PROCEEDING OF THE PCRA TRAINING WORKSHOP IN TALUSAN, ZAMBOANGA SIBUGAY PROVINCE
October 14-18, 2013

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 Talusan, ZSP on October 13, 2013 for the conduct of PCRA from October 14-18, 2013. The workshop was held at the Talusan Livelihood Training Center. The activities were scheduled as follows:

October 14, 2013	- Opening program, ICM Orientation, MOA Signing, Expectation settings and lecture proper
October 15-17, 2013	- Field Assessment and sampling period
October 18, 2013	- Tabulation and computation of data, presentation, Commitment and closing program

The registration of participants coming from the ten (10) coastal barangays started before 8:00 A.M. during the opening program. At 9:00 A.M., the program hosted by the LGTAS Chief formally opened. After the invocation and singing of the National Anthem, Hon. Paulito B. Maaghop, Chairman of the Environment and Agriculture gave the welcome remarks while MENRO Willie de Guzman acknowledged the participants and resource speakers. Vice Mayor Edmundo M. Catingub gave the inspirational message acknowledging the support extended by the Department to them and assured this will be reciprocated. 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 Diomedes Pablo in behalf of RED Arleigh J. Adorable.

The expectation setting was facilitated by the CMMS Focal Person For. Wirlyn 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, LGTAS Chief For. Hiya I. Jaapar 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. CMMD Chief Neneth T. Ordoño facilitated the socio-economic conditions 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 October 15-17, 2013 before each group take-off in the morning, brief instructions were conducted. On October 18, 2013 in the morning, each group tabulated and computed their data before presentation. These are being facilitated bytheir respective facilitators. Presenters were chosen and coached prior to the presentations.

In the afternoon, each group presented their outputs started with mangroves, seagrass, coral reef and fish visual census and the socio-economic conditions to a panel of local officials led by Hon. Mayor Orlando A. Ramiso. 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 the CMMD Chief. Finally, the awarding of Certificates of Participation and closing message by the Hon. Vice Mayor.

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GENERAL INTRODUCTION

The municipality of Talusan has ten (10) coastal barangays with farming, small scale business and fishing as major economic activities.

The local officials of Talusan 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 Talusan, 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 Talusan 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 October 14-18, 2013

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" MANGROVES ASSESSMENT "

INTRODUCTION

Mangroves are coastal trees or shrubs that are adapted to estuarine or even saline environment. The term mangroves refer to individual plants, whereas Mangal refers 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), Bruguiera (Pototan), Avicennia (Piapi) and Nypa (Nipa).

Mangroves are one of the most diverse communities in the coastal area, harboring small mammals, birds, reptiles, crustaceans, mollusks and invertebrates. Some organisms in the mangroves are harvested as food such as oysters, and other bivalves, crabs, shrimps and fishes. It serves also as nursery and feeding ground of many fishes, crustaceans and mollusks that are vital to the replenishment of stocks in the coastal area. They are also good source of nipa singles for housing materials, firewood and charcoal and timber products.

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

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

METHODOLOGY

The assessment of mangrove resources in Talusan, ZSP was actively participated by selected LGU's, TWG and local stakeholders of the different barangays of the municipality. The method used was the modified transect plot technique pattern after English, *et. al.* (1994), and based on the PCRA Guidebook.

The mangrove species and associates per barangay were identified and recorded in two (2) separate tally sheets using form # 1 for mature tree species and form # 2 for mangrove regeneration (seedling and Sapling) counts. Other observations were also recorded and noted.

RESULTS AND DISCUSSIONS

A Total of 24 mangrove species and associates belonging to 15 families were identified in the mangrove forest of Talusan, Zamboanga Sibugay Province.

As per actual survey of the mangrove stands in the Ten (10) coastal barangays of Talusan, ZSP, family Sonneratiaceae was the most dominant species as this can be found in all the coastal barangays of the municipality. However, the most diversified family was Rhizophoraceae consisting of five (5) species *(Please refer to Table 1 List of the different Mangrove Species and Associates found in the coastal barangays of Talusan, ZSP).*

In the case of seeds/seedlings and saplings availability, these can be found in coastal barangay of Baganipay, Laparay, Poblacion, Florida, Boalan, Tuburan, Cawilan and Kasigpitan. The regeneration per square meter is rated very good at the time of the assessment period aside from noting the flowering season of Bakauan Babae, Bakauan Lalaki, Tabao, Pagatpat, Piapi, Busain and Tabigi at the time of assessment period.

Based on the data obtained during the assessment period, the mangrove forest conditions as analyzed and computed showed the estimated average height of 5-10 meters in Barangay Laparay, Baganipay, Cawilan and Poblacion, 4-8 meters in Barangay Florida, 5-8 in Barangay Boalan, Bolingan and Kasigpitan, 4-6 meters in Barangay Tuburan and 10-15 meters in Barangay Moalboal which are old growth forest.

For the crown cover, the output range from 26-50% with moderate disturbance and noticeable cuttings in some coastal barangays with some abandoned fishponds were planted with mangroves.

Generally, Talusan Mangrove Forest is rated fair with 50% crown cover basing from the PCRA Guidebook Criteria. For the mangrove fauna, a total of 16 finfishes were noted and recorded, 12 crustaceans, 18 mollusks, 7 birds with a grand total of 53 species *(Please see Table 2 for details).*

Table 1. LIST OF MANGROVE FLORA AND ASSOCIATES FOUND IN TALUSAN, ZSP

Barangay	Common Name	Scientific Name	Family Name
LAPARAY	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	B. babae	*Rhizophora apiculata*	Rhizophoraceae
	B. lalaki	*Rhizophora mucronata*	Rhizophoraceae
	Busain	*Bruguiera gymnorrhiza*	Rhizophoraceae
	Nipa	*Nypa fruticans*	Palmae
	Saging-saging	*Aegiceras corniculatum*	Myrsinaceae
	Tinduk-tindukan	*Aegiceras floridum*	Myrsinaceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Piagao	*Xylocarpus moluccensis*	Meliaceae
	Tabao	*Lumnitzera littorea*	Combretaceae
	Lagolo	*Acrostichum aureum*	Pteridaceae
	Fern	*Acrostichum speciosum*	Pteridaceae
	Bani	*Pongamia pinnata*	Leguminosae
	Tui	*Dolichandrone spathacea*	Bignoniaceae
	Nilad	*Scyphiphora hydrophyllacea*	Rubiaceae
	Diliuriu	*Acanthus ebracteatus*	Acanthaceae
BAGANIPAY	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	B. babae	*Rhizophora apiculata*	Rhizophoraceae
	B.lalaki	*Rhizophora mucronata*	Rhizophoraceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Nipa	*Nypa fruticans*	Palmae
	Piagao	*Xylocarpus moluccensis*	Meliaceae
	Tinduk-tindukan	*Aegiceras Floridum*	Myrsinaceae
	Piapi	*Avicennia lanata*	Avicenniaceae
	Talisay	*Terminalia catappa*	Combretaceae
	Lagolo	*Acrostichum aureum*	Pteridaceae
	Tabao	*Lumnitzera littorea*	Pteridaceae
POBLACION	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	B. babae	*Rhizophora apiculata*	Rhizophoraceae
	B. lalaki	*Rhizophora mucronata*	Rhizophoraceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Nipa	*Nypa fruticans*	Palmae
	Saging-saging	*Aegiceras corniculatum*	Myrsinaceae
	Piapi	*Avicennia lanata*	Avicenniaceae
	Talisay	*Terminalia catappa*	Combretaceae
	Lagolo	*Acrostichum aureum*	Pteridaceae
	Tabao	*Lumnitzera littorea*	Pteridaceae
FLORIDA	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	B. babae	*Rhizophora apiculata*	Rhizophoraceae
	B. lalaki	*Rhizophora mucronata*	Rhizophoraceae

	Busain	*Bruguiera gymnorrhiza*	Rhizophoraceae
	Tangal	*Ceriops tagal*	Rhizophoraceae
	Nipa	*Nypa fruticans*	Palmae
	Piapi	*Avicennia lanata*	Avicenniaceae
	Saging-saging	*Aegiceras corniculatum*	Myrsinaceae
	Tinduk-tindukan	*Aegiceras floridum*	Myrsinaceae
	Piagao	*Xylocarpus moluccensis*	Meliaceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Buta-buta	*Excoecaria agallocha*	Euphorbiaceae
	Lagolo	*Acrostichum aureum*	Pteridaceae
	Bani	*Pongamia pinnata*	Leguminosae
CAWILAN	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	B. babae	*Rhizophora apiculata*	Rhizophoraceae
	B. lalaki	*Rhizophora mucronata*	Rhizophoraceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Piagao	*Xylocarpus moluccensis*	Meliaceae
	Nipa	*Nypa fruticans*	Palmae
	Piapi	*Avicennia lanata*	Avicenniaceae
	Tangal	*Ceriops tagal*	Rhizophoraceae
	Tui	*Dolichandrone spathacea*	Bignoniaceae
	Lagolo	*Acrostichum aureum*	Pteridaceae
KASIGPITAN	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	B. babae	*Rhizophora apiculata*	Rhizoporaceae
	B. lalaki	*Rhizophora mucronata*	Rhizoporaceae
	Busain	*Bruguiera gymnorrhiza*	Rhizoporaceae
	Langarai	*Bruguiera parviflora*	Rhizoporaceae
	Tangal	*Ceriops tagal*	Rhizoporaceae
	Api-api	*Avicennia officinalis*	Avicenniaceae
	Tabao	*Lumnitzera littorea*	Pteridaceae
	Nipa	*Nypa fruticans*	Palmae
	Saging-saging	*Aegiceras corniculatum*	Myrsinaceae
	Tabao	*Lumnitzera littorea*	Pteridaceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Piagao	*Xylocarpus moluccensis*	Meliaceae
	Tui	*Dolichandrone spathacea*	Bignoniaceae
	Dungon late	*Heritiera littoralis*	Sterculiaceae
BOALAN	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	B. babae	*Rhizophora apiculata*	Rhizophoraceae
	B. lalaki	*Rhizophora mucronata*	Rhizophoraceae
	Busain	*Bruguiera gymnorrhiza*	Rhizophoraceae
	Langarai	*Bruguiera parviflora*	Rhizophoraceae
	Piapi	*Avicennia lanata*	Avicenniaceae
	Api-api	*Avicennia officinalis*	Avicenniaceae
	Tabigi	*Xylocarpus granatum*	Meliaceae

	Piagao	*Xylocarpus moluccensis*	Meliaceae
	Nipa	*Nypa fruticans*	Palmae
	Saging-saging	*Aegiceras corniculatum*	Myrsinaceae
	Tui	*Dolichandrone spathacea*	Bignoniaceae
	Lagolo	*Acrostichum aureum*	Pteridaceae
TUBURAN	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	B. babae	*Rhizophora apiculata*	Rhizophoraceae
	B. lalaki	*Rhizophora mucronata*	Rhizophoraceae
	Busain	*Bruguiera gymnorrhiza*	Rhizophoraceae
	Piapi	*Avicennia lanata*	Avicenniaceae
	Tabao	*Lumnitzera littorea*	Pteridaceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Piagoa	*Xylocarpus moluccensis*	Meliaceae
	saging-saging	*Aegiceras corniculatum*	Myrsinaceae
	Nipa	*Nypa fruticans*	Palmae
	Lagolo	*Acrostichum aureum*	Pteridaceae
BOLINGAN	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	B. babae	*Rhizophora apiculata*	Rhizophoraceae
	B. lalaki	*Rhizophora mucronata*	Rhizophoraceae
	Busain	*Bruguiera gymnorrhiza*	Rhizophoraceae
	Piapi	*Avicennia lanata*	Rhizophoraceae
	Api-api	*Avicennia officinalis*	Rhizophoraceae
	Tabigi	*Xylocarpus granatum*	Meliaceae
	Piagao	*Xylocarpus moluccensis*	Meliaceae
	Saging-saging	*Aegiceras corniculatum*	Myrsinaceae
	Nipa	*Nypa fruticans*	Palmae
	Lagolo	*Acrostichum aureum*	Pteridaceae
MOALBOAL	Pagatpat	*Sonneratia alba*	Sonneratiaceae
	Piapi	*Avicennia lanata*	Avicenniaceae

Table 2. MANGROVE FAUNA FOUND IN TALUSAN, ZSP

BARANGAY	LOCAL NAME	COMMON NAME	FAMILY
LAPARAY	**FINFISHES**		
	Bangus	Milk fish	*Chanidae*
	Tambasakan	Mudskipper	*Periopyhalmus*
	Ibis	Goby	*Gobiidae*
	Kitong	Rabbit fish	*Siganidae*
	Mangagat		
	Sigwil	Needle Fish	*Belonidae*
	Gonoh	Slender silverside	*Atherinidae*
	Gisao	Mullet	*Mugilidae*
	Bugaong	Therapon	*Theraponidae*
	Pagi	Sting ray	*Dasyatidae*
	Tigi	Bonefish	*Albulidae*
	Pugapo	Grouper	*Serranidae*
	CRUSTACEANS		
	Alimango	Mud crab	*Portunidae*
	Kasag	Blue crab	*Portunidae*
	Pasayan	Shrimp	*Penaeidae*
	Agokoy	Mud fiddler crab	
	Kagang		
	Locon	Tiger prawn	*Penaeidae*
	Kalas-kalas		
	Kalampay		
	Kasuway		
	Takla		
	Umang	Hermit crab	
	MOLLUSK		
	Tuway	Mud clam	
	Bagongon	Telescopium telescopium	
	Dalo-dalo		
	Paitan		
	Tapok-tapok		
	Saka-saka	Periwrinkle	*Littorinidae*
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	Sisi	Oyster	*Ostreidae*
	Tagnipis		
	Suso		

	Hiyumhiyum		
	Imbao	Cockle	*Cardiidae*
	Balisali		
	Bacalan	Cockle	*Cardiidae*
	Liswi	Cone shell	*Conidae*
	BIRDS		
	Sayaw-sayaw	Swiftlet	
	Wild duck	Wild duck	
	Tikaro	Kingfisher	
	Uwak	Crow	
	Tulabong	Medium egret	
	Lapay		
BAGANIPAY	**FINFISHES**		
	Tambasakan	Mudskipper	*Periopthalmus*
	Gonoh	Slender silverside	*Atherinidae*
	Ibis	Goby	*Gobiidae*
	Gisao	Mullet	*Mugilidae*
	Bugaong	Therapon	*Theraponidae*
	Pugapo	Grouper	*Serranidae*
	Sigwil	Needle Fish	
	CRUSTACEANS		
	Alimango	Mud crab	*Portunidae*
	Kasag		
	Agokoy	Mud fiddler crab	
	Kalas-kalas		
	Pasayan	Shrimp	*Penaeidae*
	Takla		
	Locon	Tiger prawn	*Penaeidae*
	Umang	Hermit crab	
	MOLLUSK		
	Tuway	Mud clam	
	Bangongon	Telescopium telescopium	
	Dalo-dalo		
	Paitan		
	Tapok-tapok		
	Saka-saka	Periwrinkle	*Littorinidae*
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	Sisi	Oyster	*Ostreidae*

	Imbao	Cockle	*Cardiidae*
	BIRDS		
	Wild duck	Wild duck	
	Tikarol	Kingfisher	
	Uwak	Crow	
POBLACION	**FINFISHES**		
	Tambasakan	Mudskipper	*Periopthalmus*
	Gonoh	Slender silverside	*Atherinidae*
	Ibis	Goby	*Gobiidae*
	Gisao	Mullet	*Mugilidae*
	Sigwil	Needle Fish	*Belonidae*
	Tarakito	Jack	*Carangidae*
	CRUSTACEANS		
	Kagang		
	Agokoy	Mud fiddler crab	
	Kalas-kalas		
	Takla		
	Alimango	Mud crab	*Portunidae*
	Locon	Tiger shrimp	*Penaeidae*
	Umang	Hermit crab	
	MOLLUSK		
	Dalo-dalo		
	Tapok		
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	Sisi	Oyster	*Ostreidae*
	Saka-saka	Periwrinkle	*Littorinidae*
	Tuway	Mud clam	
	Imbao	Cockle	*Cardiidae*
	BIRDS		
	Wild duck	Wild duck	
	Uwak	crow	
FLORIDA	**FINFISHES**		
	Tambasakan	Mud skipper	*Periopthalmus*
	Gonoh	Slender silverside	*Atherinidae*
	Ibis	Goby	*Gobiidae*
	Sigwil	Needle Fish	*Belonidae*
	Gisao	Mullet	*Mugilidae*
	Bangus	Milk fish	*Chanidae*

	Pugapo Tigi Gatasan	Grouper	*Serranidae*
	CRUSTACEANS		
	Agokoy Kagang Kalas-kalas Takla	Mud fiddler crab	
	Locon	Tiger prawn	*Penaeidae*
	Alimango	Mud crab	*Portunidae*
	Pasayan	Shrimp	*Penaeidae*
	MOLLUSK		
	Tuway Dalo-dalo	Mud clam	
	Bangongon Paitan Tapok	Telescopium telescopium	
	Saka-saka Sihi Talaba Hiyun-hiyum	Periwrinkle	*Littorinidae*
	Imbao	Cockle	*Cardiidae*
	BIRDS		
	Wild duck Uwak	Wild duck crow	
CAWILAN	**FINFISHES**		
	Tambasakan	Mud skipper	*Periopthalmus*
	Ibis	Goby	*Gobiidae*
	Sigwil	Needle fish	*Belonidae*
	Gisau	Mullet	*Mugilidae*
	Bangus	Milk fish	*Chanidae*
	CRUSTACEANS		
	Alimango Kagang	Mud crab	*Portunidae*
	Agokoy Kalas-kalas	Mud fiddler crab	
	Locon	Tiger prawn	*Penaeidae*

	Pasayan	Shrimp	*Penaeidae*
	MOLLUSK		
	Tuway	Mud clam	
	Bangongon	Telescopium telescopium	
	Dalo-dalo		
	Paitan		
	Saka-saka	Periwrinkle	*Littorinidae*
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	Imbao	Cockle	*Cardiidae*
	BIRDS		
	Tulabong	Egret	
	Uwak	crow	
KASIGPITAN	**FINFISHES**		
	Tambasakan	Mud skipper	*Periopthalmus*
	Sigwil	Needle Fish	*Belonidae*
	Gonoh	Slender silverside	*Atherinidae*
	Aluman	Lentjan	*Lethrinidae*
	Bangus	Milk fish	*Chanidae*
	Bugaong	Therapon	*Theraponidae*
	Pugapo	Grouper	*Serranidae*
	CRUSTACEANS		
	Alimango	Mud crab	*Portunidae*
	Kasag	Blue crab	*Portunidae*
	Kalampay		
	Agokoy	Mud fiddler crab	
	Takla		
	Kagang		
	Pasayan	Shrimp	*Penaeidae*
	Locon	Tiger prawn	*Penaeidae*
	Umang	Hermit crab	
	MOLLUSK		
	Tuway	Mud clam	
	Dalo-dalo		
	Bangongon	Telescopium telescopium	
	Paitan		
	Suso		
	Tapok-tapok		
	Saka-saka	Periwrinkle	*Littorinidae*

	Sihi		
	Talaba	Wing oyster	*Pterridae*
	BIRDS		
	Tulabong	Medium egret	
	Uwak	crow	
BOALAN	**FINFISHES**		
	Tambasakan	Mud skipper	*Periopthalmus*
	Gisao	Mullet	*Mugilidae*
	Gonoh	Slender silverside	*Atherinidae*
	Sigwil	Needle Fish	*Belonidae*
	Ibis	Goby	*Gobiidae*
	CRUSTACEANS		
	Agokoy	Mud fiddler crab	
	Kagang		
	Takla		
	MOLLUSK		
	Tuway	Mud clam	
	Dalo-dalo		
	Bangongon	Telescopium telescopium	
	Paitan		
	Suso		
	Tapok-tapok		
	Saka-saka	Periwrinkle	*Littorinidae*
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	Balisala		
	BIRDS		
	Uwak	Crow	
TUBURAN	**FINFISHES**		
	Tambasakan	Mud skipper	*Periopthalmus*
	Gisao	Mullet	*Mugilidae*
	Sigwil	Needle Fish	*Belonidae*
	Gonoh	Slender silverside	*Atherinidae*
	CRUSTACEANS		
	Agokoy	Mud fiddler crab	
	Kasag	Blue crab	*Portunidae*
	Kagang		
	Takla		
	MOLLUSK		
	Tuway	Mud clam	

	Dalo-dalo Sihi Saka-saka Tapok-tapok Balisala Sihi Talaba **BIRDS** Uwak	 Periwrinkle Wing oyster Crow	 *Littorinidae* *Pterridae*
BOLINGAN	**FINFISHES** Tambasakan Gisao Sigwil Gonoh Bugaong Pugapo **CRUSTACEANS** Kagang Agokoy Takla **MOLLUSK** Tuway Dalo-dalo Paitan Sihi Tapok-tapok Saka-saka Imbao Balisala Talaba Litob	 Mud skipper Mullet Needle Fish Slender silverside Therapon Grouper Mud fiddler crab Mud clam Periwrinkle Cockle Wing oyster Blood arc	 *Periopthalmus* *Mugilidae* *Belonidae* *Atherinidae* *Theraponidae* *Serranidae* *Littorinidae* *Cardiidae* *Pterridae* *Cardiidae*
	BIRDS Uwak	 Crow	
MOALBOAL	**FINFISHES** Ibis Gonoh **CRUSTACEANS** Agokoy Takla **MOLLUSK** Liswi	 Goby Slender silverside Mud fiddler crab Cone shell	 *Gobiidae* *Atherinidae* *Conidae*

	Kadkad Tapok-tapok Saka-saka Balisala Sihi Talaba **BIRDS** Uwak	 Periwrinkle Wing oyster Crow	 *Littorinidae* *Pterridae*
LAPARAY	**FINFISHES** Bangus Tambasakan Ibis Kitong Mangagat Sigwil Gonoh Gisau Bugaong Pagi Tigi Pugapo **CRUSTACEANS** Alimango Kasag Pasayan Agokoy Kagang Locon Kalas-kalas Kalampay Kasuway	 Milk fish Mudskipper Goby Rabbit fish Needle Fish Slender silverside Mullet Therapon Ray Grouper Mud crab Blue crab Shrimp Mud fiddler crab Tiger prawn	 *Chanidae* *Periopyhalmus* *Gobiidae* *Siganidae* *Belonidae* *Atherinidae* *Mugilidae* *Theraponidae* *Serranidae* *Portunidae* *Portunidae* *Penaeidae* *Penaeidae*
	Takla Umang **MOLLUSK** Tuway Bagongon Dalo-dalo Paitan Tapok-tapok Saka-saka Sihi Talaba	 Hermit crab Mud clam Telescopium telescopium Periwrinkle Wing oyster	 *Littorinidae* *Pterridae*

	Sisi	Oyster	*Ostreidae*
	Tagnipis		
	Suso		
	Hiyumhiyum		
	Imbao	Cockle	*Cardiidae*
	Balisali		
	Bacalan	Cockle	*Cardiidae*
	Liswi	Cone shell	*Conidae*
	BIRDS		
	Sayaw-sayaw	Swiftlet	
	Wild duck	Wild duck	
	Tikaro	Kingfisher	*Alcedinidae*
	Uwak	Crow	
	Tulabong	Medium egret	
	Lapay		
	FINFISHES		
	Tambasakan	Mudskipper	*Periopthalmus*
	Gonoh	Slender silverside	*Atherinidae*
	Ibis	Goby	*Gobiidae*
	Gisau	Mullet	*Mugilidae*
	Bugaong		
	Pugapo	Grouper	*Serranidae*
	Sigwil	Needle Fish	*Belonidae*
	CRUSTACEANS		
	Alimango	Mud crab	*Portunidae*
	Kasag		
	Agokoy	Mud fiddler crab	
	Kalas-kalas		
	Pasayan	Shrimp	*Penaeidae*
	Takla		
	Locon	Tiger prawn	*Penaeidae*
	Umang	Hermit crab	
	MOLLUSK		
	Tuway	Mud clam	
	Bangongon	Telescopium telescopium	
	Dalo-dalo		
	Paitan		
	Tapok-tapok		
	Saka-saka	Periwrinkle	*Littorinidae*
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	Sisi	Oyster	*Ostreidae*
	Imbao	Cockle	*Cardiidae*

	BIRDS		
	Wild duck	Wild duck	
	Tikarol	Kingfisher	*Alcedinidae*
	Uwak	Crow	
POBLACION	**FINFISHES**		
	Tambasakan	Mudskipper	*Periopthalmus*
	Gonoh	Slender silverside	*Atherinidae*
	Ibis	Goby	*Gobiidae*
	Gisau	Mullet	*Mugilidae*
	Sigwil	Needle Fish	*Belonidae*
	Tarakito	Jack	*Carangidae*
	CRUSTACEANS		
	Kagang		
	Agokoy	Mud fiddler crab	
	Kalas-kalas		
	Takla		
	Alimango	Mud crab	*Portunidae*
	Locon	Tiger prawn	*Penaeidae*
	Umang	Hermit crab	
	MOLLUSK		
	Dalo-dalo		
	Tapok-tapok		
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	Sisi	Oyster	*Ostreidae*
	Saka-saka	Periwrinkle	*Littorinidae*
	Tuway	Mud clam	
	Imbao	Cockle	*Cardiidae*
	BIRDS		
	Wild duck	Wild duck	
	Uwak	crow	
FLORIDA	**FINFISHES**		
	Tambasakan	Mud skipper	*Periopthalmus*
	Gonoh	Slender silverside	*Atherinidae*
	Ibis	Goby	*Gobiidae*
	Sigwil	Needle Fish	*Belonidae*
	Gisao	Mullet	*Mugilidae*
	Bangus	Milk fish	*Chanidae*
	Pugapo	Grouper	*Serranidae*
	Tigi		
	Gatasan		
	CRUSTACEANS		

	Agokoy	Mud fiddler crab	
	Kagang		
	Kalas-kalas		
	Takla		
	Locon	Tiger prawn	
	Alimango	Mud crab	
	Pasayan	Shrimp	
	MOLLUSK		
	Tuway	Mud clam	
	Dalo-dalo		
	Bangongon	Telescopium telescopium	
	Paitan		
	Tapok		
	Saka-saka	Periwrinkle	*Littorinidae*
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	Hiyun-hiyum		
	Imbao	Cockle	*Cardiidae*
	BIRDS		
	Wild duck	Wild duck	
	Uwak	crow	
CAWILAN	**FINFISHES**		
	Tambasakan	Mud skipper	*Periopthalmus*
	Ibis	Goby	*Gobiidae*
	Sigwil	Needle fish	*Belonidae*
	Gisao	Mullet	*Mugilidae*
	Bangus	Milk fish	*Chanidae*
	CRUSTACEANS		
	Alimango	Mud crab	*Portunidae*
	Kagang		
	Agokoy	Mud fiddler crab	
	Kalas-kalas		
	Locon	Tiger prawn	*Penaeidae*
	Pasayan	Shrimp	*Penaeidae*
	MOLLUSK		
	Tuway	Mud clam	
	Bagongon	Telescopium telescopium	
	Dalo-dalo		
	Paitan		
	Saka-saka	Periwrinkle	*Littorinidae*
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	Imbao	Cockle	*Cardiidae*

	BIRDS		
	Tulabong	Egret	
	uwak	crow	
KASIGPITAN	**FINFISHES**		
	Tambasakan	Mud skipper	*Periopthalmus*
	Sigwil	Needle Fish	*Belonidae*
	Gonoh	Slender silverside	*Atherinidae*
	Aluman	Lentjan	*Lethrinidae*
	Bangus	Milk fish	*Chanidae*
	Bugaong	Therapon	*Tharaponidae*
	Pugapo	Grouper	*Serranidae*
	CRUSTACEANS		
	Alimango	Mud crab	*Portunidae*
	Kasag	Blue crab	*Potunidae*
	Kalampay		
	Agokoy	Mud fiddler crab	
	Takla		
	Kagang		
	Pasayan	Shrimp	*Penaeidae*
	Locon	Tiger prawn	*Penaeidae*
	Umang	Hermit crab	
	MOLLUSK		
	Tuway	Mud clam	
	Dalo-dalo		
	Bangongon	Telescopium telescopium	
	Paitan		
	Suso		
	Tapok-tapok		
	Saka-saka	Periwrinkle	*Littorinidae*
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	BIRDS		
	Tulabong	Medium egret	
	uwak	crow	
BOALAN	**FINFISHES**		
	Tambasakan		
	Gisao	Mullet	*Mugilidae*
	Gonoh	Slender silverside	*Atherinidae*
	Sigwil	Needle Fish	*Belonidae*
	Ibis	Goby	*Gobiidae*
	CRUSTACEANS		
	Agokoy	Mud fiddler crab	

	Kagang		
	Takla		
	MOLLUSK		
	Tuway	Mud clam	
	Dalo-dalo		
	Bangongon	Telescopium telescopium	
	Paitan		
	Suso		
	Tapok-tapok		
	Saka-saka	Periwrinkle	*Littorinidae*
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	Balisala		
	BIRDS		
	Uwak	Crow	
TUBURAN	**FINFISHES**		
	Tambasakan	Mud skipper	*Periopthalmus*
	Gisao	Mullet	*Mugilidae*
	Sigwil	Needle Fish	*Belonidae*
	Gonoh	Slender silverside	*Atherinidae*
	CRUSTACEANS		
	Agokoy	Mud fiddler crab	
	Kasag	Blue crab	*Portunidae*
	Kagang		
	Takla		
	MOLLUSK		
	Tuway	Mud clam	
	Dalo-dalo		
	Sihi		
	Saka-saka	Periwrinkle	*Littorinidae*
	Tapok-tapok		
	Balisala		
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	BIRDS		
	Uwak	Crow	
BOLINGAN	**FINFISHES**		
	Tambasakan	Mud skipper	*Periopthalmus*
	Gisao	Mullet	*Mugilidae*
	Sigwil	Needle Fish	*Belonidae*
	Gonoh	Slender silverside	*Atherinidae*
	Bugaong	Therapon	*Theraponidae*

	Pugapo	Grouper	*Serranidae*
	CRUSTACEANS		
	Kagang		
	Agokoy	Mud fiddler crab	
	Takla		
	MOLLUSK		
	Tuway	Mud clam	
	Dalo-dalo		
	Paitan		
	Sihi		
	Tapok-tapok		
	Saka-saka	Periwrinkle	*Littorinidae*
	Imbao	Cockle	*Cardiidae*
	Balisala		
	Talaba	Wing oyster	*Pterridae*
	Litob	Blood arc	*Cardiidae*
	BIRDS		
	Uwak	Crow	
MOALBOAL	**FINFISHES**		
	Ibis	Goby	*Gobiidae*
	Gonoh	Slender silverside	*Atherinidae*
	CRUSTACEANS		
	Agokoy	Mud fiddler crab	
	Takla		
	MOLLUSK		
	Liswi	Cone shell	*Conidae*
	Kadkad		
	Tapok-tapok		
	Saka-saka	Periwrinkle	*Littorinidae*
	Balisala		
	Sihi		
	Talaba	Wing oyster	*Pterridae*
	BIRDS		
	Uwak	crow	

Coordinates and Location:

1. Laparay	-	N 7°24'02.9" E 122°48'19.5	-	Fishpond of Rodolfo Magalso 12.8 has.
2. Baganipay	-	N 7°24'17.5" E 122°48'13.4"	-	Baganipay-Laparay boundary
3. Poblacion	-	N 7°24'49.9" E 122°48'05.6"	-	Fishpond of Joel Olavides Concrete pathways leading to resort
4. Kasigpitan	-	N 7°21'43.4" E 122°48'22.6"	-	Bridge facing the sea
		N 7°21'28.7" E 122°48'34.0"	-	Fishpond facing the river
5. Boalan	-	N 7°20'37.7" E 122°54'18.5"	-	Boalan Bridge
6. Tuburan	-	N 7°20'27.9" E 122°56'25.3"	-	Mangrove stand facing the sea
7. Bolingan	-	N 7°20'32.9" E 122°54'06.2"	-	Mangrove stand facing the sea
8. Florida	-	N 7°25'52.0" E 122°49'05.3"	-	Fishpond of Basilisa Lim
		N 7°25'59.9" E 122°49'10.4"	-	Putting Bato facing the sea
9. Moalboal	-	N 7°19'02.8" E 122°52'27.7"	-	Barangay Hall facing the sea
		N 7°18'59.5" E 122°52'30.4"	-	Old growth Pagatpat facing the sea
10. Cawilihan	-	N 7°21'19.9" E 122°51'58.7"	-	Fishpond of BC Elmer Carpio

OTHER OBSERVATIONS

1. Available areas for mangrove rehabilitation:

Moalboal	Poblacion
Kasigpitan	Tuburan
Laparay	Bolingan
Baganipay	Cawilan
Florida	
Boalan	

2. Old and new cutting of mangroves:

Laparay	Bolingan	Poblacion
Baganipay	Tuburan	
Kasigpitan	Cawilan	
Boalan	Florida	

3. Flowering and fruiting mangrove species:

Laparay	-	B. babae, b. lalaki, Busain, Tabao, Pagatpat
Baganipay	-	B. babae
Kasigpitan	-	B. babae, B. lalaki, Busain
Florida	-	B. babae, B. lalaki
Boalan	-	Tabao, B. babae, b. lalaki
Tuburan	-	B. babae, B.lalaki, Busain
Bolingan	-	B. babae, B. lalaki, busain, Tabigi, Piapi seedlings
Cawilan	-	B. babae, Piapi seedlings, Tabigi
Poblacion	-	B. babae, b. lalaki

4. Ongoing construction of concrete dike using dead corals as pathways in the proposed beach resort in Baganipay.

5. Dilapidated solar driers in Laparay, Poblacion, Baganipay and Florida

6. Existing garbage in all coastal areas

7. No toilet in Kasigpitan, Laparay, Tuburan, Poblacion, Boalan, Bolingan, Moalboal, Florida

8. Existing rivers in Laparay, Baganipay, Kasigpitan, Cawilan, Tuburan, Bolingan

9. Dilapidated and abandoned guard houses in Tuburan and Bolingan

10. More than twenty fish corrals in Poblacion

11. Wharf in Poblacion

12. Existing fishponds in Cawilan, Laparay, Baganipay, Florida and Kasigpitan

Brgy. Cawilan	**Brgy. Laparay**	**Brgy. Florida**	**Brgy. Kasigpitan**
Carpio	Bacalso	Mayor Ramiso	Magdula
	Bienvenido Ediza	Basilisa Lim	
	Joel Olavides	Dodong Rivera	
	Agapito Gumadlas		

13. Abandoned fishponds

Brgy. Laparay	**Brgy. Florida**	**Brgy. Kasigpitan**
Ador Yap	Dodong Rivera	Hermilio Baile planted with
Rodolfo Bacalso	Agapito Gumadlas	mangrove by Joel Biale
		Sene Abtali
		Badong Laure

14. Source of water - Brgy. Baganipay

15. Old growth pagatpat in Moal-boal

16. with existing livelihood of agar-agar in Poblacion, Florida and Laparay.

ISSUES AND RECOMMENDATIONS

ISSUES	RECOMMENDATIONS
1. Mangrove Cutting * construction and housing material * charcoal making- Laparay * Fuelwood	* Strict implementation of environmental laws and policies without biases * Strengthen Bantay-dagat to watch and protect the mangrove areas * Mangrove rehabilitation * Strengthen IEC *Strong support of local officials
2. Domestic and human waste disposed direct to the sea	* Provision of plastic bowls * Coastal clean-up * Strengthen IEC
3. Lack of IEC on environmental and natural resources	* Conduct and strengthen IEC on ENR

Mangrove Group

1. Armando B. Paring	-	POs President	-	Florida
2. Josephine S. Yaguno	-	RIC President	-	Laparay
3. Joel Biale	-	Bantay-Dagat	-	Kasigpitan
4. Victor Saldo	-	POs President	-	Baganipay
5. Ibno Sabbi	-	Bantay-Dagat	-	Poblacion
6. Multazar T. Amilhasan	-	Brgy. Treasurer	-	Boalan
7. Julkipli Jailani	-	Imam	-	Moalboal
8. Ignacio Loyola Jr.	-	GPS reader		
9. For. Hiya I. Jaapar	-	DENR-IX, PAWCZMS Team Leader		

SEAGRASSES

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 Talusan, 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 ten (10) coastal Barangays of Talusan, 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 Talusan 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 Talusan 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.

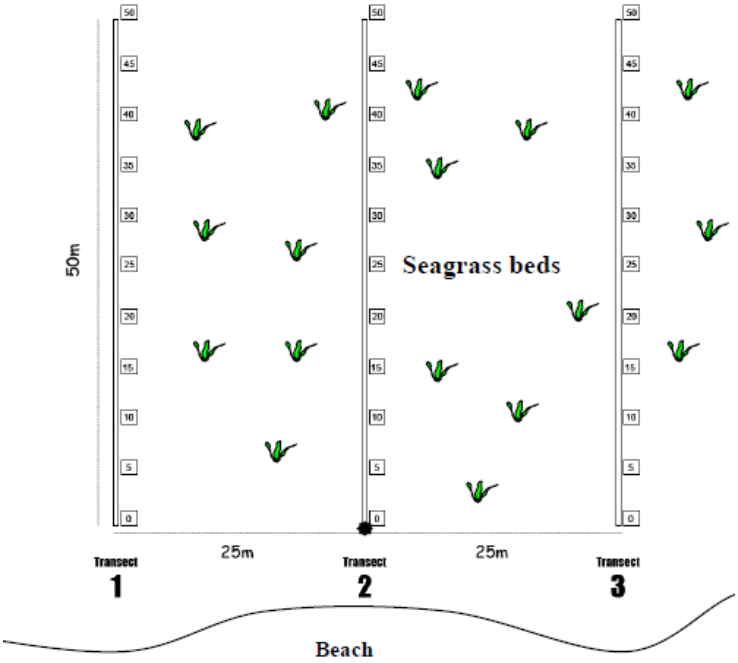


Figure 1. Layout of Seagrass Assessment Transects and Quadrats (McKenzie *et al*, 2001)

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 3. 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 4. 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 DISCUSSIONS

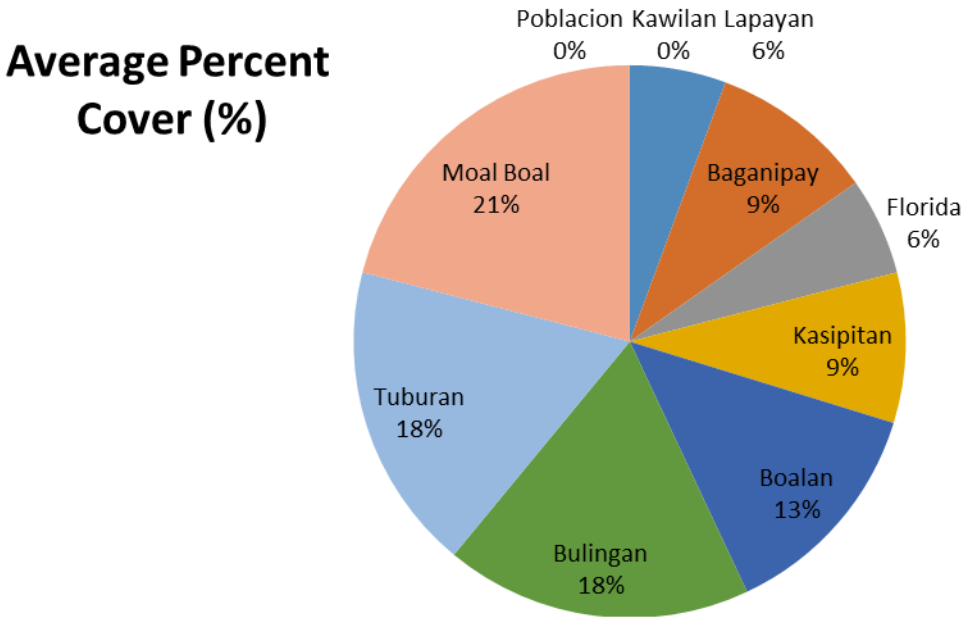


Figure 2. Average Percentage Seagrass Cover of the Ten (10) Coastal Barangays of Talusan, Zamboanga Sibugay.

Of the ten (10) coastal Barangays assessed, eight (8) have seagrass communities in their coastal areas with barangay Moal Boal having the highest percentage cover (73.4) with six (6) seagrass species. The least percentage cover was observed in Barangay Laparay which is observed to have 1 species present (*Enhalus acoroides)*.

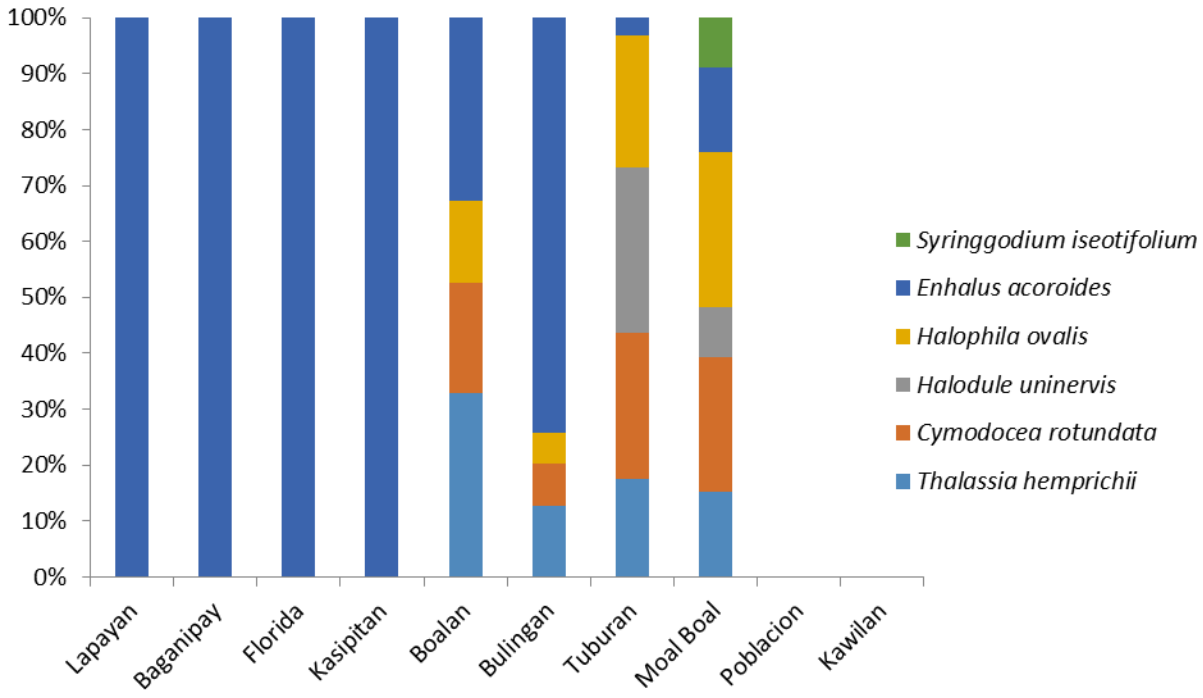


Figure 3. Average Percentage Cover of the six (6) Seagrass Species Observed in the 10 Coastal Barangays of Talusan, Zamboanga Sibugay

The most dominant species found in all the coastal barangay's is the *Enhalus acoroides* which is present in all of the coastal barangays and the least observed seagrass species was *Syringodium iseotifolium* which is only present in Barangay Moal Boal. Absence of seagrass community was observed in the coastal waters of Poblacion and Kawilan. In most of the barangays, *Enhalus acoroides* dominated.

Table 5. List of Seagrass Species Present in 6 Coastal Barangays of Talusan, ZSP

BARANGAY		Laparay	Baganipay	Florida	Kasipitan	Boalan	Bulingan	Tuburan	Moal Boal	Kawilan	Poblacion
SEAGRASS SPECIES	*Thalassia hemprechii*					*	*	*	*		
	Cymodocea rotundata					*	*	*	*		
	Halodule uninervis							*	*		
	Halophila ovalis					*	*	*	*		
	Enhalus acoroides	*	*	*	*	*	*	*	*		
	Syringodium iseotifolium								*		
TOTAL NUMBER OF SPECIES		1	1	1	1	4	4	5	6	0	0

From the six (6) total seagrass species observed in the ten (10) coastal Barangays of Talusan, Zamboanga Sibugay, the barangays with the highest number of seagrass present was in Barangay Moal Boal (6 seagrass species). The least were observed in Barangay Laparay, Baganipay, Florida and Kasipitan with only 1 seagrass species (*Enhalus acoroides*).

Noted that due to river outlet in the barangay and probably human activities, no seagrass was observed in barangay Poblacion and Kawilan.

Table 6. Seagrass Assessment Data of Barangay Laparay, Talusan, ZSP

Date: 15-Oct-13			**Location/Area Covered:** Laparay, Talusan, ZSP			
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N 07.40031	**1**	**1**	*none*	0	Sandy Muddy	
E 122.79757		**2**	*none*	0	Sandy Muddy	*Halimeda macroloba, padina minor*
		3	*none*	0	Sandy Muddy	
		4	*none*	0	Sandy Muddy	
		5	*Enhalus acoroides*	28	Sandy Muddy	
				5.6		
N 07.40257	**2**	**1**	*Enhalus acoroides*	28	Sandy Muddy	Live Coral, *Halimeda macroloba, Padina minor,* sponge, poor water visibility
E 122.79592		**2**	*Enhalus acoroides*	24	Sandy Muddy	
		3	*Enhalus acoroides*	28	Sandy Muddy	
		4	*Enhalus acoroides*	28	Sandy Muddy	
		5	*Enhalus acoroides*	24	Sandy Muddy	
				26.4		
N 07.40401	**3**	**1**	*Enhalus acoroides*	48	Rubbles	
E 122.79125		**2**	*Enhalus acoroides*	28	Rubbles	*Halimeda macroloba*
		3	*Enhalus acoroides*	32	Rubbles	
		4	*none*	0	Rubbles	
		5	*Enhalus acoroides*	28	Rubbles	
				27.2		

Table 7. Seagrass Assessment Data of Barangay Baganipay, Talusan, ZSP

Date: 15-Oct-13				**Location/Area Covered:** Baganipay, Talusan, ZSP		
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
	1	**1**	*Enhalus acoroides*	28	sandy	*Padina minor*, sea urchin, *Halimeda macroloba, sea star, sea cucumber*
		2	*Enhalus acoroides*	32	sandy	
		3		0	sandy	
		4	*Enhalus acoroides*	28	sandy	
		5	*Enhalus acoroides*	40	sandy	
				42.66666667		
	2	**1**		0	sandy	polychaete, seastar, *Padina minor, Sargassum*
		2	*Enhalus acoroides*	16	sandy	
		3	*Enhalus acoroides*	20	sandy	
		4	*Enhalus acoroides*	20	sandy	
		5	*Enhalus acoroides*	48	sandy	
				20.8		
	3	**1**	*Enhalus acoroides*	20	sandy	seastar, *Padina minor, Halimeda macroloba*
		2	*Enhalus acoroides*	32	sandy	
		3	*Enhalus acoroides*	36	sandy	
		4		0	sandy	
		5	*Enhalus acoroides*	32	sandy	
				24		
	4	**1**	*Enhalus acoroides*	40	rubbles	dead coral, sea urchin, seaweeds
		2	*Enhalus acoroides*	28	rubbles	
		3	*Enhalus acoroides*	44	rubbles	
		4	*Enhalus acoroides*	52	rubbles	
		5	*Enhalus acoroides*	72	rubbles	
				47.2		

Table 8. Seagrass Assessment Data of Barangay Florida, Talusan, ZSP

Date: 15-Oct-13				**Location/Area Covered:** Florida, Talusan, ZSP		
Coordinates	**Transect No.**	**Quadrat No.**	***Species***	**% Cover**	**Substrate**	**Other Observations**
N 07.43825	**1**	**1**		0	muddy	
E 122.82742		**2**		0	muddy	poor water visibility, live coral
		3		0	muddy	
		4	*Enhalus acoroides*	100	muddy	
		5		0	muddy	
				20		
N 07.43833	**2**	**1**		0	muddy	
E 122. 82521		**2**		0	muddy	
		3		0	muddy	poor water visibility, live coral
		4	*Enhalus acoroides*	100	muddy	
		5		0	muddy	
				20		

Table 9. Seagrass Assessment Data of Barangay Kasipitan, Talusan, ZSP

Date: 16-Oct-13				**Location/Area Covered:** Kasipitan, Talusan, ZSP		
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N 07.33739	**1**	**1**	*Enhalus acoroides*	0	sandy	Halimeda macroloba, seastar, *Padina minor,* sea cucumber
E 122.91621		**2**	*Enhalus acoroides*	16	sandy	
		3	*Enhalus acoroides*	36	sandy	
		4	*Enhalus acoroides*	12	sandy	
		5	*Enhalus acoroides*	40	sandy	
				20.8		
N 07.33757	**2**	**1**	*Enhalus acoroides*	44	sandy	
E 122.91628		**2**	*Enhalus acoroides*	44	sandy	seastar, *Padina minor, Halimeda macroloba*
		3	*Enhalus acoroides*	28	sandy	
		4	*Enhalus acoroides*	32	sandy	
		5	*Enhalus acoroides*	56	sandy	
				40.8		

Table 10. Seagrass Assessment Data of Barangay Boalan, Talusan, ZSP

Date: 15-Oct-13				**Location/Area Covered:** Boalan, Talusan, ZSP		
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N 07.33739	1	1	*Enhalus acoroides*	64	sandy	
E 122.91159		2	*Enhalus acoroides*	44	sandy	
			Halophila ovalis	16		
		3	*Enhalus acoroides*	80	sandy	
		4	*Enhalus acoroides*	44	sandy	
			Halophila ovalis	20		
		5	*Enhalus acoroides*	40	sandy	
				61.6		
N 07.33958	2	1	*Enhalus acoroides*	40	sandy	
E 122.91151		2	*Enhalus acoroides*	48	sandy	
			Cymodocea rotundata	24		sea urchin
		3	*Enhalus acoroides*	40	sandy	
		4	*Enhalus acoroides*	44	sandy	
		5	*Enhalus acoroides*	48	sandy	
				48.8		
N 07.34017	3	1	*Enhalus acoroides*	44	sandy	
E 122.91158		2	*Enhalus acoroides*	16	sandy	*Halodule uninervis*, seaweed, Sea cucumber, sea urchin
			Thalassia hemprichii	40		
		3	*Enhalus acoroides*	16	sandy	
		4	*Enhalus acoroides*	16	sandy	
		5	*Enhalus acoroides*	12	sandy	
				28.8		

Table 11. Seagrass Assessment Data of Barangay Bulingan, Talusan, ZSP

Date: 15-Oct-13				**Location/Area Covered:** Bulingan, Talusan, ZSP		
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N 07.33867	1	1	*Enhalus acoroides*	28	sandy	
E 122.90823			*Halophila ovalis*	12		
			Thalassia hemprichii	28		
		2	*Enhalus acoroides*	32	sandy	
			Thalassia hemprichii	20		
		3	*Enhalus acoroides*	84	sandy	seaweed
			Thalassia hemprichii	20		
		4	*Enhalus acoroides*	8	sandy	
			Thalassia hemprichii	44		
		5	*Enhalus acoroides*	16	sandy	
			Thalassia hemprichii	44		
				67.2		
N 07.33588	2	1	*Enhalus acoroides*	12		
E 122.90823			*Thalassia hemprichii*	80		
		2	*Enhalus acoroides*	12	sandy	
			Thalassia hemprichii	72		
			Halophila ovalis	4		
		3	*Thalassia hemprichii*	72	sandy	seaweed, sea urchin
			Enhalus acoroides	8		
		4	*Thalassia hemprichii*	72	sandy	
			Halophila ovalis	8		
		5	*Thalassia hemprichii*	12	sandy	
			Enhalus acoroides	20		
			Halophila ovalis	4		
				75.2		
N 07.33551	3	1	*Enhalus acoroides*	44	sandy	
E 122.90706			*Thalassia hemprichii*	12		
		2	*Enhalus acoroides*	36	sandy	seaweed, sea star, sea urchin
		3	*Enhalus acoroides*	44	sandy	
		4	*Enhalus acoroides*	60	sandy	
		5	*Enhalus acoroides*	36	sandy	
				46.4		

Table 12. Seagrass Assessment Data of Barangay Tuburan, Talusan, ZSP

Date: 15-Oct-13				**Location/Area Covered:** Tuburan, Talusan, ZSP		
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N 07.35764	1	1	*Halodule uninervis*	8	sandy	
E 122 90584			*Thalassia hemprichii*	12		
			Cymodocea rotundata	36		
		2	*Thalassia hemprichii*	20	sandy	
			Cymodocea rotundata	44		
		3	*Thalassia hemprichii*	32	sandy	seaweed
			Cymodocea rotundata	20		
		4	*Thalassia hemprichii*	32	sandy	
			Cymodocea rotundata	8		
			Halodule uninervis	12	sandy	
		5	*Cymodocea rotundata*	32		
			Thalassia hemprichii	8		
				52.8		
N 07.32735	2	1	*Halodule uninervis*	16		
E 122.90526			*Cymodocea rotundata*	44	sandy	
			Thalassia hemprichii	28		
		2	*Cymodocea rotundata*	36		
			Thalassia hemprichii	24	sandy	
		3	*Cymodocea rotundata*	48		seaweed
			Thalassia hemprichii	12	sandy	
		4	*Cymodocea rotundata*	44		
			Thalassia hemprichii	20	sandy	
		5	*Enhalus acoroides*	4		
			Cymodocea rotundata	12	sandy	
			Thalassia hemprichii	52		
				68		
N 07.32759	3	1	*Cymodocea rotundata*	60	sandy	
E 122.90433			*Halodule uninervis*	20		
		2	*Cymodocea rotundata*	8	sandy	
			Halodule uninervis	72		
		3	*Cymodocea rotundata*	36	sandy	seaweed
			Halodule uninervis	40		
		4	*Cymodocea rotundata*	32	sandy	
			Halodule uninervis	44		
		5	*Thalassia hemprichii*	20	sandy	
			Cymodocea rotundata	52		
				76.8		
N 07.32651	4	1	*Halodule uninervis*	84	sandy	
E 122.29045		2	*Halodule uninervis*	80	sandy	
		3	*Thalassia hemprichii*	12	sandy	
			Halophila ovalis	36		
		4	*Halodule uninervis*	8	sandy	
			Halophila ovalis	12		
		5	*Halophila ovalis*	44	sandy	
				55.2		

Table 13. Seagrass Assessment Data of Barangay Bulingan, Talusan, ZSP

Date: 15-Oct-13					**Location/Area Covered:** Bulingan, Talusan, ZSP	
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N 07.31532	1	1	*Cymodocea rotundata*	60	sandy	
E 122.37310		2	*Cymodocea rotundata*	60		
			Halodule uninervis	20		
		3	*Halodule uninervis*	80	sandy	seaweed
			Cymodocea rotundata	16		
		4	*Halophila ovalis*	80	sandy	
		5	*Halodule uninervis*	20		
				67.2		
N 07.31508	2	1	*Cymodocea rotundata*	92	sandy	
E 122.37373			*Halodule uninervis*	12		
		2	*Cymodocea rotundata*	92	sandy	
			Halodule uninervis	8		
		3	*Cymodocea rotundata*	88	sandy	seaweed
			Halodule uninervis	12		
		4	*Halodule uninervis*	84	sandy	
			Cymodocea rotundata	12		
		5	*Cymodocea rotundata*	80	sandy	
			Halodule uninervis	12		
				98.4		
N 07.31498	3	1	*none*	0		
E 122.37432		2	*none*	0		
		3	*Cymodocea rotundata*	80	sandy	
			Halodule uninervis	8		seaweed
		4	*Cymodocea rotundata*	88	sandy	
			Halodule uninervis	8		
		5	*Cymodocea rotundata*	100	sandy	
				56.8		
N 07.31503	4	1	*Thalasia hemprechii*	80	sandy	
E 122.37715			*Halodule uninervis*	16		
		2	*Thalasia hemprechii*	40	sandy	
			Syringodium iseotifolium	32		
		3	*Thalasia hemprechii*	40	sandy	
			Syringodium iseotifolium	36		
		4	*Thalasia hemprechii*	40	sandy	
			Syringodium iseotifolium	8		
		5	*Enhalus acoroides*	44	sandy	
			Thalasia hemprechii	20		
				71.2		

Table 14. Seagrass Assessment Data of Barangay Tuburan, Talusan, ZSP

Date: 15-Oct-13					**Location/Area Covered:** Tuburan, Talusan, ZSP	
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N 07.35764	1	1	*Halodule uninervis*	8	sandy	
E 122 90584			*Thalassia hemprichii*	12		
			Cymodocea rotundata	36		
		2	*Thalassia hemprichii*	20	sandy	
			Cymodocea rotundata	44		
		3	*Thalassia hemprichii*	32	sandy	seaweed
			Cymodocea rotundata	20		
		4	*Thalassia hemprichii*	32	sandy	
			Cymodocea rotundata	8		
			Halodule uninervis	12		
		5	*Cymodocea rotundata*	32	sandy	
			Thalassia hemprichii	8		
				52.8		
N 07.32735	2	1	*Halodule uninervis*	16		
E 122.90526			*Cymodocea rotundata*	44	sandy	
			Thalassia hemprichii	28		
		2	*Cymodocea rotundata*	36		
			Thalassia hemprichii	24	sandy	
		3	*Cymodocea rotundata*	48		seaweed
			Thalassia hemprichii	12	sandy	
		4	*Cymodocea rotundata*	44		
			Thalassia hemprichii	20	sandy	
		5	*Enhalus acoroides*	4		
			Cymodocea rotundata	12	sandy	
			Thalassia hemprichii	52		
				68		
N 07.32759	3	1	*Cymodocea rotundata*	60	sandy	
E 122.90433			*Halodule uninervis*	20		
		2	*Cymodocea rotundata*	8	sandy	
			Halodule uninervis	72		
		3	*Cymodocea rotundata*	36	sandy	seaweed
			Halodule uninervis	40		
		4	*Cymodocea rotundata*	32	sandy	
			Halodule uninervis	44		
		5	*Thalassia hemprichii*	20	sandy	
			Cymodocea rotundata	52		
				76.8		
N 07.32651	4	1	*Halodule uninervis*	84	sandy	
E 122.29045		2	*Halodule uninervis*	80	sandy	
		3	*Thalassia hemprichii*	12	sandy	
			Halophila ovalis	36		
		4	*Halodule uninervis*	8	sandy	
			Halophila ovalis	12		
		5	*Halophila ovalis*	44	sandy	
				55.2		

Table 15. Seagrass Assessment Data of Barangay Moal Boal, Talusan, ZSP

Date: 15-Oct-13					**Location/Area Covered:** Moal Boal, Talusan, ZSP	
Coordinates	**Transect No.**	**Quadrat No.**	**Species**	**% Cover**	**Substrate**	**Other Observations**
N 07.31532	1	1	*Cymodocea rotundata*	60	sandy	
E 122.37310		2	*Cymodocea rotundata*	60		
			Halodule uninervis	20		
		3	*Halodule uninervis*	80	sandy	seaweed
			Cymodocea rotundata	16		
		4	*Halophila ovalis*	80	sandy	
		5	*Halodule uninervis*	20		
				67.2		
N 07.31508	2	1	*Cymodocea rotundata*	92	sandy	
E 122.37373			*Halodule uninervis*	12		
		2	*Cymodocea rotundata*	92	sandy	
			Halodule uninervis	8		
		3	*Cymodocea rotundata*	88	sandy	seaweed
			Halodule uninervis	12		
		4	*Halodule uninervis*	84	sandy	
			Cymodocea rotundata	12		
		5	*Cymodocea rotundata*	80	sandy	
			Halodule uninervis	12		
				98.4		
N 07.31498	3	1	*none*	0		
E 122.37432		2	*none*	0		
		3	*Cymodocea rotundata*	80	sandy	
			Halodule uninervis	8		seaweed
		4	*Cymodocea rotundata*	88	sandy	
			Halodule uninervis	8		
		5	*Cymodocea rotundata*	100	sandy	
				56.8		
N 07.31503	4	1	*Thalasia hemprechii*	80	sandy	
E 122.37715			*Halodule uninervis*	16		
		2	*Thalasia hemprechii*	40	sandy	
			Syringodium iseotifolium	32		
		3	*Thalasia hemprechii*	40	sandy	
			Syringodium iseotifolium	36		
		4	*Thalasia hemprechii*	40	sandy	
			Syringodium iseotifolium	8		
		5	*Enhalus acoroides*	44	sandy	
			Thalasia hemprechii	20		
				71.2		

Six (6) seagrass species were observed in the ten (10) coastal barangays of Municipality of Talusan. These coastal barangays were Laparay, Baganipay, Florida, Kasipitan, Boalan, Bulingan, Tuburan and Moal Boal. Of the ten (10) coastal barangay, Kawilan was observed with no seagrass beds on its coastline. And because of security concerns Barangay Poblacion was not assessed but it was observed to have *Enhalus acoroides* seagrass species. The seagrass species found in the coastal Municipality were Tropical Eelgrass (*Enhalus acoroides*), Dugong grass or Trophical eel seagrass (*Thalassia hemprichii*), Fiber-strand grass (*Halodule uninervis*), Spoon grass (*Halophila ovalis*), round tipped seagrass (*Cymodocea rotundata)* and Syringe seagrass (*Syringodium iseotifolium)*. Substrate types ranges from muddy to gravel but most of the sampling areas were composed of sandy substrate. All of the coastal barangay in Talusan were dominated by *Enhalus acoroides* covering up to 100% which was observed at barangay Florida. Fishes and macro invertebrates of several species were observed thriving in the seagrass beds of Talusan. Damselfishes and some other juvenile fishes were found common in the seagrass beds, invertebrates like species of sea stars namely *Linckia* sp., *Protoreaster* sp., *Amphiuridae* sp., *Archaster* sp. Sea urchins such as *Diadema* sp. and *Echinotrix* sp. and sea cucumbers like *Actinopyga* sp., and *Opheodesoma* sp. Marine worms and crustaceans were also observed like Sabellidea and hermit crabs. Various bivalves and univalves like *Pinctada* sp., *Lambis* sp.*, Strombus* sp.*, Conus* sp.*, Cypraeav* sp.*, Oliva* sp.*,* and *Atrina* sp. Macro alga's like *Halimeda macroloba, Valonia* sp. and *Padina minor* were observed in the area*.*

Table 16. Seagrass Community Condition of the Ten (10) Coastal Barangays of Talusan, ZSP

BARANGAY	AVERAGE PERCENT COVER (%)	CONDITION INDEX
Lapayan	19.73	Poor
Baganipay	33.67	Fair
Florida	20	Poor
Kasipitan	30.8	Fair
Boalan	46.4	Fair
Bulingan	62.93	Good
Tuburan	63.2	Good
Moal Boal	73.4	Good
Poblacion	0	Poor
Kawilan	0	Poor

The seagrass community of the coastal of Talusan were in fair condition 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.

Figure 4. Seagrass Species Found in Coastal Waters of Talusan, ZSP

Thalassia hemprichii
Round-tip seagrass

Halodule uninervis
Fiber-strand seagrass

Enhalus acoroides
Tropical seagrass

Halophila ovata
Small spoon seagrass

Cymodocea rotundata
Round-tip seagrass

Syringodium iseotifolium
Needle/Syringe seagrass

ISSUES AND RECOMMENDATIONS

In order to effectively manage the seagrass resources of Talusan, 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 zone of Talusan are threatened by various human activities. 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

6. LGU and Barangays should work hand in hand and allot funds for the salary of Bantay Dagat to purchase equipments and maintenance.

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

Introduction:

Long before, the fishermen would always thought that resources from the sea were infinite and imperishable, and the ocean's ability to endure human activities was never ending. However people, are now starting to feel and realized that marine resources are indeed finite, it has a tendency to deplete and those 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 Talusan, Zamboanga Sibugay Province where number of fishers are very much dependent on coastal resources to sustaine their livelihood and their daily sustenance.

Coral reefs are one of the highly 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 degradation of our coral reef ecosystems.

Assessment of coral reef in ten (10) coastal barangays of Talusan, 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 Coastal Resource Management (CRM) implementation, habitat classification and specifically as Monitoring and Evaluation (M&E) updates of the the 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).

Key content points:

- Habitat assessment is a process designed to evaluate the condition and structure of environmental habitat like **coral reefs**.
- The PCRA looks into the current conditions and relative abundance of the coastal resources/ecosystems using a simplified scientific method that involves the use of transect lines and/or quadrats in the assessment process.
- Quadrats are effective tools to determine abundance/ condition of the assessed habitat in terms of percentage cover observed.
- Percentage cover of the assessed habitat is determined through actual observations using the habitat rating criteria.

Use of Transect Lines:

- The line may be an abaca rope, a nylon string or a fancy transect made of fiberglass. If it's not the commercial kind, calibrate the lines beforehand with one meter intervals.
- If the habitat starts beyond the shoreline, take note of the distance between the shoreline and where the habitat begins and start laying the transect line *parallel to the shoreline.*
- To ensure that transect will be straight, utilize landmarks as a guide or use the triangulation methods, a compass or even a GPS.

Use of Quadrats:

- A quadrat generally measures 1 m x 1 m. It may be made of aluminum or PVC pipes with smaller grids inside or simply of small tree branches or bamboo poles tied together.
- Placement of the quadrat follows the transect line and is laid down in pre-determined specific intervals.
- Quadrats are established every 10 meters along the transect line to serve as the representative samples of the assessed habitat.
- A 1mX1m quadrat is divided into 4 subsquares for easy percentage cover estimation of the assessed coral habitat.

- It is recommended that a suitable number of transect lines and quadrats be used to serve as samples of the assessed habitat.

Habitat criteria rating chart for coral reefs (Gomez et al.)

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:

Takut Siare Fish Sanctuary covers the barangays of Poblacion, Baganipay and Liparay. It has an aggregate area of forty two point five hectares (42.5 has.) and has fair coral cover condition. Reef formation at the area is of reef flat with some isolated patches and shallow intersecting channels for access navigation. It has clear water visibility and good water circulation considering its distance from the mainland. Patches of seagrasses were also noted thriving within the fish sanctuary. The LGU of Talusan is presently constructing an outposts at the area for effective law enforcement implementation particularly on curving out the illegal fishing activities and eliminate if not to minimize resource extraction within the sanctuary. There has been lots of fish corrals and agar-agar plantation at these mentioned barangays.

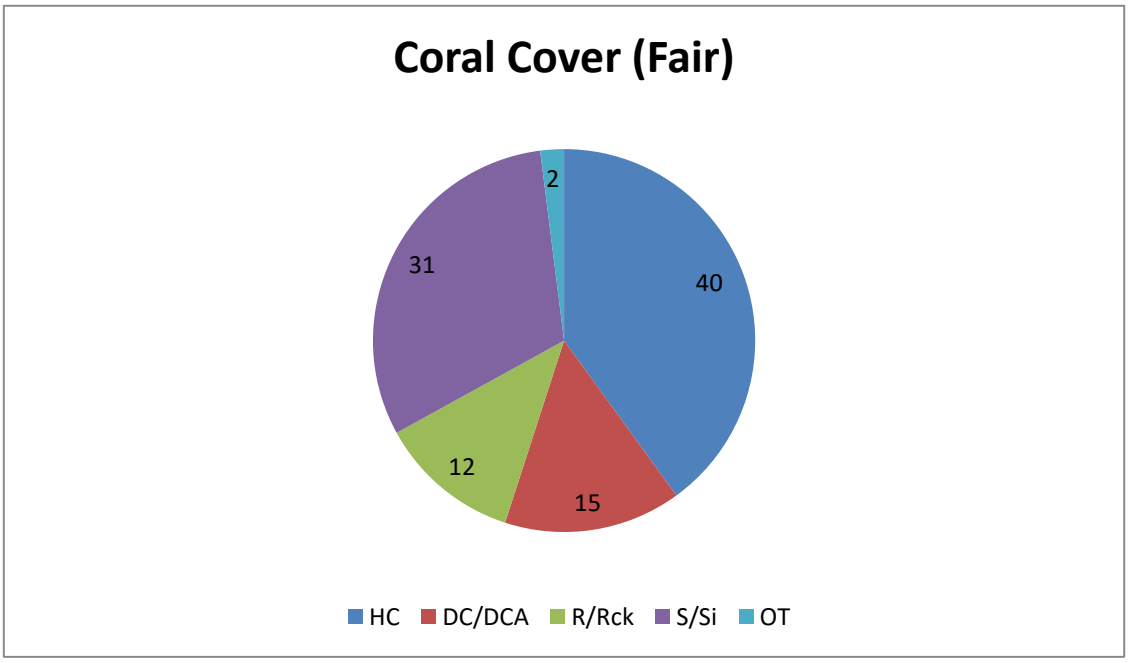
Patches of coral reefs formation at Barangay Moalboal has also a fair coral cover condition. Although, it was observed that large area is mostly of sandy substrate. Its white sand beach is ideal for picnicking and other ecotourism potentials. Similarly, Barangay Tuburan has also a fair coral cover condition. The shallow portion is

dominated by massive, submassive corals and has trace of destructive or illegal fishing. Both Barangays has stretch of mangroves along its coastline and has a wide seagrass beds.

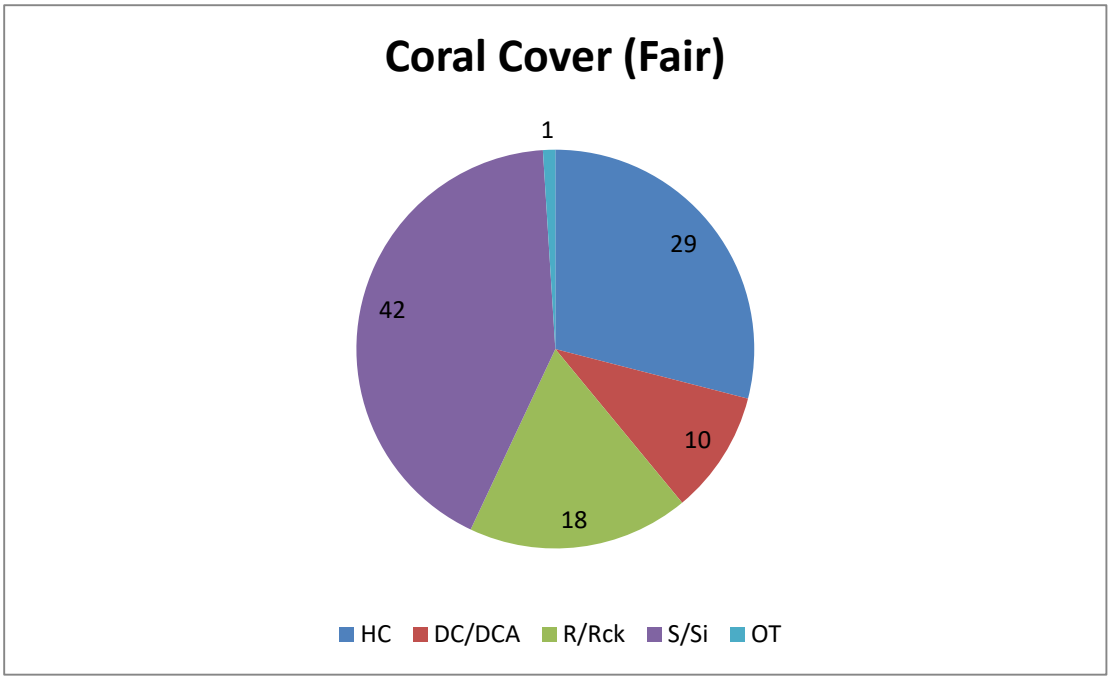
Generally, the barangays have the presence of corals that includes branching *acropora*, massive, columnar, encrusting, *fungia, foliose* and soft corals specie to include; *porites, pocillopora; faavid, diploastrea, galaxea, montipora, lobophilia, montipora, xenia, gorgonian and sponges (Pls. see photos).*

Figure 5. Pie Charts on Coral Cover

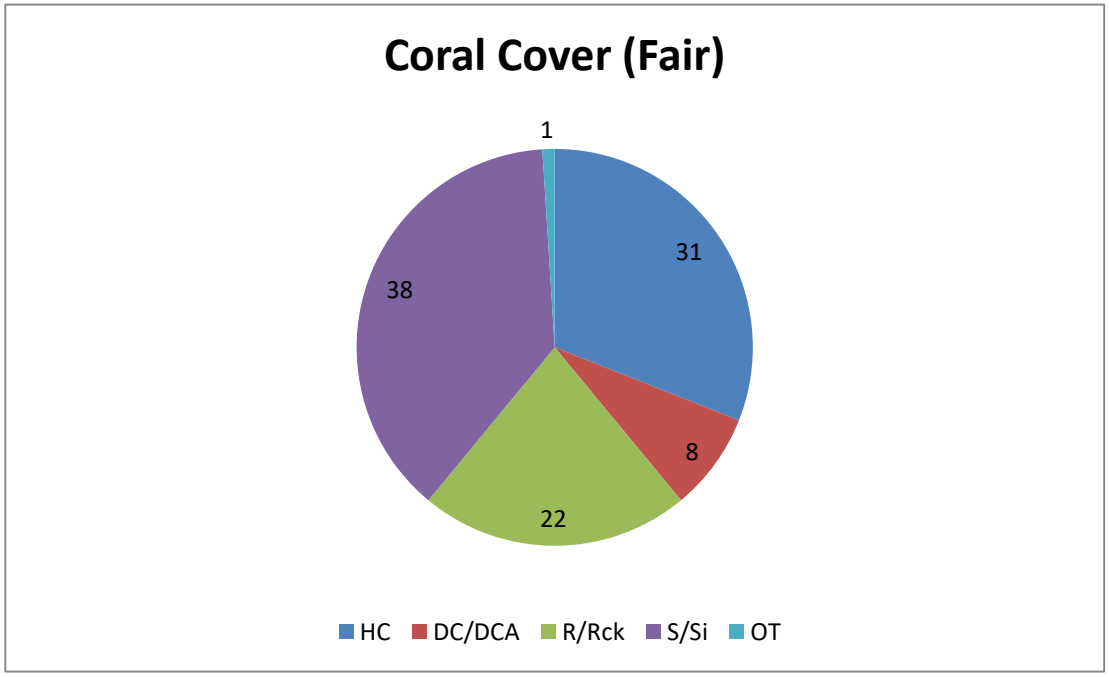
Takut Siare Fish Sanctuary
(Brgys. Poblacion, Baganipay & Liparay)
Area = 42.5 has.



Brgy. Moalboal



Brgy. Tuburan



Issues & Concerns:

Coral reefs at Municipality of Talusan has condition that manifested patterns of destruction caused by illegal fishing activities. There has been a decline in fish catch over the years. However, the municipality is abundant in mollusks like conch, clams and other related species. Aside from illegal fishing activities, other factors to be considered include sedimentation and siltation particularly those barangays with river tributaries. These corals reefs ecosystem have greater chance to regenerate if left undisturbed. The Takut Siare Fish Sanctuary have great potential of recovery if left undisturbed. 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 memebers of the Group, to wit:

Issues:

1. Lack of knowledge on Biology and Importance of Coral Reefs and Coastal Resources;
2. Weak law enforcement;
3. Presence of illegal fishing activities (dynamite, cyanide poisoning, use of compressors, etc.) at selected areas;
4. Weak coordination among Bantay Dagat; and
5. Fish Sanctuary has no definite marker buoys.

Recommendations:

1. Conduct intensive IEC at barangay level and at schools;
2. Conduct joint regular patrolling activities by the Law Enforcement Agencies (PNP, PA-Armed Forces), LGUs and Bantay Dagat;
3. Strict implemenratation of R.A. 8550 and other related laws or ordinances, and establishment of fish sanctuaries at barangay Moalboal and Tuburan; and
4. Provide adequate fund for the operation and mobilization of Bantay Dagat thru seminars and trainings, purchased of paraphelnalias (i.e. radios, unifroms, binoculars) and honorarium; and
5. LGU to allot funds for marker buoys of fish sanctuaries.

ooOoo

" F I S H E S "

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.

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 worlds marine fish stocks had been exploited, overexploited or depleted.

Fish visual census assessment was conducted aiming to observe the number, types of fishes and condition of the habitat to whether it can still support the sustainability of the species especially the fishes in the municipality of Talusan, 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 the areas of Takot Siari, Barangay Moal-Boal and Takot Angan. Transect line was laid 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 Talusan, Zamboanga Sibugay, 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 two (2) days. There are nineteen (19) fish families identified during the assessment.

Table 17. Fish Families Identified in the Municipality of Talusan, ZSP

Common Name	Local Name	Family
Groupers	Lapo, Pugapo, Suno	Serranidae
Snappers	Maya-maya	Lutjanidae
Sweetlips	Lipti	Haemulidae
Fusiliers	Dalagang bukid, Solid, Bilason	Caesionidae
Coral breams	Silay	Nemipteridae
Trigger fish	Pakol, Pugot	Balistidae
Butterfly fish	Alibangbang	Chaetodontidae
Wrasses	Labayan	Labridae
Parrot fish	Mol-mol	Scaridae
Damsel fish	Palata	Pomacentridae
Moorish idol	Kanding-kanding	Zanclidae
Lizardfish	Tiki-Tiki	Synodontidae
Rabbitfish	Danggit, Kitong	Siganidae
Surgeon fish	Indangan, Komay	Acanthuridae
Angelfish	Adlo	Pomacanthidae
Goatfish	Timbongan	Mullidae
Porcupine fish	Tagutungan	Diodontidae
Big eye	Budlatan	Priacanthidae

Among the three (3) areas assessed, Takot Angan has the most abundant number of fish families (17) identified which includes the family Serranidae, Lutjanidae, Mullidae, Caesionidae, Nemipteridae, Balistidae, Chaetodontidae, Pomacanthidae, Labridae, Scaridae, Acanthuridae, Pomacentridae, Zanclidae, Synodontidae, Diodontidae, Siganidae and Priacanthidae. This was followed by barangay Moal Boal having 11 fish families, next is Takut Siare with ten (10) fish families identified (Table 2).

Table 18. List of Fish Families per Barangay Assessed in Talusan, Zamboanga Sibugay.

Takut Siare	Moal-Boal	Takot Angan
Serranidae	Caesionidae	Serranidae
Haemulidae	Nemipteridae	Lutjanidae
Caesionidae	Mullidae	Caesionidae
Nemipteridae	Chaetodontidae	Nemipteridae
Mullidae	Pomacanthidae	Mullidae
Chaetodontidae	Labridae	Balistidae
Labridae	Scaridae	Chaetodontidae
Scaridae	Acanthuridae	Pomacanthidae
Acanthuridae	Pomacentridae	Labridae
Pomacentridae	Zanclidae	Scaridae
	Siganidae	Acanthuridae
		Pomacentridae
		Zanclidae
		Synodontidae
		Diodontidae
		Siganidae
		Priacanthidae

A total of fifty five (55) fish species were identified during the fish visual census conducted in three (3) areas. Family Pomacentridae has the greatest number of fish species having 10 species followed by family Labridae with 7 species.

Table 19. List of Fish species identified in the municipality of Talusan, Zamboanga Sibugay

Local Name	Family	Species
Lapu, Pugapo, Suno	Epinephilinae/ Serranidae	*Cephalopholis miniata* *Epinephilus bleekeri* *Cephalopholis argus* *Diploprion bifasciatum*
Maya-maya	Lutjanidae	*Lutjanus biguttatus*
Lipti	Haemulidae	*Plectorhincus chaetodonoides*
Dalagang bukid, Solid, Bilason	Caesionidae	*Caesio cuning*
Silay	Nemipteridae	*Scolopsis ciliates* *Scolopsis bilineatus*

Timbongan	Mullidae	*Parupeneus barberinoides* *Parupeneus rubescens* *Parupeneus barberinus* *Parupeneus macronemua*
Pakol	Balistidae	*Melichthys vidua* *Balistapus undulatus*
Alibangbang	Chaetodontidae	*Chaetodon octofasciatus* *Chaetodon sp.* *Chaetodon kleinii* *Heniuchus varius* *Chaetodon adiergastos*
Adlo	Pomacanthidae	*Centropyge bicolor* *Centropyge tibicen* *Centropyge vroliki*
Labayan	Labridae	*Coris dorsomacula* *Labroides dimidiatus* *Halichoeres nigrescens* *Halichoeres argus* *Thalassoma lutescens* *Thalassoma lunare* *Bodianus mesothorax*
Mol-mol	Scaridae	*Cetoscarus bicolor* *Scarus globiceps* *Chlororus surdidus*
Mongit, Indangan, Komay	Acanthuridae	*Acanthurus Achilles* *Acanthurus fowieri* *Zebrasoma rostratum* *Acanthurus negroris* *Ctenochaetus striatus*
Palata, Kapal	Pomacentridae	*Amblyglyphidodon curacao* *Amphiprion akalopisos* *Amphiprion perideraion* *Amphiprion ocellaris* *Dascyllus trimaculatus* *Dascyllus aruanus* *Chromis viridis* *Chromis ternatensis* *Pomacentrus coelestis* *Pomacentrus moluccensis*
Kanding-kanding	Zanclidae	*Zanclus cornotus*
Butete	Diodontidae	*Canthigaster solandri*

		Cyclichthys orbicularis
Danggit/ Kitong	Siganidae	*Siganus vulpinus* *Siganus puelloides*
Budlatan	Priacanthidae	*Priacanthus hamrur*
Tiki-Tiki	Synodontidae	*Synodus variegates*

Takut Siare is a municipal Marine Protected Area (MPA). There are ten (10) fish families identified during the assessment and these includes Epinephelinae, Haemulidae, Caesionidae, Nemipteridae, Mullidae, Chaetodontidae, Labridae, Scaridae, Acanthuridae and Pomacentridae. A total of twenty six (26) fish species were identified with five hundred fourteen (514) individuals had been accounted during the assessment.

Family Caesonidae has the greatest number of individual followed by family Labridae and Pomacentridae. Fish species under family Caesionidae shows a greater significance in the graph because during the assessment they largely concentrated on the area where the transect line was laid as compared to other fish families.

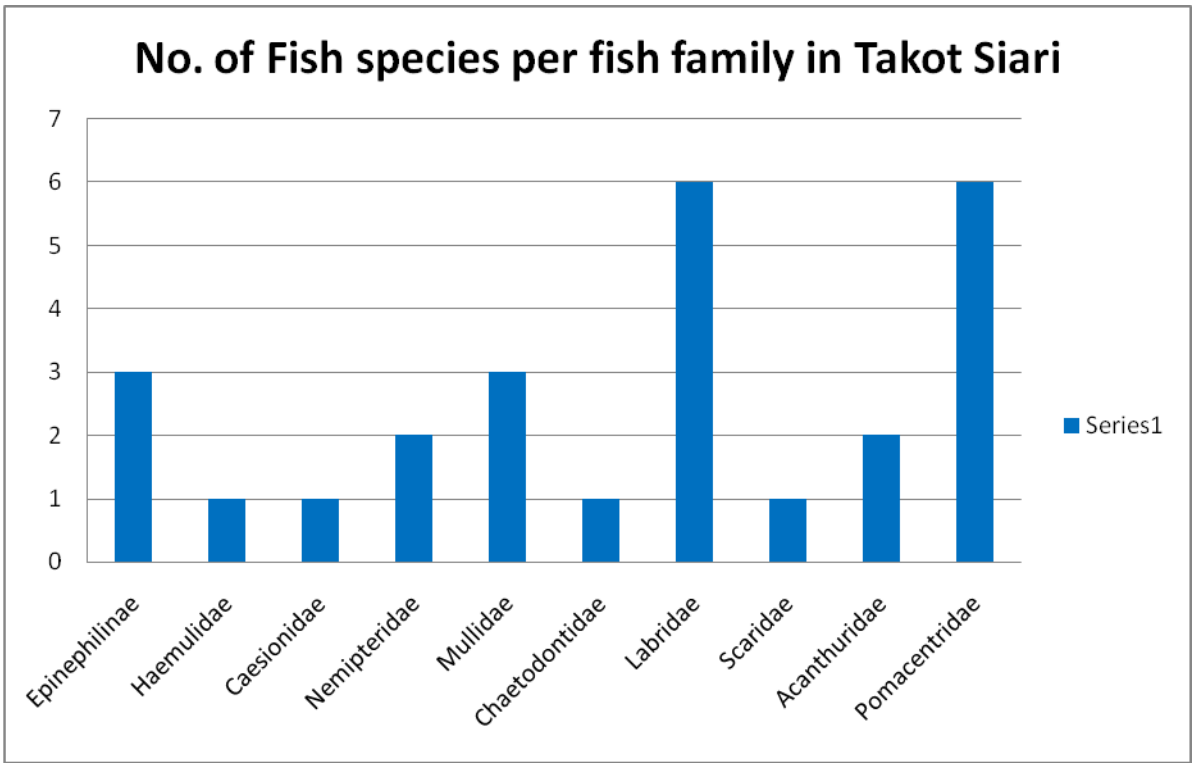


Figure 6. Number of Fish Individuals per Family Identified in Takut Siare

Table 20. List of Fish Species identified in Takut Siare, Talusan, ZSP

Family	Species
Epinephilinae	*Cephalopholis argus*
	Cephalopholis miniata
	Epinephelus bleekeri
Haemulidae	*Plectorhincus chaetodonoides*
Caesionidae	*Caesio cuning*
Nemipteridae	*Scolopsis bilineatus*
	Scolopsis ciliatus
Mullidae	*Parupeneus barberinoides*
	Parupeneus barberinus
	Parupeneus macronemua
Chaetodontidae	*Chaetodon kleinii*
Labridae	*Thalasoma lunare*
	Thalasoma tutescens
	Coris dorsomacula
	Halichoeres argus
	Halichoeres nigrescens
	Labroides dimidiatus
Scaridae	*Cetoscarus bicolor*
Acanthuridae	*Zebrasoma rotratum*
	Ctenochaetus striatus
Pomacentridae	*Dascyllus aruanus*
	Dascyllus trimaculatus
	Chromis virides
	Amblyglyphidodon curacao
	Amphiprion akalopisos
	Pomacentrus moluccensis

In barangay Moal-Boal, Talusan, Zamboanga Sibugay, a total of eleven (11) fish families were identified which includes family Caesionidae, Nemipteridae, Mullidae, Chaetodontidae, Pomacanthidae, Labridae, Scaridae, Acanthuridae, Pomacentridae, Zanclidae and Siganidae. Among the 11 fish families, family Pomacentridae has the greatest number of fish species followed by Labridae and then by Acanthuridae.

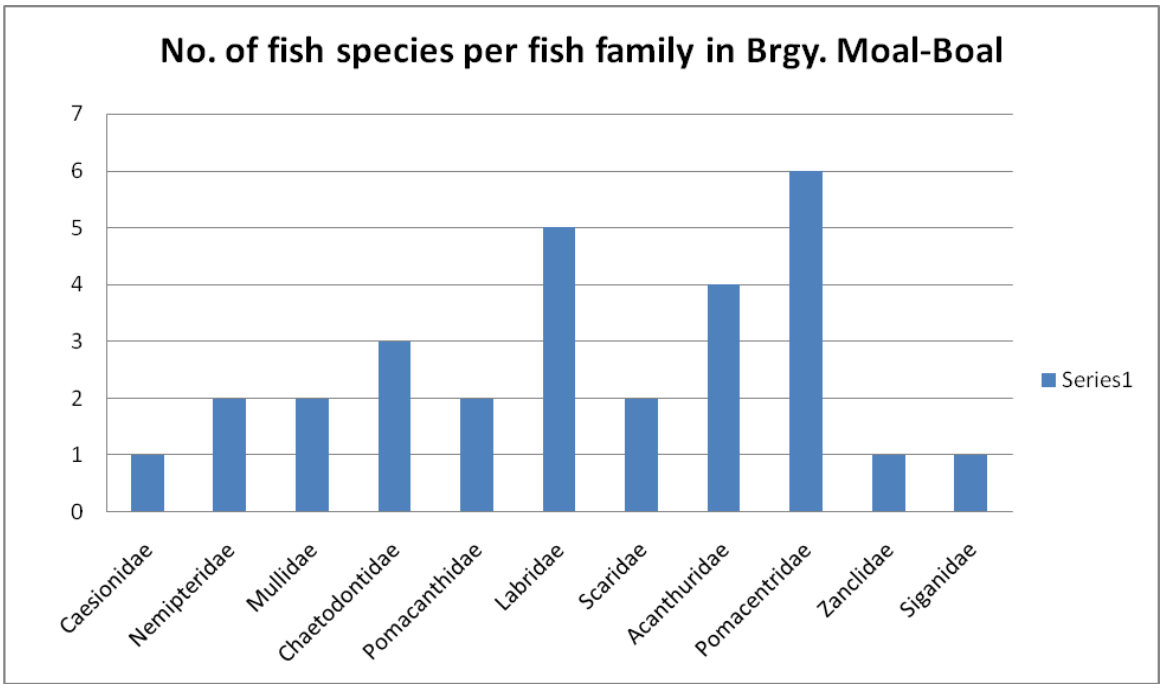


Figure 7. Number of Fish Species per Family in Barangay Moal-Boal, Talusan, Zamboanga Sibugay

Table 21. List of Fish Species per Family in Barangay Moal-Boal, Talusan, Zamboanga Sibugay

Fish Family	Fish Species
Caesionidae	*Caesio cuning*
Nemipteridae	*Scolopsis ciliatus*
	Scolopsis bilineatus
Mullidae	*Parupeneus rubescens*
	Parupeneus barberinus
Chaetodontidae	*Chaetodon kleinii*
	Chaetodon adiergastus
	Heniochus varius
Pomacanthidae	*Centropyge bicolor*
	Centrpyge tibicen
Labridae	*Halichoeres argus*
	Thalasoma lunare
	Thalasoma lutescens
	Labroides dimidiatus
	Bodianus mesothorax
Scaridae	*Scarus globiceps*
	Chlorurus surdidus
Acanthuridae	*Acanthurus negroris*
	Zebrasoma rotratum
	Ctenochaetus striatus
	Acanthurus fowieri
Pomacentridae	*Dascyllus aruanus*
	Pomacentrus moluccensis
	Amphiprion perideraion
	Dascyllus trimaculatus
	Amphiprion ocellaris
	Chromis ternatensis
Zanclidae	*Zanclus cornotus*
Siganidae	*Siganus puelloides*

In "Takut Angan", a total of seventeen (17) fish families were identified. Family Labridae and Pomacentridae showed the largest no. of fish species (6) identified followed by Chaetodontidae (5) then Acanthuridae (4). All in all a total of fourty two (42) species were recorded belonging to the seventeen (17) fish families identified.

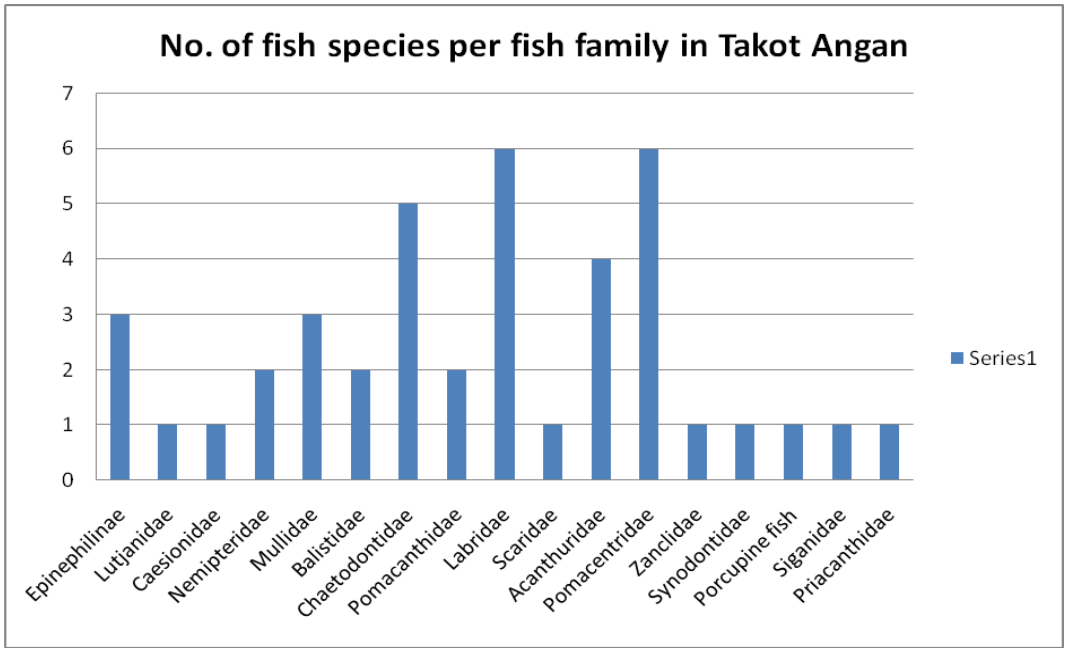


Figure 8. Number of Species per Family in Takut Angan, Talusan, Zamboanga Sibugay

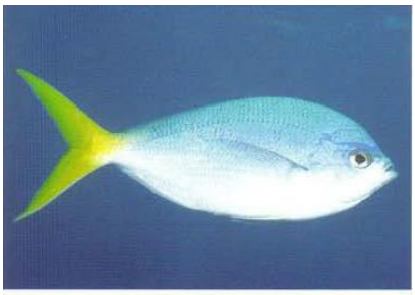
Table 22. List of Fish Species per Family in "Takut Angan" Talusan, ZSP

Family	Species
Epinephilinae	*Cephalopholis argus*
	Cephalopholis miniata
	Epinephelus bleekeri
Lutjanidae	*Lutjanus biguttatus*
Caesionidae	*Caesio cuning*
Nemipteridae	*Scolopsis bilineatus*
	Scolopsis ciliatus
Mullidae	*Parupeneus barberinoides*
	Parupeneus barberinus
	Parupeneus macronemua
Balistidae	*Melicthys vidua*
	Balistapus undulatus
Chaetodontidae	*Chaetodon kleinii*
	Chaetodon octofasciatus
	Heniochus varius
	Chaetodon sp.
	Cetuscarus bicolor
Pomacanthidae	*Centropyge vroliki*
	Centropyge bicolor
Labridae	*Thalasoma lunare*
	Thalasoma tutescens
	Coris dorsomacula
	Halichoeres argus
	Halichoeres nigrescens
	Labroides dimidiatus
Scaridae	*Cetoscarus bicolor*
Acanthuridae	*Acanthurus achilles*
	Acanthurus negroris
	Zebrasoma rotratum
	Ctenochaetus striatus
Pomacentridae	*Dascyllus aruanus*
	Dascyllus trimaculatus
	Chromis virides
	Amblyglyphidodon curacao
	Pomacentrus coelestis
	Pomacentrus muloccensis
Zanclidae	*Zanclus cornotus*
Synodontidae	*Synodus variegatus*
Porcupine fish	*Cyclichthys orbicularis*

	Diodon holocanthus
Siganidae	*Siganus vulpinus*
Priacanthidae	*Priacanthus hamrur*

There are only fifty three (53) species recorded for the fish population (Table 3), one species (1) of clam (*Tridacna squamosa*) and one (1) bivalve *Spondylus empirialis*. During the assessment there are still signs of human disturbances such intrusion to MPA areas and illegal fishing which lead not only to low fish catch but also fish species composition of the areas that was being assessed. Among the areas assessed "Takot Angan" was the most abundant area when it comes to fish species composition due to abundance of mangroves and seagrass surrounding the area and also the barangays helped in guarding the area compared to Takot Siari which was quite far from coastal barangays for enforcement.

Fig. 9. Common Reef Fishes Found in Coastal Waters of Talusan, ZSP



YELLOWTAIL FUSILIER *Caesio cuning*

BICOLOR ANGELFISH *Centropyge bicolor*

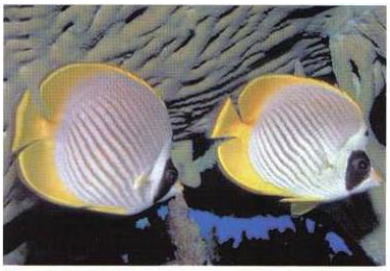
KEYHOLE ANGELFISH *Centropyge tibicen*

PEARL-SCALED ANGELFISH *Centropyge vroliki*

PEACOCK GROUPER *Cephalopholis argus*

CORAL GROUPER *Cephalopholis miniata*

BICOLOR PARROTFISH *Cetoscarus bicolor*



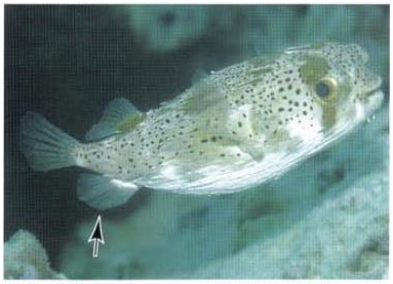
PANDA BUTTERFLYFISH *Chaetodon adiergastos*

WHITE COLLAR BUTTERFLYFISH *Chaetodon collare*

BULLETHEAD PARROTFISH *Chlorurus sordidus*

HUMBUG DASCYLLUS *Dascyllus aruanus*

Three-spot Dascyllus - Juvenile



BALLOONFISH *Diodon holocanthus*

DOUBLEBANDED SOAPFISH *Diploprion bifasciatum*

DUSKYTAIL GROUPER *Epinephelus bleekeri*

Argus Wrasse - JP/IP

HUMPHEAD BANNERFISH *Heniochus varius*

BLUESTREAK CLEANER WRASSE *Labroides dimidiatus*

TWO-SPOT SNAPPER *Lutjanus biguttatus*

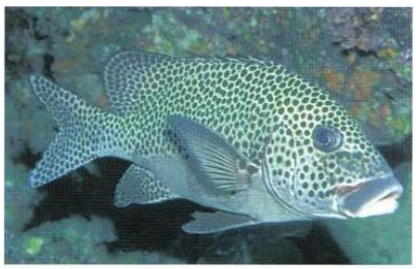
PINKTAIL TRIGGERFISH *Melichthys vidua*

BICOLOR GOATFISH *Parupeneus barberinoides*

DASH-DOT GOATFISH *Parupeneus barberinus*

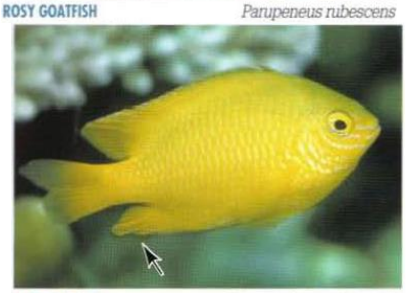
LONGBARBEL GOATFISH *Parupeneus macronemua*

ROSY GOATFISH *Parupeneus rubescens*



MANY-SPOTTED SWEETLIPS *Plectorhinchus chaetodonoides*

NEON DAMSEL *Pomacentrus coelestis*



LEMON DAMSEL *Pomacentrus moluccensis*

CRESCENT-TAIL BIGEYE *Priacanthus hamrur*

Surf Parrotfish - IP

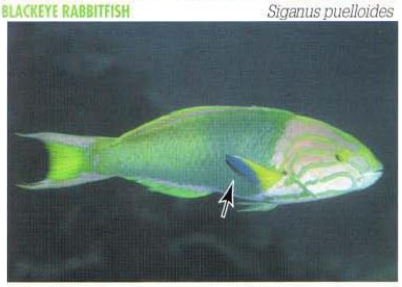
BRIDLED MONOCLE BREAM *Scolopsis bilineatus*

WHITESTREAK MONOCLE BREAM *Scolopsis ciliatus*

BLACKEYE RABBITFISH *Siganus puelloides*

REEF LIZARDFISH *Synodus variegatus*

CRESCENT WRASSE *Thalassoma lunare*



SUNSET WRASSE *Thalassoma lutescens*

MOORISH IDOL *Zanclus cornutus*

LONGNOSE TANG *Zebrasoma rostratum*

" SOCIO ECONOMIC "

INTRODUCTION

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 Talusan, Zamboanga Sibugay Province. Secondary data from the local government unit were also gathered to validate and supplement the data generated from the FGDs.

CMMD Chief Nenenth T. Ordoño , LGU officials & staff, together with the different barangay secretaries were instrumental in setting up the schedules of the FGDs conducted in the six 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 seaweed growers, fish vendors, fisherfolks, farmers, housewife and key barangay officials.

RESULTS AND DISCUSSIONS

The information generated from the Two hundred eight (208) FGD participants, although limited by time constraints, offer some overview on coastal and marine resources, fishers and other stakeholders situation of the nine coastal barangay.

I. HOUSEHOLD DATA

The average number of children in the family is four(4) and the average family size that includes those who are living in the house are four (4). Majority of the educational attainment of the parents in the coastal areas have reached elementary level and some of their children were able to attained high school or graduated college

.

Table 23. Population and Number of Households from Barangay Profile

Name of Coastal Barangay	Number of Population	Number of Household	Land Area in hectares (has)
1. Baganipay	2057	180	415.7965
2 Bolingan	904	205	
3. Bualan	225	240	
4. Casigpitan	1393	240	5.0
5. Cawilihan	1725	280	477.4545
6. Florida	1093	190	463.4444
7.Larapay	1715	376	68.923
8. Moal-boal			
9. Poblacion	5187	1076	410.8090
10.Tuburan	1993	215	342.5840

II. SOURCE OF WATER

Majority of the coastal residents have jematic pump as water source and some gets water from dug well.

III. TYPE OF HOUSING MATERIALS

Majority of the houses in the coastal barangay of Talusan are made of light materials such as nipa for roofing and wall and bamboo for windows and flooring.

IV. MIGRATION PATTERN

There was a population increase in the coastal areas coming from neighboring barangay and municipalities and other places seeking for livelihood.

V. OCCUPATIONAL STRUCTURE

Fishing and farming is the most important livelihood for the coastal communities. Due to overfishing and declining fishery production most fishers obtain meager incomes from fishing often not sufficient to meet their daily household needs. As a result some family members opted to find alternative livelihood that can add to their income.

VI. FAITH AND RELIGION

The Municipality of Talusan is dominated with Christian Community.

VII. COMMUNITY INFRASTRUCTURE

Listed hereunder are the different infrastructures that can be found in nine coastal barangays;

1. Churches
2. Barangay Hal
3. Basketball Court
4. Birthing Center
5. Concrete dyer
6. College School Building
7. Day Care18. Solar Dyer
8. Elementary School
9. Freedom stage
10. Health Center
11. High School
12. Multipurpose hall
13. Nutrition Center
14. Pier
15. Session Hall
16. SK Hall
17. Stilt dyer
19. Sr. Citizen Building
20. Training Center
21. Waiting shed
22. Water System
23. Wet market

Table 24. PEOPLES ORGANIZATION ESTABLISHED BY BARANGAY

People's Organization	When established	Formal/Informal	Main function
1. Baganipay			
* Women's Association	2011	Formal	Livelihood
* Farmer's & Fisher Folk Organization	2019	Formal	Livelihood
* Sr. Citizen	2011	Formal	Livelihood
2. Bolingan			
*Women's Association	2013	Formal	Livelihood
3. Bualan			
* Farmer's Organization	2013	Formal	Livelihood
*Women's Association	2013	Formal	Livelihood
4. Casigpitan			
* Farmer's Organization	2013	Formal	Livelihood
5. Cawilihan			
*Cawilihan 4H Association	2013	Formal	Livelihood
*Cawilihan Women's Association	2010	Formal	Livelihood
*Cawilihan Farmer's Association	2009	Formal	Livelihood

6. Florida			
*** Farmer's Association**	2011	Formal	Livelihood
*Women's Organization	2012	Formal	Livelihood
*Sr. Citizen	2009	Formal	Livelihood
7. Larapay			
***RIC	2012	Formal	Livelihood
*Farmer's association	2011	Formal	Livelihood
*Dayong	2007	In-formal	Assistance
8. Moal-boal			
9. Poblacion			
*RIC		Formal	
*Women's Association		Formal	
*Agar-agar Planters Association		Formal	
* Farmer's Association		Formal	
*Fisherfolk's Association			
*Sr. Citizen			
*Youth Organization			
*NCIP			
10. Tuburan			
***Women's association	2013	Formal	Livelihood
*Fisherfolk Association	2013		Livelihood
*Farmer's Association	2013		Livelihood

Table 25. PERCEPTION OF RESOURCES CONDITIONS

Resources	Very Good	Good	Neither Good/Bad	Bad	Very Bad
Mangroves		✓			
Coral Reefs				✓	
Seagrass		✓			
Beaches		✓			
Freshwater		✓			
Upland Forest		✓			
Fishery				✓	

Above table shows a generalized condition of the resources. FGD participants revealed that their mangroves, seagrass, beaches , freshwater and upland forests are in good conditions while coral reef and fishery falls under bad conditions.

VIII. COASTAL LAW ENFORCEMENT

As to the enforcement of coastal and other environmental laws and policies, the Municipal Local Government Unit of Talusan, ZSP head their constituents in the implementation of coastal law and other related environmental laws, rule, regulation and policies. Bantay-dagat was organized per barangay to provide assistance in the municipal coastal law enforcement.

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

ISSUES

1. Mangrove cutting

2. Improper waste disposal

3. Illegal Fishing Activities and Destructive Fishing Gears such as;

3.a. Dynamite Fishing	3.e. Silig-silhig
3.b Tuble	3.f. Sanggab
3.c. Cyanide	3.g. 3-ply fish net
3.d Sudsud	

4. Encroachment/entry of commercial fishing boat

RECOMMENDATIONS

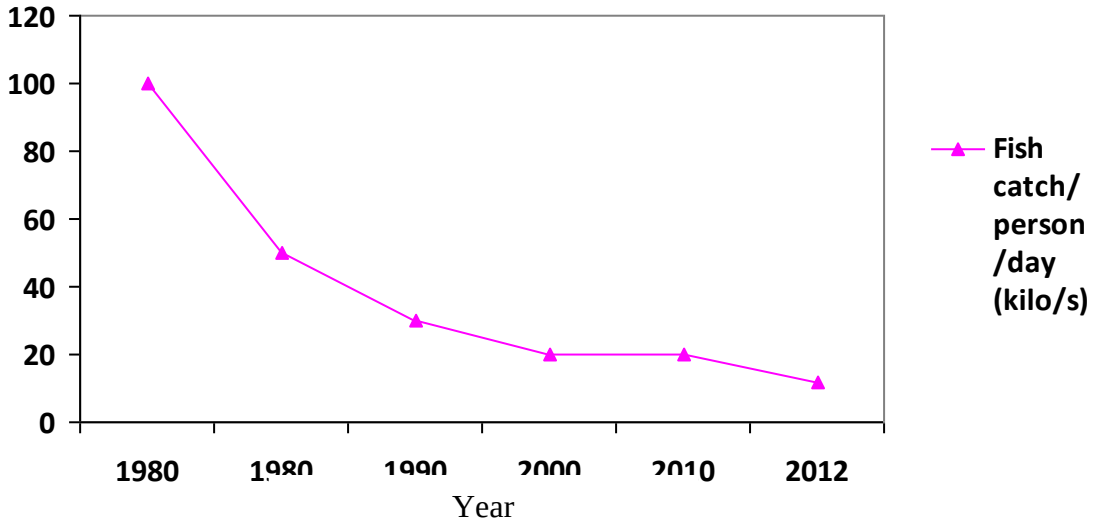
1. Formulation ordinance on the creation of bantay dagat
2. Strengthened banty-dagat
3. Forge the active partnership between the local governments, fisher folk communities, and other sectors.
4. Enforcement of coastal law and other environmental laws
5 Strict implementation of coastal law
6. MLGU and other agencies should be the one to spearhead in the enforcement of law
7. Apprehend commercial fishing boat
8. Provision of alternative livelihood
9. Dredging and Mangrove/ tree planting activity
10. Conduct Information, Education & Communication Campaign (IEC)
11. Ordinance on the establishment of MPA

Table 26. FISHERS, FISHING CRAFTS AND GEARS

Coastal Barangay	No. of Fishermen		Fishing Boat			Fishing Gear
	Full time	Part time	Commercial	Motorized	Non-motorized	
1. Baganipay		60	none	9	40	pasol,pukot, pana and pataw
2. Bolingan	30	90	none	20	30	pana, pasol and pukot
3. Bualan	25	25	none	10	15	pasol, pukot and pana
4. Casigpitan	20		none	10	60	palangre, pasol, bungsod and pukot
5. Cawilihan		10	none	3	30	bobo, sahid, sapyao & hook and line
6.Florida		100	6	5		pasol, pukot, katian, palangre and pana
7. Laparay	80	70	none	10	100	pasol, pukot, katian, bungsod and pana
8. Moal-boal		70	none	3	30	Pasol
9. Poblacion	50	950	none	600	500	pasol, pukot, katian, palangre bobo, ulang-ulang and pana
10. Tuburan		100	none	10	50	pasol, pukot, katian and pana
TOTAL	**205**	**1475**	**6**	**680**	**855**	

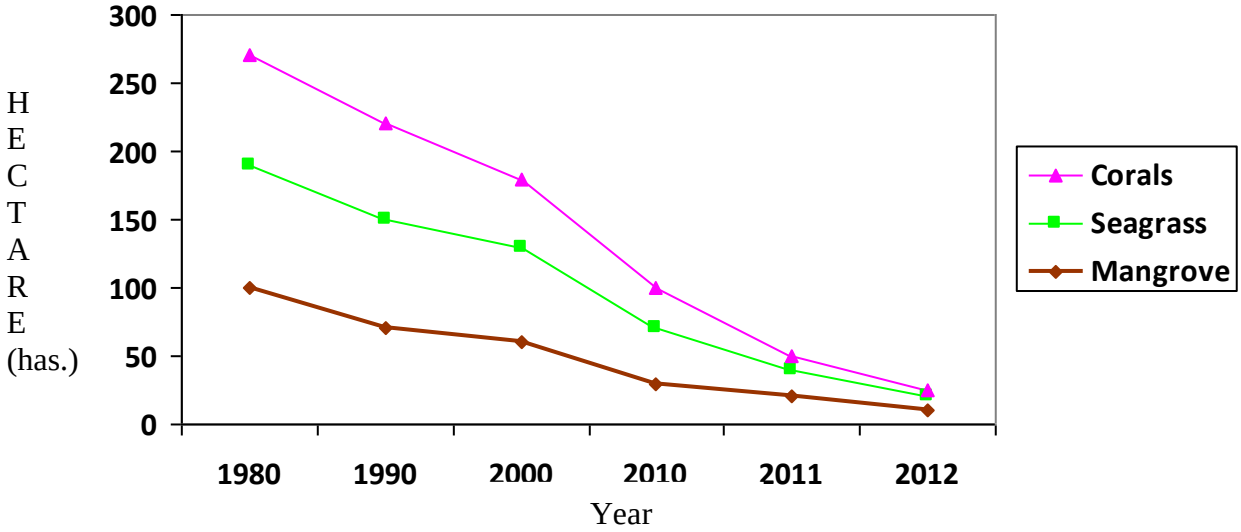
A series of focus group discussions (FGD) was conducted in the ten coastal barangays of Talusan to generate a minimum set of information on the nature and status of its coastal fishery. Participants of FGD identified a total of 1680 fishermen using various fishing gears. Out of the total number of fishermen, 205 (13.90%) were part time fishermen and 1475 (87.80%) were full time. An estimated 1541 boats operate in the municipal fishing ground, 680 (44.52%) of which are motorized and 855 (55.48%) are non-motorized. Top five most abundantly used gears are *pasol, pukot, pana, palangre and katian*.

Fig. 10. 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 1980. 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.

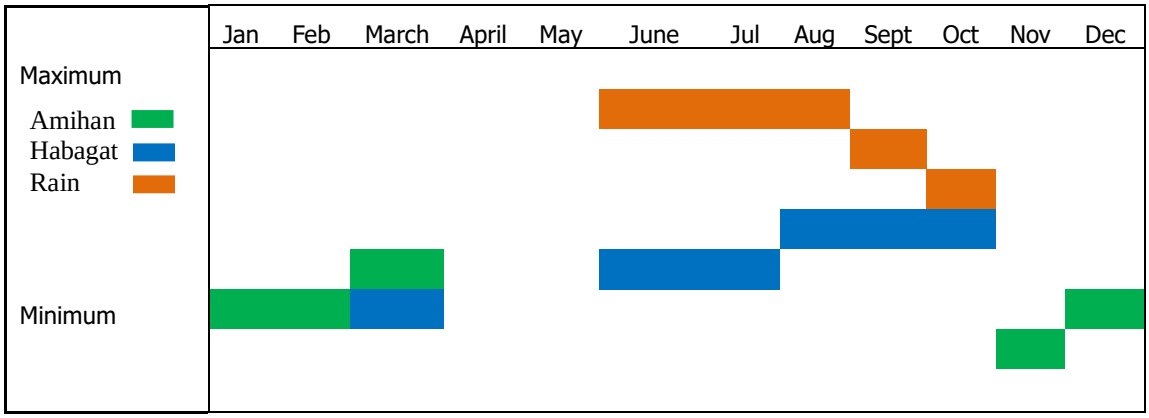
Fig. 11. HABITAT DIAGRAM



The coastal ecosystems of the Philippines are some of the most productive and biologically diverse in the world. The diversity is associated with high primary productivity and high fishery yields.

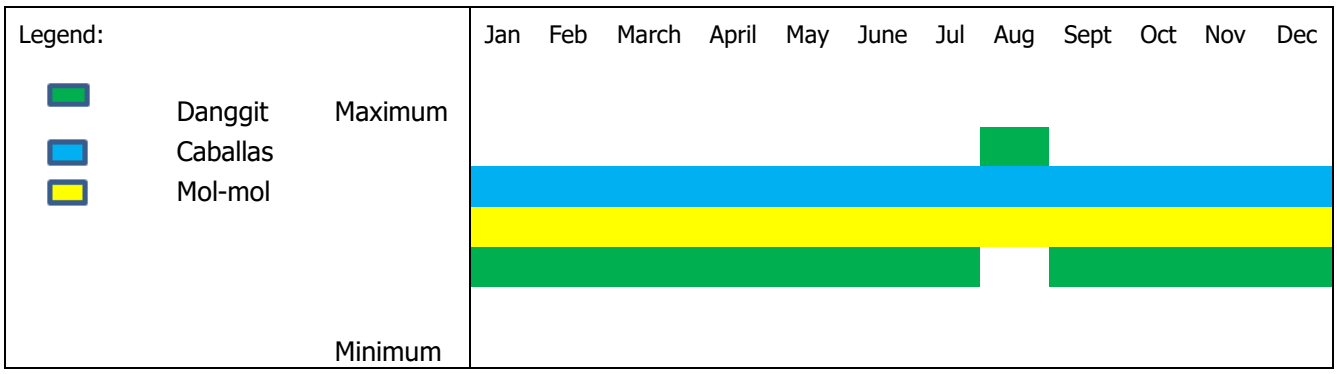
Despite of the direct and indirect benefit to human, derive from the coastal resources, the coastal habitat became under severe stress from the combined impact of human overexploitation, physical disturbance, pollution, sedimentation and general neglect. Thus, the graph shows that the mangrove areas, seagrass beds and corals of Talusan declined greatly**.**

Fig. 12. RAINFALL AND WIND CALENDAR



The Municipality of Talusan has two (2) distinct seasons or weather pattern within the year, namely the northeast monsoon (*amihan*), southeast monsoon (*habagat*) which influenced both productivity and fishing success of fishers. FGD participants who are mostly fishers declared that the period of amihan starts in January and ends in December while habagat starts in February to October. Rainy season starts in June until October.

Fig. 13. SPECIES CALENDAR DIAGRAM



The FGD participants of the nine coastal barangay identified seventeen kinds/species of fish caught inside and some outside of their municipal waters. Likewise, they identified top three (3) species caught by fishers as *danggit, caballas and molmol.*

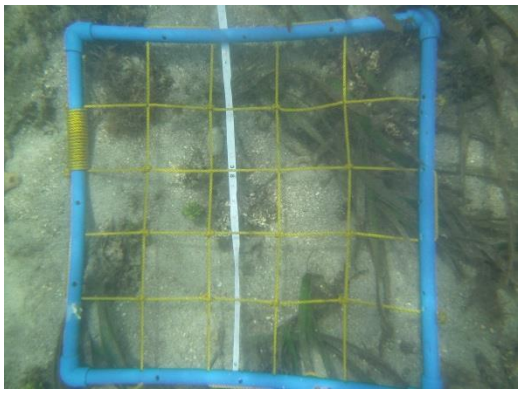
PICTORIALS

For. Neneth T. Ordoño reads the content of the Memorandum of Agreement

The witnesses signing the Memorandum of Agreement

The participants listens to the lectures

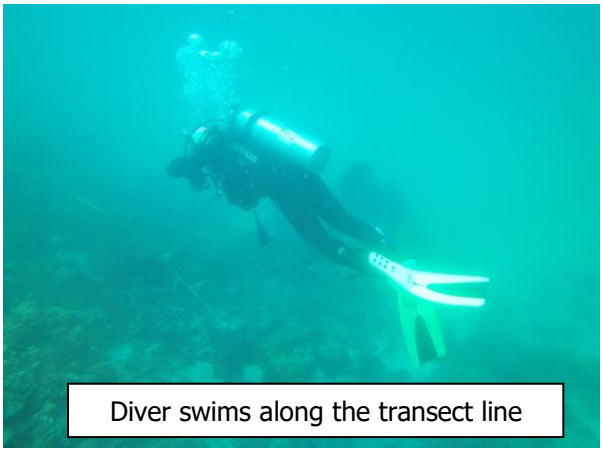
Coral and Fish assessment team departs

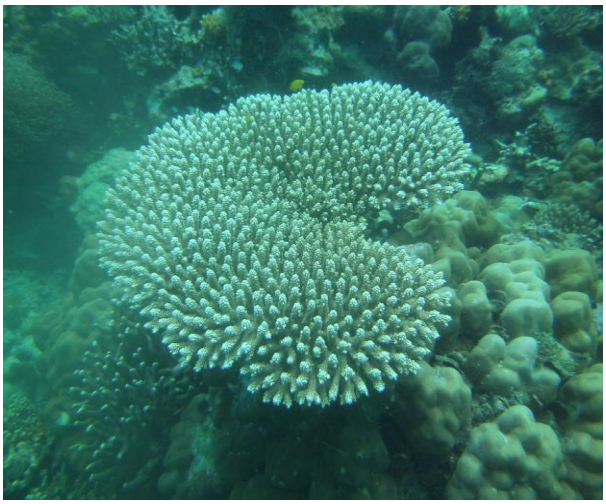


Photograph of seagrass with quadrat

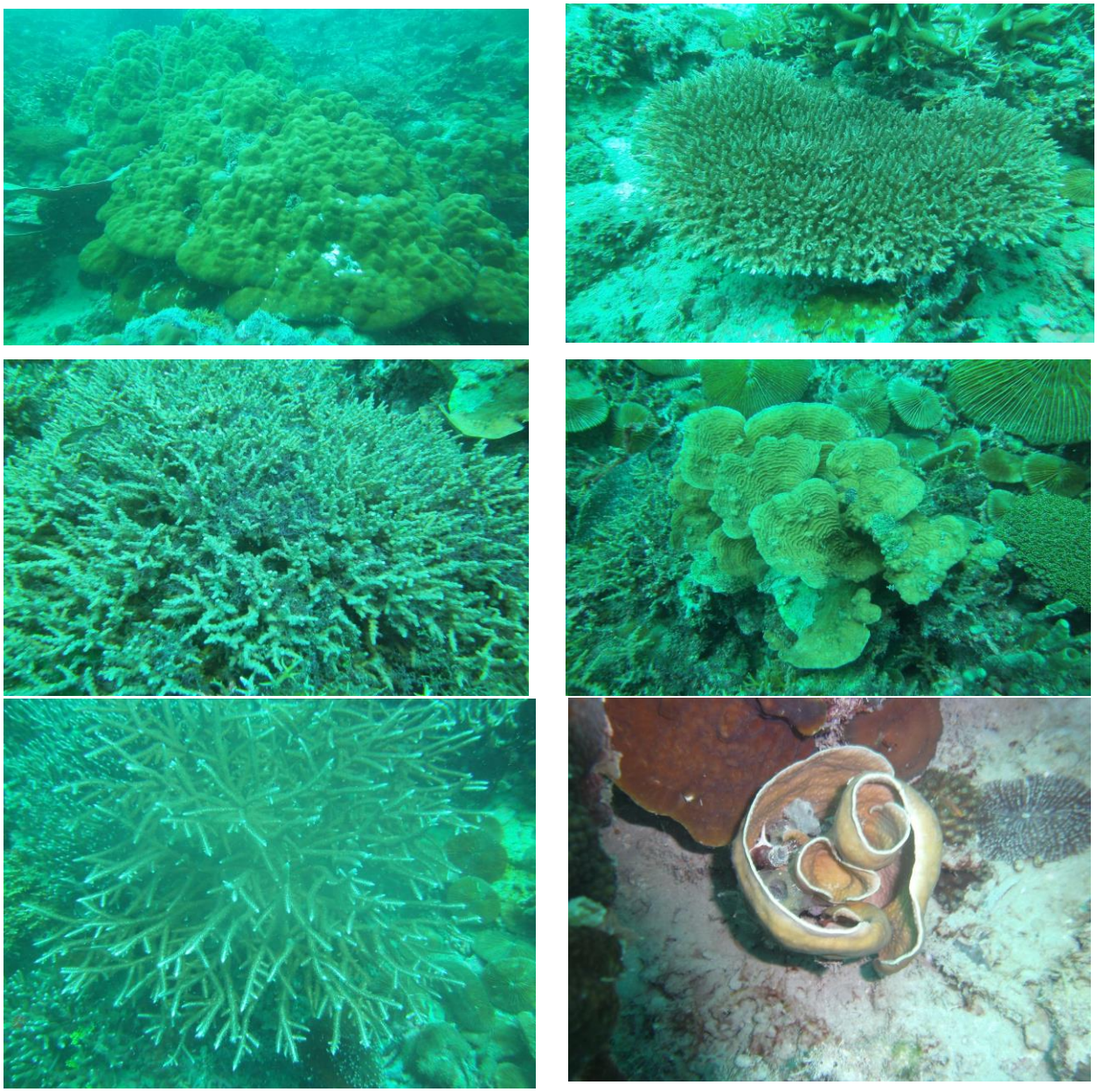
The distribution of certificate of participation

The guest and participants pose

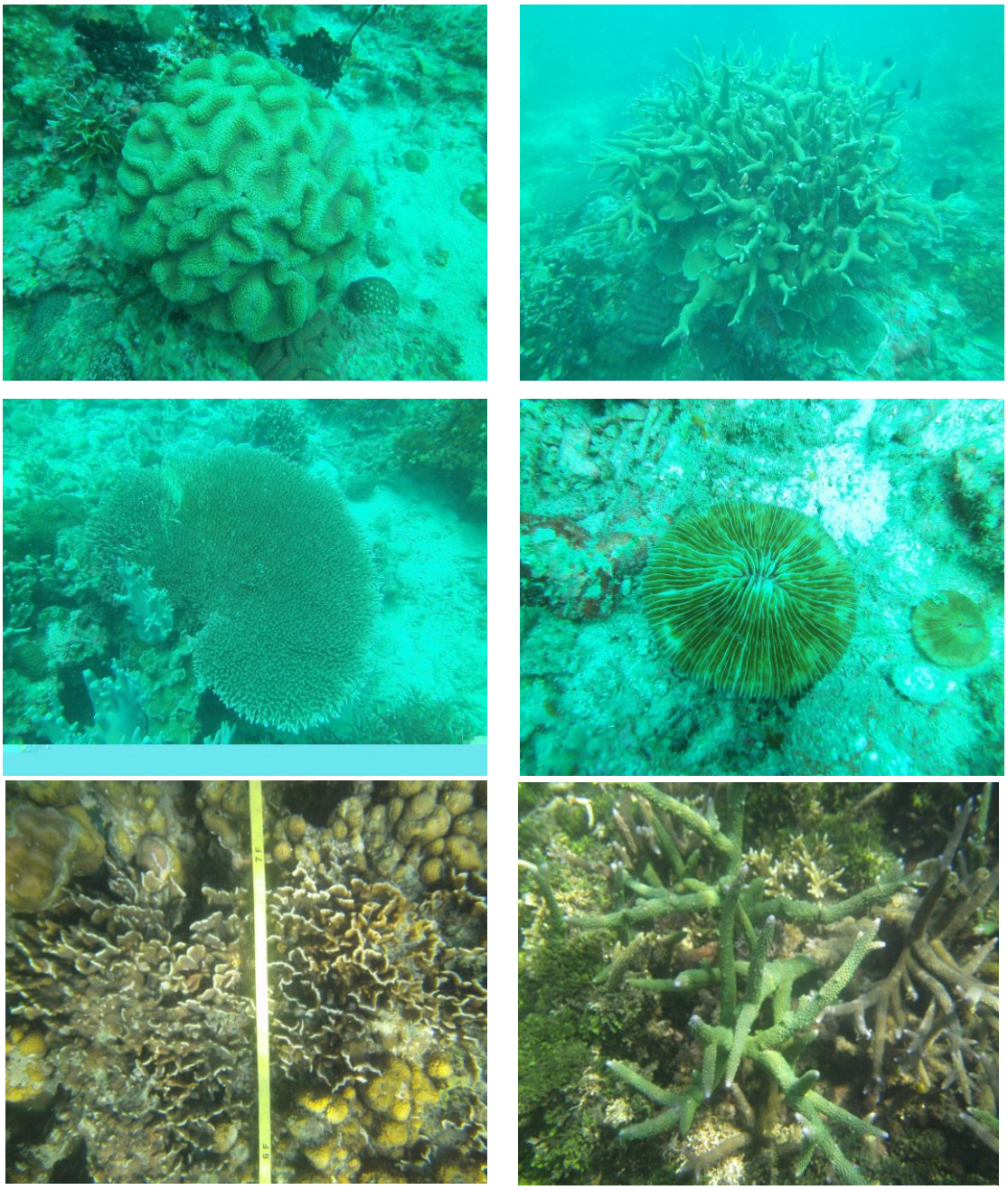




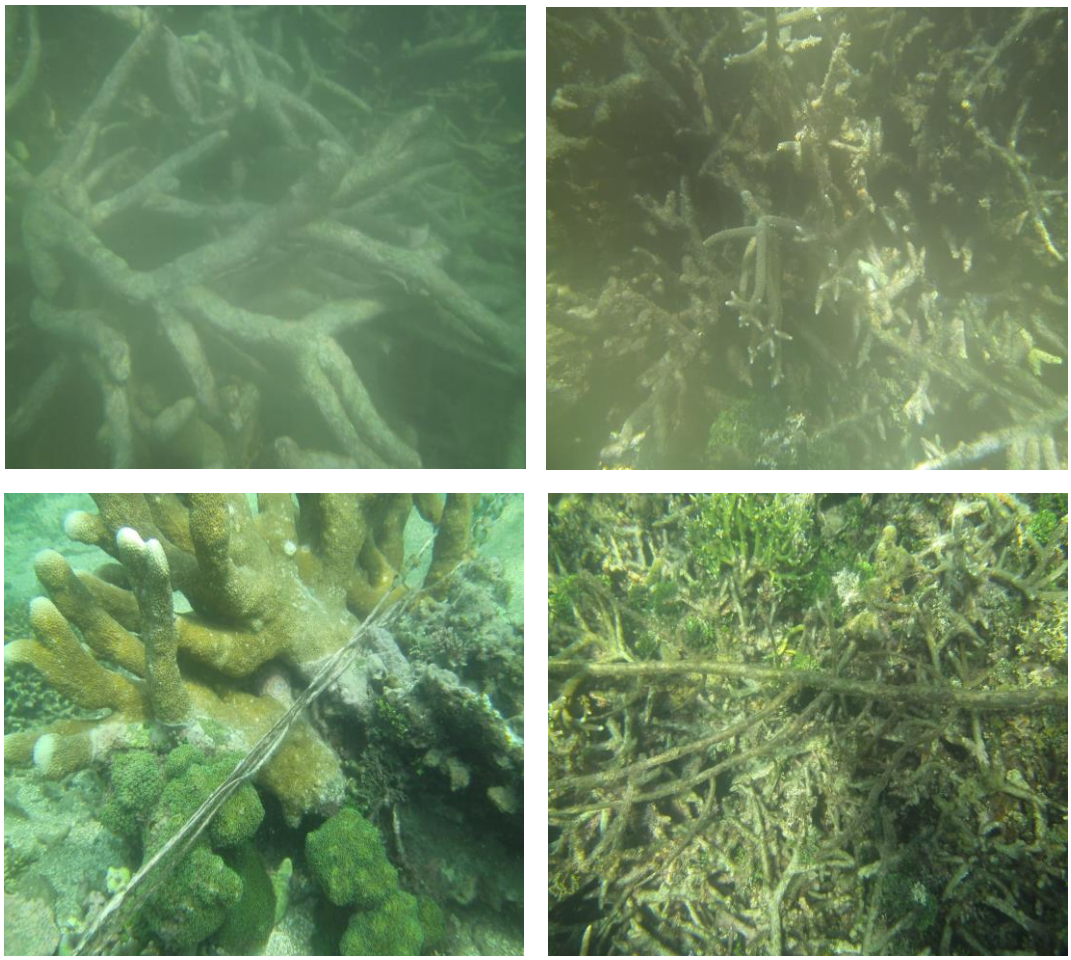
Live Hard Corals at Takot Siare Fish Sanctuary (Brgys. Poblacion, Baganipay & Liparay)



Live Hard Corals at Barangay Moalboal



Live Hard Corals at Barangay Tuburan



Dead Corals and Debris atBarangay Tuburan

Assessment Team

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