



**Establishment and Operation of a Regional System of  
Fisheries *Refugia* in the South China Sea and Gulf of Thailand**

# **CORON FISHERIES REFUGIA MANAGEMENT PLAN**

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# **CORON FISHERIES REFUGIA MANAGEMENT PLAN**



**MUNICIPALITY OF CORON  
PROVINCE OF PALAWAN**

## CHAPTER 1. INTRODUCTION

### Rationale

The establishment of the Fisheries Refugia will enable the local government units to manage their fisheries and marine resources as well as the coastal habitats sustainably. Most, if not all of the issues and problems that beset the fisheries and coastal management will be addressed through the broader perspective of ecological, human and governance aspects of management.

### Scope of the Plan

The Plan will be covering the contiguous coastal barangays identified in Coron, Palawan. The management of these areas will involve the partnerships among and between the LGUs, the academe, the private sector, the fishers and others who are either direct or indirect beneficiaries.

### Legal Basis

The Fisheries Code and the Local Government Code are the two major laws that promote the establishment of the Fisheries Refugia. There are other environmental laws that also ensure the protection of fisheries and marine resources. Specifically, the LGUs are mandated to enact fisheries ordinances that will protect the resources in their areas of jurisdiction.

### Vision

Accelerate growth of fisheries industry output through use of high technology, increase productivity as well as targeting the export market by increasing local investment and foreign direct investment

**A responsible community enjoying and sharing justly the bounty of sustainably-managed marine resources and environment governed by the rule of laws.**

### Mission

Accelerate growth of fisheries industry output through use of high technology, increase productivity as well as targeting the export market by increasing local investment and foreign direct investment.

**Implement the spatial & temporal management of the marine fisheries resources and protect, conserve, manage the marine environment to accelerate the sustainable growth of fisheries industry productivity towards an economic growth of Coron Municipality.**

### Goals

- A. Ecological Well-Being Component

- Sustained and coherent marine habitat and fisheries management

## **B. Human Well-Being Component**

- Empowered and better quality of life of the coastal municipal fisherfolks in particular and the community in general

## **C. Good Governance Component**

- Improved, sustained and rational implementation of the coastal policies, regulations and laws.

## **Objectives**

### **A. Ecological Well-Being Component**

#### **A.1 Fisheries Management**

1. To establish and manage the Fisheries refugia
2. To implement spatial and temporal close fishing during the critical stages in the life cycle of fish (spawning and juvenile stages)
3. To set guidelines in the construction and operation of fish corrals, marine-culture and other fishing activities in the refugia site and adjacent waters
4. To establish fishery monitoring mechanism on the enforcement of environmental and fishery laws

#### **A.2 Coastal Habitat Management**

1. To implement the Mangrove forest management under the Community-Based Forest Management (CBFM) framework
2. To protect and properly manage the seagrass meadows and algal beds
3. To protect and conserve the corals and reefs

#### **A.3 Coastal Zoning and Shoreline Management**

1. Designate Zones for specific uses (for strict protection, rehabilitation, aquaculture, tourism, trade and navigation, etc.) designated
2. Fishing activities and use of gear in every zone regulated
3. Coastal setbacks for all development implemented

#### **A.4 Waste Management**

1. To strictly implement the Ecological Solid Waste Management Code of the Municipality of Coron.
2. To strictly enforce the Environmental Compliance Certificate (ECC) requirements issued by the Environmental Management Bureau-DENR, specifically on the required installation of wastewater treatment facilities by fishery-related and similar industries situated along coastal areas.

#### **A.5 Climate Change Mitigation, Adaptation and Disaster Risk Reduction and Management**

1. Condition of marine habitat, fisheries and community determined.
2. Damaged critical coastal and marine habitats rehabilitated.
3. Vulnerable critical coastal and marine habitats protected and conserved.
4. Environment friendly and green technology adopted and promoted in the municipality.
5. Climate change adaptive and disaster resilient communities established.

## **B. Human Well-Being**

### **B.1 Livelihood & Enterprise Development**

1. Environmentally-sound alternative livelihood identified and implemented
2. Coastal aquaculture sustainably managed
3. Seaweeds farming

### **B.2 Coastal Eco-Tourism Development**

1. Island hopping and dive tour activities regulated
2. Baywalk park established and managed

## **C. Good Governance**

### **C.1 Legal Arrangement and Institutional Development**

1. Integrated Coastal and Fisheries Resource Management (ICFRM) in the municipality institutionalized
2. Integrated Coastal and Fisheries Resource Management (ICFRM) Plan institutionalized
3. Fund for the plan provided
4. People's organization (POs) strengthened

### **C.2 Information, Education and Communication Campaign**

1. Tri-media IEC materials on ecosystem approach in coastal and fisheries management designed and developed
2. Community awareness/information drive on ecosystem approach in coastal and fisheries management conducted
3. Information on ecosystem approach in coastal and fisheries management promoted and disseminated

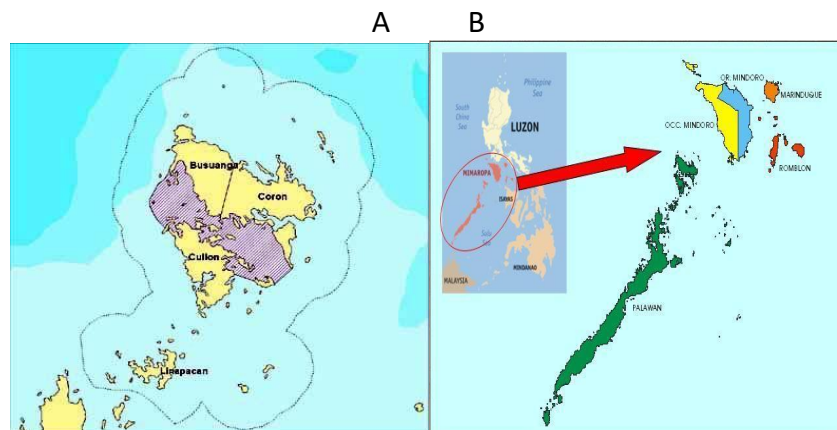
## **Functions, Roles and Responsibilities of the Local Government Unit and partners**

- Managing the fisheries resources in accordance with the Fisheries Code, the Local Government Code and acts, regulations enacted by the local government.
- Fisheries stock assessment, planning and management.
- Conservation of fisheries resources
- Development of rational and sustainable aquaculture industry
- Product development in seafood
- Implementation of food safety and quality control programme in the seafood processing industry
- Providing technical and support services to the fisheries industry

## CHAPTER 2. PROFILE OF THE FISHERIES REFUGIA

### Coron Fisheries *Refugia*

The fish *refugia* site is located in the Calamianes Group of Islands or simply known as Calamianes (Figure 1-A). The specific site is in the municipality of Coron, Palawan, one of the four municipalities in the Calamianes Group of Islands. The three other municipalities are Busuanga, Culion and Linapacan. Palawan is under the Philippine Administrative Region referred to as MIMAROPA which stands for the four provinces under this region namely: the two provinces of Mindoro (MI) [Mindoro Oriental and Mindoro Occidental], Marinduque (MA), Romblon (RO) and (PA) Palawan (Figure 1-B). Palawan is also the largest province in the Philippines having a total land area of 14,649.73 square kilometers or 5,656.29 square miles, and for geographical purposes to include Puerto Princesa City the total land area is 17,030.75 square kilometers or 6,575.61 square miles.



Source: A. USIAD FISH Project, B. Zamboanga.com

Figure 1. A. Map of the Calamianes Group of Islands, B. Map of the MIMAROPA Region

### History

The name Coron, meaning “pot” in Cuyonon was given by Don Nicolas Manlavi y Ledesma, a native of Cuyo, who migrated to and settled in Banuang Daan, a barangay about 10 kilometers away from the town proper of Coron. In another version, the Tagbanuas named the place “Coron” meaning enclosed since the place is almost bounded by tall mountains on its three sides. That place is now known as Banuang Daan in Coron Island.

Two groups pioneered inhabitation in Coron. First came the Tagbanuas, a sea-faring group who lived on fishing and crude agriculture. The Calamianes, a group who descended from the first wave of Malay immigrants who graced the Philippine lands between 20 BC and 100 AD came to Coron too. The Tagbanuas and the Calamianes were the ancestors of the Igorots and Bontocs of the Mountain Province. (FLUP, 2014) Intermarriages of immigrants from Visayas, Cuyo, Aguty, Cagayancillo and other regions caused Calamianens to lose their tribal identity.

During the last centuries of the Spanish regime, the immigrants who settled in the Calamian group of Islands were the Sandovals and Rodriguezes from Culion, the Vincuas from

Cagayancillo in Coron Island and Don Nicolas Manlavi y Ledesma who settled in the mainland of Busuanga. In 1749, Pedro Vincua from Cagayancillo led in establishing an organized government through an authority of the Governor General to make Coron a “visita” under the jurisdiction of Culion, which was the “matria” at that time. This was officially named Peñon de Coron and this existed for more than fifty years.

In 1902, Coron was registered as a town with Don Vicente Sandoval as their first Alcalde Mayor. The name of the municipality was then changed from Peñon de Coron to Coron. The early 20th century brought about different industries to Coron. In 1939, Coron, being a place with mountains rich with mineral reserves, experienced a mining boom until the outbreak of World War II in 1942. The Japanese occupied the mining camps in July 1942 and resumed manganese mining then. Coron was liberated from the Japanese forces in 1945. On the other hand, deep sea fishing flourished in Coron in 1947. The population increased due to the opportunities of the municipality. People from all over the country worked either as fishermen or miners.

Today, the Municipality of Coron is a premier tourist destination for locals and foreigners for its breathtaking views and scenic places like the beautiful white sand beaches, marine parks, preserved wreckage of war, dive sites and coral reefs coupled with excellent services and accommodations,

The name Coron was given by Don Nicolas Manlave Y Ledesma, a native of Cuyo. According to him, the bay fronting Barangay Banuang Daan, their first settlement, looked like an earthen pot. *Coron* is a Cuyonon term for pot.

The first inhabitants of Coron were the Tagbanuas. They form part of the second wave of Indonesians who migrated to this country some 5000 years ago.

The second tribe to inhabit the place was the Calamianens. They descended from the first wave of Malay immigrants who came to the Philippines between 200 B.C. and 100 A.D. They are the ancestors of Igorots and Bontocs (Coron Municipal 2004 Profile).

## **Municipal Profile**

- Geographical location

The Calamianes group of Islands is located in the Northern Islands of the province of Palawan. Coron is located in the largest island of the Calamianes group of islands called Busuanga Island and occupies two thirds of the eastern part of Busuanga Island. The geographical coordinates of Coron are 11°60' North, 120° 12' East (Fig 1).

Coron’s topography is made-up of mountains with steep cliffs formation structure. 70% of the wedge-shaped mountains is dominated by steep cliffs and Karst rock formations made of Permian limestone of Jurassic origin. The 30% of the land is made up of 5% flat land and 25% rolling hills.





Figure 2. Map of the Palawan with Coron highlighted.

- Site Information

### *Geography*

The municipality of Coron occupies a big portion of Busuanga Island and more or less 50 minor islets. Coron is about 20 Kilometers or 12 miles long from north to south. The broadest point of the land is 9 kilometers or 5.6 miles. On the Western part of Busuanga Island is the Municipality of Busuanga which occupies a third of the Island. The municipality has a total land area of 689.10 square kilometers or 266.06 square miles. This land area is 4.70% of the total land area of Palawan. Coron has 23 barangays (Barrio or village).

Coron's topography is made-up of mountains with steep cliffs formation structure. About 70% of the wedge-shaped mountains is dominated by steep cliffs and Karst rock formations made of Permian limestone of Jurassic origin. The 30% of the land is made up of 5% flat land and 25% rolling hills.

### *History, population, socio economy*

The Tagbanuas, Calamiananen and Cuyonon were the original inhabitants of the Calamianes Islands. The first permanent Spanish settlement in Calamianes Island was established in Culion. Around 1670, the Spaniards built a fort and church in Culion as part of the defenses against the Muslim attacks. The settlement also attracted migrants to the Calamianes Islands. One of the migrants to Culion was the Sandoval clan from Jaro, Iloilo. A migrant named Claudio Sandoval later married Don Nicolas Manlavi's only daughter Evarista. The Sandoval clan came from this wedding. Don Nicolas Manlavi, a Cuyonon who worked for several years in the Spanish Galleon established the first settlement in Coron Island. The first settlement in Coron was in Banuang Lague (old town) now called Banuang Daan in Coron Island. The town proper was moved to Maquinit and then the town proper was established in the present-day Bancuang in Barangay 5.

Dean Worcester, an American naturalist, traveled to the Calamianes to collect specimens and stayed in Culion for a while in the late 1890s. He was appointed as Secretary of the Interior of the First Philippine Commission in the early 1900s. He recommended Culion as the Philippine Leper Colony. Because of this event the Sandoval clan were forced to transfer to the different

barrios of what is now Coron and Busuanga in 1900. The family of Claudio Sandoval settled in Coron town and the other members of the Sandoval clan settled in the present Barangay Bintuan, Salvacion, Concepcion and Old Busuanga.

In 1950, Busuanga town was created. The barrios of Concepcion, Salvacion, Busuanga, New Busuanga, Buluang, Quezon, Calawit, and Cheey were transferred from Coron to the created town of Busuanga. The town of Linapacan was created in 1954 from the islands of Linapacan, Cabunlaoan, Niangalao, Decabayotot, Calibangbangan, Pical and Baranganon which used to be part of Coron town.

The total population of the municipality in the 2015 Census was 51,803 which represents 6.10% of the total population of Palawan province. The population density of Coron based on the 2015 census was 75 inhabitants per square kilometer or 195 inhabitants per square mile.

The center of Coron is in Poblacion barangays 1 to 6 where the Municipal Building, the Municipal Legislative Building and the Judiciary Hall are located as well as the main population of the town.

Coron is a first-class municipality having an annual regular revenue for the fiscal year 2016 of P201,320,832. The main economic activity in Coron is fishing and tourism. Before the 1970s, during the Japanese occupation manganese mining was the main economic activity in Coron particularly in Barangay San Nicolas. The fishing industry flourished in the 1970s until the 1990s. Then the industry declined due to rampant illegal fishing and sodium cyanide fishing. The rattan industry was also a good source of income for the local residents during those years. However, the industry gradually declined during the same period due to the subsequent decline of the raw material. At present only a few families are engaged in this industry.

Tourism is currently the top industry in Coron and a major source of income. This is mainly because of the natural beauty of the local islands, beaches, amazing dive sites and natural tourist attractions. Several sunken Japanese warships attract local and foreign divers in exploring the sunken ships located between 10 to 40 meters deep near Coron Island. The site is listed in the Forbes Traveler Magazine's top 10 best diving sites in the world. And recently it became the number one site in the world.

The Coron Island Natural Biotic Area in the municipality of Coron is listed in the natural category of the UNESCO World Heritage Tentative List.

### *Important coastal habitats in the area*

#### Mangrove

The total mangrove area of Coron is about 2,690.80 hectares where 25.55% of mangrove are found in Barangay Bintuan. There are 18 mangrove species recorded in Coron and 20 associate mangroves species observed to exist in the municipality. The following are the most

widely distributed mangroves species in Coron out of the 14 families and 27 genera documented in Coron: *Rhizophora errulate*, *Rhizophora stylosa*, *Xylocarpus granatum*, *Bruguiera gymnorrhiza*, *Bruguiera cylindrica*, *Lumnitzera littorea*, *Ceriops tagal*, *Ceriops decandra*, and *Heritiera littorea*. The five abundant species observed are *Rhizophora errulate*, *Rhizophora errulate*, *Xylocarpus granatum*, *Bruguiera gymnorrhiza* and *Rhizophora stylosa*.

### Coral Reef

Coron has a coral reef area of 8,269.45 distributed all over the whole municipality. Barangay Bulalacao has the highest number of corals having a total of 2,861.68 hectares or 34.61% of the total corals observed and recorded in the entire municipality. However, there are also coastal barangays where you cannot find corals thriving in the area. These are the barangays located in the town proper or Poblacion namely; Barangay I, II, III and IV.

Reports have shown that there are 47 families of reef and reef-associated fish species comprising 342 species recorded present all over the marine waters of Coron. Some of the families found in Coron are: Siganidae (rabbitfish), Lutjanidae (snapper), Lethrinidae (emperor breams), Engraulidae (anchovy), Holocentridae (soldier fish), Haemulidae (sweetlips), Labridae (wrasses), Carangidae (Jacks), Tetraodontidae (puffer fish), Monacanthidae (filefish), Apogonidae (cardinal fish), Scaridae (parrot fish) and Pomacentridae (damselfish), Myliobatidae (eagle ray), Chaetodontidae (butterfly fish).

### Seagrass Communities

Coron has high density of seagrass and is home to nine species of seagrass. These are the following: *Enhalus acoroides*, *Thalassia hemprichii*, *Halophila ovalis*, *Syringodium isoetifolium*, *Halodule pinifolia*, *Cymodocea rotundata*, *Cymodocea errulate*, *Holodule unniervis*, and *Halophila* sp. (minor or *decipiens*). The highest number of seagrass concentration is in Barangay Bulalacao while the highest number of limited seagrass present is observed in Barangay Bintuan covering a total of about 133.8 hectares.

### *Number and types of fishing vessels operating in the refugia sites*

Table 1. Number of fishing *banca* operating in the *refugia* site

<b>Barangay</b>	<b>Bagnet</b>	<b>Gillnet</b>	<b>Handline</b>	<b>Spear Gun</b>	<b>Total</b>
1. Barangay 1	1	1	4	1	7
2. Barangay 5	-	-	-	-	No data
3. Bintuan	-	-	3	-	3
4. Banuang Daan	-	-	-	-	No data
5. Lajala	-	-	11	-	11
6. Tagumpay	1		3		4
<b>Total</b>	<b>2</b>	<b>1</b>	<b>21</b>	<b>1</b>	<b>25</b>

Table 2. Number of motorized municipal fishing *banca* by Barangay

Barangay	Motorized Municipal Fishing Banca
Banuang Daan	3
Barangay 1	29
Barangay 2	1
Barangay 3	-
Barangay 4	3
Barangay 5	7
Barangay 6	-
Bintuan	44
Borac	21
Buenavista	4
Bulalacao	33
Cabugao	31
Decabobo	2
Decalachao	5
Guadalupe	1
Lajala	9
Malawig	9
Marcilla	29
San Jose	5
San Nicolas	-
Tagumpay	44
Tara	4
Turda	12
<b>Total</b>	<b>296</b>

*The role of fisheries refugia in the production and economic value of priority*

The *refugia* site served as the spawning and nursery areas of several numbers of economically important fish species as well as the blue swimming crab and mud crabs. A multi-species hatchery for groupers, crabs, etc. is also located within the *refugia* sites.

Table 3. Known Critical Spawning and Nursery Areas for Significant Fish Species in Coron, Palawan

Site Name	Geographic Location	Species known to utilize the site	Known usage of the site		Information Sources
			Nursery	Spawning	
		Torpedo scad ( <i>Megalaspis cordyla</i> )	√		FISH Project report
		Slender sprat ( <i>Spratelloides gracilis</i> )	√	√	FISH Project report
		Yellowtail scad ( <i>Atule mate</i> )	√		FISH Project report

Calamianes	12°00'49"N 120°0510''	Bigeye scad ( <i>Selar crumenophthalmus</i> )	√		FISH Project report
		Indian mackerel ( <i>Rastrelliger kanagurta</i> )	√		FISH Project report
		Sapanish mackerel ( <i>Scomberomorus commersoni</i> )	√		FISH Project report
		Oxeye scad ( <i>Selar boops</i> )	√		FISH Project report
		Leopard coralgroupers ( <i>Plectropomus leopardus</i> )	√	√	FISH Project report
		White-spotted spinefoot ( <i>Siganus canaliculatus</i> ) (Rabbitfish)	√	√	FISH Project report
		Frigate tuna ( <i>Auxis thazard</i> )	√		FISH Project report
		Bullet tuna ( <i>Auxis rocheii</i> )	√		FISH Project report
		Blue swimming crab ( <i>Portunus pelagicus</i> )	√	√	FISH Project report

#### Number of fisheries communities in the area

There are 23 barangays in the municipality of Coron. Four barangays are landlocked while two barangays are island/coastal barangay. The refugia site is located in the coastal waters of Barangays Banuang Daan, Bintuan, Barangay 2, Poblacion, Barangay 5, Poblacion, Tagumpay and Lajala. Out of the total population of 51,833 in the 23 Barangays, 14,243 residents are from the coastal barangay where the fisheries *refugia* is located. From the total population (14,243) of the six barangay 5,444 are registered fisherfolk.

Table 4. 2015 population, classification and number of fisherfolk by Barangay

Barangay	Population 2015	Classification	No. of Fisherfolk
1. Banuang Daan *	907	Coastal	202
2. Barangay 1 (Pob.)	5,112	Coastal	160
3. Barangay II (Pob.) *	1,000	Landlocked	14
4. Barangay III (Pob.)	775	Landlocked	12
5. Barangay IV (Pob.)	737	Landlocked	4
6. Barangay V (Pob.) *	3,903	Coastal	173
7. Barangay VI (Pob.)	2,305	Landlocked	2

8. Bintuan *	2,797	Coastal	329
9. Borac	2,491	Coastal	193
10. Buenavista	989	Coastal	249
11. Bulalacao	3,488	Island/coastal	725
12. Cabugao	2,142	Coastal	349
13. Decabobo	1,161	Coastal	258
14. Decalachao	2,027	Coastal	38
15. Guadalupe	3,730	Coastal	167
16. Lajala *	1,467	Coastal	282
17. Malawig	787	Coastal	168
18. Marcilla	1,479	Coastal	385
19. San Jose	1,367	Coastal	109
20. San Nicolas	1,982	Coastal	78
21. Tagumpay *	6,966	Coastal	752
22. Tara	1,629	Island/coastal	439
23. Turda	2,562	Coastal	356
<b>Total</b>	<b>51,803</b>		<b>5,444</b>

Source: LGU Fisheries Profile, \* Location of Refugia Site

#### *Existing fisheries management measure in the area of the site*

There are ten established Marine Protected Areas (MPAs) in the municipality of Coron. The 10 MPAs are managed by the nearest community located in barangay/*sitio* coastal waters of Lajala, Balisungan, Minugbay-Malbato-Tagpi, Bulalacao, Siete Picados, Sangat-Decalve, Marcilla, Bintuan, Decabobo, and San Jose. The municipal government also provides supports in the management and administration of the MPAs. Several foundations, NGOs with on-going activities in the same area also support some of the management activities of the MPAs.

Table 5. List of municipal ordinances, resolutions

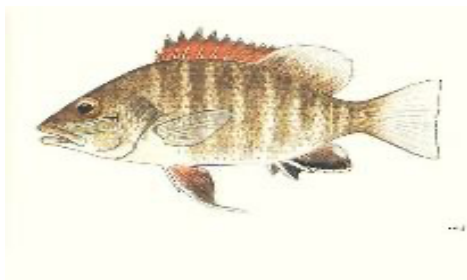
<b>Municipal Ordinance/Resolution</b>	<b>Description</b>	<b>Location of MPA</b>	<b>Area in Hectares</b>
Municipal Ordinance	Coron Coastal and Fisheries Management Plan		
Municipal Ordinance 07-S. 2005	Establishment of Siete Picados Marine Park	Tagumpay	52
Municipal Ordinance 38 S. 2005	Estbalishment of Sangat Decalve MPA	Bintuan	643.8
Municipal Ordinance S. 2005	Bulalacao MPA	Bulalacao	49.78
Municipal Ordinance 7-B S. 2007	Establishment of Balisungan MPA	Balisungan, Tagumpay	542.28
Municipal Ordinance 7-B S. 2007	Tagpi MPA	Guadalupe	90
Municipal Ordinance 50 S. 2016	Lajala MPA	Lajala	124,9
Municipal Ordinance 50 S. 2016	Marcilla MPA	Marcilla	412.21
Municipal Resolution __S. 2016	San Jose MPA	San Jose	25
Municipal Ordinance __S. 2016	Decabobo MPA	Decabobo	45
Certificate of Ancestral Domain Title No. 204-cor-0204-022	Cabugao MPA	Cabugao	3,650

*Threatened and endangered species found in the refugia sites*

As per conversation with the coastal local residents in the area, dugong is regularly seen foraging in the *refugia* site. The site is used by the dugong as feeding area because of the presence of seagrass and probably as migration route also of this marine mammal.

## 1. Priority species information

- English name: Mangrove red snapper
- Scientific name: *Lutjanus argentimaculatus* Forsskal, 1775



Source: Fishbase  
*Lutjanus argentimaculatus*  
Juvenile picture by FAO



Source: Fishbase  
*Lutjanus argentimaculatus*  
Picture by: Allen G. R.

*Morphology*

The table below describes some of the characteristics of the mangrove red snappers that include descriptive and meristic characteristics.

Table 6. Descriptive and meristic characteristics of mangrove red snapper

Descriptive Characteristics		Fins	
Body shape lateral	fusiform/normal	<b>Dorsal fin</b>	
Cross section	Oval	Attributes	
Dorsal head profile	more or less straight	Fins number	1
Type of eyes	more or less normal	Finlets number	Dorsal 0 – 0
			Ventral 0 – 0
Type of mouth/snout	more or less normal	Spines total	10 -10
Position of mouth	Terminal	Soft-rays total	13 – 14
Type of scales	ctenoid scales	Adipose fin	Absent
		<b>Caudal fin</b>	

Meristic characteristics		Attribute	More or less truncate; more or less Normal	
Lateral lines	1	<b>Anal fin</b>		
Scales on lateral line	44 – 48			
Pored lateral scales	44 – 48	Fins number	1	
Scales in lateral lines				
Scale rows above lateral line	4 – 6	Spines total	3 – 3	
Scales around caudal peduncle				
Barbels	0	Soft-rays total	8 – 8	
Gill rakers				
On lower limb	9 – 12	<b>Paired fins</b>		
On upper limb	6 – 8	Pectoral	Attributes	More or less normal
			Spines	0
			Soft rays	16 – 17
Total	16 -20	Pelvics	Attributes	More or less normal
			Position	Thoracic before origin D1
			Spines	
			Soft rays	5 -5

### *Distribution*

The distribution of the mangrove red snappers is mostly concentrated in Southeast Asia and most abundant in the ASEAN region. In the Philippines, the fish is caught in almost all the marine waters of the country.

### *Life cycle and mating behavior*

Available information on the life cycle of the red mangrove snapper shows that the fish spawn all year round especially at the lower latitude (Allen, G.R., 1985).

### *Length at first maturity/size/weight/age*

The length at first maturity of female *Lutjanus argentimaculatus* was observed to be 57.0 cm total length while the male was 49.6 cm total length (Emata et. Al. 1999). The maximum length reported was 150 cm total length (Torres, F.S.B. Jr., 1991); common length was 80 cm.



and the published maximum weight was 8.7 kg (IGFA 2001). The maximum age reported of the mangrove red snapper was 31 years (Fry G.C., D.T. Brewer and W.N. Venables, 2006) in based from the FISHBASE.

#### *Area of habitat in each stage/migration pattern*

The mangrove red snapper is a euryhaline species as such can adjust to a wide range of salinities. Juveniles and young adults can be found in mangrove estuaries and tidal creeks. Adults are commonly found in groups around coral reefs. The fish migrate to open waters as they grow older to breed and into the offshore reef areas to spawn.

#### *Importance of the site to the life cycle of the species*

The *refugia* site in Coron, Palawan serves as the nursery/feeding area of the mangrove red snapper.

#### *CPUE/STOCK SIZE, MSY*

There is no available data on Catch per unit effort (CPUE) of the priority species nor size and MSY to date. However, the available data on CPUE as reported by the USAID ECOFISH Project was the CPUE in the Calamianes group of islands by gear type and not specific to Coron municipality Table 23

Table 7. Catch per unit effort (CPUE) kg/day, number of fishing gear and year

<b>Calamianes Island Group</b>						
<b>Year</b>	<b>2013</b>		<b>2015</b>		<b>2017</b>	
<b>Fishing Gear</b>	<b>CPUE</b>	<b>N</b>	<b>CPUE</b>	<b>n</b>	<b>CPUE</b>	<b>n</b>
Bagnet	228.38	129	155.26	88	83.75	148
Bottom set gillnet	9.53	665	13.61	256	9.06	391
Bottom set longline	9.41	402	9.34	208	9.79	141
Hook & line with float	4.79	5			7.87	257
Multiple handline	3.12	305	4.02	169	3.33	13
Simple hook & line	3.31	250	6.14	98	4.33	167
Spear with compressor	20.38	135	20.45	12	38.01	73
Squid jig	1.63	12	2.74	71	3.30	115
Trammel net	10.04	96	11.87	145	8.33	117
Troll line	18.40	268	13.33	130	11.46	98

*Source: USAID ECOFISH Project Final report*

## Information for GIS mapping

### Fisheries *refugia* boundary map

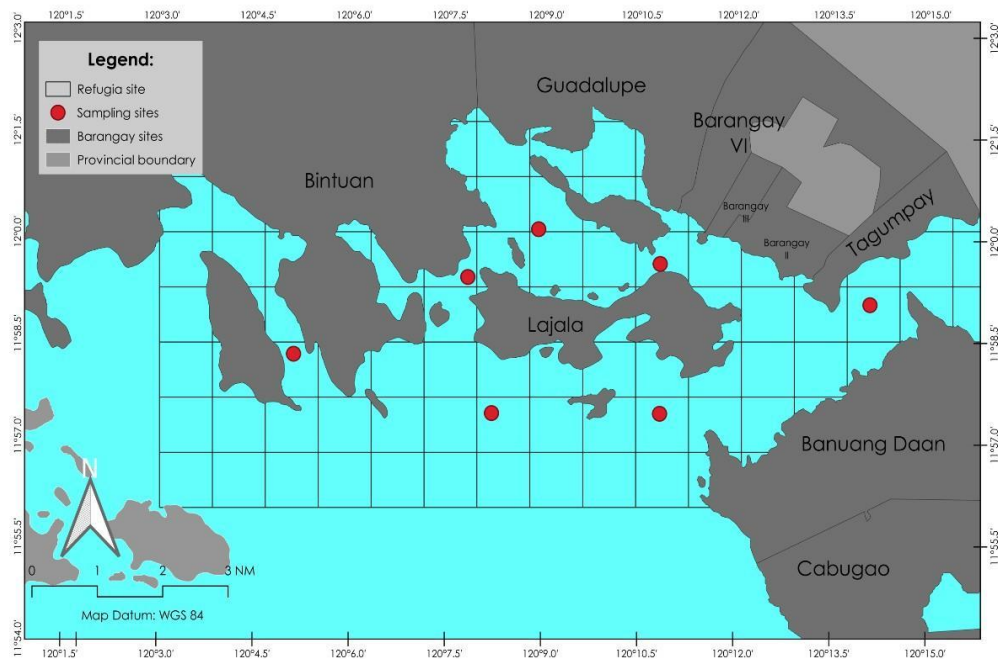


Figure 3. Map of Coron Fish *Refugia* Site

### Fishing area by each fishing gear

The *refugia* site is located in the coastal waters of the six barangays. Municipal fisherfolk can fish anywhere within the municipal waters using different fishing gears either motorized or non-motorized boats.

### Important coastal habitats by site

Mangroves are common in the coastal line of the *refugia* site. The total marine waters where mangroves and coral reefs are abundant cover an area of 2,139 hectares out of the total marine water area of 360,310 hectares of the municipality of Coron. At the *refugia* site the mangrove area has not been estimated. Seagrass beds are found in barangay Tagumpay, Binatuan and Poblacion.

### Geography and Physical Setting

Coron is one of the four municipalities in the Calamianes Group of Islands, situated in the northernmost tip of the Province of Palawan. It is located halfway between Manila and the City of Puerto Princesa. It is the first port of call for ships plying from Manila, and it was the northern gateway to the Province of Palawan.

The municipality has a total land area of 94,952.60 hectares with a population of 38,928 people in 2005, which is also composed of numerous islands and islets. Coron is characterized

by rugged terrain, rolling hills and mountain ranges running almost all directions and extended along the coasts (Figure 2).

The municipality of Coron is composed of 23 barangays, of which 6 are within the Poblacion and 5 are island barangays, as follows:

- Poblacion 1
- Poblacion 2
- Poblacion 3
- Poblacion 4
- Poblacion 5
- Poblacion 6
- Banuang Daan
- Bintuan
- Borac
- Buenavista
- Bulalacao
- Cabugao
- Decabobo
- Decalachao
- Guadalupe
- Lajala
- Malawig
- Marcilla
- San Jose
- San Nicolas
- Tagumpay
- Tara
- Turda

## Status of Marine Resources and Habitats

### a. Mangrove Forest

The entire province of Palawan is declared as mangrove swamp forest reserve under the Presidential Proclamation 2152. However, recent surveys showed that mangrove forests are continuously subjected to cutting, and worst, cleared.

Mangrove forests in the municipality totals to about 771.98 hectares based from the 2005 PCRA data of the FISH Project. Results of the Participatory Coastal Resource Assessment conducted by the FISH Project in 2005 revealed that there are 13 species of true and associate mangrove species in the area. These are:

- |                    |                                  |
|--------------------|----------------------------------|
| 1. Bakawang Lalaki | ( <i>Rhizophora apiculata</i> )  |
| 2. Bakawang Babae  | ( <i>Rhizophora mucronata</i> )  |
| 3. Langarai        | ( <i>Bruguiera parviflora</i> )  |
| 4. Pototan         | ( <i>Bruguiera cylindrica</i> )  |
| 5. Busain          | ( <i>Bruguiera gymnorrhiza</i> ) |

6. Tangal	( <i>Ceriops tagal</i> )
7. Malatagal	( <i>Ceriops decandra</i> )
8. Tabigi	( <i>Xylocarpus granatum</i> )
9. Tabau	( <i>Lumnitzera littorea</i> )
10. Kulasi	( <i>Lumnitzera racemosa</i> )
11. Pagatpat	( <i>Sonneratia alba</i> )Tualis
12. Tualis	( <i>Osbornia octodonta</i> )
13. Gapas-gapas	( <i>Camptostemon philippinensis</i> )

Results from the Mangrove Resource Assessment in Coron conducted by the ECAN Zoning Component of the SEMP-NP (PCSDS) in 2003 showed that the average stocking of mangroves in Coron have an open stocking of 253 trees per hectare considering the DENR stocking classification. In terms of stand volume, the mangrove forest of Coron has an average stand volume of 15.11 cubic meters per hectare that is classified by DENR and FAO as low volume forest stand

### Seagrass

The seagrass beds in Coron cover about 1,320.57 hectares (FISH Project PCRA, 2005), which provides habitat to an array of invertebrates that includes sea cucumbers, sea urchins, and various species of shells. Highest percentage of seagrass cover is found in Barangay Decalachao. In general, the seagrass beds of the Municipality of Coron are of fair condition based on the PCRA conducted by FISH in 2005 (Figure 3).

Based on studies, the spatial variation of seagrass diversity, density, biomass, annual productivity and bed extent may be attributed primarily to differences in water quality, substrate type and degree of exposure to wave action.

Dominant species of seagrass found in Coron are *Enhalus acoroides*, *Thalassia hemprichii*, *Halophila ovalis*, *Syringodium isoitefolium*, *Cymodecea rotundata*, and *Halodule uninervis*.

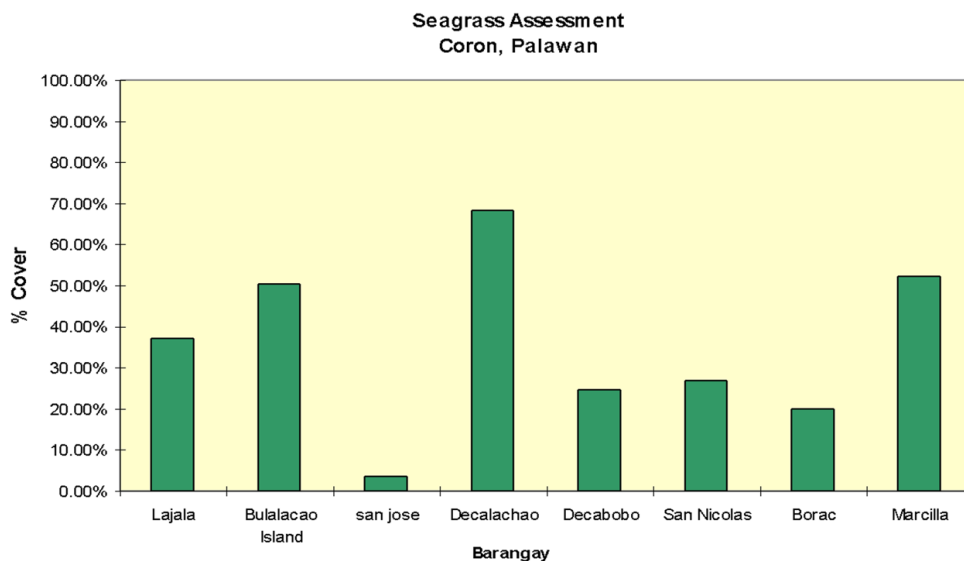


Figure 4. The graph shows the percentage cover of seagrass in the barangays of Coron PCRA Seagrass Assessment (FISH 2005).

## Corals

The Calamianes is endowed with extensive fringing coral reefs. Total coral reef in Coron based from the Calamianes 2006 Profile is 1698.05 hectares. The PCRA results in 2005 showed that live coral is only 35% while the dead corals is 21% as shown in Figure 2. Based on this data, the status of coral reefs of the municipality are in fair condition.

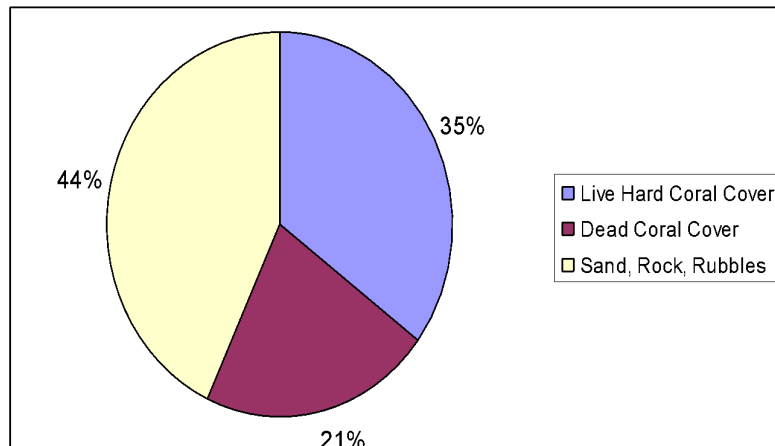


Figure 5 shows the status of coral cover *PCRA Coral Reef Assessment (FISH 2005)*

## Socio-economic profile

The users and beneficiaries of the fisheries refugia are the following:

1. Marginal Fishermen
2. Seaweeds Farmer
3. Gleaners
4. Researchers
5. Tourist/Visitors
6. Fish Vendor
7. Fish Buyer
8. Fish Processor
9. Ice Plant
9. Food Establishment
10. Academic Institution
11. Tourism Establishment
12. Boat Owners/operators and crew

## Resource Value Estimates

## Issues and Concerns

## CHAPTER 3. FISHERIES REFUGIA MANAGEMENT PLAN

The Fisheries Refugia Management Process at the municipal level follows the process identified in the National Plan for Fisheries Refugia. However, the difference among municipalities like Masinloc are the issues and problems which are particularly present in each of the areas.

The management issues and problems identified are the following:

### **Ecological well-Being**

- a. Fisheries Management
  1. Overfishing
  2. Destructive/illegal fishing practices (dynamite, cyanide, troll fishing; poaching, etc.)
- b. Coastal Habitat Management
  1. Coastal habitat destruction (mangroves, seagrasses and coral reefs)
  2. Vulnerability of coastal habitats from irresponsible human interference
- c. Coastal Zoning and Shoreline Management
  1. Improper utilization of coastal and shoreline
  2. Coastal and shoreline encroachment
  3. Squatting along the shoreline
- d. **Waste Management**
  1. Excessive use of chemicals in agriculture and fishpond operation
  2. Improper solid and liquid waste disposal from upland
  3. Agricultural and river run-off
  4. Improper solid waste disposal by boats and big vessels
  5. Siltation, particularly run-off water from mining activities
- e. **Climate Change Mitigation, Adaptation and Disaster Risk Reduction and Management**
  1. Beach erosion
  2. Vulnerability of habitat, fishery and communities to climate change and disaster risk

### **Human Well-Being**

- a. **Livelihood and Enterprise Development**
  1. Lack of alternative livelihood
  2. Lack of appropriate fishing gears, boats and other equipment
- b. **Coastal Eco-Tourism Development**
  1. Lack of alternative livelihood from eco-tourism
  2. Negative impact of improper utilization of coastal and marine resources for eco-tourism purpose

## Good Governance

### A. Legal Arrangement and Institutional Development

1. Lack of logistical support for law enforcement
2. Poor coordination between and among government agencies
3. Intrusion of non-resident fishers (commercial fishing) in the municipal waters
4. Limit/prohibition of public access to foreshore access

### b. Information, Education and Communication Campaign

1. Lack of proper information about the importance and inter-relationship of marine habitats, fishery and communities in coastal areas
2. Low level of participation of the communities in the coastal and fishery management

## Management Interventions

1. **Habitat Management**
2. **Management Zones (Coastal Zoning and Shoreline Management)**
3. **Business and Financial Plan (Livelihood)**
4. **Disaster Risk Reduction (Vulnerability/Resilience of Habitat and Resources, Social Vulnerability)**
5. **Compliance and Enforcement**
6. **Monitoring and Evaluation**

## MONITORING AND EVALUATION

Monitoring the marine reserve regularly throughout the management process is essential. With baseline data at hand there must be an assessment of key biological and governance indicators. Fisheries stock and diversity both inside and outside the reserve must be determined to measure the value of conserving the stock within the sanctuary. Standard list of governance indicators will reveal how well the fisheries refugia I is being managed. The results will be collected and negative results will be evaluated to identify management problems.

Evaluation in regular basis will be done to determine the effectiveness of the management process and to determine future directions. Questions to be answered are: (1) Were the objectives of the project met ;(2) How well is the MPA doing and (3) What are the reasons for the success/failure of the MPA?.To do this, the identified indicators of the project goals and objectives will be used to determine success or failure.

The following are the reports to be generated including the tools and methodologies to be used, institutional and scheduling arrangements and budgetary and equipment requirements.

Name of Reports	Tool/ Forms	Methodology	Responsible Person	Frequency of Data Gathering	Budgetary and Equipment Requirements
-----------------	----------------	-------------	--------------------	-----------------------------------	---

1. Accomplishment Reports	Form 1.1	Accomplishment Recording	MPA Coordinator/Managers, MKBA Focal Persons	Monthly	
2. Financial Report	Form 1.2	Financial Transaction Recording	MKBA Focal Person	Monthly	
3. Apprehension Report	Form 1.3	Daily log, recording	MPA Coordinator/Managers, MKBA Focal Persons	Monthly	
4. Conditions of Coral Reefs, Seagrass and Mangroves	Form 2.1	Research	PCSDS and BFAR	Every 2 years	
5. Fish Catch Reports	Form 2.2	Daily Recording	Fish catch data collectors, MPA Coordinator/Managers, MKBA Focal Persons	Annually	
6. Marginal Fishermen Income Report	Form 2.3	One on one interview or survey	MPA Coordinators/Managers	Annually	
7. Socio-Economic Condition Report	Form 2.4	One on one interview or survey	MPA Coordinators/Managers	Annually	
8. Performance Management Evaluation Report	Form 3.1	Group Discussion/Evaluation	MPA Coordinators/Managers/ MKBA Focal Person, NIMPAMB, TWG	Annually	

**a. Budgetary and equipment requirement**

<b>PERSONAL SERVICES</b>	<b>MOOE</b>	<b>CAPITAL OUTLAY</b>
1. Incentive for 3 MPA Coordinators/Managers 5,000/mo. X 3 x 12 mo. P 180,000 per year 2. Incentive for 3 Regular MPA guards 4,000/mo. x 3 x 12mos. 3. Incentive for 6 Fish Catch Data Collectors P 4,000/mo. x 6 x 12 months P 248,000.00	1. Fuel Consumption- P 28,000 2. Lubricant-P24,000 3. Food Expenses-P 24,000 4. Regular Meeting, Special Meeting and Consultation -P 141,000/yr. 5. IEC-P 100,000/yr 6. Livelihood-P 150,000/yr 7. Repair and Maintenance-Transportation equipment-P 200,000/yr	1. Equipments-P 500,000 2. Structures-P 550,000 3. Provisions of 3 units Patrol Boat-P 135,000
<b>TOTAL P 672,000/YEAR</b>	<b>P 767,800/YEAR</b>	<b>P 1.185 MILLION</b>



**LIST OF MARINE AND TRANSPORTATION EQUIPMENTS NEEDED**

QUANTITY	UNIT	DESCRIPTION	AMOUNT
3	units	Motor Engine 6.5 Hp	
3	units	Binoculars	
3	pcs	Search Light	
3	units	GPS	
5	units	Headset Radio	
3	Units	Megaphone	
3	units	Motorized Banca	
3	pcs	Propeller	
3	pcs	Shafting	
3	pcs	Anchor	
3	rolls	P.E rope	
3	pcs	Cross joints	
3	pcs	Flasher	
5	units	Cellphone	
2	pcs	Laptop	
30	Pcs	Life vest	
300	pcs	Marker Bouys	
3	units	Solar panel	
1	unit	Elf Truck	
3	units	Motorcycle	
3	sets	Scuba Diving Gears	

**b. Reporting and Feedback Mechanism**

**Sample of Reporting Form**

**MONTHLY ACCOMPLISHMENT REPORT**

PPA'S	Location	Budget	Implementation Schedule		Physical Accomplishment		Financial Utilization	Remarks
			Start	End	Target	Actual		

## Communication and IEC Strategy

There must be a good communication and exchange of information among the players in the implementation of the management plan.

### IMPLEMENTING STRUCTURE

#### Management Body and Working Committee

#### 1. Policy Making Body-Narra Integrated Marine Protected Area Management Board (NIMPAMB)

##### Composition of NIMPAMB

Chairperson: Municipal Mayor

Co-Chairperson: Municipal Agriculturist

Members:

- SB Committee Chairman on Agri- Fishery and Aquatic Resources
- SB Committee Chairman on Environmental Protection
- SB Mandatory IP Representative
- MPDO
- MENRO
- Municipal Tourism Officer
- Municipal Treasurer
- Liga ng mga Barangay President
- OPAG Representative
- DENR-PENRO
- BFAR-PFO
- PCSDS Representative
- PCG
- Katala Foundation (NGO)
- Narra PNP Chief of Police
- PSU-NARRA Director (academe)
- MFARMC Chairperson
- RIC Representative for each MPA's
- Fisherfolk Federation President
- Fish Warden Federation President
- Religious Sector Representative

Secretariat: Head Secretariat- AT Fishery Sector  
Support Staff-MAO Staff

#### 2. Management Committees of NIMPAMB

##### a. Capacity Building Committee

There shall be created a capability building committee which shall ensure that the individuals/body responsible in law enforcement pertaining to the MPA's are adequately capacitated. The capability building committee shall undertake the following activities;

1. Spearhead and facilitate the conduct of fishery law enforcement trainings in coordination with proper government law enforcement agencies and support groups;
2. Facilitate the deputation of MPA guards by the NIMPAMB and;
3. Recommend to the NIMPAMB the acquisition of equipment, tools and devices necessary to the effective law enforcement and related activities.

#### **b. Law Enforcement Committee**

There shall be a law enforcement committee which shall spearhead the day and night seaborne patrols of the MPA guards within and around the MPA's:

1. Conduct regular monitoring and patrolling activities within and around the MPA's;
2. Enforce the provisions of MPA ordinance;
3. Conduct the arrest and seizures of violators of the ordinance;
4. Pursue legal action against the violators of the ordinance.

#### **c. Information, Education and Communication Committee**

There shall be committee on information and education which shall perform extensive information and education campaign on all matters pertaining to the MPA's. The committee will directly provide news and information about the activities and events in the sanctuaries. Among its activities, the IEC committee shall:

1. Install signage inside the MPA's stating clearly all important provisions in the ordinance. Included in this signage/billboard are the prohibitions, rules and regulations(do's and don't's)inside and outside the sanctuaries;
2. Coordinate with educational institutions such as Day Care Centers, Elementary and High Schools to continuously explain all issues concerning the sanctuaries. To implement regular information and education drives such as in-school film showing, lectures on marine conservations and protection and trainings like mammal rescue;
3. To establish MPA Information Centers in the component barangays for posting of posters and other environmental bulletins or flyers.
4. To conduct a monthly radio program regarding the activities and plans concerning the MPA's.

#### **d. Sustainable Financing (Ways and Means) Committee**

There shall be a committee on Sustainable Financing which shall head the financial

dealings in relation to the following:

1. Initiate fund sourcing activities for the implementation of MPA Management Plan;
2. Initiate in identifying strategies to raise funds for the activities on the MPA's;
3. Initiate in identifying and coordinating with possible funding sources;
4. Initiate in reviewing and preparing proposals for fund-sourcing while continuously coordinating with other communities concerned;and
5. Initiate in creation of financial systems and regulations as fisherfolks organization and MPAMB Guidelines.

#### **e. Resource Management and Conservation Committee**

There shall be a committee on Resource Management and Conservation Committee which shall head all the activities to administer regulations on the cleanliness of the MPA's as follows:

1. To coordinate with the Barangay component regarding health and sanitation
2. To plan and formulate waste management plan

#### **f. Monitoring and Evaluation Committee**

There shall be a Committee on Monitoring and Evaluation which shall be spearheaded by the organized monitoring team to examine the general status of the sanctuaries, conduct researches and regeneration processes. Other activities of the M & E committee;

1. The Monitoring Team will establish permanent monitoring stations such as quadrat inside and outside each MPA's;
2. Regular monitoring of coral reefs, seagrass and mangroves;
3. Data gathering and centralization of data previously gathered including the results of Resource Rapid Assessment;
4. Conduct of annual fish catch data monitoring for the MPA's.
5. Marine Protected Area (MPA) Coordinator/Manager
  - a. Resource Monitoring Team
  - b. Enforcement Team
  - c. Public Education Tea
  - d. Infrastructure Team
  - e. Livelihood Team
6. Position and Description of Roles and Responsibilities

#### **Powers and Functions of the Narra Integrated Marine Protected Areas Management Board**

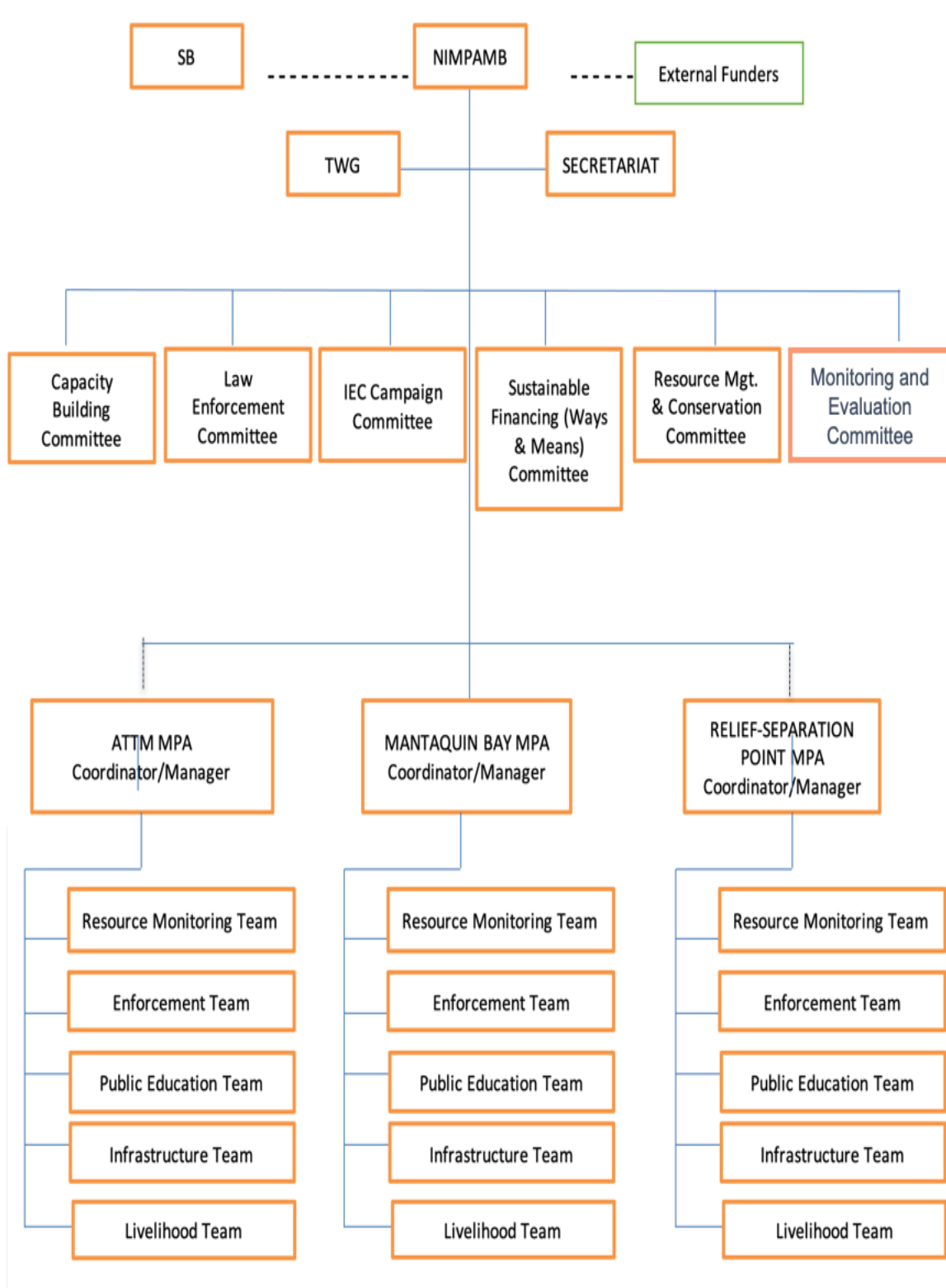
- a. Decide matters relating to planning, resource use and protection, and general administration of the area in accordance with the management plan;
- b. Approve budget allocation, proposals, work plans, action plans, guidelines for management of 3 MPA's in accordance with the management plans;

- c. Establish productive partnership, with national and local agencies, local communities ,the academe, NGO's and such other institutions to ensure the conservation and management of each MPA's;
- d. Initiate the implementation of the delineation of the boundaries of MPA';
- e. Promulgate rules and regulations and impose penalties for violations thereof;
- f. Ensure the implementation and enforcement of laws, rules and regulations, policies, programs and projects within the MPA's;
- g. Control and regulate construction, operation and maintenance of structure and utilities within the MPA's;
- h. Monitor and evaluate the performance of the MPA Coordinators/Managers and all those implementing activities and projects in the MPA'S.
- i. Appoint the MPA Coordinators/managers through the recommendation of Punong Barangays where the 3 MPA's are situated and based on internal selection criteria and decide on their compensation and benefits;
- j. Generate funds and accept donations, grants; appropriate and disburse the same, and exercise accountability over all funds that may accrue to each MPA's;
- k. Manage the NIMPA Trust Fund;
- l. Exercise quasi-judicial functions for adjudicating cases of violations of MPA Ordinance and impose penalties for violations of guidelines, rules and regulations within each MPA'S;
- m. Deputize individuals for the enforcement of laws , rules and regulations governing conduct within each MPA's, and prescribe the necessary qualifications therefore;
- n. Provide adequate measures to ensure consultation and participation of stakeholders;
- o. Possess authority to issue permits and conditions thereto, and determine and collect fees, for the utilization and enjoyment of each MPA's and the resources therein;
- p. Perform such other functions necessary for the fulfilment of the provisions of the MPA Ordinance and other applicable laws, rules and regulations, and as may be required.

#### **Duties and Function of Technical Working Group (TWG)**

- 1. Conduct technical evaluation of the plan;
- 2. Provide relevant inputs and knowledge base in the implementation of the plan;  
and
- 3. Formulate recommendations as basis for the updating of the plan;

### Organizational Chart



## CHAPTER 4 MANAGEMENT OBJECTIVES, STRATEGIES AND PROGRAMS/PROJECTS

### A. ECOLOGICAL WELL-BEING COMPONENT

#### A.1 FISHERIES MANAGEMENT

OBJECTIVES	STRATEGIES	PROGRAMS/PROJECTS	LOCATION	IMPLEMENTATION SCHEDULE	PERSONS & AGENCIES INVOLVED	AMOUNT
1. Marine protected areas managed effectively	1.1 Effectively management of marine protected areas	1.1.1 Re-assessment of biophysical and socio-economic aspect of the current marine protected areas or fish/marine sanctuaries 1.1.2 Formulation of management plan for marine protected areas or fish/marine sanctuaries 1.1.3 Activation of MPA Board 1.1.4 Conduct of regular participatory monitoring and evaluation	ALL MPA's	2017-2018  2017  2017  2017-2024	LGU-OMA, MENRO, MFARMC, MPDO, Barangay LGU, PCSD, BFAR	P 400,000.00
2. Closed season in harvesting commercially and ecologically important fish and invertebrates during their spawning season and/or their juvenile stages designated	2.1 Designation of closed season in harvesting commercially and ecologically important fish and invertebrates during their spawning season and/or their juvenile stages.	2.1.1 Conduct of study on the biology and ecology of target species and on the possible socio-economic impacts of closed season 2.1.2 Strict implementation of closed season management strategy 2.1.3 Continuous of regular participatory monitoring and evaluation	ALL MPA's	2017-2018  2018-2022  2017-2022	Sangguniang Bayan, Barangay LGU, MAO, MENRO, MPDO, NFRDI, BFAR	P 300,000.00

3. Fishers, fishing gears and fishing boats licensed and permitted	3.1 Licensing and permitting of fishers, fishing gears and fishing boats	<p>3.1.1 Identification of allowable fishing gears and fishing methods and activities in zones of MPA's</p> <p>3.1.2 Registration of municipal fishers and their fishing gears, boats, and activities</p> <p>3.1.3 Color and letter coding of fishing boats</p> <p>3.1.4 Renewal of licenses</p> <p>3.1.5 Computerization of licensing system and data-banking</p> <p>3.1.6 Conduct of regular participatory monitoring and evaluation</p>	ALL MPA'S	<p>2017</p> <p>2017-2022</p> <p>2017-2022</p> <p>2017-2022</p> <p>2017-2022</p> <p>2017-2022</p>	Barangay LGU, Sangguniang Bayan, OMA, Licensing, MFARMC, BFARMC, Phil. Coast Guard, NFRDI	P 200,000.00
4. Construction and operation of fish corrals, and other fishing gears and fishing activities that occupy space in the coastal waters regulated	4.1 Regulation of the construction and operation of fish corrals, and other fishing gears and fishing activities that occupy space in the coastal waters	<p>4.1.1 Enforcement of ordinance regarding guidelines on the construction and operation of fish corrals and related fishing gears</p> <p>4.1.2 Inventory, mapping and monitoring of existing fish corrals and other fishing gears and activities</p> <p>4.1.3 Conduct of regular monitoring and evaluation</p>	ALL MPA'S	2017-2022	Barangay LGU, Sangguniang Bayan, OMA, Licensing, MFARMC, BFARMC, Phil. Coast Guard	P 100,000.00
5. Commercial fishing vessels in the zones of MPA's	5.1 Restriction of commercial fishing vessels in the zones of MPA'S	<p>5.1.1 Delineation and delimitation of boundaries of MPAs</p> <p>5.1.2 Construction of mooring buoys on MPAs</p> <p>5.1.3 Review and formulation of ordinances/existing laws</p>	ALL MPA'S	2017-2022	Barangay LGU, Sangguniang Bayan, MPDO, OMA, MENRO, MFARMC,	P 1Million



		<p>restricting operation of commercial fishing vessels in the municipal waters</p> <p>5.1.4 Strict implementation of the ordinance</p> <p>5.1.5 Strengthening of different law enforcement groups in the monitoring of the municipal waters</p> <p>5.1.6 Conduct of regular participatory monitoring and evaluation</p>			NAMRIA, BFAR	
6. Fishery monitoring mechanism on the enforcement of environmental and fishery laws established	6.1 Establishment of fishery monitoring mechanism on the enforcement of environmental and fishery laws	<p>6.1.1 Acquisition of patrol boats and communication equipment's for enforcement activities</p> <p>6.1.2 Deputation and strengthening of MPA guards</p> <p>6.1.3 Creation of MPA Enforcement team</p> <p>6.1.4 Strict implementation of fishery laws/ordinances</p> <p>6.1.5 Construction and Development of Watch House</p> <p>6.1.6 Conduct of regular monitoring and patrolling</p>	ALL MPA's	<p>2017, 2019, 2022</p> <p>2016, 2019, 2022</p> <p>2016, 2019, 2022</p> <p>2015-2024</p> <p>2016-2017</p> <p>2018-2021</p> <p>2015-202024</p>	<p>LGU-OMA, MENRO, MFARMC, MPDC, Bgy. LGU, PCSD, DENR, BFAR, ELAC, NFRDI</p>	P 1.5 Million

7. Mariculture sustainably implemented and managed	7.1 Sustainable implementation and management of mariculture projects	<p>7.1.1 Formulation and review of technical and socio-economic guidelines on mariculture projects</p> <p>7.1.2 Identification and delineation of potential sites at Multiple Use Zones of MPAs for improvement of mariculture activities</p> <p>7.1.2 Regulation of Mariculture projects at Buffer Zones of MPA's</p> <p>7.1.3 Identification, pilot-testing and modeling of environment-friendly and economically feasible mariculture activities</p> <p>7.1.4 Setting-up of water quality and fishery production monitoring mechanisms</p> <p>7.1.5 Continuous participatory monitoring and evaluation</p>	ALL MPA's	<p>2017</p> <p>2017</p> <p>2017-2022</p> <p>2017</p> <p>2017</p> <p>2017-2022</p>	OMA, MENRO, MFARMC, MPDO, Barangay LGU, PCSD, DENR, BFAR, ELAC, NFRDI	P 700,000.00
8. Good condition of estuaries improved and maintained	8.1 Improvement and Maintenance of good condition of estuaries	<p>8.1.1 Conduct regular mangrove planting activities</p> <p>8.1.2 Seeding of tilapia fry/fingerlings and other freshwater fish species</p> <p>8.1.3 Conduct regular river clean-up drive</p> <p>8.1.4 Continuous enforcement of ordinance regulating quarrying activities</p> <p>8.1.5 Conduct of regular participatory monitoring and evaluation</p>	ALL MPA's	<p>2017-2019</p> <p>2017-2019</p> <p>2017-2019</p> <p>2017-2019</p> <p>2017-2019</p>	LGU-OMA, MENRO, MFARMC, MPDO, Bgy. LGU, PCSD, DENR, BFAR, ELAC	P 300,000.00

## A.2 COASTAL HABITAT MANAGEMENT

OBJECTIVES	STRATEGIES	PROGRAMS/PROJECTS	LOCATION	IMPLEMENTATION SCHEDULE	PERSONS & AGENCIES INVOLVED	AMOUNT
1. Deployment, use of and access to artificial reefs regulated	1.1 Regulation on the deployment, use of and access to artificial reefs	1.1.1 Conduct of inventory and mapping of existing artificial reefs in the municipal waters 1.1.2 Formulation of guidelines on the use of and access to artificial reefs 1.1.3 Designing, construction, and deployment of new artificial coral reefs 1.1.4 Conduct of regular participatory monitoring and evaluation	ALL MPA's	2017-2018  2017  2017-2017  2016-2024	OMA, MENRO, MFARMC, MPDO, Barangay LGU, PCSD	P 300,000.00
2. Mangrove Forest management under the Community-Based Forest Management (CBFM) framework established	2.1 Reforestation of mangrove forest management under the Community-Based Forest Management (CBFM) framework	2.1.1 Conduct of resource assessment, mapping and identification of possible sites for mangrove reforestation activities 2.1.2 Conduct of identification and mapping of mangrove species in the area 2.1.3 Processing of application for CBFMA 2.1.4 Identification of potential sites for mangrove rehabilitation, protection and conservation in coordination with the			OMA, MENRO, MFARMC, MPDO, Barangay LGU, PCSD	P 1 Million

		<p>Department of Environment and Natural Resources and fisherfolk associations</p> <p>2.1.5 Conduct mangrove rehabilitation project under the framework of Community-Based Forest Management</p> <p>2.1.6 Conduct of monitoring, evaluation, control and surveillance, in coordination with the Department of Environment and Natural Resources, Philippine National Police, Fish Wardens, Barangay/ Municipal FARMCs and peoples' organization</p>				
3. Seagrass meadows and algal beds protected and conserved	3.1 Protection and conservation of seagrass meadows and algal beds	<p>3.1.2 Conduct of resource assessment and mapping of seagrass meadows and algal beds</p> <p>3.1.2 Inventory and mapping of fishing gears used in the seagrass meadows and algal beds</p> <p>3.1.3 Formulation and legislation of regulation on fishing activities destructive to seagrass meadows and algal beds</p> <p>3.1.4 Strict implementation of the ordinance</p> <p>3.1.5 Conduct of participatory monitoring and evaluation</p>			OMA, MENRO, MFARMC, MPDO, Barangay LGU, PCSD	P 300,000.00

4. Coral reefs protected and conserved	4.1 Protection and conservation of coral reefs through limited access	4.1.1 Identification of coral reefs 4.1.2 Setting-up of buoys and markers 4.1.3 Prohibition of destructive fishing methods 4.1.4 Conduct of regular participatory monitoring and evaluation			OMA, MENRO, MFARMC, MPDO, Barangay LGU, PCSD	P 300,000.00
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### A.3 COASTAL ZONING AND SHORELINE MANAGEMENT

OBJECTIVES	STRATEGIES	PROGRAMS/PROJECTS	IMPLEMENTATION SCHEDULE	PERSONS & AGENCIES INVOLVED	AMOUNT
1. Zones for specific uses (for strict protection, rehabilitation, aquaculture, tourism, trade and navigation, etc.) designated	2.1 Designation of zones for specific uses (for strict protection, rehabilitation, aquaculture, tourism, trade and navigation, etc.)	2.1.1 Conduct of site inspection and mapping of the area using GPS 2.1.2 Delineation of zones and installation of marker buoys and/or land markers 2.1.3 Regular participatory monitoring, evaluation and surveillance of the zones		Barangay LGU, Sangguniang Bayan, MPDO, Tourism Unit, OMA, MENRO, MFARMC, PCSD, BFAR	P 300,000.00
2. Fishing activities and use of gear in every zone regulated	3.1 Regulation of fishing activities and use of gear in every zone	3.1.1 Conduct of identification of fishing gears and fishing activities allowable in each of the zone, through community consultation in coordination with the Barangay/Municipal FARMC		Barangay LGU, Sangguniang Bayan, MPDO, OMA, MENRO, MFARMC, NFRDI, BFAR	P 400,000.00

		<p>3.1.2 Formulation and legislation of ordinance indicating the fishing gears and fishing activities allowable in each of the zone</p> <p>3.1.3 Conduct of regular monitoring, evaluation, control and surveillance of the zones in coordination with the Philippine National Police, fish wardens, Barangay/ Municipal FARMC's and people's organization.</p>			
4. Sand and coral mining regulated	4.1 Regulation of sand and coral mining	<p>4.1.1 Legislation of ordinance regulating gathering of sand</p> <p>4.1.2 Strict implementation of national laws prohibiting the mining or gathering of corals</p> <p>4.1.3 Conduct of monitoring, evaluation of corals and surveillance of illegal collection in coordination with the Philippine National Police, fish wardens, Barangay/Municipal FARMCs, and peoples' organization</p>		Barangay LGU, Sangguniang Bayan, MPDO, OMA, MENRO, MFARMC, NFRDI, BFAR, PNP	P 300,000.00
5. Coastal setbacks for all development implemented	5.1 Implementation of coastal setbacks for all development	<p>5.1.1 Strict implementation of law prohibiting the establishment of structures within the 20m foreshore area</p> <p>5.1.2 Enactment of ordinance prohibiting the issuance of Mayor's Permit, Business Permit and other permits being issued by the municipal government to any person who wish to establish</p>		Barangay LGU, Sangguniang Bayan, MPDO, OMA, MENRO, MFARMC, NFRDI, BFAR, PNP, DPWH	P 5 Million

		and/or have established structures within 20m foreshore area 5.1.3 Conduct of monitoring, evaluation, control and surveillance in coordination with the Department of Environment and Natural Resources, Philippine National Police, Fish Wardens, Barangay/Municipal FARMCs, and peoples' organization			
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#### A.4 WASTE MANAGEMENT

OBJECTIVES	STRATEGIES	PROGRAMS/PROJECTS	IMPLEMENTATION SCHEDULE	PERSONS & AGENCIES INVOLVED	AMOUNT
1. Ecological Solid Waste Management Program to harmonize/complement with the existing Ecological Solid Waste Management Code of Municipality of Narra established	1.1 Establish Ecological Solid Waste Management Program to harmonize/complement with the existing Ecological Solid Waste Management Code of Municipality of Narra	1.1.1 Strict implementation of Solid Waste segregation at source 1.1.2 Regular collection and disposal of solid waste by the municipal and barangay government 1.1.3 Procurement of additional garbage compactor 1.1.4 Purchase of garbage bin 1.1.5 Conduct regular participatory monitoring and evaluation of implementation		MENRO, OMA, Barangay LGU, PNP, DENR, MFARMC	P 4.6 Million
2. Disposal of ecological solid waste to different bodies of water such as sea, rivers and streams prohibited	2.1 Prohibition of disposal of ecological solid waste to different bodies of water such	2.1.1 Strict implementation of prohibition of solid, hazardous, and toxic waste disposal to different bodies of water and		MENRO, OMA, Barangay LGU, PNP,	P 100,000.00

	as sea, rivers and streams	apprehension and penalizing of violators 2.1.2 Strengthen close coordination between the MLGU and BLGU 2.1.3 Conduct regular participatory monitoring and evaluation of bodies of water		DENR, MFARMC	
3. Environmental Compliance Certificate (ECC) requirements issued by the Environmental Management Bureau-DENR, specifically on the required installation of wastewater treatment facilities by fishery-related and similar industries situated along coastal areas enforced	3.1 Enforcement of the ECC requirements issued by the Environmental Management Bureau-DENR, specifically on the required installation of wastewater treatment facilities by fishery-related and similar industries situated along coastal areas	3.1 Creation of multi-partite monitoring team 3.2 Establishment of database on the compliance of industries on installation of wastewater treatment facilities 3.2 Conduct regular participatory monitoring and evaluation		MENRO, OMA, MPDO, Barangay LGU, NGO, DEPED, DENR, MFARMC, Religious Sector	P 200,000.00

#### A.5 CLIMATE CHANGE MITIGATION, ADAPTATION AND DISASTER RISK REDUCTION AND MANAGEMENT

OBJECTIVES	STRATEGIES	PROGRAMS/PROJECTS	IMPLEMENTATION SCHEDULE	PERSONS & AGENCIES INVOLVED	AMOUNT
1. Condition of marine habitat, fisheries and community determined.	1.1 Vulnerability assessment on marine habitats, fisheries and community conducted	1.1.1 Conduct of vulnerability assessment of a. Marine habitats (Mangroves, Sea grasses, Coral reefs) b. Fisheries c. Community	2015-2024	MAO, PLGU, DA-BFAR, DA-NFRDI	P 2 Million
		1.1.2 Conduct of study on biological	2015-2024		P 1.5 Million



	<p>1.2 Determination of condition of marine habitat fisheries and community</p> <p>1.3 Determination of the impact of shallow reef destruction to the life of the deep corals and over-all health of coastal and fisheries ecosystem</p>	<p>and socio-economic aspects of the following:</p> <p>a. Marine habitats (Mangroves, Sea grasses, Coral reefs)</p> <p>b. Fisheries</p> <p>c. Community</p> <p>1.1.3 Conduct study on the impact of shallow reef destruction to the life of the deep corals and over-all health of coastal and fisheries ecosystem</p>	2015-2024		P 1 Million
2. Damaged critical coastal and marine habitats rehabilitated	2.1 Rehabilitation of damaged critical coastal and marine habitats	2.1.1 Conduct rehabilitation of damaged: <ul style="list-style-type: none"> <li>a. Mangroves</li> <li>b. Seagrassess</li> <li>c. Coral reefs</li> </ul>	2015-2024	OMA, PLGU, DA-BFAR, DA-NFRDI	P 3 Million
3. Vulnerable critical coastal and marine habitats protected and conserved	3.1 Protection and conservation of vulnerable critical coastal and marine habitats	3.1.1 Protection of critical coastal and marine habitats (i.e. mangroves, coral reef) in fair, good and excellent condition from: <ul style="list-style-type: none"> <li>a. Coral bleaching</li> <li>b. Crown of Thorns infestation</li> <li>c. Destructive human activities</li> </ul>	2015-2024	OMA, PLGU, DA-BFAR, DA-NFRDI	Will depend on the result of the biological study of coral bleaching and COT
4. Environment friendly and green technology adopted and promoted in the municipality	4.1 Adoption and promotion of environment friendly and green technology in the municipality	4.1.1 Encouragement of using renewable energy such as solar, water and wind 4.1.2 Encourage investment in power plants utilizing renewable energy sources	2015-2024  2015-2024  2015-2024	OMA, PLGU, MENRO, DENR, DA-BFAR	P 10 Million

		4.1.3 Provision and legislation of incentives to investments in and business using green technology			
5. Climate change adaptive and disaster resilient communities established	5.1 Establishment of climate change adaptive and disaster resilient communities	5.1.1 Adoption and promotion of climate change adaptive and disaster resilient technologies by the vulnerable communities 5.1.2 Construction and maintenance of seawalls 5.1.3 Construction of protection dikes and drainage system 5.1.4 Purchase of community-based emergency/disaster public address and alarm system equipment 5.1.5 Conduct of training on emergency/disaster response 5.1.6 Conduct of simulation exercises/drills on emergency/disaster situations	2015-2024  2016, 2019, 2022  2016, 2019, 2022  2016, 2019, 2022  2015-2024  2015-2024	MDRRMO, OMA,PLGU, MENRO, DENR, DA-BFAR	P 5 Million  P 10 Million  P 10 Million  P 3 Million  P 500,000.00  P 200,000.00

## B. HUMAN WELL-BEING

### B.1 LIVELIHOOD & ENTERPRISE DEVELOPMENT

OBJECTIVES	STRATEGIES	PROGRAMS/PROJECTS	IMPLEMENTATION SCHEDULE	PERSONS & AGENCIES INVOLVED	AMOUNT
1. Environmentally-sound alternative livelihood identified and implemented	2.1 Identification and implementation of environmentally sound alternative livelihood	2.1.1 Socio-economic assessment and community consultation 2.1.2 Identification of potential bonafide beneficiaries	2015  2015  2015	Barangay LGU, MPDO, OMA, MENRO, MFARMC,	P 20 Million

		2.1.3 Identification of alternative livelihood	2015	NFRDI, DA-BFAR, MSWDO	
		2.1.4 Preparation of feasibility study and project proposal	2015		
		2.1.5 Sourcing of fund thru local and international funding institutions	2015-2024		
		2.1.6 Construction of two fish landing port with cold storage.	2015-2024		
		2.1.7 Fabrication and deployment of Payaos	2015-2024		
		2.1.8 Establishment and management of two Mariculture Parks/Zones	2015-2024		
		2.1.9 Construction and management of two seaweeds warehouse and buying stations	2015-2024		
		2.1.10 Construction and management of three units village type fish and seaweed processing centers	2015-2024		
		2.1.11 Distribution of gill nets to the fishpond operators and fishermen	2015-2024		
		2.1.12 Conduct training on: a. Fish and seaweed farming and processing, b. Accessories making and handicraft making, c. Inland-Tilapia Farming	2015-2024		
		2.1.13 Conduct of regular participatory monitoring and evaluation			

2. Coastal aquaculture sustainably managed	2.1 Sustainable management of coastal aquaculture	2.1.1 Formulation and review of technical and socio-economic guidelines on aquaculture	2015	Barangay LGU- MPDO, OMA, MENRO, MFARMC, NFRDI, DA-BFAR	P 500,000
		2.1.2 Identification and delineation of potential sites for improvement of aquaculture activities	2015		
		2.1.3 Identification, pilot-testing and modeling of environment-friendly and economically feasible aquaculture activities	2016		
		2.1.4 Establishment of water quality and fishery production monitoring mechanisms	2016		
		2.1.5 Conduct of regular participatory monitoring and evaluation	2015-2024		

## B.2 COASTAL ECO-TOURISM DEVELOPMENT

OBJECTIVES	STRATEGIES	PROGRAMS/PROJECTS	IMPLEMENTATION SCHEDULE	PERSONS & AGENCIES INVOLVED	AMOUNT
1. Island hopping and dive tour activities established and regulated	1.1 Island hopping and dive tour activities established and regulated	1.1.1 Encouragement of investment in island hopping and dive tour activities	2015-2024	OMA, MENRO, Tourism Unit, MFARMC, MPDO, Barangay LGU, PCSD, NFRDI, BFAR, ELAC	P 2 Million
		1.1.2 Formulation and legislation of regulation on island hopping and dive tour operations	2015		
		1.1.3 Product development on island hopping and dive tours	2015-2024		
		1.1.4 Visitors/tourists education and management	2015-2024		
		1.1.5 Conduct training on tour guiding for fisherfolks	2015-2024		
			2015-2024		

		1.1.6 Procurement of motorized bancas for tourism purposes 1.1.7 Conduct of regular participatory monitoring and evaluation	2015-2024		
2. Baywalk park established and managed	2.1 Baywalk park established and managed	2.1.1 Construction and development of Baywalk park 2.1.2 Formulation and implementation of Baywalk park management 2.1.3 Conduct of regular participatory monitoring and evaluation	2015-2017  2015  2015-2024	OMA, MENRO, Tourism Unit, MFARMC, MPDO, Barangay LGU, PCSD, NFRDI, BFAR, ELAC	P 8 Million

### C. GOOD GOVERNANCE

#### C.1 LEGAL ARRANGEMENT AND INSTITUTIONAL DEVELOPMENT

OBJECTIVES	STRATEGIES	PROGRAMS/PROJECTS	IMPLEMENTATION SCHEDULE	PERSONS & AGENCIES INVOLVED	AMOUNT
1. Integrated Coastal and Fisheries Resource Management (ICFRM) in the municipality institutionalized	1.1 Institutionalization of ICFRM in the municipality	1.1.1 Formulation, legislation and implementation of Municipal ICFRM Plan 1.1.2 Creation of ICFRM implementing body and mechanisms 1.1.3 Review of existing ordinances and resolutions regarding coastal and fisheries resource management 1.1.4 Enactment of CFRM Code 1.1.5 Strict implementation of the ordinance	2015-2024  2015  2015  2015 2015-2024  2015-2024	Barangay LGU, Sangguniang Bayan, MPDO, OMA, MFARMC, NFRDI, DA-BFAR	P 100,000.00

		1.1.6 Conduct of regular participatory monitoring and evaluation of ICFRM			
2. Integrated Coastal and Fisheries Resource Management (ICFRM) Plan institutionalized	2.1 Institutionalization of ICFRM Plan	2.1.1 Formulation and legislation of ICFRM Plan 2.1.2 Strict implementation of the plan 2.1.3 Creation of ICFRM Unit under the Municipal Agriculturist's Office 2.1.4 Appointment of personnel to the ICFRM Unit 2.1.5 Strengthening of ICFRM personnel 2.1.6 Conduct of regular participatory monitoring and evaluation of the plan	2015 2015-2024 2015 2015 2015-2024 2015-2024	Barangay LGU-Mayor's Office, OMA, MPDO, BFARMC, MFARMC, DA-BFAR, NFRDI	P 2 Million
3. Fund for the plan provided	3. Sourcing out of fund for the plan	3.1.1 Submission of the ICFRM Plan to different national and international funding institutions 3.1.2 Networking and linkage with Region IV-B and non-government organization in the country or in the international community 3.1.3 Preparation of feasibility studies and project proposals for funding	2015-2024 2015-2024 2015-2016	Barangay LGU-Mayor's Office, OMA, MPDC, BFARMC, MFARMC, DA-BFAR, NFRDI	P 200,000.00
4. People's organization (POs) strengthened	4.1 Strengthening of peoples' organization	4.1.1 Organizing and strengthening of community core group in coastal barangays 4.1.2 Organizing and strengthening of fishers' organization, IP's association, women association	2015-2016 2015-2016	Barangay LGU, Sangguniang Bayan, MPDO, OMA, BFARMC, MFARMC,	P 300,000.00

		and youth association for fisheries management		NFRDI, DA-BFAR, MSWDO	
		4.1.3 Conduct of organization development and leadership training	2016-2024		
		4.1.4 Conduct values formation seminar	2016-2024		
		4.1.5 Registration of the fishers' organization with the Securities and Exchange Commission (SEC) or with other concerned agencies	2016		
		4.1.6 Accreditation of the fishers' organization with the Sangguniang Bayan	2016		
		4.1.7 Conduct Lakbay-Aral on areas with best ICFRM practices	2016-2024		
		4.1.8 Conduct of regular monitoring and evaluation	2016-2024		
5. FARMC, Bantay Dagat, and Fish Warden strengthened	5.1 Strengthening of FARMC, Bantay Dagat, and Fish Warden	5.1.1 Reorganization of FARMCs	2015 2015-2024	Barangay LGU-, MPDO, OMA, BFARMC, MFARMC, NFRDI, DA-BFAR, MSWDO, ELAC	P500,000.00
		5.1.2 Conduct of training/re-fresher course on law enforcement and deputation of fish warden, in of Fisheries and Aquatic Resources Management	2015-2024		
		5.1.3 Provision of incentives and benefit mechanisms for the FARMC, Bantay Dagat and Fish Warden	2015-2024		
		5.1.4 Purchase of patrol boats and monitoring equipments such as diving gears, GPS, radios, etc.	2015-2024		
		5.1.5 Setting up of enforcement schedule	2015-2024		

		5.1.6 Conduct of regular monitoring, Control and Surveillance			
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## C.2 INFORMATION, EDUCATION AND COMMUNICATION CAMPAIGN

OBJECTIVES	STRATEGIES	PROGRAMS/PROJECTS	IMPLEMENTATION SCHEDULE	PERSONS & AGENCIES INVOLVED	AMOUNT
1. Tri-media IEC materials on ecosystem approach in coastal and fisheries management designed and developed	1.1 Designing and development of Tri-media IEC materials on ecosystem approach in coastal and fisheries management	1.1. Design and develop IEC approaches and strategies singly or in combination of: <ul style="list-style-type: none"> <li>a. Social marketing- and advertising and public relations; promotion and publicity via mass media, special events, testimonial and advocacy campaigns</li> <li>b. Social and community mobilization-workshops, meetings, study tours involving the community and school programs/projects, or community watch</li> <li>c. Development and program support communication and advocacy-posters, publications, newsletter, leaflets, radio/TV plugs.</li> </ul>	2015-2024	MLGU, PLGU, DA-BFAR, DA-NFRDI, UNDP-GEF, WWF, CI, RARE	P 1.75 Million
2. Community awareness/information drive on ecosystem approach in coastal and fisheries management	2.1 Conduct of Community awareness/information drive on ecosystem approach	2.1.1 Conduct of community education and capability building on ecosystem approach in coastal and fisheries management as to:	2015-2024	OMA, MENRO, MPDO, MDRRMO, MFARMC, Barangay LGU,	P 2 Million



conducted	in coastal and fisheries management	<ul style="list-style-type: none"> <li>a. Fisheries management,</li> <li>b. Coastal habitat management,</li> <li>c. Coastal zoning and shoreline management,</li> <li>d. Waste management,</li> <li>e. Climate change mitigation, adaptation and disaster risk reduction and management,</li> <li>f. Livelihood and enterprise development,</li> <li>g. Coastal eco-tourism development and</li> <li>h. Legal arrangement and institutional development</li> </ul>		PCSD, NFRDI, DENR, BFAR, ELAC, ACADEME	
3. Information on ecosystem approach in coastal and fisheries management promoted and disseminated	3.1 Promotion and dissemination of information on ecosystem approach in coastal and fisheries management	<p>3.1.1 Production, distribution and posting of flyers and poster IEC materials to strategic locations and conspicuous places</p> <p>3.1.2 Production, distribution and placing of print IEC materials to print media outlets</p> <p>3.1.3 Production, distribution and airing of audio-video presentation IEC materials to radio and television media outlets</p>	2015-2024	OMA, MENRO, MPDO, MDRRMO, MFARMC, Barangay LGU, PCSD, NFRDI, DENR, BFAR, ELAC, ACADEME	P 1.75 Million

## CHAPTER 5

### IMPLEMENTATION AND INSTITUTIONAL ARRANGEMENTS

#### PLAN IMPLEMENTATION

##### A. Administration and Management

The Integrated Management Protected Areas Management Plan (IMPAMP) CY 2017-2022 shall be approved and adopted by Sangguniang Bayan in order to be operative.

Upon legislation of the plan, its over-all administration and management will be undertaken by the Office of the Municipal Mayor. The direct implementation of the plan will be carried out by the Office of the Municipal Agriculturist. The Sangguniang Bayan in consultation with Municipal Fisheries and Aquatic Resources Management Council (MFARMC) shall provide the policy guidance to the actions of the Office of the Municipal Agriculturist in the implementation of the plan. The technical assistance shall be provided by the Technical Working Group to be composed of the following:

Chairman:	MAO
Members:	MAO Staff
	MPDO Staff
	MENRO Staff
	MSWDO
	MDRRMO
	MEO Staff

##### B. Updating of the Plan

The plan shall be updated every five years or as often as three years as may be deemed necessary. A technical working group shall be created to conduct technical evaluation of the plan, provide relevant inputs and formulate recommendations as basis for the updating of the plan by the Office of the Municipal Agriculturist.