66	74	209	-
Density	140	205	330	370	-	261.25

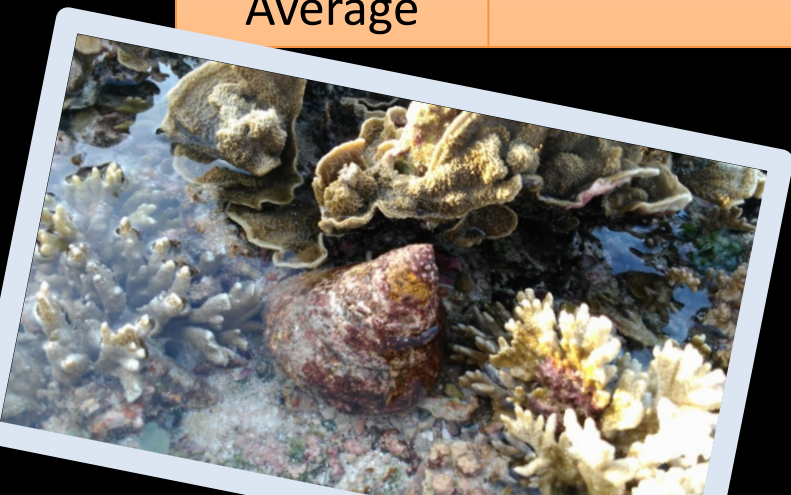
- **57 Ind/Ha**-Deep Coral Reef of Pag-asa Island (Becira et al. 2008)
- **442.9 Ind/Ha**-TRNP(Dolorosa and Schoppe 2005)





Density of Top Shell in Pag-asa Island

Site	Number of Individuals	Density (Ind./Ha.)
Station 1	10	100
Station 2	7	70
Station 3	17	170
Station 4	27	270
Total	61	-
Average	-	152.5





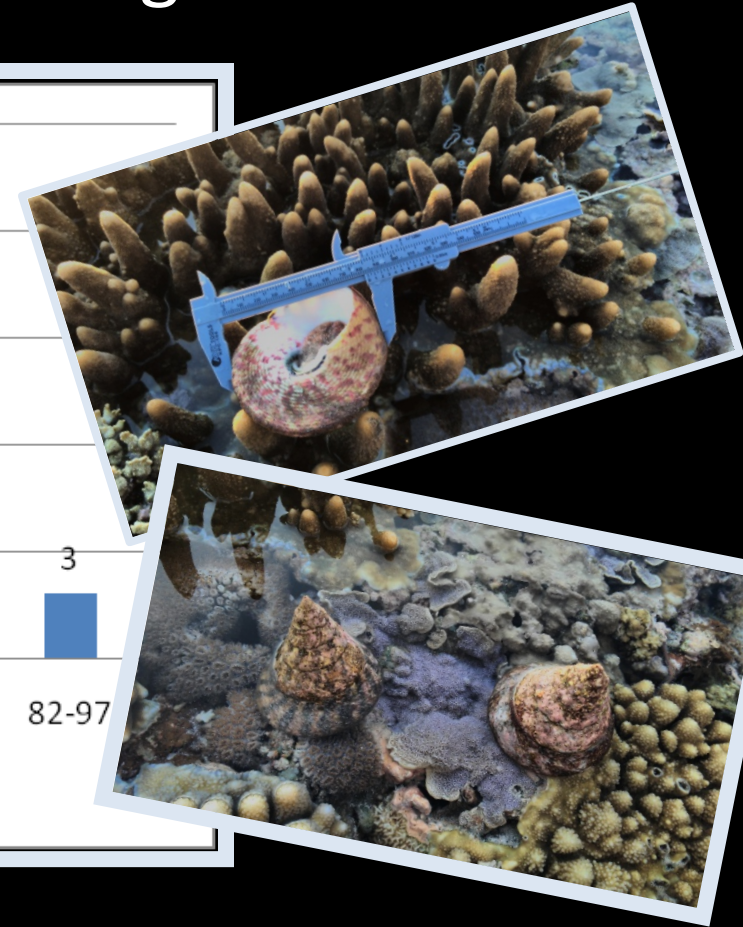
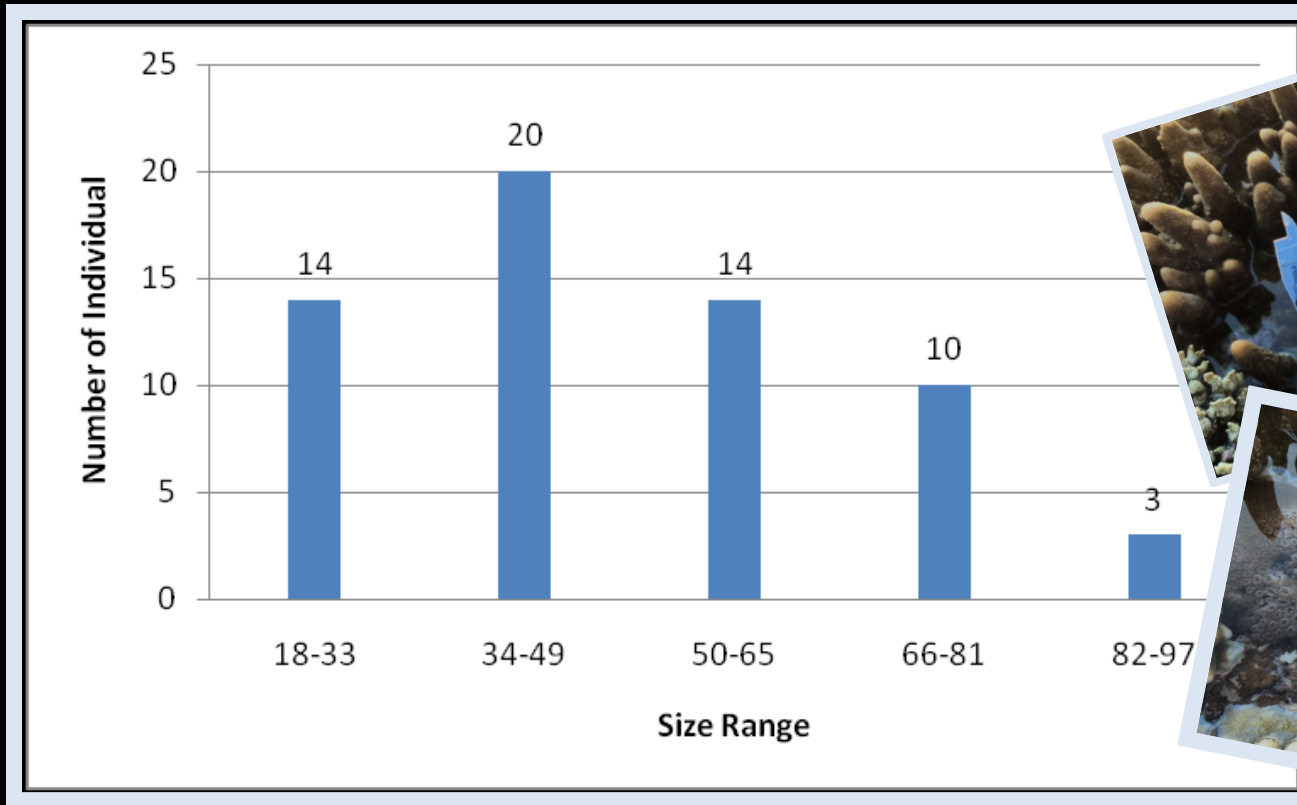
Comparison of Top Shell density in exposed coral reef to the different sites in Palalwan

Site	Author	Density (Ind./Ha.)
Exposed Coral Reef of Pag-asa Island	This Study	152.5
Deep Coral Reef of Pag-asa Island	Becira et al. 2008	7
Tubbataha Reef Natural Park	Jontilla et al. 2011	1714
Green Island, Roxas, Palawan	Condesa 2005	100





Size Structure of Top Shell in Pag-asa Island



- Ranged : 18mm to 97mm
- Average size : 48.5mm

The mean basal diameter was quite smaller compare to the top shells in TRNP 67mm (Dolorosa et al. 2010) and 82.1mm (Jontilla et al. 2014).

Conclusions and Recommendations



Conclusions

- The exposed coral reef in Pag-asa island is in good condition.
- Pag-asa Island hold the six species of giant clams. Relative to other sites in the country, the number of species in Pag-asa Island is relatively high, suggesting that the area supports diversity of giant clam species in the Philippines.
- The density of giant clams and top shell were relatively high though poaching of this threatened mollusk still persist in the area even they are protected by the law.



Recommendations

- With its coral cover good condition, the remaining coral reef should be declared as marine protected area since the municipality does not have yet.
- The declaration of this area will help to the threatened mollusk to protect despite of their population.
- For the meantime, strict implementation of RA 10654 and RA 9147 should be done in order to protect the remaining marine resources of the island.

Thank You !



Janice D. Miraflores, Sam Alili, RN, Hon. Del Mundo, Hon. Milan, Rodrigo Jaka