PROCEEDINGS OF THE PCRA TRAINING WORKSHOP IN PAYAO, ZAMBOANGA SIBUGAY PROVINCE
APRIL 28-MAY 2, 2014

The DENR –IX Protected Areas, Wildlife and Coastal Zone Management Services (PAWCZMS)- Coastal and Marine Management Division (CMMD) and CENRO CMMS Focal Person arrived in Payao, ZSP on April 27, 2014 for the conduct of PCRA from April 28 to May 02, 2014. The workshop was held at the Rooftop of Payao Municipal Hall. The activities were scheduled as follows:

April 28, 2014 - Opening program, ICM Orientation, MOA Signing,
Expectation settings and lecture proper

April 29-May 01, 2014- Field Assessment and sampling period

May 02, 2014 - Tabulation and computation of data, presentation,
Commitment and closing program

The registration of participants coming from the sixteen (16) coastal barangays started before 8:00 A.M. The opening program started at 10:30 A.M. with a prayer and the singing of National Anthem.Hon. Vice Mayor Carlita F. Chiong gave the welcome remarks while MENRO Dante Tubat acknowledged the participants, guests and resource speakers. Honorable Mayor Carol R. Mendoza gave an inspirational message, acknowledging the support extended by the Department to them and assured this will be reciprocated.Likewise, CENRO Diomedes M. Pablo delivered a message and thanked the Mayor and all municipal officials for inviting DENR official and personnel to conduct the assessment. He also aknowledged the municipal officials for supporting coastal law enforcement activities.This was followed by the reading of the content of the MOA by the CMMD Chief before the signing between the Municipality and the Department being represented by CENRO Pablo in behalf of RED Arleigh J. Adorable.

The expectation setting was facilitated by the CMMS Focal Person For. Wirlyn B. Ladores with CMMD Chief discussing the Rationale and Objectives of the workshop as well as ICM orientation and PCRA's importance and benefits.

In the afternoon, Technical Staff Elsa C. Hisola lectured on Mangrove Ecology and assessment methods followed by Marc Mustre P. Sarcauga on Seagrass Ecology and Assessment methods. WMS Chief Ahmad S. Julkarnain then lectured on Coral Ecology and assessment methods and Jericho V. Tomlod discussed Fish Visual Census and its methodologies. For. Cristy O. Oco facilitated the socio-economic assessment using FGD. This was followed by grouping the participants into four (4) groups. A briefing on the task and schedules of areas to be visited were discussed by each group.

From April 29 to May 01, 2014 the grouped participants went to the coastal barangays to conduct their respective actual assessment . On the morning of May 02, 2014 the participants convened again at the rooftop and worked on the tabulation and computation of data, which was facilitated by their respective trainors/facilitators.

In the afternoon, each group presented their outputs starting with mangroves, seagrass, coral reef and fish visual census and the socio-economic conditions to a panel of local officials led by Hon. Mayor Carol Mendoza. Comments, observations and commitments were elicited from them particularly on issues and recommendations. This was followed by the impressions from the selected participants and synthesis by Mr. Ahmad S. Julkarnain. Finally, the awarding of Certificates of Participation and closing message by the Honorable Mayor.

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GENERAL INTRODUCTION

The municipality of Payao has sixteen (16) coastal barangays with farming, small scale business and fishing as major economic activities.

The local officials of Payao recognizes the importance of drawing a coordinating mechanism between and among the fishers, local government, and other concerned stakeholders in the community to help enhance meaningful community participation towards the management of their coastal resources. The local officials believed that the participation of the local residents should start from the beginning to foster continuing commitment towards the formulation of an organized plan that will systematize the management of the coastal marine resources.

Prior to the actual assessment of the coastal resources in the municipality of Payao, PCRA training was conducted with the following objectives:

1. Provide the rationale for PCRA in the context of good governance in the Coastal Resources Management (CRM) process particularly planning and monitoring and evaluation.
2. Familiarize participants with participatory methods and apply these in actual habitat, fisheries, and socio-economic assessment.
3. Compile a preliminary coastal environment and socio-economic profile based on the PCRA results.
4. Analyze results to identify issues and recommend possible management guidelines to LGU.

This report presents the status of the coastal resources of Payao to facilitate informed decision-making by the local community and LGU in CRM implementation particularly in management of their established marine sanctuary. Included in this report is the proceeding of the PCRA training conducted on April 28-May 02, 2014.

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MANGROVE ASSESSMENT

PAYAO, ZAMBOANGA SIBUGAY PROVINCE

MANGROVE GROUP IN ACTION

MR. ABUNDIO SALANDRON, JR.
MR. AISIRIN ASANDI
MR. ANTONIO SUMALINOG
MR. JAMIRI MALUBA
MR. APHANI MALUBA
MR. HASSAN MALUBA

FACILITATORS

MS. ELSA C. HISOLA

MR. IGNACIO LOYOLA, JR.

" MANGROVES"

INTRODUCTION

Mangroves are coastal trees or shrubs that are adapted to estuarine or even on saline environment. The term mangroves comes from the word Mangue (Senegal term for tree)and English word grove (trees) was added thus the word Mangroves. Mangroves refer to the whole community or association dominated by these plants and occupies coastal belt margins. In the Philippines, the most common mangroves species are *Rhizophora* (Bakauan), *Sonneratia* (Pagatpat), *Bruquiera* (Pototan), *Avicennia* (Piapi) and *Nypa* (Nipa).

Mangroves are one of the most diverse communities in the coastal area, harboring small mammals, birds, reptiles, amphibians and invertebrates. Some organisms in the mangroves are harvested as food; oyster and other bivalves, crabs, shrimps and fishes. Mangroves serves as nursery and feeding ground of many fishes, crustacean, and mollusk that are vital to the replenishment of stocks in the coastal area. They are also good sources of nipa shingles, for housing materials, firewood, charcoal and timber products.

Aside from providing economic goods, mangroves also provide other benefits to man. They protect the shore from typhoons, strong winds and tidal waves and minimize erosion. Mangroves are capable of these functions because of their strong and complex roots system.

In spite of the many benefits, mangroves are also being threatened both directly and indirectly. The direct threats are being done by human being, which include conversion to fishponds, salt beds and the like; reclamation as well as pollution and siltation, while indirectly are caused by pests and diseases and natural phenomena.

METHODOLOGY

The Participatory Resource Appraisal (PRA) conducted in the Municipality of Payao, Zamboanga Sibugay involved various methodologies in assessing different coastal ecosystem using the methodologies described in the PCRA Handbook. The data were also analyzed using the standard data analysis process described in the book although added information on the actual observations of the research team was also noted.

The mangrove community within the municipality was assessed through standard methods specifically the methodology described in the PCRA Training Guide established by the Department of Environment and Natural Resources (DENR) through its Coastal Resources Management Project (CRMP).

A 100-m transect had been established with four quadrats had been fabricated for the purpose: one 10m x 10 m quadrats, and three 1m x 1m quadrat which were used to count the number of trees in each of the regeneration plots. The total area of investigation for mangrove assessment was 10%. Observations on the number of trees, average height, crown cover and species including number of regeneration plots were undertaken in the survey.

Transects were established perpendicular to the shoreline and started where the mangroves habitat starts and ends where the mangrove ends.

Analysis of the assessment results was done using the methods as adopted and provided by the PCRA Manual. In the analysis, it is significant to determine the percent crown cover, regeneration per square meters and average height. The aforementioned parameters are measured through the following standard equations:

$$\textbf{Percent Crown Cover} = \frac{\text{Total Crown Cover of all trees}}{\text{Total Area sampled}}$$

$$\textbf{Regeneration per m}^2 = \frac{\text{Total regeneration count}}{\text{Total No. of regeneration plots}}$$

$$\textbf{Average Height} = \frac{\text{Total Height of all Trees Recorded}}{\text{Total number of all trees recorded}}$$

The condition of the mangrove habitat in is classified into four categories: excellent, good, fair and poor. The table below shows the criteria of the mangrove area with their corresponding conditions:

Criteria in determining condition of the mangrove habitat.

Condition	Criteria
Excellent	76% and above in % crown cover 1 regeneration per m^2 Above 5 m in average tree height Undisturbed to negligible disturbance
Good	51-75% crown cover <1 – 0.76 regeneration per m^2 <3 m – 2m in average tree height Slight disturbance and few cuttings
Fair	26 - 50% crown cover 0.50 - .75 regeneration per m^2 <2m in average tree height Moderate disturbance and noticeable cuttings
Poor	0-25% crown cover <0.50 regeneration per m^2 <2m in average tree height Heavy disturbance/cuttings/pollution, rampant, conversion to other uses, nearly destroyed

RESULTS AND DISCUSSION

A total of twenty eight (28) mangroves species and associates belonging to siteen (16) families were identified and recorded in the mangrove forest of Payao, Zamboanga Sibugay. The most diverse family are Rhizophoraceae consisting of 7 species followed by Aviceniaceae with 4, combretaceae with 3 species and Sonneratiaceae, myrsinaceae, meliaceae with 2 species respectively.

Figure 1**. Mangrove Species and Associates**

Bakauan Lalaki

Bakauan Babae

Pototan

Busain

Langarai

Pototan Lalaki

Tangal

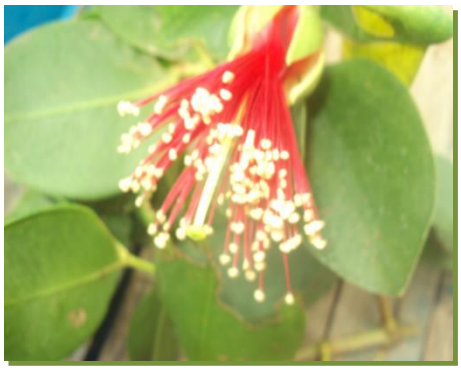
Bungalon

Bungalon Puti

Api-api

Piapi

Pagatpat



Pedada

Tinduk-tindukan

Saging-saging

Tabigi

Piagau

Tawalis

Tabau

Bantigi

Nipa

Buta-buta

Diliuariu

Lagolo

Talisay

Bani

Malubago

Alagao

As per actual survey of mangrove stands in the twelve (12) coastal barangays of Payao , ZSP Sonneratia alba (Pagatpat) was the most dominant species as this can be found in all the coastal barangays of the municipality.

In the case of seeds/seedlings and saplings availability, species of Tabigi, Bakauan Babae and Piapi are found in Barangay Guiwan; Pototan Lalaki, Bakauan Babae, Bakauan Lalaki in Barangay Bulawan; Pototan Lalaki in Barangay Kulasian; Bakauan Lalaki in Barangay Labatan; Busain in Barangay San Roque; Bakauan Lalaki, Busain and Tabigi in Barangay Balogo; Busain, Bakauan Lalaki, Pagatpat, Piapi in Barangay Talaptap; Bakauan Lalaki, Piapi and Busain in Barangay Katipunan; and in Barangay Kulisap species of Bakauan Babae, Bakauan Lalaki and Piapi are available.

Figure 2**. Seedlings**

(Bungalon, Bungalon Puti and Piapi

Bakauan Babae, Bakauan Lakaki, Saging-Saging and Pototan Lalaki

For the average height, percent crown cover, regeneration per square meter and condition of mangrove, please refer to table 1 below;

Table1**. Condition of Mangroves**

Barangays	Percent Crown Cover (%)	Average Height (%)	Regeneration per square meter (%)	Condition
1. Guiwan	53.37	4.33	1.02	Good
2. Bulawan	56.87	4.36	1.22	Good
3. Kulasian	35.76	3.33	1.20	Fair
4. Silal	22.76	3.26	.64	Poor
5. Poblacion (purok)	23.85	2.35	.56	Poor
6. Labatan(Sitio Tambon)	77	6.7	1.33	Excellent
7.San Roque (Sitio Lumarao)	37.63	3,23	.52	Fair
8. Balago	42.57	2.66	.67	Fair
9. Talaptap (Sitio Silal)	39.56	3.0	.73	Fair
10. Balian (Bukana)	28.94	2.50	.76	Fair
11.Katipunan (Purok 3)	31.67	3.06	.67	Fair
12. Kulisap	33.79	3.44	.98	Fair

Table2**. List of Mangroves Species by Barangay**

Name of Coastal Baragays	Common Name	Scientific Name	Family Name
1. Guiwan	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Pedada	*Sonneratia caseolaris*	Sonneratiaceae
	Piapi	*Avicennia lanata*	Aviceniaceae
	Api-Api	*Avicennia officinalis*	Aviceniaceae
	Bakauan Lalaki	*Rhizophora Apiculata*	Rhizophoraceae
	Bakauan Babae	*Rhizophora mucronata*	Rhizophoraceae
	Langarai	*Bruguiera parviflora*	Rhizophoraceae

	Busain	*Bruguiera gymnorrhiza*	Rhizophoraceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Piagau	*Xylocarpus moluccensis*	Meliaceae
	Saging-Saging	*Aegiceras corniculatum*	Myrsinaceae
	Nipa	*Nypa fruticans*	Palmae
	Lagolo	*Acrostichum aureum*	Pteridaceae
	Diliuariu	*Acanthus ebracteatus*	Acanthaceae
2. Bulawan	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Pedada	*Sonneratia caseolaris*	Sonneratiaceae
	Piapi	*Avicennia lanata*	Aviceniaceae
	Api-Api	*Avicennia officinalis*	Aviceniaceae
	Bakauan Lalaki	*Rhizophora Apiculata*	Rhizophoraceae
	Bakauan Babae	*Rhizophora mucronata*	Rhizophoraceae
	Langarai	*Bruguiera parviflora*	Rhizophoraceae
	Busain	*Bruguieragymnorrhiza*	Rhizophoraceae
	Tangal	*Ceriops tagal*	Rhizophoraceae
	Pototan Lalaki	*Bruguiera cylindrica*	Rhizophoraceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Piagau	*Xylocarpus moluccensis*	Meliaceae
	Saging-Saging	*Aegiceras corniculatum*	Myrsinaceae
	Nipa	*Nypa fruticans*	Palmae
	Lagolo	*Acrostichum aureum*	Pteridaceae
	Diliuariu	*Acanthus ebracteatus*	Acanthaceae
	Tawalis	*Osbornia octodonta*	Myrtaceae
3. Kulasian	Piapi	*Avicennia lanata*	Aviceniaceae
	Bakauan Lalaki	*Rhizophora Apiculata*	*Rhizophoraceae*
	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Bungalon	*Avicenia marina*	Aviceniaceae
	Pototan Lalaki	*Bruguiera cylindrica*	Rhizophoraceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Nipa	*Nypa fruticans*	Palmae
	Talisay	*Terminalia Catappa*	Combretaceae
4. Silal	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Bungalon	*Avicenia marina*	Aviceniaceae
	Bakauan Lalaki	*Rhizophora Apiculata*	Rhizophoraceae
	Bakauan babae	*Rhizophora mucronata*	Rhizophoraceae
	Nipa	*Nypa fruticans*	Palmae
	Tangal	*Ceriops tagal*	Rhizophoraceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Piapi	*Avicennia lanata*	Aviceniaceae
	Taualis	*Osbornia octodonta*	Myrtaceae
	Bani	*Pongamia pinnata*	Favaceae

5. Poblacion (purok 6)	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Piapi	*Avicennia lanata*	Aviceniaceae
	Bakauan Lalaki	*Rhizophora Apiculata*	Rhizophoraceae
	Bakauan babae	*Rhizophora mucronata*	Rhizophoraceae
	Saging-Saging	*Aegiceras corniculatum*	Myrsinaceae
	Piagau	*Xylocarpus moluccensis*	Meliaceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Nipa	*Nypa fruticans*	Palmae
	Tangal	*Ceriops tagal*	Rhizophoraceae
	Taualis	*Osbornia octodonta*	Myrtaceae
	Tabau	*Lumnitzera littorea*	Combretaceae
	Lagolo	*Acrostichum aureum*	Pteridaceae
6. Labatan (Sitio Tambon)	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Pedada	*Sonneratia caseolaris*	Sonneratiaceae
	Piapi	*Avicennia lanata*	Aviceniaceae
	Bungalon	*Avicennia marina*	Aviceniaceae
	Bakauan Lalaki	*Rhizophora Apiculata*	Rhizophoraceae
	Nipa	*Nypa fruticans*	Palmae
	Tabau	*Lumnitzera littorea*	Combretaceae
	Bantigi	*Pemhis acidula*	Lythraceae
	Lagolo	*Acrostichum aureum*	Pteridaceae
7. San Roque (Sitio Lumarao)	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Piapi	*Avicennia lanata*	Aviceniaceae
	Bakauan Lalaki	*Rhizophora Apiculata*	Rhizophoraceae
	Bakauan babae	*Rhizophora mucronata*	Rhizophoraceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Nipa	*Nypa fruticans*	Palmae
	Pototan	*Bruguiera sexangula*	Rhizophoraceae
	Busain	*Bruguiera gymnorrhiza*	Rhizophoraceae
8. Balago	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Piapi	*Avicennia lanata*	Aviceniaceae
	Bungalon	*Avicennia marina*	Aviceniaceae
	Bungalon Puti	*Avicennia alba*	Aviceniaceae
	Bakauan Lalaki	*Rhizophora Apiculata*	Rhizophoraceae
	Bakauan Babae	*Rhizophora mucronata*	Rhizophoraceae
	Busain	*Bruguiera gymnorrhiza*	Rhizophoraceae
	Tangal	*Ceriops tagal*	Rhizophoraceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Saging-Saging	*Aegiceras corniculatum*	Myrsinaceae
	Nipa	*Nypa fruticans*	Palmae
9. Talaptap (Sitio Silal)	Bakauan Babae	*Rhizophora Apiculata*	Rhizophoraceae

	Bakauan Lalaki	*Rhizophora mucronata*	Rhizophoraceae
	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Saging-Saging	*Aegiceras corniculatum*	Myrsinaceae
	Nipa	*Nypa fruticans*	Palmae
	Piapi	*Avicennia lanata*	Aviceniaceae
	Tabau	*Lumnitzera littorea*	Combretaceae
10. Balian (Bukana)	Bakauan Babae	*Rhizophora Apiculata*	Rhizophoraceae
	Bakauan Lalaki	*Rhizophora mucronata*	Rhizophoraceae
	Busain	*Bruguiera gymnorrhiza*	Rhizophoraceae
	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Pedada	*Sonneratia caseolaris*	Sonneratiaceae
	Piapi	*Avicennia lanata*	Meliaceae
	Saging-Saging	*Aegiceras corniculatum*	Myrsinaceae
	Nipa	*Nypa fruticans*	Palmae
	Tabigi	*Xylocarpus granatum*	Meliaceae
11.Katipunan (Purok 3)	Bakauan Babae	*Rhizophora Apiculata*	Rhizophoraceae
	Bakauan Lalaki	*Rhizophora mucronata*	Rhizophoraceae
	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Piapi	*Avicennia lanata*	Aviceniaceae
	Saging-Saging	*Aegiceras corniculatum*	Myrsinaceae
	Tinduk-Tindukan	*Aegiceras floridum*	Myrsinaceae
	Busain	*Bruguiera gymnorrhiza*	Rhizophoraceae
	Tangal	*Ceriops tagal*	Rhizophoraceae
	Buta-Buta	*Excoecaria agallocha*	Euphorbiaceae
	Alagao	*Premna integrifolia*	Verbenaceae
	Nipa	*Nypa fruticans*	Palmae
	Bani	*Pongamia pinnata*	Leguminosae
	Malubago	*Hibiscus tiliaceus*	Malvaceae
12. Kulisap	Bakauan Babae	*Rhizophora Apiculata*	Rhizophoraceae

	Bakauan Lalaki	*Rhizophora mucronata*	Rhizophoraceae
	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Piagau	*Xylocarpus moluccensis*	Meliaceae
	Piapi	*Avicennia lanata*	Aviceniaceae
	Bungalon	*Avicenia marina*	Aviceniaceae
	Saging-Saging	*Aegiceras corniculatum*	Myrsinaceae

Other Observations includes List of Fispond. Please refer to Table 3 below:

Table 3. **List of Fishpond Owner**

Name of Leesee	Location	Area Developed	Area Undeveloped	FLA No.	Date of Expiration
Bulawan Fispond Workers	Bulawan, Payao, ZSP	40.0	9.99	3327	12/31/04
Antonio Cerilles	Balian, Payao, ZSP	49.97		3612	12/31/05
Fidel Cerilles	Balian, Payao, ZSP	49.97		3652	12/31/05
Ma. Josefina cerilles	Balian, Payao, ZSP	49.97		3613	12/31/05
Bienvenido Dizon	Payao, ZSP	23.30		3664	12/31/05
Rodolfo Filoteo	Talaptap, Payao, ZSP	30.26		4827	12/31/12
Ma. Ruby Fuentes	Payao, ZSP	4.19		5887	12/31/21
Rebecca Fuentes	Payao, ZSP	5.0		5175-A	12/31/21
Alfredo Herrera	Balian, Payao, ZSP	33.03		3639	12/31/05
Jose Herrera	Balian, Payao, ZSP	40.91		3638	12/31/05
Leon Mendoza	Bulawan, Payao, ZSP	5.0		5175	12/31/14
Araceli Mendoza	Bulawan, Payao, ZSP	5.0		5888	12/31/21
Felisa Mendoza	Payao, ZSP	5.0		5889	12/31/21
Manuel Reyes	Payao, ZSP	30.0	20.0	4588	12/31/20
Leah Siva	Bulawan, Payao, ZSP	4.19		5888	12/31/21

- Expired FLA and abandoned Fishpond

For the mangrove fauna, a total of twelve (12) finfishes were noted and recorded, nine (9) crustaceans, nine (9) mollusks, six (6) birds, one (1) mammals and one (1) reptiles with a grand total of thirty eight (38) species *(Please see Table 3 for details).*

Table 4**. List of Fauna Found in Mangrove Forest of Payao, ZSP**

1. Finfishes

LOCAL NAME	ENGLISH NAME	SCIENTIFIC NAME
1. Tambasakan	Mudskippers	*Periophthalmus barbarous*
2. Ibis	Pajama Cardinal Fish	*Apogon aureus*
3. Iswil	Needle Fish	*Tylosurus crocodilus*
4. Bangus	Milkfish	*Chanus chanus*
5. Banak	Mullet	*Mugil cephalus*
6. Guno	Silverside	*Menidia menidia*
7. Tilapia	Tilapia	*Oreochromis niloticus*
8. Kitong	Spotted spine foot	*Siganus canaliculatus*
9.Tarakitok	Golden Trevally	*Gnathanodon speciosus*
10. Bugaong	Trumpeter Perch	*Pelates guadrilineatus*
11. Lapu-lapu	Grouper	*Epinephelus lanceolatus*
12. Kapal	Sergeant major	*Abudefduf saxalitis*

Tambasakan

Ibis

Iswil

Bangus

Banak

Guno

Tilapia

Kitong

Talakitok

Bugaong

Lapu-lapu

Kapal

2.Mollusks

LOCAL NAME	ENGLISH NAME	SCIENTIFIC NAME
1. Tuway	Mud clam	*Geloina strata*
2. Bagongon	Telescope-shell	*Telescopium telescopium*
3. Bug-atan	Venus clam	*Venerupis philippinarum*
4. Imbao	Lucine n.	*Anodontia alba*
5. Sisi	*Mangrove Oyster*	*Crassostrea gasar*
6. Dalu-Dalu	*Mud whelk*	*Pyrasus ebenimus*
7.Litob	*Ark Shell*	*Anadara broughtnonii*
8. Sihi	*Top shell*	*Trochus maculatus*
9. Talaba	*Oyster*	*Saccosrea malabonensis*

Tuway

Bagongon

Bug-atan

Imbao

Sisi

Dalo-dalo

2. rustaceans

LOCAL NAME	ENGLISH NAME	SCIENTIFIC NAME
1. Agukoy	Mud Fiddler Crab	*Uca pugnax*
2. Kalampay	Mangrove Crab	*Aratus pisonii*
3. Umang	Hermit Crab	*Coenobita clypeatus*
4. Kasag	Blue Crab	*Callinectes sapidus*
5. Takla	Spiny lobster	*Panulirus interruptus*
6.Alimango	Mud Crab	*Scylla serrate*
7.Lokon	Prawn	*Fenneropenaeus indicus*
8.Pasayan	Gray Shrimp	*Penaeus seliferus*
9.Putian	White Shrimp	*Penaeus indicus*

Agukoy

Kalampay

Umang

Kasag

Takla

Alimango

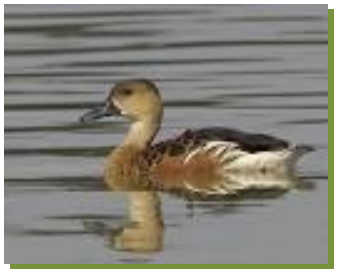
Lokon

Pasayan

Putian

4. Birds

ENGLISH NAME	SCIENTIFICNAME	FAMILY NAME
1. Wandering whistling Duck	*Dendrocygna arcuata*	Anatidae
2. Intermediate Egret	*Ardea intermedia*	Ardeidae
3. Great Egret	*Ardea alba*	Ardeidae
4. Little Egret	*Egretta garzetta*	Ardeidae
5. Night Heron	*Nycticorax nycticorax*	Ardeidae
6. Collared kingfisher	*Todiramphus chloris*	Halcyonidae



Wandering Whistling Duck

Intermediate Egret

Great Egret

Little Egret\

Night Heron

White Collared Kingfisher

5. Mammals

ENGLISH NAME	SCIENTIFICNAME	FAMILY NAME
1. Monkey	*Macaca Fascicularis*	Cercopithecidae

6. Reptiles

ENGLISH NAME	SCIENTIFICNAME	FAMILY NAME
1. Tree skinks (Tambilihan)	*Dasia Olivacea*	Scincidae

Table 5**. GPS Reading on Transect Line established**

TRANSECT NO.	LATITUDE	LONGITUDE	LOCATION
1. Guiwan	07°39′06.5″	122°48′43.3″	Guiwan
2. Bulawan	07°38′52.20″	122°47′28.4″	Bulawan
3. Kulasian	07°36′46.9″	122°47′16.5″	Kulasian
4. Silal	07°36′31.6″	122°47′27.5″	Silal
5.Poblacion (purok 6)	07°36′07.3″	122°47′32.5″	Poblacion
6. Labatan (Sitio Tambon)	07°28′55.4″	122°47′29.4″	Labatan
7.San Roque (Sitio Lumarao)	07°31′42.0″	122°48′33.1″	San Roque
8. Balago	07°31′27.9″	122°50′27.9″	Balago
9. Talaptap (Sitio Silal)	07°31′11.6″	122°49′53.4″	Talaptap
10.Balian (Bukana)	07°33′20.0″	122°49′20.2″	Balian
11.Katipunan (Purok 3)	07°33′54.5″	122°49′14.3″	Katipunan
12. Kulisap			

ISSUES AND PROBLEMS

1. No enforcement of coastal laws especially on mangrove cuttings.
2. Old and new mangrove cuttings for firewood, poles and charcoal making (except Barangay Labatan) for commercial purposes.
3. Illegally constructed fishponds.
4. Illegal gathering/collection of tanbarks (tangal).

Figure 3. **Illegal Activities in the Mangrove Forest of Payao, ZSP**

Mangrove Cuttings& Debarking

RECOMMENDATIONS

1. Strict enforcement of coastal laws especially on mangrove cuttings.

2. Information, education and communication campaign on the importance of mangrove ecosystem.

3. Mangrove Reforestation/Rehabilitation Project to registered Fisherfolks Association.

4. Formulation of Ordinances to apprehend/penalize illegal cutters of mangroves and Buyers of mangrove firewood, charcoal and tanbark.

Figure 4**. Reforestation Project (NGP)**
150 hectares NGP Project planted with Bakauan Babae and Bakauan Lalaki on January 12, 2012 at Barangay Bulawan, Sitio Saturn, Payao, Zamboanga Sibugay Province

Figure 5**. Mangrove Forest of Barangay Labatan**

The only undisturbed mangrove forest found in
Barangay Labatan, Payao, ZSP with Excellent Condition

Ooo-ooO

SEARGRASS ASSESSMENT

INTRODUCTION

Seagrass meadows form an important shallow water marine ecosystem. They reduce current velocity and erosion by binding the sediments together and provide food directly or indirectly to various animals (Thayer and Phillips, 1977). They are one of the most productive ecosystems in the world, with productivity almost comparable to that of agricultural croplands (Odum, 1971). Thus, an assessment study on the status and spatial distribution is of great relevance that would eventually lead towards sustainable development of seagrass resources in the shoreline of Payao, Zamboanga Sibugay.

Knowing the existence of different marine resources, seagrass as a source, is in fact believed to have importance, both ecologically and economically. They exist in enormous quantities that form large dense meadows, which perform several biological and physical functions such as regulating water flow and reducing wave action. Seagrass are also being utilized as food for marine turtles and dugongs (sea cow) as well as nursery ground for fishes and invertebrates. Subsequently, seagrasses are the only group of submerge flowering plants adapted to saline habitat. They thrive in the shallow water coastal habitats and are usually intermingled with mangroves estuaries at the shoreline and with the coral reefs in the deeper waters. Morphologically, seagrasses resembles the structures as to that of terrestrial plants, they bear flowers, develop fruits and produce seeds that make it totally different from macro benthic algae (seaweeds), for seaweeds do not possessed this kind of characteristics, they only have holdfast, and structures that help them cling to the substrates.

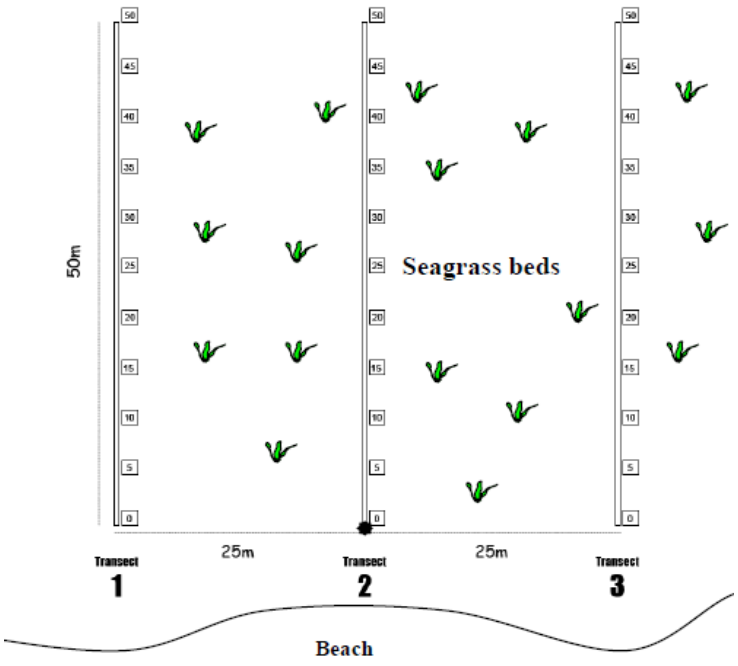
However, the impact of the multiple demands on coastal environment, the resources is still threatened and unabatedly destroyed. Alarmingly, conservation measures cannot cope with the present rate of habitat destruction.

The assessment study was carried out along the seven (7) coastal Barangays of Payao, ZSP. Data are presented in terms of percentage cover. The quantitative interpretations of these figures are discussed as well as other aspects of the survey including the associated flora and fauna, and the probable causes of destruction.

The conduct of actual participatory coastal resource assessment of seagrasses in the municipality of Payao is a vital phase of any management and conservation effort for the coastal ecosystem. Data on what is there to conserve or manage provide direction for the local governments and policy makers and hence, ensure success in the undertaking.

METHODOLOGY

The assessment of seagrass in Payao Municipal coastal waters was conducted using the standard transects quadrat method. With the help of the participants who knows well the coastal area. Ocular inspection of the sites was conducted to determine the extent of seagrass beds. Line transects were laid perpendicular to the shoreline in each and every coastal barangay. A 50-meter transect was used and a quadrat 0.5 m^2 with 25 small grids was positioned with an approximate 100 meters interval along the transect line starting from the shoreline edge of the bed going seaward edge of the seagrass beds. Seagrass assessment was done during low tide, where part of the seagrass community are exposed; however, for seagrass beds that were totally submerge in water during the assessment, mask and snorkels were used as to aid in determining the species and the cover within the specific quadrat laid.



Layout of seagrass assessment transects and quadrats (McKenzie *et al*, 2001)

Species and its individual cover observed within the quadrat were recorded. All species lying inside the grid of the quadrat were identified to species level. Substrate type and associated fauna that are found in the seagrass beds were also determined through ocular inspection.

The percentage cover of each species was recorded. Cover refers to the percentage of the area covered by individual species. Condition of the seagrass in the area was analyzed through the following standard criteria matrix.

Table 6. Seagrass cover and condition index.

Percent Cover (%)	Condition
76-100	Excellent
51-75	Good
26-50	Fair
0-25	Poor

To further determine the condition of the assessed seagrass area, the following criteria for evaluation was used.

Table 7.Criteria for evaluating condition of the seagrass habitat.

STATUS/ CLASSIFICATION	CRITERIA FOR EVALUATION	MANAGEMENT PRIORITY
Pristine seagrass beds	High or low species diversity bordering land masses or islands far removed from human habitations, disturbed only by normal intensity of natural elements: often form thick assemblages in shallow waters	– High priority for protection and management
Disturbed seagrass beds	High or low diversity beds occupying bays and coves, near human habitation; these beds receive constant impacts of human activities such as slight to moderate physical disturbance and various kinds of pollution that are not severe enough to eliminate or kill the seagrasses	– High priority for minimizing the existing human impacts in the area
Altered seagrass Beds	Low species diversity, permanently and completely changed or converted into other coastal uses like fishponds, landfill or heavily impacted by sedimentation and physical damage	– Low priority for management unless rehabilitation is still possible in the area
Emergent seagrass Beds	Low species diversity, largely controlled by extreme physico-chemical conditions such as low levels of salinity or variations thereof within the natural environment	– Medium priority for management and conservation depending on controlling conditions

RESULTS AND DISCUSSION

Figure 6

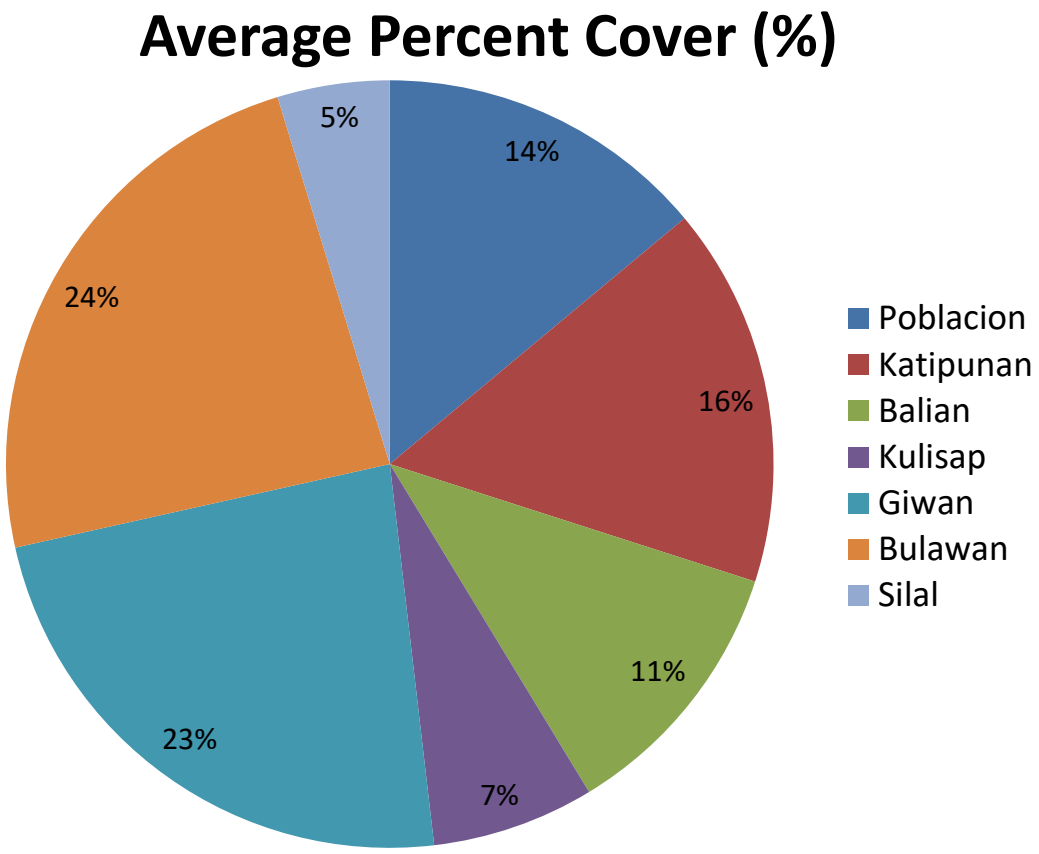


Figure 6. Average percentage seagrass cover of the seven (7) coastal Barangays of Payao, Zamboanga Sibugay.

Of the sixteen (16) coastal Barangays of Payao, Zamboanga Sibugay, seven (7) were assessed due to the non-availability of resources (*e.g.* transportation). Among the areas assessed, Bulawan was observed to have the highest percentage cover of seagrass (59.73%). Though it has the highest percentage cover it only has 1 species of seagrass (*Enhalus acoroides*). Among the coastal barangay assessed, Barangay Giwan was observed to have the highest diversity or the highest number of seagrass species in the area. It was observed to have three (3) seagrass species namely *Enhalus acoroides, Halophila ovalis* and *Thalassia hemprechii.*

Figure 6. Average percentage cover of the three (3) seagrass species observed in the 7 coastal Barangays assessed in Payao, Zamboanga Sibugay.

The most dominant species found in all the coastal barangay's is the *Enhalus acoroides* which is present in all of the coastal barangays assessed. This is caused by the type of the water

quality (water visibility) which is silted and poor visibility. The sunlight needed for photosynthesis were not able to penetrate at the bottom enough to support the shorter species of seagrass. Another reason for the abundance of the *Enhalus acoroides* is due to substrate type. Only a few species of seagrass can strive in a sandy muddy to muddy substrate. Only the species tall enough to avoid being covered by mud are able to survive in such environment. Barangays Guiwan and Poblacion were the area to have observed with species other than *Enhalus acoroides*. This is due to the sandy to rubbles substrate and good water visibility.

Table 8. List of seagrass species present in 7 coastal Barangays assessed on Payao, Zamboanga Sibugay.

BARANGAY		Poblacion	Katipunan	Balian	Kulisap	Guiwan	Bulawan	Silal
SEAGRASS SPECIES	*Enhalus acoroides*	*	*	*	*	*	*	*
	Halophila ovalis	*				*		
	Thalassia hemprichii					*		
TOTAL NUMBER OF SPECIES		2	1	1	1	3	1	1

Noted that due to the unavailability of transportation, the other coastal barangays of Payao were not assessed.

Table 9.Seagrass assessment data on Barangay Poblacion, Payao, Zamboanga Sibugay.

Date: 29-Abr-14					**Location/Area Covered:** Poblacion,Payao, ZSP	
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N: 07.56265 E: 122.78259	**1**	**1**	*Enhalus acoroides*	44	sandy	Sponge, Soft coral, Live Hard coral, seastar, sea urchin
		2	*Enhalus acoroides*	24	sandy	
		3	*Enhalus acoroides*	40	sandy	
		4	*Enhalus acoroides*	52	sandy	
		5	*Enhalus acoroides*	52	sandy	
		6	*Enhalus acoroides*	24	sandy	
		7	*Enhalus acoroides*	36	sandy	
		8	*Enhalus acoroides*	48	sandy	
		9	*Enhalus acoroides*	32	sandy	
		10	*Enhalus acoroides*	12	sandy	
				36.4		
	2	**1**	*Enhalus acoroides*	44	sandy	Sponge, soft coral, Live Hard coral, seastar
		2	*Enhalus acoroides*	20	sandy	
			Halophila ovalis	8		
		3	*Enhalus acoroides*	20	Sandy	
		4	*Enhalus acoroides*	32	Sandy	
		5	*Enhalus acoroides*	24	Sandy	
		6	*Enhalus acoroides*	20	Sandy	
		7	*Enhalus acoroides*	40	Sandy	
		8	*Enhalus acoroides*	32	Sandy	
			Halophila ovalis	12		
		9	*Enhalus acoroides*	20	Sandy	
			Halophila ovalis	4		
		10	*Enhalus acoroides*	24	Sandy	
			Halophila ovalis	8		
				33.64		

Table 10. Seagrass assessment data on Barangay Katipunan, Payao, Zambo. Sibugay

Date: 29-Abr-14					**Location/Area Covered: Katipunan, Payao, ZSP**	
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N: 07.52902	**1**	**1**	*Enhalus acoroides*	20	Rubbles	
E: 122.81429		**2**	*None*		Rubbles	
		3	*None*		Rubbles	
		4	*None*		Rubbles	Box jelly,
		5	*Enhalus acoroides*	28	Rubbles	Halimeda,
		6	*Enhalus acoroides*	44	Rubbles	Sargassum, Lato,
		7	*Enhalus acoroides*	28	Rubbles	Sponge, seastar
		8	*Enhalus acoroides*	28	Rubbles	
		9	*None*		Rubbles	
		10	*None*		Rubbles	
				14.8		
	2	**1**	*Enhalus acoroides*	8	Rubbles	
		2	*Enhalus acoroides*	4	Rubbles	
		3	*Enhalus acoroides*	60	Rubbles	
		4	*Enhalus acoroides*	24	Rubbles	
		5	*Enhalus acoroides*	32	Rubbles	Halimeda,
		6	*Enhalus acoroides*	32	Rubbles	Sargassum, Lato,
		7	*Enhalus acoroides*	48	Rubbles	Seastar
		8	*None*		Rubbles	
		9	*None*		Rubbles	
		10	*None*		Rubbles	
				20.8		
	3	**1**	*Enhalus acoroides*	28	Rubbles	
		2	*Enhalus acoroides*	12	Rubbles	
		3	*Enhalus acoroides*	24	Rubbles	
		4	*Enhalus acoroides*	48	Rubbles	
		5	*Enhalus acoroides*	24	Rubbles	Halimeda,
		6	*Enhalus acoroides*	28	Rubbles	Sargassum, Lato,
		7	*Enhalus acoroides*	48	Rubbles	Seastar
		8	*None*		Rubbles	
		9	*None*		Rubbles	
		10	*None*		Rubbles	
				21.2		

Table 11. Seagrass assessment data on Barangay Balian, Payao, Zamboanga Sibugay

Date: 29-Abr-14					**Location/Area Covered:** Balian, Payao, ZSP	
Coordinates	**Transect No.**	**Quadrat No.**	***Species***	**% Cover**	**Substrate**	**Other Observations**
	1	**1**	*Enhalus acoroides*	80	Muddy	
		2	*None*		Muddy	
		3	*None*		Muddy	
		4	*none*		Muddy	
		5	*Enhalus acoroides*	84	Muddy	poor water visibility
		6	*None*		Muddy	
		7	*None*		Muddy	
		8	*None*		Muddy	
		9	*None*		Muddy	
		10	*None*		Muddy	
				16.4		
	2	**1**	*Enhalus acoroides*	84	Muddy	
		2	*None*		Muddy	
		3	*None*		Muddy	
		4	*Enhalus acoroides*	96	Muddy	
		5	*Enhalus acoroides*	80	Muddy	poor water visibility
		6	*Enhalus acoroides*	76	Muddy	
		7	*None*		Muddy	
		8	*None*		Muddy	
		9	*None*		Muddy	
		10	*None*		Muddy	
				33.6		
	3	**1**	*Enhalus acoroides*	88	Muddy	
		2	*None*		Muddy	
		3	*None*		Muddy	
		4	*Enhalus acoroides*	92	Muddy	
		5	*Enhalus acoroides*	92	Muddy	poor water visibility
		6	*None*		Muddy	
		7	*None*		Muddy	
		8	*Enhalus acoroides*	84	Muddy	
		9	*none*		Muddy	
		10	*none*		Muddy	
				35.6		

Table 12. Seagrass assessment data on Barangay Kulisap, Payao,Zamboanga Sibugay

Date: 29-Abr-14				**Location/Area Covered: Kulisap, Payao, ZSP**		
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N: 07.57650	1	1	*Enhalus acoroides*	92	Muddy	Poor water Visibility
E: 122.81129		2	*Enhalus acoroides*	80	Muddy	Poor water Visibility
		3	*none*		Muddy	Poor water Visibility
		4	*none*		Muddy	Poor water Visibility
		5	*none*		Muddy	Poor water Visibility
		6	*none*		Muddy	Poor water Visibility
		7	*none*		Muddy	Poor water Visibility
		8	*none*		Muddy	Poor water Visibility
		9	*none*		Muddy	Poor water Visibility
		10	*none*		Muddy	Poor water Visibility
				17.2		
	2	1	*Enhalus acoroides*	92	Muddy	Poor water Visibility
		2	*Enhalus acoroides*	84	Muddy	Poor water Visibility
		3	*none*		Muddy	Poor water Visibility
		4	*none*		Muddy	Poor water Visibility
		5	*none*		Muddy	Poor water Visibility
		6	*none*		Muddy	Poor water Visibility
		7	*none*		Muddy	Poor water Visibility
		8	*none*		Muddy	Poor water Visibility
		9	*none*		Muddy	Poor water Visibility
		10	*none*		Muddy	Poor water Visibility
				17.6		
	3	1	*Enhalus acoroides*	100	Muddy	Poor water Visibility
		2	*Enhalus acoroides*	68	Muddy	Poor water Visibility
		3	*none*		Muddy	Poor water Visibility
		4	*none*		Muddy	Poor water Visibility
		5	*none*		Muddy	Poor water Visibility
		6	*none*		Muddy	Poor water Visibility
		7	*none*		Muddy	Poor water Visibility
		8	*none*		Muddy	Poor water Visibility
		9	*none*		Muddy	Poor water Visibility
		10	*none*		Muddy	Poor water Visibility
				16.8		

Table 13. Seagrass assessment data on Barangay Guiwan, Payao, Zamboanga Sibugay

Date: 30-Abr-14			Location/Area Covered: Guiwan, Payao, ZSP			
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N: 07.66883	1	1	*Enhalus acoroides*	32	sandy muddy	
E: 122.77946		2	*Enhalus acoroides*	44	sandy muddy	
		3	*Enhalus acoroides*	60	sandy muddy	
		4	*Enhalus acoroides*	56	sandy muddy	
		5	*Enhalus acoroides*	16	sandy muddy	Poor water visibility, seastar
		6	*Enhalus acoroides*	24	sandy muddy	
		7	*Enhalus acoroides*	56	sandy muddy	
		8	*Enhalus acoroides*	24	sandy muddy	
		9	*Enhalus acoroides*	44	sandy muddy	
		10	*Enhalus acoroides*	32	sandy muddy	
				77.6		
	2	1	*Enhalus acoroides*	56	sandy muddy	
		2	*Enhalus acoroides*	12	sandy muddy	
		3	*Enhalus acoroides*	24	sandy muddy	
		4	*Enhalus acoroides*	4	sandy muddy	
		5	*Enhalus acoroides*	24	sandy muddy	Poor water visibility, seastar
		6	*Enhalus acoroides*	20	sandy muddy	
		7	*Enhalus acoroides*	24	sandy muddy	
		8	*Enhalus acoroides*	8	sandy muddy	
		9	*Enhalus acoroides*	20	sandy muddy	
		10	*Enhalus acoroides*	16	sandy muddy	
				41.6		
	3	1	*Thalassia hemprichii*	60	sandy muddy	
		2	*Thalassia hemprichii*	12	sandy muddy	
			Enhalus acoroides	28		
		3	*Enhalus acoroides*	16	sandy muddy	
		4	*Enhalus acoroides*	32	sandy muddy	
		5	*Enhalus acoroides*	16	sandy muddy	
			Halophila ovalis	4		
		6	*Enhalus acoroides*	28	sandy muddy	Poor water visibility, seastar
		7	*Thalassia hemprichii*	20	sandy muddy	
			Enhalus acoroides	12		
		8	*Enhalus acoroides*	8	sandy muddy	
		9	*Thalassia hemprichii*	20	sandy muddy	
			Enhalus acoroides	28		
		10	*Thalassia hemprechii*	24	sandy muddy	
			Enhalus acoroides	16		
				56.8		

Table 14. Seagrass assessment data on Barangay Bulawan, Payao, Zamboanga Sibugay

Date: 30-Abr-14					**Location/Area Covered:** Bulawan, Payao, ZSP	
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N: 07.64280 E: 122.78596	1	1	*Enhalus acoroides*	20	sandy muddy	
		2	*Enhalus acoroides*	44	sandy muddy	
		3	*Enhalus acoroides*	28	sandy muddy	
		4	*Enhalus acoroides*	32	sandy muddy	
		5	*Enhalus acoroides*	36	sandy muddy	Poor water visibility, seastar
		6	*Enhalus acoroides*	52	sandy muddy	
		7	*Enhalus acoroides*	56	sandy muddy	
		8	*Enhalus acoroides*	76	sandy muddy	
		9	*Enhalus acoroides*	16	sandy muddy	
		19	*Enhalus acoroides*	36	sandy muddy	
				79.2		
	2	1	*Enhalus acoroides*	68	sandy muddy	
		2	*Enhalus acoroides*	24	sandy muddy	
		3	*Enhalus acoroides*	12	sandy muddy	
		4	*Enhalus acoroides*	48	sandy muddy	
		5	*Enhalus acoroides*	20	sandy muddy	Poor water visibility
		6	*Enhalus acoroides*	16	sandy muddy	
		7	*Enhalus acoroides*	12	sandy muddy	
		8	*Enhalus acoroides*	20	sandy muddy	
		9	*Enhalus acoroides*	8	sandy muddy	
		10	*Enhalus acoroides*	20	sandy muddy	
				49.6		
	3	1	*Enhalus acoroides*	16	sandy muddy	
		2	*Enhalus acoroides*	36	sandy muddy	
		3	*Enhalus acoroides*	60	sandy muddy	
		4	*Enhalus acoroides*	36	sandy muddy	
		5	*Enhalus acoroides*	24	sandy muddy	Poor water visibility
		6	*Enhalus acoroides*	16	sandy muddy	
		7	*Enhalus acoroides*	12	sandy muddy	
		8	*Enhalus acoroides*	24	sandy muddy	
		9	*Enhalus acoroides*	28	sandy muddy	
		10	*Enhalus acoroides*	28	sandy muddy	
				50.4		

Table 15. Seagrass assessment data on Barangay Silal, Payao, Zamboanga Sibugay

Date: 30-Abr-14				**Location/Area Covered:** Silal, Payao, ZSP		
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N: 07.60555	1	1	*None*		sandy muddy	
E: 122.78461		2	*Enhalus acoroides*	8	sandy muddy	
		3	*None*		sandy muddy	
		4	*None*		sandy muddy	
		5	*None*		sandy muddy	Poor water visibility
		6	*Enhalus acoroides*	44	sandy muddy	
		7	*None*		sandy muddy	
		8	*Enhalus acoroides*	12	sandy muddy	
		9	*Enhalus acoroides*	32	sandy muddy	
		10	*Enhalus acoroides*	28	sandy muddy	
				12.4		
	2	1	*None*		sandy muddy	
		2	*Enhalus acoroides*	8	sandy muddy	
		3	*None*		sandy muddy	
		4	*None*		sandy muddy	
		5	*Enhalus acoroides*	28	sandy muddy	Poor water visibility
		6	*None*		sandy muddy	
		7	*Enhalus acoroides*	48	sandy muddy	
		8	*None*		sandy muddy	
		9	*Enhalus acoroides*	32	sandy muddy	
		10	*None*		sandy muddy	
				11.6		
	3	1	*None*		sandy muddy	
		2	*Enhalus acoroides*	12	sandy muddy	
		3	*None*		sandy muddy	
		4	*None*		sandy muddy	
		5	*None*		sandy muddy	Poor water visibility
		6	*None*		sandy muddy	
		7	*Enhalus acoroides*	48	sandy muddy	
		8	*Enhalus acoroides*	56	sandy muddy	
		9	*None*		sandy muddy	
		10	*None*		sandy muddy	
				11.6		

In most of the coastal areas of Payao, Muddy substrate was observed. Thus it is likely to expect that only a few species of seagrass to be identified. Due to poor water visibility of the area, observations on associate marine organisms was limited. Other organisms observed were only seastars and *Halimeda opuntia*.

Table16 .Seagrass community condition of the seven (7) coastal Barangays of Payao, Zamboanga Sibugay.

BARANGAY	AVERAGE PERCENT COVER (%)	CONDITION INDEX
Poblacion	35.02	Fair
Katipunan	40.24	Fair
Balian	28.53	Fair
Kulisap	17.2	Poor
Guiwan	58.67	Good
Bulawan	59.73	Good
Silal	11.87	Poor

The seagrass community of the coastal area of Payao, ZSP were in fair condition (35.89%) with low diversity beds occupying bays, near human habitation. These beds receive constant impacts of human activities such as slight to moderate physical disturbance and various kinds of pollution that are not severe enough to eliminate or kill the seagrasses. Thus it has high priority for minimizing the existing human impacts in the area.

Enhalus acoroides

Tropical seagrass

Halophila ovalis

Spoon seagrass

Thalassia hemprichii

Round tipped seagrass

Figure 7. Seagrass Assessment

The seagrass assessment team on the seagrass meadows assessed at Barangay Bulawan

Seagrass percent cover reading using the 0.5 meter to 0.5 meter quadrat

RECOMMENDATIONS

In order to effectively manage the seagrass resources of Payao, there's a need for better understanding of their ecology, their frailties and strengths, in the face of a rapidly deteriorating marine environment. With high and low diversity of seagrass beds occupying the coastal area and are close to human habitations, the seagrass beds received constant impacts to human activities. Thus it is evaluated to be disturbed with high priority for minimizing the existing human impacts in the area.

Basically, the seagrass resources in the coastal area of Payao are threatened by various human activities. It was identified by one of the member of seagrass assessment team that the upland areas of the Municipality use "Round up" in killing weeds and during rainy season the chemicals was transported to the shore which causes death to seagrasses. Unregulated trawling was also noted in the area which also causes destruction of seagrass communities. Listed below are some strategies and approaches recommended to save the seagrass in the area from further destruction.

1. Provide/conduct Information and Education Campaign on the ecological and economic value of seagrasses;
2. Conservation of the remaining seagrasses to serve as food, nursery and feeding grounds for fishes and invertebrates.
3. Public awareness campaign on the qualities and economic values of seagrass system through the formulation and implementation of seagrass management programs;
4. A holistic approach in planning for both scientific research and environmentally related decisions;
5. Development of a program to intensify application of the most practical and proven means of rehabilitating or restoring degraded seagrass habitats; and
   LGU and Barangays should work hand in hand and allot funds for the salary of Bantay Dagat and to purchase equipments.

"C O R A L R E E F S"

Introduction:

Fishermen would always think that resources from the sea were infinite and imperishable, and the ocean's ability to bear human activities was never ending. However fishermen are now starting to feel and realized that marine resources are indeed finite, it has a tendency to deplete and those human activities can be devastating and destructive to the sea. The economic and ecological importance of coral reefs is very much beneficial particularly to coastal municipalities like Payao, Zamboanga Sibugay Province where number of fishers especially those residing along the coastal areas are very much dependent on coastal resources to sustain their livelihood and their daily sustenance.

Coral reefs are one of the productive ecosystems that play a vital role in replenishing the depletion of reef fishes and other marine organisms. As home to fishes and other marine resources, they supply food to fishes, marine invertebrates and plants that were being collected and utilized as food. Unfortunately, many coral reefs are now in danger and being abused by human interventions without even allowing for its regeneration and recovery. With the passage of the Fisheries Code of 1998 (R.A. 8550) the importance of coral reef ecosystem to coastal fishery resources in our country has now become the focused of our government to preserve and rehabilitate these natural resources. Apparently, the establishment of Marine Protected Areas (MPAs) or Fish Sanctuaries within every coastal municipality would ease the increasing rate of degradations of our coral reef ecosystems.

Assessment of coral reef in coastal barangays of Payao, Zamboanga Sibugay Province was conducted with strong participation of the Local Government Units (LGU's), Law Enforcement Unit particularly the Philippine National Police (PNP), Non-Government Organization, People's Organization and the fisherfolks. It aimed at accomplishing the objectives for Integrated Coastal Resource Management (ICRM) implementation, habitat classification and specifically as Monitoring and Evaluation (M&E) updates of their established Fish Sanctuaries.

Methodology:

Reefs assessment and monitoring method described here generally collect the **simplest type** of data with which changes can be detected. Prior to the actual assessment an orientation lecture on reef ecology and methodology was conducted at the municipal building to elaborate details and understanding on the methods being used. Assessments were conducted using a *manta tow* to get a general idea of the various types and amounts of habitat types and large obvious things in an area. A *manta tow* survey is the observation of an underwater area of good visibility by a snorkeler who is being pulled by a small boat running at an average speed. During each tow, the observer estimates the approximate percentage cover of the hard, soft, and dead corals, which shall be recorded on the board every 2 minutes that covers a distance of approximately 100 to 150 meters. Area viewed is up to 10 meters wide depending on depth and water clarity. Information may be used to help in the selection of sites and number of samples for closer observation. It could also be used as basis for comparison with local perceptions of the coastal area and in the detection of large-scale changes (e.g due to storms or mass siltation).

Snorkel survey method is to be used by the participants in estimating the relative abundance of living things and non-living things particularly the hard corals, soft corals, dead corals, algae, and various reef substrates, which may reflect the health of the reef observed within the 250 sq. m. area. The transect lines were laid parallel to the shore following the reef contour at a constant depth. Starting at one end (mark zero), the observer swims over the transect line and record the percentage cover of each benthic lifeform within the 2.5-meter on both sides of the line up to the 5-meter mark. Similarly the observer may record each 5-meter interval until the entire 50 meters transect line has been observed. The percent cover of live coral was categorized as ***poor***(0-24.9%), ***fair***(25-49.9%), ***good*** (50-74.9%) and ***excellent*** (75-100%) to indicate the condition of the reef (Gomez *et al*. 1981).

The percentage bottom cover for lifeform categories were estimated using the formula adapted by Uychiaoco *et al*. (2001).

$$\text{Percent cover (lifeform category)} = \frac{\text{Total percentage (\%) of lifeform}}{\text{Number of transitions}}$$

Point-intercept method is used to more precisely estimate the relative abundance of living and nonliving things on the reef bottom observed within a defined area (Uychiaoco et al. 2001). It is used by more experienced researchers to record all observed benthic life forms underneath each 0.25 m interval along the transect line. A 50 m transect line is laid parallel to the shoreline and should be kept at the same depth. A standard of 6 – 7 m depth is required when using scuba. Observations and recordings are taken from one end of the line to the other. The PCRA generally employs the snorkel method and is complemented by the point intercept method, using scuba.

Results and Discussions:

Scientific assessment and reef checks were being conducted by the Team with the aid of SCUBA diving equipment were carried out to describe the underwater condition of the areas. Generally based on the conduct of said activities and the accounts of fiskerfolks, Barangay Poblacion, Kulisap, Bulawan, Pandilusan Island and Puting Buhangin Shoal has coral reef assemblages.

The oval shaped reef formation called Takut Tabangan of Barangay Poblacion has a ***fair*** coral cover and has an approximate area of 4.7 hectares. Reef formation mostly confined along its fringing moderate slope that includes; branching acropora, foliose, encrusting, massive and sub-massive coral species. It has large sandy portion atop the shoal with patches of seagrasses and the evidently exposed dead corals especially during low tide. The area has clear water visibility and good water circulation considering its distance from the mainland. Fifty meters (50m) transects were laid at a depth range of 30-40 ft parallel along the reef slope. At reef slopes traces of dynamite fishing activity has been observed with coral rubbles obviously noticeable and probably done a long time ago.

Another shoal under Barangay Poblacion is called Takut Tayuman with an approximate area of 3.7 hectares. Similarly this reef manifest traced of dynamite and cyanide poisoning activities. Abalone collectors were also culprits of destructions to this reef ecosystem as remnants of over-turned dead corals were visible and fall victims to this activity. With corals starting to slowly regenerate and upon scientific assessment, the coral assemblages garnered a ***fair*** coral cover.

Not far from the wharf is a shoal called Takut Payao with an approximate area of 5 hectares. The shoal lies between the political jurisdiction of Barangay Poblacion and Barangay Kulisap. It has large sandy substrate cover at the top with limited coral formation along its fringing moderate slope. Considering its proximity to the mainland, this shoal has poor water visibility especially during rainy season, hence corals accumulates siltation. Coral cover falls under the ***poor*** category.

Barangay Bulawan has two oval shape shoals formation called Takut Tayuman situated at sitio Kasung of same barangay. The shoals are being separated by a narrow channel and comprised an aggregate area of approximately nine hectares (9 has.). Both shoals manifest poor water visibility and circulation due to its proximity to mangroves areas along the coast of the barangay. Siltation is also evident at these areas especially during heavy run-offs. Traces of dynamite fishing activities were also being observed. It has generally sandy to muddy substrate going to its deeper portion. . The presence of crown of thorns has been noted at the smaller

shoal which seemingly affects the health of some colonies of corals. Nevertheless, the bigger shoal has still ***fair*** coral cover while the smaller one has ***poor*** coral cover.

The Takut Patumbok Marine Protected Area which has an area of 120 hectares has still ***fair*** coral cover upon conduct of said assessment. The protected area comprises of number of shoals to form part of the sanctuary. These shoals manifest good water circulaltion and clear water visibility considering its distance from the mainland. Most of the corals thrive along the reef slopes circumferencing the shoals with some patches situated at its deepest portions. Majority of the shoals has large white sandy portion at its top with patches of seagrasses species that thrived in it. Species of seaweeds were also being encountered along the reef slopes which are believed to be edible. Dead corals with algae were clearly visible and very much exposed especially during low tide. Trace of dynamite fishing activities were noted along these deepest area with rubbles being observed. There were also traced of cyanide poisoning as dead branching corals remain standing an indicator of such destructive illegal fishing practices. Crown of thorns were likewise being noted along identified areas of the shoals.

Barangay Labatan has ***poor*** coral cover. Rampant dynamite fishing activities has been observed at the area, even during the conduct of assessment. Rubbles were clearly evident at the slopes of the reef. The area has also good water circulation and visibility.

The stretch of fringing corals reefs fronting the little community with law enforcement detachment at Pandilusan Island but still has fair coral cover. The reefs have good water circulation and very clear water visibility. Patches of coral reefs also thrive at the deeper portion with slope in moderation. Similarly, it has also traces of both destructive dynamite and cyanide fishing activities. Isolated coral bleaching incidents were also being observed especially at the shallow areas of the reef. Species of univalve shells were observed to be abundant.

Puting Buhangin is a shoal that lies between the mainland reef ecosystem and Pandilusan Island. It has very clear water circulation and good water visibility. Its fringing slope is of sandy substrate going to its deepest portion. At the other side is of reef flat with moderate slope. The reef ecosystem manifest signs of both dynamite and cyanide fishing activities. There were also traces of isolated coral bleachings at the shallow areas. Despite its distance from the mainland, the white sandy shoal is frequently visited by the locals who want to recreate and enjoy swimming along its clear water. Nevertheless, the shoal has ***poor*** coral cover.

Generally, the reef ecosystem of Payao, Zamboanga Sibugay Province includes; branching, digitate and encrusting acropora, coral submasssive and massive, mushroom corals, foliose, encrusting corals, species of soft corals and sponges.

ooOoo

Issues & Concerns:

Based on assessments, observations and reef checks, coral reefs at Municipality of Payao has condition that manifested patterns of destruction caused by illegal fishing activities like dynamite, cyanide, trawls, etc. There has been a trending decline in fish catch according to local fishers and members of the Team. It was further observed that majority of the local fishers depends on pelagic fishes such as tunas, scads, sardines, mackerels, anchovies and other associated species. Aside from illegal fishing activities, other factors to be considered include sedimentation and siltation which has impacts on fish stocks and aggregation within the coral reefs. The presence of approximately 100 fish corrals and over 50 newluk fishing method at the coastal areas of Payao is evident and indicator of overfishing. There would be no ample time for the juvenile fishes to reproduce and to become adults. Actually, these corals reefs ecosystem have greater chance to regenerate if left undisturbed particularly the Patumbok Marine Protected Area. Management intervention must be address to maintained and protect of what is left within the sanctuary to ensures protection, conservation and sustainable utilization of the coastal resources in the area.

Below are the following issues and recommendations solicited from Bantay Dagat and other members of the Group, to wit:

Issues:

1. Illegal fishing activities (dynamite, cyanide, trawls, compressor, tuble, abalone collection, ect.);

2. Lack of knowledge on the importance of Coastal Resource Management (CRM);

3. Problems on solid waste management;

4. Piracy and extortion;

5. Inactive Bantay-Dagat;

6. Unregulated fabrication and establishment of fish corrals (bungsod) and newluks; and

7. Mismanagement of Takut Patumbok Marine Protected Area of Fish Sanctuary.

Recommendations:

1. Implement R.A. 8550 and other relevant laws and ordinances and conducts patrolling activities from time to time if deemed necessary. Apprehension of illegal fishers by law enforcers and concerned agencies (PNP, PCG, BFAR);

2. Conduct intensive Information, Education and Communication (IEC) drive at strategic areas like schools, barangays, etc.;

3. LGU to provide garbage bins and regularly collects the garbage and conducts coastal cleanups especially during the month of September and right after the town fiestas;

4. Conduct regular patrolling activities by law enforcement agency like the Philippine National Police (PNP) and Armed Forces of the Philippines (AFP);

5. Provide adequate fund for the operation and mobilization of Bantay Dagat thru seminars and trainings, purchased of paraphernalia (i.e. radios, uniforms, binoculars) and honorarium;

6. Regulate the operations of fish corrals and other fishing structures at the coastal areas thru zoning and identify navigational lanes for easy access; and

7. LGU to allot funds for marker buoys of fish sanctuaries and review MPA Management Plan.

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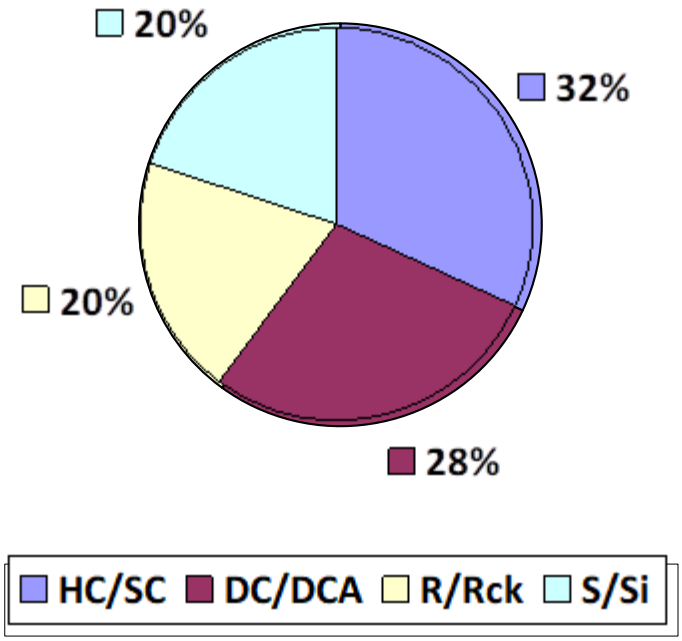
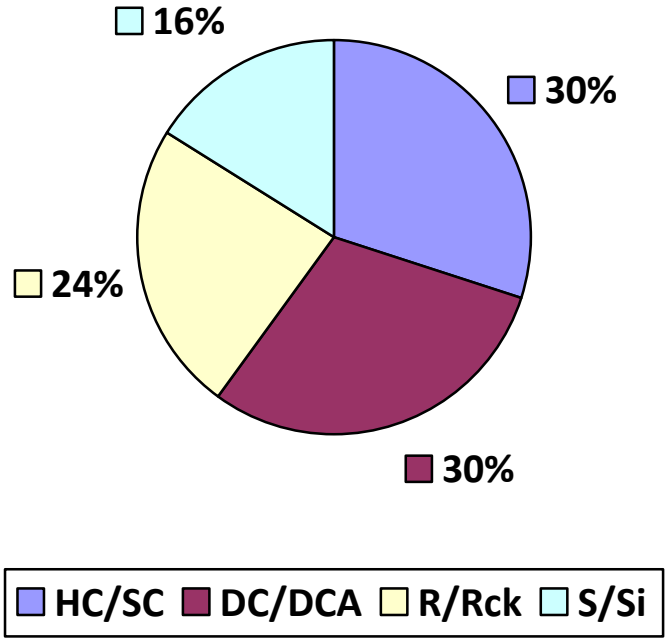
Figure 8**. PIE CHARTS ON CORAL COVER**

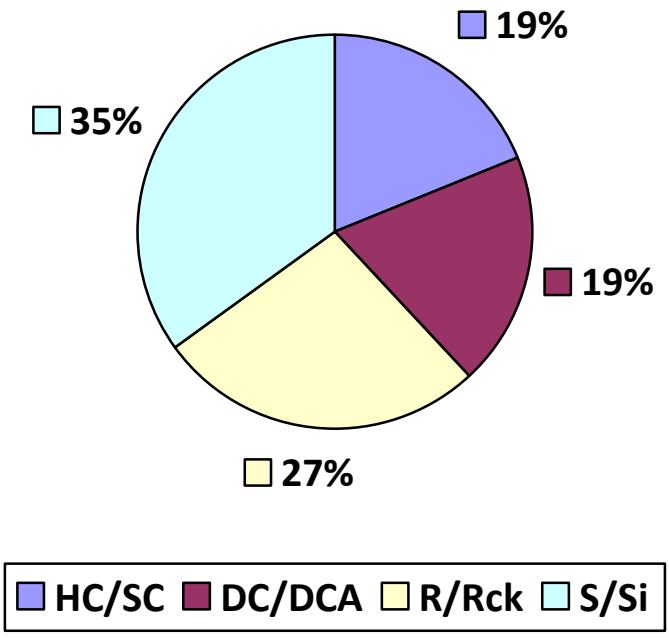
Takut Tabangan (fair)



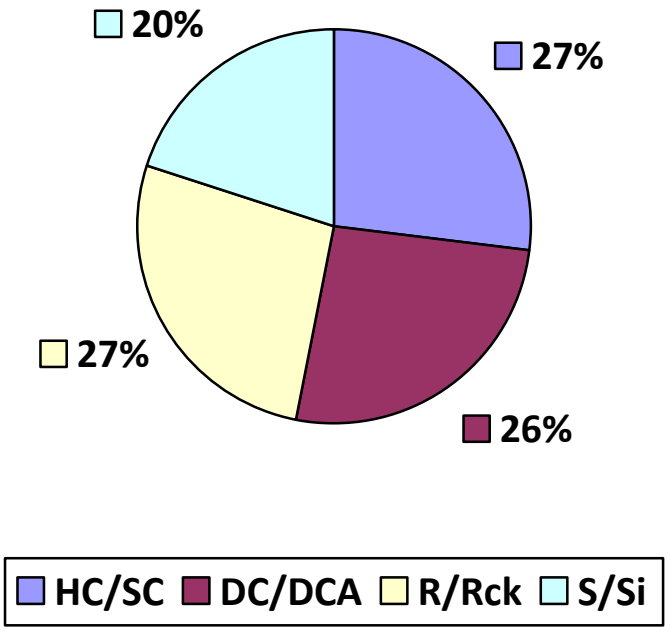
Takut Tayuman, Poblacion (fair)



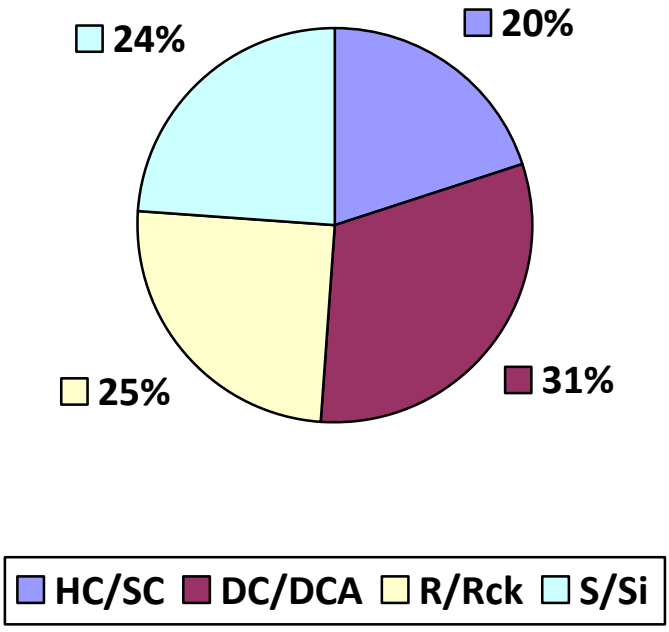
Takut Payao (poor)



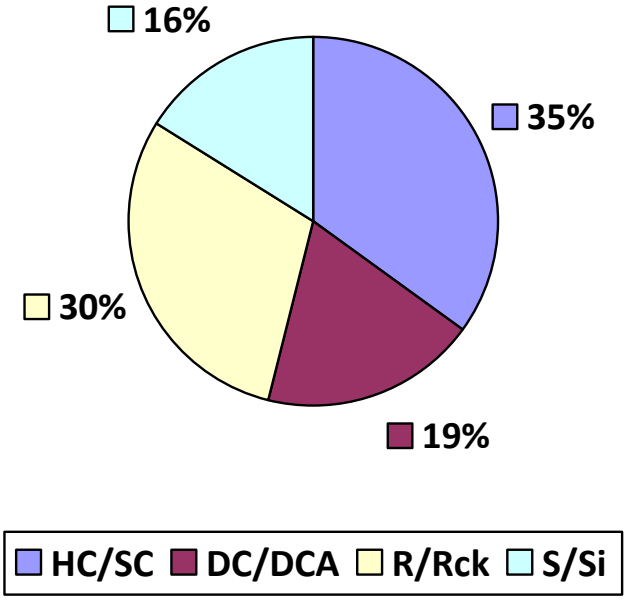
Takut Tayuman, Bulawan (fair)



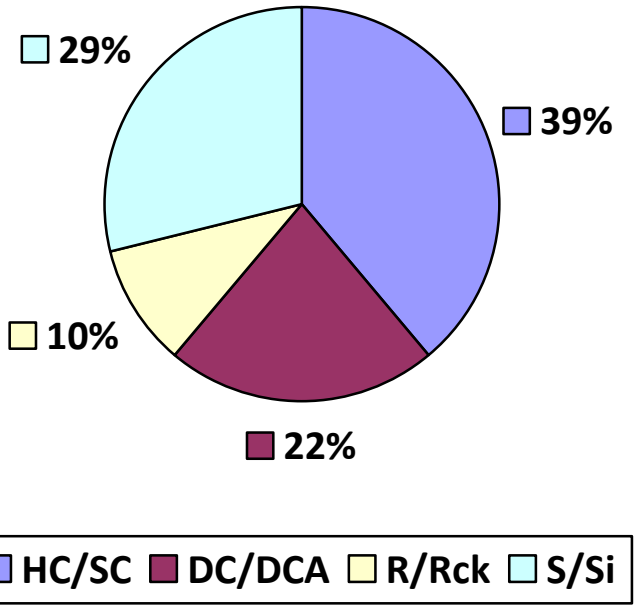
Takut Tayuman, Sitio Kasung (poor)



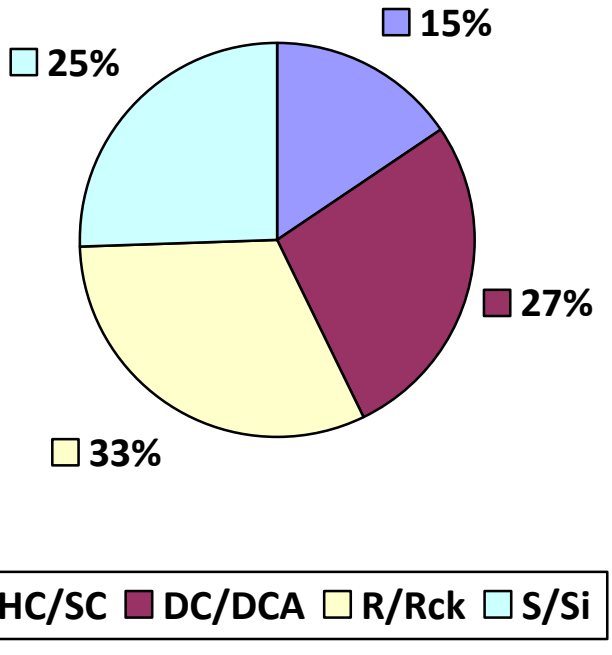
Takuk Patumbok MPA, Poblacion (fair)



Pandilusan Island (fair)



Puting Buhangin (poor)



Brgy. Labatan (poor)

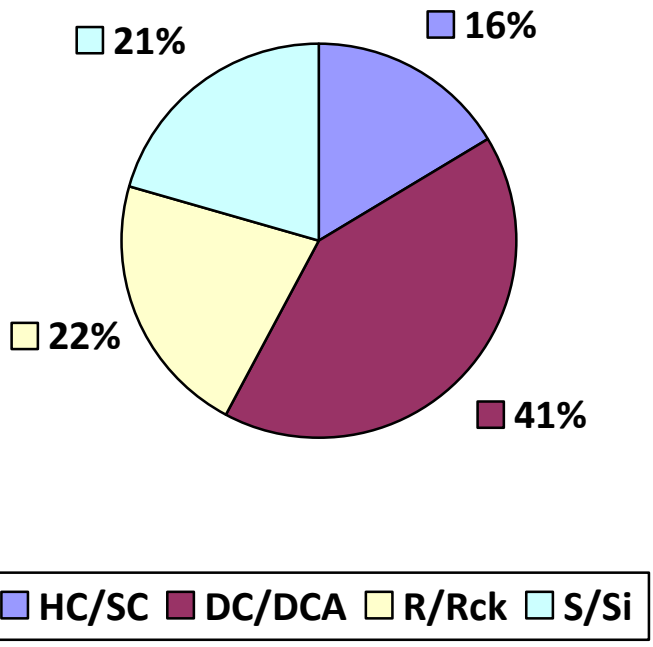
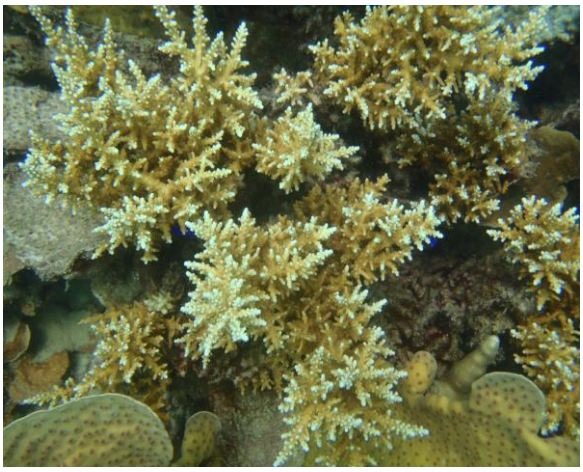


Figure 9**. PICTORIALS**

Corals and Fish Visual Census Group

Transect line traversing a colony of mushroom corals *(fungia).*



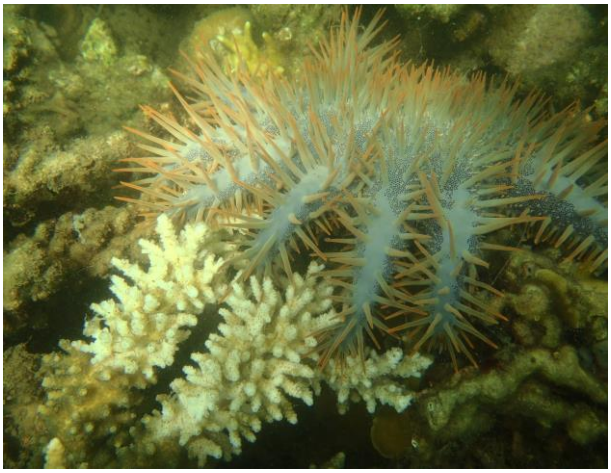
Branching acropora specie.

Coral rubbles.

Drifted bamboo post lies atop a coral colony.

Colony of foliose corals.

Branching “staghorn corals”.



Crown-of-thorn harbouring the live digitate acropora coral.

Panoramic view of Pandilusan Island.

FISH VISUAL CENSUS "

Municipality of Payao Zamboanga Sbugay Province

INTRODUCTION

Coral reef fish are fish which live amongst or in close relation to corals. Coral reefs form complex ecosystem with tremendous biodiversity. Among the myriad inhabitants, the fish stand out as particularly colorful and interesting to watch. Hundreds of species can exist in a small area of a healthy reef, many of them hidden or well camouflaged. Reef fish have developed many ingenious specializations adapted to survival on the reefs.

Live Seaweed specie near the established transects.

However, loss and degradation of coral reef habitat, increasing pollution, and overfishing including the use of destructive fishing practices, are threatening the survival of the coral reefs and the associated reef fish. Overfishing was the major factor contributing to the decline in fisheries. According to the marine scientists, the increased fishing activity has gradually undermined the health of many marine fish stocks estimated that about 74% of the world's marine fish stocks had been exploited, overexploited or depleted.

Coral reef fishes are assessed by fish visual census aiming to observe the number, types of fishes and condition of the habitat whether it can still support the sustainability of the species especially the fishes in the municipality of Payao, Zamboanga Sibugay Province.

METHODOLOGY

The assessment was carried out using SCUBA gear for better observation underwater. Other materials used are 50 m transect line, underwater slates with attached pencil and guide book.

Areas assessed were Takut Payao, Takut Tayuman, Takut Tabangan and Takut Patumbok. In Pandelusan Island we have conducted reef check including the "Puting Balas Sand Bar". A 50-m transect line was laid in every barangay and observe the reef fishes present in every 5 meter square both left and right side of the line until the transect is completed.

RESULT AND DISCUSSION

In the municipality of Payao, Zamboanga Sibugay Province, Participatory Coastal Resource Assessment (PCRA) was conducted to know the condition of fish population in the area. The activity was done in the field for three (3) days. Personnel from MLGU, BLGU and PNP were with us during the assessment.

Takut Patumbok has a total of twelve (12) families with twenty (20) fish species. Based on the table below (Table 1), both family Labridae (Wrasses/ Labayan) and Scaridae (Parrotfish/ Mol-mol) has the greatest number of species having 4 species. With regards to fish abundance as per species, mostly family Pomacentridae has the greatest number of individuals (*Amblyglyphidodon leucogaster* and *Pomacentrus alexanderae)*. Other fish species are also important specially those fishes which are considered economically important Epinephilidae/Serranidae (grouper/lapu), Haemulidae (Sweetlips/lipti), Nemipteridae (Coral breams/Silay, Caesionidae (Fusiliers/Bilason, Dalagang Bukid), Mullidae (Goatfish/ Timbongan), Scaridae Parrot fish/ Mol-mol) and Preacanthidae (Big-eyes/ Budlatan).

Table 17. Takut Patumbok, Payao, Zamboanga Sibugay Province

FISH ABUNDANCE DATA FORM					
Site:		Municipality/ Province: Payao, Zamboanga Sibugay Province			
Transect No.: 1 (50 m)	Depth (m):	Coordinates:			
Date (mo-day-year): 4-29-2014	Time:	Left Observer:		Right Observer:	
Habitat Notes:		Horizontal visibility:	Angle of Slope:	Transect Orientation:	
Family:	Species:	Record number of fishes per size class:			
		1-10 cm	11-20 cm	21-30 cm	Specify sizes for > 30 cm
Epinephelidae/ Serranidae	*Cephalopholis boenak*	1 (5)			
Haemulidae	*Plectorhinchus chaetodonoides*	1 (5)			
Nemipteridae	*Scolopsis ciliates*	2 (7)			
Caesionidae	*Caesio cuning*	50 (5)			
Mullidae	*Parupeneus barberinus*	2 (6)			
Chaetodontidae	*Chaetodon octofasciatus*	8 (3)			
Labridae	*Bodianos mesothorax* *Halichoeres melanurus* *Labroides dimidiatus* *Thalasoma lunare*	1 (3) 16 (2) 3 (2) 3 (4)			
Scaridae	*Chlororus capistratoides* *Scarus dimidiatus* *Scarus oviceps* *Scarus globiceps*	55 (6) 25 (8) 15 (5)	5 (15)		
Pomacentridae	*Amblyglyphidodon leucogaster* *Pomacentrus alexanderae* *Pomacentrus proteus*	100 (2) 172 (3) 5 (2)			
Zanclidae	*Zanclus cornotus*	2 (4)			
Priacanthidae	*Priacanthus blochii*	1 (6)			
Pomacanthidae	*Chaetodontoplus mesoleucos*	1 (4)			

Proposed area as municipal Marine Protected Area (MPA) is Takut Payao. During the survey it was observed that the area was exposed to siltation due to presence of silts at the bottom of the reef. There are six (6) families recorded in the area the family Epinephilinae, Caesionidae, Labridae, Pomacentridae, Ephippidae and Nemipteridae. Among the 6 families, the dominant species recorded in the area belonging to family Pomacentridae with four (4) species (*Amblyglyphidodon leucogaster, Pomacentrus coelestis, Pomacentrus multilineata* and

Pomacentrus molluccensis). Although there was presence of fish species with economic values, the abundance of fishes in the area when it comes to number of occurrence was low because the area was disturbed.

Table 18. Takot Payao.

FISH ABUNDANCE DATA FORM					
Site: Takut Payao		Municipality/ Province: Payao, Zamboanga Sibugay Province			
Transect No.: 3	Depth (m): 30 feet	Coordinates:			
Date (mo-day-year): 4-30-2014	Time:	Left Observer:		Right Observer:	
Habitat Notes:		Horizontal visibility:	Angle of Slope:	Transect Orientation:	
Family:	Species:	Record number of fishes per size class:			
		1-10 cm	11-20 cm	21-30 cm	Specify sizes for > 30 cm
Epinephelidae/ Serranidae	*Cephalopholis argus* *Cephalopholis boenak*	3 (5) 3 (5)			
Caesionidae	*Caesio cuning* *Pterocaesio pisang*	1,000 (5) 300 (6)			
Labridae	*Halichoeres argus*	3 (2)			
Pomacentridae	*Amblyglyphidodon leucogaster* *Pomacentrus coelestis* *Pomacentrus multilineata* *Pomacentrus moluccensis*	115 (3) 265 (3) 2,350 (3) 5 (3)			
Ephippidae	*Platax pinnatus*		3 (12)		
Nemipteridae	*Scolopsis lineatus*	7 (7)			

In Takut Tayuman, only eight (8) fish families were recorded (Epinephilinae, Caesionidae, Chaetodontidae, Labridae, Pomacentridae, Pomacanthidae, Siganidae and Plotosidae). Among the eight fish families, family Pomacentridae with two (2) fish species (*Pomacentrus coelestis* and *Pomacentrus moluccensis*) was the most abundant when it comes to fish species occurrence but family Plotosidae and Caesionidae has the most abundant when it comes to number of individuals present in the area because they occurred in schools. As observed during the activity, only few fish were observed even if it's outside the transect line. This may due to overfishing and the area was disturbed by human activities.

Table 19. Takut Tayuman.

FISH ABUNDANCE DATA FORM					
Site: Takut Tayuman		Municipality/ Province: Payao, Zamboanga Sibugay Province			
Transect No.: 2 (50 m)	Depth (m): 30 feet	Coordinates:			
Date (mo-day-year): 4-29-2014	Time:	Left Observer:		Right Observer:	
Habitat Notes:		Horizontal visibility:	Angle of Slope:	Transect Orientation:	
Family:	Species:	Record number of fishes per size class:			
		1-10 cm	11-20 cm	21-30 cm	Specify sizes for > 30 cm
Epinephelidae/ Serranidae	*Cephalopholis argus* *Cephalopholis boenak*	3 (5) 4 (5)			
Caesionidae	*Caesio cuning*	225 (5)			
Chaetodontidae	*Chaetodon octofasciatus*	9 (3)			
Labridae	*Halichoeres melanurus*	6 (2)			
Pomacentridae	*Pomacentrus coelestis* *Pomacentrus moluccensis*	168 (3) 5 (3)			
Pomacanthidae	*Chaetodontoplus mesoleucos*	1 (4)			
Siganidae	*Siganus vulpinus*	3 (6)			
Plotosidae	*Plotosus lineatus*	300 (1)			

Takut Tayuman at Sitio Kasung, there are only five (5) fish families recorded during the assessment period. These are the families of Epinephilinae, Labridae, Pomacentridae, Chaetodontidae and Apogonidae. The most abundant family was family Pomacentridae with six

(6) fish species (*Amblyglyphidodon leucogaster, Amphiprion akallopisos, Chrisiptera unimaculata, Dascyllus trimaculatus, Pomacentrus coelestis* and *Pomacentrus moluccensis*). Among the damsel fishes (Pomacentridae) the species *Amblyglyphidon curacao* was the most abundant when it comes to number of individuals present in the area because it occurred as clusters. Other fish species showed a very low of occurrence due to disturbed and silted area. There are crown of thorns present in the area which lessens the percentage of hard coral cover including dynamite fishing since we have observed a hollow portion situated within the massive area of dead corals with algae.

Table 20. Takot Tayuman of Sitio Casung.

FISH ABUNDANCE DATA FORM					
Site: Takut Tayuman Sitio Casung		Municipality/ Province: Payao, Zamboanga Sibugay Province			
Transect No.: 4	Depth (m): 30 feet	Coordinates:			
Date (mo-day-year): 4-30-2014	Time:	Left Observer:		Right Observer:	
Habitat Notes:		Horizontal visibility:	Angle of Slope:	Transect Orientation:	
Family:	Species:	Record number of fishes per size class:			
		1-10 cm	11-20 cm	21-30 cm	Specify sizes for > 30 cm
Epinephelidae/ Serranidae	*Cephalopholis boenak*	1 (5)			
Labridae	*Halichoeres argus* *Halichoeres melanurus* *Labroides dimidiatus*	5(2) 2 (3) 1 (2)			
Pomacentridae	*Amblyglyphidodon curacao* *Amphiprion akallopisos* *Chrysiptera unimaculata* *Dascyllus trimaculatus* *Pomacentrus coelestis* *Pomacentrus moluccensis*	1,550 (3) 3 (3) 33 (2) 1 (2) 25 (3) 1 (2)			
Chaetodontidae	*Chaetodon octofasciatus*	1 (3)			
Apogonidae	*Apogon quinquilineatus*	215 (2)			

Takut Tabangan of Payao, Zamboanga Sibugay Province recorded a total of seven (7) fish families which includes Epinephilinae/Serranidae, Labridae, Pomacentridae, Chaetodontidae, Nemipteridae, Scaridae and Plotosidae. Among the 7 fish families, Pomacentridae (damsel fishes/ Palata) was the most abundant when it comes to fish species and number of occurrence. A total of six (6) species (*Amblyglyphidodon curacao, Chrysiptera unimaculata, Dascyllus trimaculatus, Dischistodus perspillatus, Pomacentrus coelestis* and *Pomacentrus moluccensis)* was recorded. Like other areas surveyed, it was observed that most of the reef within the municipality of Payao was disturbed by human activities.

Table 21. Takut Tabangan.

FISH ABUNDANCE DATA FORM					
Site: Takut Tabangan		Municipality/ Province: Payao, Zamboanga Sibugay Province			
Transect No.: 5 (50 m)	Depth (m): 30 feet	Coordinates:			
Date (mo-day-year): 5-1-2014	Time:	Left Observer:		Right Observer:	
Habitat Notes:		Horizontal visibility:	Angle of Slope:	Transect Orientation:	
Family:	Species:	Record number of fishes per size class:			
		1-10 cm	11-20 cm	21-30 cm	Specify sizes for > 30 cm
Epinephelidae/ Serranidae	*Cephalopholis boenak* *Cepahalopholis argus*	8 (5) 2 (6)			
Labridae	*Coris dorsomacula* *Thalasoma lunare*	5 (5) 1 (4)			
Pomacentridae	*Amblyglyphidodon curacao* *Chrysiptera unimaculata* *Dascyllus trimaculatus* *Dischistodus perspillatus* *Pomacentrus coelestis* *Pomacentrus moluccensis*	2 (3) 2 (2) 1 (2) 1 (3) 480 (2) 65 (2)			
Chaetodontidae	*Chaetodon octofasciatus*	6 (3)			
Nemipteridae	*Scolopsis ciliatus*	4 (6)			
Scaridae	*Scarus globiceps* *Scarus dimidiatus*	5 (9) 5 (10)			
Plotosidae	*Plotosus lineatus*	300 (1)			

On the third day of the assessment period, Pandilusan Island was visited to observe the corals and fishes within the area. Among the reefs that had been assessed, this island showed a good area for a Marine Protected Area (MPA). Clear water quality has been observed, different

fish even the number of individuals per species and potential for ecotourism site. As the team made some reef check, we have observe the presence of giant clams, univalves (Kinason), ray and even green sea turtle (*Chelona mydas*). Reef fishes observed in the area are mostly damsel fishes though there are also some species with economic values.

Those fish species that were not recorded in the transect lines were found in Pandilusan Island, Payao, Zamboanga Sibugay Province. The three (3) days assessment in the field resulted to a total of twenty five (25) fish families with sixty three (63) fish and green sea turtle. The result showed low species diversity since the criteria of seventy five (75) species diversity in a certain area is considered as good. Mostly fish species recorded belonging to damsel fishes (Palata).

Table 22.Fish Species recorded in the municipality of Payao, Zamboanga Sibugay Province.

Fish species	
Abudefduf sexatilis	*Myripristis botche*
Acanthochromis polyacanthus	*Parupeneus barberinus*
Amblyglyphidodon curacao	*Parupeneus multifasciatus*
Amblyglyphidodon leucogaster	*Platax pinnatus*
Apogon quiquilineatus	*Platax teira*
Bodianus mesothorax	*Plectorhincus chaetodonoides*
Caesio cuning	*Plectorhincus lineatus*
Cepahalopholis argus	*Plotosus lineatus*
Cephalopholis boenak	*Pomacentrus alexanderae*
Chaetodon octofasciatus	*Pomacentrus bankanensis*
Chaetodontoplus mesoleucus	*Pomacentrus coelestis*
Cheilinus chlorourus	*Pomacentrus moluccensis*
Chlororus capistratoides	*Pomacentrus multilineata*
Chromis flavomaculata	*Premnas biaculeatus*
Chrysiptera cyanea	*Priacanthus blochii*
Chrysiptera unimaculata	*Pterocaesio tile*
Cirrhilabrus cyanupleura	*Pterois volitans*
Coris dorsomacula	*Rhinecanthus verrucosus*
Dascyllus aruanus	*Scarus dimidiatus*
Dascyllus reticulatus	*Scarus globiceps*
Dascyllus trimaculatus	*Scarus oviceps*
Diagrama sp.	*Scolopsis ciliates*
Diploprion bifasciatum	*Scolopsis lineatus*
Epinephelus macrospilos	*Siganus vulpinus*
Epinephelus quoyanus	*Sphyraena qenie*
Gymnothorax flavimarginatus	*Synodus binotatus*
Halichoeres argus	*Synodus variegates*
Halichoeres melanurus	*Taeniura lymma*

Heniochus varius	*Thalasoma lunare*
Labroides dimidiatus	*Zanclus cornotus*
Lethrinus lentjan	*Green sea turtle (Chelona mydas)*
Lutjanus biguttatus	

Table 23. Fish Families recorded in the municipality of Payao, Zamboanga Sibugay Province.

Fish Families	Fish Species
Pomacentridae (Palata)	*Abudefduf sexatilis*
	Acanthochromis polyacanthus
	Amblyglyphidodon curacao
	Amblyglyphidodon leucogaster
	Chromis flavomaculata
	Chrysiptera cyanea
	Chrysiptera unimaculata
	Dascyllus aruanus
	Dascyllus reticulatus
	Dascyllus trimaculatus
	Pomacentrus alexanderae
	Pomacentrus bankanensis
	Pomacentrus coelestis
	Pomacentrus moluccensis
	Pomacentrus multilineata
	Premnas biaculeatus
Epinephilinae/Serranidae (Lapu)	*Cepahalopholis argus*
	Cephalopholis boenak
	Epinephelus macrospilos
	Epinephelus quoyanus
Caesionidae (Bilason/Dalagang Bukid)	*Caesio cuning*
	Pterocaesio tile
Nemipteridae (Silay)	*Scolopsis ciliates*
	Scolopsis lineatus
Scaridae (Mol-Mol)	*Chlorurus capistratoides*
	Scarus dimidiatus
	Scarus globiceps
	Scarus oviceps
Labridae (Labayan)	*Bodianus mesothorax*
	Cheilinus chlorourus
	Cirrhilabrus cyanupleura

	Coris dorsomacula
	Halichoeres argus
	Halichoeres melanurus
	Labroides dimidiatus
	Thalasoma lunare
Scorpaenidae (Lalong)	*Pterois volitans*
Haemulidae (Lipti)	*Diagrama sp.*
	Plectorhincus chaetodonoides
	Plectorhincus lineatus
Dasyatidae (Kiampao)	*Taeniura lymma*
Zanclidae (Kambing-kambing)	*Zanclus cornotus*
Sphyraenidae (Rumpi)	*Sphyraena qenie*
Lethrinidae (Katambak)	*Lethrinus lentjan*
Mullidae (Timbongan)	*Parupeneus barberinus*
	Parupeneus mutifasciatus
Lutjanidae (Katambak)	*Lutjanus biguttatus*
Synodontidae (Tiki-tiki)	*Synodus binotatus*
	Synodus variegates
Balistidae (Pakol/Pugot)	*Rhinecanthus verrucosus*
Plotosidae (Ito)	*Plotoss lineatus*
Chaetodontidae (Alibangbang)	*Chaetodon octofasciatus*
	Heniochus varius
Green sea Turtle	*Chelona mydas*
Priacanthidae (Kandaman)	*Priacanthus blochii*
Muraenidae (Ubod)	*Gymnothorax flavimarginatus*
Siganidae (Danggit)	*Siganus vulpinus*
Pomacanthidae (Angelfish/Adlo)	*Chaetodontoplus mesoleucus*
Holocentridae (Baga-Baga)	*Myripristis botche*
Ephippidae (Bayang)	*Platax pinnatus*
	Platax teira
Apogonidae (Moong)	*Apogon quinquilineatus*

Issues and Concern:

1. Low fish Catch due to overfishing.
2. Disturbed due to presence of Illegal fishing.
3. Damage of habitat though there are areas with fair coral cover.

RECOMMENDATION

It is highly recommended that intensive information,education and communication campaign (IEC) and law enforcement should be conducted regularly and establishment of more sustainable protected areas/fish sanctuaries to be able to replenish fish population/stocks.

SOCIO-ECONOMIC ASSESSMENT

Payao, Zamboanga Sibugay

The Focus Group Discussion (FGD) with key informants was used to generate information on the status of the fisheries, coastal habitat, socio-economic condition of fisherfolks and other relevant information in the Municipality of Payao, Zamboanga Sibugay. Secondary data from the local government unit were also gathered to validate and supplement the data generated from the FGDs.

CMMD Chief Neneth T. Ordoño , PASu/CMMS Focal Person Wirlyn B. Ladores, CMMD Technical staff, LGU officials & staff, together with the different barangay chairman and secretaries were instrumental in setting up the schedules of the FGDs conducted in the sixteen (16) coastal barangays and the arrangement of transportation used in going to the different areas. Respective barangay officials were tasked to identify participants and to arrange the venues of the different FGDs. Likewise, these local government personnel also served as facilitators and active participants during the conduct of FGDs.

Each FGD started with a short program and orientation on the objectives of the activity and how the activity to be conducted. Participants of the FGD comprised of fishermen, seaweed growers, gleaners, farmers, housewives and barangay officials.

METHODOLOGY

Respondents are interview through Focus Group Discussion (FGD). FGD are conducted to discuss specific topics or issues in details. A group of ten to fifteen respondents per coastal barangay who are knowledgeable in the topic and who have been engaged in fishing or other fishing related activity for a longest period of time are invited to participate in the discussions.

The following data/information may be obtained from interviews are socio-economic data, fisheries data, solid waste management program, coastal law enforcement initiatives, CRM implementation and budget allocation, MPA awareness, tourism initiatives and problems/issues encountered.

In the case of diagramming, calendar diagram and trend diagram are being used. Calendar diagrams are very useful means of generating information about seasonal trend within the community and identifying or documenting cyclical patterns or changes in any one of more

variables in an annual or cyclical period. The periods are based on experiences from previous years. Trend diagram illustrates in graphical manner the community's perception of how the condition of their coastal area or community has change over time.

RESULTS AND DISCUSSION

The information generated from the one hundred seventy (170) FGD participants, although limited by time constraints, offer some overview on coastal and marine resources condition and fishers and other stakeholders situation of the sixteen (16) coastal barangays.

I. HOUSEHOLD DATA

Table 24. **Population and Number of Households from Barangay Profile**

Name of Coastal Barangay	Number of Population	Number of Household	Land Area in hectares (has)
1.Balian	1,750	332	700
2. Balogo	535	-	-
3. Bulawan	2,292	-	-
4. Dalama	1,236	189	400
5. Guiwan	1,321	425	-
6. Katipunan	1,715	356	-
7. Kima	796	-	-
8. Kulasian	1,438	237	1,056
9. Kulisap	1,005	245	-
10. Labatan	1,845	-	-
11. Mayabo	541	110	300
12. Minundas	570	-	-
13. Poblacion	4,348	-	-
14. San Roque	908	119	650
15. Silal	1,102	201	495
16. Talatap	564	-	-
Total	*21,966*		

Religious Affiliation

68.82% of the coastal residents are Roman Catholic, 13.34% are Islam and the remaining 17.45% are Protestants**.**

II. DWELLING AND FACILITIES

Type of Dwelling

Majority of the residents built and owned their houses. Some are inherited from their parents while others bought existing houses. Houses are made of light materials; only few are made of concrete and semi-concrete.

Lighting Facility

Fifty five percent (55%) of the houses in the coastal barangay have electricity while 45% used kerosene lamp.

III. HEALTH AND SANITATION

Source of Water

64.55% of the coastal community have deep well as source of water. The rest of the residents get water from pipe (10.45%), jetmatic (15.45%), spring (8.18%) and artesian well 91.36%).

Toilet Facility

Majority of the household have water sealed toilet types. Other types of toilet used were Antipolo and Flush type.

Garbage Disposal

Implementation of RA 9003 was already in place in the Municipality of Payao as to proper waste disposal; however it is observed that, there is weak compliance and implementation of the community/ BLGU.

Eighty one percent (81%) of the households practiced burning while nineteen percent (19%) practiced composting.

Illnes

List of top five (5) common illnesses experienced and leading causes of death in coastal barangays of Payao,ZSP were:

1. Hypertension
4. Giving Birth

2. Diarrhea
3. Diabetes
5. Cancer

The health care services are taken care of by barangay health worker. There were about ninety (90) barangay health workers present in the 16 coastal barangays of Payao. However, it is noted that only one midwife was assigned and visited the health center once a month.

Family Planning

Fifty four percent (54%) of couples in 16 coastal barangay adopted family planning. Common family planning methods used and listed hereunder;

a. Pills
b. Depo-Provera (Injection)
c. IUD (Intrauterine Device)
d. Natural or Rhythm

V. MIGRATION PATTERN

There is an increased in the population per coastal barangay of Payao due to marriage, birth and migration of people from other municipalities and neighboring barangay for livelihood purposes.

VI. MEANS OF TRANSPORTATION

The sixteen (16) coastal barangays of Payao are accessible by land and sea, with mode of transportation used as motorcycle (84%) locally termed as 'habal-habal", pumboat (6%) and private vehicle and temper (10%) wherein bulk of goods & products are being transported to Kabasalan, Siay and Monching, Zamboanga sibugay.

VII. MEANS OF COMMUNICATION

All coastal barangay are served with smart, globe and touch mobile in terms of telecommunication.

VIII. OCCUPATIONAL STRUCTURE

Fishing, farming and other water based activities such as seaweed farming and fishpond operation provide the main source of income for coastal communities. However, there has been a growing sentiment among the local populace that benefits derived from fisheries are dissipating

due to overfishing and declining fishery production. Most fishers obtain meager incomes often not sufficient to meet their daily household needs. A large fraction of the fishing population is in dire need of increasing income and alleviating poverty in order to sustain their daily needs and improve their quality of life. As a result some family members opted to find alternative livelihood that can add to their income.

Result of FGD showed that 45% of the family in the coastal barangay of Payao engaged in Fishing. 35% were full time, 29% were part time and the remaining 43% engage in farming and 12% other form of livelihood for supplementary income such as seaweeds farming, mat weaving and some run their own business (sari-sari store).

IX. COMMUNITY INFRASTRUCTURE

Listed hereunder are the different infrastructures that can be found in the sixteen (16) coastal barangays;

1. Bagsakan center
2. Barangay hall
3. Basketball court
4. Botika ng Barangay
5. Church/Mosque
6. CVO outpost
7. Day care
8. Elementary school building
9. Freedom stage
10. Food terminal
11. Foot bridge
12. Gull way
13. Gym
14. Health center
15. High school building
16. Learning center
17. Multipurpose hall
18. PAMANA building
19. Pigment drier
20. Senior citizen hall
21. Solar drier
22. Barangay Stage
23. Tribal hall
24. Warehouse
25. Water system
26. Wet market
27. Wharf

Table 25. **PEOPLES ORGANIZATION ESTABLISHED BY BARANGAY**

Barangay/Name of POs/NGOs	ACRONYM	Year Organized	Registering agencies
1. **Balian**			
* Balian Water Sanitary Association	BALIWASA	2011	DOLE
* Balian Fisherfolk Association	BAFA	2012	-do-
* Balian United Farmer's Association	BUFA	2005	-do-
* Balian Women's Association		2011	-do-
2. **Balogo**	-	-	-

3. **Bulawan**			
Tayuman Kasong Mangrove Planters Association	TKMPA	2012	DOLE
Bulawan Farmer's Association	BFA	-	-
Bulawan Fisherfolk's Association	BFA	2013	DOLE
Bulawan Kulasian Guiwan Irrigator's Association	BKGIA	2000	CDA
Bulawan Women's Association	BWA	2012	DOLE
Bulawan Mangrove Builder's Association	BOMBA	2012	-do-
4. **Dalama**			
* Dalama Women's Association	-	2012	DOLE
5. **Guiwan**			
* Guiwan Farmer's Association		2013	DOLE
* Pamandian Sibuguey Guiwan Mangrove Planters Association	PSCMPA	-do-	-do-
* Sitio Bakid Guiwan Mangrove Tree Planters Association	SBGIPA	-do-	-do-
* Guiwan Women's Association	GWA	-do-	-do-
* Guiwan Agrarian Reform Beneficiary Association	GARBA	-do-	SEC
6. **Katipunan**			
* Katipunan Women's Association	KWA	2008	DOLE
* Katipunan Rubber's Association	KRA	-do-	-do-
* Sitio Panglamatan Katipunan Gagmay Mangingisda	SPKGM	-do-	DOLE
* Katipunan Cassava Association	KCA	-do-	
7. **Kima**	-	-	-
8. **Kulasian**			
* Kulasian Integrated Farmer's Association	KIFA	2013	DOLE
* Kulasian Women's Association	KWA	-do-	-do-
* Kulasian Fisherfolk's Association	KFA	For registration	-
9. **Kulisap**			
* Kulisap Women's Association	KWA	2012	DOLE
* KUWASA	KUWASA	2007	-do-
* Kulisap Fisherfolk's Association	KFA	2012	-do-
* Kulisap Farmer's Association	KFA	2010	-do-

10. **Mayabo**			
* Farmer's Association	-	2007	Informal
* Women's Association	-	2014	DOLE
11. **Minundas**	-	-	-
12. **Poblacion**	-	-	-
13. **San Roque**			
* San Roque Women's Assoxciation	-	2012	DOLE
14. **Silal**			
* Silal Women's Association	-	2010	DOLE
* Datu Mama Farmer's Association	-	2013	Informal
* Datu Mama Fisherfolk Association	-	-do-	Informal
15. **Talatap**	-	-	-

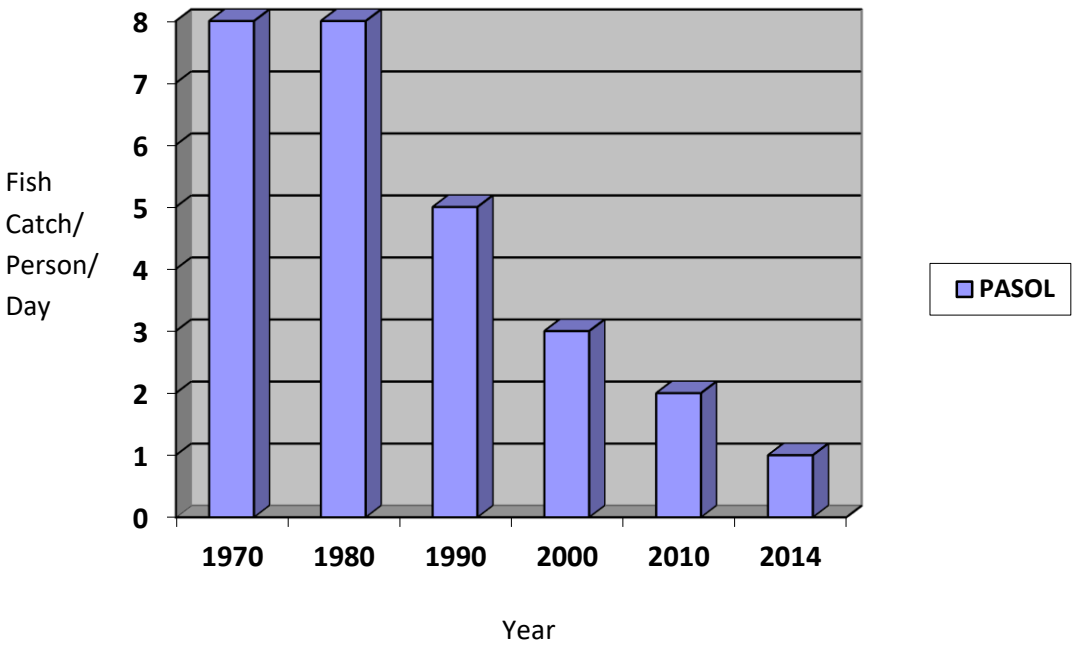
Table 26. **List of crops, trees, shrubs and animals/poultry found in Coastal Barangay of Payao**

Name of Coastal Barangay	Agricultural Crops	Trees/Shrubs	Animals/ Poultry
1.Balian	Cassava (Manihot esculenta) Banana (Musa paradisiaca) Corn (Zea mays) Rice (Oryza sativa) Camote/Sweet Potato (Ipomoea batatas)	Rubber (Hevea brasiliensis) Gmelina (Gmelina arborea) Mahogany (Swietenia mahagoni) Mango (Mangifera indica) Marang (Artocarpus odoratissimus) Lanzones (Lansium domesticum) Jackfruit (Artocarpus heterophyllus) Star apple (Chrysophyllum cainito) Lauan Lumbayao	Chicken Pig Cow Carabao Goat Horse Duck
2. Balogo	-	-	-
3. Bulawan	Corn (Zea mays) Rice (Oryza sativa)	Mahogany (Swietenia mahagoni) Mango (Mangifera indica) Jackfruit (Artocarpus heterophyllus) Gmelina (Gmelina arborea) Tabigi (Xylocarpus granatum) Api-api (Avicennia officinalis)) Mayapis (Shorea squamata) Busain (Brugiera gymnorrhiza) Pagatpat (Sonneratia alba)	Chicken Cow Carabao Goat Pabo/Turkey Duck
4. Dalama	Coconut (Cocos nucifera) Corn (Zea mays) Rice (Oryza sativa)	Mango (Mangifera indica) Jackfruit (Artocarpus heterophyllus) Lanzones (Lansium domesticum)	Chicken Cow Carabao

	Cassava(Manihot esculenta) Camote/Sweet Potato (Ipomoea batatas)	Marang (Artocarpus odoratissimus) Star apple (Chrysophyllum cainito) Sampalok (Tamarindus indica) Talisay (Terminalia catappa)	Goat Duck
5. Guiwan	Coconut (Cocos nucifera) Rice (Oryza sativa)	Mango (Mangifera indica) Jackfruit (Artocarpus heterophyllus) Gmelina (Gmelina arborea) Mahogany (Swietenia mahagoni) Balabago Guava (Psidium guajava) Santol (Sandoricum koetjape)	Chicken Cow Carabao Goat Duck Pig
6. Katipunan	Cassava (Manihot esculenta) Banana (Musa paradisiaca) Camote/Sweet Potato (Ipomoea batatas) Corn (Zea mays) Rice (Oryza sativa) Gabi (Colocasia esculenta) Bisul	Narra (Pterocarpus indicus) Balete (Ficus benghalensis) Rubber (Hevea brasiliensis) Molave (Vitex parviflora) Gmelina (Gmelina arborea) Mango (Mangifera indica) Sampalok (Tamarindus indica) Talisay (Terminalia catappa) Jackfruit (Artocarpus heterophyllus)	Pig Chicken Cow Carabao Goat Pabo/Turkey
7. Kima	Cassava (Manihot esculenta) Banana (Musa paradisiaca) Camote/Sweet Potato (Ipomoea batatas) Corn (Zea mays) Rice (Oryza sativa) Coconut (Cocos nucifera)	Mahogany (Swietenia mahagoni) Mango (Mangifera indica) Marang (Artocarpus odoratissimus) Lanzones (Lansium domesticum) Jackfruit (Artocarpus heterophyllus)	Chicken Cow Carabao Goat Duck Pig
8. Kulasian	Corn (Zea mays) Rice (Oryza sativa) Coconut (Cocos nucifera) Cassava (Manihot esculenta) Banana (Musa paradisiaca)	Mahogany (Swietenia mahagoni) Gmelina (Gmelina arborea) Mango (Mangifera indica) Jackfruit (Artocarpus heterophyllus) Marang (Artocarpus odoratissimus)	Chicken Cow Carabao Goat Duck
9. Kulisap	Corn (Zea mays) Rice (Oryza sativa) Cassava (Manihot esculenta)	Lauan Narra (Pterocarpus indicus) Mahogany (Swietenia mahagoni) Gmelina (Gmelina arborea) Lumbayao	Chicken Pig Cow Carabao Goat

	Banana (Musa paradisiaca) Camote/Sweet Potato (Ipomoea batatas)	Bakan Anabiong (Trema orientalis) Taluto Antipolo (Artocarpus blancoi) Rubber (Hevea brasiliensis)	Horse Duck
10. Labatan	-	-	-
11. Mayabo	Banana (Musa paradisiaca) Corn (Zea mays) Rice (Oryza sativa) Gabi (Colocasia esculenta) Monggo (Vigna radiate)	Jackfruit (Artocarpus heterophyllus) Mahogany (Swietenia mahagoni) Gmelina (Gmelina arborea) Antipolo (Artocarpus blancoi) Rubber (Hevea brasiliensis) Star apple (Chrysophyllum cainito)	Chicken Pig Cow Goat Horse Duck
12. Minundas	-	-	-
13. Poblacion	-	-	-
14. San Roque	Corn (Zea mays) Cassava (Manihot esculenta) Banana (Musa paradisiaca)	Gmelina (Gmelina arborea) Mahogany (Swietenia mahagoni) Mango (Mangifera indica) Marang (Artocarpus odoratissimus) Lanzones (Lansium domesticum) Jackfruit (Artocarpus heterophyllus) Star apple (Chrysophyllum cainito)	Chicken Pig Cow Carabao Goat Horse
15. Silal	Corn (Zea mays) Rice (Oryza sativa) Cassava (Manihot esculenta) Camote/Sweet Potato (Ipomoea batatas) Coconut (Cocos nucifera)	Mango (Mangifera indica) Jackfruit (Artocarpus heterophyllus) Lanzones (Lansium domesticum) Marang (Artocarpus odoratissimus) Star apple (Chrysophyllum cainito) Santol (Sandoricum koetjape) Gmelina (Gmelina arborea) Cacao (Theobroma cacao) Dapdap (Erythrina variegate)	Chicken Cow Carabao Goat Horse Duck Pabo/Turkey
16. Talatap	-	-	-

TREND DIAGRAM



As reflected in the trend diagram, the FGD participants of all the coastal barangays provided the information that they are experiencing shortfall in fish supply as compared way back in 1970. Accordingly, fishers need to seek alternative ways to earn more money to meet the most basic needs of the family. Some travel far or outside of the municipal water and resort to using several types of gear in order to have higher fish catch from their fishing activity.

RAINFALL AND WIND CALENDAR

Month	J	F	M	A	M	J	J	A	S	O	N	D
Habagat												
Amihan												
Rain												

The Municipality of Payao has two (2) distinct seasons or weather pattern within the year, namely the northeast monsoon (*amihan*) and southeast monsoon (*habagat*) which influenced both productivity and fishing success of fishers. FGD participants who are mostly fishers declared

that the period of habagat starts in June to October while Amihan starts in November to April. Rainy season starts in May until November.

SPECIES CALENDAR DIAGRAM

Month	J	F	M	A	M	J	J	A	S	O	N	D
Lagao												
Caballas												
Pugapo												

The FGD participants of nine coastal barangay identified fifteen kinds/species of fish caught inside their municipal waters. Likewise, they identified top three (3) species caught by fishers as *lagao, caballas* and *pugapo.*

Table 27**. FISHING PRACTICES**

Name of Coastal Barangay	Kind of gear used	No. of hours spent (hr)	Fishing ground /How far from the shore (km)	Fishes caught	Ave. no of kilos (kl)
1.Balian	bobo,pasol, palangre, pukot, laya & lente	12	Payao/15	balo, caballas lagao & talakito	8
2. Balogo	-	-	-	-	-
3. Bulawan	bobo, bintol pasol, palangre & pukot,	-	Payao	aso-os, lagao, pugapu & timbungan	6
4. Dalama	bobo, bintol bungsod, pana, palangre & pukot	10	Payao	-	-
5. Guiwan	bobo, bintol pasol, palangre, pukot & lente	8	Payao	alimango, aso-os & pugapo	13
6. Katipunan	bobo, bintol,bunsod palangre, pana, pasol & puko	6	Payao	balo, bugaong, caballas, lagao & pugapo	1
7. Kima	Bobo, bintol & pukot	-	Payao	-	-

8. Kulasian	bobo, bintol, palangre, pasol & pukot,	8	Payao	aso-os, danggit, gisaw, lagao & pugapo	6
9. Kulisap	Pasol, pana & pukot	6	Payao/10	anduhaw, danggit, lagao, talakito & molmol	5
10. Labatan	-	-	-	-	-
11. Mayabo	pasol & pukot	8	Payao	bugaong & kulisi	
12. Minundas	-	-	-	-	-
13. Poblacion	-	-	-	-	-
14. San Roque	bobo , pasol, & pukot	9	Payao/10	banak, caballas, danggit, lagao & pugapo	7
15. Silal	bobo, bintol, palangre pukot &tapsay	2	Payao/2	pugapo, gisaw, sapsap	5
16. Talatap	-	-	-	-	-

COASTAL LAW ENFORCEMENT

Almost all of the 16 coastal barangays lack awareness of the coastal and other related environmental laws, rules and policies. Only few of the coastal barangay had organized bantay dagat. There is weak compliance, implementation and enforcement of the coastal laws and other related environmental laws, rules and policies.

Hereunder are the generalized issues and problems identified during the conduct of FGD;

ISSUES/PROBLEMS

1. Weak implementation & enforcement of coastal laws, rules & policies
2. Weak implementation of solid waste management
3. Poor water system
4. Illegal Fishing Activities and Destructive Fishing Gears such as;
   4.a. encroachment of commercial fishing boats
   4.b. dynamite fishing
   4.c. zipper zipper
   4.d. hulbot hulbot
   4.e. kubkuban
   4.f. fishing with the use of compressor (sodium cyanide)

5. Mangrove cutting
   5.a. charcoal making
   5.b. debarking of mangrove

6. Some houses in coastal barangay do not have toilet and electricity
7. Declining/Low fish catch
8. Piracy and extortion
9. Peace and order situation

RECOMMENDATIONS

1. MLGU shall lead in the strict implementation and enforcement of coastal and other environmental laws, rules and policies
2. Strict compliance and implementation of solid waste management (RA 9003)
3. Strict compliance and implementation of RA 8550

4. Organize/Creation of Bantay Dagat in every coastal barangay
5. Installation of military detachment and watchtower
6. Provision of water system, electricity, toilet and alternative livelihood
7. Intensive information, education & communication campaign
8. Mangrove tree planting activity
9. Establishment of fish sanctuary/marine protected area

SOCIO ECONOMIC TEAM

(Focus Group Discussion)

Members:

Dante Tubat	-	MENRO
Hon. Glady Lopez	-	Brgy. Chairman of Kulisap
Hon. Kasim Dacula	-	Brgy.Chairman of Silal
Hon. Melchora Araneta	-	Brgy. Chairman of Balian
Imelda Abdurahman	-	Brgy. Kulasian
Lourdes Labad	-	Brgy. Katipunan
Dindo Tabaransa	-	MENRO Staff
Braming Raguro	-	MENRO Staff
Sahara Mustafa	-	MENRO Staff

Facilitator:

For. Neneth T. Ordono	-	CMMD Chief
Wirlyn B. Ladores	-	PASu/CMMS Focal Person
For. Cristy O. Oco	-	CMMD Staff

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