CORAL TRIANGLE INITIATIVE
ON CORAL REEFS, FISHERIES AND FOOD SECURITY

PAPUA NEW GUINEA

IABAM & PAHILELE COMMUNITY BASED RESOURCE

MONITORING PROGRAM SURVEY REPORT #: 6

MONITORING PERIOD: APRIL 2012

June 2013

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Iabam & Pahilele Community Based Resource Monitoring Program
Survey Report #: 6
Monitoring Period: April 2012

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6

IABAM & PAHILELE COMMUNITY BASED RESOURCE MONITORING PROGRAM

SURVEY REPORT #: 6
MONITORING PERIOD: APRIL 2012

MONITORING REPORT WRITTEN BY
JAMESON SOLIPO
(Iabam-Pahilele CMMA Data Specialist)

PREFACE

Welcome everyone to this 6 community based marine monitoring report for the community of Iabam & Pahilele, whole are being part of the Nuakata and Iabam-Pahilele Community Managed Marine Area (NIPCMMA). I would like to begin by thanking those you monitors for putting aside your private commitment and putting your time into getting the field assessments done during our monitoring period. As we are all aware that this initiative is on a voluntary basis and I am proud of your support, time, effort and your level of commitment to our monitoring program. It has been tough spending time doing things which we all believe will be of our collective benefit in the future and can only say that I am proud of the effort you have all out in. I also would like to extend this invitation on behalf of the management committee and the people of Iabam and Pahilele Island to our youths living in East Cape that should you find some free time, we would like you to get involved in this activity as it is important for the collective benefit for our community in the coming years.

I also would like to extend my sincere thanks to Conservation International officers particularly, Mr. George Aigoma for his time and contribution to the management committees and to the people of Iabam and Pahilele by sharing lessons and experiences on resource management how it can be done. Furthermore, Mr. Aigoma is a good company to our youths and elders and was very helping us understand the importance of resource management and how we can act as community members and leaders in managing our marine resources.

Terry Abaijah
Chairman
Iabam & Pahilele CMMA

ABOUT THIS REPORT

This March 2012 monitoring report only provides the result for what was recorded during that monitoring period and does not provide any trend in species occurrence and/or abundance. Population trend for species abundance and occurrence will be provided in the December monitoring report.

1. INTRODUCTION

This is the 6th monitoring report for the community based marine resource assessments that is conducted by the people of Iabam and Pahilele community. Following the success of 2011, this monitoring report marks the first report for 2012. The monitoring was completed successfully, providing data for this report to show to the people of Iabam and Pahilele about the status of their marine resources.

Like other monitoring programs done in 2011, there was no major issues nor was there any injuries to any of the local monitors. All went well as planned. The only minor issue was a local dispute by the reef owner of the reef where the monitoring station OT.2 was. Due to some misunderstanding and some personnel differences, this monitoring stations was asked to be relocated from that reef. This was done with respect therefore, the results for this monitoring showed no values for OT.2.

2. METHODS

2.1. Field Data Collection

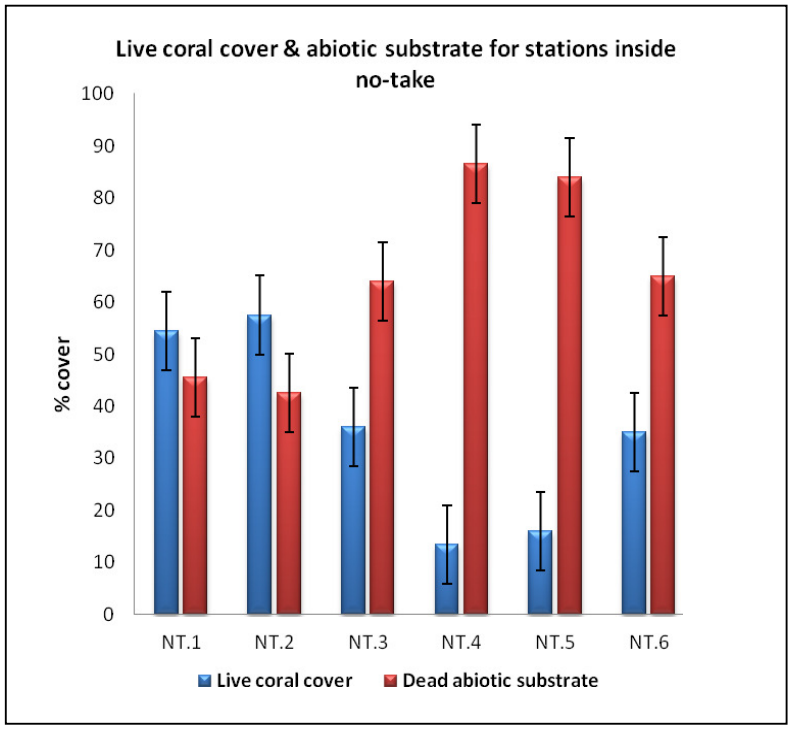
All field sampling methods and equipments used in this survey are similar to those used in past surveys. All logistics and financial support for this monitoring was coordinated by Conservation International's office in Alotau. The Iabam-Pahilele community dinghy was used to ferry local monitors to each monitoring stations for assessment and all camping and catering have been done by the local people of Iabam and Pahilele community.

2.2. Data analysis

Analyses of all data in this monitoring were done by Mr. Jameson Solipo at the Conservation International office in Alotau. The procedures by which these monitoring data were analyzed have been the same as those done for previous monitoring. The methods used by Mr. Solipo to analyze this monitoring data have been adopted from Wangunu 2011, community monitoring data manual.

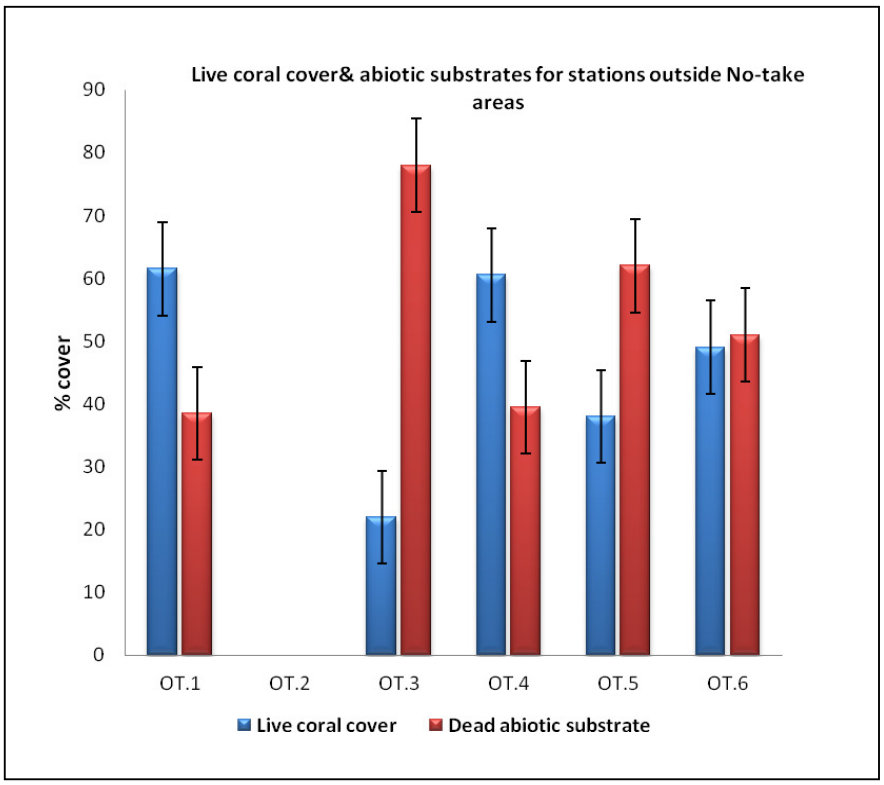
3. RESULTS

3.1.1 Benthic substrate for reefs inside no-take



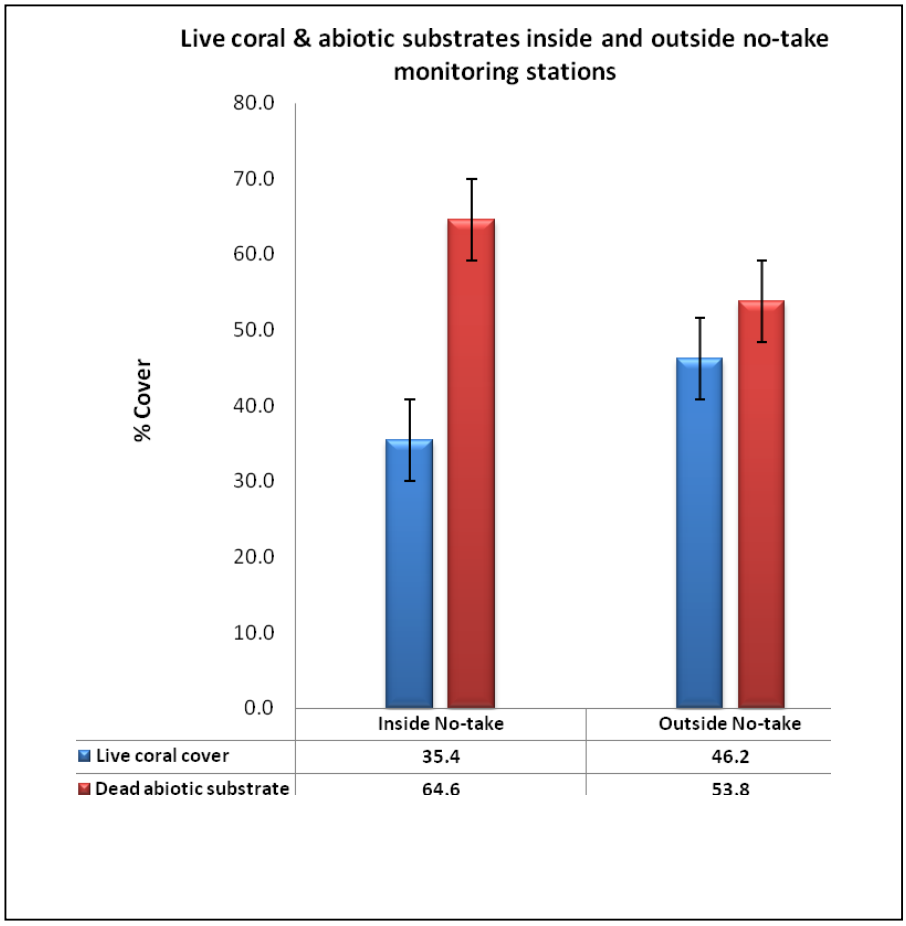
Benthic substrates for sites inside no-take in this monitoring indicate high abiotic substrate inside all monitoring stations Dana Gendu (NT.3), Siasialina (NT.4), Hanakubakuba (NT.5) and Banibani Siga (NT.6) while live coral cover was higher than abiotic substrates inside NT.1 and NT.2. Tawali Namonamo (NT.1) recorded 51.5% cover while Luluwalagena (NT.2) recorded 57.6%. The most dominant live coral type at Tawali Namonamo (NT.1) was branching corals (BC) and submassive corals (SMC) while SMC was dominant in Luluwalagena (NT.2). Much of the dead and abiotic substrates found in all monitoring stations were hard bedrock (RK), dead coral rubble (DCR) and patched of sand (S) and coral rubble. The lowest coral cover was at Siasialina (NT.4), recording 13.5% and Hanakubakuba (NT.5)with 16%.

3.1.2. Benthic substrates for reefs outside no-take areas



First of all, no data was collected for NT.2 due to a local dispute over the reef where the monitoring station was so the data collection were asked to go there. Live coral cover showed good percentage for Iabam (NW) recording 61.5% which the comprised soft Sinularia corals (SC), branched corals (BC) and folliose corals (FC). At Tawali Balabala (OT.4) there was high record for branching corals (BC) while the main abiotic substrates recorded in many monitoring areas were dead coral rubble (DCR), hard bedrock substrate (RK) and patches of dead corals (DCR).

3.1.3. Benthic substrates for monitoring stations inside and outside no-take combined

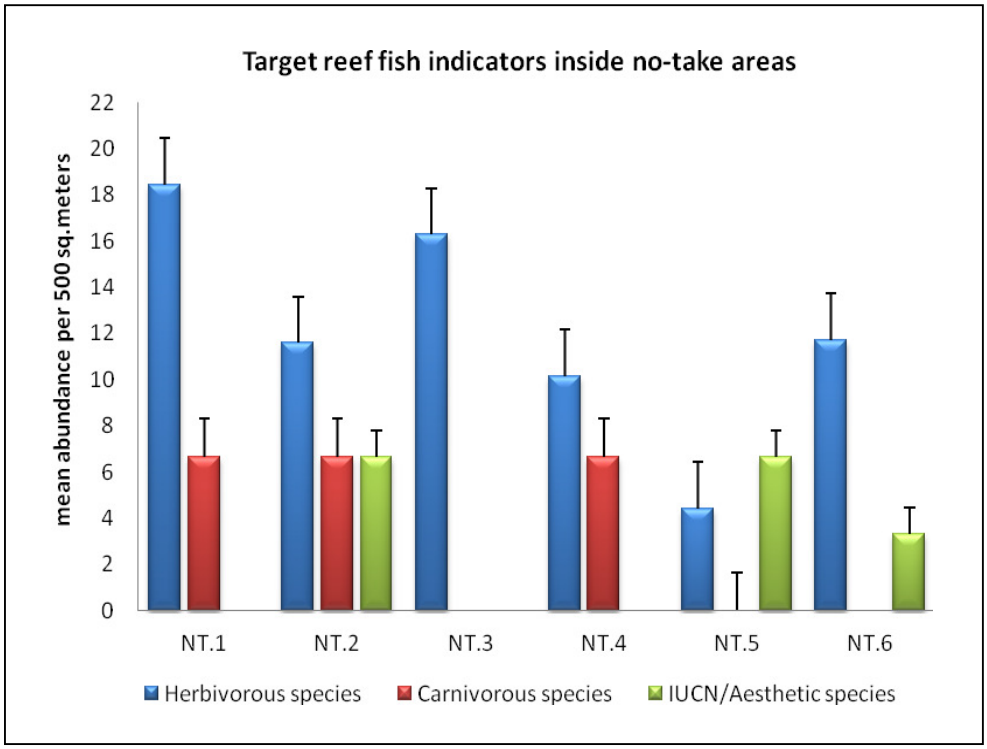


As described in the previous two graphs, the overall percentage cover for abiotic substrate was higher that live coral cover for the 6 monitoring stations inside no-take. Benthic substrates for stations outside no-take shows a near-similar percentage cover for corals and dead materials with live corals being recorded at 46.2% while dead, abiotic substrate was recorded at 53.8%.



3.2 REEF FISH INDICATORS INSIDE & OUTSIDE NO-TAKE AREAS

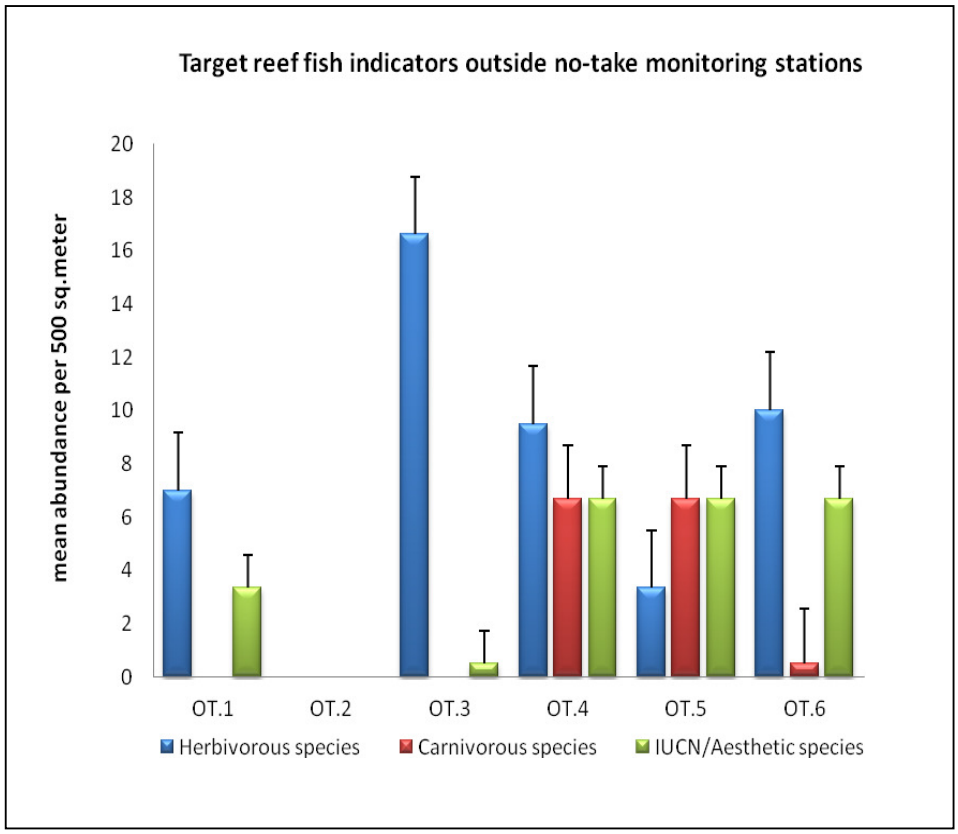
3.2.1. Target Reef Fish indicators inside no-take



This graph for our target reef fishes shows us that the average counts for herbivore was higher than the average for carnivore and IUCN, endangered species. The respective averages for herbivore fishes were from Tawali Namonamo (NT.1) reccording and average of 18.4 herbivore/500m^2 and seconded by Dana Gedu (NT.3) with averages of 16.3 herbivore/500m^2 then Banibani Siga (NT.6) with an average of 11.7 herbivore/500m^2. records for carnivore fishes showed that Tawali Namonamo (NT.1), Luluwalagena (NT.2) and Siasialina (NT.4) all recorded an average opf 6.7 carnivore/500m^2 while Dana Gedu (NT.3), Hanakubakuba and banibani Siga had no record for any carnivore inside their 500m^2 fish transact. Distribution and abundance for the endangered IUCN and aesthetic group was only recorded at Luluwalagena (NT.2) and Hnakubakuba (NT.5) with average of 6.7 species/500m^2 and an average of 3.3 species/500m^2 while ther other monitoring stations had no sightings.

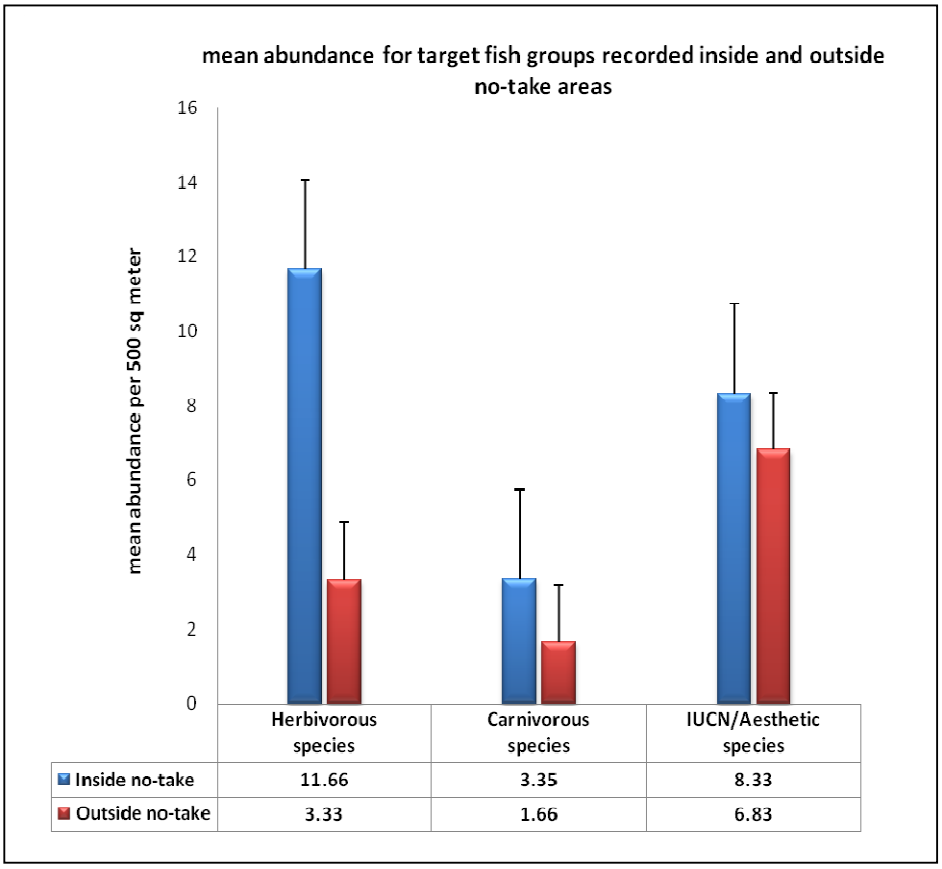


3.2.2 Target reef fish monitoring indicators outside no-take



In this monitoring period we saw that the southeast reef of Pahilele recorded the highest average for herbivore fishes with an average of 16.3 herbivore/500m^2 and no record for carnivore fishes while humphead Maori wrasse and other aesthetic species had an average of 0.5 species/500m^2. Kiwakiwalina (OT.6) recorded the second highest herbivore average of 10 herbivore/500m^2; a very average for carnivore fishes (0.5 carnivore/500m^2) and an average of 6.7 humphead maori wrasse/aesthatic species in its 500m^2 sampling area. Tawali Balabala (OT.4) also recorded a good average for herbivore fishes with an average of 9.5 herbivore/500m^2 and an average of 6.7 species/500m^2 for the endangered humphead wrasse and other aesthatic species. The northwest fringing reef of Iabam (OT.1) recorded and average of 7.0 herbivore/500m^2 and 3.3 species/500m^2 for the endangered humphead maori wrasse and no record for carnivore fishes. The monitoring stations at Hanakubakuba had the lowest abundance for herbivore fishes with an average of 3.3 herbivore/500m^2 and an average of 6.7 species for both the carnivore fishes andd the endangered humphead maori wrasse and other aesthetic species.

3.2.3. Mean abundances for target monitoring fishes inside & outside no-take areas combined



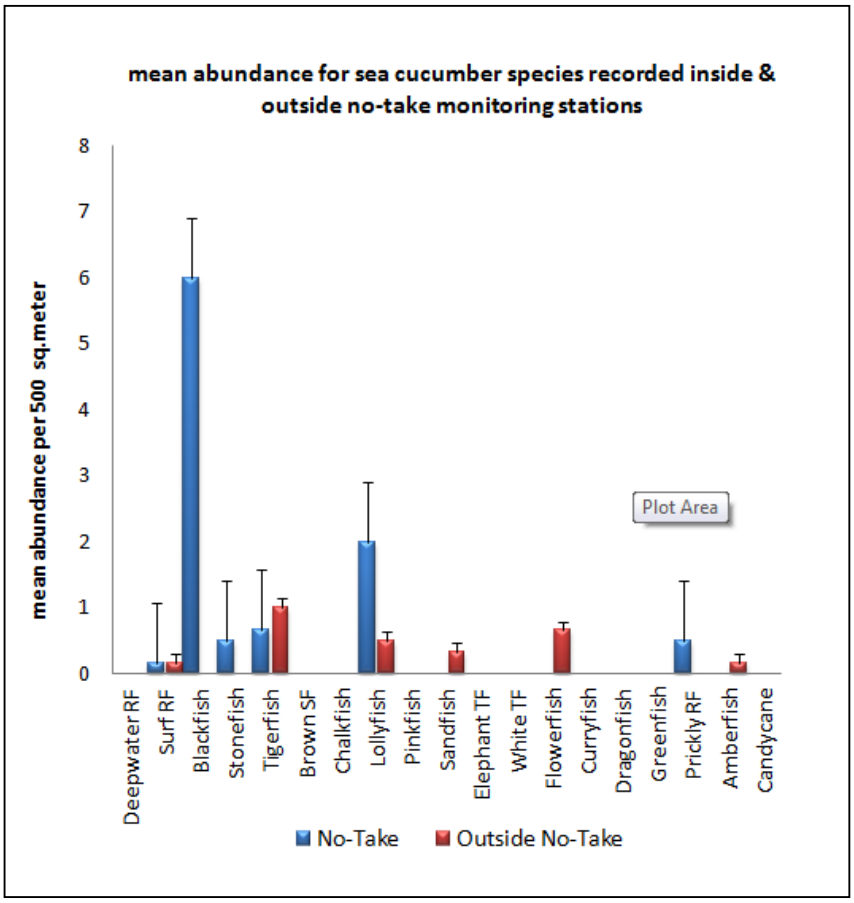
	Herbivorous species	Carnivorous species	IUCN/Aesthetic species
Inside no-take	11.66	3.35	8.33
Outside no-take	3.33	1.66	6.83

As shown clearly in the graph above, The average for herbivore fishes inside no-take was 11.7 herbivore/500m^2 while sites outside no-take was 3.3 herbivore/500m^2. Carnivore fishes had low averages which no-take recorded an average of 3.4 carnivore/500m^2 and outside no-take recorded 1.7 carnivore/500m^2. The averages for the IUCN endangered Maori Wrasse and other aesthetic species was high for no-take and outside no-take when compared to carnivore fishes and recorded averages of 8.3 species/500m^2 in the no-take and 6.8 species for the reefs outside no-take.



3.3 MARINE INVERTEBRATE

3.3.1. Sea cucumber

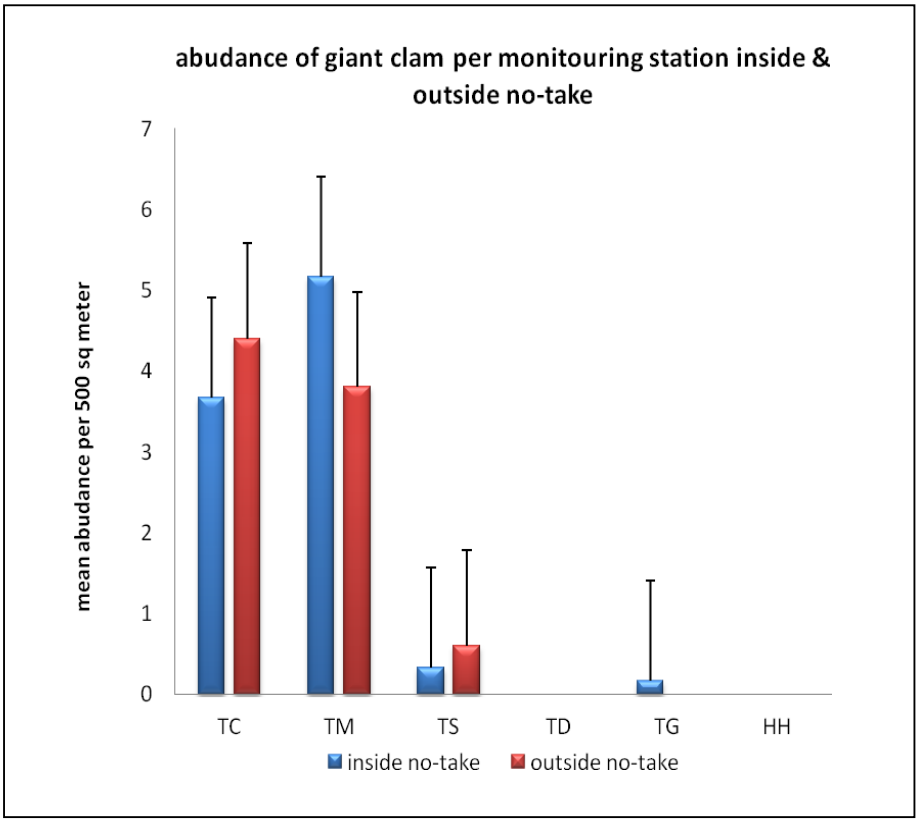


Sea cucumber with the highest individual average was blackfish with an average of 6.0 speccies/500m2 for the 6 monitoring stations of Iabam-Pahilele CMMA. Second to this was lollyfish with an average of 2 species/500m2and was again recorded inside the no-take management area. All other species recorded very low averages and those species that were sighted and recorded is given in the table below.

Sea cucumber species distributed inside and outside the monitoring stations

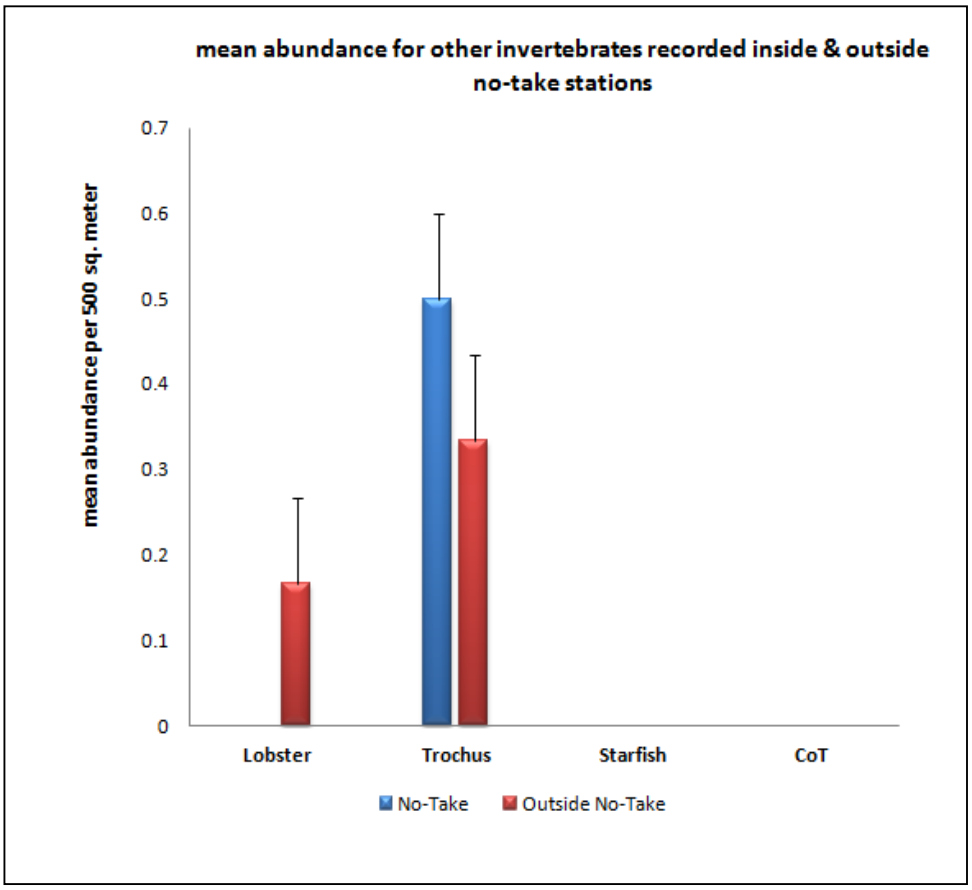
	Averages for No-take	Averages for outside no-take
Surf redfish	0.2	0.16
Blackfish	6	0
Stonefish	0.7	0
Lollyfish	2	1
Sandfish	0	0.5
Flowerfish	0	0.7
Prickly redfish	0.5	0
Amberfish	0	0.16

3.3.2. Giant Clam



There was high abundance of TM in the no--take wile TC was highest for sites outside no-take with respective averages of 5.2 TM/500m^2 for no-take and 4.4 TC/500m^2 for the six monitoring stations outside no-take. There were some records for TS where an average of 0.3 TS/500m^2 was recorded for san average of 0.17 TG/500m^2 inside no-take while HH was not was sighted and reccorded in any monitoring stations inside and outside no-take.

3.3.3. Other Marine sedentary resources (Lobster, trochus crown-of-thorn starfish)



In this monitoring period we see that Trochus showed to be highest among the other indicators for this assessment group. The calculated average for 6 monitoring stations inside no-take was 0.5 trochus/500m^2 while the average for sites outside no-take recorded 0.3 trochus/500m$^{2.}$ Lobster was only sighted outside the no-take monitoring stations with an average value of 0.2 lobster/500m^2. There was no further record for starfish or crown-of-thorn seastar in any monitoring stations inside and outside no-take.

4. DISCUSSION

4.1. Benthic substrate

Dead, abiotic substrate continue to be the main substrate for 5 monitoring stations (Luluwalagena, Dana Gedu, Siasialina, Hanakubakuba and Banibani Siga) while biotic substrate being branched Acropora corals dominated Tawali Namonamo (NT.1). As it has always been recorded and reported in previous reports, the abiotic substrate comprise entirely of hard rock substratum and dead coral rubble for these many sites. presence of live corals in the many stations was evident however, data gathered per 100m transact has shown such results displayed in each graphs. In addition to these, the team made note of new coral growth on many reefs inside and outside no-take zones. These new coral settlement can grow to large sizes if all environmental conditions continued to be the same in the next 10 years, then these new recruitment will one day become brood stock which will supply many areas inside and outside the no-take. Recruitment of corals inside

monitoring transacts and in many areas outside the transacts further illustrates this. Recruitment of Acropora, Montiopora and other coral species on shallow reef flat areas were evidence of recruitment. Moreover, the hard calcareous and rocky bedrock provided good foundation for new coral larvae settlement and as such the team observed good number of coral recruits during their monitoring.

Inconsistency in data recording by different monitors in different monitoring period is another as there is no designation of who is to be responsible for substrate which can ascertain standardization of data acquisition during each monitoring period.

4.2. Reef Fish

4.2.1. Distributions herbivore, carnivore and Humphead Maori Wrasse.

Distribution and abundance of herbivore fishes continued to dominate all monitoring stations in comparison to carnivore and the endangered Humphead Maori wrasse. In any circumstances, it is expected to find more herbivore fishes than any larger fish species due to the fact that many smaller fishes always form feeding aggregations and graze on micro/macroalgae on many reefs. Having more herbivore fishes does not mean that the population for the carnivore should be as low as what is recorded here. The population numbers should be higher than what we have gathered. The mean abundance for the 6 sites clearly illustrate that the population and abundance for carnivore fishes is very low. A number of interesting conclusions and/or suggestions can be made for the given data. Diver error in data collecting and disturbances during monitoring could have cause many of these fishes to seek refuge which they may have moved out of the $500m^2$ that their data was not captured.

Many of the carnivore fishes tend to dwell in depths greater than the depth at which this monitoring was conducted. Many of the species and size estimation shall be accounted for in the deepwater monitoring that is conducted by Conservation International. Population for humphead Maori Wrasse is generally good. Although they have not been recorded in the monitoring stations, the mean values they provide per $500m^2$ further indicate that there are many more in the reefs that have not been monitored.

4.3. Sea Cucumber

As shown in the graphs for sea cucumber distribution, this monitoring period did not record many species as it had in the previous monitoring periods. In general, only 8 species were identified in all monitoring transacts. Only lollyfish was recorded inside the no-take monitoring transacts and surf redfish found in the monitoring stations outside no-take. Thus, the other 6 species were either present in the no-take or outside no-take. Other sea cucumber species like elephant trunkfish, prickly redfish, white teatfish greenfish and amberfish were observed outside of the 500m2 monitoring area. There was clear indication of stock recovery however, sizes for sea cucumber appeared to be small and indicate that they are far from reaching large brood stock.

4.4. Clam Shell

Distribution and abundance for clam shells in this monitoring period has not been good. Two main reasons for this could be (1). Error in data collection especially in species identification and (2). Data collections period affected by bad weather and colder sea surface temperatures that also affected local monitors' ability to spend longer time in water collecting and recording data accurately. It may be this reason that the 500m2 monitoring area was not assessed properly.

4.5. Other invertebrates *(Lobster, trochus, crown-of-thorn starfish)*

Lobster

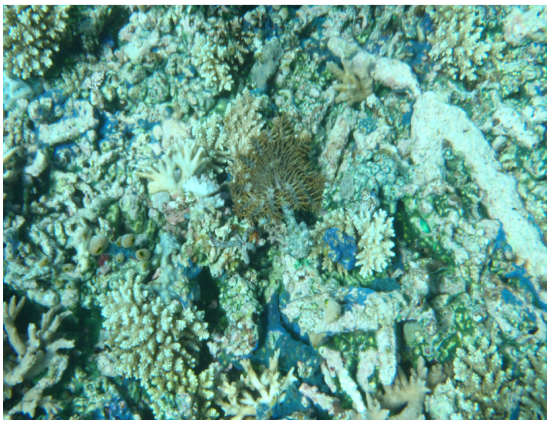
Records for lobster continued to show the same kind of distribution as those in the past monitoring period. Many species of rock lobsters are local reef residents and do not travel much. Their presence and absence during any monitoring periods may indicate localized movements within the same reef therefore, is not captured during that monitoring period. It is important on a management perspective that there must not be any kind of harvesting of lobster and/other sedentary resources by any member of NIPCMMA or other outsiders. The population of lobster managed within the no-take boundaries can provide a successful breeding stock for the many degraded reefs both inside and outside no-take zones.

Trochus

Averages for trochus shells appeared to be lower than what was recorded in the last monitoring period. Only individual shells were recorded at Hanakubakuba (NT.5) and 1 recorded at Dana Gedu (NT.3). All other monitoring stations inside no-take had no record for trochus. The monitoring station outside SE Pahilele (OT.3) was the only station to record 2 trochus within its monitoring areas while all other stations recorded no presence of trochus shells.

Starfish and Crown-of-thorn (CoT) starfish.

There was no record or no sightings for starfish and crown-of-thorn starfish inside the no-take however, few crown-of-thorns sea star were found outside of the monitoring transacts for some monitoring stations inside and outside no-take.



5. CONCLUSION

There is not much distinction or stand out feature of this monitoring compared to the last two monitoring programs. Everything appeared to be the same. The only obstacle faced in this monitoring period was rain and cold water condition which did affected a lot of monitors during their monitoring.

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