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ON CORAL REEFS, FISHERIES AND FOOD SECURITY



NUAKATA, IABAM AND PAHILELE COMMUNITY MANAGED MARINE AREA (NIPCMMA) RESOURCE PLAN OF MANAGEMENT



June 2013

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For more information on the Coral Triangle Initiative, please contact:

Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security Interim-Regional Secretariat
Ministry of Marine Affairs and Fisheries of the Republic of Indonesia
Mina Bahari Building II, 17th Floor
Jalan Medan Merdeka Timur No. 16
Jakarta Pusat 10110, Indonesia
www.coraltriangleinitiative.org

CTI-CFF National Coordinating Committee

Ms. Kay Kalim
Deputy Secretary
Sustainable Environment Programs Wing
Department of Environment and Conservation
1st Floor, Bemobile Building
National Capital District, Port Moresby, Papua New Guinea

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NUAKATA, IABAM, AND PAHILELE COMMUNITY MANAGED MARINE AREA (NIPCMMA)

RESOURCE PLAN OF MANAGEMENT



This Plan of Management has been developed by the people of Nuakata, Iabam, and Pahilele for the management of their resources through their management group, called the Nuakata, Iabam-Pahilele Community Managed Marine Area (NIPCMMA), and is endorsed by the Maramatana Local Level Government.

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1.0. EXECUTIVE SUMMARY

The Nuakata, labam, and Pahilele (NIP) islands lie in Milne Bay Province off the eastern tip of the mainland of Papua New Guinea, approximately 400 kilometers east of Port Moresby. The survey area included the inhabited islands of Nuakata, labam, Pahilele, and Daiwari, as well as the uninhabited Hanakubakuba, Boirama, Grace, Hull, Blakeley, and Cocked Hat islands and their associated reefs. It also includes the Gallows Reef complex to the east of Nuakata Island. Nuakata is the largest island in the group at 9.8 kilometers squared and is about 5 kilometers wide, with a long narrow peninsula pointing south.

The foundation for this work was done by Conservation International (CI) under the funding from the United Nations Development Program (UNDP) and the Global Environment Facility (GEF). Therefore, much of the community engagement process using the Participatory Rural Appraisal (PRA) methods had been done with these island communities under the Community Based Coastal & Marine Conservation Program (CBC&MCP) before it was terminated in 2006.

The current work with the Nuakata, labam, and Pahilele Community Marine Managed Area (CMMA), however, has been funded by the United States Aid for International Development (USAID) under the Coral Triangle Initiative (CTI) and Coral Triangle Support Partnership (CTSP). The program activities implemented at NIPCMMA, as well as in other parts of PNG and the six Coral Triangle (CT6) countries, are in fulfillment of the developed Regional Plan of Action (RPOA) for the CT6 countries.

The work on NIPCMMA includes relevant marine biological assessments, which has provided for prioritization of community managed no-take areas and has also established its CMMA management committee to oversee the running of the CMMA. Both Nuakata and labam-Pahilele CMMA have gone a step further to establish their Community-based Organization (CBO) to assume the overall functional responsibilities for the two CMMAs. Furthermore, a local environment law has been developed and passed by the Maramatana Local Level Government (LLG). This LLG law will provide the legal basis for the management of NIPCMMA through this Plan of Management (Pomp). The Nuakata, labam-Pahilele Plan of Management provides that link between the law and the CMMAs' undertakings. In addition, the rules and regulations specified in this Plan of Management have the legal authority for execution of penalties for the infringement of the respective rules defined in this plan.

2.0. INTRODUCTION

Most local communities in Milne Bay and throughout Papua New Guinea have long practiced traditional methods of management, such as seasonal bans and establishment of temporary no-take areas, that we can adopt for modern use. Most of these communities have a concept of community marine and/or terrestrial tenure that is either formally or informally recognized. Such systems help ensure that benefits from marine or terrestrial conservation efforts go to the local community. Today, many communities and local

leaders are working with their governments and non-governmental organizations to develop management plans utilizing traditional practices to address major problems facing their fishing and hunting grounds. Many of these efforts identify/earmark Protected Areas and use tools such as no-take zones, seasonal closure, and harvest restriction as part of a strategy to conserve marine and terrestrial biodiversity and sustainably manage their natural resources so that all that use them would enjoy the benefits.

This management plan provides direction for the management of the marine reef areas identified and zoned and the resources within the boundary of the Nuakata and the labam/Pahilele Island communities, hereinafter referred to as the Nuakata, labam/Pahilele Community Marine Managed Areas (NIPA CMMA). In this case, the management guidelines are intended to facilitate management zones for the identified outer and near-shore coral reefs and waters within the marine boundaries of the NIPA CMMA.

2.1. Purpose and Scope of Plan

This RMP for Nuakata, labam, and Pahilele CMMA has been developed based on current community aspirations to manage their marine resources for today's use and for perpetuity.

These guidelines in this RMP are to facilitate management zones for the identified outer and near shore coral reefs and waters within the marine boundaries of the NIPA CMMA. It also provides strategic direction for the management of the waters and the resources within the outer boundary of the Nuakata, labam, and Pahilele Community Managed Marine Area (NIPCMMA)

The resource management plan connects the undertaking and management decisions by the people of Nuakata, labam, and Pahilele and their management aspirations to the *Maramatana Local level Government Local Environment Management and Conservation Law 2011* (MLLGovLEM&CL). This management plan and its regulations (provided in section 4.2.4) are legally valid after this plan of management is formally endorsed by Maramatana LLG.

2.2. Legislative Authority

This resource management plan has been developed in accordance with section 27 of the Maramatana Environmental Law; therefore, Maramatana Local Level Government shall have the legislative authority over this plan. The MLLGovLEM&CL is only applicable to Nuakata, labam, and Pahilele, and to other interested communities within the Maramatana LLG jurisdiction to exercise its powers. Section 27 (7) of the MLLGovLEM&CL provides for recognition and endorsement for this plan of management. The application and execution of Maramatana legislative authority is confined to the defined CMMA, and any areas outside of the defined CMMA boundaries are not applicable and are not endorsed by the MLLGovLEM&CL.

The MLLGovLEM&CL further endorses the local legislative system—including village court, ward development committee (WDC), and ward members—to legislate the defined rules and regulations described in this management plan.

3.0. SITE DESCRIPTION & FEATURES

3.1. Regional Setting

In 2002, a group of 62 experts identified areas of tropical coastal, marine, and small island ecosystems around the world that were worthy of consideration for World Heritage Listing (Hillary *et al.* 2002). These areas were identified because of their high biodiversity, unique plants and animals, and overall excellent condition. Out of the areas identified in the Pacific Ocean, the entire team of experts considered the Milne Bay region as being of “Outstanding Universal Value.” The Milne Bay Region was accorded with the highest priority for nomination to the World Heritage Listing—it was considered to be at the top of the “A-list” or highest ratings. Such a finding is in line with the vision of international environmental organizations such as Conservation International and World Wildlife Fund (WWF), which have both noted that the area should be a focus for biodiversity conservation efforts and sustainable management capacity building.

In 1997 and 2000, Rapid Assessment Programs (RAPs) conducted by Conservation International identified Boirama Island in the NIPCMMA as the richest site in Milne Bay, as it contained the highest number of fish species at 270. A coral fish diversity index (CFDI) further proved that Milne Bay Province has the highest fish diversity, with a CFDI of 337 and an estimated total number of reef fish species of 1313 Allen et al (2000).

3.2. Resources

There are abundant marine resources that are used by the people of Nuakata, labam, and Pahilele CMMA for subsistence, artisanal, and commercial purposes. Reef finfish, sea cucumber, clam, trochus, pelagic fishes, and reef shark all have contributed to the local economy of the island for many years. These marine resources have been exploited to a level where some resources have reached their maximum sustainable yield within their CMMA. Today clam and sea cucumber are not harvested commercially, but the others continue to be exploited and sold for money.

Although many people have realized the dwindling effect of uncontrolled fishing practices in the past, they cannot do anything due to the fact that there exists this “tragedy of commons”—they fear losing out totally while others benefit. With the introduction of resource management such as this Management Plan, they see these as a better opportunity for resource recovery.

3.2.1. Physical

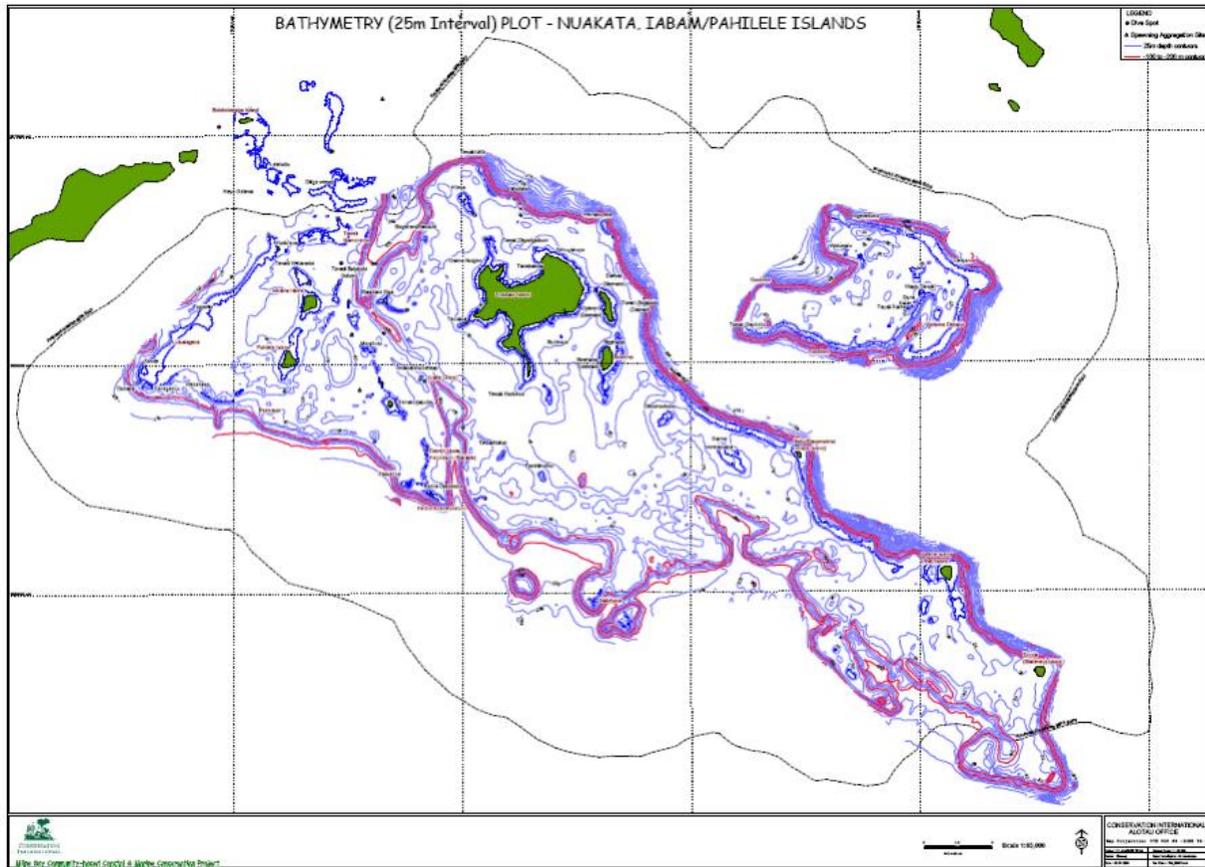
The Nuakata and Iabam/Pahilele Island area (NIPA) lies in the Goshen Strait south of Normanby Island and east of East Cape. It is part of Milne Bay Province, Papua New Guinea. This area includes the inhabited islands of Nuakata, Iabam, Pahilele, and Daiwari as well as the uninhabited Hanakubakuba, Bwelama, Grace, Hull, Blakeley, and Cocked Hat islands and their associated reefs. It also includes the Gallows Reef and cays complex that is situated to the east of Nuakata.

Four different habitats were identified in the NIPA. These habitats include:

- Deep water abyssal;
- Extended continental shelf;
- Barrier, fringing patch, and island offshore reefs; and
- Small coronus atoll islands.

The habitats of the NIPA are characterized by deep-water upwelling, which support pelagic fisheries as well as an abundant supply of finfish in the region. This habitat and ecosystem diversity supports large fish populations, as well as a very diverse number of coral species and invertebrates and, as a result, the NIPA is an internationally known dive location for international tourists.

Nuakata Island is located on the continental shelf extending from the New Guinea mainland. Bathymetry surveys around Nuakata have clearly shown the complexity of the area. Deep channels and vertical reef drop-offs cut into and through the area and make it a suitable habitat for migrating pelagic fishes as well as species of groupers and snappers that are normally resident on reefs. This diverse geomorphology of trenches and channels is likely the reason for the high number of spawning aggregation sites identified during a 2004 and 2005 spawning aggregations survey.



Nuakata, Iabam, and Pahilele Community Managed Marine Area (NIPCMMA)

Nuakata is the largest island in the group at 9.8km² and approximately 5km wide, rising to an altitude of 320m. Though the island still has some rainforest, it is generally made up of subsistence gardens, secondary regrowth forest, and some grassland patches resulting from slash-and-burn gardening.

The island is inhabited by 234 people (2011 census). The people of the island speak a dialect of the “Auhelawa” language, also spoken on the south coast of Normanby Island at Kurada Village. They live in traditional hamlets and practice subsistence horticulture, artisanal fishing, and some harvesting of sea resources—such as fish, bêche-de-mer, and trochus—for cash income to support their economic needs.

Iabam, Pahilele, and Daiwari islands are also permanently populated islands. Iabam and Pahilele islands lie 12km westward of Nuakata and have populations of 41 and 22 respectively. These two islands have been heavily cultivated and so consist of mixed garden forest areas, secondary re-growth forest, and grassland.

3.2.2. Biological ecosystem

Mangroves

A thick linear strip of mangrove forest is found along the coast of the eastern half of Nuakata Island. Patches of mangroves are also found within the bay areas of Nuakata and labam. The mangrove composition of Nuakata includes *Nypa* palms (*Nypa fructicans*) and *Xylocarpus* species. An assessment of the health of the mangrove forests on Nuakata, labam, and Pahilele was not conducted, but 29 species were recorded. The most common species recorded were *Rhizophora stylosa*, *Lumnitzera littorea* and *Osbornia octodonta*. Mangroves play an important role in the livelihood of local communities, providing not only nutritionally valuable food items but also—and more importantly—a source of income through the sale of products harvested from the mangrove areas. Current impacts on the mangrove environment are relatively minimal and usually localized. The biggest impacts were observed where households and communities have cleared mangrove areas in front of their homes or community facilities. Other localized impacts were observed where mangroves have been felled for boats and boat building. Current levels of utilization of mangrove resources are therefore unlikely to pose an immediate threat to the health of the mangroves, although some areas affected by erosion and rising sea levels could benefit from a rehabilitation program.

Coral Reefs

The shallow reef flat zones of Nuakata, labam, and Pahilele extend for some 50-100m on average from the shore. The substrate is composed mainly of bedrock, stones, coral rubble, and sand. Sponges were abundant in the Tanobubuai bay area and a small patch of seagrass (*Halophila ovalis* and *Cymodocea rotundata*) was observed at Haliwa Una Bay. No evidence of grazing by either dugongs or turtles was observed on any of the reefs of Nuakata, labam, or Pahilele. The reefs of Nuakata, labam, and Pahilele are strongly influenced by currents, winds, and waves. The extensive continental shelf on the western half of the island connects the adjoining patch reefs on the west of Nuakata Island with the labam and Pahilele islands. On the northern part of the main island, the continental shelf slopes steadily downwards about 200m off the fringing reef, whereas it drops steeply to approximately 200m on the south and southwest sides of the main island. This zone is exposed to high-energy wave action and oceanic swells. Therefore, the coral reefs are predominantly massive corals on the reef flat with branching and plate corals at the lower reef edge. Soft corals are the most common benthic lifeform in many of the sheltered, leeward reef areas.

Marine Finfish

Population numbers and identification of important commercially targeted and indicator reef finfish were included in the resource assessment. In particular, commercial species of groupers (*Epinephelus polyphekadion*, *E. fuscoguttatus*, *Variola louti*) and coral trout (*Plectropomus laevis*, *P. oligocanthus*, *P. areolatus*) have been identified as having sporadic distributions within Nuakata, labam, and Pahilele CMMA. Species of vulnerable status such as giant humphead wrasse (*Cheilinus undulatus*) and the bumphead parrotfish (*Bolbometopon muricatum*) have been found to be abundant in different cohorts. Scientific

surveys by both Conservation International and community base monitoring surveys by Nuakata and labam-Pahilele have also confirmed this. Other notable species inside NIPCMMA waters include Barramundi Cod (*Cromileptes altivelis*) and Moray eel (*Gymnothorax spp*),

Pelagic Fish

The Goshen Strait is a minor migration channel through which the Skip Jack tuna *Katsuwonus pelamis* pass through. Schools are often seen by sea bird aggregations more commonly midyear. This is a commercial species in deeper waters and has probably fished to a total allowable catch to be sustainable. With climate change, this species is anticipated to remain in the Milne Bay waters. It is also an important species targeted by NIPA fishers, often smoked and sold in local markets at East Cape and Alotau.

Bêche-de-mer / Sea Cucumbers

The bêche-de-mer or sea cucumber population on reefs of the NIPA is conspicuously low. The very low occurrence of commercially important species of sea cucumbers is a direct result of past commercial harvesting. Sea cucumbers are very important for maintenance of the health of reefs, as they are bioturbators who break down waste materials and maintain the marine ecosystem. A total of sixteen species of sea cucumbers have been documented for NIPCMMA.

Giant Clams

Six of the seven species of clam that occur in Milne Bay were found on reefs in the NIPA and include *Tridacna crocea*, *T. squamosa*, *T. gigas*, *T. derasa*, *T. maxima*, and *Hippopus hippopus*. As with sea cucumbers, most clams were recorded on the patch reefs between Nuakata and the islands of labam and Pahilele. This is most likely because most clams are harvested from the flats and edges of the rich fringing reefs on the islands. Abundance of clams varied considerably from reef to reef, and the highest densities of *Tridacna maxima* and *T. crocea* were recorded on reef flats associated with the main water channel between the Nuakata, labam, and Pahilele islands and on associated reef patches in the lagoon associated with the channel. The giant clam, *T. gigas*, was observed significantly more often on the offshore reefs, but this species is being harvested from the fringing reefs at far too high a level to be sustainable in the long term. Stocks of *T. derasa*, *T. squamosa*, and *H. hippopus* were extremely low on almost all the reef systems. All these clam species are a vital source of food for the island communities. While clams grow well and fast on these reefs, over-exploitation threatens their ability to breed and restock reefs successfully, and hence their very survival is at risk. Again, this will have serious implications for the livelihood of these communities, underlining the need to manage the resource for future generations.

Marine Turtles

Hawksbill turtles (*Eretmochelys imbricata*) and green turtles (*Chelonia mydas*) were observed in all reef habitats, either foraging or resting. Most turtles encountered were adults. Anecdotal evidence suggests that turtles have been seen nesting on the mainland beaches west of the NIPA in the past. Turtle harvesting and the loss of foraging grounds are the two major threats to the continued existence of turtles in and around the Nuakata, labam, and Pahilele Islands.

Dugong

Anecdotal information supplied by the locals indicates that dugongs are sighted once in a while inside Tanobubuai and Asailo Bay. Although our surveys did not provide any feeding evidence, the visits into the bays could be for shelter during rough seas or for other reasons.

Cetaceans

The bottlenose dolphin *Tursiops aduncus* is most common east of Nuakata, with a pod often frequenting Asailo Bay.

The killer whale *Orca orca* is known to migrate through the Goshen Strait, with this species passing through around March-April. They are encountered by fishers and dinghies that pass through these waters.

3.2.3. Cultural System

To date, the genealogy study has identified eight different clans residing in the NIPA. These clans further group themselves into 33 different sub-clans. Ten of these sub-clans, from four main clans, reside in the labam-Pahilele Ward while the other 23 sub-clans, from five main clans, reside in the Nuakata Ward. Most of these sub-clans live in small hamlets around the coast of the main islands of Nuakata, labam, and Pahilele, usually inshore from the marine areas they claim. It is not uncommon though, through movements due to marriage, to find members of a particular sub-clan scattered throughout several hamlets in locales where they are not resource owners. The study on genealogy also revealed that 16 major marine resource owning sub-clans do not impose any form of limits on the usage of their marine areas on the other sub-clans, unlike with land-based resources. While it is of no surprise that the unrestricted traditional use of marine environs is for food security purposes, it is noteworthy to know that this open access is also allowed for commercial species such as bêche-de-mer. One possible reason for this is that the degree of commercial exploitation of the NIPCMMA by the resident community is, at present, relatively low. This degree of open access however, may change with future population pressure or with the advent of initiatives that increase the value of the marine area.

3.3. Existing Users

3.3.1. Traditional User Rights and Management Practices

The sea area within NIPCMMA has been used collectively by the people of Nuakata, Iabam, and Pahilele, and those who come from Iabam and Pahilele but reside at East Cape. The sea area has always been open for communal use with unclear or distinct boundaries between Nuakata and Iabam-Pahilele. As a result of this, there have been claims and disputes over the ownership of Hanakubakuba Island and its surrounding reefs.

Some clans and sub-clans have ownership rights over different reefs within the CMMA boundary, while others have user rights through traditional arrangements or through inter-marriages within islands. Anecdotal information suggests that there has been some form of resource management practiced. However, these traditional methods are confined to subsistence/domestic resource use and as such, the whole idea of resource management has been underdeveloped over decades. The idea of strict or formal resource management, in the context of increased rates of use and/or commercial use of resources, has not transcended from past to present generations.

3.4. Existing Legal and Management Framework

As the customary land tenure system of Papua New Guinea places ownership of land and water with local communities and individuals, it is important to strengthen the abilities of local level governments (LLGs) and communities to legally manage their own natural resources. Within the Maramatana LLG, CI is working towards the passage of an Environment Law. This generic law is designed so that any LLG body throughout Papua New Guinea is able to adopt it and, with a few small changes, apply it to the area under their jurisdiction. It recognizes the right of an LLG to manage its own marine or terrestrial resources. In addition, it recognizes the rights of communities to organize themselves and form associations, community based organizations, or other oversight bodies in order to design, implement, manage, and monitor the use of natural resources under their care.

A review found that all of the above legislation, except the *Organic Law on Provincial Governments and Local Level Governments* (OLP & LLG), was lacking in one or more of these criteria. Sections 42 and 44 of the OLP & LLG give LLGs and provincial governments law-making powers in a range of areas, as long as they are not inconsistent with any other higher national legislation. Among these powers, the following are related to conservation and resource management:

- Land and land development including provincial titles and leases (42 (r));
- Forestry and agro-forestry (42 (s));
- Renewable and non-renewable natural resources (42 (t));
- Parks, reserves, gardens, scenic and scientific centers (42 (y));

- Dispute settlement (44 (i));
- Local environment (44 (p));
- Domestic animals, flora, and fauna (44 (s));
- Protection of traditional sacred sites (44 (z)); and
- The imposition of fines for breaches of any of its laws (44 (ab)).

These sections allow LLGs and provincial governments to develop conservation and resource-management laws, including opportunities for the establishment of protected areas, and for the introduction of local fishing laws that restrict the harvest and use of natural resources. In fact, legislation aimed at general environmental regulation and protection has already been passed by Maramatana Rural LLG, which is being implemented at NIPCMMA.

A similar environmental law will be developed for Bwanabwana LLG after close consultation with the Bwanabwana LLG members and the provincial legal advisor.

3.5. Existing and Potential Threats (Implications for Management)

There are potential threats facing the marine ecosystems of NIPCMMA. The first level of threats stems from land-use activities on Nuakata, labam, and Pahilele islands. Discharge of anthropogenic materials as a result of poor “erosion-control” systems by subsistence gardening activities poses some level of threat through increasing silt and sediment deposition in the fringing reefs surrounding Nuakata, labam, and Pahilele islands. This level of impact is localized and can be managed through responsible gardening methods. Sediments deposited on the fringing reefs will be flushed out easily as a result of constant and regular current and tidal flow in the fringing reefs.

The second threat, which is currently addressed through Conservation International's awareness program, is the overexploitation of herbivorous fishes. As herbivorous fishes play a significant role in maintaining the integrity of any reef system, it is apparently crucial that their populations are maintained at a reasonable level so that they continue to play their ecological roles. This threat appears to be manageable, and many people are quick to adopt new fishing methods that are less destructive to this fish species.

The last and most disturbing threat, which may be beyond our control if we do not address it at this earliest stage, lies with the ongoing prospecting and mining operations carried out in Normanby Island. Most drilling and mining activities have been taking place on the eastern side of the islands; however, with the exploration license granted for the southeast of Normanby, it is apparent that solid and chemical wastes will certainly affect the northern part of NIPCMMA. If that happens, sediment, silt, and other anthropogenic wastes from the drilling and mining activity will eventually be discharged inside NIPCMMA.

3.6. Existing Gap and Knowledge

There exists a large information gap on the land-use plans for many island communities surrounding Nuakata and labam-Pahilele CMMA. The development of Mwatebu Mines and its expansion process is something about which NIPCMMA has no information and control, as a lot of land-base impacts—including sedimentation—can be discharged into the marine environment and driven by currents to NIPCMMA.

4.0. THE PLAN

4.1. Goals and Objectives

1. To protect, conserve, and sustainably manage the marine ecosystems within the identified areas to help ensure food, social, cultural, and economic security for Nuakata and labam-Pahilele communities' future generations;
2. Ensure the preservation of coral reefs and other marine habitats, to allow them to remain in their natural condition,
3. Encourage and regulate the appropriate use, appreciation, and enjoyment of the areas identified and defined for management for all who use them to enjoy, and manage the defined area as part of a network of community marine-managed areas, contributing to the long-term viability of the province's marine ecological systems.

4.2. Management Tactics

4.2.1. Management Committees

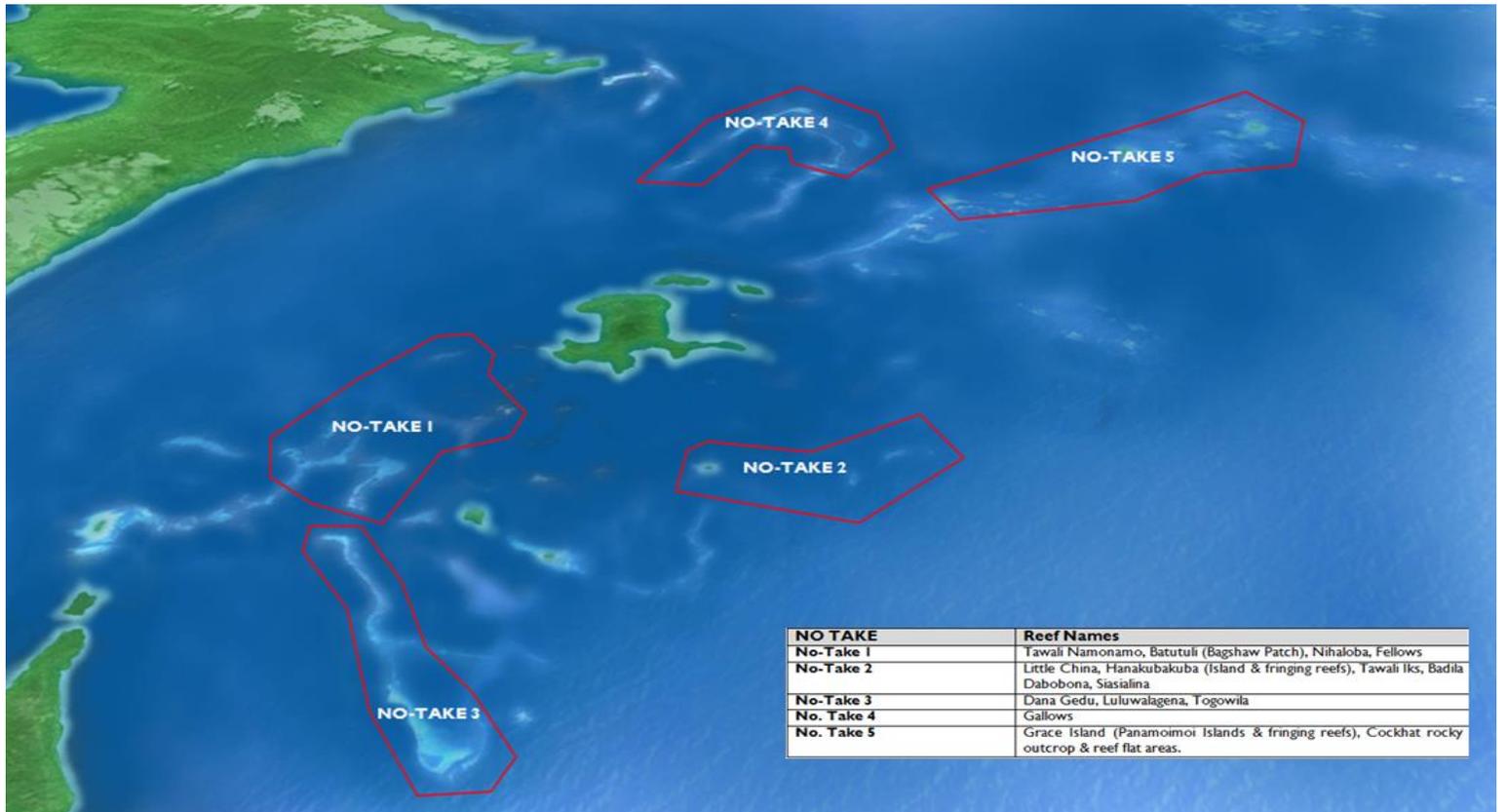
An interim management committee has been formed for Nuakata and labam-Pahilele CMMA. This committee comprises of representatives from clans and sub-clans, who have either traditional ownership rights or user rights over the management area and the open access areas within the CMMA. This management committee will be a body to coordinate and manage the affairs of Nuakata and labam-Pahilele CMMA and will work closely with Conservation International, PNGCMMA, PNGLTN, and other development partners in Milne Bay Province and Papua New Guinea. The management committee is made up of the following key positions:

1. CMMA Chairman
2. CMMA Secretary
3. CMMA Treasurer

This elected management committees will serve a term of no more than two years before elections are carried out for new members of the committee. The election of CMMA committees will be done before all members of Nuakata and labam-Pahilele community, where they will choose whom to elect as committees for each successive term.

4.2.2. Management Boundaries

The management boundaries for NIPCMMA borders with a number of communities sharing the same sea boundaries. The coordinates of the specific management boundaries are yet to be determined; however, at present the NIPCMMA has the jurisdiction of all waters found between the sea boundaries of Normanby Island (North of NIPCMMA); Dawson Island (East of NIPCMMA), Basilaki and Sidea Islands (to the south of NIPCMMA); and East Cape/Walalaia/Gadudu (sea area to the west of Dana Gedu reef).



NO TAKE	Reef Names
No-Take 1	Tawali Namonamo, Batutuli (Bagshaw Patch), Nihaloba, Fellows
No-Take 2	Little China, Hanakubakuba (Island & fringing reefs), Tawali lks, Badila Dabobona, Siasalina
No-Take 3	Dana Gedu, Luluwalagena, Togowila
No-Take 4	Gallows
No-Take 5	Grace Island (Panamoimoi Islands & fringing reefs), Cockhat rocky outcrop & reef flat areas.

4.2.3. Zoning Plan

Zoning the identified marine reef areas within the boundaries of the CMMA is the most appropriate way the local communities, through the resource management committee, have defined a sustainable resource management mosaic in the long-term, which includes the protection of marine biodiversity. These zoned reef areas of the CMMAs are deemed to be flexible, and communities can adopt a range of different use zones within the boundary of the defined CMMA to achieve a number of sustainable marine resources development and conservation results that include:

- The restoration of marine areas that have degraded reef habitats or depleted populations of fish and/or other harvested species such as sea cucumbers and clams;
- The protection of adult animals, which can breed and then recruit, and through “spill-over effect” restock and restore overexploited areas;
- The enhancement of fishery productivity by protecting critical spawning, breeding, nursery, and feeding habitats;
- The reduction of the negative impacts of human activities like coral harvesting and fishing practices; and
- The protection of important or threatened habitats and species within NIPCMMA.

The approach taken by Nuakata and labam-Pahilele CMMA will set the precedent for other future CMMAs in Milne Bay Province. The Wiyaloki CMMA in the Engineer Group of Islands, Bwanabwana LLG uses the same principles and methods that are used here by NIPCMMA. The CMMA shall be managed for five years, after which period a review shall be done by their management committee after this timeframe expires.

4.2.4. Regulations

The management rules and regulations developed and highlighted in this section of the management plan will serve as the basis for apprehension and prosecution of any breach of management rules. The rules and regulations are set forth by the people of Nuakata,

MANAGEMENT ZONE	RULES & REGULATIONS	ACTIVITIES ALLOWED	PENALTIES	GEAR RESTRICTION	DURATION
1. NO TAKE	<ul style="list-style-type: none"> • No form of harvesting or collection of any marine plants or animals • No form of fishing either by day or night • No anchorage of any vessel except where mooring provide or in emergency 	<ul style="list-style-type: none"> • Snorkelling • Scuba diving • Scientific research <p>Activities permitted but to be accompanied by a member of RMC</p>	<ul style="list-style-type: none"> • Confiscation of illegal items harvested • Spot fine of K1000 (outsiders) • Spot fine of K100 community members or in lieu community work (1-4 weeks) 	Not applicable	The no-take area would be set aside for 5 years depending on RMC and community decision

labam, and Pahilele in a workshop held at Nuakata Island. The management regulations have been scheduled according to the two main management authorities: (1) no-take area and (2) open-access fishing areas.

1. No-Take or Conservation Area

11. Open Access Area

MANAGEMENT ZONE	RULES & REGULATIONS	ACTIVITIES ALLOWED	PENALTIES	GEAR RESTRICTIONS	DURATION
CUSTOMARY FISHING	<ul style="list-style-type: none"> Non-community members require permit to fish in areas identified as customary fishing area No anchorage of any vessel except where mooring provided or in emergency 	<ul style="list-style-type: none"> Fishing allowed by specified fishing gears/methods only Snorkelling Scuba diving Scientific Research Fishing by non community member by permit only 	<ul style="list-style-type: none"> Confiscation of illegal items harvested Spot fine of K1000 (outsiders) Spot fine of K100 community members or in lieu community work(1-4 weeks) 	<ul style="list-style-type: none"> No derris root fishing No hooka gear fishing No scuba Fishing No night diving fishing No gill nets No-community fishers no 'Taiwan' fishing 	The customary area would be set aside for 5 years and reviewed depending on RMC and community decision

4.2.5. Resource Management Plan

The marine resources within the defined boundaries of Nuakata, labam, and Pahilele CMMA shall be managed for five years, after which period a review will be done by the management committee. Should NIPCMMA management committees wish to have the areas marked as no-take continue to be closed for another five years, then the decision lies entirely with the committee and their whole community. An open dialogue and consultation must be carried out by the management committees and the whole community before a consensus is reached.

4.2.6. Education and Public Awareness

Education and awareness remain an important component of community knowledge as we progress through with Nuakata and labam-Pahilele CMMA. Target awareness utilizing multi communication tools to capture people's thoughts about the importance of conservation and resource management will be used by Conservation International to educate and make people aware on the need for management.



CORAL TRIANGLE INITIATIVE

ON CORAL REEFS, FISHERIES AND FOOD SECURITY

